Building a better future
Global Leader

ISO 9001 REGISTERED
DNV
MGMT.SYS.
RvA C024
DNV Certification B.V., The Netherlands

low voltage

Motor Control Center

hiMCC up to 1000 V AC system

HYUNDAI
HEAVY INDUSTRIES CO.,LTD.

HiMCC motor control center is designed and manufactured in accordance with our quality assurance program.

HiMCC, Hyundai's new low voltage motor control center has features of withdrawable unit, multi-tier, factory assembled, and suitable for L.V. distribution system up to 1000 V AC.

■ HiMCC motor control center is designed and manufactured in accordance with our quality assurance program.

Presentation

HiMCC is a modular L.V. distribution system featuring a fully withdrawable unit.

Use

HiMCC is used to compose L.V. motor control centers up to 1000 V for process control and electrical power distribution.

HiMCC can be applied to all arrangements and all types of layout and location configurations.

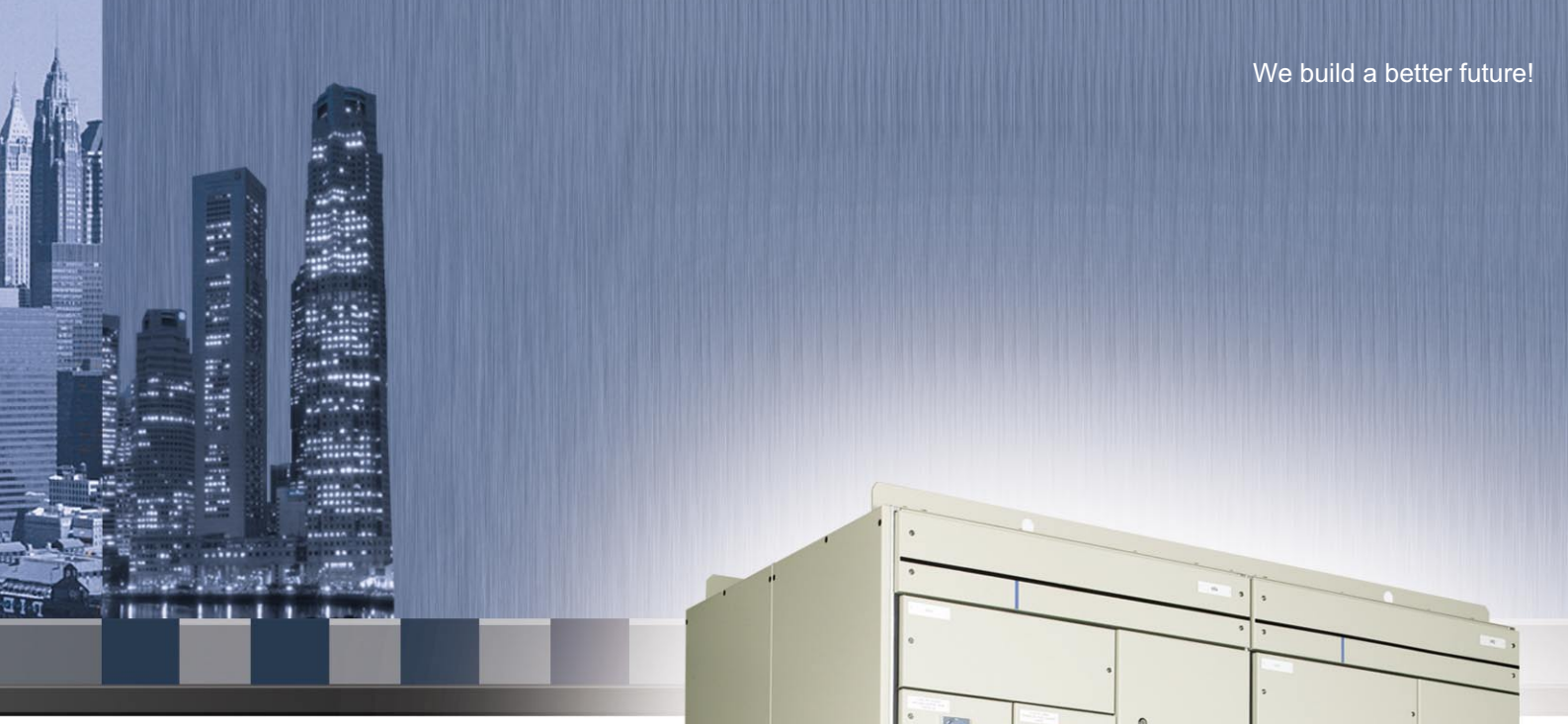
HiMCC meets the most stringent requirements in term of :

- Personnel and equipment safety.
- Easy installation.
- Easy, fast operation and maintenance.
- Future extension

Application

Buildings, machinery and processes

Commercial	Industrial	Utilities
• Airport	• Printing	• Water treatment plant
• Warehouse	• Machinery	• Waste management
• Shopping mall	• Pharmaceutical	• Public transport
• School	• Automotive, Paper & Pulp	• Telecommunications
• Hospital	• Chemical industry	• Cable provider
• Office building	• Marine	• Energy distribution(electricity, gas)



Simple engineering,
quick installation and
safety while live HiMCC

Major Features

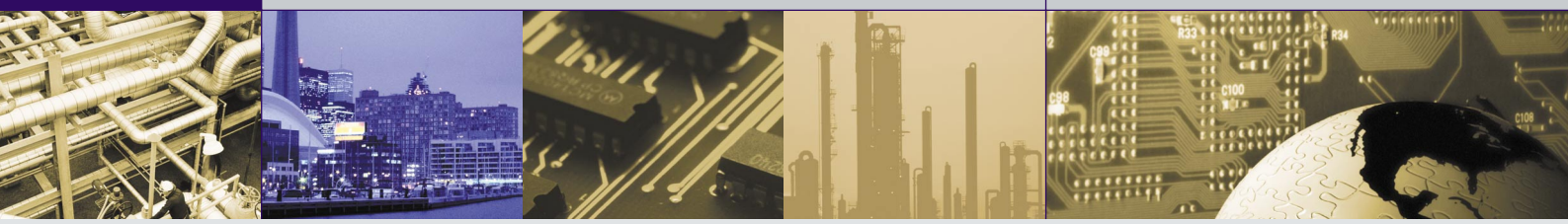
Cost saving

Rugged but light

Easy to handle

Advanced safety features

Contents

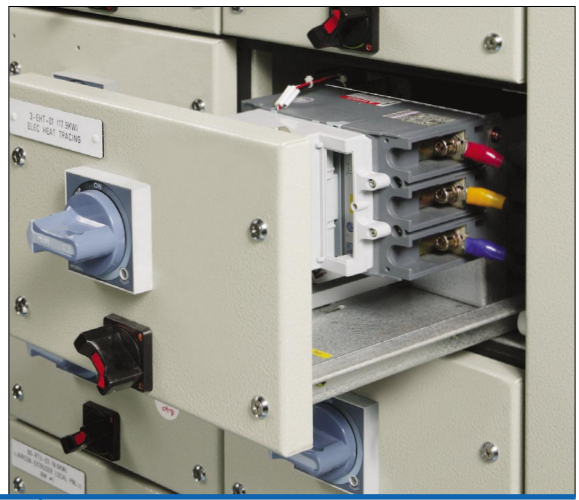


Technical Data

Applicable Standards

HiMCC complies with following standards:

- IEC 60439-1
- VDE 0110
- BS 5486

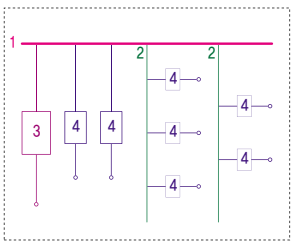


Rated voltage			up to 1000 V
Rated frequency			50/60 Hz
Bus bar currents (3/4 poles)	Main	Rated current	up to 5000 A
		Rated short time withstand current	up to 100 kA/1 sec
		Rated peak withstand current	up to 220 kA
	Vertical	Rated current	up to 1200 A
		Rated short time withstand current	up to 80 kA/1 sec
		Rated peak withstand current	up to 176 kA
Mechanical characteristics	Dimension	Height	2300 mm
		Width	1000 mm
		Depth	600 mm/1200 mm(back to back)
	Degrees of protection		IP20 up to IP44
	Surface protection	Frame	RAL-7032 Hammer tone paint
		Enclosure	RAL-7032 Hammer tone paint
		Internal subdivision	Galvanized
Frame degree			Form-4b

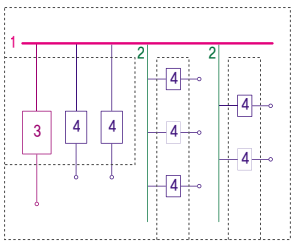
Forms of Internal Separation

In accordance with IEC 60439-1 and depending on requirements, the function compartments can be subdivided as per the following figure.

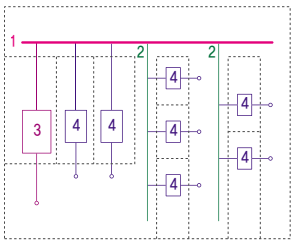
Form 1



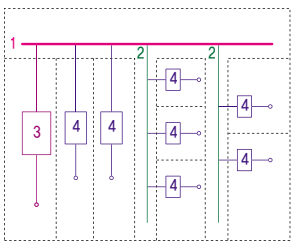
Form 2a



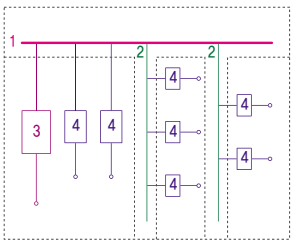
Form 3a



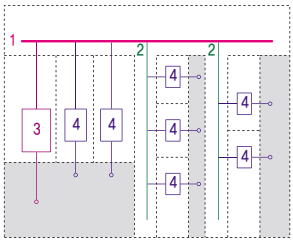
Form 4a



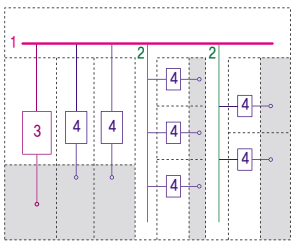
Form 2b



Form 3b

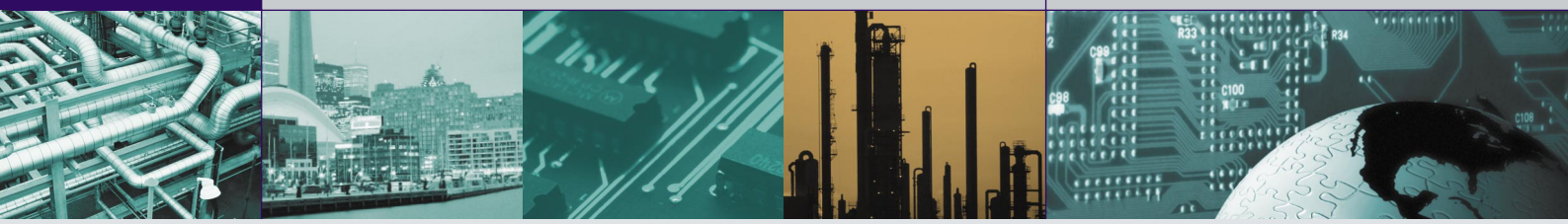


Form 4b



Functional unit
Terminal for external conductors
1 Main busbar
2 Busbar
3 Incoming circuit
4 Outgoing circuit

Forms of internal separation to **IEC 60439-1**

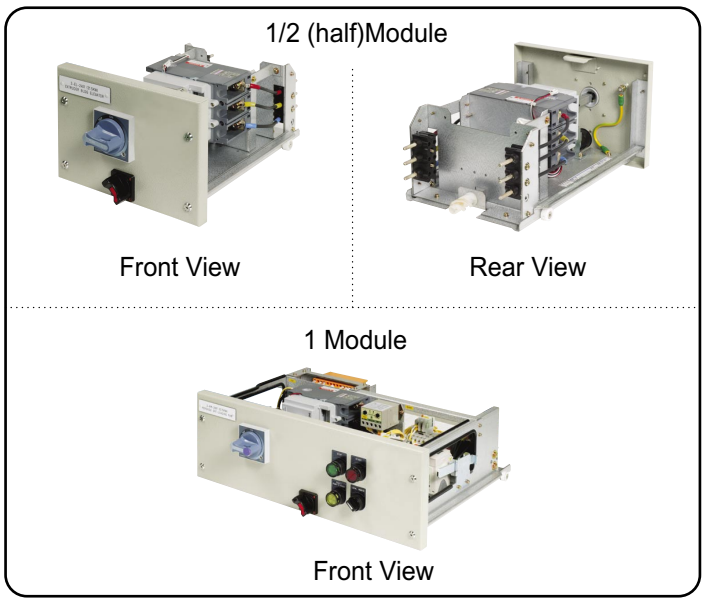


Withdrawable Unit Design

A distinction is made between 1/2 module and normal withdrawable units(size 1, 2, 3 and 4) as shown in following figures.

High packing density with up to 20 feeders per cubicle.

■ Simple operation of withdrawable units prevents operator errors.
Withdrawable units offer a large amount of space for individual accessories



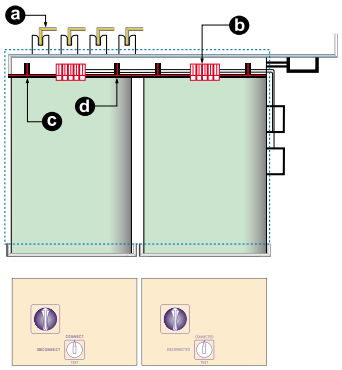
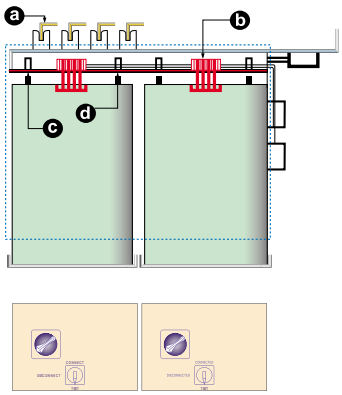
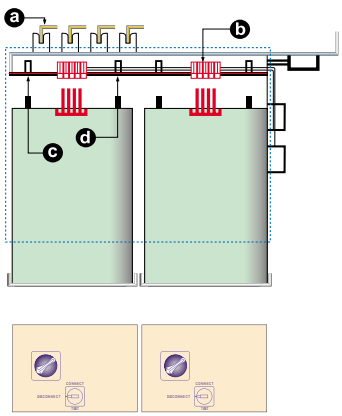
HiMCC withdrawable units size 1/2 module, 1 module.

The normal withdrawable unit of size 1 has a height of one module spacing(200 mm) and can be replaced by 2 units of size 1/2(half module).

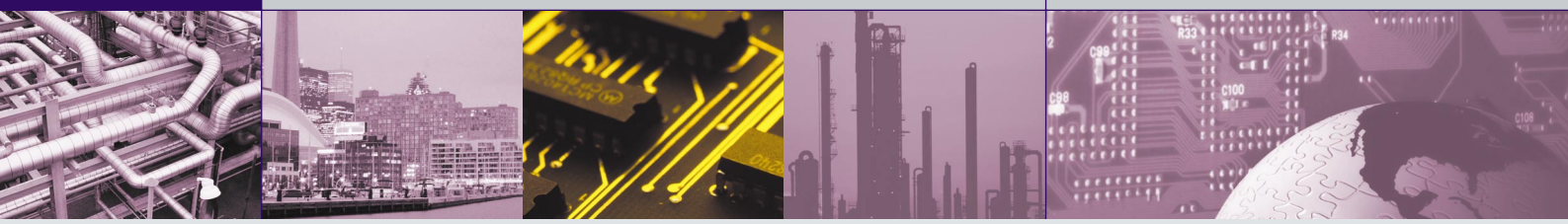
The withdrawable units of size 2,3 and 4 have height of 2,3 and 4 module spacing, respectively.

The maximum complement of a cubicle is, for example, 10 full-size withdrawable units of size 1 or 20 miniature withdrawable units of size 1/2.

Unit Position

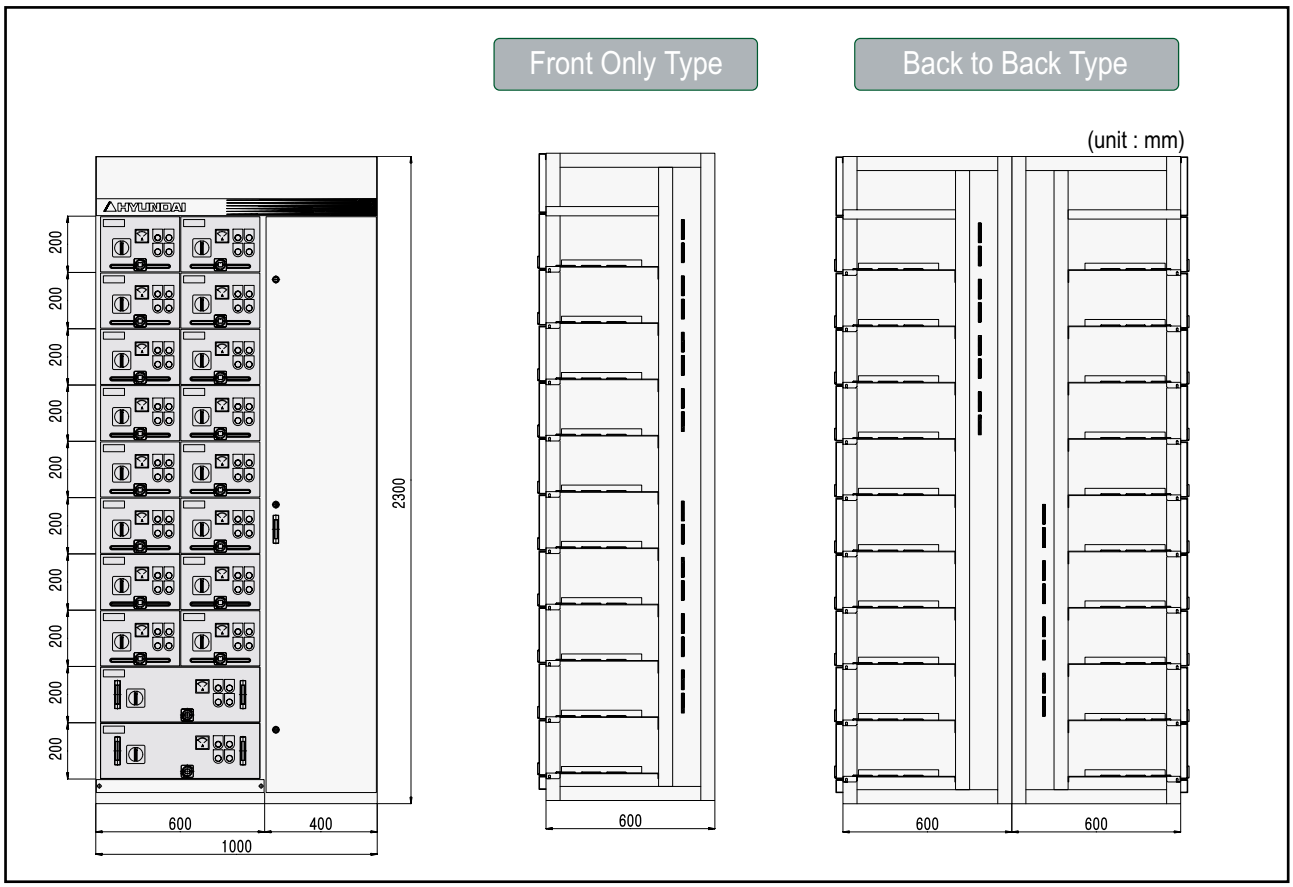
Designation of position	Withdrawable principle	Description of function	
Connected Position		MCCB	On
		Power circuit primary plug	Closed
		Power circuit secondary plug	Closed
		Control circuit	Closed
		The unit cannot be withdrawn in this position. (the unit mechanically interlocked)	
Test Position		MCCB	Off
		Power circuit primary plug	Open
		Power circuit secondary plug	Open
		Control circuit	Closed
		The unit can be withdrawn by 30 mm in this position.	
Disconnected Position		MCCB	Off
		Power circuit primary plug	Open
		Power circuit secondary plug	Open
		Control circuit	Open
		The unit can be completely drawn out from the cubicle.	

ⓐ Vertical bus bar ⓑ Control circuit ⓒ Power circuit primary plug ⓓ Power circuit secondary plug



Panel Arrangement and Dimension

HiMCC withdrawable units size 1/2 module, 1 module.

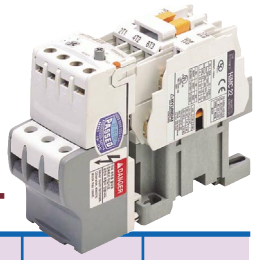


Space for incoming MCCB

Incoming MCCB	Space for unit(height)	Type of unit
Below 100AF	1.5 Module(300 mm)	Drawout type
Below 225AF	1.5 Module(300 mm)	Drawout type
Below 400AF	1.5 Module(300 mm)	Drawout type
Below 400AF with CT	2.0 Module(400 mm)	Drawout type
Below 600AF	2.0 Module(400 mm)	Fixed type
Below 600AF with CT	3.0 Module(600 mm)	Fixed type

※Above 600AF MCCB for incoming feeder, please consult us.

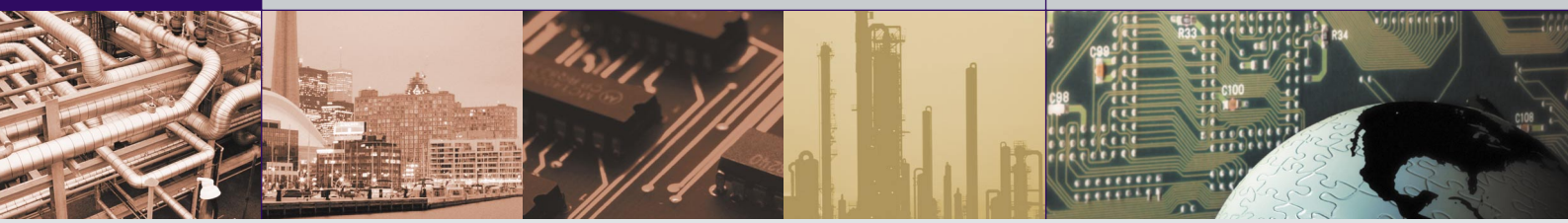
Selection of Standard Unit



380 V / 415 V withdrawable unit design -**DIRECT**

Power(kW)	Full load current(A)		Breaking capacity (kA)	MCCB type		Magnetic contactor	Thermal relay	Cable (mm^2)	Unit size
	380 V	415 V		380 V	415 V				
0.1	0.25	0.23	25~100	GV2-RS 03	GV2-RS 02	HiMC 9	–	5.5	1/2
0.2	0.5	0.43		GV2-RS 04	GV2-RS 04				
0.37	0.93	0.85		GV2-RS 05	GV2-RS 05				
0.4	1.01	0.91		GV2-RS 06					
0.43	1.08	0.98							
0.75	1.89	1.71		GV2-RS 07	GV2-RS 06				
0.9	2.26	2.05			GV2-RS 07				
1.5	3.77	3.42		GV2-RS 08	GV2-RS 08				
2.2	5.26	4.82		GV2-RS 10	GV2-RS 10				
2.5	5.76	5.28							
3.7	8.52	11.1		GV2-RS 14	GV2-RS 14	HiMC 12			
5	11.1	12.21		GV2-RS 16	GV2-RS 16				
5.5	12.21	16.35				HiMC 18			
7.5	16.35	19.27			GV2-RS 20	HiMC 22			
9	19.27	23.55		GV2-RS 17	GV2-RS 21			8	
11	23.55	31.74		GV2-RS 18	GV2-RS 22	HiMC 32			
15	31.74	31.74		GV2-RS 23	GV2-RS 23	HiMC 50			
18.5	38.23	35.02	42	HiBH-103	HiBL-103NT	HiMC 50	HiTH 50K	14	1
			85	HiBL-103NT					
			100	HiBX-103NT	HiBX-103NT				
22	45.47	41.64	42	HiBH-103	HiBL-103NT	HiMC 65	HiTH 90K		
			85	HiBL-103NT					
			100	HiBX-103NT	HiBX-103NT				
30	61.28	56.1	42	HiBH-103	HiBL-103NT	HiMC 80	HiTH 90K	22	
			85	HiBL-103NT					
			100	HiBX-103NT	HiBX-103NT				
37	74.72	68.45	42	HiBH-203	HiBL-203NT	HiMC 90	HiTH 90K	38	2
			85	HiBL-203NT					
			100	HiBX-203NT	HiBX-203NT				
45	93.12	83.25	42	HiBH-203	HiBL-203NT	HiMC 130	HiTH 130K	50	
			85	HiBL-203NT					
			100	HiBX-203NT	HiBX-203NT				
55	112.54	101.75	42	HiBH-203	HiBL-203NT	HiMC 150	HiTH 220K	50	
			85	HiBL-203NT					
			100	HiBX-203NT	HiBX-203NT				
75	148.96	136.39	42	HiBH-203	HiBL-203NT	HiMC 180	HiTH 220K	38×2	
			85	HiBL-203NT					
			100	HiBX-203NT	HiBX-203NT				
90	178.75	163.67	42	HiBS-403NE	HiBS-403NE	HiMC 220	HiTH 220K	38×2	3
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				
95	188.68	172.76	42	HiBS-403NE	HiBS-403NE	HiMC 220	HiTH 220K	38×2	
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				
110	218.47	200.04	42	HiBS-403NE	HiBS-403NE	HiMC 260	HiTH 300K	38×2	
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				
125	248.26	227.32	42	HiBS-403NE	HiBS-403NE	HiMC 300	HiTH 300K	50×2	
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				

※ For Y-△ and reactor starter, please consult us.



Selection of Standard Unit

440 V / 460 V withdrawable unit design -**DIRECT**

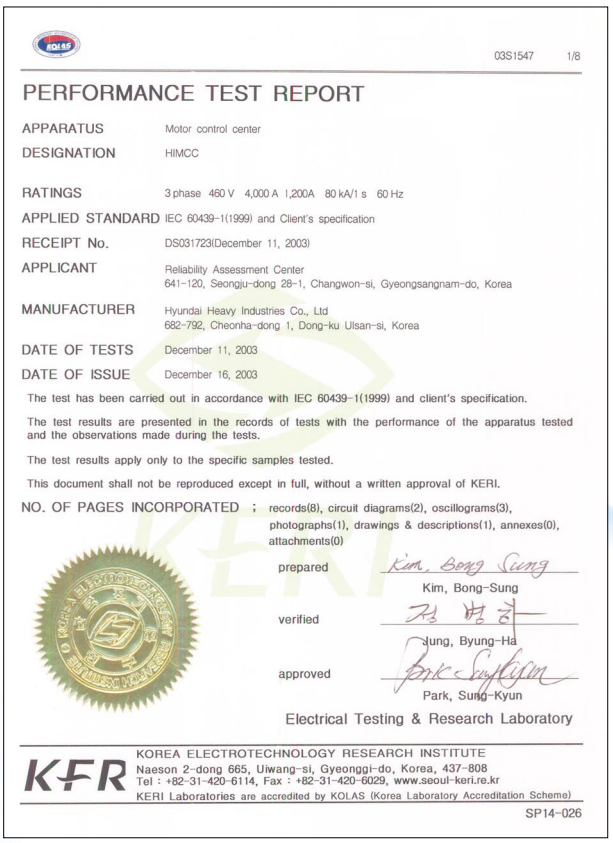
Power(kW)	Full load current(A)		Breaking capacity (kA)	MCCB type		Magnetic contactor	Thermal relay	Cable (mm^2)	Unit size
	440 V	460 V		440 V	460 V				
0.1	0.22	0.21	25~100	GV2-RS 02	GV2-RS 02	HiMC 9	-	5.5	1/2
0.2	0.43	0.42		GV2-RS 04	GV2-RS 02				
0.37	0.8	0.77		GV2-RS 05	GV2-RS 05				
0.4	0.87	0.83		GV2-RS 05					
0.43	0.93	0.89		GV2-RS 05					
0.75	1.63	1.56		GV2-RS 07	GV2-RS 06				
0.9	1.95	1.87		GV2-RS 07	GV2-RS 07				
1.5	3.26	3.11		GV2-RS 08	GV2-RS 08				
2.2	4.54	4.34		GV2-RS 10	GV2-RS 10				
2.5	4.97	4.75		GV2-RS 10					
3.7	7.36	7.04	42	GV2-RS 14	GV2-RS 14	HiMC 12	- (HiTH 22K)		1/2 (1)
			85		HiBL-103NT				
			100		HiBX-103NT				
5	9.58	9.17	42	GV2-RS 14	GV2-RS 14				
			85		HiBL-103NT				
			100		HiBX-103NT				
5.5	10.54	10.08	42	GV2-RS 16	GV2-RS 16	HiMC 18			
			85	HiBL-103NT	HiBL-103NT	HiMC 22	HiTH 22K	5.5	1
			100	HiBX-103NT	HiBX-103NT				
7.5	14.12	13.5	42	HiBL-103NT	GV2-RS 16				
			85		HiBL-103NT				
			100	HiBX-103NT	HiBX-103NT				
9	16.64	15.92	42	HiBL-103NT	HiBL-103NT			8	
			85						
			100	HiBX-103NT	HiBX-103NT				
11	20.34	19.45	42	HiBL-103NT	HiBL-103NT	HiMC 32	HiTH 40K		
			85						
			100	HiBX-103NT	HiBX-103NT				
15	27.41	26.22	42	HiBL-103NT	HiBL-103NT	HiMC 50	HiTH 50K		
			85						
			100	HiBX-103NT	HiBX-103NT				
18.5	33.02	31.58	42	HiBL-103NT	HiBL-103NT			14	
			85						
			100	HiBX-103NT	HiBX-103NT				
22	39.27	37.56	42	HiBL-103NT	HiBL-103NT	HiMC 65	HiTH 90K		
			85						
			100	HiBX-103NT	HiBX-103NT				
30	52.93	50.63	42	HiBL-103NT	HiBL-103NT	HiMC 80		22	
			85						
			100	HiBX-103NT	HiBX-103NT				
37	64.53	61.72	42	HiBL-103NT	HiBL-103NT	HiMC 90	HiTH 90K	38	2
			85						
			100	HiBX-103NT	HiBX-103NT				
45	80.42	76.92	42	HiBL-203NT	HiBL-203NT	HiMC 130	HiTH 130K	50	
			85						
			100	HiBX-203NT	HiBX-203NT				
55	97.2	92.97	42	HiBL-203NT	HiBL-203NT	HiMC 150	HiTH 220K	50	
			85						
			100	HiBX-203NT	HiBX-203NT				
75	128.64	123.05	42	HiBL-203NT	HiBL-203NT	HiMC 180		38×2	
			85						
			100	HiBX-203NT	HiBX-203NT				
90	154.37	147.66	42	HiBS-403NE	HiBS-403NE	HiMC 220	HiTH 220K	38×2	3
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				
95	162.95	155.86	42	HiBS-403NE	HiBS-403NE	HiMC 220		38×2	
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				
110	188.68	180.47	42	HiBS-403NE	HiBS-403NE	HiMC 260	HiTH 300K	38×2	
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				
125	214.41	205.08	42	HiBS-403NE	HiBS-403NE	HiMC 300		50×2	
			85	HiBL-403NE	HiBL-403NE				
			100	HiBX-403NE	HiBX-403NE				

※ For Y-△ and reactor starter, please consult us.

380 V / 415 V / 440 V / 460 V withdrawable unit design -**MCCB ONLY**

Power (kW)	Breaking capacity (kA)	MCCB type				Magnetic contactor	Thermal relay	Cable (mm^2)	Unit size
		380 V	415 V	440 V	460 V				
MCCB 100AF	25 ~ 100	GV2-RS **				–	–	5.5	1/2
	42	HiBH-103	HiBL-103NT	HiBL-103NT	HiBL-103NT			22	
	85	HiBL-103NT							
	100	HiBX-103NT	HiBX-103NT	HiBX-103NT	HiBX-103NT				
MCCB 225AF	42	HiBH-203	HiBL-203NT	HiBL-203NT	HiBL-203NT			38 ×2	1.5
	85	HiBL-203NT							
	100	HiBX-203NT	HiBX-203NT	HiBX-203NT	HiBX-203NT				
MCCB 400AF	42	HiBS-403NE	HiBS-403NE	HiBS-403NE	HiBS-403NE			50 ×2	
	85	HiBL-403NE	HiBL-403NE	HiBL-403NE	HiBL-403NE				
	100	HiBX-403NE	HiBX-403NE	HiBX-403NE	HiBX-403NE				

Test Report



03S1547 1/8

PERFORMANCE TEST REPORT

APPARATUS Motor control center
DESIGNATION HIMCC

RATINGS 3 phase 460 V 4,000 A 1,200A 80 kA/1 s 60 Hz
APPLIED STANDARD IEC 60439-1(1999) and Client's specification
RECEIPT No. DS031723(December 11, 2003)
APPLICANT Reliability Assessment Center
641-120, Seongju-dong 28-1, Changwon-si, Gyeongsangnam-do, Korea
MANUFACTURER Hyundai Heavy Industries Co., Ltd
682-792, Cheonha-dong 1, Dong-ku Ulsan-si, Korea
DATE OF TESTS December 11, 2003
DATE OF ISSUE December 16, 2003

The test has been carried out in accordance with IEC 60439-1(1999) and client's specification.

The test results are presented in the records of tests with the performance of the apparatus tested and the observations made during the tests.

The test results apply only to the specific samples tested.

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NO. OF PAGES INCORPORATED ; records(8), circuit diagrams(2), oscillograms(3), photographs(1), drawings & descriptions(1), annexes(0), attachments(0)

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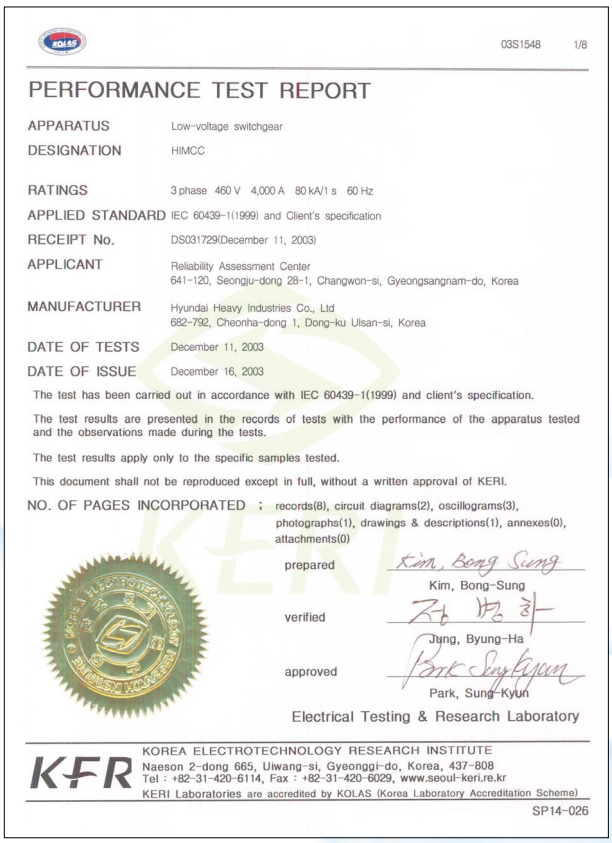
KERI Laboratories are accredited by KOLAS (Korea Laboratory Accreditation Scheme)

SP14-026



03S1548 1/8

PERFORMANCE TEST REPORT

APPARATUS Low-voltage switchgear
DESIGNATION HIMCC

RATINGS 3 phase 460 V 4,000 A 80 kA/1 s 60 Hz
APPLIED STANDARD IEC 60439-1(1999) and Client's specification
RECEIPT No. DS031729(December 11, 2003)
APPLICANT Reliability Assessment Center
641-120, Seongju-dong 28-1, Changwon-si, Gyeongsangnam-do, Korea
MANUFACTURER Hyundai Heavy Industries Co., Ltd
682-792, Cheonha-dong 1, Dong-ku Ulsan-si, Korea
DATE OF TESTS December 11, 2003
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The test results apply only to the specific samples tested.

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