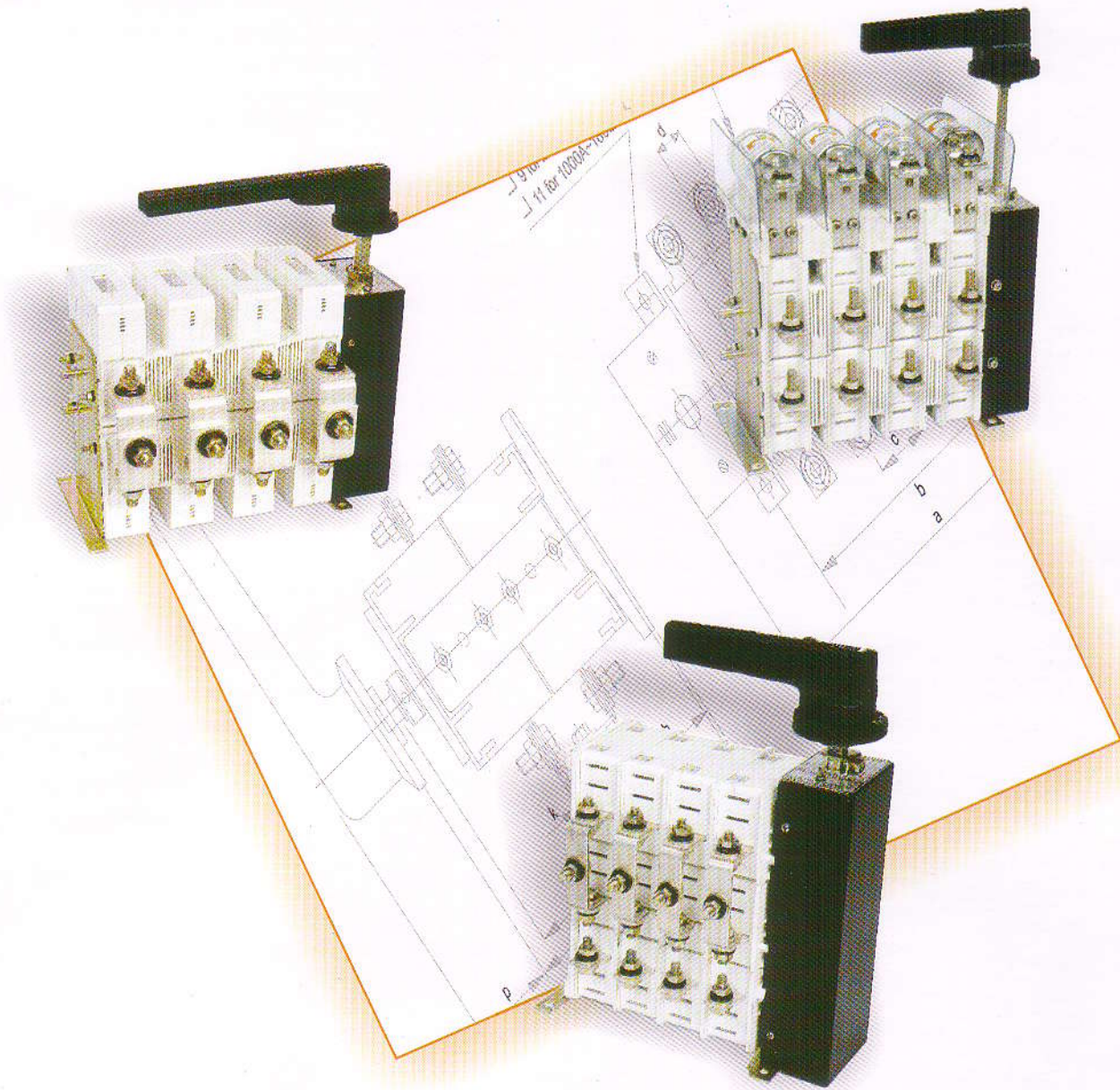


Changeover Switches Bypass Switches



Controls & Switchgear Company Ltd.

On Load Changeover Switches (With & without Fuses)

Salient Features

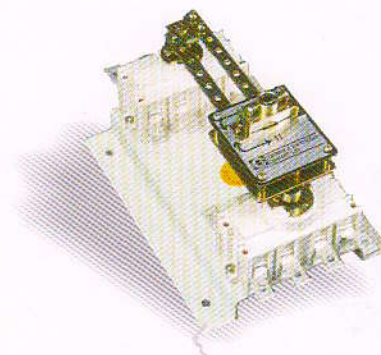
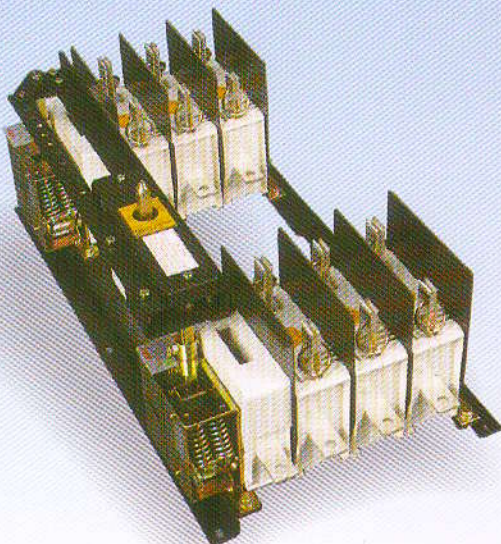
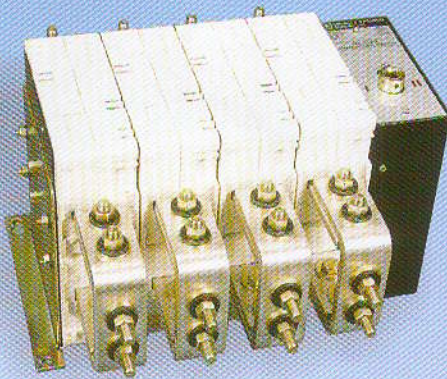
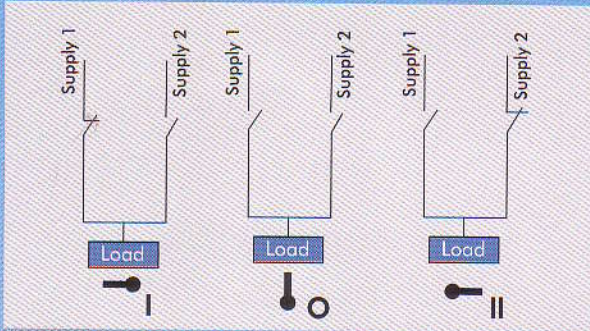
- Modular design in 3 & 4 pole (63A ~3150A), suitable for utilization category AC-23A
- Easy maintenance as, single pole can be replaced easily because of modular construction, in other design entire Switch has to be replaced in case of single pole burnt or damaged
- Available in open execution & in sheet steel enclosure.
- Comply with the latest requirements of IEC-60947-1&3 / 13947-1&3 standards.
- Unique self cleaning contact construction with special knife contacts (200A ~1800A), double break contacts (63 ~160A & 1000~1800A) & single break (200A~800A) with positive opening operation, with quick make - break and effective arc splitting plates guarantee reliability and long electrical life of the Switch.
- Excellent track resistance of isolation material in switch frame prevents flashover between phases in the most difficult circumstances.
- Adjustable telescopic shaft
- Compact construction
- Window for visual contact inspection
- Suitable for capacitor switching and as a main switch
- Handle with in-build padlockable facility in-off position
- Provision for defeating door interlock
- Individual phase barrier installable without tools between two terminals and fully protected frame for safe operation in case of (200A~800A)

Function

- These changeover switches are used to control & disconnect all kind of circuit-disconnection feeders & motor load
- By means of manual operation, changeover performs circuit switching & are mainly used as a switching device of two independent circuit -I & II

Accessories

- Auxillary contact (early break type) 1NO + 1NC or 2NO + 2NC is available
- Key & Castle lock facility



Compact On-Load By Pass Switch

Salient Features

- Range 63A ~ 1800A, 4 Pole suitable for AC23A utilization category
- Comply with the latest requirement of IEC 60947-1&3/IS/13947-1&3
- By-pass Switch is designed to customers specific need in IT industries and sites where UPS and Servo stabilizer provides main source of supply
- All other features are as indicated in On Load Changeover Switches

Operation

CS Compact On-Load By-pass switch is operated manually with single handle comfortably. It provides three stable positions :

Position

- | Position | Operation |
|----------|--|
| ○ | Loads are open circuited |
| I | Loads are connected to the stabilized supply |
| II | Loads are connected to the normal supply |

Auxiliary Contacts

Auxiliary contact (early break type) 1 NO +1NC or 2 NO +2NC is available

Single Line Diagram

When By-pass switch is selected at position 'O' all the contacts of three isolator are open circuited and provide total isolation. At position 'I' both isolator I & III are closed and stabilized supply is connected to the load. At position II only isolator II is closed & isolators I & II are open thus bypassing UPS & connecting normal supply directly to load

Switch Construction

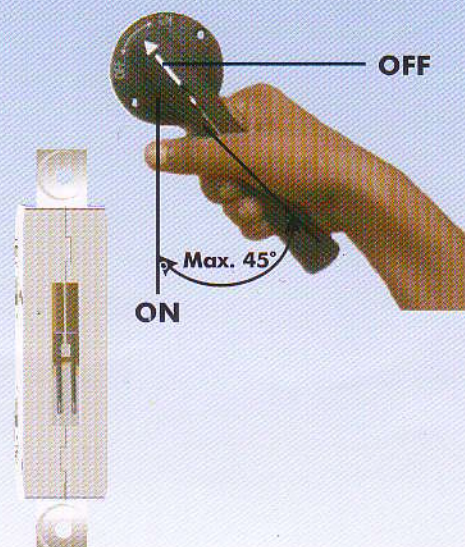
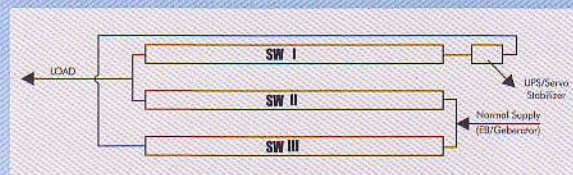
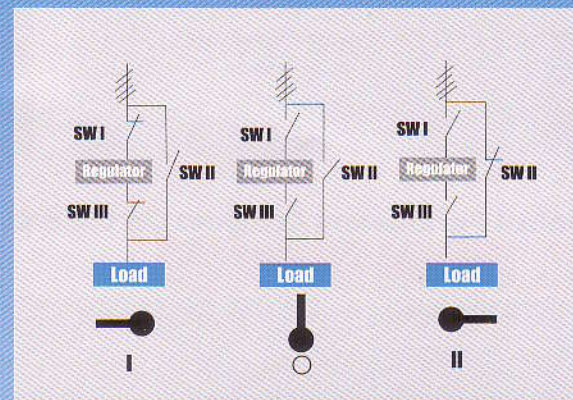
Safety Built-in

C & S design introduced the concept of protection in case of welded contacts by positive break forced opening of contacts. In the event of high current and fuse failing to operate, leading to welding of contacts, the handle will not turn beyond 45° from the ON position, clearly indicating that the contacts are welded.

Convenience of contacts visibility, permits contact position inspection, without removing the switch from installation, thus enhancing reliability and saving time.

Self extinguishing fibre glass re-inforced insulating body of poles has very high tracking index. Large gap between fixed and moving contacts in OFF position, make them suitable for isolation function.

Door interlocking prevents 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. They can also be provided for the ON position. Using a suitable gasket alongwith handle enhances ingress protection level to IP 54.



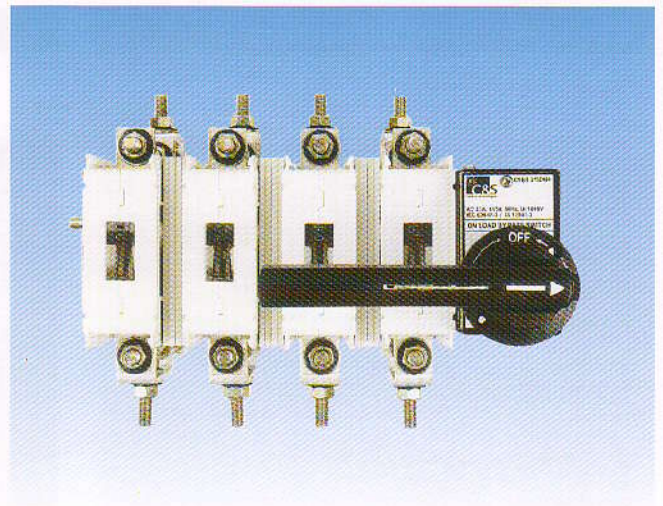
Common Characteristics

Conformity to Standards	-	IEC 60947 Pt.3 & IS 13947 Pt.3
Rated Operational Voltage (Ue)	V	415
Rated Operational Frequency	Hz	50 / 60
Suitability for Isolation (— — —)	-	YES
Pollution Degree as per IEC / IS	-	3
Ambient / Cubicle Service Temp.	°C	45
IP Level after mounting	-	IP 54

Technical Parameters Compact On Load Changeover Switch / Compact On-Load By Pass Switch


Parameters		63A	80A	100A
Conventional Changeover Type CSSD		CSSD 63D4CO	-	-
On-Load Compact Bypass Switch Type CSBS		CSBS 63DM4	CSBS 80DM4	CSBS 100DM4
On-Load Compact Changeover Switch Type CSCS		CSCS 63DM4CO	CSCS 80DM4CO	CSCS 100DM4CO
Current rating at 45° C	Ith (A)	63	80	100
No. of poles		4	4	4
Rated insulation voltage Ui	V	1000	1000	1000
Maximum operational voltage Ue _{max}	V	690	690	690
Di-electric strength at 50Hz for 1 min.	KV	3.5	3.5	3.5
Rated impulse voltage Uimp	KV	12	12	12
Rated operational current Ie at 415 V				
AC 22A	A	63	80	100
AC 23A	A	63	80	100
Rated making capacity at 415V, p.f.0.35	A	630	800	1000
AC 23A				
Rated breaking capacity at 415V, p.f.0.35	A	504	640	800
AC 23A				
Capacitor rating at 415V, 3ph	kVAr	50	50	50
Short circuit current with fuses	kA r.m.s	50	50	50
Rated short circuit making capacity (peak)	kA	10	10	10
Short time current for 1 sec.	kA r.m.s	5	5	5
Electrical durability No. of operating cycle		5000	5000	5000
#Mechanical durability No. of operating cycle		10000	10000	10000

Mechanical Endurance also includes Electrical Endurance



125A	160A	200A	250A	315A	400A
CSSD 125D4CO	-	CSSD 200D4CO	CSSD 250D4CO	-	CSSD 400K4CO
CSBS 125DM4	CSBS 160DM4	CSBS 200DM4	CSBS 250DM4	CSBS 315DM4	CSBS 400K4
CSCS 125DM4CO	CSCS 160DM4CO	CSCS 200DM4CO	CSCS 250DM4CO	CSCS 315DM4CO	CSCS 400K4CO
125	160	200	250	315	400
4	4	4	4	4	4
1000	1000	1000	1000	1000	1000
690	690	690	690	690	690
3.5	3.5	3.5	3.5	3.5	3.5
12	12	12	12	12	12
125	160	200	250	315	500
125	160	200	250	315	400
1250	1600	2000	2500	3150	4000
1000	1280	1600	2000	2520	3200
50	50	90	110	140	250
50	50	100	100	100	100
10	10	30	30	30	40
5	5	8	8	8	20
5000	1000	1000	1000	1000	1000
10000	10000	10000	10000	10000	10000

Common Characteristics

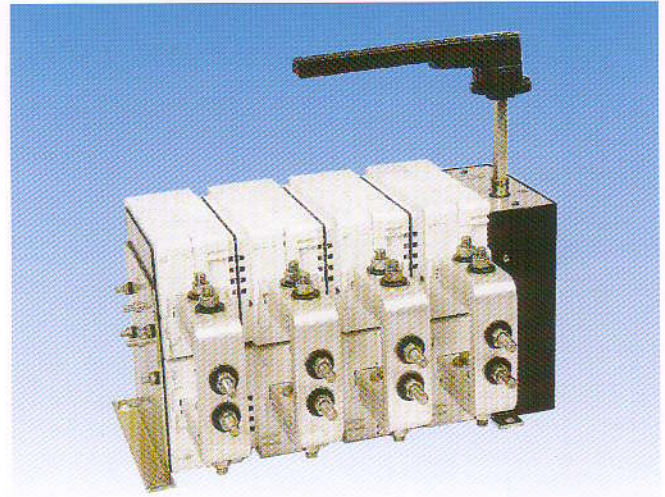
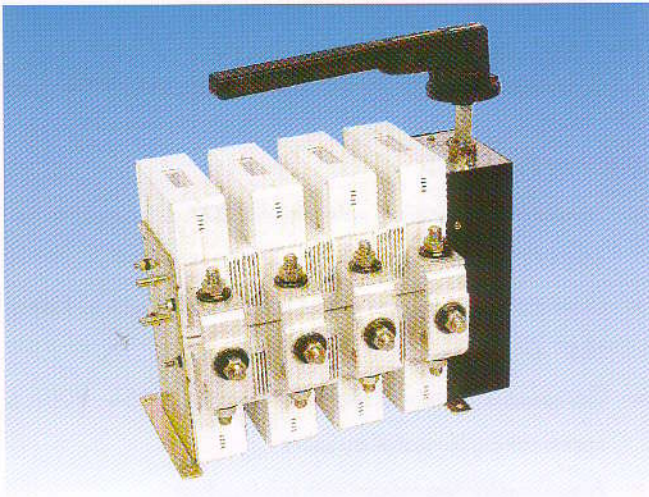
Conformity to Standards	-	IEC 60947 Pt.3 & IS 13947 Pt.3
Rated Operational Voltage (Ue)	V	415
Rated Operational Frequency	Hz	50 / 60
Suitability for Isolation ()	-	YES
Pollution Degree as per IEC / IS	-	3
Ambient / Cubicle Service Temp.	°C	45
IP Level after mounting	-	IP 54

Technical Parameters Compact On Load Changeover Switch / Compact On-Load By Pass Switch

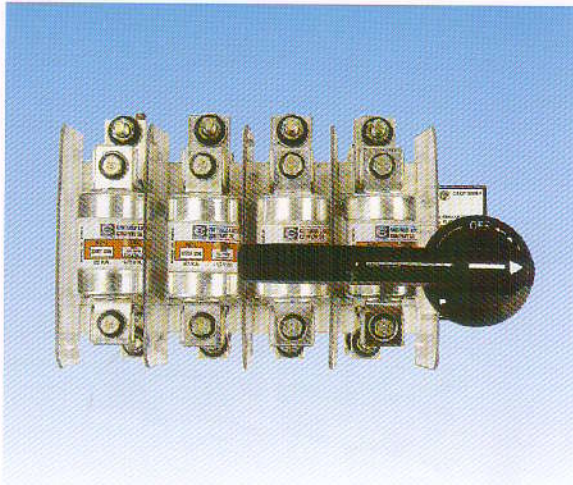
Parameters		630A	800A	1000A
Conventional Changeover Type CSSD		CSSD 630K4CO	CSSD 800K4CO	CSSD 1000K4CO
On-Load Compact Bypass Switch Type CSBS		CSBS 630K4	CSBS 800K4	CSBS 1000K4
On-Load Compact Changeover Switch Type CSCS		CSCS 630K4CO	CSCS 800K4CO	CSCS 1000K4CO
Current rating at 45° C	I _{th} (A)	630	800	1000
No. of poles		4	4	4
Rated insulation voltage U _i	V	1000	1000	1000
Maximum operational voltage U _{e,max}	V	690	690	690
Di-electric strength at 50Hz for 1 min.	KV	3.5	3.5	3.5
Rated impulse voltage U _{imp}	KV	12	12	12
Rated operational current I _e at 415 V				
AC 22A	A	630	800	1000
AC 23A	A	630	720	800
Rated making capacity at 415V, p.f 0.35	A	6300	7200	8000
AC 23A				
Rated breaking capacity at 415V, p.f 0.35	A	5040	5760	6400
AC 23A				
Capacitor rating at 415V, 3ph	kVAr	300	350	630
Short circuit current with fuses	kA r.m.s	80	80	50
Rated short circuit making capacity (peak)	kA	50	50	105
Short time current for 1 sec.	kA r.m.s	24	24	50
Electrical durability No. of operating cycle		500	500	500
# Mechanical durability No. of operating cycle		10000	10000	10000

Mechanical Endurance also includes Electrical Endurance

* On Request



	1250A	1600A	1800A	2500A	3150A
	CSSD 1250K4CO	CSSD 1600K4CO	CSSD 1800K4CO	CSSD 2500K4CO	CSSD 3150K4CO
	CSBS 1250K4	CSBS 1600K4	CSBS 1800K4	-	-
	CSCS 1250K4CO	CSCS 1600K4CO	CSCS 1800K4CO	CSCS 2500K4CO	CSCS 3150K4CO
	1250	1600	1800	2500	3150
	4	4	4	4	4
	1000	1000	1000	1000	1000
	690	690	690	690	690
	3.5	3.5	3.5	3.5	3.5
	12	12	12	12	12
	1250	1600	1800	1800	1800
	800	800	800	*	*
	8000	8000	8000	*	*
	6400	6400	6400	*	*
	630	*	*	*	*
	50	50	50	*	*
	105	105	105	*	*
	50	50	50	*	*
	500	500	500	100	100
	10000	10000	10000	6000	6000



Compact On Load Switch Disconnecter Fuse Changeover

Salient Features

- Suitable for utilization category AC-23A & comply to IEC 60947- 1&3 /IS13947- 1&3
- Protection against over load & short circuit faults by fuse of HRC -80kA rms
- Compact & standardized size for range 125A~800A & space saving for panel builders
- Protection for two modes with backup fuse

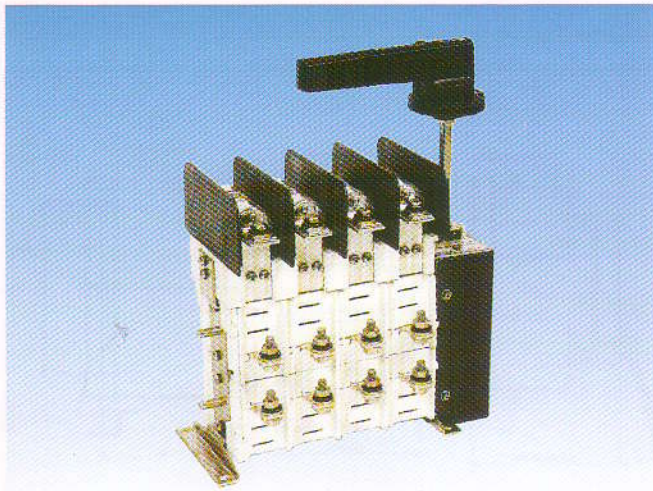
Function

- C&S Compact On Load Changeover is manually operated 4 Pole switch disconnecter fuse with position I-O-II with backup HRC fuses fitted in phases. The switch offers protection in position I as well as in II to load connected to common outgoing

Technical Parameters Compact On-Load Switch Disconnecter Fuse Changeover

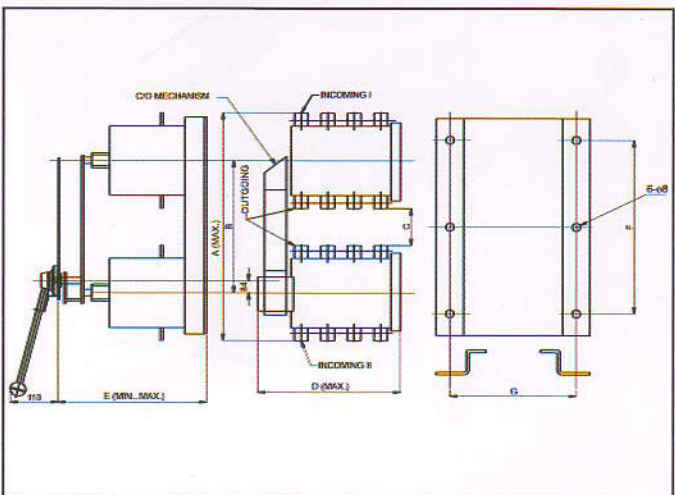
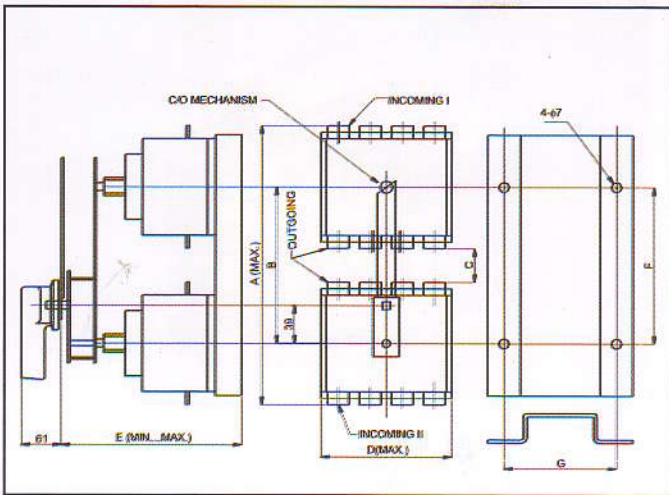
Parameters		125A	160A	200A
On-Load Switch Disconnecter Fuse C/o without fuse		CSCF 125B4CO	CSCF 160B4CO	CSCF 200B4CO
On-Load Switch Disconnecter Fuse C/o with fuse		CSCF 125B4COF	CSCF 160B4COF	CSCF 200B4COF
Number of poles		4	4	4
Current rating at 45° C	lth (A)	125	160	200
Rated insulation voltage Ui	V	1000	1000	1000
Max. Rated Operational Voltage (Ue) max	V	690	690	690
Rated operational voltage Ue	V	415	415	415
DI-electric strength at 50Hz for 1 min.	KV	3.5	3.5	3.5
Rated impulse voltage Uimp	KV	12	12	12
Rated operational current Ie at 415 V				
AC 22A	A	125	160	200
AC 23A	A	125	160	200
Rated making capacity at 415V, p.f 0.35	A	1250	1600	2000
AC 23A				
Rated breaking capacity at 415V, p.f 0.35	A	1000	1280	1600
AC 23A				
Capacitor rating at 415V, 3ph	kVAr	50	50	100
Short circuit current with fuses	kA r.m.s	80	80	80
Rated short circuit making capacity (peak)	kA	10	10	30
Short time current for 1 sec.	kA r.m.s	5	5	8
Electrical durability				
No. of operating cycle		1000	1000	1000
#Mechanical durability				
No. of operating cycle		10000	10000	10000
Fuse Type BS Pattern		B2	B2	B2

Mechanical Endurance also includes Electrical Endurance



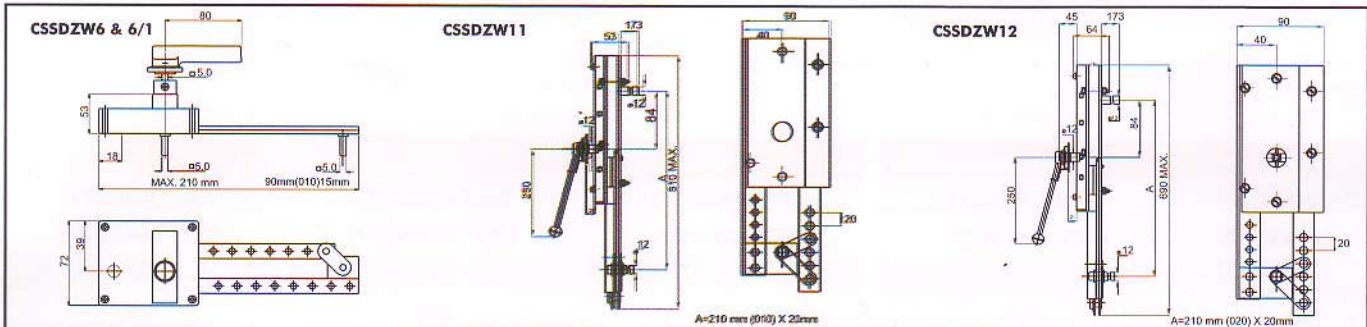
250A	315A	400A	630A	800A
CSCF 250B4CO	CSCF 315B4CO	CSCF 400B4CO	CSCF 630B4CO	CSCF 800B4CO
CSCF 250B4COF	CSCF 315B4COF	CSCF 400B4COF	CSCF 630B4COF	CSCF 800B4COF
4	4	4	4	4
250	315	400	630	800
1000	1000	1000	1000	1000
690	690	690	690	690
415	415	415	415	415
3.5	3.5	3.5	3.5	3.5
12	12	12	12	12
250	315	500	630	800
250	315	400	630	720
2500	3150	4000	6300	7200
2000	2520	3200	5040	5760
115	160	200	270	340
80	80	80	80	80
30	30	40	50	50
8	8	20	24	24
1000	1000	1000	1000	500
10000	10000	10000	10000	10000
B3	B3	B4	C2	C3

Dimensional detail for Conventional Changeover Switch Disconnecter

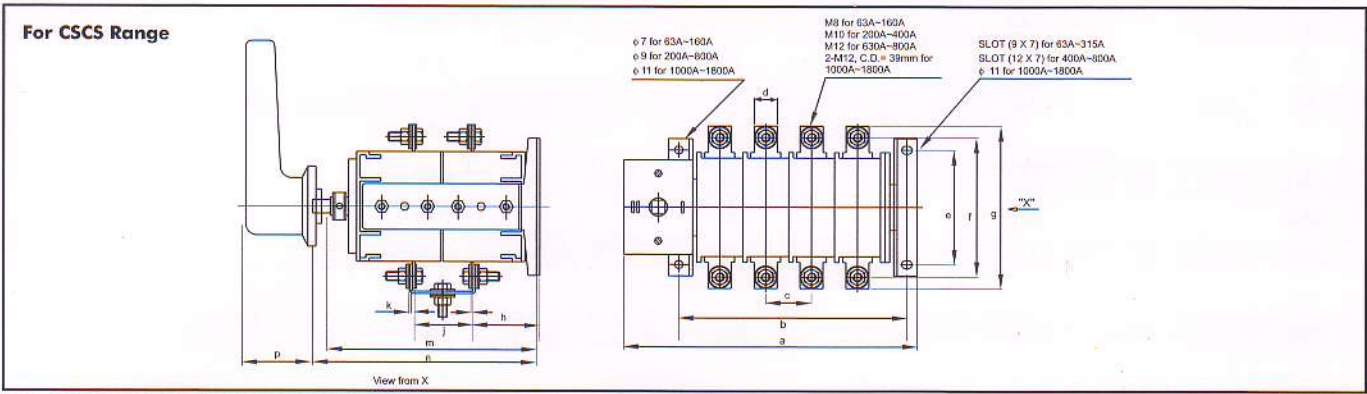


Type of C/o Switches	DIMENSION							Type of C/o Mechanism
	A	B	C	D	E	F	G	
CSSD 25 D4CO	187	120	52	95	180...210	120	86	CSSD ZW 6
CSSD40 D4CO	187	120	52	95	180...210	120	86	CSSD ZW 6
CSSD63 D4CO	277	180	83	145	180...210	180	145	CSSD ZW 6/1
CSSD125 D4CO	277	180	83	145	180...210	180	145	CSSD ZW 6/1

Type of C/o Switches	DIMENSION							Type of C/o Mechanism
	A	B	C	D	E	F	G	
CSSD200...400D4/K4 CO	635	430	225	335	250...325	580	251	CSSD ZW 11
CSSD630K4CO	653	430	207	360	250...325	580	299	CSSD ZW 11
CSSD800K4CO	653	430	207	384	250...325	580	323	CSSD ZW 11
CSSD1000/1250K4CO	984	610	240	457	300...350	800	412	CSSD ZW 12
CSSD1600/1800K4CO	984	610	240	635	300...350	800	590	CSSD ZW 12
CSSD2500/3150K4CO	984	610	240	800	445...495	769	624	CSSD ZW 12



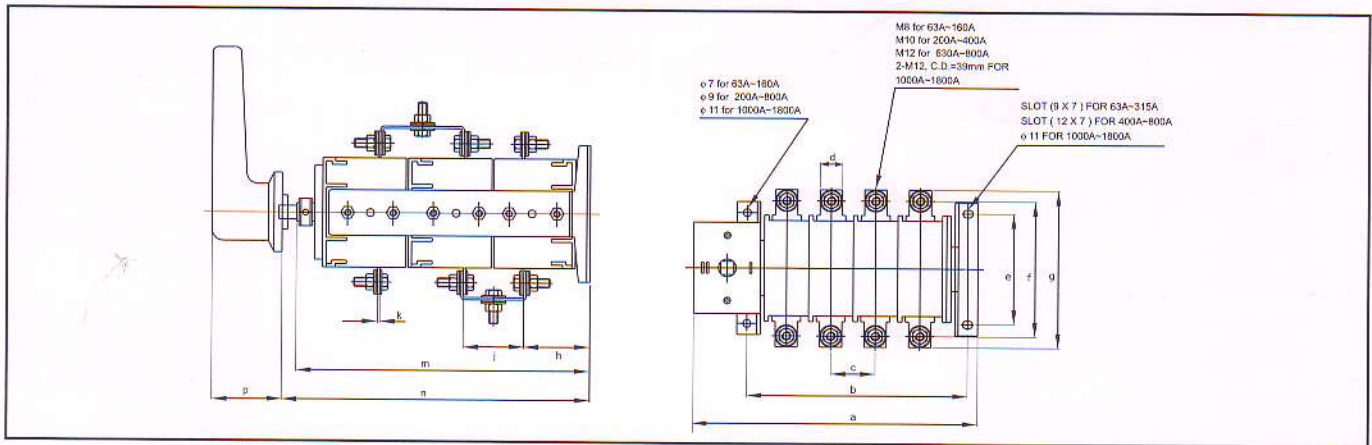
Dimensional detail for Compact On Load Changeover Switches



Rating	a	b	c	d	e	f	g	h	i	k	m	n	p
63A	255.5	198.5	40	20	100	122	142	58	51	2.0	182.5	195~295	61
80A	255.5	198.5	40	20	100	122	142	58	51	2.0	182.5	195~295	61
100A	255.5	198.5	40	20	100	122	142	58	51	2.0	182.5	195~295	61
125A	255.5	198.5	40	20	100	122	142	57	53	3.0	182.5	195~295	61
160A	255.5	198.5	40	20	100	122	142	57	53	3.0	182.5	195~295	61
200A	309.5	252	61	25	124	138	163	65.5	81	4.0	242	255~355	61
250A	309.5	252	61	25	124	138	163	65.5	81	4.0	242	255~355	61
315A	309.5	252	61	25	124	138	163	65.5	81	4.0	242	255~355	61
400A	352	276	70	25	150	180	205	85	96	4.0	262	300~400	61
630A	352	276	70	40	150	185	223	84	98	5.0	262	300~400	61
800A	352	276	70	40	150	185	223	84	98	5.0	262	300~400	61
1000A	436	358	80	50	220	332	372	78	108	12	260	330~450	61
1250A	436	358	80	50	220	332	372	78	108	12	260	330~450	61
1600A	502	424	102	50	220	332	372	74	116	16	260	330~450	61
1800A	502	424	102	50	220	332	372	74	116	16	260	330~450	61
2500A													
3150A													

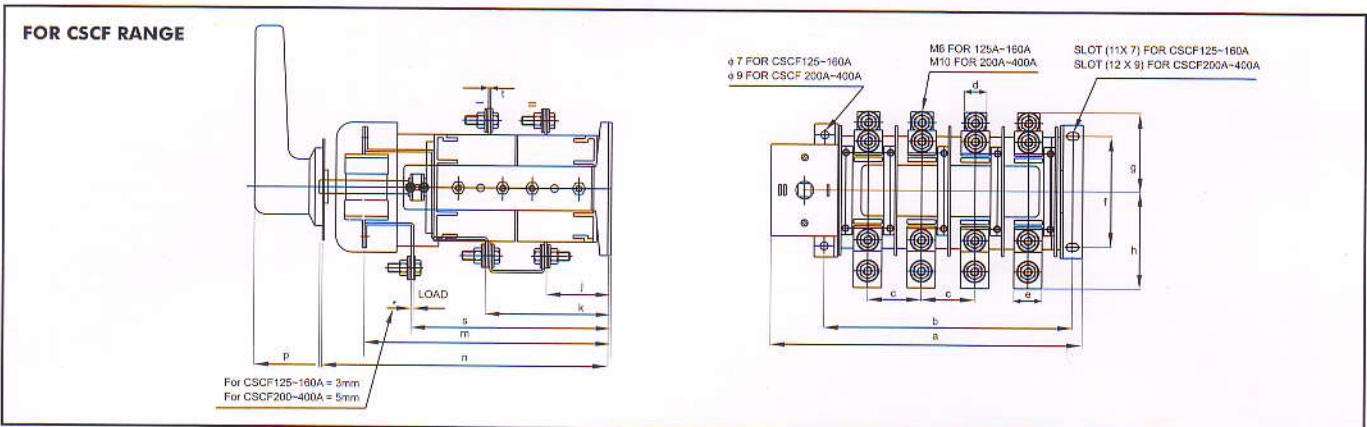
ON REQUEST

Dimensional detail for Bypass Switches



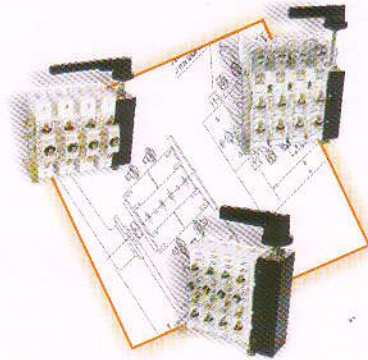
Ratings	a	b	c	d	e	f	g	h	j	k	m	n	p
63A	255.5	198.5	40	20	100	122	142	58	51	2.0	255.5	268~368	61
80A	255.5	198.5	40	20	100	122	142	58	51	2.0	255.5	268~368	61
100A	255.5	198.5	40	20	100	122	142	58	51	2.0	255.5	268~368	61
125A	255.5	198.5	40	20	100	122	142	57	53	3.0	255.5	268~368	61
160A	255.5	198.5	40	20	100	122	142	57	53	3.0	255.5	268~368	61
200A	309.5	252	61	25	124	138	163	65.5	81	4.0	345	358~458	61
250A	309.5	252	61	25	124	138	163	65.5	81	4.0	345	358~458	61
315A	309.5	252	61	25	124	138	163	65.5	81	4.0	345	358~458	61
400A	352	276	70	25	150	180	205	85	96	4.0	392	430~530	61
630A	352	276	70	40	150	185	223	84	98	5.0	392	430~530	61
800A	352	276	70	40	150	185	223	84	98	5.0	392	430~530	61
1000A	436	358	80	50	220	332	372	78	108	12	390	460~580	61
1250A	436	358	80	50	220	332	372	78	108	12	390	460~580	61
1600A	502	424	102	50	220	332	372	74	116	16	390	460~580	61
1800A	502	424	102	50	220	332	372	74	116	16	390	460~580	61

Dimensional detail for Compact Switch Disconnecter Fuse Changeover Switches



Rating	a	b	c	d	e	f	g	h	j	k	m	n	p	s	t
125A	280	223	48	20	25.4	100	71	87.5	57	113	217	290~390	61	170	3.0
160A	280	223	48	20	25.4	100	71	87.5	57	113	217	290~390	61	170	3.0
200A	310	252	61	25	30	124	81.5	99	65.5	151.5	284.5	340~440	61	226.5	4.0
250A	310	252	61	25	30	124	81.5	99	65.5	151.5	284.5	340~440	61	226.5	4.0
315A	310	252	61	25	30	124	81.5	99	65.5	151.5	284.5	340~440	61	226.5	4.0
400A	360	287	70	25	30	150	102.5	114	87	182	338	450~550	61	279	4.0
630A	} ON REQUEST														
800A															

** Dimensions of Changeover Switches with enclosure are available on request
 ## Dimensions of Conventional Switch Disconnecter Fuse Changeover are available on request



Distributor



BRIDEX

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