

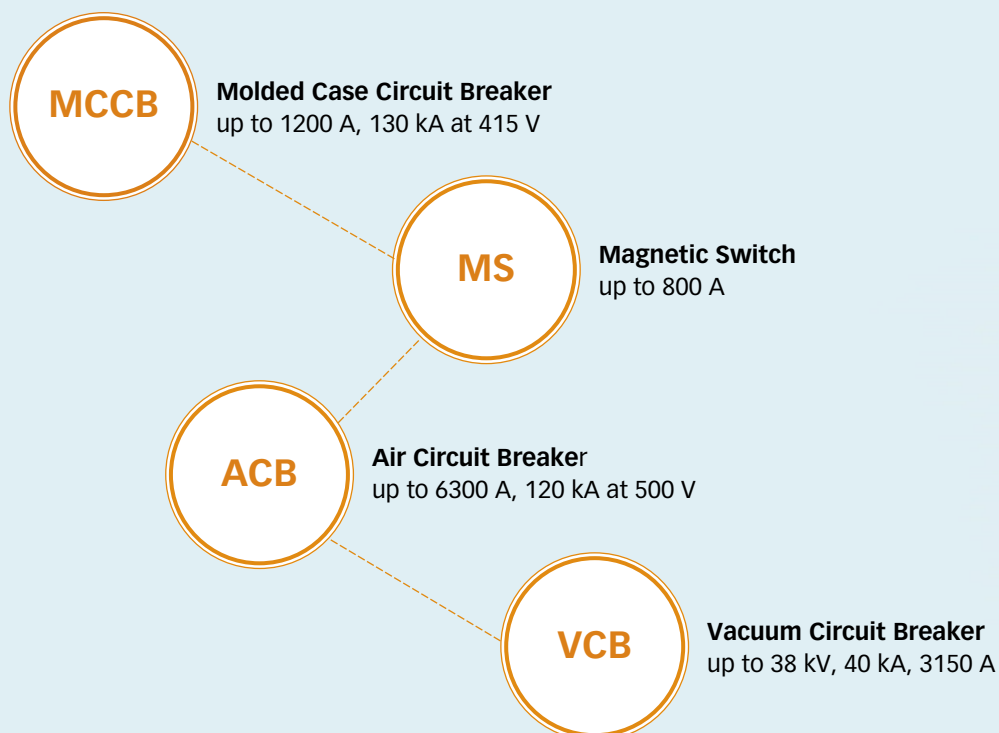
HYUNDAI

# MV & LV Circuit Breakers, Magnetic Switch

# MV & LV Circuit Breakers, Magnetic Switch

**Hyundai Circuit Breaker is** one of the most reliable and sophisticated products, which realizes the optimum design through electric and kinetic analysis.

## Medium Voltage & Low Voltage Circuit Breakers, Magnetic Switch



Low Voltage



# Molded Case Circuit Breaker

Optimum design provides easy-to-use customer installation, while offering versatility and high performance to match today's demand for a reliable and cost-effective product, which is easy to maintain.

## Qualified Standard & Approval

### Standard

- ▶ KS C8321
- ▶ IEC 60947-2
- ▶ NEMA AB-1

### Approval

- ▶ ISO 18001, 14001, 9001
- ▶ CE (Community European / TÜV Rheinland)
- ▶ GOST-R
- ▶ CCC
- ▶ KR, LR, ABS, BV, NK, GL



HiBS 103

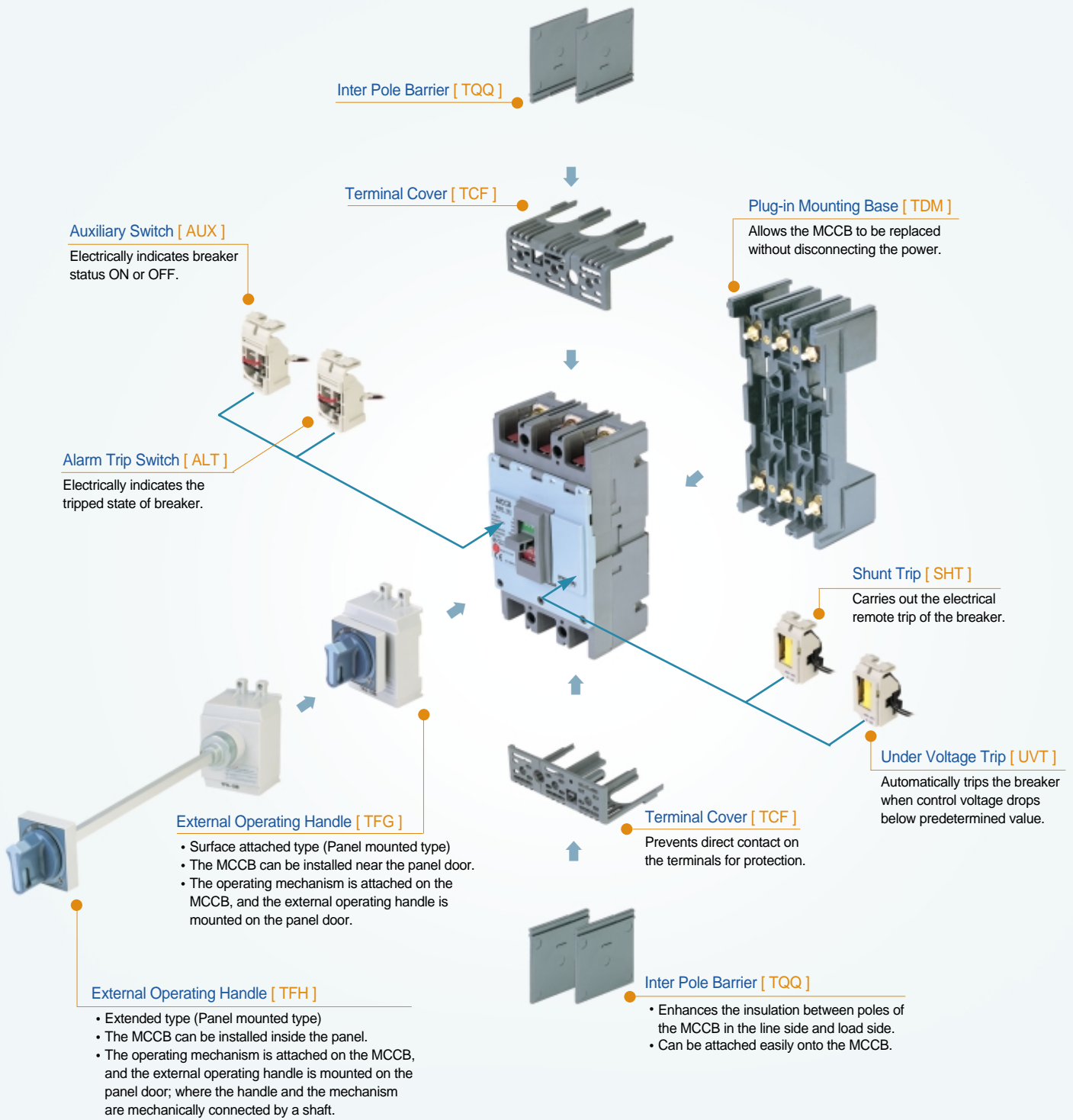
HiBL 203NE

HiBS 803NE

Category	Type	Number of poles (P)	Breaking Current (kA)			Category	Type	Number of poles (P)	Breaking Current (kA)			
			AC 220	AC 415	AC 600				AC 220	AC 415	AC 600	
E-Type	HiBE 50	2, 3, 4	10	5	2.5	L-Type	HiBL 50NT	*2, 3, 4	125	85	35	
	HiBE 60	2, 3, 4	10	5	2.5		HiBL 100NT	*2, 3, 4	125	85	35	
	HiBE 100	2, 3, 4	25	10	5		HiBL 225NT	*2, 3, 4	125	85	35	
	HiBE 225	2, 3, 4	35	18	7.5		HiBL 400	*2, 3, 4	125	100	30	
	HiBE 250J	2, 3, 4	35	18	7.5		HiBL 600	*2, 3, 4	125	100	35	
	HiBE 400	2, 3, 4	35	30	18		HiBL 800	*2, 3, 4	125	100	35	
	HiBE 600	2, 3, 4	50	45	22		HiBL 50NE	3, 4	125	85	35	
	HiBE 800	2, 3, 4	50	45	25		HiBL 100NE	3, 4	125	85	35	
S-Type	HiBS 30	2, 3	10	5	2.5		HiBL 225NE	3, 4	125	85	35	
	HiBS 50	2, 3, 4	25	10	5		HiBL 400NE	3, 4	125	85	35	
	HiBS 60	2, 3, 4	25	10	5		HiBL 600NE	3, 4	125	85	42	
	HiBS 100	2, 3, 4	50	25	10		HiBL 800NE	3, 4	125	85	42	
	HiBS 100J	2, 3, 4	50	25	10		HiBL 1000NE	3, 4	150	130	65	
	HiBS 225	*2, 3, 4	50	25	10		HiBL 1200NE	3, 4	150	130	65	
	HiBS 250J	2, 3, 4	50	25	10		X-Type	HiBX 50NT	3	150	130	65
	HiBS 400	*2, 3, 4	50	42	22			HiBX 100NT	3	150	130	65
	HiBS 600	*2, 3, 4	100	65	25	HiBX 225NT		3	150	130	65	
	HiBS 800	*2, 3, 4	100	65	25	HiBX 400NE		3	150	130	65	
	HiBS 400NE	3, 4	85	50	30	HiBX 600NE		3	150	130	65	
	HiBS 600NE	3, 4	100	65	35	HiBX 800NE		3	150	130	65	
	HiBS 800NE	3, 4	100	65	35	Distribution and Lighting Protection Type		HiBC 32	2	1.5		
	HiBS 1000NE	3, 4	100	100	50			HiBC 32h	2	2.5		
HiBS 1200NE	3, 4	100	100	50	HBD 50		1, 2, 3	5	2.5			
					HBD 50h		1, 2, 3	10	5			
H-Type	HiBH 30	2, 3	25	10	5	HBD 52D	2	5				
	HiBH 50	2, 3, 4	50	25	10	Miniature Circuit Breaker	HiBD 63	1, 2, 3	6 (230 / 400 V)			
	HiBH 100	2, 3, 4	65	35	18		HiBD 100	1, 2, 3	10 (230 / 400 V)			
	HiBH 100J	2, 3, 4	65	35	18							
	HiBH 225	*2, 3, 4	65	35	18							
	HiBH 250J	2, 3, 4	65	35	18							
	HiBH 400	*2, 3, 4	85	65	25							
	HiBH 600	*2, 3, 4	100	85	35							
	HiBH 800	*2, 3, 4	100	85	35							

※ \*2 poles are the same as 3 poles except that the conducts of middle pole are removed.

Accessories





# Magnetic Switch

## Magnetic Contactor

HYUNDAI Magnetic Switch employs a modular design, which allows quick and simple mounting of auxiliary contact blocks, timers, mechanical latching blocks, etc.

HiMC Contactor provides convenience, economic benefit and high reliability.

With highly advanced design for industrial applications such as motor control centers, the HiMC contactor is appropriate for various control systems. It is also favored by shipyards and power plants whose criteria includes high reliability and performance.

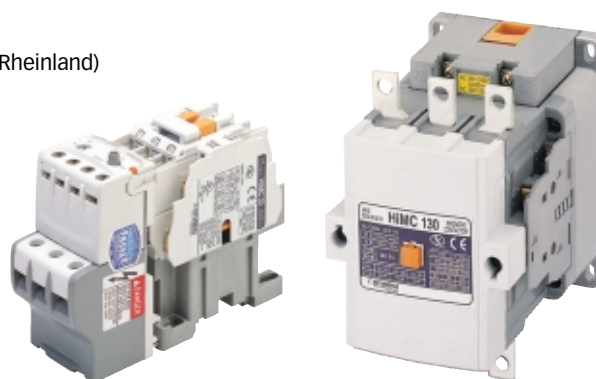
### Qualified Standard & Approval

#### Standard

- ▶ KS C4504
- ▶ IEC 60947
- ▶ EN 60947
- ▶ UL 508
- ▶ BS 47794, BS 5424, BS 4941
- ▶ VDE 0660
- ▶ Det Norske Veritas
- ▶ JISC 8328, JEM 1038

#### Approval

- ▶ ISO 18001, 14001, 9001
- ▶ UL / C-UL
- ▶ CE (Community European / TÜV Rheinland)
- ▶ KR, LR, ABS, BV, NK



HiMC 22 + HiTH 22

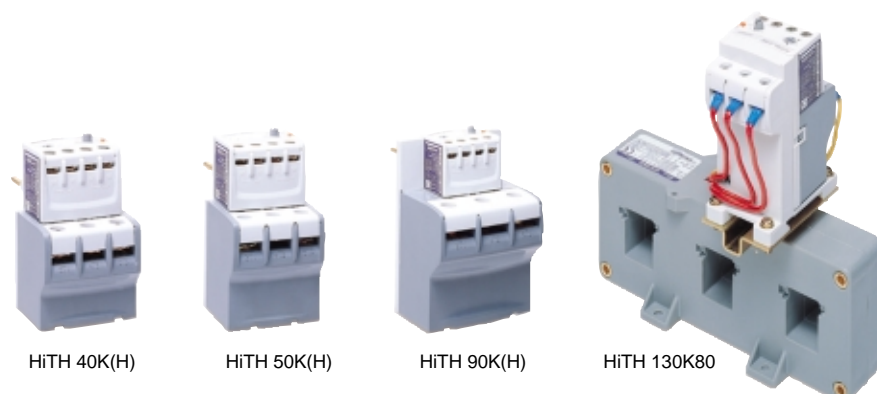
HiMC 130F22

Type	Operational Voltage			Capacity (AC 3, kW / A)					Auxiliary Contact	Additional Contact
	AC	DC	AC / DC	220~240 V	380~440 V	500~550 V	660~690 V	1000 V		
HiMC 9	W	G		2.2 / 10	4 / 9	4 / 7	5.5 / 7	-	1a1b	1a1b
HiMC 12	W	G		3.7 / 13	5.5 / 12	7.5 / 12	7.5 / 9	-	1a1b	2a2b
HiMC 18	W	G		4.5 / 18	7.5 / 18	8.5 / 15	7.5 / 9	-	1a1b	1a3b
HiMC 22	W	G		5.5 / 22	11 / 22	15 / 22	15 / 18	-	1a1b	3a1b
HiMC 32	W	G		7.5 / 32	15 / 32	18.5 / 28	18.5 / 22	-	2a2b	
HiMC 40	W	G		11 / 40	18.5 / 40	22 / 32	22 / 26	-	2a2b	
HiMC 50	W	G		15 / 50	22 / 50	30 / 45	25 / 31	-	2a2b <sup>1)</sup>	
HiMC 65	W	G	F	18.5 / 70	30 / 65	37 / 60	37 / 44	-	2a2b <sup>1)</sup>	
HiMC 80	W	G	F	22 / 80	37 / 80	45 / 64	45 / 52	-	2a2b <sup>1)</sup>	
HiMC 90	W	G	F	25 / 90	45 / 90	50 / 80	50 / 60	-	2a2b <sup>1)</sup>	
HiMC 110, HiMC 110C <sup>2)</sup>	W	G	F	30 / 110	55 / 110	60 / 110	55 / 65	65 / 50	2a2b <sup>1)</sup>	
HiMC 130	W	G	F	37 / 130	65 / 130	70 / 120	60 / 70	75 / 54	2a2b <sup>1)</sup>	
HiMC 150, HiMC 150C <sup>2)</sup>	W	G	F	45 / 150	75 / 150	90 / 140	90 / 100	90 / 66	2a2b <sup>1)</sup>	
HiMC 180	W	G	F	55 / 180	90 / 180	110 / 180	110 / 120	110 / 78	2a2b <sup>1)</sup>	
HiMC 220	W	G	F	63 / 220	110 / 220	132 / 200	132 / 150	132 / 96	2a2b <sup>1)</sup>	
HiMC 260	W	G	F	75 / 260	132 / 260	150 / 220	160 / 173	160 / 113	2a2b <sup>1)</sup>	
HiMC 300	W	G	F	90 / 300	160 / 300	160 / 273	200 / 220	200 / 141	2a2b <sup>1)</sup>	
HiMC 400	W	G	F	125 / 400	220 / 400	220 / 350	250 / 300	250 / 178	2a2b <sup>1)</sup>	
HiMC 500	W	G	F	140 / 500	250 / 500	300 / 426	335 / 360	275 / 192	2a2b <sup>1)</sup>	
HiMC 630	W	G	F	190 / 630	330 / 630	330 / 500	400 / 412	300 / 213	2a2b <sup>1)</sup>	
HiMC 800	W	G	F	220 / 800	440 / 800	500 / 720	500 / 630	400 / 284	2a2b <sup>1)</sup>	

※ 1) The auxiliary contact for DC is 2a1b

2) Compact type contactor

## Thermal Overload Relay



HiTH 40K(H)

HiTH 50K(H)

HiTH 90K(H)

HiTH 130K80

Category		HiTH 22K(H)	HiTH 40K(H)	HiTH 50K(H)	HiTH 90K(H)
Applied Contactor		HiMC 9 ~ 22	HiMC 32 ~ 40	HiMC 50	HiMC 65 ~ 90
Rated Current		0.18 ~ 22	10 ~ 40	26 ~ 50	40 ~ 90
Number of Element	K-Type	3 Element	3 Element	3 Element	3 Element
	H-Type	2 Element	2 Element	2 Element	2 Element
Auxiliary Contact		1a1b	1a1b	1a1b	1a1b
Reset Type		Manual / Auto Unit	Manual / Auto Unit	Manual / Auto Unit	Manual / Auto Unit
Phase Fault Protection		K-Type Only	K-Type Only	K-Type Only	K-Type Only
Suitable Wire (mm <sup>2</sup> )	Main Circuit	1 ~ 6	2 ~ 14	2 ~ 22	2 ~ 35
	Control Circuit	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5
Net Weight (kg)		0.17(0.16)	0.23(0.22)	0.28(0.27)	0.53(0.51)
		K-Type	H-Type		

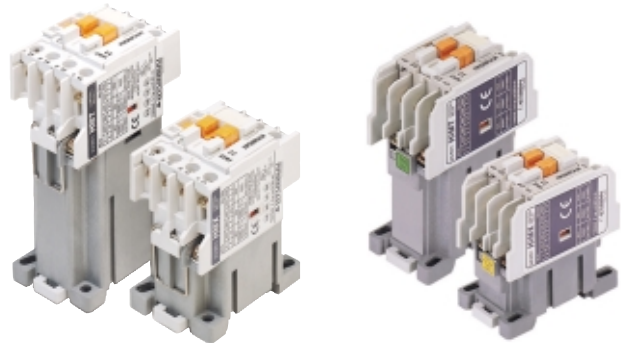
### Rated Current for TOR

Current Name	Rated Current (A)
0.18	0.12 ~ 0.18
0.26	0.18 ~ 0.26
0.35	0.25 ~ 0.35
0.5	0.34 ~ 0.5
0.7	0.5 ~ 0.7
0.9	0.6 ~ 0.9
1.2	0.8 ~ 1.2
1.6	1.1 ~ 1.6
2.1	1.5 ~ 2.1
3	2 ~ 3
4.2	2.8 ~ 4.2
5	3 ~ 5
6	4 ~ 6
8	5.6 ~ 8
10	7 ~ 10
13	9 ~ 13
18	12 ~ 18
22	16 ~ 22
26	18 ~ 26
32	24 ~ 32
40	28 ~ 40
50	36 ~ 50
65	45 ~ 65
80	60 ~ 80
90	70 ~ 90
80(CT)	48 ~ 80
130(CT)	78 ~ 130
180(CT)	108 ~ 180
220(CT)	132 ~ 220
300(CT)	180 ~ 300
400(CT)	240 ~ 400
500(CT)	300 ~ 500
630(CT)	378 ~ 630
800(CT)	480 ~ 800

## CT Assembly

Category		HiTH 130K(H)	HiTH 220K(H)	HiTH 300K(H)	HiTH 500K(H)	HiTH 800K(H)
Applied Contactor		HiMC 110 ~ 130	HiMC 150 ~ 220	HiMC 260 ~ 300	HiMC 400 ~ 500	HiMC 630 ~ 800
Rated Current		80 ~ 130	130 ~ 220	220 ~ 300	300 ~ 500	630 ~ 800
Feature		CT Assembly	CT Assembly	CT Assembly	CT Assembly	CT Assembly
Number of Element	K-Type	3 Element	3 Element	3 Element	3 Element	3 Element
	H-Type	2 Element	2 Element	2 Element	2 Element	2 Element
Auxiliary Contact		1a1b	1a1b	1a1b	1a1b	1a1b
Reset Type		Manual / Auto Unit	Manual / Auto Unit	Manual / Auto Unit	Manual / Auto Unit	Manual / Auto Unit
Phase Fault Protection		K-Type Only	K-Type Only	K-Type Only	K-Type Only	K-Type Only
Suitable Wire (mm <sup>2</sup> )	Main Circuit	—	—	—	—	—
	Control Circuit	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5	2 × 0.75 ~ 2.5
Net Weight (kg)		1.65(1.3)	1.85(1.49)	1.94(1.59)	2.25(1.88)	5.7(4.62)

## Accessories



HMT & HMX

HiMT & HiMX

### Control Relay

Category	Type		Auxiliary Contact	Additional Contact
	New	Old		
AC	HiMX 22	HMX 22	2a2b	4a, 3a1b, 2a2b, 1a3b, 4b
	HiMX 31	HMX 31	3a1b	4a, 3a1b, 2a2b, 1a3b, 4b
	HiMX 40	HMX 40	4a	4a, 3a1b, 2a2b, 1a3b, 4b
DC	HiMT 22	HMT 22	2a2b	4a, 3a1b, 2a2b, 1a3b, 4b
	HiMT 31	HMT 31	3a1b	4a, 3a1b, 2a2b, 1a3b, 4b
	HiMT 40	HMT 40	4a	4a, 3a1b, 2a2b, 1a3b, 4b

### Electronic Timer Block

Type	Control Voltage	Delay Time
HOKZE 1	AC / DC 90~240 V	0.15~220 sec
HOKZE 2	AC / DC 24~60 V	0.15~220 sec



Electronic Timer Block

### Mechanical Latching Block

Type	Control Voltage
HLB 2	AC 24~660 V, DC 24~250 V



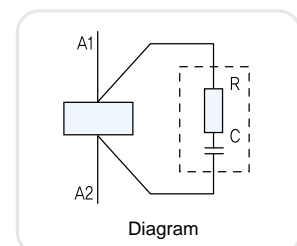
Mechanical Latching Block

### Surge Absorber

Type	Voltage	Application
HRC 40 / 48	28 ~ 48 V	HMX HiMC 9W ~ 40W
HRC 40 / 220	110 ~ 220 V	
HRC 40 / 380	240 ~ 380 V	
HRC 90 / 48	28 ~ 48 V	HiMC 50W HiMC 65W ~ 90W
HRC 90 / 220	110 ~ 220 V	
HRC 90 / 380	240 ~ 380 V	
HRC 300 / 48	28 ~ 48 V	HiMC 110W ~ 300W
HRC 300 / 220	110 ~ 220 V	
HRC 300 / 380	240 ~ 380 V	
HOKYZX 38		HMT, HiMC 9G ~ 300G



Surge Absorber







## Auxiliary Contact Block

Type	Consist	Mounting	Application	
HiAB 22	2NO + 2NC	Top Side	HiMC 9 ~ 50	
HiAB 13	1NO + 3NC	Top Side		
HiAB 31	3NO + 1NC	Top Side		
HiAB 04	0NO + 4NC	Top Side		
HiAB 40	4NO + 0NC	Top Side		
HiAB 11	1NO + 1NC	Top Side		
HiAB 02	0NO + 2NC	Top Side		
HiAB 20	2NO + 0NC	Top Side		
HiAL 11 <sup>1)</sup>	1NO + 1NC	Left Hand Side		HiMC 9 ~ 22
HiAC 13	1NO + 3NC	Top Side		HiMC 65 ~ 130
HiAC 22	2NO + 2NC	Top Side		
HiAC 40	4NO + 0NC	Top Side		
HiAC 11	1NO + 1NC	Top Side		
HiAC 02	0NO + 2NC	Top Side		
HiAC 20	2NO + 0NC	Top Side	HiMC 150 ~ 800	
HiAL 5S	1NO + 1NC	Left Hand Side		
HiAR 6S	1NO + 1NC	Right Hand Side		
HiAL 7S	1NO + 1NC	Left Hand Side		
HiAR 8S	1NO + 1NC	Right Hand Side		

※ 1) The side mounting auxiliary contact block shall not be used with the top mounting aux. contact block at the same time.

## Capacitor Switching Contactor

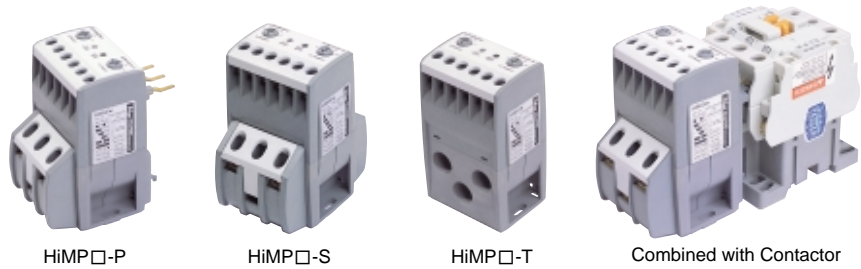
Order No.	Magnetic Contactor		Capacitor Switching Unit		Resistive Wires
	Type	Aux. Contact	Type	Aux. Contact	
HiMK9W 21	HiMC9W	1NO+1NC	HiAD 1A	1NO	6EA
HiMK9W 12	HiMC9W	1NO+1NC	HiAD 1B	1NC	6EA
HiMK12W 21	HiMC12W	1NO+1NC	HiAD 1A	1NO	6EA
HiMK12W 12	HiMC12W	1NO+1NC	HiAD 1B	1NC	6EA
HiMK18W 21	HiMC18W	1NO+1NC	HiAD 1A	1NO	6EA
HiMK18W 12	HiMC18W	1NO+1NC	HiAD 1B	1NC	6EA
HiMK22W 21	HiMC22W	1NO+1NC	HiAD 1A	1NO	6EA
HiMK22W 12	HiMC22W	1NO+1NC	HiAD 1B	1NC	6EA
HiMK32W 32	HiMC32W	2NO+2NC	HiAD 1A	1NO	6EA
HiMK32W 23	HiMC32W	2NO+2NC	HiAD 1B	1NC	6EA
HiMK40W 32	HiMC40W	2NO+2NC	HiAD 1A	1NO	6EA
HiMK40W 23	HiMC40W	2NO+2NC	HiAD 1B	1NC	6EA
HiMK50W 32	HiMC50W	2NO+2NC	HiAD 1A	1NO	6EA
HiMK50W 23	HiMC50W	2NO+2NC	HiAD 1B	1NC	6EA

※ Additional auxiliary contact block is not applicable.

## Capacitor Switching Unit

Order No.	Capacitor Switching Unit		Resistive Wires
	Type	Aux. Contact	
HiAD 1A	HiAD 1A	1NO	6EA
HiAD 1B	HiAD 1B	1NC	6EA

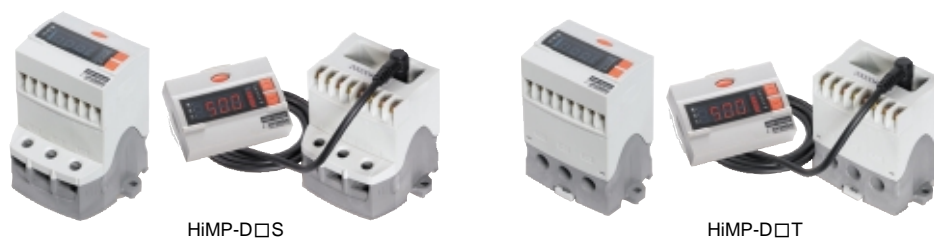
## Digital Motor Protection Relay



### Standard (Without LCD Display)

Type	Definite		Inverse		Inverse / Reverse Phase
	HiMP22H / 40H / 50H -□D-■	HiMP22H / 40H / 50H -□-■	HiMP22K / 40K / 50K -□-■	HiMP22K / 40K / 50K -□N-■	HiMP22K / 40K / 50K -□N-■
Number of CT	2CT		2CT		3CT
Function	Over Current	●	●	●	●
	Phase Failure <sup>1)</sup>	●	●	●	●
	Phase Unbalance <sup>1)</sup>	●	●	●	●
	Restriction <sup>2)</sup>	●	●	●	●
	Reverse Phase <sup>3)</sup>	-	-	-	●
Wiring of Main Circuit	[P]: Direct Connection		[S]: Screw Connection	[T]: Tunnel Type	
Allowable Current Partition	03: 0.3~3 A 22: 2.2~22 A 40: 4.0~40 A 50: 5.0~50 A		01: 0.3~1.5 A 05: 1.0~5.0 A 22: 4.4~22 A 40: 8~40 A 50: 10~50 A		
Operation Voltage(50 / 60 Hz)	• 220 V(90~250V)		• Other Voltage		
Features	Over Current	Over 112.5%±5% - Inverse(Cold / Hot Curve), Definite			
	Phase Failure	Over 70% of Unbalance Rate			
	Phase Unbalance	Over 50% of Unbalance Rate			
	Restriction	Over 300% After Starting	Characteristic Curve		
	Reverse Phase	-			Reverse Phase Perception
Time Setting Range	Over Current	Delay Time	Delay Time Setting	-	
		Operating Time	0.2~30 sec		
	Phase Failure	2 sec			
	Phase Unbalance	5 sec			
	Restriction	After Starting Time	Characteristic Curve		
Reverse Phase	-			Within 150 msec	
Reset Method	Manual	By RESET Button Manually(Not Working During Operation)			
	Electrical	By Control Power Off			
Test Method	By TEST Button(Not Working During Operation)				
Tolerance	Current	±5%			
	Time	±5%(or 0.5 sec)			
Aux. Contact	Number	2SPST(1a1b at Power On)			
	Capacity	3 A / 250 VAC(Resistance Load)			
Over Current Capacity	Over 20 Times / 2 sec of Max. Operating Current				
Insulation Resistance	Over 100 MΩ / 500 VDC				
Fast Transient Burst	Between Circuit and Frame	2000 VAC / 1 min.			
	Between Circuits	2000 VAC / 1 min.			
	Between Contacts	1000 VAC / 1 min.			

※ 1) Only R & T phase can be detected in case of H type(2CT).  
 2) The restriction follows the characteristic curve.  
 3) Reverse phase type is not recommended to apply at single phase load or inverter load.



HiMP-D□S

HiMP-D□T

## Deluxe (With LCD Display)

Type		HiMP-D Series	
		HiMP-D□S	HiMP-D□T
Panel Mount		Unit or Extension <sup>3)</sup>	
Wiring		Screw Type	Tunnel Type
Allowable Current Partition		• 06: 0.5 ~ 6 A      • 60: 5 ~ 60 A	
Current Setting Range		Min. Current ~ Max. Current X 105%	
Operating Voltage(50 / 60 Hz)		• 110 V: 75 ~ 120%    • 220 V: 75 ~ 120%    • Special Order	
Features & Setting Range	Over-current		Over 112.5%±5% - Inverse(Cold / Hot Curve), Definite
	Under-current		User Setting (30% ~ 70% of Operating Current / Min. Setting Value Shall be Over 70% of Min. Rated Current)
	Phase Failure		Over 70% of Unbalance Rate
	Phase Unbalance		Over 50% of Unbalance Rate
	Restriction	Stall	Over 180% of Setting Current - Definite Only
		Lock	User Setting (200% ~ 1000%) - Definite Only
	Reverse Phase		Reverse Phase Perception at The Beginning.
	Leakage Current <sup>1)</sup>		User Setting (100 ~ 2500 mA)
Short Circuit <sup>2)</sup>		User Setting (200% ~ 1000% of Rated Current)	
Time Setting Range	Over-current	Inverse	Delay Time : OFF / 1 ~ 30 sec, Operation Time : 1 ~ 30 sec (600% Basis)
		Definite	Delay Time : OFF / 1 ~ 30 sec, Operation Time : 1 ~ 30 sec
	Under-current		1 ~ 30 sec
	Phase Failure		2 sec
	Phase Unbalance		5 sec
	Restriction	Stall	5 sec
		Lock	Within 500 msec
	Reverse Phase		Within 100 msec
Leakage Current <sup>1)</sup>		0.1~ 10 sec	
Short Circuit <sup>2)</sup>		Within 50 msec	
Preliminary Alert Function		60% ~ 110% of Rated Current	
Operating Time Function		OFF / 0 ~ 9990 Hour	
Reset Method	Manual		By RESET Button Manually (Manual Reset Does Not Work During Operation)
	Electrical		By Control Power Off.
	Automatic		After Setting Time.
Test Method		Tripping by the TEST Button (TEST Button Does Not Work During Operation)	
Tolerance	Current		±5%
	Time		±5% (Or 0.5 sec)
Aux. Contact	Number		Trip Contact: 1a1b    • Alert Contact: 1a <sup>4)</sup>
	Capacity		3 A / 250 VAC (Resistance Load)
Over-current Capacity		Over 20 / 2 sec of max. Operating Current	
Insulation Resistance		Over 100 MΩ / 500 VDC	
Fast Transient Burst	Between Circuit and Frame		2000 VAC / 1 min.
	Between Circuits		2000 VAC / 1 min.
	Between Contacts		1000 VAC / 1 min.
Environment	Temperature	Operation	-25 ~ 70° C
		Storage	-30 ~ 80° C
	Humidity		45 ~ 85% RH

※ 1) 2) Leakage and short circuit function can not be selected at the same time.

3) Connecting cable and display bracket should be ordered when extension type is required.

4) When the leakage function is selected, alert contact is used as ZCT input terminal

# Air Circuit Breaker

Designed for industrial and marine application, HYUNDAI ACB is built with innovated structure, increased protection, and reliable performance.

## Qualified Standard & Approval

### Standard

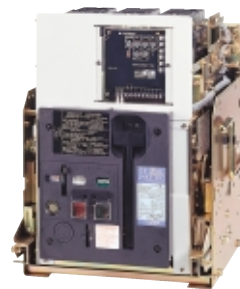
- ▶ IEC 60947-2
- ▶ EN 60947-2
- ▶ AS 3972-2
- ▶ NEMA PUB NO. SG3
- ▶ ANSI C37.13
- ▶ GOST R 50030.2-99 9
- ▶ GOST R 50030.1-2000

### Approval

- ▶ ISO 18001, 14001, 9001
- ▶ CE (Community European / TÜV Rheinland)
- ▶ KR, GL, LR, ABS, BV, NK



HiAN Type



HAT Type



HAS Type

Type	Rated Current (A)	Number of Poles (P)	Rated Insulation Voltage (V)	Rated Breaking Capacity (kA) (500V, With Inst.)	Rated Making Capacity (kA) (500V, With Inst.)	Charging Mechanism		
HiAN06	630	3, 4	AC1000	70	154	Manual and Motor Charging		
HiAN08	800			70	154			
HiAN10	1000			70	154			
HiAN12	1250			70	154			
HiAN16	1600			70	154			
HiAN20	2000			70	154			
HiAN25	2500			85	187			
HiAN32	3200			85	187			
HiAN40	4000			100	220			
HiAN50	5000			120	286			
HiAN63	6300			120	286			
HAT06	630			2, 3, 4	AC1000		50	105
HAT08	800						65	143
HAT10	1000	65	143					
HAT12	1250	65	143					
HAT16	1600	65	143					
HAT20	2000	65	143					
HAT25	2500	65	143					
HAT32	3200	85	187					
HAT40	4000	85	187					
HAT50	5000	100	220					
HAS06	630	2, 3, 4	AC1000				50	105
HAS08	800						65	143
HAS10	1000						65	143
HAS12	1250			65	143			
HAS16	1600			65	143			
HAS20	2000			65	143			
HAS25	2500			65	143			
HAS32	3200			85	187			

※ All HYUNDAI's ACB has the function of N phase close before R, S & T and N phase open after R, S & T in accordance with IEC 60947-2.

### APR (ACB Protection Relay) Characteristics for HiAN Type

Application	Type	Protective Function							Indicating Function		
General Feeder	APR-1L-AL	AL	AS	AI					IU		
	APR-1L-AS	AL	AS	AI	AP		MCR	NP	CP / I LED		
	APR-1L-AM	AL	AS	AI	AP		MCR	NP	IUt	LED	
	APR-1L-GL	AL	AS	AI		AG			IU		
	APR-1L-GS	AL	AS	AI	AP	AG	MCR	NP	CP / I LED		
	APR-1L-GM	AL	AS	AI	AP	AG	MCR	NP	IUt	LED	
	APR-2L-GS	AL	AS	AI	AP	AG	MCR	NP	CP / I LED		
	APR-1D-GM	AL	AS	AI	AP	AG			CP / I LED		
Generator	APR-1S-AL	AL	AS	AI					IU		
	APR-1S-AS	AL	AS	AI	AP		MCR		CP / I LED		
	APR-2S-AS	AL	AS	AI	AP		MCR		CP / I LED		

### OCR (Over Current Relay) Characteristics for HAT Type

Application	Type	Protective Function							Indicating Function		
General Feeder	AOR-1L-AL	AL	AS	AI					IU		
	AOR-1L-AS	AL	AS	AI	AP			MCR	CP / I		
	AOR-1L-GL	AL	AS	AI		AG			IU		
	AOR-1L-GS	AL	AS	AI	AP	AG	MCR		CP / I		
	AOR-1L-AM	AL	AS	AI	AP		MCR		IU	CP / I	
	AOR-1L-GM	AL	AS	AI	AP	AG	MCR		IU	CP / I	
	AOR-1L-GM (Digital Display Type)	AL	AS	AI	AP	AG			IU	CP / I	
Generator	AOR-1S-AL	AL	AS	AI					IU		
	AOR-1S-AS	AL	AS	AI	AP		MCR		CP / I		

#### Protective Function

<b>AL</b>	Adjustable Long Time Delay Trip
<b>AS</b>	Adjustable Short Time Delay Trip
<b>AI</b>	Adjustable Instantaneous Trip
<b>AP</b>	Adjustable Pre-trip Alarm
<b>AG</b>	Adjustable Ground Fault Trip
<b>MCR</b>	Making Current Release Function
<b>NP</b>	Neutral Phase Protection Function

#### Indicating Function

<b>IU</b>	Integrated Indicating Operation LED & Contact 1a contact makes the signal during 40 ms when a protective function operates. Insulation level from earth is 1500 V.
<b>IUt</b>	Integrated Indicating Operation LED & Contact 2a contacts make the signal until the RESET button is pushed when protective function operates. Insulation level from earth is 1500 V.
<b>CP / I</b>	Individual Indicating Operation Contact 2a contacts make the signal until the RESET button is pushed which protective function operates. Insulation level from earth is 1500 V.
<b>LED</b>	Individual Indicating Operation LED. Each LED indicates until the RESET button is pushed which protective function operates.



# Vacuum Circuit Breaker & Vacuum Contactor

HYUNDAI VCB garners superior reputation with its extended life expectancy, easy maintenance, and excellent performance for industrial facilities, power plants, and marine vessels.

## Qualified Standard & Approval

### Standard

- ▶ IEC 62271-100
- ▶ ESB 150
- ▶ ANSI C37
- ▶ KSC 4611

### Approval

- ▶ ISO 18001, 14001, 9001



HCA Type

## Vacuum Contactor

Type	Rated Voltage (kV)	Rated Current (A)	Withstand Voltage (kV)		Short-time Current kA (1 sec)
			Power Frequency	Impulse	
HCA 32	3.3	200	16	45	6.3
HCA 34	3.3	400	16	45	6.3
HCA 62	6.6	200	20	60	6.3
HCA 64	6.6	400	20	60	6.3

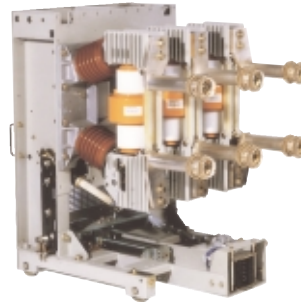


Hyundai  
**Vacuum Circuit Breaker**





HV F Type



HAF Type



HVG Type

### Vacuum Circuit Breaker

Type	Rated Voltage (kV)	Withstand Voltage (kV) Power-frequency / Impulse	Rated Breaking Current(kA)	Applied Standard	Type	Rated Current (A)					
						400	630	1250	2000	2500	3150
HV F Type	7.2	20 / 60	25	IEC	HVF104□		●	●	●		
			31.5	IEC	HVF105□		●	●	●		
			40	IEC	HVF106□			●	●		●
	12	28 / 75	25	IEC	HVF204□		●	●	●		
			31.5	IEC	HVF205□		●	●	●	●	
			40	IEC	HVF206□			●	●		●
	24	50 / 125	50	IEC	HVF207□			●	●		●
			12.5	IEC	HVF601□		●	●			
			25	IEC	HVF604□		●	●	●		
	38	80 / 150	31.5	IEC	HVF605□			●	●	●	
			40	IEC	HVF606□			●	●		●
			31.5	ANSI	HVF705□			●	●		●
HAF Type (3AF Type)	4.76	19 / 60	40	ANSI	HVF706□			●			●
			50	ANSI	HAF107□-3			●	●		●
	7.2	20 / 60	25	IEC	HAF104□-4		●	●	●		
			31.5	IEC	HAF105□-4		●	●	●	●	
			40	IEC / ESB	HAF116□-3			●	●	●	●
			50	IEC	HAF117□-3			●		●	●
	12	28 / 75	25	IEC	HAF154□-4		●	●	●		
			31.5	IEC	HAF175□-4		●	●	●	●	
			40	IEC	HAF176□-3			●	●	●	●
	15	36 / 95	50	IEC	HAF177□-3			●		●	●
			25	IEC	HAF234□-4		●	●	●		
			31.5	IEC	HAF235□-4		●	●	●	●	
	24 (25.8)	50 / 125	40	IEC / ANSI	HAF236□-3			●	●	●	●
			12.5	IEC	HAF611□-4		●	●			
			16	IEC	HAF612□-4		●	●			
20			IEC	HAF613□-4		●	●	●			
HVG Type	7.2	20 / 60	25	IEC / ESB	HAF614□-4		●	●	●	●	
			8	IEC / KS	HVG109□	●					
			12.5	IEC / KS	HVG101□		●				
			20	IEC	HVG103□		●	●			
			25	IEC	HVG104□		●	●			

※ Type number in the square "□" shall be listed as shown in the line for the rated current : ① 600 / 630A ② 1200 / 1250A ④ 2000A ⑥ 2500A ⑦ 3000 / 3150A ⑨ 400A