

Changeover & Bypass Switches

State of the art Manufacturing Facilities



Haridwar, Noida Ph-I
& Noida Ph-II Plant



C&S Electric Ltd.

Corporate Office : 222, Okhla Industrial Estate, New Delhi - 110 020

Tel. : +91-11-3088 7520 - 29, Fax: +91-11-2684 7154, 2682 9063

International Business Division: Tel. : +91-11-4161 3503, 3088 7520-29, Fax: +91-11-2683 8291, 2684 7342
email : exports@cselectric.co.in

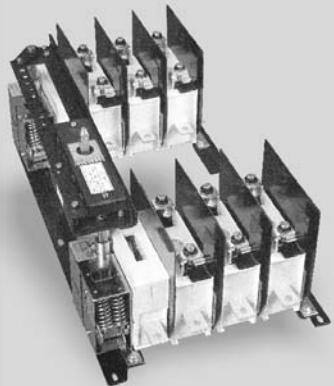
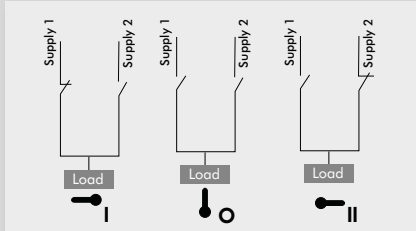
Central Marketing Office: Tel. : +91-11-3088 7520-29, Fax: +91-11-2684 8241, 2684 7342
email : cmo@cselectric.co.in, info@cselectric.co.in



We touch your **electricity** everyday!



Changeover & Bypass Switches



On Load Changeover Switches (with & without Fuses)

Salient Features

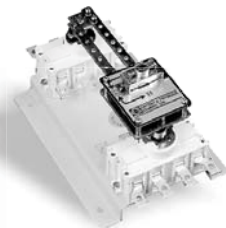
- Modular design in 3 & 4 pole (63A ~3150A), suitable for utilization category AC-23A
- Easy maintenance as each pole can be replaced easily due to modular construction, saving cost of entire Switch in case of single pole being burnt or damaged.
- Available in open execution & in sheet steel enclosure.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

Function

- These changeover switches are used to control & disconnect any kind of circuit-disconnection feeders both resistive & inductive loads
- By means of manual operation, changeover performs circuit switching between two independent circuits - I & II

Accessories

- Auxiliary 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.
- Complies with the latest requirement of IEC 60947-1&3 and IS/13947-1&3
- AC23A utilization ratings available.
- 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 same as of On Load Changeover Switches

Operation

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

Position	Operation
O	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) 1NO + 1NC or 2NO + 2NC

Single Line Diagram

When By-pass switch is selected at position 'O' all the contacts of isolator are open circuited and provide total isolation.

In 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

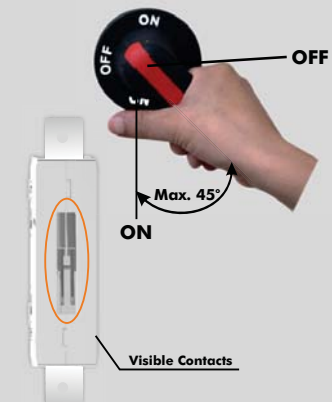
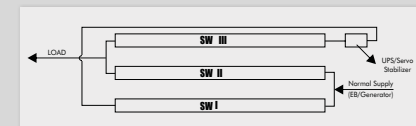
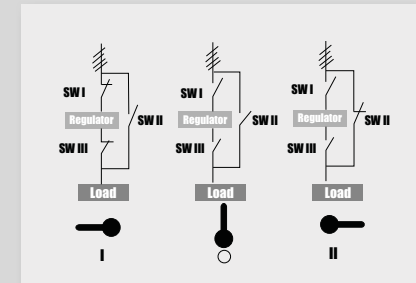
Safety Built-in

C&S pioneered the concept of positive isolation in case of welding of contacts. In the event of extremely high current leading to welding of contacts, the handle will not turn beyond 45° from the ON position, clearly indicates that the supply is ON and contacts get welded.

Convenience of easy contacts visibility, permits contact inspection, without removing the switch from installation, thus saving down 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 any 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 in the ON position. Using a suitable gasket alongwith handle enhances ingress protection level to IP54.



Technical Parameters

Common Characteristics		
Conformity to Standards	-	IEC 60947-3 / IS 13947-3
No. of Poles	-	3P / 4P
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 Temperature	°C	45
IP Level after mounting	-	IP 54



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

Replace ● with 3 in case of 3 pole or with 4 in case of 4 pole

Parameters		63A	80A	100A	125A	160A	200A	250A	315A	400A
Conventional Changeover Type CSSD		CSSD 63D●CO	-	-	CSSD 125D●CO	-	CSSD 200DM●CO	CSSD 250DM●CO	-	CSSD 400K●CO
On-Load Compact Bypass Switch Type CSBS		CSBS 63DM●	CSBS 80DM●	CSBS 100DM●	CSBS 125DM●	CSBS 160DM●	CSBS 200DM●	CSBS 250DM●	CSBS 315DM●	CSBS 400K●
On-Load Compact Changeover Switch Type CSCS with shorting links		CSCS 63DM●CO	CSCS 80DM●CO	CSCS 100DM●CO	CSCS 125DM●CO	CSCS 160DM●CO	CSCS 200DM●CO	CSCS 250DM●CO	CSCS 315DM●CO	CSCS 400K●CO
On-Load Compact Changeover Switch Type CSCS without shorting links		-	-	-	-	-	CSCS200DMK●WSO	CSCS250DMK●WSO	CSCS315DMK●WSO	CSCS400DMK●WSO
Current rating at 45° C	lth (A)	63	80	100	125	160	200	250	315	400
No. of poles		3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4
Rated insulation voltage Ui	V	1000	1000	1000	1000	1000	1000	1000	1000	1000
Maximum operational voltage Ue _{max}	V	690	690	690	690	690	690	690	690	690
Di-electric strength at 50Hz for 1 min.	KV	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Rated impulse voltage U _{imp}	KV	12	12	12	12	12	12	12	12	12
Rated operational current Ie at 415 V										
AC 22A	A	63	80	100	125	160	200	250	315	500
AC 23A	A	63	80	100	125	160	200	250	315	400
Rated making capacity at 415V, 0.35 pf										
AC 23A	A	630	800	1000	1250	1600	2000	2500	3150	4000
Rated breaking capacity at 415V, 0.35 pf										
AC 23A	A	504	640	800	1000	1280	1600	2000	2520	3200
Capacitor rating at 415V, 3ph	kVAR	50	50	50	50	50	90	110	140	250
Short circuit current with fuses	kA r.m.s	50	50	50	50	50	100	100	100	100
Rated short circuit making capacity (peak)	kA	10	10	10	10	10	30	30	30	40
Short time current for 1 sec.	kA r.m.s	5	5	5	5	5	8	8	8	20
Electrical Endurance	Operations	5000	5000	5000	5000	1000	1000	1000	1000	1000
#Mechanical Endurance	Operations	10000	10000	10000	10000	10000	10000	10000	10000	10000

Mechanical Endurance also includes Electrical Endurance

Technical Parameters

Common Characteristics		
Conformity to Standards	-	IEC 60947-3 / IS 13947-3
No. of Poles	-	3P / 4P
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 Temperature	°C	45
IP Level after mounting	-	IP 54



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

Replace ● with 3 in case of 3 pole or with 4 in case of 4 pole

Parameters		630A	800A	1000A	1250A	1600A	1800A	2500A	3150A
Conventional Changeover Type CSSD		CSSD 630K●CO	CSSD 800K●CO	CSSD 1000K●CO	CSSD 1250K●CO	CSSD 1600K●CO	CSSD 1800K●CO	CSSD 2500K●CO	CSSD 3150K●CO
On-Load Compact Bypass Switch Type CSBS		CSBS 630K●	CSBS 800K●	CSBS 1000K●	CSBS 1250K●	CSBS 1600K●	CSBS 1800K●	-	-
On-Load Compact Changeover Switch Type CSCS with shorting links		CSCS 630K●CO	CSCS 800K●CO	CSCS 1000K●CO	CSCS 1250K●CO	CSCS 1600K●CO	CSCS 1800K●CO	CSCS 2500K●CO	CSCS 3150K●CO
On-Load Compact Changeover Switch Type CSCS without shorting links		CSCS 630DMK●WSCO	CSCS 800DMK●WSCO	CSCS 1000DMK●WSCO	CSCS 1250DMK●WSCO	CSCS 1600DMK●WSCO	CSCS 1800DMK●WSCO	CSCS 2500DMK●WSCO	CSCS 3150DMK●WSCO
Current rating at 45° C	lth (A)	630	800	1000	1250	1600	1800	2500	3150
No. of poles		3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4
Rated insulation voltage Ui	V	1000	1000	1000	1000	1000	1000	1000	1000
Maximum operational voltage Ue _{max}	V	690	690	690	690	690	690	690	690
Di-electric strength at 50Hz for 1 min.	KV	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Rated impulse voltage Uimp	KV	12	12	12	12	12	12	12	12
Rated operational current Ie at 415 V									
AC 22A	A	630	800	1000	1250	1600	1800	1800	1800
AC 23A	A	630	720	800	800	800	800	*	*
Rated making capacity at 415V, 0.35 pf									
AC 23A	A	6300	7200	8000	8000	8000	8000	*	*
Rated breaking capacity at 415V, 0.35 pf									
AC 23A	A	5040	5760	6400	6400	6400	6400	*	*
Capacitor rating at 415V, 3ph	kVAR	300	350	630	630	*	*	*	*
Short circuit current with fuses	kA r.m.s	80	80	50	50	50	50	*	*
Rated short circuit making capacity (peak)	kA	50	50	105	105	105	105	*	*
Short time current for 1 sec.	kA r.m.s	24	24	50	50	50	50	*	*
Electrical Endurance	Operations	500	500	500	500	500	500	100	100
# Mechanical Endurance	Operations	10000	10000	10000	10000	10000	10000	6000	6000

Mechanical Endurance also includes Electrical Endurance

* On Request



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 position-II to the load connected thru common outgoing.



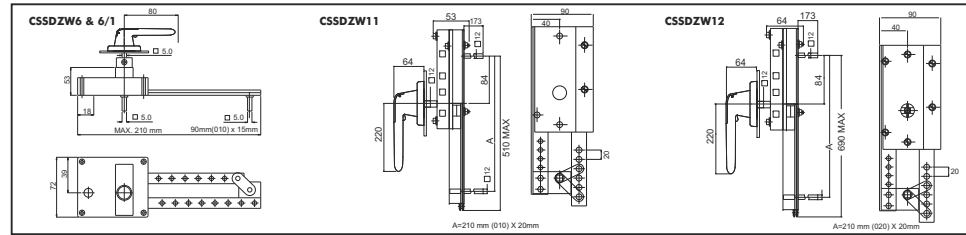
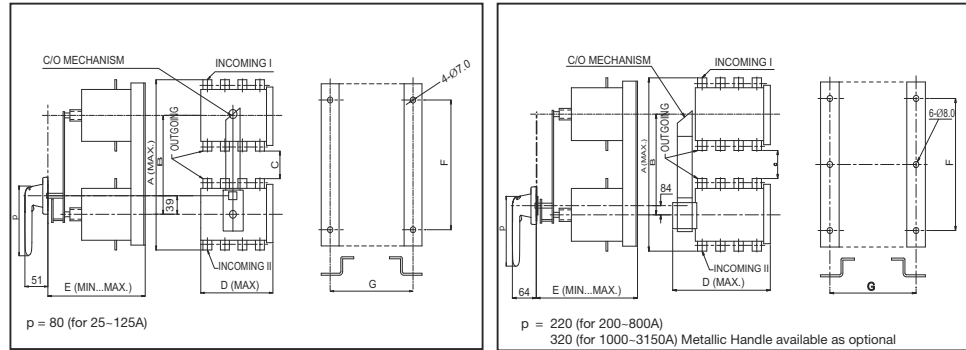
Technical Parameters Compact On-Load Switch Disconnecter Fuse Changeover

Parameters		125A	160A	200A	250A	315A	400A	630A	800A
On-Load Switch Disconnecter Fuse C/o without fuse		CSCF 125B4CO	CSCF 160B4CO	CSCF 200B4CO	CSCF 250B4CO	CSCF 315B4CO	CSCF 400B4CO	CSCF 630B4CO	CSCF 800B4CO
On-Load Switch Disconnecter Fuse C/o with fuse		CSCF 125B4COF	CSCF 160B4COF	CSCF 200B4COF	CSCF 250B4COF	CSCF 315B4COF	CSCF 400B4COF	CSCF 630B4COF	CSCF 800B4COF
Number of poles		4	4	4	4	4	4	4	4
Current rating at 45° C	Ith (A)	125	160	200	250	315	400	630	800
Rated insulation voltage Ui	V	1000	1000	1000	1000	1000	1000	1000	1000
Max. Rated Operational Voltage (Ue) max	V	690	690	690	690	690	690	690	690
Rated operational voltage Ue	V	415	415	415	415	415	415	415	415
Di-electric strength at 50Hz for 1 min.	KV	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Rated impulse voltage Uimp	KV	12	12	12	12	12	12	12	12
Rated operational current Ie at 415 V									
AC 22A	A	125	160	200	250	315	500	630	800
AC 23A	A	125	160	200	250	315	400	630	720
Rated making capacity at 415V, 0.35 pf									
AC 23A	A	1250	1600	2000	2500	3150	4000	6300	7200
Rated breaking capacity at 415V, 0.35 pf									
AC 23A	A	1000	1280	1600	2000	2520	3200	5040	5760
Capacitor rating at 415V, 3ph	kVAr	50	50	100	115	160	200	270	340
Short circuit current with fuses	kA r.m.s	80	80	80	80	80	80	80	80
Rated short circuit making capacity (peak)	kA	10	10	30	30	30	40	50	50
Short time current for 1 sec.	kA r.m.s	5	5	8	8	8	20	24	24
Electrical Endurance	Operations	1000	1000	1000	1000	1000	1000	1000	500
#Mechanical Endurance	Operations	10000	10000	10000	10000	10000	10000	10000	10000
Fuse Type BS Pattern		B2	B2	B2	B3	B3	B4	C2	C3

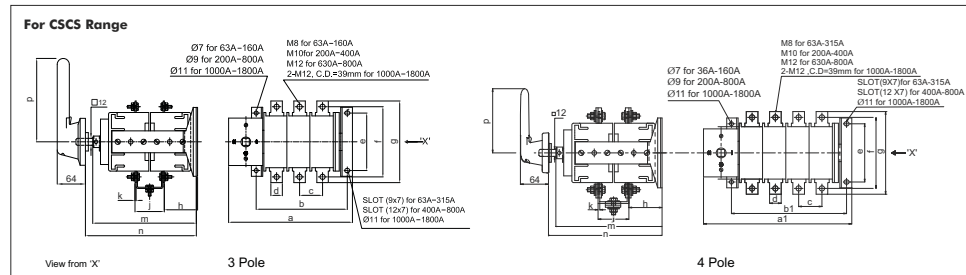
Mechanical Endurance also includes Electrical Endurance

Dimensions

Dimensional detail for Conventional Changeover Switch Disconnecter

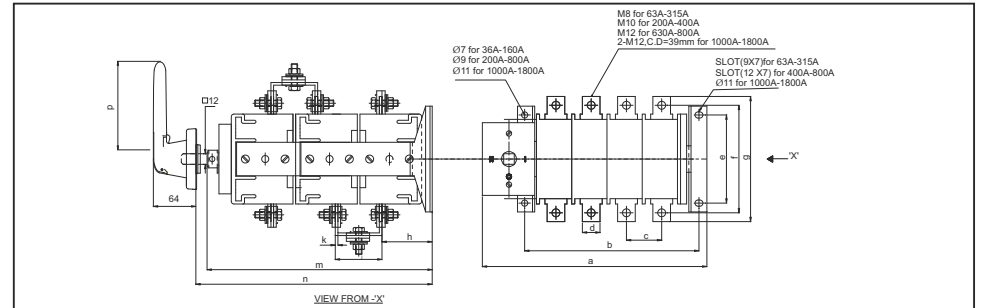


Dimensional detail for Compact On Load Changeover Switches



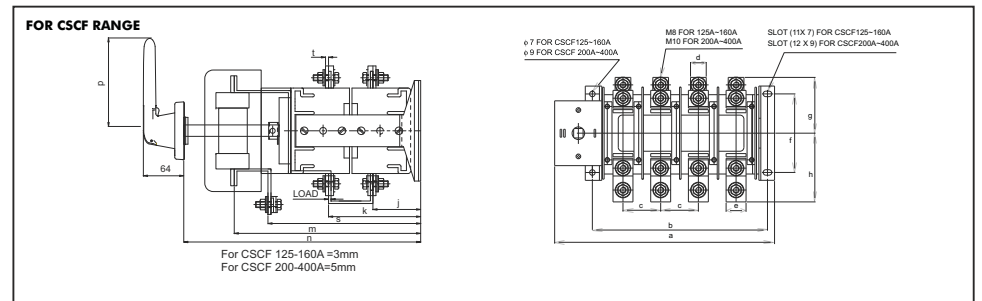
Rating	a	a1	b	b1	c	d	e	f	g	h	j	k	m	n	p
63A	215.5	255.5	158.5	198.5	40	20	100	122	142	58	51	2.0	182.5	195-295	145
80A	215.5	255.5	158.5	198.5	40	20	100	122	142	58	51	2.0	182.5	195-295	145
100A	215.5	255.5	158.5	198.5	40	20	100	122	142	58	51	2.0	182.5	195-295	145
125A	215.5	255.5	158.5	198.5	40	20	100	122	142	57	53	2.0	182.5	195-295	145
160A	215.5	255.5	158.5	198.5	40	20	100	122	142	57	53	2.0	182.5	195-295	145
200A	248.5	309.5	191	252	61	25	124	138	163	65.5	81	4.0	242	255-355	145
250A	248.5	309.5	191	252	61	25	124	138	163	65.5	81	4.0	242	255-355	145
315A	248.5	309.5	191	252	61	25	124	138	163	65.5	81	4.0	242	255-355	145
400A	282	352	206	276	70	25	150	180	205	85	96	4.0	262	300-400	220
630A	282	352	206	276	70	40	150	185	223	84	98	4.0	262	300-400	220
800A	282	352	206	276	70	40	150	185	223	84	98	5.0	262	300-400	220
1000A	356	436	278	358	80	50	220	332	372	78	108	12	260	330-450	220
1250A	356	436	278	358	80	50	220	332	372	78	108	12	260	330-450	220
1600A	400	502	322	424	102	50	220	332	372	74	116	16	260	330-450	220
1800A	400	502	322	424	102	50	220	332	372	74	116	16	260	330-450	220
2500A	436	556	358	478	120	50	220	254	372	74	116	12	522	590-690	320
3150A	436	556	358	478	120	50	220	254	372	74	116	16	522	590-690	320

Dimensional detail for Bypass Switches



Rating	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	145
80A	255.5	198.5	40	20	100	122	142	58	51	2.0	255.5	268-368	145
100A	255.5	198.5	40	20	100	122	142	58	51	2.0	255.5	268-368	145
125A	255.5	198.5	40	20	100	122	142	57	53	2.0	255.5	268-368	145
160A	255.5	198.5	40	20	100	122	142	57	53	2.0	255.5	268-368	145
200A	309.5	252	61	25	124	138	163	65.5	81	4.0	345	358-458	145
250A	309.5	252	61	25	124	138	163	65.5	81	4.0	345	358-458	145
315A	309.5	252	61	25	124	138	163	65.5	81	4.0	345	358-458	145
400A	352	276	70	25	150	180	205	85	96	4.0	392	430-530	220
630A	352	276	70	40	150	185	223	84	98	4.0	392	430-530	220
800A	352	276	70	40	150	185	223	84	98	5.0	392	430-530	220
1000A	436	358	80	50	220	332	372	78	108	12	390	460-580	220
1250A	436	358	80	50	220	332	372	78	108	12	390	460-580	220
1600A	502	424	102	50	220	332	372	74	116	16	390	460-580	220
1800A	502	424	102	50	220	332	372	74	116	16	390	460-580	220

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	290-310	145	170	2.0
160A	280	223	48	20	25.4	100	71	87.5	57	113	217	290-310	145	170	2.0
200A	310	252	61	25	30	124	81.5	99	65.5	151.5	284.5	340-370	145	226.5	4.0
250A	310	252	61	25	30	124	81.5	99	65.5	151.5	284.5	340-370	145	226.5	4.0
315A	310	252	61	25	30	124	81.5	99	65.5	151.5	284.5	340-370	145	226.5	4.0
400A	360	287	70	25	30	150	102.5	114	87	182	338	400-500	220	279	4.0
630A	478	402	100	40	40	150	111.5	117	85	186	350	400-500	220	282	4.0
800A	478	402	100	40	40	150	111.5	117	85	186	350	400-500	220	282	5.0

NOTE:

Dimensions of Changeover Switches with enclosure are available on request

Dimensions of Conventional Switch Disconnecter Fuse Changeover are available on request