

90 E ....  
 90 N ....  
 90 P ....  
 90 C ....

## PVC Insulated Compensating and Extension Cable

according to DIN 43710 / 43713 / 43714 resp. IEC 584



### Construction

Solid or fine-stranded conductor with 1.5 mm<sup>2</sup> or 0.22 mm<sup>2</sup>, conductor material according to the element-type, core insulation of PVC, core colours according to the element-type, cores are stranded or laid in parallel, outer sheath of PVC, oval or round, sheath colour according to the element-type. In case of types with steel wire braiding the braiding serves either as an outer covering or is embedded between the inner and the outer sheath.

### Application

These cables are suitable for installations in dry, humid and wet locations as temperature measuring cables for areas such as the plastic industry in machine engineering, industrial oven construction as well as blast furnace plants in the steel industry. PVC-, fibreglass- and asbestos-substitute insulated or sheathed compensating and extension cables are not suitable for open-air use except for the PVC-sheathed solid conductor type, which can be used for underground laying, too.

### Temperature range

In motion - 5°C till + 70°C  
 For fixed installation - 25°C till + 70°C

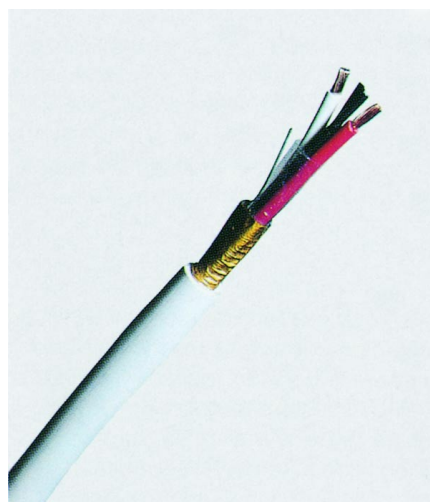
Type	Price	Material	For	Conductor	Form	Overall	Weight
Number of cores		acc. to	thermo-	construction		diameter	
cross section		DIN43713	couple			measures	ca.
mm <sup>2</sup>	EUR / km			mm		ca. mm	kg / km
90E 9L	2 x 1,5	4.621,90	Typ L	48 x 0,20	rund	7,0	79
90N 9L	2 x 1,5	4.621,90	Typ K	48 x 0,20	rund	7,0	79
90P 9L	2 x 1,5	4.621,90	Typ S	48 x 0,20	rund	7,0	79
90C 9L	2 x 1,5	4.621,90	Typ U	48 x 0,20	rund	7,0	79
90E 9-022	2 x 0,22	2.426,50	Typ L	7 x 0,20	rund	4,0	22
90N 9-022	2 x 0,22	2.426,50	Typ K	7 x 0,20	rund	4,0	22
90P 9-022	2 x 0,22	2.426,50	Typ S	7 x 0,20	rund	4,0	22
90C 9-022	2 x 0,22	2.426,50	Typ U	7 x 0,20	rund	4,0	22
90E 12L	2 x 1,5	3.466,50	Typ L	48 x 0,20	oval	4,3 x 7,0	69
90N 12L	2 x 1,5	3.466,50	Typ K	48 x 0,20	oval	4,3 x 7,0	69
90P 12L	2 x 1,5	3.466,50	Typ S	48 x 0,20	oval	4,3 x 7,0	69
90C 12L	2 x 1,5	3.466,50	Typ U	48 x 0,20	oval	4,3 x 7,0	69
90E 12D	2 x 1,5	2.773,10	Typ L	1 x 1,38	oval	4,2 x 6,8	61
90N 12D	2 x 1,5	2.773,10	Typ K	1 x 1,38	oval	4,2 x 6,8	61
90P 12D	2 x 1,5	2.773,10	Typ S	1 x 1,38	oval	4,2 x 6,8	61
90C 12D	2 x 1,5	2.773,10	Typ U	1 x 1,38	oval	4,2 x 6,8	61
90. 9-4L	4 x 1,5	6.932,90		48 x 0,20	rund	8,1	119
90. 9-6L	6 x 1,5	9.243,90		48 x 0,20	rund	10,1	184
90. 9-12L	12 x 1,5	19.643,40		48 x 0,20	rund	13,2	312
90. 9-16L	16 x 1,5	25.420,90		48 x 0,20	rund	15,1	419
90. 9-20L	20 x 1,5	28.887,40		48 x 0,20	rund	16,7	520
90. 9-24L	24 x 1,5	36.975,90		48 x 0,20	rund	19,0	614
90. 9-32L	32 x 1,5	49.686,40		48 x 0,20	rund	20,9	793
90. 9-36L	36 x 1,5	54.308,40		48 x 0,20	rund	22,1	904
90. 9-40L	40 x 1,5	61.241,40		48 x 0,20	rund	24,1	1032

Steel wire braiding for mechanical protection as well as other cross sections, core numbers and norms on request.

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## PVC Insulated Compensating and Extension Cable with Screening

according to DIN 43710 / 43713 / 43714 resp. IEC 584



### Construction

solid or fine-stranded conductor with 1.5 mm<sup>2</sup> or 0.22 mm<sup>2</sup>, conductor material according to the element-type, core insulation of PVC, core colours according to the element-type, cores are stranded and wrapped in a PETP foil, screening of tinned copper braiding or of an aluminium foil with drain wire, outer sheath of PVC, sheath colour according to the element-type.

### Application

Solid or fine-stranded conductor with 1.5 mm<sup>2</sup> or 0.22 mm<sup>2</sup>, conductor material according to the element-type, core insulation of PVC, core colours according to the element-type, cores are stranded and wrapped in a PETP foil, screening of tinned copper braiding or of an aluminium foil with drain wire, outer sheath of PVC, sheath colour according to the element-type.

### Temperature range

In motion - 5°C till + 70°C  
 For fixed installation - 25°C till + 70°C

Type	Price	Material	For	Conductor	Form	Overall	Weight
Number of cores		acc. to	thermo-	construction		diameter	
cross section		DIN43713	couple			measures	ca.
mm <sup>2</sup>	EUR / km			mm		ca. mm	kg / km
Compensating cable with copper braiding							
90E 5L	2 x 1,5	5.661,90	Fe-CuNi	Typ L	48 x 0,20	rund	93
90N 5L	2 x 1,5	5.661,90	SoNiCr-SoNi	Typ K	48 x 0,20	rund	93
90P 5L	2 x 1,5	5.661,90	SoPtRh-SoPt	Typ S	48 x 0,20	rund	93
90C 5L	2 x 1,5	5.661,90	Cu-CuNi	Typ U	48 x 0,20	rund	93
90E 5-022	2 x 0,22	2.542,00	Fe-CuNi	Typ L	7 x 0,20	rund	31
90N 5-022	2 x 0,22	2.542,00	SoNiCr-SoNi	Typ K	7 x 0,20	rund	31
90P 5-022	2 x 0,22	2.542,00	SoPtRh-SoPt	Typ S	7 x 0,20	rund	31
90C 5-022	2 x 0,22	2.542,00	Cu-CuNi	Typ U	7 x 0,20	rund	31
Compensating cable with aluminium foil screening							
90E 20L	2 x 1,5	4.621,90	Fe-CuNi	Typ L	48 x 0,20	rund	75
90N 20L	2 x 1,5	4.621,90	SoNiCr-SoNi	Typ K	48 x 0,20	rund	75
90P 20L	2 x 1,5	4.621,90	SoPtRh-SoPt	Typ S	48 x 0,20	rund	75
90C 20L	2 x 1,5	4.621,90	Cu-CuNi	Typ U	48 x 0,20	rund	75
90E 20D	2 x 1,5	4.044,10	Fe-CuNi	Typ L	1 x 1,38	rund	82
90N 20D	2 x 1,5	4.044,10	SoNiCr-SoNi	Typ K	1 x 1,38	rund	82
90P 20D	2 x 1,5	4.044,10	SoPtRh-SoPt	Typ S	1 x 1,38	rund	82
90C 20D	2 x 1,5	4.044,10	Cu-CuNi	Typ U	1 x 1,38	rund	82
90. 20-4D	4 x 1,5	6.932,90	E/N/P/C		1 x 1,38	rund	137
90. 20-6D	6 x 1,5	10.399,40	E/N/P/C		1 x 1,38	rund	186
90. 20-12D	12 x 1,5	18.487,90	E/N/P/C		1 x 1,38	rund	362
90. 20-16D	16 x 1,5	23.109,80	E/N/P/C		1 x 1,38	rund	423
90. 20-20D	20 x 1,5	30.042,90	E/N/P/C		1 x 1,38	rund	542
90. 20-24D	24 x 1,5	34.664,90	E/N/P/C		1 x 1,38	rund	638
90. 20-28D	28 x 1,5	40.442,40	E/N/P/C		1 x 1,38	rund	749
90. 20-30D	30 x 1,5	42.753,40	E/N/P/C		1 x 1,38	rund	788
90. 20-32D	32 x 1,5	46.219,90	E/N/P/C		1 x 1,38	rund	847
90. 20-36D	36 x 1,5	50.841,90	E/N/P/C		1 x 1,38	rund	944
90. 20-40D	40 x 1,5	56.619,40	E/N/P/C		1 x 1,38	rund	1001

Other cross sections, core numbers and norms on request.

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## Silicone Insulated Compensating and Extension Cable with or without Steel Wire Braiding

according to DIN 43710 / 43713 / 43714 resp. IEC 584



### Construction

Fine-stranded conductor with 1.5 mm<sup>2</sup>, conductor material according to the element-type, core insulation of silicone (2GI1), core colours according to the element-type, cores are stranded or laid in parallel, outer sheath of silicone (2GM1), oval or round, sheath colour according to the element-type. In case of types with steel wire braiding the braiding serves as an outer covering.

### Application

Fine-stranded conductor with 1.5 mm<sup>2</sup>, conductor material according to the element-type, core insulation of silicone (2GI1), core colours according to the element-type, cores are stranded or laid in parallel, outer sheath of silicone (2GM1), oval or round, sheath colour according to the element-type. In case of types with steel wire braiding the braiding serves as an outer covering.

### Temperature range

In motion - 25°C till + 180°C  
 For fixed installation - 25°C till + 180°C  
 Short-time use till + 200°C

Type	Price	Material	For	Conductor	Form	Overall	Weight	
Number of cores		acc. to	thermo-	construction		diameter		
cross section		DIN43713	couple			measures	ca.	
mm <sup>2</sup>	EUR / km			mm		ca. mm	kg / km	
90E 15L	2 x 1,5	8.550,60	Fe-CuNi	Typ L	48 x 0,20	rund	7,7	76
90N 15L	2 x 1,5	8.550,60	SoNiCr-SoNi	Typ K	48 x 0,20	rund	7,7	76
90P 15L	2 x 1,5	8.550,60	SoPtRh-SoPt	Typ S	48 x 0,20	rund	7,7	76
90C 15L	2 x 1,5	8.550,60	Cu-CuNi	Typ U	48 x 0,20	rund	7,7	76
90E 3Ln	2 x 1,5	6.124,10	Fe-CuNi	Typ L	48 x 0,20	oval	5,2 x 7,4	62
90N 3Ln	2 x 1,5	6.124,10	SoNiCr-SoNi	Typ K	48 x 0,20	oval	5,2 x 7,4	62
90P 3Ln	2 x 1,5	6.124,10	SoPtRh-SoPt	Typ S	48 x 0,20	oval	5,2 x 7,4	62
90C 3Ln	2 x 1,5	6.124,10	Cu-CuNi	Typ U	48 x 0,20	oval	5,2 x 7,4	62

### Compensating cable with steel wire braiding

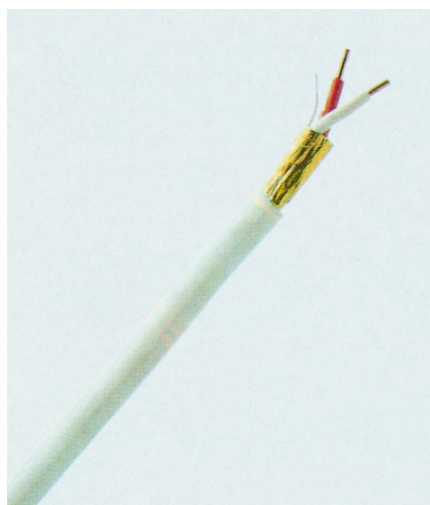
90E 15LP	2 x 1,5	9.821,60	Fe-CuNi	Typ L	48 x 0,20	rund	7,8	105
90N 15LP	2 x 1,5	9.821,60	SoNiCr-SoNi	Typ K	48 x 0,20	rund	7,8	105
90P 15LP	2 x 1,5	9.821,60	SoPtRh-SoPt	Typ S	48 x 0,20	rund	7,8	105
90C 15LP	2 x 1,5	9.821,60	Cu-CuNi	Typ U	48 x 0,20	rund	7,8	105
90E 4Ln	2 x 1,5	7.164,00	Fe-CuNi	Typ L	48 x 0,20	oval	6,0 x 8,2	85
90N 4Ln	2 x 1,5	7.164,00	SoNiCr-SoNi	Typ K	48 x 0,20	oval	6,0 x 8,2	85
90P 4Ln	2 x 1,5	7.164,00	SoPtRh-SoPt	Typ S	48 x 0,20	oval	6,0 x 8,2	85
90C 4Ln	2 x 1,5	7.164,00	Cu-CuNi	Typ U	48 x 0,20	oval	6,0 x 8,2	85

Other cross sections, core numbers and norms on request.

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## Silicone Insulated Compensating and Extension Cable with Screening

according to DIN 43710 / 43713 / 43714 resp. IEC 584



### Construction

Solid or fine-stranded conductor with 1.5 mm<sup>2</sup>, conductor material according to the element-type, core insulation of silicone (2G11), core colours according to the element-type, cores are stranded and wrapped in a PETP-foil, screening of an aluminium foil with drain wire, outer sheath of silicone (2GM1), sheath colour according to the element-type.

### Application

These cables are suitable for installations in dry, humid and wet locations as temperature measuring cables for areas such as the plastic industry in machine engineering, industrial oven construction as well as blast furnace plants in the steel industry. PVC-, fibreglass- and asbestos-substitute insulated or sheathed compensating and extension cables are not suitable for open-air use except for the PVC-sheathed solid conductor type, which can be used for underground laying, too.

### Temperature range

In motion - 25°C till + 180°C  
 For fixed installation - 25°C till + 180°C  
 Short-time use till + 200°C

Type	Price	Material	For	Conductor	Form	Overall	Weight	
Number of cores		acc. to	thermo-	construction		diameter		
cross section		DIN43713	couple			measures	ca.	
mm <sup>2</sup>	EUR / km			mm		ca. mm	kg / km	
90E 6L	2 x 1,5	8.088,40	Fe-CuNi	Typ L	48 x 0,20	rund	8,0	94
90N 6L	2 x 1,5	8.088,40	SoNiCr-SoNi	Typ K	48 x 0,20	rund	8,0	94
90P 6L	2 x 1,5	8.088,40	SoPtRh-SoPt	Typ S	48 x 0,20	rund	8,0	94
90C 6L	2 x 1,5	8.088,40	Cu-CuNi	Typ U	48 x 0,20	rund	8,0	94
90E 6D	2 x 1,5	7.741,80	Fe-CuNi	Typ L	1 x 1,38	rund	7,8	92
90N 6D	2 x 1,5	7.741,80	SoNiCr-SoNi	Typ K	1 x 1,38	rund	7,8	92
90P 6D	2 x 1,5	7.741,80	SoPtRh-SoPt	Typ S	1 x 1,38	rund	7,8	92
90C 6D	2 x 1,5	7.741,80	Cu-CuNi	Typ U	1 x 1,38	rund	7,8	92

Other cross sections, core numbers as well as insulation materials (e.g. fibreglass, teflon) and norms on request.

Special constructions according to customers' wishes can also be produced.