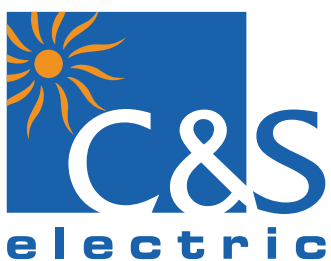
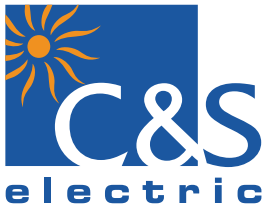


We touch
your **electricity**
everyday!



**Switch
Disconnecter Fuse**



C&S Electric Ltd. is a leading manufacturer of electrical and electronic equipment in India. It is one of India's largest exporters of industrial switchgear & power busbar products. C&S Electric products are used in applications ranging from power generation, transmission and distribution, protection and final consumption.

C&S Electric has the following product verticals:

- LV Switchgear
- LV Switchboards
- LV & MV Bus-Ducts
- LV Busways
- Protection and Measurement Devices

MANUFACTURING FACILITIES



C&S Controlgear Plant at Noida



C&S Switchgear Plant at Noida



World-Class Manufacturing Plants at SIDCUL, Haridwar

MARKET LEADER

C&S is one of the leading supplier in the LV Switchgear business segment and a market leader in the busbar business with more than 50% share in Indian market.

11 MANUFACTURING PLANTS

C&S Electric have 11 state-of-the-art manufacturing facilities in Noida, Haridwar & Guwahati, which are equipped with latest tools and systems to ensure highest level of quality and services.

600+ STOCKISTS

A dedicated network of channel partners, ensuring access to the farthest corners of India, with an obsession for customer services. In addition C&S products are available in 8000+ retail counters nationally.

EXPORTS TO OVER 85 COUNTRIES

C&S exports the entire range of products across all 7 continents, thus reaffirming its position as one of India's largest exporters of industrial electrical products.

5000+ WORKFORCE

5000+ Workforce including over 371 engineers, dedicated sales team of 424 people & millions of satisfied customers.

R&D

4 Govt. approved labs/centres, over 20,000 sqft. space dedicated to R&D, 70 R&D engineers, state of the art testing & design facilities ... & most of the all a passion for innovation & excellence.

We touch your electricity everyday!

CONTENTS

■ Introduction	06-09
■ Technical Parameters	10-13
■ Dimensions Details	14-15

Quality Assurance





Range

- i) Current Rating: 32A~800A
- ii) Operational Voltage: 415V AC



Safe Functioning

- i) Telescopic shaft
- ii) Isolations capable
- iii) Suitable for upto 3 Padlocks



Modular Construction:

Onsite convertible from - 3P to 4P
or Vice versa



Protection Upgraded

Suitable for both DIN / BS
type fuse links with up to 80kA
Breaking capacity



Flexible Design:

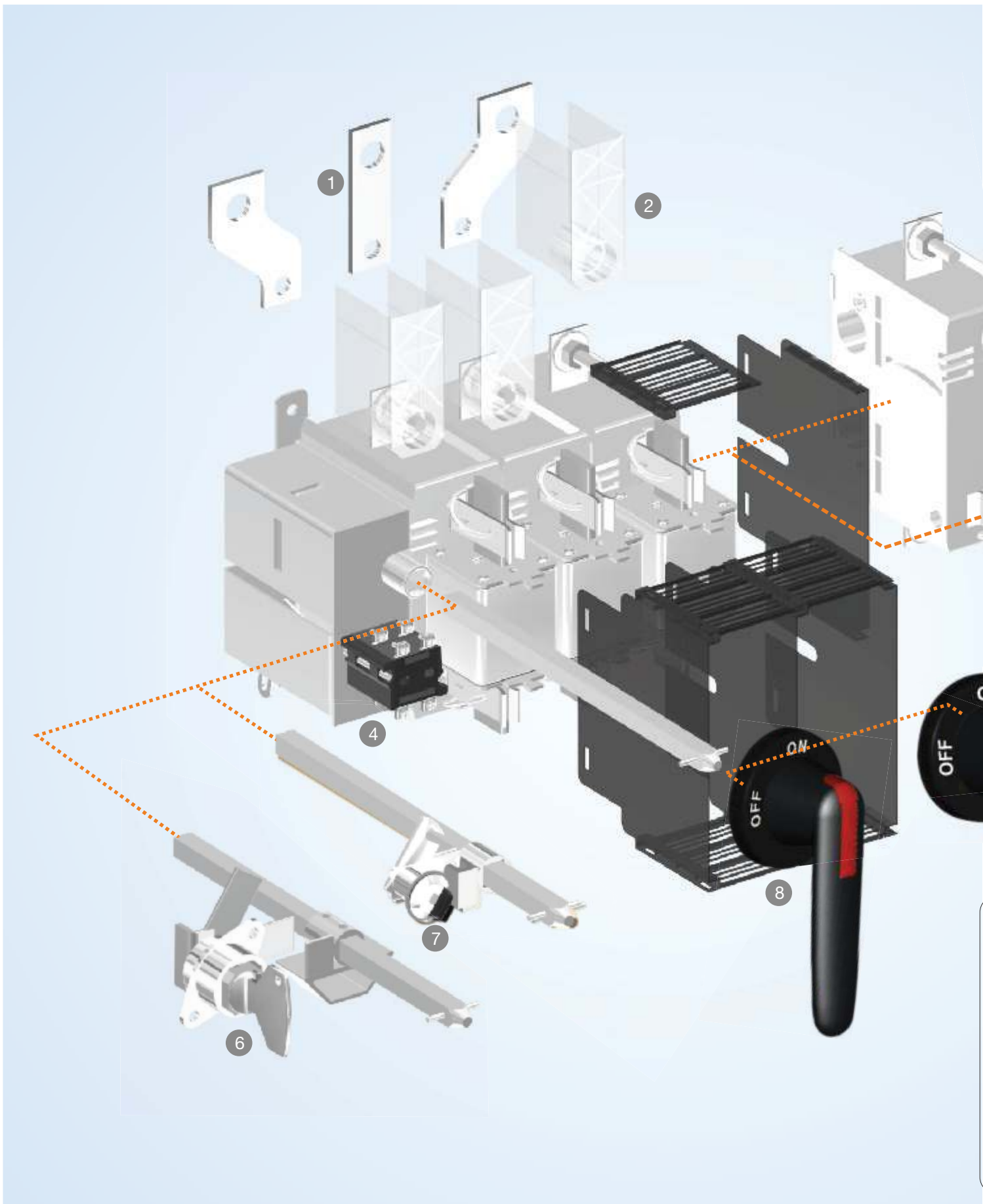
Available in 3 designs with mechanism as:

- i) Left
- ii) Right
- iii) Intermittent



Conforms to:

IS/IEC 60947-3



Integrating end user convenience with installation flexibility

C&S offers Switch Disconnecter Fuse Units from 32A to 800A ratings, 3 Pole as well as 4 Pole. These have AC-23A utilisation category as per IS/IEC 60947-3. They are available with DIN as well as BS type fuse holder & suitable for operations upto 690V. They have been tested in independent & internationally acclaimed laboratories of ASTA for compliance to IEC 60947-3 standards, and at CPRI & ERDA for conformity to IS/IEC 60947-3 standards.

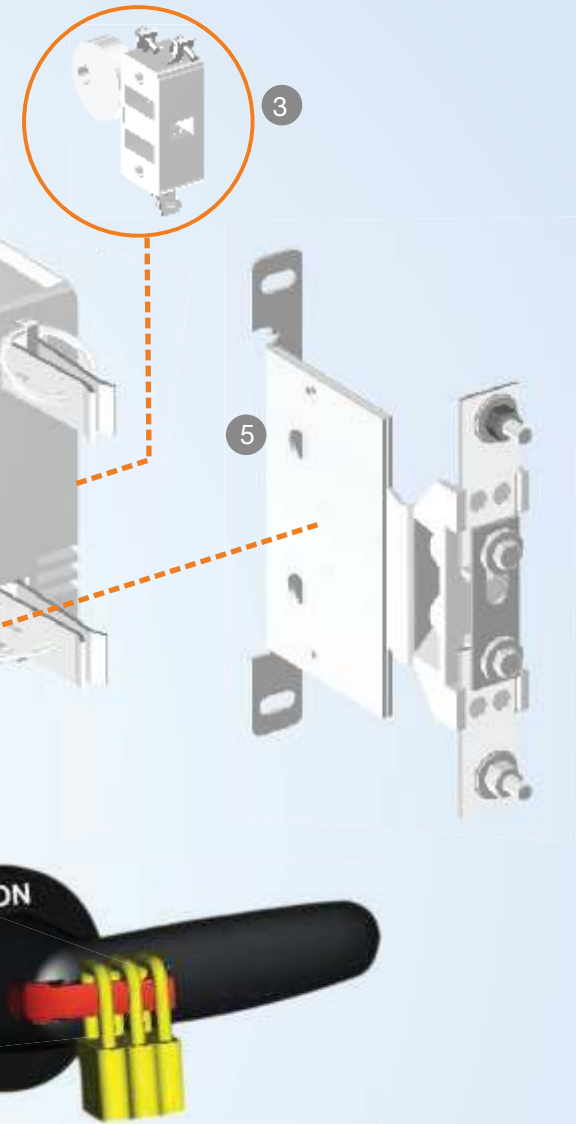
Modular yet rugged construction of the Switch Disconnecter Fuse Units gives Add – On pole flexibility while maintaining absolute reliability and 100% rating as the main poles. This arrangement is suitable for 3 Phase 3 Wire, 3 Phase 4 Wire as well as any type of Earthing and even for DC installation.

The mounting flexibility offers matchless benefit for use in MCC / PCC distribution boards or for standalone mountings. It is compact enough to occupy small panel space yet allowing installation as per convenience and rendering it safe for maintenance.

Multiple accessories to suit application requirements enhance flexibility of operation and the safety level of installation. It also ensures use in diverse applications.

The entire range of Switch Disconnecter Fuse Unit integrates end-user convenience with features suiting OEMs & Switchboard builder requirements.

For over 25 years now, with their rugged design combined with ease of operation and maintenance, they have stood the test of adverse environments in all climate of various countries. They have been used successfully in almost every industry, becoming the exclusive choice of every discerning user, be it – Power Plants, Building segments, Telecommunication field or Industries like – Steel, Chemical, Cement, Automobile, etc.



Accessories

- 1 Extended Terminals
- 2 Terminal Shrouds
- 3 Auxiliary Contacts 32A to 160A
- 4 Auxiliary Contacts 200A & Above
- 5 Manually Isolable Neutral Link
- 6 Castle Lock
- 7 key Lock
- 8 Handle & Shaft

Internationally Endorsed

Tested & Accepted
World over

C&S Switch Disconnecter Fuse Units have been tested for their conformity to International as well as Indian standards at various independent laboratories like-ASTA for conformity to International standards - IEC 60947-3 and CPRI, ERDA for conformity to Indian standards IS/IEC 60947-3. These also conform to the safety regulations adopted in the European Union and carry the CE marking.

OEMs and panel assemblers can be re-assured that the design and quality is being used and exported to many countries world over.

ISO 9001 certified manufacturing facilities assure quality & consistency.

Flexible Design

Modular yet reliable
construction

C&S Switch Disconnecter Fuse Units have a modular assembly design, allowing 1 Pole to a 4 Pole combination. The flexibility of design lets the spring operating mechanism also to be placed in the side or in between the poles.

Thus all possible combination like the TP / TP + Isolable Neutral / FP in 2 options - switched neutral or fused neutral are obtainable. And each additional pole retains the same reliability and 100% rating as the main phase pole. As each pole is independent of the other, its maintenance or replacement is easy and economical in the event of damage.

Unique Contact Mechanism

Efficient Switching
& Long life

Switch Disconnecter Fuse units having **Double Break** or **Quad Break** contact mechanism.

Switch Disconnecter Fuse units employ unique knife contact mechanism on both sides of the fuse. It uses the magnetic attraction principle in iron circuit on the moving contacts. When current increases, the contact force too increase, ensuring - good contacts at all times, high making and breaking capacity upto 690V and low temperature rise leading to long electrical life.

The special form of fixed contacts along with arc chute fins blows away the arc in the Arc chute where it is swiftly extinguished under controlled conditions making it safer.

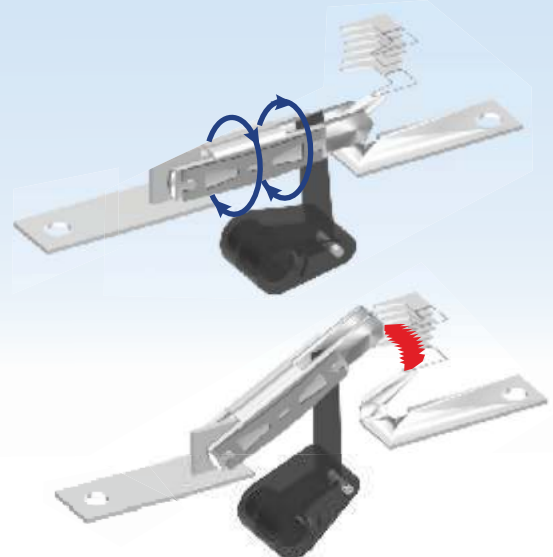
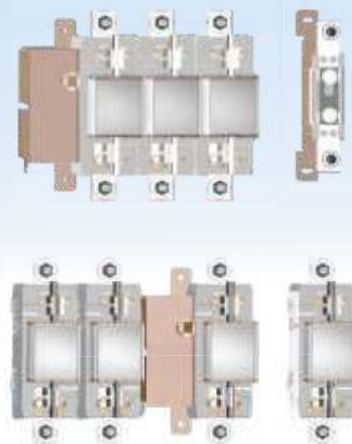
With every switching, the knife contacts clean themselves. This makes them perfectly suited for applications like Motors and capacitor switching. All these qualities makes them ideally suited for Indian conditions in general and for high pollution and corrosive conditions as in chemical plants, cement plants, steel plants, etc.

CPRI

ERDA

CE

ASTA





Easy Installation

Convenient, Swift & Economical

The handle in the C&S switch disconnecter fuse unit has a telescopic shaft. The handle & shaft assembly adjusts to wide depth of the panel so there is no need to place a bracket below the switch while aligning it with enclosure door. It permits installation of the same switch in installations of different depths, without any modification or addition to the enclosures. Four hole handle fixing on the door permits last minute rotation of the switch inside the panel by 90 degrees or 180 degrees as per convenience, again without any modification to the door.

These time saving features increase the ease and flexibility of installation, and also reduce installation cost.



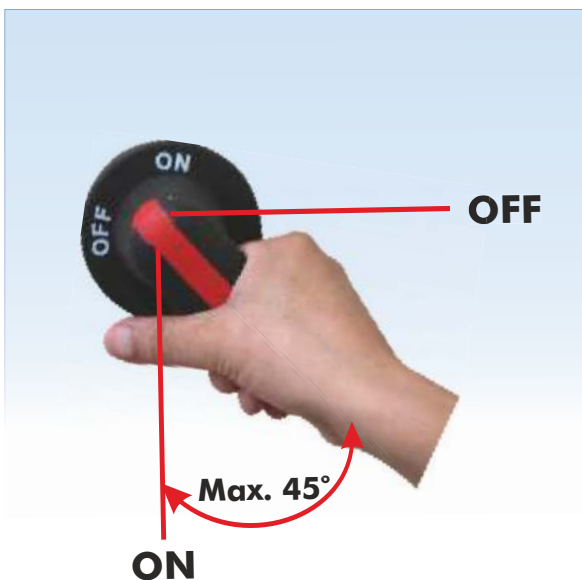
Accessories

Flexibility to suit Application

These units come with a multiple accessories to increase their suitability for diverse application, to enhance operational flexibility and to improve installation safety.

Handle mounting kit permits fixing complete Switch Disconnecter Fuse Unit inside the enclosure door so that switch can be operated only after opening the door. Auxiliary contacts permit electrical interlocking, remote indication and alarm. Key Lock and Castle Lock help interlocking with different category of products.

Extended terminals allow further liberal termination or termination of large number of cables with higher clearances. Shrouds encase the terminals so that no falling hardware may get embedded between the terminals resulting in flashovers.



Switch Construction

Safety Built-in

C&S design introduced the concept of protection in case of welded contacts. In the event of high current and fuse fails to operate, this leads to welding of contacts. In C&S switches, the handle will not turn beyond 45 degrees from the ON position, which clearly indicates that the supply is ON and contacts get welded.

In OFF position, the fuse is discharged from both sides, permitting safe inspection or removal.

The individual pole is housed in fibreglass re-inforced insulating material that is self-extinguishing and can withstand high temperatures. The high tracking index makes these switches almost flashover proof and highly safe.

Door interlocking prevents it's opening in the ON position, guarding the operator against an accidental mishap. As a standard upto 3 padlocks are provided in the OFF position to prevent closing the circuit during maintenance work. Using a suitable gasket along with handle enhances ingress protection level to IP 65.

Common Characteristics

Conformity to Standards	-	IS / IEC 60947-3
Rated Operational Voltage (Ue)	V	415
Rated Operational Frequency	Hz	50 / 60
Suitability for Isolation	-	YES
Ambient / Cubicle Service Temp.	°C	40
IP Level after mounting	-	IP 54
Number of Poles (4P Neutrals-100%)	-	3P/TPN/4P

Characteristic

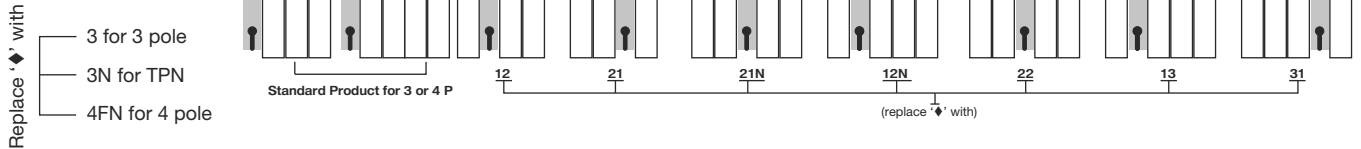
Rated Insulation & Rated operational Voltage AC-20 and DC-20		V
Dielectric strength		50/60 Hz kV
Rated impulse withstand voltage		kV
Rated thermal current in ambient 40°C		In open Air In Enclosure A A
Min. cable cross section		Cu mm ²
Rated operational current AC -21 A		upto 500 V 690 V A A
Rated operational current AC-22 A		upto 500 V 690 V A A
Rated operational current AC-23 A		upto 500 V 690 V A A
Rated operational current/poles in series DC - 21 A		48 V 110 -220 V 440 V A A A
Rated operational current/poles in series DC - 22 A		500-750 V 48 V 110 -220 V 440 V A A A
Rated operational current/poles in series DC - 23 A		500-750 V 48 V 110 -220 V 440 V A A A
Rated operational power AC- 23 ³	The KW - ratings are accurate for three - phase 1500 R.P.M standard asynchronous motors.	230 V 400 V 415 V 500 V 690 V kw kw kw kw
Rated breaking capacity in category AC -23		upto 500 V 690 V A A
Rated breaking capacity/poles in series in category DC -23		upto 220 V 440 V A A
Rated conditional short circuit current r.m.s and 50kA, 690 V allowed cut off corresponding max. current, peak value.	The cut off current refer to single phase fuse tests.fuse selection tables on request.	80kA, 415 V kA
Rated capacitor power	The capacitor rating of the switch-fuse is limited by the fuse link.	400 V 415 V 690 V kVAr kVAr kVAr
Power loss/ pole	With rated current, without fuse	W
Mechanical endurance	Divide by two for operational cycle	Operations
Fuse type, IEC 60269 / IS13703 / BS 88	DIN 43620 IEC 60269 / IS13703 / BS 88	
Weight without accessories	Size/distance of fuse-link bolts	mm
	3-Pole Switch Fuses	kg
	4-Pole Switch Fuses	kg
Terminal bolt size	Metric thread diameter x length	mm
Terminal tightening torque	counter torque required	Nm
Fuse - links bolts tightening torque		Nm
Operating torque	Typical for 3 Pole switch fuses	Nm

1. Ambient Temperature 60 C derating 20%. Mounting on "ceiling" derating 10%.Mounting on wall, horizontal fuses : derating 8%

2. Utilization category B



For side mechanism



32	63	100	125	160	200	250	315	400	630	800
750	750	750	750	750	1000	1000	1000	1000	1000	1000
8	8	8	8	8	10	10	10	10	10	10
12	12	12	12	12	12	12	12	12	12	12
32	63	100	125	160	200	250	315	400	630	800
32	63	100	125	160	200	250	315	400	630	720
6	16	35	50	70	95	120	185	240	2x185	2x240
32	63	100	125	160	200	250	315	400	630	800
-	63 ²⁾	100 ²⁾	125	160 ²⁾	200	250	315	400	630	800
32	63	100	125	160	200	250	315	400	630	800
-	63 ²⁾	100 ²⁾	125 ²⁾	135 ²⁾	200	250	315	400	630	800
32	63	100	100	100	200	250	315	400	630	720
-	40 ²⁾	50 ²⁾	50 ²⁾	50 ²⁾	200	250	315	400	630	720
32/2	63/2	100/2	125/2	160/2	200/2	250/2	315/2	400/2	630/2	800/2
32/3	63/3	100/3	125/3	160/3	200/2	250/2	315/2	400/2	630/2	800/2
32/4	63/4	100/4 ²⁾	125/4 ²⁾	160/4 ²⁾	200/2	250/2	315/2	400/2	630/2	800/2
-	-	-	-	-	200/3	250/3	315/3	400/3	630/3	800/3
32/2	63/2	100/2	125/2	160/2	200/2	250/2	315/2	400/2	630/2	800/2
32/3	63/3	100/3	125/3	160/3	200/2	250/2	315/2	400/2	630/2	800/2
32/4	63/4	100/4 ²⁾	100/4 ²⁾	100/4 ²⁾	200/2	250/2	315/2	400/2	630/2	800/2
-	-	-	-	-	200/3	250/3	315/3	400/3	630/3	800/3
32/3	63/3	100/3	125/3	160/3	200/2	250/2	315/2	400/2	630/2	800/2
-	-	100/4 ²⁾	100/4 ²⁾	100/4 ²⁾	200/3	250/3	315/3	400/3	630/3	800/3
-	-	-	-	-	-	-	-	-	630/4	800/4
7.5	15	30	30	30	57	70	90	110	180	200
11	30	55	55	55	100	132	160	210	315	350
15	30	55	55	55	110	140	180	230	340	380
15	30	70	70	70	140	170	220	280	400	470
-	30	45	45	45	180	230	290	330	540	600
256	504	800	800	800	1600	2000	2520	3200	5040	5760
-	320	400	400	400	1600	2000	2520	3200	5040	5760
-	-	400/4	400/4	400/4	800/3	1000/3	1260/3	1600/3	2520/3	3200/3
-	-	-	-	-	-	-	-	-	2520/4	3200/4
6	10	17	20	20	30	35	40	45	60	70
10	10	10	25	30	35	35	60	60		
15	30	50	50	57	90	105	145	180	250	310
16	32	55	55	62	100	115	160	200	270	310
-	50	90	90	100	160	190	250	325	450	550
0.7	4	5	5	9	5	11	13	30	55	77
20000	20000	20000	20000	20000	16000	16000	16000	16000	10000	10000
00	00	00	00	00	1	1	1-2	1-2	3	3
A2-A3	A2-A3	A4	A4	B1-B2	B1-B2	B1-B3	B1-B3	B1-B4	C1-C2	C1-C3
M5/73	M5/73	M6/94	M6/94	M8/111	M8/111	M8/111	M8/111	M8/111	M10/133 & 184	M10/133 & 184
1.6	1.6	1.8	1.8	1.8	6.9	6.9	7.3	7.8	15.5	17
1.9	1.9	2.3	2.3	2.3	7.9	7.9	8.3	8.8	19	21
-	-	M8X25	M8X25	M8X25	M10X30	M10X30	M10X40	M10X40	M12X40	M12X40
5	5	10...17	10...17	10...17	15...27	15...27	15...27	15...27	20...35	20...35
3.5	3.5	6	6	10	15	15	15	15	20	20
3	3	5	5	5	22	22	22	22	28	28

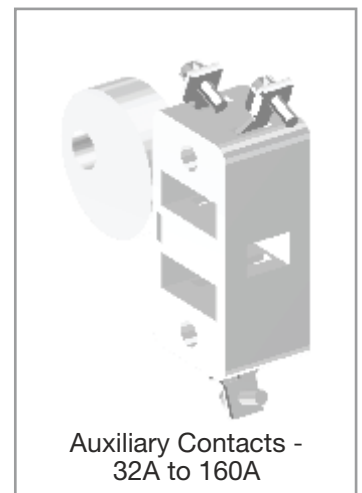
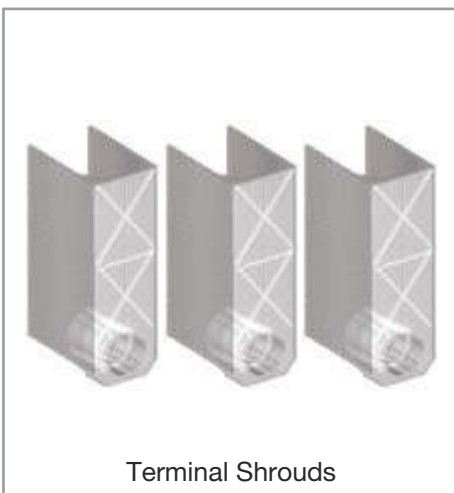
3. Some fuses links limit these figures further. Starting current characteristics must be considered separately.

E-	CSSDF	250	D	-	3				
Product									
Mounting		Rating		Fuse Type		Fuse Cover		No. of Poles	
E -	In SS Enclosure	250	250A	B	Bolted	Blank	W/o Fuses	3	TP / TPN
Blank	W/o Enclosure	800	800A	D	DIN	F	With Fuses	4	4 Pole

-	-	-	N	F					
Terminal Shrouds		Mechanism Type		Mechanism Position		Neutral Type		Fuse	
Blank	W/o Fuses	Blank	Front Operated	Blank	Left Side	Blank	TP	Blank	W/o Fuses
F	With Fuses	SO	Side Operated	12,13	After 1Pole	N	TPN	F	With Fuses
				21,21N,22	After 2Pole	SN	Switched		

Parameters	32A	63A
Catalogue Reference with Enclosure	E-CSSDF32	E-CSSDF63
Rated Operational Current	32	63
Handle	CSWH 80 S6	
Handle Shaft	CSP6 X 165	
Handle Mounting Kit	-	
Auxiliary Contact - *For 4 pole	CSSDFZX 46*	
Auxiliary Contact -	CSSDFZX 32*	
Extended Terminals, 3P/ 4P	ET323 / ET324	
Terminal Shrouds	-	
Key Interlock	CSSDFZW-16	
Castle lock	CSSDFZW-15	
Neutral Links	CSSDF ZX 87	
Side Operated Mechanism	Available	

*1 NO + 1 NC - ZX46B, *2 NO + 2 NC - ZX32B

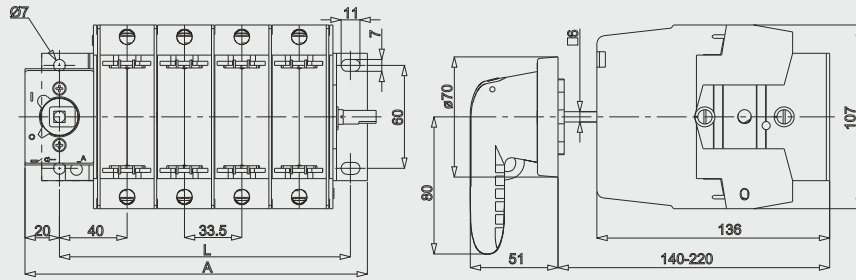




100A	125A	160A	200A	250A	315A	400A	630A	800A
E-CSSDF100	E-CSSDF125	E-CSSDF160	E-CSSDF200	E-CSSDF250	E-CSSDF315	E-CSSDF400	E-CSSDF630	E-CSSDF800
100	125	160	200	250	315	400	630	800
CSWH 80 S6			CSWH 145 S12		CSWH 145 S12		CSWH 220 S12	
CSP6 X 165			CSP12 X 255		CSP12 X 255		CSP12 X 255	
-			HMK-1-2		HMK-1-2		HMK-3-2	
CSSDFZX 1			CSSDFZX 33		CSSDFZX 33		CSSDFZX 35	
CSSDFZX 16			CSSDFZX 34		CSSDFZX 34		CSSDFZX 36	
ET327 / ET328			ET329 / ET330		ET329 / ET330		-	
SF702			SF703		SF703		SF704	
CSSDFZW-16			CSSDFZW-5		CSSDFZW-5		CSSDFZW-5	
CSSDFZW-15			CSSDFZW-4		CSSDFZW-4		CSSDFZW-4	
CSSDF ZX 86			CSSDF ZX 85		CSSDF ZX 85		CSSDF ZX 88	
Available			Not Available		Not Available		Not Available	

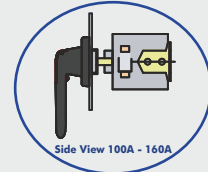
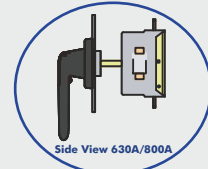
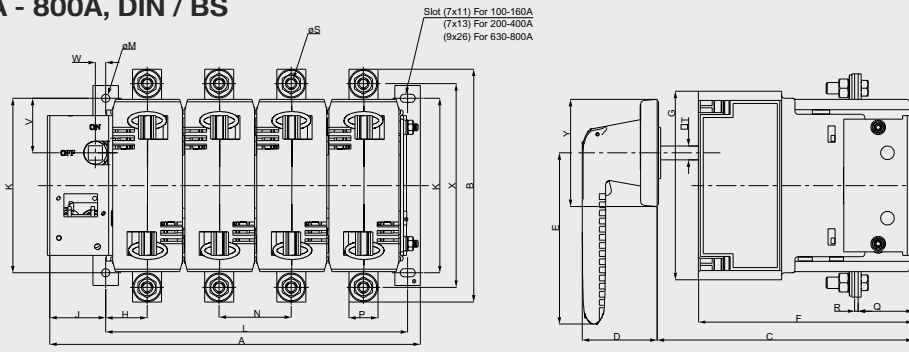


32A & 63A, DIN / BS



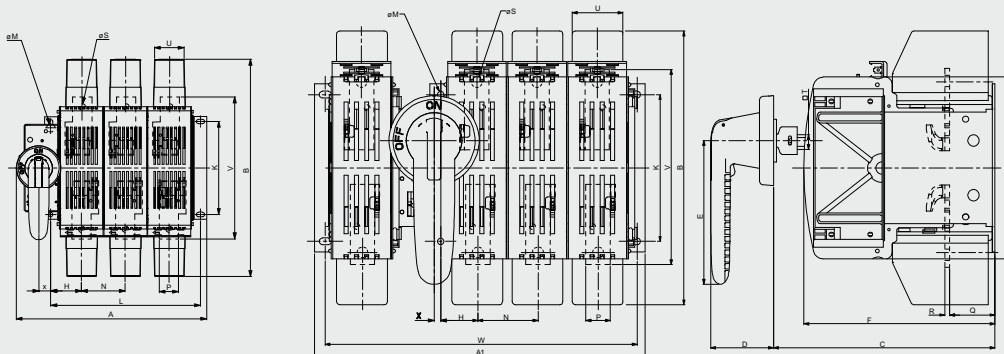
Rating (A)	A	L
TP/TPN	168	138
4 Pole	201	171

100A - 800A, DIN / BS



Rating (A)	A		B	C	D	E	F	G	H	J	K	L		M	N	P	Q	R	S	T	V	W	X	Y	
	TPN	4P										TPN	4P												
100 - 125	190	230	142	135	225	51	80	134	98	44.5	20	60	160	200	7	40	20	40	2	9	6	30	0	122	70
160 DIN	190	230	142	135	225	51	80	134	98	44.5	20	60	160	200	7	40	20	40	3	9	6	30	0	122	70
160 BS	212	260	142	135	225	51	80	134	98	44.5	20	60	182	230	7	48	20	40	3	9	6	30	0	122	70
200 - 250	261	323	192	220	310	64	145	184	162	37	50	150	199	261	7	62	25	45	3	11	12	47	7	167	92
315	285	355	200	220	310	64	145	184	162	42	50	150	223	293	7	70	25	45	4	11	12	47	7	167	92
400	285	355	200	220	310	64	145	184	162	42	50	150	223	293	7	70	25	45	5	11	12	47	7	175	92
630 DIN	343	423	320	240	310	64	220	223	244	59	52.5	190	278	358	9	80	50	40	6	13	12	95	24.5	266	92
800 DIN	373	463	320	240	310	64	220	223	244	59	52.5	190	308	398	9	90	50	40	6	13	12	95	24.5	266	92
630-800BS	403	503	320	240	310	64	220	223	244	64	52.5	190	338	438	9	100	50	40	6	13	12	95	24.5	266	92

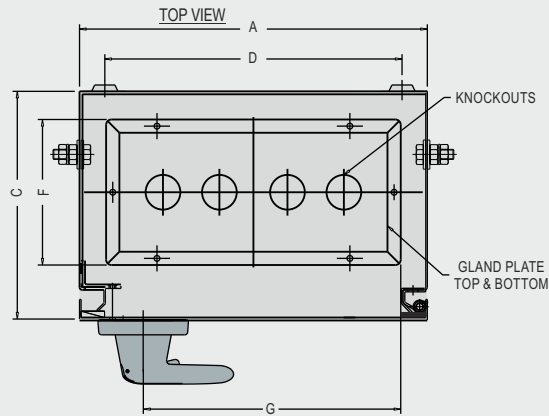
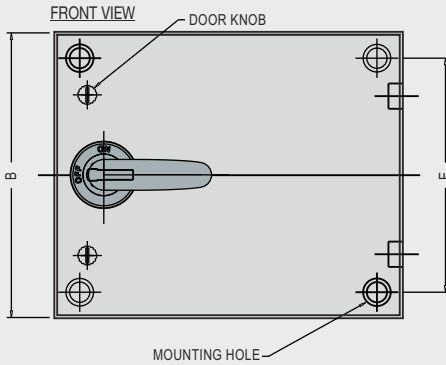
100A - 630A, DIN / BS (with fuse cover and terminal shrouds)



RATING	A		A1		B	C	D	E	F	G	H	K	L		M	N	P	Q	R	S	T	U	V	W		X
	3P	4P	3P	4P									3P	4P										3P	4P	
100-125A DIN / BS	190	230	218	258	275	155-175	51	80	150	98	44.5	60	160	200	7	40	20	40	2	9	6	34	142	200	240	-
160A DIN	190	230	218	258	275	155-175	51	80	150	98	44.5	60	160	200	7	40	20	40	3	9	6	34	142	200	240	-
160A BS	212	260	240	288	275	155-175	51	80	142	98	44.5	60	182	230	7	48	20	40	3	9	6	34	142	222	270	-
200-250A DIN / BS	261	323	276	338	280	230-310	64	145	196	186	37	150	199	261	7	62	25	45	3	11	12	52	192	254	316	7
315A DIN / BS	285	355	300	370	280	230-310	64	145	196	186	42	150	223	293	7	70	25	45	4	11	12	52	200	278	348	7
400A DIN / BS	285	355	300	370	280	230-310	64	145	196	186	42	150	223	293	7	70	25	45	5	11	12	52	200	278	348	7
630A DIN	343	423	376	456	444	245-305	64	220	231	250	60	190	278	358	9	80	50	40	6	13	12	61	320	350	430	24.5

ILLUSTRATIONS NOT TO SCALE

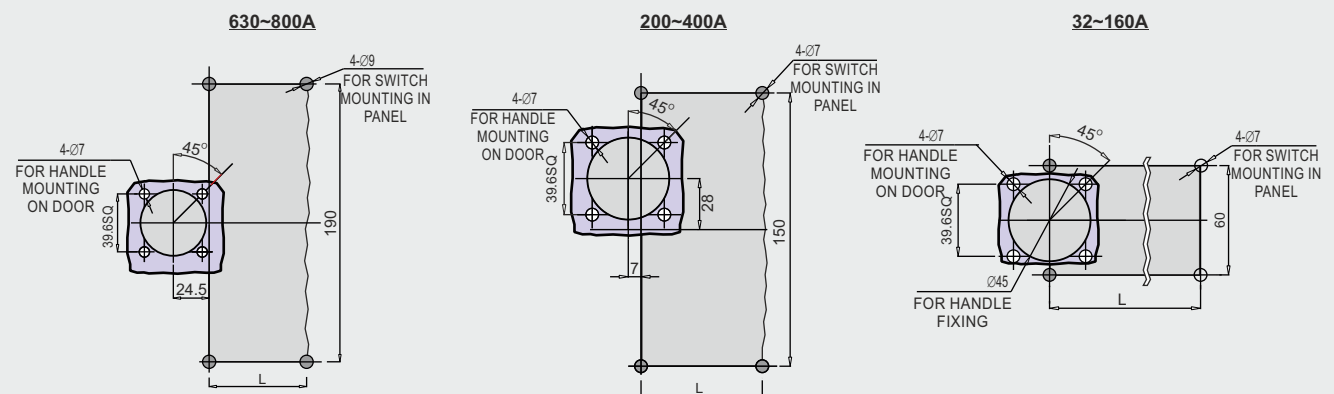
SS Enclosure 32A - 800A



SS Enclosure Details	
Gasket Type	EPDM Sponge Rubber
Cover Sheet Thickness	18 SWG
Gland Sheet Thickness	16 SWG
Enclosure Paint Shade	Basalt Grey RAL 7012
Door Paint Shade	Light Grey RAL 7035
IP Level	IP 54
Door Hinges Degree	120 °
Earthing Studs	2

Rating (A)	A	B	C	D	E	F	G	Knockout DIA. (Numbers/Side)
32 - 63A (DIN/BS-3P/4P)	275	225	180	235	185	115	233	∅30(3)
100 - 125A (DIN/BS-3P/4P)	275	275	180	235	235	115	233	∅38(3)
160A (DIN-3P/4P) & (BS-3P)								
160A (BS-4P)	325	275	220	285	235	155	283	∅38(4)
200 - 250A (DIN/BS-3P)	325	400	220	285	360	155	283	∅38(4)
200 - 250A (DIN/BS-4P)	400	400	220	360	360	155	358	∅38(4)
315 - 400A (DIN/BS-3P/4P)								
630A (DIN/BS-3P/4P)	600	500	275	560	460	210	558	∅38(8)
800A (BS-3P/4P)								

Mounting Details, 32A - 800A

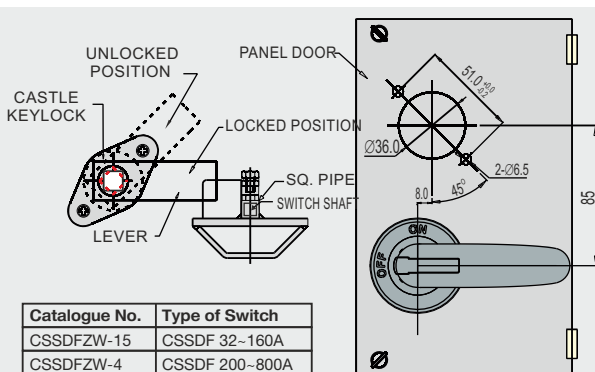


Rating (A)	32-63		100-160DIN		160BS		200-250		315-400		630DIN		630-800BS	
	TPN	4P	TPN	4P	TPN	4P	TPN	4P	TPN	4P	TPN	4P	TPN	4P
L	138	171	160	200	182	235	199	260	223	294	278	358	338	438

Handle Mounting Instructions:

- 1) Minimum distance from hinge should be 175mm for proper door locking
- 2) Drill ∅45mm for Handle mounting and take impression from telescopic shaft on inside of the panel door for drilling ∅45 hole.
- 3) Do not tighten the fixing screws till the panel door is closed and Handle has taken its position.

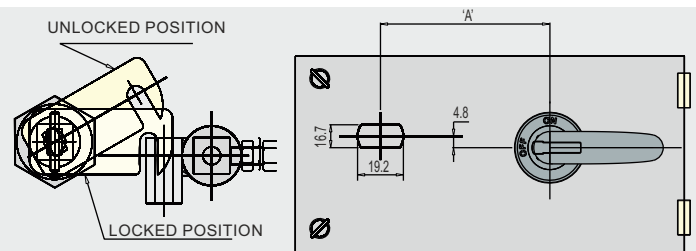
Castle Lock



Catalogue No.	Type of Switch
CSSDFZW-15	CSSDF 32-160A
CSSDFZW-4	CSSDF 200-800A

Panel Drilling Plan

Key Interlock



Catalogue No.	Type of Switch	'A'
CSSDFZW-5	CSSDF 32-160A	60.7 ±0.3
CSSDFZW-4	CSSDF 200-800A	66.0 ±0.3

Panel Punching Plan

ILLUSTRATIONS NOT TO SCALE



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