

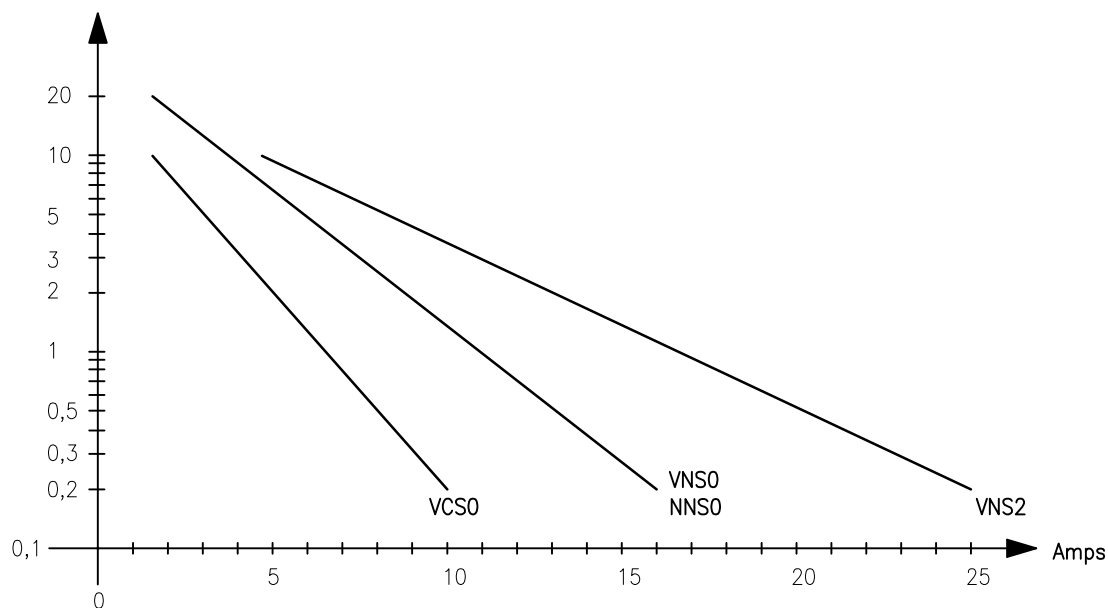
List 7 / 2014 1/1	Technical data	List 7 / 2014 1/1
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Standards: IEC947, EN60947
Ambient temperature: -40 °C to +60 °C

Type of controller	VCS0	VNS0 NNS0	VNS2	VNS2B	Dead man push button or turn switch in handle	
Voltage (Ue) in V	250	400	600	600	250	
Current (Ie) in A						
AC12 (ohmic) 50–60 Hz		10	16	25	--	4
AC15 (inductive) 50–60 Hz		4	6	10	--	3
DC12 (ohmic)	12 V	4	8	14	25	2
	24 – 42 V	1,7	1,7	2,6	16	1,6
	115 – 230 V	0,3	0,3	0,45	8	0,3
DC13 (inductive)	24 – 42 V	0,8	1,1	2	10	1,1
	115 – 230 V	0,2	0,2	0,28	2	0,2
DC12 (ohmic) with gold contact 30 V			4 mA	4 mA	--	4 mA
Short circuit	switch fuse	6	10	16	16	--
	fuse	6	10	16	16	--
Mechanical lifetime mio. cycles		10	20	10	10	--
Connections:						
Screw		M3,5	M3,5	M5	M5	M3,5
Wire profile		1,5 mm ²	1,5 mm ²	6 mm ²	6 mm ²	--
With gold contacts	connection	--	soldered			
	wire profile	--	0,5 mm ²			

Cycles in Mio

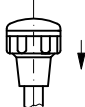
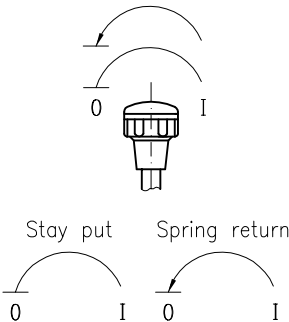
Lifetime with AG contacts
AC15 (inductive load 230 V)



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List 7 / 2014 2/1		Additional in handle						List 7 / 2014 2/1	
Prices EUR									
Type of controller		Deadman contact 	Push button (white)			Contact by lifting 			
			free IP32 	IP65 	sunk 				
M0				HD					
				HDO					
				HDU					
VCS0		T	H	HD	HDV	TYS	DS	DSR	
		TO	HO	HDO	HDVO	TYO	DO	DOR	
		TU	HU	HDU	HDVU	TYU	DSO	DSOR	
		TSS	HSS	HDSS	HDVSS	TYSS			
		T00	H00	HDOO	HDV00	TY00			
VNS0— E V G H M		T	H	HD	HDV	TYS	DS	DSR	
		TO	HO	HDO	HDVO	TYO	DO	DOR	
		TU	HU	HDU	HDVU	TYU	DSO	DSOR	
		TSS	HSS	HDSS	HDVSS	TYSS	DSS	DSSR	
		T00	H00	HDOO	HDV00	TY00	DOO	DOOR	
VNS0— A EA		TU	HU	HDU	HDVU	TYU	DSO	DSOR	

Additional rotation, see handle G13 sheet 3/10.



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List 7 / 2014 2/1A		Additional in handle with mechanical interlock						List 7 / 2014 2/1A	
Prices EUR									
Type of controller		Mechanical unlock by lifting					Mechanical unlock by pushing down grip, only possible in combination with slot or cross gate.		
		without contact		with contact		with contact by push button		without contact	with contact
M0			Z	HDZ					
VCS0		Z	ZS	HDSZ	HDVSZ	HDFSZ	IZ	IZS	
			ZO	HDOZ	HDVOZ	HDFOZ		IZO	
			ZU	HDUZ	HDVUZ	HDFUZ		IZU	
			ZSS	HDSSZ	HDVSSZ	HDFSSZ		IZSS	
			ZOO	HD00Z	HDV00Z	HDF00Z		IZOO	
VNS0— E V G H M		Z	ZS	HDSZ	HDVSZ	HDFSZ	IZ	IZS	
			ZO	HDOZ	HDVOZ	HDFOZ		IZO	
			ZU	HDUZ	HDVUZ	HDFUZ		IZU	
			ZSS	HDSSZ	HDVSSZ	HDFSSZ		IZSS	
			ZOO	HD00Z	HDV00Z	HDF00Z		IZOO	
VNS0— A EA		Z	ZU	HDUZ	HDVUZ	HDFUZ	IZ	IZU	



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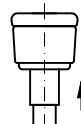
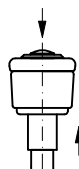
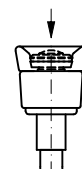
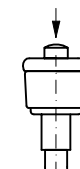
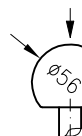
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List 7 / 2014 2/1B		Additional in handle VNS2					List 7 / 2014 2/1B	
Prices EUR								
Controller	Contact	Dead- man contact	free IP32	Push button (white)		sunk	Contact by lifting	
VNS2-E V G H M		T	H	HD	HDV	TYS		
		TO	HO	HDO	HDVO	TYO		
		TU	HU	HDU	HDVU	TYU		
		TSS	HSS	HDSS	HDVSS	TYSS		
		T00	H00	HD00	HDV00	TY00		
VNS2-A EA AA		TU	HU	HDU	HDVU	TYU		
Controller	Contact	Mechanical unlock by lifting				mechanical release by pushing down ball grip feasible for circular movements		
VNS2-E V G H M	    	 without contact	 with contact by lifting	 without contact by lifting	 with contact by lifting	 without contact	 with contact by pushing down	
		Z				IKZ		
		ZS	HDSZ	HDVSZ	HDFSZ	IKZU		
		ZO	HDOZ	HDVOZ	HDFOZ			
		ZU	HDUZ	HDVUZ	HDFUZ			
		ZSS	HDSSZ	HDVSSZ	HDFSSZ			
Z00	HD00Z	HDV00Z	HDF00Z					
VNS2-A EA AA		Z				IKZ		
		ZU	HDUZ	HDVUZ	HDFUZ	IKZU		



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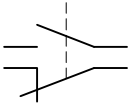
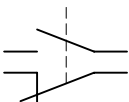


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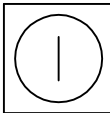
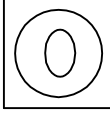
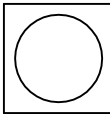
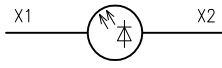
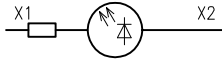
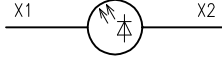
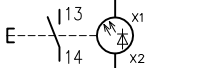
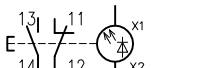
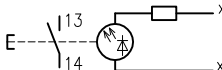
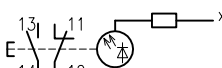
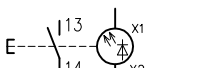
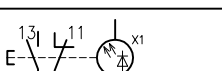
Prices EUR

	Dead-man contact ↓ 	free ↓ 	Push button (white) ↓ 	sunk ↓ 	
	TU	HU	HDU	HDVU	
	Mechanical unlock by lifting with contact by push button				Contact by lifting
	without  with 				
	Z  ZU	HDUZ	HDVUZ	HDFUZ	TYU


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List 7 / 2014 2/2A	Control devices, type RMQ-Titan Moeller ø22,5 mm, other functions on request			List 7 / 2014 2/2A
Device	Plate	Contacts	Type	EUR incl. fittings
push- button IP67	 green		M22-D-G-X1/K10	
			M22-D-G-X1/K11	
	 red		M22-D-R-X0/K01	
			M22-D-R-X0/K11	
	 green black white blue yellow red		M22-D-G/K10 M22-D-S/K10 M22-D-W/K10 M22-D-B/K10 M22-D-Y/K10 M22-D-R/K10	
			M22-D-G/K11 M22-D-S/K11 M22-D-W/K11 M22-D-B/K11 M22-D-Y/K11 M22-D-R/K11	
	Features	Symbol		
lamp with LED IP67	$U_B = 12-30 \text{ VAC/DC}$ $I_B = 8-15 \text{ mA}$ 0,26 W at 24 V		M22-L- -LED- colour lens _____ colour LED _____	
	$U_B = 42-60 \text{ VAC/DC}$		M22-L- -XLED60- colour lens _____ colour LED _____	
	$U_B = 85-264 \text{ VAC}$ 50/60 Hz $I_B = 5-15 \text{ mA}$, 0,33 W		M22-L- -LED230- colour lens _____ colour LED _____	
illuminated push button IP67	$U_B = 18-30 \text{ VAC/DC}$ $I_B = 8-15 \text{ mA}$ 0,26 W at 24 V		M22-DL- -LED- /K10 colour lens _____ colour LED _____	
			M22-DL- -LED- /K11 colour lens _____ colour LED _____	
	$U_B = 42-60 \text{ VAC/DC}$		M22-DL- -XLED60- /K10 colour lens _____ colour LED _____	
			M22-DL- -XLED60- /K11 colour lens _____ colour LED _____	
	$U_B = 85-264 \text{ VAC}$ 50/60 Hz $I_B = 5-15 \text{ mA}$, 0,33 W		M22-DL- -LED230- /K10 colour lens _____ colour LED _____	
			M22-DL- -LED230- /K11 colour lens _____ colour LED _____	
			colour lens R (red) G (green) W (white) Y (yellow) B (blue)	only in combination with ↔ ↔ ↔ ↔ ↔ colour LED R (red) G (green) W (white) W (white) W (white) / B (blue)



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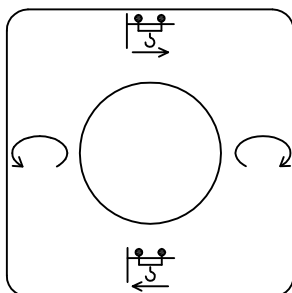
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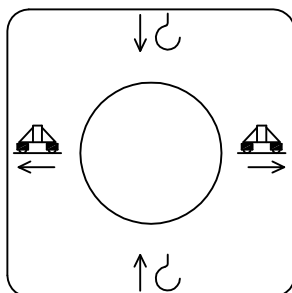
List 7 / 2014 2/2B	Control devices, type Moeller ø22,5 mm (other functions on request)				List 7 / 2014 2/2B
Device	Contacts	Symbol	Type		EUR incl. fittings
selector switch (stayput or spring return) IP66 RQM-Titan			stayput (60°)	spring return (40°)	
			M22-WKV/K10 M22-WKV/K11		
			M22-WRK/K20	M22-WK/K10 M22-WK/K11	
selector switch stayput IP65	3-steps 		Fabr. Moeller TM-2-8230/EZ		
	4-steps 		Fabr. Moeller TM-2-8231/EZ		
key selector switch IP66 RMQ-Titan	keytype MS1	key to remove in position 0 I	stayput (60°)	spring return (40°)	
			M22-WRS/K10 M22-WRS/K11		
			M22-WRS-A1/K10 M22-WRS-A1/K11	M22-WS/K10 M22-WS/K11	
			M22-WRS3-A1/K20	M22-WS3/K20	
off emergency		push to latch IP65	Q25PV-E01-SRA01 drilling ø16,2 mm		
		push to latch IP66	M22-PV/K01		
		push to latch	M22-PVS/K01		
buzzer IP40		18-30 VDC 83dB/10 cm 100%	M22-AMC-XAM M22-AMC-XAMP	unmodulated signal pulsed signal	
buzzer IP40		48 VDC drilling ø30,5 mm	Funke & Huster EKSP 48 VAC/DC		
push button IP67		head black head red	FAK-S/KC11/I FAK-R/KC11/I		
blind cap			M22S-B		
labelholder			M22-ST-X (for label 18x27 mm)		



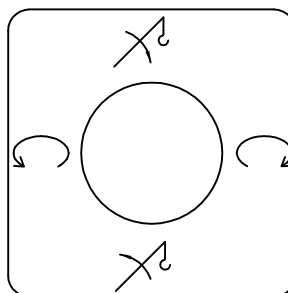
1. Trolley/Slewing



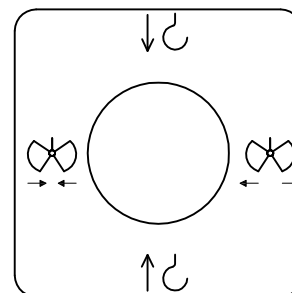
2. Hoist/Travelling



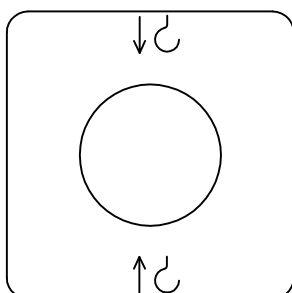
3. Jib/Slewing



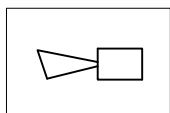
4. Hoist/Grab



5. Hoist

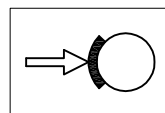


6.



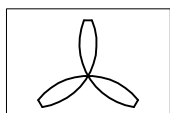
Horn

12.



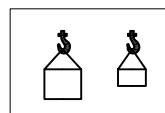
Brake on

7.



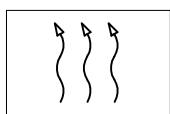
Ventilator

13.



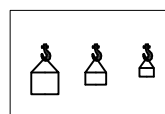
Lifting large, small

8.



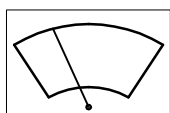
Interior heating

14.



Lifting large, medium, small

9.



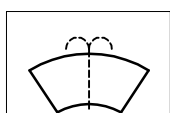
Windscreen wiper

15.



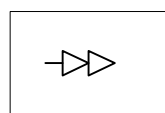
Normal run

10.



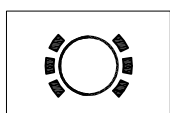
Windscreen washer

16.



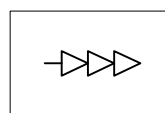
Fast run

11.



Brake lining wear

17.

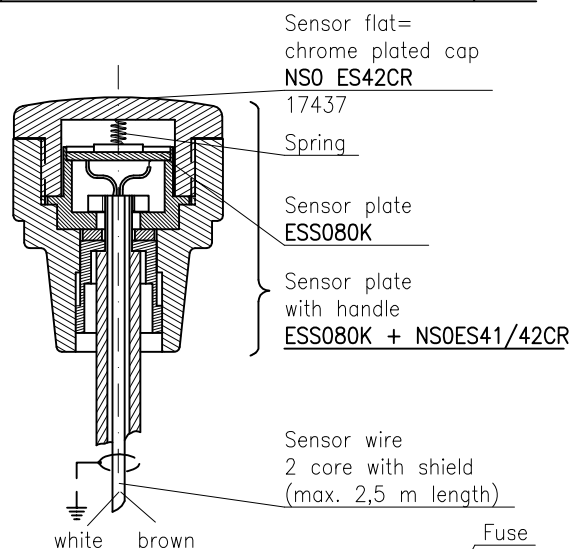


Fast speed



Description

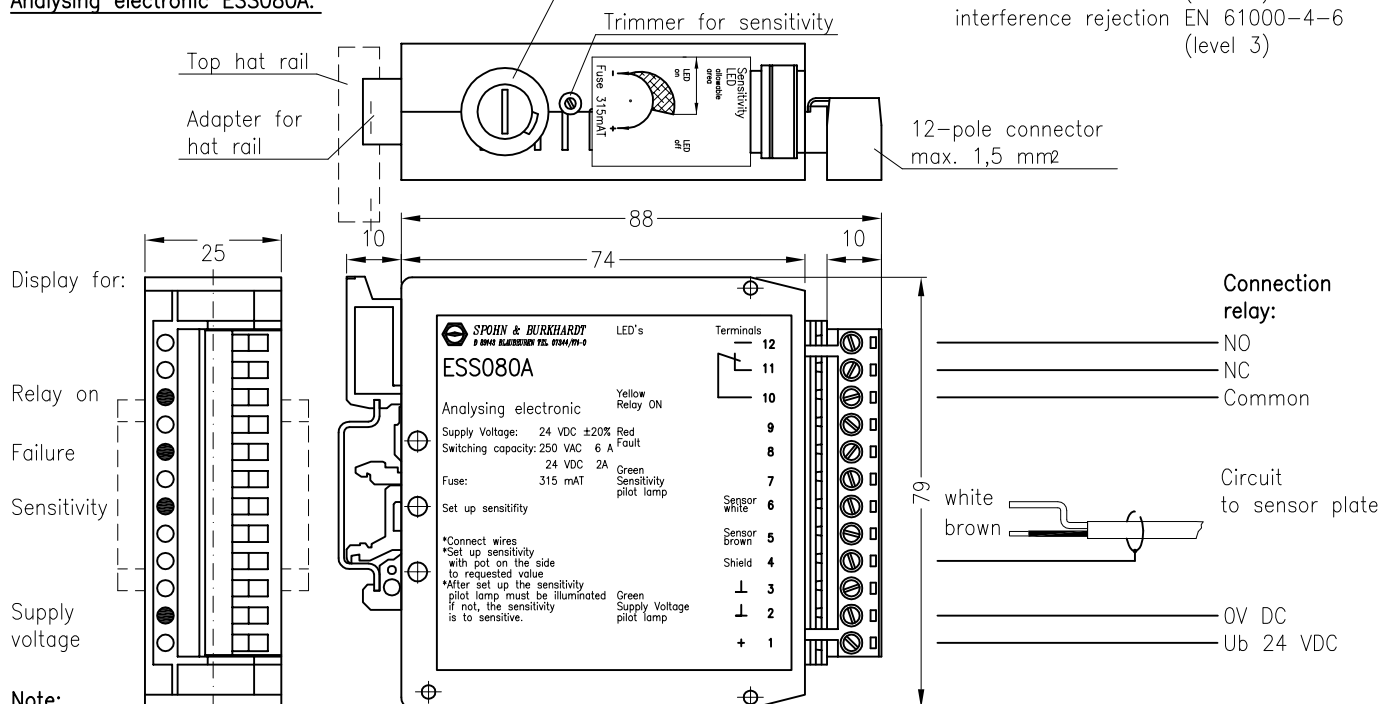
The sensor ESS080 composed of sensor plate ESS080K... and analysing electronic ESS080A is working according to the capacitive principle. If you approach the hand to the sensor plate, the relay (clamp 10, 11, 12) will switch. This distance is in the scope of some millimeters which is adjustable.

Sensor plate ESS080K at standard handle NS0 ES41/42CR:**Notes:**

- * Wire break secure
- * Operation pilot lamps
- * high sensitivity
- * Potential free relay output with high current output
- * fast connecting with 12 pin clamp

Technical data:

Supply Voltage:	24 VDC $\pm 20\%$
Wire length:	max. 2,5 m
Switching capacity:	250 VAC 6 A
relay:	24 VDC 2A
Temp. range:	-20 °C bis +70 °C
Input current:	ca. 50 mA
Dimensions:	105x80x25 mm
Weight:	110 g
Protection:	IP 20
Fuse:	315 mA
EMC:	ESD
	Burst
	Surge
	Spurious radiation
	interference rejection
	interference rejection

Analysing electronic ESS080A:**Note:**

Operator has to observe requirements of data sheets.
The capacitive sensor is not allowed for critical safety applications.

Adjustment instruction:

- * Connect ESS080A and ESS080K...
 - * Supply voltage
 - * Adjust requested sensitivity with trimmer and at the same time control it with LED .
- When LED is illuminating at requested sensitivity, adjustment is ok, if not: sensor adjustment is in prohibited range because sensitivity is too high.
Correction in order to establish save function: Diminish with trimmer the sensitivity until LED is illuminating.

Sensor plate round	ESS080K
Sensor plate squared	ESS080K-1
Sensor plate for handle	ESS080K-UG/-UGN/-UGD
Sensor plate with standard handle	ESS080K-NS0ES41/42CR
Sensor plate with ball handle (sensitivity on the side and below)	NS2ES98-1KT
Analysing electronic	ESS080A

Spobu Id.-Nr.	EUR
12869	
17844	
19769	
20517	
12958	



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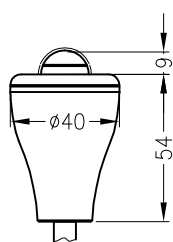
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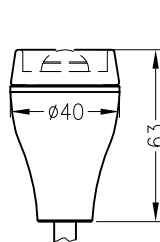
IP32 Inserts: min 5 VDC–1mA max. 24 VAC/DC–2A ind.

Handle G22:

G22-8-FS-WH-RBF



G22V-8-FS-WH-RBF



G22ZV-8-FS-WH-RBF

Ordering example:

G22	-	8	-	FS	-	WH	-	RBF
G22H		12		HS		BK		RBH
G22V				FOS		GN		
G22Z				HOS		RD		
G22ZH						BU		
G22ZV						WH		
						GY		
						VT		

Type _____

Ø shaft _____

Push button _____

Push button colour _____

Protection cap _____

Handle without inserts

Handle without inserts, mechanical interlock in centre

Push button, flat or high, 1 NO coloured cap, wired with single leads, 0,5 m long, AWG24 feed cable: brown, outgoing line: colour according to coloured cap

Push button, flat or high, 1 NO 1NC, coloured cap

wired with single leads, 0,5 m long, AWG24

Protection cap for flat push buttons

Protection cap for high push buttons

G22_- 8 / G22_-12

G22Z_- 8 / G22Z_-12

FS, HS

FOS, HOS

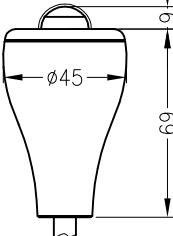
RBF

RBH

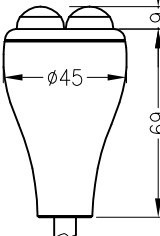
EUR

Handle G21:

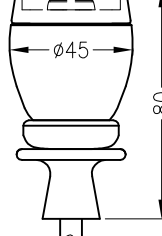
G21-8-FS-WH-RBF



G21V-8-FS-WH-RBF



G21ZV-8-FS-WH-RBF

Ordering example:

G21	-	8	-	FS	-	WH	-	RBF	-	FS	-	WH	-	RBF
G21H		12		HS		BK		RBH		HS		BK		RBH
G21V				FOS		GN				FOS		GN		
G21Z				HOS		RD				HOS		RD		
G21ZH						BU						BU		
G21ZV						WH						WH		
						GY						GY		
						VT						VT		

Type _____

Ø shaft _____

Push button _____

Push button colour _____

Protection cap _____

Handle without inserts

Handle without inserts, mechanical interlock in centre

Push button, flat or high, 1 NO coloured cap, wired with single leads, 0,5 m long, AWG24 feed cable: brown, outgoing line: colour according to coloured cap

Push button, flat or high, 1 NO 1NC, coloured cap

wired with single leads, 0,5 m long, AWG24

Protection cap for flat push buttons

Protection cap for high push buttons

G21_- 8 / G21_-12

G21Z_- 8 / G21Z_-12

FS, HS

FOS, HOS

RBF

RBH

EUR


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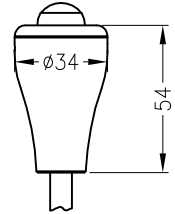
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 GERMANY

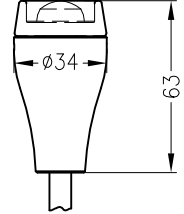
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IP32 Inserts: min. 5 VDC-1mA max. 24 VAC/DC-2A ind.

Handle G27:



G27-8-FS-WH-RBF



G27V-8-FS-WH-RBF

Ordering example:

	G27	-	8	-	FS	-	WH	-	RBF
	G27H				HS		BK		RBH
	G27V				FOS		GN		
					HOS		RD		
							BU		
							WH		
							GY		
							VT		

Type	_____
Ø shaft	_____
Push button	_____
Push button colour	_____
Protection cap	_____

Handle without inserts
 Push button, flat or high, 1 NO coloured cap, wired with single leads, 0,5 m long, AWG24 feed cable: brown, outgoing line: colour according to coloured cap
 Push button, flat or high, 1 NO 1NC, coloured cap
 wired with single leads, 0,5 m long, AWG24
 Protection cap for flat push buttons
 Protection cap fo high push buttons

G27_- 8

 FS, HS

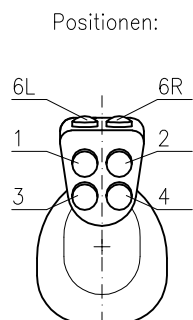
 FOS, HOS
 RBF
 RBH

EUR

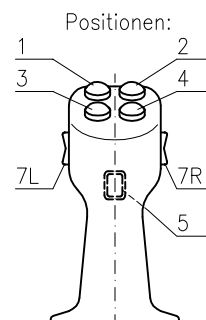
List 7 / 2014 3/3	Universal handles UG, UGN Dimensions see sheet M 3/3	List 7 / 2014 3/3
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UG



UGN



Handles form	Universal handle without fittings with	Type	EUR
	adapter UG 009 for controller ST0, ST1 CS1, VCS0, VNS0 adapter UG009-NS2 for controller NS3, NNS0, VNS(B)2 special adapter on request	UG-8 UG-12 UG-S	on request
	adapter UG 009 for controller ST0, ST1 CS1, VCS0, VNS0 adapter UG009-NS2 for controller NS3, NNS0, VNS(B)2 special adapter on request	UGN-8 *) UGN-12 *) UGN-S	on request

Fittings	Contact material	Possible installation positions	Type	Color of pressure cap	EUR
Push button 1NO flat " 1NO 1NC flat Push button 1NO high " 1NO 1NC high	{ silver plated silver contacts 24 VDC-max. 2 A 48 VAC-max. 0,5 A	1, 2, 3, 4, 6L, 6R, 7L, 7R 1, 2, 3, 4, 6L, 6R, 7L, 7R 1, 2, 3, 4, 6L, 6R, 7L, 7R 1, 2, 3, 4, 6L, 6R, 7L, 7R	P9F-color P9FOS-color P9H-color P9HOS-color	{ GN-green, RD-red WH-white, YE-yellow BU-blue, GY-grey VT-violet, OG-orange BK-black	
Push button 1 change over Push button 1 change over Push button 1 NO Push button 1 NO	silver contact gold plated silver cont. silver contact gold plated silver cont.	5 at UG 5 at UG 5 at UGN 5 at UGN	T GT T GT	black black black black	
Kapacitive sensor-system	Relais with 1 changer, silver contacts	5 5	KT-UG KT-UGN		see sheet 3/1
Rocker switch 1-0-1 Rocker switch 1-0-1 Rocker switch 1-0-1 Rocker switch 0-1 Rocker switch 0-1	{ silver contacts, by 1-0-1: ON-OFF-ON by 0-1: ON-ON	1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R	W2T W2S W2TS W1T W1S	{ black engraved on request	
Rocker switch 1-0-1	gold plated silver contact by 1-0-1: ON-OFF-ON	1+3, 2+4, 7L, 7R	GW2T	{ black engraved on request	
Rubber boot for plate V048K3 or V048-100-A1		at UG at UGN	V041N-UG V041N-UGN		

Ordering example:

8
 UG - 12 - 1BK - 2+4W2T - 5GT
 UGN S
 Type _____
 Adapter _____
 Pos. 1: push button, 1NO, flat, black
 Pos. 2+4 rocker switch, 1-0-1, ON-OFF-ON, black
 Pos. 5: push button, gold plated contact

Note:

- Assembling onto SPOBU controller with lever 110 mm
- Installation possibilities see M 3/3
- Due to space not all positions are realisable at the same time
- Type of protection dependend on installations

*) We recommend for SPOBU-controller to use holder V048-100-A1 for UGN-handle (see M 3/3)



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Handles form	Universal handle without fittings with			Type	EUR
	adapter UGD06 for controller ST0, ST1 CS1, VCS0, VNS0 adapter UGD06-NS2 for controller NS3, NNS0, VNS(B)2 special adapter on request			UGD-8 UGD-12 UGD-S	on request
Fittings	Contact material	Possible installation positions	Type	Color of pressure cap	EUR
Push button 1NO flat " 1NO 1NC flat Push button 1NO high " 1NO 1NC high	{ silver plated silver contacts 24 VDC-max. 2 A 48 VAC-max. 0,5 A	1, 2, 3, 4, 6L, 6R, 7L, 7R 1, 2, 3, 4, 6L, 6R, 7L, 7R 1, 2, 3, 4, 6L, 6R, 7L, 7R 1, 2, 3, 4, 6L, 6R, 7L, 7R	P9F-color P9FOS-color P9H-color P9HOS-color	{ GN-green, RD-red WH-white, YE-yellow BU-blue, GY-grey VT-violet, OG-orange BK-black	
Push button 1 change over Push button 1 change over	silver contact gold plated silver cont.	5 5	T GT	black black	
Kapacitive sensor-system	Relais with 1 changer, silver contacts	5	KT-UGD		see sheet 3/1
Rocker switch 1-0-1 Rocker switch 1-0-1 Rocker switch 1-0-1 Rocker switch 0-1 Rocker switch 0-1	{ silver contacts, by 1-0-1: ON-OFF-ON by 0-1: ON-ON	1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R 1+3, 2+4, 7L, 7R	W2T W2S W2TS W1T W1S	{ black engraved on request	
Rocker switch 1-0-1	gold plated silver contact by 1-0-1: ON-OFF-ON	1+3, 2+4, 7L, 7R	GW2T	{ black engraved on request	
Rubber boot for plate V048K3			V041N-UGD		
Twist poti with direction contacts and spring return		1+2+3+4	G10-GDLR55		
Analog rocker switch with HALL-sensor		1+3, 2+4, 7L, 7R	G12A G12AA		

Ordering example:

8
UGD-12-1BK-2+4W2T-5GT
S

Type _____
Adapter _____
Pos. 1: push button, 1NO, flat, black _____
Pos. 2+4: rocker switch, 1-0-1, ON-OFF-ON, black _____
Pos. 5: push button, gold plated contact _____

Note:

- Assembling onto SPOBU controller with lever 110 mm
- Installation possibilities see M 3/3A
- Due to space not all positions are realisable at the same time
- Type of protection dependend on installations



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UGA



UGA



UGA-RL



UGA-RL



UGAR-HL



UGAL-HR

Arrangement	Description handle	Type	EUR
	Handle small with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGA	
	Handle right wide, left small with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGAR	
	Handle right small, left wide with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGAL	
	Handle right and left wide with fixing parts for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGARL	
Position*	Additional		
	Hand-rest, right hand side, height adjustable (2 steps) can be mounted later on	HR	
	Hand-rest, left hand side, height adjustable (2 steps) can be mounted later on	HL	
1, 2, 3, 4, 6R, 6L, 7R, 7L 8, 9, 10, 11	Push-button: 1NO, contact ratings: 48 VAC-500 mA, 24 VDC-2 A Colour: green, yellow, white, red, black, blue, orange, grey, violett short cut: GN YE WH RD BK BU OG GY VT	1...,2...,3...,4...,6R..., 6L...,7R...,7L...,8...,9..., (...colour)	
5	Deadman : 1NO, contact ratings: 24 VDC-2 A Sensor deadman see page 3/1	T KT	see sheet 3/1
7R, 7L	Rockerswitch stayput 0-1 Rockerswitch stayput 1-0-1 Rockerswitch with spring return 0-1 Rockerswitch with spring return 1-0-1 Rockerswitch one side spring return, one side stay put 1-0-1	W1S W2S W1T W2T W2TS	
Z	Handle, twistable version, with potentiometer and direction contacts Potentiometer see sheet 14/3	DP-GDLR55	
	Handle, twistable version 1-0-1, each direction 1NC1NO	DM	

Ordering example:

UGA 8 HL DP
 UGAL 12 HR 2RD 5T DM
 UGAR }
 UGARL }

Type

} Adapter for 8 mm ST0, VCS0, CS1, VNS0
 } Adapter for 12 mm NNS0, VNS2, NS3

Twistable version
 Deadman
 Push button in position 2 red
 Hand rest

Other fixing parts on request


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UGCL



UGCR



UGCR



UGCL

Arrangement	Description handle	Type	EUR
UGCL  UGCR 	Handle right with fixing parts UGA-02 for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGCR	
	Handle left with fixing parts UGA-02 for ST0, CS1, VCS0, VNS0, NNS0, VNS2, NS3	UGCL	
Position*	Additional		
	Push-button: 1NO, contact ratings: 48 VAC-500 mA, 24 VDC-2 A Colour: green, yellow, white, red, black, blue, orange, grey, violett short cut: GN YE WH RD BK BU OG GY VT	1..,2..,3..,4..,6R.., 6L..,7R..,7L..,8..,9.., 10..,11.. (...colour)	
5	Deadman : 1NO, contact ratings: 24 VDC-2 A Sensor deadman see page 3/1	T KT	see sheet 3/1
	Rockerswitch stayput 0-1 Rockerswitch stayput 1-0-1 Rockerswitch with spring return 0-1 Rockerswitch with spring return 1-0-1 Rockerswitch one side spring return, one side stay put 1-0-1	W1S W2S W1T W2T W2TS	
Z	Handle, twistable version, with potentiometer and direction contacts Potentiometer see sheet 14/3 Additional price for mechanical direction contacts	DP-GDLR55	
	Handle, twistable version, with analogue hall-sensor Handle, twistable v., with analogue hall-sensor and direction contacts Handle, twistable v., with analogue hall-sensor in redundant version		
	Handle, twistable version 1-0-1	DM	

Ordering example:

Type:		UGCL	8		5T	DP	
		UGCR	12	2RD			
							Twistable version
							Deadman
							Push button in position 2 red
			} Adapter for 8 mm ST0, VCS0, CS1, VNS0				
			} Adapter for 12 mm NNS0, VNS2, NS3				

Amplifier for hall-sensors,
see sheet 16/...
Other fixing parts on request

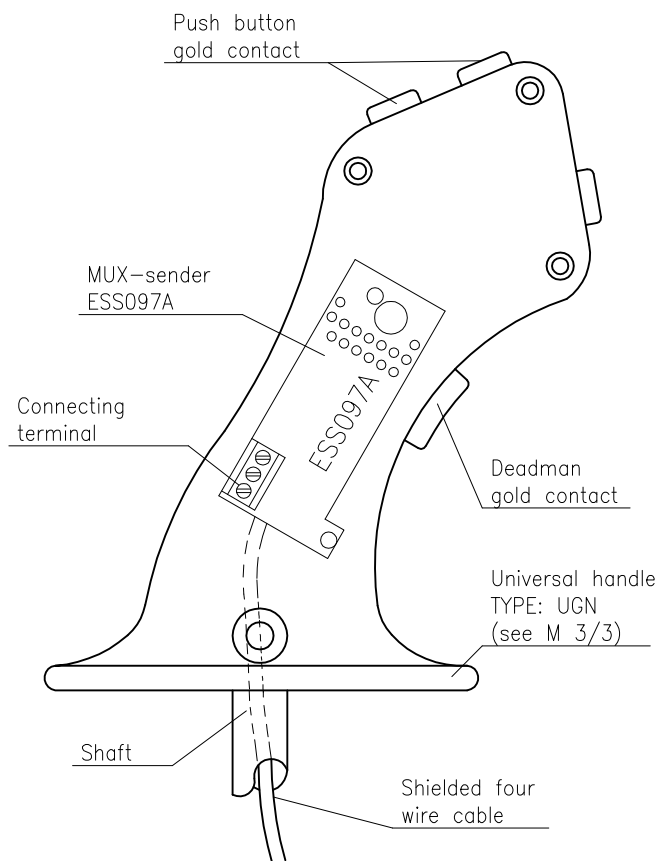


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Application: Transmission of max. 12 signals with a shielded twin wire cable through shaft.



Explanation:

Mux-system (ESS097) contains of sender (ESS097A), 12 inputs and receiver (ESS097B, per output 1 relay with 1 change-over contact). Sender is scanning permanently over 12 push button positions and is transmitting data serially by shielded twin wire cable to receiver whereby data are emitted, free of potential, by relays.

Features:

Mux-system is for serial transmission of non-security relevant state.

- * HF-filter on each input
- * Non-bounce contacts
- * Double transmission with parity-bit
- * Data comparison with demultiplexer
- * Block transmission with defined addresses
- * Defined sequence with plausibility control
- * Switch off in case of transmission error
- * Watchdog to control processors
- * Supply voltage with reverse and EMC protection
- * Delay 50 ms transmission

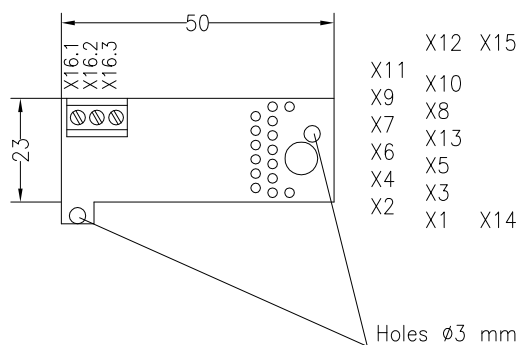
Technical data:

Supply voltage: 19,2... 28,8 VDC
Supply current: 400 mA, all inputs low
Temp.-range: -40 °C till +70 °C
Capacity: 5 A at 250 V-50 HZ
2 A at 30 VDC

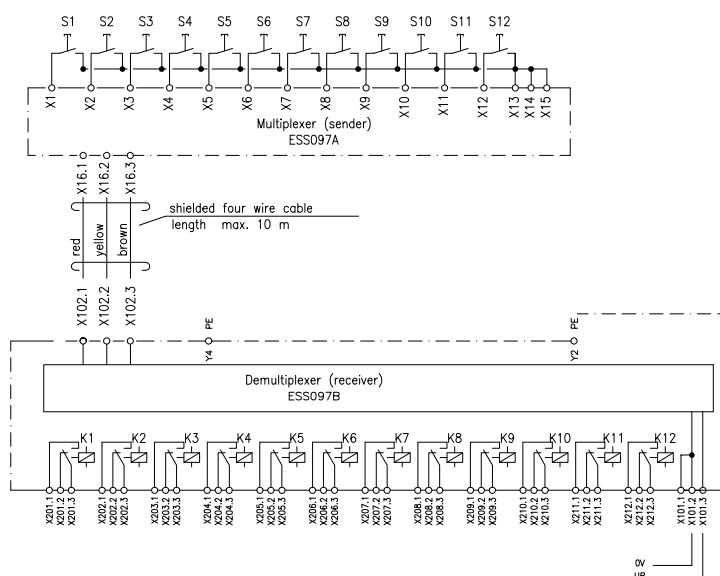
Diagnostics:

LED display	Meaning	colour
RDY-LED (V107)	-Is lighting when demultiplexer is ready for operation -Is blinking when transm. error	green
Output 1...12 (V201...V212)	-Is lighting when output active	yellow

Sender:



Scheme multiplexer-system:



EMC: EN61000-6-2
EN55011:1998+A1:1999

Price:

MUX-system ESS097

EUR

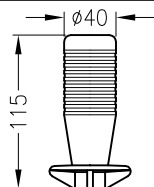
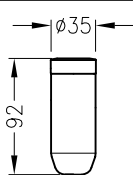
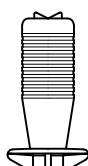
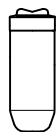
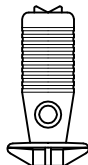
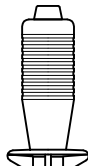
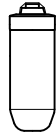
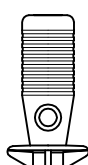
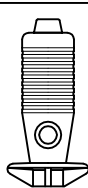
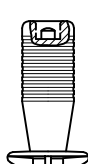
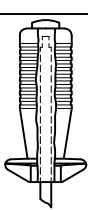
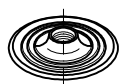
Prices for handles see sheet 3/3



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List 7 / 2014 3/5	Palm-handle B, B1N,					List 7 / 2014 3/5			
Palm handles for mountings on SPOBU-controllers with lever $\varnothing$ 8 mm. On request other adapters available for different controllers. Rubber boots see sheet E1/1.				Material PA6 Handle black Protection IP54 Wiring: single wires 0,5 m Photo: Type: BNS				Material PA6 Handle black Protection IP54 Wiring: single wires 0,5 m Photo: Type: B1NSWD	
Palm handle with	Contacts		Type	EUR		Type	EUR		
Without push buttons			BNS			B1NS			
Rocker switch, 1-0-1, 1 changer DC13 24 V 3A			BNSW			B1NSW			
Rocker switch, 1-0-1, 1 changer DC13 24 V 3 A push button in front 1NO DC13 24 V 2 A	 		BNSWD			B1NSWD			
Push button free, on top 1NO DC13 24 V 2 A			BNSD			B1NSD			
Push button in front 1NO DC13 24 V 2 A			BNSVD			B1NSVD			
Push button free, on top 1NO DC13 24 V 2 A push button in front 1NO DC13 24 V 2 A	 		BNSDD			B1NSDD			
Push button flush mounted, on top 1NO DC13 24 V 2 A			BNSDV						
Push button on top 1NO AC15 250 V 0,5 A (Activating of contact element by flexible shaft in lever), only for VNS0-controller with length 180 mm			BNSH		Hand rest 	B1-04A			



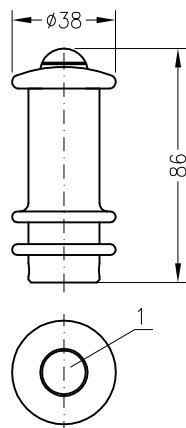
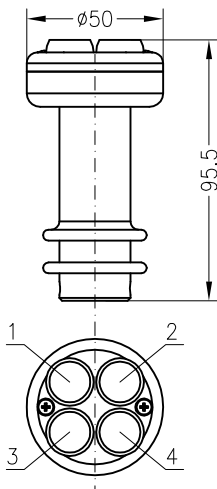
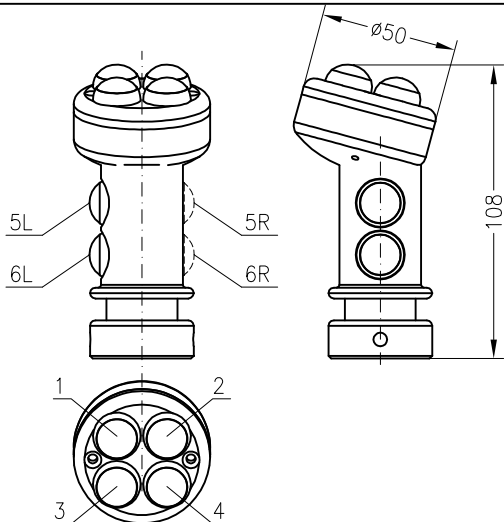
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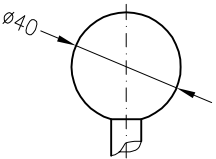
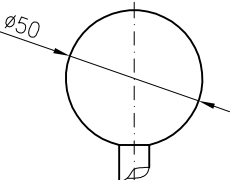
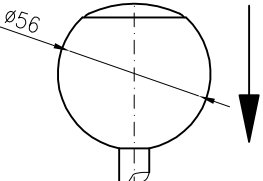
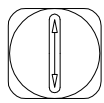
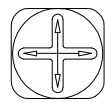
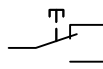
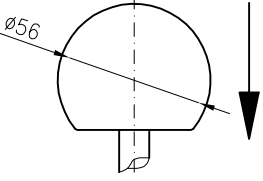
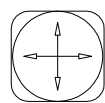
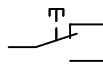
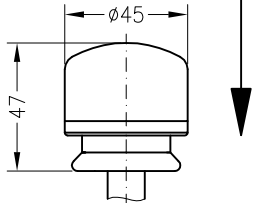
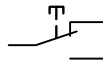
List 7 / 2014 3/5A	Palm handles G9, G25 for master controller		List 7 / 2014 3/5A
G9 with maximal 1 pushbutton	 	Version G9-8 G9-12	Basic price without fittings EUR
G9-04 with maximal 4 pushbuttons	 	G9-04-8 G9-04-12	
G25 with maximal 6 pushbuttons	 Photo: G25 	G25-8 G25-12	
Additional price:			
EUR		Spobu Id.-Nr.	EUR
Pushbutton P9F (1N0)		Leather boot V041L-CS1/72	14331
Pushbutton P9FOS (1N01NC)		Rubber boot V041K-G9	25488
Ordering example:			
G9 G9-04 - 8 - 1WH - 2BK - 3RD - 4BU G25 12			
Type _____			
ø shaft d = 8 mm or 12 mm _____			
Pushbutton _____			
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List 7 / 2014 3/7	Handles			List 7 / 2014 3/7
Version:	for controller type		Handle	EUR
 	VNS0 VCS0 CS1 ST0 ST1		KG40	
			KG50-8	
		VNS2 NS3 NNS0	KG50-12	
 Function: mechanical release by pushing down ball grip and shaft only feasible with slot- or cross gate   	VNS0-SKA VNS0-SKE VNS0-SKG VNS0-KKV VNS0-KKEA VNS0-KKH	VNS2-SKA VNS2-SKE VNS2-SKG VNS2-KKV VNS2-KKEA VNS2-KKH	IKKZ	
			IKKZU with electrical contacts	
		NNS0-SKA NNS0-SKE NNS0-SKG NNS0-KKV NNS0-KKEA NNS0-KKH		
 Function: mechanical release by pushing down ball grip feasible for circular movements  	VNS0-V VNS0-EA VNS0-H	VNS2-V VNS2-EA VNS2-H	IKZ	
			IKZU with electrical contacts	
		NNS0-V NNS0-EA NNS0-H		
 Function: mechanical release by pushing down handles. 	VNS0 VCS0		IPZ	
			IPZU with electrical contacts	
				



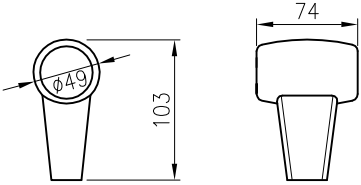
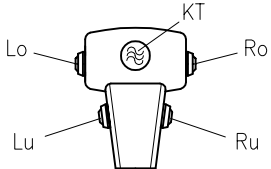
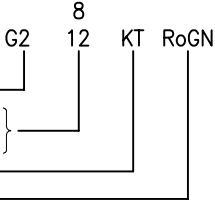
List 7 / 2014 3/8	Special handle G2 for controller ST0, ST1, VCS0, CS1, VNS0, NNS0, VNS2, NS3	List 7 / 2014 3/8
 Photo: G2-LoBK	Without inserts: Type G2-... 	EUR
	With inserts: Type G2-...-...  Lo/Lu/Ro/Ru = position of push buttons. KT = capacitive-sensor-deadman Inserts: Push button, high version, black, 1N0, with silicon cap Push button, high version, black, 1N01NC, with silicon cap More push buttons see sheet 3/12 Sensor head plate ESS080K-G2 (integrated in G2-handle) Evaluation electronic ESS080A. (is necessary for the evaluation of ESS080K-G2) Further information for the capacitive-sensor-deadman see sheet 3/1	Basic price: Additional price:
Ordering example:  Type _____ Adapter: 8 mm = ST0, ST1, VCS0, CS1, VNS0 } _____ Adapter: 12 mm = NNS0, VNS2, NS3 } _____ Capacitive sensor deadman _____ Push button right up, green, 1S _____		
Note: Handle may be mounted in 90° rotated. Handle protection IP54 High push button 1 N0 is standard. In case of order please give colour of button. More information about different versions see sheet 3/12. All push buttons wired, cable length 0,5 m, teflon lead AWG24. Supply line brown (standard = combined with all inserted buttons), cable of button accordingly to button colour.		
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Photo:
G4T-WT

Protection: IP54

Contacts:

Rocker switch 24 VDC/5 A

Deadman 24 VDC/2 A

Push button 24 VDC/2 A

Note:

In order to connect the potentiometer it is essential to consider the information of sheet 14/3

Standard:

With 0,5 m Teflon single cores AWG24, adapter for controller with 8 mm SPOBU shaft

ST0, ST1, VCS0, CS1, VNS0

Additional price:

Deadman 1N01NC

Push button 1N01NC

Special adapter on request on request

EUR

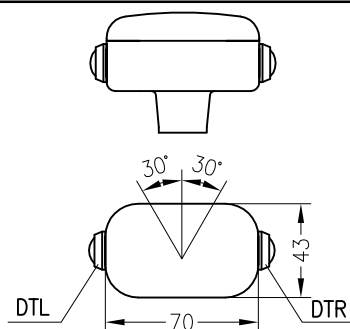
Version:	Equipment	Type	EUR
Adapter for shaft	Deadman contact T	G4T	
	Push button DT and deadman contact T	G4T-DT	
Rubber membrane Microswitch for rocker switch with spring return/ for rocker switch with stayput	Rocker switch WT 1-0-1 with spring return and deadman contact T	G4T-WT	
	Rocker switch W1S with stay put 0-1 and deadman contact T	G4T-W1S	
G10-GDLR55	Rotary potentiometer with spring return to centre 5K-0-5K0hm and direction contacts. Wiper and contact load see sheet 14/3 and deadman contact T	G4T-G10-GDLR55	



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Protection category: IP54

Contacts: AC 12: 24 V 2 A
AC 15: 24 V 0,5 A
DC 12: 24 V 2 A
DC 13: 24 V 0,5 A

Wiring: single conductors
AWG24 L=0,5 m

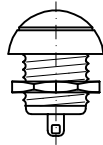
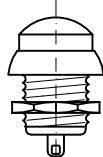
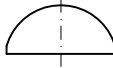
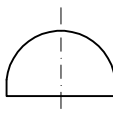
Form	Description	Type	EUR
	T-handle without fittings, black, PA6 with adapter for ST0, ST1, CS1, VCS0, VNS0 with adapter for NS3, NNS0, VNS2	G13-8 G13-12	
Fittings	Description / circuit diagram	Extras	Add. price EUR
Rotary switch Spring return button	S1L (1 step to the left) S1R (1 step to the right) T1L (1 step to the left) T1R (1 step to the right)	S1L S1R T1L T1R	
	S2L (2 steps to the left) S2R (2 steps to the right) T2L (2 steps to the left) T2R (2 steps to the right)	S2L S2R T2L T2R	
	S11 (1-0-1 steps) T11 (1-0-1 steps)	S11 T11	
	S22 (2-0-2 steps) T22 (2-0-2 steps)	S22 T22	
Rotary motion 30°-30° with output analogue based on hall-sensors	UB: 12 VDC Output: 4-12-20 mA (Links-Mitte-Rechts) RL: < 100Ω Ambient temp.: -40 °C bis +85 °C, EMI: DIN EN 55011 DIN EN 61000-6-2	AI	
Pushbutton	Pushbutton, left, white, 1NC (1NC1NO) Pushbutton, right, white, 1NC (1NC1NO)	DTL (DTLOS) DTR (DTROS)	
Mechanical interlock master controller	Mechanical release by lifting latch	Z	
Ordering example: Form <u>8</u> G13 - 12 - T11 - DTL - WH - Z Adapter 8 mm for ST0, ST1, VCS0, CS1, VNS0 Adapter 12 mm for NS3, NNS0, VNS2 Twist switch with spring return 1-0-1 Pushbutton left Colour of pushbutton white Mechanical interlock		Note: Due to restricted space only a few fittings are installable at the same time	



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Version	Description	Function	Type	EUR
	Push button flat 1NO		P9F–	
	Push button flat 1NO,1NC		P9F0S–	
	Push button high 1NO		P9H–	
	Push button high 1NO,1NC		P9H0S–	
Fittings: 	Protective cap with silicone for P9F–		RBF	
	Protective cap with silicone for P9H–		RBH	

Ordering example:

P9F WH
 ↑ ↑
 — Colour knob (e.g. white)
 — Push button flat 1NO

Following knob colours are available:

GN = green
 RD = red
 YE = yellow
 BU = blue
 WH = white
 BK = black
 GY = grey
 OG = orange
 VT = violet

Technical data:

Protection IP67
 Push button for central fixation (bore $\varnothing 12$ mm)
 Contacts with soldered connections
 Gold plated silver contacts
 Maximal contact load: 24 VDC – 2 A inductive
 Minimal contact load: 5 VDC – 1 mA ohmic

Note:

When switching with more than 0,1 A golded coat will get destroyed.
 After that no more safe switching of small currents/voltages is assured.



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MON



GMON/SMON



Features

- controller for 1-0-1 steps
- with spring return
- modular design
- low depth of fitting
- drive for 1 and 2 axes
- with or without cross gate
- lever in steel
- on request: push button in lever
- microswitch with change-over contacts
- silver contacts
- electrically safe gold-plated contacts
- resistant against ozone, UV-radiation, oil and maritime climate

Technical data

- | | |
|---|--------------------------------|
| • rating insulation voltage U_i | 60 V * |
| • conventional thermal current I_{th} | 10 A |
| • capacity with microswitches | |
| • voltage | ohmic load inductive load |
| • up to 15 V | 10 A 10 A |
| • up to 30 V | 8 A 7 A |
| • 250 VAC | 10 A 6 A |
| • mechanical life | 6 mio cycles |
| • protection on front (DIN EN 60529) | IP54 |
| • max. deflection | $\pm 18^\circ$ |
| • max. number of switch positions | 1 - 0 - 1 |
| • surrounding temperature | $-20...+60^\circ\text{C}$ |
| • regulations | |
| • IEC60947-1, DIN EN 60947-1, VDE 0660 part 100 | |
| • IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200 | |

*) option: version for $U_i = 230\text{ VAC}$

Applications

- radio and remote control
- video and surveillance system
- x-y control
- medical engineering
- joystick for slave functions
- further information see list 7 sheet 4/2

Features

- controller with spring return
- modular design for series and client-specific versions
- drive for 1 and 2 axes
- with or without cross gate
- on request: push button in lever
- forced NC
- SMON with silver contacts for max. 2 A
- GMON with gold-plated contacts for low voltage
- mounting of potentiometers possible
- resistant against ozone, UV-radiation, oil and maritime climate

Technical data

- | | |
|---|--|
| • rating insulation voltage U_i | 60 V * |
| • conventional thermal current I_{th} | 2 A |
| • rating operational voltage | – rating operational current |
| • SMON: AC12: $U_e=230\text{ V}-50\text{ Hz}$ | – $I_e = 2\text{ A}$ |
| • SMON: AC15: $U_e=230\text{ V}-50\text{ Hz}$ | – $I_e = 1\text{ A}$ |
| • GMON: | $U_{max.} = 30\text{ VDC}$ – $I_{max} = 4\text{ mA}$ |
| • mechanical life | 10 mio cycles |
| • protection on front (DIN EN 60529) | IP54 |
| • max. deflection | $\pm 30^\circ$ |
| • max. number of switch position | 5 - 0 - 5 |
| • surrounding temperature | $-20...+60^\circ\text{C}$ |
| • regulations | |
| • IEC60947-1, DIN EN 60947-1, VDE 0660 part 100 | |
| • IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200 | |

*) option: version for $U_i = 230\text{ VAC}$

Applications

- radio and remote control
- video system
- surveillance system
- medical engineering
- joystick for slave functions
- further informations see sheet 4/1





Photo:
GMON6KVRHD 9P1.9P1+2xB55

Controller with maximal 5–0–5 steps,
forced operated silver- and gold-
contacts.
Protection IP54 front side.
Application for stationary and due to
low weight for portable control stations
(radio and remote control).

On request:
Contact circuits and gates according to
client's requirement.
Mounting of conductive plastic and wire
wounded potentiometer for analogue
controls.

See sheet 1/1.

Contacts Circuit directions	Gold contacts maximal 30 VDC, 4 mA	Silver contacts maximal 60 VAC *), 2 A	Basic price drive EUR
↑ or →	GMON-ER..	SMON-ER...	
↕	GMON-VR...	SMON-VR...	
Step circuits without zero contact see sheet S 40/7	Additional each axis EUR	Step circuit with zero contact see sheet S 40/7	Additional each axis EUR
1		10	
2		20	
24		240	
3		30	
4		40	
42		420	
5		50	
Potentiometer circuit without zero contact see sheet S 40/7	Additional each axis EUR	Potentiometer circuit with zero contact see sheet S 40/7	Additional each axis EUR
8P1		9P1	
Calculation for special circuits	Number of contacts each axis		Additional each axis EUR
	2		
	4		
	6		
	8		
Additional	Potentiometer see sheet 14/... Push button in handle: 1 NO -contact 24 VDC-1 A HD 1 NC " 24 VDC-1 A HD0 1 NO/NC " 24 VDC-1 A HDU 1 NO/NC " 24 VDC-1 A HDUU Mechanical interlock Z Cross gate K Special gate, designation at clear text SK		

Type	Example	S	MON	6	K	V	R	HD	9P1.40 + B55
S	silver contacts								
G	gold contacts								
MON	version								
5**)	rubber boots ø50 mm								
6	rubber boots ø60 mm								
-	without gate								
K	cross gate								
E	E-drive								
V	V-drive								
R	spring return								
HD	push button in handle								
Z	mechanical interlock								
see sheet S40/7	circuit in view direction								
	circuit in cross direction								
see sheet 14/...	potentiometer in view direction								
	potentiometer in cross direction								

Details:

*) Type for 230 VAC

*) Rubber boot ø50 mm only by
maximal 2–0–2 circuit steps.



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Photo:
MON6VR W.W

	Type	Contacts		Switching capacity micro switch	EUR
↑	SMON5ER WK	Silver		250 VAC 2 A 24 VDC 0,5 A	
↑↓	SMON5VR WK.WK				
↑	GMON5ER WK	Gold		30 VDC 4 mA	
↑↓	GMON5VR WK.WK				
↑	MON6ER W	Silver		250 VAC 6 A 24 VDC 16 A inductiv	
↑↓	MON6VR W.W				
↑	MON6ER 2W	Silver		250 VAC 6 A 24 VDC 16 A inductiv	
↑↓	MON6VR 2W.2W				
↑	MON6ER 2SW	Silver		250 VAC 6 A 24 VDC 16 A inductiv	
↑↓	MON6VR 2SW.2SW				
↑	MON5ER OS	Gold plated on silver contacts *)		30 VDC 4 mA	
↑↓	MON5VR OS.OS			250 VAC 3 A 24 VDC 1 A	
Special fittings		Push button in handle 1 NO HD 24 VDC 1 A 1 NC HD0 24 VDC 1 A 1 NO/NC HDU 24 VDC 1 A Mechanical interlock Z Cross gate K			EUR

*) Maximum rating for golded coat: 30 VDC 4 mA
 Maximum rating for silver contact: 250 VAC 3 A
 24 VDC 1 A



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ST0



Features

- compact and cost-efficient controller
- spring return or friction brake, with or without notches
- modular design for series and client-specific versions
- narrow type of construction
- available with standard, universal or palm handle
- mechanical interlock on request
- microswitch (change-over contact) or double contact elements
- mounting of potentiometer or encoder possible
- valve amplifier for direct control of magnetic valves
- resistant against ozone, UV-radiation, oil and maritime climate

Technical data

- rating insulation voltage U_i 60 V and 250 V respectively
- conventional thermal current I_{th} 10 A and 16 A respectively
- capacity with microswitches see ST1
- capacity with double contact elements:
 - rating operational voltage – rating operational current
 - AC12: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 16\text{ A}$
 - AC15: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 6\text{ A}$
- mechanical life 6 mio. cycles
- protection on front (DIN EN 60529) IP54
- max. deflection $\pm 37,5^\circ$
- max. number of switch position 4 – 0 – 4
- surrounding temperature $-20\text{ }^\circ\text{C} \dots +60\text{ }^\circ\text{C}$
- regulations
 - IEC60947-1, DIN EN 60947-1, VDE 0660 part 100
 - IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200

Applications

- remote control, portable control station
- as slave controller for railway applications
- automotive industry
- electro-hydraulic applications
- controller for slave functions
- further information see sheet 5/2

ST1



Features

- compact controller, protection front IP56
- spring return or friction brake, with or without notches
- modular design for series and client-specific versions
- drive in aluminium casting
- available with standard, universal or palm handle
- mechanical interlock on request
- microswitch with change-over contact
- silver or electrically safe gold-plated contacts
- mounting of potentiometer or encoder possible
- resistant against ozone, UV-radiation, oil and maritime climate

Technical data

- rating insulation voltage U_i 60 V *)
- conventional thermal current I_{th} 10 A
- capacity with microswitches

• voltage	ohmic load	inductive load
• up to 15 V=	10 A	10 A
• up to 30 V=	8 A	7 A
• up to 50 V=	3 A	2 A
- mechanical life 6 mio. cycles
- protection on front (DIN EN 60529) IP56
- max. deflection $\pm 37,5^\circ$
- max. number of switch positions 1 – 0 – 1
- surrounding temperature $-20\text{ }^\circ\text{C} \dots +60\text{ }^\circ\text{C}$
- regulations
 - IEC60947-1, DIN EN 60947-1, VDE 0660 part 100
 - IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200

*) option: type for $U_i = 230\text{ VAC}$

Applications

- remote control, portable control station
- for applications outside
- automotive industry
- electro-hydraulic applications
- controller for slave functions
- further information see sheet 5/4





Protection category:
front side IP54
connection IP00

Elektrical data:

ST0:

15 VAC/DC

ohmic: 10 A

inductive: 10 A

30 VAC/DC

ohmic: 8 A

inductive: 7 A

Option:

Version for 230 VAC

STON:

DC 13 24 V 1,1 A

DC 13 230 V 0,2 A

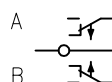
AC 12 230 V 10 A

AC 15 230 V 4 A

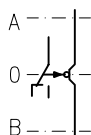
Circuit direction	Version		Without spring return with 0-notching		With spring return		Basic price	Additional price				
			for 1-0-1 steps	for potentiometer circuit, with brake	for 1-0-1 steps	for potentiometer circuit		circuit		potentiometer		
							drive	P0	8P1	9P1	G5/B55	PZ11
									P		G55	PZ55
											M55	PZ1010
											with mount	
											EUR	EUR
	ST0-W					ST0-RW						
				ST0-B-		ST0-R-						
			contacts for max. 4-0-4 steps	brake for potentiometer circuit	for max. 4-0-4 steps for potentiometer circuit			each double contact elements, circuit see S 40/1			potentiometer B55	PQ55
											with mount	PQS55
	STON-			STON-B-		STON-R						

Circuits:

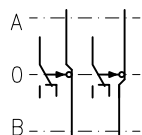
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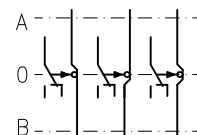
P0



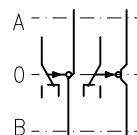
8P1



9P1



P



Potentiometer: (more information see sheet 14/1A + 14/2)

	Ohmic value	Centre tap	Centre dead band
G5	2k5-2k5	x	-
G55/M55/B55	5k-0-5k	x	x
PZ11	1k-0-1k	x	x
PZ55	5k-0-5k	x	x
PZ1010	10k-0-10k	x	x
PQS55	5k-5k	x	-
PQ55	5k-0-5k	x	x

Additional price:

Mechanical interlock

Z

EUR

Clamp

Special handles: see sheet 3/2...

Ordering example:

Type _____

Lever 110, 90 or 70 mm _____

Spring return / friction brake _____

Mechanical interlock _____

Circuit, for STON see sheet S 40/1 _____

Potentiometer _____

ST0(N) 11 09 07 R B Z P 30 + G55 + B1NS

Handles see sheet 3/2...
give clear text



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Protection category:
front side IP56
connection IP00

Elektrical data:

15 VAC/DC

ohmic: 10 A

inductive: 10 A

30 VAC/DC

ohmic: 8 A

inductive: 7 A

Option:

Version for 230 VAC

Version Circuit direction	Without spring return with 0-notching		With spring return		Basic price drive	Additional price				
	for 1-0-1 steps	for poten- tiometer circuit, with brake	for 1-0-1 steps	for poten- tiometer circuit		Circuit P0	8P1 P	9P1	potentiometer G.../B... M55 PZ... with mount	PQ... PQS...
									EUR	EUR
A ↑ B ↓	ST1-W		ST1-RW							
		ST1-B-		ST1-R-						
Circuits:										
W	P0		8P1		9P1			P		
A B										
Potentiometer: (more information see sheet 14/1A + 14/2)										
	Ohmic value		Center tap		Center dead band					
G5	2k5-2k5		x		-					
G55/M55/B55	5k-0-5k		x		x					
PZ11	1k-0-1k		x		x					
PZ55	5k-0-5k		x		x					
PZ1010	10k-0-10k		x		x					
PQS55	5k-5k		x		-					
PQ55	5k-0-5k		x		x					
Additional price:										
Mechanical interlock			Z		EUR					
Chromated enclosure										
Special handles: see sheet 3/2...										

Ordering example:

Type _____ ST1 11 R B Z P0 8P1 + G55 + B1NS
 Lever 110 mm _____
 Spring return / friction brake _____
 Mechanical interlock _____
 Circuit _____
 Potentiometer _____

Handles see sheet 3/2...
give clear text



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Protection category:
front side IP54
connection IP00

Electrical data:
15 VAC/DC
ohmic: 10 A
inductive: 10 A

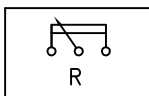
30 VAC/DC
ohmic: 8 A
inductive: 7 A

Version Circuit direction	Without spring return with 0-notching		With spring return		Basic price drive	Additional price				
	for 1-0-1 steps	for poten- tiometer circuit, with brake	for 1-0-1 steps	for poten- tiometer circuit		Circuit P0	8P1	9P1	potentiometer G5 G55 M55 with mount	PZ11 PZ55 PZ1010 EUR
A ↑ B ↓	ST2-W		ST2-RW							
		ST2-B-		ST2-R-						
Circuits:										
W		P0		8P1		9P1				
Potentiometer: (more information see sheet 14/1A + 14/2)										
Type	Ohmic value		Center tap		Center dead band					
G5	2k5-2k5		x		-					
G55/M55	5k-0-5k		x		x					
PZ11	1k-0-1k		x		x					
PZ55	5k-0-5k		x		x					
PZ1010	10k-0-10k		x		x					

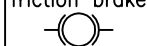
Ordering example:

Type ST2 08 R B P0 + G55
 Lever 80 mm _____
 Spring return / friction brake _____
 Circuit _____
 Potentiometer _____



IP66
frontaloperation
-40 °C
+60 °Cstorage
-50 °C
+80 °C

zero notching

30 V=
0,5 Aadjustable
friction brakeQuality standard:
IEC60947-1
DIN EN60947-5-1

Basic price

EUR

Additional
price

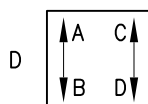
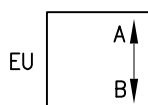
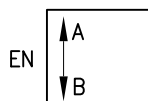
EUR

Features:

The controller ST3, a control unit with preselected analogue values, was developed especially for ships and yachts.

Standard is T-handle and friction brake

Optionally available with digital direction contacts, push buttons in grip, cover hood.

Drive**with friction brake**

ST3.EN.B---

ST3.EU.B---

ST3.D.B---.B---

Options:

Potentiometer:
single 5k-0-5k B55

Direction contacts:
each lever has a changeover in each direction
Push button 1S in T-handle
Push button 1S1Ö in T-handle

Cover hood

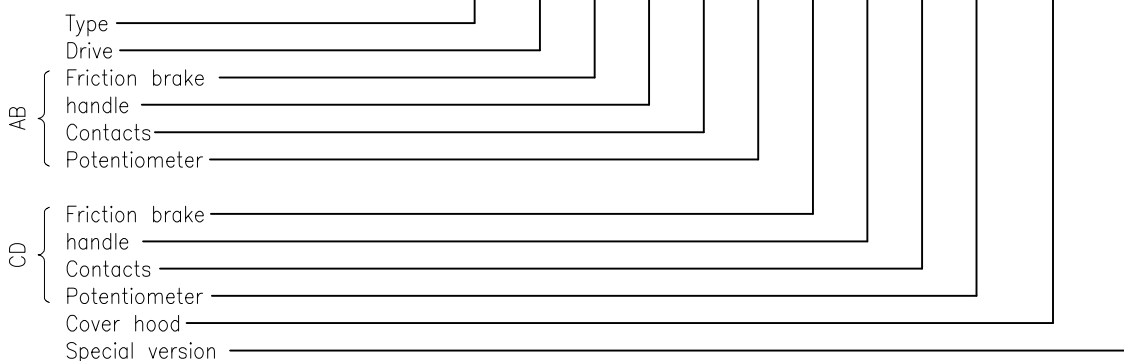
Engraving indicator scale, each line

On request:

Indicator scale with symbols, logos
CANopen-interface
Profibus-DP-interface
Current output for 20...4...20 mA

Ordering example:

ST3 . EN
EU . B T W B55 . B T W B55 + Q + X
D



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Description:

The controllers are designed in general according to the international recommendation IEC 947-5-1 and UL. Characteristics see sheet 1/1
KVCS0 with soldering connections

Design:

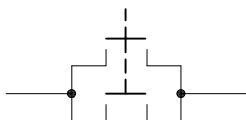
One drive block consisting of non-leakage current, warm and cold resistant insulated material is responsible for all mechanical components, as well as for zero contacts and for additional assembled horn or deadman contacts.
Centred to lever the double contact elements for step programme are inserted form fitted and secured by screws with diagonal slides.
Double contact elements and cams are therefore easy replaceable.
For restriction of positions limit stops are available (see sheet E 7/1).

Electric protection:

All mechanical parts mounted in the insulated housing are contact safe.
All electrical parts are mounted contact safe.
New double contact elements are contact safe according to IEC 536
They have double circuit break with parallel and electrical linked double way connected contacts and therefore high fail safety is given even when used low voltage.

Contact system:

Parallel contacts with cross contacted for highest contact security

**Corrosion protection:**

All metal parts used in the construction of controller are treated against corrosion.

Models:

Stayput or spring return steps up to 6-0-6.

Construction:

The housing is made of "ZYTEL" and this material has excellent electrical and heat resistant properties.
The zero and deadman contacts are contained within this housing and the main contacts are mounted on the four sides.
These features ensure a compact and versatile controller allowing easy replacements of contacts.

Extended models:

Contact arrangement can be designed to suit customer requirements with a maximum of 12 circuits for each drive.

Potentiometer attachment:

There is mounted a pot attachment plate instead of a double contact element.
There is a gear drive to turn the potentiometer $\pm 140^\circ$.

Encoder attachment:

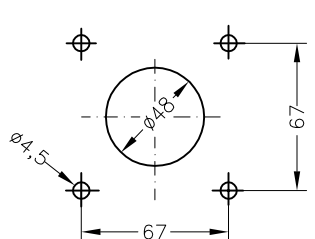
The encoder is mounted instead of a double contact element.

Symbols and engravings:

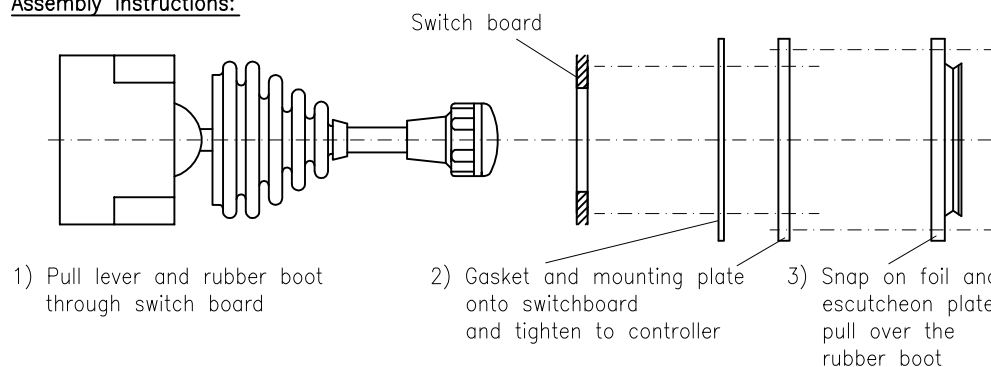
The controller escutcheon is designed that engraving indicating mode of operation is easily carried out.



Photo:
VCS09611 VR H

Assembly instructions:

Drilling holes
in switch board



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Controller VCS0 with screwed connections, KVCS0 with soldered connections, maximal 6–0–6 steps.

All controllers with escutcheon plate (72x72 mm, 96x96 mm) or bracket ring (S0, S) replaceable double contact elements and cams. Electrical and mechanical data see sheet 1/1.

Protection IP54 front side, below IP00, on request available with enclosure.

Connection Switch-direction	With screw connections			With soldered connections			EUR
	without spring	with return	with friction brake *)	without spring	with return	with friction brake *)	
 or 	VCS0–E	VCS0–ER	VCS0–EB	KVCS0–E	KVCS0–ER	KVCS0–EB	
	VCS0–V	VCS0–VR	VCS0–VB	KVCS0–V	KVCS0–VR	KVCS0–VB	

Step circuits see sheet S 40/4				Potentiometer circuits see sheet S 40/4 + S 40/5..			
Without zero contact	Additional price per axis EUR	With zero contact	Additional price per axis EUR	Without zero contact	Additional price per axis EUR	With zero contact	Additional price per axis EUR
1 2 3 12 21 24 26 42 4 5 6		10 100 20 30 120 240 260 420 40 50 60		8P1 4P, 5P, 6P 8P1A, 8P2 4P2, 5P2, 6P2 8P2A		PN, 4PN, 5PN, 6PN PNN 9P1 4P0, 5P0, 6P0 9P1A, 10P 4P00, 5P00, 6P00 4P0E, 5P0E, 6P0E 8P20 4P20, 5P20, 6P20	

Special fittings:	Type:	Additional price EUR	Type:	EUR
Limiting gate 36°–0–36°	AK		Version IP65, on front according to V04828–2	
Limiting gate special angle	AK		Special notching	
Cross gate 36°–0–36°	KK		Escutcheon plate black	
Special gate (clearly defined)	SK			
For special circuits:			With bracket ring and rubber boot V041K	S
Each double contact element			With bracket ring and rubber boot V040KE	S0
Each zero contact (maximal 1x per axis)			With bracket ring and rubber boot V041N	S1
Engraving **):				
Each line (maximal 14 letters)			Inserts in lever	see sheet 2/1, 2/1A
Each pair of symbols (see sheet 2/3)			Special handles	see sheet 3/...
Plastic enclosure VCS0–M1				
Plastic enclosure VCS–M3			Encoder	see sheet 15/14, 15/15
Steel enclosure 125x125x90 mm			Potentiometer	see sheet 14/...

Ordering: K VCS0 S 14 AK E R H 40. 9P1 + B55
S0 SK B

Soldered connection _____
Type _____
Plastic escutcheon plate 96x96 mm }
Alu escutcheon plate 72x72 mm }
Bracket ring S/S0/S1 }
Lever length 110 mm }
140 mm }
Limiting gate AK }
Cross gate KK }
Special gate SK }
Single or two axis drive _____
Spring return }
Friction brake }
Fittings in handle see sheet 2/1 _____

Potentiometer see sheet 14/...
Circuit in cross direction
Circuit in view direction

Note:
*) Friction brake is necessary for controller without spring return and with potentiometer.

**) Please clearly defined engraving.



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Photo:
CS1.7211V M1.M1

Versions:

CS1S with ring

CS1.72 with black
escutcheon plate

CS1G enclosed

Description:

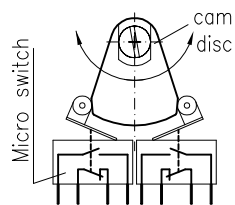
The CS1 is characterized by compact form with interior placed potentiometers and with attached microswitches, this allows to save space. The solid mechanical drive assures a long lifetime. We produce modular design for series and client-specific versions for various applications.

Versions with integrated electronics see sheet 7/11.

Version Drive block Circuit directions	Without spring re- turn with 0-notching for 1-0-1 steps		With spring return without 0-notching with 0-notching		Basic price drive	Additional circuit M M1 MP MP1 EUR	price each axis each fixed potentiometer G5 GLR5 G55 GLR55 M55 EUR	
	CS1S-E-	CS1S-EB-	CS1S-E-RL-	CS1S-E-R-				
	CS1S-V-	CS1S-VB-	CS1S-VRL-	CS1S-VR-				
	CS1.72-E-	CS1.72-EB-	CS1.72-E-RL-	CS1.72-E-R-				
	CS1.72-V-	CS1.72-VB-	CS1.72-VRL-	CS1.72-VR-				
	CS1G-E-	CS1G-EB-	CS1G-E-RL-	CS1G-E-R-				
	CS1G-V-	CS1G-VB-	CS1G-VRL-	CS1G-VR-				

Circuits: (more information see sheet S 40/6):

Basic principle:



For 1-0-1 step

M without 0-notching (only feasible
with spring return)
M1 with 0-notching

For Potentiometer mount:

MP without 0-notching (only fea-
sible with spring return)
MP1 with 0-notching

Micro switches rated value :

AC 12 : 24 V 5 A
AC 15 : 24 V 0,5 A

DC 12 : 24 V 2 A
DC 13 : 24 V 0,5 A

Potentiometer: (more information see sheet 14/2 + 14/3)

Type	Ohmic value	Center tap	Center dead band	Direction contact
G5	2K5-2K5	x	-	-
G55/M55	5K-0-5K	x	x	-
GLR5	2K5-2K5	x	-	x
GLR55	5K-0-5K	x	x	x

All potentiometers made of conductive plastic, slider current max. 1μA, 10 mio. cycles,

Additional prices:

	EUR	EUR
Limiting gate	KK	
Special gate	SK	
Mechanical interlock	Z	

Special handles: see sheet 3/3..., 3/6, 3/10

Ordering example:

Type CS1 S 72 AK1) 11 EX2) B
 Version G . 14 KK SK EY2) RL
 Shaft Z MP . MP M.. M..
 Limit -/cross-/special gate MP1 . MP1 + G.. G.. + UG.. + engraving
 Single/two axis MP1 . MP1 + G.. G.. + UG.. + engraving
 Spring return or friction brake MP1 . MP1 + G.. G.. + UG.. + engraving
 Mechanical interlock (optional) MP1 . MP1 + G.. G.. + UG.. + engraving

Give clear text
 Special handle, additional give clear text
 Poti in cross direction 3)
 Poti in view direction 3)
 Circuit in cross direction 3)
 Circuit in view direction 3)

1) AK=standard

2) EX = single axis in cross direction, EY = single axis in view direction

3) In case of single axis other axis is omitted



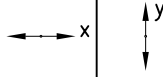
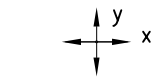
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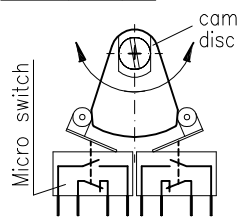


Electronic control equipments for cranes, construction machinery, fork lifts... are used more and more. The controller CS1G is designed for those applications. It allows a stepless nominal value in accordance with lever deflection in x and y axis. In order to detect the direction there are mechanical contacts or conductive plastic potentiometers with direction contacts available. An integrated electronic converts analogue signals into digital output signals as requested (bit-current, current voltage)

Version Drive block Circuit directions	Without spring re- turn with 0-notching for 1-0-1 steps		With spring return without 0-notching with 0-notching		Basic price drive	Additional circuit M M1 MP MP1 EUR	price each axis each fixed potentiometer	
		for poten- tiometer circuit with brake					G5 GLR5 G55 GLR55 M55	EUR
	CS1G-E-	CS1G-EB-	CS1G-E-RL	CS1G-E-R				
	CS1G-V	CS1G-VB	CS1G-VRL	CS1G-VR				

Circuits: (more information see sheet S 40/6):

Basic principle:



For 1-0-1 step

M without 0-notching (only feasible with spring return)
M1 with 0-notching

For Potentiometer mount:

MP without 0-notching (only feasible with spring return)
MP1 with 0-notching

Micro switches rated value :

AC 12 : 24 V 5 A
AC 15 : 24 V 0,5 A

DC 12 : 24 V 2 A
DC 13 : 24 V 0,5 A

Potentiometer: (more information see sheet 14/2 + 14/3)

Type	Ohmic value	Center tap	Center dead band	Direction contact
G5	2K5-2K5	x	-	-
G55/M55	5K-0-5K	x	x	-
GLR5	2K5-2K5	x	-	x
GLR55	5K-0-5K	x	x	x

All potentiometers made of conductive plastic, slider current max. 1µA, 10 mio. cycles.

Additional prices:

Limiting gate

EUR

Special gate

KK

Mechanical interlock

SK

Z

EUR

Handles: see sheet 3/3..., 3/6, 3/10

Electronic	Type	Technical data see sheet	Add. price
CAN-Bus acc. to STW-protocol 2.0B interface	ESS100	16/1	
CANopen interface for DS301 + DS401	ESS101-GTL	16/2	
Profibus-DP-interface	ESS094A	16/3	
ProfiNet-interface	ESS132-1	16/5	
Current interface 20 mA-4-20 mA	ESS089	16/23	
4 mA-12-20 mA	ESS135	16/24	
Voltage output 6 V-12 V-18 V	ESS098	16/21	
Valve amplifier (PWM-signal) max. 2 A, 24 VDC	ESS109	16/20	1 axis 2 axis 2 axis

Ordering example:

CS1G 11 AK1) EX B 14 KK EY RL MP . MP M.. M.. MP1 . MP1 + G.. . G.. - ESS.. + UG.. 3) + engraving

Type _____
 Shaft _____
 Limit - / cross gate _____
 Single/two axis _____
 Spring return or friction brake _____
 Mechanical interlock _____
 Circuit in view direction 2) _____
 Circuit in cross direction 2) _____

1) AK=standard
 2) In case of single axis other axis is omitted
 3) Please assign handle clearly defined

Give clear text
 Handle 3) Additional: give clear text
 Electronic
 Poti in cross direction 2)
 Poti in view direction 2)



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Photo:
NS3G 11 AK VR MP1.MP1 +
2 x BLR55 + UGD + Profibus-Interface +
sensor deadman ESS111

The NS3 joystick controllers are the heavy duty range of the various controller types and available to meet the most of industrial applications.

They are compact and yet of robust construction providing precise step and analog control as there are Potentiometer, HALL, CAN-, CANopen- and Profibus interface available.

Due to modular system all kind of handles can be mounted.





This controller NS3 is characterised by robust and compact form.

The master controller is

applicable for cranes as well as for electric hydraulic use.

We manufacture standard and customised specifications with connections by solder or screw, as well as various handles. Potentiometers and hall-sensors are available as elements for analogue outputs.

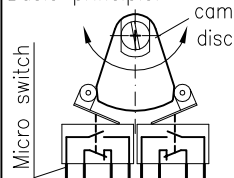
Furthermore bus interfaces for CAN and profibus as well as voltage and current outputs are available. For the application in combination with hydraulic valves there is an integrated power electronic with PMW (pulse wide modulation) current output available.

Drive block Circuit directions	Without spring return with 0-notching for 1-0-1 steps		With spring return without 0-notching		Basic price drive	Additional price each axis			
		for potentiometer circuit with brake		with 0-notching		Circuit M M1 MP MP1	MP5	potentiometer B5 B55 with mount	BLR5 BLR55
	NS3-E-	NS3-EB-	NS3-E-RL-	NS3-E-R-					
	NS3-V	NS3-VB-	NS3-VRL-	NS3-VR-					
	NS3G-E-	NS3G-EB-	NS3G-E-RL-	NS3G-E-R-					
	NS3G-V	NS3G-VB-	NS3G-VRL-	NS3G-VR-					

Circuits: (more information see sheet S 40/5 + S 40/6):

with micro switches:

Basic principle:



For 1-0-1 step

M without 0-notching (only feasible with spring return)

M1 with 0-notching

For Potentiometer mount:

MP without 0-notching (only feasible with spring return)

MP1 with 0-notching

MP5 with 5-0-5 sensible notches

Micro switches rated value :

AC 12 : 24 V 5 A

AC 15 : 24 V 0,5 A

DC 12 : 24 V 2 A

DC 13 : 24 V 0,5 A

with double contact elements:

For Potentiometer mount:

PNN

8P1

Potentiometer: (more information see sheet 14/2 + 14/3)

Type	Ohmic value	Center tap	Center dead band	Direction contact
B5	5K	x	—	—
B55	5K-0-5K	x	x	—
BLR5	5K	x	—	x
BLR55	5K-0-5K	x	x	x

Additional price:

EUR

cross gate

KK

special gate

SK

mechanical interlock

Z

other handles: see sheet 3/3..., 3/6, 3/10

Ordering example:

18 AK1) EX B
14 KK EY RL MP . MP
NS3G . 11 SK V R Z MP1 . MP1 + B.. .B.. + UG..3) + engraving 4)

Type _____
Shaft _____
Limit -/cross-/special gate _____
Single/two axis _____
Spring return or friction brake _____
Mechanical interlock _____
Circuit in view direction 2) _____
Circuit in cross direction 2) _____
Poti in view direction 2) _____
Poti in cross direction 2) _____
Handle 3) _____
Gravur 4) _____

1) AK=standard

2) In case of single axis other axis is omitted

3) Assign handle clearly defined

4) Give clear text



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This controller NS3 is characterised by robust and compact form, especially for electric hydraulic use.

Due to modular design, customised specifications are easy realisable.

Connections by plug, solder or screw for potentiometers and contacts are respectively available.

Furthermore bus interfaces for CAN and profibus as well as voltage and current outputs can be obtained.

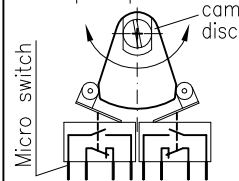
For the application with magnetic valves there is an integrated power electronic with pulse width modulation available.

Version Drive block Circuit directions	Without spring re- turn with 0-notching for 1-0-1 steps		With spring return without with 0-notching		Basic price drive	Additional price each axis			
	for poten- tiometer circuit with brake					Circuit M M1 MP MP1	PNN 8P1 MP5	potentiometer B5 B55 with mount	BLR5 BLR55

Circuits: (more information see sheet S 40/5 + S 40/6):

with micro switches:

Basic principle:



For 1-0-1 step

M without 0-notching (only feasible with spring return)

M1 with 0-notching

For Potentiometer mount:

MP without 0-notching (only feasible with spring return)

MP1 with 0-notching

MP5 with 5-0-5 sensible notches

Micro switches rated value :

AC 12 : 24 V 5 A

AC 15 : 24 V 0,5 A

DC 12 : 24 V 2 A

DC 13 : 24 V 0,5 A

with double contact elements:

For Potentiometer mount:

PNN

8P1

Potentiometer: (more information see sheet 14/2 + 14/3)

Type	Ohmic value	Center tap	Center dead band	Direction contact
B5	5K	x	-	-
B55	5K-0-5K	x	x	-
BLR5	5K	x	-	x
BLR55	5K-0-5K	x	x	x

Additional price:

EUR

cross gate

KK

special gate

SK

mechanical inteterlock

Z

Handles: see sheet 3/3..., 3/6, 3/10

Electronic	Type	Technical data see sheet	Add. price
CAN-Bus acc. to STW-protocol 2.0B interface	ESS100	16/1	
CANopen interface for DS301 + DS401	ESS101-GTL	16/2	
Profibus-DP-interface	ESS094A	16/3	
ProfiNet-interface	ESS132-1	16/5	
Current interface 20 mA-4-20 mA	ESS089	16/23	
4 mA-12-20 mA	ESS135	16/24	
Voltage output 6 V-12 V-18 V	ESS098	16/21	
Valve amplifier (PWM-signal) max. 2 A, 24 VDC	ESS109	16/20	1 axis 2 axis

Ordering example:

NS3G 18 AK1) EX B
14 KK EY RL MP . MP
11 SK V R Z MP1 . MP1 + B.. . B.. - ESS.. + UG..3) + engraving

Type _____
Shaft _____
Limit -/cross-/special gate _____
Single/two axis _____
Spring return or friction brake _____
Mechanical interlock _____
Circuit in view direction 2) _____
Circuit in cross direction 2) _____

_____ Give clear text
_____ Handle 3) Additional: give clear text
_____ Electronic
_____ Poti in cross direction 2)
_____ Poti in view direction 2)

1) AK=standard

2) In case of single axis other axis is omitted

3) Please assign handle clearly defined



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VNSO



NNSO



Features

- robust controller with aluminium console
- lever 8 mm, metal gear
- modular design for series and client-specific versions
- drive for 1 and 2 axes
- rotary motion with universal or T-handle
- version with double lever available (NSO-GG)
- ergonomic handles
- silver contact for max. 16 A
- electrically safe gold-plated contacts
- mounting of potentiometers, encoders possible
- resistant against ozone, UV-radiation, oil and maritime climate

Technical data

- rating insulation voltage U_i 400 V
- conventional thermal current I_{th} 16 A
- rotating operational voltage – rotating operational current
 - AC12: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 16\text{ A}$
 - AC15: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 6\text{ A}$
 - DC12: $U_e = 24\text{ V DC}$ – $I_e = 1,7\text{ A}$
 - DC13: $U_e = 24\text{ VDC}$ – $I_e = 1,1\text{ A}$
- mechanical life 20 mio. cycles
- protection on front (DIN EN 60529) IP54
- max. deflection $\pm 36^\circ$
- max. number of switch position 7 – 0 – 7
- surrounding temperature $-40\text{ }^\circ\text{C} \dots +60\text{ }^\circ\text{C}$
- regulations
 - IEC60947-1, DIN EN 60947-1, VDE 0660 part 100
 - IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200
- approbations: CSA 15040, UL E106738(M)

Applications

- range of hoisting
- industrial control
- shipbuilding
- construction machinery
- automotive industry
- further information see sheet 9/...

Features

- robust controller with aluminium console
- lever 12 mm, metal gear, limiting gate
- modular design for series and client-specific versions
- drive for 1 and 2 axes
- rotary motion with universal or T-handle
- ergonomic handles
- silver contact for max. 16 A
- electrically safe gold-plated contacts
- mounting of potentiometers, encoders possible
- resistant against ozone, UV-radiation, oil and maritime climate

Technical data

- rating insulation voltage U_i 400 V
- conventional thermal current I_{th} 16 A
- capacity with microswitches
 - AC12: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 16\text{ A}$
 - AC15: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 6\text{ A}$
 - DC12: $U_e = 24\text{ VDC}$ – $I_e = 1,7\text{ A}$
 - DC13: $U_e = 24\text{ VDC}$ – $I_e = 1,1\text{ A}$
- mechanical life 20 mio. cycles
- protection on front (DIN EN 60529) IP54
- max. deflection $\pm 30^\circ$
- max. number of switch position 6 – 0 – 6
- surrounding temperature $-40\text{ }^\circ\text{C} \dots +60\text{ }^\circ\text{C}$
- regulations
 - IEC60947-1, DIN EN 60947-1, VDE 0660 part 100
 - IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200

Applications

- range of hoisting
- industrial control
- shipbuilding
- construction machinery
- automotive industry
- further information see sheet 9/...



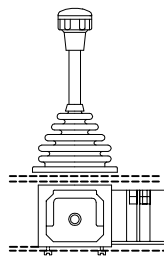


max.16 A/400 V
10 mio. cycles

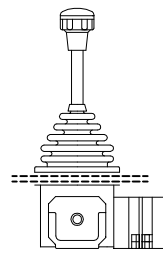
silver contacts
gold plated
silver contacts
front side
IP54
lever 8 mm

Photo:

VNS0 44 U 11 AK VR



without | with
spring return
base mounting
according to M 9/2B



without | with
spring return
front mounting
according to M 9/2A

Regulations:

IEC60947-1
DIN EN60947-5-1
VDE 0660 part 200

Approbations:

CSA 15040
UL E106738(M)

basic
price

EUR

each silver
double
contact
element
(gold plated)

EUR

Features:

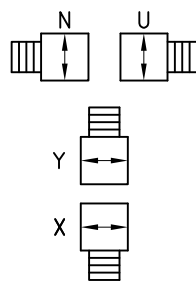
Double contact elements
and programmed not-
ing discs exchangeable
according to S 40/1 or
client's requirement.
Notching disc suitable
to circuit diagram
(stepless or up to max.
7-0-7 steps available),
handle, rubber boot,
transparent escutcheon
plate, legend foil

Ratings according to
sheet 1/1

Note:

If the circuit is unsym.
it is necessary to
stipulate the arrange-
ment

Drive arrangement E



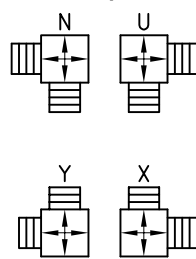
VNS0-N-E
VNS0-U-E
VNS0-Y-E
VNS0-X-E

VNS0-FN-E
VNS0-FU-E
VNS0-FY-E
VNS0-FX-E

VNS0-N-ER
VNS0-U-ER
VNS0-Y-ER
VNS0-X-ER

VNS0-FN-ER
VNS0-FU-ER
VNS0-FY-ER
VNS0-FX-ER

Drive arrangement V



VNS0--N-V
VNS0--U-V
VNS0--Y-V
VNS0--X-V

VNS0--FN-V
VNS0--FU-V
VNS0--FY-V
VNS0--FX-V

VNS0--N-VR
VNS0--U-VR
VNS0--Y-VR
VNS0--X-VR

VNS0--FN-VR
VNS0--FU-VR
VNS0--FY-VR
VNS0--FX-VR

Fitting in handle
Universal, special handle
Encoder
Potentiometer

see sheet 2/...
see sheet 3/...
see sheet 15/...
see sheet 14/...

Transmitter

see sheet 13/...

Additional prices for:

engraving each word (max. 14 letters)
escutcheon with symbols according to sheet 2/3 each pair
black aluminium escutcheon plate

limiting gate, lever deflection 36°
special limiting gate
cross gate
special gate
special notching disc
friction brake per axis

AK
SAK
KK
SK

B

Ordering example:

K VNS0 1 2 F N 11 SK
14 KK V R H 8P1.9P1 + PQ55 . B55
18 AK

Gold plated contacts	_____
Type	_____
Double contact in view direction	_____
Double contact in cross direction	_____
Front mounting	_____
Arrangement	_____
Shaft 110/140/180 mm	_____
Special/cross/limiting gate	_____
Drive arrangement	_____
Spring return/friction brake	_____
Fitting in handle	_____
Circuit in view direction	_____
Circuit in cross direction	_____
Potentiometer in view direction	_____
Potentiometer in cross direction	_____

Note:

Special handle,
engraving should
be described.

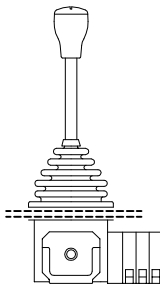
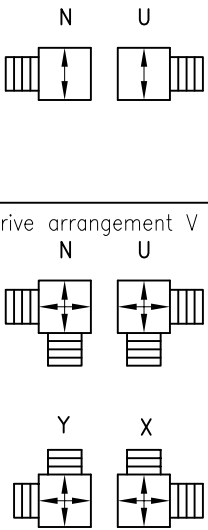


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List 7 / 2014 9/2N	Controller NNS0-FE, NNS0-FV heavy version, IP00 Dimensions see sheet M 9/2N		List 7 / 2014 9/2N	
Shaft $\varnothing 12$ mm with limit gate double contact elements and cams are exchangeable. Rating see sheet 1/1. Standard circuit see sheet S 40/1 ect. With transparent escutcheon, printable foil and rubber boot Note: If the circuit is unsym. it is important to stipulate the arrangement required		 without with spring return front mounting		Regulations: IEC60947-1 DIN EN60947-5-1 VDE 0660 part 200 Approbations: CSA 15040 UL E106738(M)
			Basic price EUR	Additional per double contact EUR
Drive arrangement E  		NNS0-FNE NNS0-FUE		
			NNS0-FNER NNS0-FUER	
		NNS0--FNV NNS0--FUV		
			NNS0--FNVR NNS0--FUVR	
Additional: Fitting in handle see sheet 2/1C Other handles see sheet 3/... Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... Synchro transmitter DGO see sheet 13/1 Encoder see sheet 15/...		EUR	Special gate Cross gate Double contact element with gold contacts Friction brake	EUR SK KK
Ordering example: Type _____ Double contact in view direction _____ Double contact in cross direction _____ Front mounting _____ Arrangement _____ Shaft 11/140/180 mm _____ Special/cross/limiting gate _____ Drive arrangement _____ Spring return _____ Fitting in handle _____ Circuit in view direction _____ Circuit in cross direction _____		NNS0 2 3 F N 11 14 18 SK KK AK V R HU 20. 40	Engraving type of potentiometer should be described.	
		Spohn+Burkhardt Elektrotechnische Fabrik Blaubeuren		Mauergasse 5 89143 BLAUBEUREN GERMANY Tel. +49 7344 171-0 info@spobu.de Fax +49 7344 171-99 www.spobu.de



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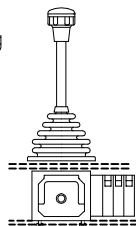
With replaceable double contacts
and cam discs

Maximal 7-0-7 steps, IP00
Rating see sheet 1/1

Standard circuit see sheet S 40/1 ect.
or request

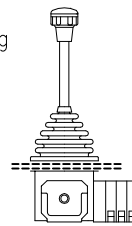
With transparent escutcheon plate (without engraving),
foil and rubber boot

Base-
mounting



without | with
spring return

Front-
mounting



without | with
spring return

Regulations:

IEC60947-1
DIN EN60947-5-1
VDE 0660 part 200

Approbations:

CSA 15040
UL E106738(M)

Basic
price

EUR

Addi-
tional
per
double
contact
EUR

Drive
arrangement G



VNS0-G

VNS0-FG

VNS0-GR

VNS0-FGR

Drive
arrangement GY



VNS0-GY

VNS0-FGY

VNS0-GYR

VNS0-FGYR

Drive
arrangement H



VNS0--H

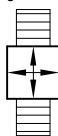
VNS0--FH

VNS0--HR

VNS0--FHR

Potentiometer
attachment
only for
view direction

Drive
arrangement M



VNS0--M

VNS0--FM

VNS0--MR

VNS0--FMR

Additional:

Fitting in handle see sheet 2/1

Engraving each word (max. 14 letters)

each symbol

Potentiometer attachment see sheet 14/...

(Arrangement H only for view direction)

Synchro transmitter DGO see sheet 13/1

Encoder see sheet 15/...

EUR

EUR

Cross gate

KK

Special gate

SK

Limiting gate

AK

Special limiting gate

SAK

Double contact element

with gold contacts

Friction brake

Ordering example:

VNS0 2 3 F

11

14

18

SK

KK

AK

H

R

H

20

40

Engraving,
type of potentiometer
should be described.

Type _____
Double contact in view direction _____
Double contact in cross direction _____
Front mounting _____
Shaft 110 _____
140 _____
180 _____
SK special gate _____
KK cross gate _____
AK limiting gate _____
Drive arrangement _____
Spring return _____
Fitting in handle _____
Circuit in view direction _____
Circuit in cross direction _____

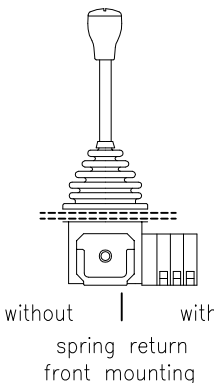
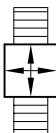


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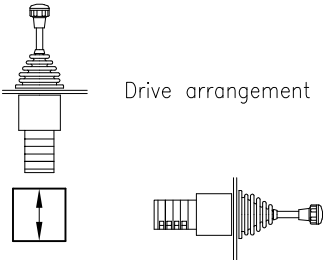
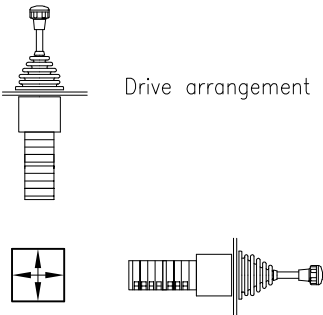
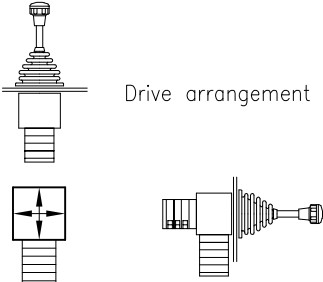
List 7 / 2014 9/3N		Controller NNS0-G, NNS0-M heavy version Dimensions see sheet M 9/3N				List 7 / 2014 9/3N	
Shaft Ø12 mm with limit gate double contact elements and cams are exchangeable. Rating see sheet 1/1. Standard circuit see sheet S 40/1 ect. With transparent escutcheon, printable foil and rubber boot		 without with spring return front mounting				Regulations: IEC60947-1 DIN EN60947-5-1 VDE 0660 part 200 Approbations: CSA 15040 UL E106738(M)	
						Basic price Addi- tional per double contact EUR EUR	
	Drive arrangement G	NNS0-FG					
				NNS0-FGR			
	Drive arrangement M	NNS0--FM					
				NNS0--FMR			
Additional: Fitting in handle see sheet 2/1C Other grips see sheet 3/... Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... Synchro transmitter DGO see sheet 13/1 Encoder see sheet 15/...		EUR		Special gate Cross gate Double contact element with gold contacts Friction brake		SK KK	EUR
Ordering example: NNS0 2 3 F 11 14 18 SK KK AK M R HU 20. 40 Type _____ Double contact in view direction _____ Double contact in cross direction _____ Front mounting _____ 110 _____ Shaft 140 _____ 180 _____ SK special gate _____ KK cross gate _____ AK limiting gate _____ Drive arrangement _____ Spring return _____ Fitting in handle _____ Circuit in view direction _____ Circuit in cross direction _____ Engraving, type of potentiometer should be described.							
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List 7 / 2014 9/4	Controller VNS0-A, VNS0-AA, VNS0-EA for front mounting Dimensions see sheet M 9/4				List 7 / 2014 9/4	
With replaceable double contacts and cam discs IP00, maximal 7-0-7 steps Rating see sheet 1/1 Standard circuit see sheet S 40/1 ect.			With transparent escutcheon plate (without engraving), and rubber boot		Basic price	Additional per double contact
			without with spring return		EUR	EUR
	 Drive arrangement A	VNS0-A	VNS0-AR			
	Potentiometer-attachment possible					
	 Drive arrangement AA	VNS0-AA	VNS0-AAR			
Potentiometer-attachment only for view direction						
 Drive arrangement EA	VNS0-EA	VNS0-EAR				
Potentiometer-attachment for both directions possible						
Additionalis: Fitting in handle see sheet 2/1 Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... Synchro transmitter DGO see sheet 13/1 Encoder see sheet 15/...			EUR		EUR	
			Cross gate Special gate Limiting gate 36°-0-36° Special limiting gate Double contact element with gold contacts Friction brake	KK SK AK SAK		
Ordering example:			VNS0 3 4 . 11 14 18 SK KK AA R TU 40. 50		Engraving, type of potentiometer should be described.	
Type _____ Double contact in view direction _____ Double contact in cross direction _____ Shaft 110 _____ 140 _____ 180 _____ SK special gate _____ KK cross gate _____ AK limiting gate _____ Dirve arrangement _____ Spring return _____ Fitting in handle _____ Circuit in view direction _____ Circuit in cross direction _____						



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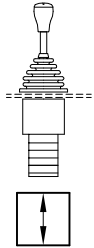
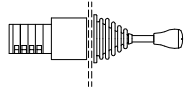
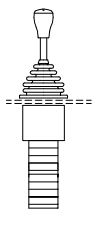
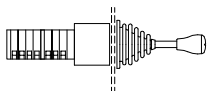
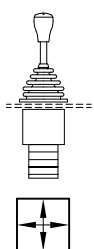
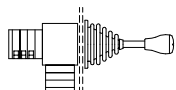
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List 7 / 2014 9/4N		Controller NNS0-A, NNS0-AA, NNS0-EA heavy version Dimensions see sheet M 9/4N			List 7 / 2014 9/4N			
Shaft Ø12 mm with limit gate double contact elements and cams are exchangeable. Rating see sheet 1/1. Standard switches see sheet S 40/1 ect. With transparent escutcheon, printable foil and rubber boot					without spring	with return	Basic price EUR	Addi- tional per double contact EUR
		Drive arrangement A		NNS0-A	NNS0-AR	Potentiometer-attachment possible		
		Drive arrangement AA		NNS0-AA	NNS0-AAR	Potentiometer-attachment only for in view direction possible		
		Drive arrangement EA		NNS0-EA	NNS0-EAR	Potentiometer-attachment for both directions possible		
Additional: Fitting in handle see sheet 2/1C Other handles see sheet 3/3, 3/8, 3/10 Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... Synchro transmitter DGO see sheet 13/1 Encoder see sheet 15/...				EUR		Special gate Cross gate Double contact element with gold contacts Friction brake	EUR SK KK	
Ordering example:				NNS0 3 4 . 11 14 18 SK KK AA R TU 40 . 50 AK		Engraving, type of potentiometer should be described.		
Type _____				_____		_____		
Double contact in view direction _____				_____		_____		
Double contact in cross direction _____				_____		_____		
Shaft 110 _____				_____		_____		
Shaft 140 _____				_____		_____		
Shaft 180 _____				_____		_____		
SK special gate _____				_____		_____		
KK cross gate _____				_____		_____		
AK limiting gate _____				_____		_____		
Drive arrangement _____				_____		_____		
Spring return _____				_____		_____		
Fitting in handle _____				_____		_____		
Circuit in view direction _____				_____		_____		
Circuit in cross direction _____				_____		_____		



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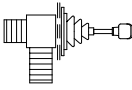
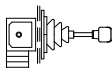
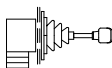
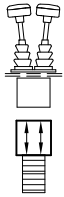
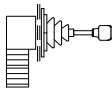
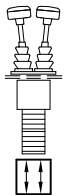
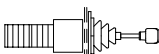
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List 7 / 2014 9/5	Controller NS0-GG for front mounting Dimensions see sheet M 9/5A + M 9/5B				List 7 / 2014 9/5
With replaceable double contacts and cam discs. Maximal 7-0-7 steps, IP00 Rating see sheet 1/1 Standard circuit see sheet S 40/1 ect.		With metallic escutcheon plate (without engraving) and rubber boots without with spring return		Basic price EUR	Additional per double contact EUR
	 Drive arrangement GGEA		NS0--GGEA NS0--GGEAR Potentiometer-attachment for both operating handles		
	 Drive arrangement GGVN		NS0--FN--GGV NS0--FN--GGVR Potentiometer-attachment for both operating handles		
	 Drive arrangement GGUV		NS0--FU--GGV NS0--FU--GGVR Potentiometer-attachment for both operating handles		
	 Drive arrangement GGH		NS0--F--GGH NS0--F--GGHR Potentiometer-attachment only for one operating handle		
	 Drive arrangement GGAA		NS0--GGAA NS0--GGAAR Potentiometer-attachment only for one operating handle		
Additionalis: Fitting in handle see sheet 3/2 + 3/10 T-handle G13 (by 140 or 180 mm) see sheet 3/10 Friction brake Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... Synchro transmitter DG0 see sheet 13/1					
Ordering example: Type _____ Double contact handle a-b _____ Double contact handle c-d _____ Front mounted _____ Arrangement _____ 110 _____ Shaft 140 _____ 180 _____ Drive arrangement _____ Spring return _____ Fitting in handle _____ Circuit handle a-b _____ Circuit handle c-d _____ NS0 3 2 F U 11 14 GGH R DT 40 .20 N 18 Engraving, type of potentiometer or T-handle should be described.					
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List 7 / 2014

9/7

Bracket-controller VNS0-K

Dimensions see sheet M 9/7

List 7 / 2014

9/7

With replaceable double contacts and cam discs.
Rating see sheet 1/1
Standard circuit see sheet S 40/1 ect.
or on request



With escutcheon plate and rubber boot connections

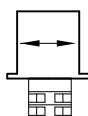
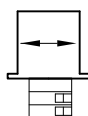
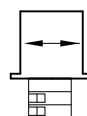
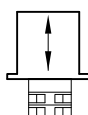
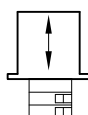
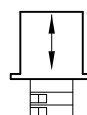
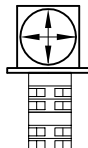
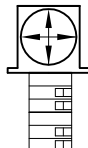
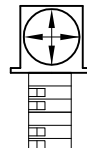
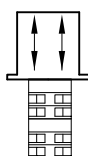
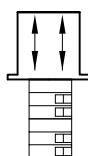
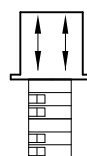
above

on the side

Without spring return

EUR

EUR

VNS0-KE
VNS0-KERVNS0-NKE
VNS0-NKERVNS0-UKE
VNS0-UKERVNS0-KG
VNS0-KGRVNS0-NKG
VNS0-NKGRVNS0-UKG
VNS0-UKGRVNS0--KH
VNS0--KHRVNS0--NKH
VNS0--NKHRVNS0--UKH
VNS0--UKHRNS0--KGG
NS0--KGGRNS0--NKG
NS0--NKGRNS0--UKGG
NS0--UKGGR

EUR

+ each double contact

EUR

+ each double contact

Additional:

Fitting in handle see sheet 2/1

Engraving each word (max. 14 letters)
each symbol

Potentiometer on request

Synchro transmitter DGO see sheet 13/1

Encoder see sheet 15/...

EUR

EUR

For operating block KH

Cross gate

Special gate

Limiting gate

Special limiting gate

Friction brake

KK

SK

AK

SAK

Ordering example:

VNS0 *3 4 N K 11 SK
14 KK H R T 40. 50
18 AK

Engraving,
type of potentiometer
should be described.

Type _____

Double contact in view direction _____

Double contact in cross direction _____

Arrangement _____

Bracket _____

110 _____

Shaft 140 _____

180 _____

SK special gate _____

KK cross gate _____

AK limiting gate _____

Drive arrangement _____

Spring return _____

Fitting in handle _____

Circuit in view direction _____

Circuit in cross direction _____

*
Length 1 is not possible.



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Controller NS002F:

max.
16 A/400 V

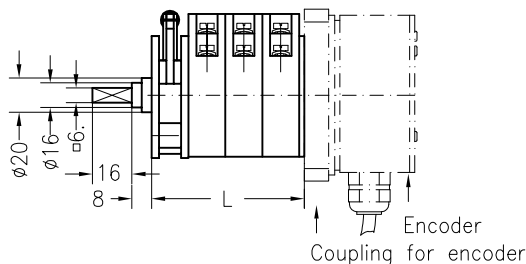
10 mio.
cycles

silver contacts

gold plated
silver contacts



Controller NS00- :



Regulations:

IEC60947-1
DIN EN60947-5-1
VDE 0660 part 200

Approbations:

CSA 15040
UL E106738(M)

basic
price

each silver
double
contact
element
(gold plated)

EUR

EUR

Version:

double contact elements
and programmed notch-
ing discs exchange-
able according to S40/1
or client's requirement.
Notching disc suitable
to circuit diagram
(stepless or up to max.
7-0-7 steps, or even
0-16 steps)

Ratings according to
sheet 1/1

Master controller:

without escutcheon
plate, without knob

Master controller:

escutcheon plate black
72x72 mm, stainless
steel ball handle,
3 engraved positions

Master controller:

escutcheon plate black
96x96 mm, stainless
steel ball handle,
3 engraved positions

Master controller:

water proofed escut-
cheon plate Ø70 mm
stainless steel ball
handle, 3 engraved
positions

without
spring return

with
spring return

with
friction disc

NS00-

NS00-R

NS00-B

NS00-F

NS00-FR

NS00-FB

NS00-FA

NS00-FAR

NS00-FAB

NS00-FOD

NS00-FODR

NS00-FODB

Transmitter:

encoder,
synchro transmitter

see sheet 13/...

potentiometer

see sheet 14/...

optoelectronic encoder

see sheet 15/...

Additional prices:

engraving each word (max. 14 letters)
escutcheon with symbols each symbol

installation into cast enclosure:

NW104A (till NS006-, NS005-R/-B)

NW107A (till NS0010-, NS009-R/-B)

special notching disc

EUR

Ordering example:

K NS00 1 F FA R - KN
FOD B - DK . 30

Gold plated contacts

Type

Quantity of double contact elements

Front plate

F...attachment plate, aluminium escutcheon plate 72x72 mm black

FA... attachment plate, aluminium escutcheon plate 96x96 mm black

FOD... waterproofed escutcheon plate Ø70 mm

Special, cross, limiting gate

Spring return, friction disc

Knob

KN... knob NW053

KG...ball handle with indicator V2A

DK...rotation knob(GN762.2 at NS00-F, GN526.1 at NS00-FA)

Switch sequence *)

*) Standard sequences see sheet S40/1, -/2, -/3. Special sequences please fillout preprinted form of NS00.



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Standard: 2 mm steel consols, front mounting

With replaceable
double contacts and
cam discs.
Rating see sheet 1/1



Drive arrangement		With transparent escutcheon plate (without engraving)		Basic price	+ each double contact
		without spring	with return	EUR	EUR
N	U	VNS04LF-E	VNS04LF-ER		
		VNS06LF-E	VNS06LF-ER		
		VNS09LF-E	VNS09LF-ER		
N	U	VNS03QF-E	VNS03QF-ER		
		VNS06QF-E	VNS06QF-ER		
		VNS09QF-E	VNS09QF-ER		
N	U	VNS03QF--V	VNS03QF--VR		
		VNS06QF--V	VNS06QF--VR		
Y	X	VNS09QF--V	VNS09QF--VR		

Additional:

Fitting in handle see sheet 2/1
Engraving each word (max. 14 letters)
each symbol

Potentiometer on request
Synchro transmitter DGO see sheet 13/1

EUR

Cross gate
Special gate
Limiting gate
Special limiting gate
Friction brake

EUR

KK
SK
AK
SAK

Ordering example:

VNS0 3Q F N 11 14 18 SK KK V R H 40. 20 AK

Engraving,
type of potentiometer
should be described.

Type _____
Steel box _____
Front mounting _____
Arrangement _____
110 _____
Shaft 140 _____
180 _____
SK special gate _____
KK cross gate _____
AK limiting gate _____
Drive arrangement _____
Spring return _____
Fitting in handle _____
Circuit in view direction _____
Circuit in cross direction _____



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List 7 / 2014

9/10

Controller VNS0-G, NS0-GG, VNS0-H, steel enclosure IP54
Dimensions see sheet M 9/10

List 7 / 2014

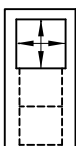
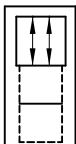
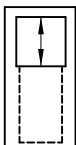
9/10

Standard: 2 mm steel consoles,
front mounting
(Base mounting without "F")

With replaceable
double contacts and
cam discs.
Rating see sheet 1/1



Drive arrangement



With transparent escutcheon plate
and rubber boot

without spring | with return

Basic
price

EUR

+
each
double
contact

EUR

VNS04 LFG

VNS04 LFGR

VNS06 LFG

VNS06 LFGR

VNS09 LFG

VNS09 LFGR

NS06 LFGG

NS06 LFGGR

NS09 LFGG

NS09 LFGGR

VNS06 LFH

VNS06 LFHR

VNS09 LFH

VNS09 LFHR

Additional:

Fitting in handle see sheet 2/1
Engraving each word (max. 14 letters)
each symbol

Potentiometer attachment on request
Synchro transmitter DGO see sheet 13/1
Additional fittings see sheet 2/2A + 2/2B

EUR

Cross gate
Special gate
Limiting gate
Special limiting gate
Friction brake

EUR

KK
SK
AK
SAK

Ordering example:

VNS0 9LF 11 SK
14 KK G R T 40. 30
18 AK

Type _____
Steel box _____
110 _____
Shaft 140 _____
180 _____
SK special gate _____
KK cross gate _____
AK limiting gate _____
Drive arrangement _____
Spring return _____
Fitting in handle _____
Circuit in view direction _____
Circuit in cross direction _____

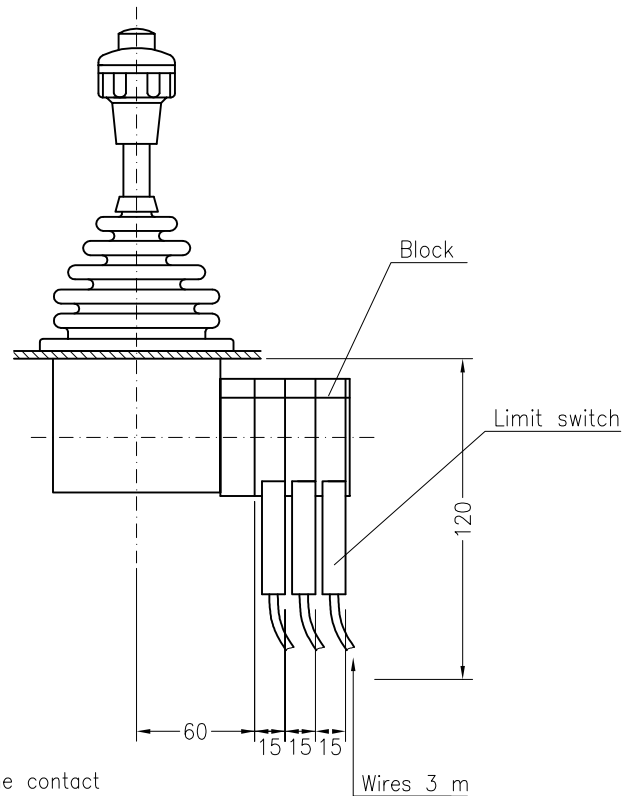
Engraving,
type of potentiometer
should be described.



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The limit switch is fixed similar as our standard contact elements to the block.

Contacts:

Limit switch, made Bartec:

Identification of limit switch
 Ⓔ II 2G EEx d IIC T6
 Inspection document PTB 00 ATEX 1093 X
 Environmental temperature: -20 °C to +75 °C

Technical data:

Limit switch according to DIN EN60947-5-1
 Protection limit switch IP66 IEC60947-5-1

Technical data:

normal voltage	used category	AC	400 V
(see DIN EN60947-5-1)	used category	AC-15 2 A	400 V
		DC-13 0,15 A	250 V

Potentiometer:

in enclosure according EEx d IIC T6

Basic price drive block:

See sheet 9/2, 9/3, 9/4, 9/5, 9/6, 9/8

EUR

Additional price:

Each 1 NO	07-2511-1520/62	cable length 5 m
Each 1 NC	07-2511-1510/62	cable length 5 m
Each 1 NO/1 NC	07-2511-1540/62	cable length 5 m
Each 1NO/NC	07-2511-1530/62	cable length 5 m
Each enclosed potentiometer (PW45 wire wound)		cable length 5 m
Each enclosed potentiometer (B55, conductive plastic)		cable length 5 m

On request: Potentiometer, EEx-d-push buttons, indicating lights, terminals, mounting in steel console.



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This robust and compact joystick controller NNS0F-PI(N) with lever strength 12 mm and reinforced mechanical drive is used for analogue controls. The conversion from lever deflection to electrical utilisable signals are realized by potentiometers. Those may control active electrical interfaces as CAN, CAN-open, profibus-DP, 20 mA-4-20 mA, 6 V -12 V -18 V and magnetic valves.

Degree of protection front side IP54

Drive block Circuit directions					With spring return		Basic-price EUR
					without 0-notching	with light 0-notching	
Single axis 					NNS0-AK E-RPI	NNS0-AK E-RPIN	
Two axis 					NNS0-AK VRPI	NNS0-AK VRPIN	

Features:

- enclosed when equipped with electronic
- limiting gate (standard)
- clear escutcheon plate with legend foil

Potentiometer: Price with coupling inclusively.

Poti 5-0-5 Kohm, 2 direction contacts, with center dead band
Poti 2,5-0-2,5 Kohm, 2 direction contacts, without center dead band

GLR55
GLR5

EUR

Additional price:

Cross gate
Special gate
Mechanical interlock 0-position
Engraving (give clear text)
Aluminium escutcheon plate black 96x96 mm

KK
SK
Z

Universal handle UG, UGN, UGD, UGA see sheet 3/...

Electronics	Type	Technical data see sheet	Add. price EUR
CAN-Bus acc. to STW-protocol 2.0B interface	ESS100	16/1	
CANopen interface for DS301 + DS401	ESS101-GTL	16/2	
Profibus-DP-interface	ESS094	16/3	
Current interface 20-4-20 mA	ESS089	16/23	
Voltage output 6 -12 -18 V	ESS098	16/21	
Voltage output max. 2 A, 24 VDC	ESS109	16/20	1 axis 2 axis

Ordering example:

Type, front side _____
 Shaft 110, 140, 180 mm _____
 special-/cross-/limiting gate _____
 Drive _____

NNS0F 11 SK
 14 KK
 18 AK

EXRPI
 EYRPI
 EXRPIN
 EYRPIN
 VRPI
 VRPIN

+ GLR55
 + GLR5

GLR55
 GLR5 + ESSxxx + UGA

Universal handle
 Electronics
 Potentiometer in view direction
 Potentiometer in cross direction

Note: universal handle UG... only available with shaft 110 mm



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Controllers VNS2 with contacts for AC, and VNSB2 with contacts for DC can be supplied for single or combined operation.

The controllers VNS2 are characterized by their many drive arrangements.

All the operating blocks can be supplied for front or base mounting.

The terminals are easily accessible from one side with both types of mounting.

All the controllers VNS2 can be manufactured with stayput or spring return up to 7-0-7 switch positions.

Any switching sequence can be selected. See sheet S 40/... for suggested circuits.

Special circuits which may be required should be entered on the enclosed master transparencies.

The double contacts and cams can be detached with a screwdriver.

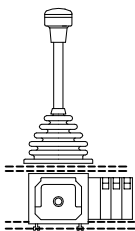
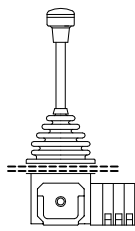
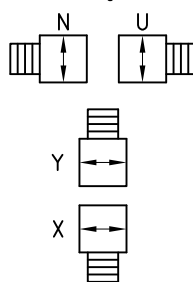
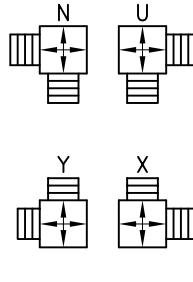
The normal gear ratio with controller VNS2 is 1:3,0 (lever deflection $\pm 40^\circ$, rotation of cam discs $\pm 120^\circ$). Consequently precise switching sequences are possible with 7-0-7 switching positions as well.

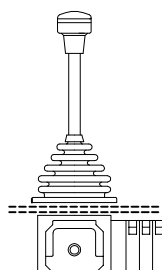
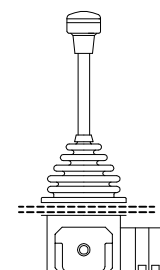
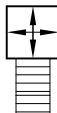
Ratings see sheet 1/1. All types are available with permanent magnet for DC.

Synchro transmitter, potentiometer and encoder can be attached.

Black metallic escutcheon, engraving with word or symbol.



List 7 / 2014 10/2		Controller VNS(B)2-E, VNS(B)2-V Dimensions see sheet M 10/2A + M 10/2B				List 7 / 2014 10/2	
	Max. 25 A 500 V 10 mio. cycles Silver contacts (VNS0) Gold plated Silver contacts (KVNS2) DC contacts (VNSB2) Front side IP54 Connections side IP00 Lever 12 mm	Base mounting according to sheet M 10/2B		Front mounting according to sheet M 10/2A		Regulations: IEC60947-1 DIN EN60947-5-1 VDE 0660part 200	
						Basic price	Each silver double contact element (DC)
Photo: Version with potentiometer and contacts		without spring	with return	without spring	with return	EUR	EUR
Features: Double contact elements and programmed notching discs exchangeable according to sheet S 40/1 or client's requirement. Notching disc suitable to circuit diagram (stepless or up to max. 7-0-7 steps available), handle, rubber boot, transparent escutcheon plate, legend foil. Ratings according to sheet 1/1	Drive arrangement E 	VNS(B)2-N-E VNS(B)2-U-E VNS(B)2-Y-E VNS(B)2-X-E		VNS(B)2-FN-E VNS(B)2-FU-E VNS(B)2-FY-E VNS(B)2-FX-E			
			VNS(B)2-N-ER VNS(B)2-U-ER VNS(B)2-Y-ER VNS(B)2-X-ER		VNS(B)2-FN-ER VNS(B)2-FU-ER VNS(B)2-FY-ER VNS(B)2-FX-ER		
	Drive arrangement V 	VNS(B)2--N-V VNS(B)2--U-V VNS(B)2--Y-V VNS(B)2--X-V		VNS(B)2--FN-V VNS(B)2--FU-V VNS(B)2--FY-V VNS(B)2--FX-V			
			VNS(B)2--N-VR VNS(B)2--U-VR VNS(B)2--Y-VR VNS(B)2--X-VR		VNS(B)2--FN-VR VNS(B)2--FU-VR VNS(B)2--FY-VR VNS(B)2--FX-VR		
Additional: Fitting in handle see sheet 2/... Universal, special handle see sheet 3/... Encoder see sheet 15/... Potentiometer see sheet 14/... Transmitter see sheet 13/...		Additional prices for: Engraving each word (max. 14 letters) Brass bracket Limiting gate Cross gate Special gate Special notching disc Friction brake per axis				Type: M AK KK SK B	
Ordering:		M K VNS2 2 3 F N 18 SK VNSB2 22 KK V R HZ 9P1. 40 + PQ55 . PQ22 28 AK B Brass bracket _____ Contacts gold-plated _____ Silver contacts/DC contacts _____ Double contact in view direction _____ Double contact in cross direction _____ Front mounting _____ Arrangement _____ Shaft 180/220/280 mm _____ Special/cross/ limiting gate _____ Drive arrangement _____ R=Spring return/B=Friction brake _____ Fitting in handle _____ Circuit in view direction _____ Circuit in cross direction _____ L Potentiometer in cross direction Potentiometer in view direction Note: * Special handle and engraving should be described clearly * If the circuit is unsymetric it is necessary to stipulate the arrangement					
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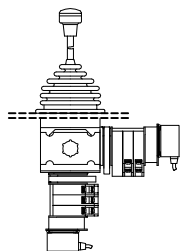
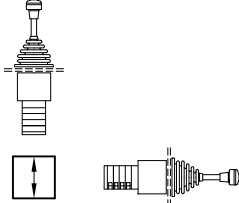
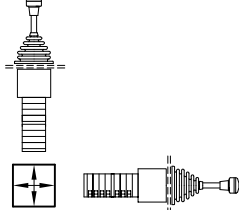
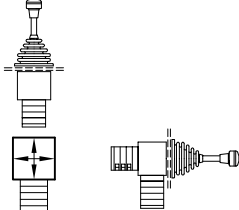
List 7 / 2014 10/3		Controller VNS2-G, VNS2-H Dimensions see sheet M 10/2B + M 10/3					List 7 / 2014 10/3																																																																																																																																																																																																																																																																																																																																																																																																																																			
With replaceable double contacts and cam discs Rating see sheet 1/1 Standard circuit see sheet S 40/1 ect. or on request			With metallic escutcheon plate (without engraving) and rubber boots VNS2 contacts for AC-VNSB2 contacts for DC Dimensions M 10/2B Base mounting  without spring with return			Dimensions M 10/3 Front mounting  without spring with return			Basic price																																																																																																																																																																																																																																																																																																																																																																																																																																	
							EUR																																																																																																																																																																																																																																																																																																																																																																																																																																			
 Drive arrangement G  Drive arrangement H 			VNS(B)2-G		VNS(B)2-FG			EUR	EUR																																																																																																																																																																																																																																																																																																																																																																																																																																	
				VNS(B)2-GR		VNS(B)2-FGR																																																																																																																																																																																																																																																																																																																																																																																																																																				
			VNS(B)2--H		VNS(B)2--FH																																																																																																																																																																																																																																																																																																																																																																																																																																					
				VNS(B)2--HR		VNS(B)2--FHR																																																																																																																																																																																																																																																																																																																																																																																																																																				
Additional: Fitting in handle see sheet 2/1B Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... (Arrangement H only for view direction) Synchro transmitter DGO see sheet 13/1 Encoder see sheet 15/11...										EUR		Type:	EUR																																																																																																																																																																																																																																																																																																																																																																																																																													
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												AK																																																																																																																																																																																																																																																																																																																																																																																																																														
Ordering example: Brass bracket Contacts gold-plated standard contacts Contact for DC Double contact in view direction Double contact in cross direction Front mounting Shaft special/cross/limiting gate Drive arrangement Spring return Fitting in handle Circuit in view direction Circuit in cross direction																																																																																																																																																																																																																																																																																																																																																																																																																																										

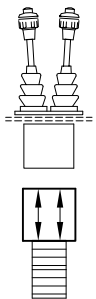
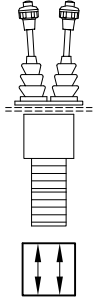
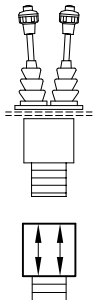


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List 7 / 2014 10/4		Controller VNS(B)2-A, VNS(B)2-AA, VNS(B)2-EA Dimensions see sheet M 10/4		List 7 / 2014 10/4	
	Max. 25 A 500 V 10 mio. cycles	Front mounting according to sheet M 10/4 Demenstration is: VNS(B)2-EA		Regulations: IEC60947-1 DIN EN60947-5-1 VDE 0660 part 200	
	Silver contacts Gold plated Silver contacts (K) DC contacts (B)			Basic price	Each silver double contact element
Photo: Version with potentiometer and contacts		without spring with return		EUR	EUR
Features: Double contact elements and programmed notching discs exchangeable according to sheet S 40/1 or client's requirement. Notching disc suitable to circuit diagram (stepless or up to max. 7-0-7 steps available), handle, rubber boot, transparent escutcheon plate, legend foil. Ratings according to sheet 1/1	Drive arrangement A 	VNS(B)2-A	VNS(B)2-AR		
	Drive arrangement AA 	VNS(B)2--AA	VNS(B)2--AAR		
	Drive arrangement EA 	VNS(B)2--EA	VNS(B)2--EAR		
Additional: Fitting in handle see sheet 2/... Universal, special handle see sheet 3/... Encoder see sheet 15/... Potentiometer see sheet 14/...		Additional prices for: Engraving each word (max. 14 letters) Brass bracket M Limiting gate AK Cross gate KK Special gate SK Special notching disc Friction brake per axis B			
Ordering example: M K VNS2 2 2 18 SK 22 KK AA R T 4P0. 9P1 + PQ55 . PQ22 28 VNSB2 AK B Brass bracket ————— M Contacts gold-plated ————— K Silver contacts/DC contacts ————— VNS2 Double contact in view direction ————— 2 Double contact in cross direction ————— 2 Shaft 180/220/280 mm ————— 18 Special/cross/ limiting gate ————— SK Drive arrangement ————— KK Spring return ————— AA Fitting in handle ————— R Circuit in view direction ————— T Circuit in cross direction ————— 4P0. 9P1 + PQ55 . PQ22 Potentiometer in cross direction ————— B Potentiometer in view direction ————— Note: * Special handle and engraving should be described clearly					
 Spohn+Burkhardt Elektrotechnische Fabrik Blaubeuren Mauergasse 5 89143 BLAUBEUREN GERMANY Tel. +49 7344 171-0 info@spobu.de Fax +49 7344 171-99 www.spobu.de					

List 7 / 2014 10/5	Controller NS2–GG Dimensions see sheet M 10/5A + M 10/5B		List 7 / 2014 10/5
Controller for front mounting, with replaceable double contacts and cam discs. Max. 7–0–7 steps, IP00 Rating see sheet 1/1 Standard–circuit see sheet S 40/1		With metallic escutcheon plate (without engraving) and rubber boots NS2 contacts for AC NSB2 contacts for DC without spring with return	Basic price
	 Drive arrangement GGH dimensions M 10/5A	NS(B)2–GGH NS(B)2–GGHR Potentiometer only for one operating handle	EUR EUR + each double contact for AC + each double contact with perm. magnets for DC
	 Drive arrangement GGAA dimensions M 10/5A	NS(B)2––GGAA NS(B)2––GGAAR Potentiometer only for one operating handle	
	 Drive arrangement GGEA dimensions M 10/5B	NS(B)2––GGEA NS(B)2––GGEAR Potentiometer possible for both operating handles	
Additionalis: EUR Fitting in handle see sheet 2/1B T–handle G2–NS2 see sheet 3/8 Engraving each word (max. 14 letters) each symbol Potentiometer attachment see sheet 14/... (Arrangement GGH + GGAA only for view direction) Synchro transmitter DGO see sheet 13/1 Encoder see sheet 15/11...			
Ordering example: Brass bracket _____ M Contacts gold–plated _____ K standard contacts } _____ NS2 Contact for DC } _____ NSB2 Double contact in view direction _____ 3 Double contact in cross direction _____ 2 Shaft _____ 28 Drive arrangement _____ GG Spring return _____ R Fitting in handle _____ HU Circuit in view direction _____ 40 Circuit in cross direction _____ 12			Engraving, type of potentiometer, gate or T–handle should be described.
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With replaceable double contacts,
cam discs, escutcheon plate
and rubber boot.
Standard circuit see sheet S 40/1 ect.
Rating see sheet 1/1



Terminals		Basic price	
on top	below	Spring without	return with
EUR	EUR	EUR	EUR
VNS(B)2-KE VNS(B)2-KER 	VNS(B)2-FKE VNS(B)2-FKER 		
VNS(B)2-KG VNS(B)2-KGR 	VNS(B)2-FKG VNS(B)2-FKGR 	EUR EUR	EUR EUR
VNS(B)2--KH VNS(B)2--KHR 	VNS(B)2--FKH VNS(B)2--FKHR 	each double contact for AC + each double contact with perm. magnets for DC	each double contact for AC + each double contact with perm. magnets for DC
NS(B)2--KGGH NS(B)2--KGGHR 	NS(B)2--FKGGH NS(B)2--FKGGHR 		

Additional:

Fitting in handle see sheet 2/1B
Engraving each word (max. 14 letters)
each symbol

EUR

For operating block KH:
Cross gate
Special gate
Limiting gate

Type:

EUR

KK
SK
AK

Potentiometer attachment or encoder on request.
Synchro transmitter DGO see sheet 13/1

Ordering example:

M K VNS2 3 4 F K 22 SK
 VNSB2 28 KK AK H R T 40 50
 Brass bracket _____
 Contacts gold-plated _____
 Standard contacts } _____
 DC contacts } _____
 Double contact in view direction _____
 Double contact in cross direction _____
 Front mounting _____
 Arrangement _____
 Shaft _____
 Special/cross/ limiting gate _____
 Drive arrangement _____
 Spring return _____
 Fitting in handle _____
 Circuit in view direction _____
 Circuit in cross direction _____

Engraving,
type of potentiometer
should be described.



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Switch without escutcheon plate,
without ball handle,
see sheet M 10/7A

With replaceable contacts and cam discs
Rating see sheet 1/1

Number of double contact elements	Without spring return		With spring return	
	Type	EUR	Type	EUR
1	NS 201		NS 201 R	
2	NS 202		NS 202 R	
3	NS 203		NS 203 R	
4	NS 204		NS 204 R	
5	NS 205		NS 205 R	
6	NS 206		NS 206 R	
7	NS 207		NS 207 R	
8	NS 208		NS 208 R	
9	NS 209		NS 209 R	
10	NS 2010		NS 2010 R	

Switch with escutcheon plate 96x96 mm
with 3 engravings and handle (silumin) 1)
see sheet M 10/7A

1	NS 201 F		NS 201 FR	
2	NS 202 F		NS 202 FR	
3	NS 203 F		NS 203 FR	
4	NS 204 F		NS 204 FR	
5	NS 205 F		NS 205 FR	
6	NS 206 F		NS 206 FR	
7	NS 207 F		NS 207 FR	
8	NS 208 F		NS 208 FR	
9	NS 209 F		NS 209 FR	
10	NS 2010 F		NS 2010 FR	

Switch with waterproofed escutcheon platte
ø100 mm with 3 engravings and handle (silumin)
see sheet M 10/7A

1	NS 201 FOD		NS 201 FODR	
2	NS 202 FOD		NS 202 FODR	
3	NS 203 FOD		NS 203 FODR	
4	NS 204 FOD		NS 204 FODR	
5	NS 205 FOD		NS 205 FODR	
6	NS 206 FOD		NS 206 FODR	
7	NS 207 FOD		NS 207 FODR	
8	NS 208 FOD		NS 208 FODR	
9	NS 209 FOD		NS 209 FODR	
10	NS 2010 FOD		NS 2010 FODR	

Cast enclosure IP56 (silumin) with handle, see sheet M 10/7B

No. of double contact elements	With stayput		With anti condensation heater and emergency stop		With spring return		With spring return, anti condensation heater and emergency stop	
		EUR		EUR		EUR		EUR
1	NS 207A G1		NS 207A GZP1		NS 207A GR1		NS 207A GRZP1	
2	NS 207A G2		NS 207A GZP2		NS 207A GR2		NS 207A GRZP2	
3	NS 207A G3		NS 207A GZP3		NS 207A GR3		NS 207A GRZP3	
4	NS 207A G4		NS 207A GZP4		NS 207A GR4		NS 210A GRZP4	
5	NS 207A G5		NS 207A GZP5		NS 207A GR5		NS 210A GRZP5	
6	NS 207A G6		NS 210A GZP6		NS 210A GR6			
7	NS 210A G7							
8	NS 210A G8							
9	NS 210A G9							
			Without heater	EUR				Without emergency stop
				EUR				EUR

Potentiometer attachment on request
Additional price each double contact element
with permanent magnet DC type NSB 2...

1) Less for knob operator

Engraving each symbol
each word



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List 7 / 2014

10/8

Controller VNS2-E, VNS2-V

Dimensions see sheet M 10/8

List 7 / 2014

10/8

Standard:

2 mm steel consoles,
front mounting.
Steel enclosure IP54

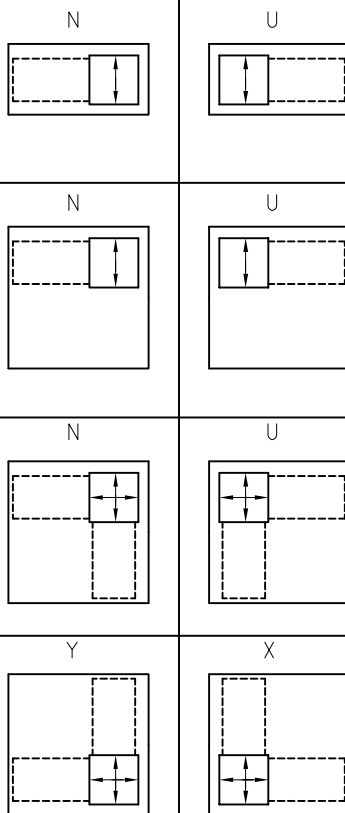
With replaceable
double contacts and
cam discs.

Rating see sheet 1/1



Photo:
VNS29QF--V

Drive arrangement



With metallic escutcheon plate (with-
out engraving) and rubber boots
VNS2 contacts for AC
VNSB2 contacts for DC

without spring return with

Basic price

EUR

VNS(B)26LF-E	VNS(B)26LF-ER		
VNS(B)29LF-E	VNS(B)29LF-ER		
VNS(B)214LF-E	VNS(B)214LF-ER		
VNS(B)24QF-E	VNS(B)24QF-ER		
VNS(B)26QF-E	VNS(B)26QF-ER		
VNS(B)29QF-E	VNS(B)29QF-ER		
VNS(B)24QF--V	VNS(B)24QF--VR		
VNS(B)26QF--V	VNS(B)26QF--VR		
VNS(B)29QF--V	VNS(B)29QF--VR		

EUR
EUR
+ each double contact for AC
+ each double contact with perm. magnet for DC

Additional:

Fitting in handle see sheet 2/1B

Engraving each word (max. 14 letters)
each symbol

Encoder or potentiometer attachment on request.

Synchro transmitter DGO see sheet 13/1

Buttons see sheet 2/2A + 2/2B

EUR

Type: EUR

Cross gate KK
Special gate SK
Limiting gate AK

Ordering example:

	M	K	VNS2	6QF	N	22	SK	V	R	H	40	20
			VNSB2			28	AK					
Brass bracket												
Contacts gold-plated												
Standard contacts												
DC contacts												
Steel box												
Arrangement												
Shaft												
Special/cross/ limiting gate												
Drive arrangement												
Spring return												
Fitting in handle												
Circuit in view direction												
Circuit in cross direction												

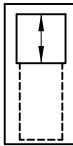
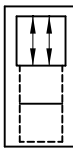
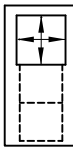
Engraving,
base mounting
which may be
required should
be described.



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List 7 / 2014 10/9		Controller VNS2-G, NS2-GG, VNS2-H Dimensions see sheet M 10/9					List 7 / 2014 10/9	
Standard: 2 mm steel consoles, front mounting. Steel enclosure IP54 With replaceable double contacts and cam discs. Rating see sheet 1/1 			Drive arrangement		With metallic escutcheon plate (without engraving) and rubber boots VNS2 contacts for AC VNSB2 contacts for DC		Basic price	
					without with spring return		EUR	
			 Drive arrangement G	VNS(B)26LG	VNS(B)26LGR		EUR EUR + each double contact for AC + each double contact with perm. magnet for DC	
				VNS(B)29LG	VNS(B)29LGR			
				VNS(B)214LG	VNS(B)214LGR			
			 Drive arrangement GG	NS(B)26LGG	NS(B)26LGGR			
				NS(B)29LGG	NS(B)29LGGR			
				NS(B)214LGG	NS(B)214LGGR			
			 Drive arrangement H	VNS(B)26LH	VNS(B)26LHR			
				VNS(B)29LH	VNS(B)29LHR			
VNS(B)214LH	VNS(B)214LHR							
Additional: Fitting in handle see sheet 2/1B Engraving each word (max. 14 letters) each symbol			EUR		Type:	EUR		
Potentiometer or encoder attachment on request. Synchro transmitter DGO see sheet 13/1					Cross gate Special gate Limiting gate	KK SK AK		
Ordering example:			M K VNS2 6L 22 SK VNSB2 28 KK G R T 40 30 AK		Engraving, type of potentiometer should be described.			
Brass bracket			_____					
Contacts gold-plated			_____					
Standard contacts			_____					
DC contacts			_____					
Steel box			_____					
Shaft			_____					
Special/cross/ limiting gate			_____					
Drive arrangement			_____					
Spring return			_____					
Fitting in handle			_____					
Circuit in view direction			_____					
Circuit in cross direction			_____					



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Without spring return

Type:

NS2...KA

EUR

With spring return

NS2...KAR

+ each double contact for

AC

+ each double contact with permanent magnet for

DC

Mechanical interlock

Z

Handle type B see sheet 3/5

Handle UG or UGN see sheet 3/3

Potentiometer couplings and potentiometer see sheet 14/...

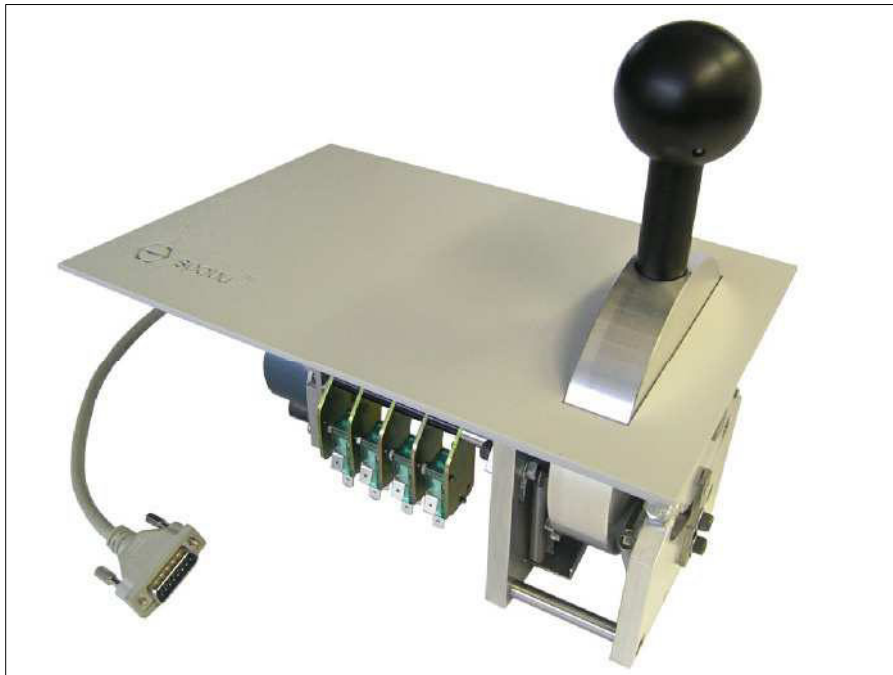
Encoders see sheet 15/11...

Ordering example:

	NS2					
	NSB2- KA	R	Z	B	UG	40
No. of double contacts	_____	_____	_____	_____	_____	_____
Spring return	_____	_____	_____	_____	_____	_____
Mechanical interlock	_____	_____	_____	_____	_____	_____
Handle UG	_____	_____	_____	_____	_____	_____
Handle B	_____	_____	_____	_____	_____	_____
Circuit	_____	_____	_____	_____	_____	_____



Drive and brake controllers are used for rail traffic applications.



Features

- compact design in modular construction system for various installations
- cam axis with ball bearing in order to reduce operator's force and to ensure sensitive operations
- contact circuits with spring return, stay put as well as stepless operations
- snap switches or cam-switched elements for safe contacts
- direct coupling of encoder OERH with current- and/or 8 bit code output
- handles in various forms
- additional functions inserted in handles e.g. horn, deadman...

Options

- contact circuits, dimensions according to client's request
- wiring onto terminals or plug and socket system
- engraved front plate
- client-specific handles

This drive and brake controller, applicable for various operations, was especially designed in order to keep maintenance costs low.



Use: Can be fitted to controller VNS0, NNS0 or VNS2.

Features: Small space requirement, direct connection to controller contact system without special couplings.

Description: The principle of the design is magnetic to provide a contactless system. The rotary magnetic inductive coupling gives the highest operating life. Primary and secondary coils are separately epoxy encapsulated. Angle of rotation $\pm 100^\circ$ till 120° . From 0 to 20° a small output voltage change is achieved giving safety during initial contact closure. This also allows to operate at slow speeds.



Technical data:

Input: at Zero position 5 VA
at Zero position 19 VA

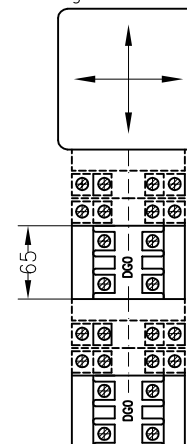
Output: maximum load 3 VA

Voltage: Primary: 115 or 230 V, 50 or 60 Hz
Secondary: 50 V

Weight: 0,65 kg

Arrangement:

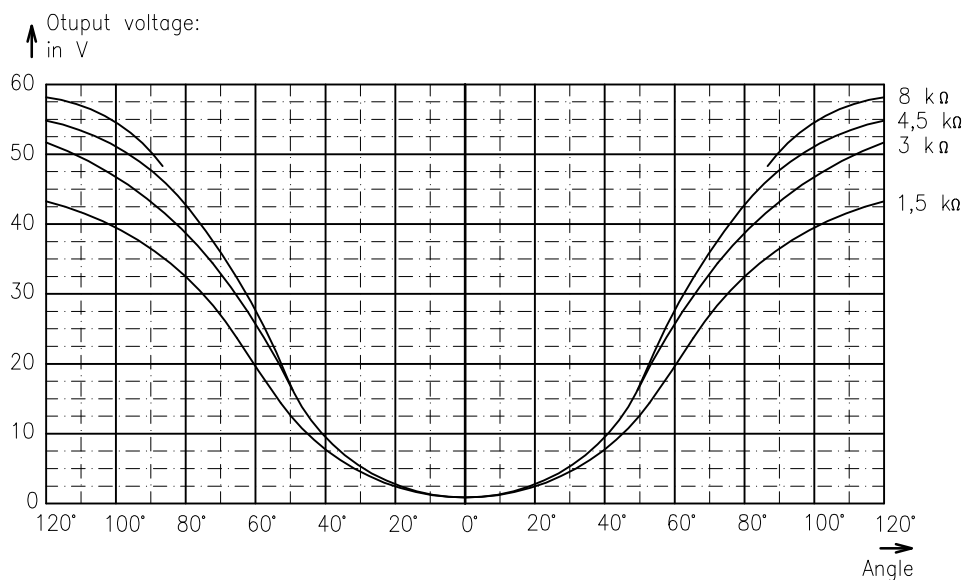
e.g. drive H



Circuit diagram:



Characteristic curve:



Versions:

Primary 115 V, secondary 50 V, 50/60 Hz
Primary 230 V, secondary 50 V, 50/60 Hz

Type:

DGO 115/50
DGO 230/50

SPOBU- Id.-Nr.:

13763
13764

EUR



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Use: Stepless rated values for VNS0, NNS0 or VNS2 controllers.

Features: Small space requirement, direct connection to controller contact system without special couplings.

Description: The principle of the design in magnetic is to provide a contactless system. The rotary magnetic inductive coupling gives the highest operating life. Primary and secondary coils are separately epoxy encapsulated. Angle of rotation $\pm 100^\circ$ till 120° .

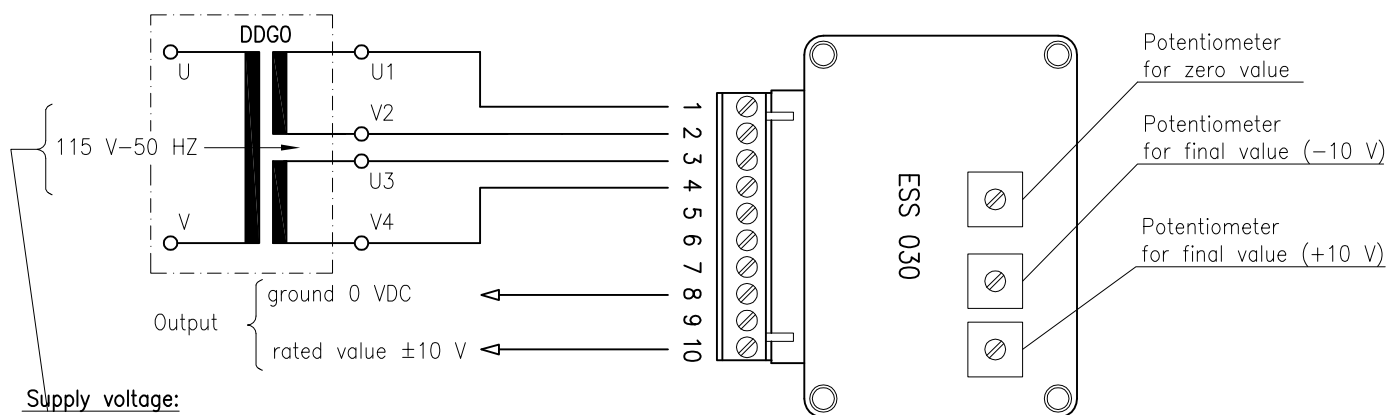
Input: Approx. 5 Watt

Voltage: Primary: 115 V or 230 V, 50 Hz or 60 Hz
Secondary : 50 V, other voltages on request (230/115 V/50 Hz transformer to be switched in series)

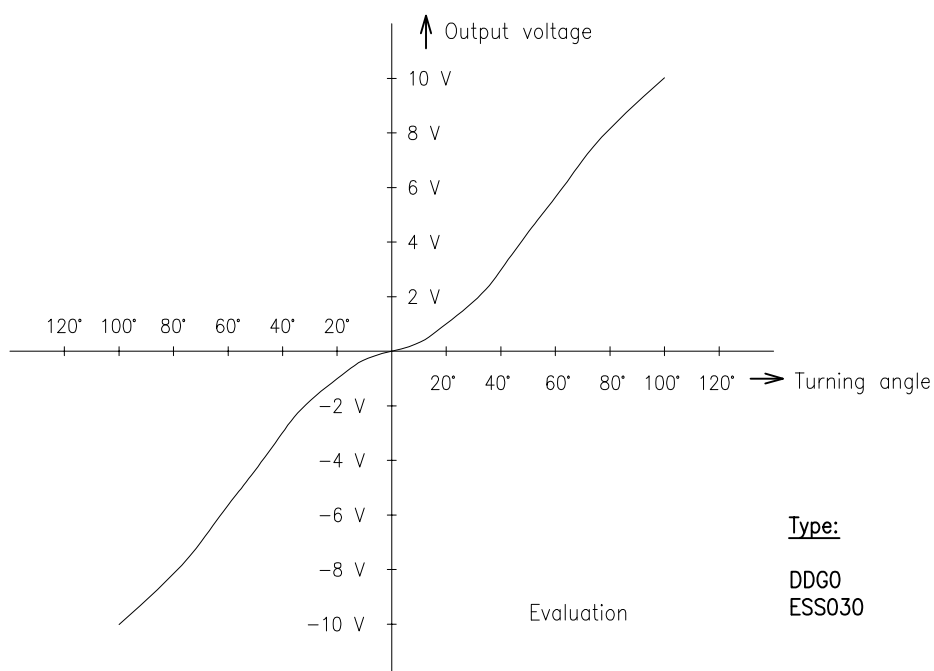
Output voltage: See characteristic curve (voltage at evaluation ESS030)

Weight: DDG0 0,65 kg
ESS030 0,2 kg

Connection:



Characteristic:



Type: EUR

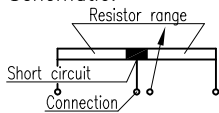
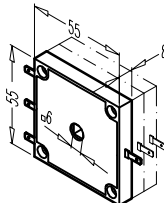
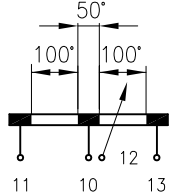
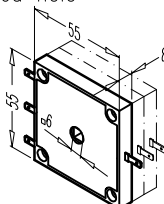
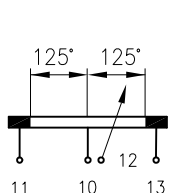
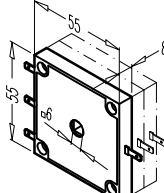
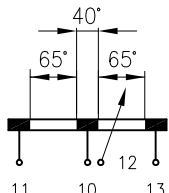
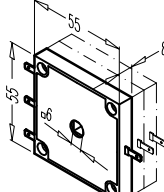
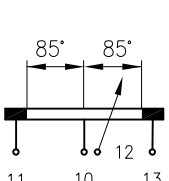
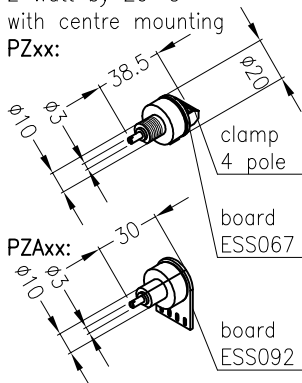
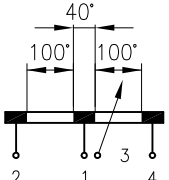
DDG0
ESS030



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List 7 / 2014 14/1A		Potentiometer wire wound					List 7 / 2014 14/1A				
Common: resistance tolerance $\pm 5\%$ wirewound wiper current max. 100 mA	Schematic: 	Ohmic value R	Type	Spobu Id.Nr.	EUR	Additional price for mount on controller each potentiometer EUR					
						M0	VCS0	VNS0	NNS0	VNS2	
PD550-S233 10 mio. cycles 3 Watt by 20 °C squared hole 		600R-0-600R 1 k-0-1 k 1k5-0-1k5 2 k-0-2 k 2k5-0-2k5 3 k-0-3 k 5 k-0-5 k 10 k-0-10 k	PQ0606 PQ11 PQ1.51.5 PQ22 PQ2.52.5 PQ33 PQ55 PQ1010	10849 11437 11892 11786 10847 11893 12072 11894							
PD550-S286 10 mio. cycles 3 Watt by 20 °C squared hole 		500R-500R 1 k-1 k 1k5-1k5 2k5-2k5 5 k-5 k 10 k-10 k	PQS0505 PQS11 PQS1.51.5 PQS2.52.5 PQS55 PQS1010	10848 17791 10843 12028 12120 10846							
PW55/01d-SM 7206-17A 10 mio. cycles 3 Watt by 20 °C squared hole 		2k5-0-2k5 5 k-0-5 k	PQN2.52.5 PQN55	20579 32685							
PW55/01d-SM 7206-17B 10 mio. cycles 3 Watt by 20 °C squared hole 		5 k-5 k	PQNS55	25360							
PD 200-S237 2 mio. cycles 2 Watt by 20 °C with centre mounting PZxx: 	 version K with board ESS092 and clamp, 4 pole	1 k-0-1 k 2 k-0-2 k 5 k-0-5 k 10 k-0-10 k 1 k-0-1 k 2 k-0-2 k 5 k-0-5 k 10 k-0-10 k	PZ11 PZ22 PZ55 PZ1010 PZA11 PZA22 PZA55 PZA1010 PZA11K PZA22K PZA55K PZA1010K	20969 20970 20971 20972 							



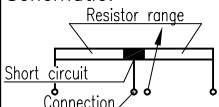
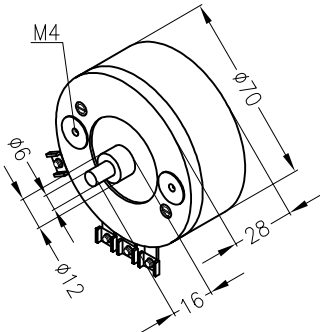
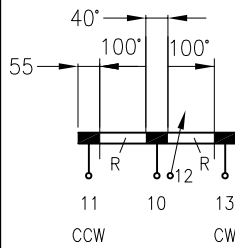
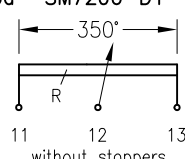
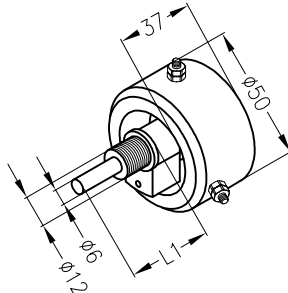
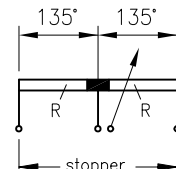
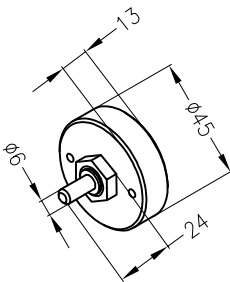
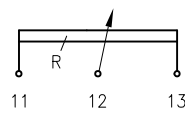
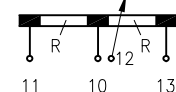
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List 7 / 2014 14/1B		Potentiometer wire wound					List 7 / 2014 14/1B			
Model	Schematic: 	Ohmic value	Type	Spobu Id.-Nr.	EUR	additional price for mounting on controller each poti EUR				
						VCS0	VNS0	NNS0	VNS2	
PW70 10 mio. rotations 6 Watt by 20 °C wire wound wiper current max. 120 mA resistance tolerance ±1% max. connecting load 60 V 	PW70-SM 7206-L 	540R-0-540R 1030R-0-1030R 5 k-0-5 k 10 k-0-10 k	PF0505 PF11 PF55 PF1010	11428 11968 11765 12011						
		5 k-0-5 k oil filled	PF055	11729						
	PW70d -SM7206-D1 	1 k 5 k 10 k	PFS1 PFS5 PFS10	17384 12470 23418						
DP60 1 mio. rotations 50 Watt by 20 °C wire wound with centre mounting max. wiper current see ohmic values resistance tolerance ±5%  standard L1=26 mm * by 15134 L1=19 mm	DP60-SM7206-03 	10R-0-10R * 10R-0-10R 25R-0-25R 50R-0-50R 80R-0-80R 120R-0-120R		15134 12338 14796 14303 12583 12352						
	PW0045 10 mio. rotations 1,5 Watt by 20 °C wiper current max. 120 mA resistance tolerance ±5% max. connecting load 24 V operating temperature -50 °C..+80 °C solder connections sleeve bearing 	PW0045 	5 k-90° 1 k-345° 5 k-345° 10 k-345°		16999 17790 16403 17538					
		1 k-0-1 k 90°-10°-90° 5 k-0-5 k 90°-10°-90° 10 k-0-10 k 90°-10°-90°		17541 14969 17546						
						additional price for mounting foot pedal / foot rocker incl. potentiometer				
						FT0	FST		FW0	

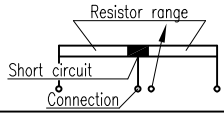


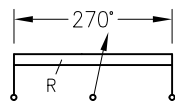
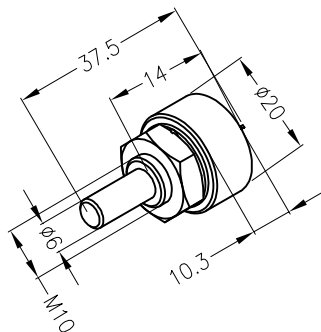
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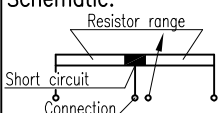
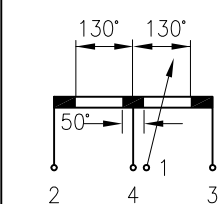
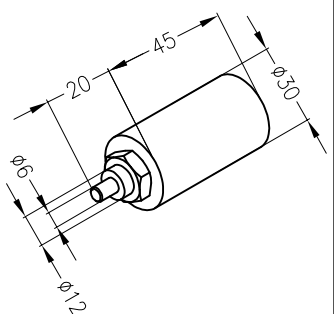
List 7 / 2014 14/1C		Ceramic potentiometer				List 7 / 2014 14/1C
Model	Schematic:	Ohmic value R	Type	Spobu Id.-Nr.		additional price for mount on foot switch FST inclusive potentiometer EUR
0621-013 cermet coat 2 W at 85 °C linear characteristic solder connections		1 k 4k7 10 k	R1K R5K R10K	17520 13650 15435		



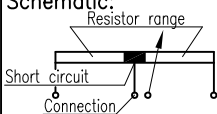
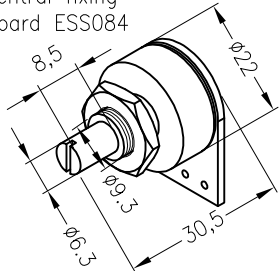
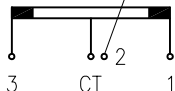
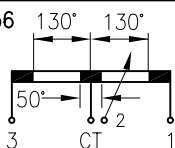
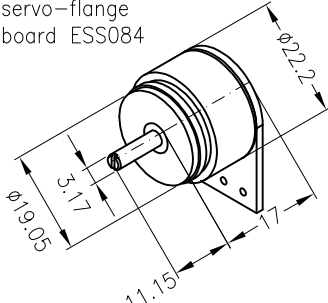
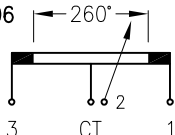
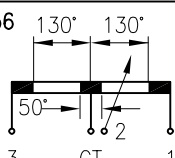
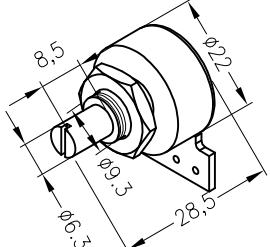
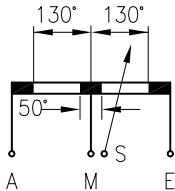
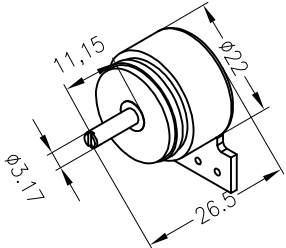
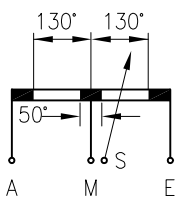
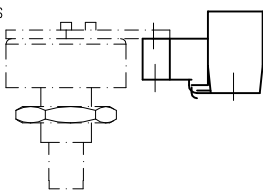
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List 7 / 2014 14/1D		EEx potentiometer				List 7 / 2014 14/1D
Model	Schematic:	Ohmic value		SPOBU Id.-Nr.	EUR	additional price for mount on controller VNS0 EUR
EExd-PL310 explosion protection degree of protection: II 2G EEx d IIC T6 approval: PTB 03 ATEX 1026 conductive plastic mechanical life: 10 mio. cycles resistance tolerance ±20% centre tap connection cable 5 m	  1=wiper 2=start 3=end 4=center tap	5 k-0-5 k		16465		
						



List 7 / 2014 14/2		Conductive plastic potentiometer and coupling						List 7 / 2014 14/2				
Note for the application of conductive potentiometers: * application of potentiometer as voltage divider without wiper load * recommended operational current in wiper circuit = 0,1 µA * maximal power rating 0,5 W/40 °C * maximal wiper current at failure 1 mA * maximal voltage supply $U_{max}(V) = \sqrt{P(W) \times R(\Omega)}$, max. 40 V												
Common: mechanical life: 10 mio. cycles resistance tolerance ±20 % with centre tap	Schematic: 	Ohmic value	Type	Spobu Id.Nr.	EUR	additional price for coupling EUR						
						ST0 ST1	M0 VCS0	CS1	VNS0 NNS0 VNS2	NS3		
Version G...: central fixing board ESS084 	S406 260° 	5 k	G5	20513								
	S256 130° 130° 	5 k-0-5 k	G55	20514								
Version B...: servo-flange board ESS084 	S406 260° 	1 k 5 k 10 k	B1 B5 B10	20507 20508 20509								
	S256 130° 130° 	1 k-0-1 k 5 k-0-5 k 10 k-0-10 k	B11 B55 B1010	20510 20511 20512								
Version M...: central fixing integrated connection board 	SM7206-30 	5 k-0-5 k	M55	23377								
Version M...: servo-flange integrated connection board 	SM7206-30-S 	5 k-0-5 k	M55S	30929								
4-pole, case GG with plug ST for above mentioned potentiometers 	GG=MSTBA 2,5/4-G ST=MSTBT 2,5/4-ST		accessory type -K	additional price EUR								



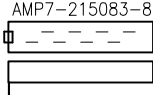
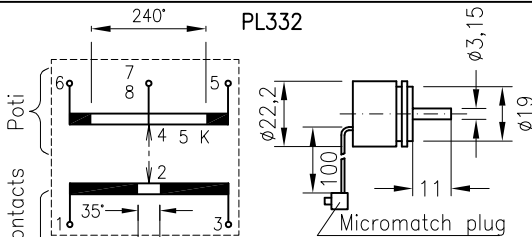
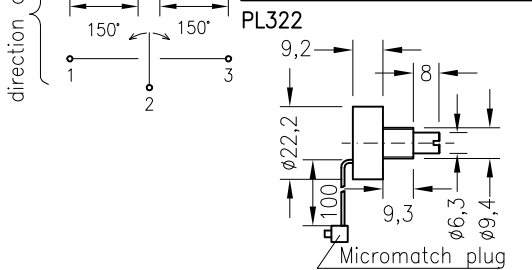
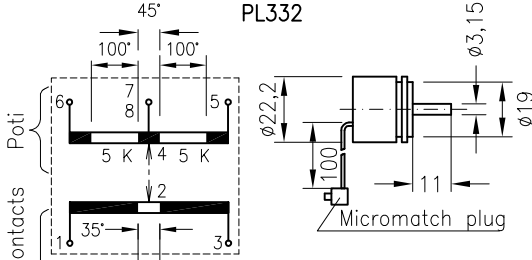
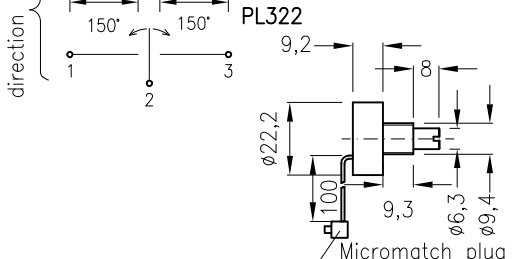
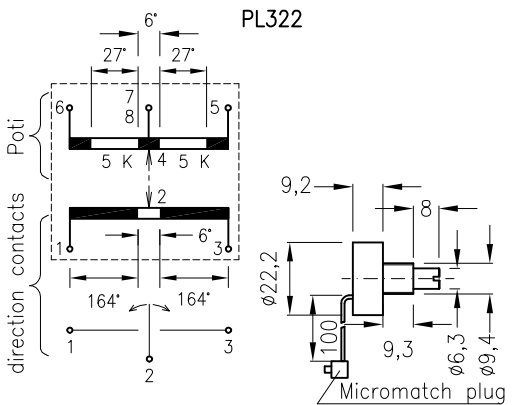
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List 7 / 2014 14/3		Conductive plastic potentiometer with direction contacts					List 7 / 2014 14/3					
Note for the application of conductive potentiometers: * maximal wiper current 1 mA * maximal power rating 0,5 W/40 °C * maximal voltage supply $U_{max}(V) = \sqrt{P(W) \times R(\Omega)}$ * recommendation: application of potentiometer as voltage divider without wiper load * load of direction switches: see wiper circuit					Features: 10 mio. cycles - Conductive plastic with centre tap and direction contacts. - Resistance tolerance ±20%							
Plug connection: 		Ohmic value	Type	Spobu Id.-Nr.	EUR	Additional price for mount on controller						
						M0	VCS0	CS1	VNS0	NNS0	VNS2	NS3
		5 k	BLR5	13009								
		5 k	GLR5	12688								
		5 k-0-5 k	BLR55	23269								
		5 k-0-5 k	GLR55	23268								
		5 k-0-5 k	GDLR55	27316	For handle UGA with twist operation							



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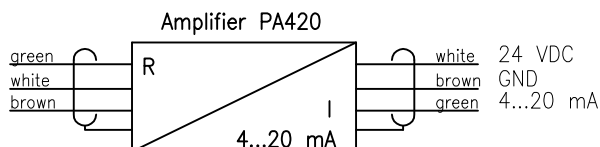
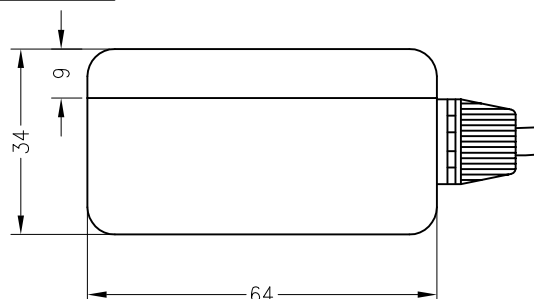
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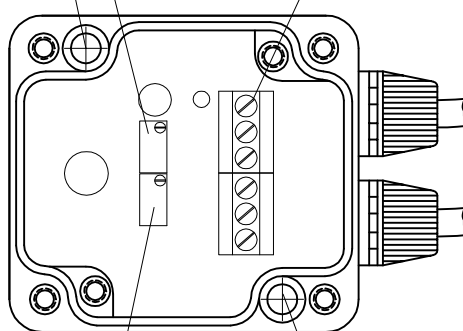


This amplifier converts the output of a potentiometer into a current signal of 4...20 mA.
Base value (4 mA, offset) and endvalue (20 mA, span) are adjustable by trimming potentiometers.

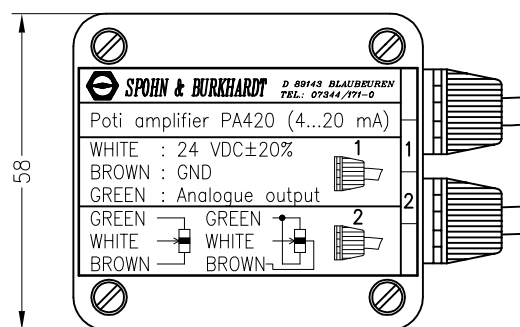
Diagram:Dimensions:Offset

Mounting
hole $\varnothing 4,8$ mm

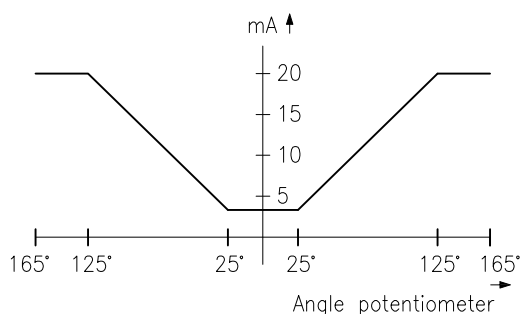
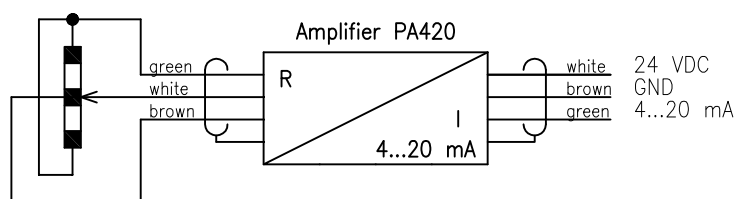
Terminals

Span

Mounting
hole $\varnothing 4,8$ mm

Output signals:

E.g. with poti PD550-S233

Connecting diagram:

possible potentiometer:

PD550 5-0-5 kOhm (PQ55, wired wound potentiometer)
PL310 5-0-5 kOhm (B55, conductive plastic potentiometer)
other potentiometer on request

Electrical data:

Supply voltage: 24 VDC ± 20 %
Supply current: max. 80 mA
Load: max. 500 Ohm
Output signal: 4-20 mA
Operating temperature: 0-60 °C
Potentiometer: 5-10 kOhm

Mechanical data:

Housing: plastic
Connection: shielded cable 3x0,25 mm²
length 1 m
Protection: IP42
Dimensions: 64x58x34 mm
Emi certificated

Price:

Amplifier PA420 price

SPOBU-Id.-Nr. EUR

EMI:

EN 55022 until 1 GHz
EN 61000-4-3
EN 61000-4-6
EN 61000-4-2

Suitable potentiometer see sheet 14/...

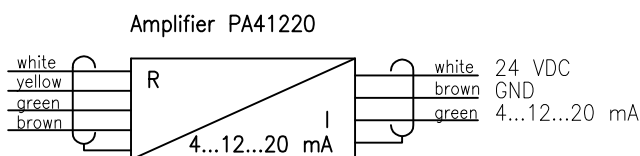
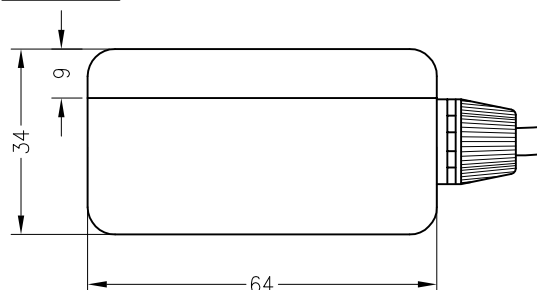


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In control units resistor changings of potentiometer are generated and afterwards amplified.
This amplifier converts the output of a potentiometer (5...10 kOhm) into a current signal of 4...12...20 mA.
Zero point and final value are adjustable separately.

Diagram:**Dimensions:****Structure:**

Trimmer for centre adjustment (12 mA)

Mounting hole $\varnothing 4,8$ mm

Indication of operating voltage

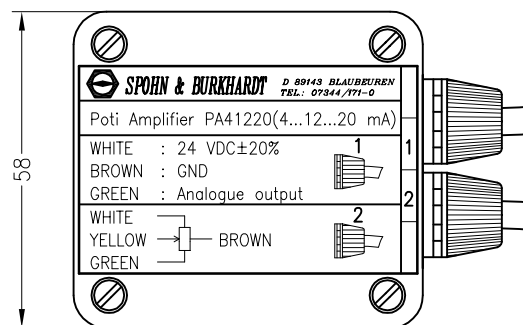
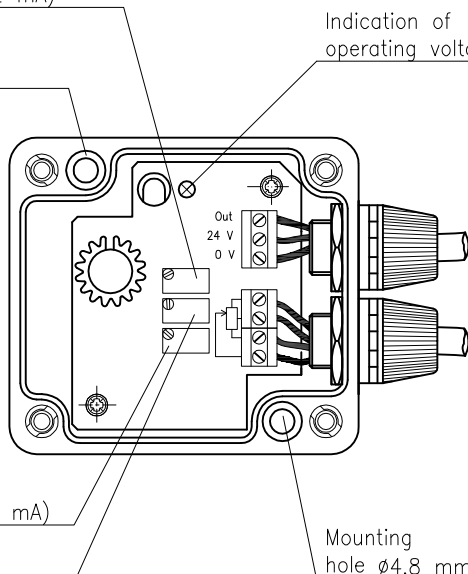
Wire color:
green
white
brown

white
brown
green
yellow

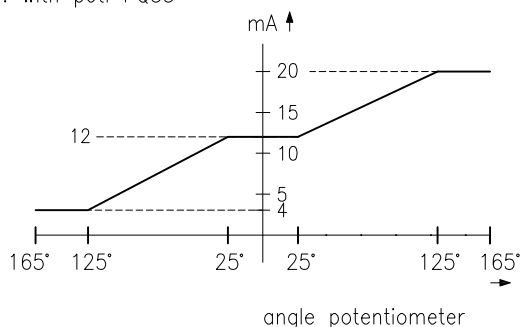
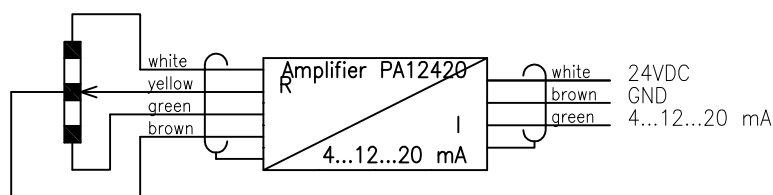
Trimmer for final value (20 mA)

Trimmer for final value (4 mA)

Mounting hole $\varnothing 4,8$ mm

**Output signals:**

E.g. with poti PQ55

**Connecting diagram:**

possible potentiometer:
B55 (conductive plastic potentiometer)
G55 (conductive plastic potentiometer)
Other potentiometer on request

Electrical data:

Supply voltage: 24 VDC $\pm 20\%$
Supply current: max. 80 mA
Load: max. 500 Ohm
Output signal: 4...12...20 mA
Operating temperature: 0-60 °C
Potentiometer: 5-10 kOhm

Mechanical data:

Housing: plastic
Connection: shielded cable 3x0,25 mm²
length 1 m
Protection: IP42
Dimensions: 64x58x34 mm
Emi certified

Price:

Amplifier PA41220

SPOBU-Id.-Nr. EUR

24890

Additional price:
potentiometer see 14/...

EMI:

EN 55022 until 1 GHz
EN 61000-4-3
EN 61000-4-6
EN 61000-4-2

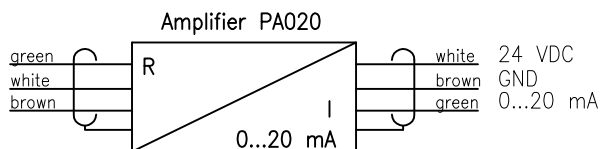
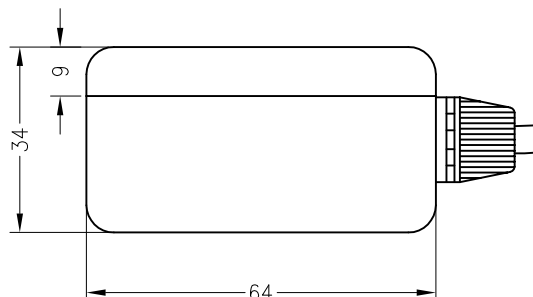


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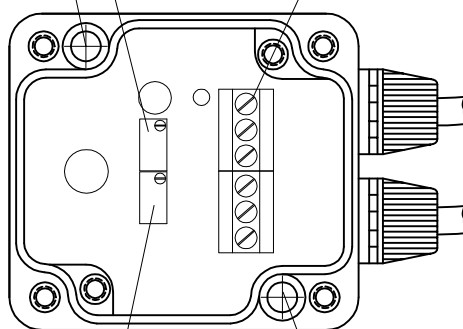
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This amplifier converts the output of a potentiometer into a current signal of 0...20 mA.
Base value (0 mA, offset) and endvalue (20 mA, span) are adjustable by trimming potentiometers.

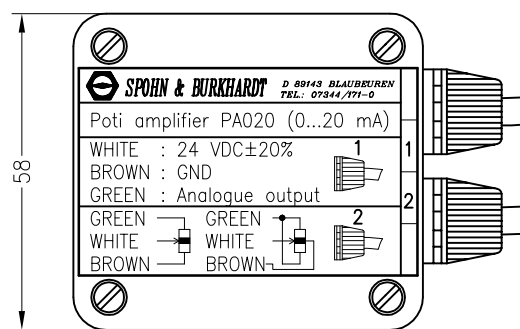
Diagram:Dimensions:Offset

Mounting
hole $\varnothing 4,8$ mm

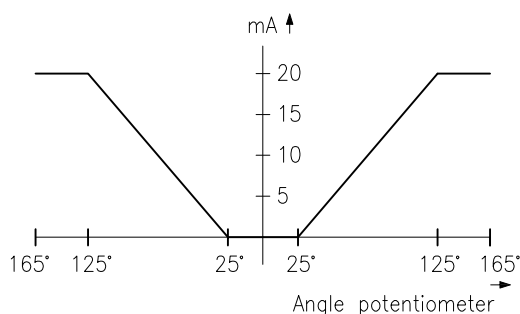
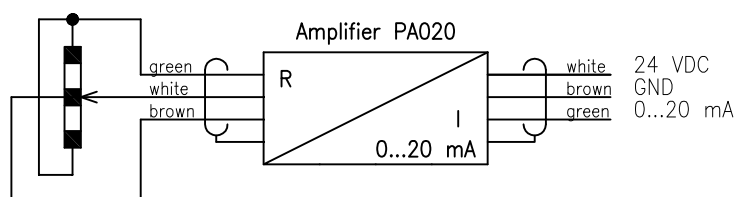
Terminals

Span

Mounting
hole $\varnothing 4,8$ mm

Output signals:

E.g. with poti PD550-S233

Connecting diagram:Electrical data:

Supply voltage: 24 VDC $\pm 20\%$
Supply current: max. 80 mA
Load: max. 500 Ohm
Output signal: 0-20 mA
Operating temperature: 0-60 °C
Suitable for Potentiometer: 5-10 kOhm

Mechanical data:

Housing: plastic
Connection: shielded cable 3x0,25 mm²
length 1 m
Protection: IP42
Dimensions: 64x58x34 mm

Price:

Amplifier PA020 price

SPOBU-Id.-Nr. EUR

25119

EMI:

EN 55022 until 1 GHz
EN 61000-4-3
EN 61000-4-6
EN 61000-4-2

Suitable potentiometer see sheet 14/...

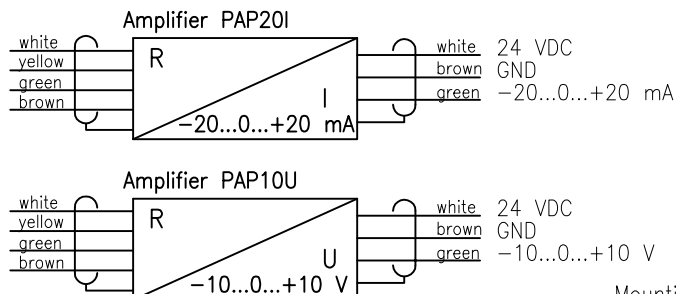
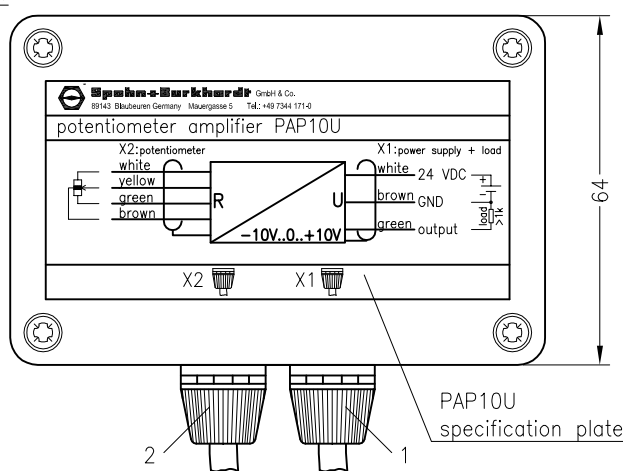
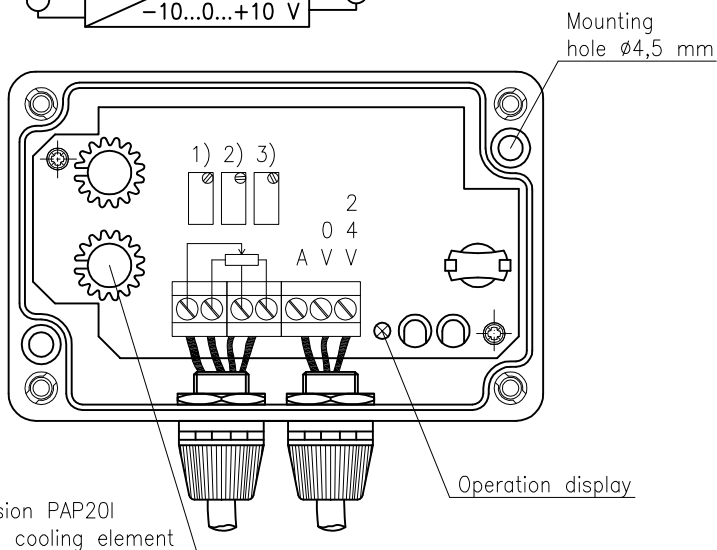
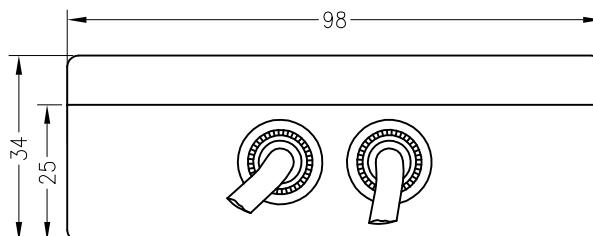


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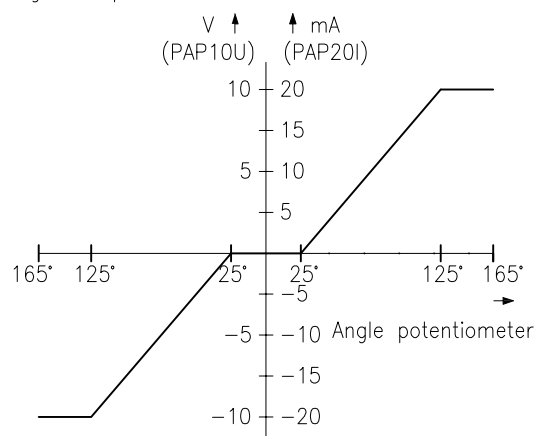
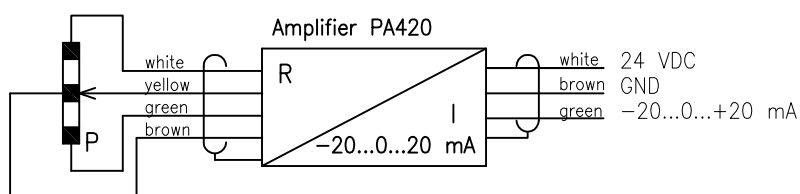
The control circuit, resistor changes are generated by sensors (e.g. potentiometers). Amplifiers are used for the transmission. The amplifier PAP20I as PAP10U respectively transform the signal of 5K–0–5K or 10K–0–10K of a potentiometer into a polarized current or voltage value. The adjustment of the zero point and the final value may be done by trimmer installed in the amplifier.

Diagram:**Dimensions:**

- 1) Trimmer for final value
- 2) Trimmer for final value
- 3) Trimmer for zero setting

Output signals:

E.g. with poti PD550–S233

**Connecting diagram:**

P: e.g.: PD550 5–0–5 kOhm –S233 (PQ55, wired wound potentiometer)
PL310 5–0–5 kOhm –S256 (B55, conductive plastic potentiometer)
Other potentiometer on request

Price:

Amplifier PAP20I piece
Amplifier PAP10U piece

EUR

EMI:

EN 55022 up to 1 Ghz
EN 61000–4–3
EN 61000–4–6
EN 61000–4–2

Electrical data:

Supply voltage: 24 VDC $\pm 15\%$
Operating temperature: $-25\text{ }^{\circ}\text{C} \dots +50\text{ }^{\circ}\text{C}$

Mechanical data:

Housing: plastic
Connection: shielded cable 3x0,25 mm²
4x0,25 mm², length 1 m
Protection: IP42
Dimensions: 98x64x34 mm

suitable potentiometer
see sheet 14/...



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This encoder uses a contactless optoelectronic system to identify each position. In addition to the binary and gray-code output the encoder has got 2 direction signals and a LED to indicate zero position. The encoder is mounted with coupling to the VNS0 and NNS0 master controller.

Features:

Push button for setting zero

LED for zero-position

Trimming potentiometer for current outputs

Programmable with PC-program:

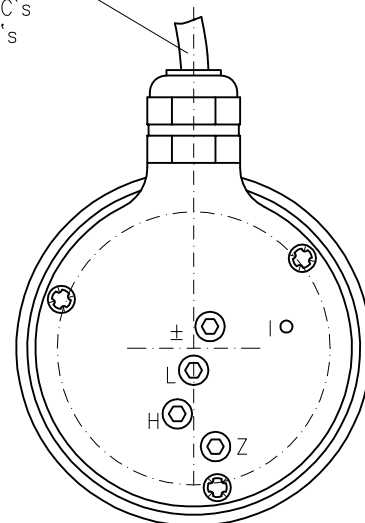
Programmable functions: curve characteristic, angle,
dead time, gray/binary 0–20/4–20 mA
and dead time for direction signals

Application:

* Digital reference for PLC's

* Analogue output for PLC's

OER... standard cable LiYCY
OERH... non halogen cable

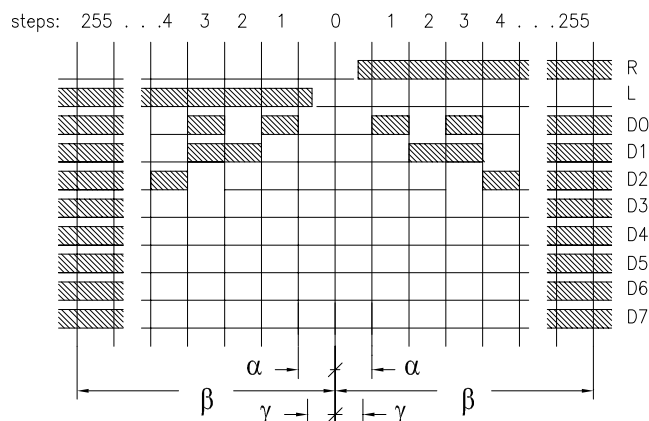


Designation key:	Version		charak- teristic curve	type of controller
	with cable LiYCY	with non halogen cable		
8 bit binary code	OER8B	OERH8B	– ☐	☐
8 bit gray code	OER8G	OERH8G	– ☐	☐
current output 0–20mA	OER020	OERH020	– ☐	☐
current output 4–20mA	OER420	OERH420	– ☐	☐
special characteristic curve	OERS...	OERHS...		

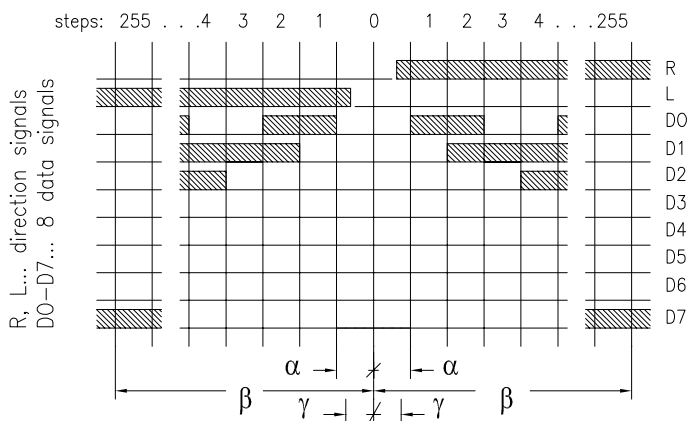
Characteristic curve (See details below)	Type of controller	Characteristic curve 1		
		α	β	γ
☐ 1 = linear	VNS0 = ☐	$\pm 20^\circ$	$\pm 123^\circ$	$\pm 15^\circ$
☐ 2 = progressiv 1	NNS0 = ☒ N	$\pm 20^\circ$	$\pm 85^\circ$	$\pm 15^\circ$
☐ 3 = progressiv 2	VNS2 = ☒ NS2	$\pm 20^\circ$	$\pm 100^\circ$	$\pm 15^\circ$
☐ 4 = progressiv 3				

Output signals:

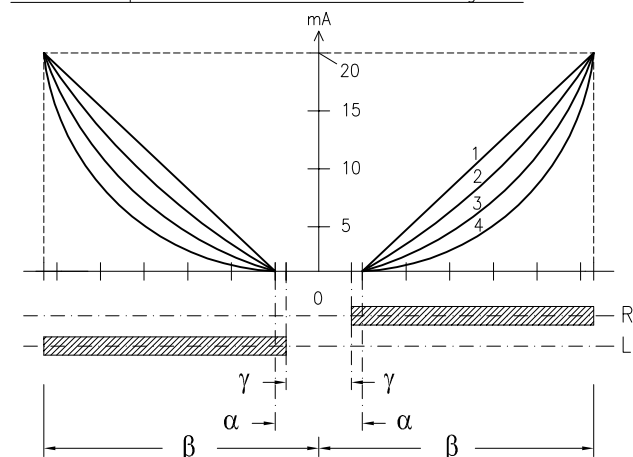
8-bit-binary code + 2 direction signals:



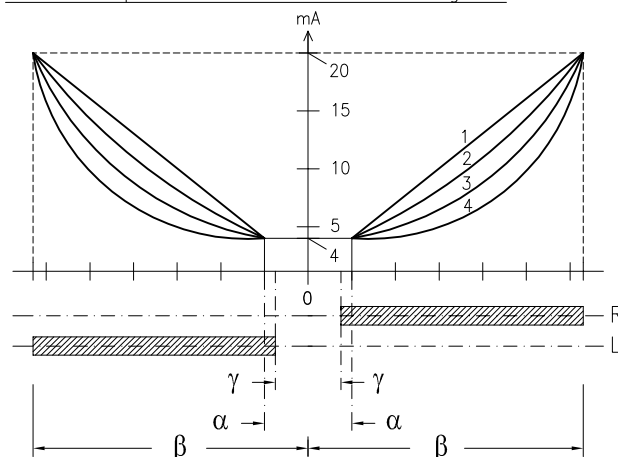
8-bit-gray code + 2 direction signals:

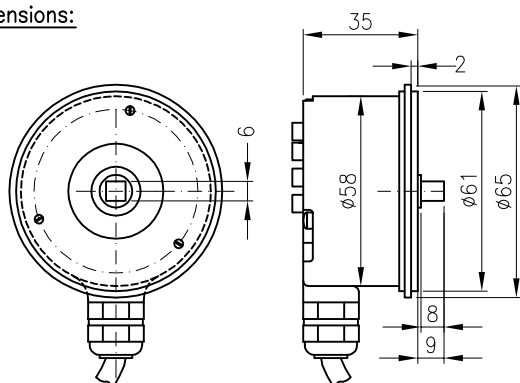


Current output 0–20 mA + 2 direction signals:



Current output 4–20 mA + 2 direction signals:



Dimensions:**Connection:**

8 bit gray or binary output:

Signals	15 pin D-Sub-plug (pin number)	Cable code DIN 47100
D0	7	green
D1	6	yellow
D2	5	grey
D3	4	pink
D4	3	blue
D5	2	red
D6	15	red/blue
D7	14	grey/pink
right	13	black
left	12	violet
supply voltage U+	9	white
GND 0V	8	brown
shielding	housing	shielding

Electrical data:

Supply voltage 9...36 VDC(U_v)
 Supply current Type (max) 45 (70) mA at 24 VDC
 Temperature $\pm 0,5\%$ at 20 mA ($\pm 100 \mu A$)
 Output signals 2 direction signals +
 current output or 8-bit-code
 Angle $\pm 123^\circ$ max. mechanical measuring

Outputs:

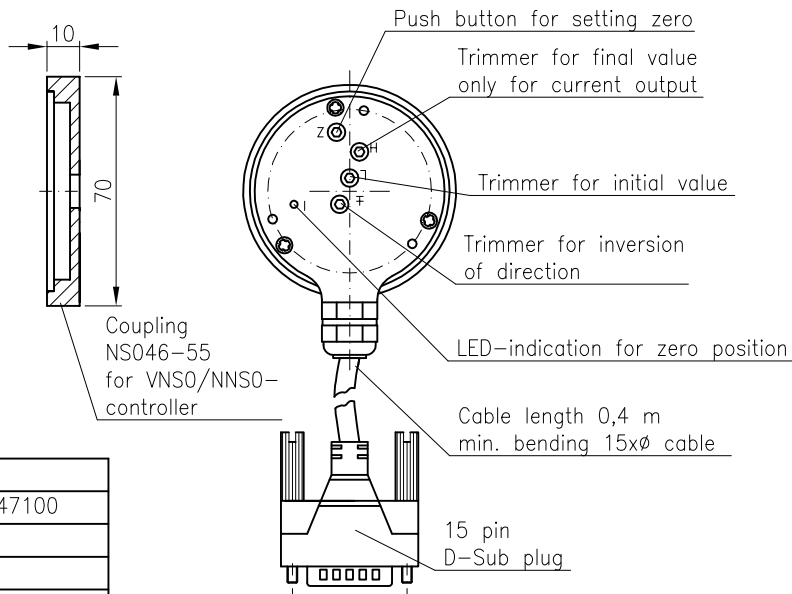
Parallel- and direction signals
 $U_{\text{High}} \geq U_v - 3,0 \text{ V}$, $U_{\text{Low}} \leq 0,5 \text{ V}$
 (at 20 mA) short circuit protected

Data code Gray / Binär
 Direction signals signal R=1:a (0:a), L=0:a (1:a)
 CW (CCW) from 0-position, view onto shaft

Current outputs 0...20 / 4...20 mA
 Maximal load (+U_v-7 V) / 20 mA=R max.
 Minimal load (150) 300 Ω bei (9...30) 30...36 VDC
 30...36 VDC voltage supply,
 continuous operation

Adjustment range
 current output signals

4 mA 3,8...4,2 mA
 20 mA 17...22 mA
 Scanning frequency 1 kHz
 Precision $\pm 1/2$ LSB
 Cable 0,4 m shielded (16x0,14 mm)
 Plug (pins) 15 pin D-sub plug at end of cable

**Connection diagram 0-20/4-20 mA:**

Signals	15 pin D-Sub-plug (pin-number)	Cable code DIN 47100
output signal	1	green
right	13	yellow
left	12	grey
supply voltage U+	9	white
GND 0V	8	brown
shielding	housing	shielding

Mechanical data:

Inertia factor $1,7 \times 10^{-6} \text{ kgm}^2$
 Journal load Radial 20N, axial 10N
 Shaft 6 mm, quadratic
 Code disc unbreakable acryl-glass
 Housing Aluminium
 Weight 350 g
 Protection IP65
 Temperature $-40^\circ \text{C} \dots +70^\circ \text{C}$
 Storage temperature $-45^\circ \text{C} \dots +70^\circ \text{C}$
 Vibration $\leq 300 \text{ m}^2/\text{s}$ (50...2000 Hz)
 Shock $\leq 2000 \text{ m}^2/\text{s}$ (11 ms)

EMI:

EN61000-4-2 ESD
 EN61000-4-3 Radiated RF field
 EN61000-4-4 Electrical fast transient/Burst
 EN61000-4-5 Surge
 EN61000-4-6 Conducted RF voltage
 EN55011 Radiated emission

Prices:

1 piece Encoder OER...
 1 piece Encoder OERH...

EUR

Additional:

1 piece Coupling NS046-55
 for VNS0/NNS0 controller.
 1 piece Extension cable LiYCY 12 pole 2 m
 gray/binary code
 1 piece Extension cable LiYCY 5 pole 2 m
 current output



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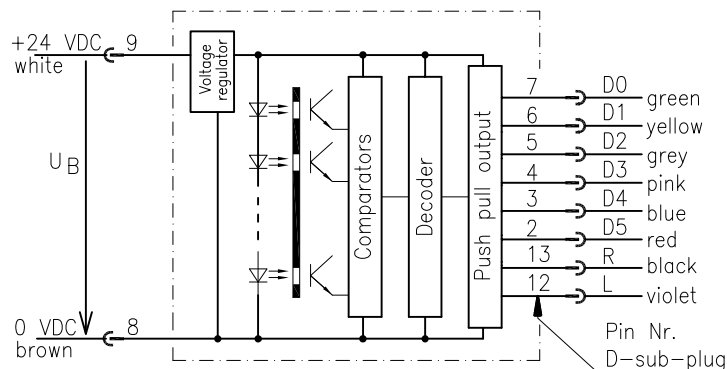
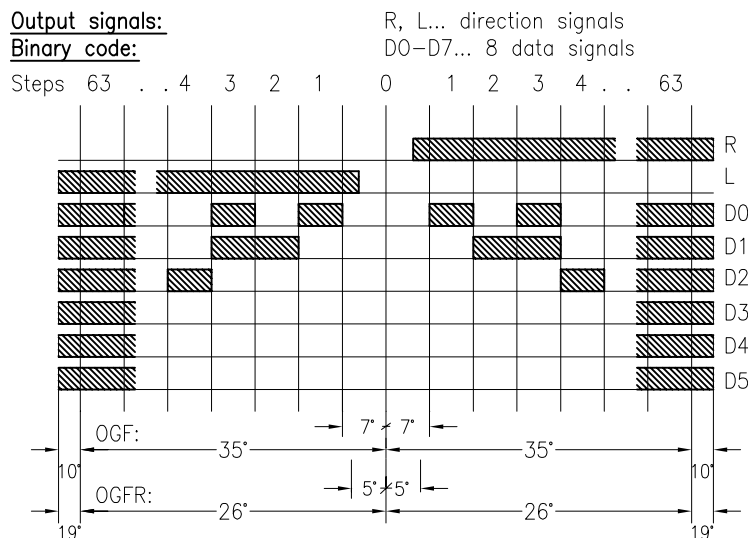
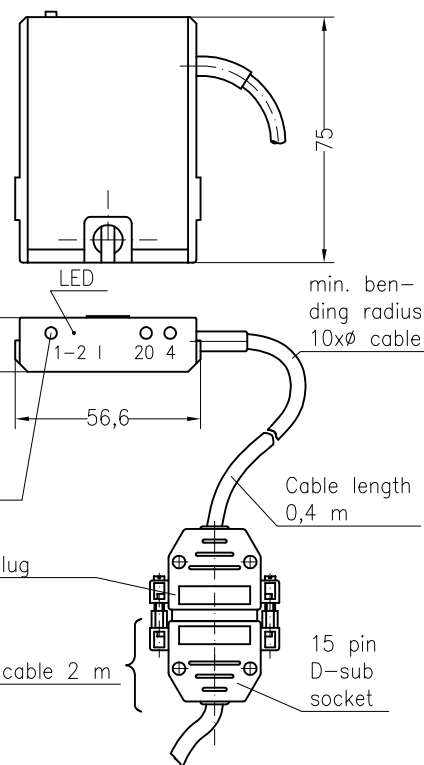
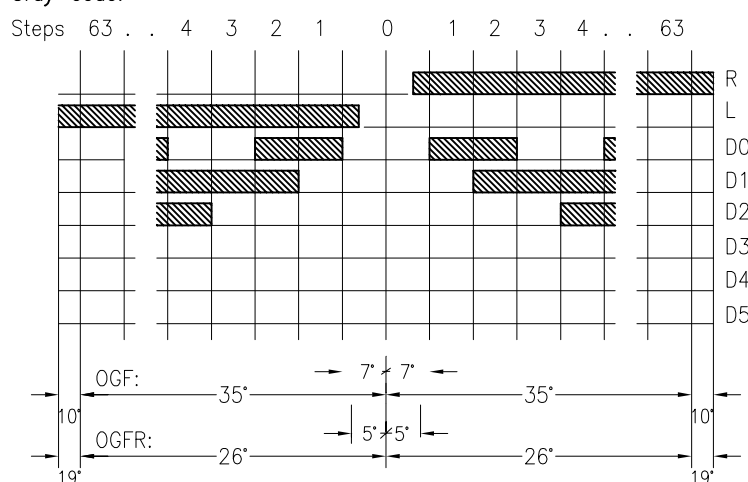
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

This encoder uses a contactless optoelectronic system. The encoder is mounted directly (without any special coupling) to joystick controller type VCS0. Zero position is indicated by LED.
Furthermore: output (gray or binary code) is adjustable by change-over switch.

Encoder	Function	Angle of rotation
OGF 6B	6-bit-binary-code	2x35°
OGFR 6B	2 direction signals	2x26°
OGF 6G	6-bit-gray-code	2x35°
OGFR 6G	2 direction signals	2x26°

Application:

- Digital reference for
- * PLC
 - * Controlled drive
 - * Hoist drive
 - * Digital-analogue transducer

Connection diagram:**Output signals:****Binary code:****Gray-code:****Electrical data:**

Supply voltage:

Current consumption:

Outputs:

 $U_B = 9...36$ VDC polarity protected

max. 60 mA at 24 VDC

8 x push pull amplifier, short circuit protected

 $U_{High} = U_B - 3,0$ V (at 20 mA) $U_{Low} < 0,5$ V (at 20 mA)

Output current per channel: max. 15 mA

Active angle: 35°-0-35° or rather 26°-0-26°

Temperature range: -20 °C till +60 °C

Temperature stability: 0,5% of 20 mA (± 100 iA)**Mechanical data:**

Enclosure:

Connection:

metallized ABS

shielded cable

LiYCY 10x0,14 mm²

length 2 m with 15 pin

D-Sub-plug

Scanning:

6 bit gray code disc

2 direction signals

Total angle: 45°-0-45°

Inertia factor: $0,3 \times 10^{-6}$ kgm²

Protection:

IP42

Resolving:

63-0-63 steps

Dead band zone:

5°-0-5°

Dimensions:

75x56,6x17 mm

Weight:

app. 150 g

EMC:

EN 50081-1

EN 50082-2

Price:

- 1 piece encoder OGF...
1 piece encoder OGFR...
1x extension cable LiYCY 10x0,14 2 m

EUR



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This encoder uses a contactless optoelectronic system. The encoder is mounted directly (without any special coupling) to controller type VCS0.

Zero and limit adjustment by trimming potentiometer. Zero position is indicated by LED.

Furthermore: output 0...20 mA or 4...20 mA is adjustable by change-over-switch.

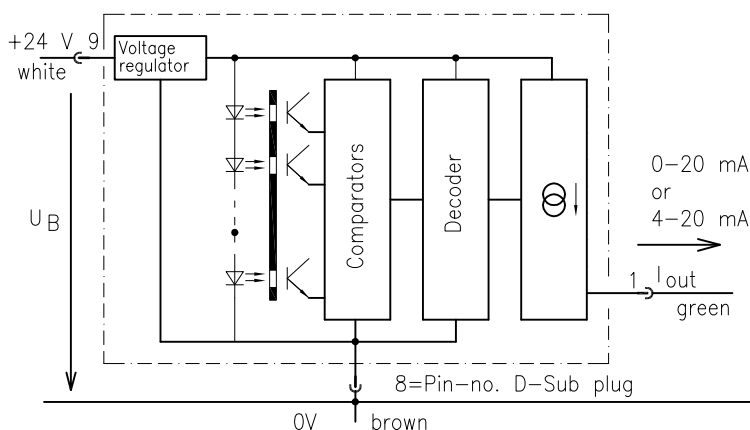
Version	Output signal	Rotation angle
OGF 020	20...0...20 mA	35°-0-35°
OGFR 020		26°-0-26°
OGF 420	20...4...20 mA	35°-0-35°
OGFR 420		26°-0-26°

Applications:

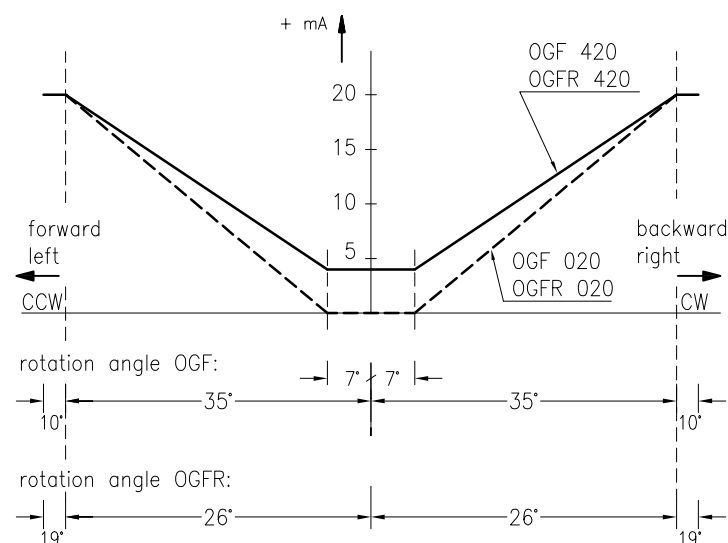
Analogue output for:

- * PLC's
- * Control systems
- * Converters

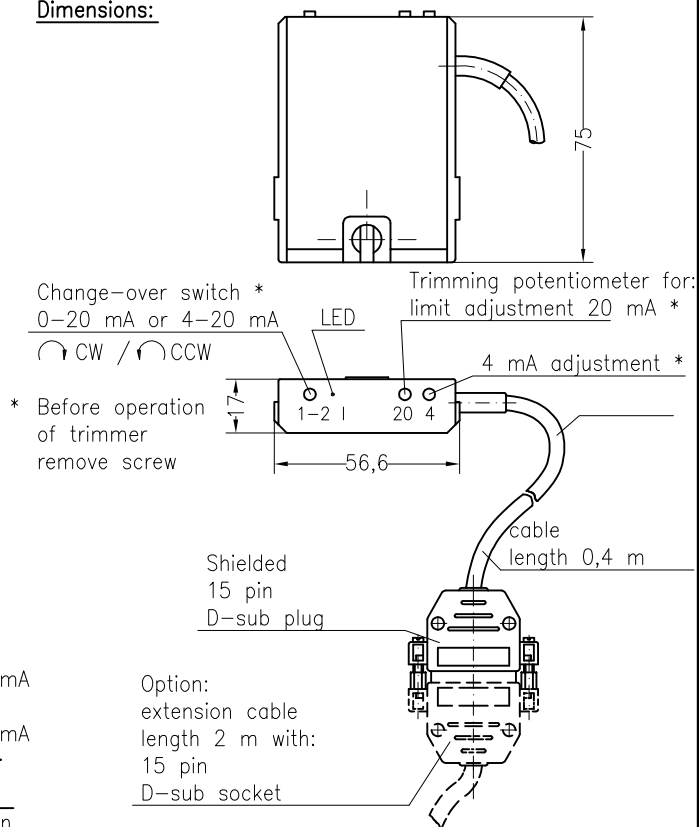
Connection diagram:



Output signals:



Dimensions:



Electrical data:

Supply voltage:	$U_B = 18...36$ VDC polarity protected
Current consumption:	max. 70 mA at 24 VDC
Max. load:	$(+U_B - 3 \text{ V}) / 20 \text{ mA} = R_{\text{max}}$
Minload:	0 Ohm
Output current:	max. 20 mA, short circuit protected
Active angle:	35°-0-35° or 26°-0-26°
Temp. range:	-20 °C to +60 °C
Temp.-stability:	0,5% by 20 mA ($\pm 100 \mu\text{A}$)
Adjustment:	
initial value/final value	4 mA : 3,8-4,2 mA 20 mA : 19-21 mA

Mechanical data:

Enclosure:	metallized ABS
Connection:	shielded cable LiYCY LiYCY 5x0,14 mm ² mit 15-poligem D-Sub-Stecker
Code disc:	Mylar
Scanning:	6 Bit gray-code disc
Max. rotation angle:	45°-0-45°
Inertia factor:	$0,3 \times 10^{-6} \text{ kgm}^2$
Protection:	IP42
Resolution:	63-0-63 steps
Weight:	150 g

EMC:

EN 61000-6-2:2001
EN 61000-6-4:2001

Price:

Absolute encoder OGF...
Absolute encoder OGFR...
Extension cable LiYCY 5-pole 2 m
according to SS 13463 B

EUR



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This absolut encoder shows a contactless system to be mounted directly to controller type VCS0.
The limit adjustment by trimming potentiometers.

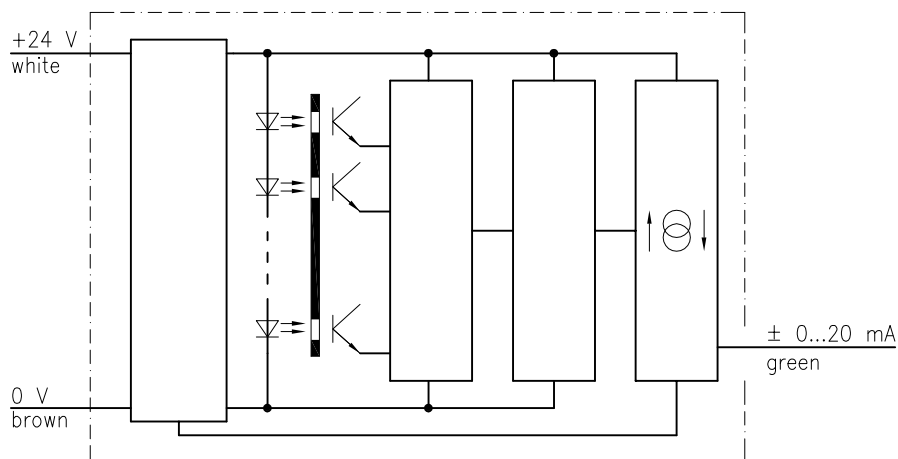
Typ: OGF P20 I

Encoder, current operated
± 0...20 mA (polarisation)

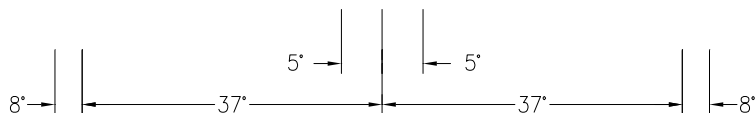
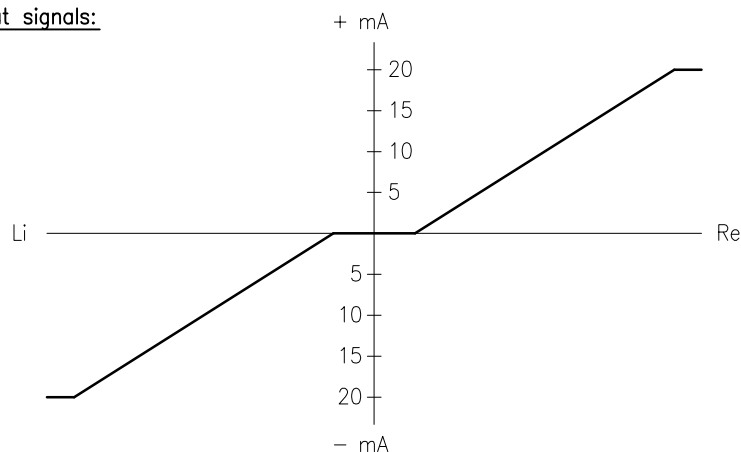
Application:

Analogue output for
* PLC's
* control systems
* converters

Diagram:



Output signals:



Electrical features:

Supply voltage: 18...36 VDC
Ripple voltage: < 10%
Supply current: max. 60 mA
Load: max. 500 Ohm
Temperature stability: max. 0,3%
Current each output: max. ±22 mA
short circuit proof
Active angle: 37°-0-37°
Temperature range: -20 °C...+60 °C
Life time: typ. 100.000 h

Mechanical features:

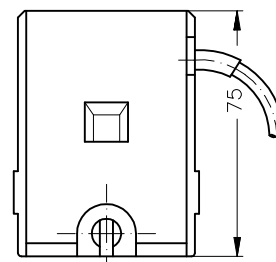
Enclosure: Metallized ABS
Connection: shielded cable
LiYCY 3x0,25 mm²
length 2 m, D-sub-connector
Scanning: 6 bit code +
2 direction signals
Angle: 45°-0-45°
Protection: IP42
Resolving: 63-0-63 steps
Dead band centre: 5°-0-5°
Dimensions: 75x56,6x17 mm

EMV:

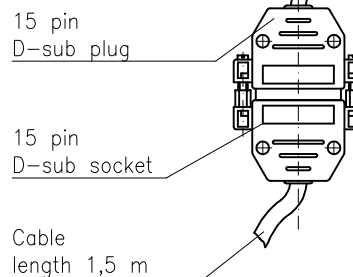
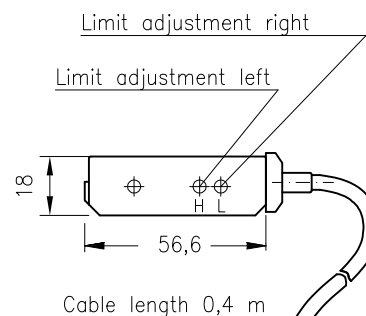
EN 50081-1
pr EN 50082-2

Price:
1 piece

EUR



Trimming potentiometer for*:



* Remove screws to adjust.



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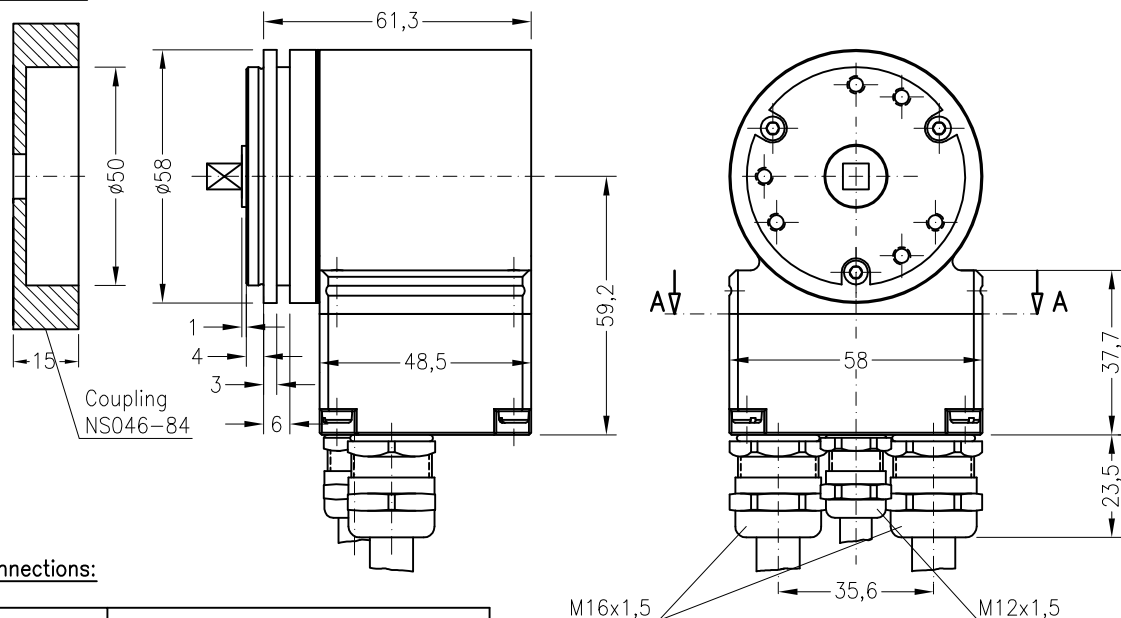
The encoder OGP-DP will be connected directly on profibus; specification class 2 is fulfilled and encoder is programmable via profibus-DP.

The PN0-ident-number AAAB (Hex) is provided at PN0. Under file TR05AAAB.GSD is the log file available

Note for operation: Profibus-master must be able to send a parametric telegram.

Furthermore the configuration software of master must be able to display the encoder parameter structure.

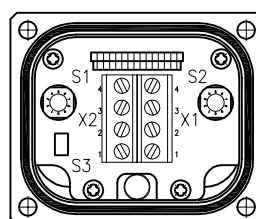
Dimensions:



Connections:

X1	Terminal, 4 pins	
Pin 1	Profibus, Data A	Profibus_IN
Pin 2	Profibus, Data B	
Pin 3	US-power supply	
Pin 4	0V-power supply	
X2	Terminal, 4 pins	
Pin 1	Profibus, Data A	Profibus_OUT
Pin 2	Profibus, Data B	
Pin 3	US-power supply	
Pin 4	0V-power supply	

A-A



S1/S2: Selector switch for address
S3: Terminal resistance
On/Off

Service-display:

Status LEDs

● = ON
○ = OFF
⊙ = FLASHING

–BUS RUN=green
–BUS FAIL=red

GREEN

● : Operational
○ : No supply voltage, hardware error
⊙ : Parameter- or configuration error

RED

○ : No error, bus in cycle
⊙ : No allocation to a master
● : No recoverable encoder defect

Technical data:

Step: 8.192
Rotations: 1
Interface: Profibus DP
Code: programmable
Supply voltage: 11-27 V
Output level: RS485
Protection: IP65
Temperature: -20 °C...+70 °C
Flange: ZB50
Axis: □ 6x9 mm

Price:

1 piece OGP-DP

EUR

Additional:

Coupling NS046-84
for master controller VNS0



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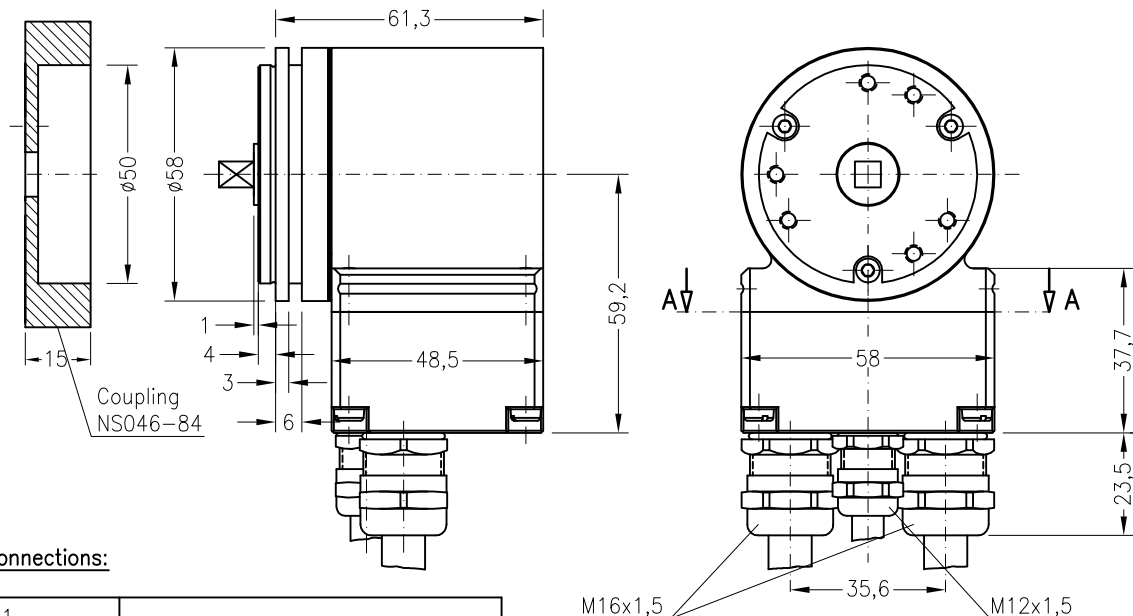
The encoder OEP-DP will be connected directly on profibus; specification class 2 is fulfilled and encoder is programmable via profibus-DP.

The PN0-ident-number AAAB (Hex) is provided at PN0. Under file TR09AAAD.GSD is the log file available

Note for operation: Profibus-master must be able to send a parametric telegram.

Furthermore the configuration software of master must be able to display the encoder parameter structure.

Dimensions:



Connections:

X1	Terminal, 4 pins	
Pin 1	Profibus, Data A	Profibus_IN
Pin 2	Profibus, Data B	
Pin 3	US-power supply	
Pin 4	0V-power supply	
X2	Terminal, 4 pins	
Pin 1	Profibus, Data A	Profibus_OUT
Pin 2	Profibus, Data B	
Pin 3	US-power supply	
Pin 4	0V-power supply	

Technical data:

Step:	8.192
Rotations:	1
Interface:	Profibus DP
Code:	programmable
Supply voltage:	11-27 V
Output level:	RS485
Protection:	IP65
Temperature:	-20 °C...+70 °C
Flange:	ZB50
Axis:	□ 6x9 mm

Service-display:

Status LEDs	● = ON
-BUS RUN=green	○ = OFF
-BUS FAIL=red	⊙ = FLASHING

GREEN

- : Operational
- : No supply voltage, hardware error
- ⊙ : Parameter- or configuration error

RED

- : No error, bus in cycle
- ⊙ : No allocation to a master
- : No recoverable encoder defect

Price:

1 piece OEP-DP

EUR

Additional:

Coupling NS046-84
for master controller VNS0



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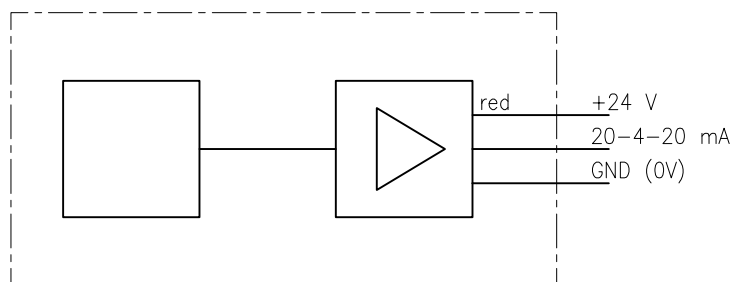
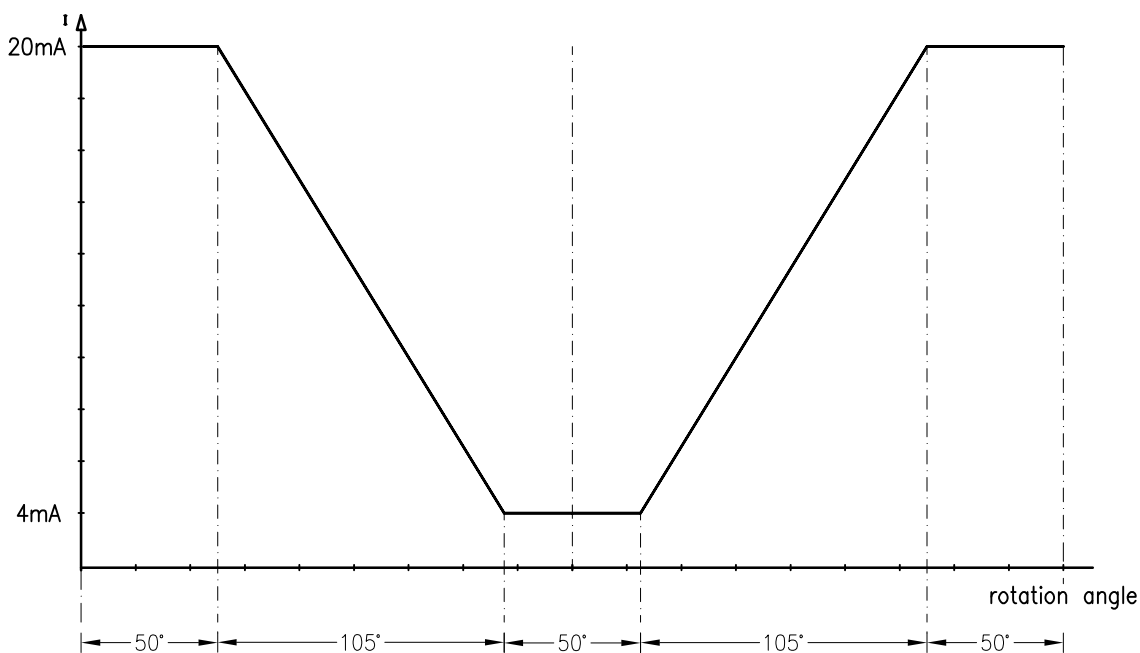
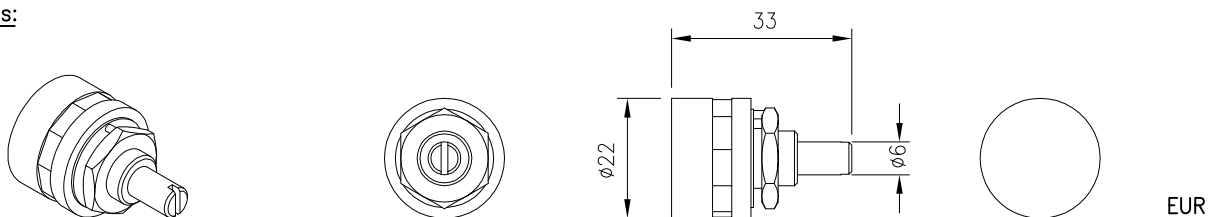
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Description:

This encoder HS420 uses a contactless hall effect sensor. It consists of an integrated current amplifier with 20-4-20 mA. Additional amplifier is not required.

Technical data:

Operational voltage:	U_B	24 VDC $\pm 20\%$
Periodic deviation:		5%
Current input:	I_V	< 120 mA
Current output:	I_O	4...20 mA
Load:	R_L	$\leq 500 \Omega$
Temperature range:		-40 °C bis +85 °C
EMI:		EN55022 until 1 GHz
Valid for installation into controller CS1G, NS3G)		EN61000-4-3 EN61000-4-6 EN61000-4-2

Output curve:Dimensions:

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Description:

The controllers CS1, VNS0 and NS3 may be equipped with CAN-Bus interface (STW-protocol).

The electronic card has inputs for 4 potentiometers (4 axis analogue), 4 analogue inputs for potential control at centre tap, as well as digital inputs for direction signals.

Furthermore 8 digital inputs for pushbuttons (e.g. in handle), are available.

This information is transmitted to the CAN-bus via simple protocol.

This electronic may be equipped up to maximum 64 KB Rom, optionally a 62 KB flash as storage is possible.

The flash storage is programmable in device and there fore modifications of software, especially for low series are possible.

Furthermore 2 KB EEprom for parameter and configuration data are available.

The CAN-Bus-electronic processes standard (11-bit) and extended (29-bit) CAN-messages.

Supply voltage + U_B :

Rating voltage:	9,5.. 32 V, non-bounce protection integrated
Maximum operational voltage:	36 V (short circuit protection not granted)
Load-dump protection:	Switch off at + U_B > 40 V
Maximum voltage at U_B + U :	60 V
Maximum ripple band:	10%
Current input at U_B = 12 V:	I < 80 mA
Current input at U_B = 24 V:	I < 50 mA

CAN interface:

Physical-layer:	2-wire interface, 5 V level acc. to ISO 11898 Short circuit protection at 24 V operation granted
Maximum bit rate:	1 MBit/sec
Rise time:	Bit rate < 125 KBit/sec 12 V/ μ sec (without bus) Bit rate > 125 KBit/sec 24 V/ μ sec (without bus)
Terminal resistance:	120 Ohm by plug configuration
Connection:	9 pin D-sub plug

Analogue inputs:

Number of inputs:	4 analogue inputs for wiper 4 analogue inputs for centre tap 4x2 digital inputs for direction contacts internal pull-up resistors
Resolution of analogue channels:	10 bit of range 0..5 V _{REF}
Scanning rate per channel:	100 Samples/sec

Digital inputs:

Number of inputs:	8 digital inputs for switches in handle.
Function:	Ground switched internal pull-up resistors.

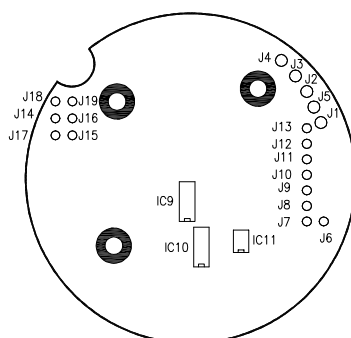
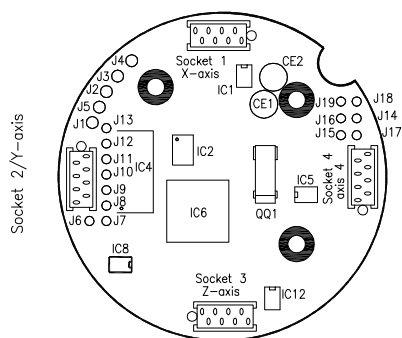
Environmental conditions:

EMC requirements:	Spurious radiation acc. to EN 50081-2
(complete joystick)	Interference rejection acc. to EN 50082-2
Additional:	HF irradiation 20 V/m 80 MHz up to 1 GHz
Operating temperature:	-40 °C... +85 °C (only elektronik)
Store temperature:	-55 °C...+105 °C (only elektronik)
Dimensions:	See sheet M 7/6

Pin assignment CAN-board SPMSCSE1:

Top side:

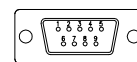
Bottom side:

**Standard CAN-Bus-PARAMETER:**

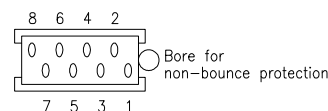
PDO-type	0 (11-bit-identifier)
PDO ID	0x400 (11bit-identifier)
HOST ID	0x51
Local ID	0x00
baud rate	125 Kbit/sec
start mode	
node guard	0
msg rate	0
msg delay	9
curvature	0

Pin assignment CAN-bus:

D-sub plug	PIN	function
9-pin	1	NC
	2	CAN LOW
	3	CAN GND
	4	NC
	5	Shield
	6	GND (UB)
	7	CAN HIGH
	8	NC
	9	+UB



Connection poti via micro-match-socket:



PIN	Assignment
1	Direction forward
2	GND
3	Direction backward
4	Potentiometer wiper
5	Potentiometer +5 V
6	Potentiometer GND
7,8	Potentiometer centre tap (option)

Connections:

J1	+Ub supply
J2	GND supply
J3	CAN+, CAN_H
J4	CAN-, CAN_L
J5	GGND frame chassis ground (optionally)
J6	switch 1
J7	switch 2
J8	switch 3
J9	switch 4
J10	switch 5
J11	switch 6
J12	switch 7
J13	switch 8



Description:

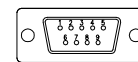
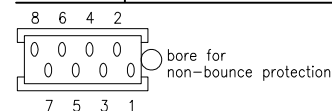
The controllers CS1, VNS0 and NS3 may be equipped with CANopen-interface. The electronic card has inputs for 4 potentiometers (4 axis analogue), 4 analogue inputs for potential control at centre tap (e.g. wire failure control), as well as digital inputs for direction signals. Furthermore 8 digital inputs for push buttons (e.g. in handle), 4 digital inputs for CANopen-memory function and 4 outputs for LED are available. This information is transmitted to CAN-bus acc. to draft standard DS301 version 4.0 and DS401 version 2.0 (extension joystick).

Baud rate and CAN-identifier may be adjusted by DIP-switch.

Interface with galvanic isolation between voltage supply and CAN-bus.

Pin assignment CAN-Bus:

D-sub plug 9-pin (optional)	PIN	Function
	1	NC
	2	CAN LOW
	3	CAN GND
	4	NC
	5	Shield
	6	GND (UB)
	7	CAN HIGH
	8	NC
	9	+UB

**Connection poti via micro-match-socket:**

PIN	Assignment
1	Direction forward
2	GND
3	Direction backward
4	Potentiometer wiper
5	Potentiometer +5V
6	Potentiometer GND
7,8	Potentiometer centre tap (option)

Supply voltage + U_B :

Rating voltage: 10.. 36 V, non-bounce protection integrated, filter
 Low voltage switch off at $U < 10$ VDC
 High voltage switch off at $U > 36$ VDC
 Maximum voltage on U_B : 58 VDC (only for short time)
 Maximum ripple band: 10%
 Current input: I max. < 200 mA

CANopen interface:

CIA draft standards: DS301 version 4.0
 DS401 version 2.0 with joystick extension

Max. bit rate: dynamic PDO-mapping
 variable PDO-Identifier
 2 transmit- and 1 receive-PDO
 Terminal resistance: 120 Ohm by Dipswitch

Dip switch:

DP1: 1...7 ID0...ID6 Bit0...Bit6 of CAN-Identifier
 8...NC

DIP switch SW 1								Function
7	6	5	4	3	2	1		
ID6	ID5	ID4	ID3	ID2	ID1	ID0		
X	X	X	X	X	X	X	X	Node ID
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	reserved
OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	Node ID=1
OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	Node ID=2
..	..	..	..	..	..	..	..	
ON	ON	ON	ON	ON	ON	OFF	Node ID=126	
ON	ON	ON	ON	ON	ON	ON	Node ID=127	

Analogue input:

4 analogue inputs for wiper
 4 analogue inputs for potential surveillance
 Resolution: 10 bit of range 0..5 V_{REF}

DP2: 1...3 BD0...BD2 Bit0..Bit2 Baud rate adjustment
 4 R bus terminal resistance 120R

DIP switch SW 2				Function
Switch Nr.	1	2	3	
BD0	BD1	ID4		
X		X		Baud rate selection
OFF	OFF	OFF		1 Mbit/sec
ON	OFF	OFF		800 kbit/sec
OFF	ON	OFF		500 kbit/sec
ON	ON	OFF		250 kbit/sec
OFF	OFF	ON		125 kbit/sec
ON	OFF	ON		50 kbit/sec
OFF	ON	ON		20 kbit/sec
ON	ON	ON		10 kbit/sec
			R	Bus-Termination
			ON	Termination 120 Ohm
			OFF	No termination

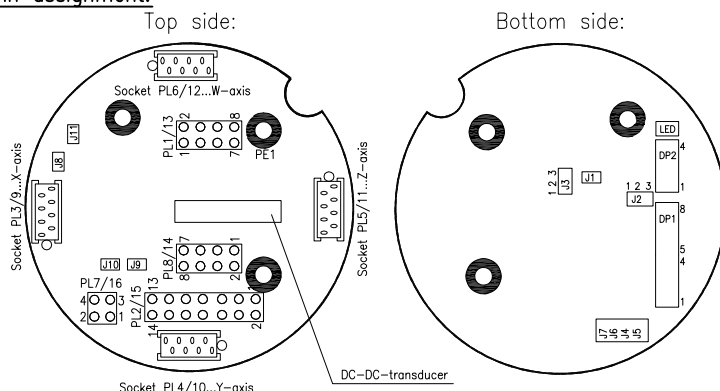
Digital inputs:

8 digital inputs for switches in handle
 4 digital inputs for memory function
 Ground switched internal pull-up resistors

Version:

Environmental conditions:

EMC: Spurious radiation acc. to EN 50081-2
 (complete controller) Interference rejection acc. to EN 50082-2
 Operating temperature: -40 °C... +75 °C (only electronic)
 Store temperature: -55 °C...+100 °C (only electronic)

Pin assignment:

Description:

The controllers CS1, VNS0 and NS3 may be equipped with PROFIBUS-DP-interface.

The electronic card has inputs for 4 potentiometers (4 axis analogue), 4 analogue inputs for potential control at centre tap (e.g. wire failure control), as well as digital inputs for direction signals. Furthermore 16 digital inputs for pushbuttons (e.g. in handle) and 8 outputs for LED (5 V, 10 mA) are available.

Supply voltage + U_B :

Operational voltage: 10...30 V, non-bounce protection integrated, filter
 Max. operational voltage: 36 V (short circuit protection not granted)
 Max. ripple band: 10%
 Current input: $U_B = 12 \text{ V} : I < 110 \text{ mA}$
 $U_B = 24 \text{ V} : I < 60 \text{ mA}$

PROFIBUS-interface:

Feature: DP-slave, general profile acc. to DIN 19245 part 3
 Max. baud rate: 12 MBaud, automatically detected
 Ident no: AAAB
 GSD-file: TRJoystDP-V2
 Terminal resistance: By sliding switch
 Address: Adjustable from 3...99
 Connection: 9 pin D-sub plug

Analogue inputs:

Number of inputs: 4 analogue inputs for wiper
 4 analogue inputs for centre tap
 4x2 digital inputs for direction contacts
 Internal pull-up resistors
 Resolution of analogue channels: 10 bit of range $0.5 V_{REF}$, all 100 μ poled

Digital inputs:

Number of inputs: 16 digital inputs for switches in handle
 Function: Ground switched, internal pull up resistors

Digital outputs:

Number of outputs: 8 digital outputs for 10mA at (0,5/4,5) V
 4 digital outputs for status-LED

Environmental conditions:

EMC requirements: Spurious radiation acc. to EN 50081-2
 (complete controller) Interference rejection acc. to EN 50082-2
 Operating temperature: -35 °C...+70 °C (only electronic)
 Store temperature: -40 °C...+80 °C (only electronic)
 Dimensions: See sheet M 7/6

Data:

X-axis: }
 Y-axis: }
 Z-axis: }
 W-axis: }

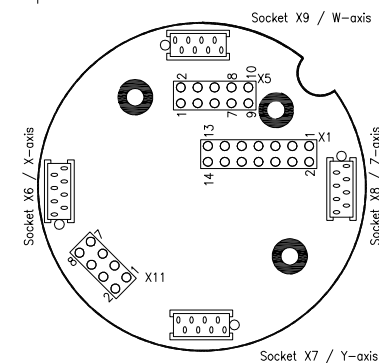
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Bit

10-bit-analogue data
 Lo-limit analogue value
 Hi-limit analogue value
 Wire failure
 Preswitch set
 Revert switch set

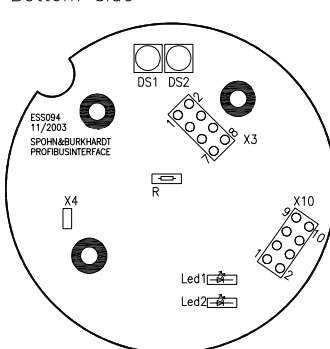
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Bit

Pin assignment PROFIBUS-board ESS094:

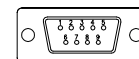
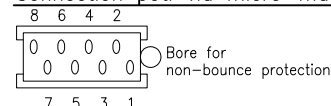
Top side:



Bottom side:

**Pin assignment profibus:**

D-sub plug	PIN	function
9-pin	1	NC
	2	NC
	3	L _B -wire
	4	NC
	5	NC
	6	NC
	7	L _A -wire
	8	NC
	9	NC

**Connection poti via micro-match-socket:**

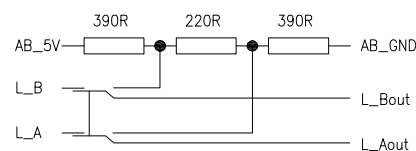
PIN	Assignment
1	Direction forward
2	GND
3	Direction backward
4	Potentiometer wiper
5	Potentiometer +5 V
6	Potentiometer GND
7,8	Potentiometer centre tap (option)

Error messages:

LED	Function	Cause
green	out	no operation
	fast blinking	check parameters
	continuous on	ready for operation
red	out	no failure, bus in cycle
	blinking	no connection to bus
	continuous on	failure

Rotary and sliding switch:

DS1,2: Rotary switch for address
 R: Sliding for resistor



Sliding switch R

With sliding switch R you close L_A respectively L_B or you get connection with next slave. AB₅ V and AB_{GND} are electrically isolated of voltage supply.

Connections:

X3:	.1,3...GND	.6...L _A out
	.2...Uss	.7...L _B out
	.4...PB _A	.8...Housing
	.5...PB _B	
X1:	.1,14...GND (for push buttons)	
	.2...13 - input 1...12	
X11:	.1...4 - input 13-16	
	.5,6...GND	
	.7,8...+5 V	
X5:	.1...8...output 1...8	
	.9...GND	
	.10...+5 V	
X10:	.1,3,5,7...Led-output 1...4	
	.2,4,6,8...+5 VDC	
X6,7,8,9:	Input potentiometer acc. to axis (x, y, z, w)	
X4:	Connection of software	



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Description:

ESS115 is a CANopen interface component with digital in- and outputs, as well as analogue inputs for potentiometers (e.g. axis potentiometers of master controllers/industry joysticks).

In order to calibrate tolerances of the potentiometer the modul is equipped with a teach-in-function.

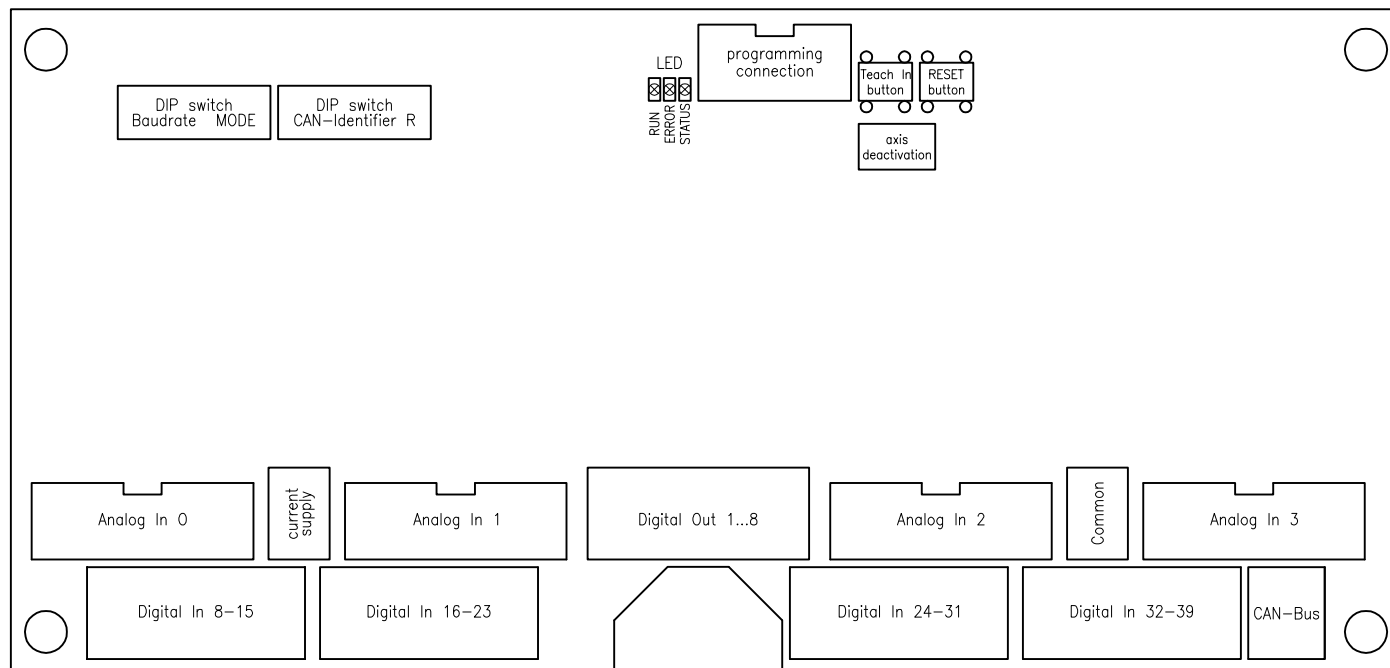
Thus the average value (zero position of joystick) the maximum deflection and respectively the value for endpoint (full scale) may be set up. Via data-transfer-service you may adjust and store separately for each analogue axis the configuration parameters as dead band, full scale and error trigger.

The analogue inputs are led through convenient ribbon cable for connectors, the digital inputs for spring clamps.

The component is especially suitable for the installation of portable control stations T-011, but also may be installed in other enclosures (operating units, pendants).

Features:

- * 4 analogue inputs (0–5 V) for poti 5 Kohm ($\pm 20\%$) switchable separately
- * 4 digital inputs (24 V)
- * 8 short-circuit-protected outputs (24 V–50 mA)
- * polarity protected supply 10–35 VDC
- * range of temperature $-20\text{ }^{\circ}\text{C}$ till $+70\text{ }^{\circ}\text{C}$
- * point number (Id=1...127) adjustable by DIP switch
- * baudrate (up to 1Mbaud) with DIP switch adjustable
- * control of broken wire of analogue inputs
- * teach-in-function in order to set zero and end values of analogue inputs
- * special object register
- * resistor R enabled by DIP switch
- * LEDs for run, error and status

Assignment:

Description:

The profinet-interface-component ESS132-1 is equipped with 2 boards electrically coupled and a front plate with M12-connection. This allows to connect a 2-axis joystick CS1G or NS3G onto profinet.

Concerning the analogue conversion of the lever deflection, direction informations of each axis, other devices in joystick handle (e.g. push button, rocker switch,...) the component is equipped with analogue and digital inputs.

Furthermore digital outputs are available in order to activate LED's in the handle.

Supply voltage:

Operational voltage +U_B: 12...28 V, non-bounce protection
 Max. operational voltage: 30 VDC (short circuit protection not granted)
 Max. ripple band: 10%
 Current input: U_B = 12 V : I < 110 mA U_B = 24 V : I < 60 mA
 Connection: round plug, M12, 4 pole, male A-coded

Profinet IO:

IEC 61158, IEC 61784
 Profinet-specification: V2.2
 Software stack: V3.1
 Conformance class: conformance class B
 Physical Layer: profinet 100Base-TX, fast ethernet, ISO/IEC 8802-3
 Output code: binary
 Cycle time: >= 1 ms (IRT/RT)
 Transfer rate: 100 MBit/s, CAT-5 cable shielded (STP), ISO/IEC11801
 Address: per name (given by software), mapping of name-MAC when booting
 Integrated switch: yes
 Real-time-class: RT class 1 frames (RT), RT class 2 frames (RT), RT class 3 frames (IRT)
 Support of: DCP, LLDP, SNMP
 GSMDL-file: DSDML-V2.2-SPOBU-master controller-20110214.xml
 Connection port 1 / port 2: bus-plug M12, 4-pole, female, D-coded
 Bus status display: each port 2 LED

Input/output:

Inputs for the conversion of lever deflection in X-axis:

1x analogue input for potentiometer-wiper (resolution max. 12 bits)
 2x digital input for directions (ground switched, internal pull-up resistors)
 1x analogue input for controlling wire failure of centre taps
 connection suitable for micro-match-plug

Inputs for the conversion of lever deflection in Y-axis:

1x analogue input for potentiometer-wiper (resolution max. 12 bits)
 2x digital input for directions (ground switched, internal pull-up resistors)
 1x analogue input for controlling wire failure of centre taps
 connection suitable for micro-match-plug

Digital inputs for internal devices:

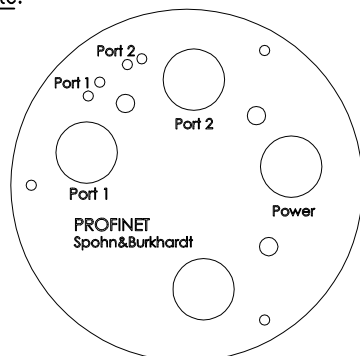
8x digital input for push buttons (ground switched, internal pull-up resistors)
 connection suitable for Molex plug-case, 12 pole with crimp-contacts

Digital outputs for internal devices:

8x digital TTL-output 5 VDC (max. 10 mA)
 connection suitable for Molex plug-case, 12 pole with crimp-contacts

Environmental conditions:

Operating temperature: -20 °C...+80 °C (only electronic)
 Store temperature: -40 °C...+80 °C (only electronic)
 Relative humidity: 98% (no condensation)
 Protection: IP00, higher protection is achieved by installation into controller
 EMV requirements: spurious radiation acc. to DIN EN 61000-6-3: 2007
 (valid for complete controller) spurious radiation acc. to DIN EN 61000-6-2: 2006

Front plate:

Spohn & Burkhardt
 Elektrotechnische Fabrik Blaubeuren

Mauergasse 5
 89143 BLAUBEUREN
 GERMANY

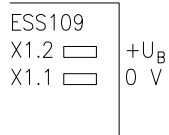
Tel. +49 7344 171-0 info@spobu.de
 Fax +49 7344 171-99 www.spobu.de

Description:

The potentiometer amplifier ESS109 is integrated in enclosure of CS1 and NS3. It's use is to control a proportional valve with maximal 2 A operating current. The input of the amplifier is controlled by potentiometer with centre tap. The subsequent control compares set value with actual value and calculates the pulse wide modulation for the proportional valve. The frequency is approx. 50 Hz. The output estimated by short-circuit is >4 A, furthermore there is an input clearance on board available.

Supply:

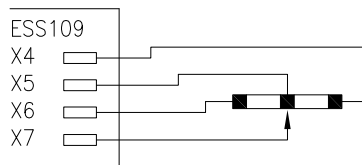
Operational supply: $+U_B = 10...28$ VDC
 Maximal current: <2,5 A
 Voltage break: <9 VDC
 Integrated inverse-polarity protection
 ESD protected

**Temperatur range:**

Operation: $-25\text{ }^{\circ}\text{C}...+65\text{ }^{\circ}\text{C}$ (not condensed)
 Stock: $-40\text{ }^{\circ}\text{C}...+85\text{ }^{\circ}\text{C}$

Input:

To be suited for potentiometer with centre tap:
 (Limiting dates ohmic values:
 Supply voltage for potentiometer: $\leq 5,2$ VDC
 Connections HF filtrated

**Output:**

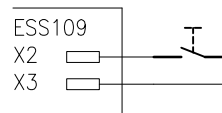
To be suited for "single coil" and "dual coil" valves only for inductive loads.
 Minimal output voltage: $+U_B - 2$ V
 Pre-current: 0...0,6 A (adjustable with R308)
 Maximal current direction A: 0,5...2 A (adjustable with R302)
 Maximal current direction B: 0,5...2 A (adjustable with R303)
 Frequenzy: 51 Hz (other on request)
 Short circuit protected: >4 A
 ESD protected

Displays:

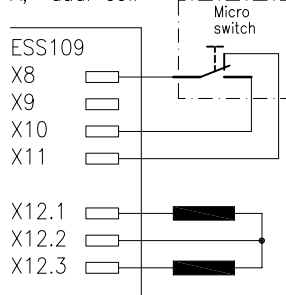
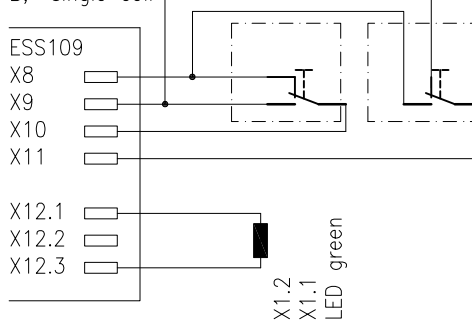
LED green: Operational voltage
 LED yellow: Output active

Clearance input:

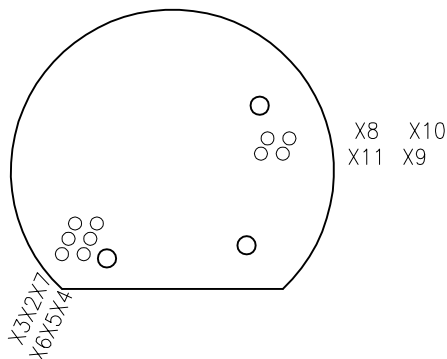
Only when input is closed the output is activated
 Input (X2, X3) is HF-filtrated.

**Connections:**

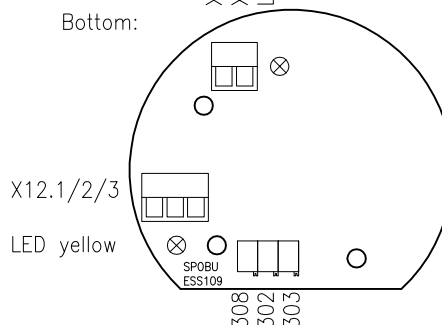
According to requirements 1 or 2 micro switches are necessary.

A, "dual coil"**B, "single coil"****Layout:**

Top:

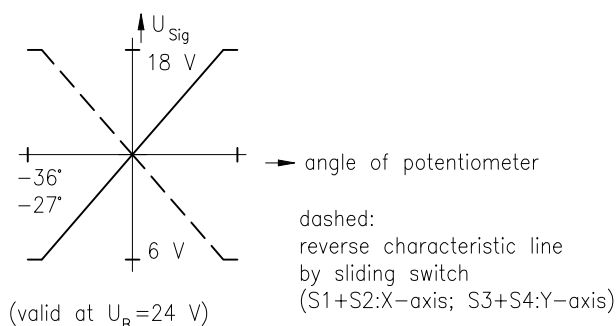


Bottom:

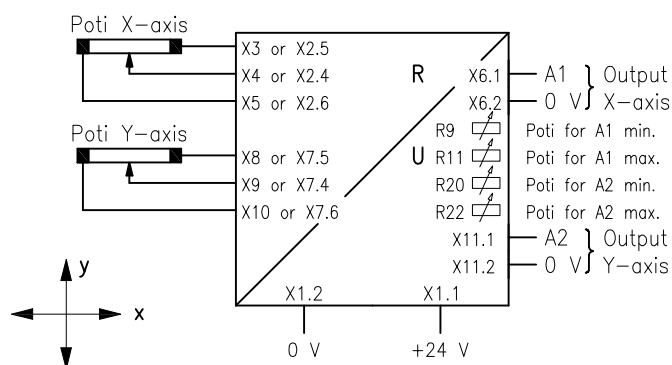


Description:

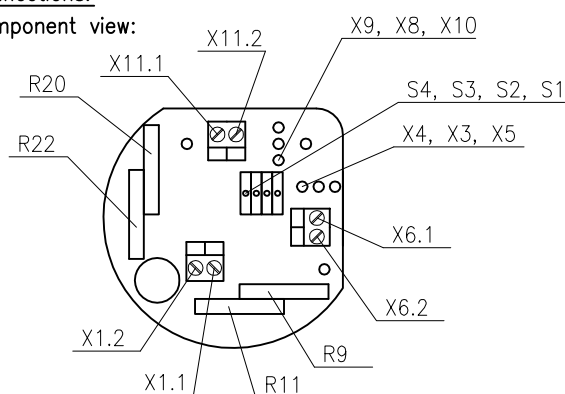
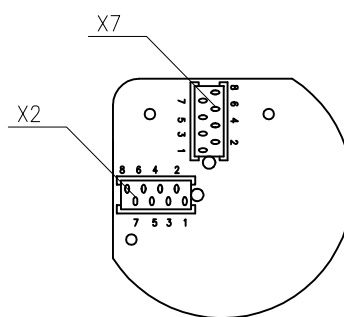
On the board ESS098 there are two separate amplifiers for potentiometers. Each amplifier converts the ohmic value which is depending on angle, in an output voltage of 6–12–18 V.
The final values (6 V and 18 V) are adjustable by trim potentiometer.
Furthermore it is possible to reverse the characteristic curve by sliding switches.

Output characteristic:**Technical data:**

Operational voltage:	+U _B 20...30 VDC Non-bounce protected
Current input:	<100 mA
Operating temperature:	-40 °C to +85 °C
Voltage output:	6(5...7)–18(16...20) VDC
Average voltage:	12 VDC
Signal current:	max. 20 mA (output short circuit protected)
Load resistance:	>10 KOhm
Input potentiometer:	resistance 1...25 KOhm
EMI:	EN 55011:1998 +A1:1999 EN 61000-6-2:2001

Schematic as example for 2 axis joystick:**Connections:**

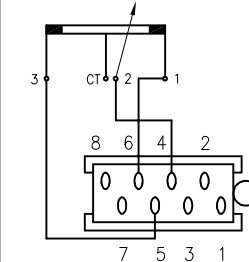
Voltage supply:	Screw clamp MKDS1,5/2–5,08
Outputs:	Screw clamp MKDS1,5/2–5,08
Potentiometer:	Micro-match-connector 8 pins or solder pads

Connections:**Component view:****Solder view:**

Mounting bores: 3 x Ø4,2 mm

Connections X2, X7:

(micro-match 8, firm AMP)

e.g.:
poti G55**Adjustment instruction:**

- * Connect voltage meter on output 1 or 2
- * Adjust potentiometer to maximum value or move lever to maximum
- * Adjust maximum voltage (18 V) with R11 or R22
- * Adjust potentiometer to minimum value or move lever of joystick to maximum opposite direction
- * Adjust minimum voltage (6 V) with R9 or R20
- * Note: In case of calibration above mentioned sequence is absolutely



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Description:

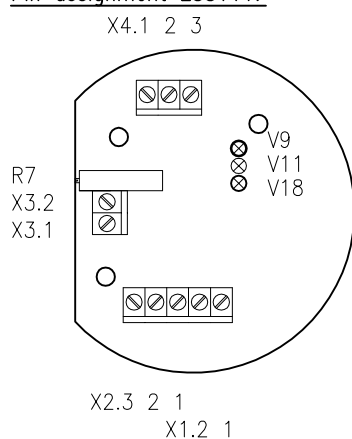
The capacitive system consisting of sensor plate ESS080K and evaluation electronics ESS111 was specially developed for the controllers CS1G and NS3G. The integrated sensor plate may be installed in various handles. The integrated sensor plate changes its output depending on the distance from hand to sensor. The sensitivity of evaluation is adjustable by potentiometer. This specifies the switch point of output (relais and transistor).

Technical data:

Supply voltage: $+U_B$ 19,2...28,5 VDC
 Rated current: I 0,1 A (without relais)
 Relais output: I_{max} 1 A
 $U = 24$ V
 Temperature range: -20 °C...+70 °C

LED display for:

Operating voltage on: Relais V4: green
 Control of sensitivity: Relais V9: green
 Error: Relais V11: red
 Sensor activated: Relais V18: yellow

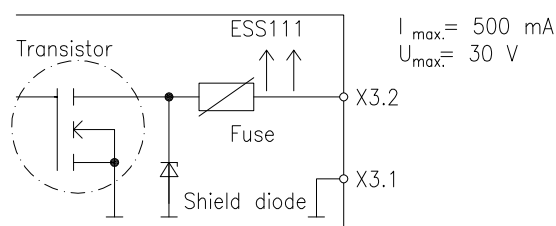
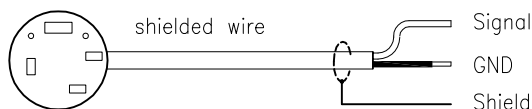
Pin assignment ESS111:

X1 Supply voltage
 X1.1 $+U_B$
 X1.2 GND (0 V)
 X2 Connection to ESS080K
 X2.1 Output
 X2.2 GND (0 V)
 X2.3 Shield (0 V)

X3 Transistor output
 X3.1 GND (0 V)
 X3.2 open drain

X4 Relais output
 X4.1
 X4.2
 X4.3
 Design:
 Sensor
 not
 activated
 X1/X2/X3/X4 = Screw clamp

Transistor output: open drain output
 The transistor will get conductive in case of operating sensor.

**Pin assignment ESS080K:****Adjustment instruction:**

- * Connect ESS111 and ESS080K
- * Supply voltage
- * Adjust requested sensitivity with potentiometer R7 and at the same time control it with LED V9. In case V9 is illuminated at requested sensitivity, adjustment is ok, if not: sensor adjustment is in prohibited range because sensitivity is too high. Correction in order to establish certain function: Diminish with R7 the sensitivity until LED V9 is illuminating.



Description:

On the board ESS098 there are two separate amplifiers with common voltage supply for potentiometers. Each amplifier converts the ohmic value which is depending on angle in an output current. The maximal value (=20 mA) and the initial value (=4 mA) are adjustable by trimmers.

Technical data:

Operational voltage: U_B 24 VDC $\pm 15\%$
 Periodic deviation 5%
 Current input: I_V < 120 mA

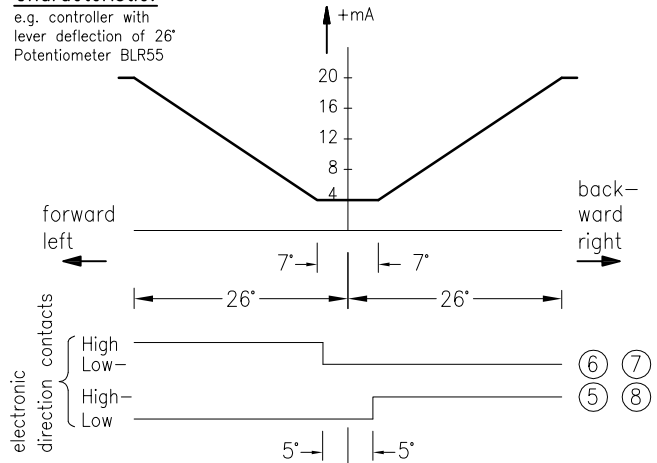
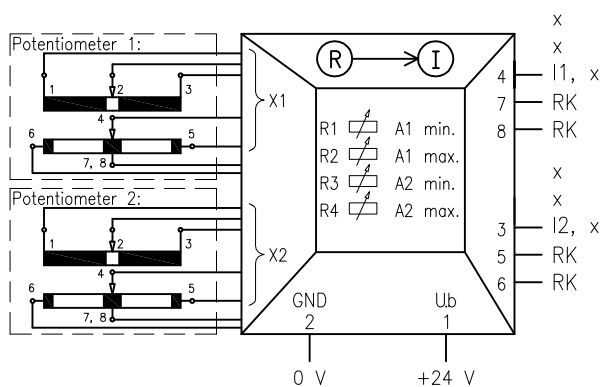
Voltage output: I_O 4...20 mA
 Average voltage: R_L $\leq 600 \text{ Ohm}$
 Signal current: U_K 24 VDC
 (by $U_B = 24 \text{ VDC}$) I_{Kmax} 15 mA

Temperature range -20°C bis $+60^\circ\text{C}$
 TK: ca. 0,1% / 10°C
 Potentiometer: R_{pot} 2k5...5 kOhm

EMI: EN55022 until 1 GHz
 Valid for installation into controller CS1G, NS3G) EN61000-4-3
 EN61000-4-6
 EN61000-4-2

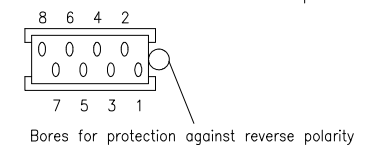
Characteristic:

e.g. controller with lever deflection of 26°
 Potentiometer BLR55

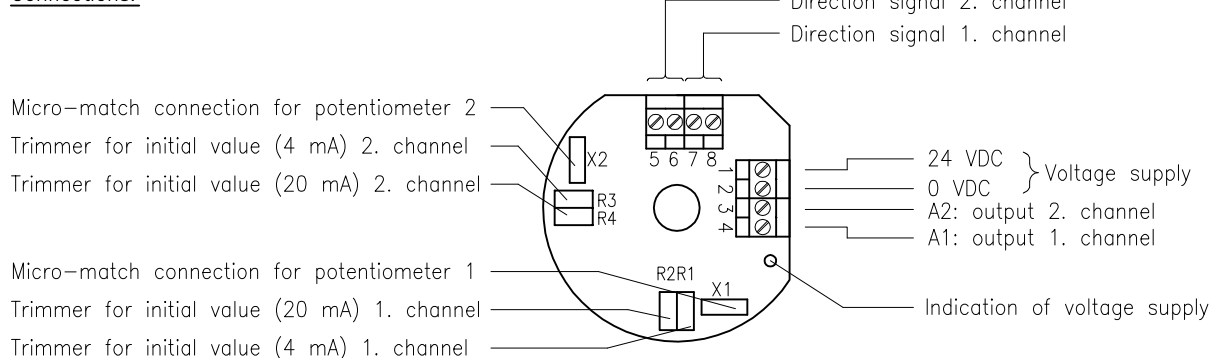
**Schematic as example for 2 axis joystick:****Connections:**

Voltage supply:
 Outputs:
 Potentiometer:

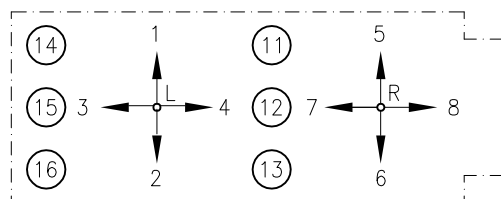
Screw clamp
 Screw clamp
 Micro-match-connector 8 pins



1	Direction switch forward/left
2	GND
3	Direction switch backward/right
4	Wiper
5	Poti ending
6	Poti beginning
7,8	Poti centre tap

Connections:**Adjustment instruction:**

- * Connect voltage meter on output 1 or 2
- * Adjust potentiometer to maximum value or move lever to maximum
- * Trim final current value with R2 and respectively with R4
- * Adjust potentiometer to minimum value or move lever of joystick to centre
- * Trim R1 and respectively R3 to initial current value
- * Note: In case of calibration above mentioned sequence is absolutely

Fittings:

Pos. 1-4, 5-8... controller

Pos. 11-16... control devices $\varnothing 22,5$ mm
or 16 mm programmPhoto with VCS0 controller,
control devices $\varnothing 22,5$ mm,
rotating cable entry**Type**

T-011 Portable control station, yellow

- without bores
- without inserts
- with shoulder straps
- roll-over bar
- rotating cable entry (M32x1,5 for cable $\varnothing 13,5-20$ mm)

Spobu Id.Nr.

20371

EUR

TC011 Portable control station , yellow

- with boresin cover: pos. 1-4 + 5-8 VCS0 controller
pos. 11, 12, 14-16 $\varnothing 22,5$ mm
pos. 13 $\varnothing 16,2$ mm
- without inserts
- with shoulder straps
- roll-over bar
- rotating cable entry (M32x1,5 for cable $\varnothing 13,5-20$ mm)

EUREquipments:

Controllers:

{	MON	see sheet 4/1.....
	VCS0	see sheet 7/1.....
	CS1	see sheet 7/5.....
	ST0	see sheet 5/2.....

Push buttons, lamps, selector switch see sheet 2/2A + 2/2B

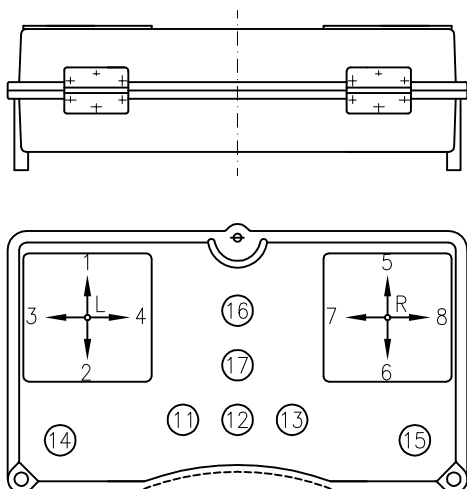
On request completely wired with control cable and plug connection available.



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Material: GFK
Available in yellow or version in black surface resistance.

Type	Housing without inserts, without bores with breast plate and shoulder straps	EUR
IDV -CS065	yellow	
IDVS-CS065	black, surface resistance maximum 24 V	
Foot rack		

Equipments:

Controllers	{ VCS0 see sheet 7/4..... CS1 see sheet 7/5..... VNS0 see sheet 9/1..... NNS0 see sheet 9/N.....
-------------	--

Push buttons, lamps etc. see sheet 2/2A + 2/2B
Cable glands

Note:

The attachment plate for controllers are already integrated within upper part.
If you need a whole plane surface on top you have to erase prepared attachment plate e.g. by milling.



Features:

- robust compact portable control station with various installation possibilities
- circular gasket between upper- and lower part
- clip of stainless steel

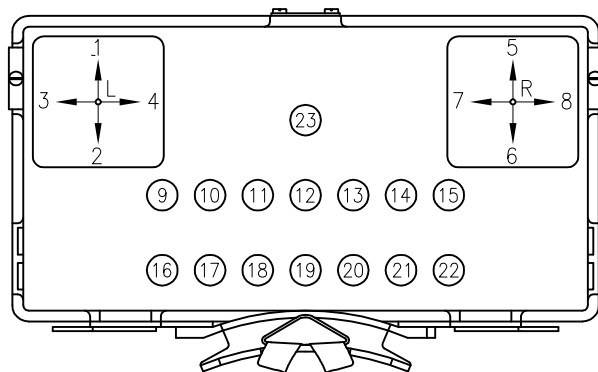
Layout of installation:

Photo:
TB-56 with controllers VNS0
and control devices $\varnothing 22,5$ mm

Enclosure without inserts

With foot rack of stainless steel and strap

EUR

additional with breast plate

EUR

Colour: { yellow T -56
grey TG -56
black, antistatic TS -56
supply voltage, maximum 24 V

TB -56
TGB-56
TSB-56

Additional price for detachable breast plate BA
Price reduction: delivery without foot rack
Cable gland

on request

on request

Equipments:

Controllers: { SMO, GMO see sheet 4/1.....
ST0 see sheet 5/1.....
VCS0 see sheet 7/1.....
CS1 see sheet 7/5.....
VNS0 see sheet 9/1.....

Push buttons, lamps etc. see sheet 2/2A + 2/2B

Indicators

LCD-displays

Note:

In case of order please give position and size of cable gland.

On request we supply control station with drillings, inserts and wiring according to client's requirement.



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List 7 / 2014
20/6Portable control station T97A, alu casing IP65
Dimensions see sheet M 20/6List 7 / 2014
20/6

Powder coating yellow

Casing with shoulder straps
without inserts

EUR

Additional:

Controller VCS0 see sheet 7/1...

Controller VNS0 see sheet 9/1...

Push buttons, lamps etc. acc. to sheet 2/2A + 2/2B

On request:

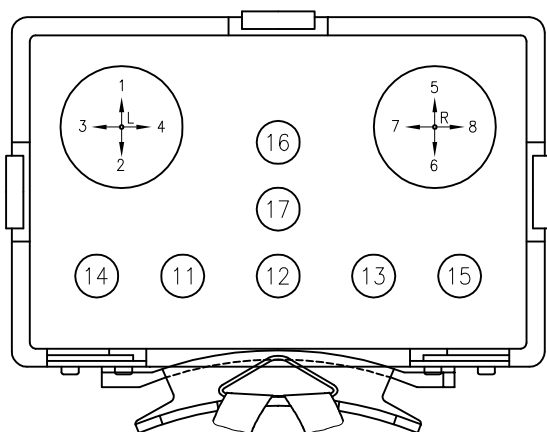
Socket

Wiring

Different colours

Different sizes

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Material PA66



Housing without inserts with shoulder straps and breast plate	for controller M0	EUR	for controller VCS0	EUR
Colour: yellow black-surface resistance for maximum 24 V	TM-022A TSM-022A		TC-022A TSC-022A	
Foot rack				
<u>Equipments:</u> Controller MON see sheet 4/1.... VCS0 see sheet 7/1.... Push buttons, lamps etc. see sheet 2/2A + 2/2B without breast plate, strap				
<u>Engraving:</u> Symbols for escutcheon plate or text for sign on the button. Each symbol Each word				

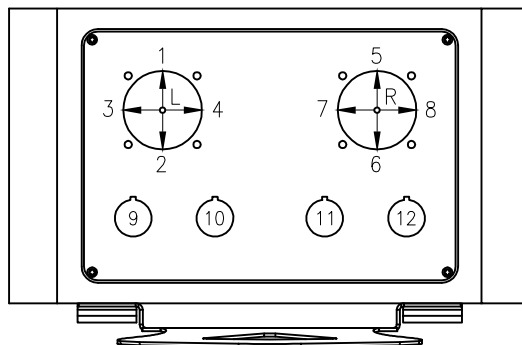




Photo:
TP022 with controllers GM0N
and devices Ø22,5 mm

Features:

- robust compact portable control station of steel plate or aluminium
- with various installation possibilities, mounting plate of high-grade steel or aluminium
- circular gasket between mounting plate and upper part
- other sizes on request, version complete in stainless steel available



Housing without inserts,
with breast plate and shoulder straps

steel

EUR

aluminium

EUR

Colour: { yellow
grey
black

TP022
TPG022
TPS022

TP022A
TPG022A
TPS022A

Equipments:

Controllers: { SMO, GMO see sheet 4/1.....
ST0 see sheet 5/1.....
VCS0 see sheet 7/1.....
CS1 see sheet 7/5.....

Push buttons, lamps etc. see sheet 2/2A + 2/2B

Note:

In case of order please give position and size of cable inlet.

On request we supply control station with bores, installations, engraving and wiring according to client's requirement.

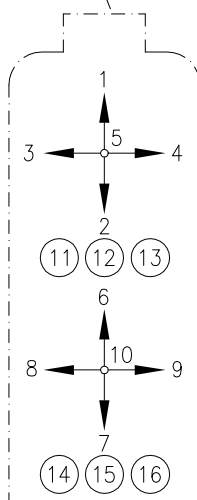


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cable gland Pg21

**Type****H-011**

Pendant yellow
 – without bores
 – without inserts
 – roll-over-bar
 – cable gland

Spobu Id.Nr.

24714

EUR**HC011**

Pendant yellow
 – boresin cover: pos. 1–5 + 6–10 for controller VCS096...
 pos. 11, 12, 14–16 $\varnothing 22,5$ mm
 pos. 13 $\varnothing 16,2$ mm
 – without inserts
 – roll-over-bar
 – cable gland

14071

Equipments:

Controllers:

{	MON	see sheet 4/1.....
	VCS096	see sheet 7/1.....
	CS1	see sheet 7/5.....
	STO	see sheet 5/2.....

Push buttons, lamps, selector switch see sheet 2/2A + 2/2B

On request completely wired with control cable and plug connection.



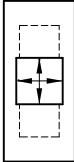
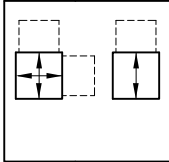
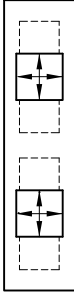
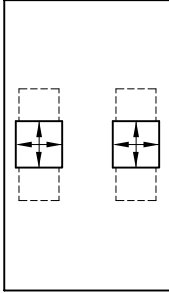
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Pictures are showing pendants with controllers VNS0 and control devices ø22,5 mm.

Steel plate enclosure grey powder-coated	Type	Steel enclosure EUR		Steel plate enclosure grey powdered	Type	Steel enclosure EUR	
	HV29M HV35M HV48M HV60M				HBV35GV HBV48GV HBV60GV HBV70GV		
	HV35MM HV48MM HV60MM HV70MM				HBV35MM HBV48MM HBV60MM HBV70MM		

Equipments:

Controllers: { VCS0 see sheet 7/4.....
CS1 see sheet 7/5.....
VNS0 see sheet 9/1.....
NNS0 see sheet 9/N.....

Fittings in handle see sheet 2/1....

Control devices see sheet 2/2A + 2/2B

Potentiometer see sheet 14/...

On request:

- special dimensions
- eexd version
- special colour

By order specify cable diameter.



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Notes:

- Cable entry with stress relief and cable clamp
- Mechanical support brackets
- Carry handle
- Support frame
- Metallic escutcheon plate (without engraving)
- RAL 7032 grey powder coated



Type	Length	Number of pushbuttons Ø22,5 mm	EUR
HD19	190 mm	6	
HD29	290 mm	10	
HD35	350 mm	12	
HD48	480 mm	18	
HD60	600 mm	22	

Additional:

Buttons see sheet 2/2A + 2/2B

2-steps push button RT-MT0-MT97 (Schlegel)

2-steps mechanical locked double pushbutton XES-D 1281 (TE)

 Engraving: Each symbol
 Each word
On request:

Other size and version





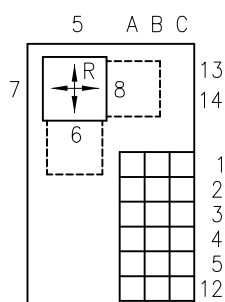
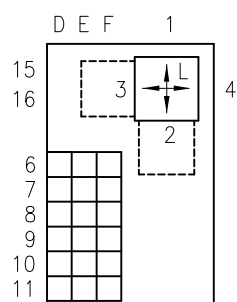
Console units NS0PK without inserts
without arm rest
without collapsible chair

Basic price each console unit **EUR**

	Controller without with spring return	EUR	+ each double cont. EUR
--	---	-----	-------------------------------

Type **NS0PKN**
rectangular console units

NS0PKU



Places 13–16 only available for controllers VCS0,
VNS0–G– und VNS0–H–

with operating block VCS0 see sheet 7/4..

	VCS0E	VCS0ER		
	VCS0V	VCS0VR		

with operating block VNS0/NS0 see sheet 9/2 and 9/5

	VNS0–FE	VNS0–FER		
	VNS0--FV	VNS0--FVR		
	NS0--FGGV	NS0--FGGVR		

Equipments:

Control devices see sheet 2/2A + 2/2B
Additional in handle see sheet 2/1...
Standard circuit see sheet S 40/1..
DGO see sheet 13/1
Potentiometer, encoder, terminals and wiring

Additional:

EUR

Engraving: Each symbol
Each word
Cross gate for VCS0 **KK**
Cross gate for VNS0 **KK**
Special gate for VCS0 **SK**
Special gate for VNS0 **SK**
Each arm rest AS1–18
Collapsible chair KSGF, with spring born,
see sheet M 22/8A
Collapsible chair KSHC hydraulic damped
and spring born, see sheet M 22/8B
Each steel enclosure console 440x220x120 mm



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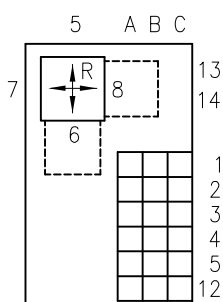
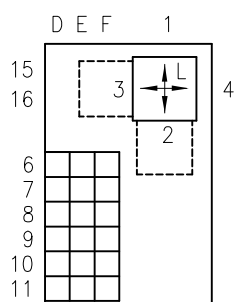
Console stands SV0K without inserts
without arm rest
without collapsible chair

Basic price without inserts EUR

	without	spring return with	EUR	+ each double cont. EUR

Type SV0NK
with rectangular console units
colour grey

SV0UK



Places 13-16 only available for controllers VCS0, VNS0-G- und VNS0-H-

with operating block VCS0 see sheet 7/4..



VCS0E

VCS0ER



VCS0V

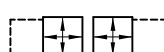
VCS0VR

with operating block VNS0 see sheet 9/2 and 9/5



VNS0-FE

VNS0-FER



VNS0-FV

VNS0-FVR



NS0-FGGV

NS0-FGGVR

Ordering example: Operator console SV0U

Pos. 1-2 lowering-hoist, circuit 40 controller VNS0-VR

Pos. 3-4 left-right, circuit 30

Pos. A1 push button "I"

Pos. AB23 selection switch 5. steps a.s.o.

Ratings see sheet 1/1

Buttons see sheet 2/2A + 2/2B

Additional in handle see sheet 2/1...

Standard circuit see sheet S 40/1..

DGO see sheet 13/1

Potentiometer, encoder, terminals and wiring

} on request

Additional:

Engraving: Each symbol

Each word

Cross gate for VCS0

KK

Cross gate for VNS0

KK

Special gate for VCS0

SK

Special gate for VNS0

SK

Each arm rest AS1-18

Collapsible chair KSGF, with spring born, see sheet M 22/8A

Collapsible chair KSHC hydraulic damped and spring born, see sheet M 22/8B

Each steel enclosure console 440x220x120 mm

Type:

EUR



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Unit operating within cabins
in the range of hoistings (cranes, containers...)
as well as for heavy industry



SV0BK



SV0G

Types

- **SV0B, SV0BK:**
 - standard operator console
 - damped collapsible seat KSG with: longitudinal adjustment, stepless height adjustment and backrest adjustment. Backrest and seat made of hard-wearing vinyl upholstery foam, seat with felt inserts and air holes
 - powder-coated metal parts (standard)
 - cable entry through base
- **SV0G:**
 - operator console with collapsible seat KSG... or
 - comfort seat ACTIMO S722: long ergonomic backrest with enforced side profiles for optimal sitting position, as well as mechanical suspension with height adjustment, various manual adjustments: seat height, seat tilt, seat cushion depth, longitudinal seat adjustment relative to consoles, lumbar support, backrest and weight adjustment, armrests adjustable in height and tilt.
 - consoles with steel hinges production according to client's requirement in our own sheet metal production
 - powder-coated metal parts (standard)
 - side panels removable
 - cable entry through base
- **SV0, SV0K:**
 - fibre glass consoles
 - powder-coated metal pillars (standard)
 - cable entry through base
 - separate collapsible chair KSG available
- **NS0P:**
 - fibre glass console

Options

- installation of controllers, control devices, other instruments
- completely wired on terminals or PLC
- special painting for metal sheet parts
- stainless steel consoles
- for operator console SV0B, SV0BK: hydraulically damped collapsible seat KSHC replaceable cushion consoles according to client's requirements
- for operator console SV0G: console dimensions according to client's requirements integrated heating with ventilator monitor holder keypad holder
- for consoles NS0P: steel consoles according to client's requirement
- for seat S722: headrest 2-point belt, 4-point belt electrical heating pneumatic suspension with compressor passive climate system with activated carbon system, cushion in genuine leather available

Applications

- further information see list 7 sheet 22/1..., dimensions see see M 22/1...





Operator consoles SV0BK without inserts,
with arm rest AS1-18,
with collapsable chair KSGF

Basic price without attachments EUR

without

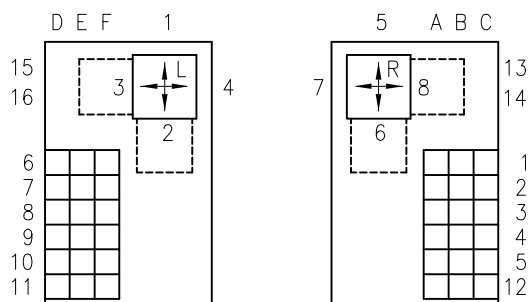
spring return
with

EUR

+ each
double cont.
EUR

Type SV0BK

With rectangular console units



Places 13-16 only available for controllers VCS0,
VNS0-G- und VNS0-H-

with operating block VCS0 see sheet 7/4..



VCS0E

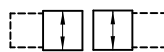
VCS0ER



VCS0V

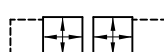
VCS0VR

with operating block VNS0/NS0 see sheet 9/2 and 9/5



VNS0-FE

VNS0-FER



VNS0--FV

VNS0--FVR



NS0--FGGV

NS0--FGGVR

Ordering example:

Operator console SV0BK
Pos. 1-2 lowering-hoist, circuit 40 controller VNS0-VR
Pos. 3-4 left-right, circuit 30
Pos. A1 push button "I"
Pos. AB23 selection switch 5. steps a.s.o.
Ratings see sheet 1/1
Buttons see sheet 2/2A+B
Additional in handle see sheet 2/1...
Standard circuit see sheet S 40/1..
DGO see sheet 13/1
Potentiometer, encoder, terminals and wiring

on request

Additional:

Engraving: Each symbol
Each word
Cross gate for VCS0 KK
Cross gate for VNS0 KK
Special gate for VCS0 SK
Special gate for VNS0 SK
Collapsable chair hydraulic
damped, KSHC see sheet M 22/8B
Each steel enclosure 440x220x120 mm

Type:

EUR



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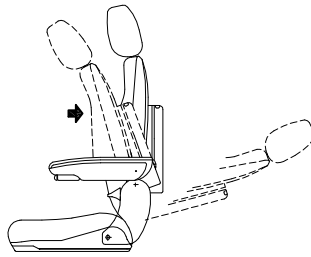
Type	Dimensions	Basic price EUR
SV0G-KSGF	M 22/3-1	
SV0G-KSHC	M 22/3-1	
SV0G-S722C-B-F	M 22/3-2	
SV0G	without chair	

Equipment:	SV0G-KSGF	SV0G-S722C-B-F	SV0G
Arm rest	AS1-18	AS1-18 (on request at the chair)	AS1-18
side panel removable	inside	outside	inside
Chair	collapsible chair	comfort-chair-Actimo	without

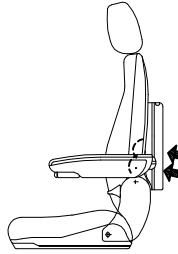
Special equipments chair S722 see sheet 22/4F



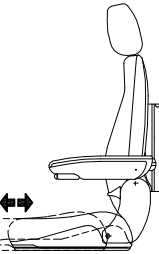
- 1 Neigungsverstellung der Rückenlehne 10°–80°.
Infinitely variable backrest adjustment 10°–80°.



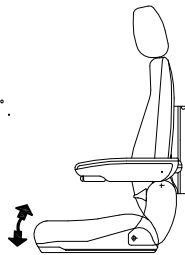
- 2 Bandscheibenstütze in Höhe und Wölbung verstellbar.
Lumbar adjustment, knob for curvature and vertical position.



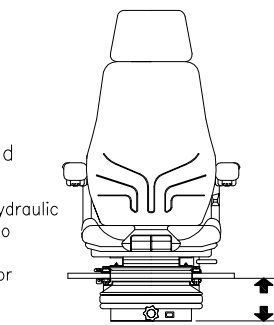
- 3 Sitzlängsverstellung 200 mm
Standard forward and backward adjustment of 200 mm.



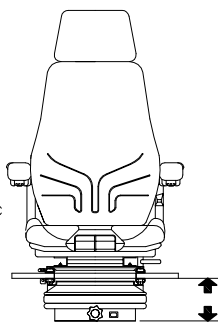
- 4 Sitzkissen Tiefenverstellung.
Seat cushion depth adjustment.



- 5 Neigungsverstellung der Sitzfläche von 3°–11°.
Infinite seat cushion angle adjustment from 3°–11°.



- 6 Mechanische Federung mit zwei Zugfedern und hydraulischem Stoßdämpfer, abgedeckt mit Faltenbalg, um Staubdichtigkeit und Unfallschutz zu gewährleisten. Inklusive integrierter Höhenverstellung von 60 bzw. 80 mm in 3 bzw. 4 Stufen und Gewichtseinstellung von 50–150 kg.
Mechanical suspension with double coil springs and hydraulic shock absorber. Covered with rubber gaiter in order to guarantee closeness of dust and protection. Integrated height adjustment of 60 till 80 mm in 3 or 4 steps and weight adjustment of 50–150 kg.

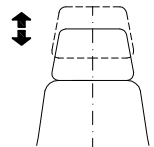


- 7 Ergonomisch gestaltete Kompaktpolster mit Kunstleder- oder Stoffbezug. (Sitzbezug wird unter Vakuum geformt und mit Polyurethanschaum ausgeschäumt). Die Polsterteile sind jederzeit leicht austauschbar. Polster: Velour blau meliert, Velour schwarz oder Kunstleder schwarz.
Ergonomically shaped cushion is of vacuum formed and poured-in-place foam material, in either PVC or cloth textured surface. Cushion can be easily replaced. Upholstery: Velour blue mottled, velour black or vinyl black.



Optional:

- 8 Höhen- und neigungs-
verstellbare Kopfstütze.
Headrest height and tilt adjustable.



- 9 Passives Klima-System.
Feuchtigkeit, die beim Schwitzen entsteht, wird aus dem Bezugsmaterial in die darunterliegende Aktivkohleschicht geleitet dort gespeichert und erst wieder nach Verlassen des Sitzes an die Umgebungsluft abgegeben.
Passive climate system.
Humidity due to transpiration is led from upholstery to below placed active cool layer. There it is stored and after leaving the seat it will be given back to ambiance.

- 10 Pneumatische Federung mit Kompressor inklusive automatischer Gewichts-anpassung.
Pneumatic suspension with compressor inclusive automatic weight adjustment.

- 11 Höhen- und neigungsverstellbare Armstütze.
Armrest with height and tilt adjustment.

- 12 Becken- oder 4-Punkt Gurt.
Lap belt or 4-point seat belt.



List 7 / 2014
22/4F

Comfort seat ACTIMO S722

List 7 / 2014
22/4F

Cushion exchangeable *)

Horizontal adjustment
150 mm *)Seat cushion adjustment
60 mm *)

Seat tilt 3–11° *)

Mechanical suspension
with weight adjustment
approx. 50–150 kg with
height adjustment 0–30–60–80 mm
by lifting seat or
height adjustment 70 mm and
±14° tiltingOption: headrest
height adjustment 100 mm
tilt 38°

Case at back *)

Mechanical
lumbar support *)Backrest adjustment
10°–0–80° *)

*) Standard equipment

		Type	EUR	
Upper part with seat cushion tilt, seat cushion depth adjustment mechanical lumbar, support case	for operator chair FSAD with 2 sets of horizontal adjustment and rod FSA012F with 90 mm u-attachment	S722AD		Basic price
	for operator chair FSRD with 2 sets of horizontal adjustment and rod PT02	S722RD		
	for operator chair SV1C with 1 set of horizontal adjustment	S722C		
Upholstery	cotton black	S		Without additional price
	cotton blue/grey melange	B		
	vinyl black	KLS		
	upholstery with passive climate system based on activated carbon, dark/grey melange		on request	Additional price
Heating in seat and backrest, only with upholstery cotton blue/grey melange	12 VDC 7 A 80 W	H12		
	24 VDC 3,4 A 80 W	H24		
Adjustable headrest	same upholstery as seat and backrest cushion	K		
Lap belt	2 point, static	G		
Lap belt	2 point with automatic roll up	AG		
Belt harness		HG		
Pair of armrests standard 2)	80x380 mm } adjustable height and tilt	A		
Pair of armrests narrow 2)		AS		
Pair of armrests short 2)		AK		
Suspension with weight adjustment	mechanical incl. height adjustment 80 mm 4-steps (142481)	F		
	mechanical, tilting and height adjustment (±14° or 70 mm height adjustment, only with SV1C possible)	HFN		
	pneumatic with compressor and autom. weight adjustment 12 VDC 9 A 108 W	P12		
	as well as height adjustment 24 VDC 7,5 A 180 W	P24		
Seat adjustment motor driven 1)	without suspension, horizontal, horizontal, height and tilt adjustment 12 VDC 25 A	M		
Manual tilting system 1)	without suspension, ±14° tilting, or 80 mm height adjustment, additional height 70 mm	HN		
Seat contact	1 NO, maximal contact load: 5 V–300 mA/24 V–80 mA	SK0		

1) May also be delivered with additional suspension.

Seat height will be 70 mm more, therefore footrest may be necessary.

2) Usually armrests AS1–30 used on consoles.

Armrests at backrest is not possible for all units.

Ordering example: S722C–B–K–F

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List 7 / 2014
22/4G

Comfort seat S210Y

List 7 / 2014
22/4G

Option: detensor active lamellae

Horizontal adjustment
150 mm *)Seat cushion adjustment
60 mm *)

Mechanical suspension
with weight adjustment
ca. 50–130 kg with
height adjustment 0–30–60–80 mm
by lifting seat or
height adjustment 70 mm,
±14° tilting

Option: headrest
height adjustment 100 mm
tilt 38°Mechanical
lumbar support *)Backrest adjustment
10°–0–80° *)

*) Standard equipment

		Type	EUR	
Upper part with Y cut out adjustment mechanical lumbar	for operator chair FSAD with 2x horizontal adjustment and rod FSA012F with 90 mm u-attachment	S210YAD		Basic price
	without rod for SV1C	S210YC		
Detensor active lamellae	orthopedics, permanent relieve of spinal column and intervertebral disk	RD		Additional price
Upholstery	outside vinyl anthracite, inside cotton anthracite	S		
	leather black without detensor active lamellae	RNL		
	leather black with detensor active lamellae	RNLRD		
Electrical backrest adjustment	12 VDC	LE		
Heating in seat and backrest	12 VDC without option "RD" 12 VDC with option "RD"	H HRD		
Dual adjustable backrest	Cervical tilt adjustment, adjustable backrest side support and detensor active lamellae	HWS/V+ SV+RD		
Adjustable headrest		K		
2 point seatbelt		G		
4 point seatbelt		HG		
Pair of armrest 2)		A		
Suspension with weight adjustment	mechanical height adjustment incl. 80 mm (4-steps) 142481	F		
	mechanical tilting and height adjustment (±14° or 70 mm) (only with SV1C possible)	HFN		
	pneumatic with compressor 12 VDC 9 A 108 W	P12		
	autom. weight adjustment 24 VDC 7,5 A 180 W as well as height adjustment	P24		
Seat adjustment motor driven 1)	12 VDC 25 A without suspension	M		
Manual tilting system	without suspension, ±14° tilting, 80 mm height adjustment, additional height 70 mm	HN		
Seat contact	evaluation electronics 24 V	SKO		

May also be delivered with additional suspension. Seat height will be 70 mm more, therefore footrest may be necessary.

1)

Usually armrests AS1–30 used on consoles.

2) Armrests at backrest is not possible for all units.

Ordering example: S210YC–K–F


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Universal operating units in the range of hoistings and industry approved with new and innovative design



FSAD



FSRD

Types

- FSA, FSAD: driver seat for various applications
- FSR, FSRD: driver seat for extended possibilities of adjustments and new design
- FSM, FSMD: driver seat with electrical seat adjustments for demanding customers
- FSK, FSKD: driver seat with plastic top cover
- FSAL, FSALD: narrow driver seat for small cabins

Features

- designed according to ergonomic aspects for relaxed work
- comfort seat with long well-formed backrest and reinforced side contour for optimal seating position, as well as mechanical suspension with height adjustment
- optimal working position for each body size (DIN 33402) due to various adjustments:
seat height, seat tilt, seat cushion depth, combined longitudinal adjustment of consoles and seat, adjustable lumbar support, backrest adjustment, weight adjustment, armrests adjustable in height and tilt
- consoles with hinges made of steel plate, production according to client's requirement in our own sheet metal production
- robust steel base with collapsible cover under seat for easy access to terminals. For rotary units, terminals are integrated in base console
- powder-coated metal parts
- rotary motion without backlash, stepless lock via excentric brake or lock by notches, ranging from 180° right to 90° left

Options

- dimensions and forms according to client's requirement
- consoles with sloped covers
- optimal view on control devices and instruments
- stainless steel consoles
- removable side panels (for FSR...)
- special painting
- additional mechanical adjustment for consoles in longitudinal and vertical direction (for FSR...)
- consoles swivelling outwards (for FSR...)
- installation of controllers, control devices, other instruments..
- completely wired on terminals or PLC
- motorized rotary motion
- monitor holder
- keypad holder
- integrated heating with ventilator (for FSR...)
- two part footrest made of aluminium or single footrest with grid
- headrest
- 2- point seat belt, 4-point seat belt
- electrical seat adjustment
- V-cut
- electrical heating
- pneumatic suspension with compressor 12 or 24 VDC
- passive climate system with activated carbon system
- detensor active lamellae for permanent relief of spine
- upholstery in genuine leather
- sliding system for complete unit
- further information see list 7 sheet 22/5..., dimension sheets see M22/5...



Hydraulic damped and suspended operating unit with lateral consoles for the installation of controllers, control devices, digital and indicating instruments. Various adjustments manually in order to get optimal seat position.

Seat and backrest cushion
easy to replace

Lumbar support

In order to have easy access
to the terminals in base
you have to tilt back seat

Standard: black powder coated



Head rest on request

Height adjustable and tiltable
armrests AS1-30 on console or
armrest at backrest

Consoles with hinged covers
inclinable and tiltable upwards
with staying device

Flexible hoses for wires M40 or M50

For FSAD:
ball bearing rotating system with
friction or notching disc in the
range from 180° on right to 90°
on left side

Version	Version	Dimensions	Basic price without inserts EUR	Additional price EUR
FSA	Stationary:	M 22/5A		
	Integrated cabin heating: 2 KW 4 KW			
FSAD	Rotating:	M 22/5B		
	Footplate (2 pieces)			
	height- and tiltable feet plate	FS02-16B + FS02-16-2A		

On request:

- installation of controllers
- installation of control devices Ø22,5 mm see sheet 2/2A...
- wiring onto terminals
- consoles dimensions according to client's requirement
- options referring to seat S722 see sheet 22/4F
- seat S210Y with Y-cut see sheet 22/4G
- special painting
- precision turntable for higher demands



Hydraulic damped seat with spring type S722 see sheet 22/4F

Adjustments: Weight
 Height 3 steps 60 mm
 Forward-backward-whole unit
 Forward-backward-only seat
 Backrest inclination +10°-80°
 Lumbar support
 Seat cushion inclination
 Seat cushion horizontal adjustable 60 mm

Seat cushions can be replaced
 Head rest on request



Type	Model	Dimensions	Basic price ohne Einbauten EUR	Additional price EUR
FSK	Stationary Integrated cabin heating. 2 KW 4 KW	M 22/5i		
FSKD	Rotating Footplate Height- and tiltable feet plate	M 22/5iA		

Controllers, push buttons see list 7
 Seat additional equipment see sheet 22/4F



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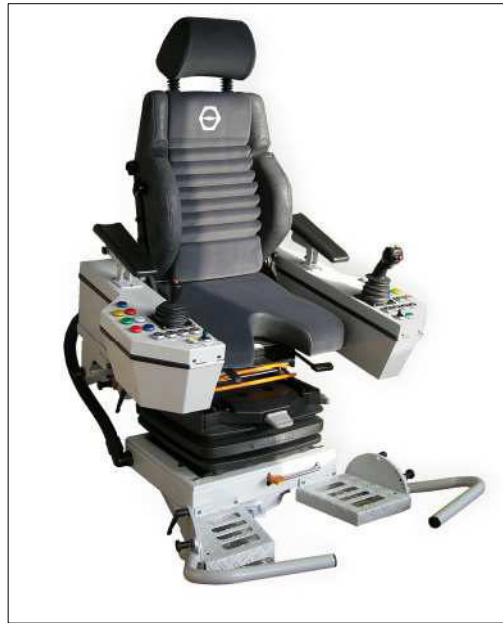
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Hydraulic damped and
spring loaded suspension seat
S210Y according to 22/4G

Rotary version with various
functions for console base

- top side with hinged cover
and suspension fixing
- bottom side with ball
bearing fixing
- integrated rotary locking device
- cable slide
- possible to install terminals,
transformer...
- inner space accessible by tilting
chair backwards



Headrest

Armrest on console

Consoles horizontal turnable outwards,
tiltable and collapsible upwards

Seat tilt adjustable

Both longitudinal slides
with double lock

Rotation (FSRHD) with ball bearing.
Excentric brake stepless or
spring loaded pin with stop positions,
rotation range of -90° ... $+180^{\circ}$

Illustration showing:
with 2 split foot rest with folding footrest (tube)
wider and reinforced pneumatic suspension
cervical tilt adjustment, adjustable backrest side
support, detensor active lamella, rotary type

Type	Version	Basic price without additional EUR	Additional price EUR
FSRH	Stationary:		
	<u>Integrated cabin heating.</u> 2 kW 4 kW		
FSRHD	Rotating:		
	Footrest special footrest adjustable		
<u>Additional seat S210Y:</u>			
P12/P24	pneumatic suspension (P12 = 12 VDC, P24 = 24 VDC)		
PF12/PF24	wider and reinforced pneumatic suspension (PF12 = 12 VDC, P24 = 24 VDC)		
RD	detensor active lamella		
HWS/V+SV+RD	cervical tilt adjustment, adjustable backrest side support and detensor active lamella		
Other options: sheet 22/4G			

Controllers, push buttons see list 7
On request: wiring onto terminals, PLC-components



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Hydraulic damped and suspended seat according to 22/4F + 22/4G
Seat (without consoles) adjustable in tilting $\pm 14^\circ$

Headrest

Leather-armrests tiltable with 6 steps up to 30°

Angle adjustment of seat cushion inclination 3° – 11° (only S722)

Rotation of FSRHD-G with ball bearing and excentric brake for stepless positioning or spring loaded pin for fixed position in the range of -90° ... $+180^\circ$

Longitudinal seat adjustment forward-backward ± 75 mm
Longitudinal adjustment for seat+consoles combined forward-backward ± 75 mm

Consoles:

- stepless tilting -20° (down) to $+50^\circ$ (up)
- consoles manually horizontal turnable from 5° inner to 25° outer position
- longitudinal console adjustment ± 50 mm



Photo:

two part footrest with folding footrest (tube) with rotatable version and seat S210Y
Reinforced pneumatic suspension
Cervical tilt adjustment, adjustable backrest side support and detensor active lamellae, authentic leather

Type	Model	Basic price without additional EUR	Additional price EUR
FSRH-G-S722	Stationary with seat S722		
FSRH-G-S210Y	Stationary with seat S210Y (with Y-cut)		
FSRHD-G-S722	Rotary with seat S722		
FSRHD-G-S210Y	Rotary with seat S210Y (with Y-cut)		
	2-part footrest, adjustable 2-part footrest adjustable 2-part footrest, hinged side wards		
Additional: P12/P24 pneumatic suspension (P12 = 12 VDC, P24 = 24 VDC)			
PF12/PF24 wider and reinforced pneumatic suspension (PF12 = 12 VDC, P24 = 24 VDC)			

Hand rest pad with leather
Adjustable armrests

Further options: sheet 22/4F + 22/4G
Installation of controller and control devices according to list 7
Wiring on terminals



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Photo:

Hydraulic damped and suspended seat according to 22/4F + 22/4G

Seat (without consoles) adjustable in tilting $\pm 14^\circ$

Headrest

Leather-armrests tiltable with 6 steps up to 30°

Angle adjustment of seat cushion inclination 3° – 11° (only S722)

Rotation of FSRHD-2G with ball bearing:

–Excentric brake for stepless positioning
or spring loaded pin for fixed position in the range of -90° ... $+180^\circ$

Longitudinal seat adjustment

forward-backward ± 75 mm

Longitudinal adjustment for seat+consoles

combined forward-backward ± 75 mm

Consoles:

–stepless tilting -20° (down) to $+50^\circ$ (up)

–consoles manually horizontal turnable from 5° inner to 25° outer position

Type	Model	Basic price without additional EUR	Additional price EUR
FSRH-2G-S722	Stationary with seat S722		
FSRH-2G-S210Y	Stationary with seat S210Y (with Y-cut)		
FSRHD-G-S722	Rotary with seat S722		
FSRHD-G-S210Y	Rotary with seat S210Y (with Y-cut)		
	Footrest: 2-part footrest, adjustable 2-part footrest adjustable 2-part footrest, hinged side wards		
Additional: P12/P24 pneumatic suspension (P12 = 12 VDC, P24 = 24 VDC)			
PF12/PF24 wider and reinforced pneumatic suspension (PF12 = 12 VDC, P24 = 24 VDC)			
Hand rest pad with leather			
Additional sideconsole			

Further options: sheet 22/4F + 22/4G

Installation of controller and control devices according to list 7

Wiring on terminals

Client logo attached at head rest

Special coating of seat S210



Hydraulic damped and suspended operating unit with lateral consoles for the installation of controllers, control devices, digital and indicating instruments. Various adjustments manually in order to get optimal seat position.

Seat and backrest cushion
easy to replace

Lumbar support

In order to have easy access
to the terminals in base
you have to tilt back seat



Illustration showing: with hinged foot rest

Head rest on request.

Adjustable armrest at seat.

Consoles turnable outwards,
tilt and hinged.

Flexible hoses for wires M40 or M50

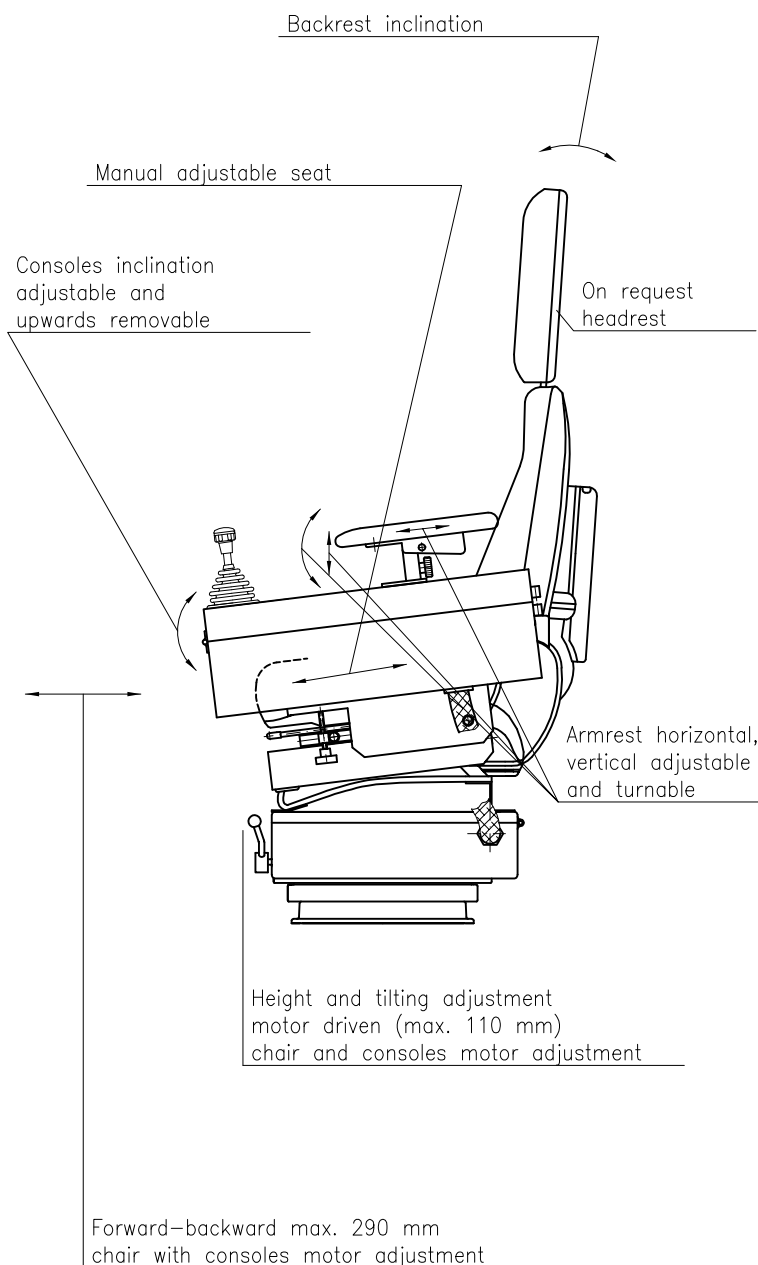
For FSRD:
ball bearing rotating system with
friction or notching disc in the
range from 180° on right to 90°
on left side

Version	Version	Dimensions	Basic price without inserts EUR	Additional price EUR
FSR	Stationary:	M 22/5RA		
	Integrated cabin heating: 2 KW 4 KW			
FSRD	Rotating:	M 22/5RB		
	Foot rest (2 pieces) hinged foot rest FA03			

On request:

- installation of controllers
- installation of control devices Ø22,5 mm see sheet 2/2A...
- wiring onto terminals
- consoles dimensions according to client's requirement
- options referring to seat S722 see sheet 22/4F
- seat S210Y with Y-cut see sheet 22/4G
- special painting
- precision turntable for higher demands





Motorized adjustment 12 VDC
ca. 25 A

Type	Model	Dimensions	Basic price without additional EUR
FSMD	without suspension	M 22/6	
FSMDPF24	with suspension and foot rest	M 22/6A	

Controllers, push buttons see list 7
other dimensions, painting on request.

Seat additional equipment
see sheet 22/4F



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SV1C



SV1CJF



Features

- designed according to ergonomic aspects for relaxed work to meet the standards for seat and adjustment comfort
- comfort seat with long well-formed backrest and reinforced side contour for optimal seating position as well as mechanical suspension with height adjustment
- optimal working position for each body size (DIN 33402) due to various adjustments:
seat height, seat tilt, seat cushion depth, longitudinal seat adjustment relative to consoles, lumbar support, adjustable backrest, weight adjustment, armrests adjustable in height and tilt
- consoles with hinges made of steel plate production according to clients's requirement in our own sheet metal production
- robust steel base with collapsible cover under seat for easy access to terminals
- powder-coated metal parts RAL7032 (pebble grey), special painting on request
- rotary motion without backlash, steppless lock via excentric brake or lock by notches, in the range from 180° right to 90° left

Applications

- Application for lifts, control rooms anywhere where many devices must be controlled

Options

- consoles sizes and forms according to clients's requirement
- consoles with sloped covers for optimal view on control devices and instruments
- stainless steel consoles
- removable side panels
- additional mechanical adjustment for consoles in longitudinal and vertical direction
- installation of controllers, control devices, other instruments...
- completely wired on terminals or PLC
- motorized rotary motion
- monitor holder
- keypad holder
- integrated heating with ventilator
- rotary two-part footrest made of aluminium or single foot rest with grid
- headrest
- 4-point seat belt
- electrical seat adjustment
- V-cut
- seat heating
- pneumatic suspension with compressor, 12 or 24 VDC

- further informations see sheet 22/7..., dimensions M22/7...



Rotating with stepless brake,
ball bearing, cable entry in centre
Hydraulic spring damped.
Seat S722 with cotton or vinyl cover,
adjustable in all directions see sheet 22/4C.
Cushions easy to exchange, steel enclosure.
Arm rest optionally, at seat or on console



With comfortable seat, no controllers.		Dimensions	Basic price without additional EUR
Type	With foot rest		
SV1C--		M 22/7A	
	SV1C--F		
SV1CJ--		M 22/7B	
	SV1CJ--F		

Wiring
Other dimensions
Manual adjusted consoles
Electrical
Electrical rotation
Special finish
Other seat
Head rest

on request



Controllers and push buttons see list 7

Seat additional equipment
see sheet 22/4F



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Collapsible chair KSGF / KSPGF

- * folding of backrest and seat
- * height stepless adjustable (135 mm)
- * upper seat part longitudinal adjustable
- * backrest adjustable
- * suspension



KSGF



KSGF

Version	Seat cover	EUR
KSGF	Back seat covered in hard wearing vinyl with internal foam padding With suspension	
KSPGF	Seat with removeable cotton cover with suspension, seat with felt insert for comfort.	

Collapsible chair KSHC / KSHCP

- * folding of backrest and seat
- * upper seat part longitudinal adjustable
- * backrest adjustable
- * hydraulic suspension



KSHC

Version	Seat cover	EUR
KSHC	Back seat covered in hard wearing vinyl with internal foam padding With suspension	
KSHCP	Seat with removeable cotton cover with suspension, seat with felt insert for comfort.	



List 7 / 2014
22/9-1

Operator console FSMMD-SHN, FSMMDER-SHN
Dimensions see sheet M 22/9-1A + M 22/9-1B

List 7 / 2014
22/9-1

Designed according to ergonomic aspect in order to work easy and tireless.
To install large range of standard equipments as well as electrical and manual adjustments is possible.
Version FSMMDER-SHN allows to operate while sitting or standing.
Memory control on request available.

Motorized console
adjustment
up-down

Motorized console
adjustment
forward-backward

Motorized console
adjustment
tilt

Consoles manually
horizontal turnable

Motorized seat adjustment
forward-backward
up-down
tilt

Footrest manually
adjustable
forward-backward
(for FSMMDER-SHN also
rotatable)



Headrest adjustable
height and tilting

Adjustable backrest
10°-0-80°

Lumbar support

Seat tilt 3°-11°

Seat cushion adjustable
forward-backward

Pneumatic suspension with
automatic weight and seat
height adjustment

Operating unit	Dimensions	Adjustments consoles			Without inserts EUR
		up-down	forward-backward	tilt	
FSMMD-SHN	M 22/9-1A	200 mm	150 mm	5°-0-10°	
FSMMDER-SHN	M 22/9-1A	300 mm	250 mm	5°-0-10°	
Memory control (12 positions) Motorized rotation Control enclosure backside					Additional prices:

On request:

- Comfort seat S210Y with y-cut (photo) see sheet 22/4G
- Comfort seat ACTIMO S722 see sheet 22/4F
- installation of controllers and control devices
- wiring on terminals /PLC
- other console dimensions
- consoles with stainless steel or powder coated, colour according to requirements



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Narrow, compact operating unit especially designed for space constraints.
Version FSALV... for the installation of VCS0..., CS1... master controller and up to 5 control devices Ø22,5 mm.

Seat and backrest cushion
to replace

Armrests with attached boxes (max 2 kg),
tilt and longitudinal adjustment
as well as turnable sideways.

Stationary or rotary

Standard: black powdered



Head rest on request

Lumbar support

Seat cushion depth adjustment

Infinite seat cushion angle
adjustment

Flexible hoses for wires

Photo:
Standardversion mit Anbaugeschütz

Type	Version		Basic price without additional EUR
FSALV	Stationary		
FSALVDS	Rotary with turning disc		
FSALVD	Rotary with ball bearing		

On request:

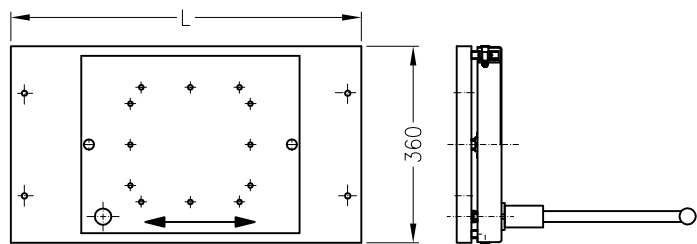
- installation of controller see sheet 4/1, 7/4, 7/5
- installation of control devices Ø22,5 mm see sheet 2/2A...
- wiring onto terminals
- options referring to seat S722 see sheet 22/4F
- seat S210Y with Y-cut see sheet 22/4G
- special painting



Sliding system with wheels:

EUR

acc. to SM 13008-7
mechanical interlock by hand (lever)

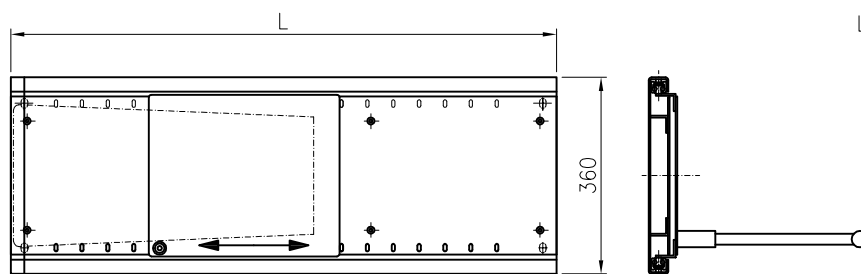


L = total length
travel $F = L - 420$

$L < 1500$
 $1500 \leq L < 2000$
 $2000 \leq L < 2500$

Sliding system with rails:

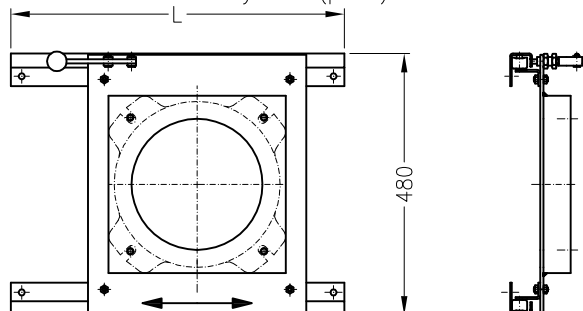
acc. to SM13008-8
mechanical interlock by hand (lever)



L = total length	F = travel
L = 900	F ~ 440
L = 1000	F ~ 520
L = 1100	F ~ 600
L = 1200	F ~ 760
L = 1300	F ~ 860
L = 1400	F ~ 930
L = 1500	F ~ 1080

Sliding system with rails:

acc. to SM 13008-5
mechanical interlock by foot (pedal)



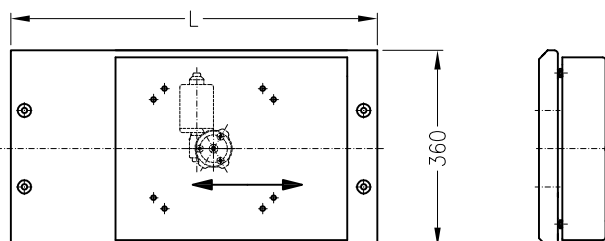
L = total length	F = travel
L = 900	F ~ 440
L = 1000	F ~ 520
L = 1100	F ~ 600
L = 1200	F ~ 760
L = 1300	F ~ 860
L = 1400	F ~ 930
L = 1500	F ~ 1080

Additional price:

Option: sliding system with electromagnetic interlock
acc. to SM 13008-6

Motorized sliding system with rails:

acc. to SM13008-9



L = total length	F = travel
L = 900	F ~ 440
L = 1000	F ~ 520
L = 1100	F ~ 600
L = 1200	F ~ 760
L = 1300	F ~ 860
L = 1400	F ~ 930
L = 1500	F ~ 1080



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Illustration showing:
with 2 splited foot rest,
rotary type and seat S722.

Hydraulic damped and
spring loaded suspension seat
according to 22/4F + 22/4G

Headrest

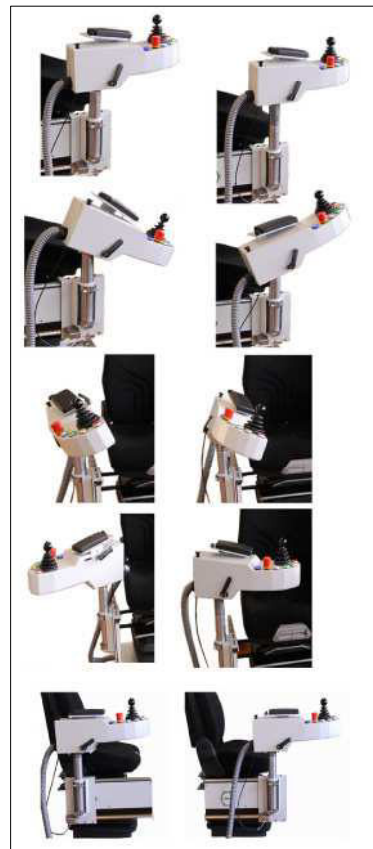
Armrest on console

Seat tilt adjustable 3°–11° (S722 only)

Rotation (FSBD) with ball bearing.
Excentric brake stepless or
spring loaded pin with stop positions,
rotation range of –90°...+180°.

Consoles:

- height adjustable ± 45 mm
- inclinable downward and upward $\pm 22^\circ$
- tilting around longitudinal axis
- tilting inward and outward
- swivel range 180°
- longitudinal travelling 350 mm



Type	Version	Basic price without additional EUR	Additional price EUR
FSB–A	Stationary with S722		
FSB–K	Stationary with S210Y with Y–cut		
FSBD–A	Rotating with S722		
FSBD–K	Rotating with S210Y (with Y–cut)		
	2 splited foot rest, special footrest adjustable		

Additional seat S722:

Tilt adjustment manually
Longitudinal seat adjustment with double lock slides

Other options: sheet 22/4F + 22/4G

Controllers, push buttons, see list 7
On request: wiring onto terminals



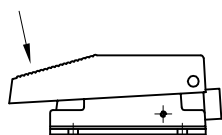
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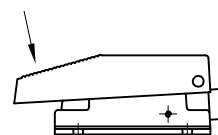
SF

IP42

250 V~
5 A30 V=
2 A

SF-OD

IP56

250 V~
5 A30 V=
2 A

Ordering example

Type _____ SF 1 2 22
 Circuit diagram _____
 Degree of protection _____ OD

Basic price
EURSF
SF-OD

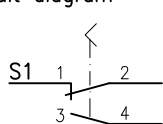
Additional price for circuit

EUR

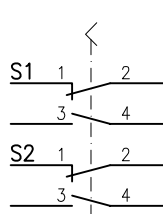
1 step:
11 step:
22 steps:
22

Circuit diagram

1:



2:

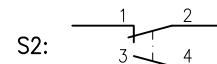
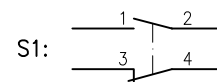


22:

S1: 1-2
 S1: 3-4
 S2: 1-2
 S2: 3-4

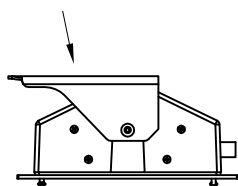
0	1	2
	x	x
x		
x	x	
		x

x=closed



FT0

IP54

250 V~
10 A30 V=
2 A

Ordering example

Type _____ FT0 10 18P PW0045-...
 Circuit diagram _____
 Potentiometer _____

Basic price
EUR

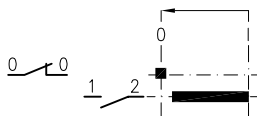
FT0

Additional price for circuit
diagram EUR1 step
10potentiometer
18PAdditional price for attached
potentiometer EUR

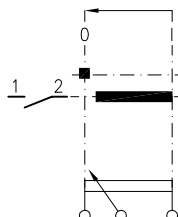
PW0045-5K-90°

Circuit diagram

10:



18P:



Potentiometer:

Potentiometer PW0045...: wire wound, 1.5 Watt, max. 24 V=



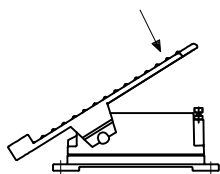
Spohn+Burkhardt
 Elektrotechnische Fabrik Blaubeuren

Mauergasse 5
 89143 BLAUBEUREN
 GERMANY

Tel. +49 7344 171-0 info@spobu.de
 Fax +49 7344 171-99 www.spobu.de

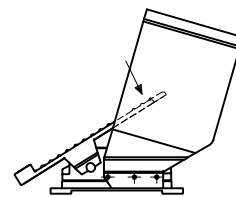
FST

IP54



FSTS

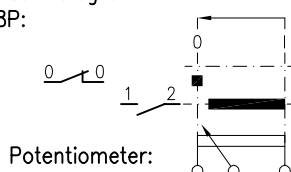
IP54



Ordering example	Basic price EUR	Additional price for circuit diagram EUR		Additional price for attached potentiometer EUR	
	FST FSTS	18P	18PE	R1K R5K R10K	PW0045-1K PW0045-5K PW0045-10K
Type _____					
Circuit diagram _____					
Potentiometer _____					

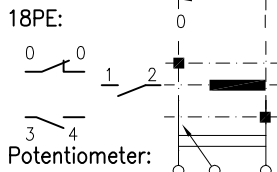
Circuit diagram

18P:



Potentiometer:

18PE:

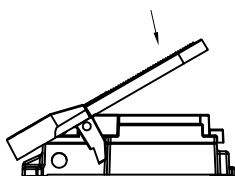


Potentiometer:

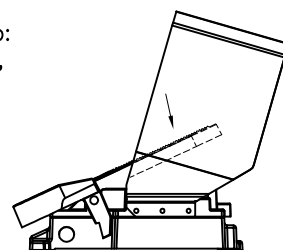
Potentiometer: R...: cermet, 2 Watt, max. 24 V=
PW0045...: wire wound, 1.5 Watt, max. 24 V=

FPS
FPSS

IP42

Photo:
FPS,
FPWFPW
FPWS

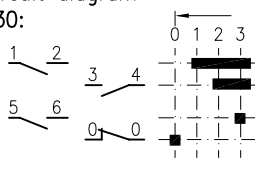
IP42

Photo:
FPSS,
FPWS

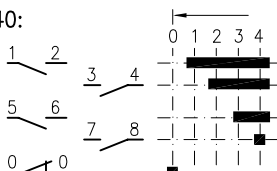
Ordering example	Basic price EUR	Additional price for circuit diagram EUR		Additional price for attached potentiometer EUR	
	FPS FPSS	F30	F40	-	
Type _____					
Circuit diagram _____					
Potentiometer _____					
Type _____					
Circuit diagram _____					
Potentiometer _____					

Circuit diagram

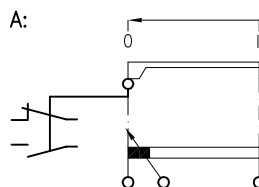
F30:



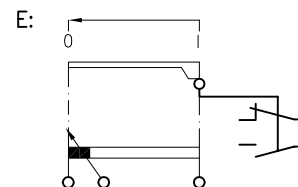
F40:



A:



E:



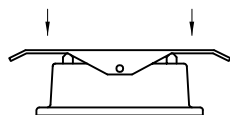
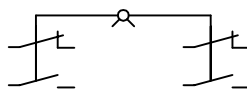
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GERMANY

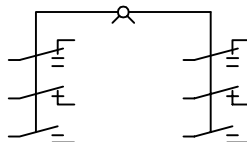
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Foot rocker FW

Degree of protection IP42

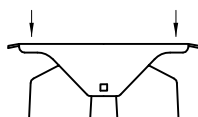
Electrical data: 250 VAC 5 A
30 VDC 3 AFW 1
1 step

EUR

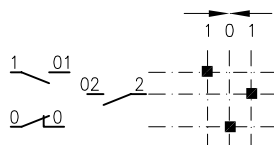
FW 2
2 steps

Foot rocker FWO

Degree of protection IP54

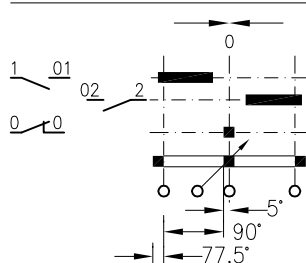
Electrical data: 250 VAC 10 A
30 VDC 2 A

FWO 10



EUR

FWO 9P1

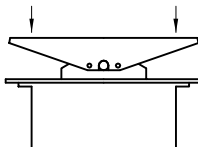


Potentiometer, wire wound, 2 W
PW0045 5-0-5 K Ω - SM 7206-24
on request other ohmic values
potentiometer see sheet 14/1B

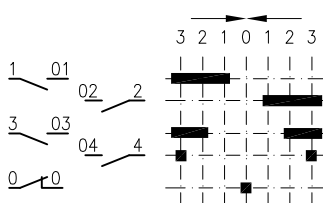
Foot rocker FWU

Degree of protection IP42

Electrical data: see sheet 1/1 by type VNS0

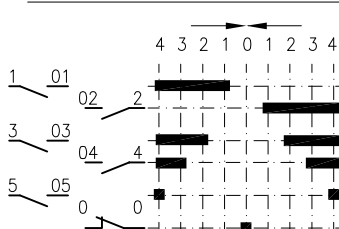


FWU 30

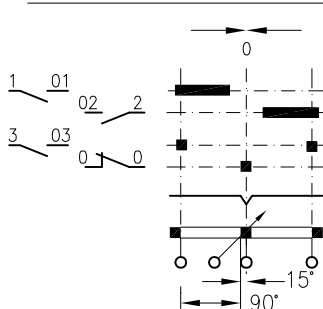


EUR

FWU 40



FWU 10P



Potentiometer, wire wound, 3 W
PW55 5-0-5 K Ω - SM 7206-05
on request other ohmic values



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Devices for inland water and sea



Applications

- devices for ships
e.g. on upper deck for operating the winch
- design for rough conditions: rain, snow...
- surveillance and control devices for outdoor conditions

Classification

- German Lloyd

Common features

- protection IP56 (DIN EN 60529)
- all non-coated parts made of stainless steel or electrogalvanized
- closed compact design

Technical data of controller

- rating insulation voltage U_i 400 V
- conventional thermal current I_{th} 16 A
- rating operational voltage – rating operational current
 - AC12: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 16\text{ A}$
 - AC15: $U_e = 230\text{ V}-50/60\text{ Hz}$ – $I_e = 6\text{ A}$
 - DC12: $U_e = 24\text{ VDC}$ – $I_e = 1,7\text{ A}$
 - DC13: $U_e = 24\text{ VDC}$ – $I_e = 1,1\text{ A}$
- mechanical life 10 mio. cycles
- surrounding temperature $-40...+60\text{ }^\circ\text{C}$
- Regulations
 - IEC60947-1, DIN EN 60947-1, VDE 0660 part 100
 - IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200

Types

on deck controller Od2

- case made of sea water resistant aluminium
- available with flat cover or with upper part of instruments
- robust lever on left and right side of case
- controller with max. 4-0-4 steps
- attachment of potentiometer or encoder possible
- grey powder coat

on deck controller Od22

- case made of sea water resistant aluminium
- available with flat cover or with upper part of instruments
- robust lever on left and right side of case
- controller with max. 4-0-4 steps
- attachment of potentiometer or encoder possible
- grey powder coat

on deck controller OdS

- case made of coated sheet metal or stainless steel
- dimensions of case according to client's requirement
- installation of NSO-SFA controllers

Options

- installation of additional control devices: emergency stop, lamps, other instruments
- client-specific design
- special painting (e.g. Munsell...)
- wiring on terminals
- pillar with circle or rectangular flange
- controller with mechanical interlock
- electrical standby heating
- EExd-type

- further information see list 7 sheet 25/1, dimension sheets see M25/1A + M25/1B



Od2



Od22



On deck operator consoles OdS



Approbations

- Germanischer Lloyd

Basic version with controller without pillar RAL 7032 powder coated		Flat cover cable entry on the side			With measure instruments cable entry ont the side		
			base mounting	EUR		base mounting	EUR
	Without spring return	Od2	Od2B	EUR + each double contact	Od2J	Od2BJ	EUR + each double contact
	With spring return	Od2R	Od2RB		Od2RJ	Od2RBJ	
	Without spring return		Od22			Od22J	
	With spring return		Od22R			Od22RJ	

Version **OdS** in steel or stainless steel with collapsible protective cover, pillar or enclosure complete with controllers and control devices available.

On request:

- completely wired
- dimension of enclosure according to client's requirement, on Od-version.

Additional:

Emergency off button
Lamps up to 130 V
Lamps with transformer
Heating type **Z** (please give voltage in clear text)
Switch **NS00-FOD**
+ each double contact

Pillar
Mechanical interlock at controller Od2...
Special painting

EUR

on request

EUR

Potentiometer according as SM 7206-31
PD550 1K-0-1K S495
PD550 5K-0-5K S495
PD550 10K-0-10K S495

Additional price for coupling

Ordering example:

Top part with two instruments _____ Od22 RJ 3D0.3D0
Cable entry on the side _____
Circuit see sheet S 40/1 _____



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		Description see	Dimensions see
Technical data		1/1	
In handle		2/1...	
Control devices	Control devices Ø22,5 mm	2/2...	
Symbols	Symbols	2/3	
Handles	UG..., G..., B...	3/1...	M 3/3...
Controllers	SM0, GM0, M0	4/0...	M 4/1
	ST0	5/0 , 5/2...	M 5/2
	ST1	5/0 , 5/4	M 5/8
	ST2	5/5	M 5/5
	ST3	5/6	M 5/6
	VCS0	7/1...	M 7/4...
	CS1	7/5...	M 7/5...
	NS3	8/1...	M 8/2
	VNS0	9/0 , 9/2...	M 9/2...
	NNS0	9/0 , 9/2N...	M 9/2N...
	VNS2, VNSB2	10/1...	M 10/2...
Drive brake controller	FBS	11/1	M 11/1...
Synchrotransmitter	DG0, DDG0	13/1...	
Potentiometer, amplifier	PD550, PW70, B..., G..., PA...	14/1...	
Encoders	OER, OGF, OGP-DP	15/11...	
Electronic interfaces	CAN, Profibus, ESS...	16/1...	
Portable control stations	T-011, T-022, T-056	20/2...	
Pendants	H-011, HD, HV, HBV	21/2...	M 21/1...
Operator control units	SV0, FSA, FSR, SV1C, FSMMD	22/1...	M 22/1...
Pedals, foot switches	SF, FST, FPS, FW0, FWU	24/1...	M 24/1...
On deck controller	Od2, Od22, OdS	25/0...	M 25/1...
Standard circuits controllers		S40/1...	
Forms of special circuits			
Dimensions: controllers, operator control units,...			
List prices are in Euro and conditionally, ex works, without packing. Tax on sales/purchases are not included.			
Representations: Germany, worldwide			

Einzel-Meisterschalter
Antrieb A

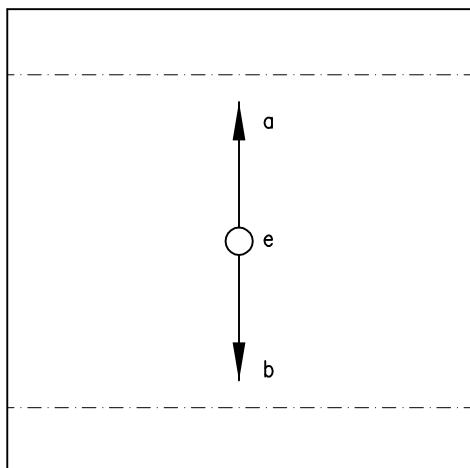
Controller
Drive A

Tag:
Day:

Name:
Name:

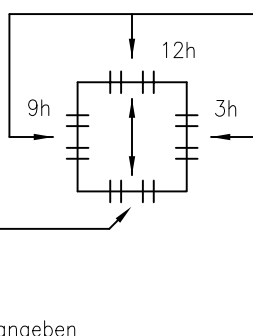
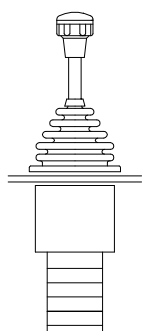
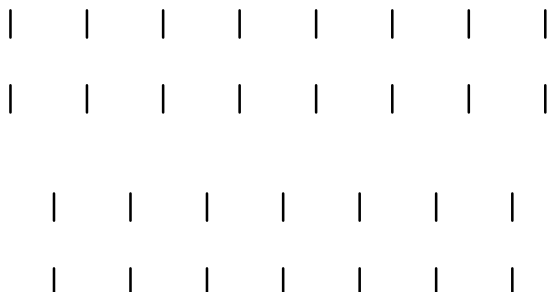
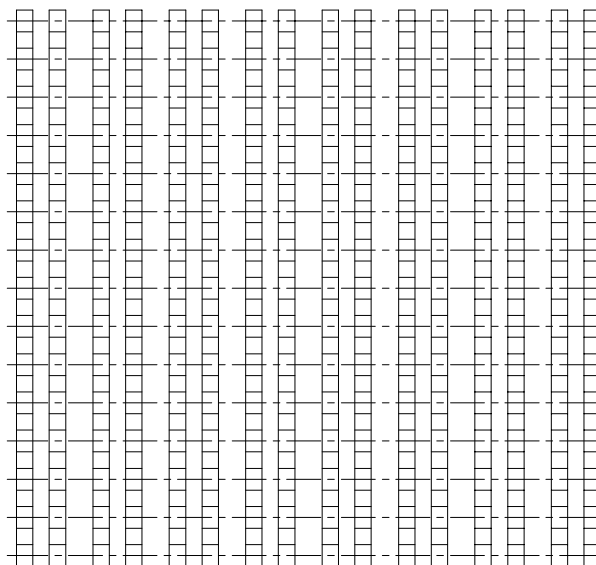
Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:



mit / ohne Selbstrückgang
with / without spring return

0



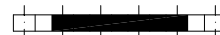
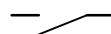
Anschlüsse
connections
normal
standard

Andere bitte angeben
specify other

Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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A diagram showing a central point with four arrows pointing outwards, labeled a, b, c, and d. An arrow labeled 'e' points from the center to the right, overlapping with arrow 'd'. The entire diagram is enclosed in a dashed rectangular box.

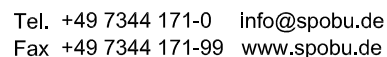
d

[illegible]

b



Typ:



Verbund-Meisterschalter Controller
Antrieb EA Drive EA

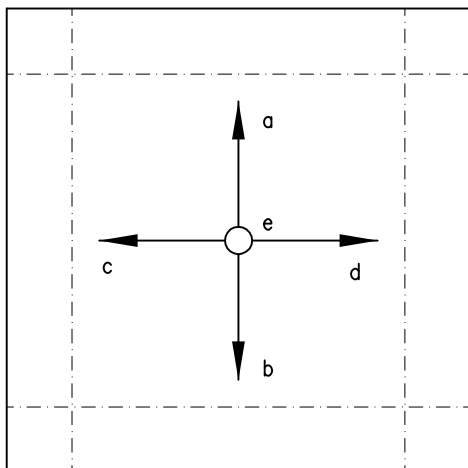
Tag:
Day:

Kunde:
Customer:

Name:
Name:

Zeichnungs-Nr.:
Drawing-Nr.:

mit / ohne Selbstrückgang
with / without spring return

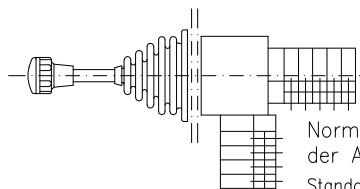


mit / ohne Selbstrückgang
with / without spring return

b

a

0



Schalter
controller
a-b

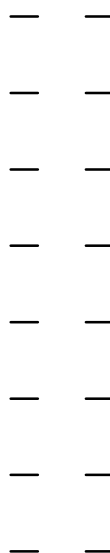
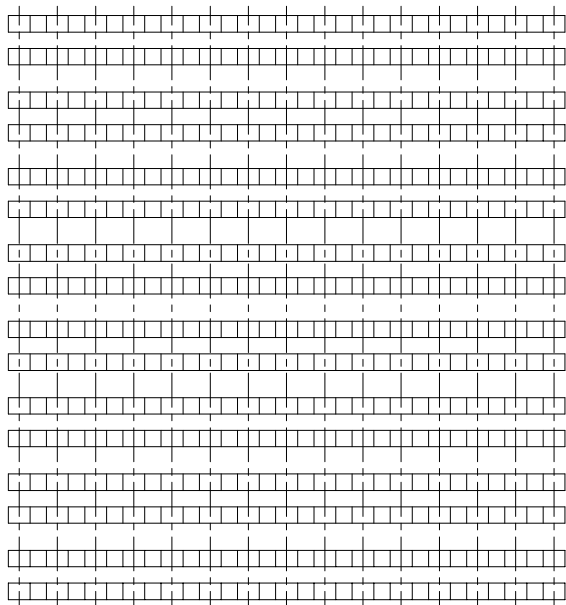
Normallage
der Anschlüsse
Standard direction
of connections

Schalter c-d
controller c-d

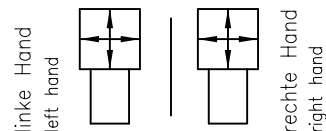
c

d

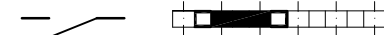
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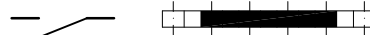
Bei Rosettengravur angeben.
Betätigung mit der
Specify for engraving



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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Einzel-Meisterschalter
Antrieb E, Anordnung N

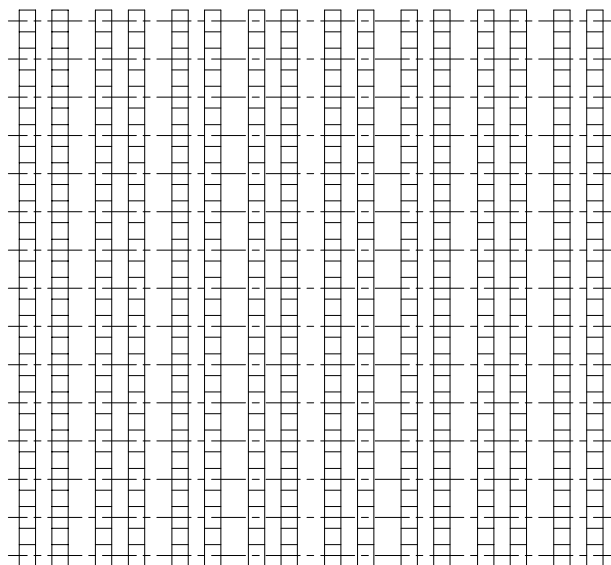
Controller
Drive E, Arrangement N

Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

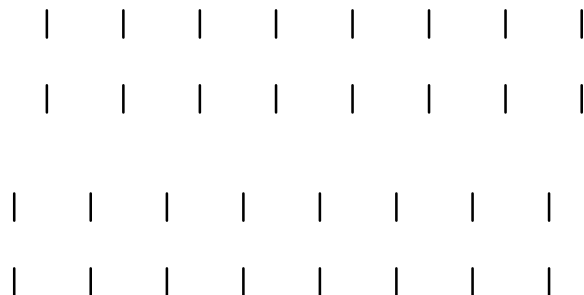
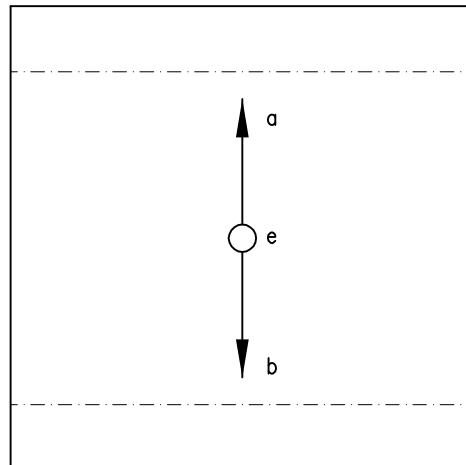


a

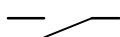
0

b

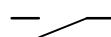
mit / ohne Selbstrückgang
with / without spring return



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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Einzel-Meisterschalter
Antrieb E, Anordnung U

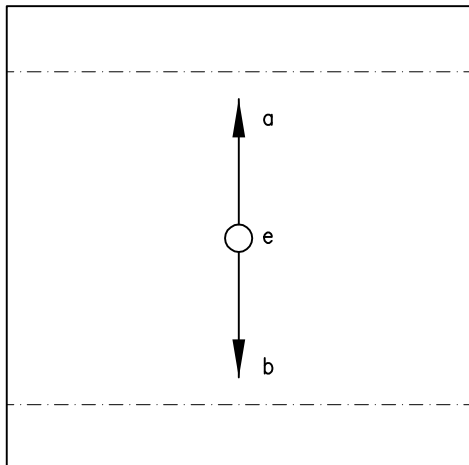
Controller
Drive E Arrangement U

Tag:
Day:

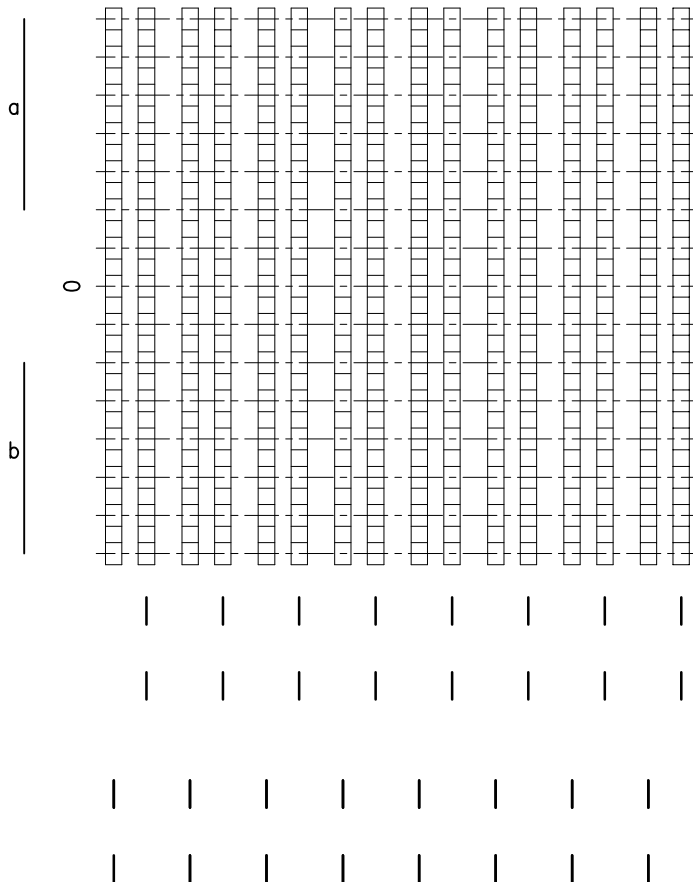
Kunde:
Customer:

Name:
Name:

Zeichnungs-Nr.:
Drawing-Nr.:



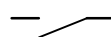
mit / ohne Selbstrückgang
with / without spring return



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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Einzel-Meisterschalter
Antrieb G

Controller
Drive G

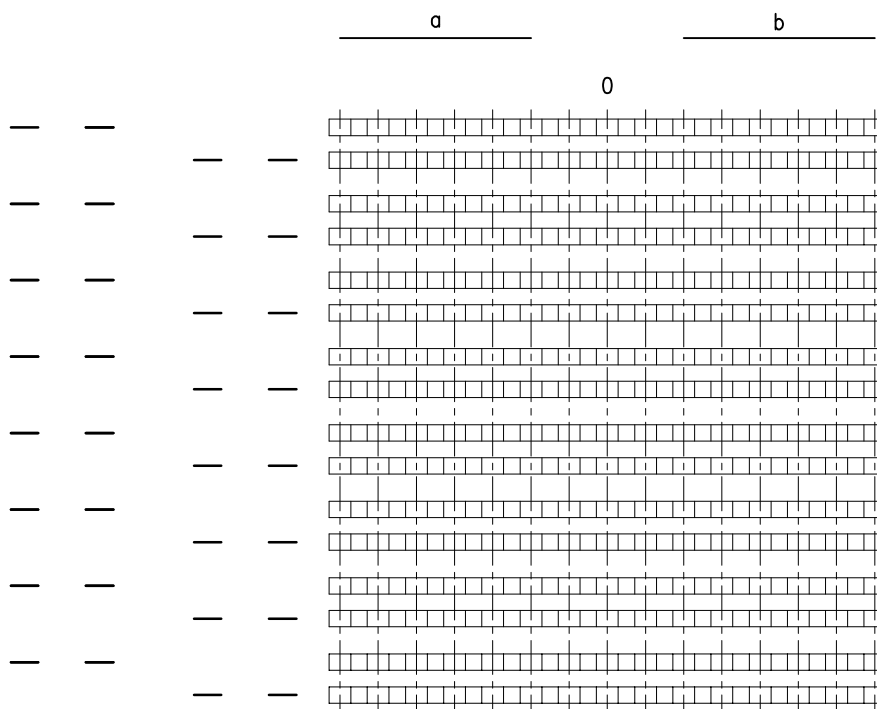
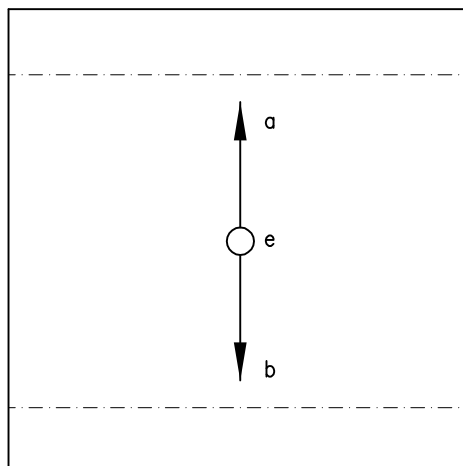
Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

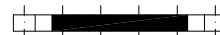
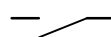
mit / ohne Selbstrückgang
with / without spring return



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Fax +49 7344 171-99 www.spobu.de

Verbund-Meisterschalter
Antrieb GGEA

Controller
Drive GGEA

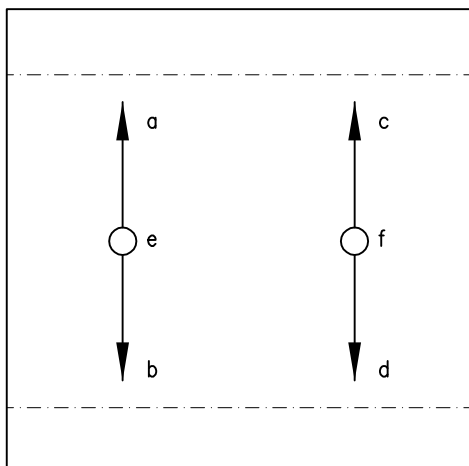
Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

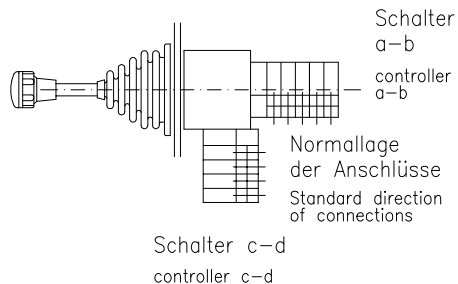
mit / ohne Selbstrückgang
with / without spring return



a

0

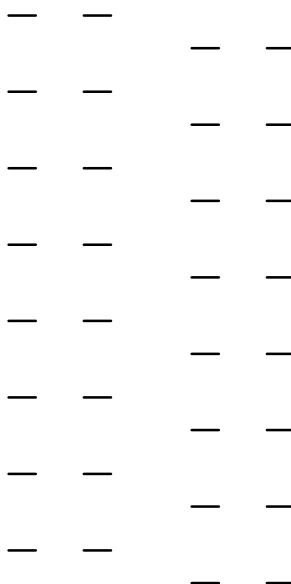
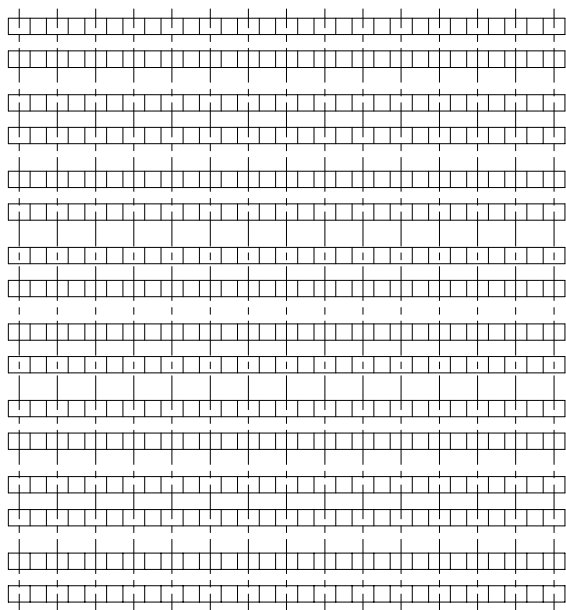
b



c

d

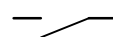
0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

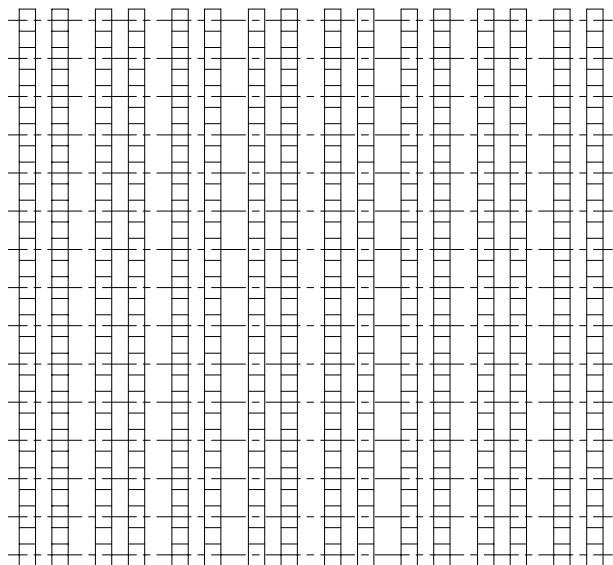
Mauergasse 5
89143 BLAUBEUREN
GERMANY

Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

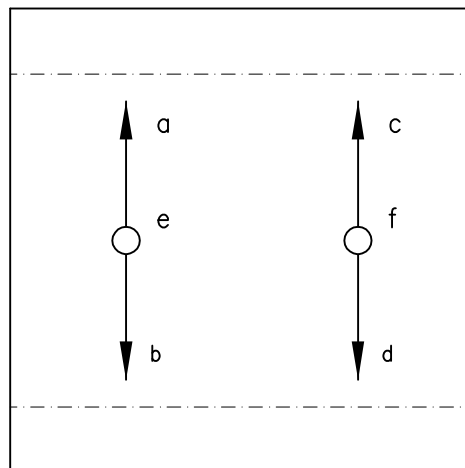
Verbund-Meisterschalter Antrieb GGNV, Anordnung N Controller Drive GGNV, Arrangement N

Tag:
Day:
Name:
Name:

Kunde:
Customer:
Zeichnungs-Nr.:
Drawing-Nr.:



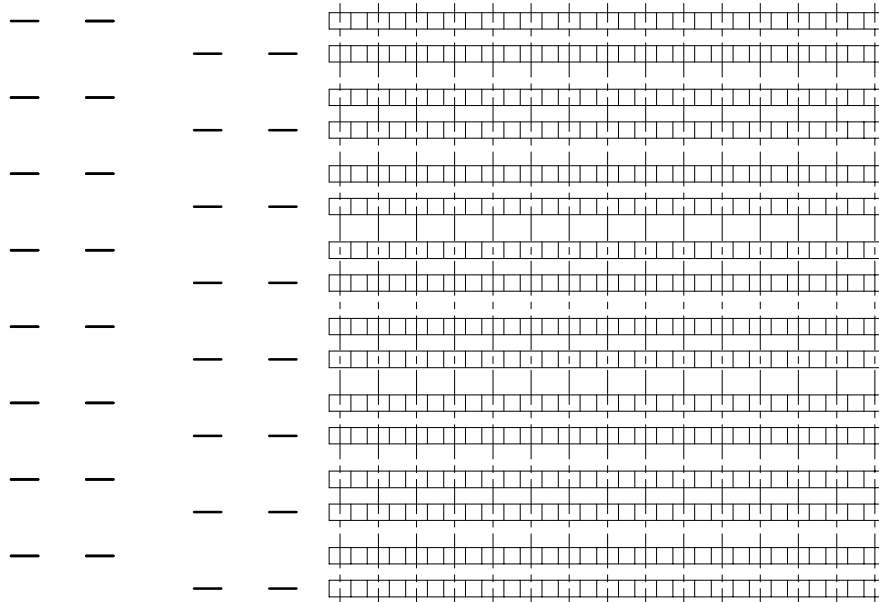
a
b



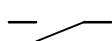
mit / ohne Selbstrückgang
with / without spring return



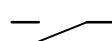
c d
0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Verbund-Meisterschalter
Antrieb GGUV, Anordnung U

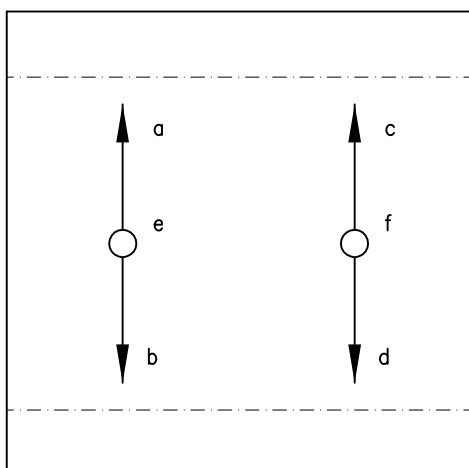
Controller
Drive GGUV Arrangement U

Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

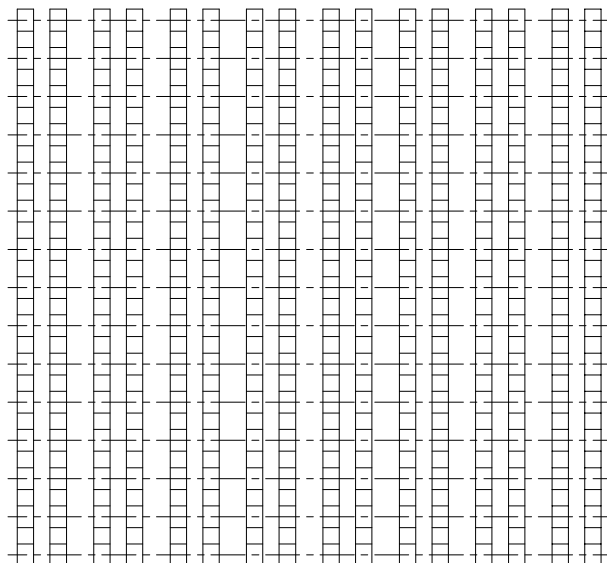


mit / ohne Selbstrückgang
with / without spring return

c

0

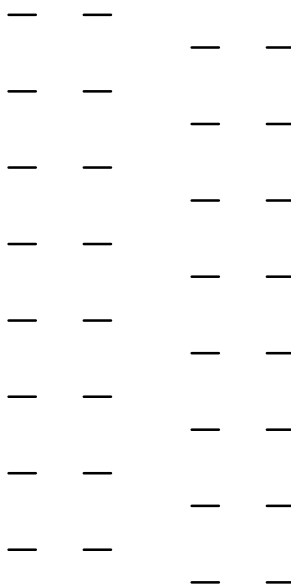
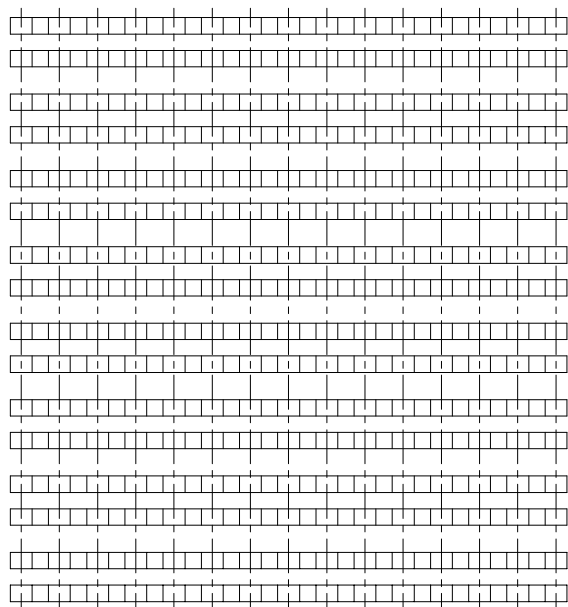
d



b

a

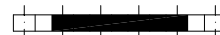
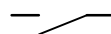
0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Verbund-Meisterschalter
Antrieb H

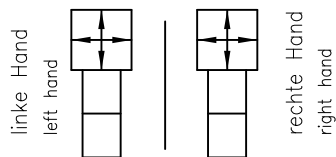
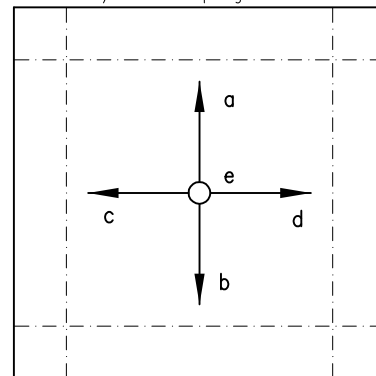
 Controller
 Drive H

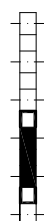
 Tag:
 Day:

 Name:
 Name:

 Kunde:
 Customer:

 Zeichnungs-Nr.:
 Drawing-Nr.:

 Bei Rosettengravur angeben.
 Specify for engraving

 mit / ohne Selbstrückgang
 with / without spring return

 mit / ohne Selbstrückgang
 with / without spring return

 Schwarzes Feld = Kontakt geschlossen
 black field = contact closed

 Kontaktüberlappung (Überschneidung)
 contact overlapping


c

d

0

a

b

0

Typ:


Spohn + Burkhardt
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Verbund-Meisterschalter
Antrieb M

 Controller
 Drive M

 Tag:
 Day:

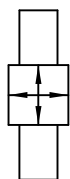
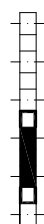
 Name:
 Name:

 Kunde:
 Customer:

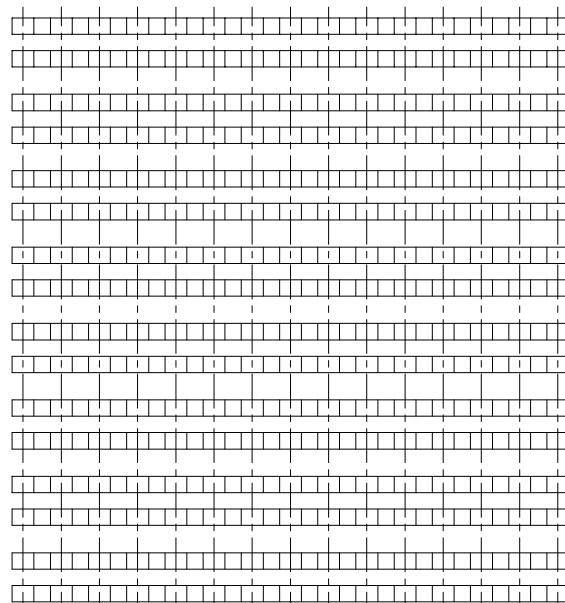
 Zeichnungs-Nr.:
 Drawing-Nr.:

 Schwarzes Feld = Kontakt geschlossen
 black field = contact closed

 Bei Rosettengravur angeben.
 Specify for engraving

 linke Hand
 left hand

 rechte Hand
 right hand

 Kontaktüberlappung (Überschneidung)
 contact overlapping

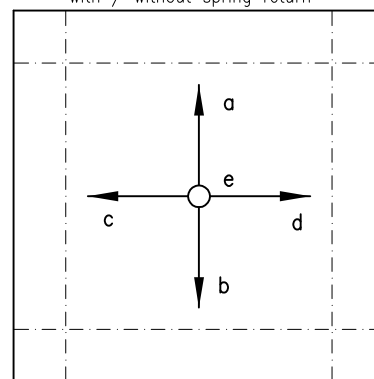

Typ:



0

c

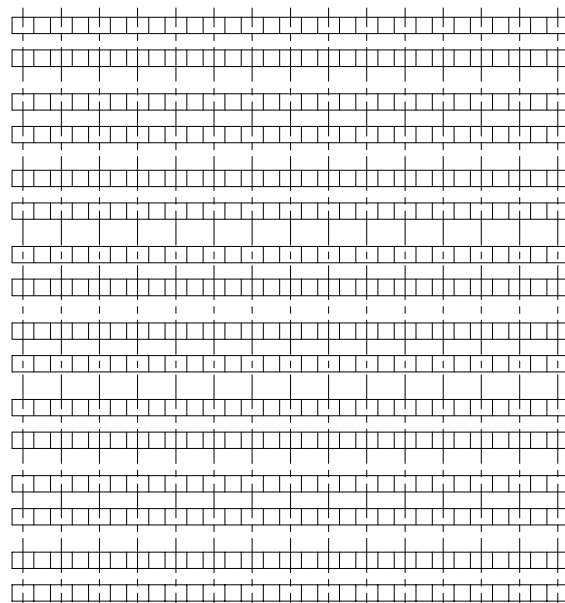
d

 mit / ohne Selbstrückgang
 with / without spring return

 mit / ohne Selbstrückgang
 with / without spring return

a

b

0


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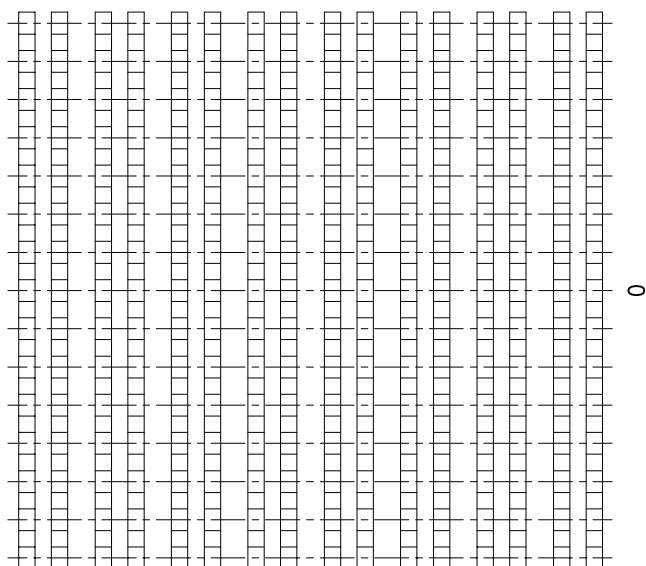
Verbund-Meisterschalter
Antrieb N-EA

Controller
Drive N-EA

Tag:
Day:
Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

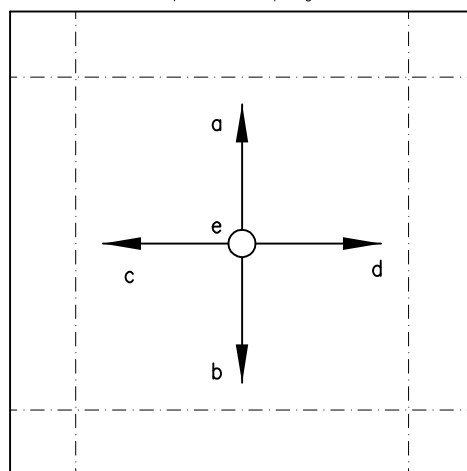


a

with / without spring return
mit / ohne Selbstrückgang

b

mit / ohne Selbstrückgang
with / without spring return



Normallage
der Anschlüsse
Standard direction
of connections

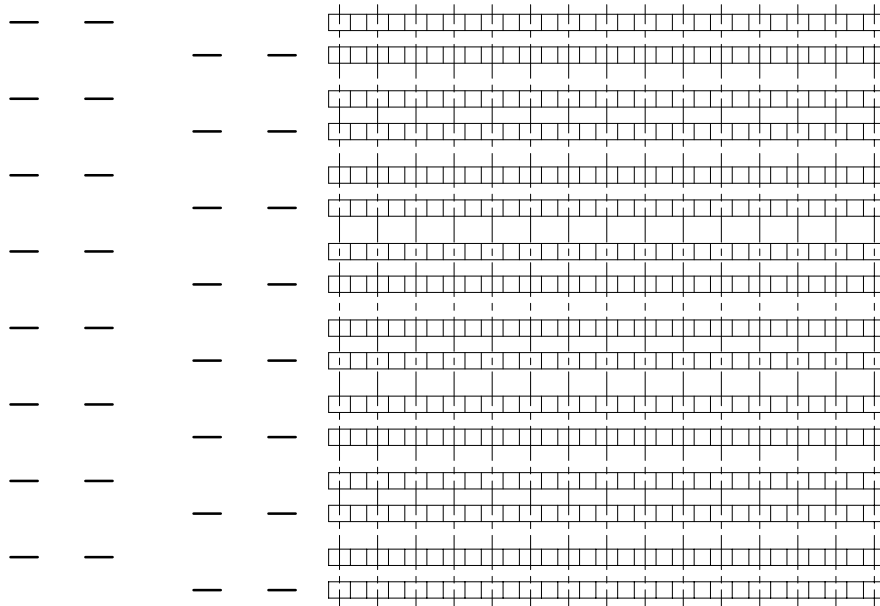
Schalter a-b
controller a-b

Schalter c-d
controller c-d

d

c

0



Typ:

Kontaktüberlappung (Überschneidung)
contact overlapping

Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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Meisterschalter
NS00

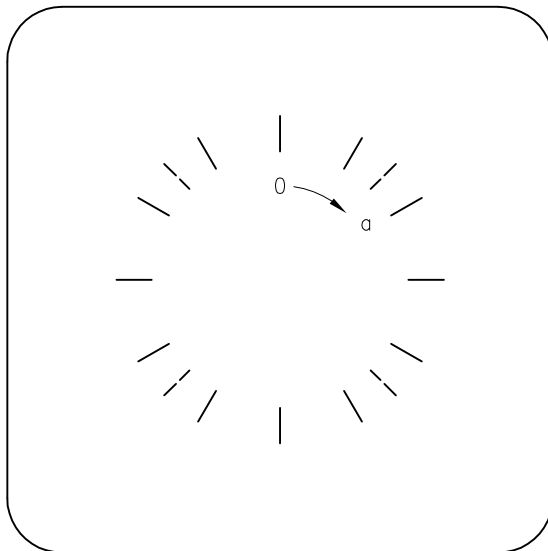
Controller
NS00

Tag:
Day:

Name:
Name:

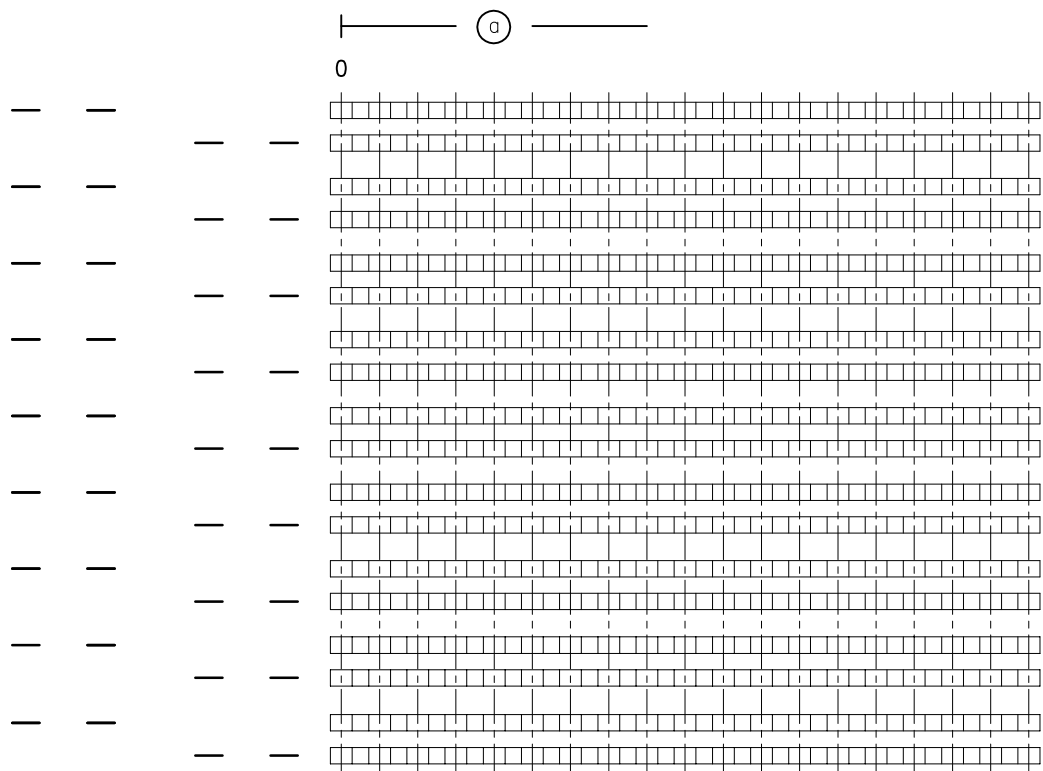
Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

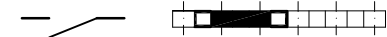


Meisterschalter NS00—nach M 9/8
(Nichtzutreffendes bitte streichen)
Rosette 72x72 mm, 96x96 mm
Knebelgriff NW053
Kugelgriff Edelstahl mit Anzeigespitze
Drehknopf GN 762.2 mit Rosette 72x72 mm
Drehknopf GN 526.1 mit Rosette 96x96 mm
Schaltwinkel 30°, 45°, 60°, 90°
mit/ohne Selbstrückgang

Controller NS00 according M 9/8
(please mark)
escutcheon plate 72x72 mm, 96x96 mm
toggle handle NW053
stainless steel handle
knob GN 762.2 with escutcheon plate 72x72 mm
knob GN 526.1 with escutcheon plate 96x96 mm
switching angles 30°, 45°, 60°, 90°
with / without spring return



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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Meisterschalter
NS00

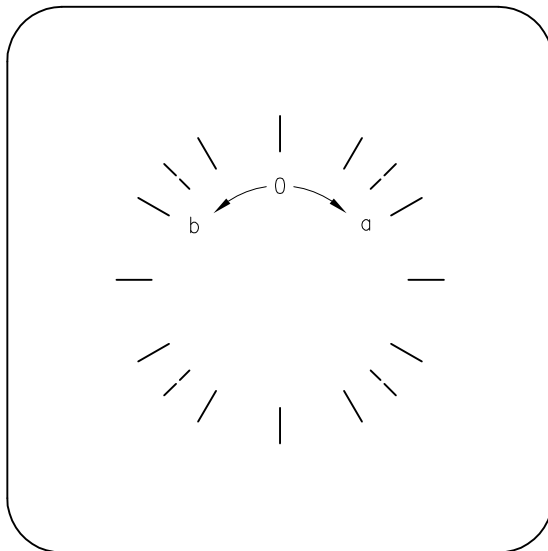
Controller
NS00

Tag:
Day:

Name:
Name:

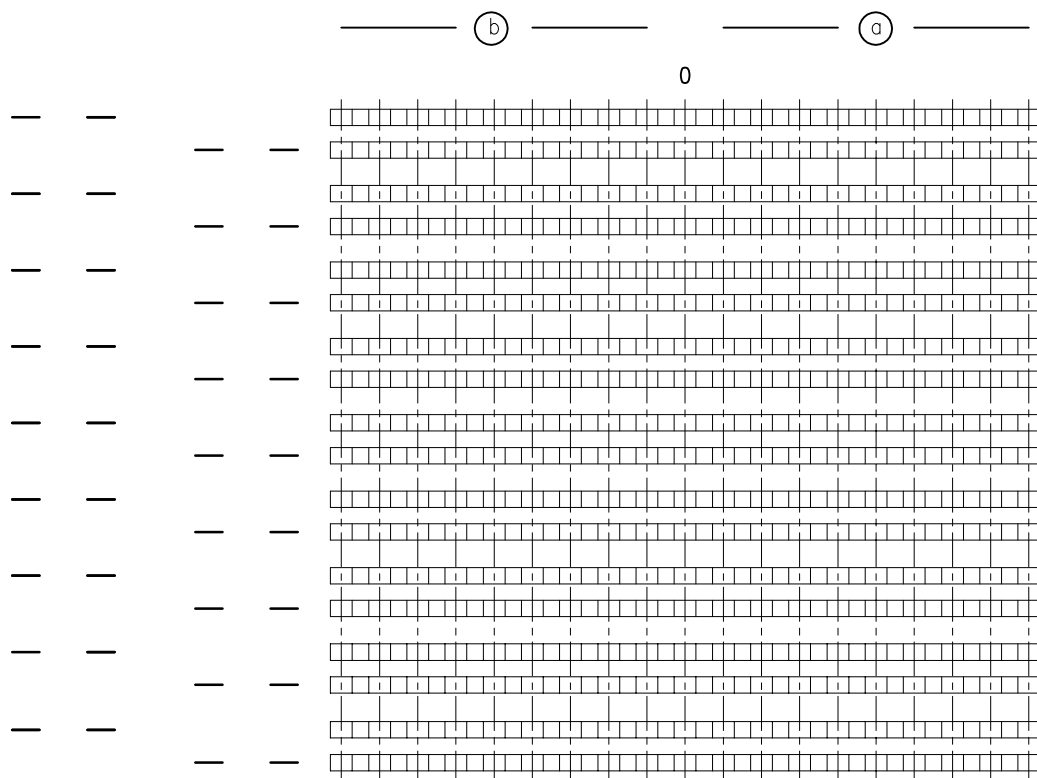
Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

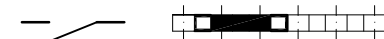


Meisterschalter NS00 nach M 9/8
(Nichtzutreffendes bitte streichen)
Rosette 72x72 mm, 96x96 mm
Knebelgriff NW053
Kugelgriff Edelstahl mit Anzeigespitze
Drehknopf GN 762.2 mit Rosette 72x72 mm
Drehknopf GN 526.1 mit Rosette 96x96 mm
Schaltwinkel 30°, 45°, 60°, 90°
mit/ohne Selbststrückgang

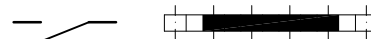
Controller NS00 according M 9/8
(please mark)
escutcheon plate 72x72 mm, 96x96 mm
toggle handle NW053
stainless steel handle
knob GN 762.2 with escutcheon plate 72x72 mm
knob GN 526.1 with escutcheon plate 96x96 mm
switching angles 30°, 45°, 60°, 90°
with/without spring return



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn+Burkhardt
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Meisterschalter SFA
Anordnung N

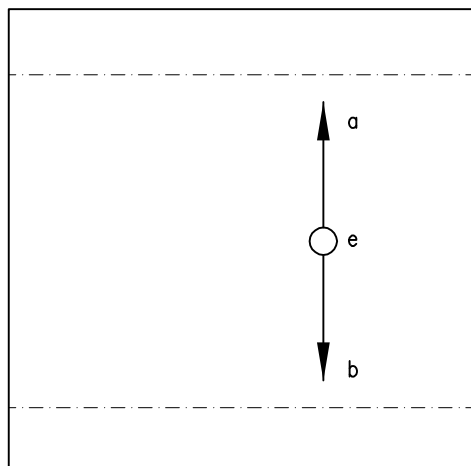
Controller SFA
Arrangement N

Tag:
Day:

Kunde:
Customer:

Name:
Name:

Zeichnungs-Nr.:
Drawing-Nr.:

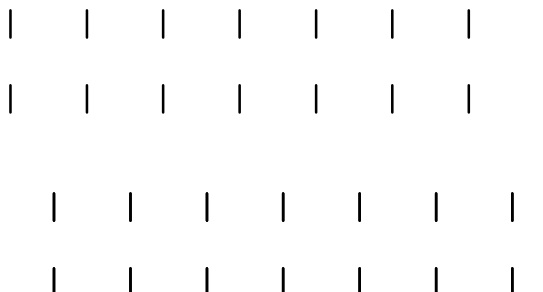
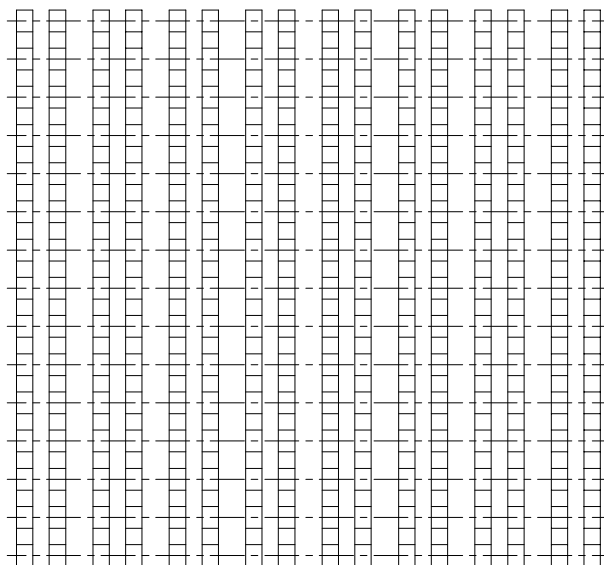
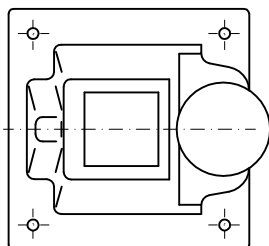
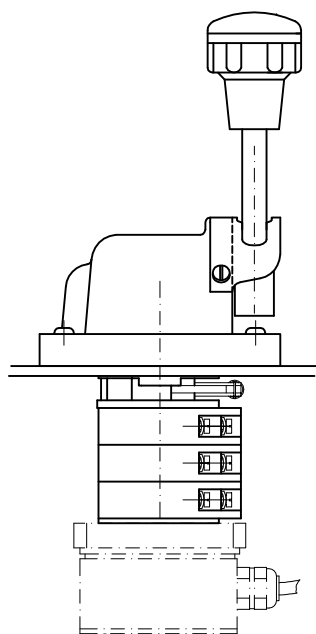


mit / ohne Selbstrückgang
with / without spring return

a

0

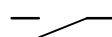
b



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Meisterschalter SFA Anordnung U

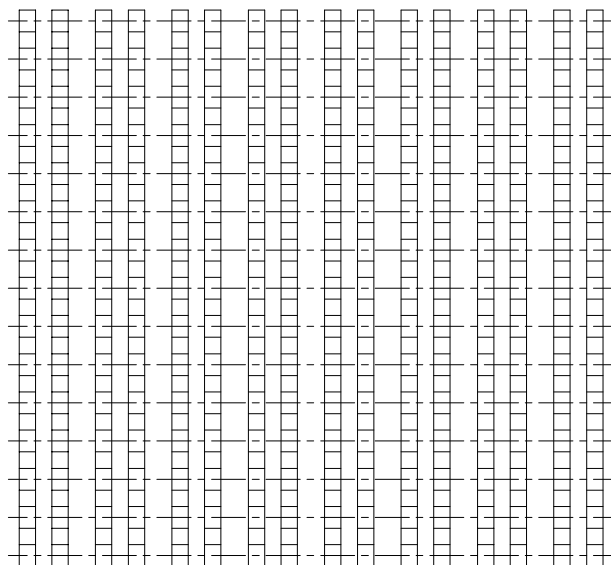
Controller SFA
Arrangement U

Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

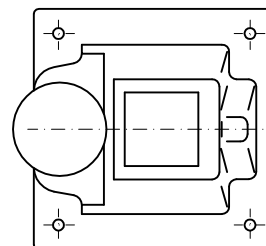
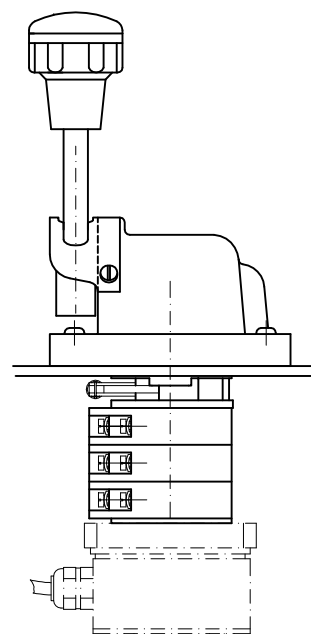
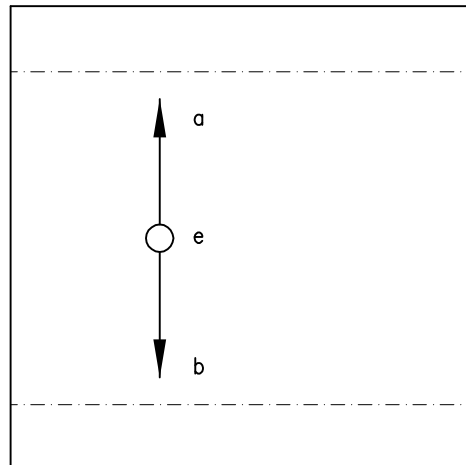


a

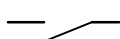
0

b

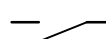
mit / ohne Selbstrückgang
with / without spring return



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Verbund-Meisterschalter
Antrieb U-EA

Controller
Drive U-EA

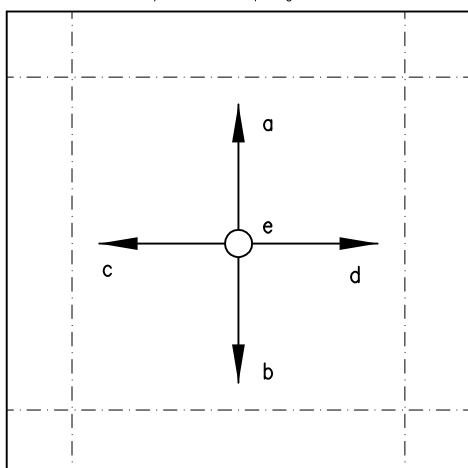
Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

mit / ohne Selbstrückgang
with / without spring return

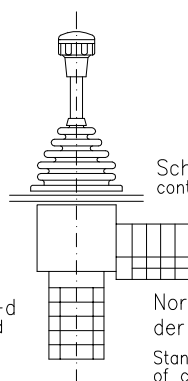


mit / ohne Selbstrückgang
with / without spring return

a

b

0



Schalter a-b
controller a-b

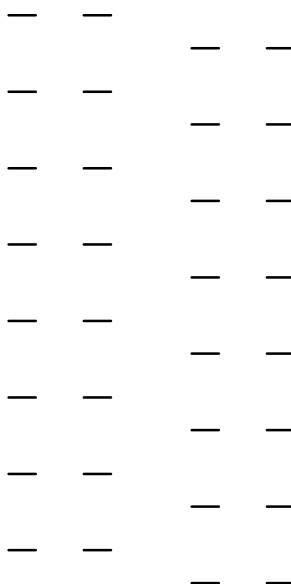
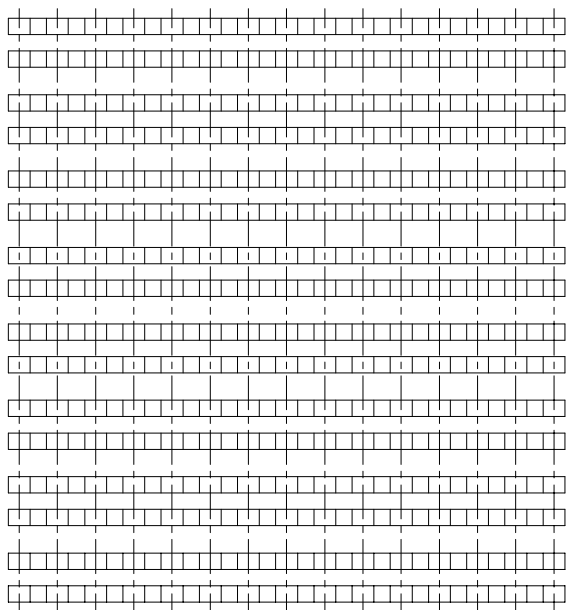
Schalter c-d
controller c-d

Normallage
der Anschlüsse
Standard direction
of connections

d

c

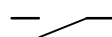
0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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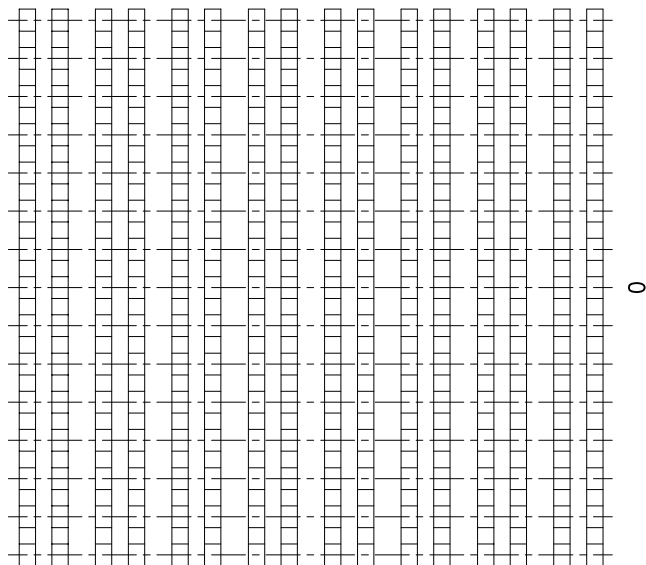
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Verbund-Meisterschalter
Antrieb V, Anordnung N

Controller
Drive V Arrangement N

Tag:
Day:
Name:
Name:

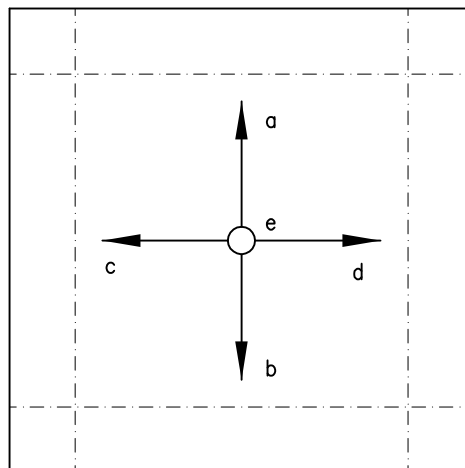
Kunde:
Customer:
Zeichnungs-Nr.:
Drawing-Nr.:



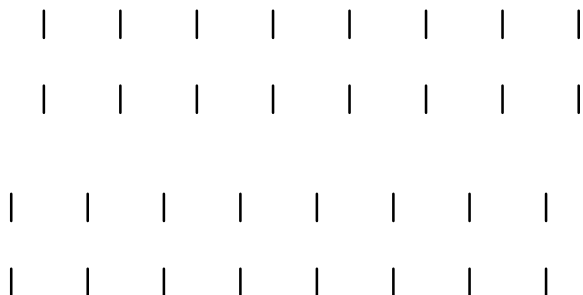
a

b

mit / ohne Selbstrückgang
with / without spring return



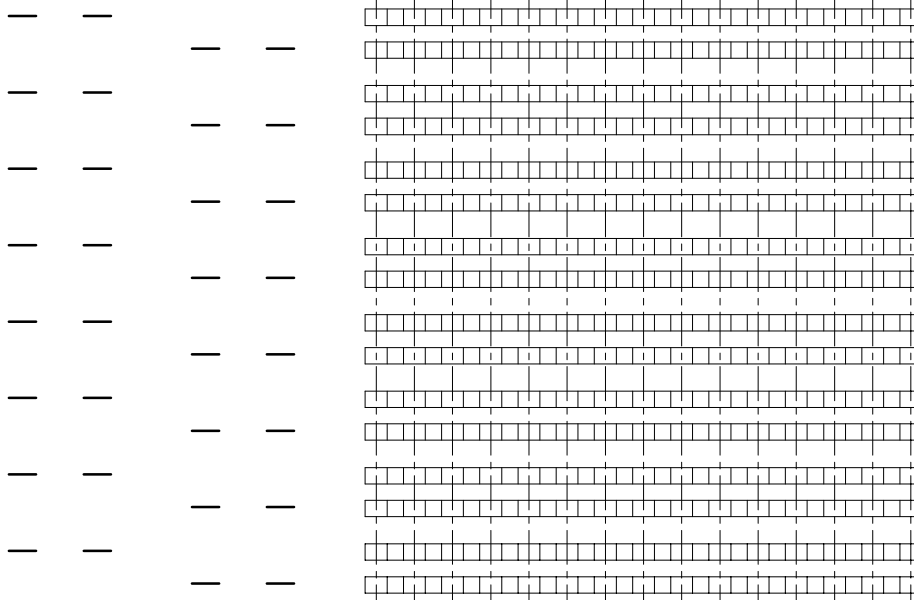
mit / ohne Selbstrückgang
with / without spring return



c

d

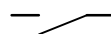
0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

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GERMANY

Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Verbund-Meisterschalter
Antrieb V, Anordnung U

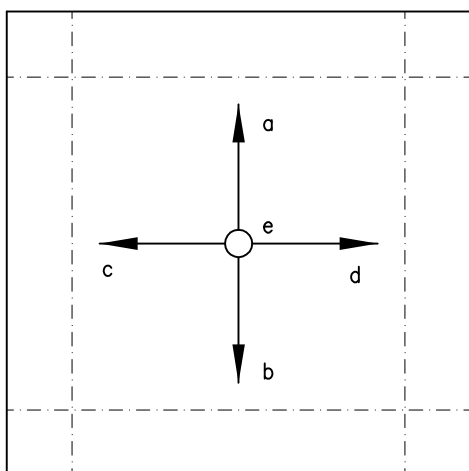
Controller
Drive V Arrangement U

Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:



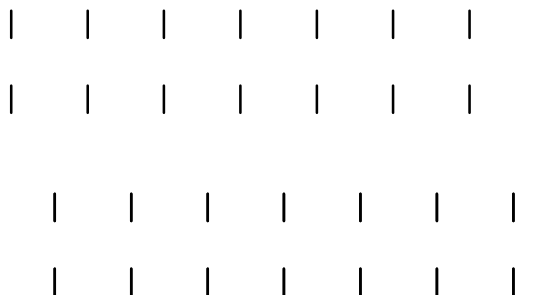
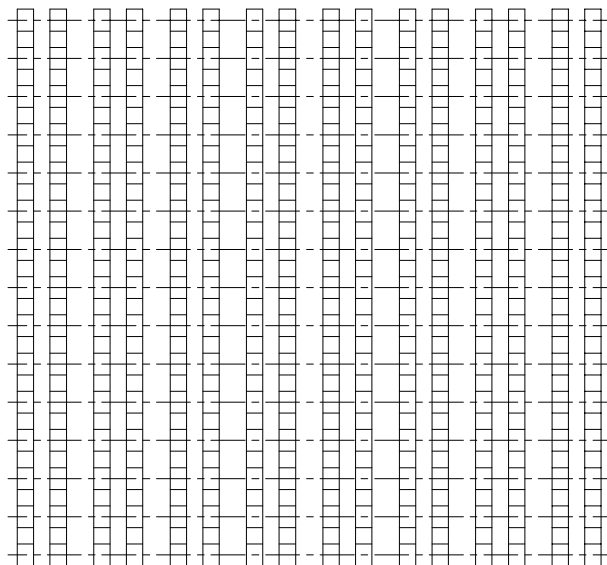
mit / ohne Selbstrückgang
with / without spring return

mit / ohne Selbstrückgang
with / without spring return

a

b

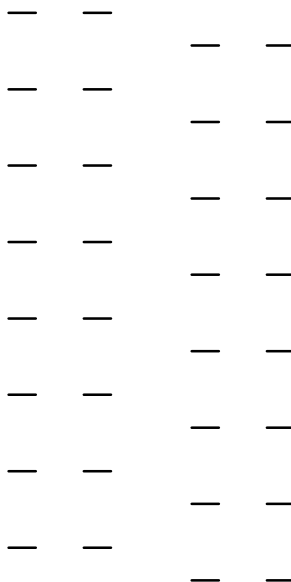
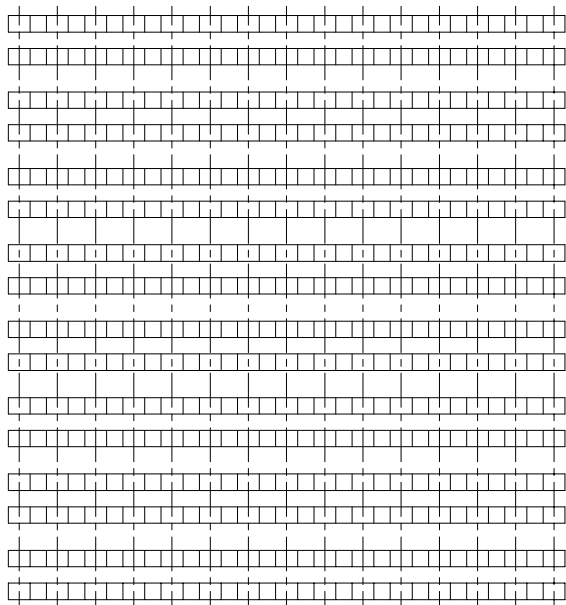
0



c

d

0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Verbund-Meisterschalter
Antrieb V, Anordnung X

Controller
Drive V Arrangement X

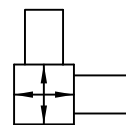
Tag:
Day:

Name:
Name:

Kunde:
Customer:

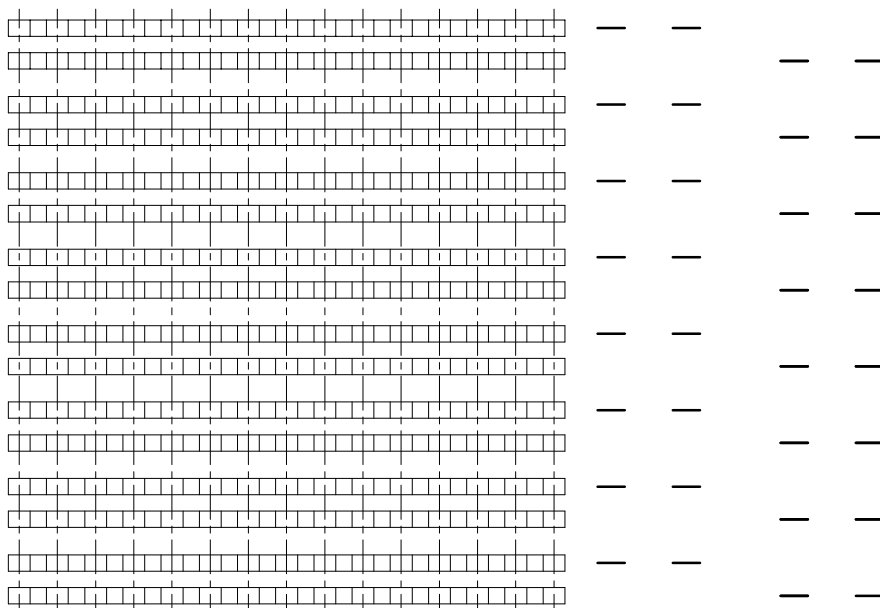
Zeichnungs-Nr.:
Drawing-Nr.:

Bei Rosettengravur angeben.
Specify for engraving



linke Hand
left hand

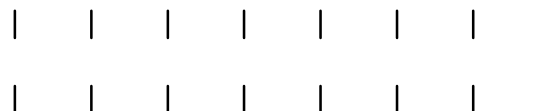
rechte Hand
right hand



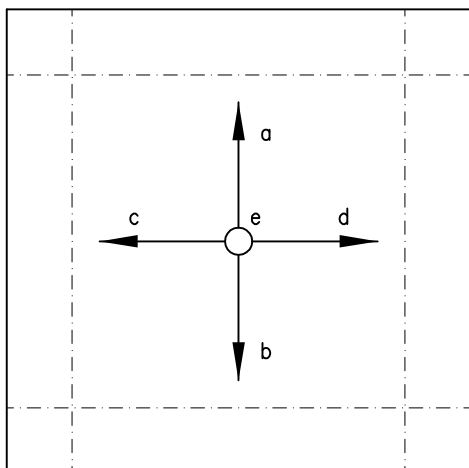
0

c

d



mit / ohne Selbstrückgang
with / without spring return

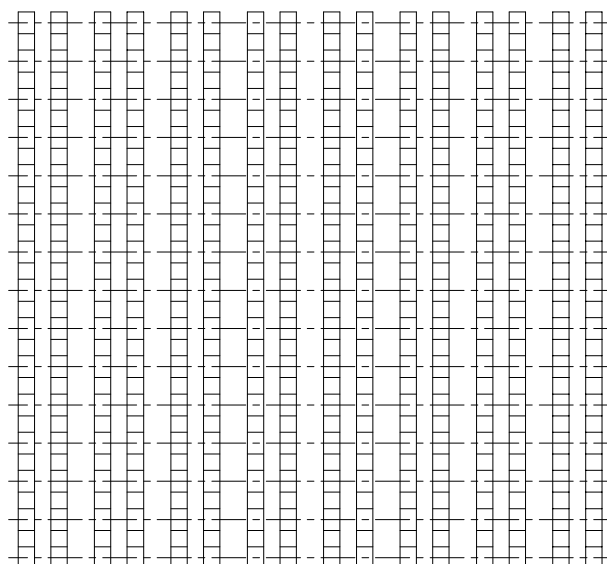


mit / ohne Selbstrückgang
with / without spring return

a

b

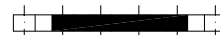
0



Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



Schwarzes Feld = Kontakt geschlossen
black field = contact closed



Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Verbund-Meisterschalter
Antrieb V, Anordnung Y

Controller
Drive V Arrangement Y

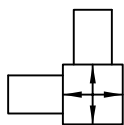
Tag:
Day:

Name:
Name:

Kunde:
Customer:

Zeichnungs-Nr.:
Drawing-Nr.:

Bei Rosettengravur angeben.
Specify for engraving



linke Hand
left hand

rechte Hand
right hand

— —

— —

— —

— —

— —

— —

— —

— —

— —

— —

— —

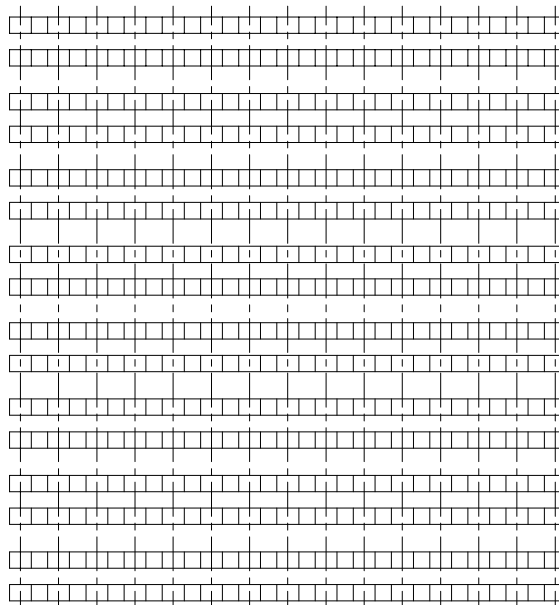
— —

— —

— —

— —

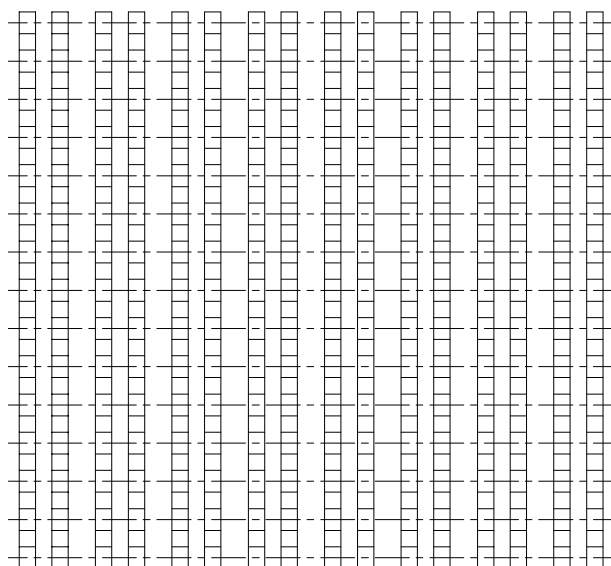
— —



0

c

d

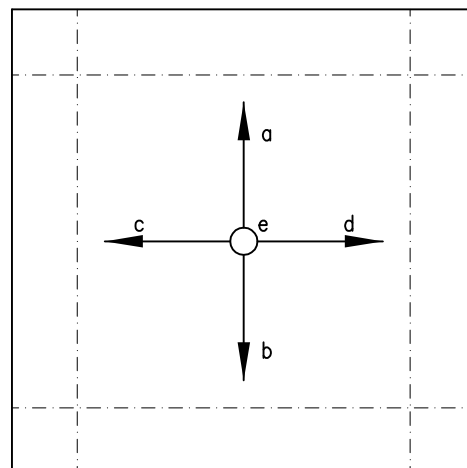


a

0

b

mit / ohne Selbstrückgang
with / without spring return

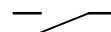


mit / ohne Selbstrückgang
with / without spring return

Typ:



Kontaktüberlappung (Überschneidung)
contact overlapping



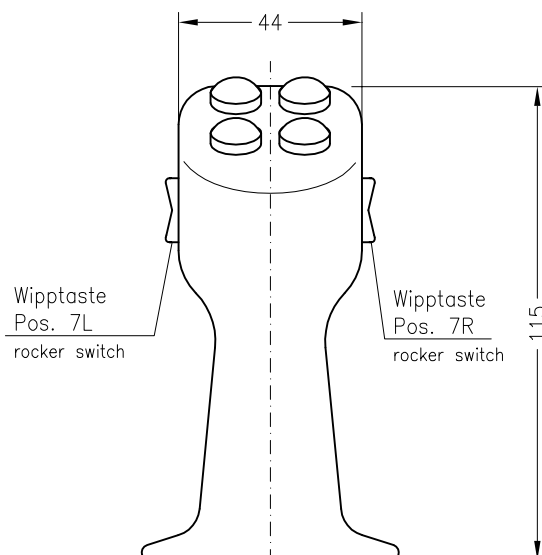
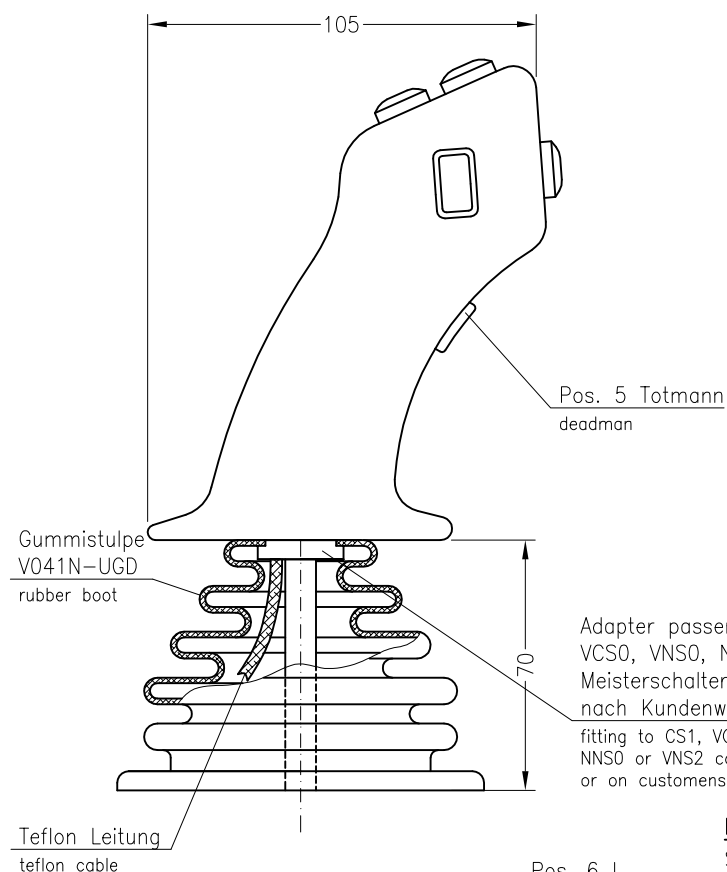
Schwarzes Feld = Kontakt geschlossen
black field = contact closed



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Auf Wunsch andere Anordnungen
different configuration on request

Adapter passend zu CS1,
VCS0, VNS0, NNS0 und VNS2
Meisterschalter oder
nach Kundenwunsch
fitting to CS1, VCS0, VNS0,
NNS0 or VNS2 controllers
or on customers demand

Drucktasten:

Silberkontakt mit
Goldauflage
Schutzart IP67
silver contact, gold plated
push button IP67

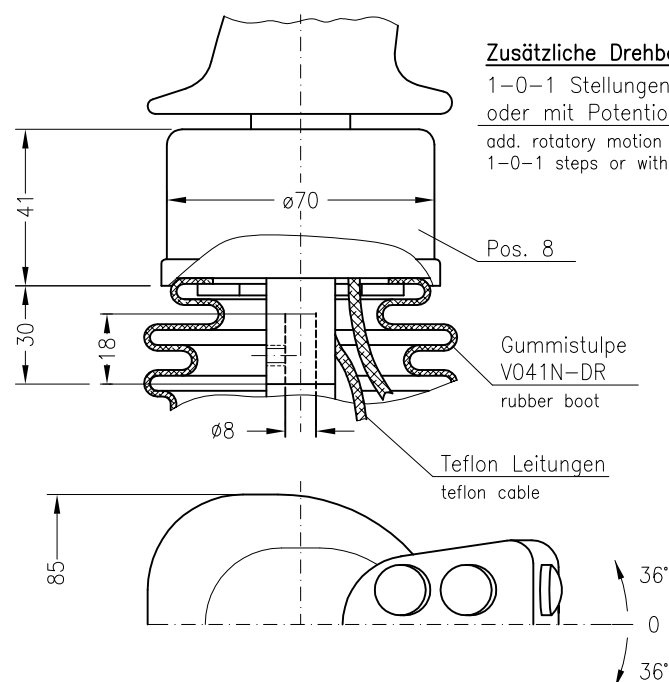
48 VAC	500 mA	Ohmsche Last ohmic value
24 VDC	2 A	
min 5 VDC	1 mA	

Typ:
Mit flacher Kappe P9F- ...,
mit hoher Kappe P9H- ...
with flat and high cap,

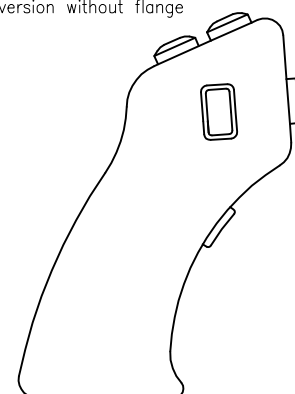
+Farbe colour	Kurzzeichen short cut
blau (blue)	BU
gelb (yellow)	YE
grün (green)	GN
rot (red)	RD
schwarz (black)	BK
weiß (white)	WH
grau (grey)	GY
violett (violet)	VT
orange (orange)	OG

Zusätzliche Drehbewegung:

1-0-1 Stellungen
oder mit Potentiometer
add. rotatory motion with
1-0-1 steps or with poti



Typ UG
Ausführung ohne Kragen
version without flange



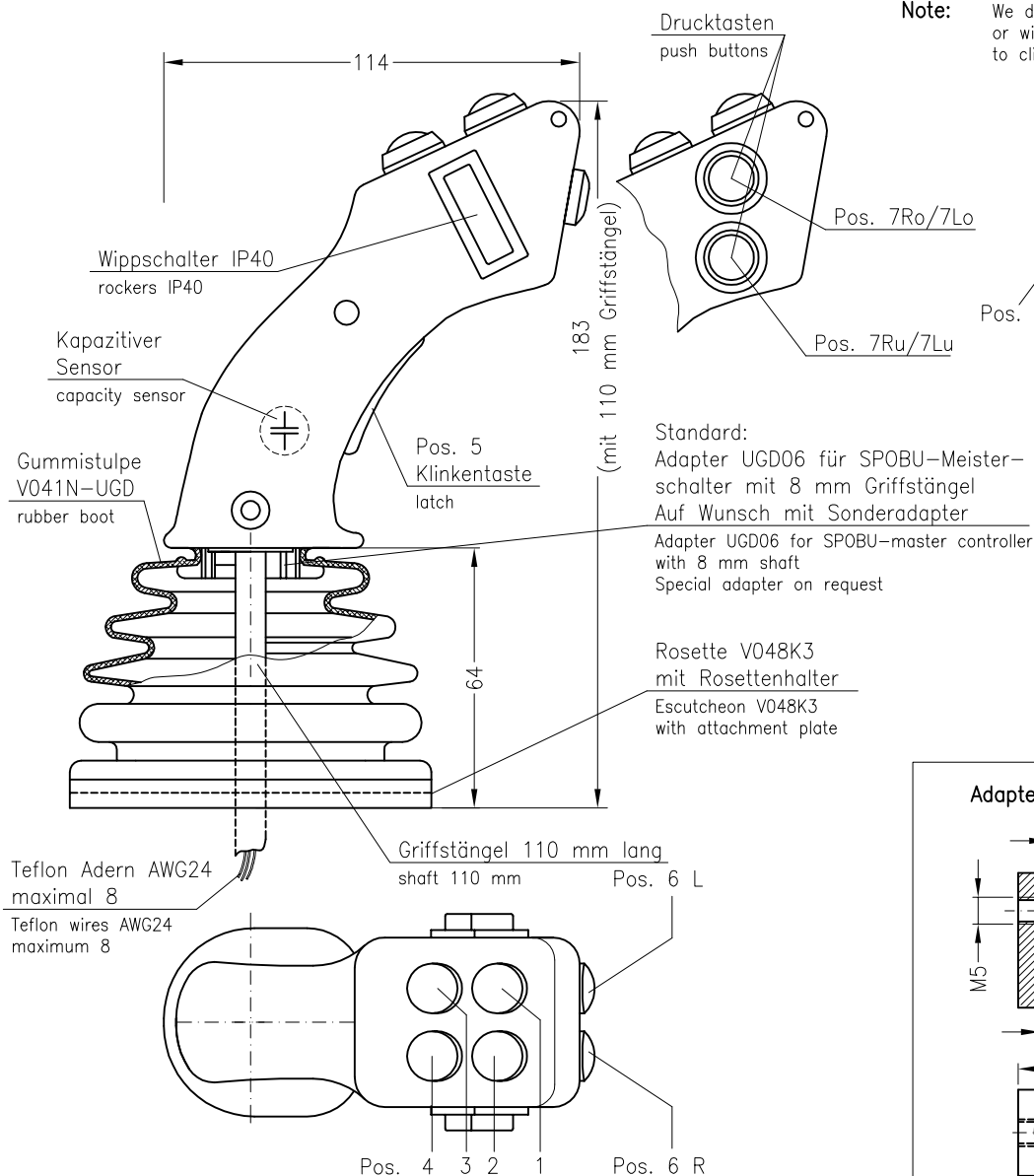
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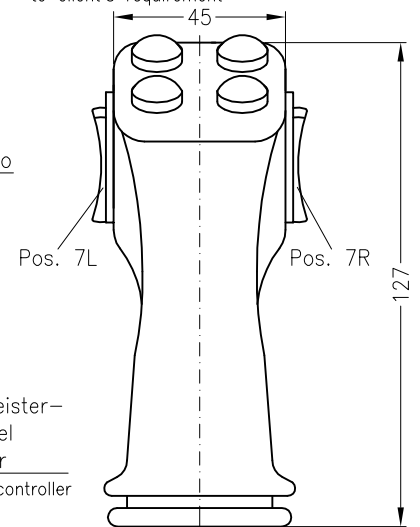
Ausführung mit Drucktasten und Wippschaltern:

Version with push buttons and rockers:



Hinweis: UGD-Griffe liefern wir ohne Bohrungen
oder mit Bohrungen und Einbauten
nach Kundenvorgabe

Note: We deliver UGD—handles without bores or with bores and installations according to client's requirement



Standard:
Adapter UGD06 für SPOBU–Meister–
schalter mit 8 mm Griffstängel
Auf Wunsch mit Sonderadapter
Adapter UGD06 for SPOBU–master controller
with 8 mm shaft
Special adapter on request

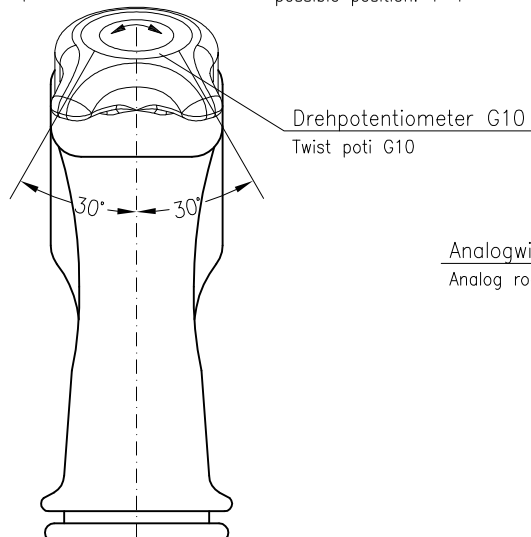
Rosette V048K3
mit Rosettenhalter

Escutcheon V048K3
with attachment plate

Ausführung mit Drehpotentiometer: Version with twist poti:

Einbau: 1-4

possible position: 1-4

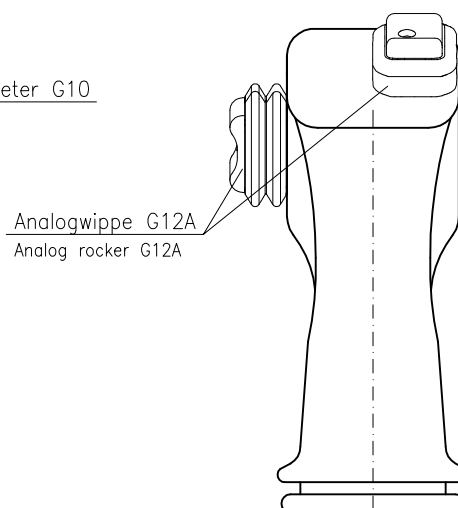


Ausführung mit Analogwippe:

Einbau: 1+3, 2+4, 7L, 7R

Version with analog rocker:

position: 1+3, 2+4, 7L, 7R



Technische Daten:

Material: PA6

Schutzart:

IP56 ohne Einbauten

IP56 mit Drucktasten

IP40 mit Wippen

Technical data:

Material: PA6

Degree of protection:

IP56 without inserts

IP56 with push buttons

IP40 with rockers



Spohn-Burkhardt

Mauergasse 5
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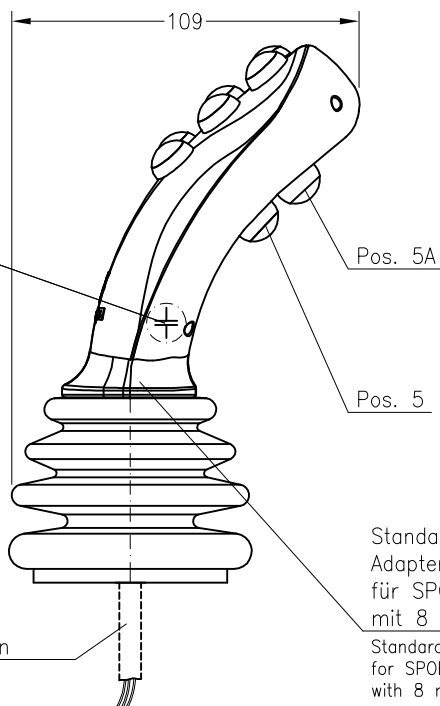
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

UGC-Griffe liefern wir ohne oder mit Einbauten nach Kundenvorgabe
We deliver UGC-handles without or with inserts according to client's requirement

Griff UGCL Handle

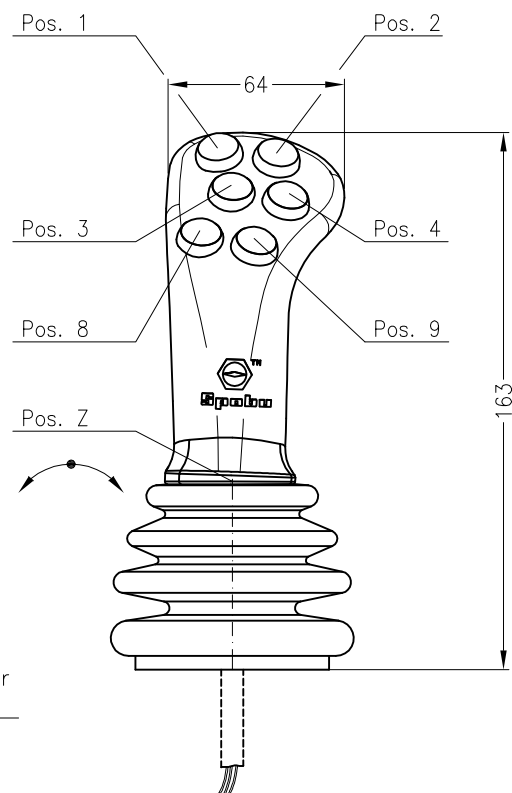
Kapazitive
Sensor
ESS080K-UGC
Capacitive sensor

Verdrahtung
AWG24 PTFE 5Y Teflon
Wiring AWG24



Technische Daten:
Material: PA6
Schutzart:
IP56 ohne Einbauten
IP56 mit Drucktasten

Technical data:
Material: PA6
Degree of protection:
IP56 without inserts
IP56 with push buttons

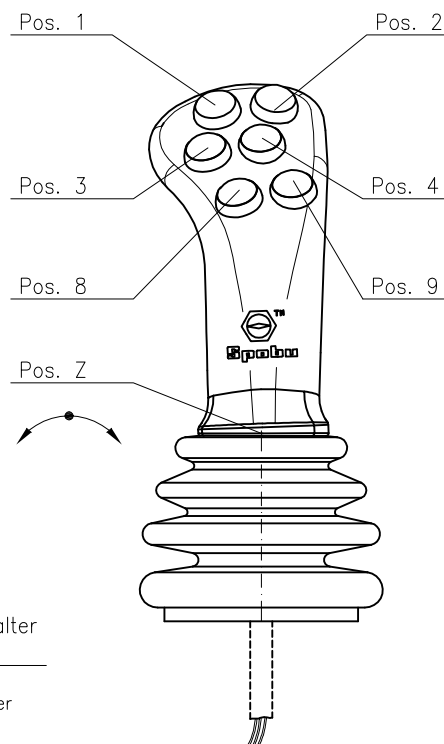
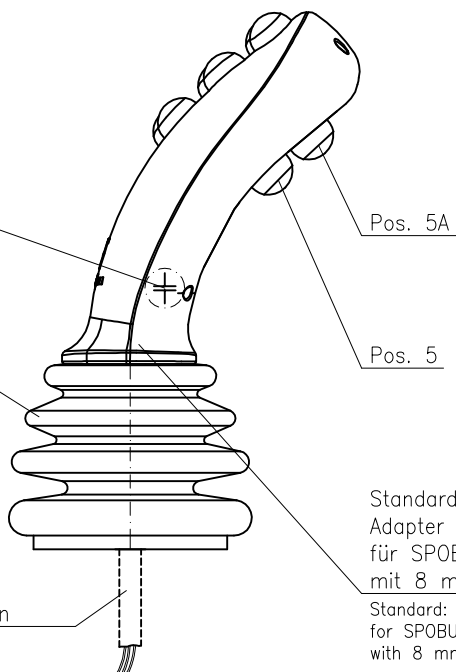


Griff UGCR Handle

Kapazitive
Sensor
ESS080K-UGC
Capacitive sensor

Gummistulpe
V041N-UGC
Rubber boot

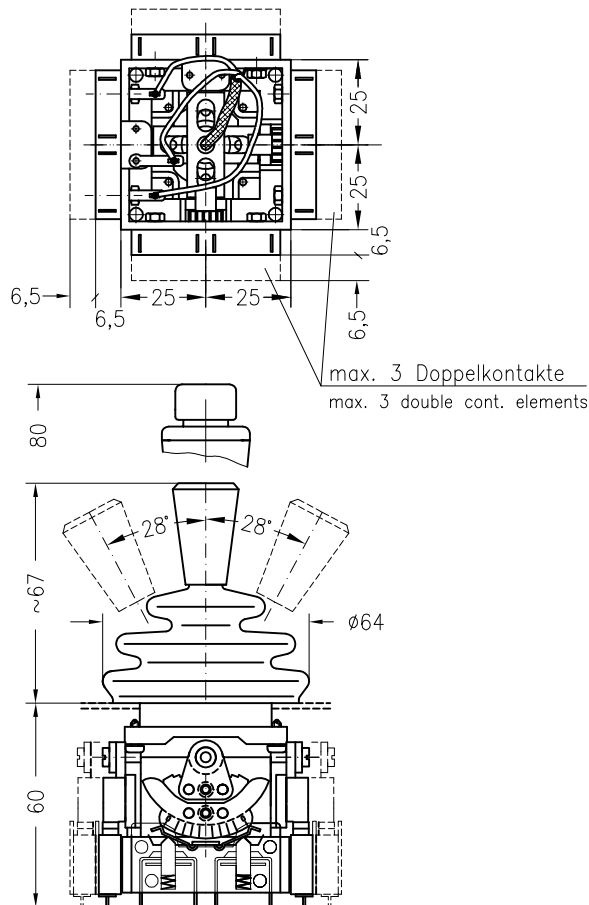
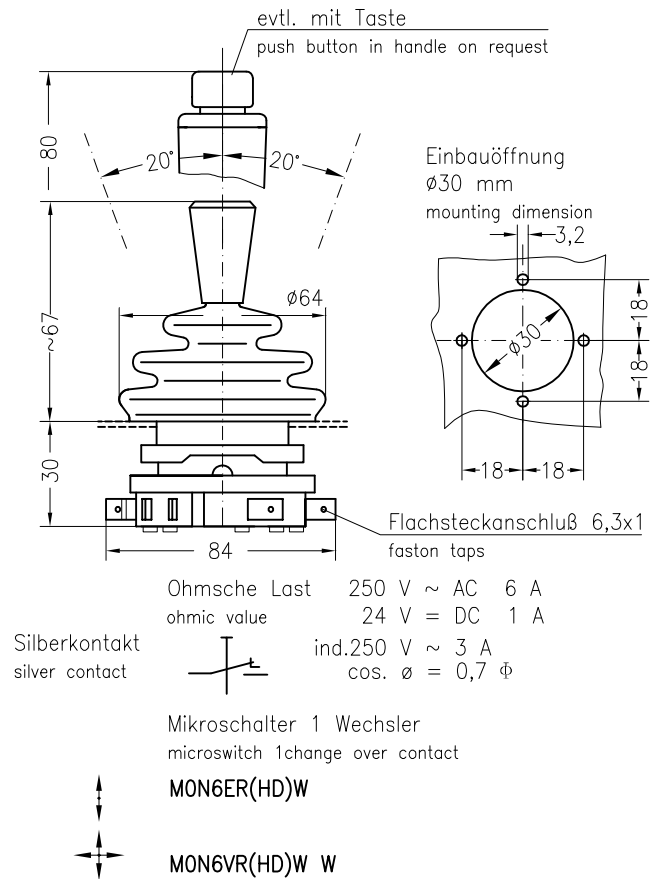
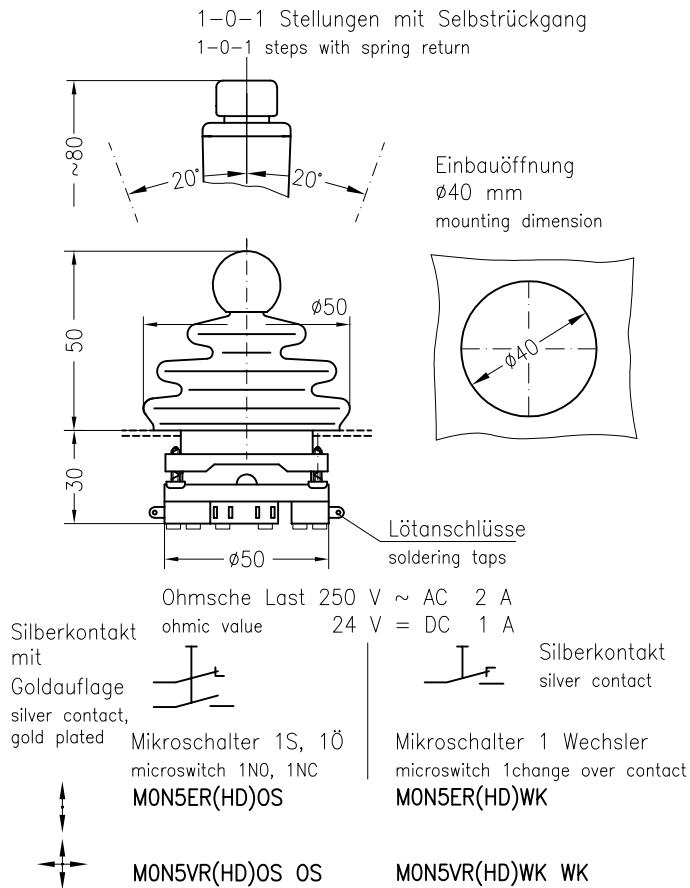
Verdrahtung
AWG24 PTFE 5Y Teflon
Wiring AWG24



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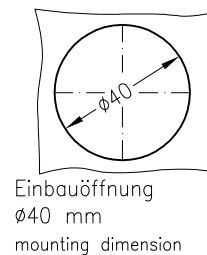
max. 5-0-5 Stellungen
mit oder ohne Selbstrückgang
5-0-5 steps

zwangsbetätigte Tastkontakte mit
Goldauflage oder Silberauflage
force actuated goldcontacts or
silvercontacts

Typ
GMON6E...
SMON6E...

GMON6V...
SMON6V...

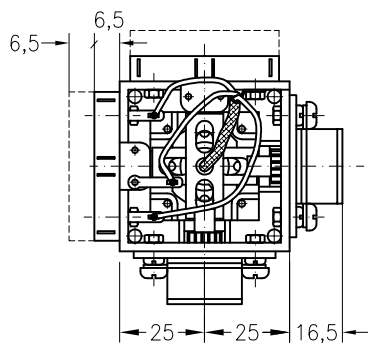
Gewicht ~ 0,1 kg
weight ~ 0,1 kg



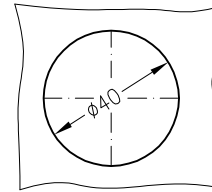
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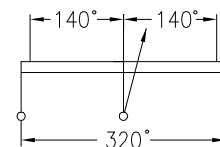


Einbauöffnung
Ø40 mm
mounting dimension



evtl. mit Impedanzwandler 4–20 mA
potentiometer – conductiv plastic

Potentiometer ohne Mittelanzapfung
potentiometer without centre tap



Leitplastik

conductiv plastic

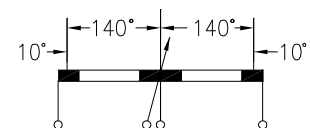
1 kOhm Typ : B1

5 kOhm : B5

10 kOhm : B10

Achtung Schleiferbelastung max. 1 mA
warning: wiper current max. 1 mA

Potentiometer mit Mittelanzapfung und
Kurzschlußstrecken
potentiometer with centre tap and short circuit path



Leitplastik

conductiv plastic

5–0–5 kOhm Typ: B55

10–0–10 kOhm Typ: B1010

Achtung: Schleiferbelastung max. 1 mA
warning: wiper current max. 1 mA

Drahtgewickelte Potentiometer – 2 Watt

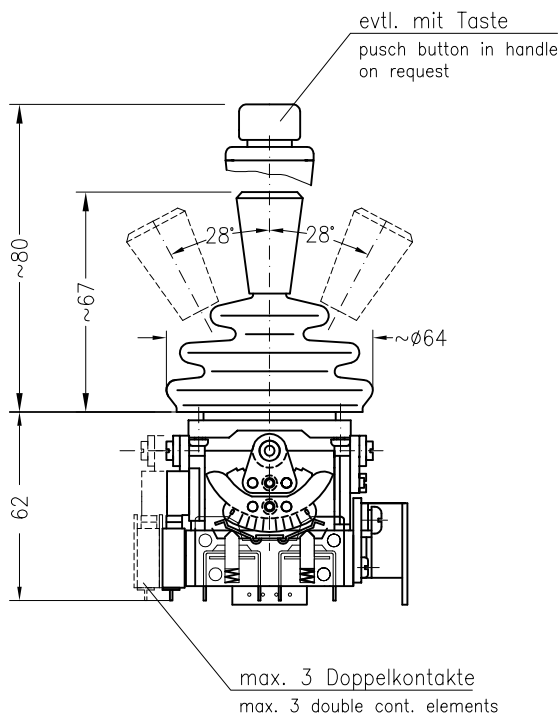
potentiometer wire wound – 2 Watt

PD 200 1–0–1 kOhm

5–0–5 kOhm

10–0–10 kOhm

Andere Potentiometer und Ohmwerte,
bzw. Spannungs- oder Stromausgang
auf Anfrage
other potentiometer or ohmic value
on request



Typ: SMON6ER--B
GMON6ER--B

Gewicht: 0,16 kg
weight: 0,16 kg

Schaltung
circuit

Potentiometertyp
potentiometertype



SMON6VR--B--B--
GMON6VR--B--B--

Gewicht: 0,2 kg
weight: 0,2 kg



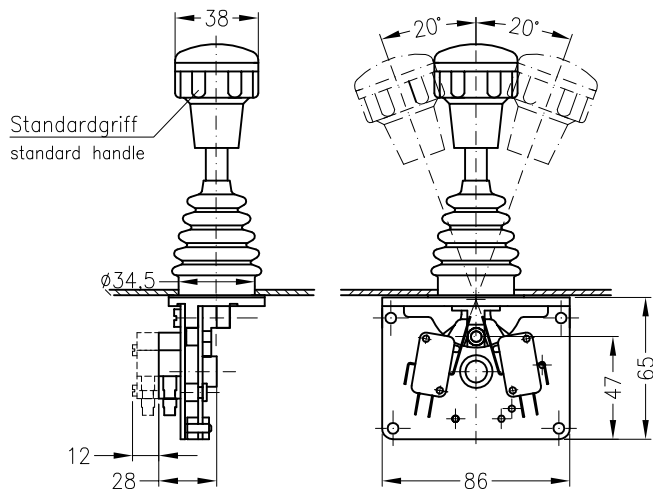
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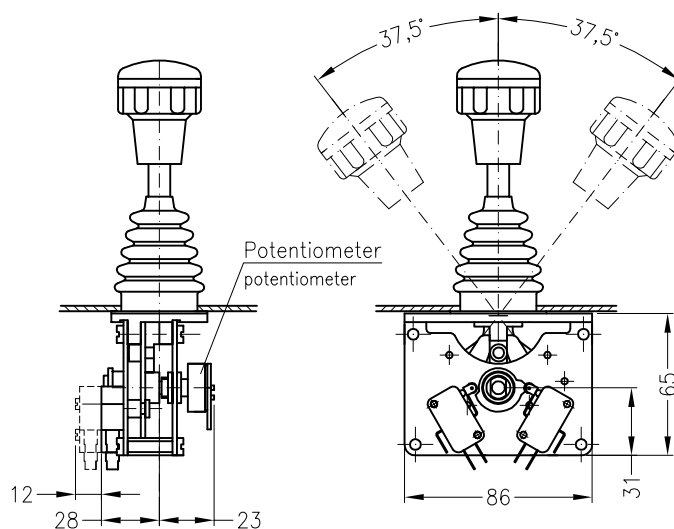
1-0-1 Stellungen mit Mikroschaltern

1-0-1 steps with micro switches



stufenlos mit Mikroschalter und Potentiometer

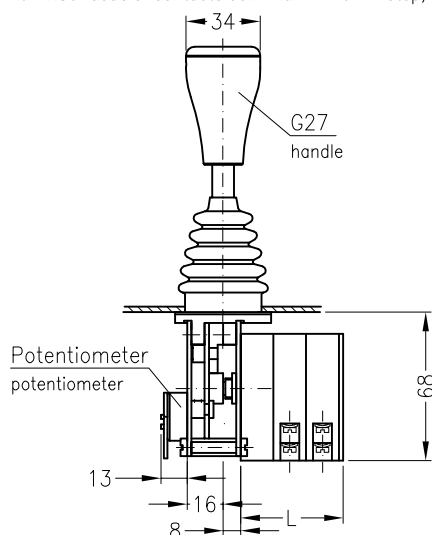
with micro switch and potentiometer



mit Kontaktblock NS0 für max. 4-0-4 Stellungen

Potentiometeranbau möglich

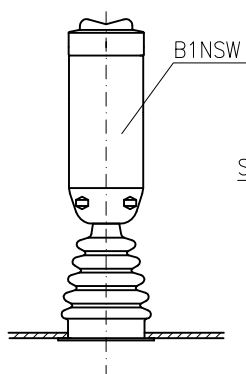
with NS0 double contactblock max. 4-0-4 step, potentiometer possible



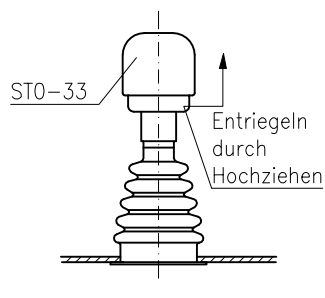
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3
L	35	50	65

mit Ballengriff

with palm handle

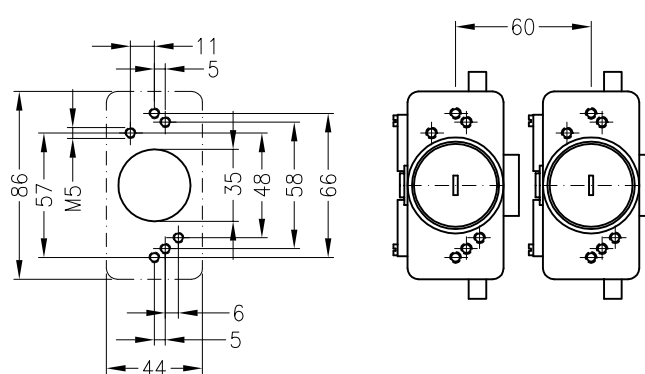
mit mechanischer
Nullstellungsverriegelung

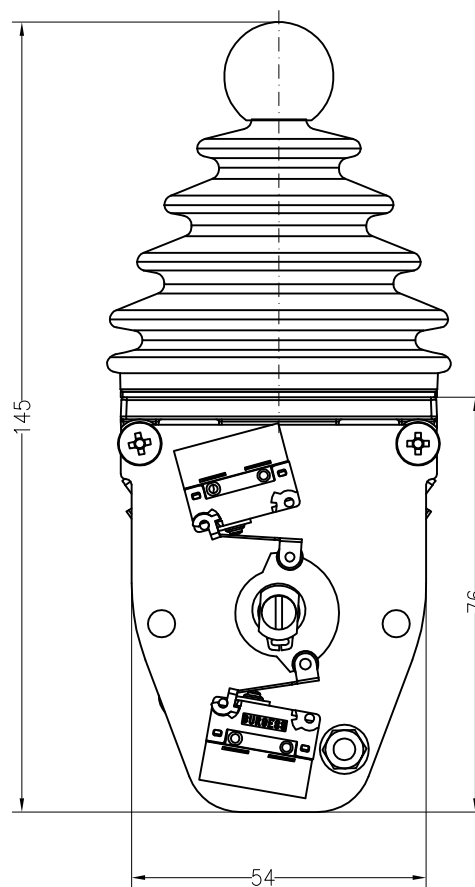
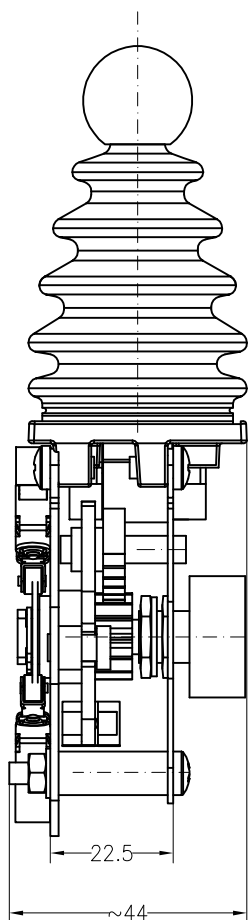
with mechanical interlock



Befestigungsmaße

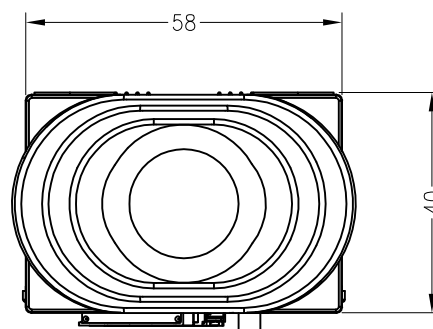
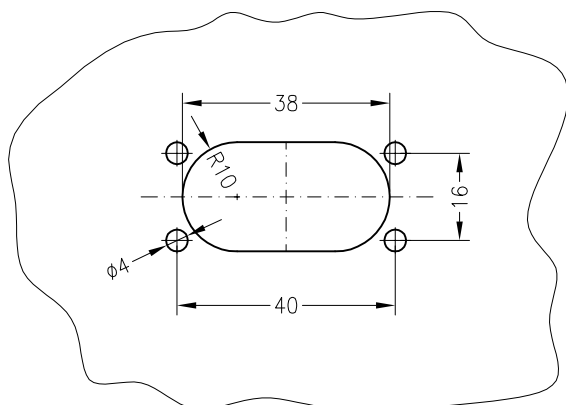
mounting dimensions

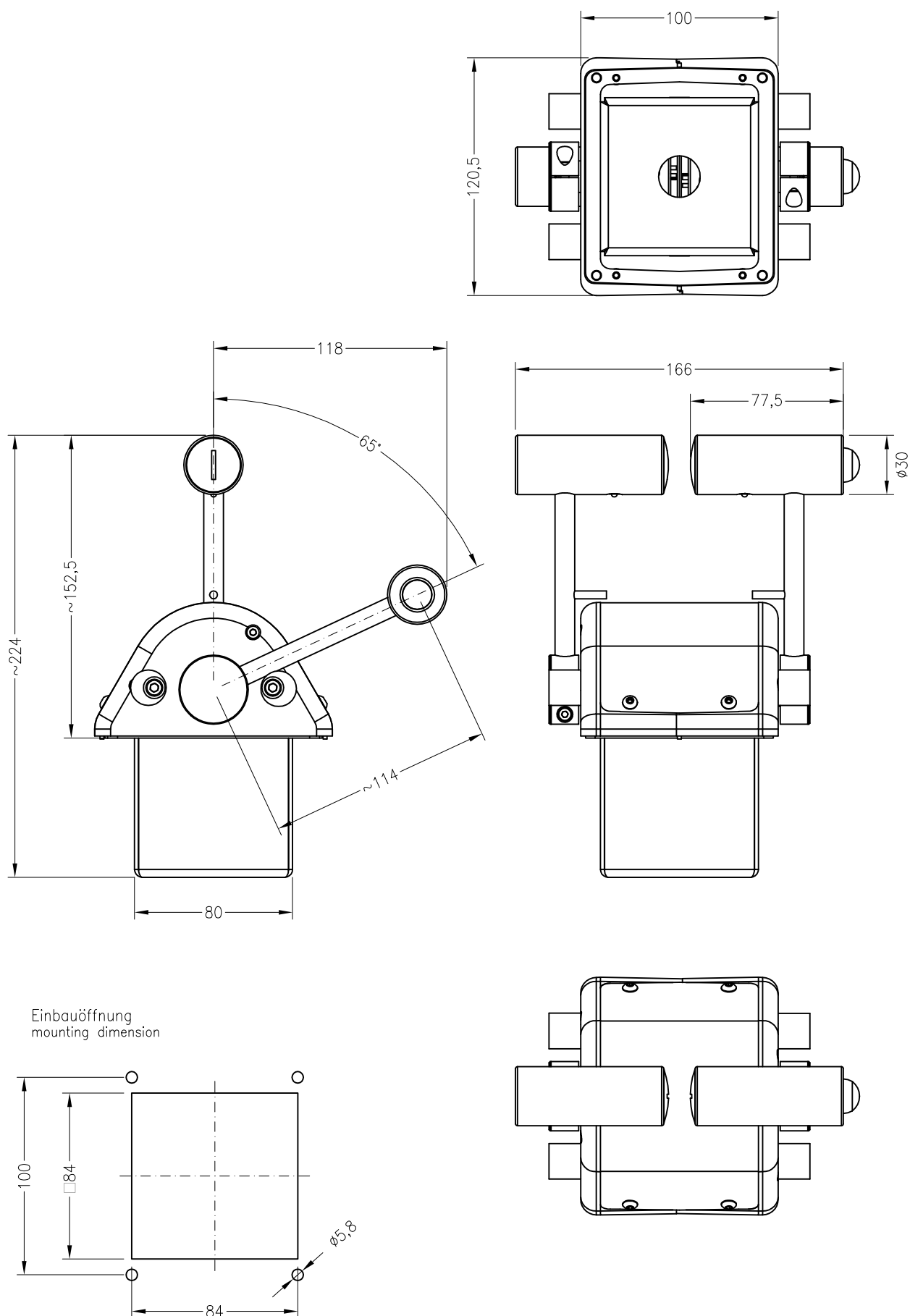




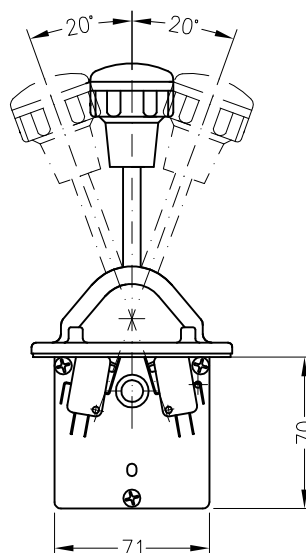
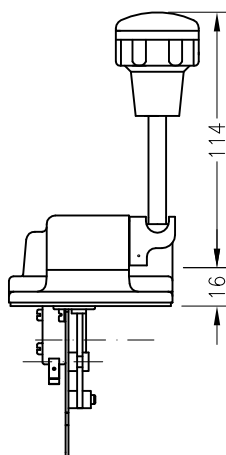
Befestigungsmaße

mounting dimensions

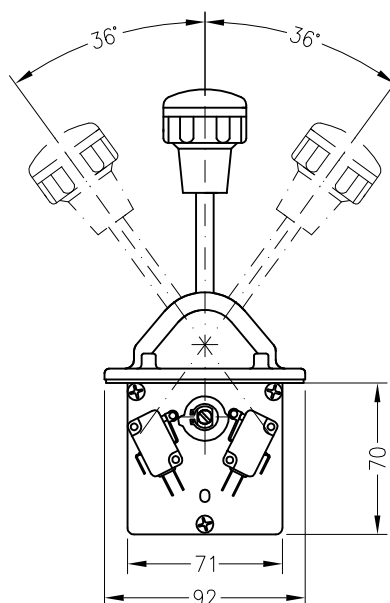
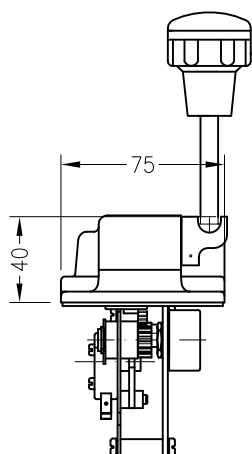




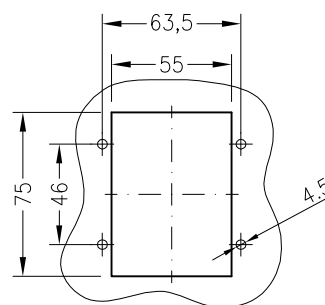
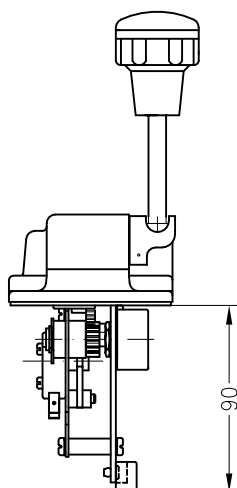
1-0-1 Stellungen
ohne Potentiometer
siehe Seite 5/2
1-0-1 step
without potentiometer
see sheet 5/2

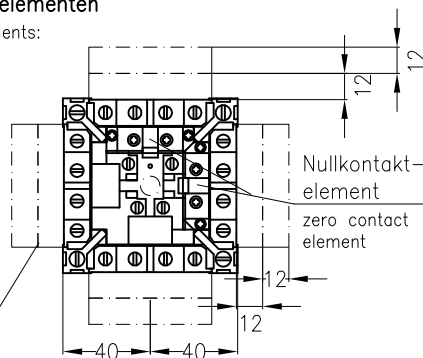
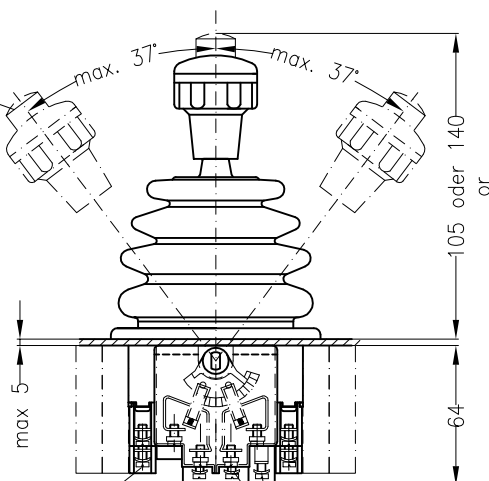
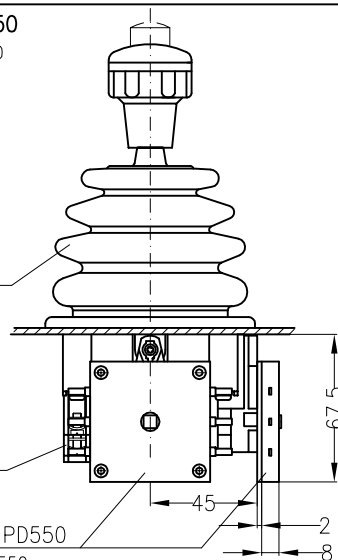
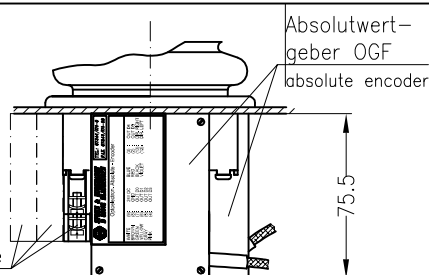


mit Potentiometer
siehe Seite 5/2
with potentiometer
see sheet 5/2



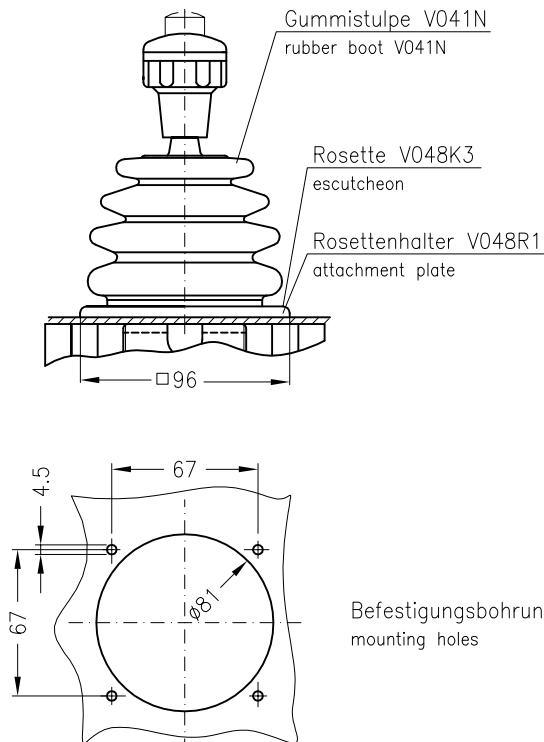
mit Verstärker
für Proportionalventil
siehe Seite 5/3
amplifier
for proportional valve
see sheet 5/3



Grundausführung mit Doppelkontaktelementen
standard version with double contact elements:Ansicht von unten
bottom viewmax. 3 Doppelkontakte
je Seite
max. 3 double contacts
each sideAuf Wunsch
H-Taste
on request
H-push buttonWeitere
Einbauten im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...Doppelkontaktelement
double contact elementNullkontaktelement
zero contact element**Montageanleitung** Ausführung 96...
assembly instructions: version72...
S...
S0...3) Folie und Deckrosette
aufkleben bzw. ver-
schrauben, Gummistulpe
aufziehen
clip legend foil and escutcheon
plate and respectively bolt and
mount rubber boot2) Dichtung und Rosetten-
halter auf Schalthebel
auflegen und mit Schalter
verschrauben
put on dust seal and
attachment plate and bolt
togetherSchalttafel
panel1) Schalthebel und
Gummistulpe durch
Schalttafelbohrung
hindurchstecken
pass lever and rubber boot
through panel boreAntriebsblock
drive**Ausführung mit Potentiometer PD550**
version with attached potentiometer PD550Gummistulpe V041N
rubber boot V041NDoppelkontaktelement
double contact elementPotentiometer PD550
potentiometer PD550**Montageanleitung** Ausführung S1...
assembly instructions: version2) Rosette auf Schalttafel
auflegen und mit Schalter
verschrauben
put on escutcheon plate on
panel and bolt together with
controllerSchalttafel
panel1) Schalthebel, Stulpenhalter-
rosette mit abgezogener
Gummistulpe durch
Schalttafelbohrung
hindurchstecken
pass lever, rubberholder and
pulled off rubber boot through
panel bore3) Gummistulpe aufziehen
mount rubber bootStulpenhalter-
rosette V048-100-A1
rubberholder V048-100-A1Antriebsblock
driveGewicht ~0,5 kg/Schalter
weight ~0,5 kg/controller**Ausführung mit optoelektronischem Absolutwertgeber**
siehe Blatt 15/14 bis 15/16
version with optoelectrical
absolute encoder according
see sheet 15/14 till 15/16max. 3 Doppelkontaktelemente
max. 3 double contact elementsAbsolutwert-
geber OGF
absolute encoder**Spohn+Burkhardt**
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Ausführung VCS0 96...

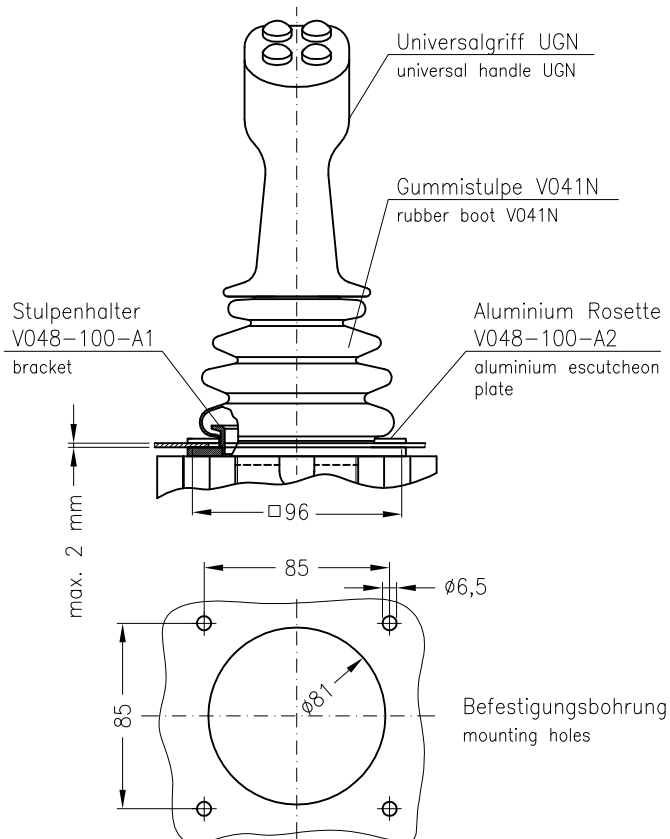
mit transparenter Kunststoff-Rosette 96x96 und Beschriftungsfolie
with transparent escutcheon plate 96x96 and inscription foil

**Hinweis:**

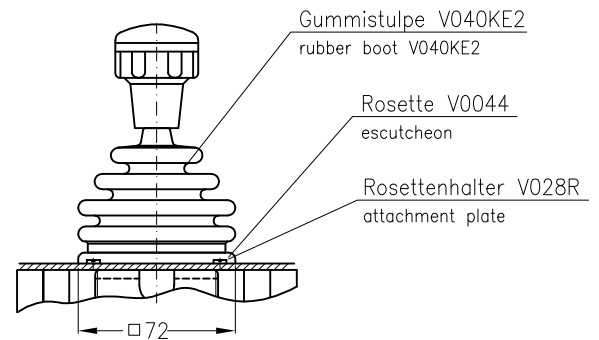
Auf Wunsch mit geschraubter schwarzer Aluminiumrosette 96x96
On request with screwed black aluminium escutcheon plate 96x96

Ausführung VCS0 S1...

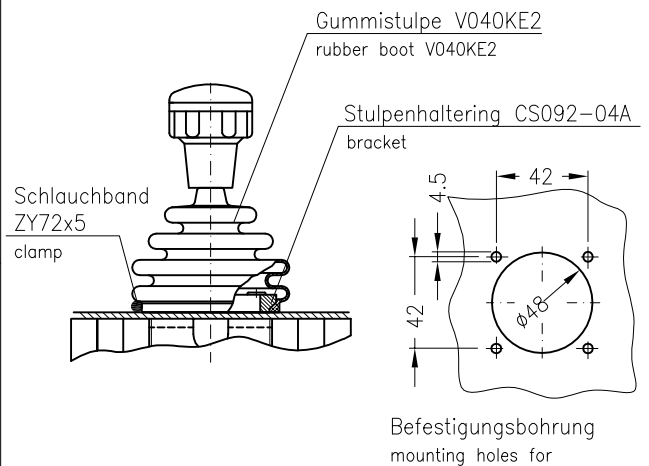
mit Stulpenhalterrossette S1
with bracket for rubber boot + escutcheon plate

**Ausführung VCS0 72...**

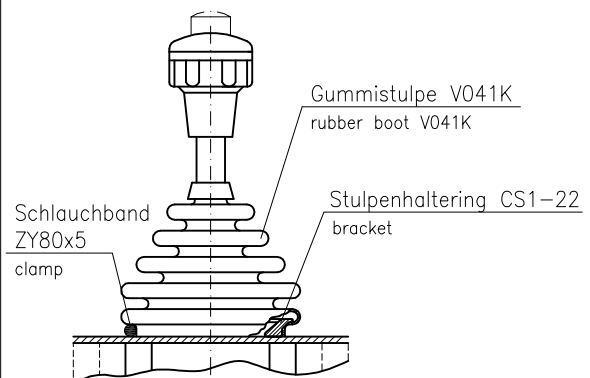
mit Aluminium Rosette schwarz 72x72, nicht beschriftbar
with aluminium escutcheon plate black 72x72, not inscribable

**Ausführung VCS0 S0...**

mit Stulpenhalter S0
with bracket for rubber boot

**Ausführung VCS0 S...**

mit Stulpenhalter S
with bracket for rubber boot



Gewicht ~0,5kg/Schalter
weight ~0,5kg/controller



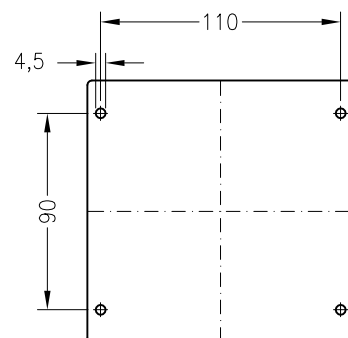
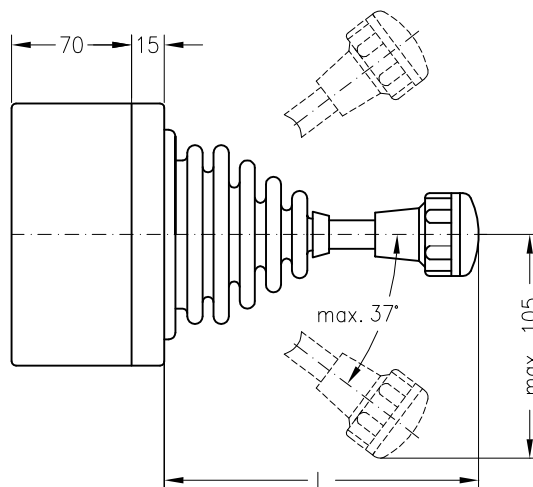
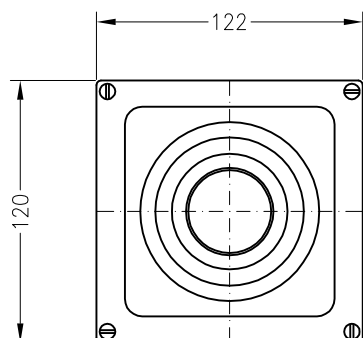
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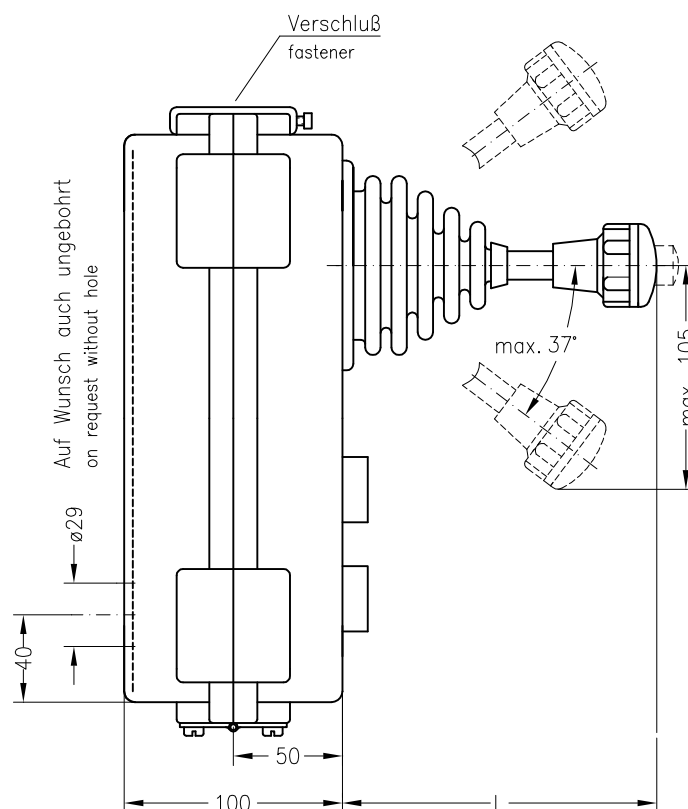
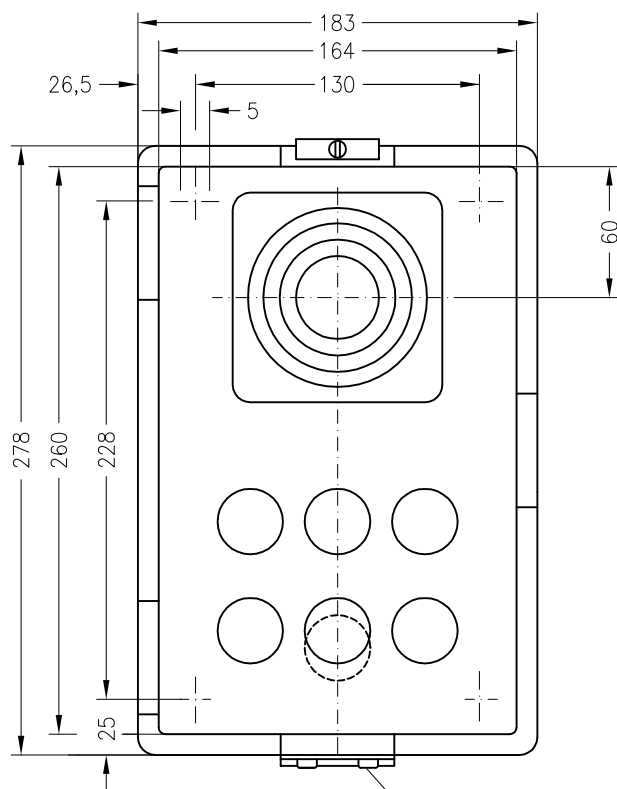
Typ CS0-M1

M0- M1

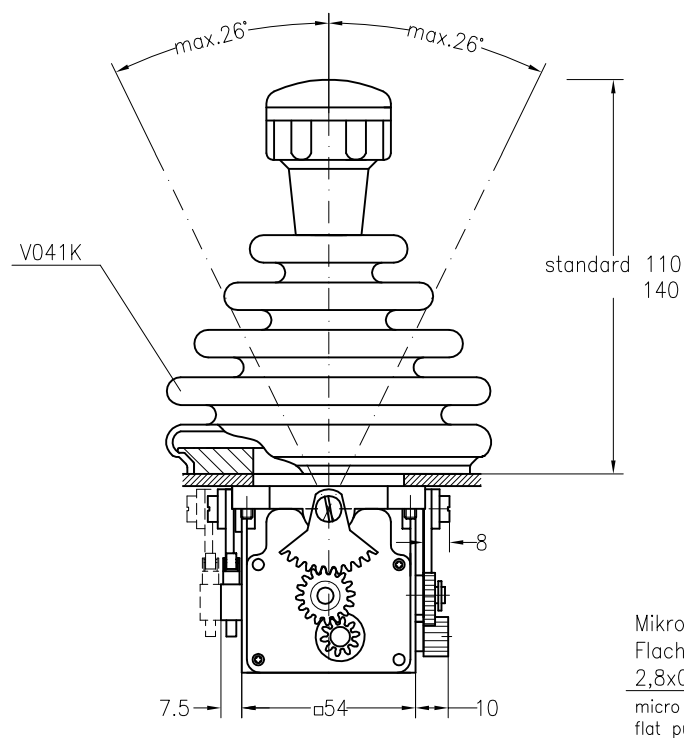
Material: PC grau
material: PC greyGewicht ca. 0,8 kg
weight app. 0.8 kgHebellänge L= VCS0 105 mm oder 140 mm
shaft length M0 67 mm bzw. 80 mm mit HD

Typ CS0-M3

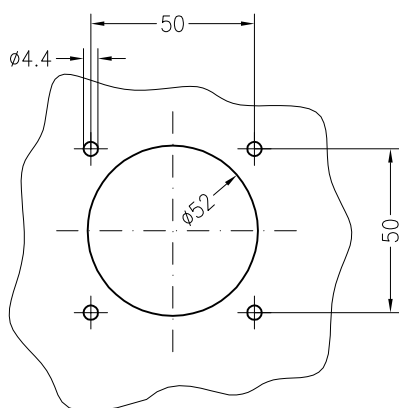
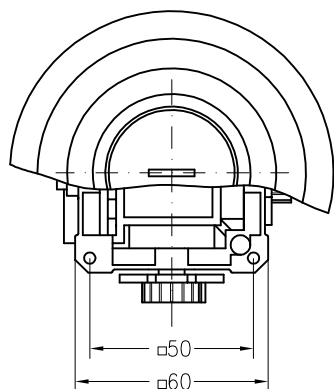
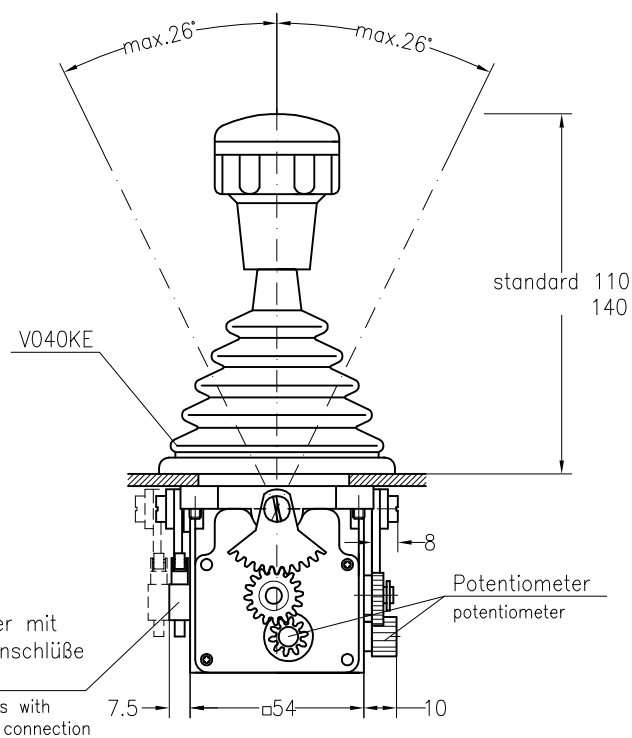
M0- M3

Material: PA 6 gelb
material: PA 6 yellowGewicht ca. 1,2 kg
weight app. 1.2 kgScharnier
hingeHebellänge L= VCS0 105 mm oder 140 mm
shaft length M0 67 mm bzw. 80 mm mit HD**Spohn+Burkhardt**
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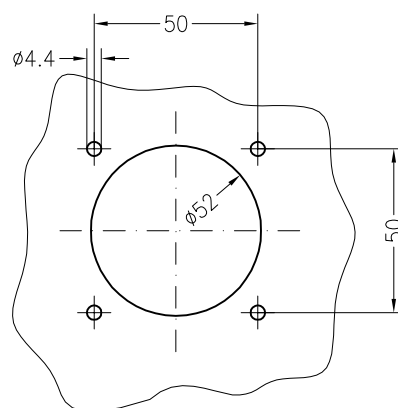
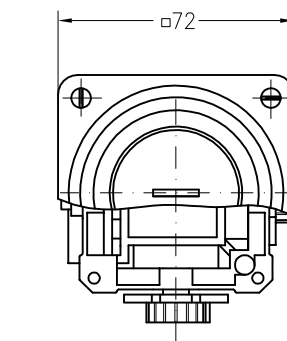
Typ CS1S...
mit Stulpenhalterung
weitere Griffe siehe 3/...
type with rubber boot holder
other handles see 3/...



Typ CS172...
mit Rosette 72x72 (nicht beschriftbar)
weitere Griffe siehe 3/...
type with escutcheon plate 72x72 (no engraving possible)
other handles see 3/...



Bohrungen in der
Befestigungswand
mounting dimensions

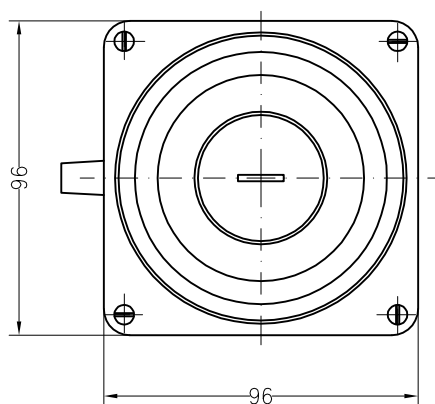
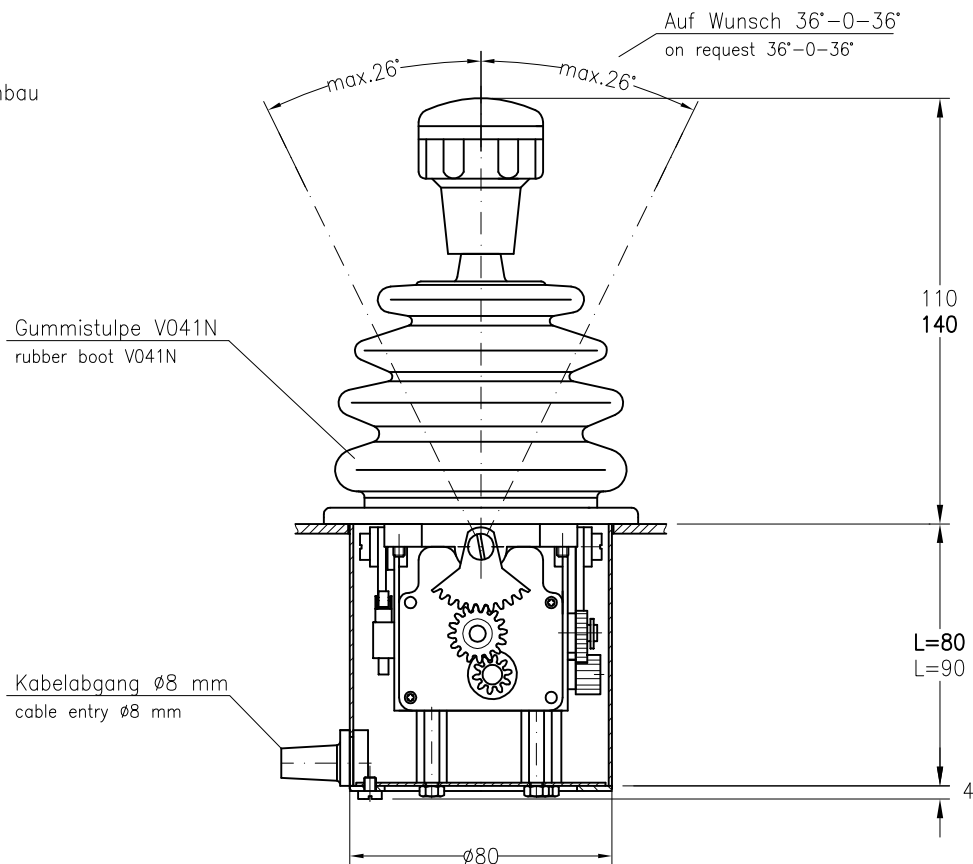


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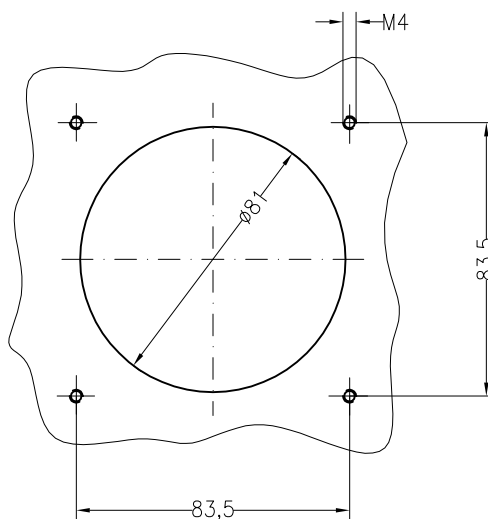
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Typ CS1G...
gekapselt IP54
für frontseitigen Einbau
type enclosed IP54
mounting in front side



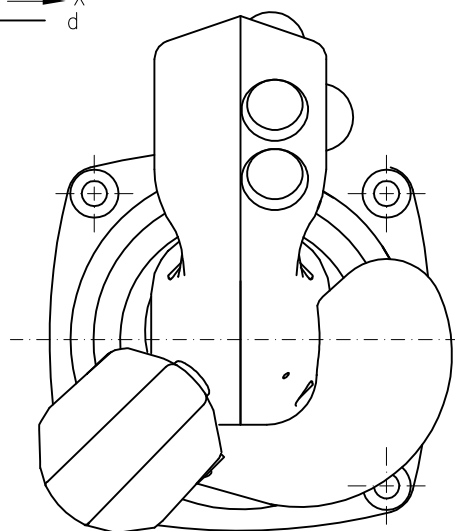
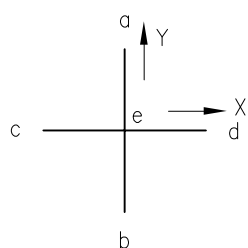
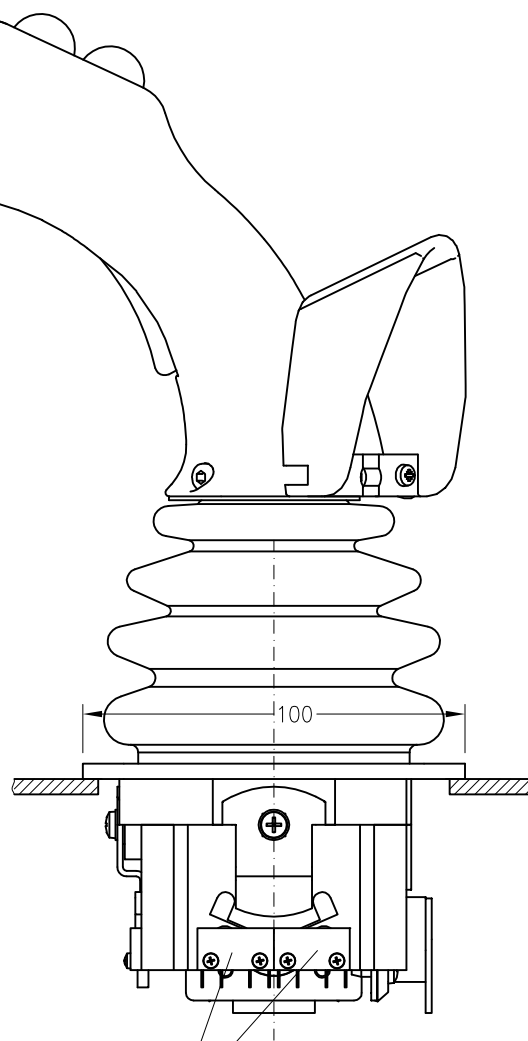
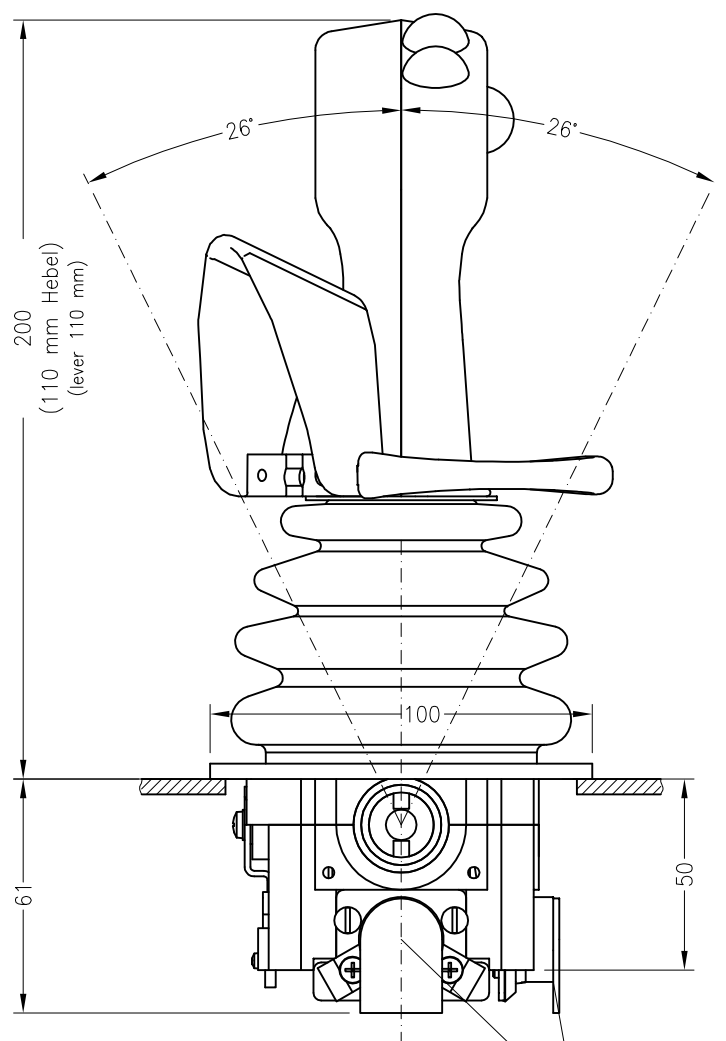
Einbauöffnung:
mounting dimensions



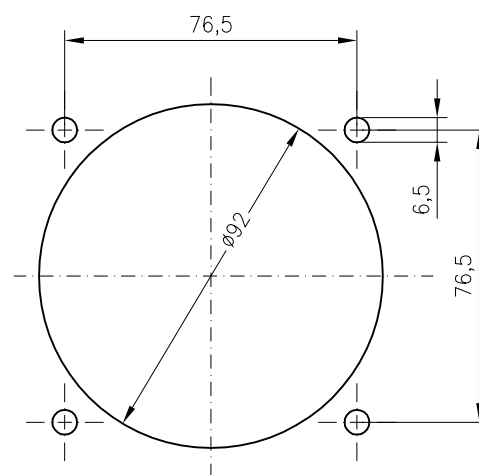
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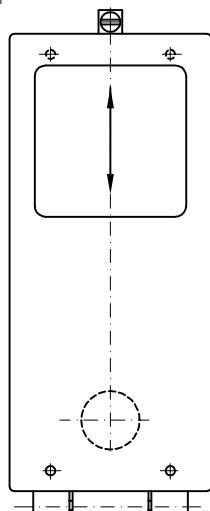
Einbauöffnung
mounting dimensions



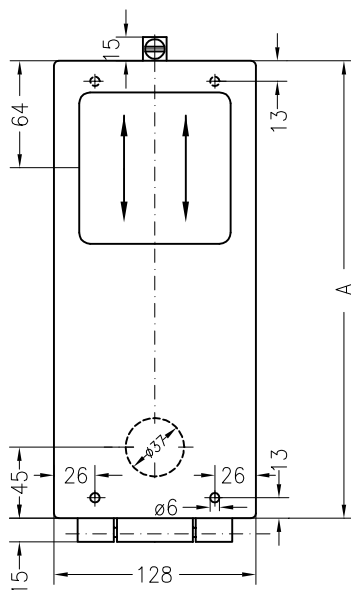
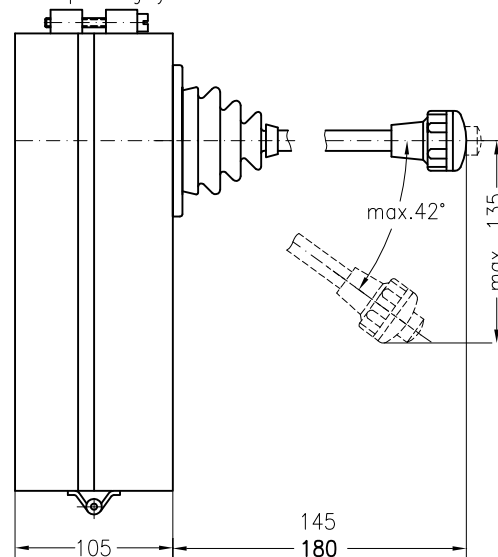
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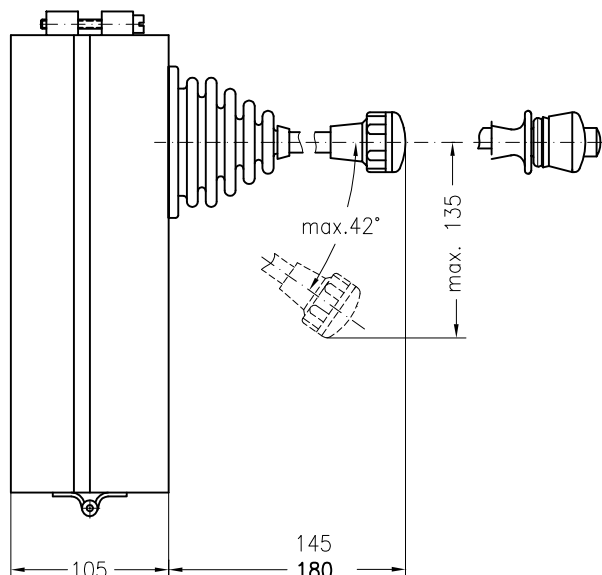
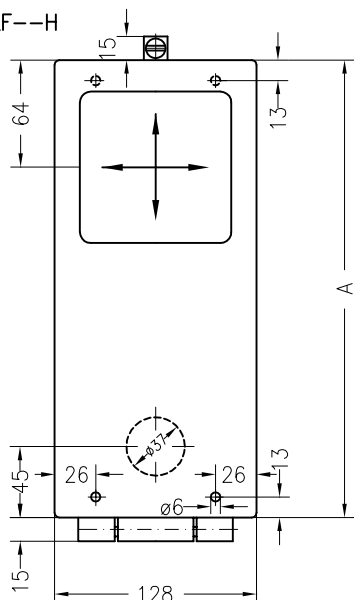
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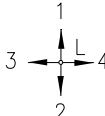
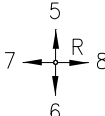
Typ VNS0-LF-G
type

NS0-LF--GG

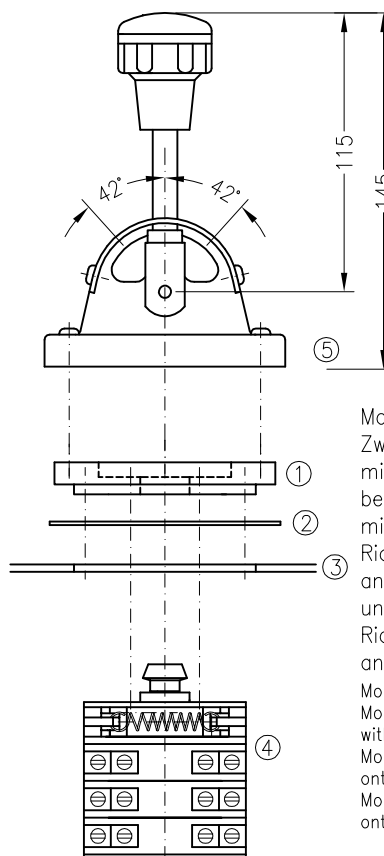
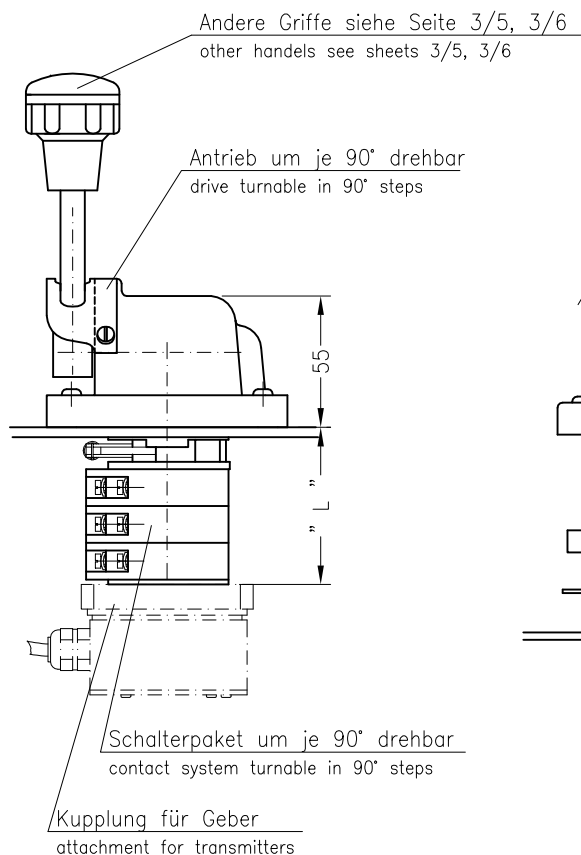
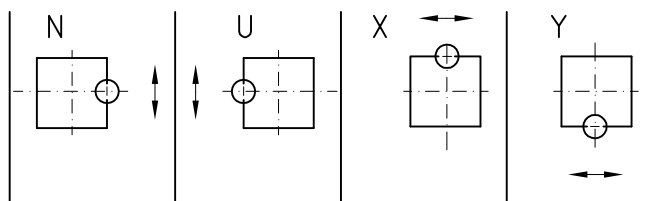
Lackierung RAL 7032 kieselgrau
color RAL 7032 pebble grey

Typ type		MAB A dimension A	Gewicht weight	Schalttrichtungsbezeichnung				
				linke Hand left	rechte Hand right	linke Hand left	rechte Hand right	
VNS04 LF-G		195	3-6 kg	1 ↑ L ↓ 2	5 ↑ R ↓ 6	1 3 ↑ ↑ ↓ ↓ 2 4	5 7 ↑ ↑ ↓ ↓ 6 8	
VNS06 LF-G	NS06 LF--GG	290						
VNS09 LF-G	NS09 LF--GG	350						
				circuit direction and engraving code				

Typ VNS0-LF--H
type

Typ type		MAB A dimension A	Gewicht weight	Schalttrichtungsbezeichnung linke Hand rechte Hand	
VNS04 LF--H		195	3-6 kg	left	right
VNS06 LF--H		290			
VNS09 LF--H		350		circuit direction and engraving code	



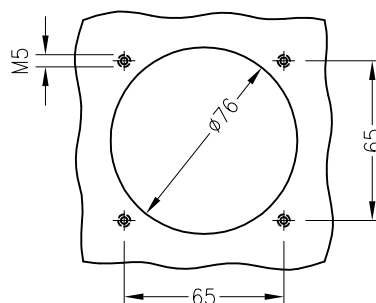
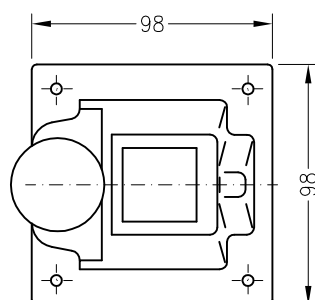
Typ NS0--SFA R
typesiehe Seite 9/12
see sheet 9/12Anordnung – nur erforderlich bei unsymmetrischer Abwicklung
arrangement – important if the circuit isn't symmetricalSchutzart IP56 frontseitig
degree of protection IP56

Montage:

Zwischenplatte ① und Dichtung ② mit 4 Schrauben M5 am Gehäuse ③ befestigen, Schalterpaket ④ mit 4 Schrauben in der gewünschten Richtung an der Zwischenplatte ① anbauen. Antrieb ⑤ mit 4 Schrauben und Dichtungen in gewünschter Richtung an Zwischenplatte ① anbauen.

Mounting:

Mount attachment plate ① and sealing ② with 4 screws M5 at the housing ③. Mount the contact system ④ with 4 screws onto the attachment plate ①. Mount the drive ⑤ with 4 screws and sealings in desired direction onto the attachment plate ①.



Gewicht:

Antriebsblock ~1,2 kg
je Doppelkontakt ~0,1 kg
weight:
drive ~1,2 kg
each double contact ~0,1 kg

Anzahl Doppelkontaktelemente numbers of double contact blocks	1	2	3	4	5	6	7	8	9	10
Länge length " L "	40	55	70	85	100	115	130	145	160	175



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Darstellung mit UGD-Griff (option)
drawing with UGD-handle (option)

Weitere Griffe siehe Blatt

more handles see sheet

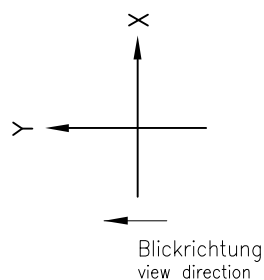
3/2, 3/3, 3/5,

3/6, 3/8, 3/9, 3/10, 3/11

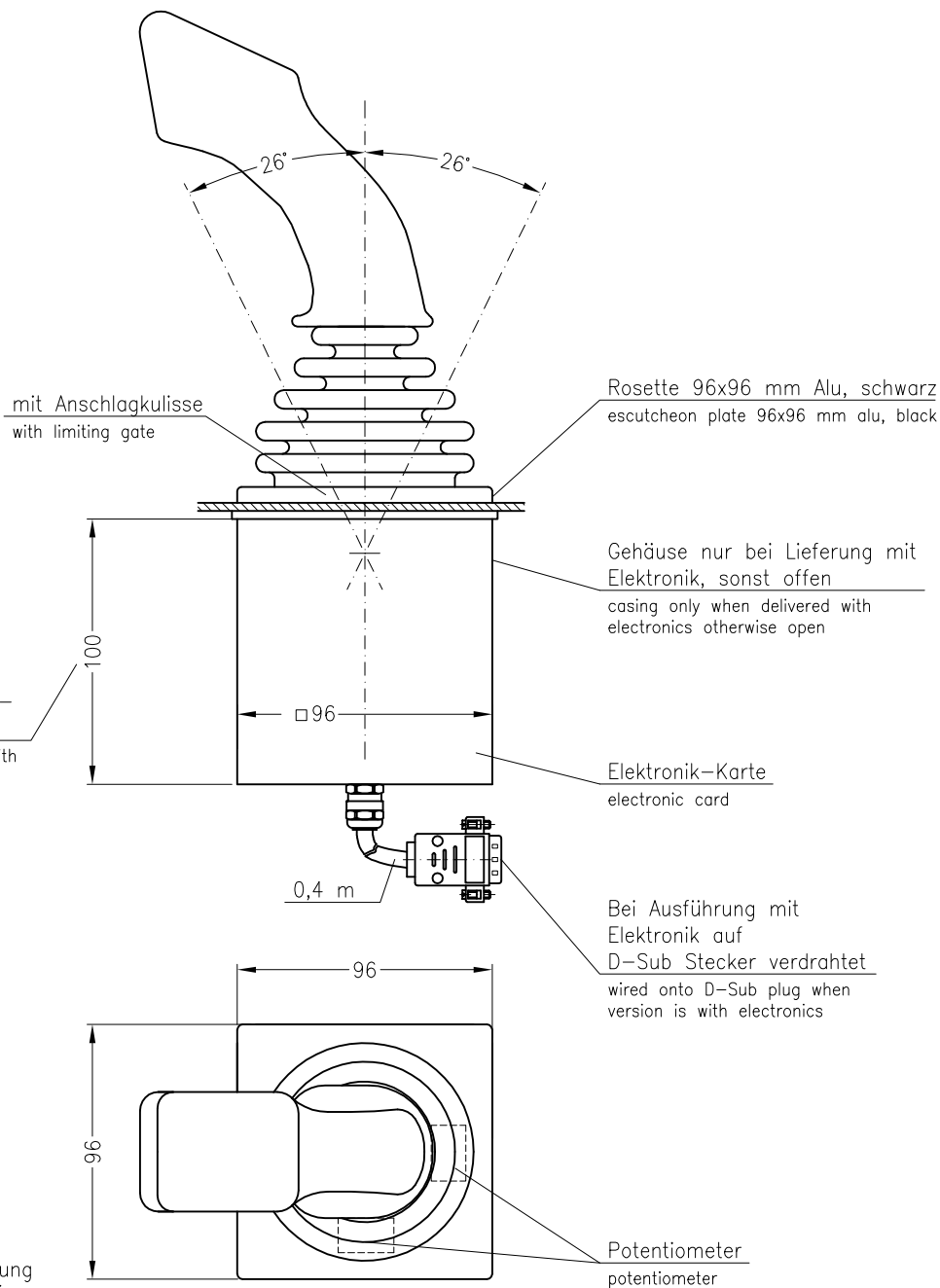
Gehäusetiefe bei:

- CANbus (ESS100/101)
- Profibus (ESS094)
- Strom- und Spannungs-
ausgang (ESS089/098)

housing depth when delivered with
- CANbus (ESS100/101)
- Profibus (ESS094)
- current and voltage output
(ESS089/098)



Einbauöffnung:
mounting dimensions



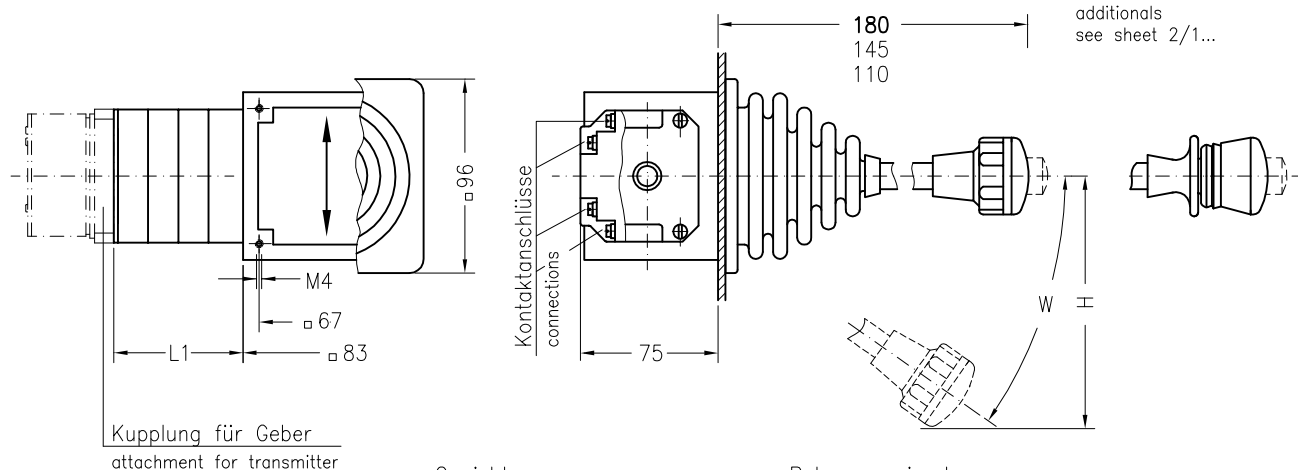
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Typ VNS0-F-E Antrieb E siehe Seite 9/2
type drive E see sheet 9/2

Einbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...

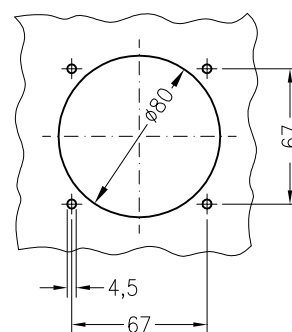


Anordnung
arrangement



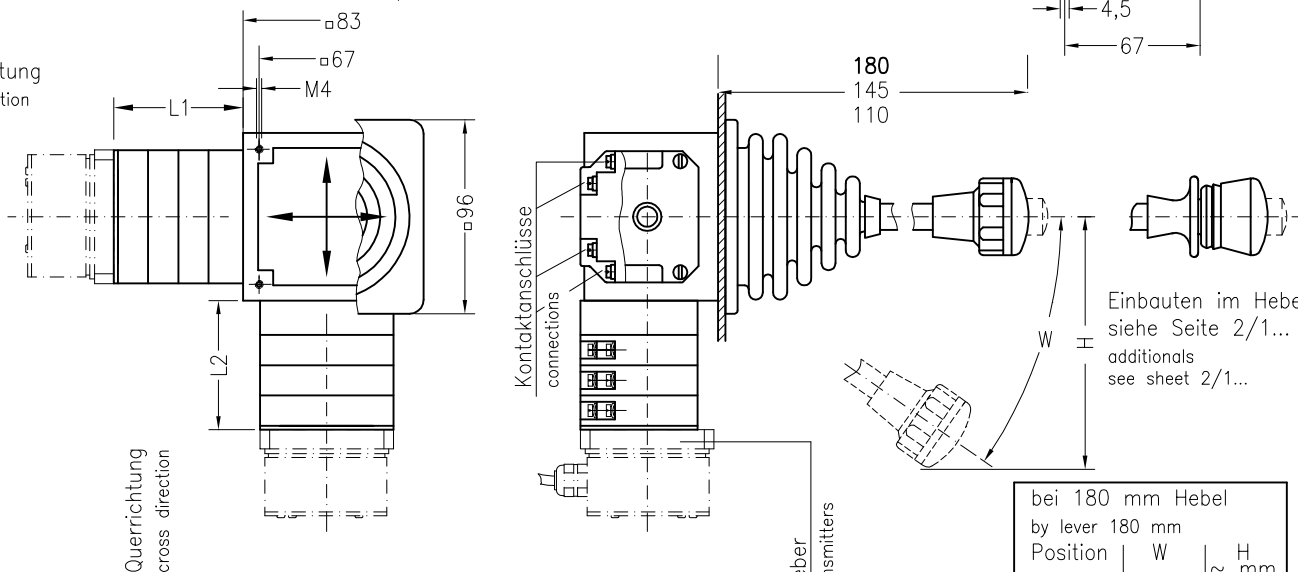
Gewicht:
Antriebsblock ~0,9 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~0,9 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

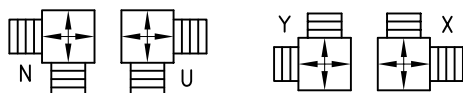


Typ VNS0-F-V Antrieb V siehe Seite 9/2
type drive V see sheet 9/2

Blickrichtung
view direction



Anordnung
arrangement



Gewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

Kupplung für Geber
attachment for transmitters

Einbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...

bei 180 mm Hebel by lever 180 mm		
Position	W	~ H mm
1-0-1	13°	70
2-0-2	21°	100
3-0-3	30°	135
4-0-4	29°	130
5-0-5	35°	150
6-0-6	36°	155
7-0-7	38°	160

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10



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Anordnungsbezeichnung: arrangement description:

VNS0-E

linke Hand
left handrechte Hand
right hand

VNS0-V

linke Hand
left handrechte Hand
right hand

VNS0-V

linke Hand
left handrechte Hand
right hand

Schalttrichtungsbezeichnung

switch direction arrangement

 Blick-
 richtung
 view direction
 Quer
 cross
 direction

N

U

N

U

U

N

1

3

L

4

2

5

7

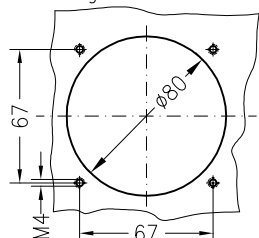
R

8

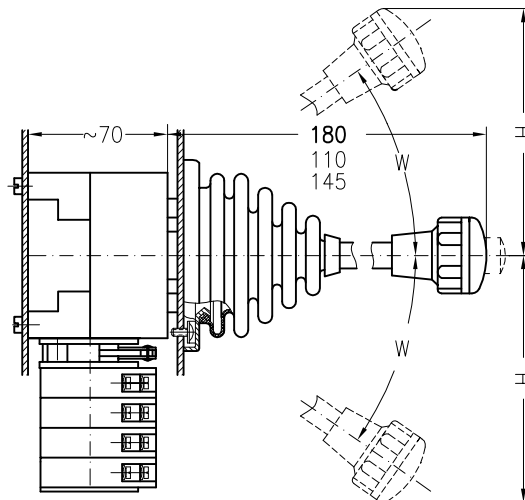
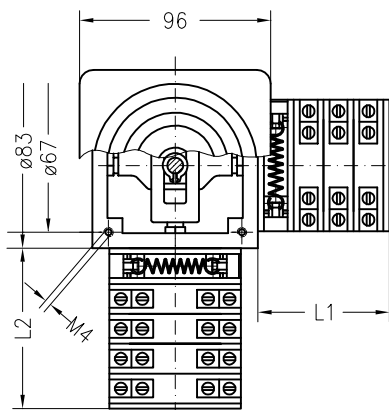
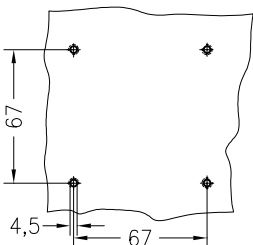
6

Bohrungen in der Abdeckung

bores on cover



Bohrungen in der Rückwand



Anzahl Doppelkontaktelemente

number of double contact elements

L1 L2 L3

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

Stellungen steps

H

W

Stellungen steps

H

W

Stellungen steps

H

W

Stellungen steps

H

W

Stellungen steps

H

W

Stellungen steps

H

W

Antriebsart:

E

Typ VNS0 E(R)

Gew.: Antriebsblock: weight: drive block 0,9 kg

je Doppelkontakt-

element: each double contact element 0,08 kg

V

VNS0 V(R)

Gew.: Antriebsblock: weight: drive block 1,4 kg

je Doppelkontakt-

element: each double contact element 0,08 kg

G

VNS0 G(R)

Gew.: Antriebsblock: weight: drive block 1,4 kg

je Doppelkontakt-

element: each double contact element 0,08 kg

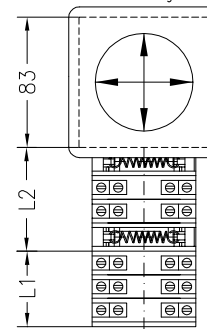
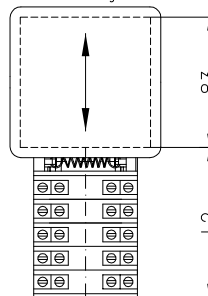
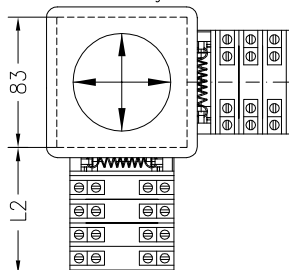
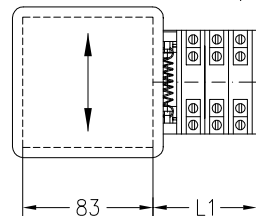
H

VNS0 H(R)

Gew.: Antriebsblock: weight: drive block 1,4 kg

je Doppelkontakt-

element: each double contact element 0,08 kg



M

VNS0 M(R)

Gew.: Antriebsblock: weight: drive block 1,4 kg

je Doppelkontakt-

element: each double contact element 0,08 kg

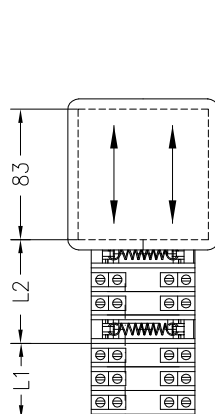
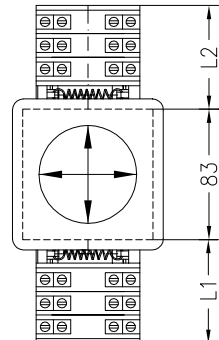
GG

VNS0 GG(R)

Gew.: Antriebsblock: weight: drive block 1,4 kg

je Doppelkontakt-

element: each double contact element 0,08 kg



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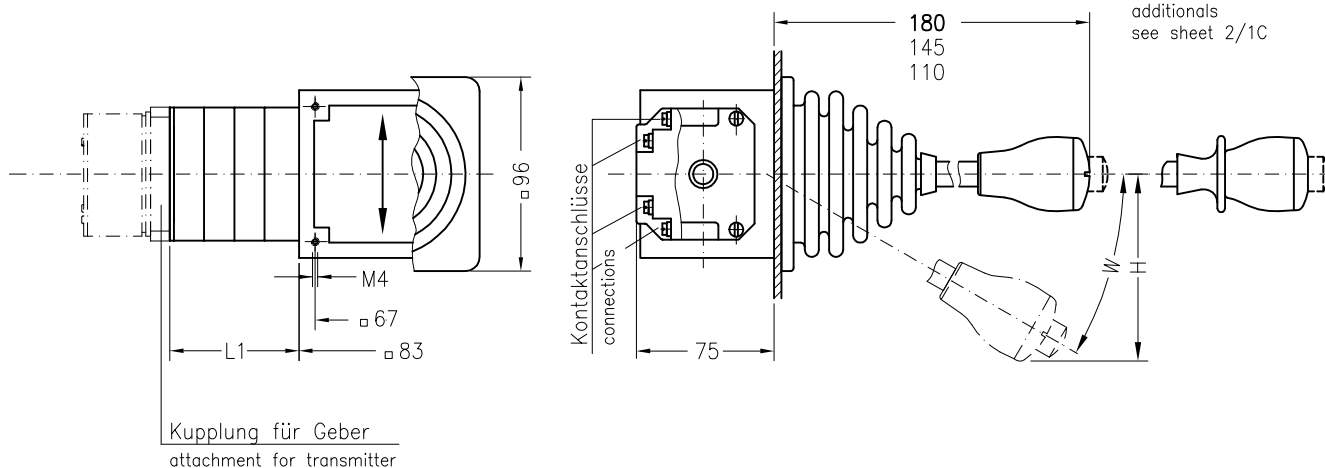
Elektrotechnische Fabrik Blaubeuren

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 89143 BLAUBEUREN
 GERMANY

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 Fax +49 7344 171-99 www.spobu.de

Typ **NNS0-F-E** Antrieb E siehe Seite 9/2N
type drive E see sheet 9/2N

Einbauen im Hebel
siehe Seite 2/1C
additional
see sheet 2/1C

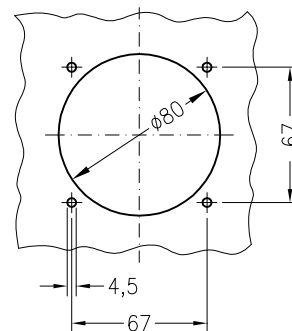


Anordnung
arrangement



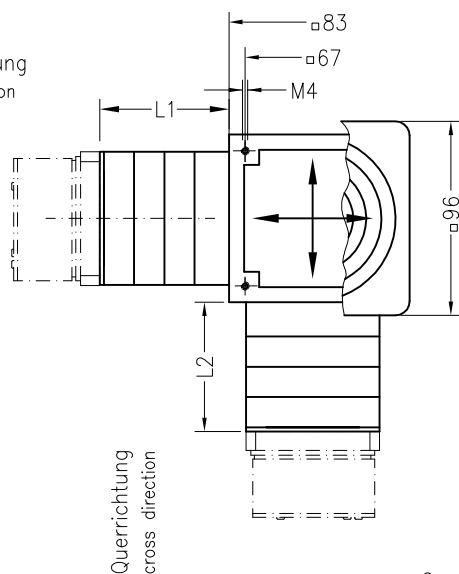
Gewicht:
Antriebsblock ~1,1 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,1 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

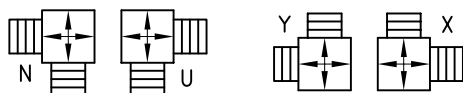


Typ **NNS0-F-V** Antrieb V siehe Seite 9/2N
type drive V see sheet 9/2N

Blickrichtung
view direction

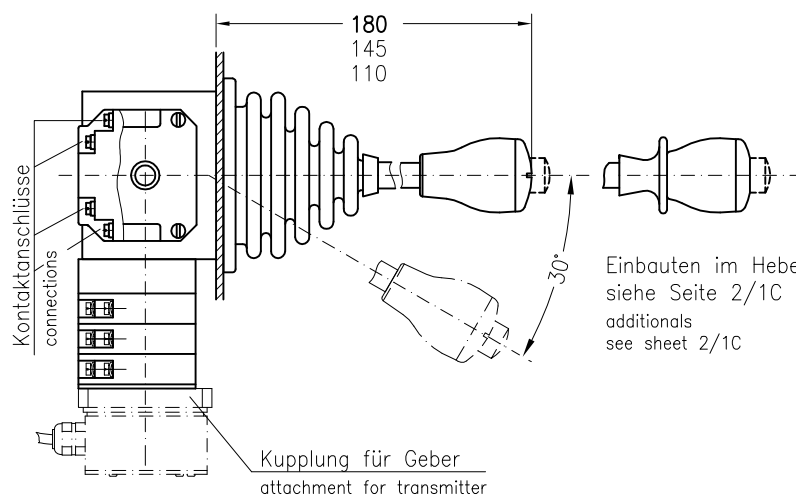


Anordnung
arrangement



Gewicht:
Antriebsblock ~1,1 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,1 kg
each double contact ~0,08 kg

Einbauen im Hebel
siehe Seite 2/1C
additional
see sheet 2/1C



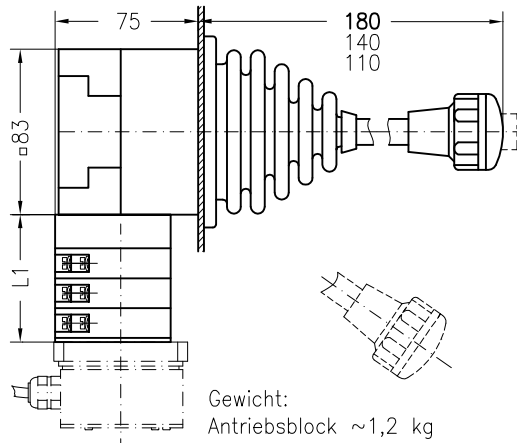
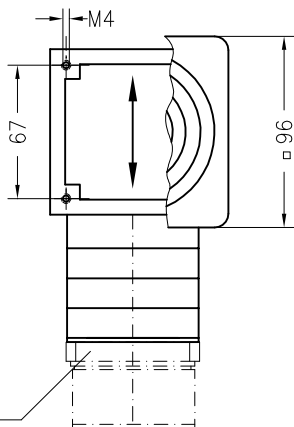
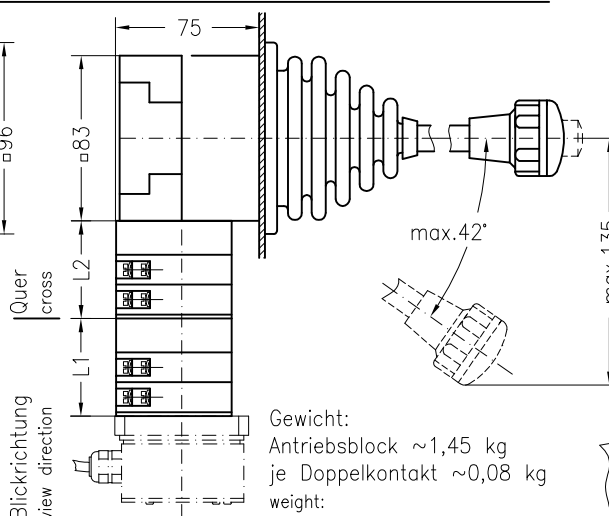
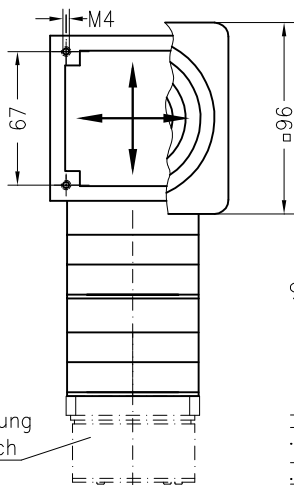
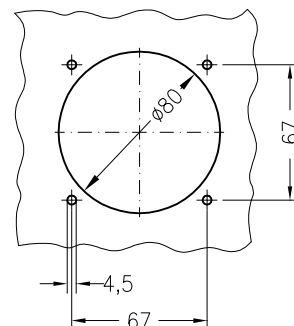
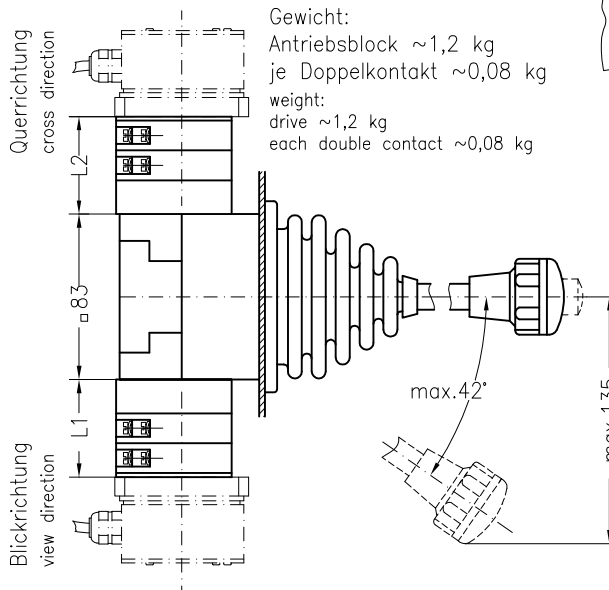
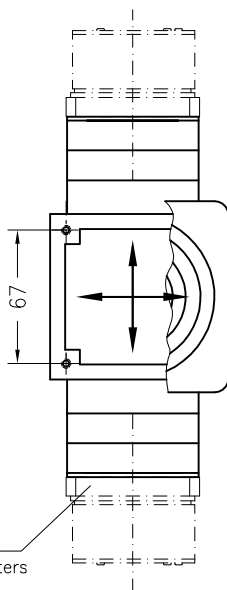
Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10



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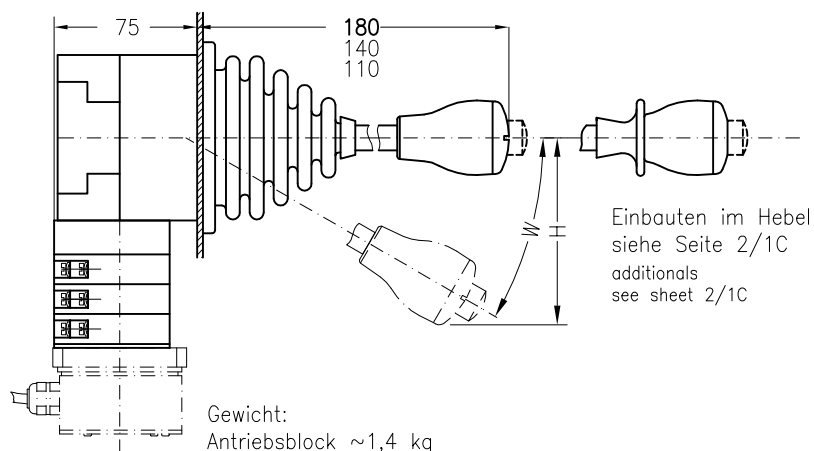
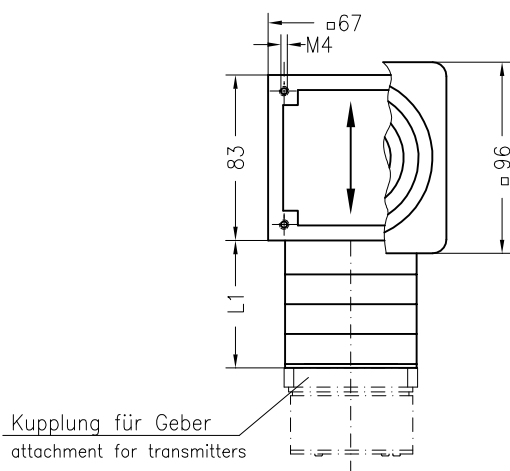
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Fax +49 7344 171-99 www.spobu.de

Typ VNS0-FG
typeAntrieb G
siehe Seite 9/3
drive G
see sheet 9/3Kupplung für Geber
attachment for transmittersGewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kgEinbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...Typ VNS0--FH
typeAntrieb H
siehe Seite 9/3
drive H
see sheet 9/3Geber nur für Betätigung
in Blickrichtung möglich
attachment for transmitter
only in view directionGewicht:
Antriebsblock ~1,45 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,45 kg
each double contact ~0,08 kgBohrungen in der
Befestigungswand
mounting dimensionsTyp VNS0--FM
typeAntrieb M
siehe Seite 9/3
drive H
see sheet 9/3Kupplung für Geber
attachment for transmittersGewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kgEinbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10



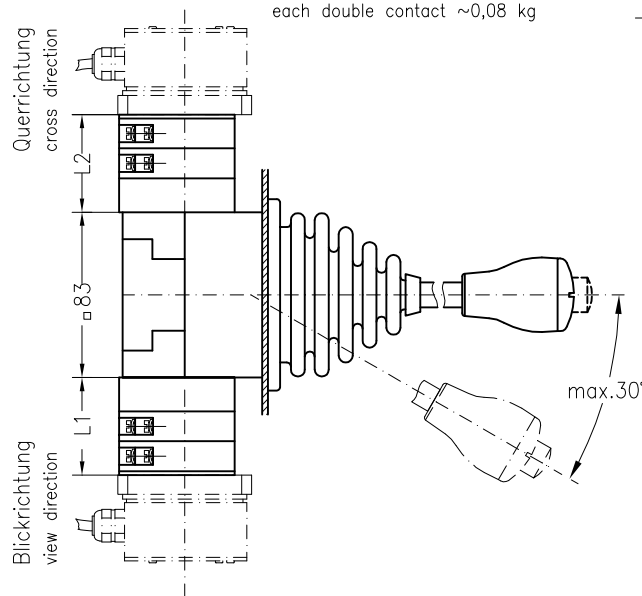
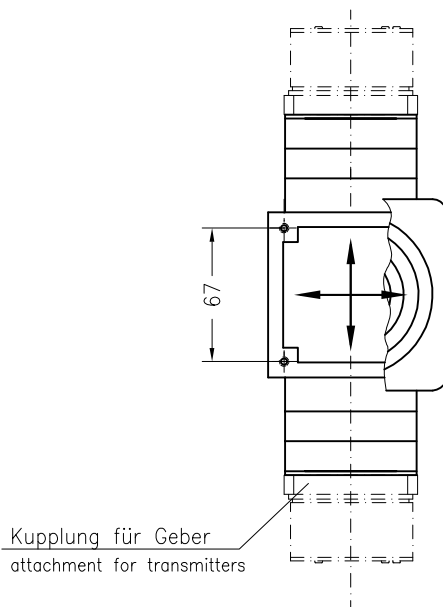
Typ **NNS0-FG** Antrieb G siehe Seite 9/3N
type drive G see sheet 9/3N



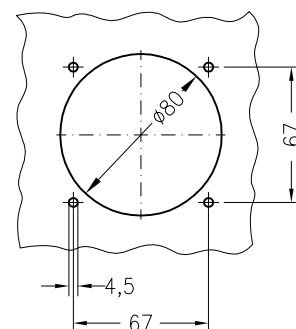
Gewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kg

Bohrungen in der
Befestigungswand
mounting dimensions

Typ **NNS0-FM** Antrieb M siehe Seite 9/3N
type drive M see sheet 9/3N



Gewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kg



Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

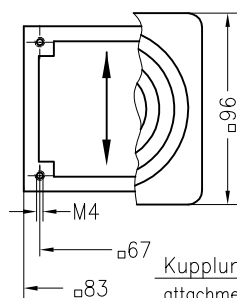
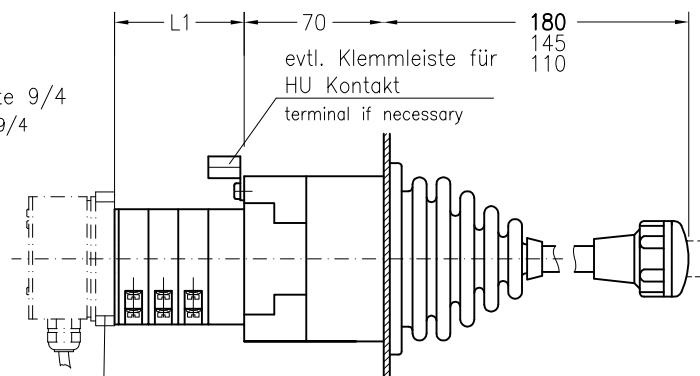
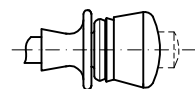


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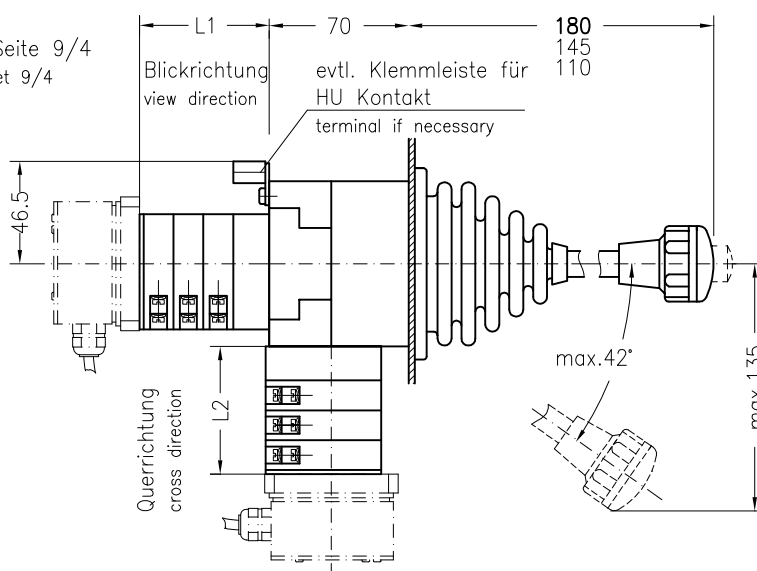
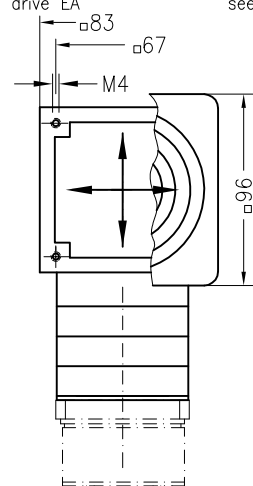
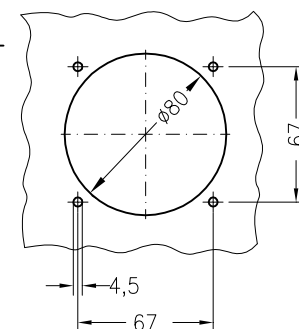
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89143 BLAUBEUREN
GERMANY

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Fax +49 7344 171-99 www.spobu.de

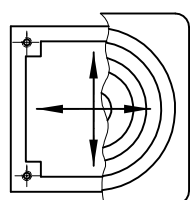
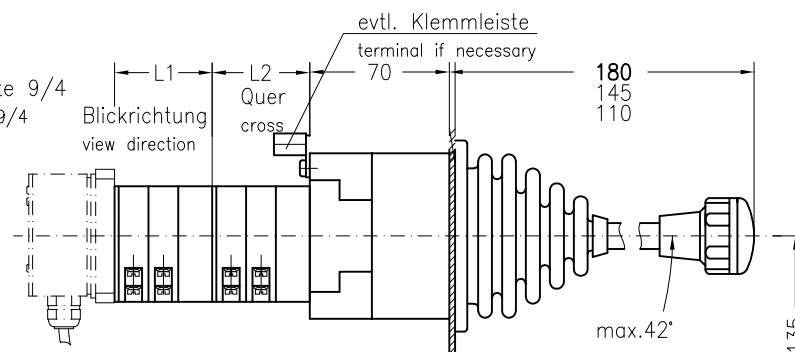
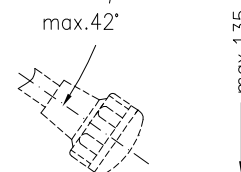
Typ VNS0-A

type
Antrieb A
drive Asiehe Seite 9/4
see sheet 9/4Kupplung für Geber
attachment for transmittersGewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kgevtl. Klemmleiste für
HU Kontakt
terminal if necessaryEinbauen im Hebel
siehe Seite 2/1C
additional
see sheet 2/1CBohrungen in der
Befestigungswand
mounting dimensions

Typ VNS0--EA

type
Antrieb EA
drive EAsiehe Seite 9/4
see sheet 9/4Querrichtung
cross directionBlickrichtung
view directionevtl. Klemmleiste für
HU Kontakt
terminal if necessaryGewicht:
Antriebsblock ~1,2 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,2 kg
each double contact ~0,08 kg

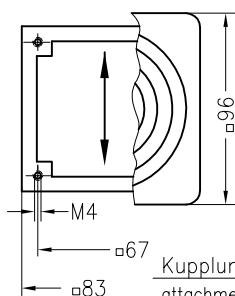
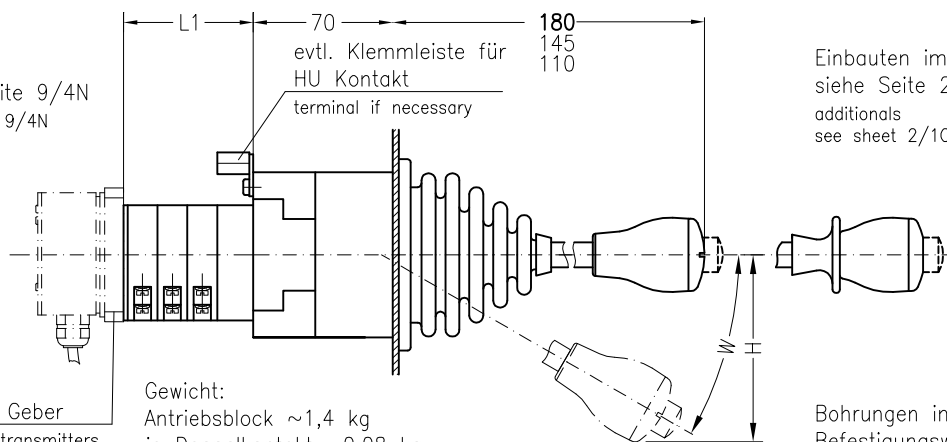
Typ VNS0--AA

type
Antrieb AA
drive AAsiehe Seite 9/4
see sheet 9/4Geber nur in
Blickrichtung möglich
attachment only possible
for view directionGewicht:
Antriebsblock ~1,45 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,45 kg
each double contact ~ 0,08 kgevtl. Klemmleiste
terminal if necessary

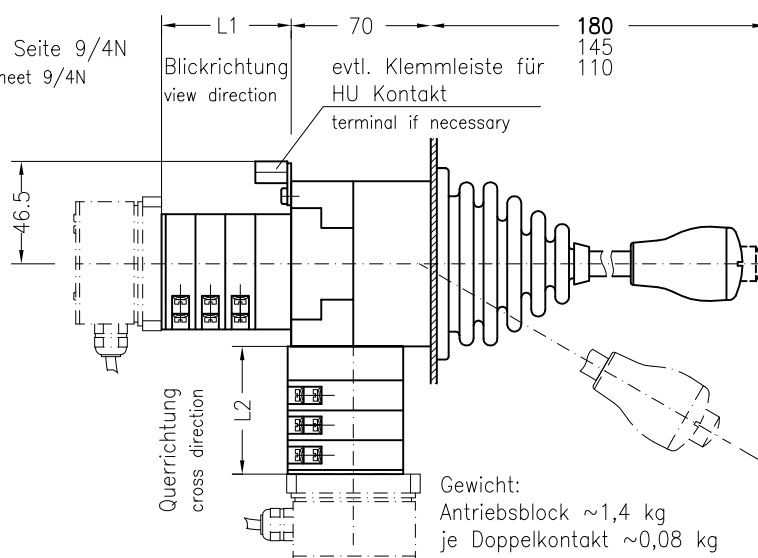
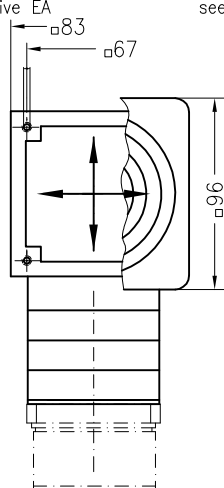
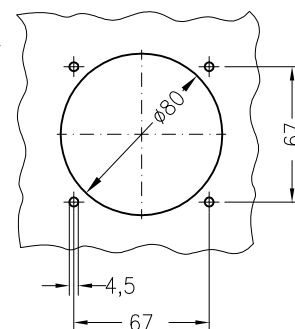
Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

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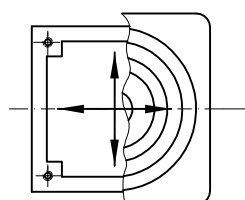
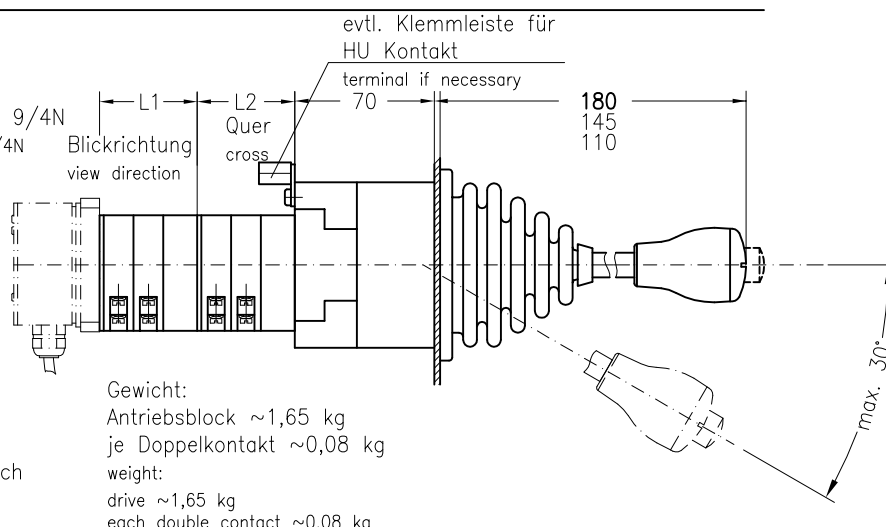
Typ NNS0-A

type
Antrieb A
drive Asiehe Seite 9/4N
see sheet 9/4NKupplung für Geber
attachment for transmittersGewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kgEinbauen im Hebel
siehe Seite 2/1C
additional
see sheet 2/1CBohrungen in der
Befestigungswand
mounting dimensions

Typ NNS0--EA

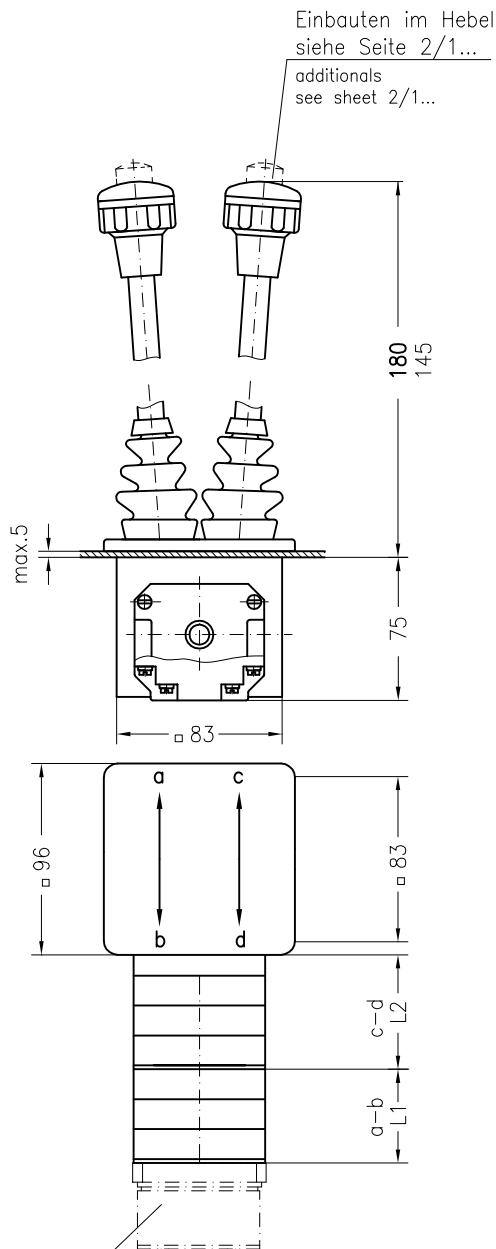
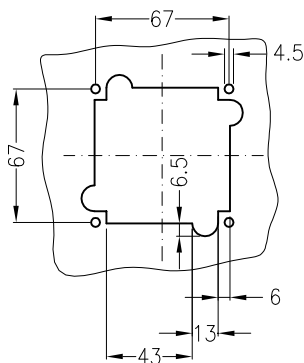
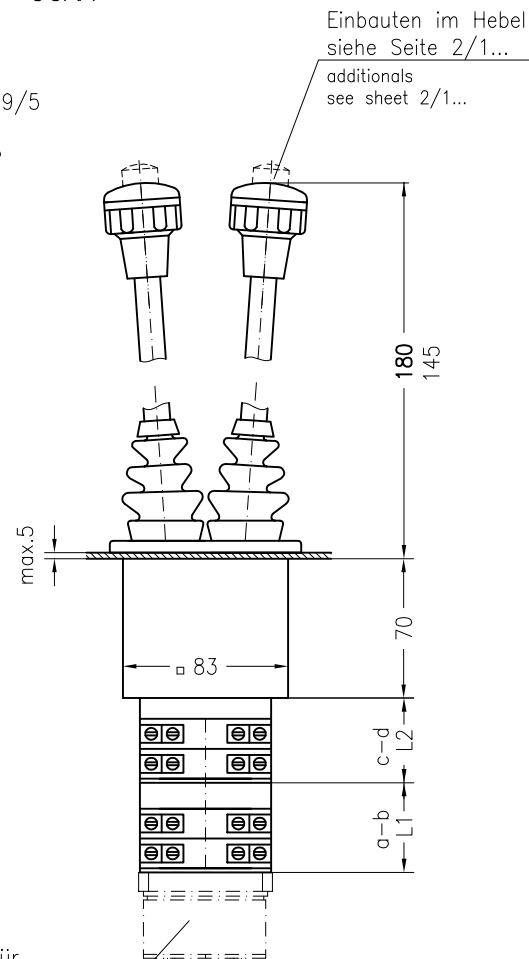
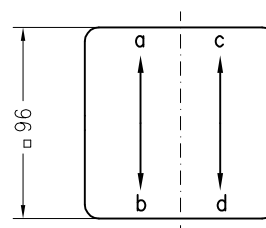
type
Antrieb EA
drive EAsiehe Seite 9/4N
see sheet 9/4NGewicht:
Antriebsblock ~1,4 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,4 kg
each double contact ~0,08 kg

Typ NNS0--AA

type
Antrieb AA
drive AAsiehe Seite 9/4N
see sheet 9/4NGeber nur in
Blickrichtung möglich
attachment only
for view directionGewicht:
Antriebsblock ~1,65 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,65 kg
each double contact ~0,08 kg

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

**Spohn-Burkhardt**
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Typ NS0--FGGH
typeAntrieb GG
siehe Seite 9/5
drive GG
see sheet 9/5Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handleGewicht:
Antriebsblock ~1,6 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,6 kg
each double contact ~0,08 kgTyp NS0--GGAA
typeAntrieb GGA
siehe Seite 9/5
drive GGA
see sheet 9/5Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handleBohrungen in der
Befestigungswand
mounting dimensions

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10

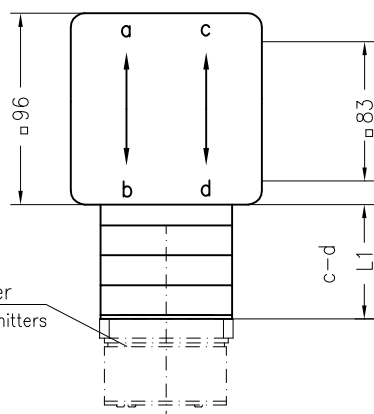
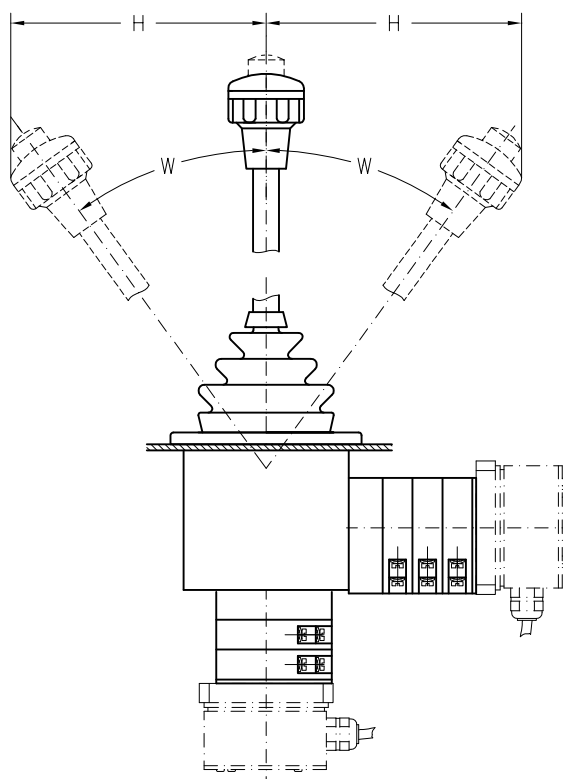
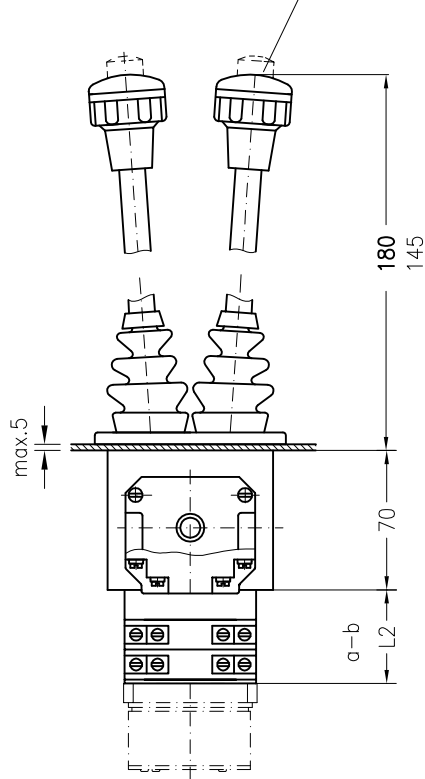
**Spohn + Burkhardt**
Elektrotechnische Fabrik BlaubeurenMauergasse 5
89143 BLAUBEUREN
GERMANYTel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Typ NS0--GGEA
type

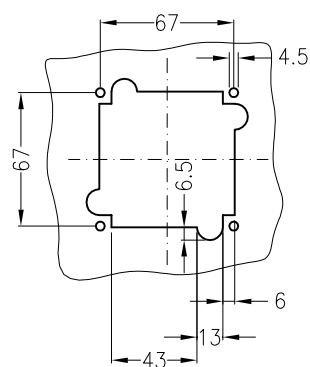
Antrieb GGEA
siehe Seite 9/5
drive GGEA
see sheet 9/5

Einbauen im Hebel
siehe Seite 2/1...

additional
see sheet 2/1...



Kupplung für Geber
attachment for transmitters



Bohrungen in der
Befestigungswand
mounting dimensions

Gewicht:
Antriebsblock ~1,6 kg
je Doppelkontakt ~0,08 kg
weight:
drive ~1,6 kg
each double contact ~0,08 kg

bei 180 mm Hebel by lever 180 mm		
Position	W	~ H mm
1-0-1	17*	70
2-0-2	35*	115
3-0-3	30*	105
4-0-4	38*	125
5-0-5	35*	115
6-0-6	42*	135
7-0-7	42*	135

Maß L1 oder L2 (mm) dimension L1 or L2 (mm)	35	50	65	80	95	110	125	140	155	170
Anzahl Doppelkontaktelemente number of double contact elements	1	2	3	4	5	6	7	8	9	10



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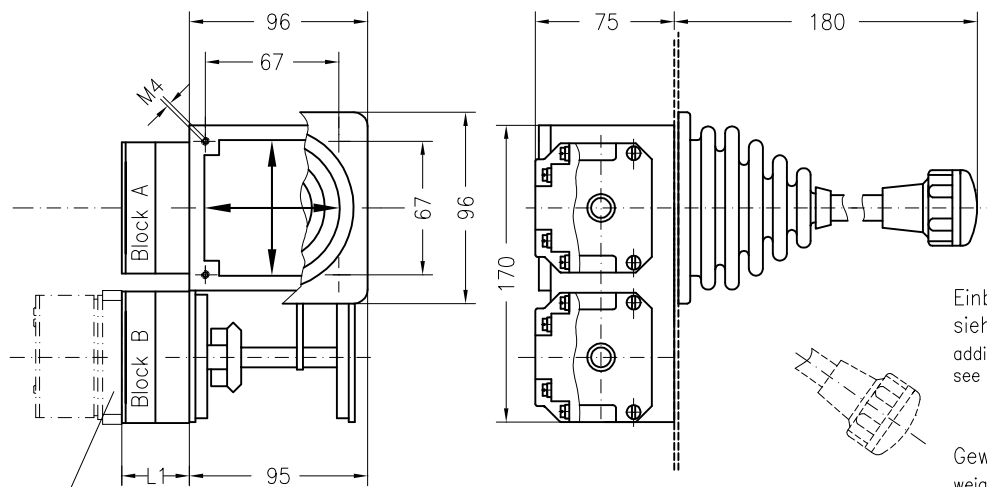
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Typ NS0--D

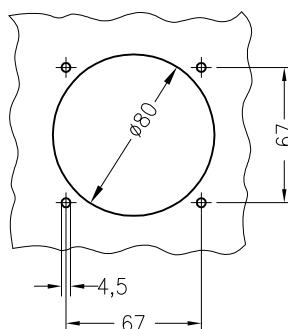
type

Siehe Seite 9/6

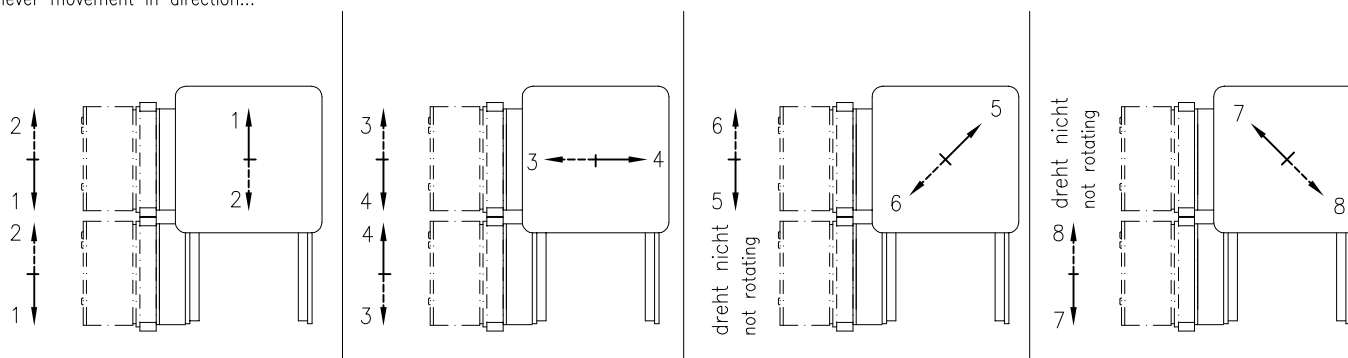
see sheet 9/6


 Kupplung für Geber
 attachment for transmitters

Anzahl Doppelkontaktelemente number of double contact elements	L1	
	bis /till 4-0-4	ab /from 5-0-5
1	15	30
2	30	45
3	45	60
4	60	75
5	75	90
6	90	105

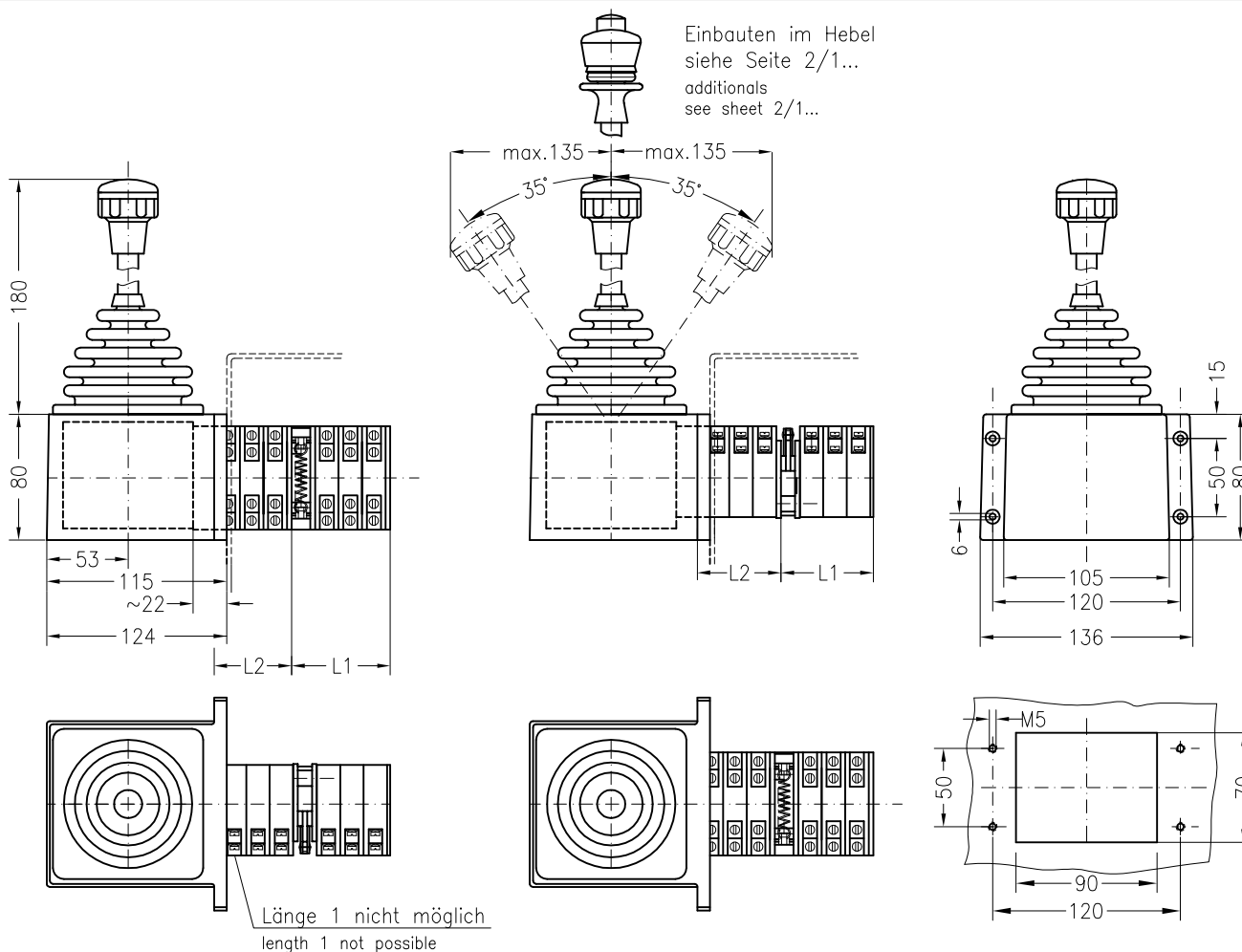
 Bohrungen in der
 Befestigungswand
 mounting dimensions


Ausführung links left version NS0--UD (R)	Ausführung rechts right version NS0--ND (R)

 Drehrichtung des Schalters bzw. des Gebers
 bei Hebelbetätigung in Richtung...
 rotation direction of controller or encoder
 lever movement in direction...

Spohn-Burkhardt
 Elektrotechnische Fabrik Blaubeuren

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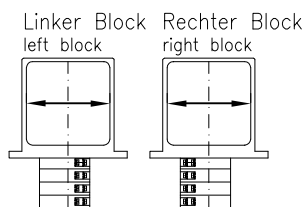
Schalterlänge bei Anzahl Doppelkontaktelemente

number of double contact elements

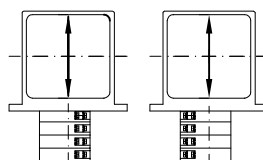
Fabrik Norm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VNS0K ^E (R) VNS0-KE(R)																				
VNS0K-H(R)	35	50	65	80	95	110	125	140	155	170	185	200	215	230	245	260	275	290	310	325
Gewicht weight ~kg																				

Kontaktanschlüsse
contacts on side

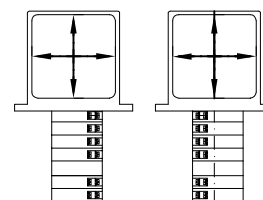
Antriebsart drive arrangement **E**
Fabrik Norm VNS0-NKE(R) VNS0-UKE(R)
Anzahl Doppelkontaktelemente
number of double contact elements



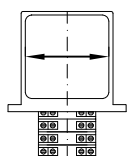
G
VNS0-NKG(R) VNS0-UKG(R)



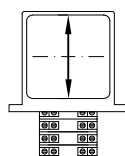
H
VNS0--NKH(R) VNS0--UKH(R)

Kontaktanschlüsse
contacts on top

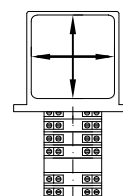
Antriebsart drive arrangem. **E**
Fabrik Norm VNS0-KE(R)



G
VNS0-KG(R)



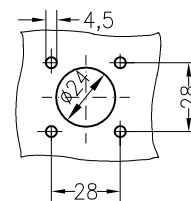
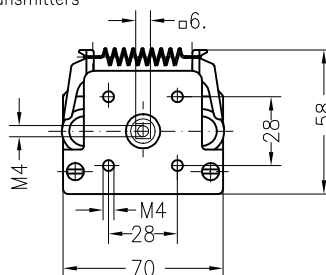
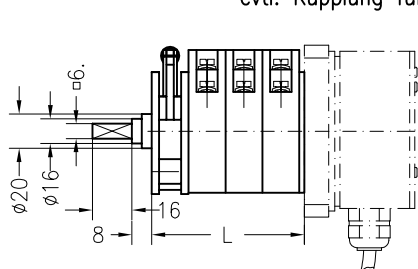
H
VNS0--KH(R)



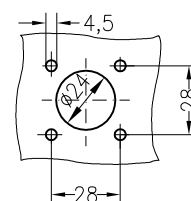
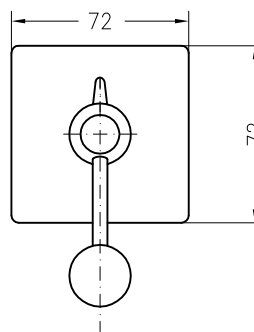
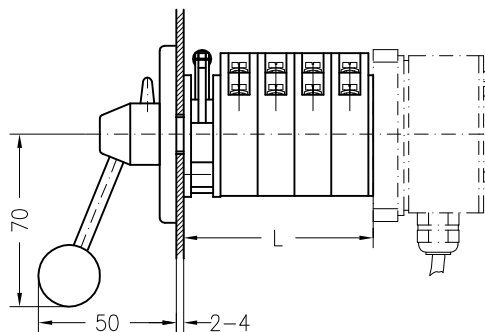
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GERMANY

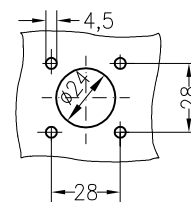
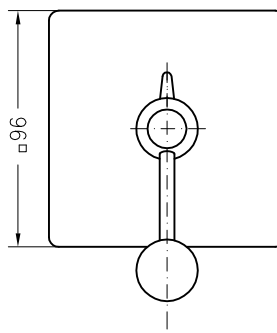
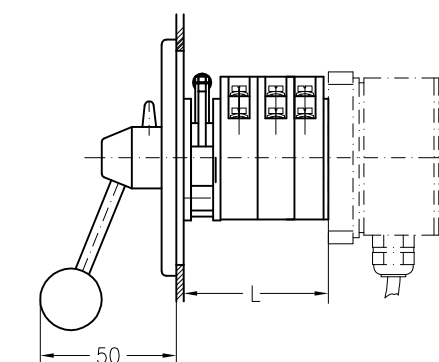
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Fax +49 7344 171-99 www.spobu.de

Einsatzschalter NS00-
switchAnzahl Doppelkontaktelemente number of double contact elements
evtl. Kupplung für Geber attachment for transmitters**Einsatzschalter mit Rosette 72x72 mm NS00-F**
switch with escutcheon 72x72 mm

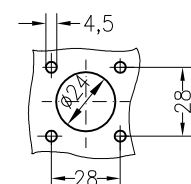
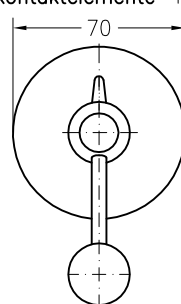
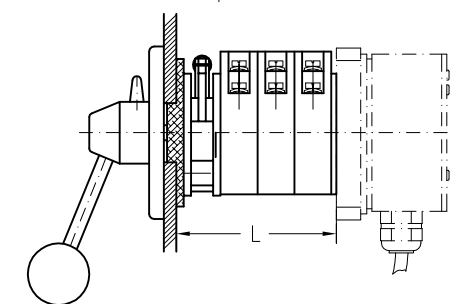
Anzahl Doppelkontaktelemente number of double contact elements

**Einsatzschalter mit Rosette 96x96 mm NS00-FA**
switch with escutcheon 96x96

Anzahl Doppelkontaktelemente number of double contact elements

**Einsatzschalter mit wasserdichter Rundrosette NS00-F0D**
switch with escutcheon plate Ø70 mm

Anzahl Doppelkontaktelemente number of double contact elements

Schutzart frontseitig IP56
degree of protection from the frontside IP56**Anzahl Doppelkontaktelemente** number of double contact elements

mit Rastung with notches	NS001_	NS002_	NS003_	NS004_	NS005_	NS006_	NS007_	NS008_	NS009_	NS0010_
mit Rückzug with spring return	NS001_R		NS002_R	NS003_R	NS004_R	NS005_R	NS006_R	NS007_R	NS008_R	NS009_R
Länge length L mm	35	50	65	80	95	110	125	140	155	170
Gewicht weight ~ g	590	680	770	860	950	1040	1130	1220	1310	1400

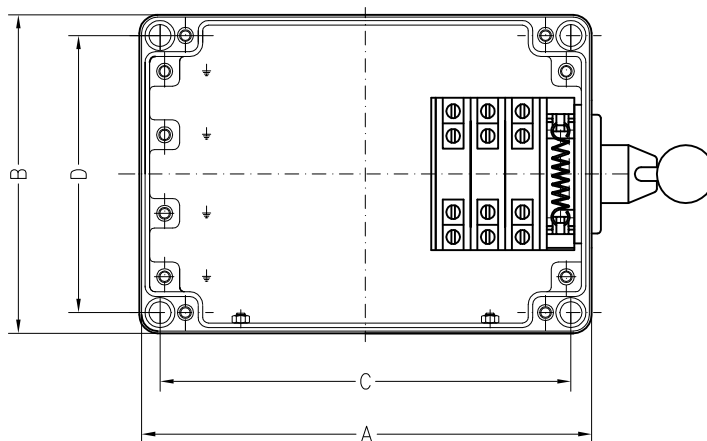
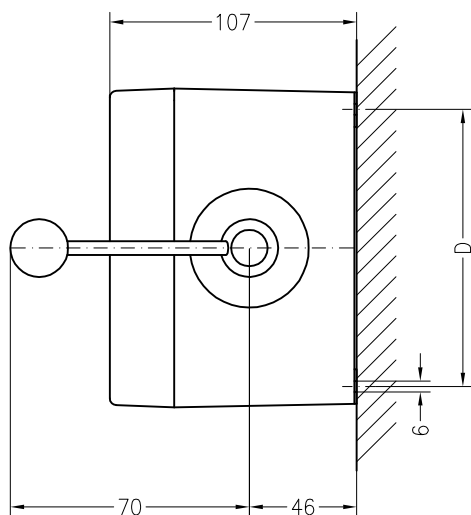
mit zusätzlicher Reibbremse für Potentiometerbetrieb, Länge L + 15 mm.

mit Doppelrastung L + 15 mm.

with additional friction disc for potentiometer, length L + 15 mm

with double notches, length L + 15 mm

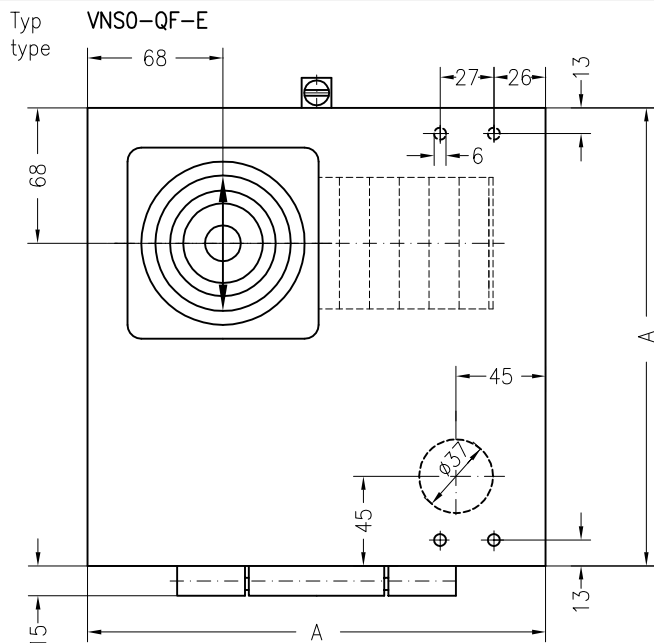
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GERMANYTel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de



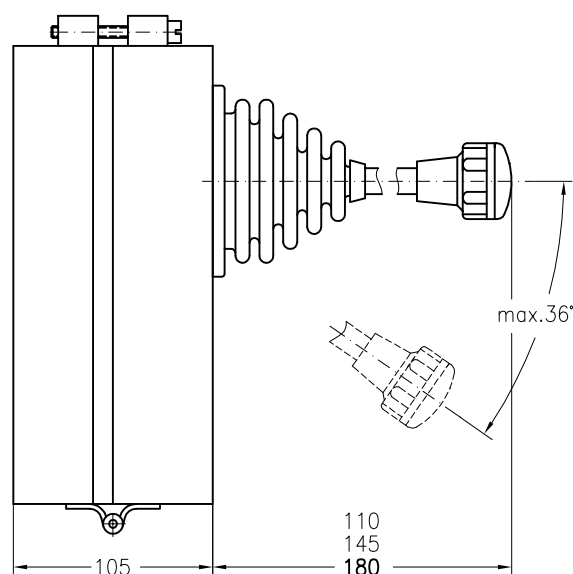
Schutzart IP54
mit Kugelgriff
auf Wunsch: Knebelgriff
degree of protection IP54
with handle according
on request: knob

ohne Selbstrückgang without spring return		mit Selbstrückgang with spring return						
Typ Type	Anzahl Doppel- kontaktelemente number of double contact elements	Typ Type	Anzahl Doppel- kontaktelemente number of double contact elements	A	B	C	D	Gewicht ~kg weight ~kg
NS 006 GA	1	NS 006 GAR	1	138	135	120	117	1,1
NS 006 GA	2	NS 006 GAR	2					1,2
NS 006 GA	3	NS 006 GAR	3					1,3
NS 006 GA	4	NS 006 GAR	4					1,4
NS 006 GA	5	NS 006 GAR	5					1,5
NS 006 GA	6							1,6
NS 0010 GA	7	NS 0010 GAR	6	196	138	178	120	1,8
NS 0010 GA	8	NS 0010 GAR	7					1,9

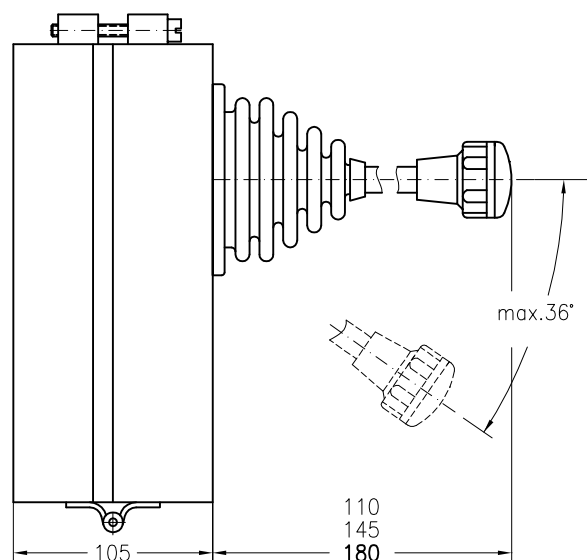
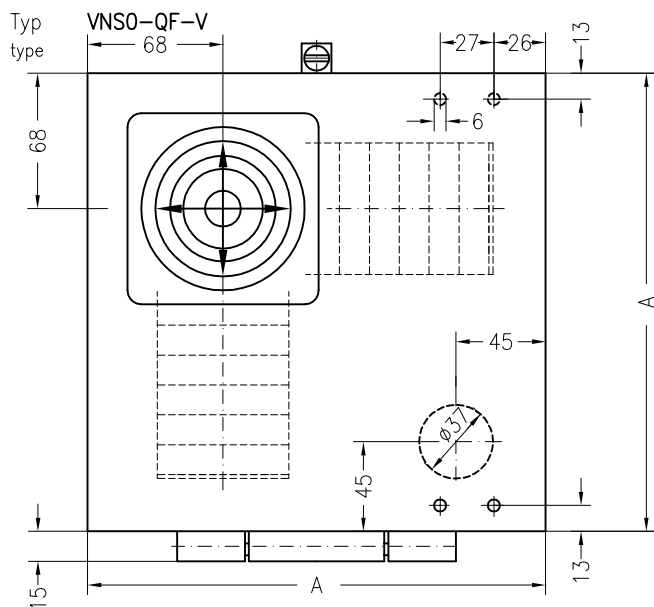




Pulverbeschichtet in RAL 7032 kieselgrau
 powder coated RAL 7032 pebble grey



Typ type	Maß A dimension A	Gewicht weight	Anordnung arrangement		Schalttrichtung switching direction	
VNS03QF-E	180	3-6 kg	linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand
VNS06QF-E	230				1 ↓ L 2	5 ↓ R 6
VNS09QF-E	280					



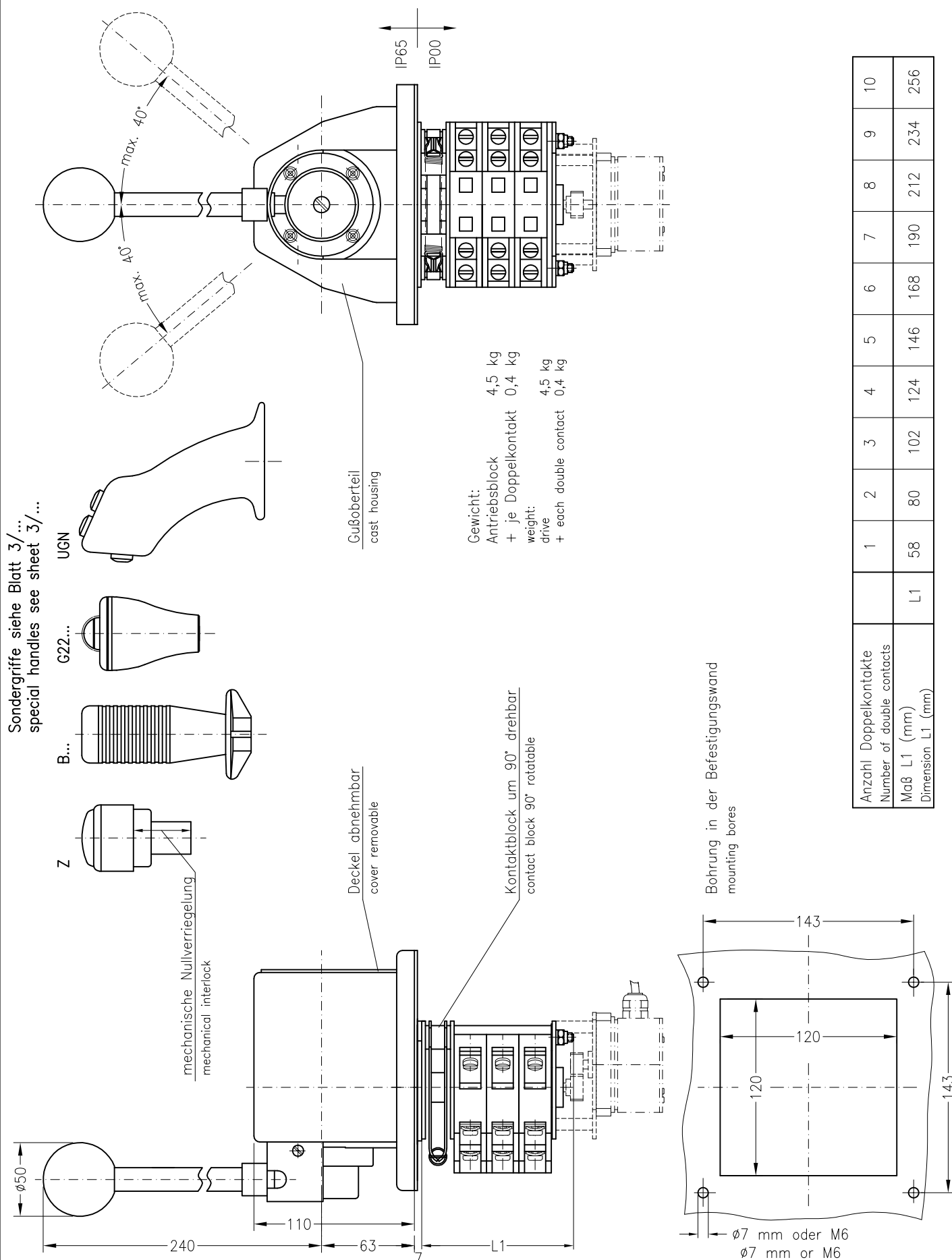
Typ type	Maß A dimension A	Gewicht weight	Anordnung arrangement		Schalttrichtung switching direction	
VNS03QF-V	180	4-8 kg	linke Hand left hand	rechte Hand right hand	linke Hand left hand	rechte Hand right hand
VNS06QF-V	230				1 ↓ L 2	5 ↓ R 6
VNS09QF-V	280					



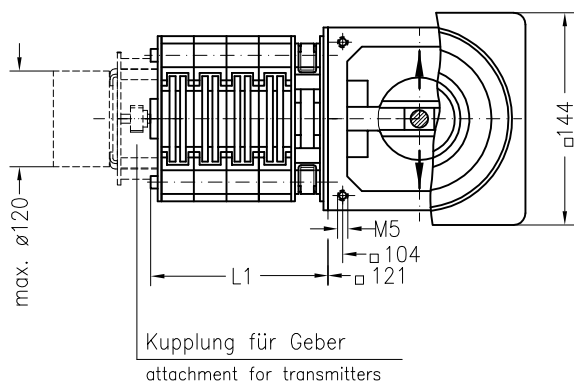
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Typ VNS2-F-E Antrieb E siehe Seite 10/2
type drive E see sheet 10/2

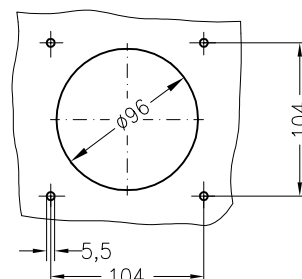
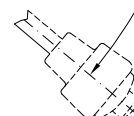
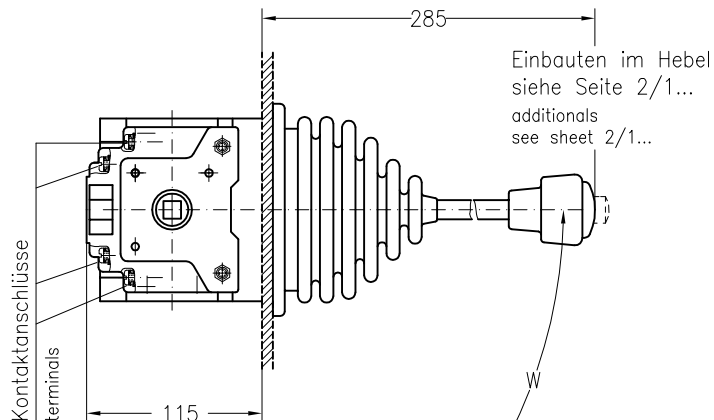


Anordnung
arrangement

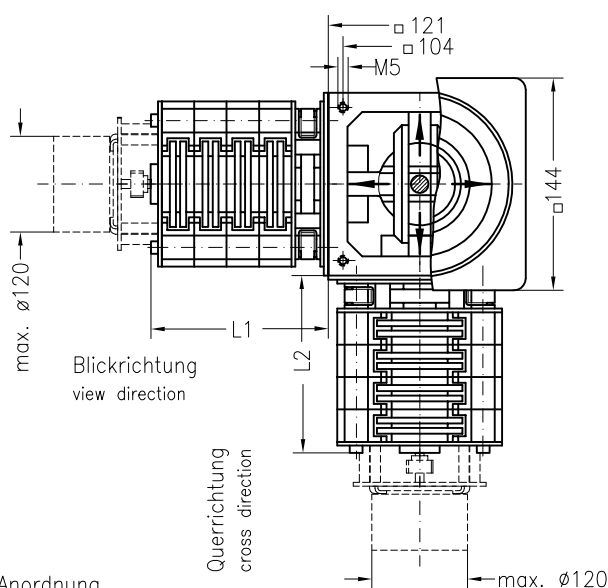


Gewicht:
Antriebsblock ~2,8 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~2,8 kg
each double contact ~0,4 kg

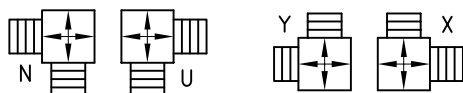
Bohrungen in der
Befestigungswand
mounting dimensions



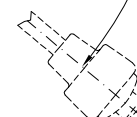
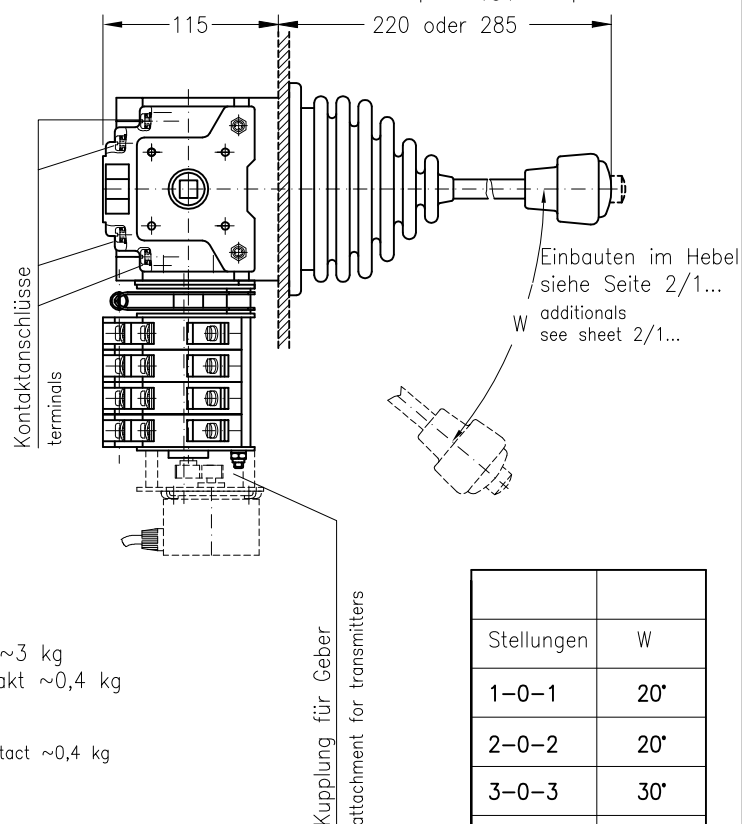
Typ VNS2--F-V Antrieb V siehe Seite 10/2
type drive V see sheet 10/2



Anordnung
arrangement



Gewicht:
Antriebsblock ~3 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~3 kg
each double contact ~0,4 kg



Kupplung für Geber
attachment for transmitters

Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10

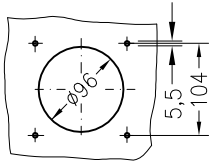
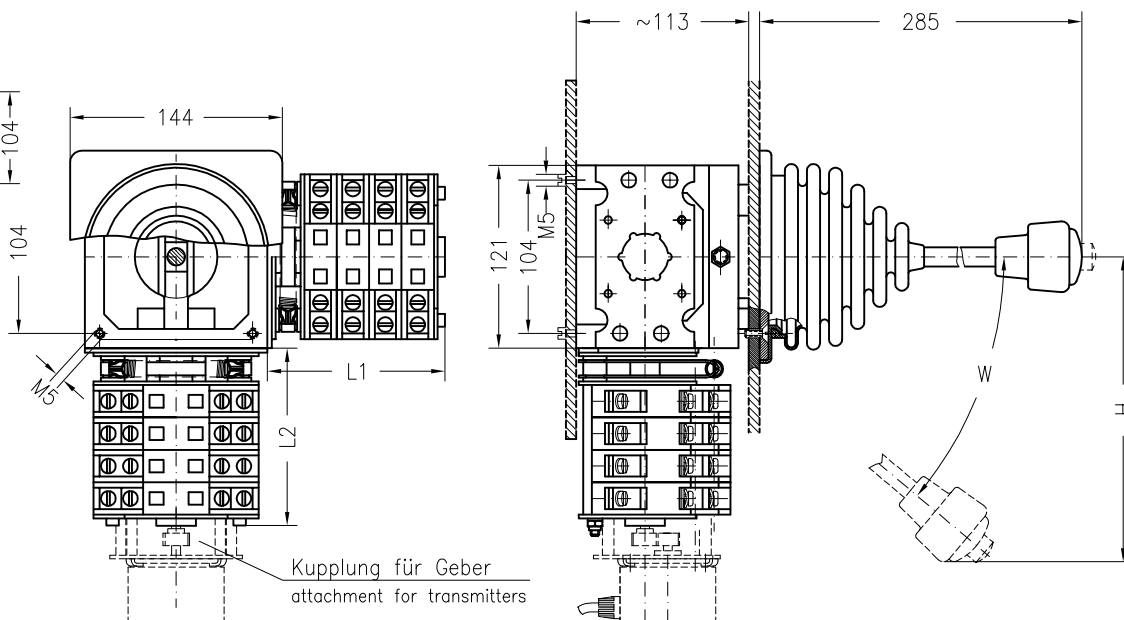
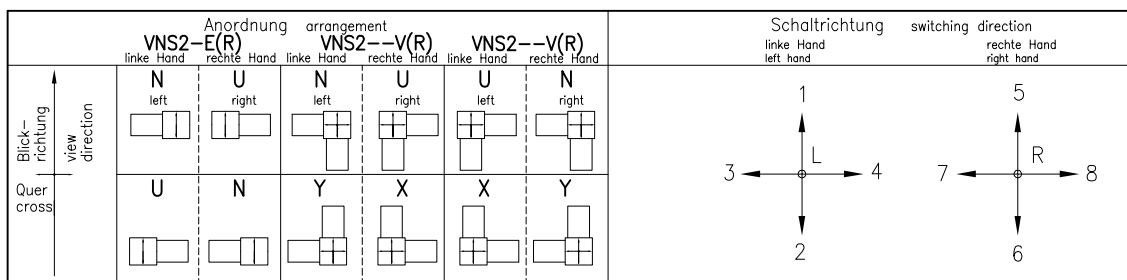
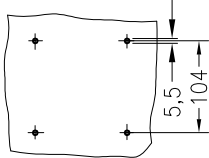
Stellungen	W
1-0-1	20°
2-0-2	20°
3-0-3	30°
4-0-4	33°
5-0-5	30°
6-0-6	35°



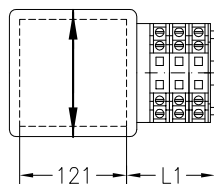
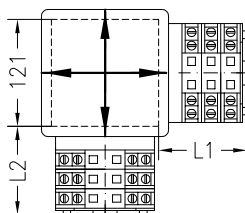
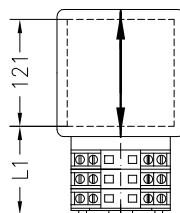
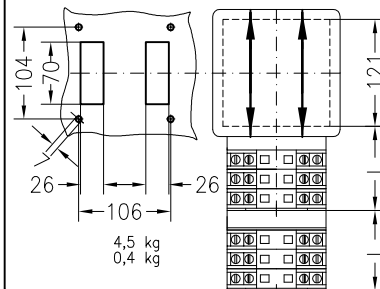
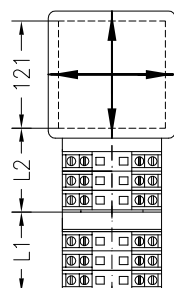
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Fax +49 7344 171-99 www.spobu.de

Bohrungen im
Gehäusedeckel
bores at coverBohrungen in der
Rückwand
bores at back board

Anzahl Doppelkontakte number of double contacts			für Wechselstrom für Gleichstrom mit Blasung										VNS2- VNSB2- for AC with permanent magnet for DC										Hebelausschlag Stellungen										lever deflection Stellungen									
L1	L2	L3	1	2	3	4	5	6	7	8	9	10	1-0-1	H	W	3-0-3	H	W	5-0-5	A	W																					
			58	80	102	124	146	168	190	212	234	256	2-0-2	120	20°	40°	4-0-4	162	30°	6-0-6	200	40°																				

Antriebsart:
drive:
Typ VNS(B)2_TE(R)
typeZusatz bei Dauer-
magnetblasung
addition by permanent
magnetGewicht:
Antriebsblock:
je Doppelkontakt:
weight:
drive:
each double contact:2,8 kg
0,4 kgV
VNS(B)2_TV(R)
L1 L23 kg
0,4 kgG
VNS(B)2_TG(R)
L13 kg
0,4 kgGG
NS(B)2_TGG(R)
L1 L24,5 kg
0,4 kgH
VNS(B)2_TH(R)
L1 L24 kg
0,4 kg**Spohn + Burkhardt**
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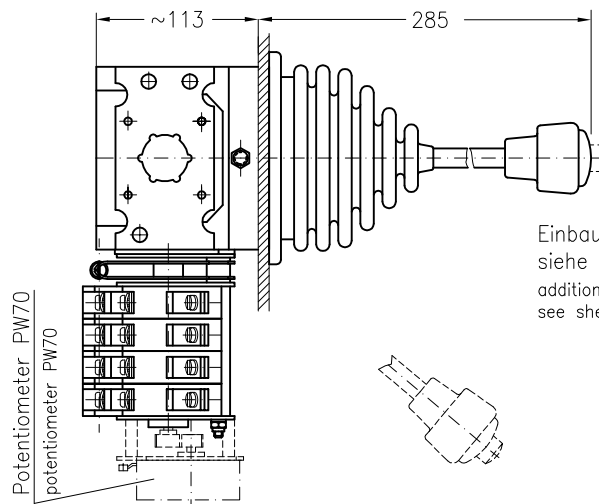
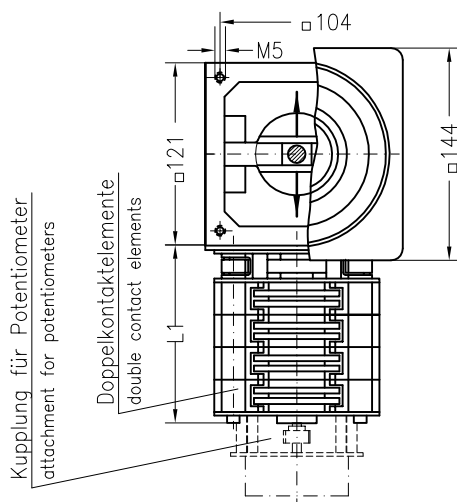
Typ **VNS2-F-G**

type

Antrieb G
siehe Seite 10/3
drive G
see sheet 10/3

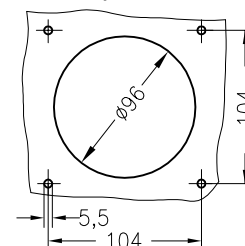
Gewicht:

Antriebsblock ~3 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~3 kg
each double contact ~0,4 kg



Einbauen im Hebel
siehe Seite 2/1...
additional in handle
see sheet 2/1...

Bohrungen in der
Befestigungswand
mounting dimensions

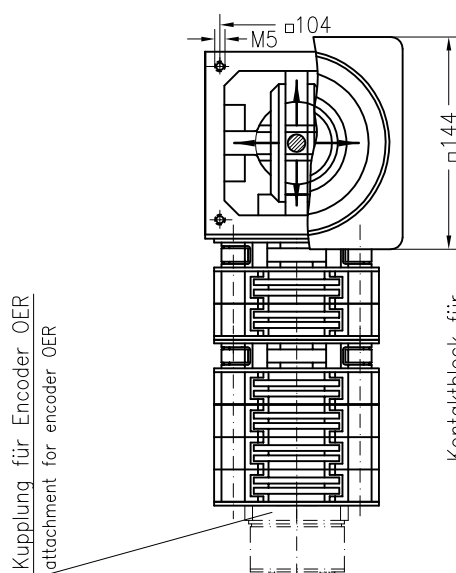
Typ **VNS2--F-H**

type

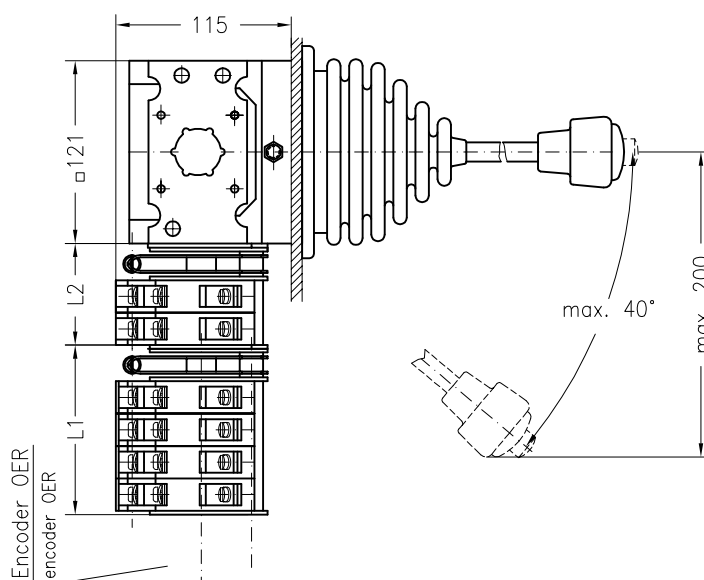
Antrieb H
siehe Seite 10/3
drive H
see sheet 10/3

Gewicht:

Antriebsblock ~4 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4 kg
each double contact ~0,4 kg



Kontaktblock für
Blickrichtung
view direction
cross directionh



Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10
Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256

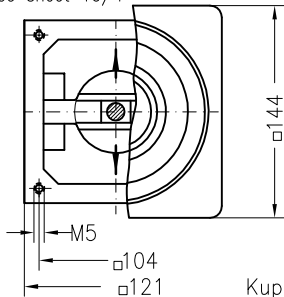


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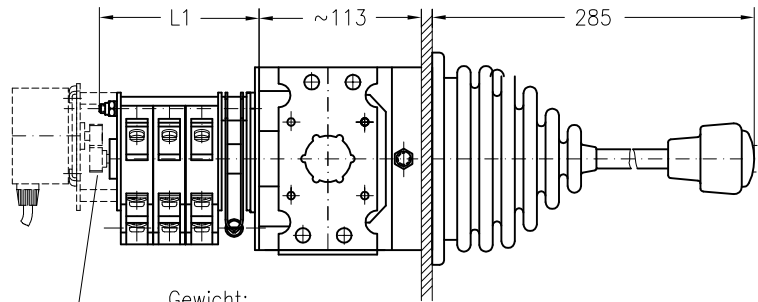
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Typ VNS2-A
type
Antrieb A
siehe Seite 10/4
drive A
see sheet 10/4



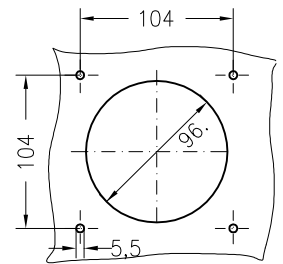
Kupplung für Geber
attachment for transmitters



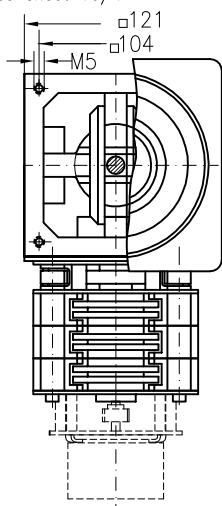
Gewicht:
Antriebsblock ~3,2kg
je Doppelkontakt ~0,4kg
weight:
drive ~3,2kg
each double contact ~0,4kg

Einbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...

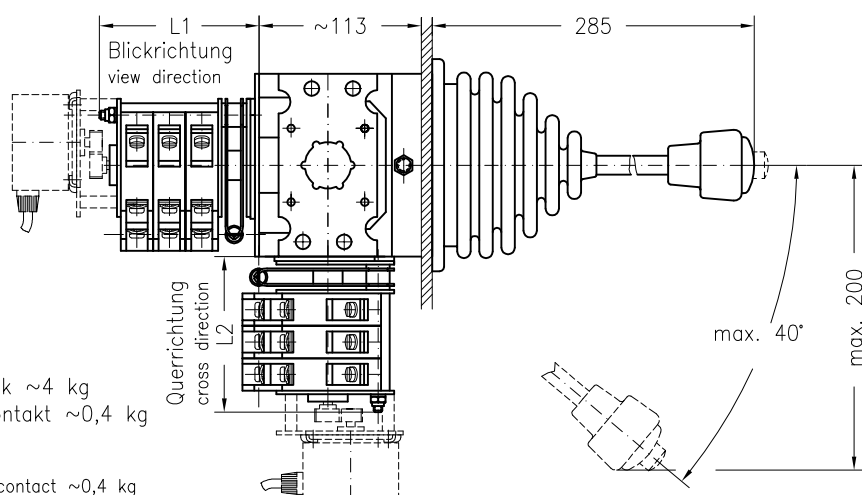
Bohrungen in der
Befestigungswand
mounting dimensions



Typ VNS2--EA
type
Antrieb EA
siehe Seite 10/4
drive EA
see sheet 10/4

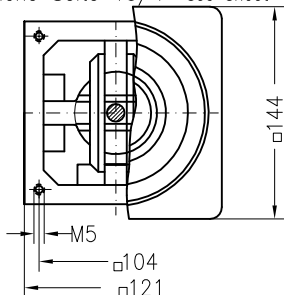


Gewicht:
Antriebsblock ~4 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4 kg
each double contact ~0,4 kg

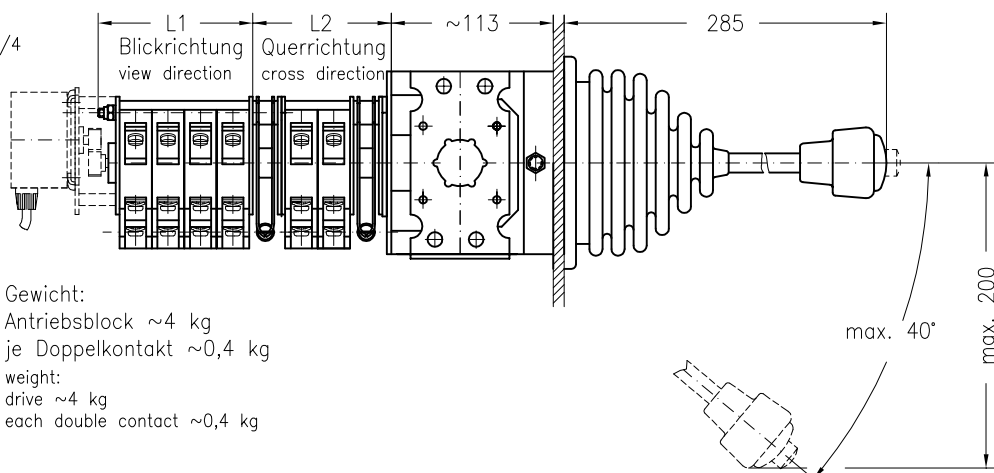


max. 40°
max. 200

Typ VNS2--AA
type
Antrieb AA
siehe Seite 10/4
drive AA
see sheet 10/4



Gewicht:
Antriebsblock ~4 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4 kg
each double contact ~0,4 kg



max. 40°
max. 200

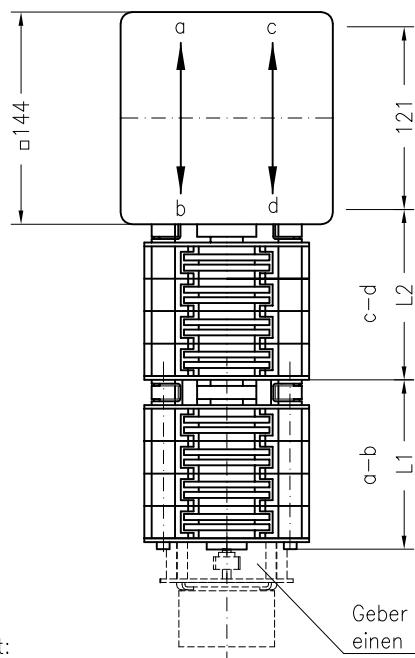
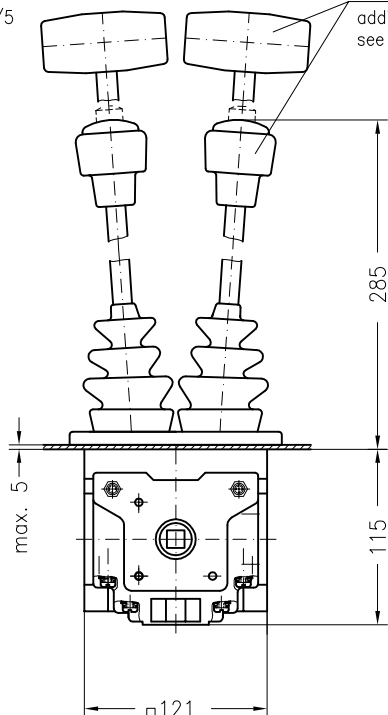
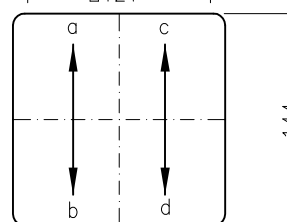
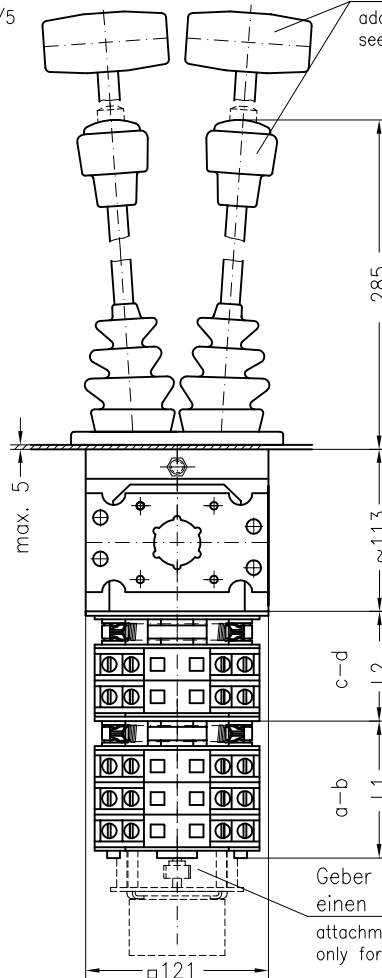
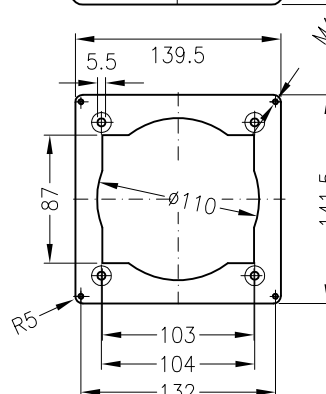
Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10



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Typ NS2--GGH
typeAntrieb GGH
siehe Seite 10/5
drive GGH
see sheet 10/5Einbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...Gewicht:
Antriebsblock ~4,5 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4,5 kg
each double contact ~0,4 kgGeber nur für
einen Hebel möglich
attachment for transmitter
only for one handleTyp NS2--GGAA
typeAntrieb GGAA
siehe Seite 10/5
drive GGAA
see sheet 10/5Einbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...Geber nur für
einen Hebel möglich
attachment for transmitter
only for one handleBohrungen in der
Befestigungswand
nach NS275-GG
mounting dimensions

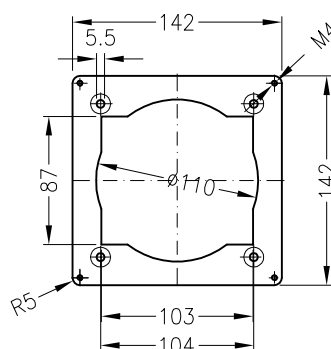
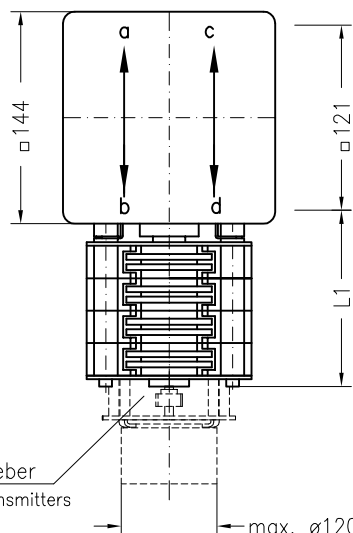
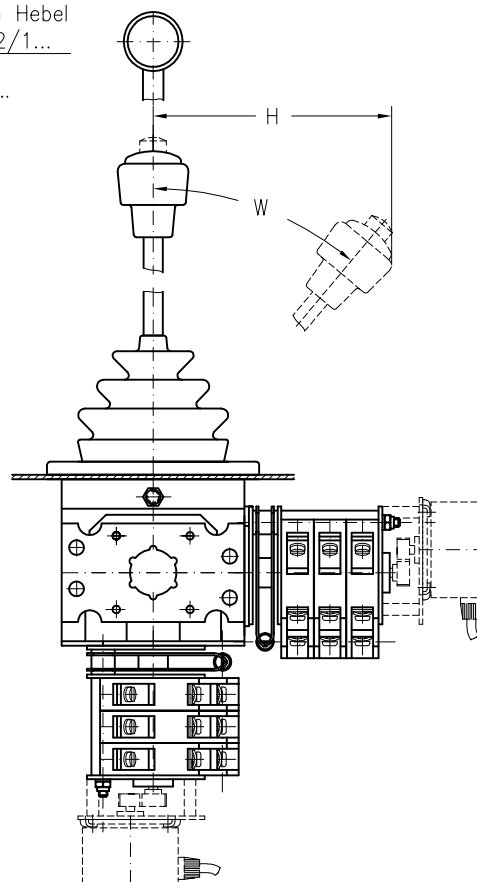
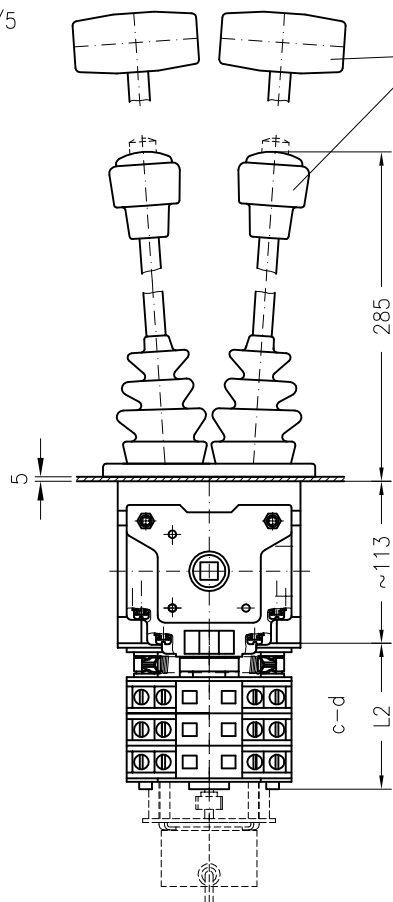
Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10

**Spohn-Burkhardt**
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Typ NS2--GGEA
type

Antrieb GGEA
siehe Seite 10/5
drive GGEA
see sheet 10/5

Einbauen im Hebel
siehe Seite 2/1...
additional
see sheet 2/1...



Bohrungen in der
Befestigungswand
nach NS275-GG
mounting dimensions

Gewicht:
Antriebsblock ~4,5 kg
je Doppelkontakt ~0,4 kg
weight:
drive ~4,5 kg
each double contact ~0,4 kg

Bei 180 mm Hebel by level 180 mm		
Pos.	W	H
1-0-1	20°	120
2-0-2	40°	200
3-0-3	30°	162
4-0-4	40°	200
5-0-5	40°	200
6-0-6	40°	200
7-0-7	40°	200

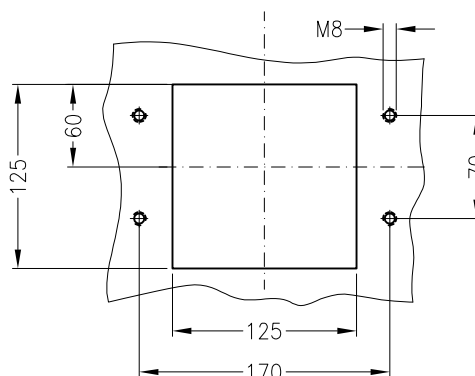
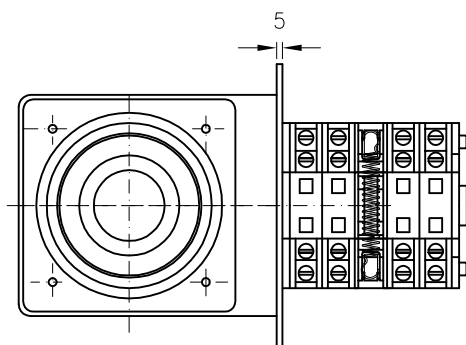
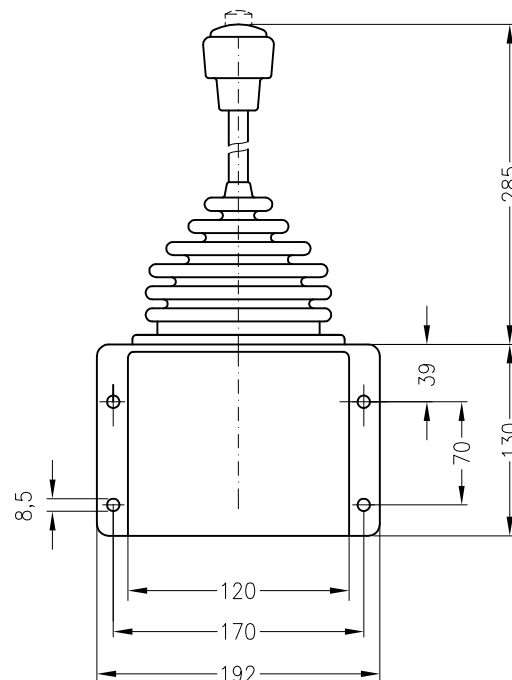
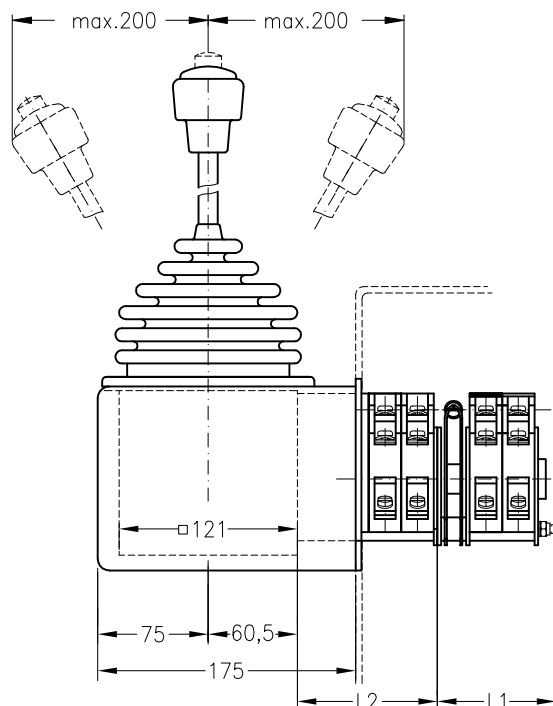
Maß L1 oder L2 dimension L1 or L2	58	80	102	124	146	168	190	212	234	256	6-0-6	40°	200
Anzahl Doppelkontakte number of double contacts	1	2	3	4	5	6	7	8	9	10	7-0-7	40°	200



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Anzahl Doppelkontakte
number of double contact elements

für Wechselstrom
für Gleichstrom mit Blasung

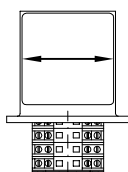
for AC
with permanent magnet for DC

VNS2-
VNSB2-

	1	2	3	4	5	6	7	8	9	10
L1 od. L2	58	80	102	124	146	168	190	212	234	256

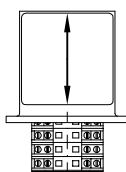
Antriebsart
type of drive
F. Norm
Kontaktanschlüsse seitlich
connections on the side

E
VNS(B)2-KE(R)



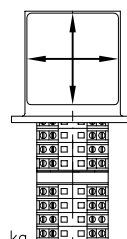
Gewicht: weight:
Antriebsblock: drive: 4,7 kg
je Doppelkontakt: each double contact: 0,4 kg

G
VNS(B)2-KG(R)



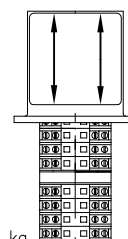
4,9 kg
0,4 kg

H
VNS(B)2--KH(R)



5,9 kg
0,4 kg

GG
NS(B)2--KGG(R)



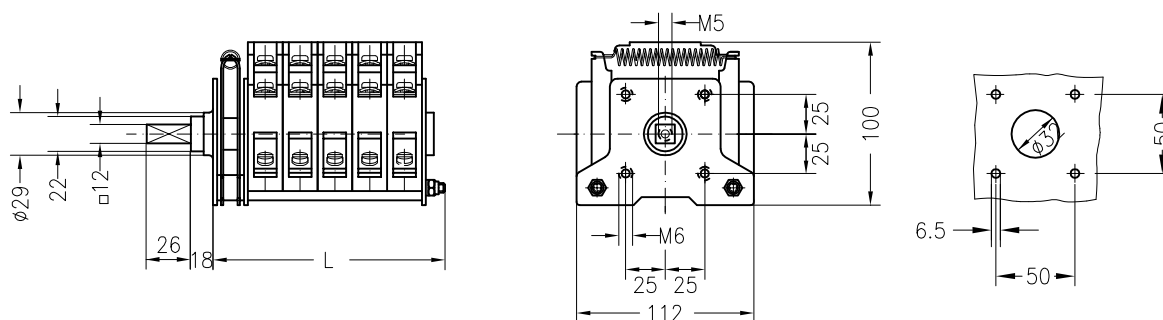
6,4 kg
0,4 kg



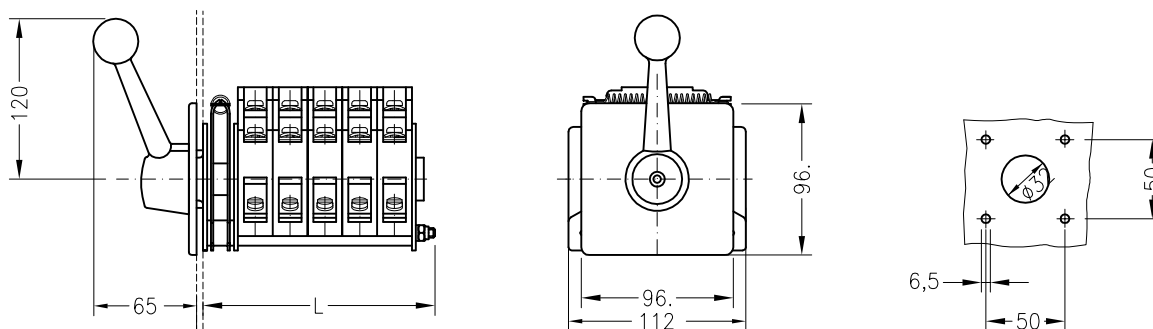
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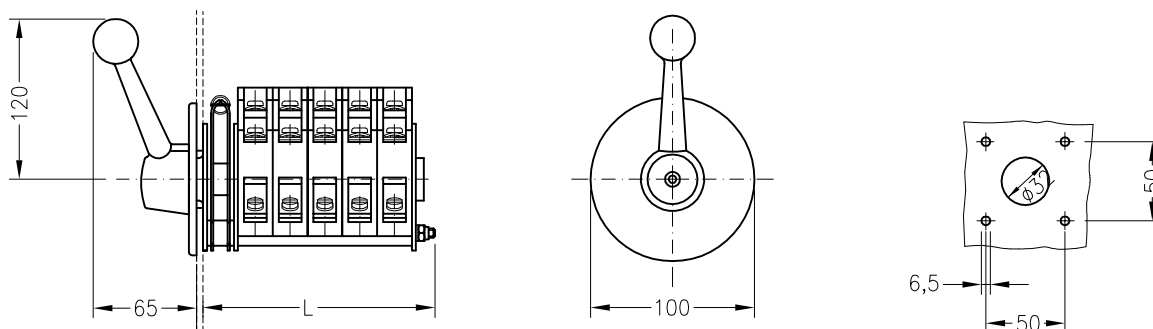
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Fax +49 7344 171-99 www.spobu.de

Einsatzschalter
switch

Fabrik-Norm	mit Rastung notching	NS201	NS202	NS203	NS204	NS205	NS206	NS207	NS208	NS209	NS210	
	mit Selbststrückgang spring return	NS201R		NS202R	NS203R	NS204R	NS205R	NS206R	NS207R	NS208R	NS209R	NS210R
	Länge L mm length	62	84	106	128	150	172	194	216	238	260	282
	Gewicht ~kg weight ~kg	0,8	1,4	2,0	2,6	3,2	3,8	4,4	5,0	5,6	6,2	6,8

Einsatzschalter mit Rosette 96x96 mm
switch with escutcheon 96x96 mm

Fabrik-Norm	mit Rastung notching	NS201F	NS202F	NS203F	NS204F	NS205F	NS206F	NS207F	NS208F	NS209F	NS210F	
	mit Selbststrückgang spring return	NS201FR		NS202FR	NS203FR	NS204FR	NS205FR	NS206FR	NS207FR	NS208FR	NS209FR	NS210FR
	Länge L mm length	62	84	106	128	150	172	194	216	238	260	282
	Gewicht ~kg weight ~kg	0,8	1,4	2,0	2,6	3,2	3,8	4,4	5,0	5,6	6,2	6,8

Einbauschalter mit wasserdichter Rundrosette
switch with escutcheon , water resistant

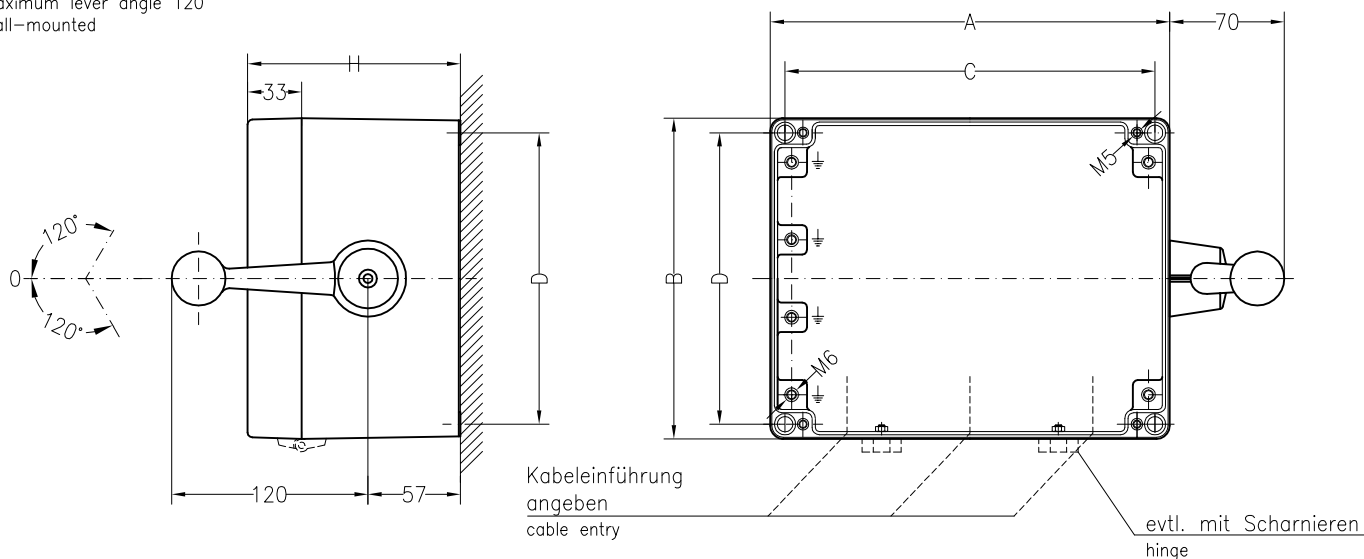
Fabrik-Norm	mit Rastung notching	NS201FD	NS202FD	NS203FD	NS204FD	NS205FD	NS206FD	NS207FD	NS208FD	NS209FD	NS210FD	
	mit Selbststrückgang spring return	NS201FDR		NS202FDR	NS203FDR	NS204FDR	NS205FDR	NS206FDR	NS207FDR	NS208FDR	NS209FDR	NS210FDR
	Länge L mm length	62	84	106	128	150	172	194	216	238	260	282
	Gewicht ~kg weight ~kg	0,8	1,4	2,0	2,6	3,2	3,8	4,4	5,0	5,6	6,2	6,8



Mit Kugelgriff Kg2A
Deckel- und Anschlußschrauben nichtrostend
mit auswechselbaren Kontaktelementen und
Nockenscheiben, Abwicklung beliebig.

Ball handle Kg2A
cover and stainless steel screws
double contact elements and
cams replaceable, any circuits.

Maximaler Drehwinkel 120°
bei Wandmontage
Maximum lever angle 120°
wall-mounted



Fabrik Norm									Kabeleinführung cable entry		
mit Rastung notching		mit Selbstrückgang spring return		A	B	C	D	H	oben above	unten below	Gew. ~kg weight
normal	1) mit Heizung-Z und Pilztaste-P	normal	1) mit Heizung-Z und Pilztaste-P								
normal	with heating-Z and emergency off button-P	normal	with heating-Z and emergency off button-P								
NS 207A G1	NS 207A GZP1	NS 207A GR1	NS 207A GRZP1								
NS 207A G2	NS 207A GZP2	NS 207A GR2									
NS 207A G3	NS 207A GZP3	NS 207A GR3									
NS 207A G4											
NS 207A G5				244	196	226	178	130			
NS 207A G6	NS 207A GZP4	NS 207A GR4	NS 207A GRZP2								
NS 207A G7	NS 207A GZP5	NS 207A GR5	NS 207A GRZP3								
NS 210A G8	NS 210A GZP6	NS 210A GR6									
NS 210A G9	NS 210A GZP7	NS 210A GR7		319	194	301	176	130			

letzte Zahl = Anzahl der eingebauten Doppelkontakte
last number = quantity of mounted double contact elements

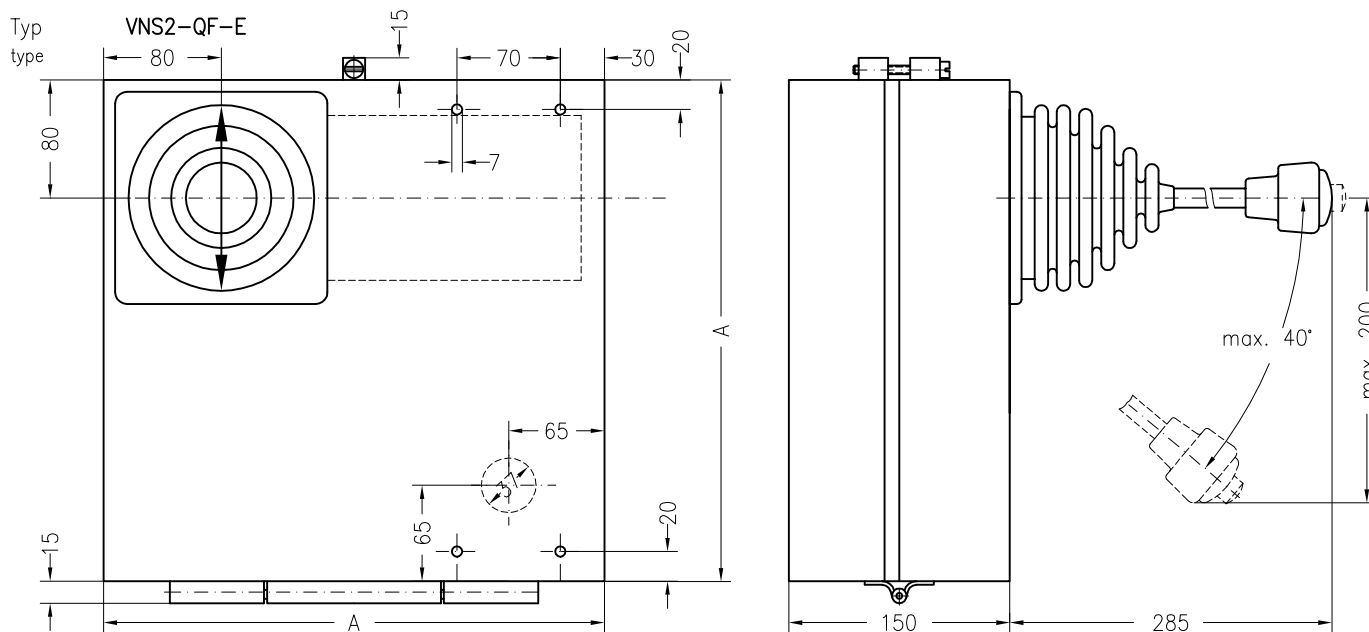
1) Bitte Spannung angeben
please give supply voltage



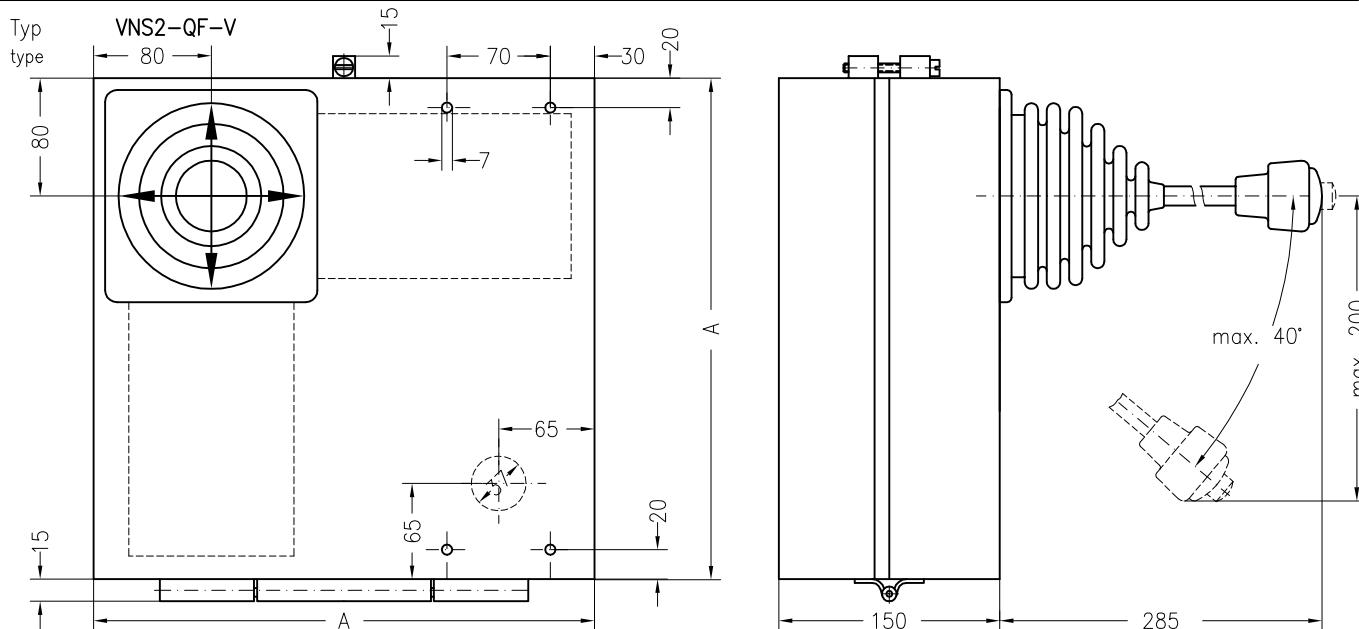
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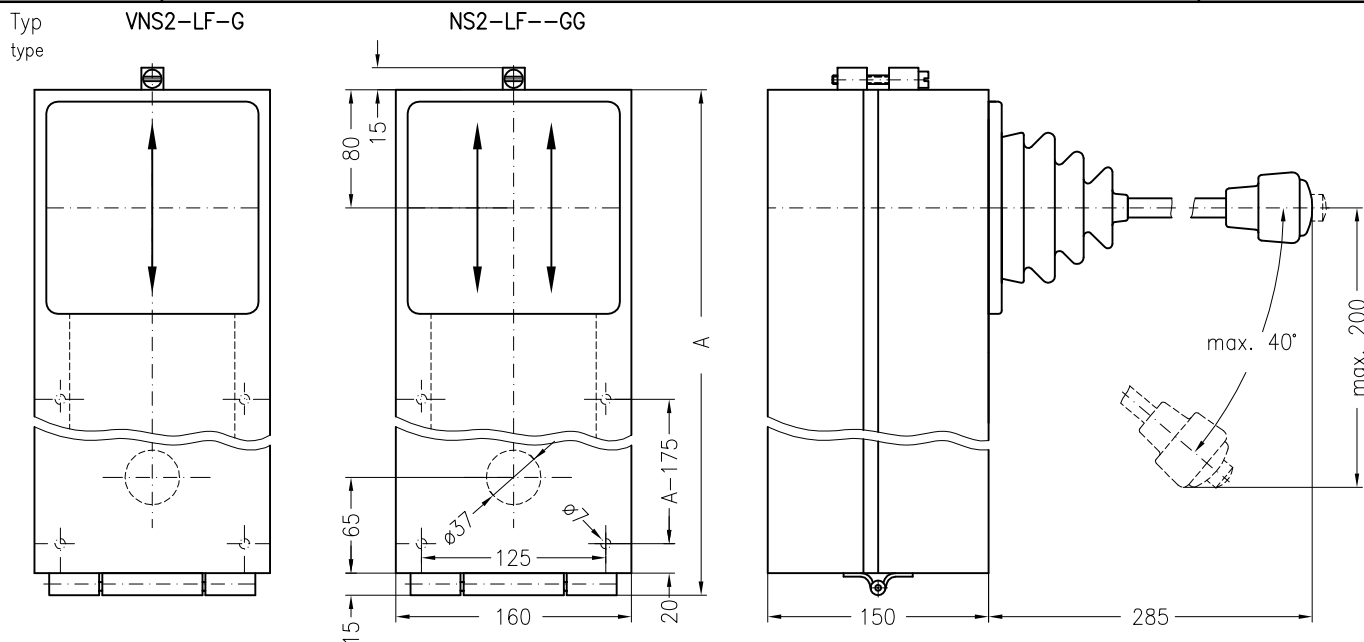


Typ type	MAB A dim.	Gewicht weight	Anordnung linke Hand rechte Hand left right		Schaltrichtung linke Hand rechte Hand left right	
VNS24 QF-E	290	14–17 kg				
VNS26 QF-E	340		mounting arrangement		switch direction	
VNS29 QF-E	380					



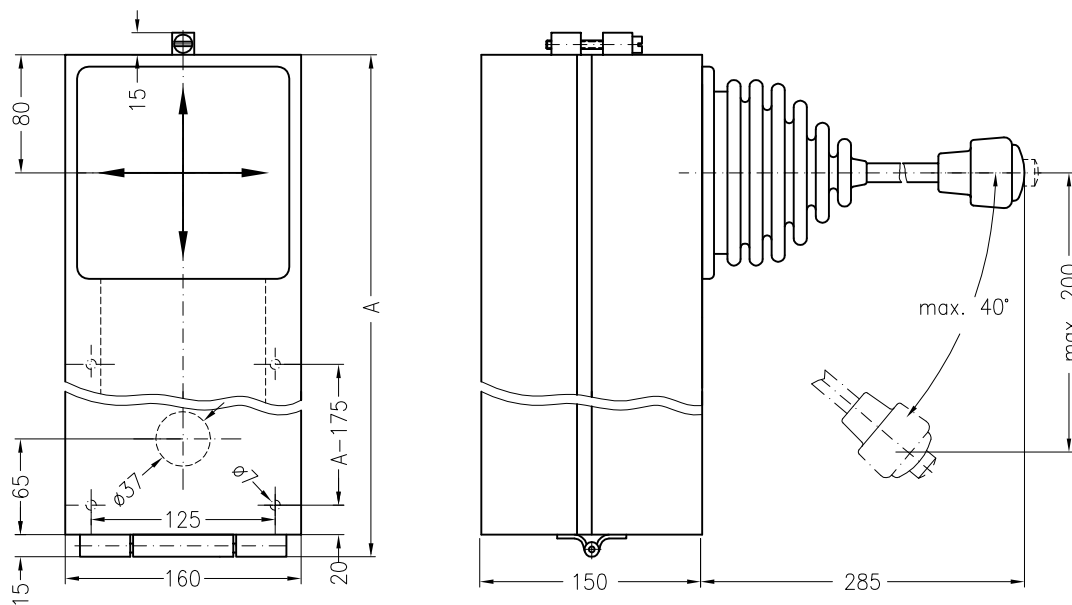
Typ type	Maß A dim.	Gewicht weight	Anordnung				Schalttrichtung			
			linke Hand	rechte Hand	linke Hand	rechte Hand	linke Hand	rechte Hand		
			left	right	left	right	left	right		
VNS24 QF-V	290	17-20 kg								
VNS26 QF-V	340									
VNS29 QF-V	380									
			mounting arrangement				switch direction			





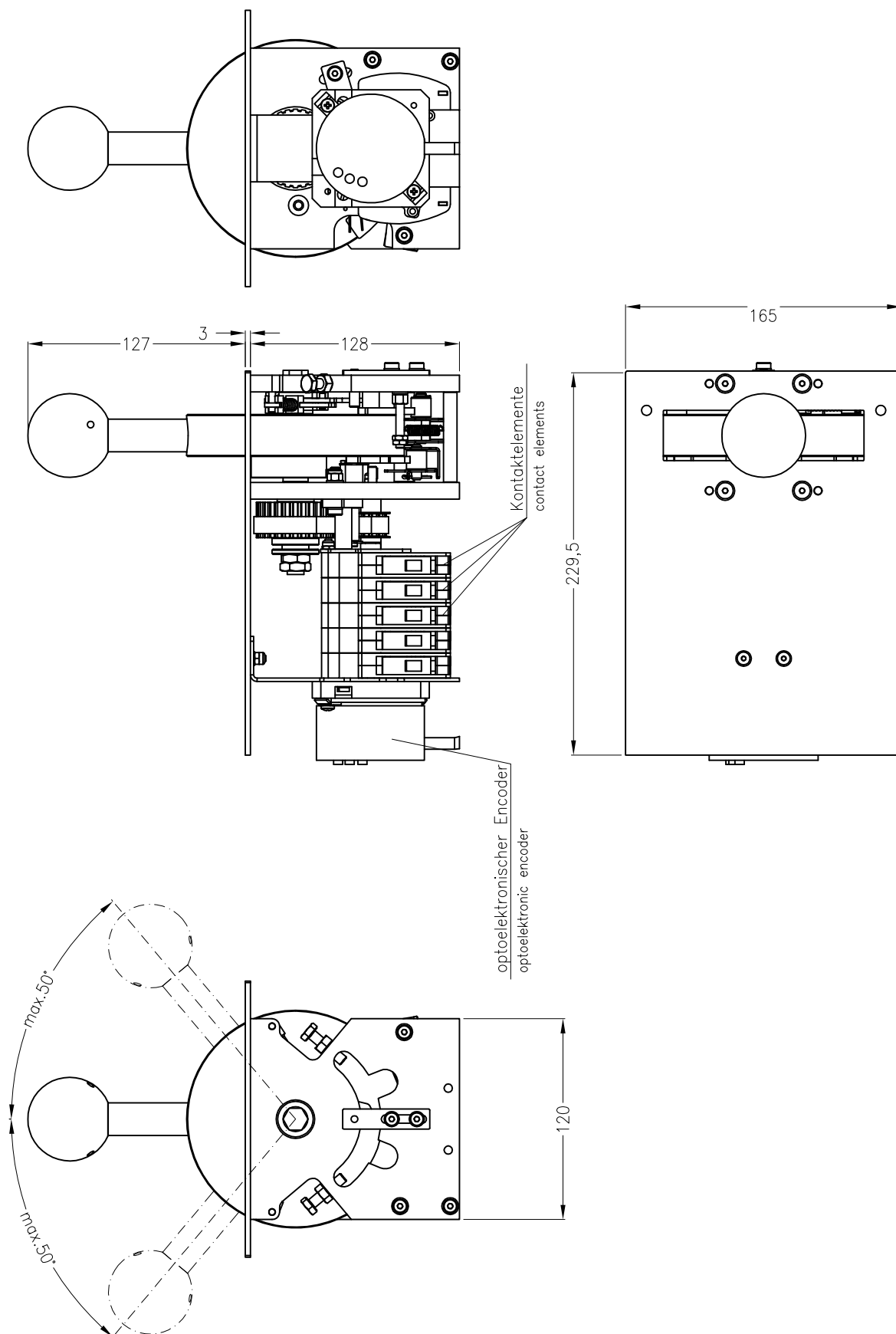
Typ type		MAB A dim.	Gewicht weight	Schaltrichtung switch direction			
				linke Hand left	rechte Hand right	linke Hand left	rechte Hand right
VNS26 LF-G	NS26 LF--GG	340	12-16 kg	1	5	1	5
VNS29 LF-G	NS29 LF--GG	440		↕ L	↕ R	↕	↕
VNS214 LF-G	NS214 LF--GG	550		2	6	2	6
						3	7
						4	8

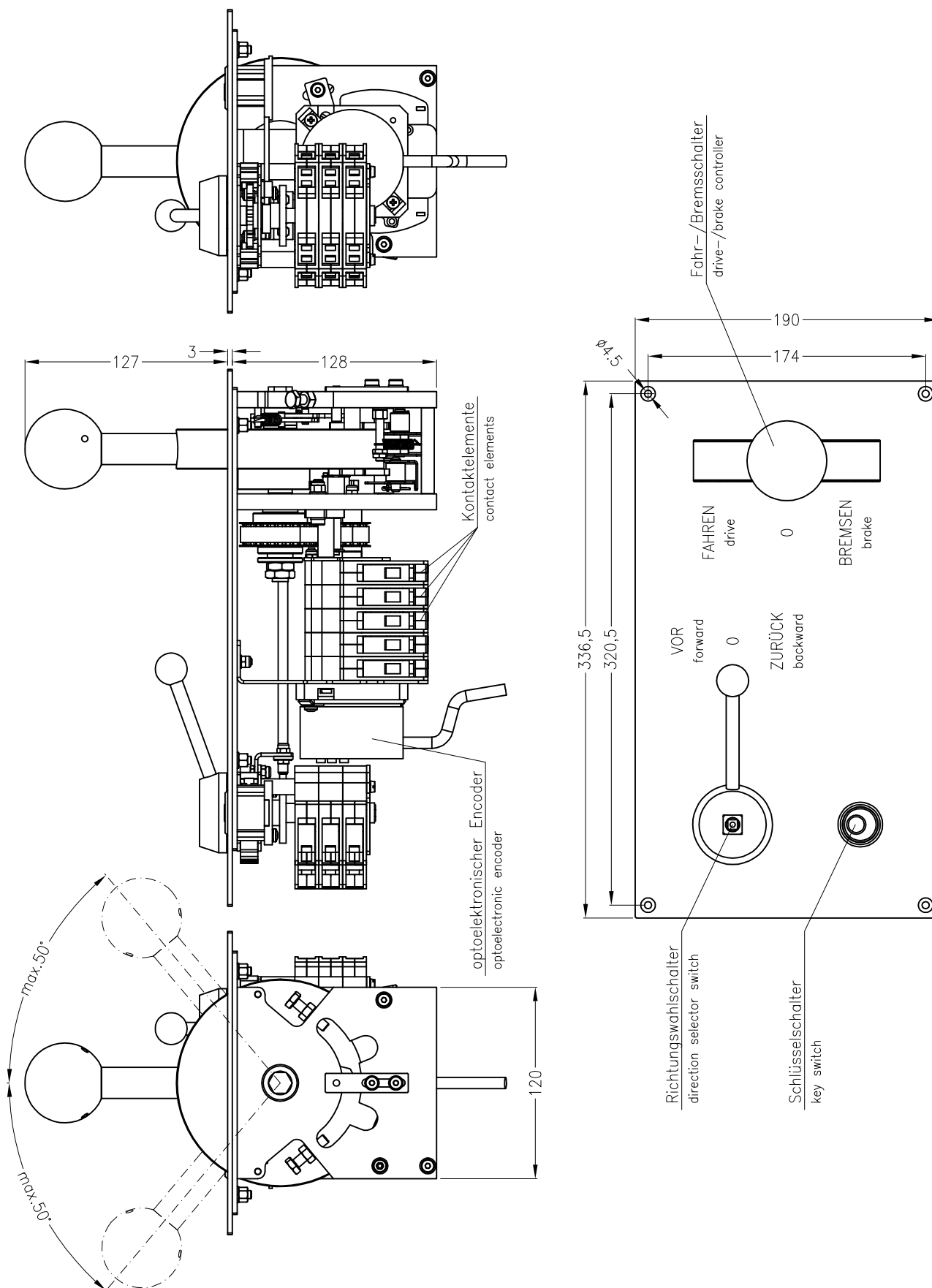
Typ
type VNS2-L(F)--H
 ohne Typenzusatz F Bodenmontage



Typ type		MAB A dim.	Gewicht weight	Schaltrichtung switch direction	
				linke Hand left	rechte Hand right
VNS26 L(F)--H		340	12-16 kg	1	5
VNS29 L(F)--H		440		↕ L	↕ R
VNS214 L(F)--H		550		2	6
				3	7
				4	8







Typ TC011

type

Material: PA66 gelb

material: PA66 yellow

Einbaumöglichkeiten:

2 Verbundmeisterschalter VCS0

mit Rastung oder Selbstrückgang

1-0-1 bis 6-0-6 Stellungen

+ Schloß-Schlagtaste, Normaltaste,

Meldelampe. (insges. 8 Einheiten)

Schaltungen nach S 40/4

Installations:

2 two-axis controllers VCS0

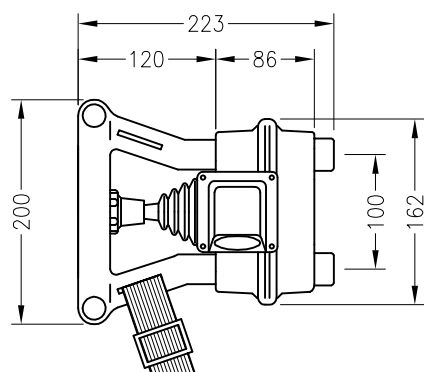
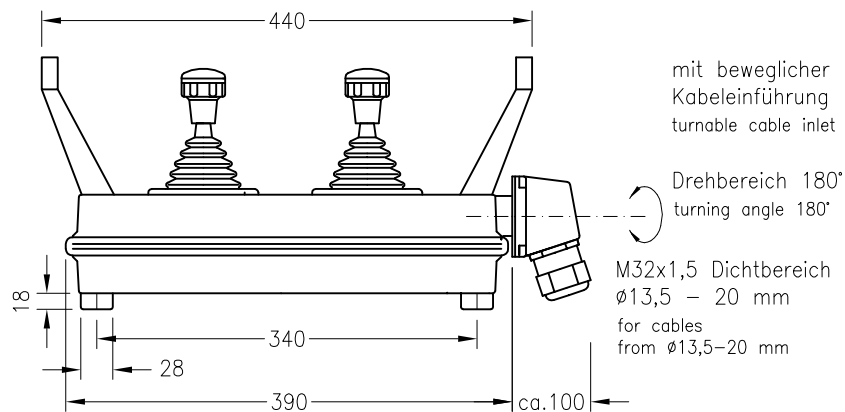
with stayput or spring return

1-0-1 or 6-0-6 positions

+ emergency push button with key, pushbuttons,

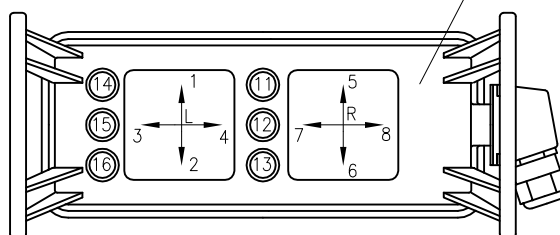
lamps (up to 8 units)

circuit see S 40/4



belegbare Fläche 315x125 mm
lichte Tiefe 75 mm
Deckel glatt

usable dimensions 315x125 mm
depth 75 mm



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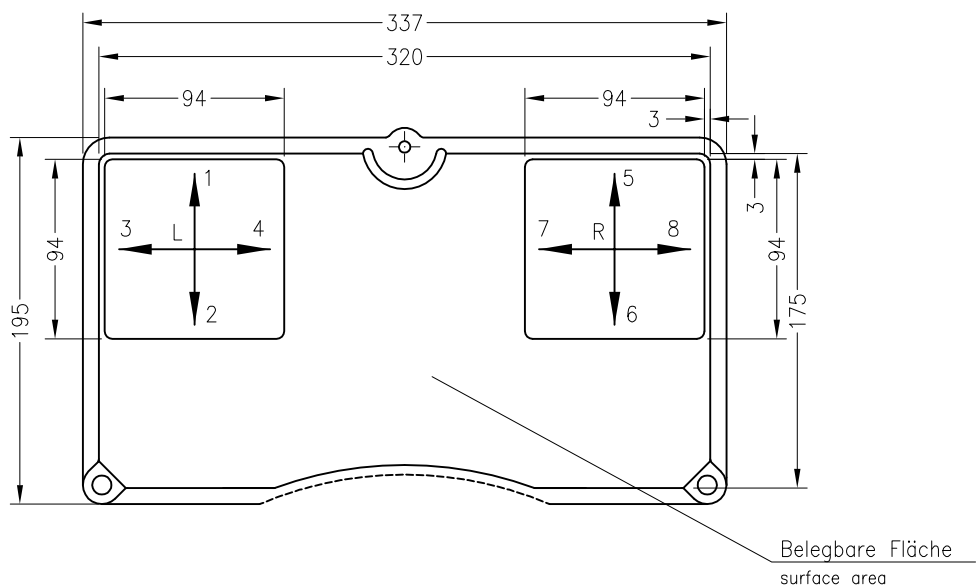
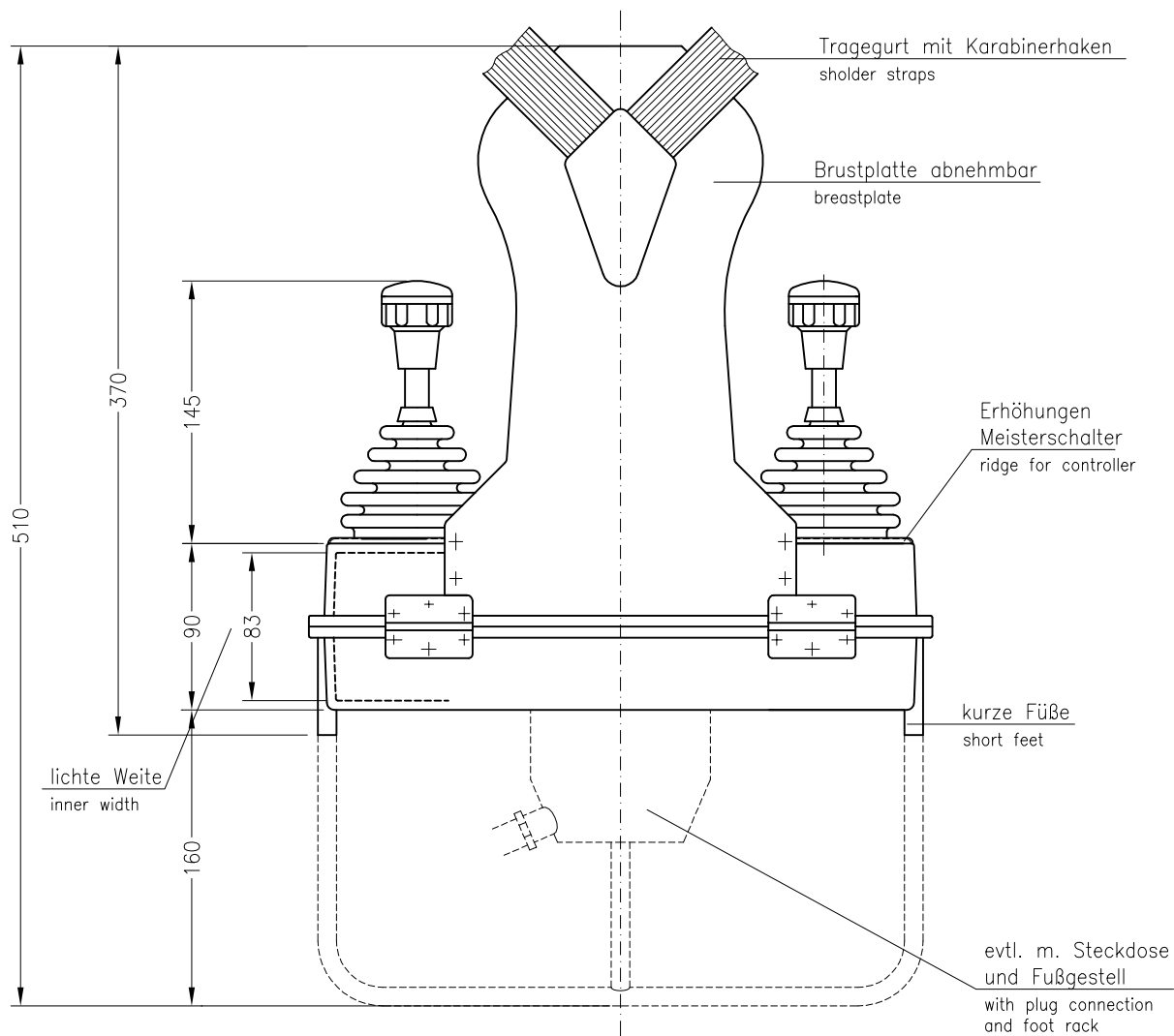
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Typ type IDV-CS065 mit Meisterschalter VCS0, with controller VCS0

Typ type IDV-NS33 mit Meisterschalter VNS0, with controller VNS0

Material: GFK gelb, Schutzart IP65

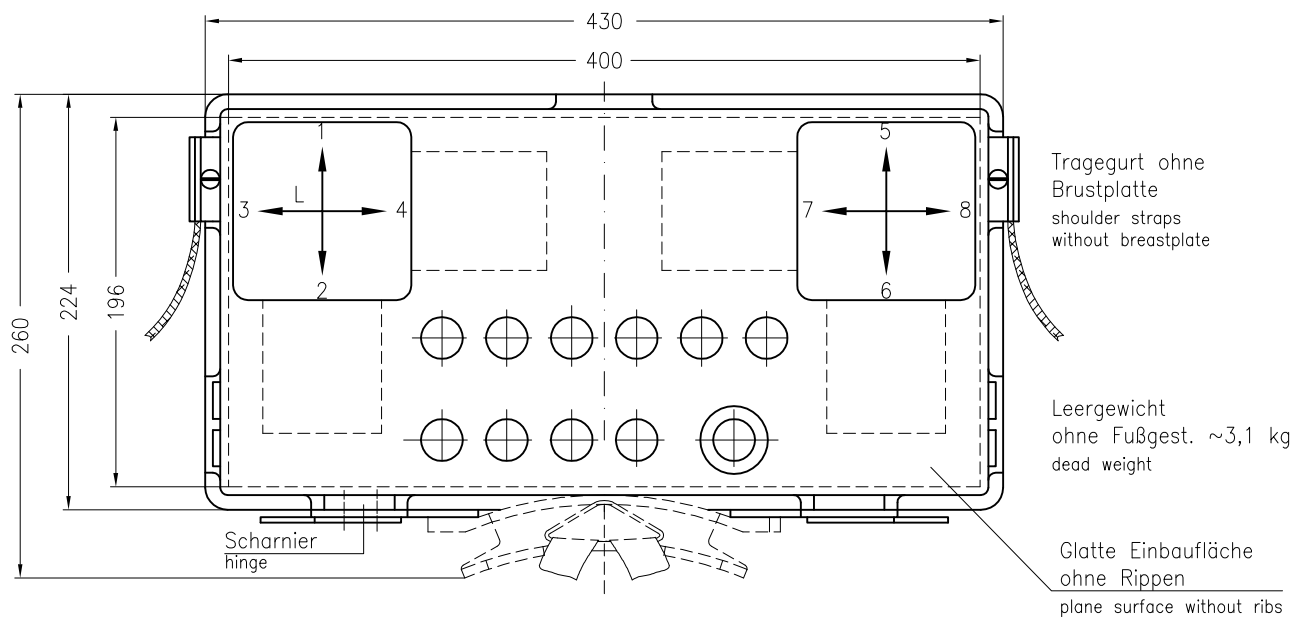
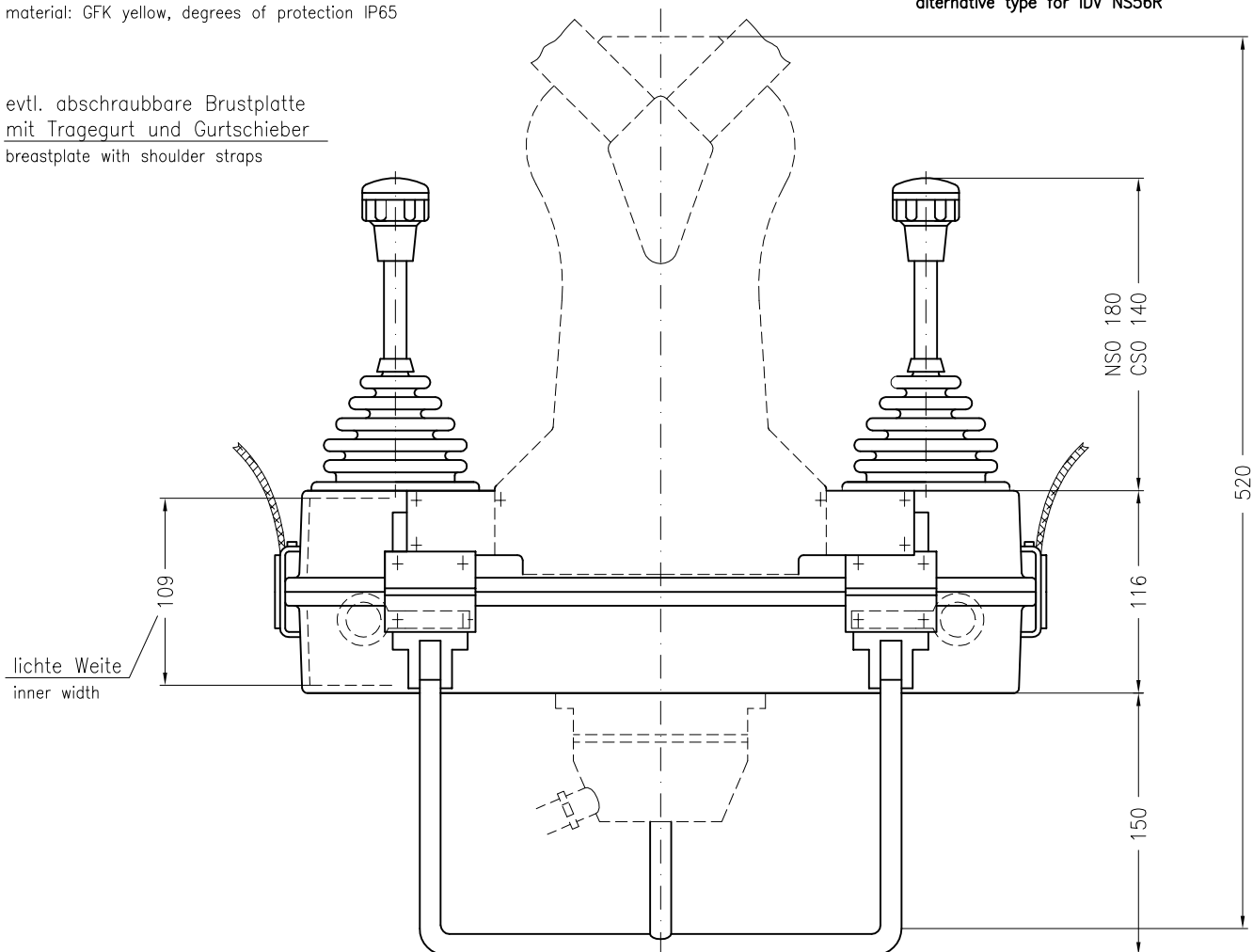
material: GFK yellow, degrees of protection IP65



Material: GFK gelb, Schutzart IP65
material: GFK yellow, degrees of protection IP65

Ersatztype für IDV NS56R
alternative type for IDV NS56R

evtl. abschraubbare Brustplatte
mit Tragegurt und Gurtschieber
breastplate with shoulder straps



Typenschlüssel siehe 20/5
ordering example see 20/5

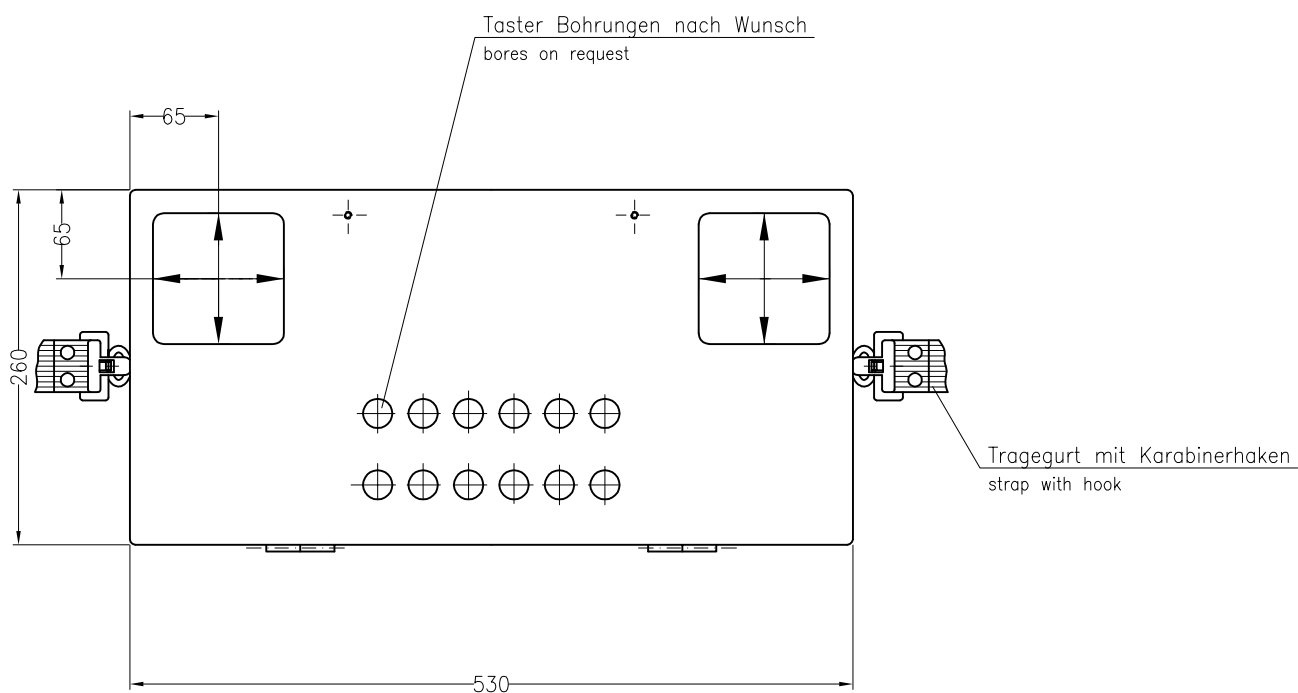
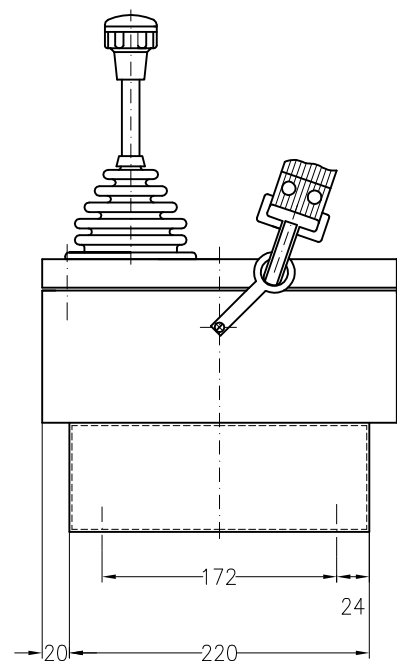
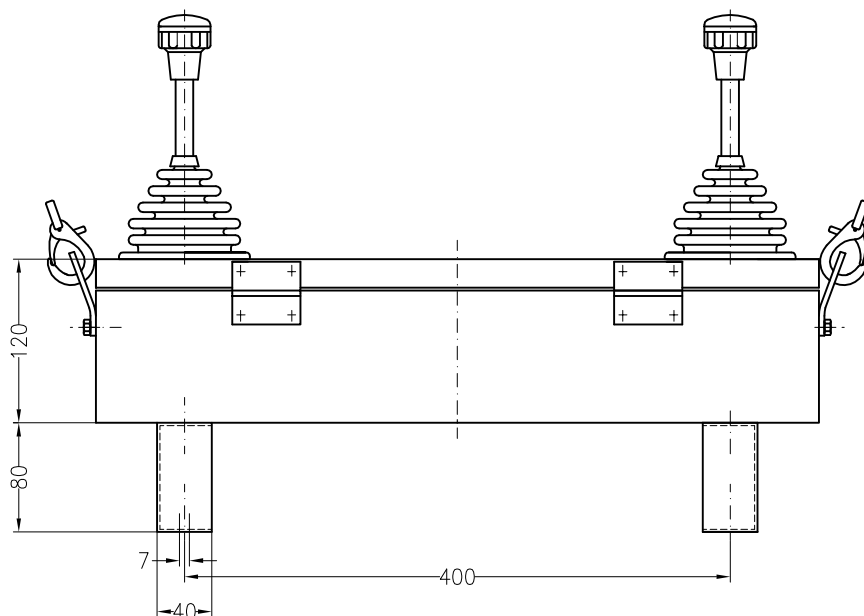


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Gelbe Pulverbeschichtung
Yellow powder coating



Kabeleinführung nach Wunsch.
Leergewicht ohne Einbauten ~5 kg
Andere Abmessungen auf Anfrage.
cable entry on request
net weight ~5 kg
other dimensions on request



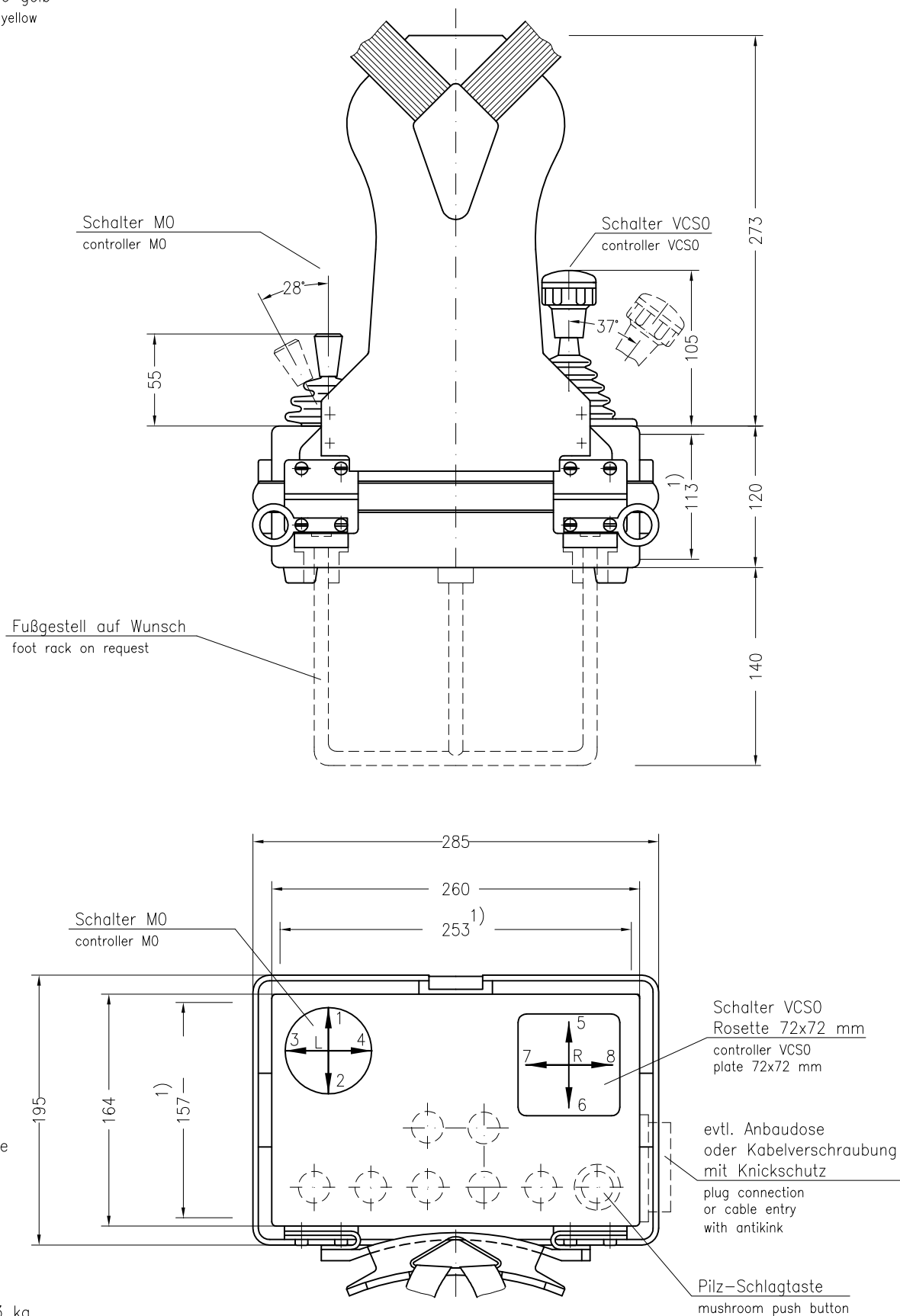
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Typ type **TM022A** mit Meisterschaltern M0, with controllers M0
 Typ type **TC022A** mit Meisterschaltern VCS0, with controllers VCS0

Material: PA66 gelb
 material: PA66 yellow



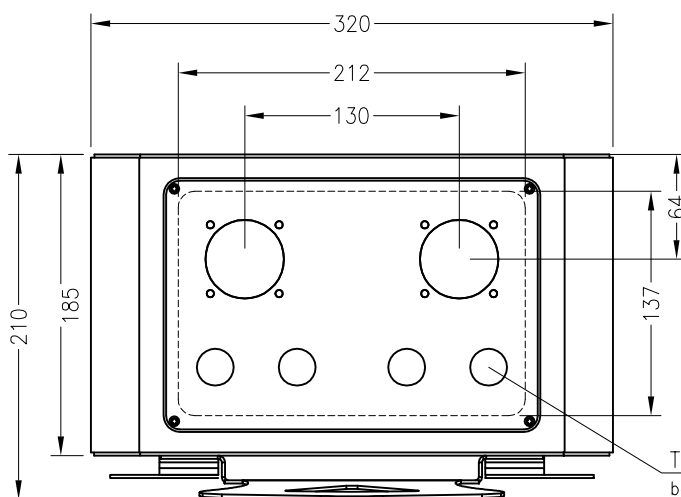
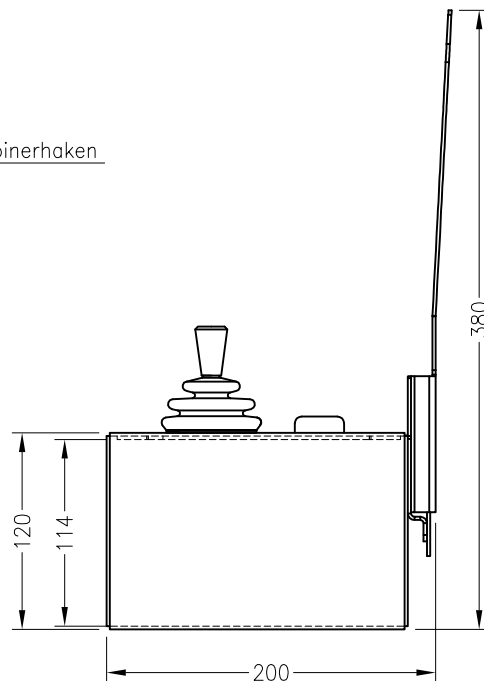
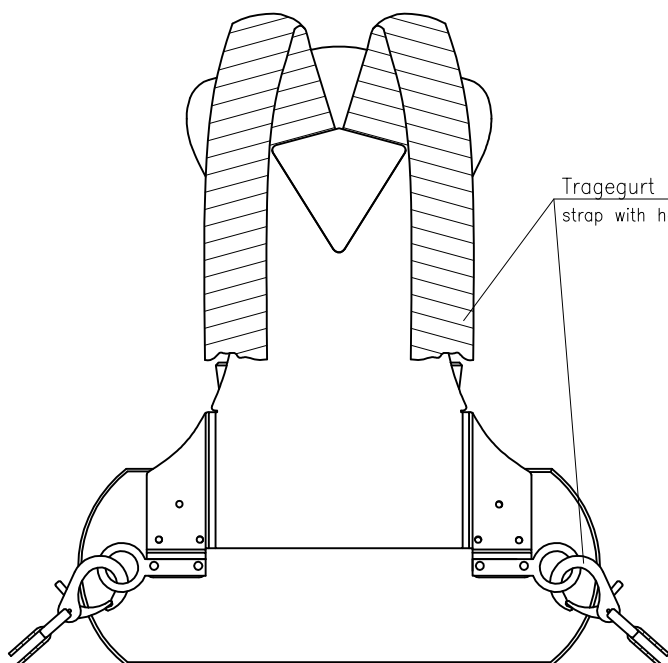
Gewicht: ~ 3 kg
 weight: ~ 3 kg



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Belegbare Fläche 212x137 mm
lichte Tiefe 114 mm
Deckel eben
surface area 212x137 mm
depth 114 mm
cover plane

Taster Bohrungen nach Wunsch
bores on request

Kabeleinführung nach Wunsch

Leergewicht ohne Einbauten: Aluminium ca. 1,7 kg
Stahlblech ca. 3,3 kg

Andere Abmessungen auf Anfrage

cable entry on request

net weight : aluminium ca. 1,7kg
steel ca. 3,3 kg

other dimensions on request



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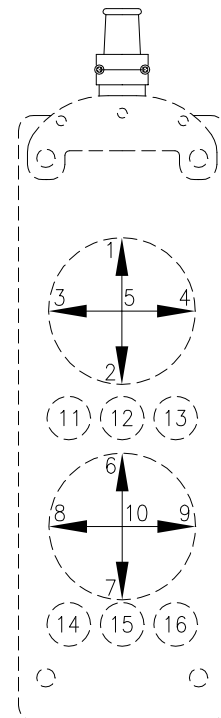
Typ HC 011
type
Material: PA66 gelb
material: PA66 yellow

Einbaumöglichkeiten:

2 Verbundmeisterschalter VCS0
10 A mit Rastung und Selbstrückgang
1-0-1 bis 6-0-6 Stellungen
Schaltungen nach S 40/4, S 40/5
+ Schloß-Schlagtaste, Normaltasten und
Meldelampen (insgesamt 8 Einheiten)

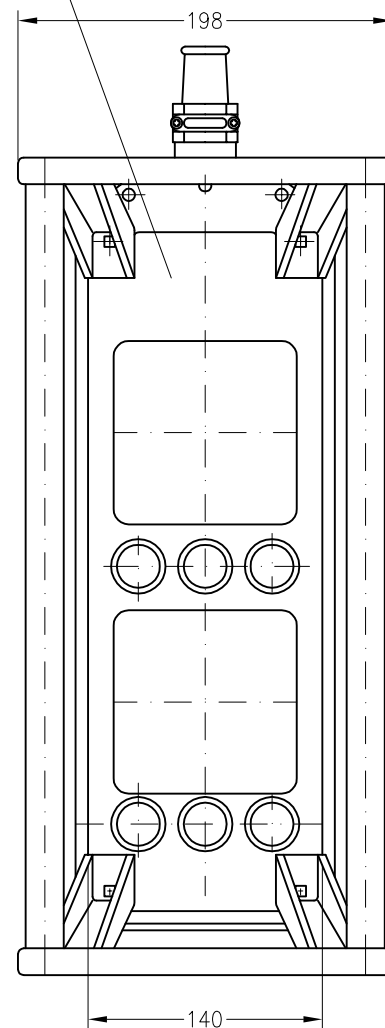
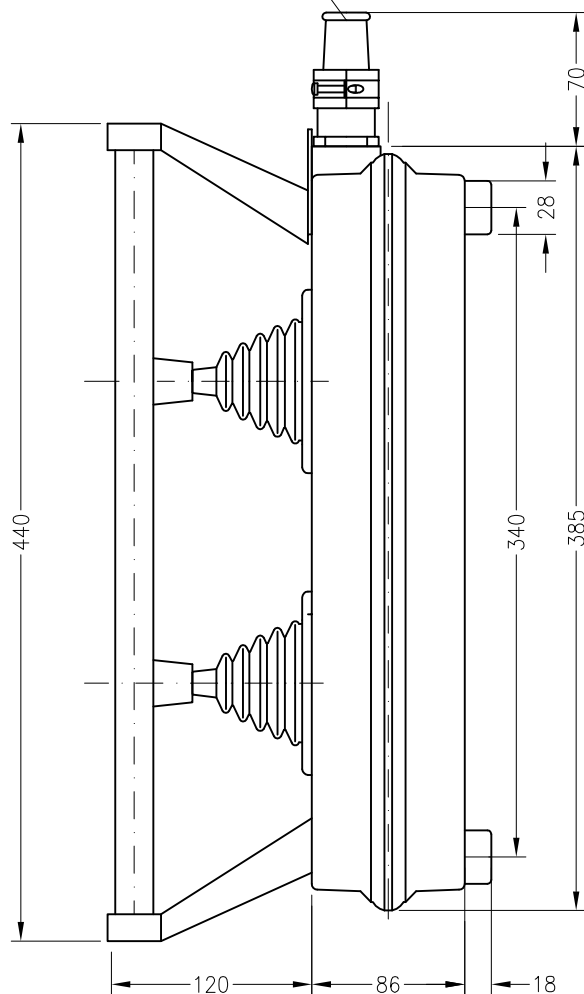
Installations:

2 two axis controllers VCS0
10 A with stayput or spring return
1-0-1 to 6-0-6 positions
circuit see S 40/4, S 40/5
+ emergency push button, push buttons,
lamps (up to 8 units)



Kabeleinführung Pg 21, Pg 29
Kabel max. Ø24 mm
cable entry Pg 21, Pg 29
for cable max. Ø24 mm

Belegbare Fläche 315x125 mm,
lichte Tiefe 70 mm,
Deckel eben
surface area 315x125 mm,
depth 70 mm
cover plane

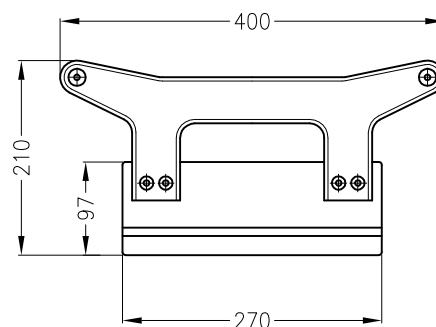
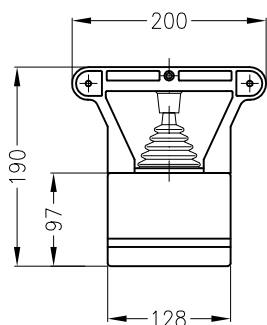


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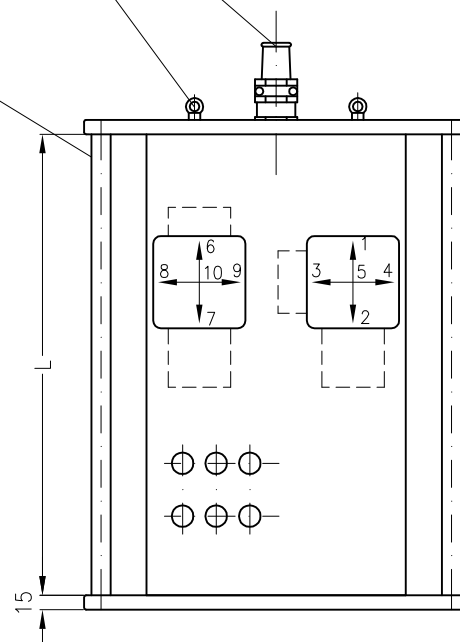
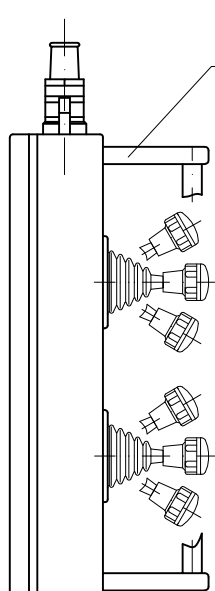
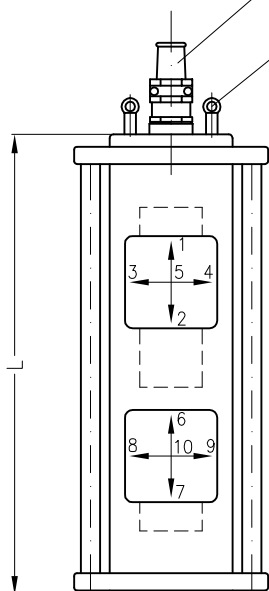
Ausführung: Standard IP54, auf Anfrage IP65



Kabeleinführung
Bitte Kabel-Durchmesser angeben!
cable entry

Halterung für Stahlseil Öse Ø...
eye for steel cable

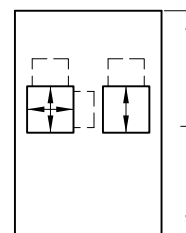
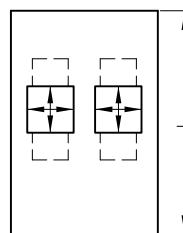
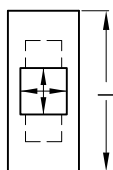
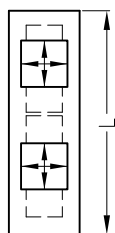
Griffrahmen
frame



Typ type	L/mm
HV29	290
HV35	350
HV48	480
HV60	600
HV70	700

Typ type	L/mm
HBV35	350
HBV48	480
HBV60	600
HBV70	700

Einbaubeispiele
Installations



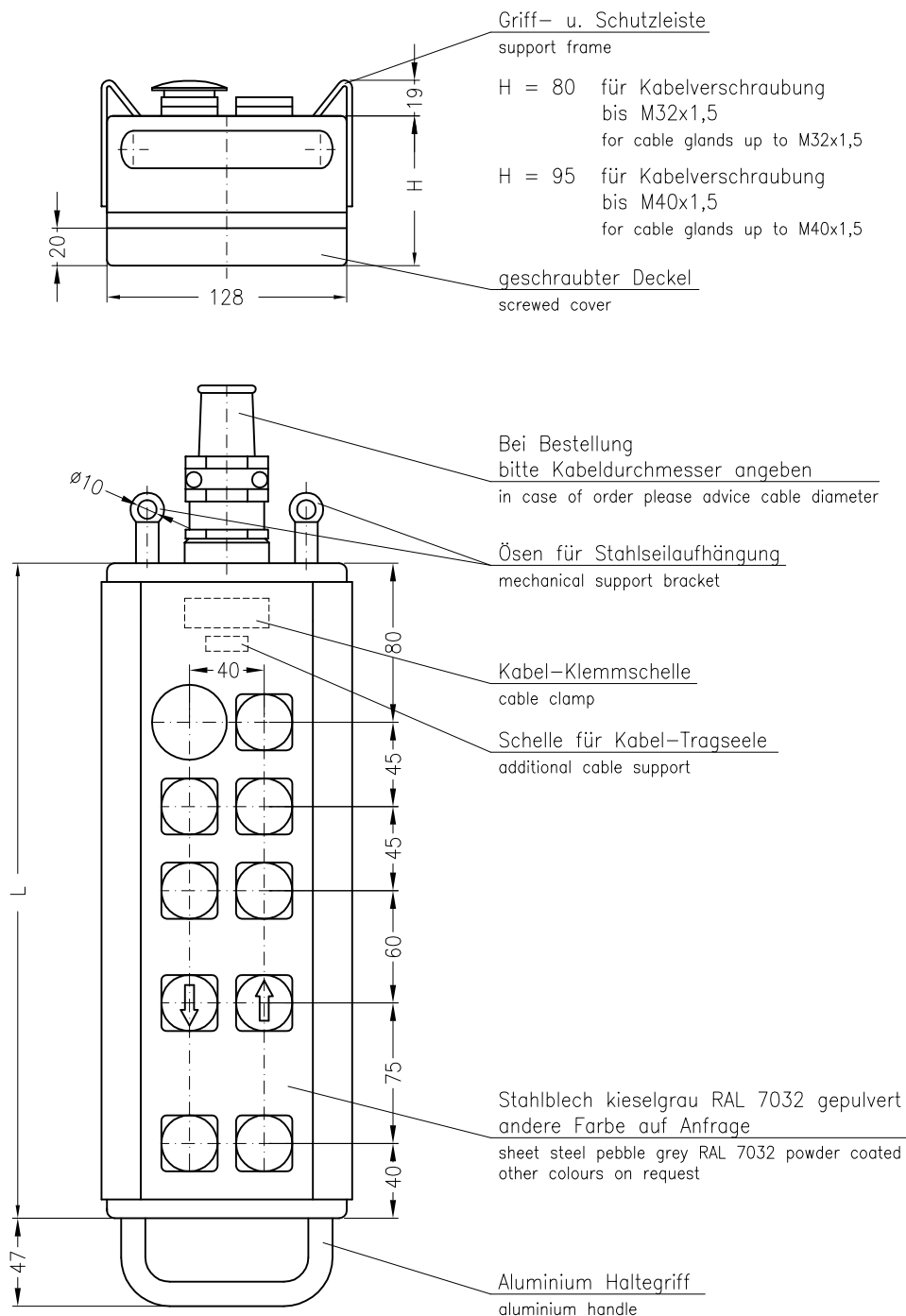
Andere Anordnungen und Größe auf Wunsch
on request other dimensions and arrangements available



Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

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Baugröße type	L / mm Maß dimension	Mögliche Anzahl Befehlsgeräte Ø22,5 mm number of control devices	Gewicht ~kg weight ~ kg
HD19	190	6	1,8
HD29	290	10	2,5
HD35	350	12	4,0
HD48	480	18	5,0
HD60	600	22	6,0

andere Größen auf Anfrage
other sizes on request



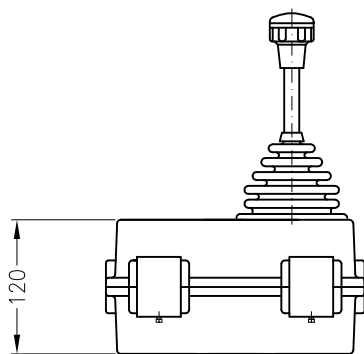
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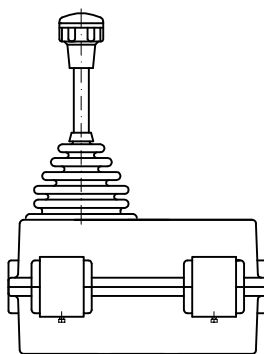
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Rechteckige Iso-Pulte IP54
normal grau, auf Wunsch gelb oder schwarz antistatisch.
rectangular fiberglass console IP 54
normally grey, on request yellow or black surface <10⁹ Ohm

NSOPKU–
rechts
right

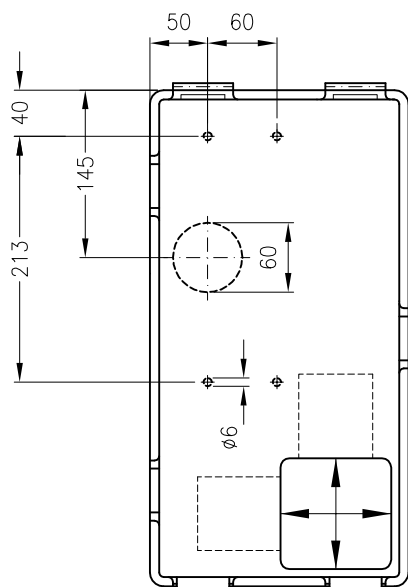


NSOPKN–
links
left

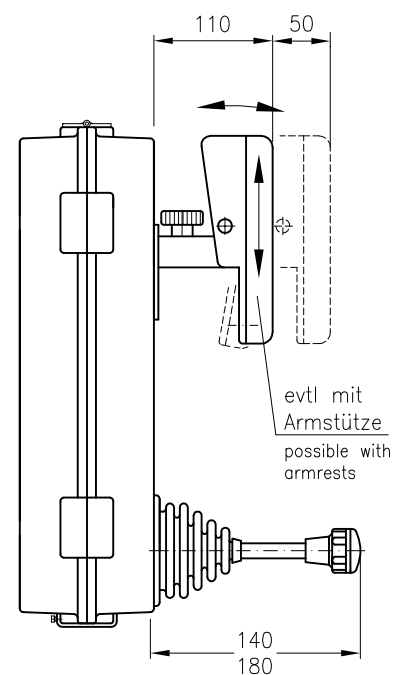
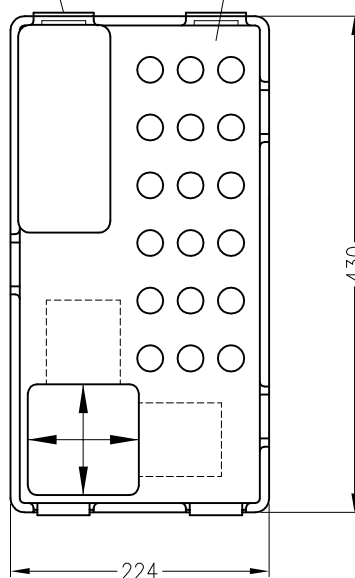


Einbauflächen glatt, ohne Rippen
je Hälfte max. 18 Befehlsgeräte Ø22,5 mm
plane surface, without ribs
each console max. 18 buttons Ø22,5 mm

Scharnier
hinge



Blickrichtung
view direction



bei VCSO
bei VNSO

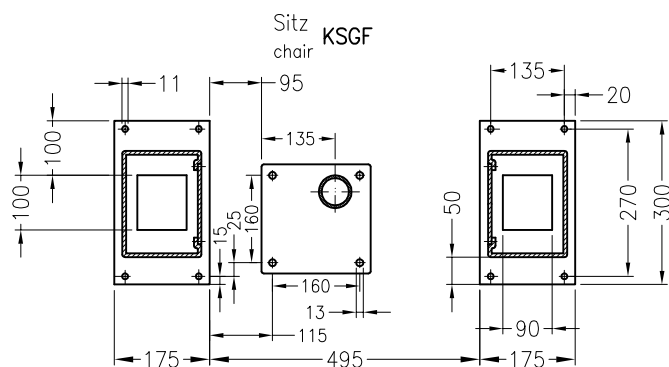
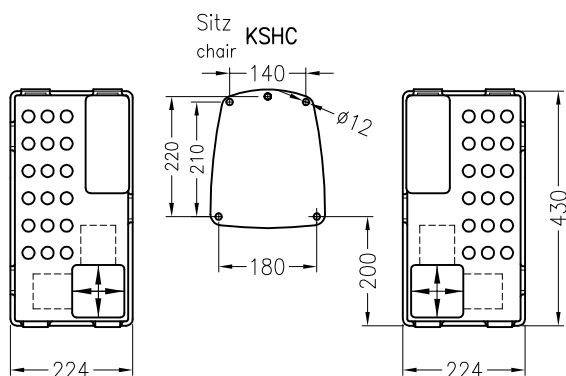
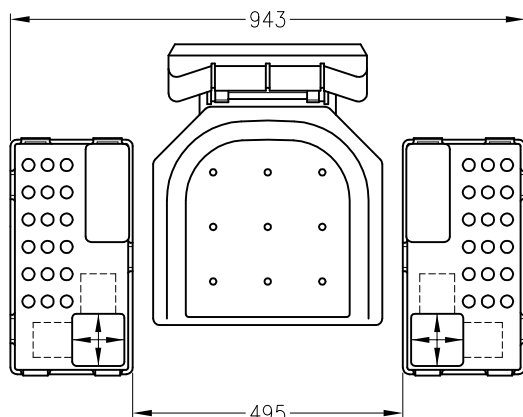
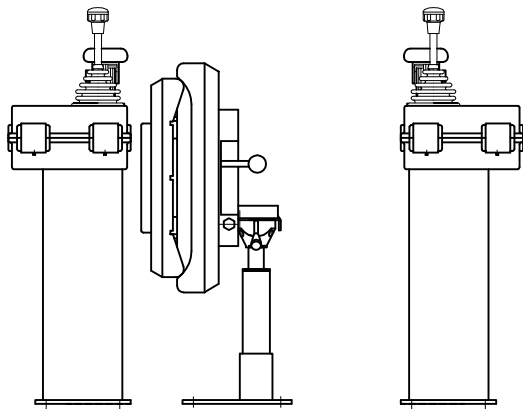
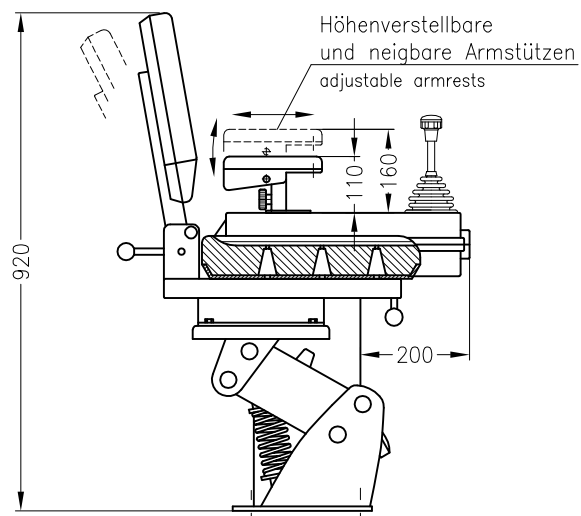
auf Wunsch andere oder
ohne Befestigungsbohrungen
on request other or without
fixing holes



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Mit Klappsitz KSGF nach M 22/8A
with collapsible chair KSGF, M 22/8AMit Klappsitz KSHC nach M 22/8B
with collapsible chair KSHC, M 22/8BTyp
TypeAusführung
Version

SV0K

mit rechteckigen Iso-Pultaufsätzen
je Pulthälfte max. 18 Befehlsgeräte Ø22,5 mm
with rectangular fiberglass consoles SV0K
each console max. 18 push buttons Ø22,5 mm

Iso-Pulte grau
lackierte Konsole Standard: RAL 7032 grau
Iso-console units: grey
coated console standard: RAL 7032 grey

Stahlele Pultaufsätze auf Anfrage
steel consoles on request

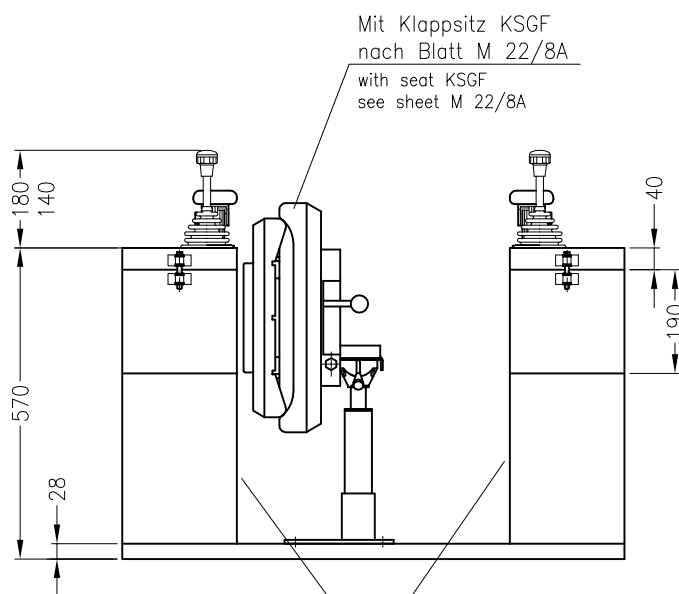
Gewicht ~40 kg
weight ~40 kg



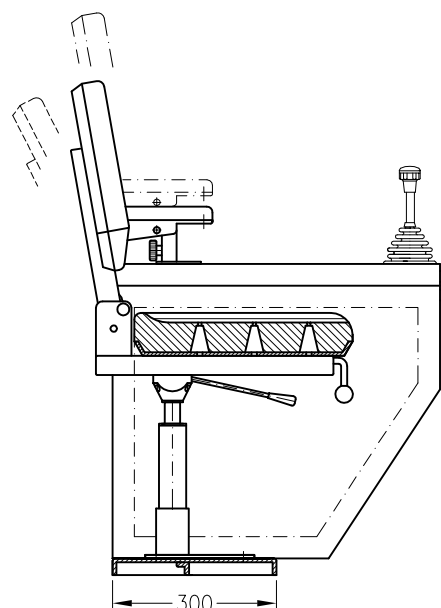
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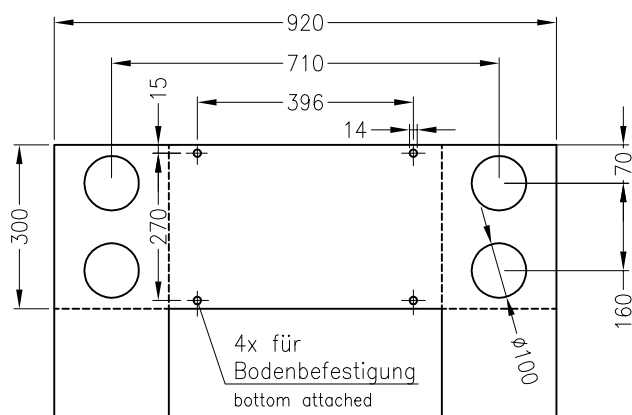
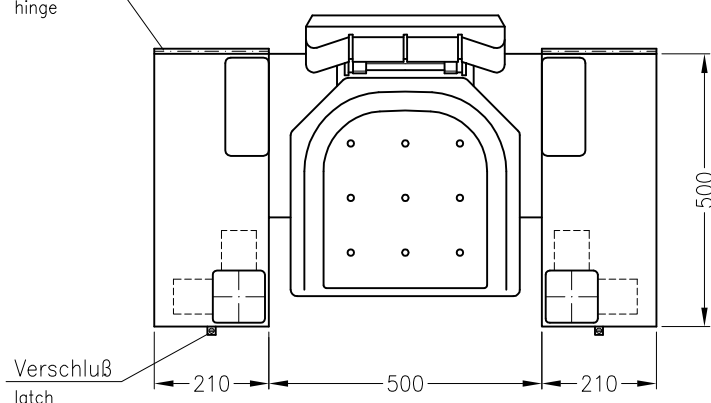
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Innenwände abnehmbar
inner cover removable



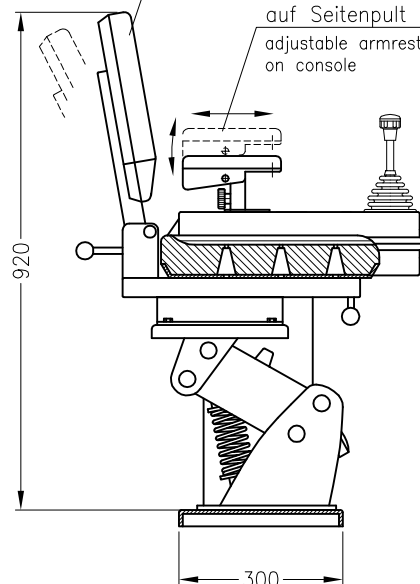
Scharnier
hinge



Andere Pultgröße auf Wunsch
other console size on request

Mit Klappsitz KSHC
nach Blatt M 22/8B
with seat KSHC
see sheet M 22/8B

Längs-, Höhenverstellbare u.
neigbare Armstützen AS1-18
auf Seitenpult
adjustable armrests AS1-18
on console



Seitenpulte, Brücke und
Sitzkonsole aus Stahlblech
desks, base and consoles made by steel plate

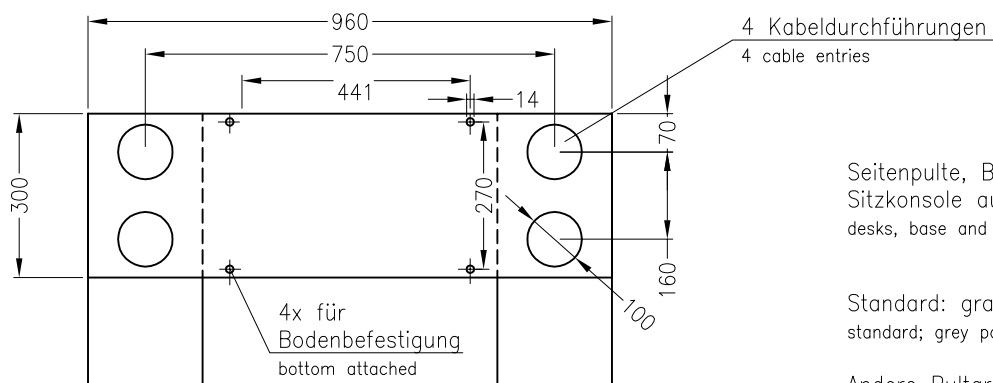
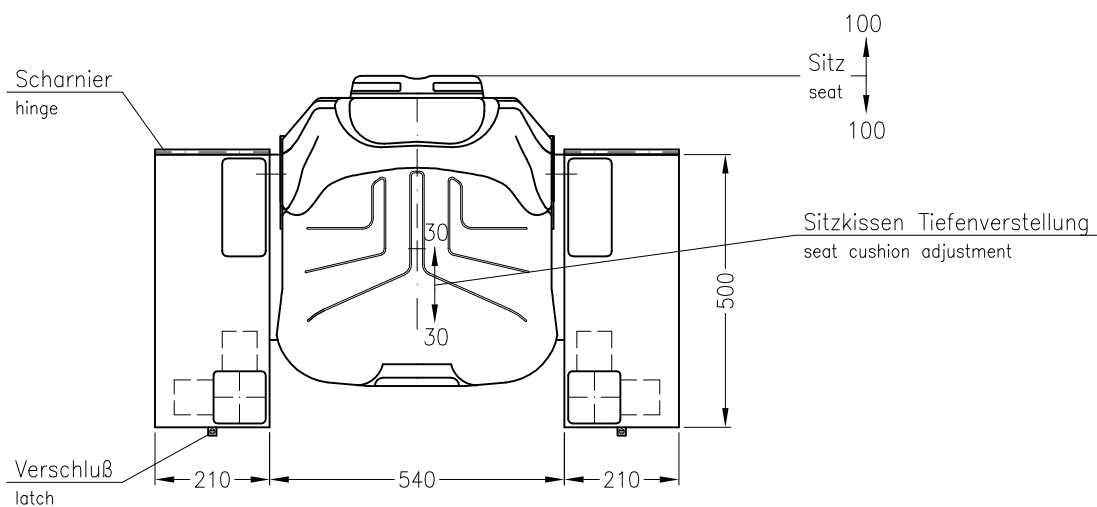
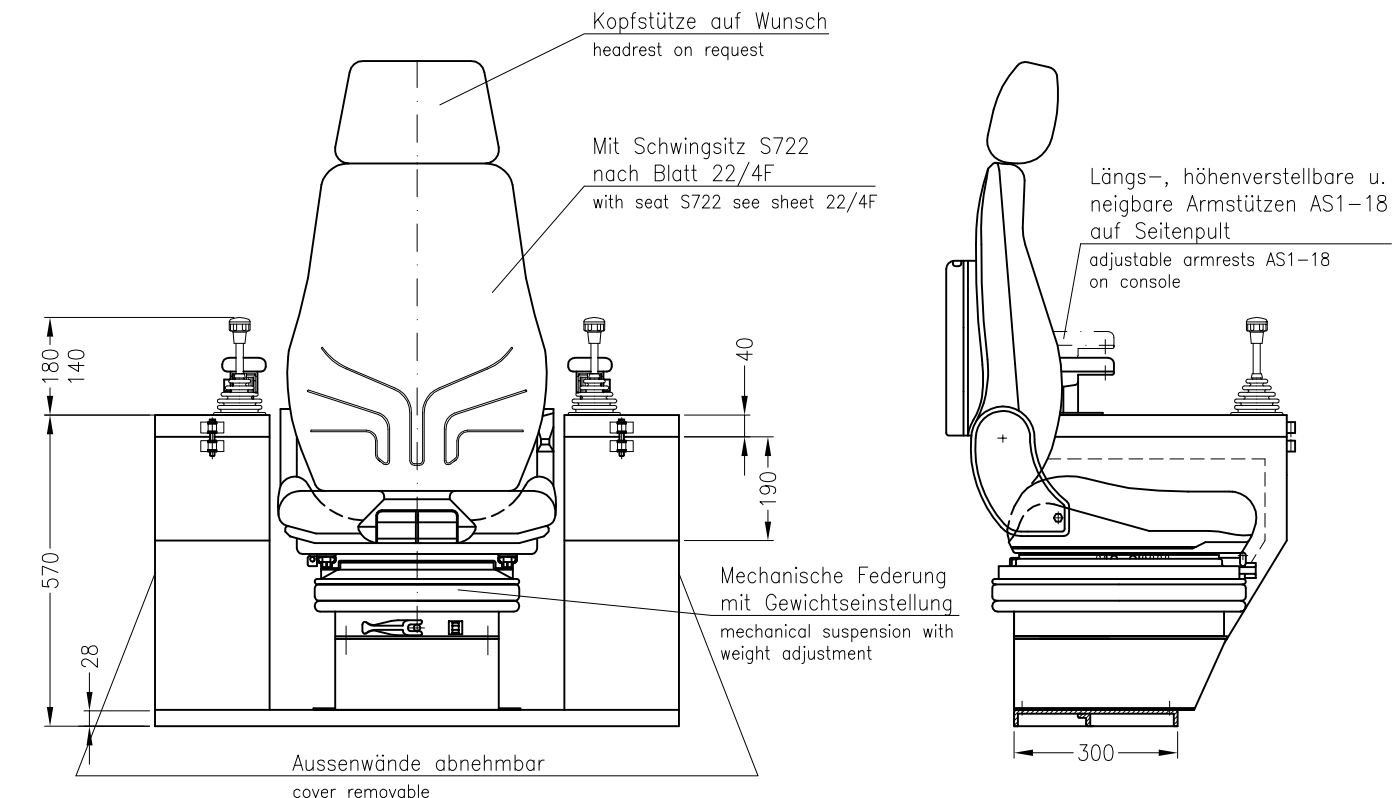
Standard: grau gepulvert
standard: grey powdered



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Seitenpulte, Brücke und
Sitzkonsole aus Stahlblech
desks, base and consoles made by steel plate

Standard: grau gepulvert
standard; grey powdered

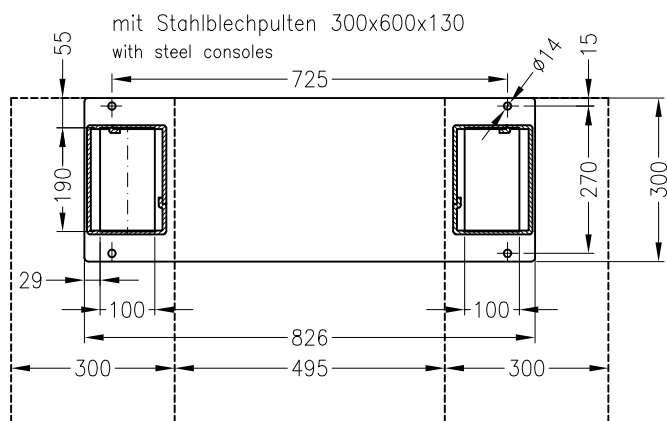
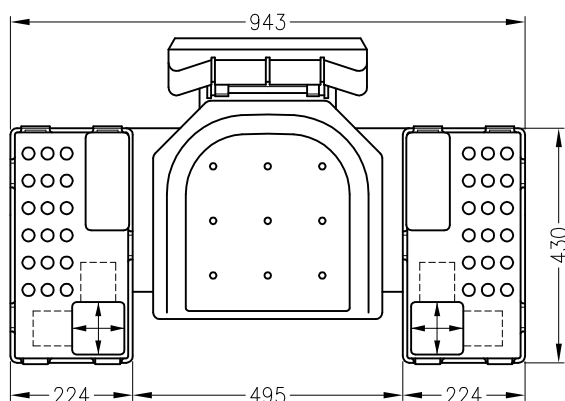
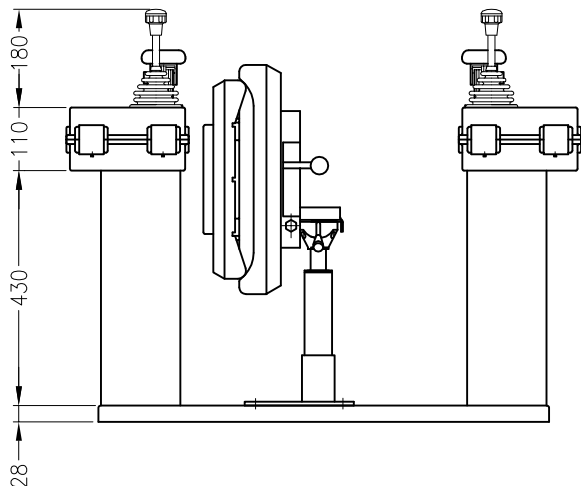
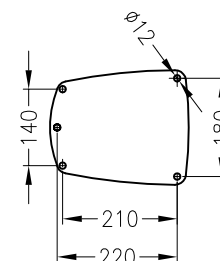
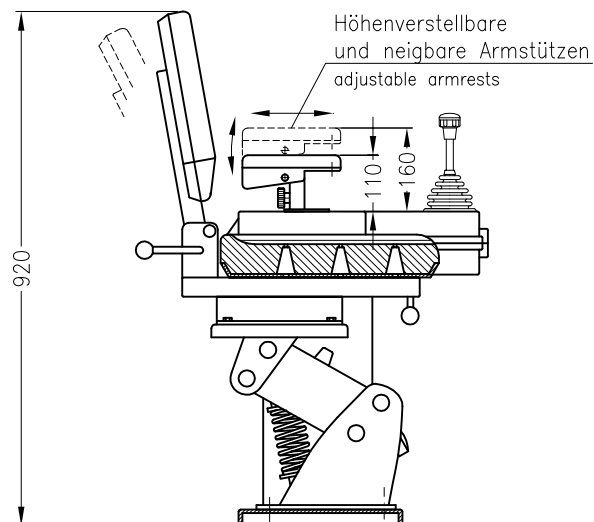
Andere Pultgröße auf Wunsch
other console size on request



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Mit Klappsitz KSGF nach M 22/8A
with collapsible chair KSGF, M 22/8AMit Klappsitz KSHC nach M 22/8B
with collapsible chair KSHC, M 22/8BTyp
TypeAusführung
Version

SV0BK

mit rechteckigen Iso-Pultaufsätzen
je Pulthälfte max. 18 Befehlsgeräte $\varnothing 22,5$ mm
with rectangular fiberglass consoles SV0K
each console max. 18 push buttons $\varnothing 22,5$ mm

Iso-Pulte: grau
lackierte Konsole Standard: RAL 7032 grau
Iso-console units: grey
coated console standard: RAL 7032 grey

Stahlblech Pultaufsätze auf Anfrage
steel consoles on request

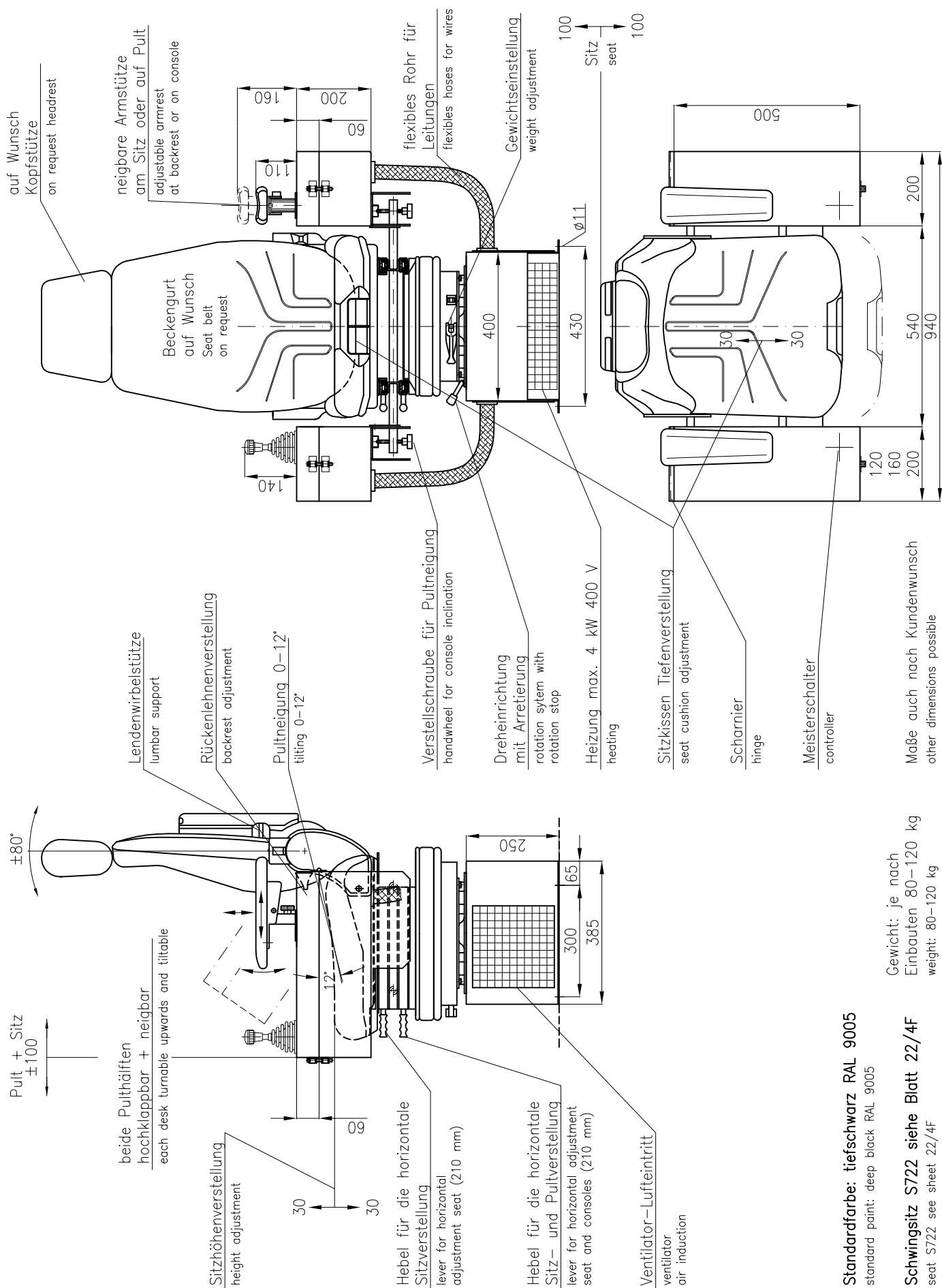
Gewicht ~80-100 kg
weight ~80-100 kg



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Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

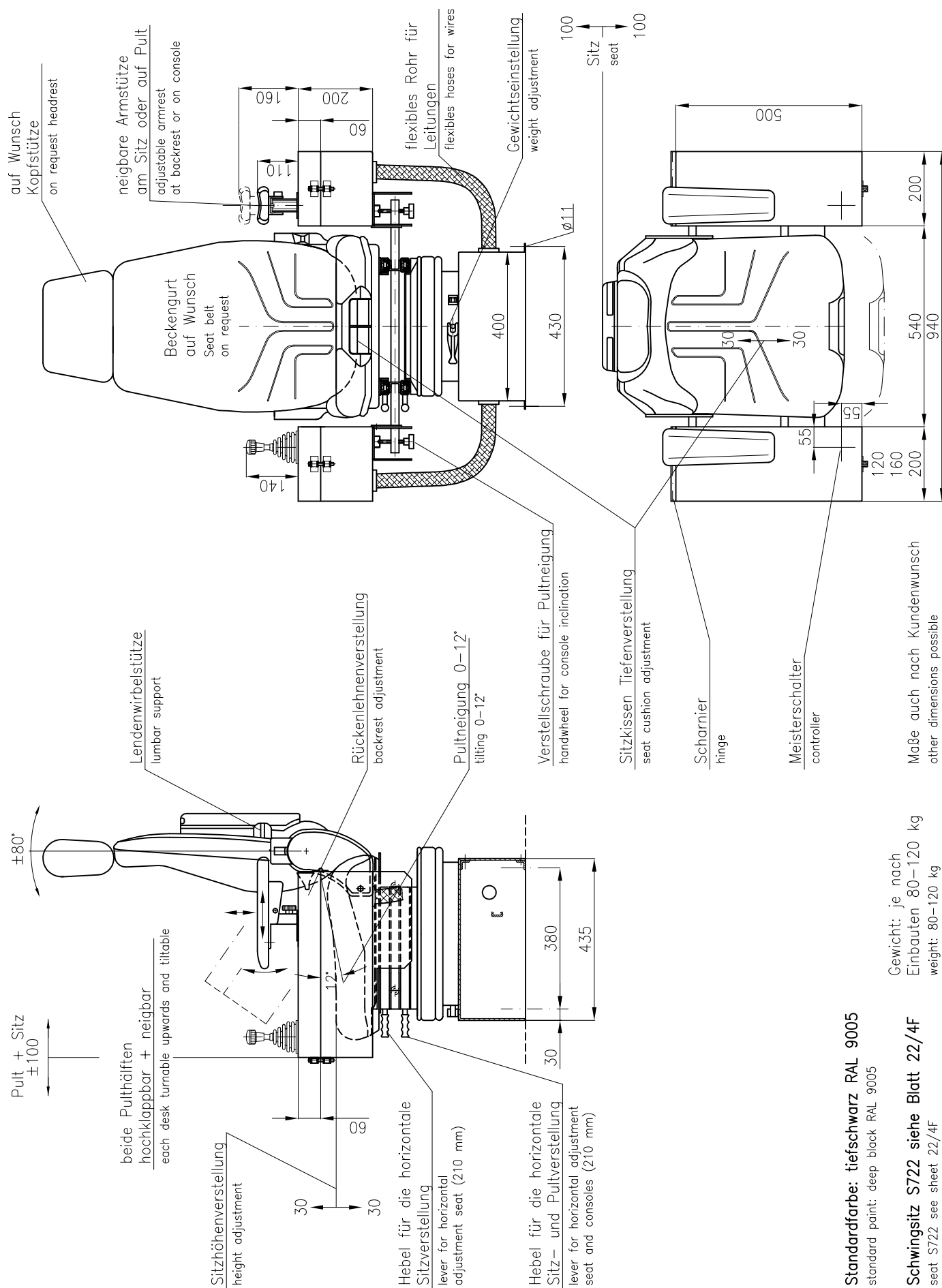
Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F



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Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Gewicht: je nach Einbauten 80–120 kg
weight: 80–120 kg

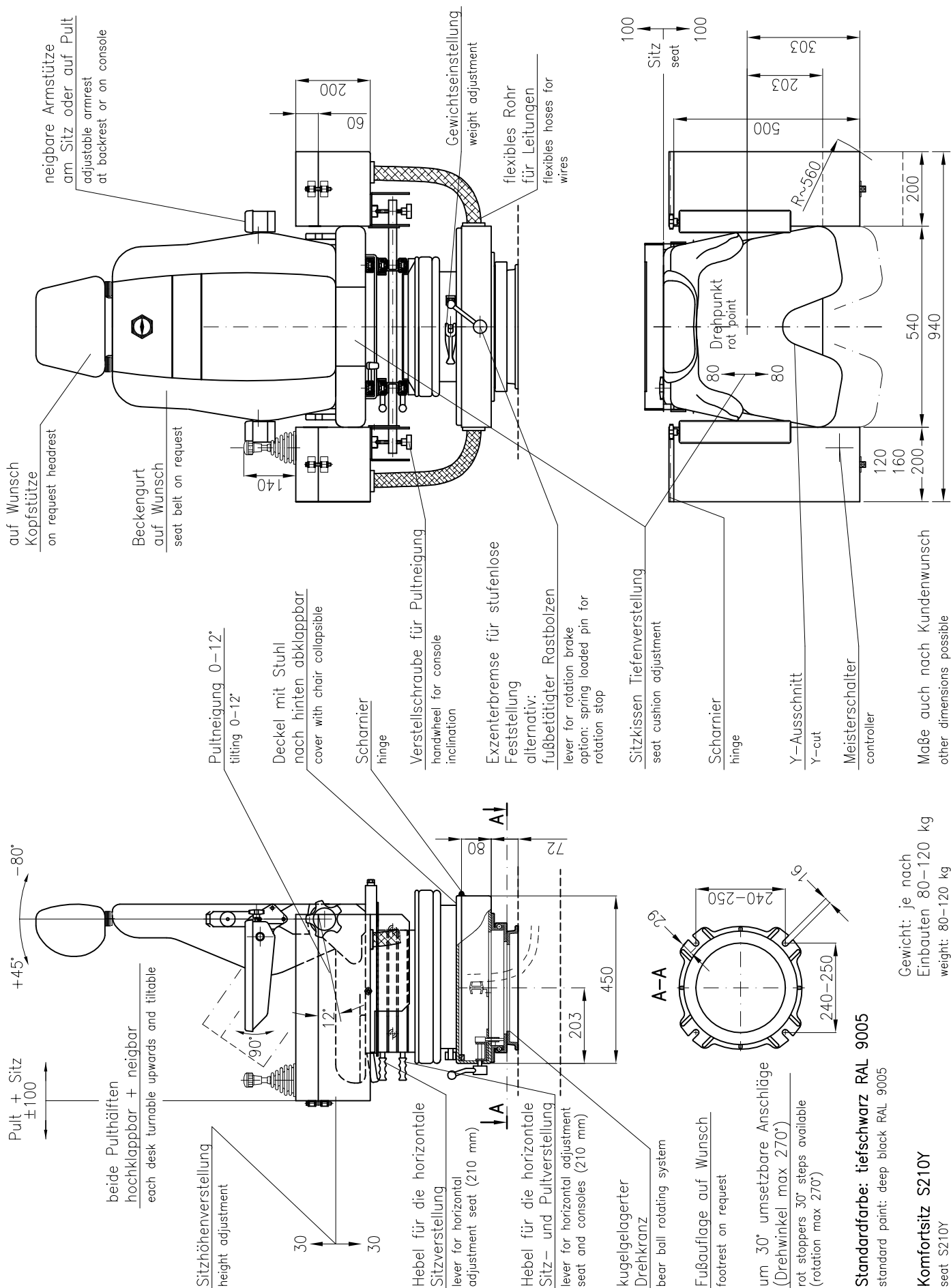
Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F

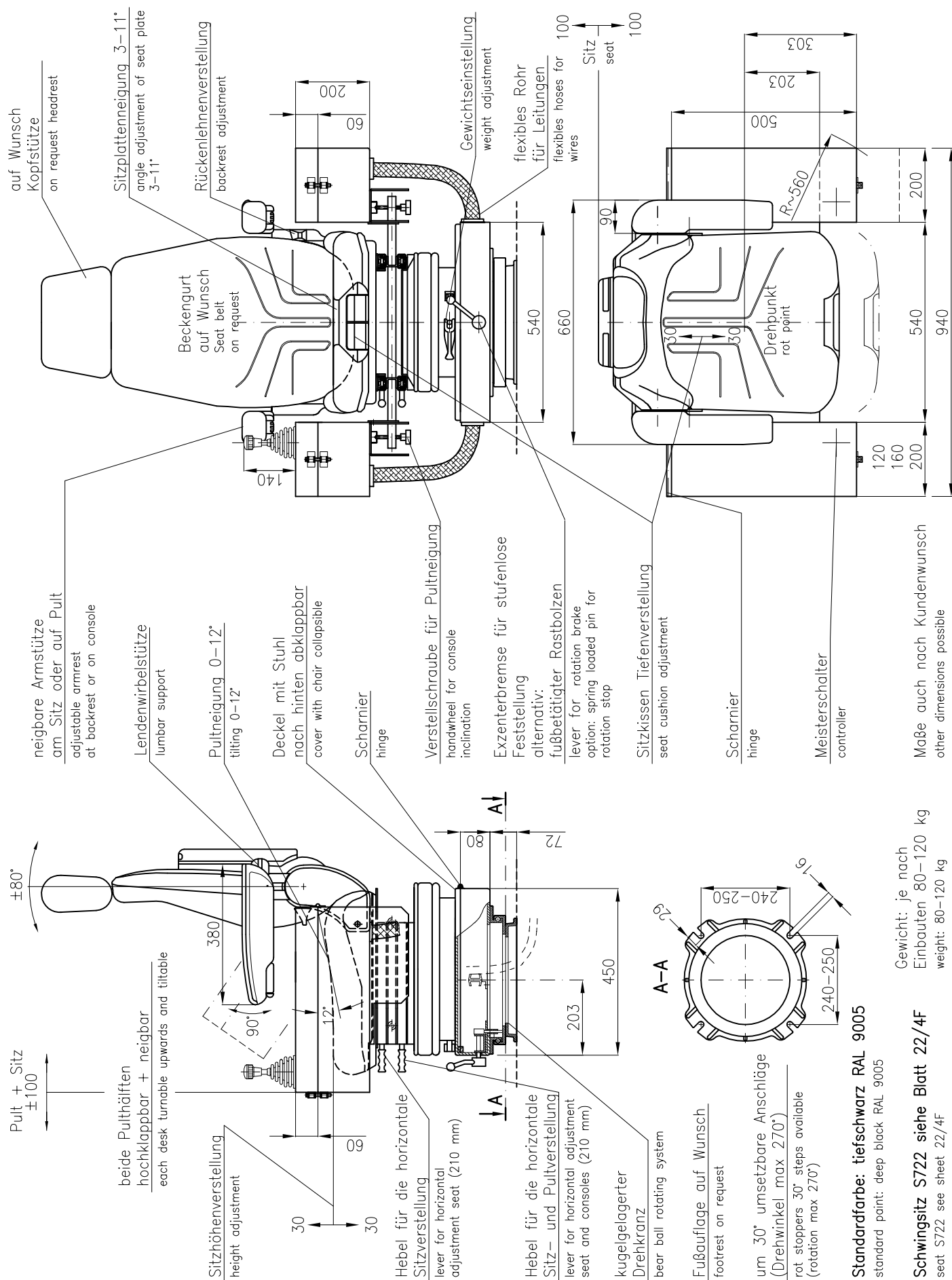


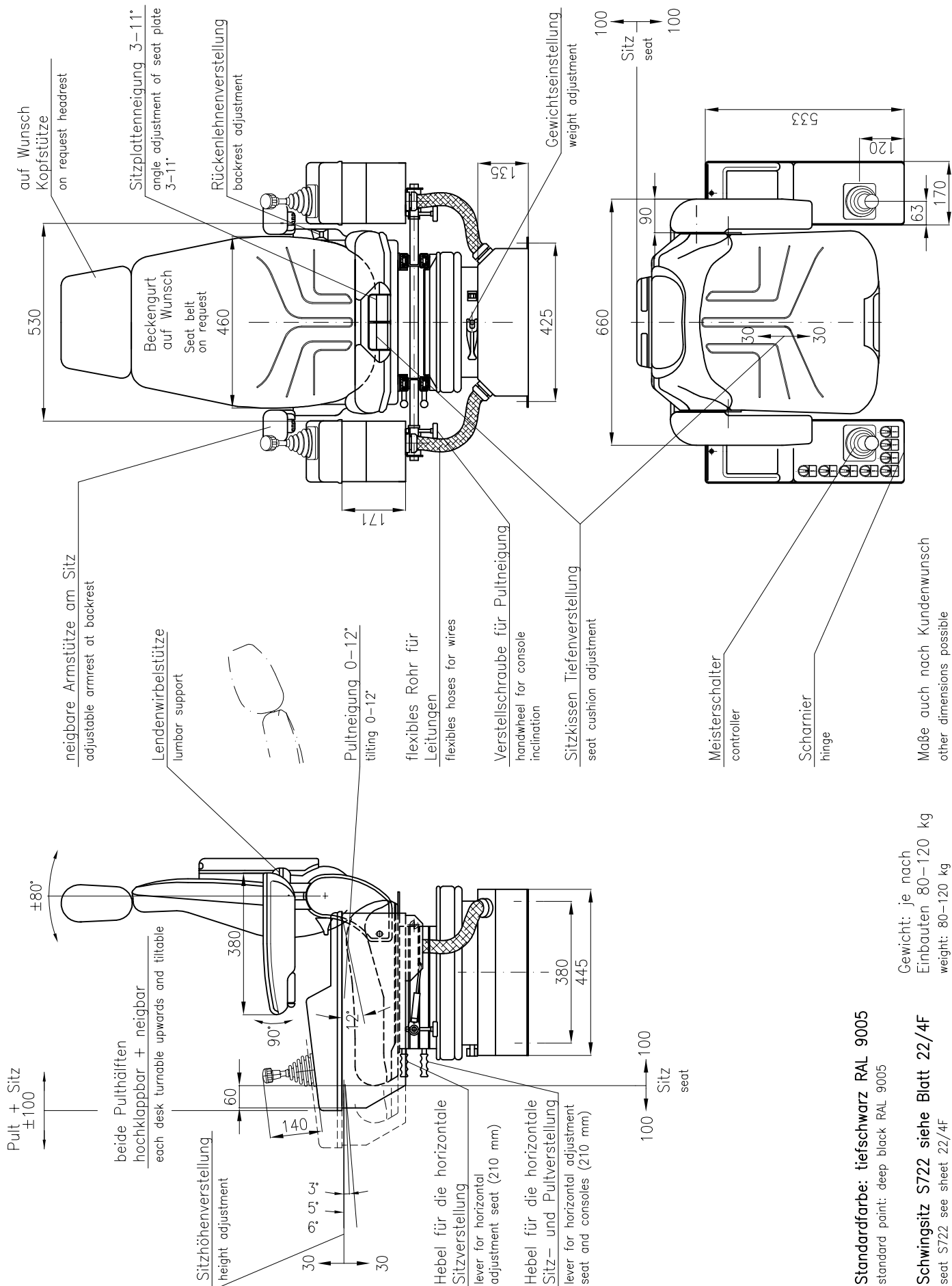
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Standardfarbe: tiefschwarz RAL 9005
standard paint: deep black RAL 9005

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

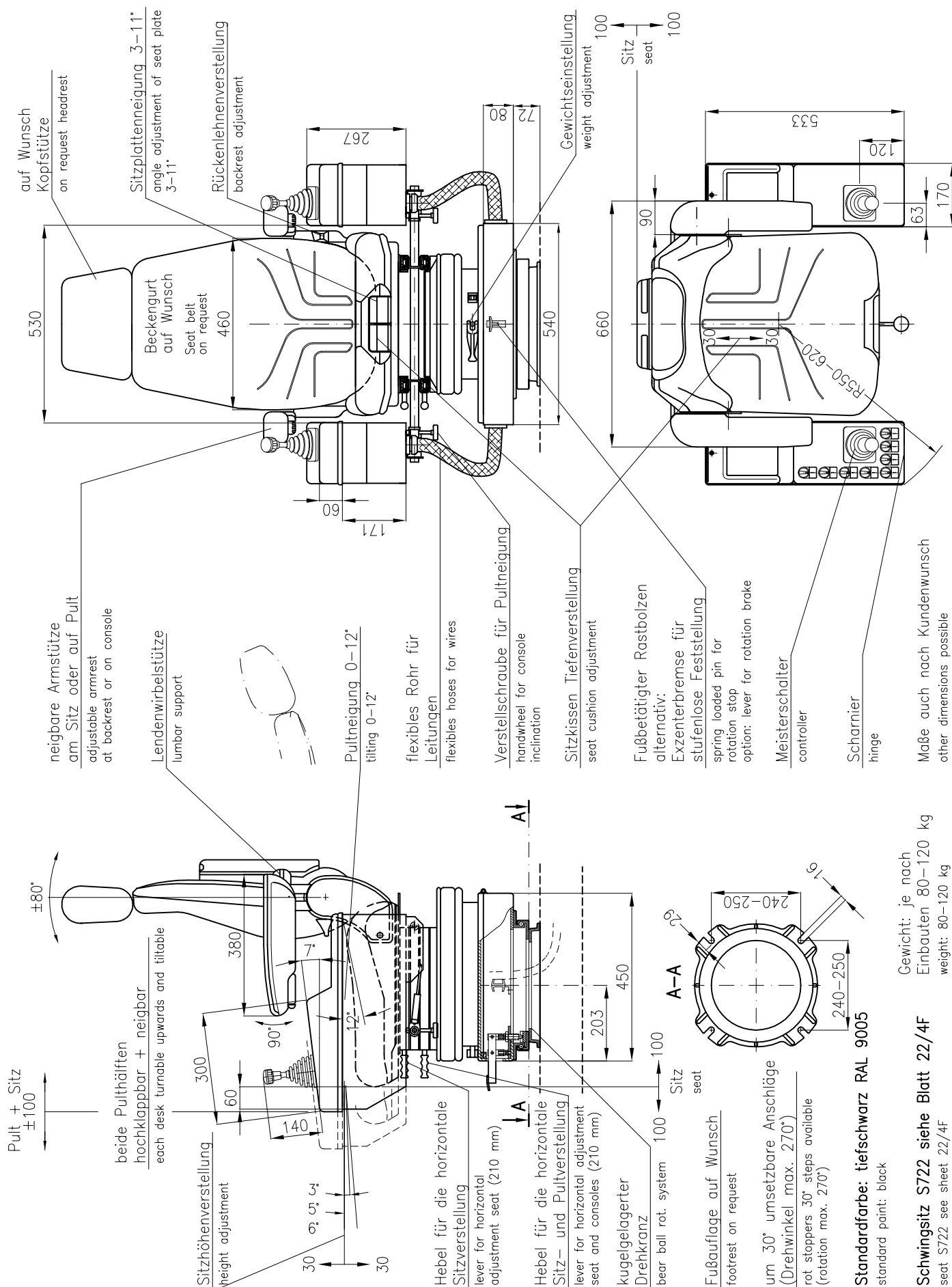
Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F

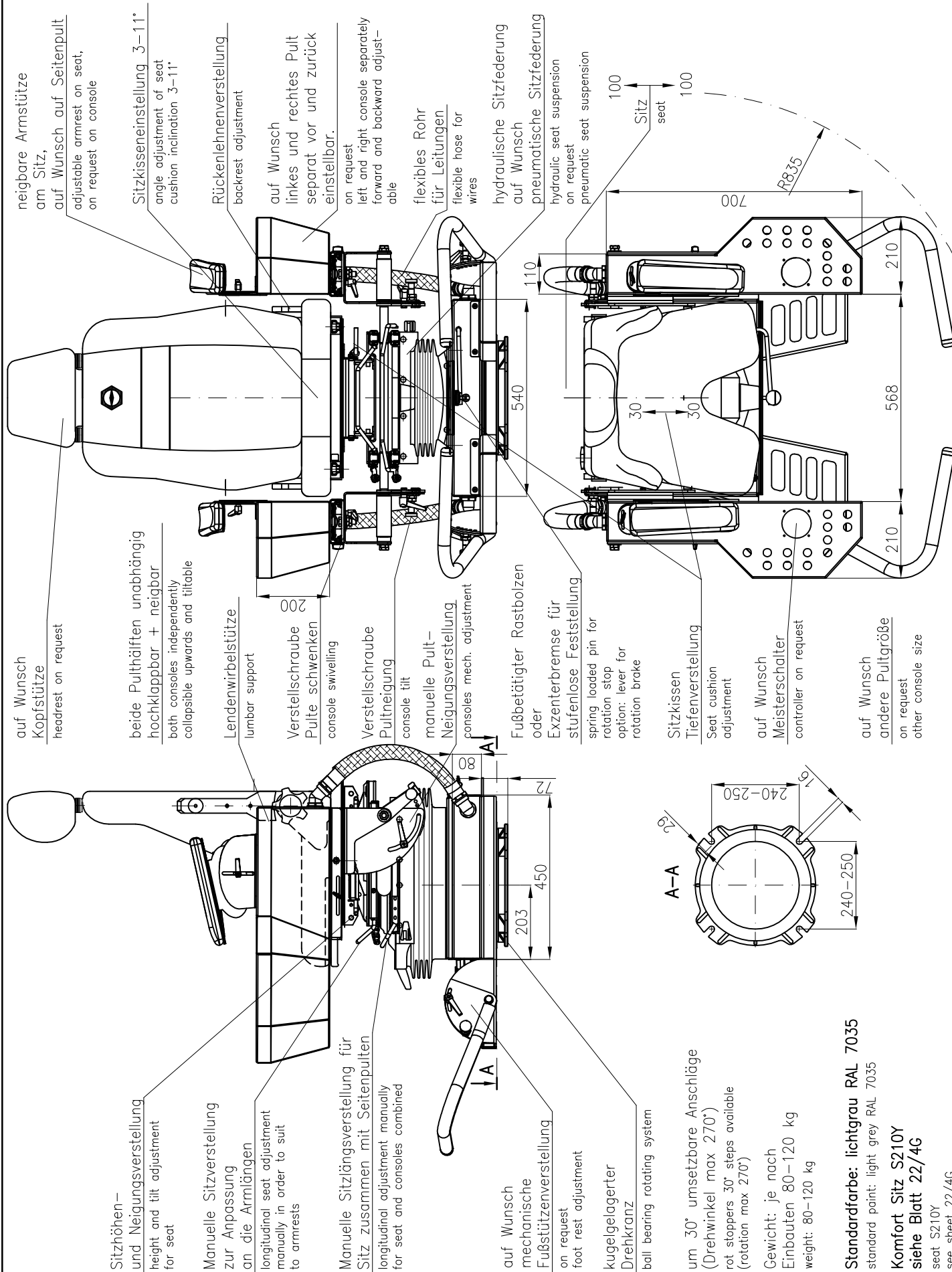


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Standardfarbe: lichtgrau RAL 7035

standard paint: light grey RAL 7035

Komfort Sitz S210Y

siehe Blatt 22/4G

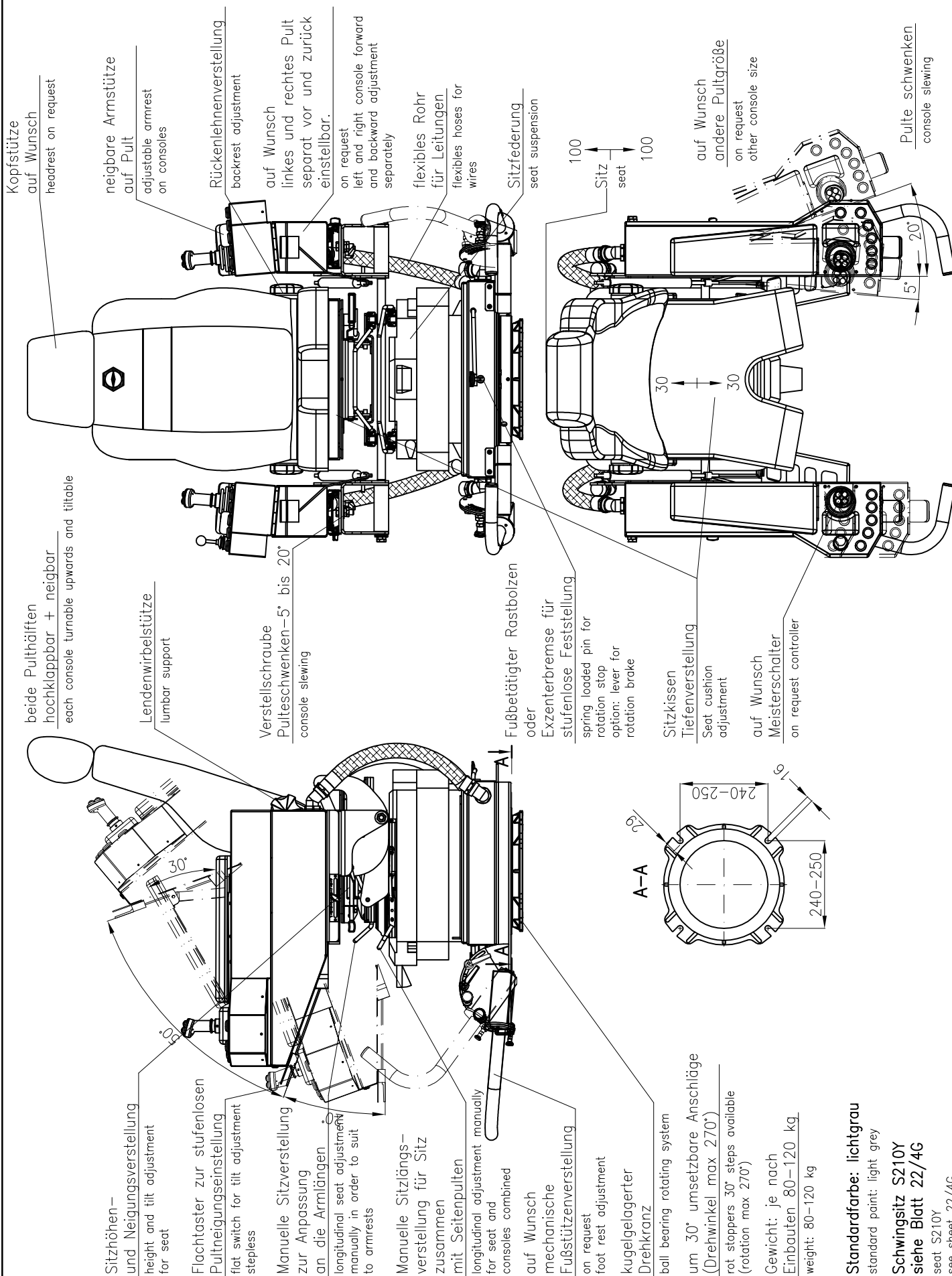
seat S210Y

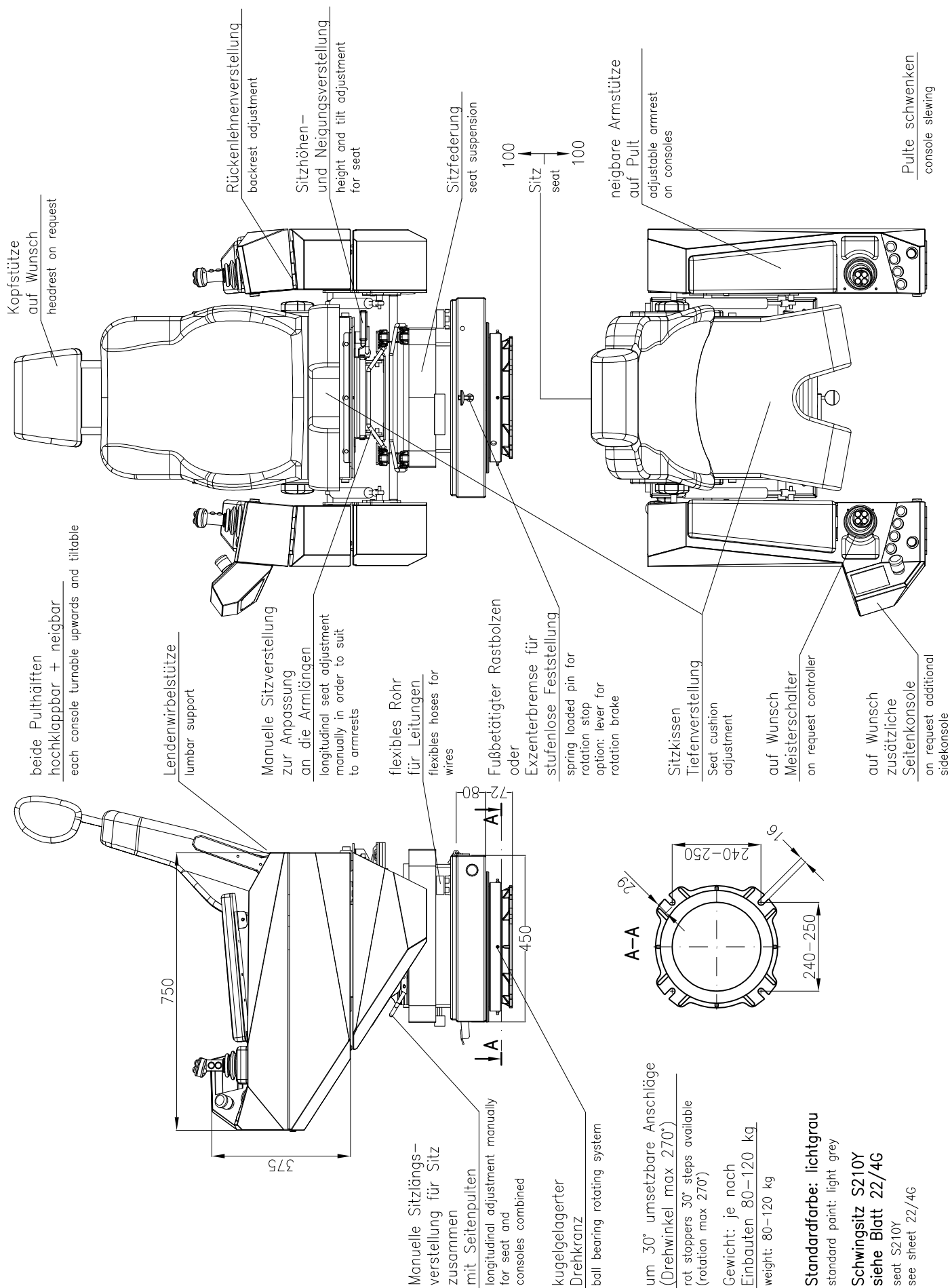
see sheet 22/4G

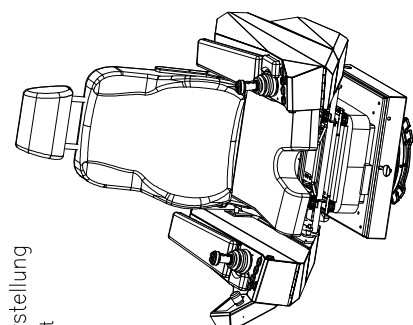
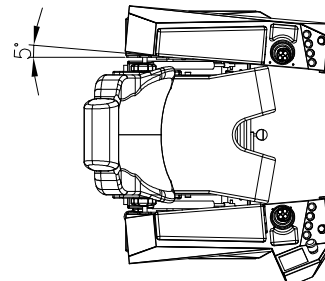
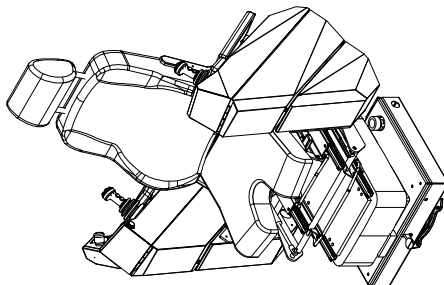
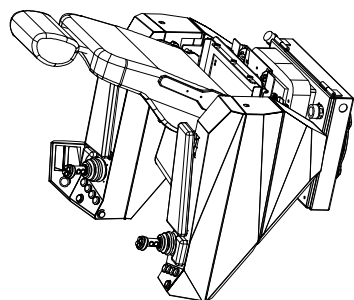

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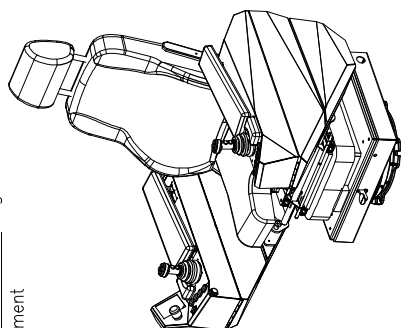
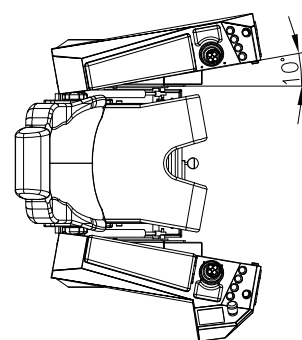
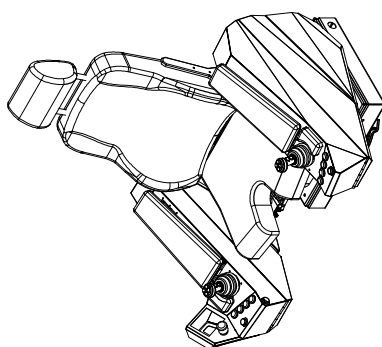
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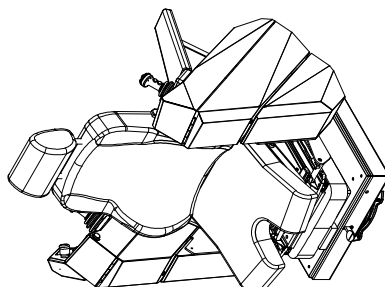




Mech. Kopfstützenverstellung
mech. headrest adjustment

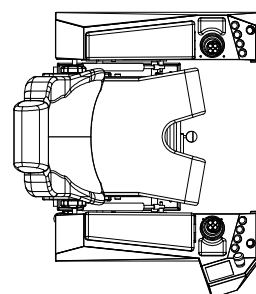


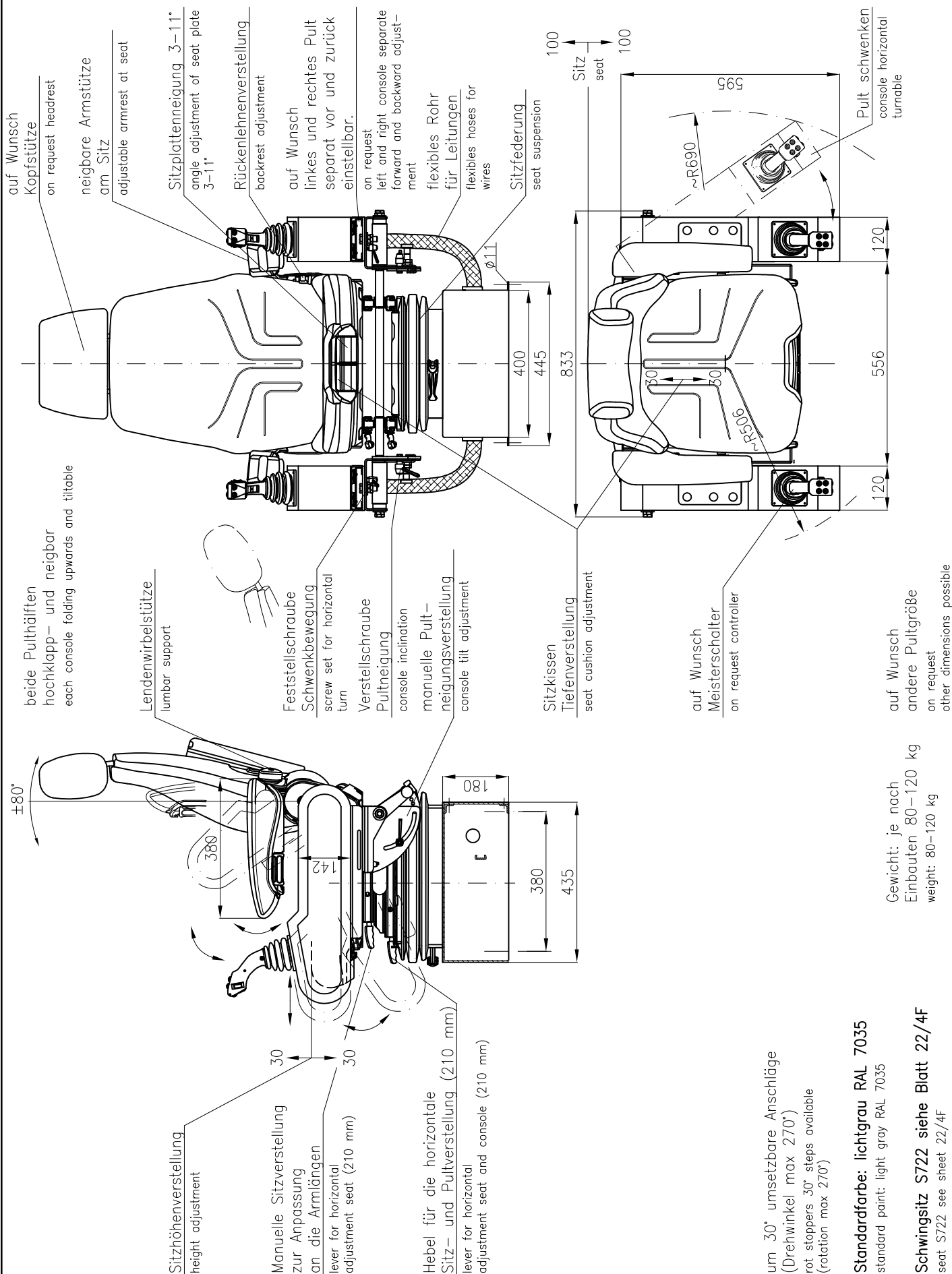
Mech. Rückenlehnenverstellung
mech. backrest adjustment



beide Pulthäufte
hochklappbar + neigbar
each console turnable upwards and tiltable

Pulte manuell schwenkbar
consoles rotatable manually





um 30° umsetzbare Anschläge
(Drehwinkel max 270°)
rot stoppers 30° steps available
(rotation max 270°)

Standardfarbe: lichtgrau RAL 7035
standard paint: light gray RAL 7035

Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F

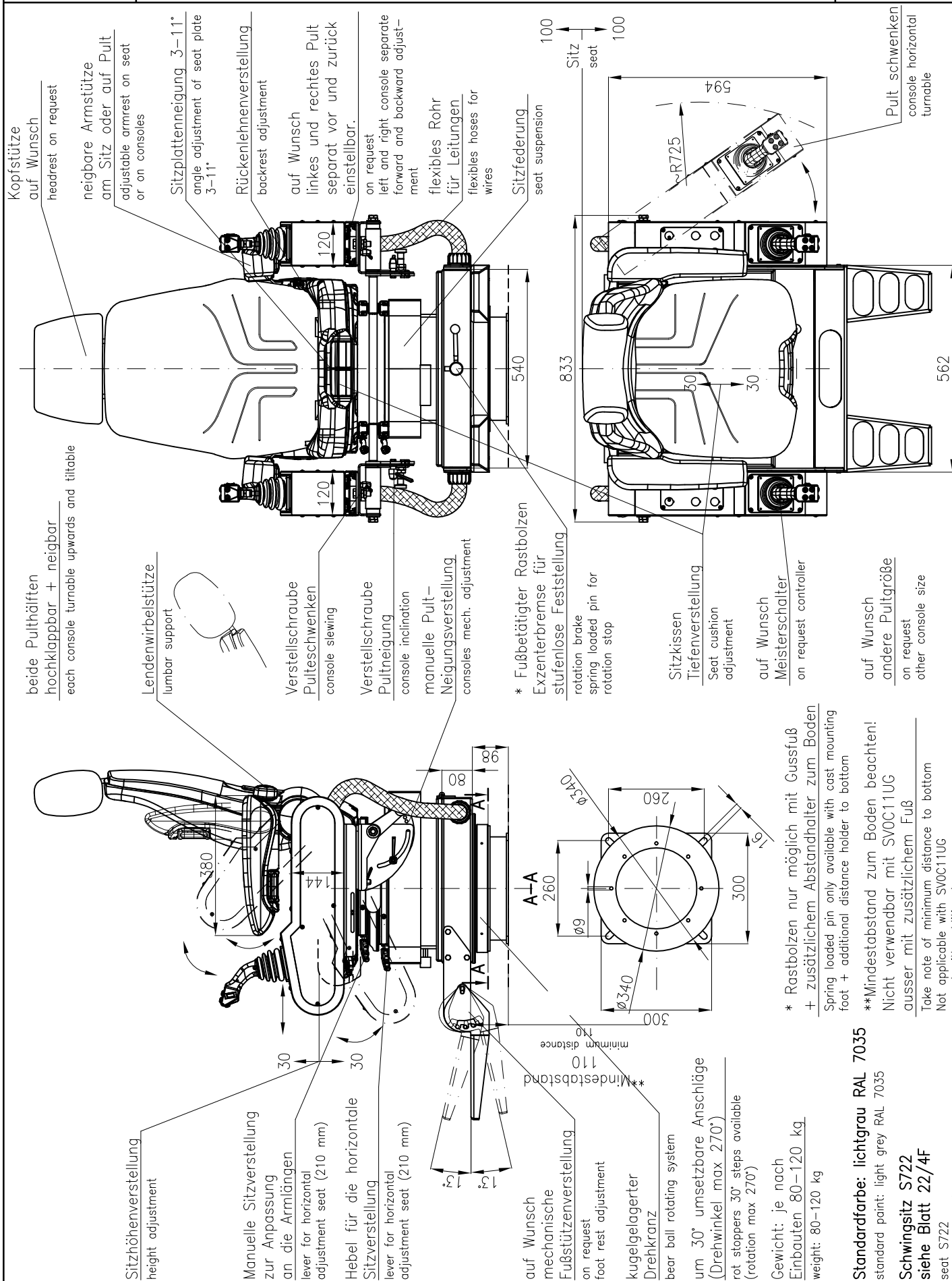
Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

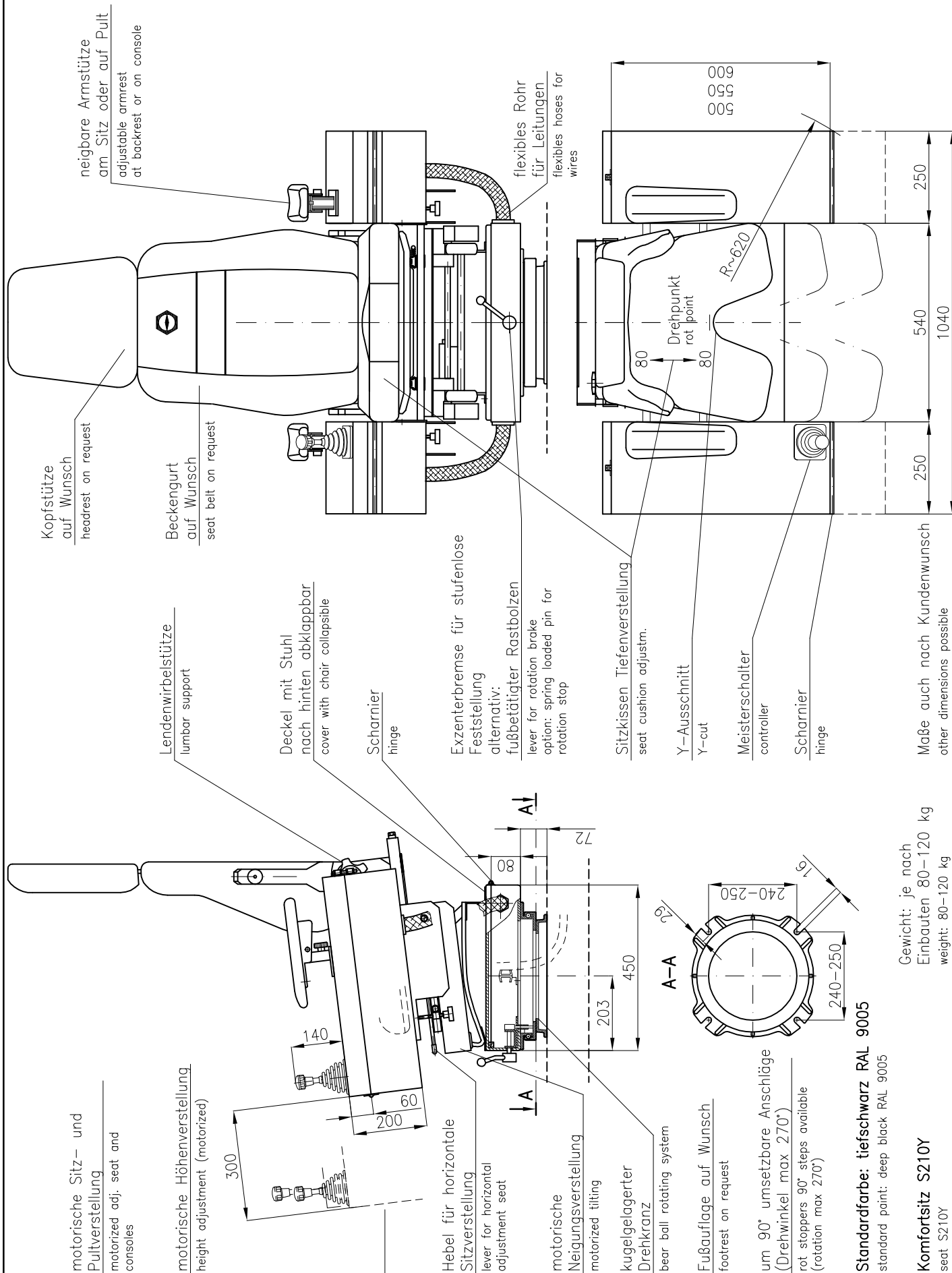


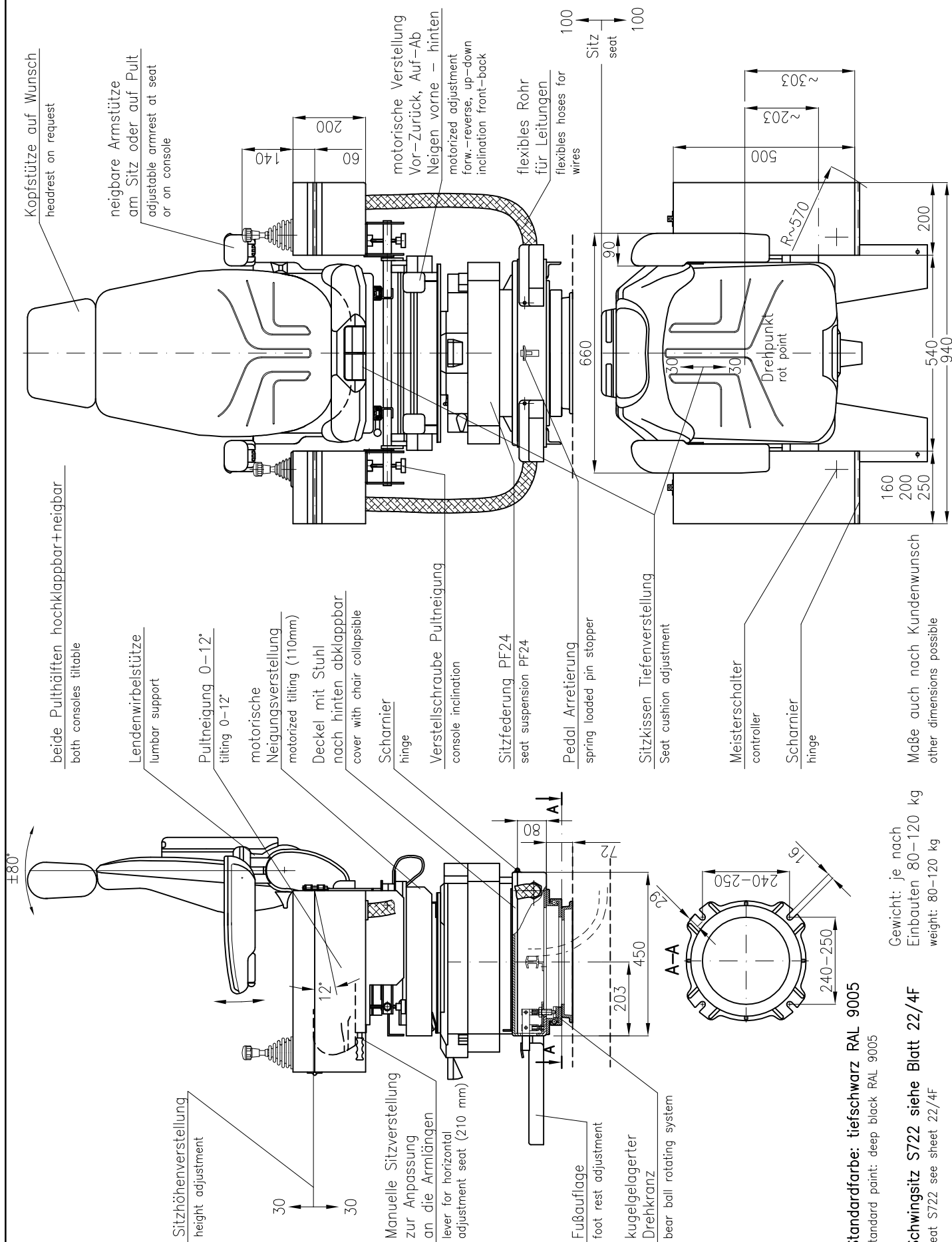
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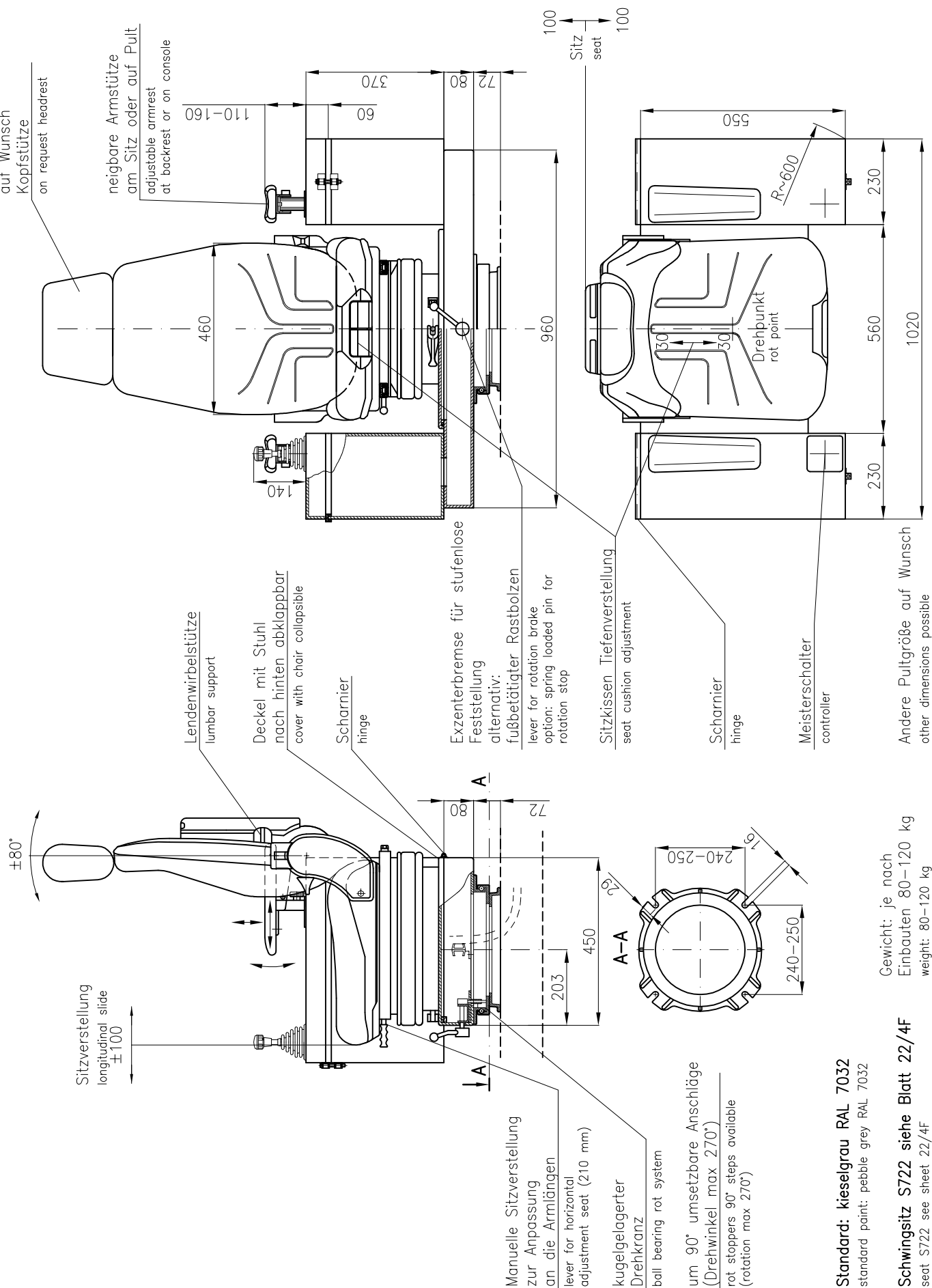




Standardfarbe: tiefschwarz RAL 9005

standard paint: deep black RAL 9005

Gewicht: je nach
Einbauten 80-120 kg
weight: 80-120 kgSchwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F**Spohn+Burkhardt**
Elektrotechnische Fabrik BlaubeurenMauergasse 5
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GERMANYTel. +49 7344 171-0 info@spobu.de
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Gewicht: je nach
Einbauten 80-120 kg
weight: 80-120 kg

Standard: kieselgrau RAL 7032
standard paint: pebble grey RAL 7032

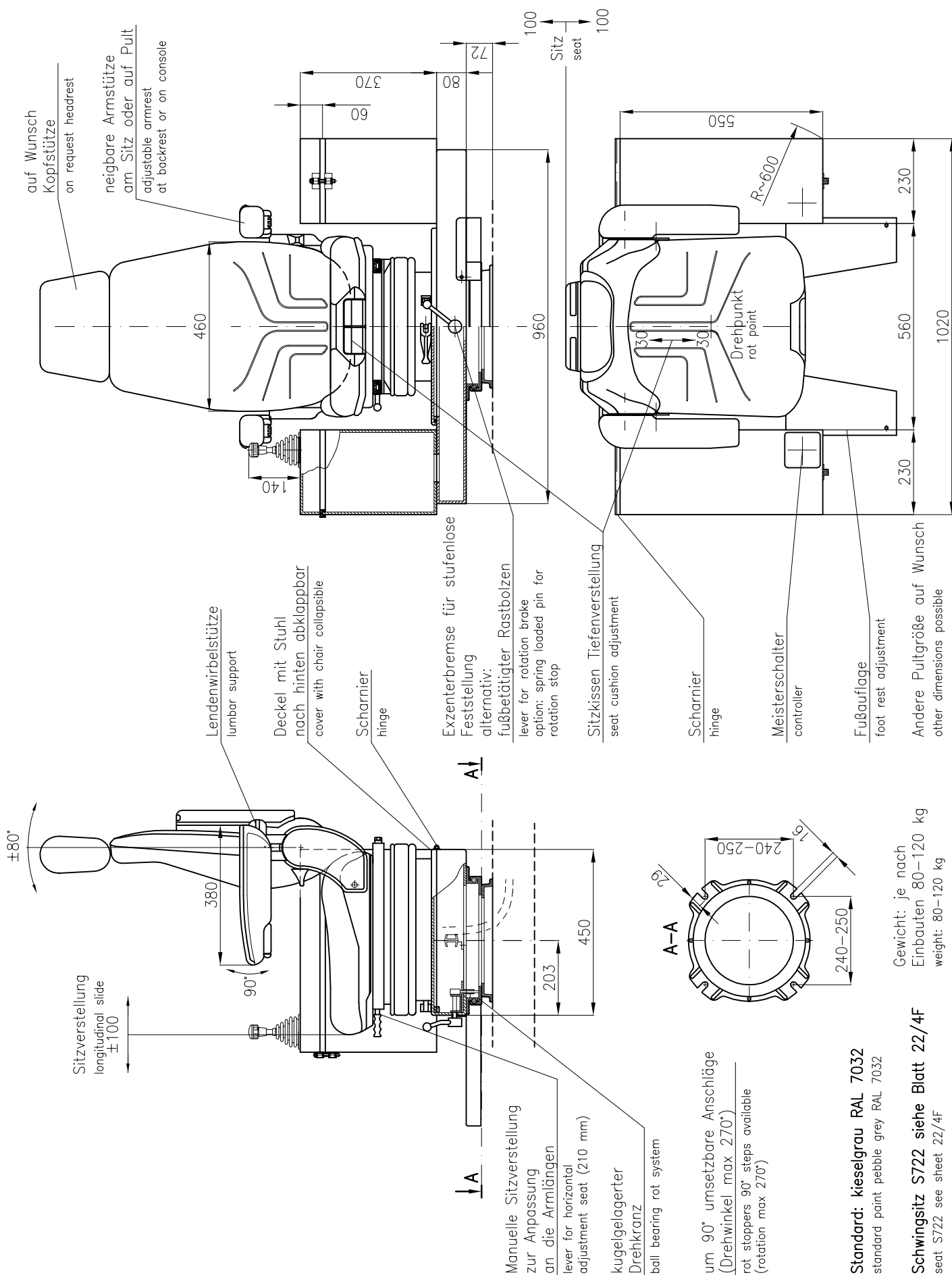
Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F



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Standard: kieselgrau RAL 7032
standard paint pebble grey RAL 7032

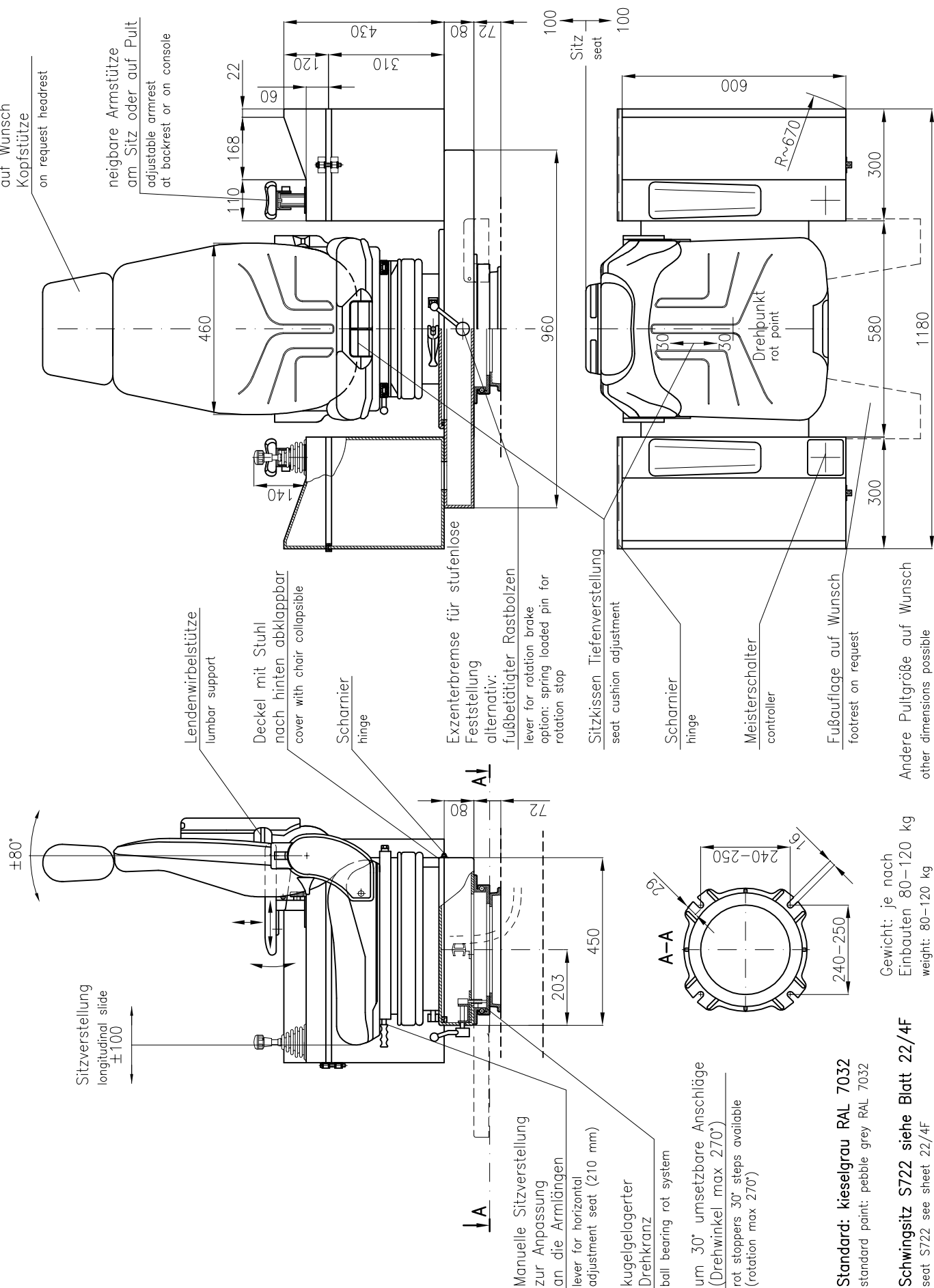
Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F



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Standard: kieselgrau RAL 7032
standard paint: pebble grey RAL 7032

Gewicht: je nach
Einbauten 80–120 kg
weight: 80–120 kg

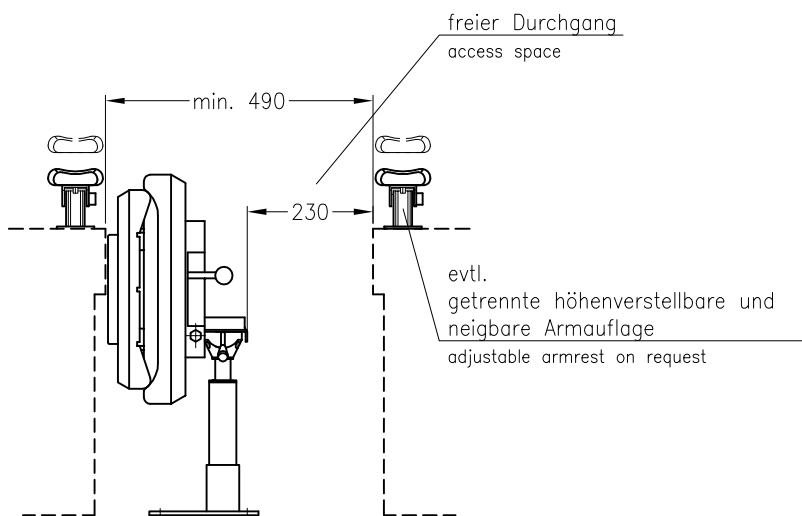
Schwingsitz S722 siehe Blatt 22/4F
seat S722 see sheet 22/4F



Spohn-Burkhardt
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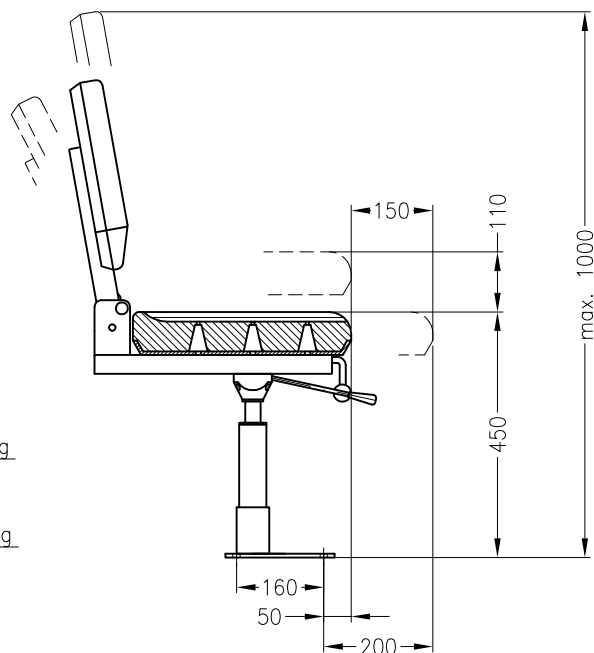
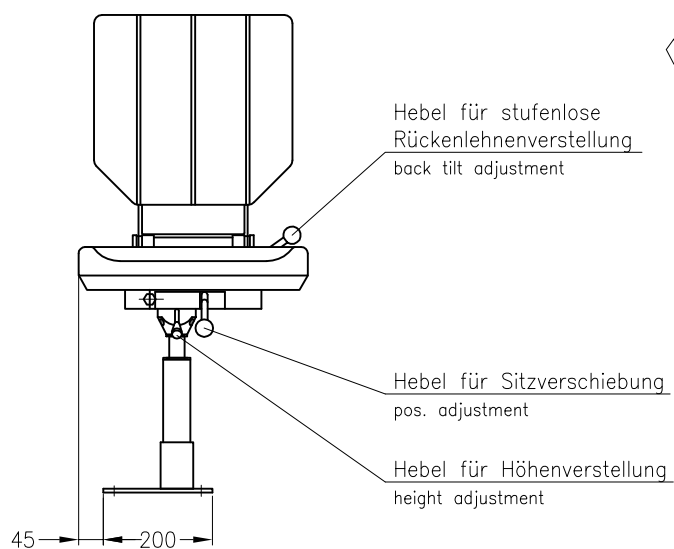
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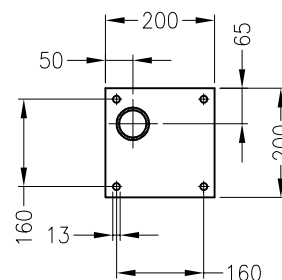
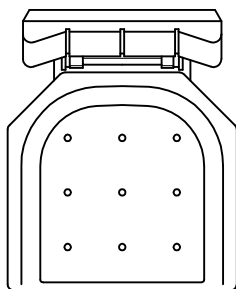


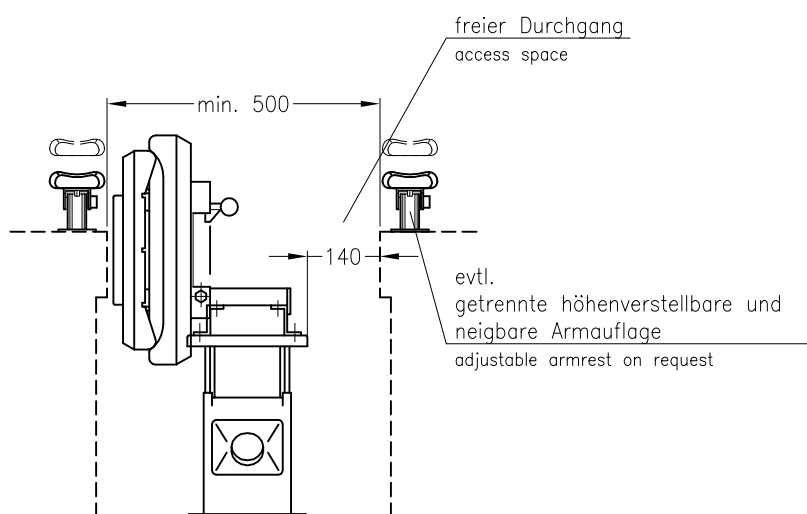
Typ Type	Ausführung Description
KSGF	mit verschleissfester Polsterung aus Integralschaum Sitzfläche zusätzlich mit Filzeinlage with hard wearing vinyl upholstery, seat with felt insert gefedert with suspension
KSPGF	Sitzpolster mit auswechselbarem Sitzbezug removable cotton cover gefedert with suspension

Gewicht ~23 kg
weight ~23 kg

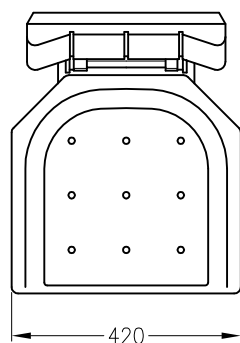
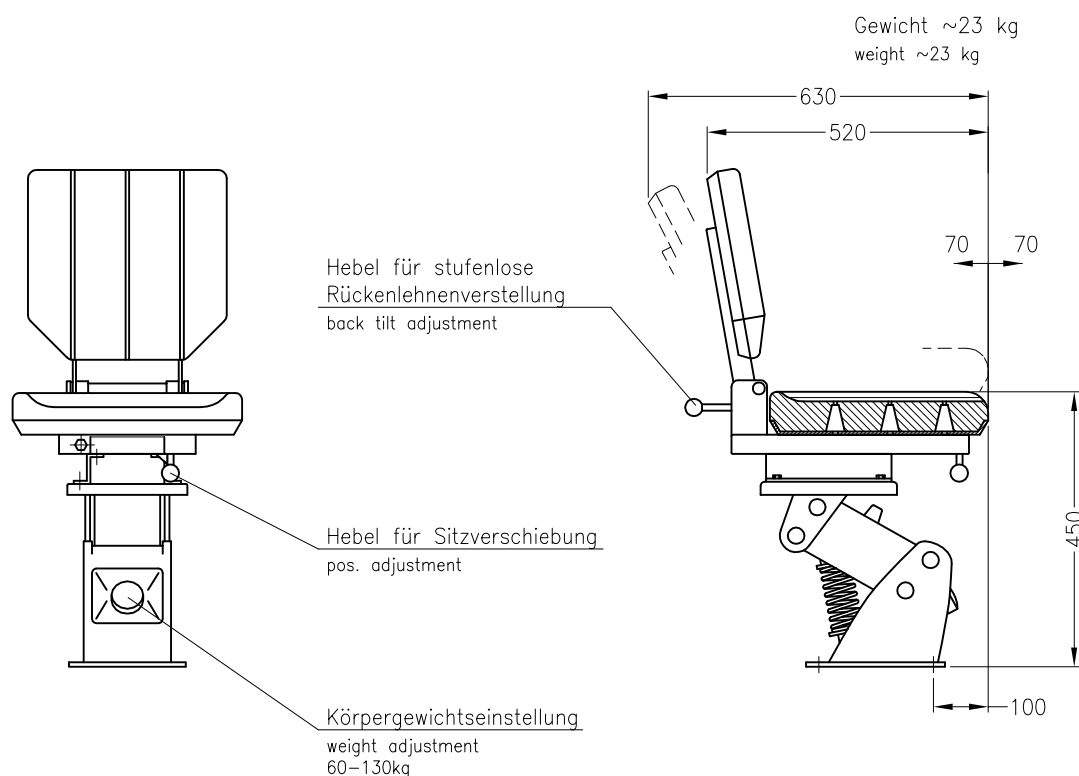


Befestigungsbohrungen
fixing holes

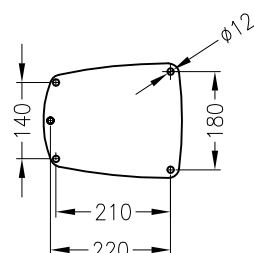




Typ Type	Ausführung Version
KSHC	mit verschleissfester Polsterung aus Integralschaum Sitzfläche zusätzlich mit Filzeinlage with hard wearing vinyl upholstery, seat with felt insert
KSHCP	Sitzpolster mit auswechselbarem Sitzbezug removable cotton cover



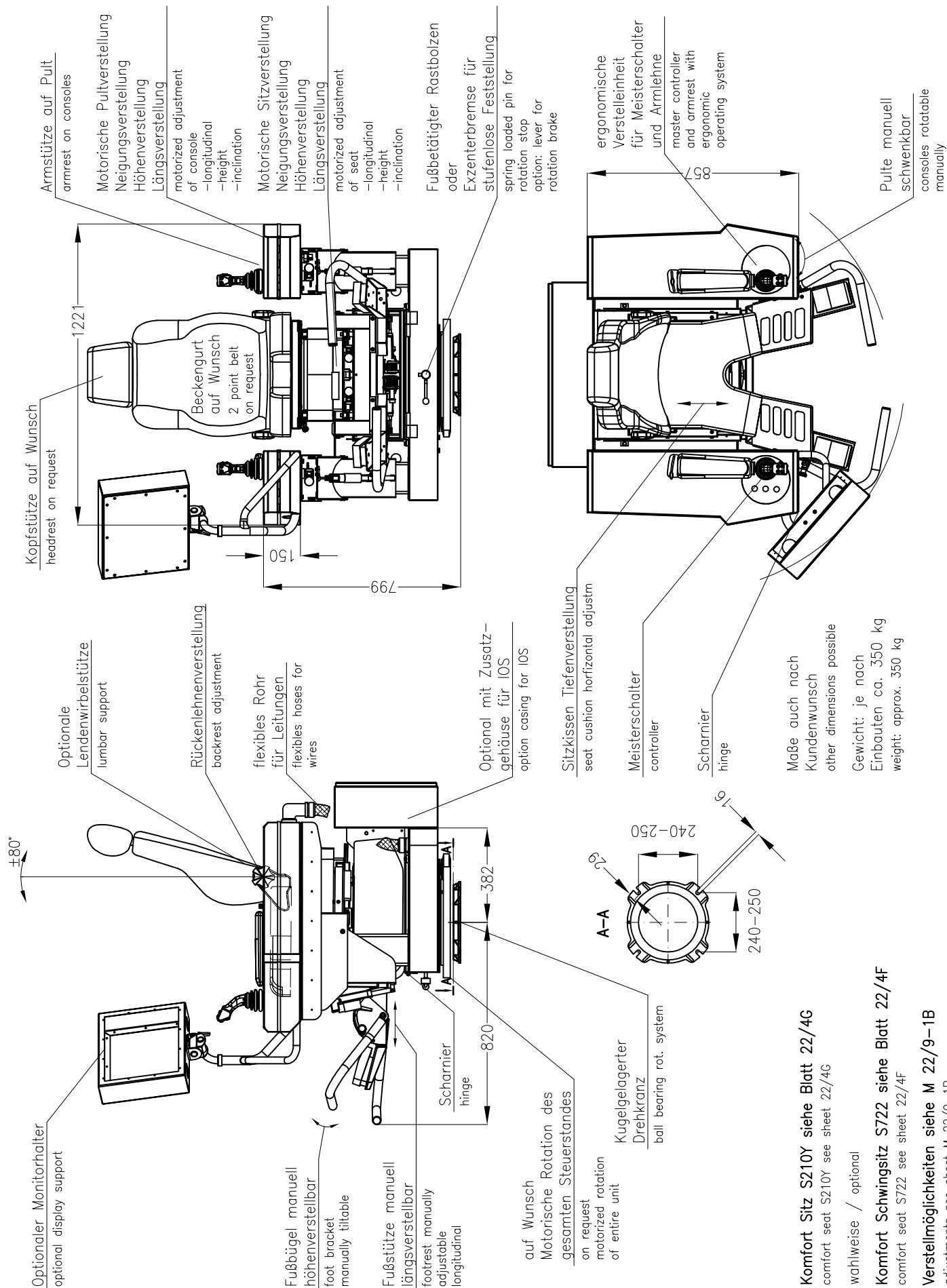
Befestigungsbohrungen
fixing holes



Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

Mauergasse 5
89143 BLAUBEUREN
GERMANY

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Fax +49 7344 171-99 www.spobu.de



Komfort Sitz S210Y siehe Blatt 22/4G

comfort seat S210Y see sheet 22/4G

wahlweise / optional

Komfort Schwingsitz S722 siehe Blatt 22/4F

comfort seat S722 see sheet 22/4F

Verstellmöglichkeiten siehe M 22/9-1B

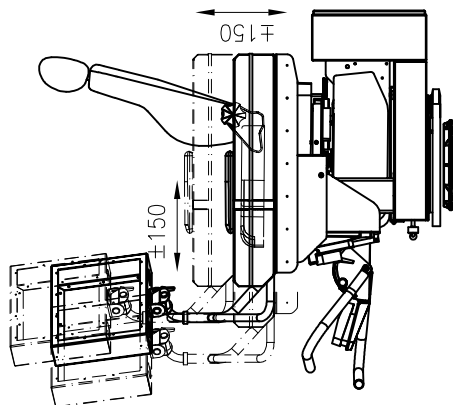
adjustments see sheet M 22/9-1B


Spohn-Burkhardt
Elektrotechnische Fabrik Blaubeuren

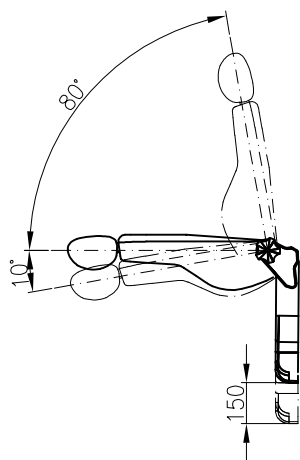
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Motorische Pult-
Höhenverstellung
Längsverstellung
motorized adjustment
of console
-height
-inclination

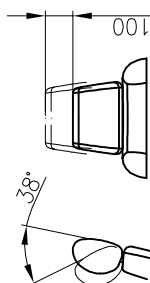


Mech. Rückenlehnenverstellung
optional elektrisch
mech. backrest adjustment

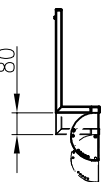


Mech. Sitzpolster- Längsverstellung
mech. backrest adjustment

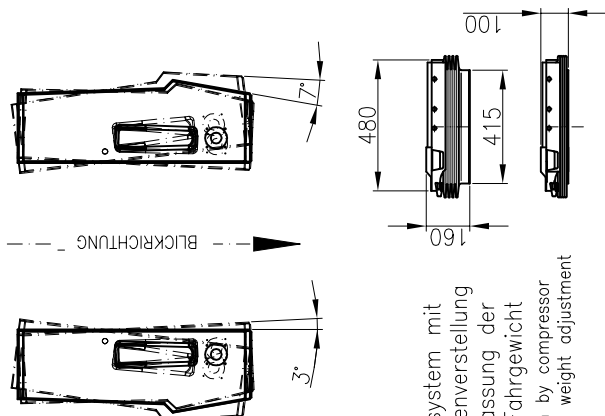
Mech. Kopfstützenverstellung
mech. headrest adjustment



Mechanische Fußstützenverstellung
mech. footrest adjustment

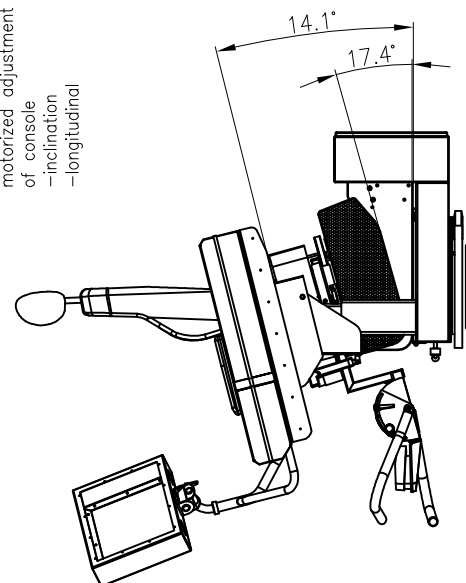


Pulte manuell schwenkbar
consoles rotatable manually

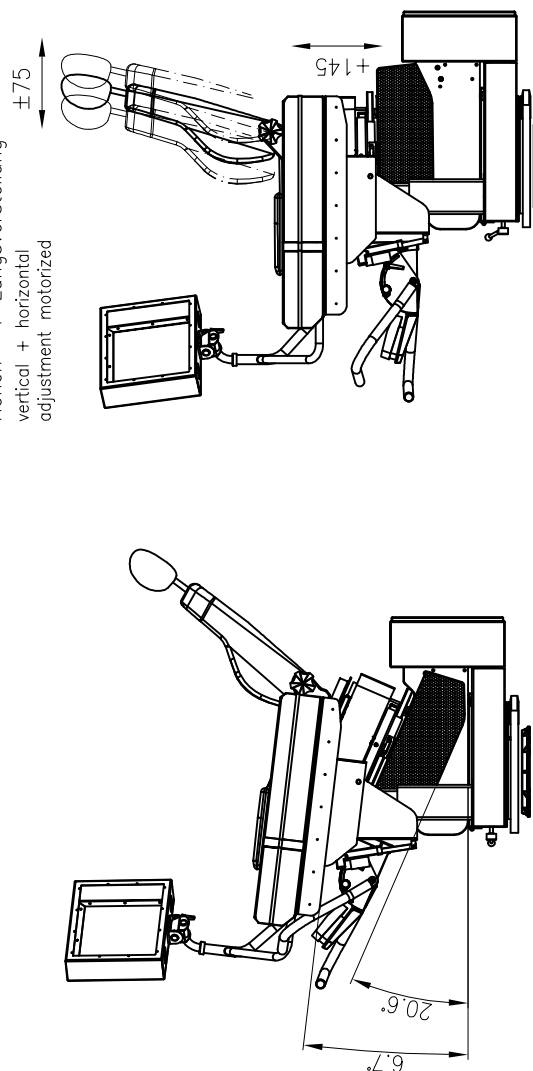


Pneum. Schwingensystem mit
Kompressor Höhenverstellung
und autom. Anpassung der
Federstärke an Fahrgewicht
pneumatic suspension by compressor
height and automatic weight adjustment

Motorische Pult-, Sitzverstellung
Neigungsverstellung
Längsverstellung
motorized adjustment
of console
-inclination
-longitudinal



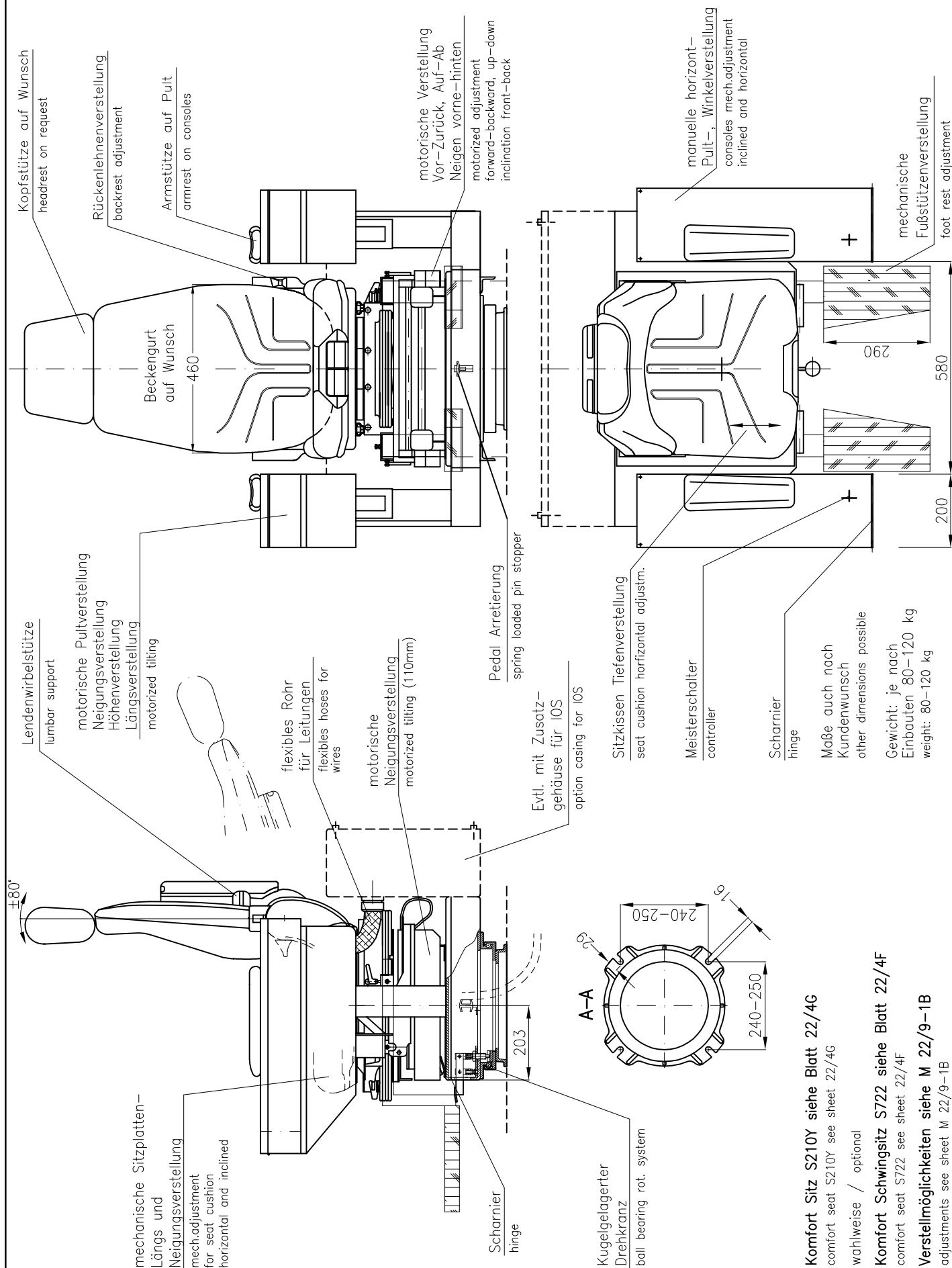
Motorische Sitz-
Höhen- + Längsverstellung
vertical + horizontal
adjustment motorized



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comfort seat S210Y see sheet 22/4G

wahlweise / optional

Komfort Schwingsitz S722 siehe Blatt 22/4F
comfort seat S722 see sheet 22/4F

Verstellmöglichkeiten siehe M 22/9-1B
adjustments see sheet M 22/9-1B

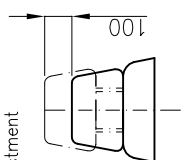


Spohn+Burkhardt
Elektrotechnische Fabrik Blaubeuren

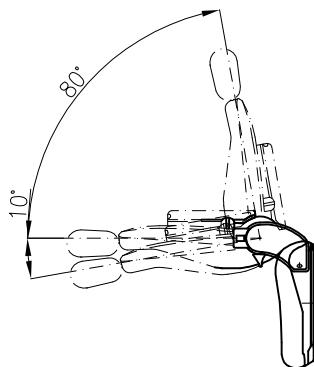
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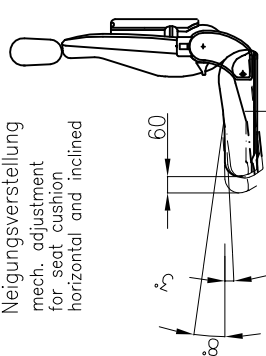
mech. Kopfstützenverstellung
mech. headrest adjustment



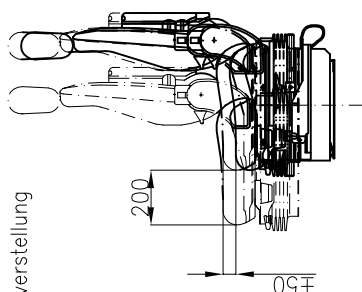
mech. Rückenlehnenverstellung
mech. backrest adjustment



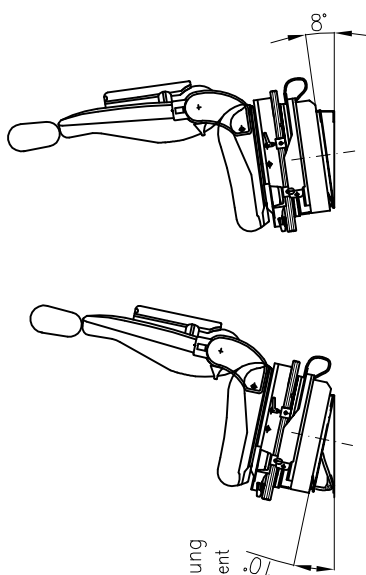
mech. Sitzkissen Längs- und
Neigungsverstellung
mech. adjustment
for seat cushion
horizontal and inclined



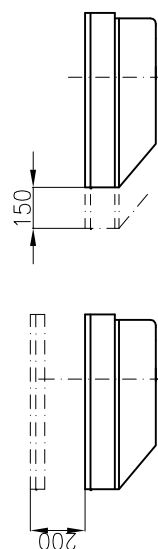
motorische Sitz
Höhen- + Längsverstellung
vertical + horizontal
adjustment motorized



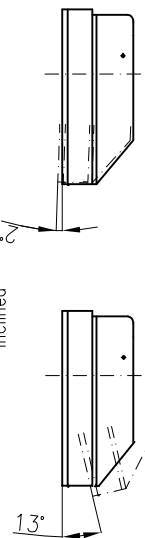
motorische Sitz
Neigungsverstellung
inclination adjustment
motorized



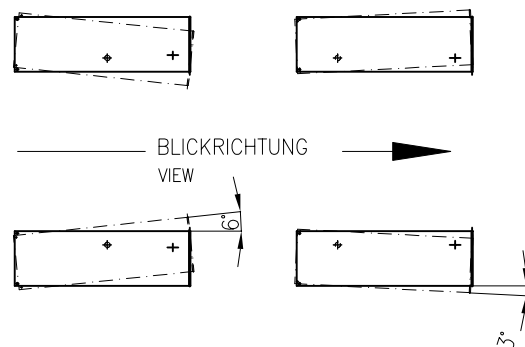
motorische Pultverstellung
console adjustable motorized
Höhenverstellung
vertical
Längsverstellung
horizontal



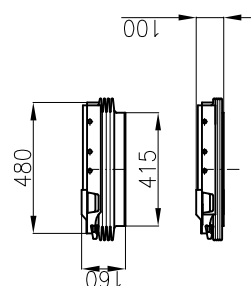
Neigungsverstellung
inclined



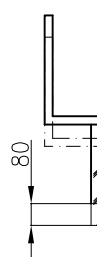
manuelle horizontale Pultwinkelverstellung
console mech. adjustment horizontal and inclined

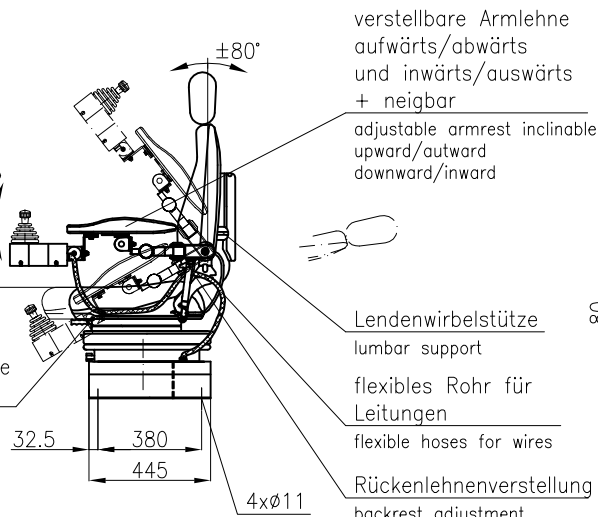
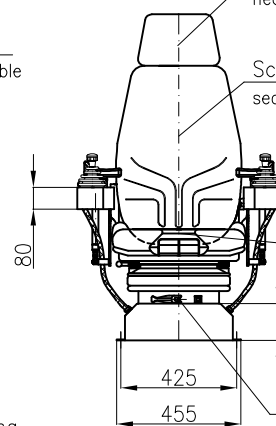
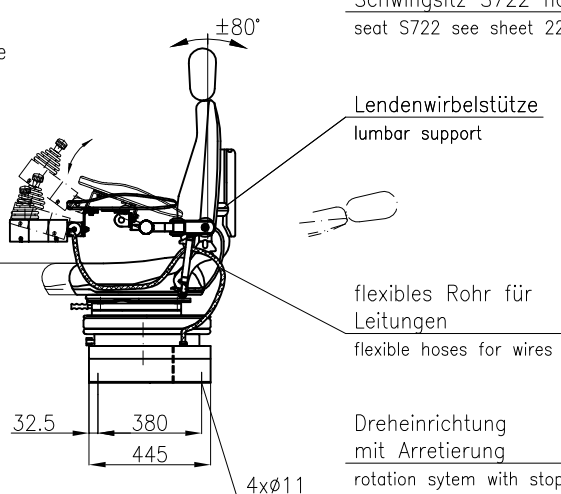
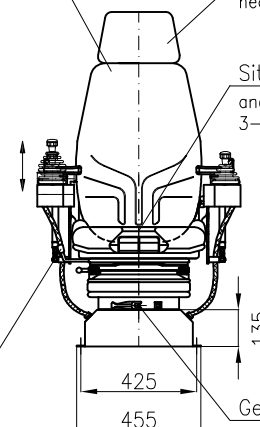
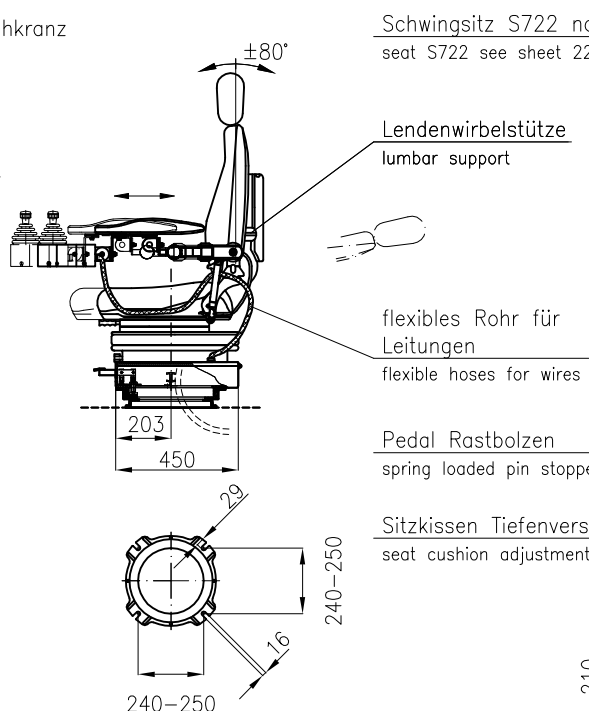
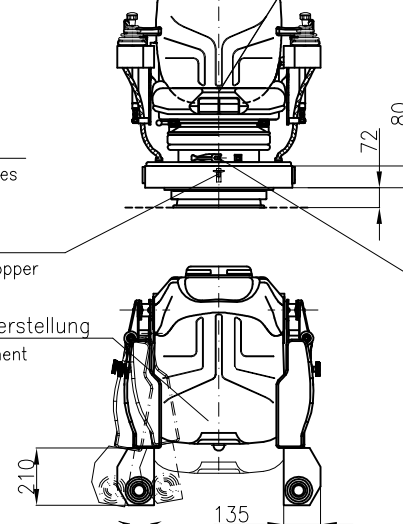


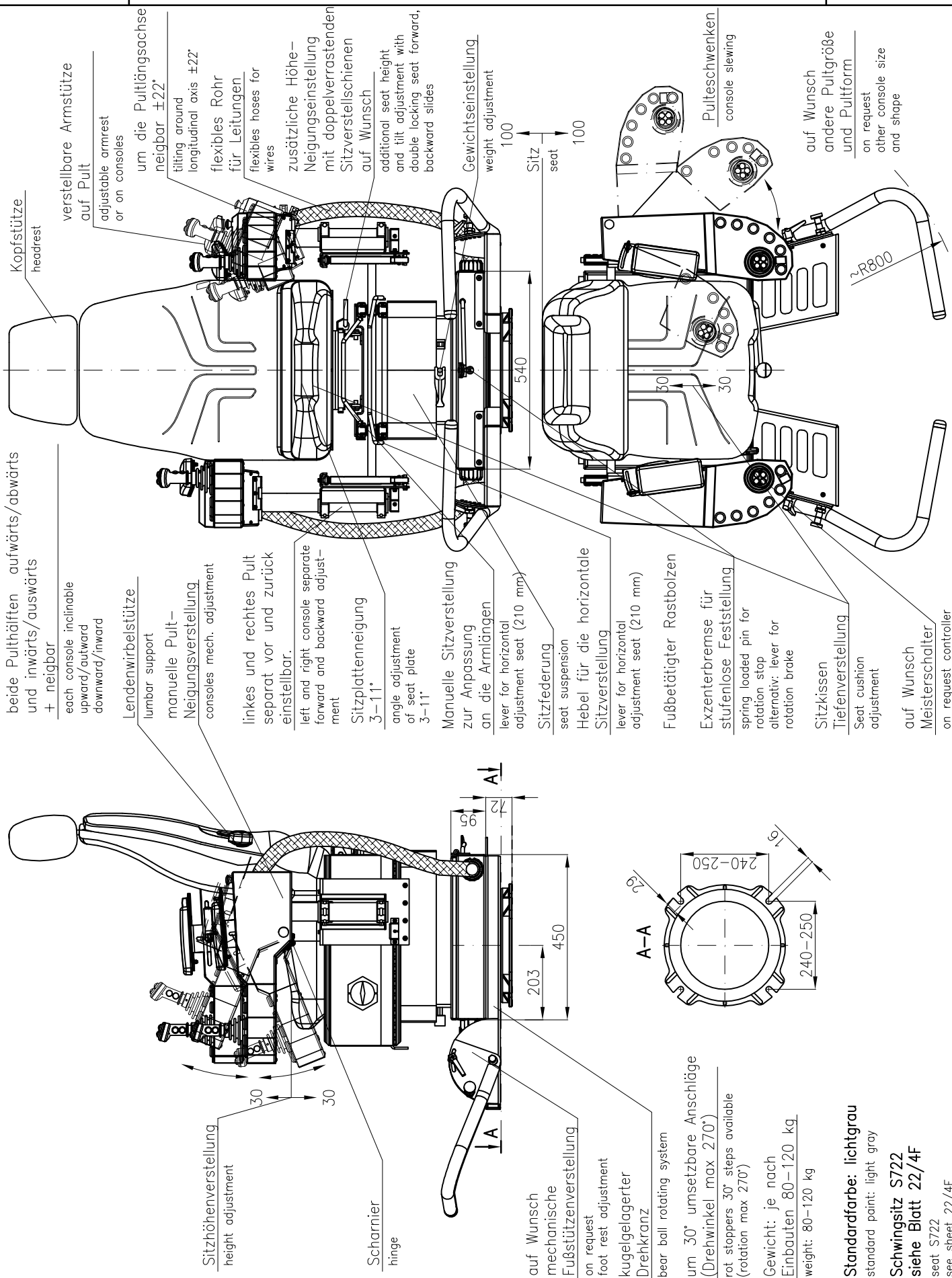
Pneum. Schwingensystem mit
Kompressor Höhenverstellung
und automatischer Körper-
gewichtseinstellung
pneumatic suspension by compressor
height and automatic weight adjustment

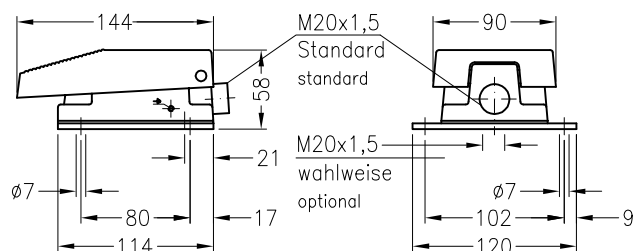
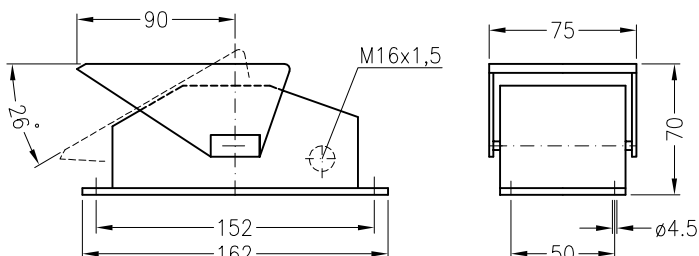
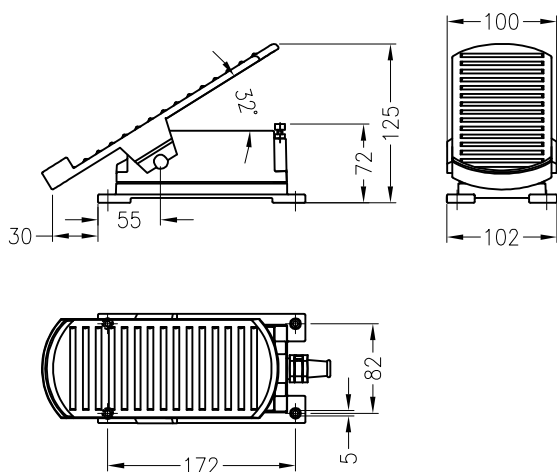
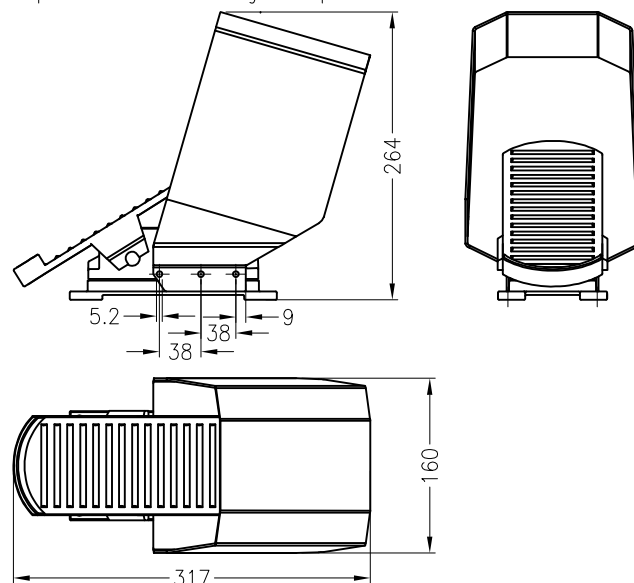
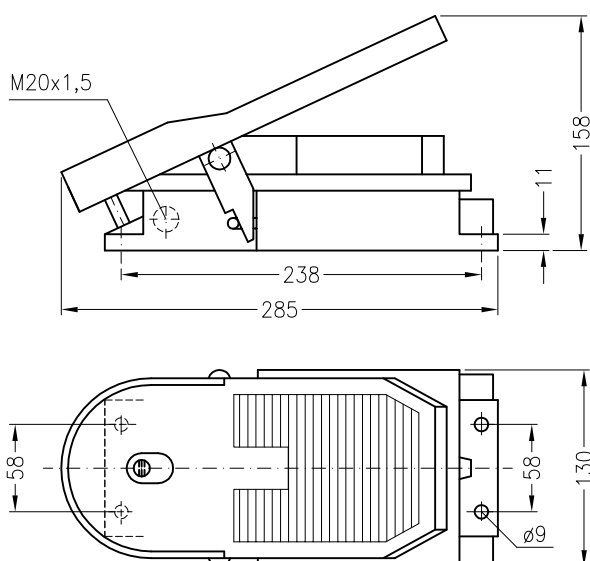


mechanische Fußstützenverstellung
mech. footrest adjustment



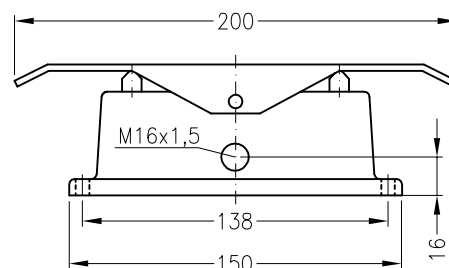
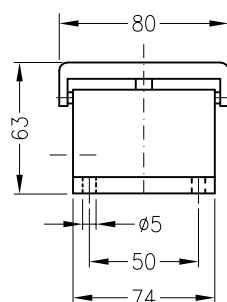
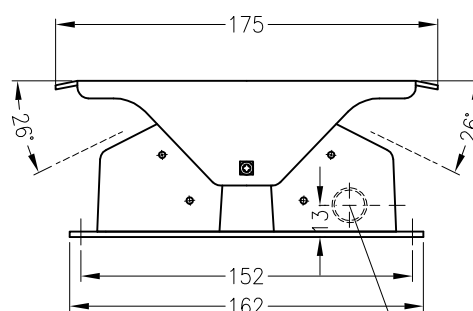
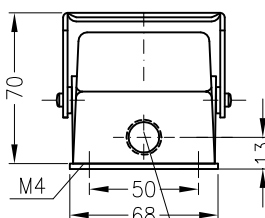
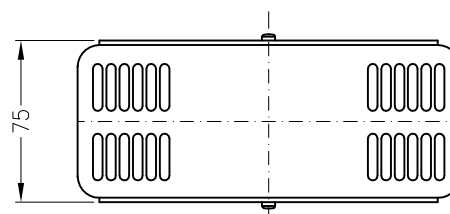
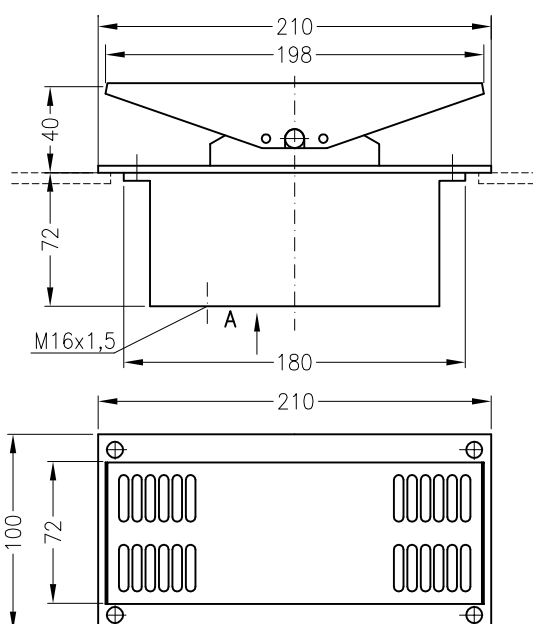
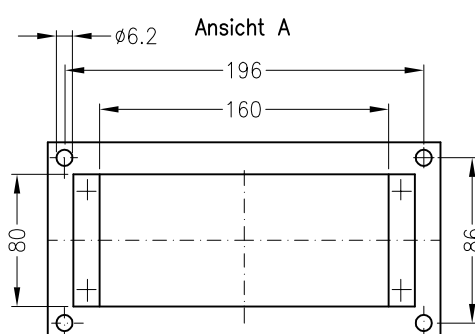
FSALV
Stationär
stationarySitzhöhenverstellung
height adjustmentHebel für die horizontale
Sitzverstellung
lever for horizontal
seat adjustment**Standardfarbe: schwarz**
standard paint: blackKopfstütze auf Wunsch
headrest on requestSchwingsitz S722 nach 22/4F
seat S722 see sheet 22/4FSitzplattenneigung 3–11°
angle adjustment of seat plate 3–11°Gewichtseinstellung
weight adjustment**FSALVDS**
Drehbar mit Drehscheibe
rotary with turning discSitzhöhenverstellung
height adjustment**Standardfarbe: schwarz**
standard paint: blackSchwingsitz S722 nach 22/4F
seat S722 see sheet 22/4FKopfstütze auf Wunsch
headrest on requestSitzplattenneigung 3–11°
angle adjustment of seat plate 3–11°Gewichtseinstellung
weight adjustment**FSALVD**
Drehbar mit Kugeldrehkranz
rotary with ball bearingSitzhöhenverstellung
height adjustment**Standardfarbe: schwarz**
standard paint: blackSchwingsitz S722 nach 22/4F
seat S722 see sheet 22/4FKopfstütze auf Wunsch
headrest on requestSitzplattenneigung 3–11°
angle adjustment of seat plate 3–11°Gewichtseinstellung
weight adjustmentAndere Größe auf Wunsch
other dimensions on request**Spohn+Burkhardt**
Elektrotechnische Fabrik BlaubeurenMauergasse 5
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GERMANYTel. +49 7344 171-0 info@spobu.de
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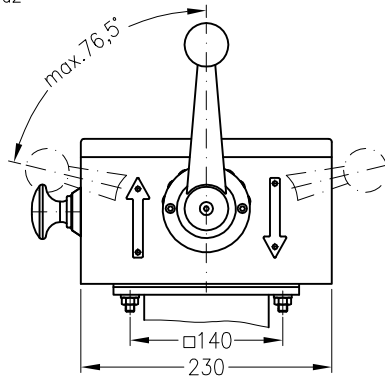
Fußtaster SF
foot pedalSF_ Schutzart IP42
degree of protection IP42SF_0d Schutzart IP56
degree of protection IP56Fußtaster FT0
foot pedalSchutzart IP54
degree of protection IP54Fußtaster FST
foot pedalSchutzart IP54
degree of protection IP54Fußtaster FSTS
foot pedalSchutzart IP54
degree of protection IP54Fußtaster FPS/FPW
foot pedalSchutzart IP42
degree of protection IP42
Spohn+Burkhardt
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Fußwippe FW
foot rockerSchutzart IP42
degree of protection IP42Fußwippe FW0
foot rockerSchutzart IP54
degree of protection IP54Bohrung für M16x1,5
mit Metall-Blindstopfen verschlossen
bore for M16x1,5 with metal blind plugBohrung für
M16x1,5
bore for M16x1,5Fußwippe FWU
foot rockerFrontseitig Schutzart IP42
front side degree of protection IP42**Spohn + Burkhardt**
Elektrotechnische Fabrik BlaubeurenMauergasse 5
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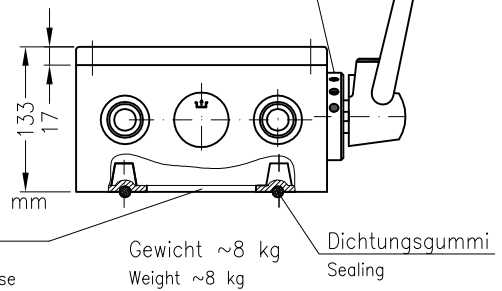
Mit flachem Deckel Od2-
With flat cover Od2-



Normalausführung:
Hebel rechts, auf Wunsch links
Normally lever right, on request left

Auf Wunsch
Od2 B
Mit Kabeleinführung $\varnothing 100$ mm
durch den Boden
On request
Od2 B with cable entry on base

Stellungsmarken
Marks



Gewicht ~ 8 kg
Weight ~ 8 kg

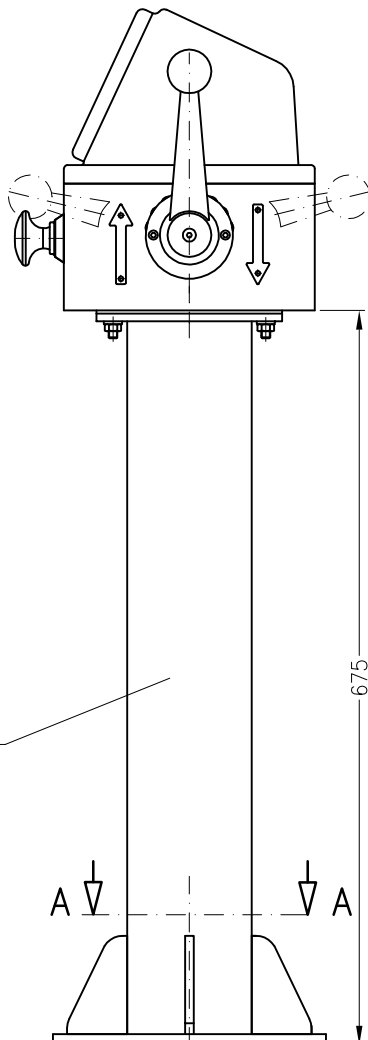
Dichtungsgummi
Sealing

mit Meßinstrumentenaufsatz Od2-J-

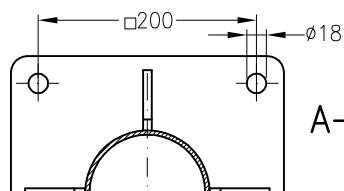
Maximale Einbaumöglichkeit: 2 Meßinstrumente 72x72 mm und 3 Meldelampen 36x24 mm

Upper part for instruments Od2-J-

Maximal installation: 2 instruments 72x72 mm and 3 lamps 36x24 mm



Auf Wunsch
Standrohr mit
Rechteckflansch
On request
pillar with
flange squared



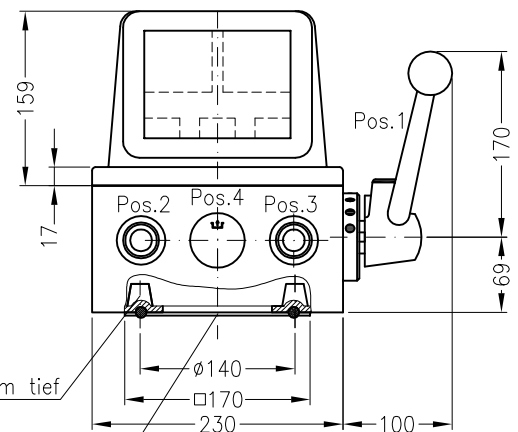
A-A

Auf Wunsch
Od2 B-J-
Mit Kabeleinführung $\varnothing 100$ mm
durch den Boden
On request
Od2 B-J- with cable entry on base

Auf Wunsch
Standrohr mit
Rundflansch
NW100 DIN 2633
On request
pillar with
flange round

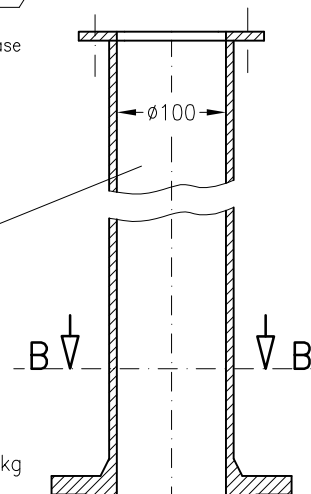
Gewicht Standrohre je ~ 13 kg
Weight pillars per ~ 13 kg

Standardfarbe: RAL 7032
standard paint: RAL 7032

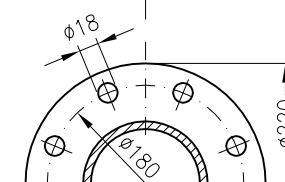


4 Gewinde
M12, 20 mm tief
4 windings

Gewicht mit Meß-
instrumentenaufsatz ~ 9 kg
Weight with upper part ~ 9 kg



B-B

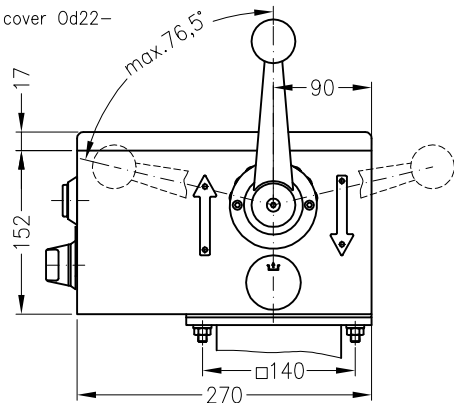


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Mit flachem Deckel Od22-
With flat cover Od22-



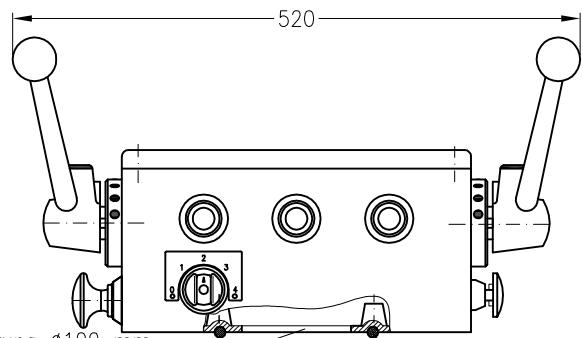
Auf Wunsch

Od22 B

Mit Kabeleinführung $\varnothing 100$ mm
durch den Boden

On request

Od22 B with cable entry on base



Gewicht ~ 12 kg

Weight ~ 12 kg

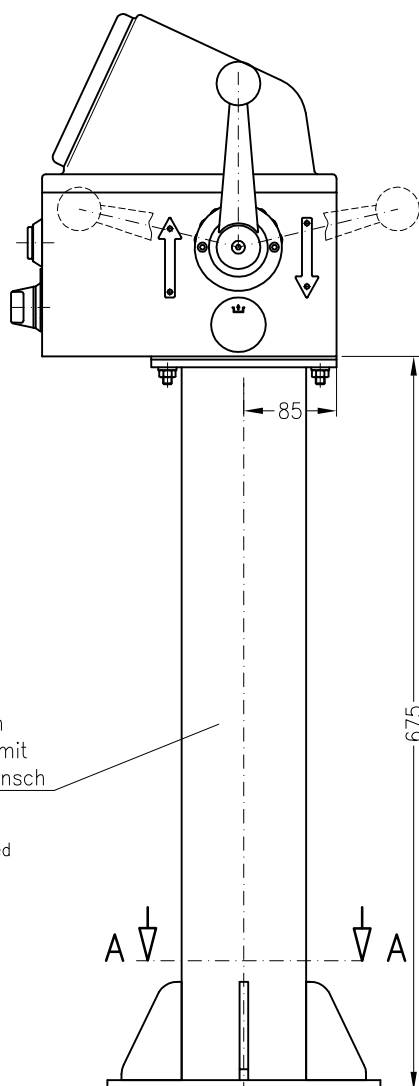
Dichtungsgummi
Sealing

Mit Meßinstrumentenaufsatz Od22-J-

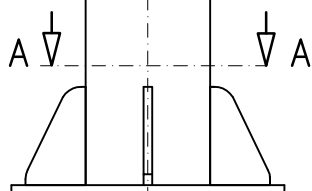
Maximale Einbaumöglichkeit: 3 Meßinstrumente 72x72 mm und 6 Meldelampen 36x24 mm

Upper part for instruments type Od22-J-

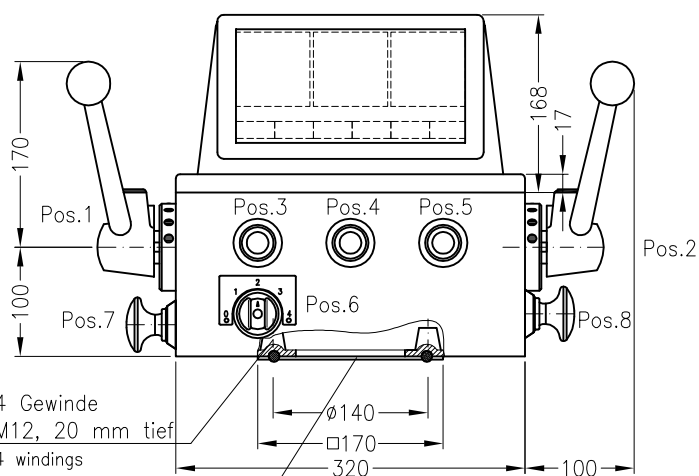
Maximal installation: 3 instruments 72x72 mm and 6 lamps 36x24 mm



Auf Wunsch
Standrohr mit
Rechteckflansch
On request
pillar with
flange squared



A-A



Auf Wunsch

Od22 B-J-

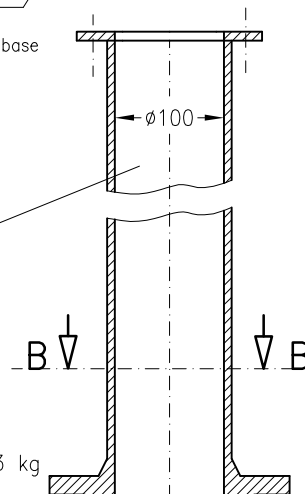
Mit Kabeleinführung $\varnothing 100$ mm
durch den Boden

On request

Od22 B-J- with cable entry on base

Gewicht mit Meß-
instrumentenaufsatz ~ 14 kg
Weight with upper part ~ 14 kg

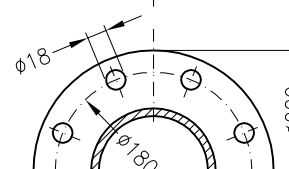
Auf Wunsch
Standrohr mit
Rundflansch
NW100 DIN 2633
On request
pillar with
flange round



B-B

Gewicht Standrohre je ~ 13 kg
Weight pillars per ~ 13 kg

Standardfarbe: RAL 7032
standard paint: RAL 7032

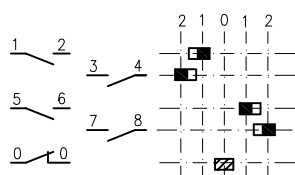
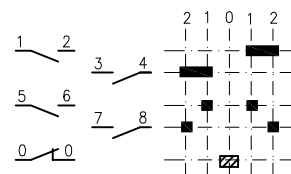
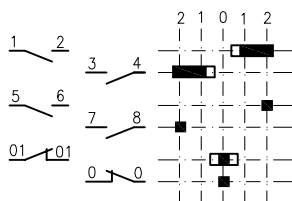
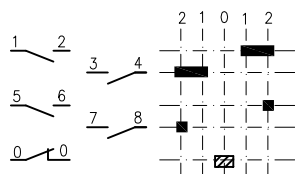
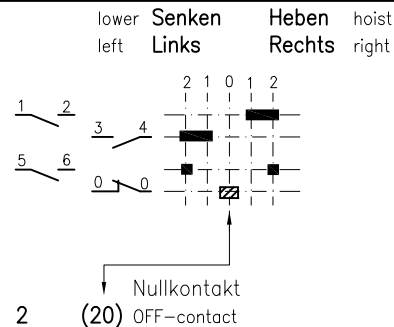
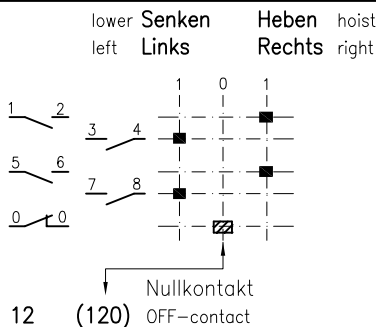
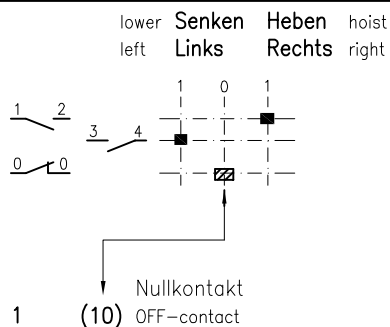
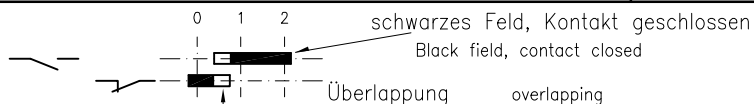


Spohn + Burkhardt
Elektrotechnische Fabrik Blaubeuren

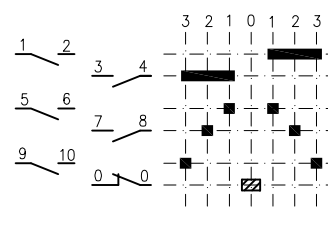
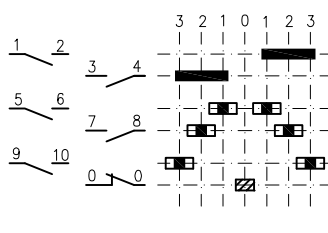
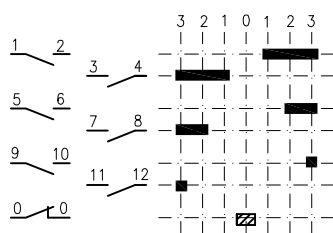
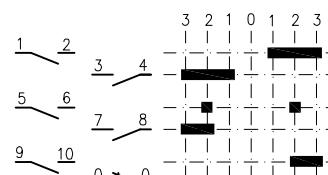
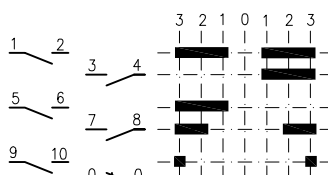
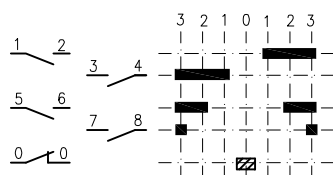
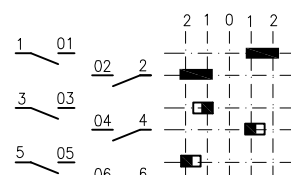
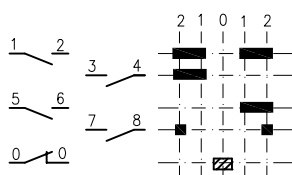
Mauergasse 5
89143 BLAUBEUREN
GERMANY

Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

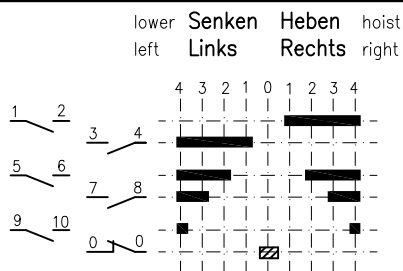
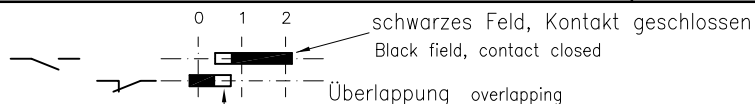
Klammerbezeichnung bedeutet
Abwicklung mit Nullkontakt
Specifications in brackets means
with OFF-contact



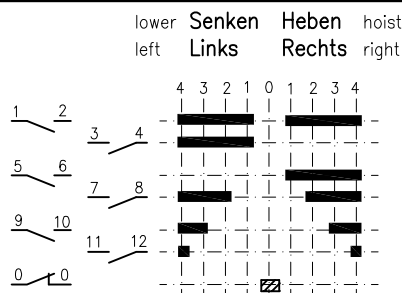
21 A (210 A) ohne Überlappung
without overlapping



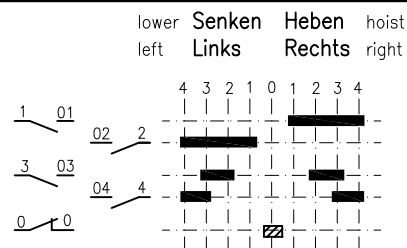
Klammerbezeichnung bedeutet
Abwicklung mit Nullkontakt
Specifications in brackets means
with OFF-contact



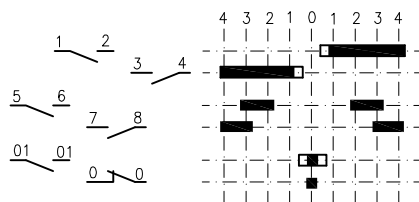
4 (40)
Nullkontakt
OFF-contact



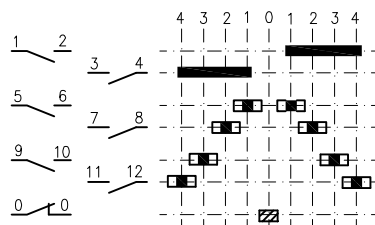
4 D (4D0)
Nullkontakt
OFF-contact



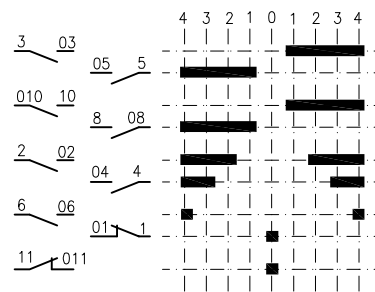
42 (420)
Nullkontakt
OFF-contact



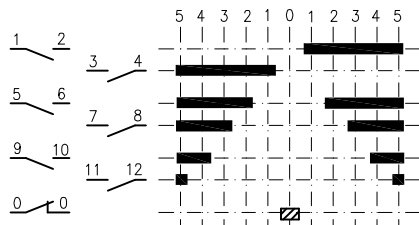
4200 A



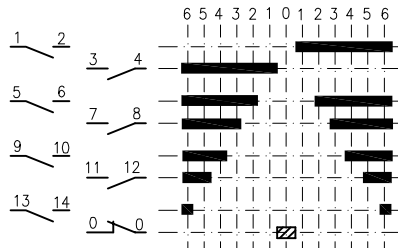
41 (410)



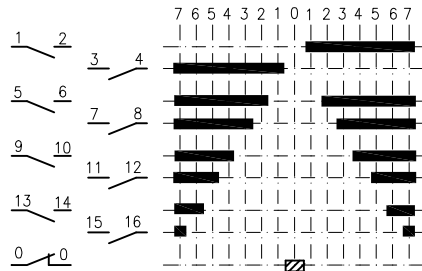
ak + aky
NESP 126 0106



5 (50)



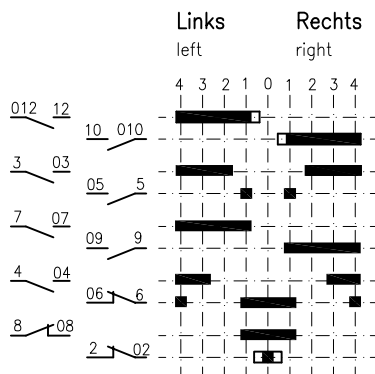
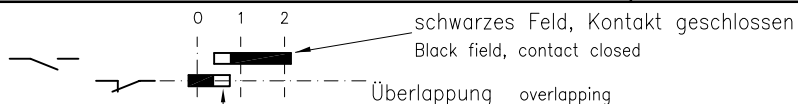
6 (60)



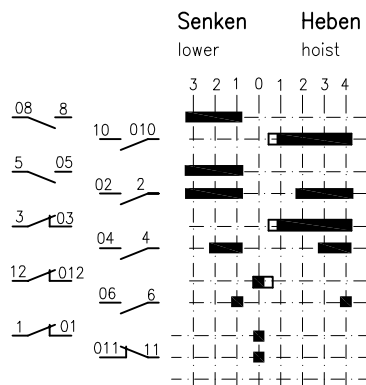
7 (70)



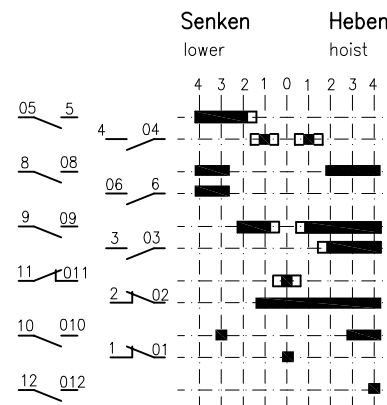
Klammerbezeichnung bedeutet
Abwicklung mit Nullkontakt
Specifications in brackets means
with OFF-contact



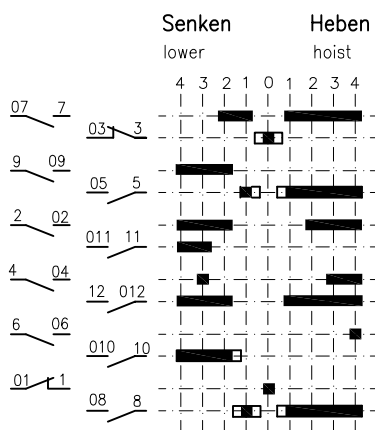
faky
NESP 126 0104



uky (0)
NESP 126 0108



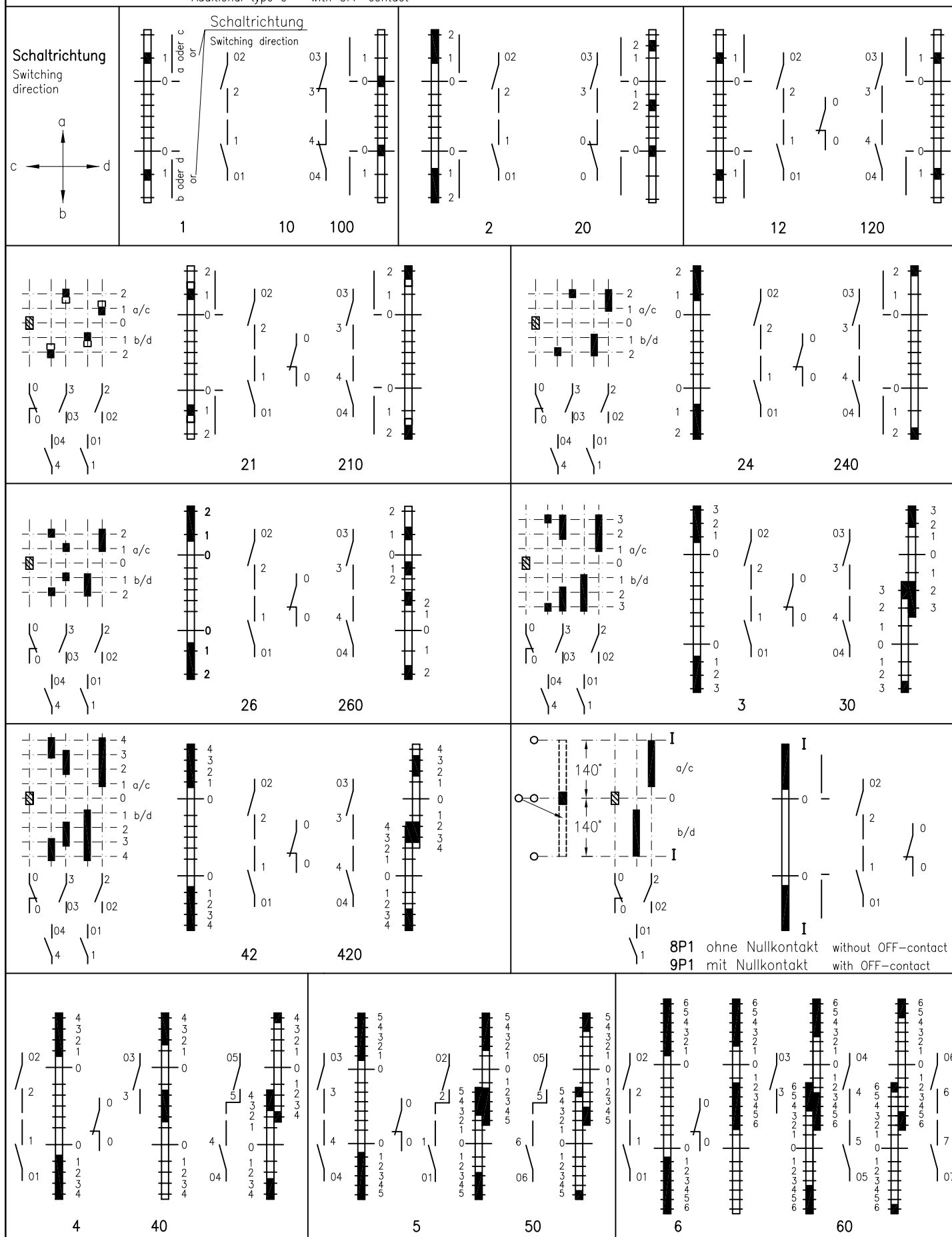
ek (0)
eky (0)
NESP 126 1027



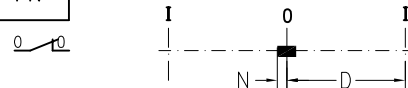
ehky (0)
NESP 126 0103



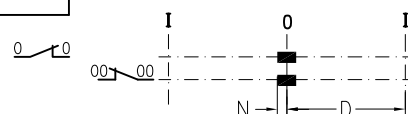
Typenzusatz 0 – mit Nullkontakt
Additional type 0 – with OFF-contact



PN

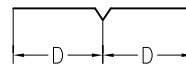


PNN

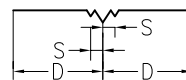
**Rastungen:****Notches:**

A: nur Nullrastung, z.B., bei 9P1

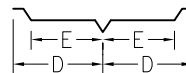
Rastenscheibe NS037-OK mit einer Rastenrolle.
only 0-notching, e.g., 9P1
notching disc NS037-OK with one notching role.



B: Nullrastung und fühlbare Anfangsrasten, z.B., bei 9P1S (Schaltung mit Zusatz: S)
Rastenscheibe NS037-OK mit zwei Rastenrollen.
0-notching and feeling starting steps, e.g. 9P1S
(additional "S" in contact circuit)
notching disc NS037-OK with two notching roles.



C: Nullrastung und spürbare Endstellung, z.B., bei 10P
Rastenscheibe NS037-F3-2 bei VNS0
Rastenscheibe NNS050-12 bei NNS0
0-notching and feeling ends, e.g. 10P
cam NS037-F3-2 for VNS0
cam NNS050-12 for NNS0

**Einsatzpunkte Kontakte:****Operation of contacts:**

Bezeichnung Drehwinkel	Drehwinkel Schalterwelle bei Meisterschalter VNS0	Drehwinkel Schalterwelle bei Meisterschalter NNS0
Rotation angle	Angle of VNS0-axis	Angle of NNS0-axis
N	5°	5°
B	14°	14°
R	18°	18°
E	120°	87°
D	126°	92°

Toleranz: +- 2%

Tolerance: +- 2%

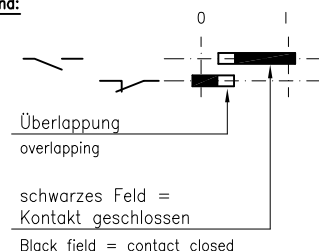
Hinweise:

Das Übersetzungsverhältnis:
Hebelauslenkung : Drehung Schalterwelle
beträgt bei Meisterschaltern VNS0 bzw. NNS0: 3,5.
Sicheres Überlappen zweier Kontakte oder
sicheres Öffnen/Schließen eines Kontaktes vor
dem Schließen/Öffnen des zweiten bei
Umschaltvorgängen sind im Rahmen der
Schaltabwicklungen sinnvolle und erfüllbare
Forderungen. Ein absolutes gleichzeitiges
Schalten zweier Kontakte können wir hingegen
nicht garantieren.

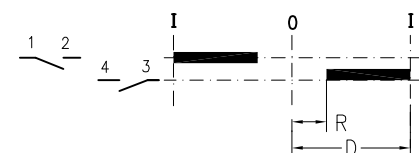
Note:

Ratio:

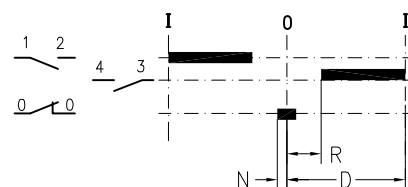
lever rotation to axis for VNS0 and NNS0 is 3,5.
Secure open/close at next contact may be reasonable
and practicable in the range of switch sequences.
Switching at same time cannot be ensured.

Legende:**Legend:**

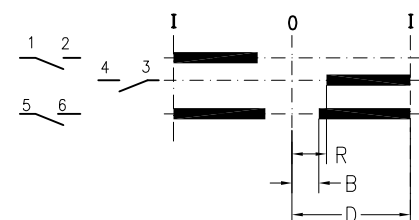
8P1



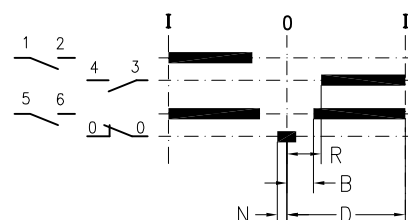
9P1



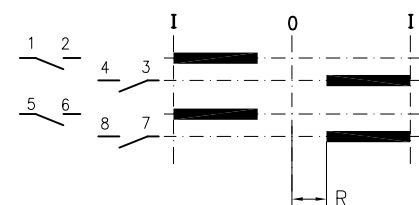
8P1A



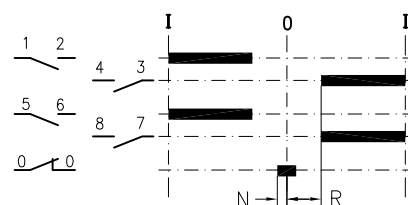
9P1A



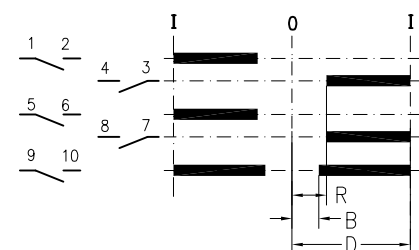
8P2



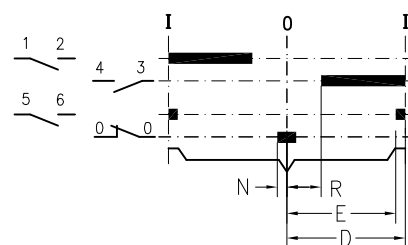
8P20



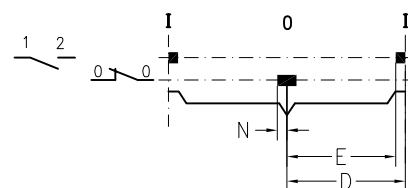
8P2A



10P



POE

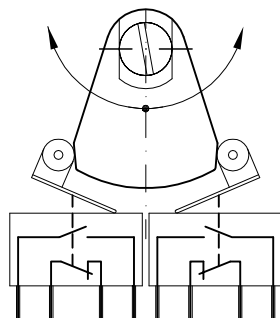


4PN lower left Senken Links Heben Rechts hoist right	5PN lower left Senken Links Heben Rechts hoist right	6PN lower left Senken Links Heben Rechts hoist right
4P	5P	6P
4P0 4P00	5P0 5P00	6P0 6P00
4P0E	5P0E	6P0E
4P2	5P2	6P2
4P20	5P20	6P20



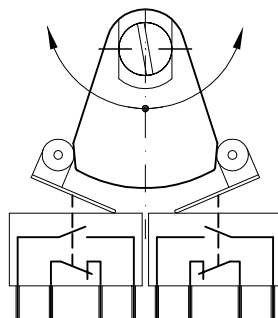
Für 1-0-1 Stellungen
For 1-0-1 steps

M



ohne Nullrastung / without zero notch

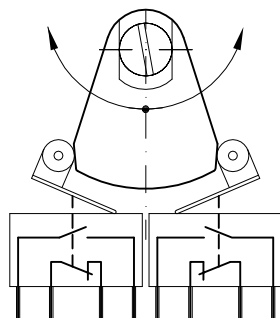
M1



mit Nullrastung / with zero notch

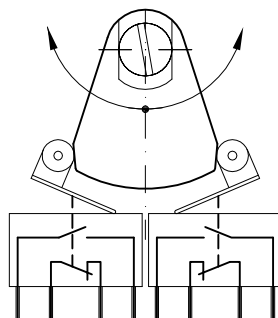
Potentiometer circuits

MP



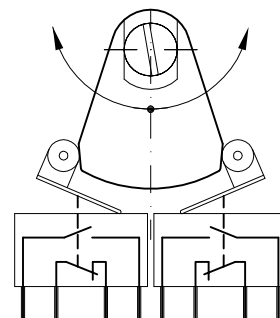
ohne Nullrastung / without zero notch

MP1



mit Nullrastung / with zero notch

MP5



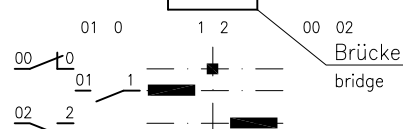
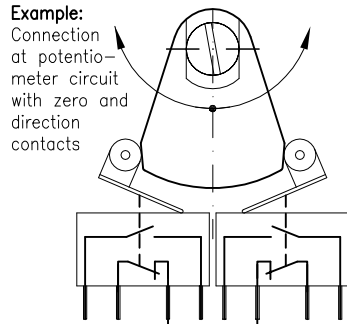
mit 5-0-5 fühlbaren Stellungen
und Nullrastung
with 5-0-5 notch feeling and zero notch

Beispiel:

Anschlußbelegung bei Potentiometerschal-
tung mit Null- und Richtungskontakte

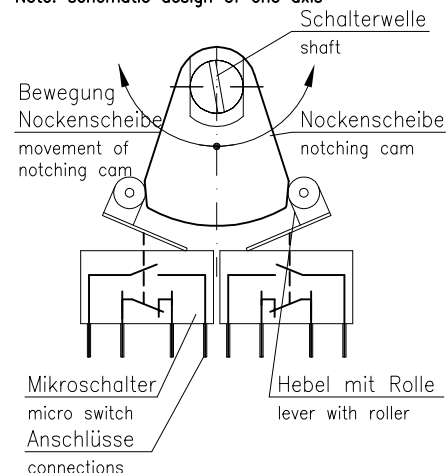
Example:

Connection
at potention-
meter circuit
with zero and
direction
contacts



Hinweis: schematische Darstellung einer Achse

Note: schematic design of one axis

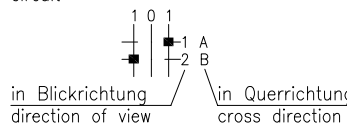


Spohn + Burkhardt
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GERMANY

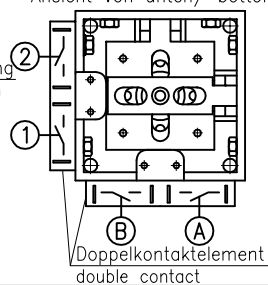
Tel. +49 7344 171-0 info@spobu.de
Fax +49 7344 171-99 www.spobu.de

Schaltung 1:
circuit



Kontaktanordnung:
contact arrangement

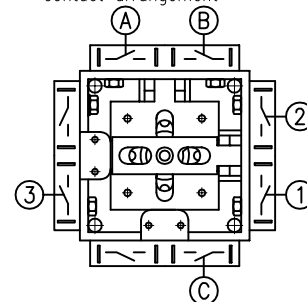
Ansicht von unten/ bottom view



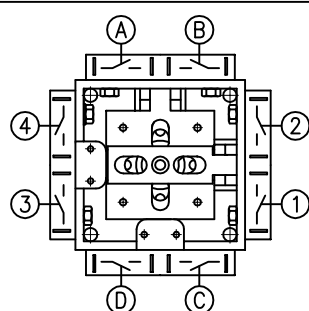
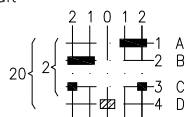
Schaltung 10:
circuit



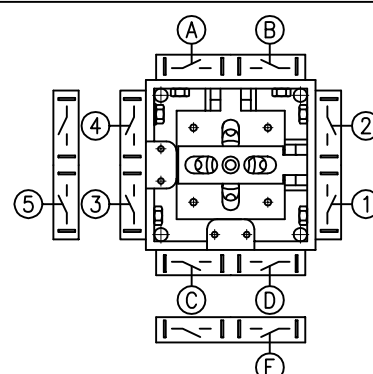
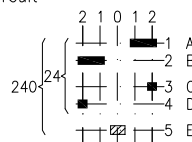
Kontaktanordnung:
contact arrangement



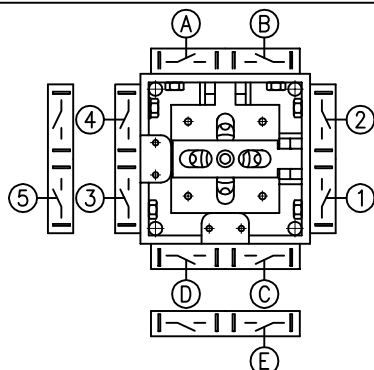
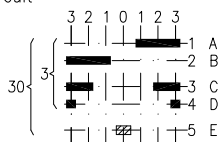
Schaltung 2 bzw. 20:
circuit



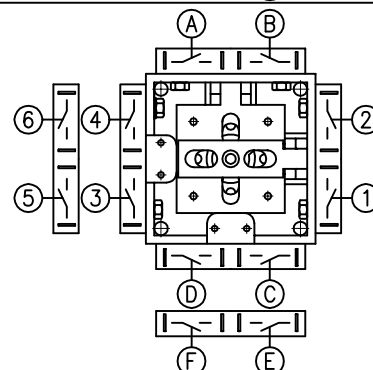
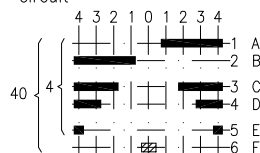
Schaltung 24 bzw. 240:
circuit



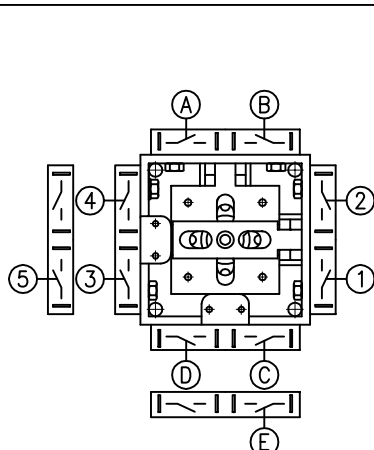
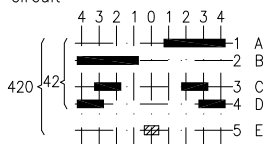
Schaltung 3 bzw. 30:
circuit



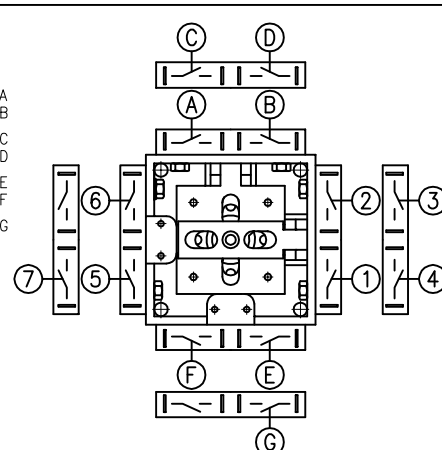
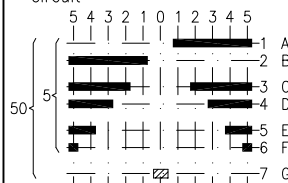
Schaltung 4 bzw. 40:
circuit



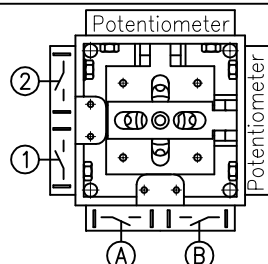
Schaltung 42 bzw. 420:
circuit



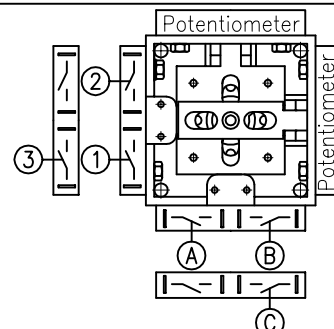
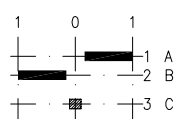
Schaltung 5 bzw. 50:
circuit



Schaltung 8P1:
circuit

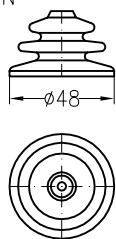


Schaltung 9P1:
circuit

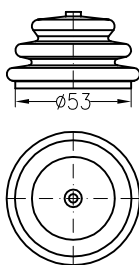


E 1/1
2014Gummi- und Lederstulpen
Rubber and leather bootE 1/1
2014

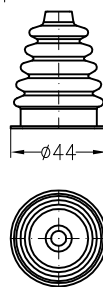
M024A¹⁰³¹⁶
für Meisterschalter M0, MON
GMON, SMON



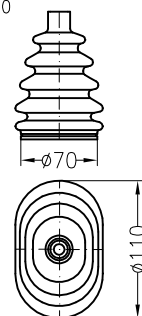
M024Z¹²⁰²⁴
M0, MON, GMON, SMON



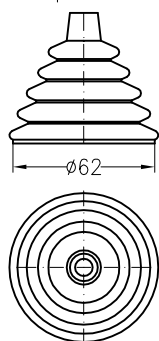
ST0-07¹²⁶⁵¹
ST0



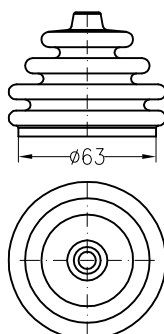
ST2-04²³⁸¹⁰
ST2



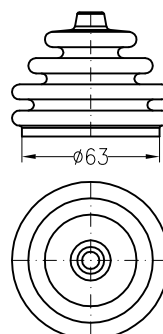
V040KE¹²²¹⁰
für Meisterschalter VCS0,
CS1 mit Rosette 72x72 mm,
VCS0 mit Stulpenhalterring S0



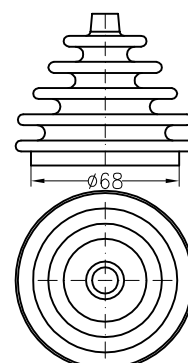
V040KE2²⁸⁷⁴⁸
CS0, CS1, VNS0, NNS0



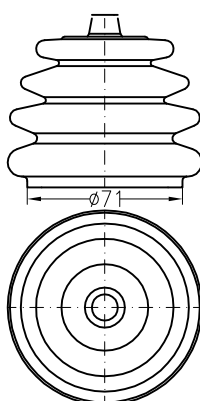
V040KE2-K³⁰²⁸⁵
CS0, CS1, VNS0, NNS0
kältebeständig bis -40°



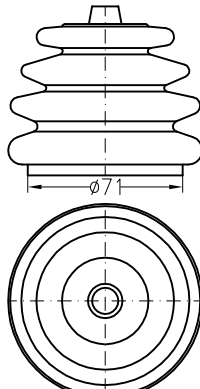
V041K¹¹⁴²⁶
CS1_S, VCS0_S mit
Stulpenhalterring



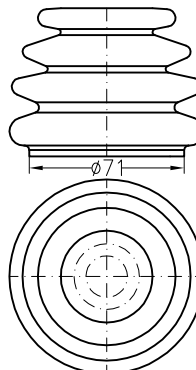
V041N¹¹⁹⁶⁰
für Meisterschalter VCS0, VNS0,
NS3 mit Rosette 96x96 mm



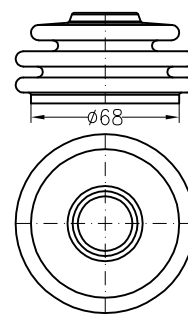
V041NK³⁰²⁸³
VCS0, VNS0, NS3
mit Rosette 96x96 mm
kältebeständig bis -40°



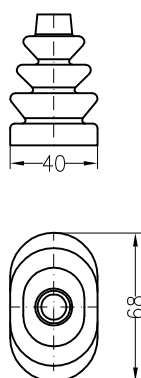
V041N-UG²³²²⁰, **V041N-UGA**²³⁵⁸⁸
V041N-UGC²³⁵⁸⁸
V041N-UGD¹³²²²
V041N-UGN¹⁶³⁷²
VCS0, VNS0



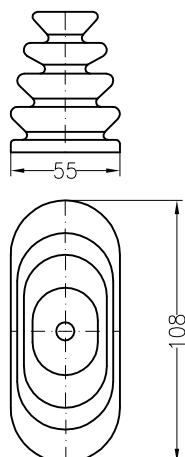
V041K-G9²⁸⁷⁴⁷
VCS0, VNS0 mit G9 Griff



NS0-GG0¹³²³³
für Meisterschalter NS0-GG



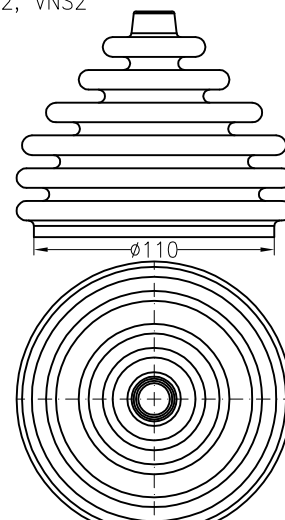
V184GG¹⁸¹⁴⁷
NS2-GG



V041L¹⁸⁰⁷⁶ **W041L-12**²⁸⁴¹⁴
VCS0, VNS0 mit
Rosette 96x96 mm



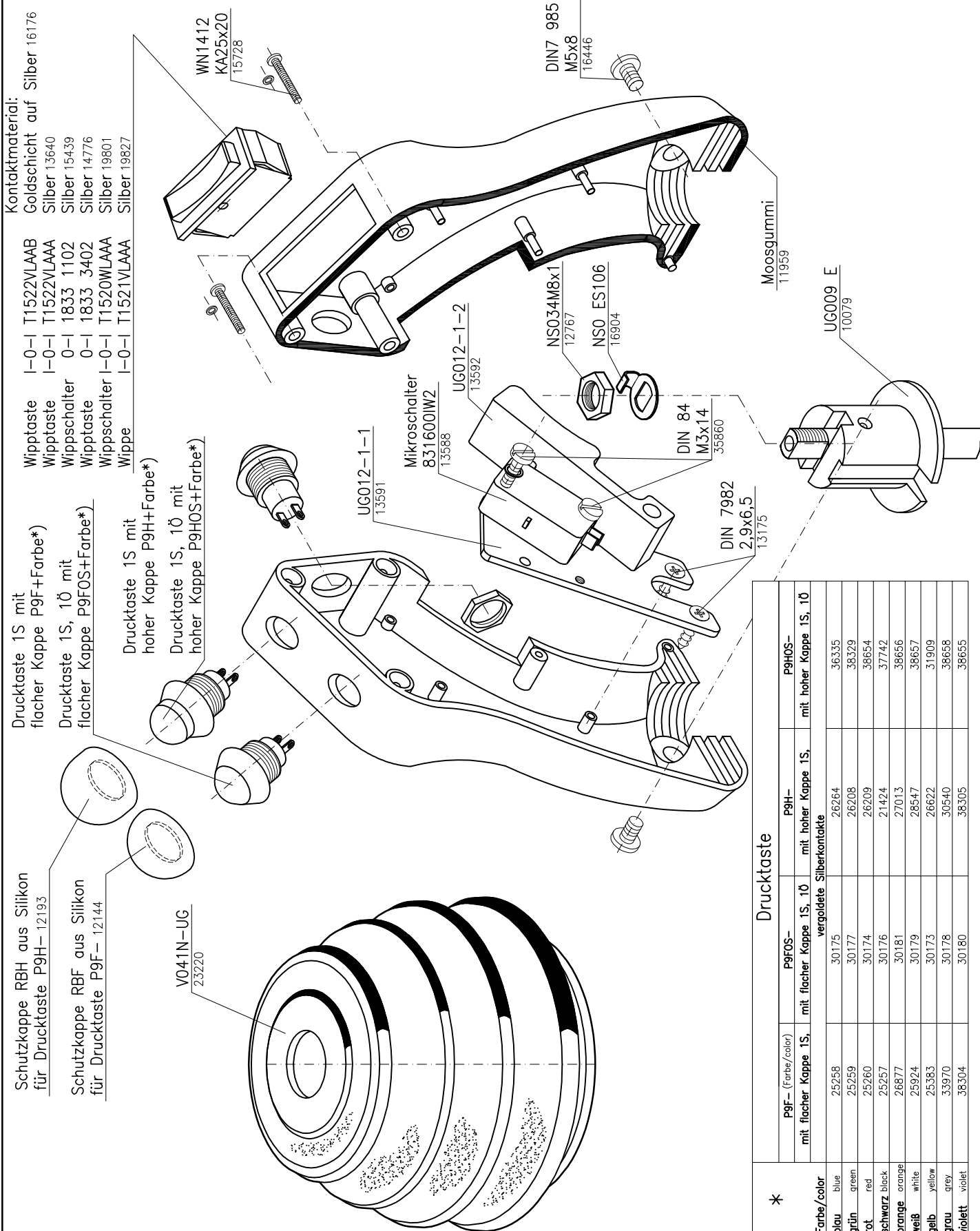
V184K¹¹⁷⁰⁰
NS2, VNS2



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Drucktaste

* Farbe/color	P9F- (Farbe/color)		P9HOS- mit flacher Kappe 1S, 10		P9H- mit hoher Kappe 1S, 10		P9HOS- mit hoher Kappe 1S, 10	
	mit flacher Kappe 1S, 10	mit hoher Kappe 1S, 10	mit flacher Kappe 1S, 10	mit hoher Kappe 1S, 10	mit flacher Kappe 1S, 10	mit hoher Kappe 1S, 10	mit flacher Kappe 1S, 10	mit hoher Kappe 1S, 10
blau	25258	30175	30177	26264	36335	36335	36335	36335
grün	25259	30176	30178	26208	36329	36329	36329	36329
rot	25260	30177	30179	26209	36654	36654	36654	36654
schwarz	25257	30176	30176	21424	37742	37742	37742	37742
orange	26877	30181	30181	27013	36656	36656	36656	36656
weiß	25924	30179	30179	28547	36657	36657	36657	36657
gelb	25383	30173	30173	26622	31909	31909	31909	31909
grau	33970	30178	30178	30540	36658	36658	36658	36658
violett	38304	30180	30180	38305	38655	38655	38655	38655



Kontakmaterial:
Goldschicht auf Silber 16176
Silber 13640
Silber 15439
Silber 14776
Silber 19801
Silber 19827

Wipptaste I-0-I T1522VLAAB
Wipptaste I-0-I T1522VLAAB
Wippschalter 0-I 1833 1102
Wipptaste 0-I 1833 3402
Wippschalter I-0-I T1520WLAAA
Wippe I-0-I T1521VLAAB

Schutzkappe RBH aus Silikon
für Drucktaste P9H- 12193

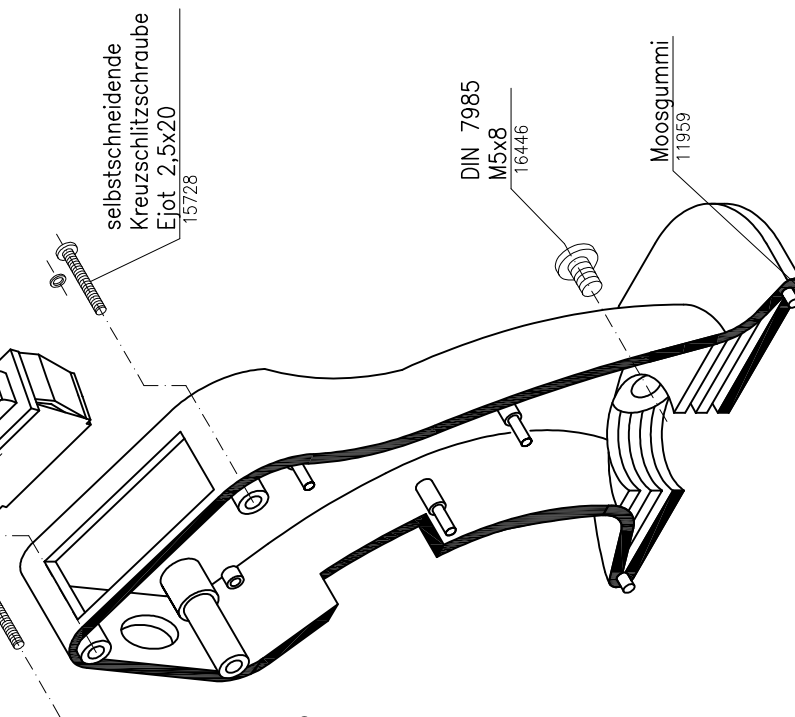
Schutzkappe RBF aus Silikon
für Drucktaste P9F- 12144

Drucktaste 1S mit
hoher Kappe P9H+Farbe*)

Drucktaste 1S, 10 mit
hoher Kappe P9HOS+Farbe*)

Drucktaste 1S mit
flacher Kappe P9F+Farbe*)

Drucktaste 1S, 10 mit
flacher Kappe P9FOS+Farbe*)



18462251 13585
18463201 13331

NS034M8x1
12767

NS0 ES106
16904

UG-009E
10079

Drucktaste

*	P9F- (Farbe/color)	P9FOS-		P9H-		P9HOS-
		mit flacher Kappe 1S, 10	mit flacher Kappe 1S, 10 vergoldete Silberkontakte	mit hoher Kappe 1S, 10	mit hoher Kappe 1S, 10	
blau	25258	30175	26264	36335	36335	
grün	25259	30177	26208	38329	38329	
rot	25260	30174	26209	38654	38654	
schwarz	25257	30176	21424	37742	37742	
orange	26877	30181	27013	38656	38656	
weiß	25924	30179	28547	38657	38657	
gelb	25383	30173	26622	31909	31909	
grau	33970	30178	30540	38658	38658	
violett	38304	30180	38305	38655	38655	



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E 3/3-5
2014Ersatzteile Griff UGD
Spare parts handleE 3/3-5
2014

Kontaktmaterial:

Wipptaste	I-0-I	T1522VLAAB	Goldschicht auf Silber	16176
Wipptaste	I-0-I	T1522VLAAB	Silber	13640
Wippschalter	0-I	1833 1102	Silber	15439
Wipptaste	0-I	1833 3402	Silber	14776
Wippschalter	I-0-I	T1520WLAAB	Silber	19801
Wippe	I-0-I	T1521VLAAB	Silber	19827

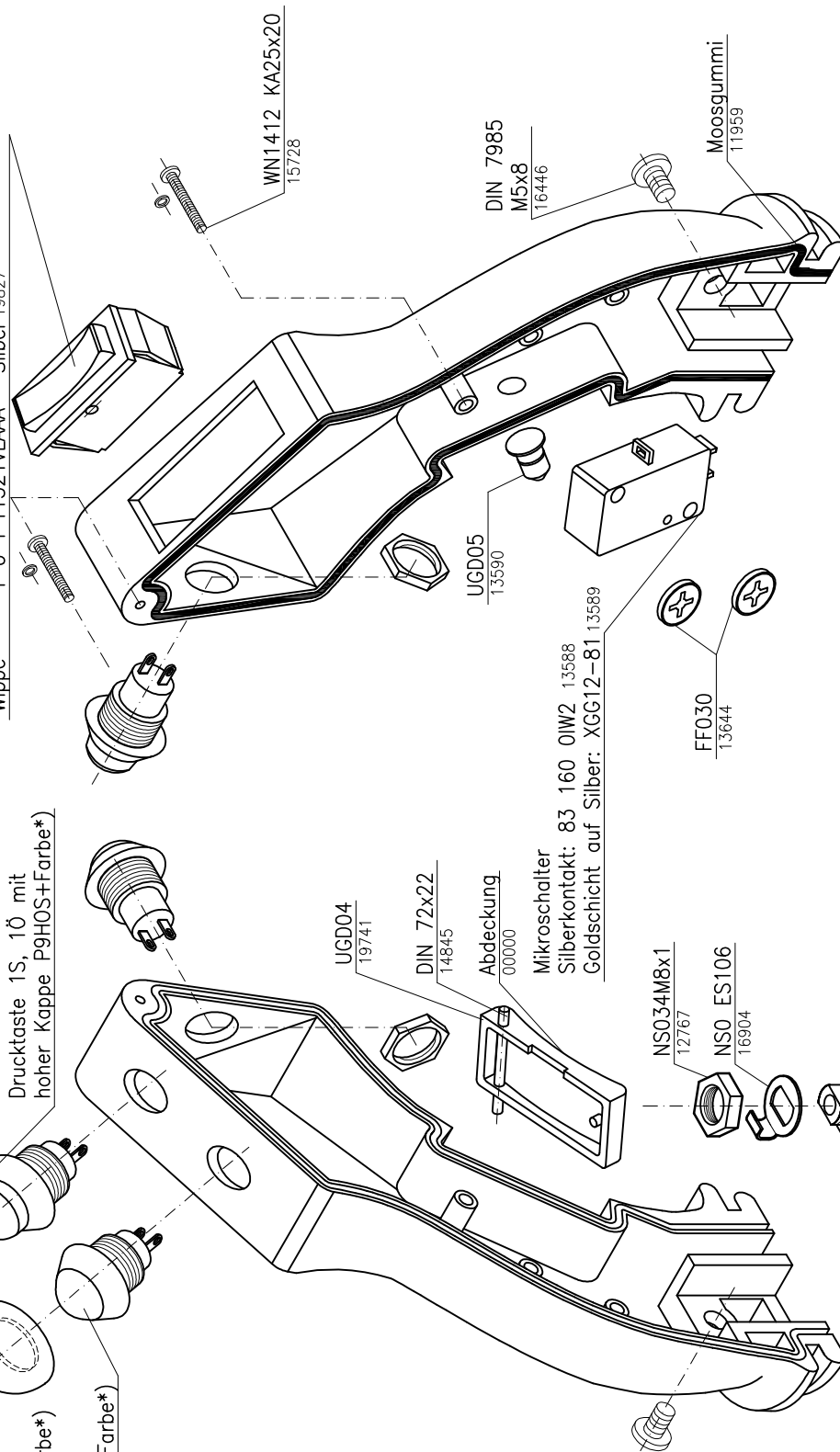
Schutzkappe RBF aus Silikon
für Drucktaste P9F- 12144Schutzkappe RBH aus Silikon
für Drucktaste P9H- 12193

Drucktaste 1S mit
flacher Kappe P9F+Farbe*)

Drucktaste 1S, 10 mit
flacher Kappe P9FOS+Farbe*)

Drucktaste 1S mit
hoher Kappe P9H+Farbe*)

Drucktaste 1S, 10 mit
hoher Kappe P9HOS+Farbe*)



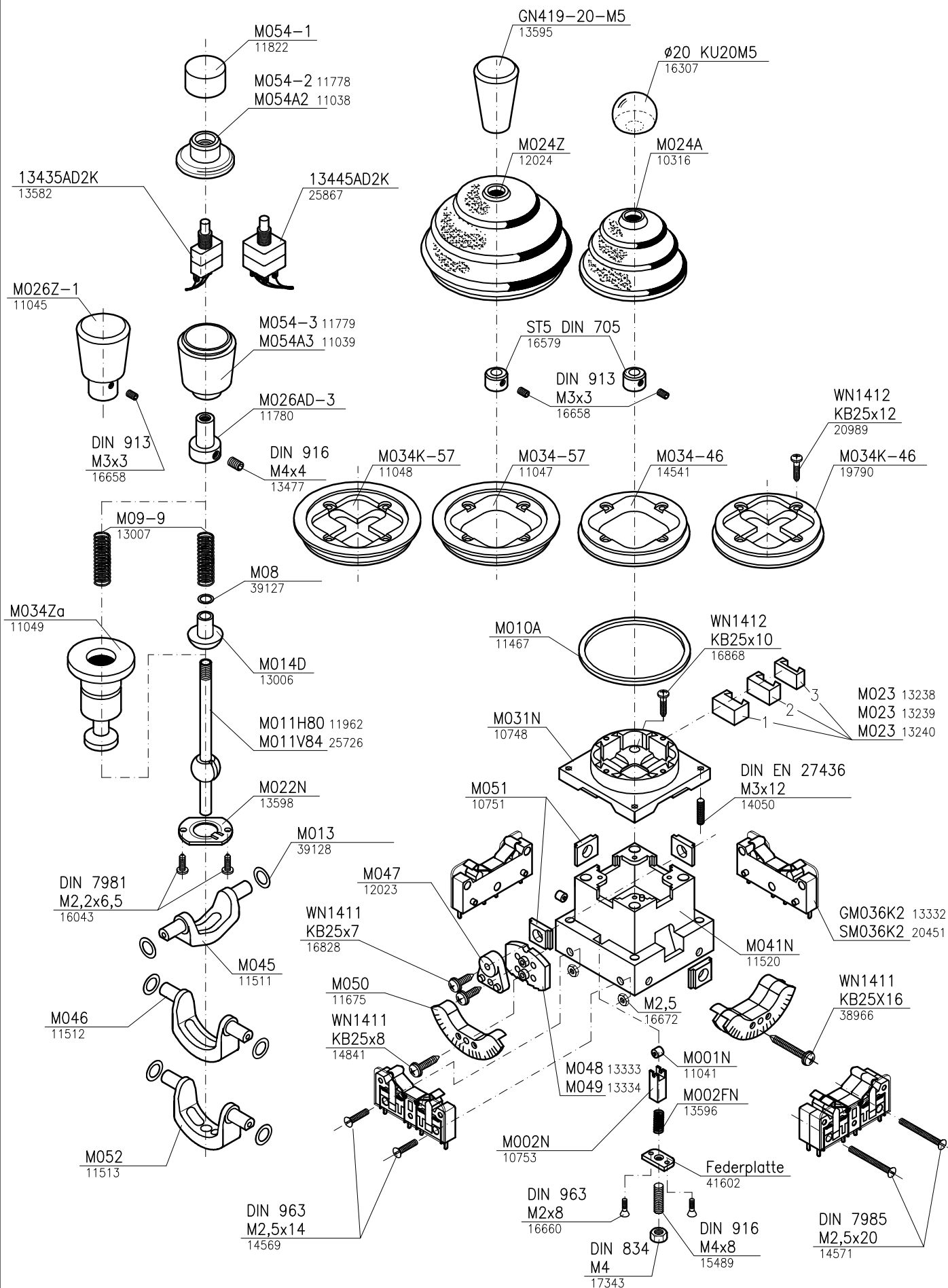
Drucktaste

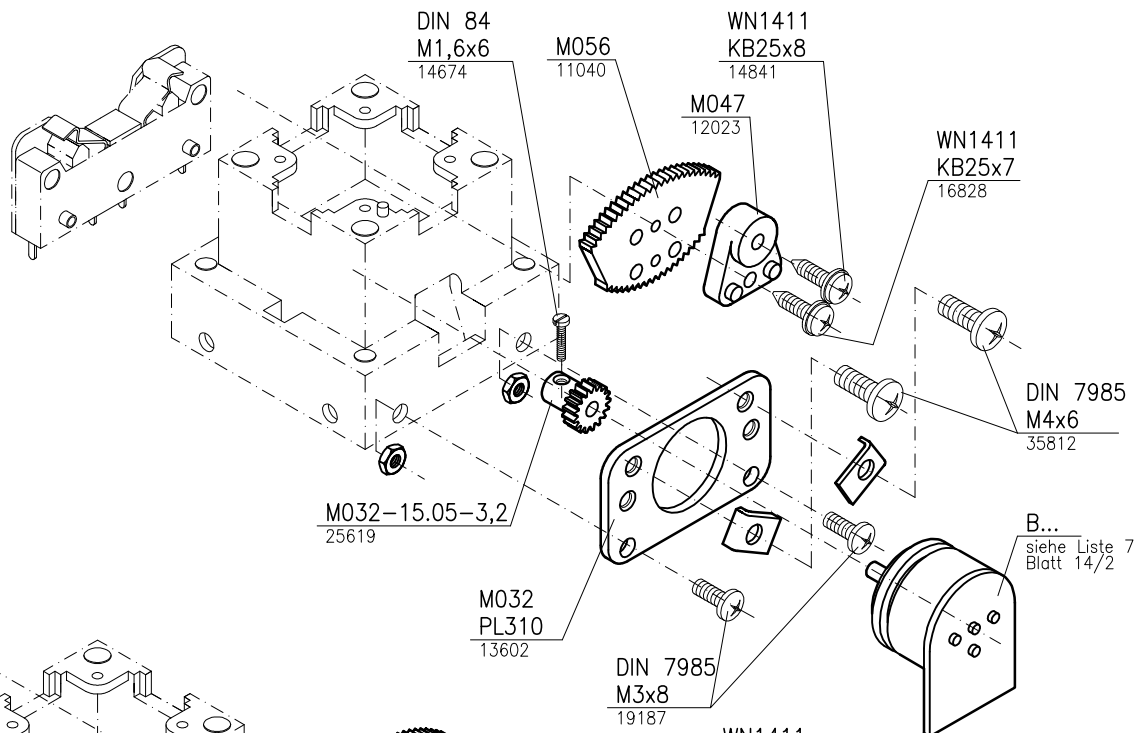
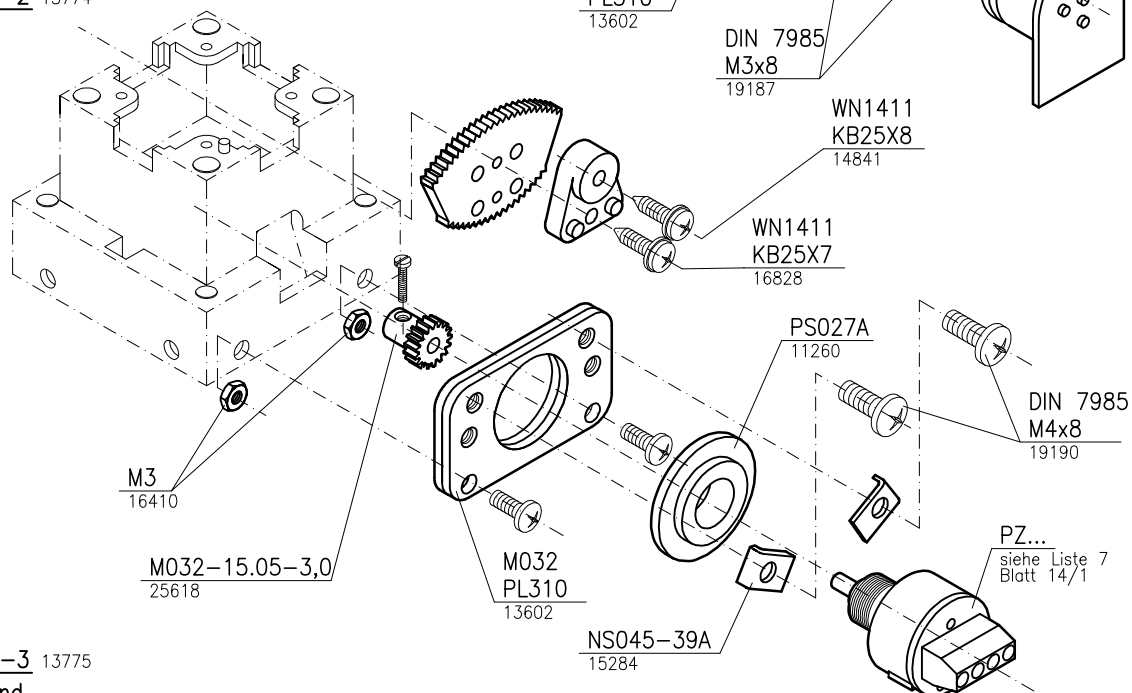
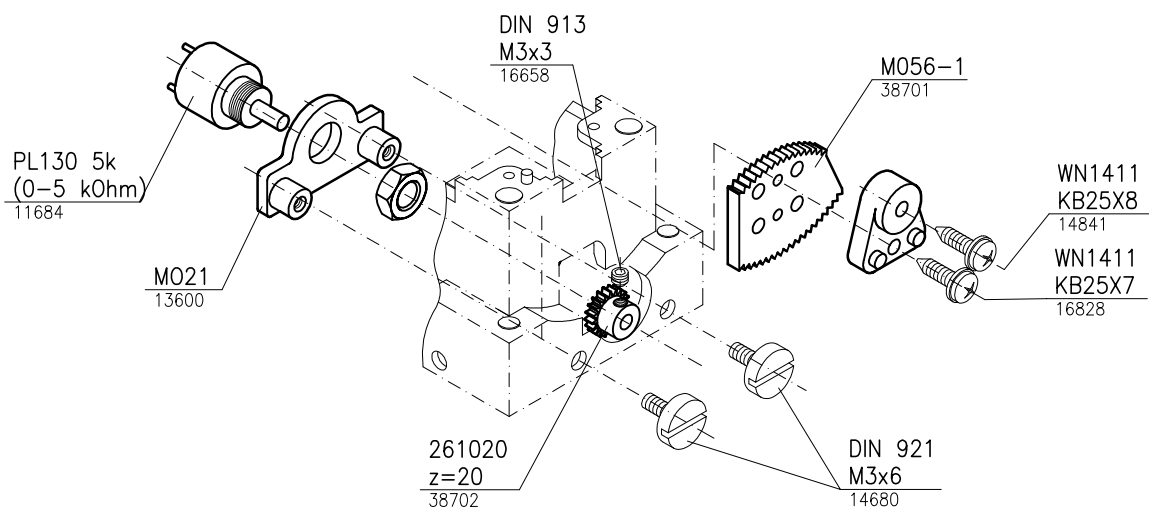
*	P9F- (Farbe/color)	P9FOS-		P9H-		P9HOS-	
		mit flacher Kappe 1S,		mit hoher Kappe 1S,		mit hoher Kappe 1S, 10	
		vergoldete Silberkontakte					
Farbe/color		25258	30175	26264		36335	
blau blue		25259	30177	26208		38329	
grün green		25260	30174	26209		38654	
rot red		25257	30176	21424		37742	
schwarz black		26877	30181	27013		38656	
orange orange		25924	30179	28547		38657	
weiß white		25383	30173	26622		31909	
gelb yellow		33970	30178	30540		38658	
grau grey		38304	30180	38305		38655	
violett violet							

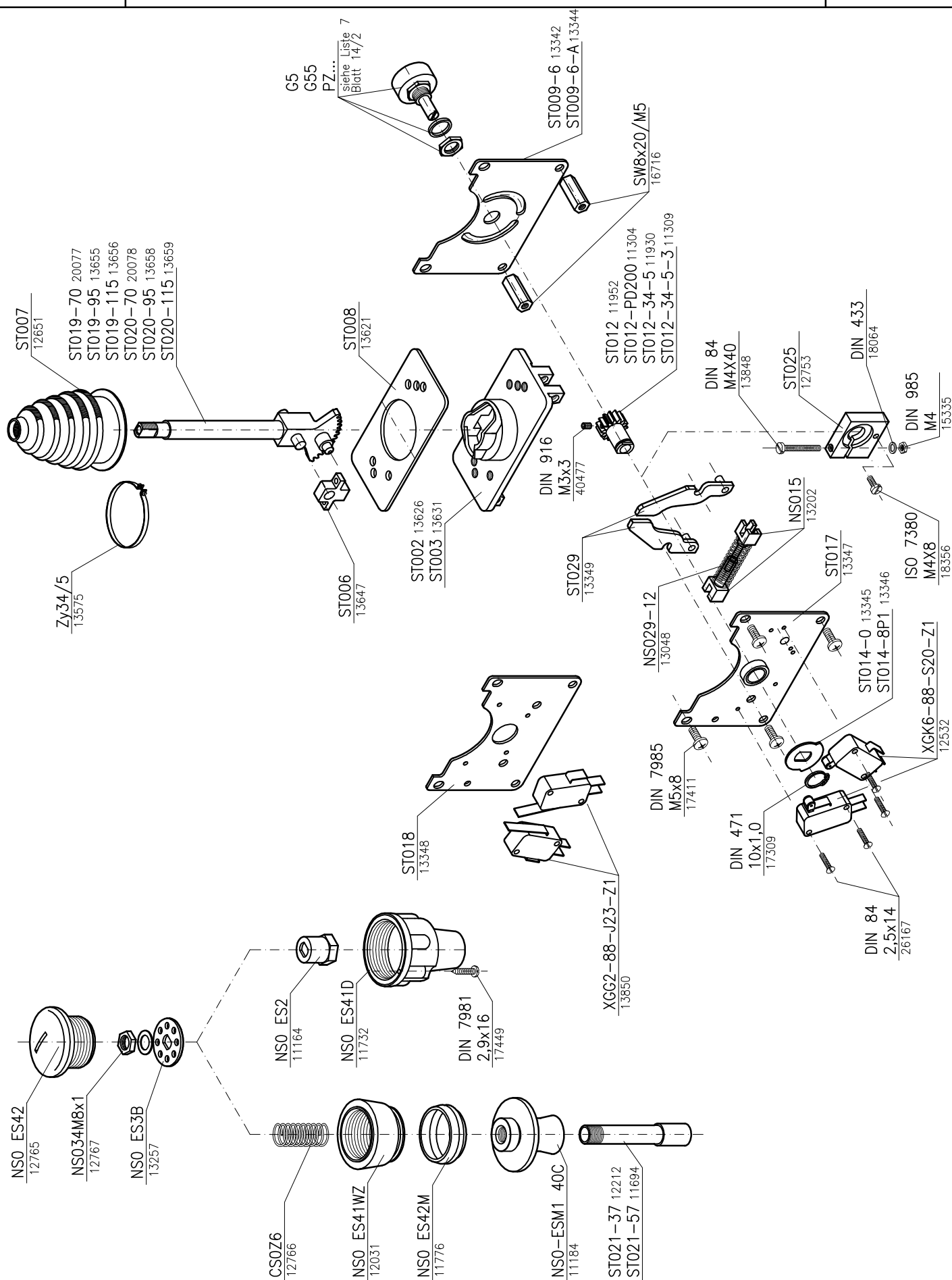

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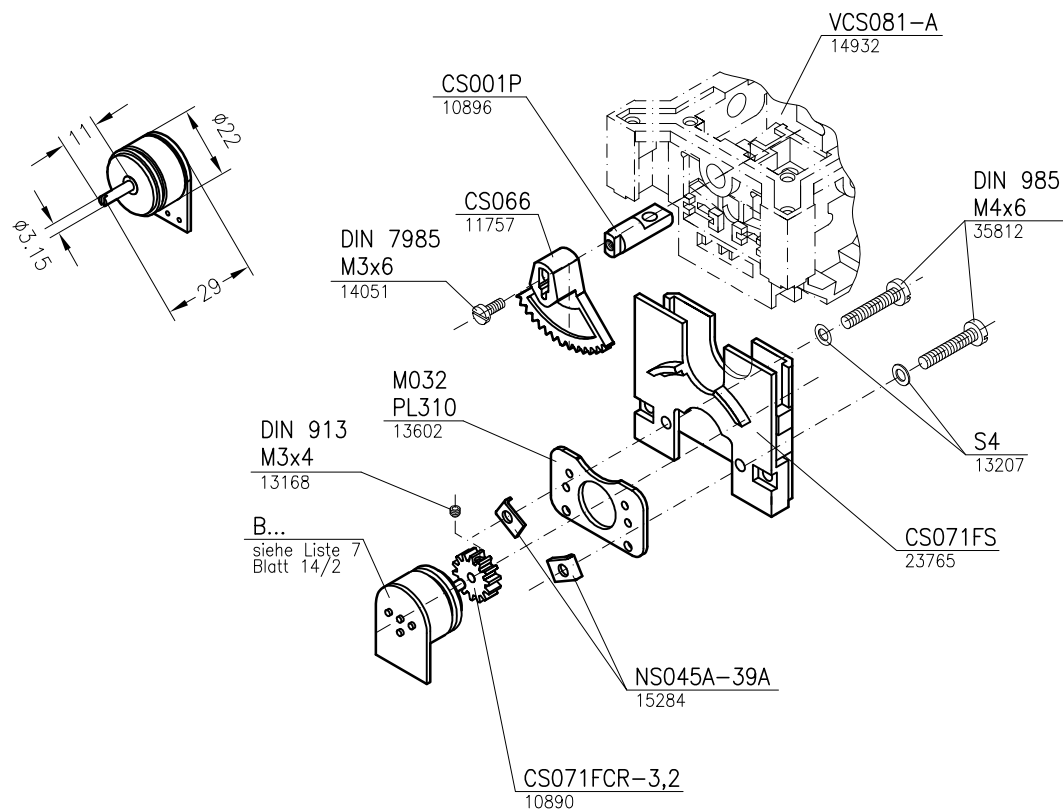
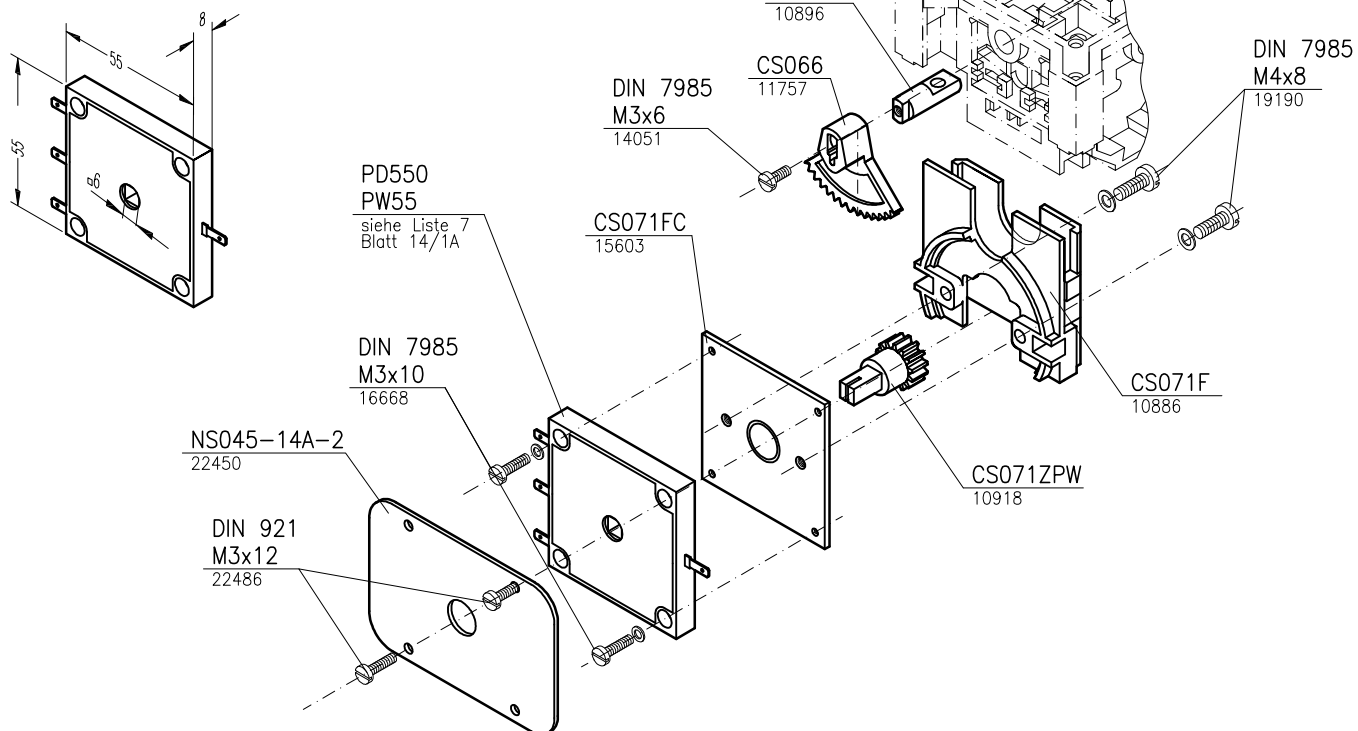
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Typ M057-1 13773Typ M057-2 13774Typ M057-3 13775
Innenliegend



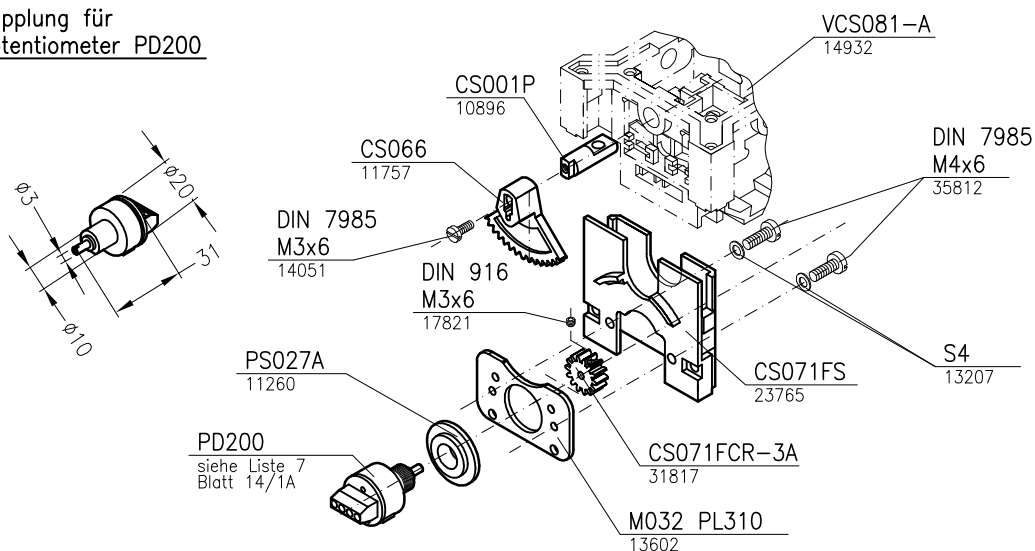
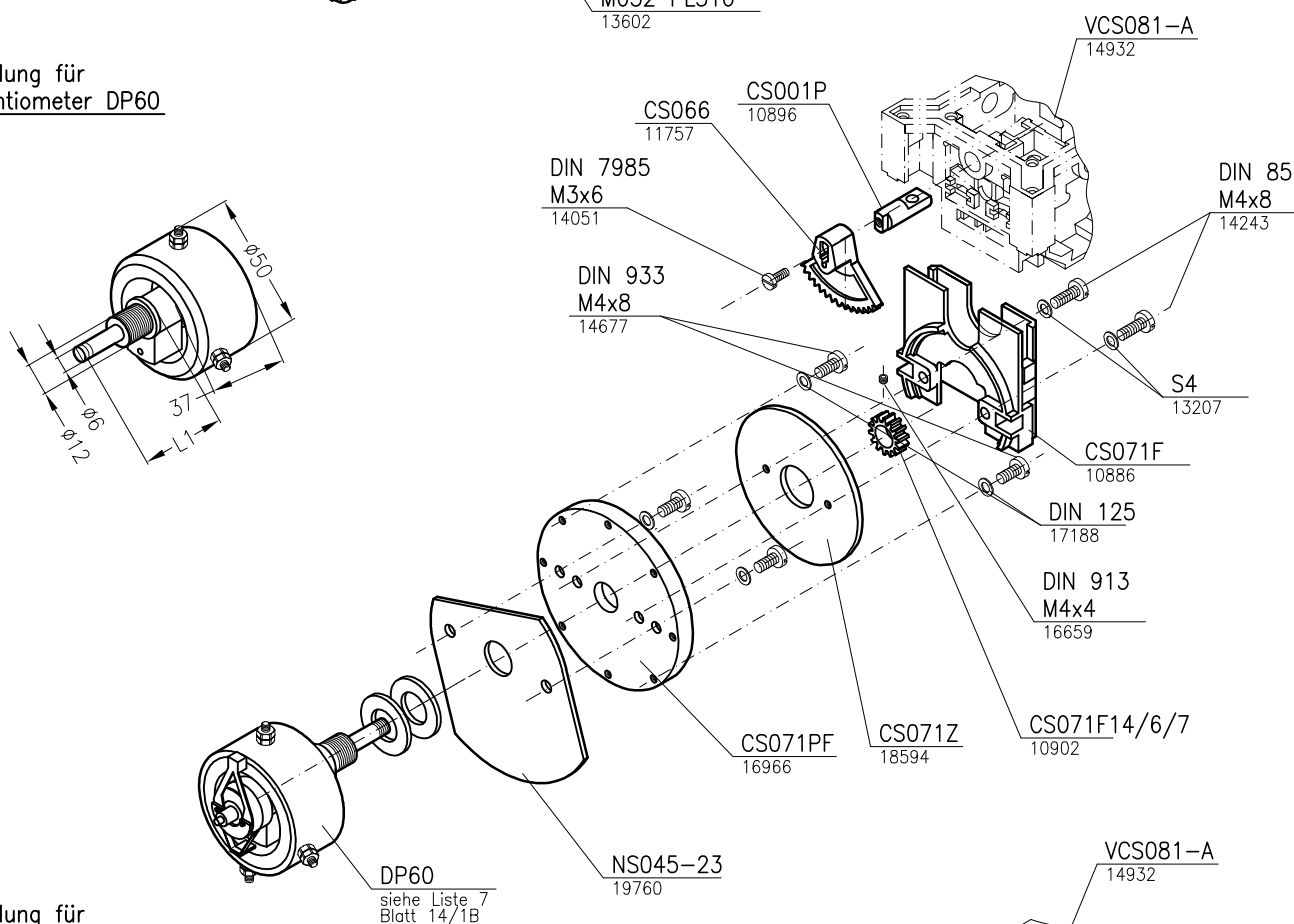
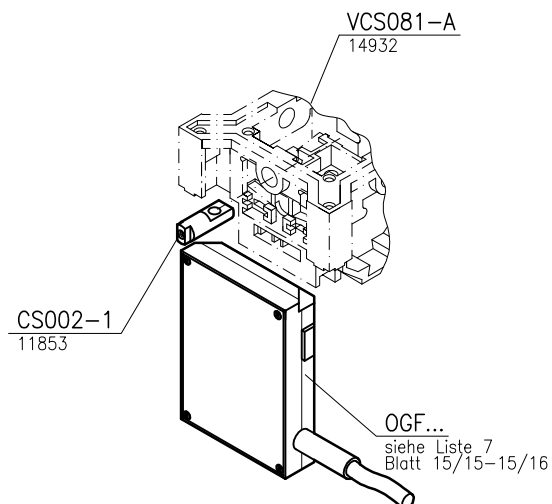
Kupplung für
Potentiometer B...Kupplung für
Potentiometer PQ...

E 7/1-2
2014

Meisterschalter/master controller CS0, VCS0

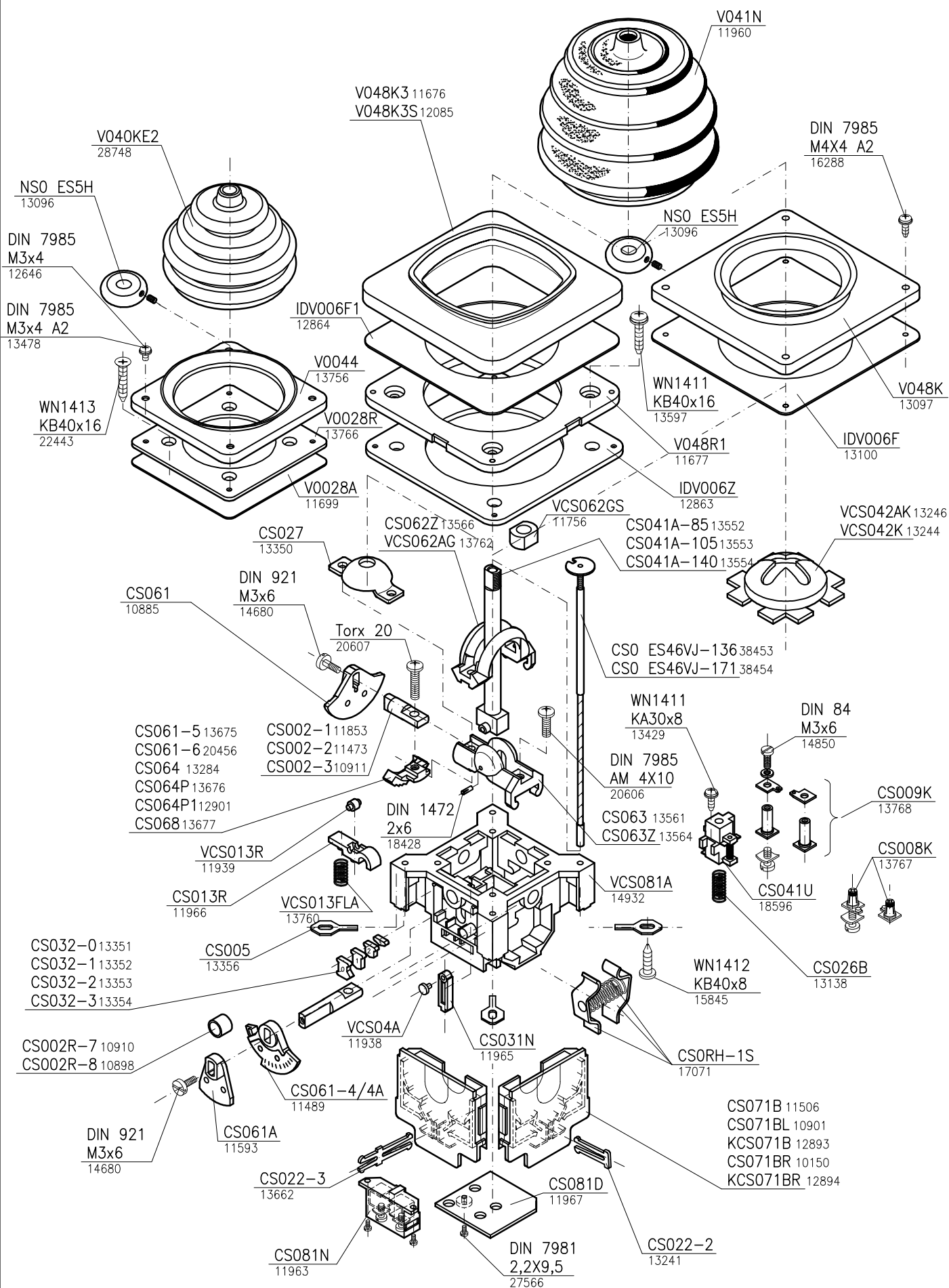
Kupplungsteile für Potentiometer: PD200, DP60, Geber: OGF

Parts for potentiometer coupling: PD200, DP60, encoder coupling: OGF

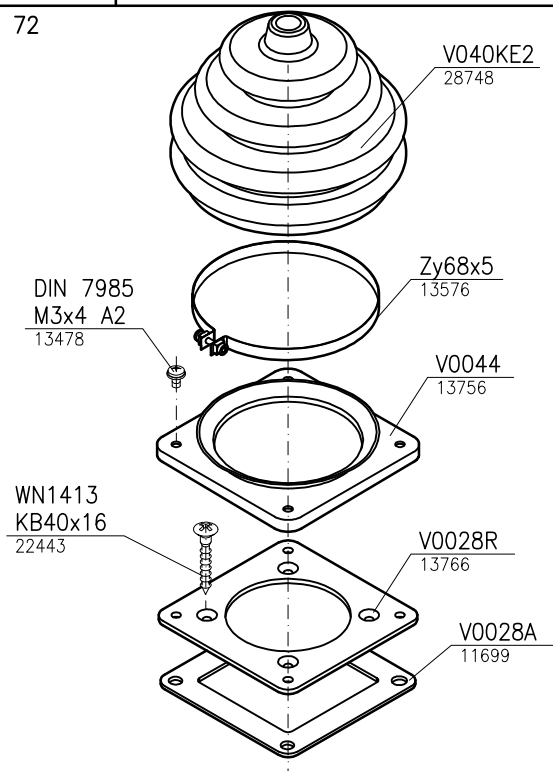
E 7/1-2
2014Kupplung für
Potentiometer PD200Kupplung für
Potentiometer DP60Kupplung für
Absolutwertgeber OGF...
Spohn+Burkhardt
 Elektrotechnische Fabrik Blaubeuren

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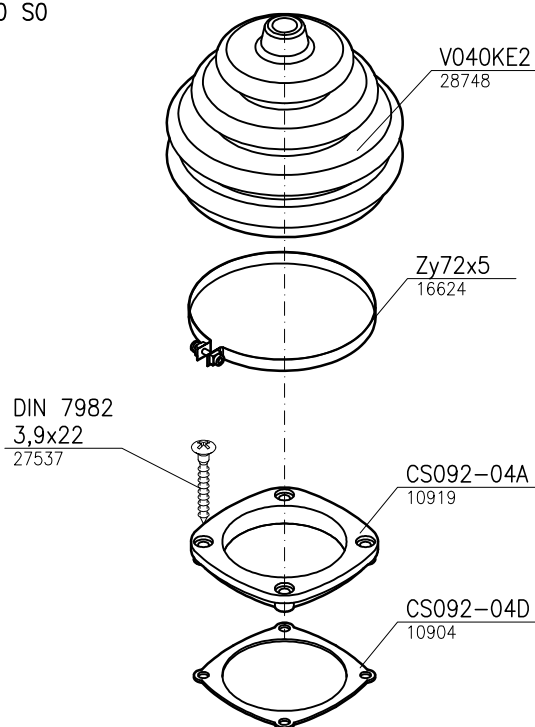
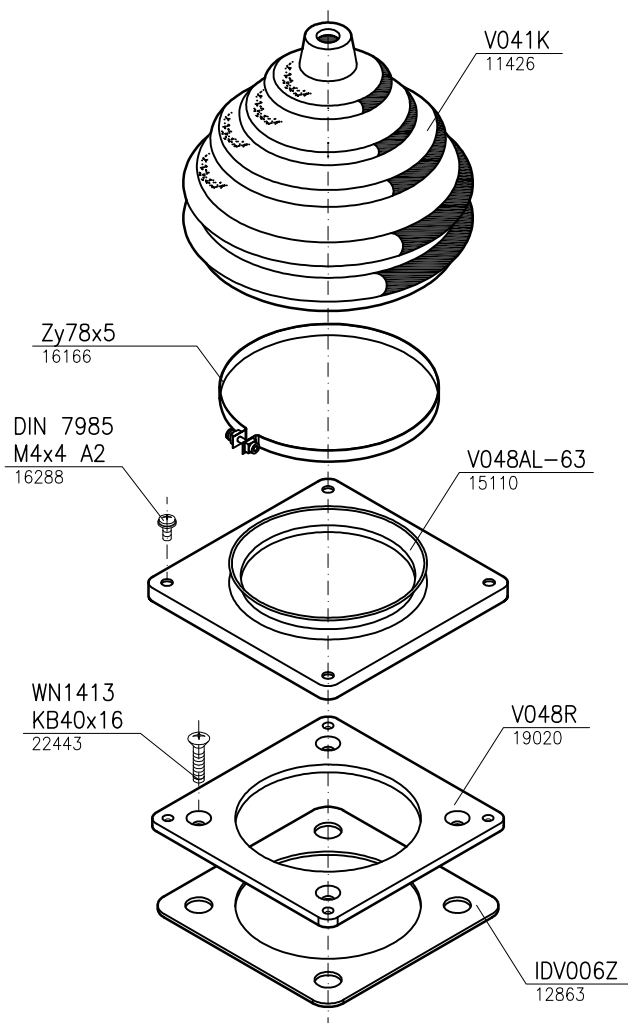
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 Fax +49 7344 171-99 www.spobu.de



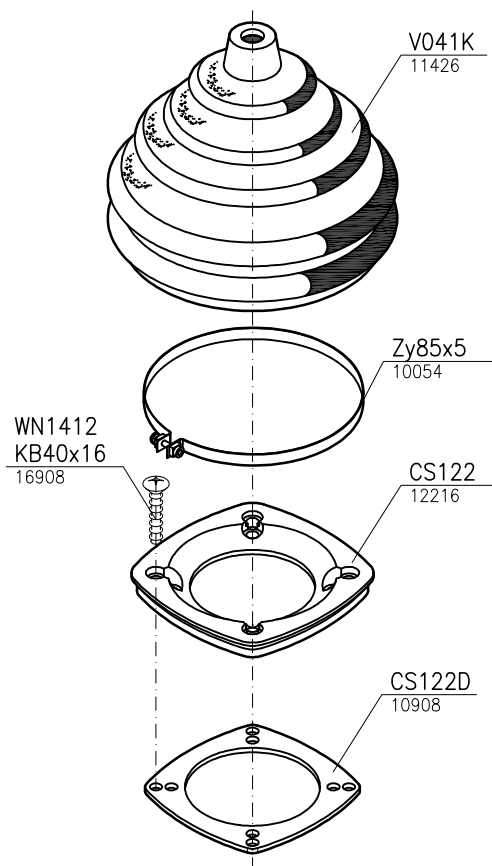
VCS0 72



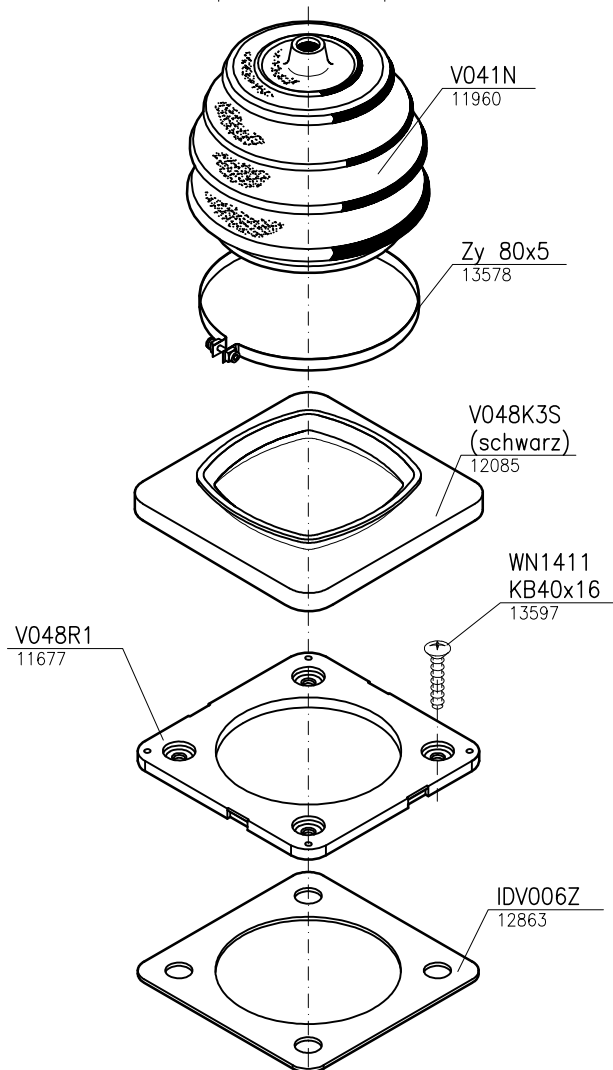
VCS0 S0

VCS096 mit Aluminium Rosette
with aluminium escutcheon plate

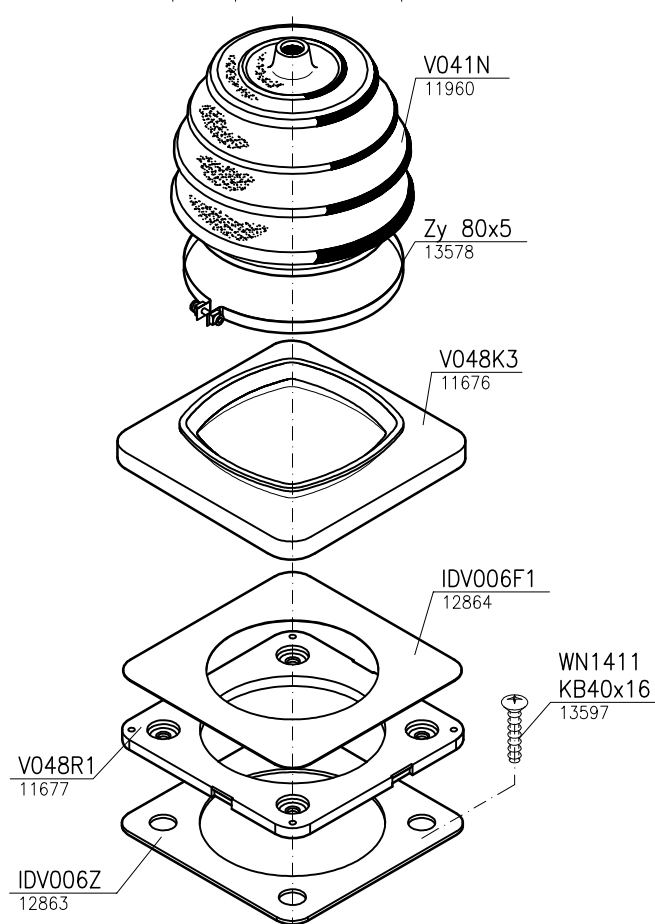
VCS0 S



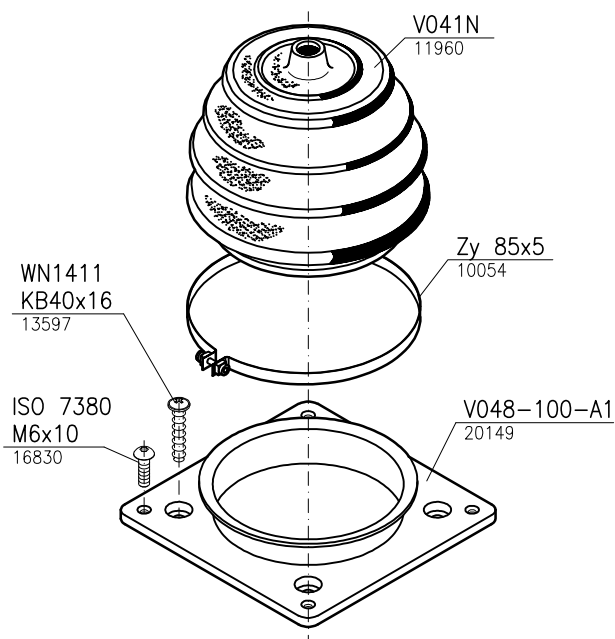
VCS0 96 mit schwarzer Kunststoffrosette
with black plastic escutcheon plate



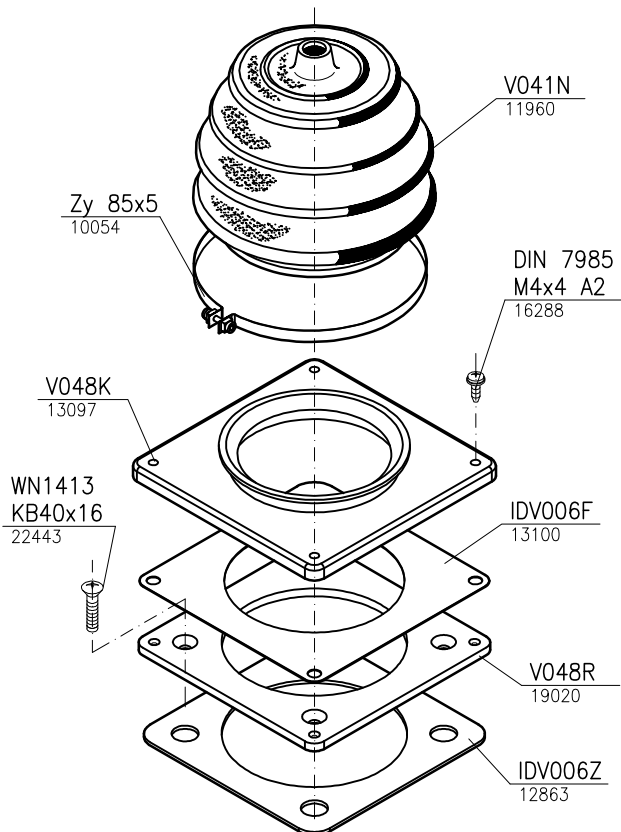
VCS0 96 mit transparenter Kunststoffrosette
with transparent plastic escutcheon plate



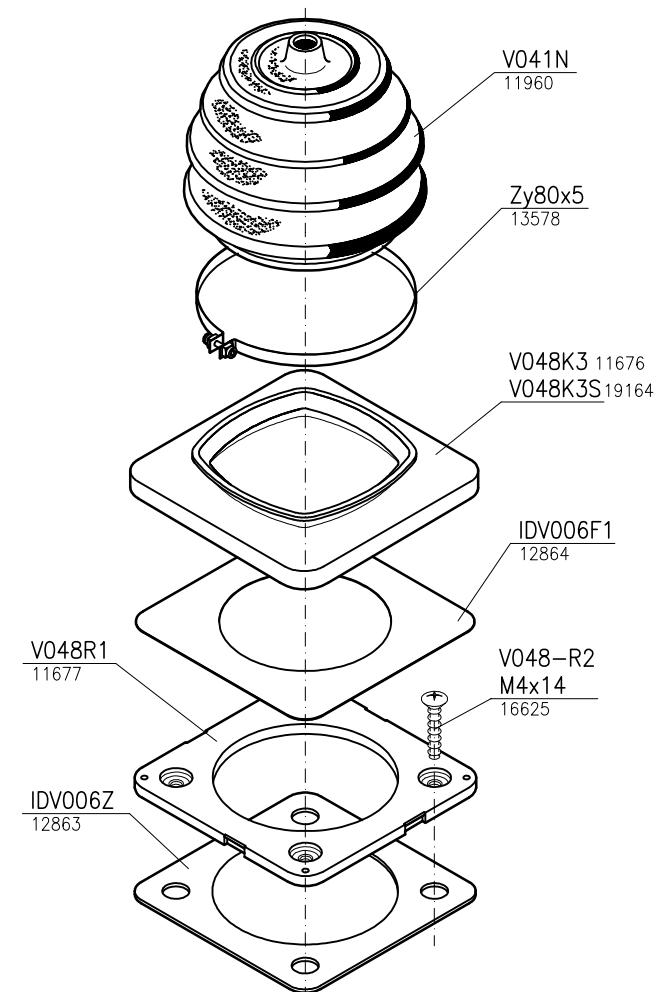
VCS0 S1



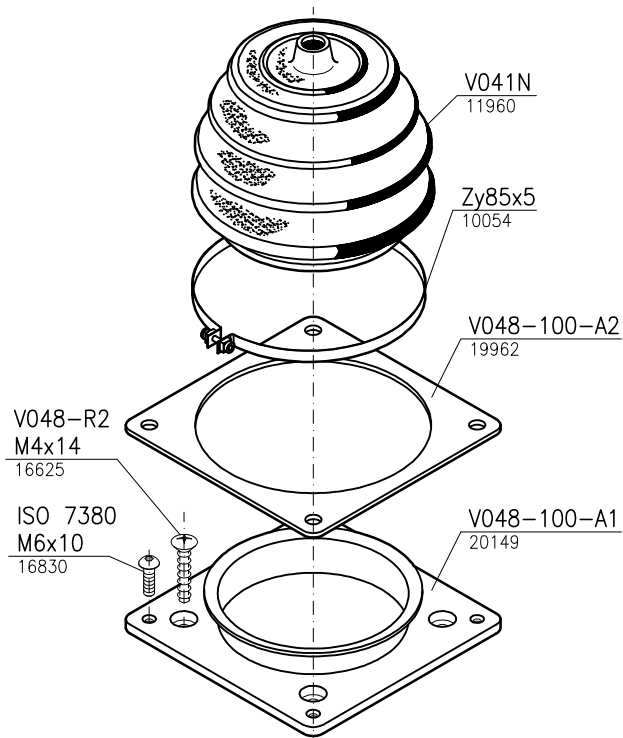
VCS0 96 mit durchsichtiger Kunststoffrosette geschraubt
with transparent, screwed plastic escutcheon plate



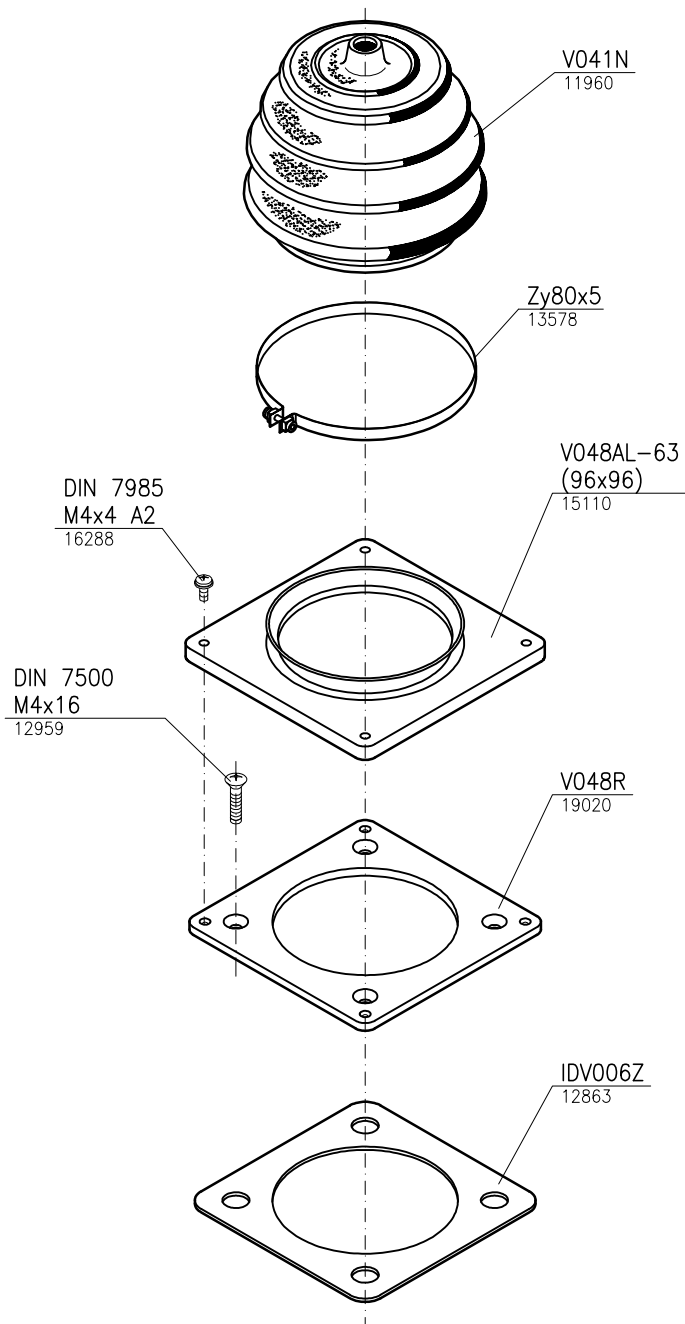
Mit Kunststoffrosette
With plastic escutcheon plate



Zur Montage von unten
For below mounting



Mit Aluminium Rosette
With aluminium escutcheon plate



apl. Satz	NS0ES90 ¹³⁷⁴³	NS0ES90H ¹³⁷⁴⁸	NS0ES90HD ¹³²⁹²	CS0ES90T ¹³⁷⁴⁵	NS0ES90DR ¹³⁷⁴⁷
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NS0ES90DR¹³⁷⁴⁷CS0ES90T¹³⁷⁴⁵

NS0ES90HD¹³²⁹²
NS0ES90HDV¹³⁷⁴⁴

NS0ES90H¹³⁷⁴⁸NS0ES90¹³⁷⁴³

kpl. Sa

<u>ohne Taste</u>	<u>mit HD- oder HDV-Taste</u>
without push button	with HD- or HDV- push button

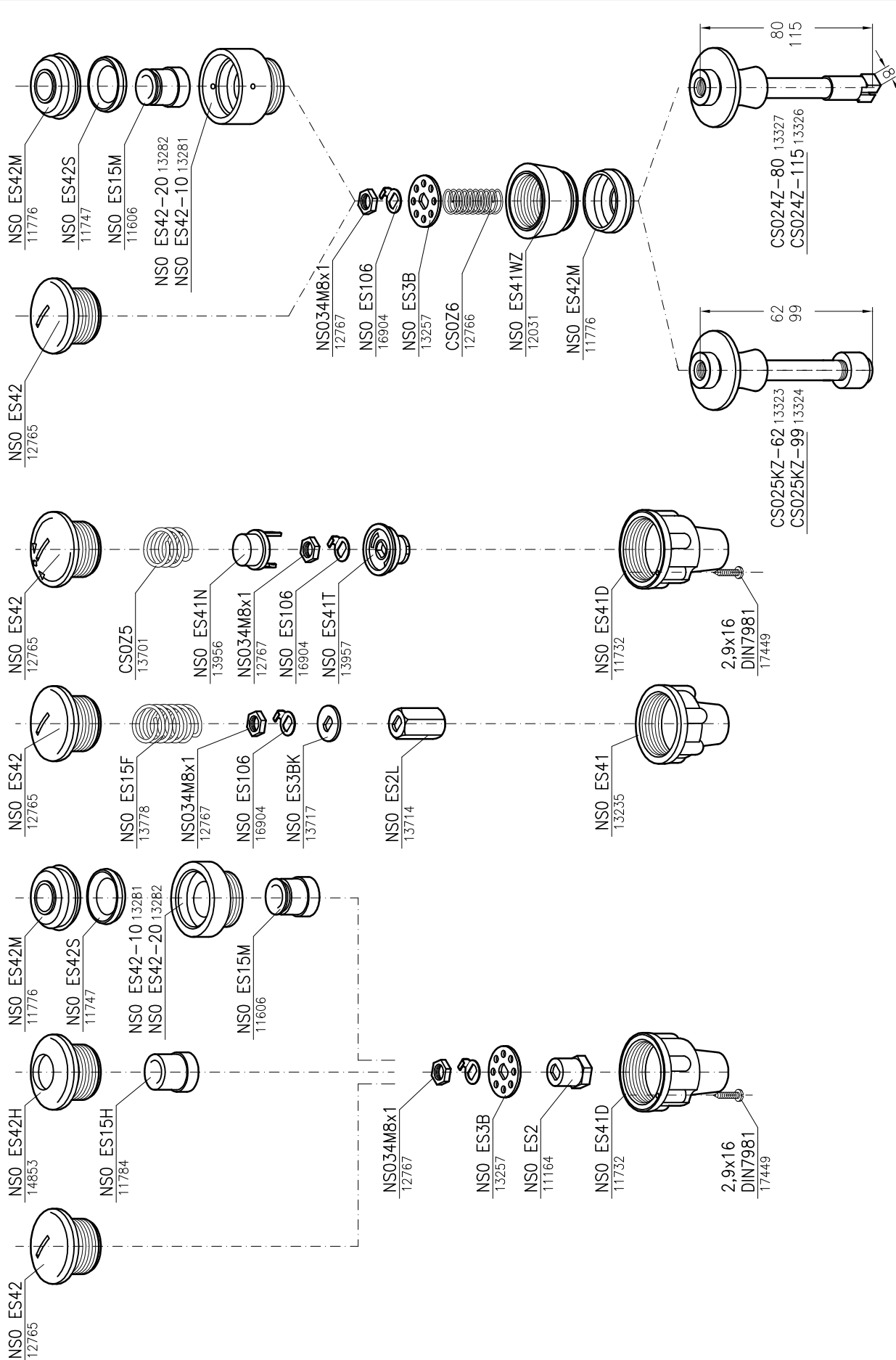
Drehtaster
twist knob

Totmann
deadman

HD- oder HDV-Taste
HD- or HDV- push button

H-Taste
H- push button

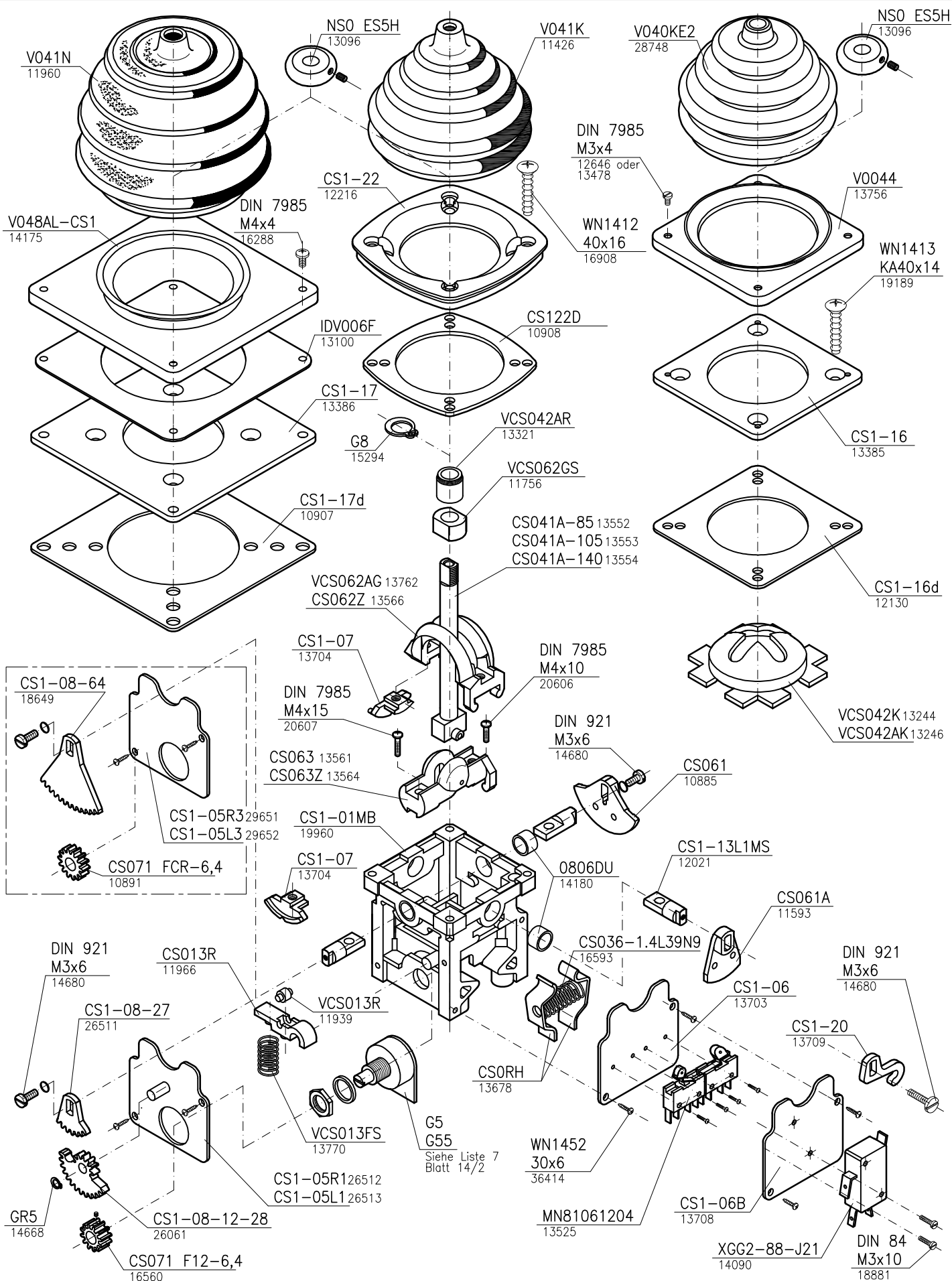
ohne Taste	no push button
	

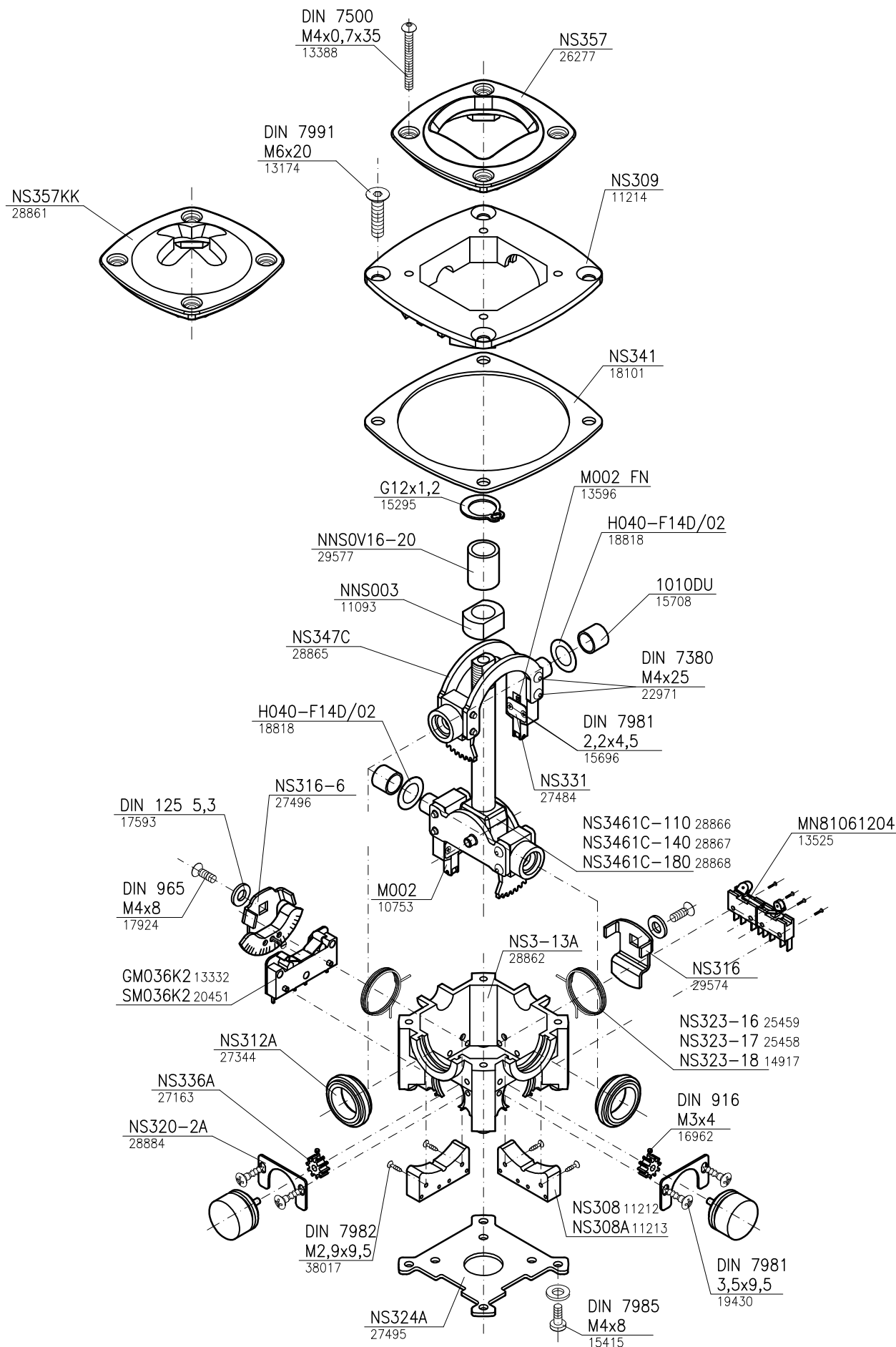


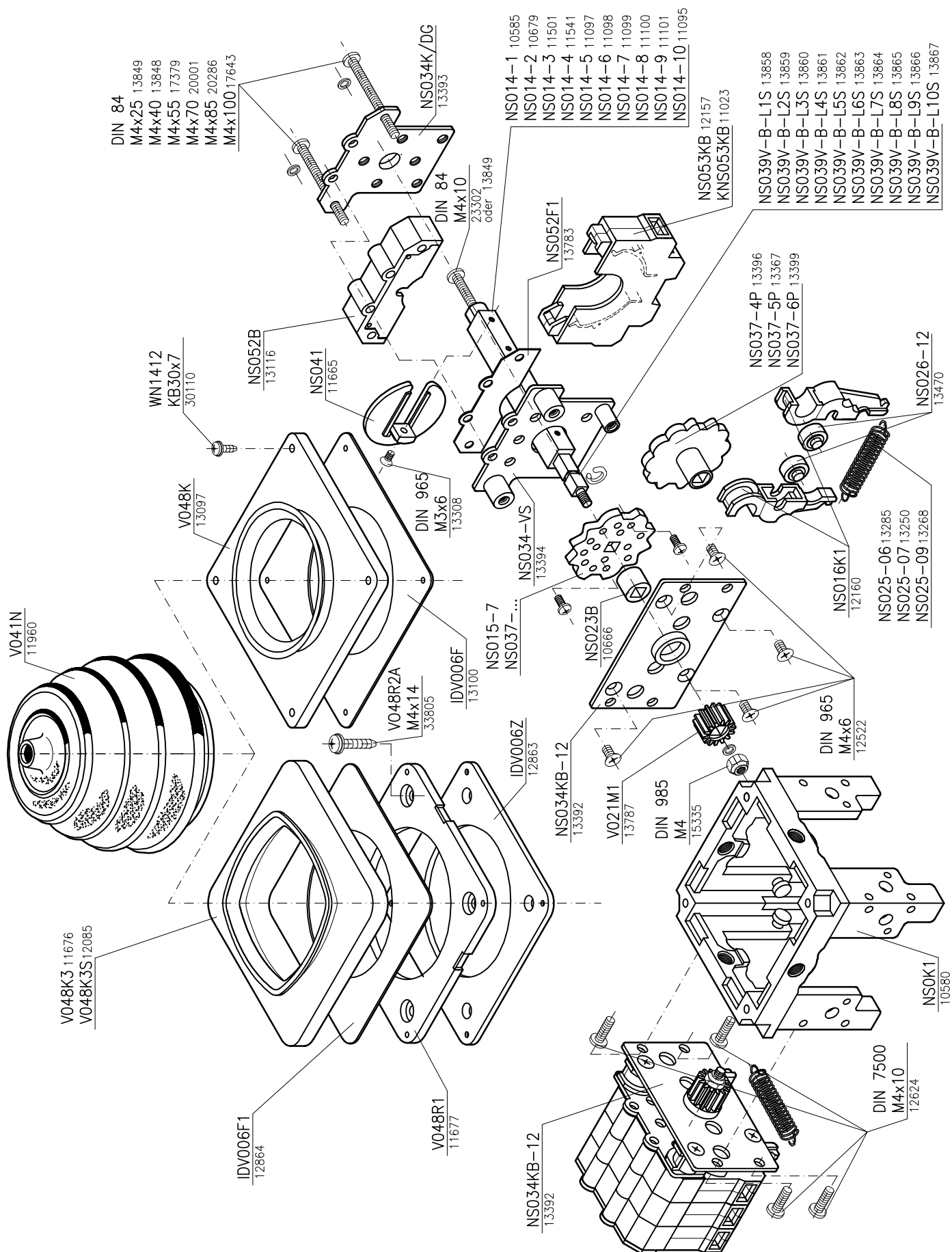
Spohn-Burkhardt

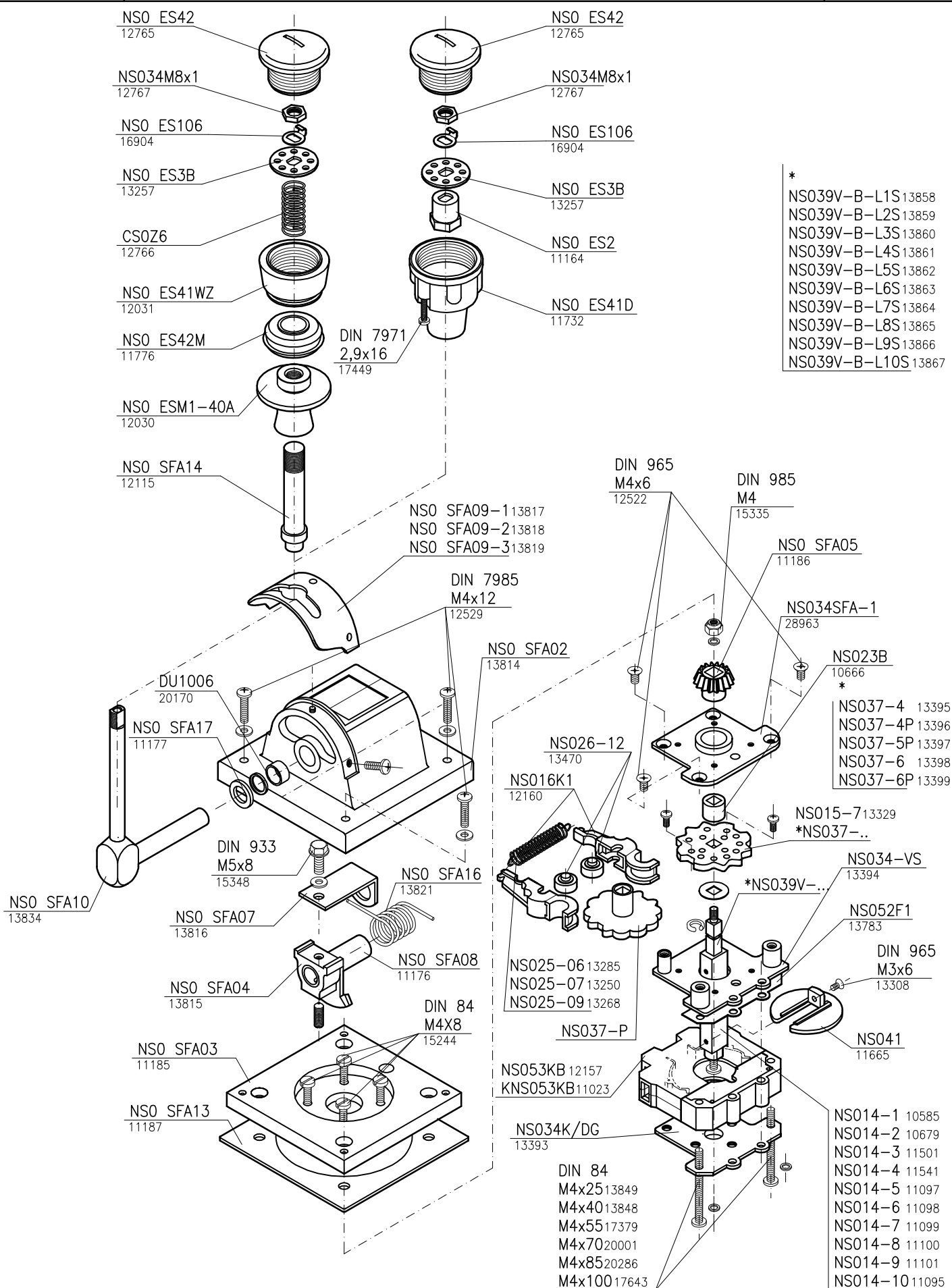
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GERMANY

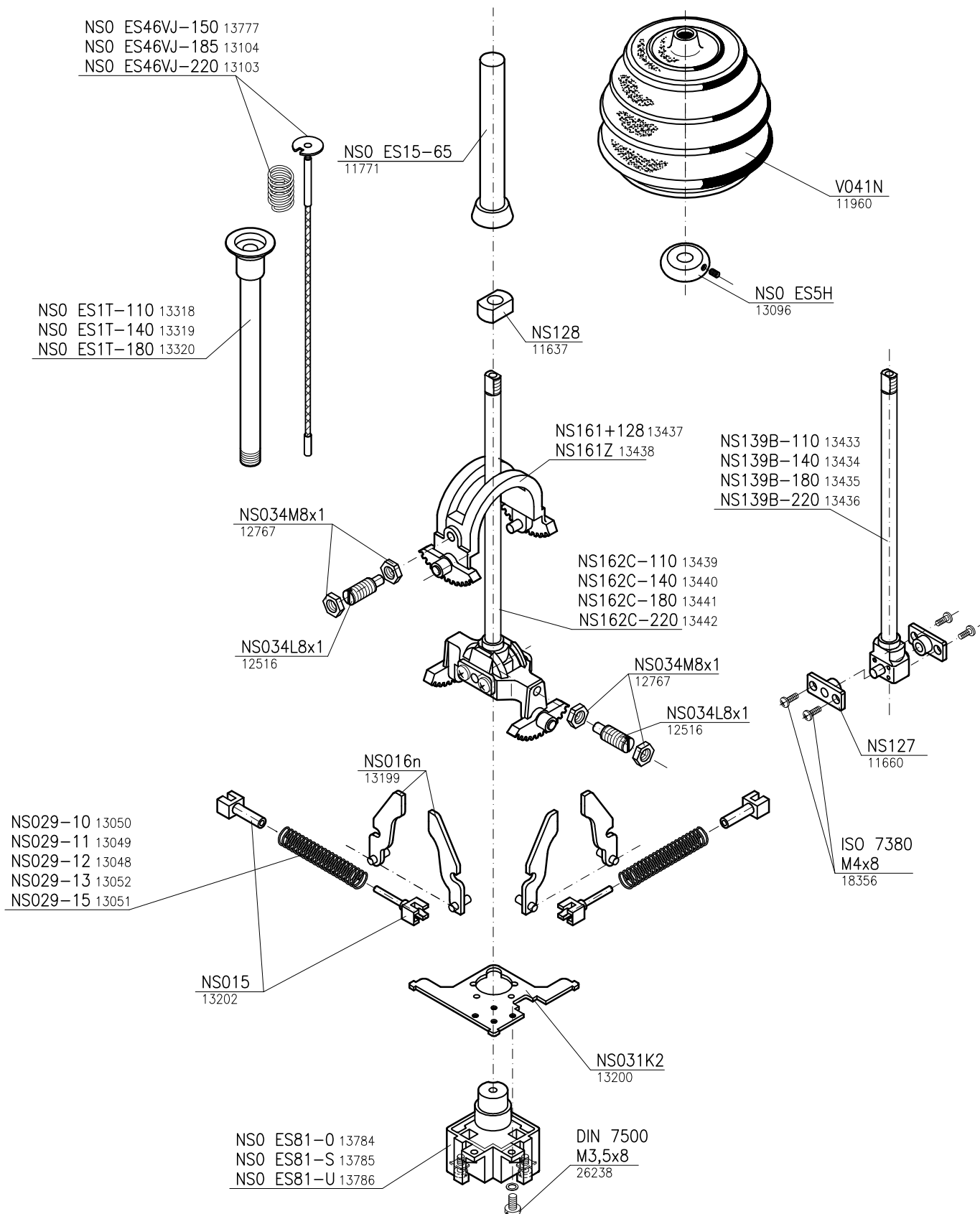
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Fax +49 7344 171-99 www.spobu.de

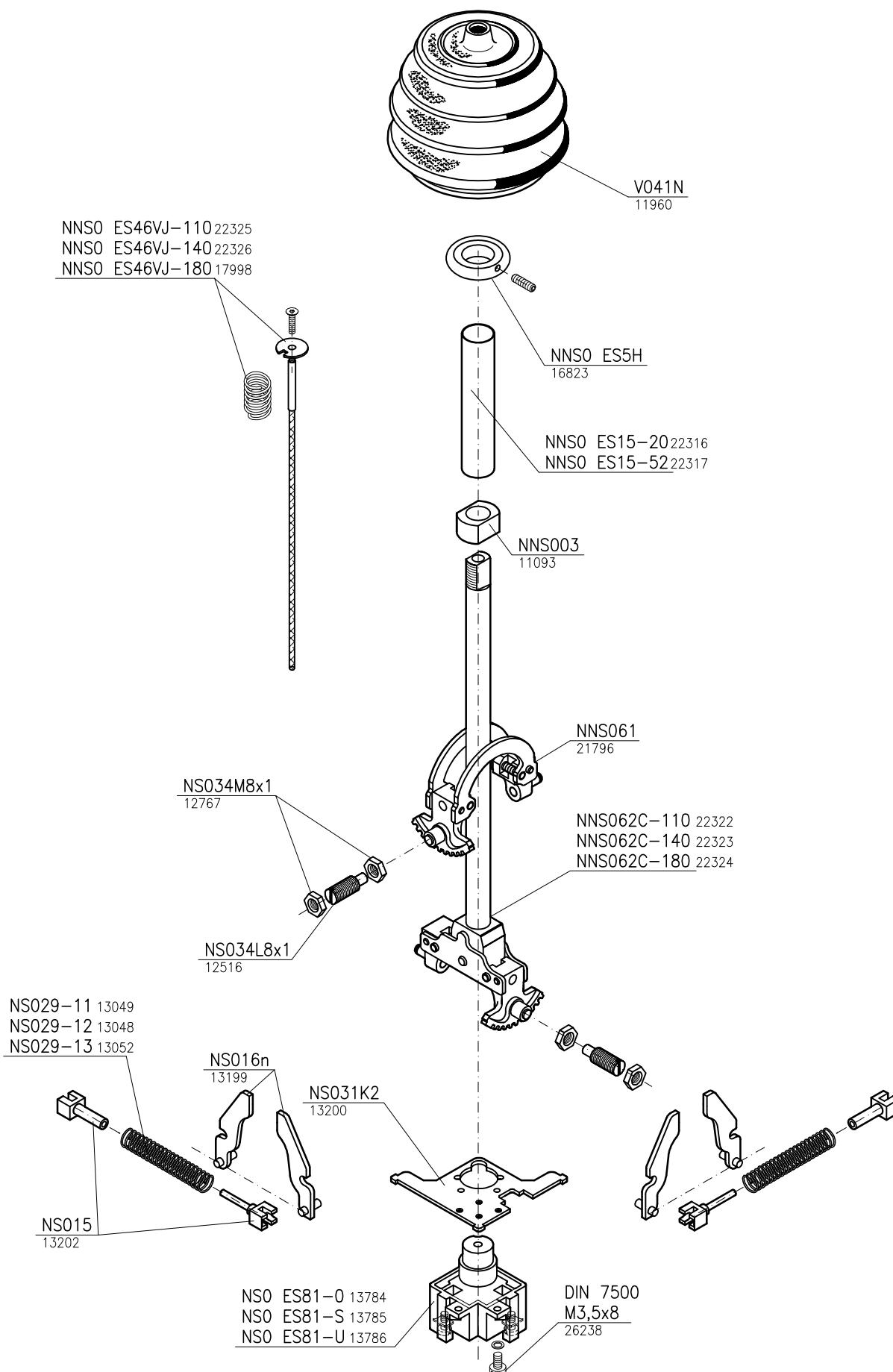




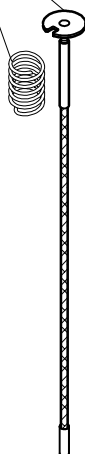




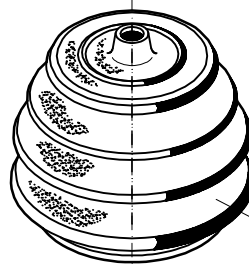
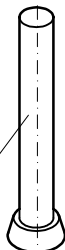




NS0 ES46VJ-150 13777
NS0 ES46VJ-185 13104
NS0 ES46VJ-220 13103



NS0 ES15-65
11771

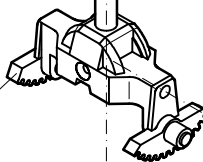


V041N
11960



NS0 ES5H
13096

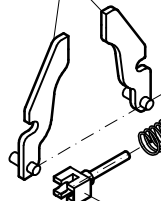
NS162E-110 13443
NS162E-140 13444
NS162E-180 13446
NS162E-220 13447



NS034M8x1
12767

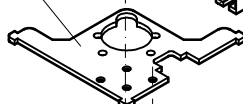
NS034L8x1
12516

NS016n
13199



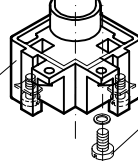
NS029-10 13050
NS029-11 13049
NS029-12 13048
NS029-13 13052
NS029-15 13051

NS031K2
13200



NS015
13202

NS0 ES81-O 13784
NS0 ES81-S 13785
NS0 ES81-U 13786



DIN 7500
M3,5x8
26238

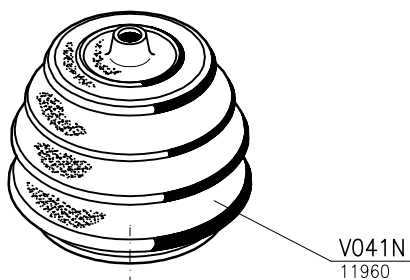


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NNS0 ES46VJ-110 22320
NNS0 ES46VJ-140 22319
NNS0 ES46VJ-180 21785



V041N
11960

NNS0 ES5H
16823

NNS0 ES15-20 22316
NNS0 ES15-52 22317

NNS062E-110 22310
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NS034M8x1
12767

NS034L8x1
12516

NS016n
13199

NS031K2
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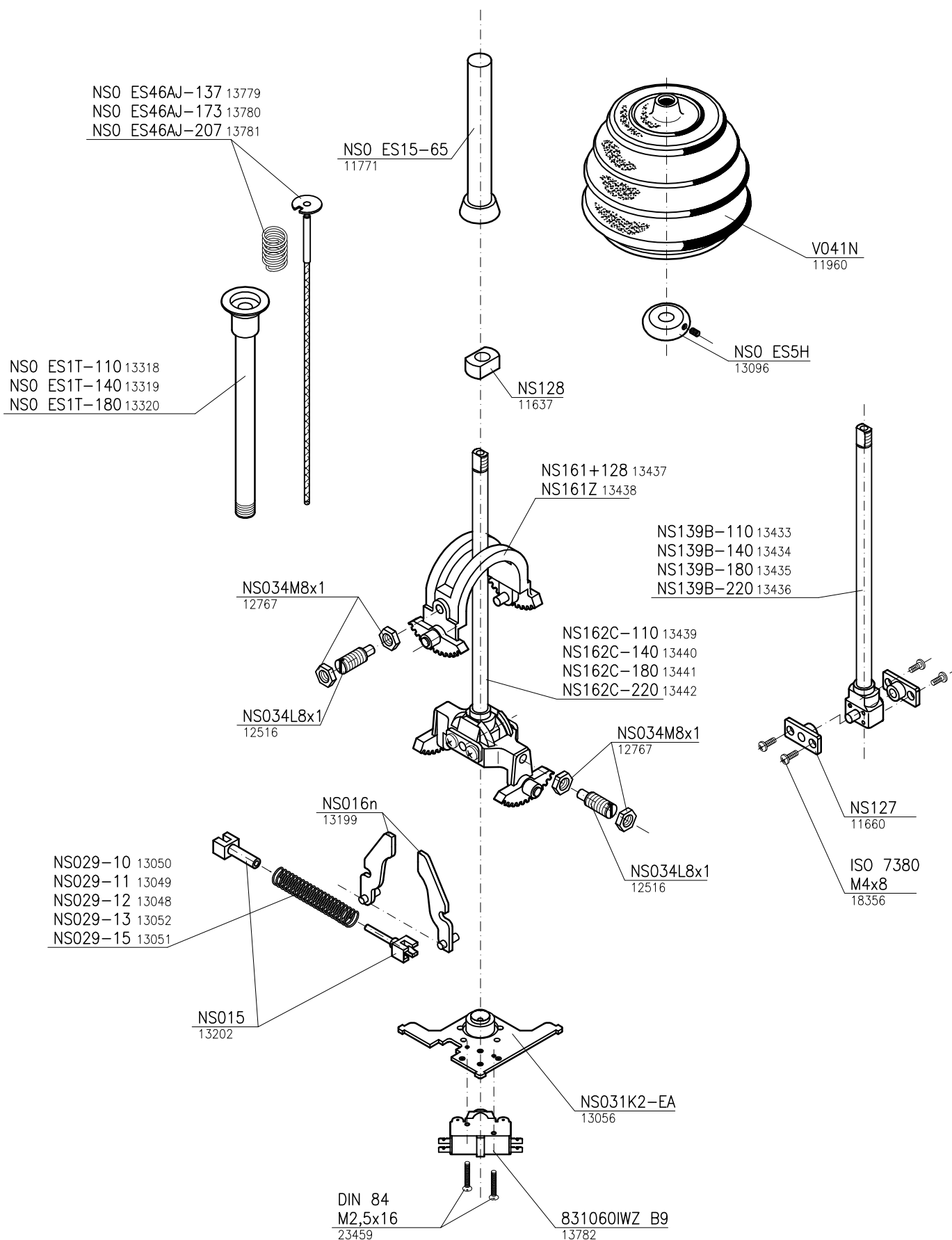
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NS029-12 13048
NS029-13 13052

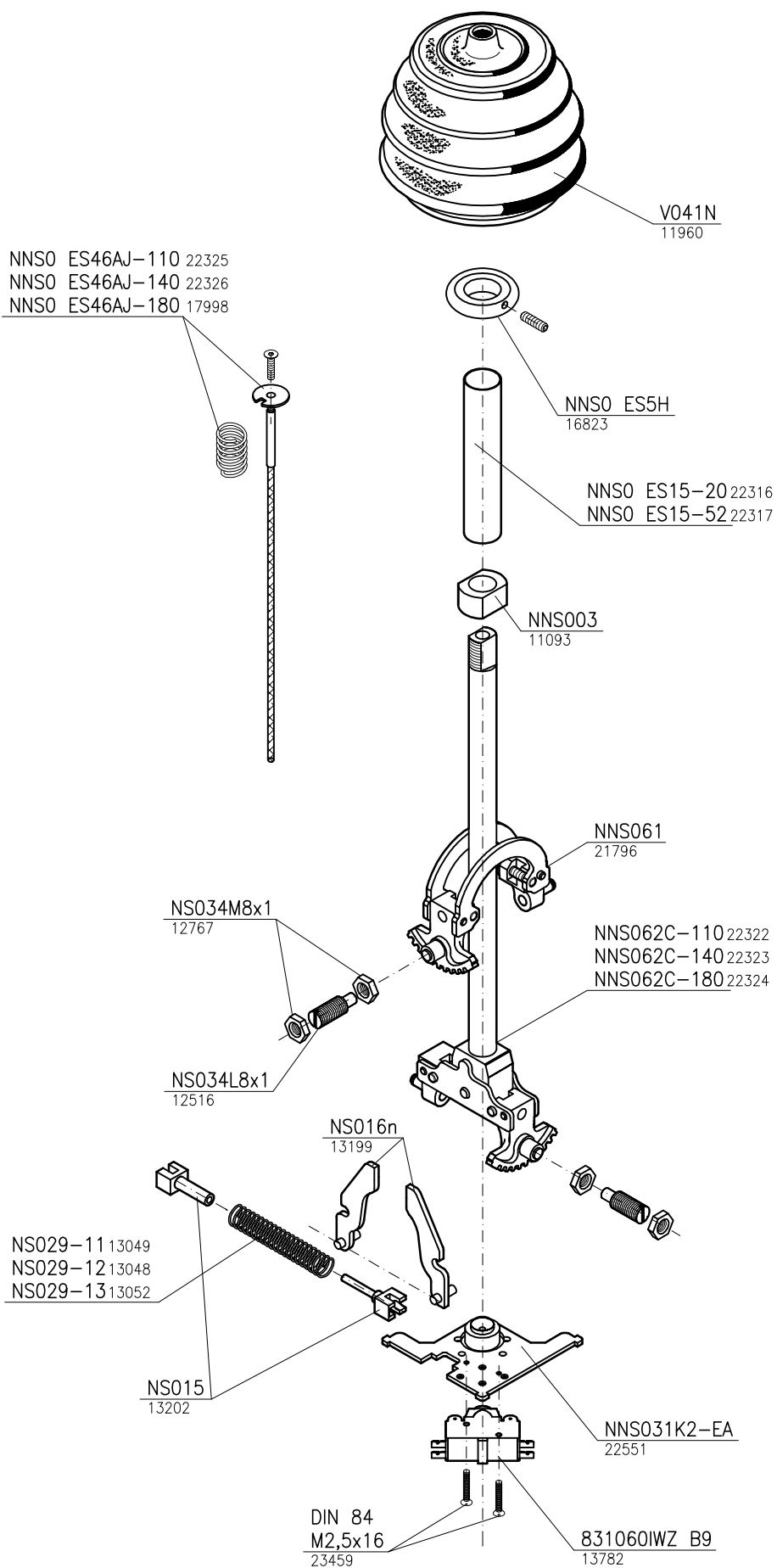
NS015
13202

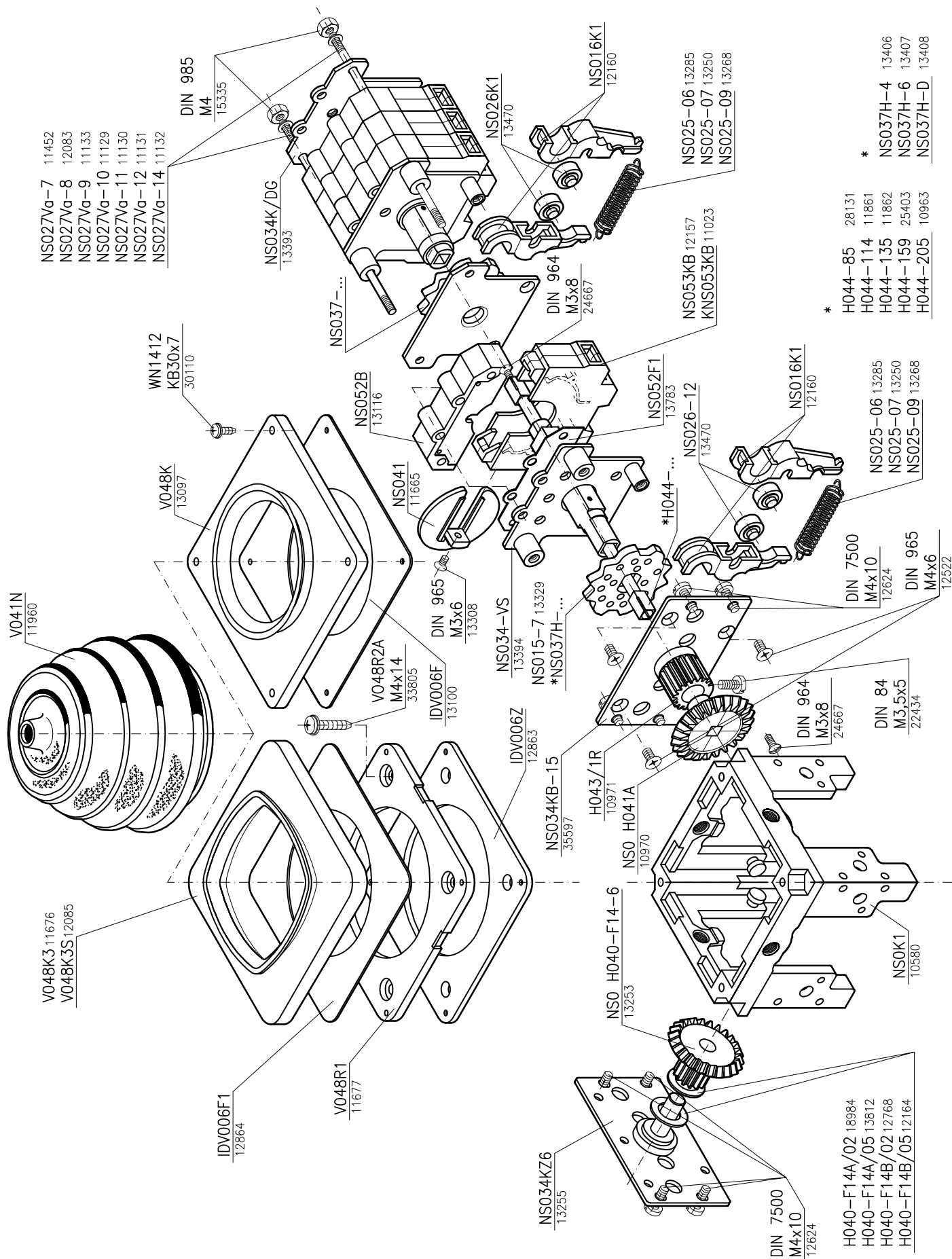
NS0 ES81-0 13784
NS0 ES81-S 13785
NS0 ES81-U 13786

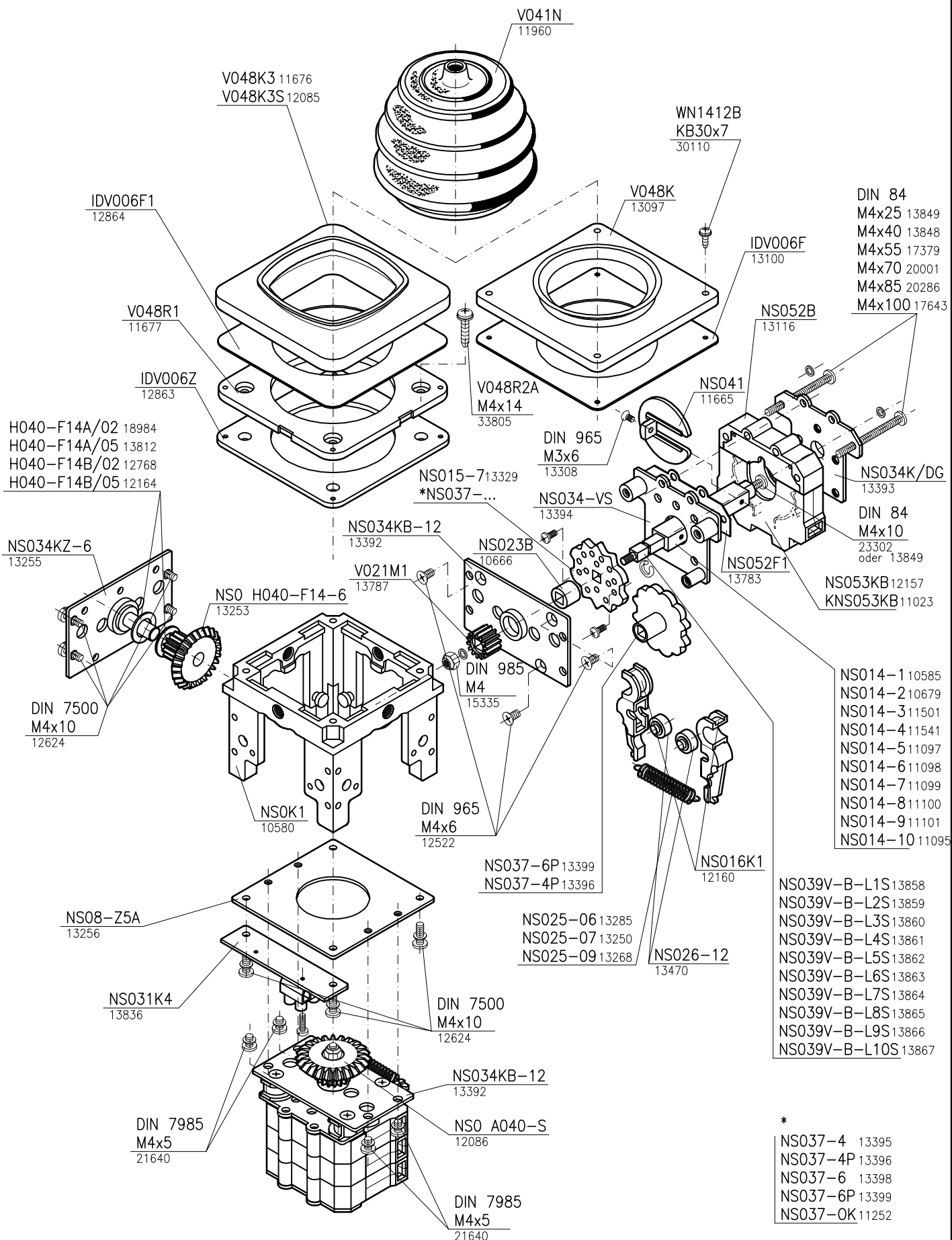
DIN 7500
M3,5x8
26238

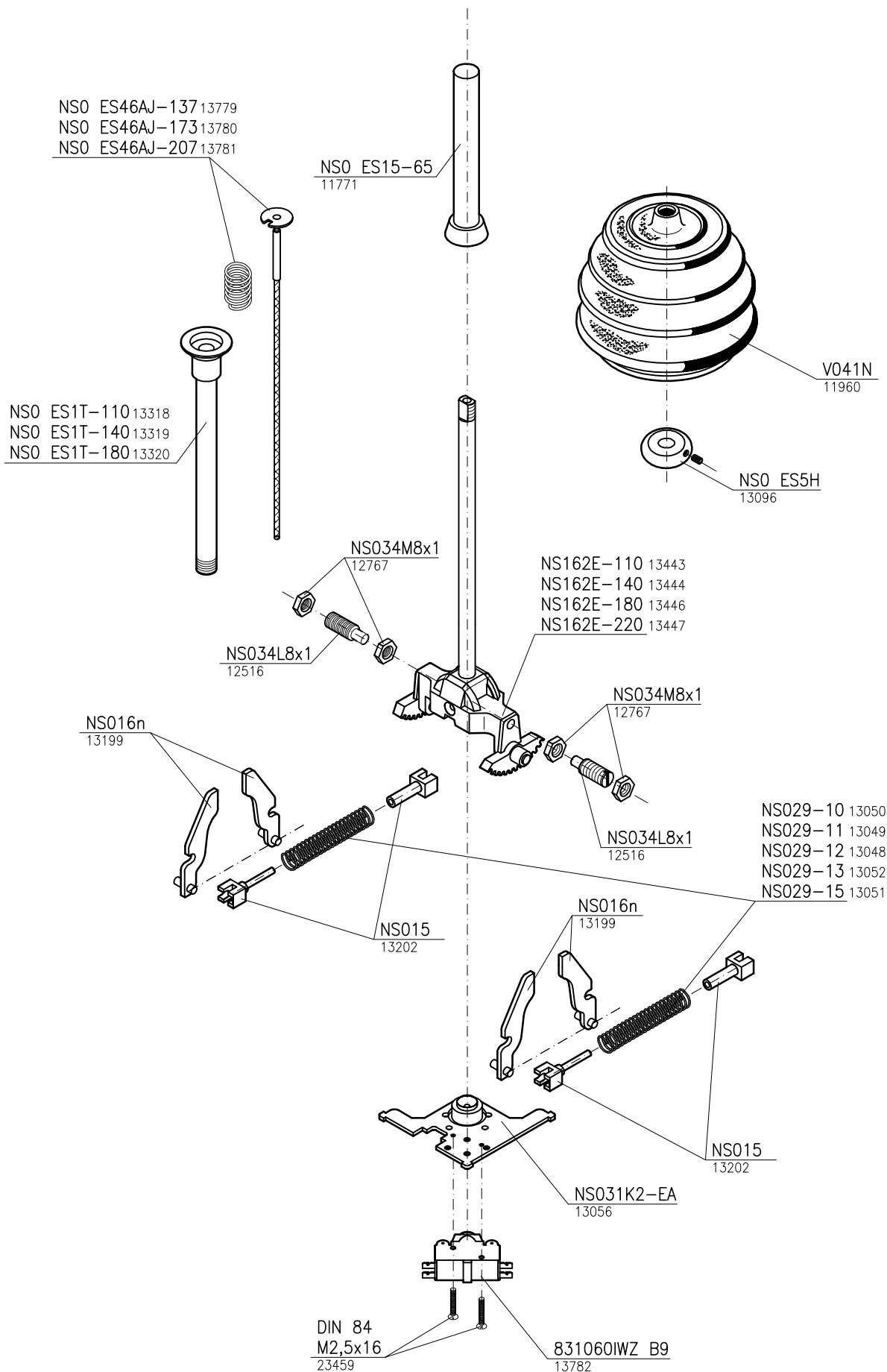


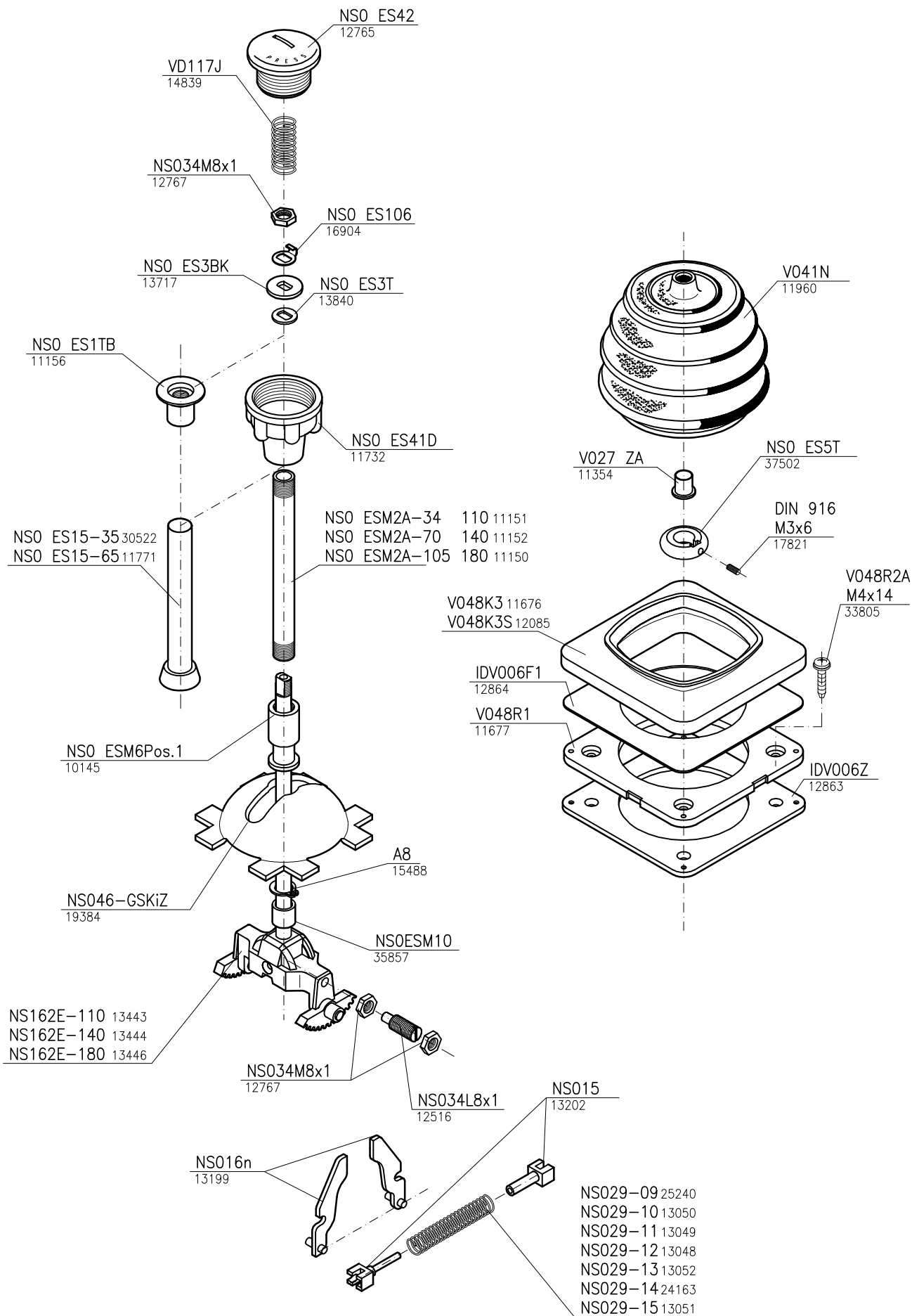


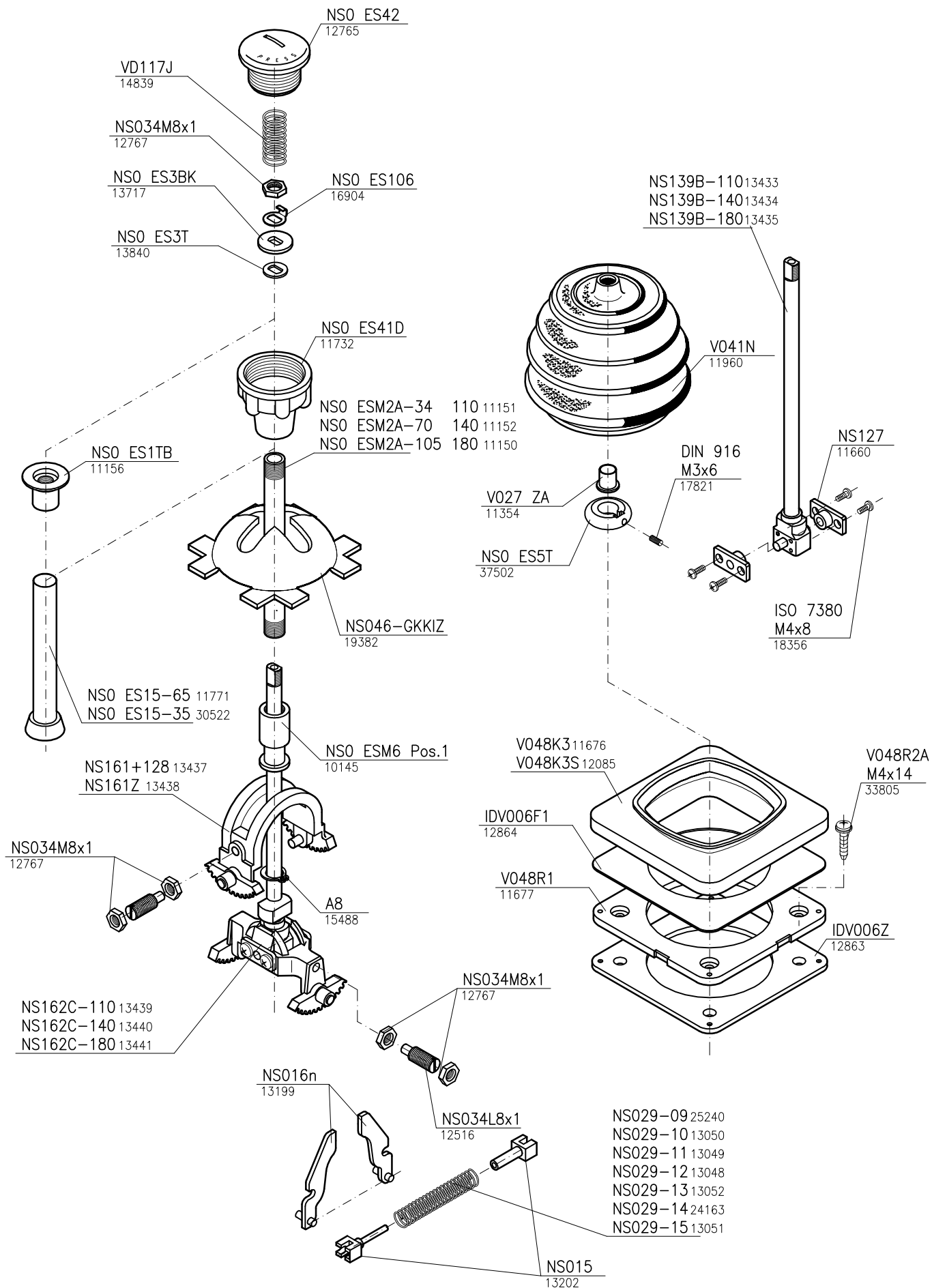


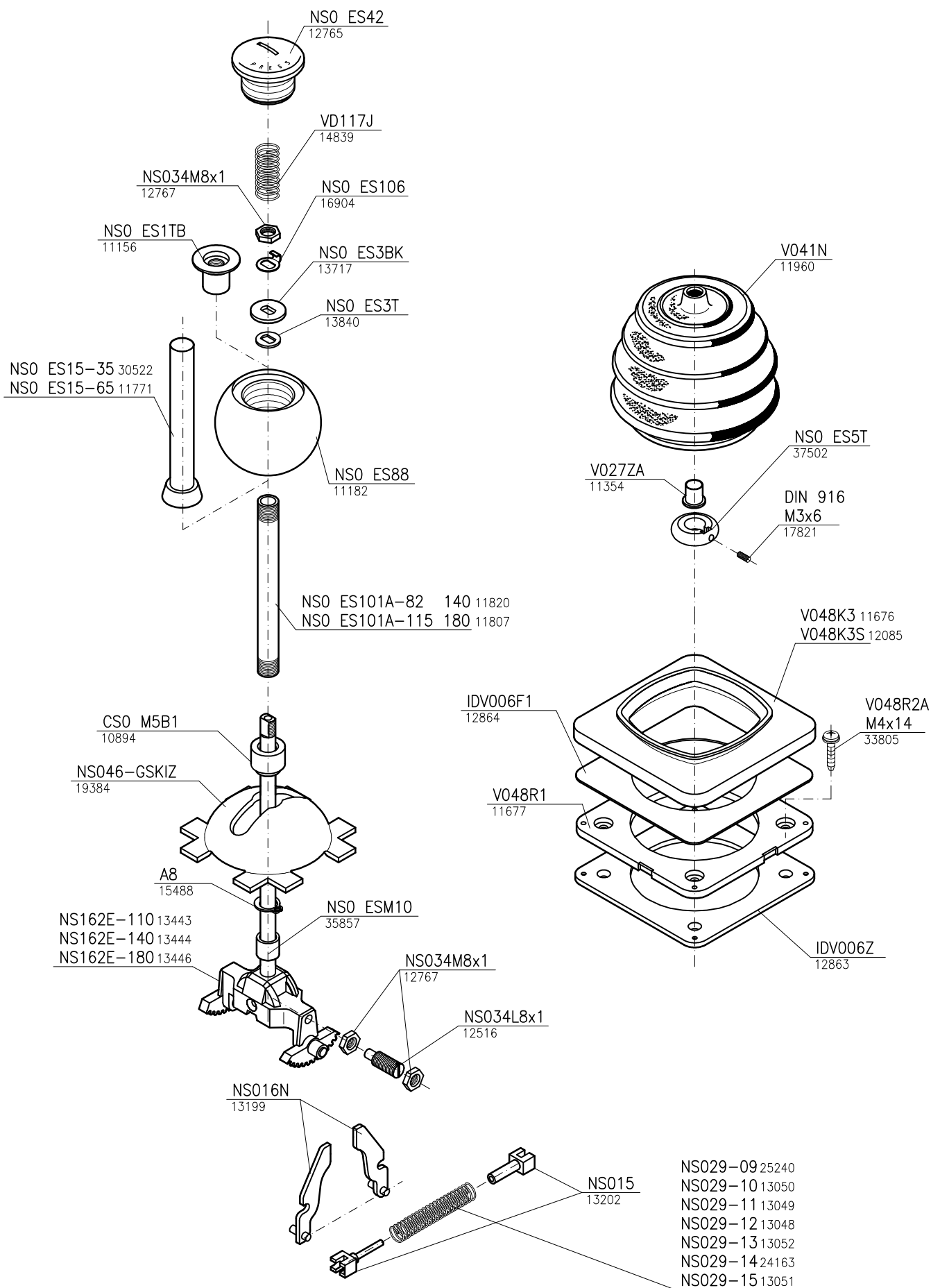


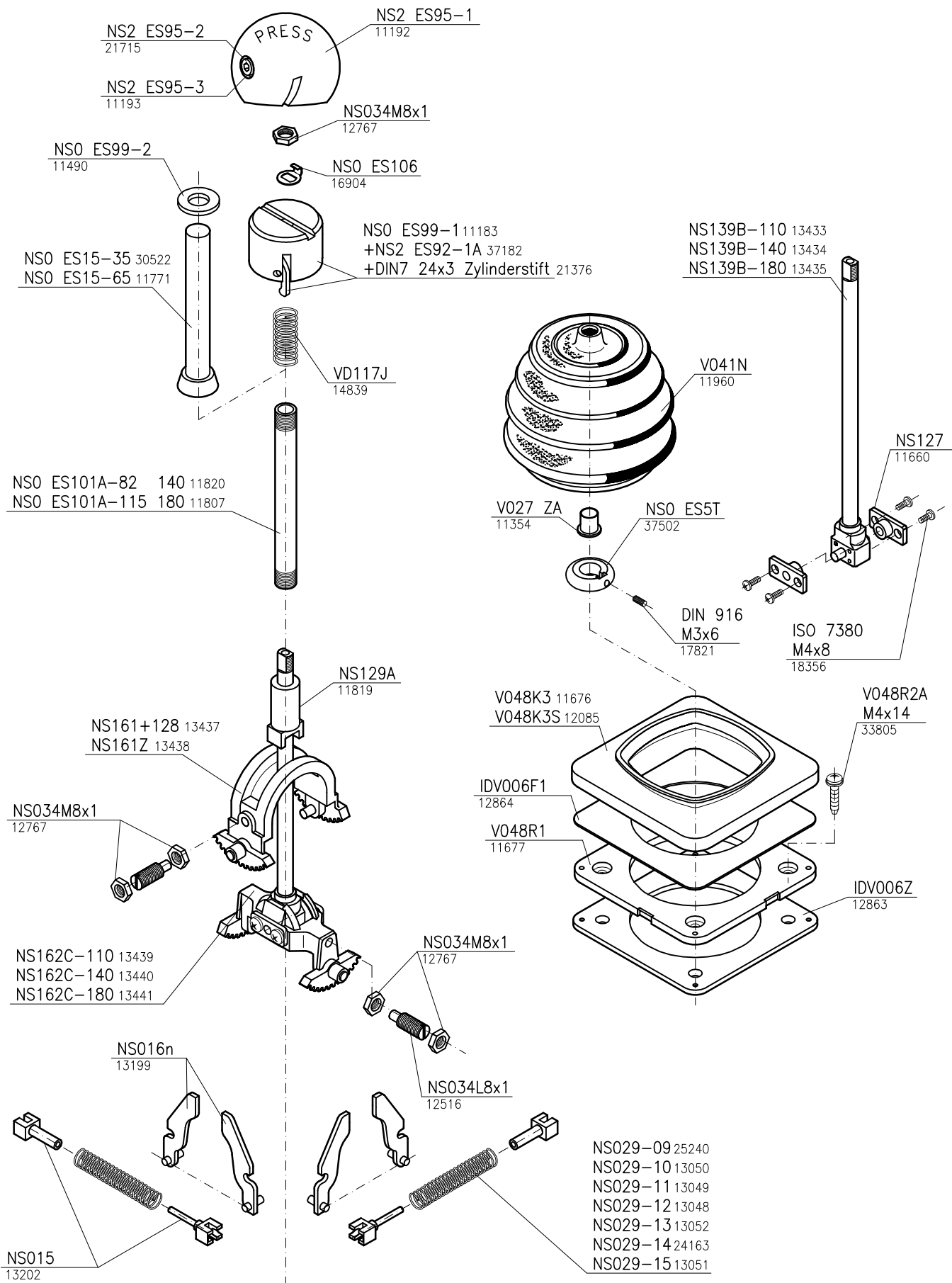


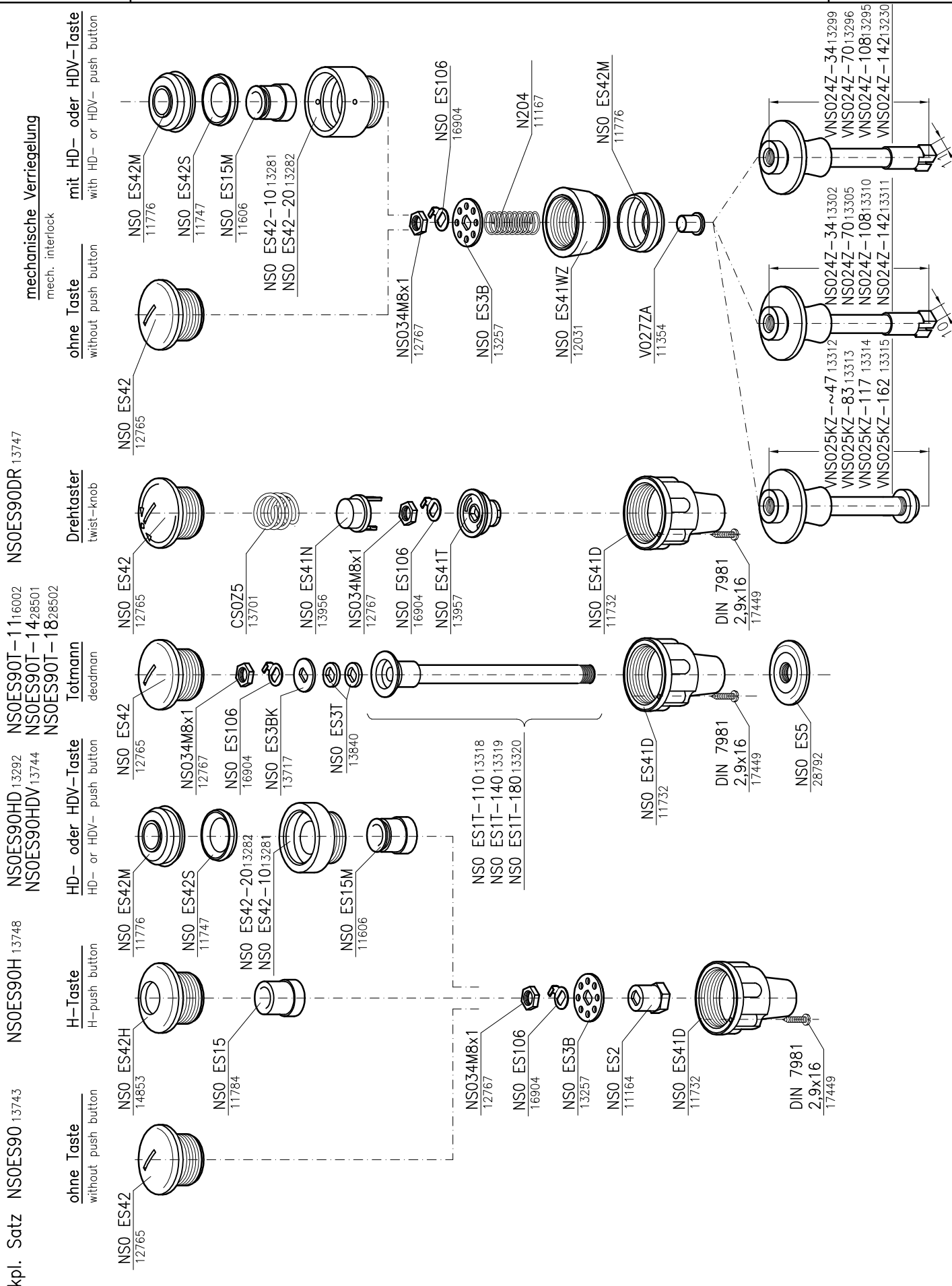


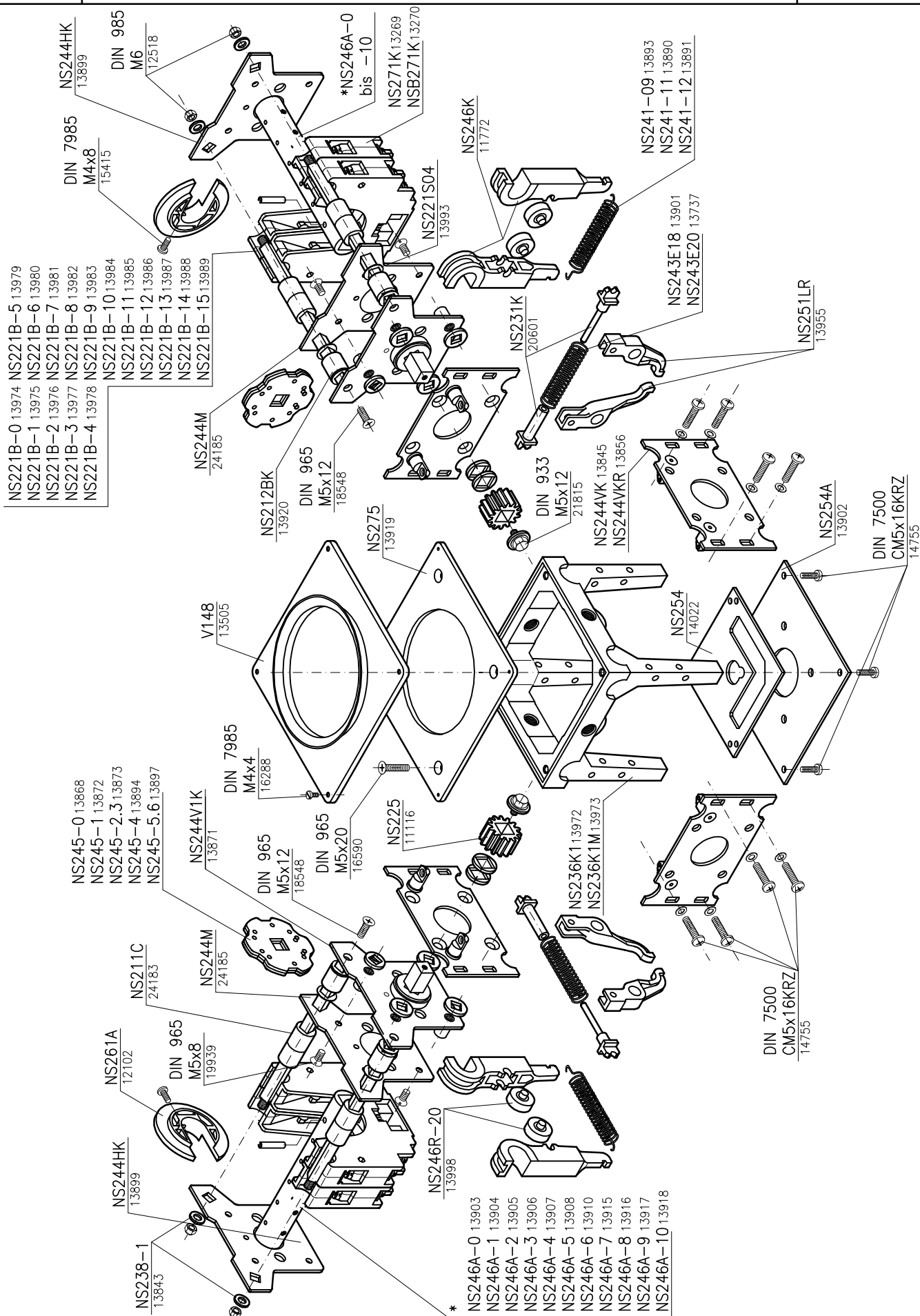


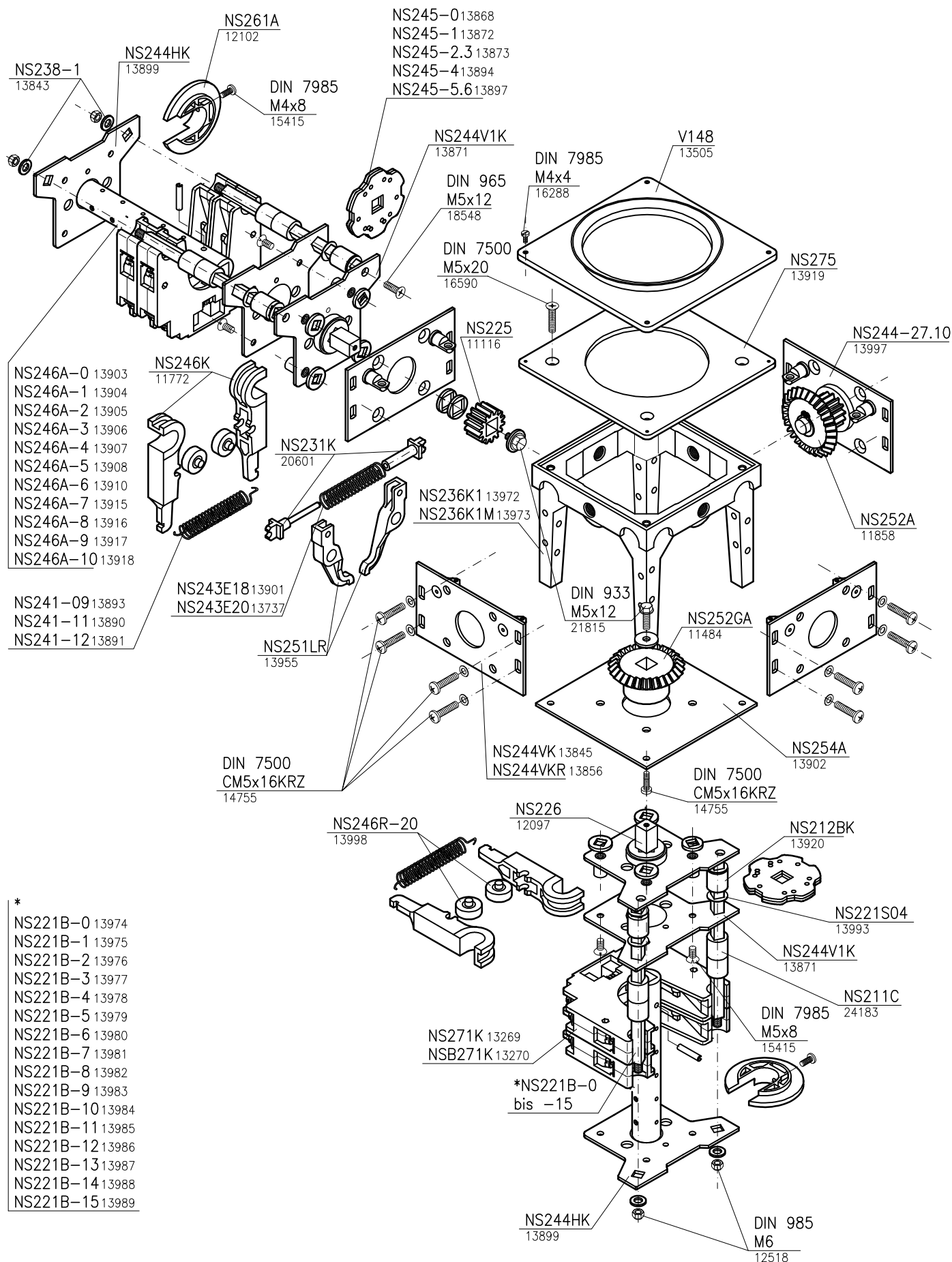












- *
 NS221B-0 13974
 NS221B-1 13975
 NS221B-2 13976
 NS221B-3 13977
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 NS221B-5 13979
 NS221B-6 13980
 NS221B-7 13981
 NS221B-8 13982
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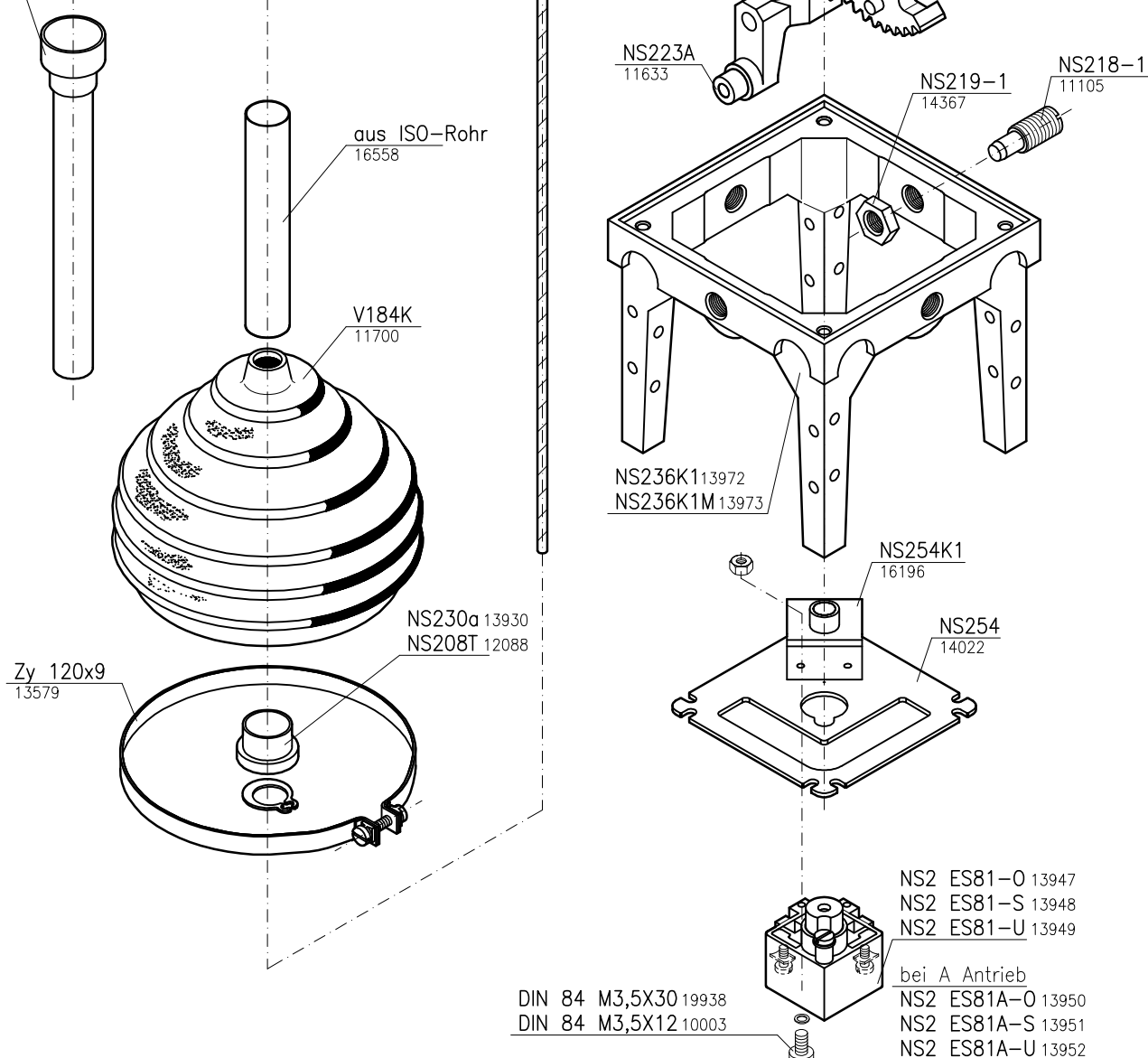


NS2ES103-170 zu Hebel 280 39903
 NS2ES103-110 zu Hebel 220 23141
 NS2ES103-90 zu Hebel 200 39902
 NS2ES103-70 zu Hebel 180 39901
 NS2ES103-50 zu Hebel 160 39900

NS2 ES46AJ-225 13938
 NS2 ES46AJ-245 13939
 NS2 ES46AJ-265 13940
 NS2 ES46AJ-285 13941
 NS2 ES46AJ-345 13942

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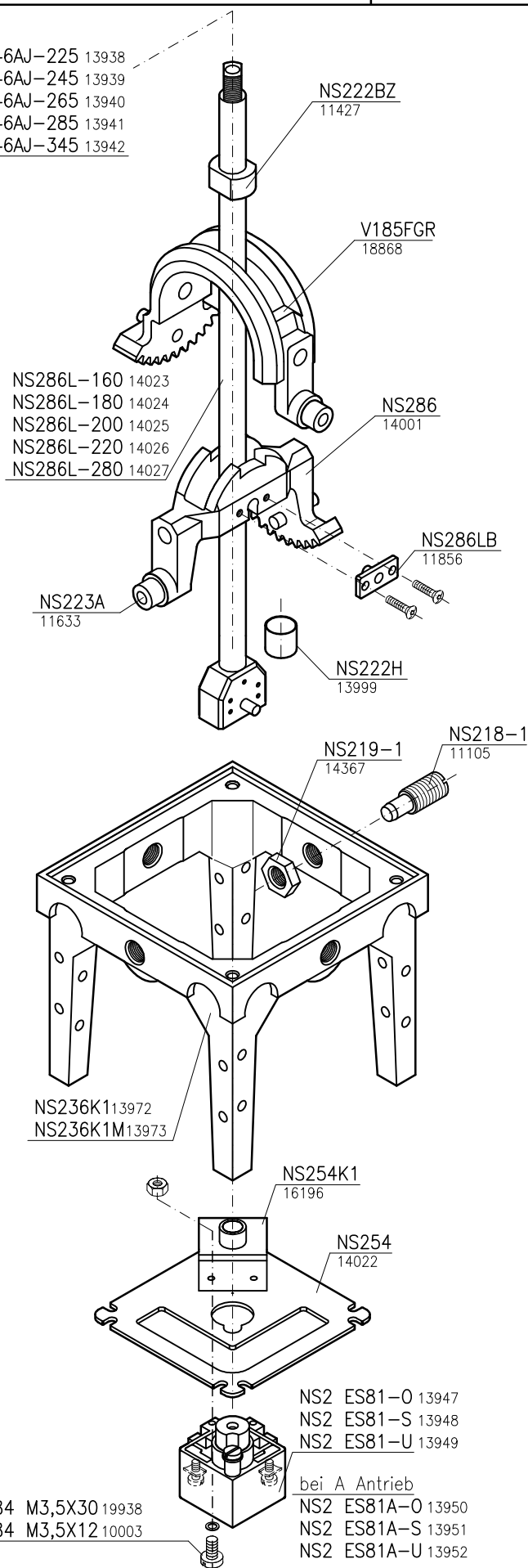
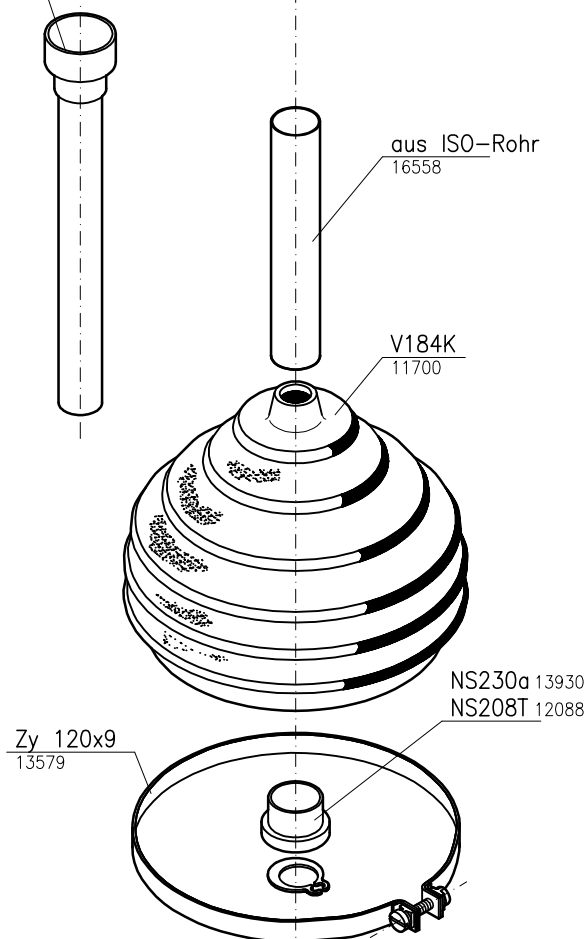
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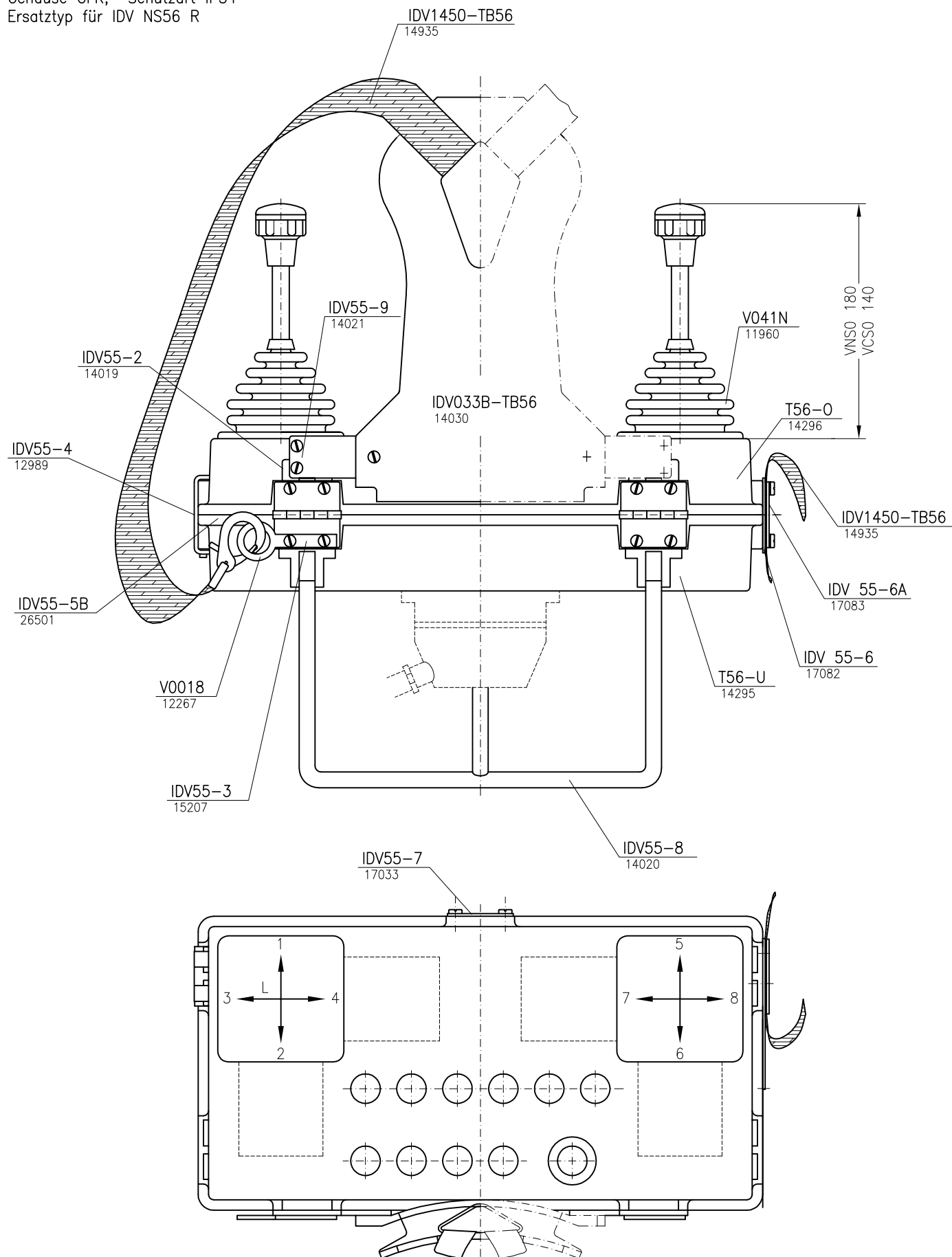
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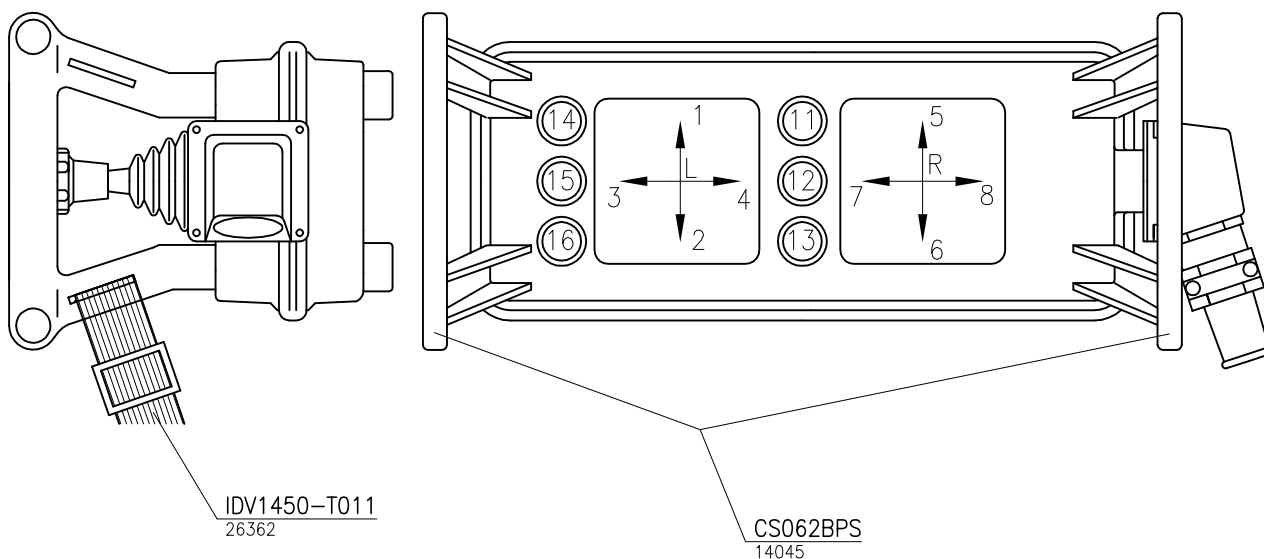
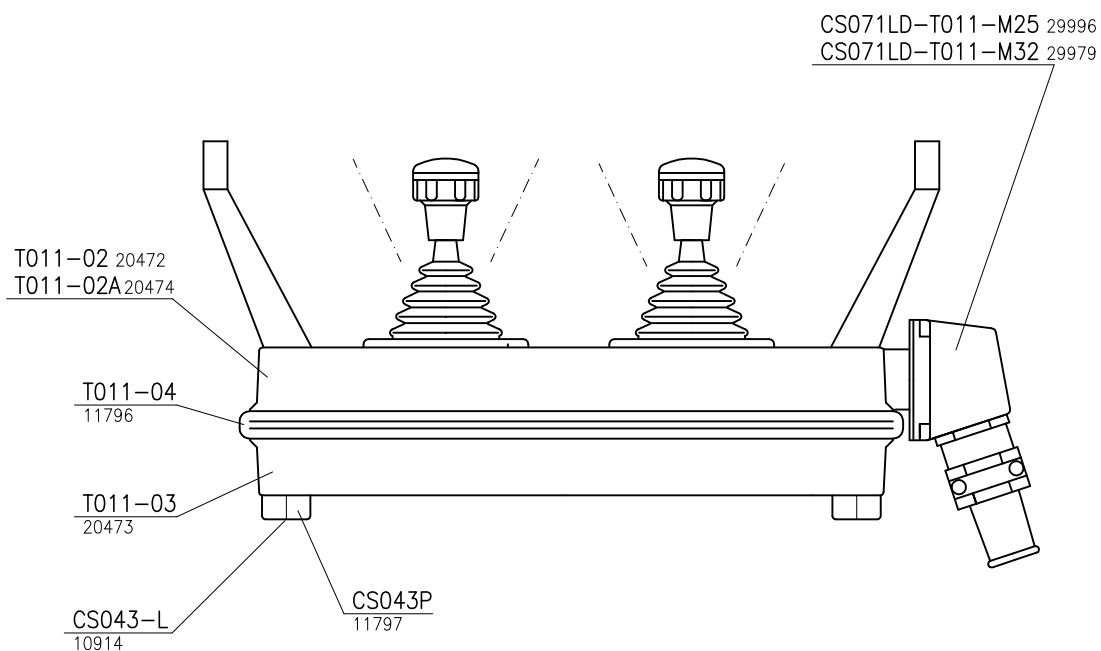
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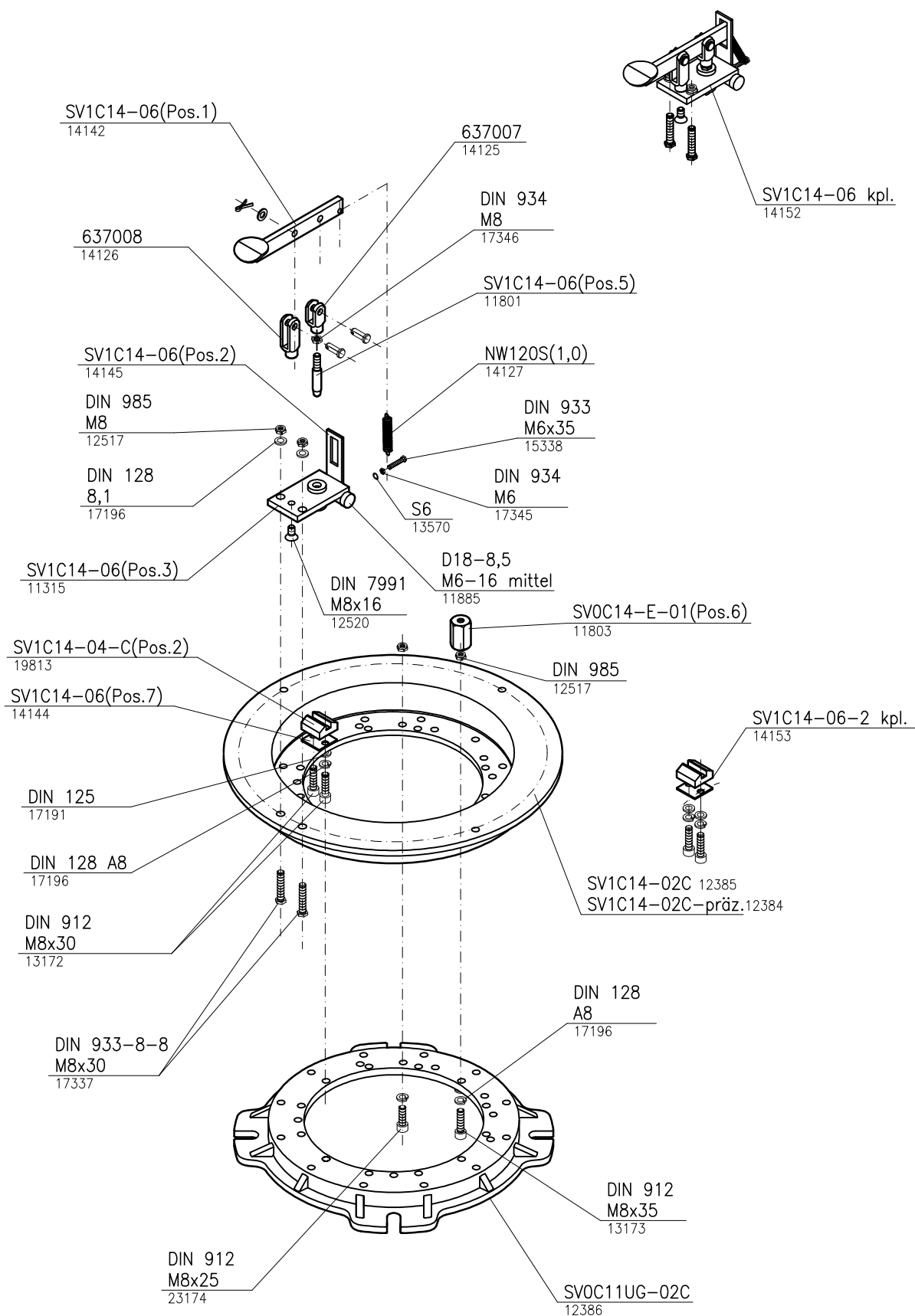


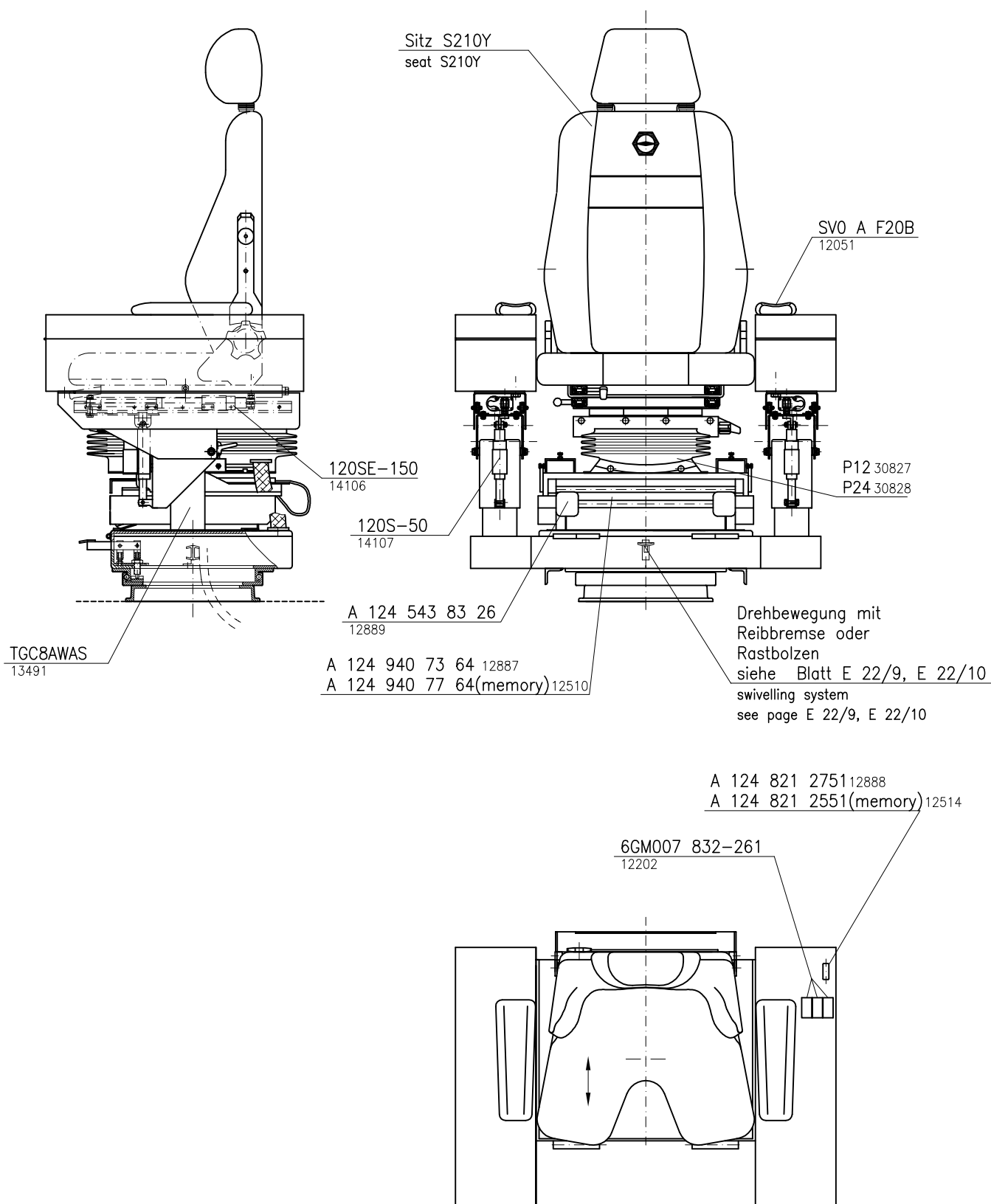
Gehäuse GFK, Schutzart IP54
Ersatztyp für IDV NS56 R

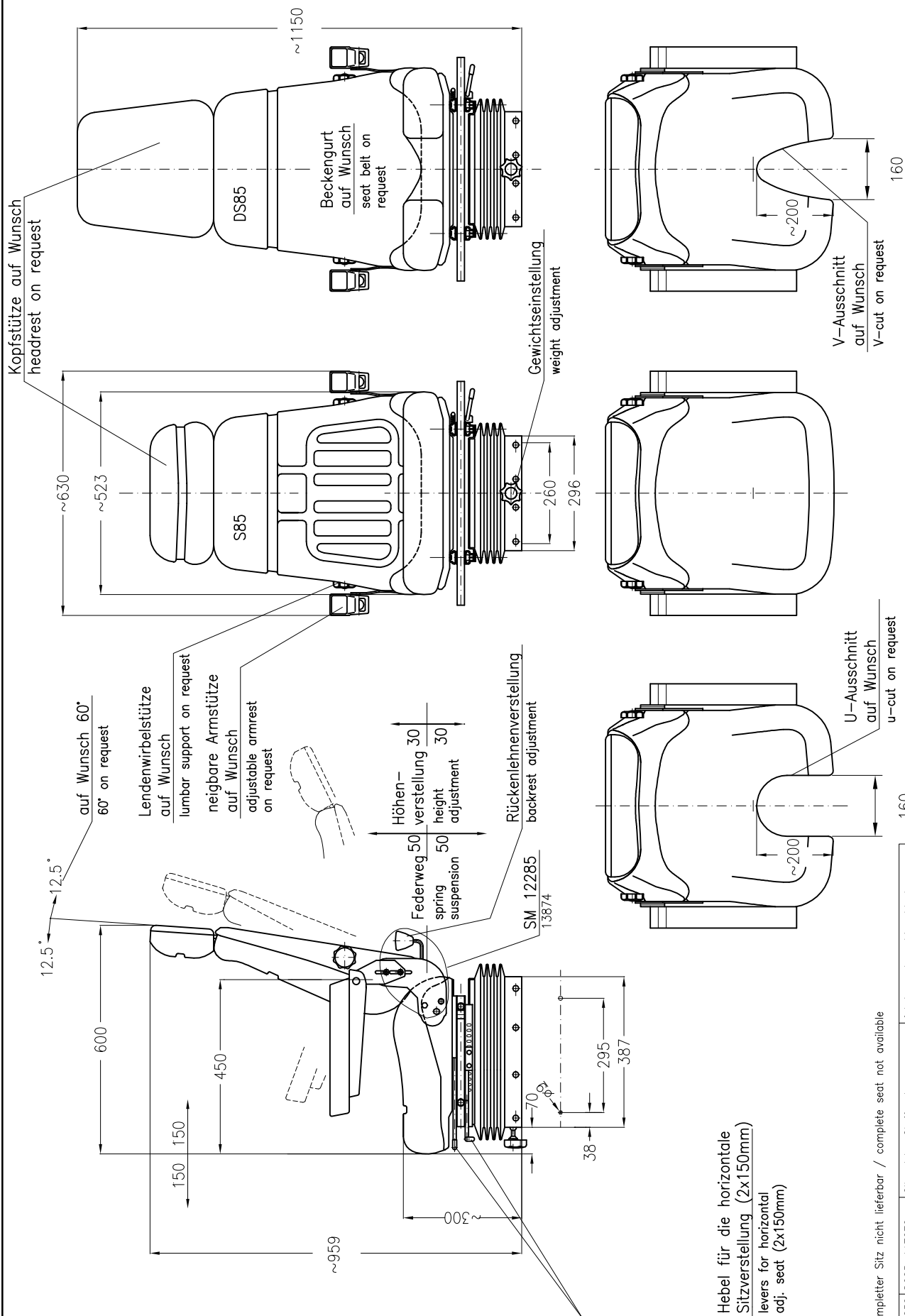












Sitzpolster: velour; dynamikblau, schwarz
Kunstleder schwarz
Upholstery: velour; dynamic blue, black
vinyl black

Kompletter Sitz nicht lieferbar / complete seat not available

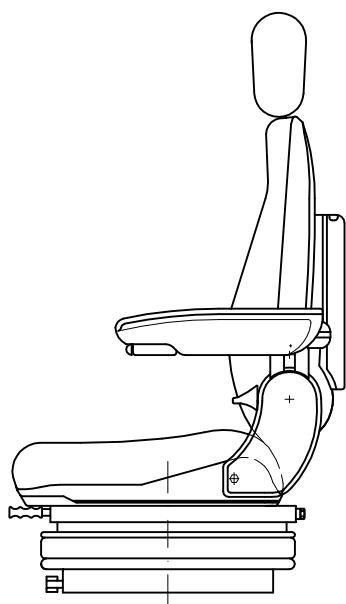
36858 DS85-117272	Sitzpolster Stoff schwarz	fabric seat cushion black
36964 DS85-117273-1	Rückenpolster Stoff schwarz	fabric backrest cushion black
20759 DS85-130236	Kopfstütze Stoff dynamikblau	fabric headrest blue
14080 DS85-117425	Kopfstütze Stoff schwarz	fabric headrest black
20760 DS85-121697	Kopfstütze Kunstleder schwarz	vinyl headrest black
13874 SM 12285	Reparatursatz Rückenlehne DS85	spare parts backrest DS85



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141257 12048
1227457 31827
141258 11579

1026779
12148

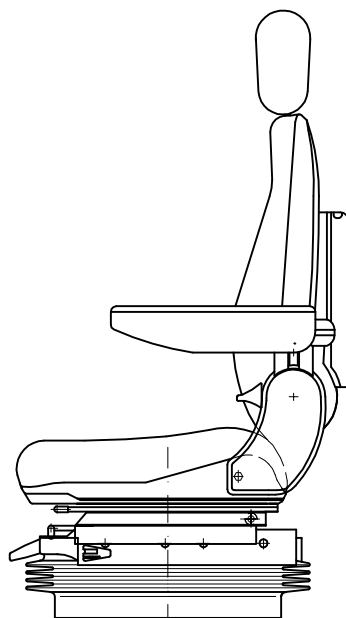
141263 12101
1076953 31826
141256 11578

141247 12004
1052636 26142
141259 11597

1026778
11805

SM11618-B
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142481
10533



140681
11487

140680
11509

SM11618-B
29432

P12 30827
P24 30828

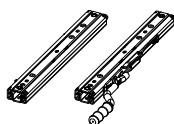
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22803

Verstellschienensätze für Sitzlängsverstellung

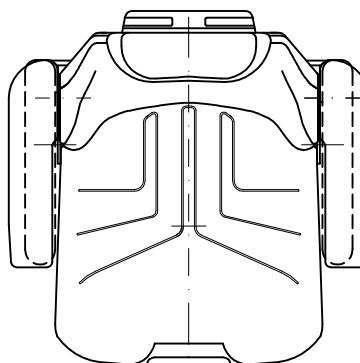
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SM11618-C
22805

SM11618-D
22803



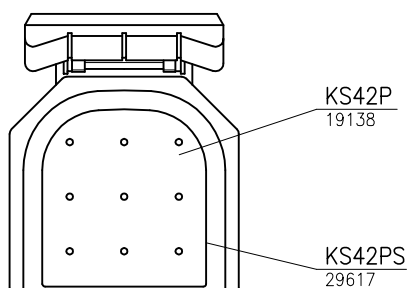
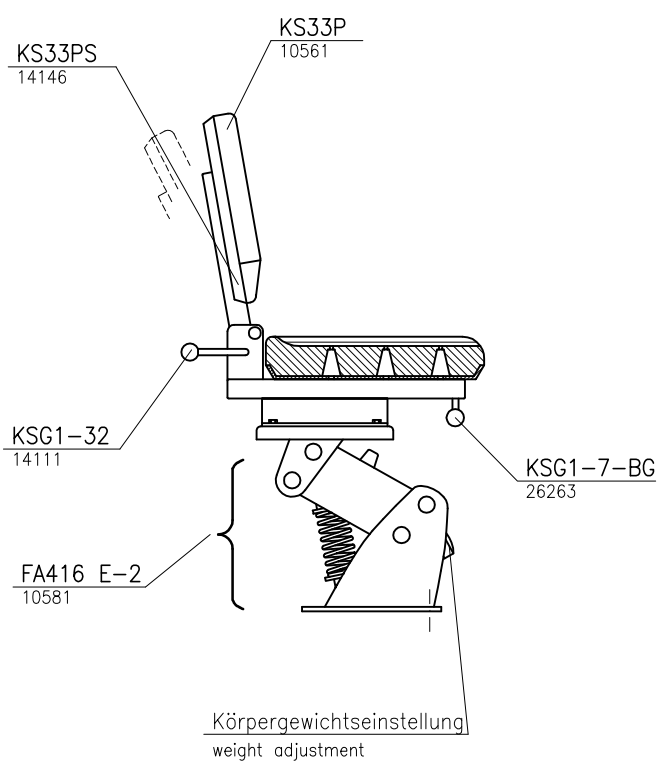
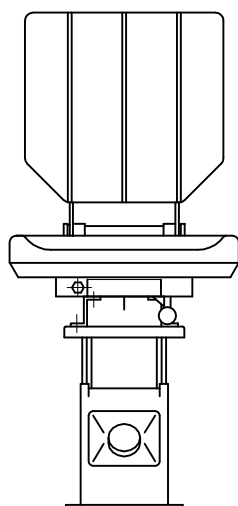
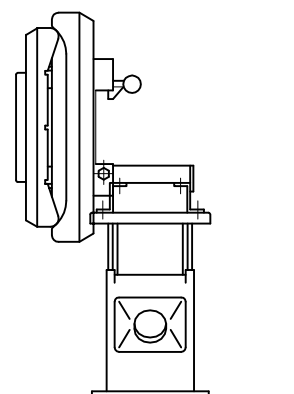
12101	S722-141263 Sitzpolster Stoff dynamikblau	fabric seat cushion blue
31826	S722-1076953 Sitzpolster Stoff schwarz matrix	seat cushion black matrix
11578	S722-141256 Sitzpolster Kunstleder schwarz	vinyl seat cushion black
31827	S722-1227457 Rückenpolster Stoff schwarz matrix	fabric backrest cushion black matrix
26142	S722-1052636 Kopfstütze Stoff schwarz matrix	fabric headrest black matrix
16774	S722-1039311 Armlehne links 80x320	armrest left
16773	S722-1039312 Armlehne rechts 80x320	armrest right
30827	P12 Luftfederung 12 V	pneumatic suspension 12 V
30828	P24 Luftfederung 24 V	pneumatic suspension 24 V
12172	Rallye 3ASM Hosenträgergurt	four point seat belt
12002	902173 2-Punkt-Beckengurt	two point seat belt

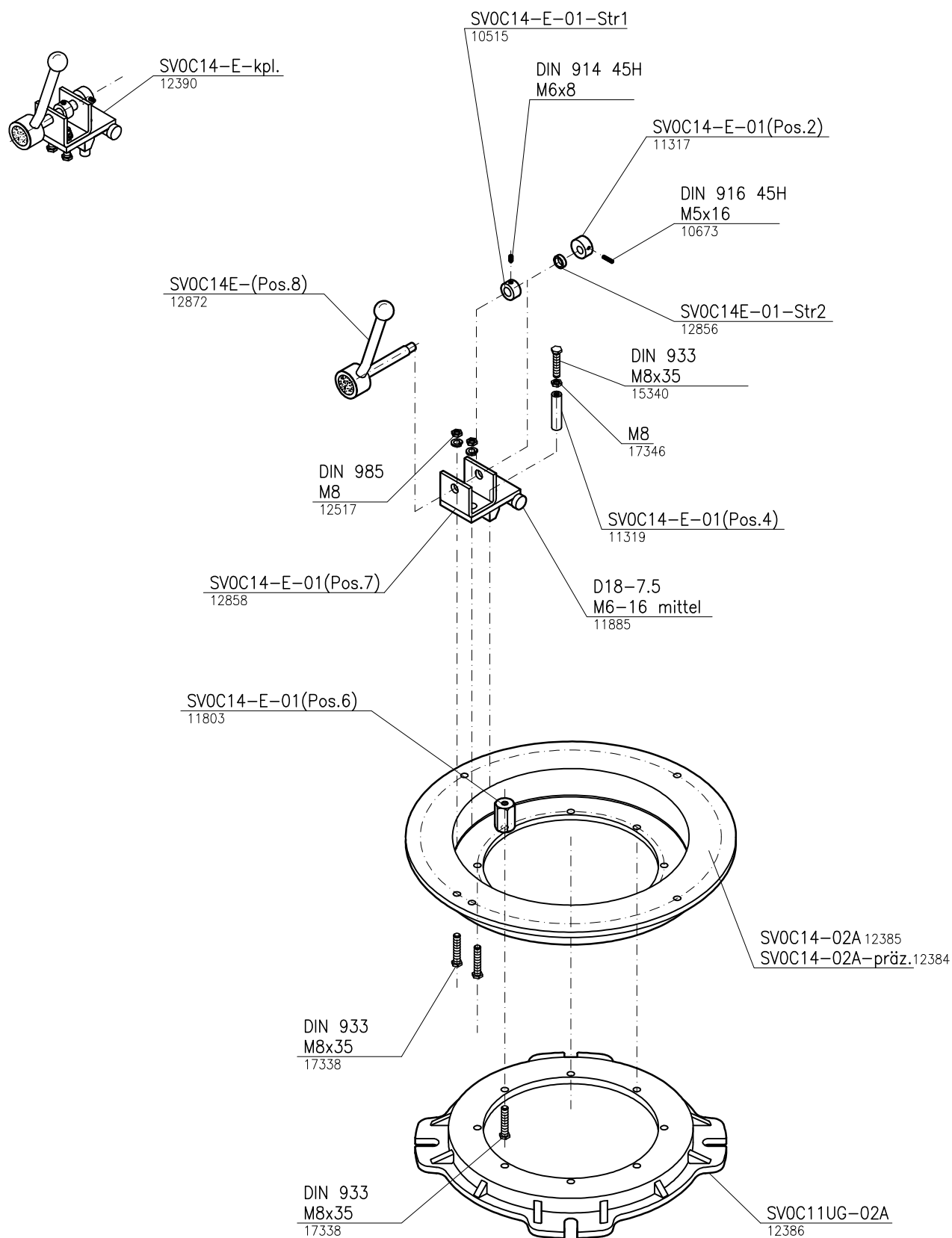


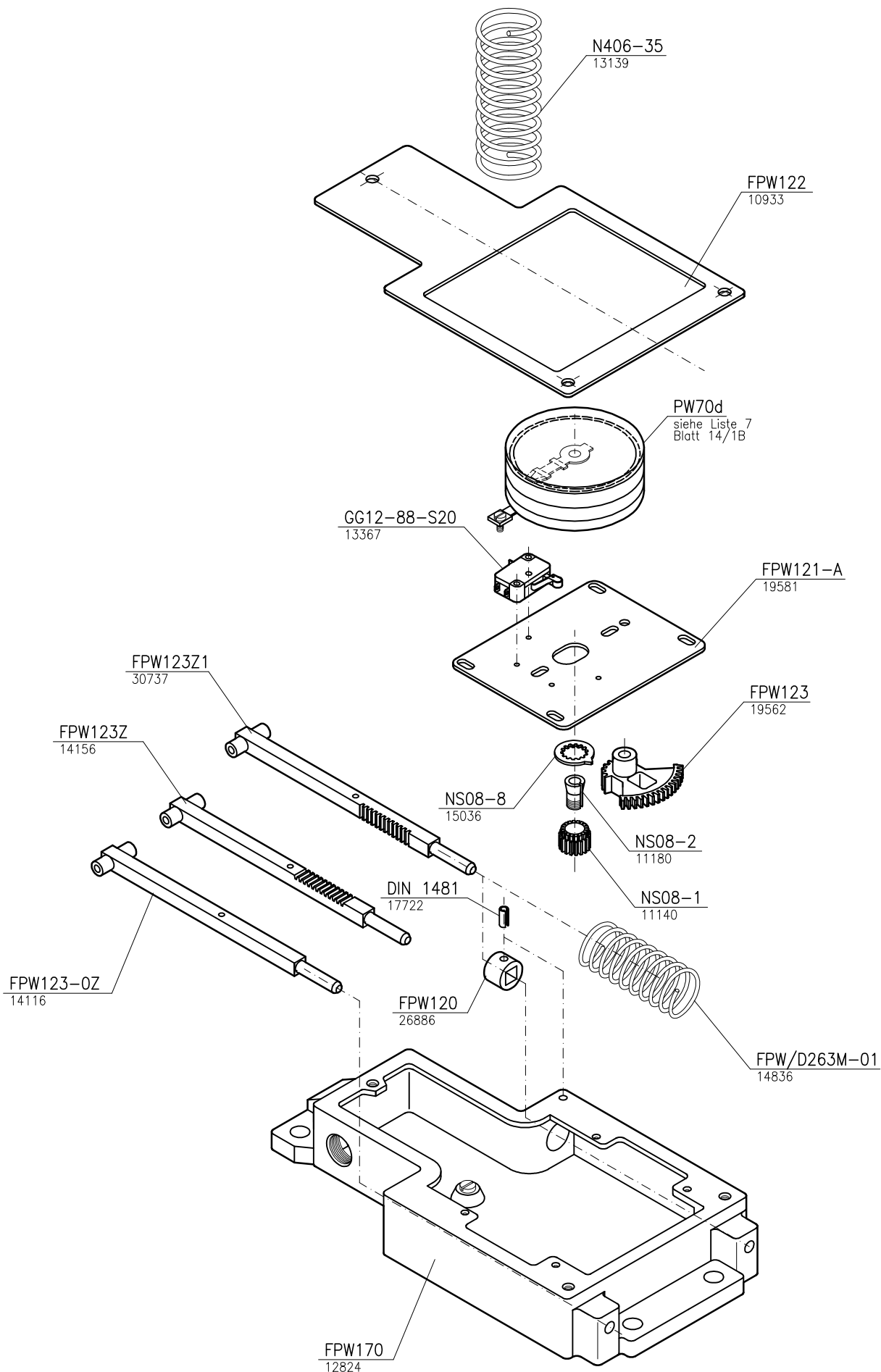
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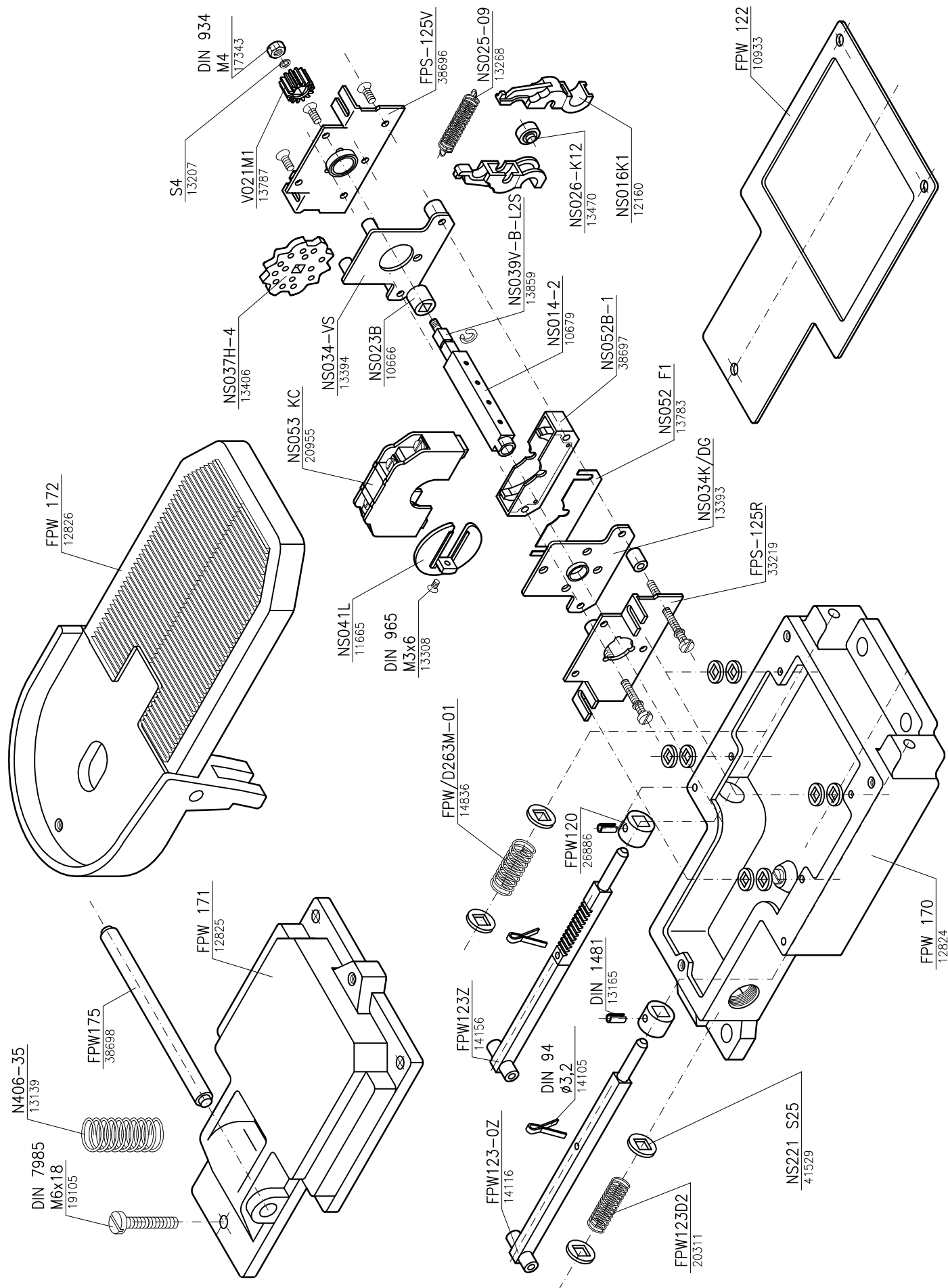
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GERMANY

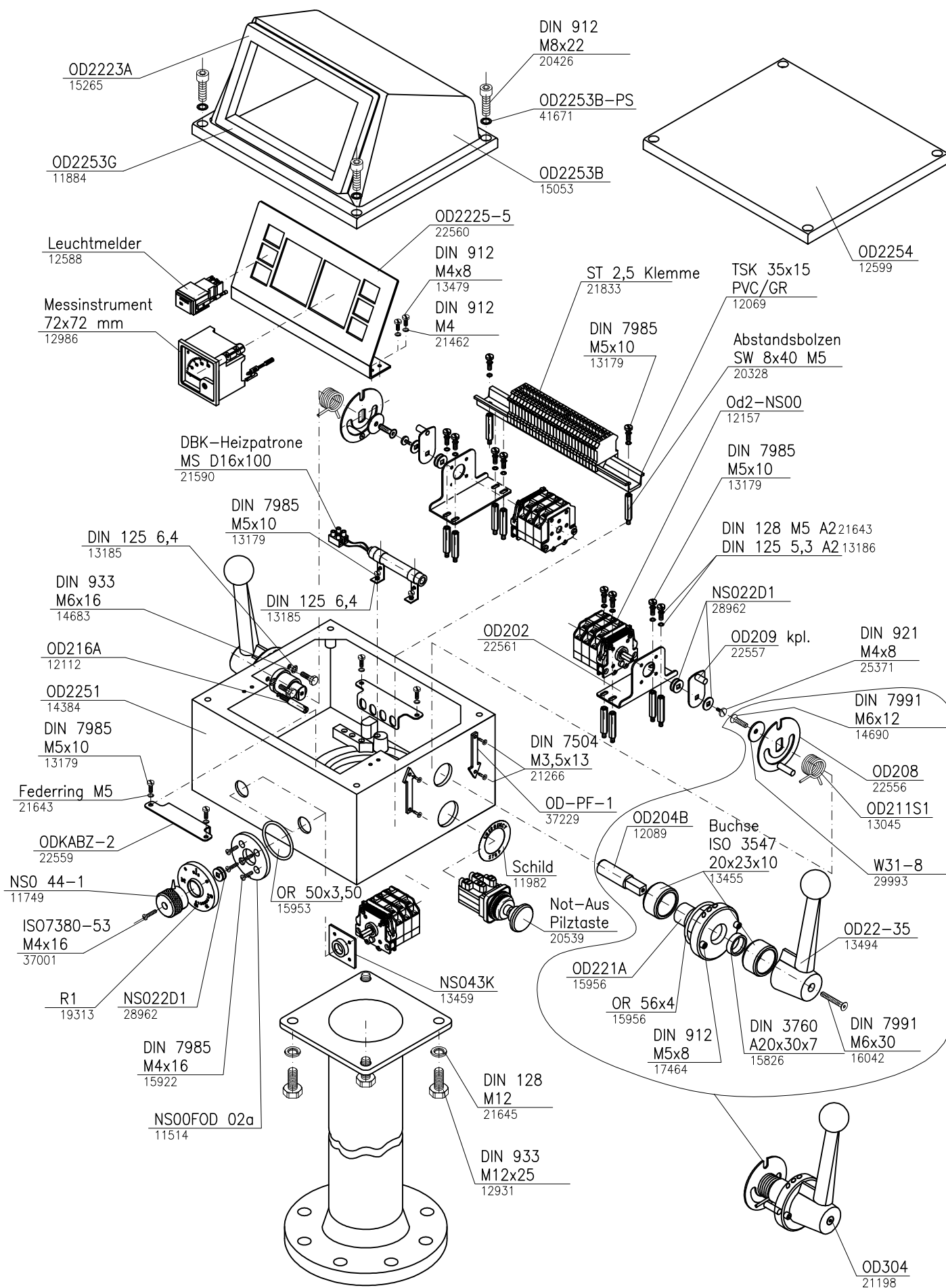
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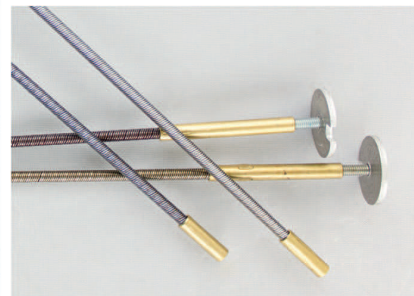
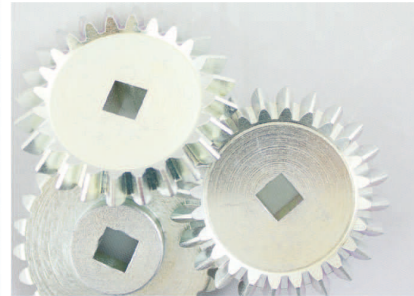
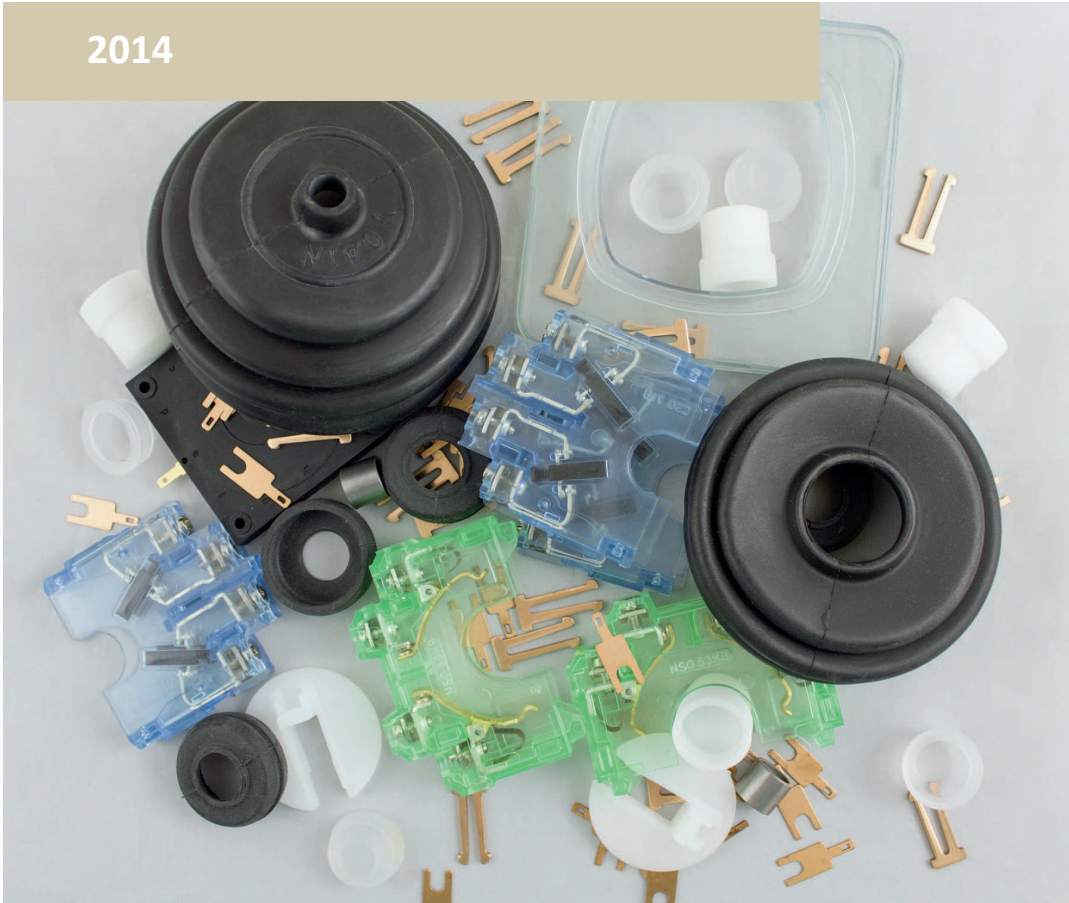


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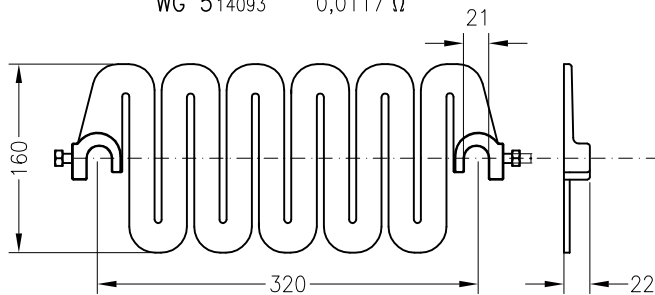
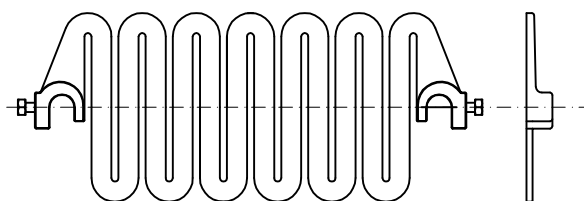
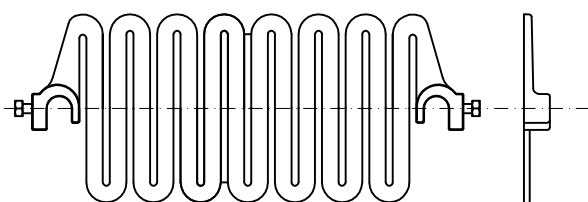
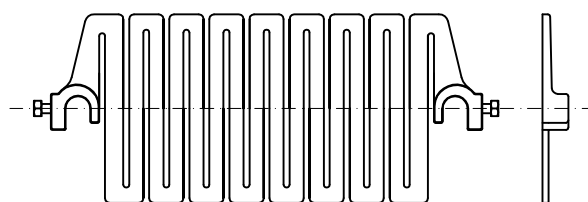
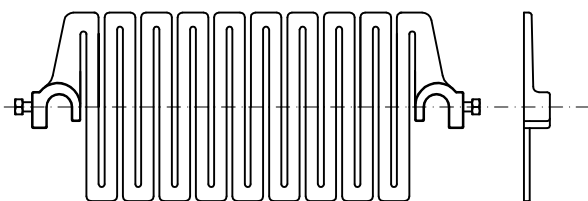
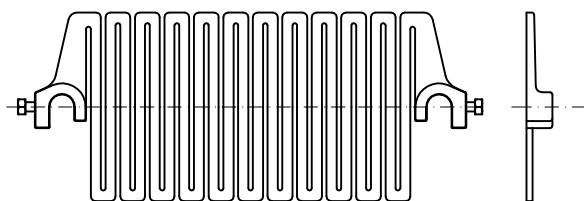
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E-Liste Spare Parts

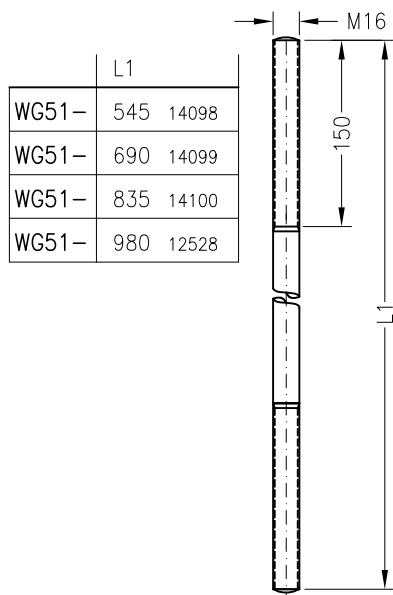
2014



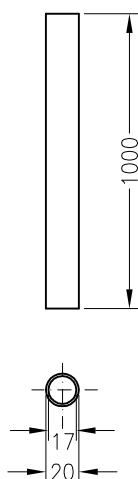
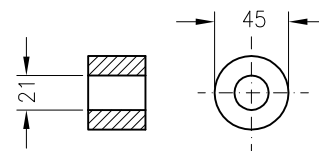
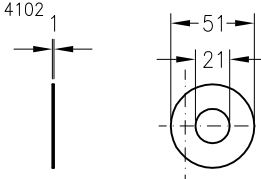
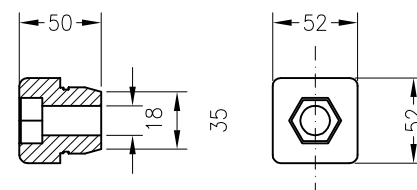
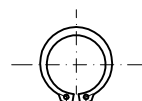
Gußgitter:

WG 514093 0,0117 Ω WG 614095 0,0185 Ω WG 714096 0,0285 Ω WG 814097 0,033 Ω WG 924072 0,045 Ω WG 1138733 0,079 Ω 

Gewicht: ~1,5 – 1,8 kg/Stück

Gewindestange
bolt

	L1
WG51–	545 14098
WG51–	690 14099
WG51–	835 14100
WG51–	980 12528

Glimmerrohr WG51 GR1 17640
glimmer hoseKeramik-Distanzrolle WG31K 17047
ceramic rollerGlimmerscheibe WG31 14102
glimmer discKeramik-Isolator M16 DIN46262 14104
isolatorSeegerring
ringA30 DIN 471 14103
A32 DIN 471 17670
A39 DIN 471 22300**Spohn+Burkhardt**
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