

## HIGHLIGHTS

- Conforms to IS/IEC:60947-3
- Available in various frame sizes... rated current from 63A to 3150A
- Quick Make & Quick Break mechanism
- Clear indication of 'ON', 'OFF' and 'ON' Position (I-O-II)
- High Mechanical & Electrical life
- 100% Neutral rating... true 4 pole switch
- Suitable for both aluminum & copper termination
- Total safety
- ROHS Compliant
- Wide range of accessories

## Application

The HPL make Onload Changeover Switch is 4 Pole manually operated, consisting of two sets of terminals for connecting to two incoming supply sources. It ensures safe changeover from one source to another and is suitable for use in individual enclosures, switch boards, lighting and power panels etc. with following features:-

- Suitable for incoming and outgoing feeders
- 3 stable positions (I – O – II)
- Fully visualized breaking
- Bridging bars mounted on all ratings as standard feature
- Compact design
- Quick Make & Break type
- Resistant to Tropical conditions & polluted environment
- High thermal & dynamic withstand capacity
- Available in Open execution, Steel sheet Enclosure & Direct Mounted type
- AC 23 Category
- Bounce free contacts
- Any pole can be used as Neutral pole... true 4 pole switch
- Unique Safety Handle with built in door padlock facility
- High Electrical & Mechanical life.

## Approvals & Test

- CPRI
- ISO 9001



## Advantages

1

### Compactness

It is very compact in size and hence helps in saving space in the enclosures, panels etc. Due to its slim size uses the distribution space very efficiently regardless of fact whether it is in residential or functional buildings.

2

### Simplicity

Its handling is easy and simple. Its simplicity and ease in use allows the user for quick installation.

3

### Safe to use

Its is very safe to use. It protects people, installation and power supply distribution system. The insulation property of the material used is highly reliable and remains intact in even critical conditions.

### Isolation Function:

These Onload changeover switches are **Suitable for Isolation** as per IS/IEC 60947-3. Isolation function highlights the following points:-

- Position of main contact is indicated clearly by a separate mechanical indicator.
- No residual current

### Insulation

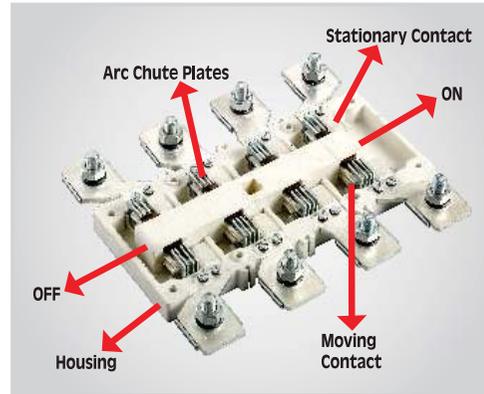
Operating Handle is made of thermoplastic insulating material to make it safe & reliable.

## Details of Utilization category AC23 as per IS/IEC: 60947-3

Nature of Current	Category	Typical applications	Relevant IS & IEC product Standard
a.c.	AC-20	Connecting and disconnecting under no-load conditions.	60947-3
	AC-21	Switching of resistive load, including moderate overloads	
	AC-22	Switching of mixed resistive and inductive loads, Including moderate overloads.	
	<b>AC-23</b>	<b>Switching of motor loads or other highly inductive loads.</b>	
d.c.	AC-20	Connecting and disconnecting under no-load conditions.	60947-3
	AC-21	Switching of resistive load, including moderate overloads	
	AC-22	Switching of mixed resistive and inductive loads, Including moderate overloads. (e.g. Shunt motors).	
	<b>AC-23</b>	<b>Switching of highly inductive loads. (e.g. Series Motors)</b>	

## Working Principle:

Stationary contacts for R, Y, B, N Phase are fixed to the moulded housing. 4 sets of moving contacts housed in a carrier are moved towards right for ON or left for OFF. The moving contacts slide on to the stationary contacts to make the circuit.



## The Technology for Onload Changeover Switch

### 1. Arc Chamber

The Arc Chamber is specially designed and provided with arc chute plates with an arc channel as a flow guide to reduce the arc length, thereby improving the capability of extinguishing the arc. This enhances the life of the moving & stationary contacts thereby increasing the life of the product.

### 2. Body

Body parts are made of superior quality of thermoset plastics to withstand the stringent short circuit conditions where it has to see very high thermodynamic stresses. Its high insulation strength avoids any damage to the product.

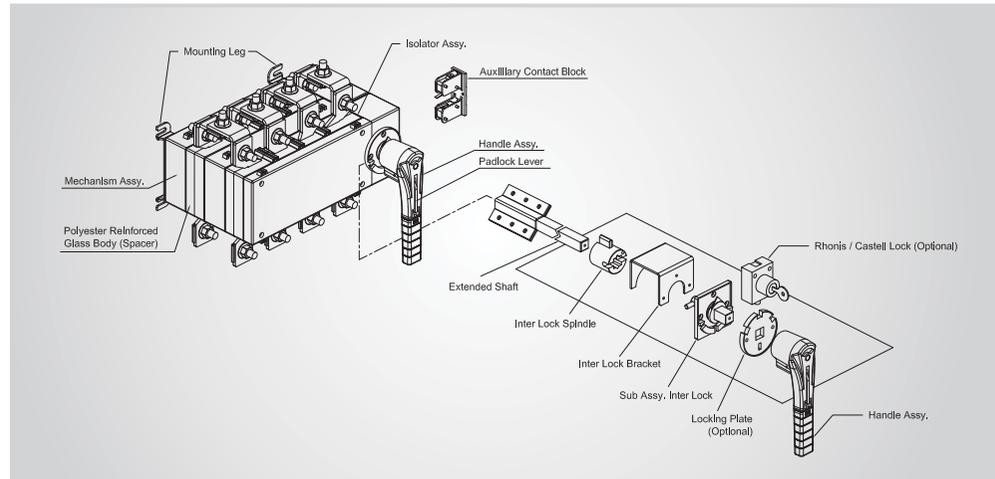
## Overview (Operations)

### Direct

The pad lockable handle is mounted directly on the Onload Changeover switch and is lockable in both OFF & ON positions.

### External

The pad lockable handle is mounted on the panel door and lockable in both OFF & ON positions. The external front operation ensures that the door is locked in ON position.



## Accessories

### Handle

The Changeover switch has a single hand operated handle upto 630A & two hand operated handle for ratings 800 Amps and above. The handle offers the following features:

- Provision for providing 3 padlocks in both OFF & ON Positions.
- Telescopic operating shaft for varied depth adjustment.



Handle for lower ratings



Handle with padlock lever



Double Sided Handle for Higher rating



Double Sided Handle with padlock lever

## Accessories

### Auxiliary Contact Kit

It consists of two auxiliary contacts, each with 1 NO + 1NC. This kit is pre-wired with terminal blocks and can be fitted at the site without increasing overall dimension.

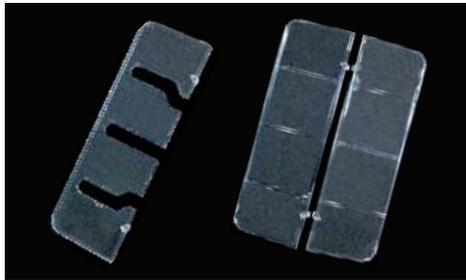


### Source Separator & Terminal Shroud

Made of transparent polycarbonate flame retardant material

**Source Separator** is used to isolate two incoming supplies and to eliminate possibility of flash over between two supplies due to accidental falling of external objects.

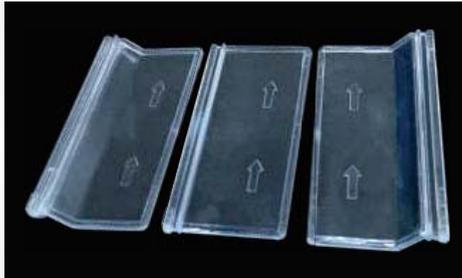
**Shrouds** provide complete touch proof design and prevent accidental touching of live terminals. They are click fit type. Due to hinge type design terminal, shroud can be turned by 90 degree, hence terminals can be inspected without removing these shrouds.



### Inter-Phase Barriers

Made of transparent polycarbonate flame retardant material

**Inter-phase barriers** are provided for additional safety to eliminate possibility of inter-phase short circuit.



### Bridging Bars

Bridging bars are provided between top and bottom terminal on common side.



## Accessories

Accessories to lock the changeover switch in OFF state and using this can have interlocking schemes with MCCB/ACB.

### Castell Lock



### Extended Shaft



### Door Inter Lock Assly.



## Product References & Ordering

Rating (AMPS)	OPEN EXECUTION Item Code	STEEL SHEET ENCLOSURE Item Code
63A	0COS0063AC4POE	0COS0063AC4PSE
80A	0COS0080AC4POE	0COS0080AC4PSE
100A	0COS0100AC4POE	0COS0100AC4PSE
125A	1COS0125AC4POE	1COS0125AC4PSE
160A	1COS0160AC4POE	1COS0160AC4PSE
200A	1COS0200AC4POE	1COS0200AC4PSE
250A	2COS0250AC4POE	2COS0250AC4PSE
320A	2COS0320AC4POE	2COS0320AC4PSE
400A	3COS0400AC4POE	3COS0400AC4PSE
630A	3COS0630AC4POE	3COS0630AC4PSE
800A	4COS0800AC4POE	4COS0800AC4PSE
1000A	5COS1000AC4POE	5COS1000AC4PSE
1250A	5COS1250AC4POE	5COS1250AC4PSE
1600A	5COS1600AC4POE	5COS1600AC4PSE
2000A	5COS2000AC4POE	5COS2000AC4PSE
2500A	5COS2500AC4POE	5COS2500AC4PSE
3150A	5COS3150AC4POE	5COS3150AC4PSE

## Specification Electrical & Mechanical Characteristic

Specification	Current Rating							
	Frame Sizes	Frame-0			Frame-1			Frame-2
Thermal Current (Ith) 40°C	63A	80A	100A	125A	160A	200A	250A	320A
Max. Normal rating of fuses	63	80	100	125	160	200	250	315
Insulation volatage Ui (Vac)	750	750	750	1000	1000	1000	1000	1000
Dielectric strength (Vac) 50 Hz 1 minute	4000	4000	4000	5000	5000	5000	5000	5000
Impulse volatage ( kV)	6	6	6	6	6	6	8	8

Rated Operational Currentle (A)								
415 Vac: AC 23A	63	80	100	125	160	200	250	320
500 Vac: AC 23A	55	55	55	100	130	160	200	250
260V dc: DC 21A	63	80	100	125	160	200	250	320
DC 22A	63	80	100	125	160	200	250	320
DC 23A	63	63	63	125	160	160	200	250
440V dc: DC 21A	63	80	100	125	160	200	250	320
DC 22A	63	80	100	125	130	160	200	250
DC 23A	63	63	63	125	130	160	200	250

Motor Power (KW) 415V								
415 Vac without pre break Aux. Contact	30	30	30	63	70	80	132	160
500 Vac without pre break Aux. Contact	30	30	30	63	60	63	140	220
690 Vac without pre break Aux. Contact	22	22	22	55	50	55	90	150
415 Vac with pre break Aux. Contact	30	30	30	63	70	80	132	160
500 Vac with pre break Aux. Contact	30	30	30	80	70	80	160	220
690 Vac with pre break Aux. Contact	35	35	35	110	100	110	110	220
Motor Reactive 415 Vac (kVAR)	25	25	25	55	50	60	100	125

Overload Capacity								
Short circuit current with fuses (kA RMS)	80	80	80	80	80	80	80	80
Fuse Rating	63	80	100	125	160	200	250	315
Peak short circuit making capacity (kA RMS)	15	15	15	20	20	20	30	45
Admissible short time current 1 sec (kA RMS)	5	5	5	7	7	7	13	13

Making & Breaking Characteristics								
Breaking capacity (A RMS) 415 Vac pf=0.35	504	504	504	1000	1280	1600	2000	2520
Making capacity (A RMS) 415 Vac pf=0.35	630	630	630	1250	1600	2000	2500	3150

Endurance								
Mechanical Life (No. of Operations)	10000	10000	10000	8000	8000	8000	8000	5000
Electrical Life (No. of Operations)	2500	1500	1500	1000	1000	1000	1000	1000
Operating Force ( N-m)	3.5	3.5	3.5	9.5	9.5	9.5	11	11

Connection								
Min. Cu. Cable / Bus bar size (mm <sup>2</sup> )	16	25	25	50	70	95	120	185
Min. Al. Cable / Bus bar size (mm <sup>2</sup> )	25	25X2	25X2	70	95	150	185	240

## Specification Electrical & Mechanical Characteristic

Specification	Current Rating								
	Frame Sizes	Frame-3			Frame-4	Frame-5			
Thermal Current (Ith) 40°C	400A	630A	800A	1000A	1250A	1600A	2000A	2500A	3150A
Max. Normal rating of fuses	400	630	800	1000	1250	2 x 800	2 x 1000	2 x 1250	2 x 1250
Insulation volatage Ui (Vac)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Dielectric strength (Vac) 50 Hz 1 minute	8000	8000	8000	8000	10000	10000	10000	10000	10000
Impulse volatage ( kV)	12	12	12	12	12	12	12	12	12

Rated Operational Currentle (A)									
415 Vac: AC 23A	400	630	800	1000	1000	1000	1250	1250	1250
500 Vac: AC 23A	315	315	630	1000	1000	1000	1000	1000	1000
260V dc: DC 21A	400	630	800	1000	1250	1600	2000	2000	2000
DC 22A	400	500	800	1000	1250	1250	1250	1250	1250
DC 23A	400	500	800	1000	1250	1250	1250	1250	1250
440V dc: DC 21A	400	500	630	1000	1250	1600	2000	2000	2000
DC 22A	400	500	800	1000	1250	1250	1250	1250	1250
DC 23A	400	500	800	1000	1000	1000	1000	1000	1000

Motor Power (KW) 415V									
415 Vac without pre break Aux. Contact	200	220	450	560	560	560	710	710	710
500 Vac without pre break Aux. Contact	220	220	450	560	560	710	710	710	710
690 Vac without pre break Aux. Contact	150	150	185	400	400	475	475	750	750
415 Vac with pre break Aux. Contact	220	355	450	560	710	710	900	1100	1155
500 Vac with pre break Aux. Contact	280	355	550	710	710	900	900	1100	1100
690 Vac with pre break Aux. Contact	220	295	475	600	600	750	750	900	900
Motor Reactive 415 Vac (kVAR)	150	2 x 125	2 x 150	3 x 150	4 x 125	5x 150	6 x 150	7 x 150	9 x 150

Overload Capacity									
Short circuit current with fuses (kA RMS)	80	80	80	80	80	80	80	80	80
Fuse Rating	400	630	800	1000	1250	2 x 800	2 x 1000	2 x 1250	2 x 1250
Peak short circuit making capacity (kA RMS)	45	45	55	105	105	110	110	110	120
Admissible short time current 1 sec (kA RMS)	13	13	26	50	50	50	50	50	55

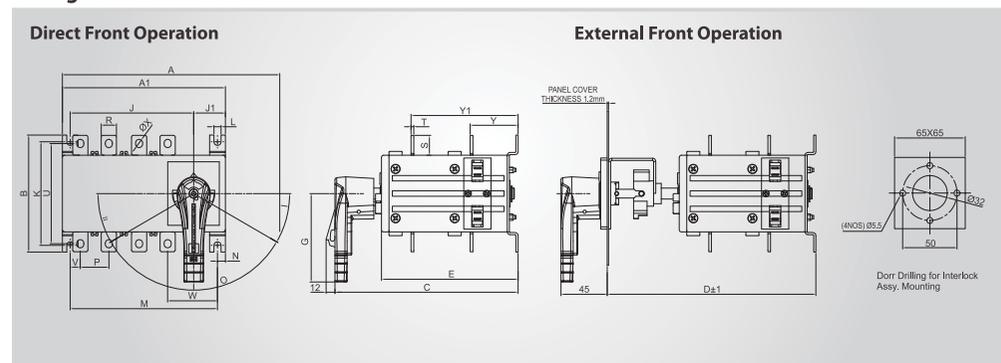
Making & Breaking Characteristics									
Breaking capacity (A RMS) 415 Vac pf=0.35	3200	5040	6400	8000	8000	8000	10000	10000	10000
Making capacity (A RMS) 415 Vac pf=0.35	4000	6300	8000	10000	10000	10000	12500	12500	12500

Endurance									
Mechanical Life (No. of Operations)	5000	5000	4000	4000	4000	3000	3000	2500	2500
Electrical Life (No. of Operations)	1000	1000	500	500	500	500	500	500	500
Operating Force ( N-m)	17	17	40	40	40	40	60	60	60

Connection									
Min. Cu. Cable / Bus bar size (mm <sup>2</sup> )	30x5x2	40x5x2	50x5x2	60x5x2	80x5x2	100x5x2	100x5x3	100x5x4	100x10x3
Min. Al. Cable / Bus bar size (mm <sup>2</sup> )	32x8x2	40x8x2	50x8x2	50x10x2	63x12x2	100x8x2	100x10x3	100x10x4	----

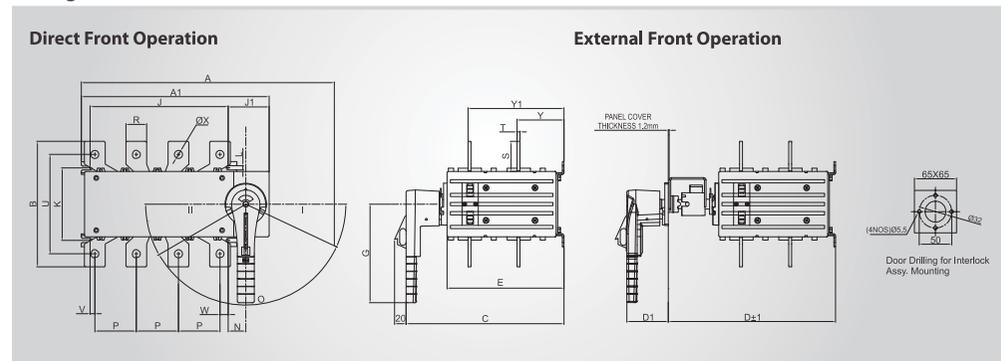
## Dimensional Details :

### Changeover 63A To 100A



Over All Dimension		Fixing of SW.					Connection Terminal										SW. W.T.								
Rating	A	A1	B	C	D	E	G	J	J1	K	L	M	N	P	R	S	T	U	V	W	ØX	Y	Y1	Open Ex.	
Frame-0	4x63A	190	150	106	183	192	126	80	114	30	95	6.5	135	7.25	27	14	18	2.5	91	9.25	46	6.5	44	99	2 Kg.
	4x80A	190	150	106	183	192	126	80	114	30	95	6.5	135	7.25	27	14	18	2.5	91	9.25	46	6.5	44	99	2 Kg.
	4x100A	190	150	106	183	192	126	80	114	30	95	6.5	135	7.25	27	14	18	2.5	91	9.25	46	6.5	44	99	2 Kg.

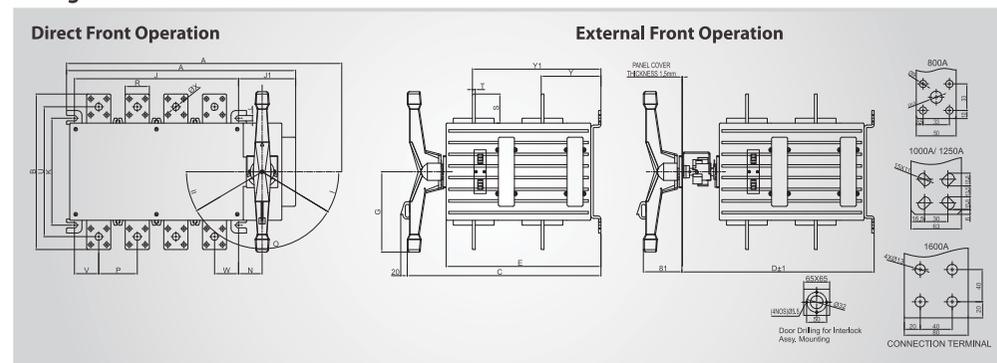
### Changeover 125A To 630A



Over All Dimension		Fixing of SW.					Connection Terminal										SW. W.T.								
Rating	A	A1	B	C	D	D1	E	G	J	J1	K	L	N	P	R	S	T	U	V	W	ØX	Y	Y1	Open Ex.	
Frame-1	4x125A	305	228	141	227	240	65	160	116	162	57	95	6.5	26	44	22	28	3	118	15	15	8.5	64	130	4.0 Kg
	4x160A	305	228	155	227	240	65	160	116	162	57	95	6.5	26	47	25	35	4	123	10.5	10.5	10	64	130	5.0 Kg
	4x200A	305	228	155	227	240	65	160	116	162	57	95	6.5	26	47	25	35	4	123	10.5	10.5	10	64	130	5.0 Kg
Frame-2	4x250A	390	290	192	244	258	65	180	150	217	61	111	6.5	27	64	32	46	4.5	152	9.5	15	12.5	72	148	7.3 Kg
	4x320A	390	290	192	244	258	65	180	150	217	61	111	6.5	27	64	32	46	4.5	152	9.5	15	12.5	72	148	7.3 Kg
Frame-3	4x400A	472	372	240	314	320	65	250	150	280	80	180	9	40	72	40	40	5	206	30	30	11	95	203	14.0 Kg
	4x630A	472	372	270	314	320	65	250	150	280	80	180	9	40	80	55	55	5	230	20	20	14.5	95	203	17 Kg

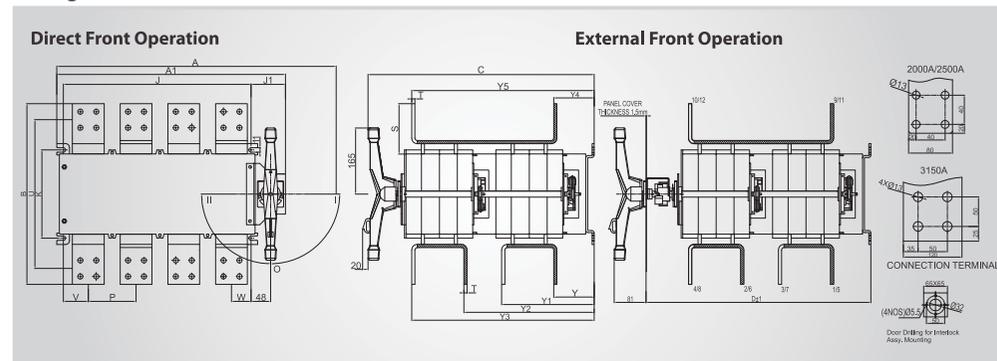
## Dimensional Details :

### Changeover 800A To 1600A



Over All Dimension		Fixing of SW.					Connection Terminal										SW. W.T.								
Rating	A	A1	B	C	D	D1	E	G	J	J1	K	L	N	P	R	S	T	U	V	W	ØX	Y	Y1	Open Ex.	
Frame-4	4x800A	572	475	320	402	398	81	321	165	340	116	220	11	49	80	50	60	6	267	50	50	15	124	266	27.2 Kg
	4x1000A	624	527	330	402	398	81	321	165	474	116	220	11	49	120	63	65	6	273	63	50	15	124	266	35.3 Kg
	4x1250A	624	527	330	402	398	81	321	165	474	116	220	11	49	120	63	65	7	273	63	50	15	125	267	37.0 Kg
Frame-5	4x1600A	624	527	362	402	398	81	321	165	474	116	220	11	49	120	80	80	15	281	63	50	15	129	271	61.0 Kg

### Changeover 2000A To 3150A



Over All Dimension		Fixing of SW.					Connection Terminal										SW. W.T.			
Rating	A	A1	B	C	D	J	J1	K	P	S	T	U	V	W	Y/Y4	Y1	Y2	Y3/Y5	Open Ex.	
Frame-5	4x2000A	703	575	450	570	566	474	85	220	120	125	8	371	64	50	102	233	328	459	72 Kg.
	4x2500A	703	575	450	570	566	474	85	220	120	125	10	371	64	50	100	237	326	463	77.4 Kg.
	4x3150A	703	575	450	570	566	474	85	220	120	150	15	401	64	50	94	248	320	474	110 Kg.

## OnLoad C/O Enclosed



### Function

- On Load manual changeover between 2 sources.
- Emergency Breaking
- Selection between two loads
- Safe isolation of downstream loads for maintenance purpose

### General Characteristics

- Black Handle Padlockable in I - O - II position
- CRCA (Door 1.2 mm, Body 1.6 mm) Sheet Box
- RAL 7035
- 2 External earthing points on each side
- Wall mounted with 4 bolts
- Door locking system allows opening of door only in OFF position
- Incoming & outgoing easily interchangeable at site
- Coating of epoxy polyester powder 70 micron
- Removable plate top & bottom
- Door with solid hinges

## References and Dimensions

Rating	Code	L	W	H	X	Y
63A	0COS0063AC4PSE	250	202	210	280	160
80A	0COS0080AC4PSE					
100A	0COS0100AC4PSE					
125A	1COS0125AC4PSE	355	287	252	385	245
160A	1COS0160AC4PSE					
200A	1COS0200AC4PSE					
250A	2COS0250AC4PSE	425	377	270	455	335
320A	2COS0320AC4PSE					
400A	3COS0400AC4PSE	510	477	340	560	435
630A	3COS0630AC4PSE					
800A	4COS0800AC4PSE	555	472	418	605	430
1000A	5COS1000AC4PSE	-	-	-	-	-
1250A	5COS1250AC4PSE					
1600A	5COS1600AC4PSE					
2000A	5COS2000AC4PSE	-	-	-	-	-
2500A	5COS2500AC4PSE					
3150A	5COS3150AC4PSE					

