

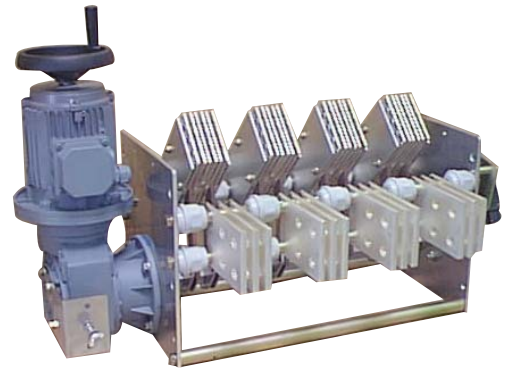
High Current Disconnectors

Change-over disconnectors

FA Range

3000 V ~ / = 500-8000 A 0-175 HZ

- Equipment for indoor use
- Complete customization-driven modular range
- Long distance between open contact
- Self-cleaning contacts
- Reliable high short-circuit currents withstand



Applications

- Disconnecting and / or switching of DC or AC – less than 175 Hz – power circuits.
- Isolating of installations needing a high short-circuit currents withstand.
- Isolating of installations with polluted environments.
- Range of devices specially suitable for electric traction -stationary installations and on-board equipment- for isolating steel plants motors, for electrical distribution and for rectifiers.

FA Range

FERRAZ FA disconnectors and change-over disconnectors range is compliant with IEC 62271-102.60694 and 60077-1 standards.

Rated insulation voltage	Rated thermal current
3 kV	500 to 6300 A for AC 500 to 8000 A for DC

The FA range includes from 1 to 6 pole devices from one of the following types :

<ul style="list-style-type: none"> ▪ Disconnectors (1-0) 	
<ul style="list-style-type: none"> ▪ 2 position change-over disconnectors (1-2) Unable in (1-M) mode M = Neutral point When reversing insulation between 1 and 2 is no more ensured 	
<ul style="list-style-type: none"> ▪ 3 position change-over disconnectors (1-0-2) position (1-0-2) are interlocked insulation between 1 and 2 is achieved when reversing. Insulation between A and 1/2 when device is in position 0. 	
<ul style="list-style-type: none"> ▪ 3 position change-over disconnectors (1-3-2) position (1-3-2) are interlocked Unable in (1-M-2) mode M = Neutral point 	

Key features of FA technology are:

- Visible break due to a direct view of mobile contacts
- Silver-plated copper connecting lugs and mobile contacts
- Silver rivets on mobile contacts when rated current is higher than 2500 A
- Self-cleaning contacts
- Long distance between open contacts
- Between phases insulation made by fibre glass-reinforced self-extinguishable polyester insulator (VO level in accordance with UL94)
- Control made by a bichromated zinc coated and mounted on bearing steel shaft which actuates mobile contacts by two self-extinguishable insulating rods (stratified epoxy glass, VO level in accordance with UL94)
- Bichromated zinc coated steel flange for rated current less than 2000 A, duralinox flanges for rated currents higher than 2500 A
- Manual or motorized control

FA range scope is a function of the device type, the number of poles and the rated thermal current in accordance with the IEC 60947-3 prescriptions –i.e. with a max. temperature rise of 70°C in steady state of connecting lugs-.

Ith thermal current rating (A)		Valid for (1-0) (1-2) (1-0-2) and (1-3-2) devices					
		1 pole	2 poles	3 poles	4 poles	5 poles	6 poles
~ 50/60 Hz	=						
500	500						
1250	1250						
2000	2000						
2500	2800						
3200	4000						
4000	5000						
5000	6300						
6300	8000						

Electrical characteristics

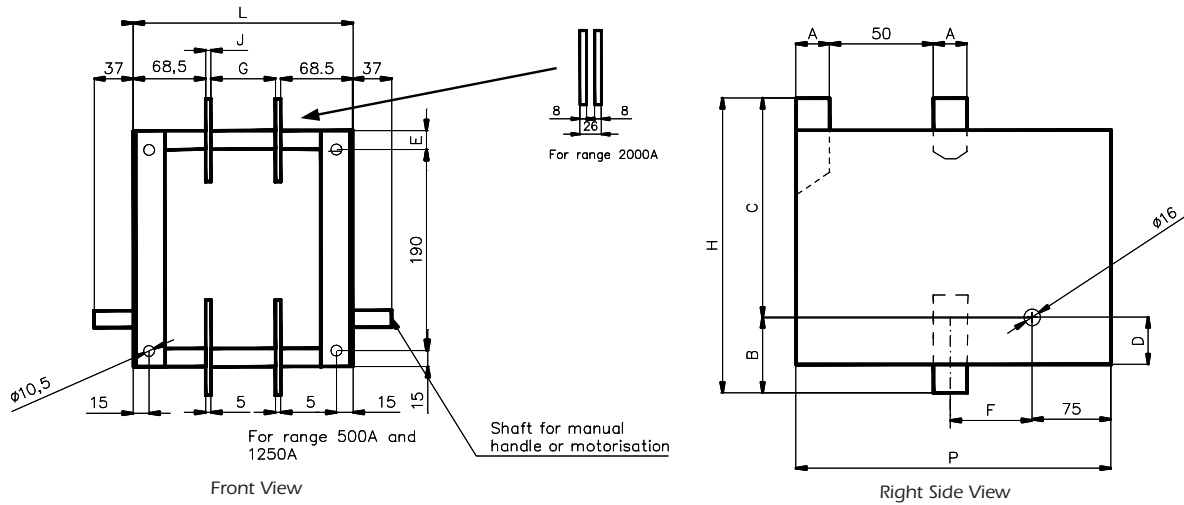
- Operation when current is off (no load operation)
- 140°C point temperature withstand without device damage
- Dielectric withstand voltage : 20 kV – 50 Hz – 1 mn to the ground between poles and between terminals with all the clearance / between live parts and auxiliary contacts
- Dielectric withstand voltage : 2500 V – 50 Hz – 1 mn between auxiliary contacts and neutral points
- Impulse voltage withstand : 20 kV – 1.2 / 50 µs in accordance with IEC 694
- Voltage drop between terminals : ~ 30 mV
- Maximum short-circuit current for one pole (50 Hz) and any device

@ $I_{th} = 500 \text{ A}$	1 st wave peak value	75 kA	Ir.m.s = 28 kA for 1 s
@ $1250 \text{ A} \leq I_{th} \leq 2000 \text{ A}$	1 st wave peak value	90 kA	Ir.m.s = 35 kA for 1 s
@ $I_{th} \geq 2500 \text{ A}$	1 st wave peak value	150 kA	Ir.m.s = 58 kA for 1 s

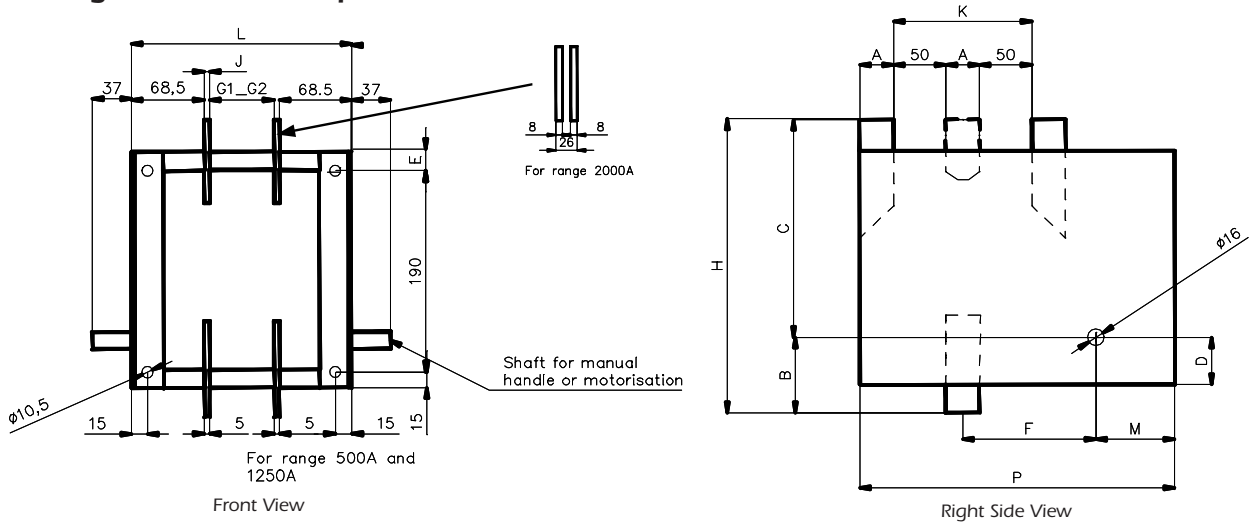
High Power Switches

Main dimensions

Ratings \leq 2000A - Operations 1-2, 1-0

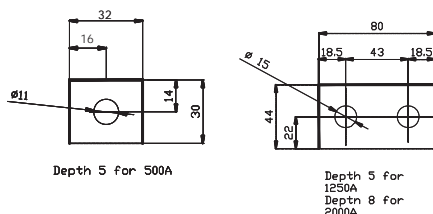


Ratings \leq 2000A - Operations 1-0-2, 1-3-2



	Rated Current (A)	(mm)															Device weight with 1 pole (kg)	Additional weight per pole (kg)	
		A	J	H	P	B	C	D	E	F	G	L	1p	L2p	L3p	M			K
operations 1-2, 1-0	500	32	5	280	285	127	153	97	15	76	82	142	229	316				4.5	2.5
	1250	80	5	356	334	126	230	76	51	89	82	142	229	316				7.5	3.5
	2000	80	26	356	334	126	230	76	51	89	82	163	271	379				12	7
operations 1-0-2, 1-3-2	500	32	5	280	300	72	208	45	18	127	82	142	229	316	75	132		5.5	2.5
	1250	80	5	356	395	93	263	45	53	130	82	142	229	316	95	180		7.5	3.5
	2000	80	26	356	395	93	263	45	53	130	82	163	271	379	95	180		12	7

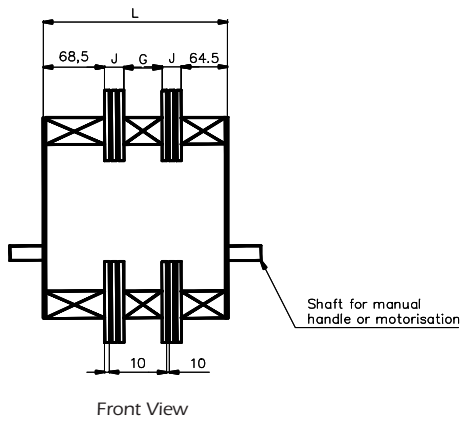
Terminal Connections



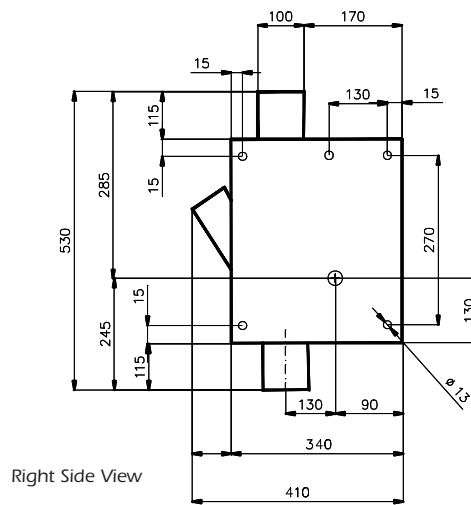
Note: information provided is limited to 1 to 3 pole switches. Switches are available with up to 6 Poles. For more information regarding multiple pole characteristics, please contact the technical support centers.

Main dimensions

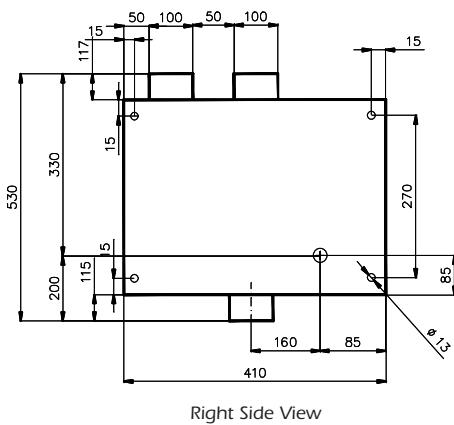
Ratings > 2000A



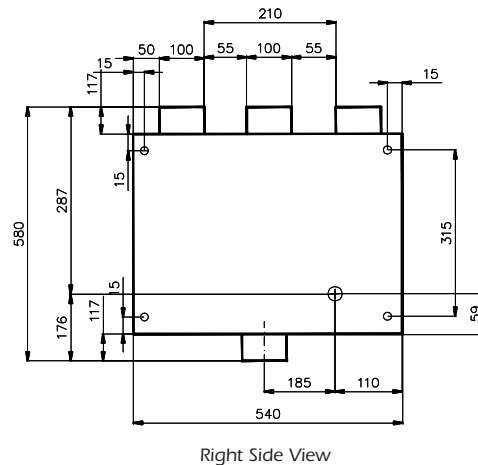
Operations 1-0



Operations 1-2

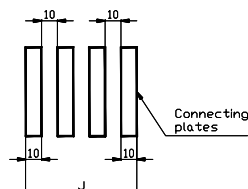
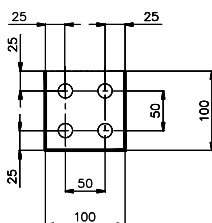


Operations 1-3-2



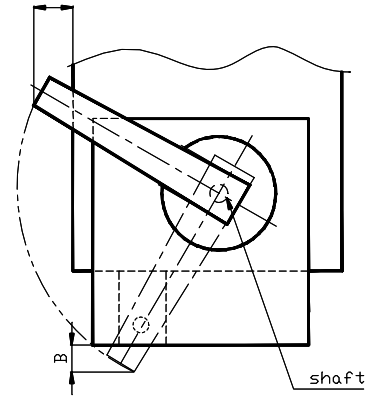
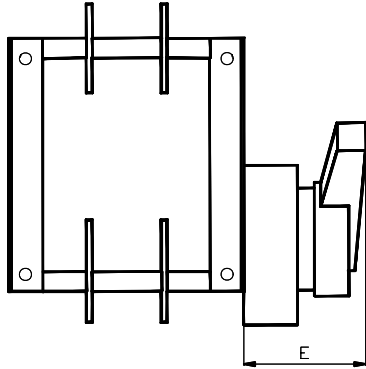
Rated Current thermal AC (A)	DC (A)	Nb of poles available	Gdimension based on # of		Ldimension based on # of				Connecting plates Nb/pole J		Device weight with 1 pole (kg)	Additional weight per pole (kg)
			2	3-4	1	2	3	4				
2500	2800	1 to 6	75	75	143	228	313	398	1	10	13±2	8±2
3200	4000	1 to 6	80	80	163	273	383	493	2	30	19±4	14±3
4000	5000	1 to 4	80	100	183	313	483	633	3	50	26±5	19±4
5000	6300	1 to 3	80	120	203	353	583		4	70	33±7	26±5
6300	8000	1 to 3	80	140	223	393	683		5	90	39±8	33±7

Terminal Connections



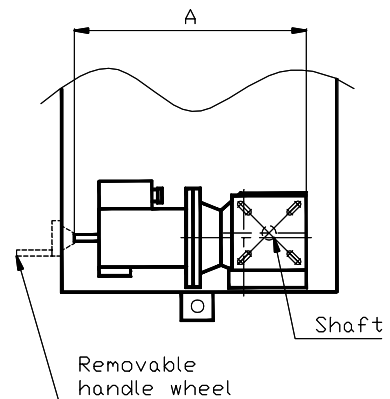
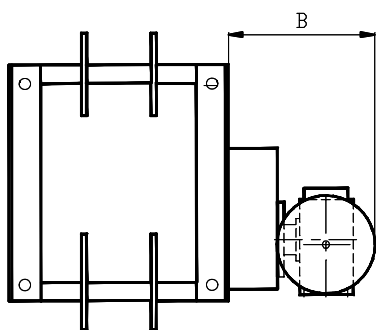
Operators Dimensions

Manual Lateral Handle



Rated Current		Valid for (1-0), (1-2), (1-0-2), and (1-3-2) operations																				
AC (A)	DC (A)	1 pole			2 poles			3 poles			4 poles			5 poles			6 poles					
		A	B	E	A	B	E	A	B	E	A	B	E	A	B	E	A	B	E			
500	500	0*	70+/-30	105	0*	70+/-30	105	0*	70+/-30	105	0*	70+/-30	105	0*	70+/-30	105	0*	70+/-30	105	0*	70+/-30	105
1250	1250	10+/-10	60+/-20	105	10+/-10	60+/-20	105	10+/-10	60+/-20	105	10+/-10	60+/-20	105	40	180	105	40	180	105	40	180	145
2000	2000	10+/-10	60+/-20	105	10+/-10	60+/-20	105	40+/-40	180+/-20	145	40+/-40	180+/-20	145	40+/-40	180+/-20	145	40+/-40	180+/-20	145	40+/-40	180+/-20	145
2500	2800	10+/-10	80+/-40	160	10+/-10	80+/-40	160	10+/-10	80+/-40	160	10+/-10	80+/-40	160	220+/-80	300+/-50	185	220+/-80	300+/-50	185	220+/-80	300+/-50	185
3200	4000	10+/-10	80+/-40	160	10+/-10	80+/-40	160	2203/80	300+/-80	185												
4000	5000	10+/-10	80+/-40	160																		
5000	6300	10+/-10	80+/-40	160																		
6300	8000	220+/-80	300+/-80	185																		

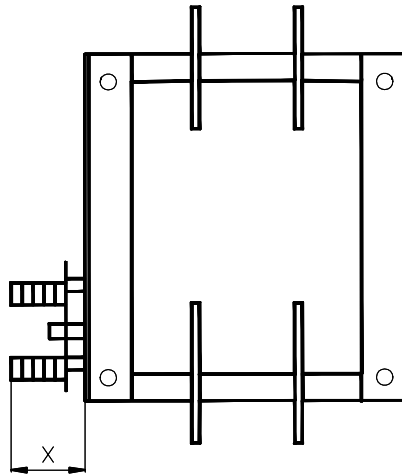
Motor Drive: Reduced Gear



Rated Current		Valid for (1-0), (1-2), (1-0-2), and (1-3-2) operations											
AC (A)	DC (A)	1 pole		2 poles		3 poles		4 poles		5 poles		6 poles	
		A	B	A	B	A	B	A	B	A	B	A	B
500	500	360	220	360	220	360	220	360	220	360	220	360	220
1250	1250	360	220	360	220	360	220	360	220	360	220	360	220
2000	2000	360	220	360	220	360	220	360	220	360	220	360	220
2500	2800	360	220	360	220	360	220	470	200	470	200	470	200
3200	4000	360	220	470	200	470	200	470	200	470	200	470	200
4000	5000	360	220	470	200	470	200	470	200	470	200		
5000	6300	470	200	470	200	470	200	470	200				
6300	8000	470	200	470	200	470	200						

Main dimensions

Microswitch Contacts



Contact position micro switch with common point		Contact position micro switch without common point	
Range $\leq 2000A$	Range >2000	Range $\leq 2000A$	Range >2000
$X=55$ for 1.2 micro switch $X=80$ for 3,4,5 micro switches	$X=80$	$X=55$ for 1 micro switch $X=55+N \times 10.5$ N=number of micro switches	$X=70$ up to 3 micro switches

Ferraz Shawmut has it all for defining and offering customized solutions to meet your most specific requirements :

- . Adapted drives or control units,
- . Adapted technical performances (short-circuit current capability, endurance, small load make / break capacity).