

電力設備綜合型錄

MV & LV SWITCHGEAR AND DEVICE

TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

APPARATUS An air-insulated metal-enclosed switchgear unit, incorporating a three-phase vacuum circuit-breaker and an earthing switch

DESIGNATION SVIE **SERIAL No.** D9704-1, D9704-3

Rated voltage	24 kV	Rated normal current	1250 A
Rated short-circuit current	25 kA	Rated frequency	50 Hz

MANUFACTURER SWITCHGEAR TECO Electric & Machinery Co., Ltd.,
Hsinchu County 303, Taiwan

MANUFACTURER CIRCUIT-BREAKER, EARTHING SWITCH Xiamen Huadian Switchgear Co., Ltd.,
Xiamen, China

TESTED FOR TECO Electric & Machinery Co., Ltd.,
Hsinchu County 303, Taiwan

TESTED BY KEMA HIGH-POWER LABORATORY
Utrechtseweg 310 - 6812 AR Arnhem - The Netherlands

DATE(S) OF TESTS 6 to 23 April 2010

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with

IEC 62271-200 subclauses 6.6 (STC) and 6.101 (Verification of making and breaking).

This Type Test Certificate has been issued by KEMA following exclusively the STL Guides.

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard and to justify the ratings assigned by the manufacturer as listed on pages 4 and 5.

This Certificate applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

This Certificate consists of 57 sheets in total.

This Certificate falls under the scope of the accreditation certificate L 020 of the Dutch Council for Accreditation. See information sheet (page 2).

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The sealed and bound version of the Certificate is the only valid version.

KEMA Nederland B.V.



P. G. A. Bus
KEMA T&D Testing Services
Managing Director

Arnhem, 22 June 2010

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品質認證 Product Certification

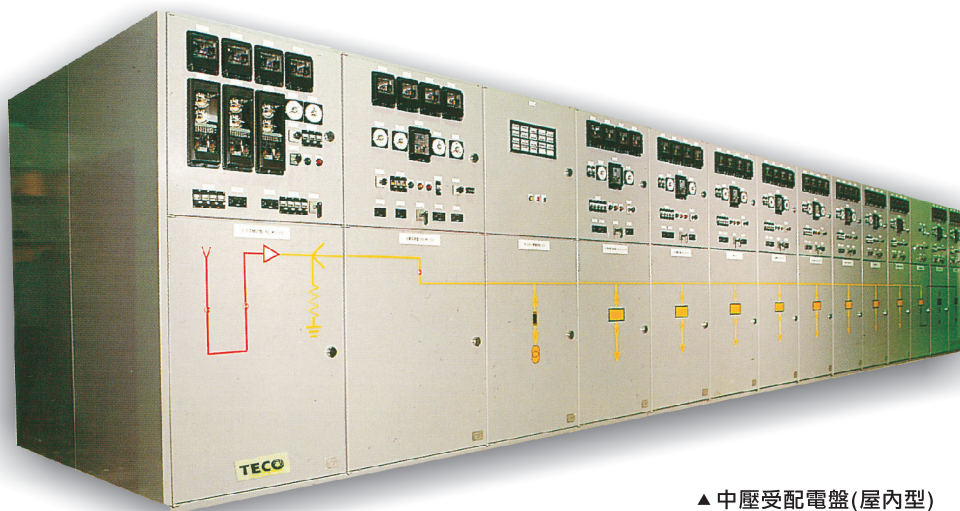
- 1.KEMA T&D Testing Services Type Test 24KV SWGR Certified
荷蘭KEMA 24KV配電盤 型式試驗合格
- 2.TPC Type Test 13.8KV, 14.4KV, 23KV Metal-Clad Switchgear (MCSG) Certified.
台電13.8KV、14.4KV、23KV 裝甲型開關箱(MCSG) 型式試驗合格
- 3.TPC Type Test 480V POWER CENTER Certified
台電480V負載中心(POWER CENTER) 型式試驗合格
- 4.TPC Type Test 480V Motor Control Center(MCC) Certified
台電480V馬達控制中心(MCC) 型式試驗合格
- 5.TPC Type Test 23KV Gas Insulated Switchgear(C-GIS) Certified
台電23KV氣體絕緣開關設備(C-GIS) 型式試驗合格
- 6.Xi An Hi-Power Laboratory(China) Type Test 12KV Metal-Clad Switchgear Certified
中國西高所12KV開關櫃(SWGR) 型式試驗合格
- 7.Taiwan Electric Research & Testing Center Type Test 24KV Metal-Clad Switchgear Certified
台灣大電力研究試驗中心 24KV開關櫃(SWGR) 型式試驗合格
- 8.Taiwan Accreditation Foundation (TAF) Switchgear Laboratory Assessed and Certified
財團法人全國認證基金會(TAF) 配電盤實驗室認證合格
- 9.Certified Manufacturer Under Article 401 of Interior Power Wiring System Rules, Bureau of Energy, Ministry of Economic Affairs(R.O.C.)
經濟部能源局屋內線路裝置規則第401條款 原製造廠家認可合格

中壓配電盤

3.6KV-36KV MEDIUM VOLTAGE SWITCHGEAR

在3.3KV~36KV受配電盤與監控盤的領域上，經過多年來持續不斷的經驗累積與研究改善，並藉助新科技、新材料的深入應用，使得東元電機的產品不但具有豐富的機種組合，以滿足不同用戶之需求外，更因擁有高品質與高可靠度，準確的交貨期、完善的服務，是東元電機持續不斷努力之目標。

Through continuous studies and improvement on our design of 3.3KV-36KV Medium Voltage Receiving-Distributing Switchgears and Panel Boards, such that providing optimum safety and wide range of applications in power plant, factories, public establishment, buildings, etc Our design not only possessing splendid appearance, they are also featuring high quality and excellent reliability. Our policy of punctual delivery and offering best service to our customer, has enable TECO switchgears to be widely welcomed and own a great reputation.



▲ 中壓受配電盤(屋內型)
MEDIUM VOLTAGE SWITCHGEAR
(INDOOR TYPE)

TABLE 1. SPECIFICATION

Items	Standard Specification
Standard	CNS-3990; JEM-1425; IEC 62271-200., ANSI-C37
Service Conditions	<ul style="list-style-type: none">• Altitude: MAX. 1000m, High Humidity Atmosphere• Ambient Temperature: -5°C~40°C (indoor application)/-20°C~40°C (outdoor application)

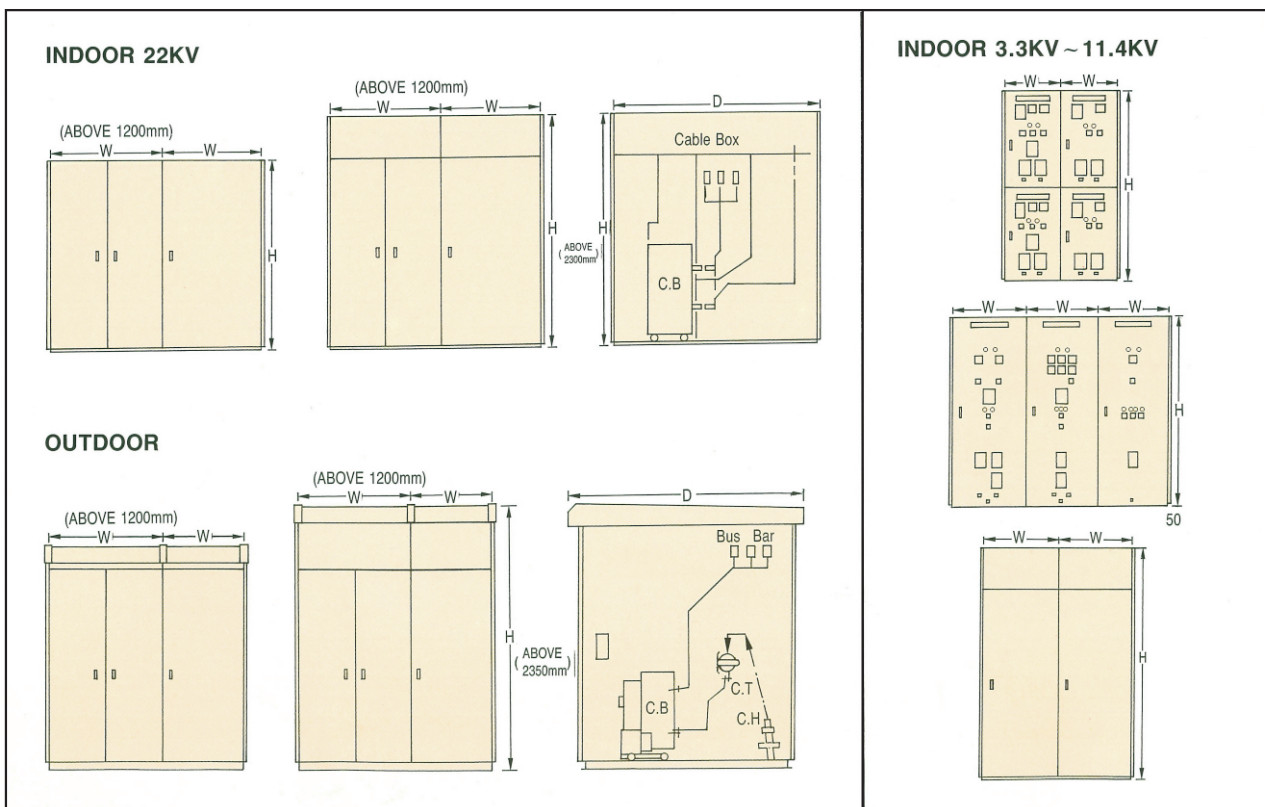
TABLE 2. RATING

Rated Voltage	KV	3.6	7.2	12	24	36
Rated Frequency	Hz	50/60				
Rated Current	A	400~3150	400~3150	600~3150	600~2500	600~2500
Bus Bar Current	A	600,1000,1200,1600,2000,2500				

TABLE 3. DIMENSIONS

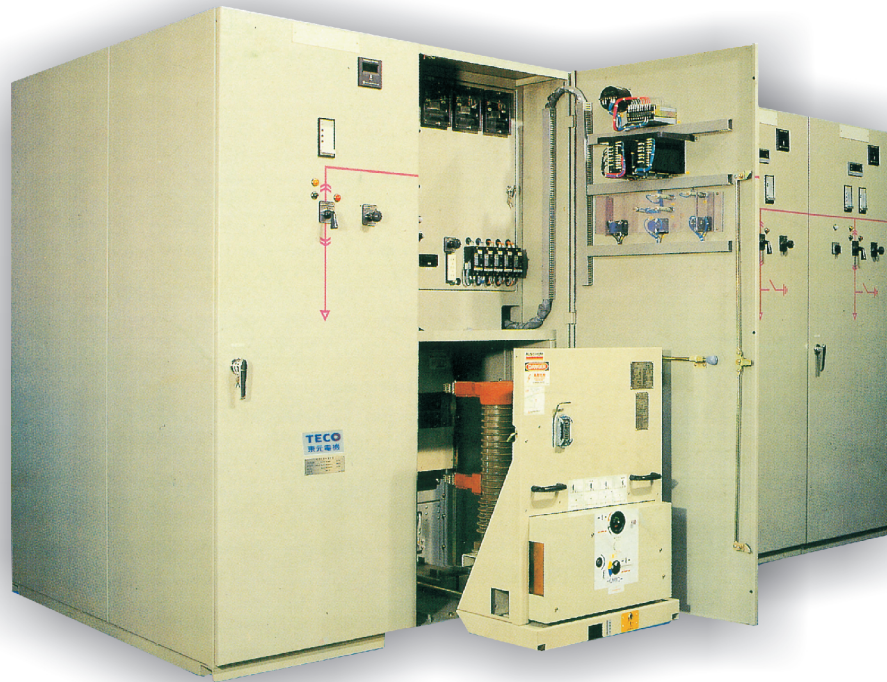
Type	Indoor				Outdoor			
Rated Voltage	3.6KV/7.2KV	12KV	24KV	36KV	3.6KV	12KV	24KV	36KV
Width (W) mm	700,800	900,1000	1000,1200	1500	700,800	900,1000	1000,1200	1500
Height (H) mm	2100,2400	2400,2800	2400	2600	2350,2650	2650	2650	2850
Depth (D) mm	1400,1600	1800,2000	2000,2200	2600	1400,1600	1800,2000	2000,2200	2600

DIMENSIONS DIAGRAM



装甲型開關箱

METAL-CLAD SWITCHGEAR UP TO 36KV



FEATURES

The METAL-CLAD SWITCHGEAR with drawable design covers all the functions needed for a distribution system up to 36 kV with the following choices:

- Complete conformity with the national and international standards and recommendations of the IEC, taking account of UTE-BS-VDE-ANSI.
- Modular assembly by virtue of the adoption of industrial sub-assemblies so ensuring the flexibility as well as the quality of the equipments.
- Internal plugging for withdrawable and self-supporting frame for installation and operation under severe conditions.
- High degree of partitioning.
- Use of fire resistant insulation materials and highly reliable mechanical interlocks.

The cubicle complies with the definition of metal clad equipment having four compartments fitted with:

- a withdrawable circuit breaker on a movable portion and shutters.
- busbars with insulation
- connections for MV cables
- Low Voltage equipment

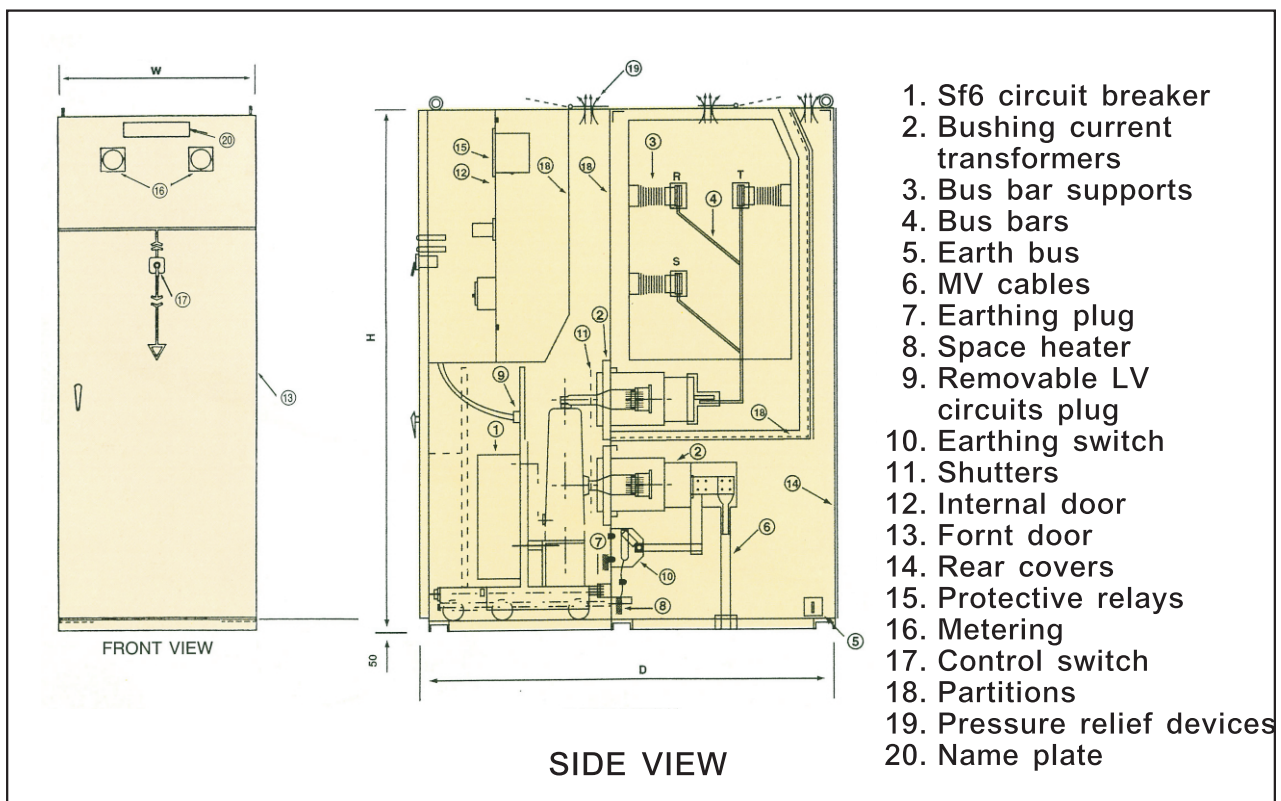
The continuity of the metallic cladding meets the IP 2X protection. For higher levels of protection, please consult us.

Pressure relief devices are provided for the evacuation of the gases and to limit overpressure in the event of internal ARC fault.

GENERAL CHARACTERISTICS OF THE CUBICLE

Rated voltage	12 kV	24 kV	36 kV
Rated insulation level • 60 Hz for 1 min • impulse 1.2/50 μ s	28 kV rms 75 kVp	50 kV rms 125 kVp	70 kV rms 170 kVp
Rated currents for an equipment • Circuit breaker • load breaking switch	630, 1250, 1600, 2000, 2500 A 400, 630 A		
Permissible shot time current (1s or 3s) • root mean square value • peak value	40 kA rms 100 kAp	40 kA rms 100 kAp	31.5 kA rms 80 kAp
Protection level	IP 3 up to IP 5 on request		
Max.service ambient temperature	40°C		
Height(mm)	2000	2400	2500
Width(mm)	800	900	1500
Depth(mm)	1600	1850	2500

CONSTRUCTION DIAGRAM



中置式装甲型開關箱 SV系列

METAL-CLAD SWITCHGEAR SV SERIES UP TO 36KV
(KEMA TYPE TEST)



Feature

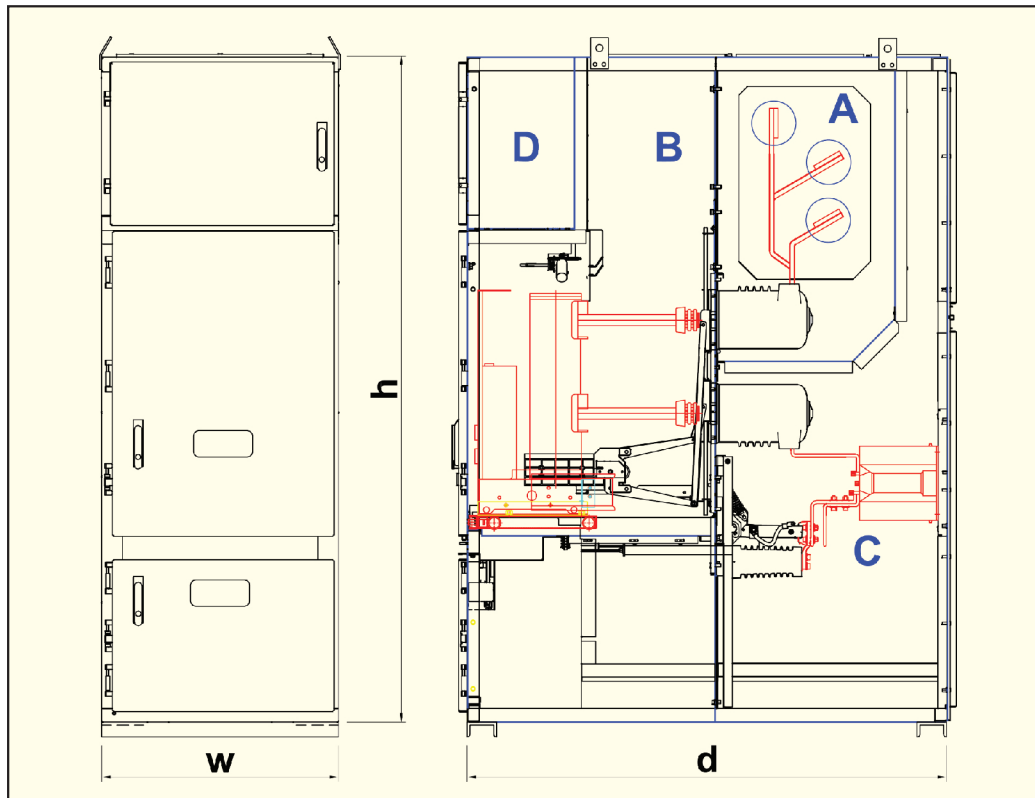
- SV series is a compact design, fully metal-clad, arc-proof and air insulated switchgear.
- SV series is equipped with a next generation high quality, withdrawable VCB.
- High-speed earthing switch can be installed with short circuit making capability and good earthing characteristics.
- SV series cubicle is made by ALUZINC sheet metal with double-bending and riveting fixing technology.
- SV series has a tight interlock system which provides highest safety for operator and equipment itself.
- Three position for draw-out unit: Service, Test and Isolation.
- Interlock mechanism between draw-out unit and control circuit plug can avoid disconnection of control circuit plug when VCB is in service.
- In circuit breaker compartment, a set of earthed metal shutter is used in front of the power/load side bushing. When VCB leaves operation position, shutter will automatically close and shelter the power/load side bushing. The shutter satisfies IP2X protection and avoids people to touch the live part. When VCB in isolation position, a pad-lock can be attached to the shutter driven mechanism to proof non-professional people open the shutter.
- Pressure release tunnel in each HV compartment can release pressure when arcing. The pressure release plate can open in upward-backward direction. It can avoid the operator be injured by high temperature gas.
- The copper busbar covered by BBIT has higher dielectric strength, optimized electrode shape and optimized electric field distribution. It realizes to miniaturize the switchgear size.

Specifications

SV series can conform to following specifications.
IEC 62271-200
IEC 60694

Technical data

No	Rated voltage	KV	12	24	36
1	Rated power frequency withstand voltage (1min)	KV	42/48	50/60	95/100
2	Lightning impulse withstand voltage (1.2*50 μ s)		75/85	125/145	185/215
3	Rated frequency	HZ	50/60		
4	Rated current of busbar	A	630/1250/1600/2000 2500/3150	630/1250/1600/2000/2500	
5	Rated short time withstand current (3S)	KA	16/25/31.5/40/50	16/25/31.5/40	16/25/31.5
6	Ingress Protection Degree	V	Enclosure IP4X; Compartment IP2X		
7	Width(W)	mm	800/1000	800/1000	1200/1450
8	Height(H)	mm	2250/2360	2250/2360	2400/2200
9	Depth(D)	mm	1400/1660	1680/1870	2500/2600



A : Busbar Compartment
B : Circuit Breaker Compartment

C : Cable Compartment
D : Low Voltage Compartment

3.6KV/7.2KV中壓綜合型啟動開關

MEDIUM VOLTAGE COMBINATION SWITCH

東元 中壓綜合型啟動開關，係採用小型輕量，具有優越切段能力之全樹脂膜型SF6旋轉消弧形式(HGR形)高壓電磁接觸器，並配合限流形電力熔線組，操作變壓器，計器變流器，起動電抗器，自藕變壓器，保護電驛及儀表等器材組合而成。適用於特殊環境，起動頻繁的各類型馬達的起動及變壓器，電容器之一次開關，標準化，組合多層式箱體結構之設計，具有擴充容易，經濟、簡便、耐用，短交期的特色。

TECO's medium-voltage combination switches have been developed with special emphasis on compactness, light weight, easy maintenance, reliability, efficiency, economy, and reduced product time. They can be stacked up to three-high in the vertical sections. These high-voltage switches incorporate a new total mold S₆ rotary-arc (HGR) high voltage magnetic contactor that is featuring extra compactness and high operation reliability.

STANDARD

中壓綜合啟動開關

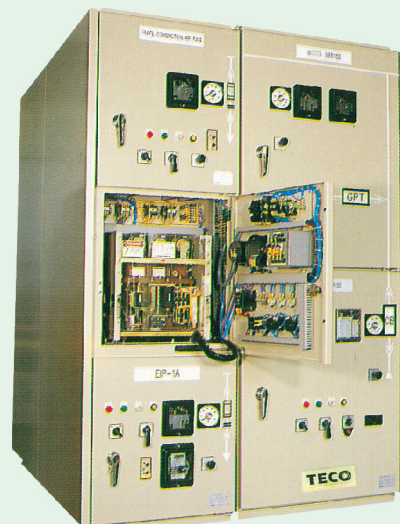
M.V. COMBINATION SWITCH

• CNS 3994 • JEM 1225 • IEC 62271-200

▼ HH系列 開關箱 二層式(固定型)
(HH FIXED TYPE)



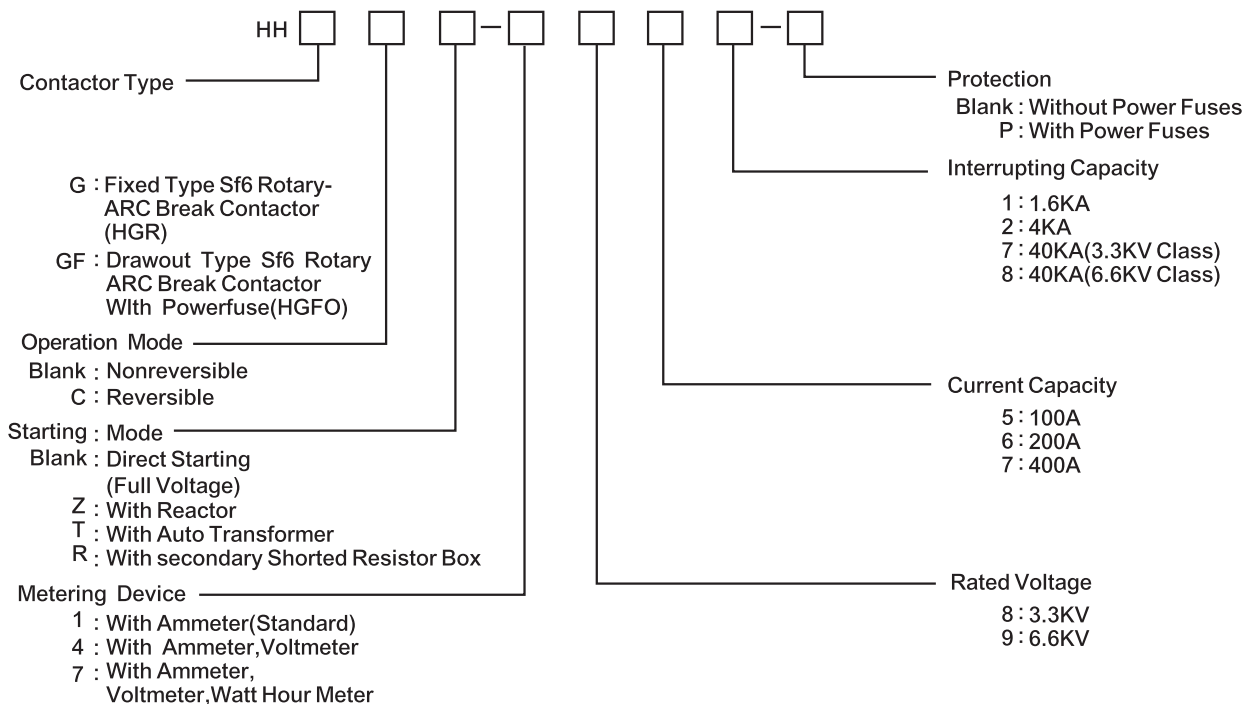
▼ HH系列 開關箱 三層式(抽出型)
(HH DRAW-OUT TYPE)



RATINGS AND SPECIFICATION

Type of Switches		Fixed Type Rotary-ARC Combination Switch			Draw-Out Type Rotary-ARC Combination Switch			
Type of Contactor		Magnetic Rotary-ARC Break Contactor(HGR)			Magnetic Rotary-ARC Break Contactor(HGR) with Power Fuses			
		HGR-851C	HGR-862C HGR-963C	HGR-873C HGR-974C	HGFO-857C	HGFO-867C HGFO-967C	HGFO-877C HGFO-977C	
Rated Insulation voltage	KV	3.6	3.6/7.2		3.6	3.6/7.2		
Rated Current	A	100	200	400	100	200	400	
Rated Frequency	Hz	50/60			50/60			
Rated Interrupting Current	KA	40			40			
Applicable Power Fuse	A	50,100,160,200,300,400			50,100,160,200,160X2,200X2			
Applicable Capacity (MAX)	Motor	KW	375	750/1500	1500/2000	375	750/1500	1500/2000
	Transformer	KVA	500	1000/1500	2000/3000	500	1000/1500	2000/3000
	Capacitor	KVAR	500	700/1000	1400/2000	500	700/1000	1400/2000
Starting Reactors		LZ-8 □□□□,60,120,180,Sec Ratings(Optional) (50%)-65%-80%-100% Taps,50% Tap is Option						
Starting Auto-Transformer		LX-8 □□□□,60,120,180,Sec Ratings(Optional) (50%)-65%-80%-100% Taps,50% Tap is Option						
Dimensions (mm)		700WX2250HX1100D Two-Layers			700WX2250HX1600D Three-Layers			
Painting		Munsell Notation 5Y 7/1						
Rated Busbar Current(A) For Horizontal		600.1000.1200.1600.2000						

TYPE DESIGNATION OF COMBINATION SWITCHES

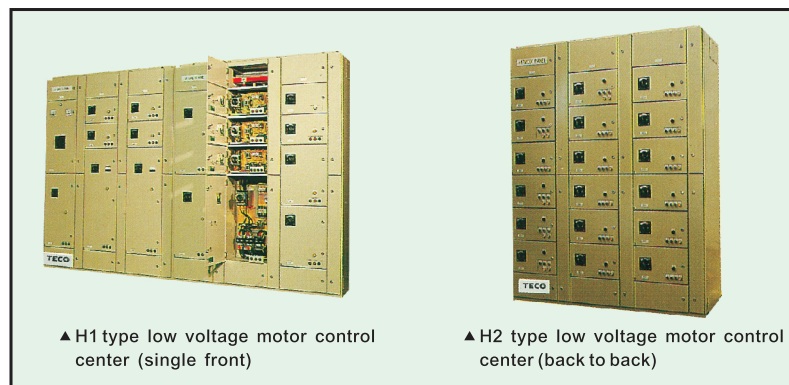


低壓馬達控制中心 H系列

LOW VOLTAGE MOTOR CONTROL CENTER H SERIES

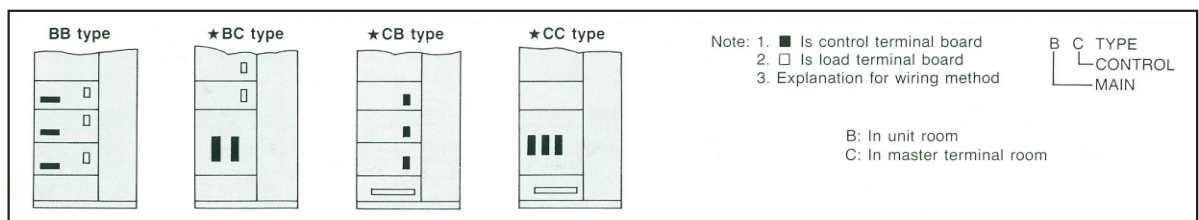
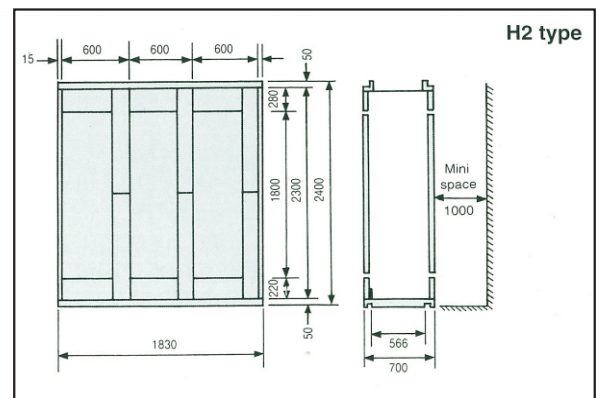
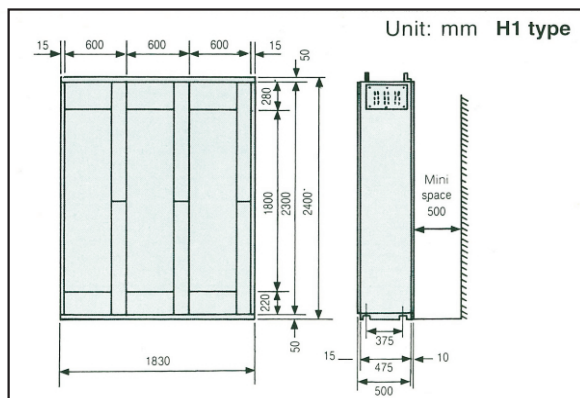
東元H系列低壓馬達控制中心提供了一種將馬達控制與相關控制設備集中化管理的理想方法，彈性的設計系統提供高安全性、具互換性、維修簡易及可彈性組合的特色以滿足用戶不同之需求。

TECO electric H series, motor control centers offer an ideal means of quickly providing centralized motor control and other related control equipment, the flexible design system offers high safety, interchangeable, maintenance free and flexible combination features to meet customer's different requirements.



FEATURES:

- Flexible combination can meet different requirements.
- Common standard unit design offer interchangeable and ease installation between H1 type and H2 type.
- NEMA-B-B type wiring standard can offer a simple and correct connection in jobside.
- New Floating source plug using a new total enclosed reinforce glass fiber frame to offer a high safety, high strength insulation construction, and a special copper alloy connectors provide an excellent connection with auto-align function.
- The operation handle of MCCB has mechanical interlock system with door to prevent the miss-operation.
- The overload relay is available to reset from the outside of door.
- Fixed with a lock-test-DRAWOUT 3 position locket system on each drawout unit.
- The single front and back to back design of cubicle offer a very compact and flexible application on the electrical room.



Reference Standards

● CNS3989 ● JEM 1195 ● NEMA ICS 2-322 ● IEC 60439

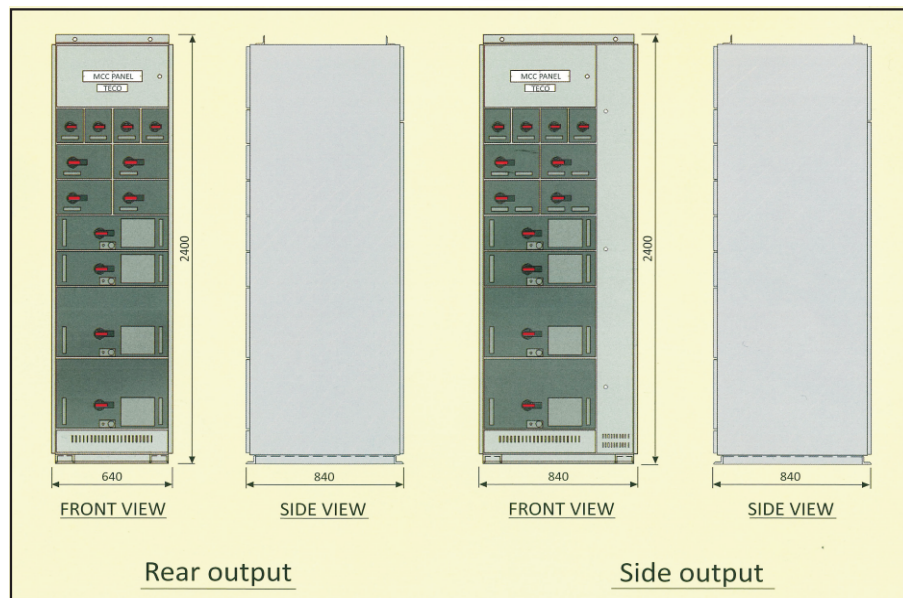
■ Specifications

Items		Specification	H1 Type	H2 Type																									
Construction	Protection	●	Enclosed type, or Dust-proof type	Enclosed type, or Dust-proof type																									
	Access front	●	Single front	Back to back																									
	Horizontal busbar		On the top																										
	Vertical busbar		On rear side of cabinet	On medium																									
	Unit number		Max 6x300mm	Max 12x300mm																									
Rating	Main insulation voltage		AC 600V																										
	Main rated voltage	●	Under AC 600V																										
	Control rated voltage	●	AC 110V, 220V (● AC 100V, 200V, 380V)																										
	Frequency	●	50 or 60 HZ																										
	Busbar current	Horizontal		600A, 800A, 1000A, 1200A, 1600A, 2000A, 2500A, 3200A,	600A, 800A, 1000A, 1200A, 1600A, 2000A, 2500A, 3200A,																								
		Vertical		350A, 400A, 600A	350A, 400A, 600A																								
	Short time current (0.5 sec)	●	30, 42, 50KA (● 100KA)	30, 42, 50KA (● 100KA)																									
	Interrupting capacity	●	10-50KA (● 100KA)																										
Switching capacity of contactors		CNS C4084, JEM 1038, IEC60947-4-1																											
Door	Front door		Independent of each unit																										
	Rear door		2 Sheets	Independent of each unit																									
	Opening direction		Vertical wiring room; Right, Others : Left																										
Source	Main source	●	3φ 3W, 3φ 4w																										
	Connection for external wiring	●	<table border="1"> <thead> <tr> <th>Type</th> <th colspan="2">STANDARD</th> <th colspan="2">OPTION</th> </tr> <tr> <th>CONN- ECTION</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Source incoming</td> <td>BT</td> <td>TD</td> <td>TD</td> <td>BT</td> </tr> <tr> <td>Load outgoing</td> <td>BT</td> <td>BT</td> <td>TD</td> <td>TD</td> </tr> <tr> <td>Control Wiring</td> <td>BT</td> <td>BT</td> <td>TD</td> <td>TD</td> </tr> </tbody> </table>	Type	STANDARD		OPTION		CONN- ECTION	1	2	3	4	Source incoming	BT	TD	TD	BT	Load outgoing	BT	BT	TD	TD	Control Wiring	BT	BT	TD	TD	Note : BT : Bottom to top TD : Top to down
		Type	STANDARD		OPTION																								
		CONN- ECTION	1	2	3	4																							
Source incoming		BT	TD	TD	BT																								
Load outgoing	BT	BT	TD	TD																									
Control Wiring	BT	BT	TD	TD																									
Unit construction	●	<ul style="list-style-type: none"> Fixed type Draw-out type (Max 600mm) 																											
Unit	Wiring connection type	●	<table border="1"> <thead> <tr> <th></th> <th>Draw out</th> <th>Fixed</th> </tr> </thead> <tbody> <tr> <td>Source side</td> <td>plug</td> <td rowspan="4">Terminal Board</td> </tr> <tr> <td>Load side</td> <td> <ul style="list-style-type: none"> Terminal board Plug </td> </tr> <tr> <td>Control</td> <td> <ul style="list-style-type: none"> Terminal board Manual Plug </td> </tr> </tbody> </table>		Draw out	Fixed	Source side	plug	Terminal Board	Load side	<ul style="list-style-type: none"> Terminal board Plug 	Control	<ul style="list-style-type: none"> Terminal board Manual Plug 																
			Draw out	Fixed																									
		Source side	plug	Terminal Board																									
		Load side	<ul style="list-style-type: none"> Terminal board Plug 																										
Control	<ul style="list-style-type: none"> Terminal board Manual Plug 																												

(● While placing your orders, please confirm the points marked above)

低壓馬達控制中心 M系列

LOW VOLTAGE MOTOR CONTROL CENTER M SERIES



Feature:

- The main circuit and control circuit of unit are automatic connection between the fixed part and moving part, it is easy to push in and draw out the unit to the cubicle.
- The maximum allowable unit space of each vertical section is 72E(1800mm height), the maximum number of unit for each vertical section can reach 36 units.
- Each unit(8E or larger) fixed with guiding rail and screw mechanism to make sure the unit can be easily and smoothly moved in a correct position.

Reference Standards

● CNS3989 ● JEM 1195 ● NEMA ICS 2-322 ● IEC 60439

■ Specifications

Items		Specification	M																												
Construction	Protection	●	Enclosed type or Dust-proof type																												
	Access front	●	Single front																												
	Horizontal busbar		On the top																												
	Vertical busbar		On rear side of cabinet																												
	Unit number		Max 36 units (8E/4)																												
Rating	Main insulation voltage		AC 600V																												
	Main rated voltage	●	Under AC 600V																												
	Control rated voltage	●	AC 110V, 220V (● AC 100V, 200V, 380V)																												
	Frequency	●	50 or 60 HZ																												
	Busbar current	Horizontal		800A, 1000A, 1200A, 1600A, 2000A, 2500A, 3200A, 4000																											
		Vertical		350A, 400A, 600A																											
	Short time current (0.5 sec)	●	30, 42, 50KA (● 100KA)																												
	Interrupting capacity	●	10-50KA (● 100KA)																												
Switching capacity of contactors		CNS C4084, JEM 1038, IEC60947-4-1																													
Door	Front door		Independent of each unit																												
	Rear door		1 door																												
	Wiring room		1 door																												
Source	Main source	●	3φ 3W, 3φ 4w																												
	Connection for external wiring	●	<table border="1"> <thead> <tr> <th>Type</th> <th colspan="2">STANDARD</th> <th colspan="2">OPTION</th> </tr> <tr> <th>CONN- ECTION</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Source incoming</td> <td>BT</td> <td>TD</td> <td>TD</td> <td>BT</td> </tr> <tr> <td>Load outgoing</td> <td>BT</td> <td>BT</td> <td>TD</td> <td>TD</td> </tr> <tr> <td>Control Wiring</td> <td>BT</td> <td>BT</td> <td>TD</td> <td>TD</td> </tr> </tbody> </table>				Type	STANDARD		OPTION		CONN- ECTION	1	2	3	4	Source incoming	BT	TD	TD	BT	Load outgoing	BT	BT	TD	TD	Control Wiring	BT	BT	TD	TD
			Type	STANDARD		OPTION																									
			CONN- ECTION	1	2	3	4																								
Source incoming	BT	TD	TD	BT																											
Load outgoing	BT	BT	TD	TD																											
Control Wiring	BT	BT	TD	TD																											
Note : BT : Bottom to top TD : Top to down																															
Unit	Unit construction	●	<ul style="list-style-type: none"> Fixed type Draw-out type (Max 600mm [24E]) 																												
	Wiring connection type	●	<table border="1"> <thead> <tr> <th></th> <th>Draw out</th> <th>Fixed</th> </tr> </thead> <tbody> <tr> <td>Source side</td> <td>plug</td> <td rowspan="3">Terminal Board</td> </tr> <tr> <td>Load side</td> <td>plug</td> </tr> <tr> <td>Control</td> <td>plug</td> </tr> </tbody> </table>			Draw out	Fixed	Source side	plug	Terminal Board	Load side	plug	Control	plug																	
				Draw out	Fixed																										
			Source side	plug	Terminal Board																										
Load side	plug																														
Control	plug																														

(● While placing your orders, please confirm the points marked above)

低壓動力中心

LOW VOLTAGE POWER CENTER

東元低壓電力控制中心係針對國內各產業界在追求高品質，及高安全性之前提研發成功之產品，其中已經台電評審合格，並推廣至各電廠使用中。

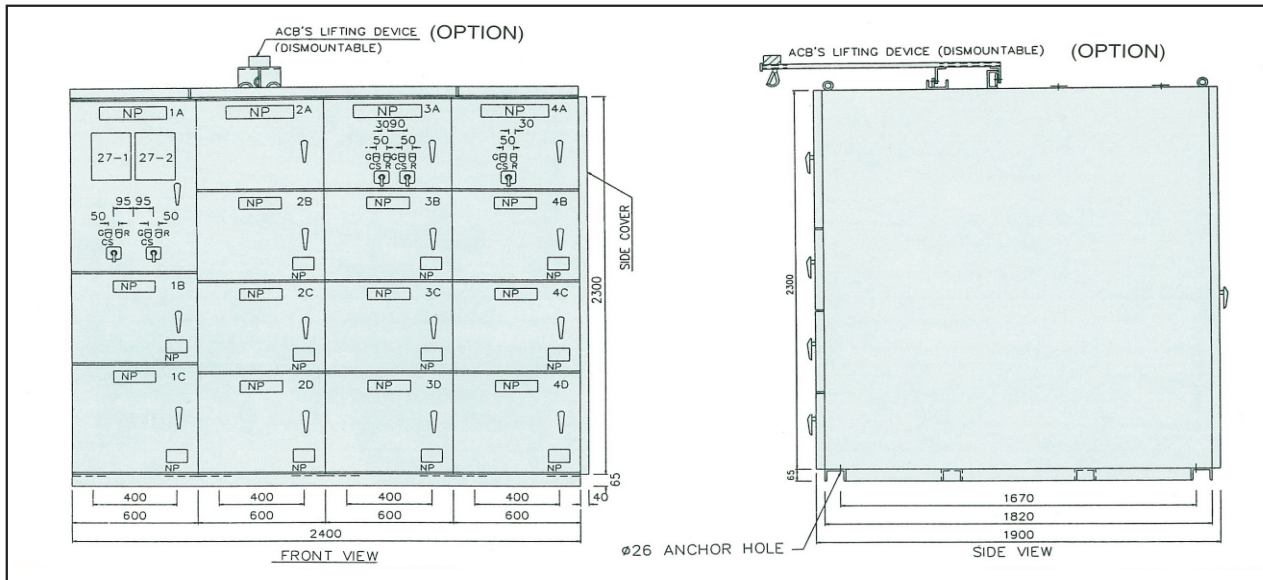
TECO Low Voltage Power Center is successfully developed under the prerequisite to provide co-traders of all sectors in pursuit of high quality and safety. Such a low tension power control center has satisfactorily passed the Type test of Taiwan power Company and is being introduced to power plants for use.

FEATURES

- Power center consists of several sets of air circuit breaker vertical panels and each set of vertical panel is separated with metal partition into three(3) independent rooms. Facing the front of switch gear in the order from front to rear, these independent rooms are divided into three zones, namely, "Air Circuit Breaker Zone", "Bus Bar Zone" and "Cable Zone". "Air Circuit Breaker Zone" is subdivided into four(4) chambers and the highest chamber is "Low Voltage Compartment Chamber" while the other three(3) chambers are all "Air Circuit Breaker Chamber".
- Every air circuit breaker chamber shall be provided with a handle for open and close of the cubicle door. When the cubicle door is opened, circuit breaker is operated from the front. Also, Operation panel of the circuit breaker is provided with safety shielding thus preventing direct touch of any live part.
- Bus Bar Zone is used for connection of the bus bar of the main circuit with that of the Branch circuit. All the power side and load side terminals are fixed in the bus bar zone and all the fixing and continuity of the bus bar are completed in this bus bar zone.
- Bus bar zone, air circuit breaker zone and the cable zone are all separated with metal plates. When bus bar and its components parts are inspected or maintenance, access shall be made from the cable zone in the rear with all the metal partition plates removed.
- Junction bus bar which passes through the bus bar zone from the load side of circuit breaker are provided in the cable zone for connection of the cables between circuit breaker and the load. The terminal board for remote control circuits is provided in the same zone.
- A door with handle shall be provided in the cable zone. A movable shielding plate with proper size transparent, and excellent insulation material shall be provided in the cable zone to prevent touching of the live parts.
- In the power center, all control circuits required for the outside circuits shall be provided with raceways for connecting with the terminal board in cable zone.
- Ventilation shall be provided on the top and bottom of the cubicle rear door for heat dissipation and de-humidity. Also, sufficient ventilation ports shall be provided in the circuit breaker zone, bus bar zone and cable zone for convection and heat dissipation. Cap type ventilation ports with insect proof net shall also be provided at the top of bus bar zone.

RATING:

Standard:	ANSI C3720, JEM1265, IEC 60439, CNS 13542
Rated insulation Voltage:	AC 600V
Rated Frequency:	50/60HZ
Rated Current:	630~6300A
Rated Short Time With Stand Current:	25KA, 42KA, 50KA, 65KA, 1sec



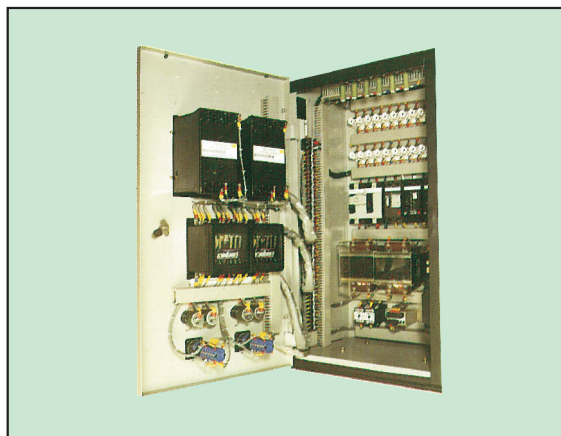
Power Center Layout



Draw-Out Unit For ACB



ACB Zone、Busbar Zone and Cable Zone



Low Voltage Compartment

環路開關與架空開關

Ring Main unit And Pole Switch

Power Distribution Devices of High Reliability & Free Maintenance

The three phase three wire load break switches manufactured by TECO have two models as installation: Overhead(Pole-Mounted)model and Padmounted model. The product which is developed in SF6 gas for insulation and arc interruption can achieve optimum performance of reliability, long life time and free-maintenance. The operating mechanisms of the products comprise two kinds of manual-operating type and latch type.(The products can also be installed step-by-step from manual to latch and from FTU system to DAS system as customer demands , in order to reduce the initial invest cost and increase the invest profit.)Besides the above advantages, the switch can also provide safety, reliability and energy-saving characteristics and is helpful for the reliability of power distribution system.

Application

- For distribution network
- For opening/closing of sections of loop system
- As sectionalisers

Structures

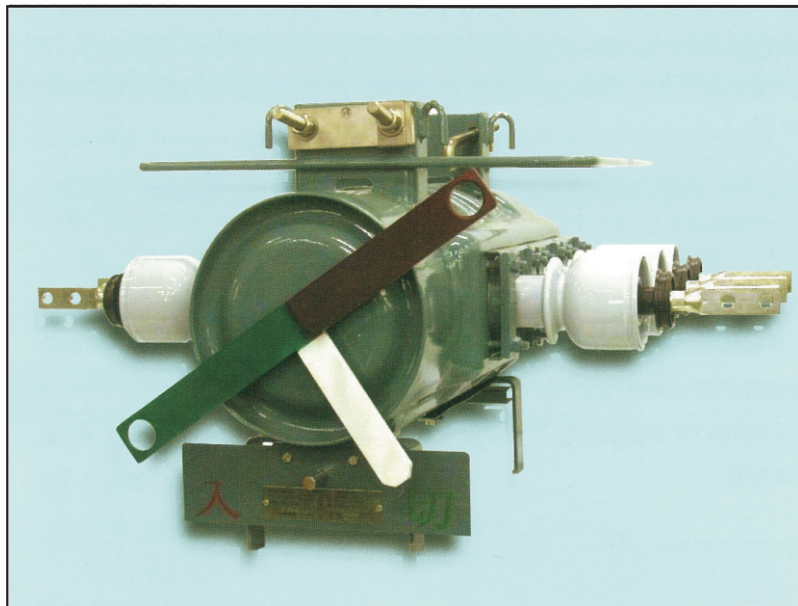
- Weather-proof and anti-corrosion cubicle
- High insulation characteristics
- Excellent arc resistant of multi contacts
- Rotating arc quenching mechanism
- Fast closing and tripping mechanism
- Pressure-release Safety device

Characteristics:

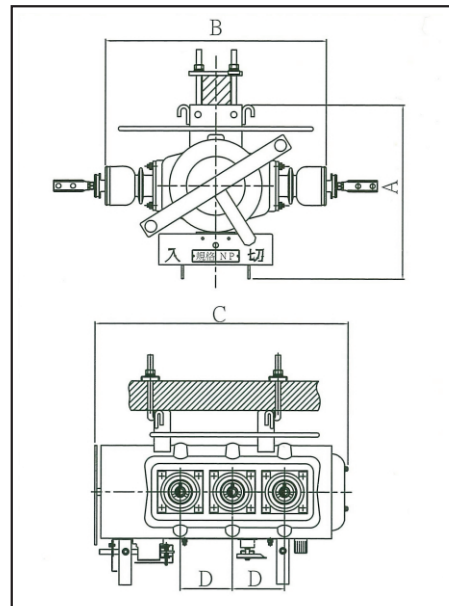
- Small dimensions, light weight Using SF6 gas as the insulating and arc quenching media, the product has the advantages of the small dimensions, low weight and easy installation.
- Excellent arc interruption, long electrical life
- The contacts are developed with multiple touching points and ROTARY-ARC quenching so that the switches have the stability characteristics of closing and interrupting. The arc quenching won't hurt its inner insulation which affects its insulating effects. Especially, the inner has the dryer, which can absorb the bad gas that is decomposed from SF6 at high temperature, it can avoid the insulation being degraded which affects the normal on/off function so this product can achieve high reliability and long electrical life.



Overhead Line Load Break Switch (Manual Type)



Dimensions



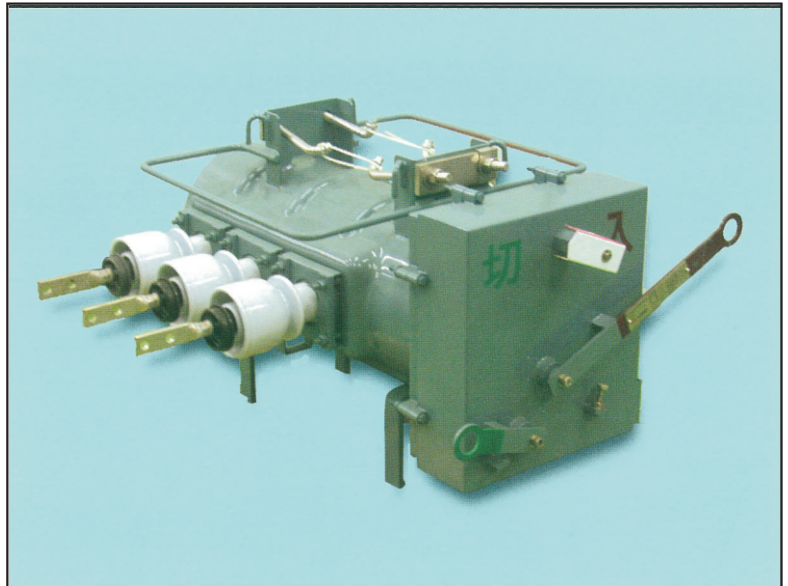
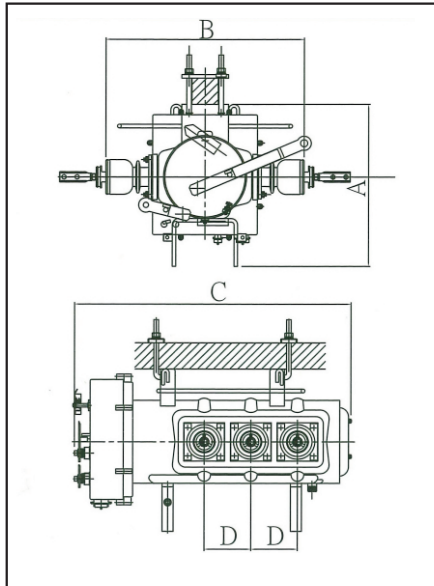
★ Specifications

Type	LFG-□□	15EH	25EH	35EH
Rated Max. Voltage	KV	15.5	27	38
Rated Continuous Current	A	600		
Rated Short-time Current (1sec)(rms)	KA	12.5		
Rated Making Current (peak)	KA	31.5		
Impulse Withstand Voltage (1.2×50 μs)	KV	110	125	150
Low Frequency Withstand Voltage (1min)	KV	50	60	70
Electrical Endurance (C-O)	times	1000		
Mechanical Endurance (C-O)	times	5000		
Operation Strength (Max.)		close : 25kgf trip : 25kgf		
Inter Pressure (at 20°C)	kg/cm ² G	2.5	2.5	2.7
Weights	kg	80	130	135
Dimensions (mm)	A	534	534	534
	B	680	895	1045
	C	769	1000	1000
	D	160	300	300

※1.For other specification,please contact us.

Overhead Line Load Break Switch (Mechanism Latch Type)

Dimensions



★ Specifications

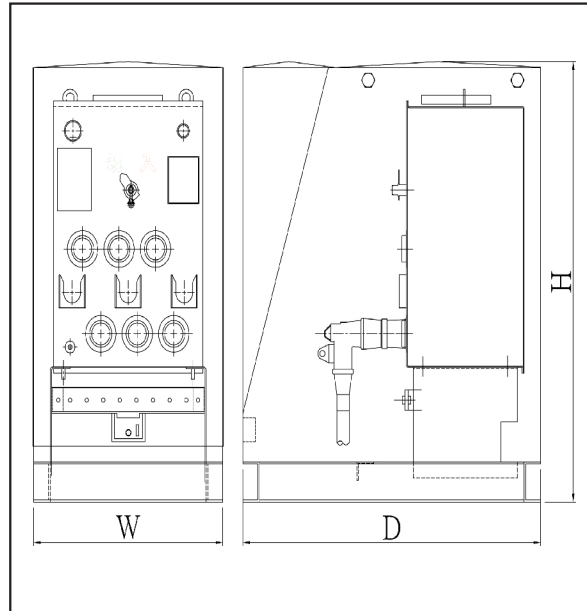
Type	LFG-□□	15ER	25ER	35ER
Rated Max. Voltage	KV	15.5	27	38
Rated Continuous Current	A	600		
Rated Short-time Current (1sec)(rms)	KA	12.5		
Rated Making Current (peak)	KA	31.5		
Impulse Withstand Voltage (1.2×50 μs)	KV	110	125	150
Low Frequency Withstand Voltage (1min)	KV	50	60	70
Electrical Life	C-O	1000		
Mechanical Life	C-O	5000		
Control Voltage		DC 24V*1		
Control Current		Close : max 7A. (peak 15A) trip : 8A(peak)		
Current Transformer		600/1A		
Operation Strength (Max.)		Close : 25~30kgf trip : 15~20kgf		
Inter Pressure (kg/cm ² at 20°C)		2.5	2.5	2.7
Weights	kg	108	135	140
Dimensions (mm)	A	556	556	556
	B	680	965	1055
	C	950	1195	1195
	D	160	300	300

※1. For other specification, please contact us.

Padmounted Load Break Switch (Motor Spring-Energy Charged, Mechanism Latch Type/Manual Type)



Dimensions



★ Specifications

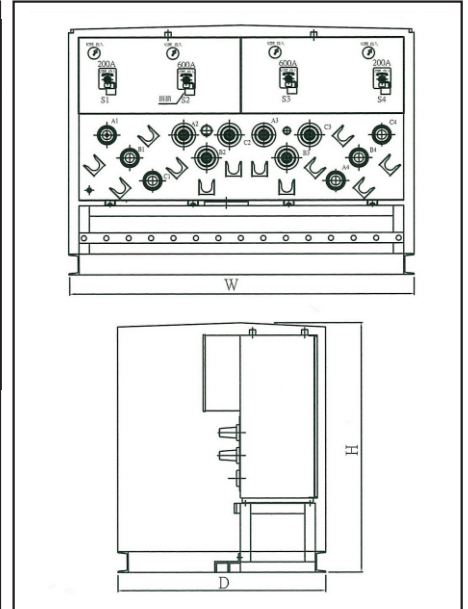
2WAY Padmounted Line Load Break Switch			
Type	LSG-□□	22BHGN	22ERGC
Circuit		Main×1	Main×1
Rated Max. Voltage	KV	27	27
Rated Continuous Current	A	200	600
Rated Short-time Current (1sec)	KA rms	12.5	12.5
Rated Making Current	KA peak	31.5	31.5
Low Frequency Withstand Voltage	KV	60	60
Rated DC Withstand Voltage	KV	78	78
Partial Discharge Voltage	KV	19	19
Impulse Withstand Voltage	KV	125	125
Current Transformer		-----	600/1A
Operation Method		Manual	Manual / Electrical
Inner Pressure kg/cm ² G at 20°C		0.6	0.6
Weights	Kg	130	150
Cubic Dimensions (W×H×D) mm		570×1100×900	1000×1200×950

※1. For other specifications, please contact us.

Padmounted Load Break Switch (Motor Spring-Energy Charged, Mechanism Latch Type/Manual Type)



Dimensions



★ Specifications

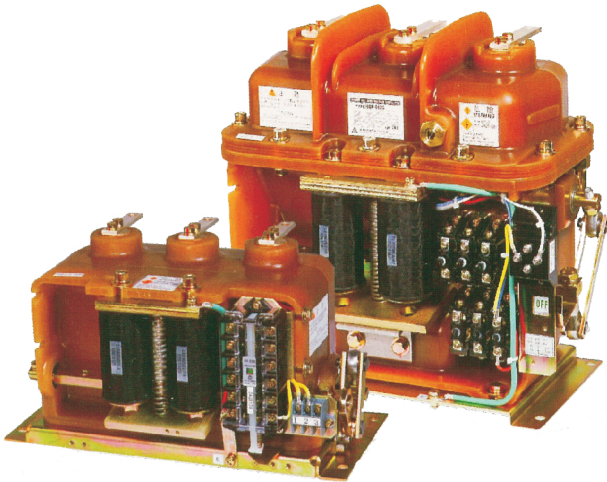
4WAY Padmounted Line Load Break Switch					
Type	LSG-□	22ERJC		22EHJN	
Circuit		Main×2	Branch×2	Main×2	Branch×2
Rated Max. Voltage	KV	15/27			
Rated Continuous Current	A	600	200	600	200
Rated Short-time Current (1sec)	KA rms	12.5			
Rated Making Current	KA peak	31.5			
Low Frequency Withstand Voltage	KV	60			
Rated DC Withstand Voltage	KV	78			
Partial Discharge Voltage	KV	19			
Impulse Withstand Voltage	KV	125			
Current Transformer		600/1A	200/1A	-----	
Operation Method		Manual/Electrical		Manual	
Inner Pressure kg/cm ² G at 20°C		0.5			
Weights	Kg	520		490	
Cubic Dimensions (W×H×D) mm		1660×1200×1000		1660×1200×1000	

※1. For other specifications, please contact us.

中壓電磁接觸器

MEDZUM-Voltage Magnetic Contactors

A Wide Choice of Models to Meet Every Requirement

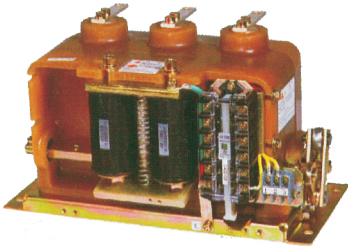


Highly evaluated molded type high-voltage electromagnetic contactors have been used in many fields of industry as switches for motors, transformers and capacitors. These contactors have enjoyed an enviable reputation attested by a great number of users for their outstanding characteristics such as stable switching performance, high dielectric strength, high reliability and properties even under the most extreme temperature and environmental conditions.

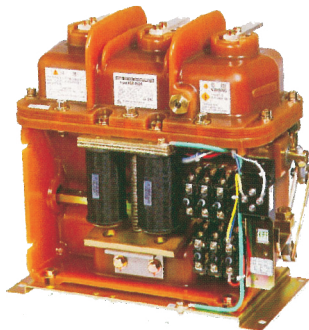
The most suitable selection for a variety of applications has become possible as a result of commercialization for a special model for 3.3 kV, 100A.

This new model will meet your requirements for reducing space and cost as well as increasing reliability.

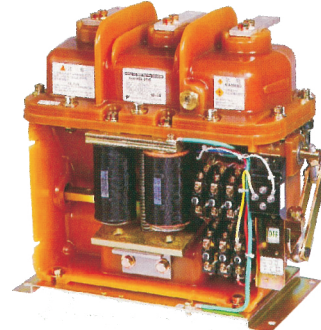
Rotary-Arc-High-Voltage Magnetic Contactor (Stationary Type)



▲ Type HGR-851C,
3.6kV, 100A

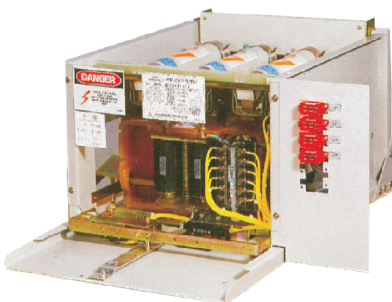


▲ Type HGR-862C(863C)
3.6/7.2kV, 200A

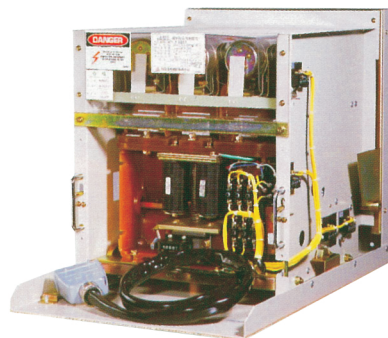


▲ Type HGR-873C(974C)
3.6/7.2kV, 400A

Rotary-Arc-High-Voltage Magnetic Contactor with Power Fuses (Drawout Type)



▲ Type HGFO-857C-F
3.6kV, 100A, 40kA



▲ Type HGFO-867C-F
3.6kV, 200A, 40kA

RATINGS AND SPECIFICATIONS Standard

● Magnet Holding

Item	Mounting Type	Stationary Type					Drawout Type									
		Unfused					Unfused					Fused				
Power Fuse		Unfused					Unfused					Fused				
Rated Insulation Voltage	KV	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2
Rated Thermal Current	A	100	200		400		100	200		400		100	200		400	
Contactor Type		HGR-□					HGR(O)-□					HGR(O)-□				
		851C	862C	963C	873C	974C	851C	862C	963C	873C	974C	857C	867C	968C	877C	978C
Rated Operational Voltage	kV	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2
Rated Frequency	Hz	50 / 60					50 / 60									
Rated Interrupting Current	kA	2.5	4		6.3		2.5	4		6.3		40				
Rated Short-Time Current (2 s e c)	kA	2.5	4		6.3		2.5	4		6.3		2.5	4		6.3	
Insulation Class	*4	3A	3A/6A			3B		3B/6B			3B		3B/6B			
Making Current Capacity		Class AC4 : 10 times rated current,														
Breaking Current Capacity		Class Ac4 : 8 times rated current														
Switching Frequency		1200 operations per hour														
Mechanical Endurance (Number of times)		2,500,000			1,000,000		2,500,000			1,000,000		2,500,000			1,000,000	
Electrical Endurance *1 (Number of times)		250,000			100,000		250,000			100,000		250,000			100,000	
Overcurrent Class		—					—					C				
Control Circuit	Rated Insulation Voltage (V)	250					250									
	Rated Operational Voltage (V)	100 / 110 VAC, 200 / 220 VAC ; 100 / 110 VDC, 200 / 220 VDC														
Auxiliary Contact Arrangement *2		3NO, 2NC					3NO, 2NC									
Maximum Load Capacity	Motor KW	375	750	1500	1500	3000	375	750	1500	1500	3000	375	750	1000	1500	2000
	Transformer kVA	500	1000	2000	2000	4000	500	1000	2000	2000	4000	500	1000	1500	2000	3000
	Capacitor*3 kVA	500	1000	2000	2000	4000	500	1000	2000	2000	4000	300	700	1000	1400	2000
Approx. Mass (kg)		11	23		26		52	100		110		56	110		120	
Standard		JEM-1167					JEM-1225									

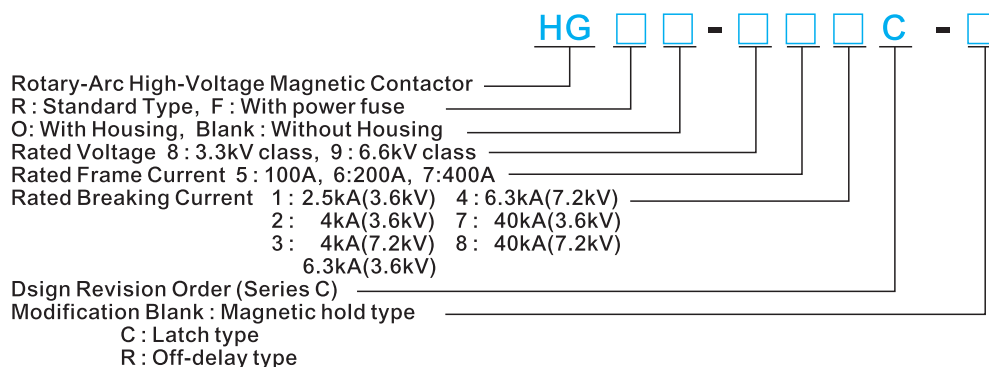
*1 : The electrical endurance was tested at class Ac3 switching frequency.
(600% of the rated current was input to check if more than 100% of the breaking current would flow.)

*2 : The contact number of the auxiliary contactor is the number of contacts available for external use.

*3 : When used on capacitor application, Reactor will need to be installed.

*4 : rated withstand voltage : 3A/3B : 16/10kV , 6A/6B : 22/16kV
rated impulse voltage : 3A/3B : 45/30kV , 6A/6B : 60/45kV

NOMENCLATURE



RATINGS AND SPECIFICATIONS Standard

● Magnet Holding(Off Delay : 2 secretary)

Item	Mounting Type					Stationary Type											Drawout Type				
						Unfused					Unfused					Fused					
Rated Insulation Voltage KV	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	
Rated Thermal Current A	100	200		400		100	200		400		100	200		400		100	200		400		
Contactor Type	HGR-□ -R					HGR(O)-□ -R					HGR(O)-□ -R										
	851C	862C	963C	873C	974C	851C	862C	963C	873C	974C	857C	867C	968C	877C	978C						
Rated Operational Voltage kV	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2						
Rated Frequency Hz	50 / 60					50 / 60															
Rated Interrupting Current kA	2.5	4		6.3		2.5	4		6.3		40										
Rated Short-Time Current kA (2 sec)	2.5	4		6.3		2.5	4		6.3		2.5	4		6.3							
Insulation Class *4	3A	3A/6A				3B	3B/6B				3B	3B/6B									
Making Current Capacity	Class AC4 : 10 times rated current,																				
Breaking Current Capacity	Class Ac4 : 8 times rated current																				
Switching Frequency	1200 operations per hour																				
Mechanical Endurance (Number of times)	2,500,000		1,000,000			2,500,000		1,000,000			2,500,000		1,000,000								
Electrical Endurance *1 (Number of times)	250,000		100,000			250,000		100,000			250,000		100,000								
Overcurrent Class	—					—					C										
Control Circuit	Rated Insulation Voltage (V)					250															
	Rated Operational Voltage (V)					100 / 110 VAC, 200 / 220 VAC ; 100 / 110 VDC, 200 / 220 VDC															
Auxiliary Contact Arrangement *2	2NO, 2NC					2NO, 2NC															
Maximum Load Capacity	Motor KW	375	750	1500	1500	3000	375	750	1500	1500	3000	375	750	1000	1500	2000					
	Transformer kVA	500	1000	2000	2000	4000	500	1000	2000	2000	4000	500	1000	1500	2000	3000					
	Capacitor*3 kVA	500	1000	2000	2000	4000	500	1000	2000	2000	4000	300	700	1000	1400	2000					
Approx. Mass (kg)	11	23		26		52	100		110		56	110		120							
Standard	JEM-1167					JEM-1225															

*1 : The electrical endurance was tested at class Ac3 switching frequency. (600% of the rated current was input to check if more than 100% of the breaking current would flow.)

*2 : The contact number of the auxiliary contactor is the number of contacts available for external use.

*3 : When used on capacitor application, Reactor will need to be installed.

*4 : rated withstand voltage : 3A/3B : 16/10kV , 6A/6B : 22/16kV
rated impulse voltage : 3A/3B : 45/30kV , 6A/6B : 60/45kV

NORMAL SERVICE CONDITION

1. Altitude : Less than 1000m.
2. Ambient temperature : -5°C to 40°C
3. Humidity : 45% to 85%

Notes :

1. Short-time current, making current capacity, breaking current capacity, and switching capacity are performed by the magnetic contactor without a current limiting power fuse(PF).
2. The weight of the drawing type is the total weight including the housing , 2 each potential transformers(Pts),

RATINGS AND SPECIFICATIONS Standard

● Latch Type

Item	Mounting Type		Stationary Type					Drawout Type								
			Unfused					Unfused					Fused			
Power Fuse			Unfused					Unfused					Fused			
Rated Insulation Voltage KV	3.6	3.6	7.2	3.6	7.2		3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2
Rated Thermal Current A	100		200		400		100		200		400	100		200		400
Contactor Type	HGR-□ -C					HGR(O)- □ -C					HGR(O)- □ -C					
	851C	862C	963C	873C	974C	851C	862C	963C	873C	974C	857C	867C	968C	877C	978C	
Rated Operational Voltage kV	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	3.6	3.6	7.2	3.6	7.2	
Rated Frequency Hz	50 / 60					50 / 60										
Rated Interrupting Current kA	2.5		4		6.3	2.5		4		6.3	40					
Rated Short-Time Current kA (2 sec)	2.5		4		6.3	2.5		4		6.3	2.5		4		6.3	
Insulation Class *4	3A		3A/6A			3B		3B/6B			3B		3B/6B			
Making Current Capacity	Class AC4 : 10 times rated current,															
Breaking Current Capacity	Class AC4 : 8 times rated current															
Switching Frequency	300 operations per hour															
Mechanical Endurance (Number of times)	250,000		250,000			250,000			250,000			250,000			250,000	
Electrical Endurance *1 (Number of times)	100,000		50,000			100,000			50,000			100,000			50,000	
Overcurrent Class	—					—					C					
Control Circuit	Rated Insulation Voltage (V)		250					250								
	Rated Operational Voltage (V)		100 / 110 VAC, 200 / 220 VAC ; 100 / 110 VDC, 200 / 220 VDC													
Auxiliary Contact Arrangement *2	2NO, 2NC					2NO, 2NC										
Maximum Load Capacity	Motor KW	375	750	1500	1500	3000	375	750	1500	1500	3000	375	750	1500	1500	2000
	Transformer kVA	500	1000	2000	2000	4000	500	1000	2000	2000	4000	500	1000	1500	2000	3000
	Capacitor*3 kVA	500	1000	2000	2000	4000	500	1000	2000	2000	4000	300	700	1000	1400	2000
Approx. Mass (kg)	11.5		23		26	52		100		110	56		110		120	
Standard	JEM-1167					JEM-1225										

*1 : The electrical endurance was tested at class Ac3 switching frequency. (600% of the rated current was input to check if more than 100% of the breaking current would flow.)

*2 : The contact number of the auxiliary contactor is the number of contacts available for external use.

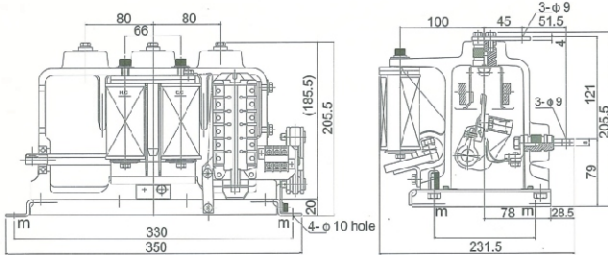
*3 : When used on capacitor application, Reactor will need to be installed.

*4 : rated withstand voltage : 3A/3B : 16/10kV , 6A/6B : 22/16kV
rated impulse voltage : 3A/3B : 45/30kV , 6A/6B : 60/45kV

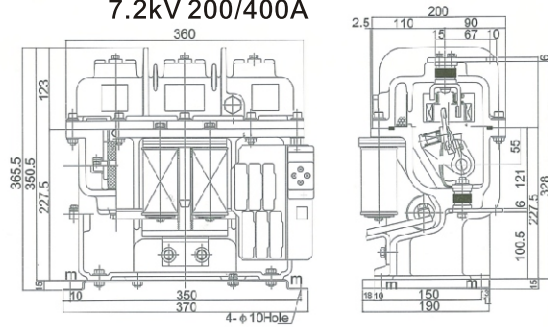
Dimensions

Stationary Type HGR

• 3.6kV 100A



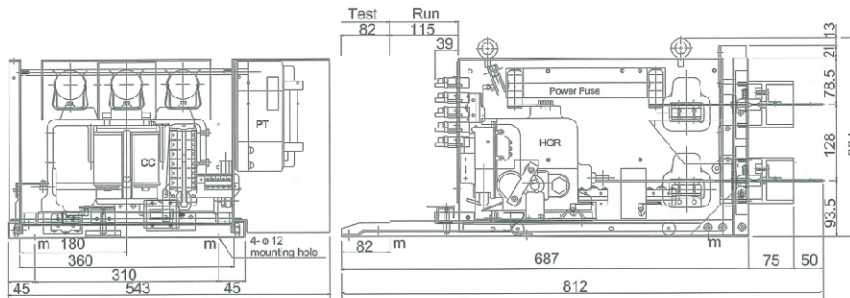
• 3.6kV 200/400A
7.2kV 200/400A



in mm

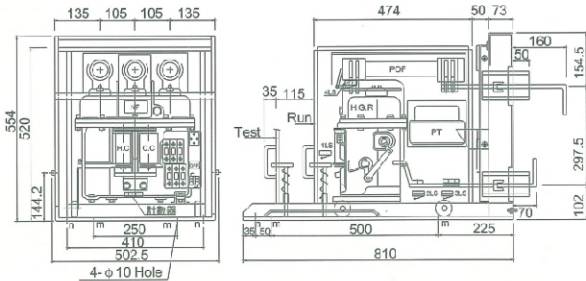
Drawout Type HGRO / Type HGFO (with power-fuse and housing)

• 3.6kV 100A

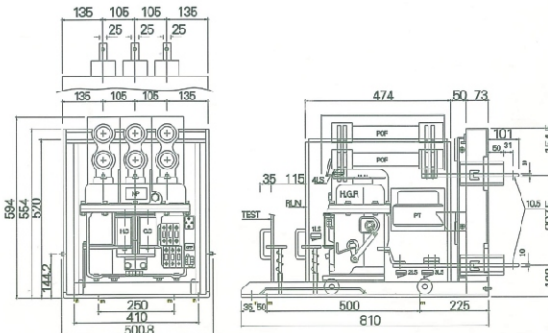


in mm

• 3.6/7.2kV 200/400A



• 3.6/7.2kV 200/400A





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