

### About us



Switchgear Factory, Navi Mumbai



Switchgear Factory, Ahmednagar



Switchgear Factory, Vadodara

L&T Electrical & Automation (E&A) is a market leader for electrical distribution, monitoring and control solutions in the low voltage category.

Popular among customers as L&T Switchgear, E&A offers a wide range of low and medium voltage switchgear, motor starters, electrical systems, industrial automation, building electrical solutions, energy management solutions, electrical modernization solutions and metering solutions. It products and solutions cater to key sectors of economy like industries, utilities, infrastructure, building and agriculture.

E&A's manufacturing operations at Navi Mumbai, Ahmednagar, Vadodara, Coimbatore and Mysuru in India adhere to global practices of excellence and receive support from well-equipped in-house design and development centres as well as tooling facilities that contribute to precision in manufacturing.

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# **Superior Features**



FNX incorporates state-of-the-art technology and a range with superior design features to deliver key operational advantages.

### 1 Versatile handle (patented)

The handle coupling has the following user-friendly features:

- Door interlock (defeatable)
- Padlock with / without door interlock
- Choice of operating quadrant
- Flexibility (± 3 mm mismatch operational quadrant)

### (2) Positive ON / OFF indication

Clear ON-OFF indication is provided on the switch by a red pointer.

### (3) Mechanism

The mechanism is front-operated and a quick-make / quick-break one. The contact closing is spring-assisted and is independent of manual speed of operation.

### 4 Flexibility in mounting

The Switch-Disconnector-Fuse unit can be mounted at any angle in a vertical plane.

### 5 Generous terminal capacity

Terminals are suitable for AI / Cu links / cable lug connections.

### 6 Stationary fuse holders

Fuses remain stationary during switching operation.

### 7 Telescopic shaft

Handle depth can be varied and fixed as per requirement during installation. This is possible because the telescopic shaft can be adjusted for stepless variable depth.

### 8 Large ground clearance

### (9) Terminal shrouds & External terminal shrouds

#### DIN rail mounting

Ratings upto  $125\,\mathrm{A}\,\mathrm{can}$  be mounted on  $35\,\mathrm{mm}$  DIN rail for which the DIN rail mounting is available as an accessory

### • Easy inspection and replacement of contacts

Contacts can be easily inspected and replaced (if required) during maintenance. This way the electrical life can be equal to its mechanical life

### Compact size

Being extremely compact, it results in saving of valuable panel space.

### Easy to operate

Low operating torque makes it very convenient to operate

# **FNX SDF Range**

# FNX SDF units are available in a wide range:



Frames	Ratings		
1	32 A, 63 A		
2	100 A,125 A		
3	125 A, 160 A		
4	200 A, 250 A		
5	315 A, 400 A		
6	630 A, 800 A		

Versions
3 Pole
3 Pole + Neutral
4 Pole

### **Advantages**

The FNX SDF range provides users with a high level of safety. The complete range conforms to IS13947 (Part 3) / IEC60947-3 standards. It also carries the € marking signifying compliance to stringent European safety norms.

FNX SDF's superior features translate into better safety for the users.

Fuse shrouds / Terminal shrouds provide protection against accidental direct contact. Terminal shrouds also protect against phase to phase short circuit through an external conducting path.

**Extended terminal shrouds** cover the terminations, including the cable lug and connectors.

**Double isolation** of fuses when FNX is in OFF position makes replacement of fuses risk-free.

**Positive ON / OFF indication** ensures that the handle indicates OFF position only when main contacts are actually open.

**IP20 protection** is provided by using fuse shrouds as standard.

Fuse indicators / fuse monitors provide safe and reliable indications.

**Large ground clearance** eliminates possibility of phase to ground flash over.

**Built-in padlocking arrangement** provided to lock the unit in OFF position prevents inadvertent operation of the unit.

**Fuse barriers** are provided on the Switch-Disconnector-Fuse units as an additional safety feature to eliminate the possibility of inter-phase short circuit.

Fuse puller facilitates safe removal of fuses.

# **Technical Data**

Frame Size		Unit	I	I	II	II	
Type Designation			FNX 32	FNX 63	FNX 100	FNX 125C	
Conformance to Sta	andard		IEC 60947-3, IS/IEC 60947-3				
No. of Poles				3 Pole + Isolable	Neutral, 4 Pole		
Thermal Current (I <sub>th</sub> )	at 40°C	Α	32	63	100	125	
Conventional Enclo	sed Thermal Current (I <sub>the</sub> )	Α	32	63	100	125	
Ref. Ambient Tempe	erature	°C	40	40	40	40	
Rated Insulation Vo	Itage (U <sub>i</sub> )	V	1000	1000	1000	1000	
Rated Operational	/oltage (U <sub>e</sub> )	V	415	415	415	415	
Rated Impulse with	stand Voltage (U <sub>imp</sub> )	kV	8	8	8	8	
Dielectric Strength		kV	6	6	6	6	
Rated Operational (	Current (le) at 415 V						
AC-21 A Utilization	Category	Α	32	63	100	125	
AC-22 A Utilization	Category	А	32	63	100	125	
AC-23 A Utilization	Category	А	32	63	100	125	
Rated Operational 0	Current (le) at 690 V (AC-23 A)	А	32	32	80	-	
Breaking Capacity -	436 V, AC-23 A	A (rms)	256	504	800	1000	
Making Capacity - 4	36 V, AC-23 A	A (rms)	320	630	1000	1250	
Mechanical Endura	nce (Number of operating cycles)		20,000	20,000	15,000	15,000	
Maximum Torque (On terminal bolt) N		Nm	4.5	4.5	4.5	4.5	
Pollution Degree			III	III	III	III	
Tamaria al Oscas atita	Main	Sq. mm	35	35	50	-	
Terminal Capacity	Neutral	Sq. mm	35	35	50	-	
Terminal Width			16	16	20	20.5	
Terminal Thickness			1.6	1.6	3	3	
Terminal Screw		mm	M6 x 12	M6 x 12	M8 x 20	M8 x 20	
Weight 3-Pole / 4-P	ole	kg	0.9	0.9	1.7	2.2	
Rated Capacitor Po	wer (415 V, 50/60 Hz)	kVAr	14	29	45	-	
DC Rating at 220 V	' DC						
No. of Poles in Seri	es, Utilization Category at Rated C	urrent	3, DC-23 A	3, DC-23 A	3, DC-23 A	3, DC-23 A	
Suitable E&A Fuse							
DIN	Rated Fused Short circuit Current	kA	80*	80*	100	100	
DIN	Rating	A/Type/Size	32/HF/14 x 51	63/HF/14 x 51	100/HN/000	125/HN/000	
Short circuit making Capacity (Icm) A		А	320	630	1000	1250	
Operating Torque Kg-m		Kg-m	0.4	0.4	0.4	0.4	
Auxiliary Contacts no. of NO + NC (Accessories)			2	2	2	2	
	W	mm	113	113	112	148	
Overall Dimensions	Н	mm	108	108	144.5	217	
	D	mm	150 + 10	150 + 10	180 + 10	145	

<sup>\*</sup> Cylindrical Fuse link

# **Technical Data**

Frame Size		Unit	III	III	IV	IV
Type Designation		FNX 125	FNX 160	FNX 200	FNX 250	
Conformance to Sta	andard	IEC 60947-3, IS/IEC 60947-3				
No. of Poles				3 Pole + Isolable	Neutral, 4 Pole	
Thermal Current (I <sub>th</sub>	at 40°C	Α	125	160	200	250
Conventional Enclo	sed Thermal Current (I <sub>the</sub> )	A	125	160	200	250
Ref. Ambient Tempe	erature	°C	40	40	40	40
Rated Insulation Vo	Itage (U <sub>i</sub> )	V	1000	1000	1000	1000
Rated Operational	/oltage (U <sub>e</sub> )	V	415	415	415	415
Rated Impulse with	stand Voltage (U <sub>imp</sub> )	kV	12	12	12	12
Dielectric Strength		kV	10	10	6	6
Rated Operational (	Current (le) at 415 V		'			
AC-21 A Utilization	Category	Α	125	160	200	250
AC-22 A Utilization	Category	Α	125	160	200	250
AC-23 A Utilization	Category	Α	125	160	200	250
Rated Operational (	Current (le) at 690 V (AC-23 A)	Α	100	125	160	200
Breaking Capacity -	436 V, AC-23 A	A (rms)	1000	1280	1600	2000
Making Capacity - 4	36 V, AC-23 A	A (rms)	1250	1600	2000	2500
Mechanical Endura	nce (Number of operating cycles)		15,000	15,000	10,000	10,000
Maximum Torque (C	On terminal bolt)	Nm	9.6	9.6	20	20
Pollution Degree			III	III	III	III
Terminal Capacity	Main	Sq. mm	95	185	240	240
теппіпаі Сарасіту	Neutral	Sq. mm	50	50	120	120
Terminal Width			20	25	30	30
Terminal Thickness			3	3	4	3
Terminal Screw		mm	M8 x 20	M8 x 20	M10 x 30	M10 x 30
Weight 3-Pole / 4-P	ole	kg	3 / 3.3	3.2 / 3.65	4 / 4.7	5.2 / 6
Rated Capacitor Po	wer (415 V, 50/60 Hz)	kVAr	57	57	92	115
DC Rating at 220 V	' DC					
No. of Poles in Seri	es, Utilization Category at Rated C	urrent	2, DC-23 A	2, DC-23 A	2, DC-23 A	2, DC-22 A
Suitable E&A Fuse						
DIN	Rated Fused Short circuit Current	kA	100	100	100	100
	Rating		125/HN/00 & 000	160/HN/00 & 000	200/HN/0	250/HN/1
Short circuit making	Short circuit making Capacity (Icm) A		1250	1600	2000	2500
Operating Torque	Operating Torque Kg-m		1.2	1.2	2	2
Auxiliary Contacts r	o. of NO + NC (Accessories)		2	2	2	2
	W	mm	251	251	299	299
Overall Dimensions	Н	mm	187	187	231	231
	D	mm	180 + 36	180 + 36	216 + 31	216 + 31

# **Technical Data**

Frame Size		Unit	V	V	VI	VI	
Type Designation			FNX 315	FNX 400	FNX 630	FNX 800	
Conformance to Sta	andard		IEC 60947-3, IS/IEC 60947-3				
No. of Poles				3 Pole + Isolable	Neutral, 4 Pole		
Thermal Current (I <sub>th</sub>	) at 40°C	Α	315	400	630	800	
Conventional Enclo	sed Thermal Current (I <sub>the</sub> )	Α	315	400	630	800	
Ref. Ambient Tempe	erature	°C	40	40	40	40	
Rated Insulation Vo	Itage (U <sub>i</sub> )	V	1000	1000	1000	1000	
Rated Operational	√oltage (U。)	V	415	415	415	415	
Rated Impulse with	stand Voltage (U <sub>imp</sub> )	kV	12	12	12	12	
Dielectric Strength		kV	6	10	10	10	
Rated Operational	Current (le) at 415 V						
AC-21 A Utilization	Category	Α	315	400	630	800	
AC-22 A Utilization	Category	A	315	500	630	800	
AC-23 A Utilization	Category	Α	315	400	630	800	
Rated Operational	Current (le) at 690 V (AC-23 A)	Α	250	315	500	630	
Breaking Capacity -	- 436 V, AC-23 A	A (rms)	2520	3200	1600	6400	
Making Capacity - 4	136 V, AC-23 A	A (rms)	3150	4000	6300	8000	
Mechanical Endura	nce (Number of operating cycles)		10,000	10,000	10,000	5000	
Maximum Torque (0	On terminal bolt)	Nm	20	27	45	45	
Pollution Degree			III	III	III	III	
T : 10 "	Main	Sq. mm	400	400	2 x 625	2 x 625	
Terminal Capacity	Neutral	Sq. mm	240	240	400	400	
Terminal Width			40	40	60	60	
Terminal Thickness			3	5	6	8	
Terminal Screw		mm	M10 x 30	M12 x 40	M16 x 50	M16 x 50	
Weight 3-Pole / 4-P	ole	kg	6.5 / 7.5	6.5 / 7.5	12.1 / 14	14.2 / 16.1	
Rated Capacitor Po	wer (415 V, 50/60 Hz)	kVAr	145	175	270	270	
DC Rating at 220 \	/ DC					I	
No. of Poles in Seri	es, Utilization Category at Rated C	Current	2, DC-22 A	2, DC-22 A	2, DC-22 A	2, DC-22 B	
Suitable E&A Fuse	)					ı	
	Rated Fused Short circuit Current	kA	100	100	100	100	
DIN	Rating	A/Type/Size	315/HN/1	400/HN/2	630/HN/3	800/HN/3	
Short circuit making Capacity (Icm) A		Α	3150	4000	6300	8000	
Operating Torque		Kg-m	2.5	2.5	2.5	2.8	
Auxiliary Contacts no. of NO + NC (Accessories)		2	2	2	2		
	W	mm	352	352	428	428	
Overall Dimensions	Н	mm	230	230	242	242	
	D	mm	250 + 20	250 + 20	270 + 23	270 + 23	

# **Ordering Information**

# Ordering Information of FNX S-D-F

Type Designation		FNX 32	FNX 63	FNX 100	FNX 125	FNX 160
SDF Interiors : (DIN)	TPN	SK96903	SK96904	SK96906	SK95806	SK95807
3DI IIILEIIOI3 . (DIIV)	4P	SK96903	SK96904	SK96906	SK95814	SK95815

Type Designation		FNX 200	FNX 250	FNX 315	FNX 400	FNX 630	FNX 800
SDF Interiors : (DIN)	TPN	SK95808	SK95809	SK95810	SK95811	SK95812	SK95813
SDF Interiors . (DIN)	4P	SK95816	SK95817	SK95818	SK95819	SK95820	SK95821

Ordering sufx oooo for all

# Ordering Information of FNX S-D-F Spares & Accessories

Description	Туре	Cat. No.
	FNX 32 / 63	SK91537
	FNX 100	SK91538
Auxiliary contacts (1 NO + 1 NC)	FNX 125 / 160	SK91539
	FNX 200 / 250	SK91540
	FNX 315 / 400 / 630 / 800	SK91541
	FNX 32 / 63 / 100	SK91524
Handle Assembly	FNX 125 / 160 / 200 / 250	SK91525
	FNX 315 / 400 / 630 / 800	SK91526

Description	Туре	Cat. No.
DIN Rail Assembly	FNX 32 / 63 / 100	SK91617
Mechanical Interlock	FNX 125 / 160 / 200 / 250	SK95232
kit	FNX 315 / 400 / 630 / 800	SK95545
Fuse pulling handle	FNX 32 / 63	SK91185
i use pulling nanule	FNX 100 to FNX 800	SK90126
	FNX 32 / 63 / 100	SK91530
Castell Lock	FNX 125 / 160 / 200 / 250	SK91531
	FNX 315 / 400 / 630 / 800	SK91531

Ordering suffix oooo for all

# **Spares & Accessories**

A wide range of spares and accessories are available for Switch-Disconnector-Fuse units type FNX:

#### Extended terminal shroud

Terminals are shrouded for protection against phase to phase short circuit through an external conducting path and against accidental human contact with live terminals.

### Mechanical interlock kit

Two Switch-Disconnector-Fuse units can be interlocked by mechanical interlock kit. After interlocking, the following three positions are possible:

- SDF 1 in ON position SDF 2 in OFF position
- SDF 2 in ON position SDF 1 in OFF position
- Both SDFs in OFF position

Hence two mechanically interlocked SDFs can be used as a changeover switch.



Mechanical interlock kit

# a (a)

Castell interlock

### Castell interlock

Switch-Disconnector-Fuse units type FNX can be locked in OFF position with the help of Castell interlock.

### Padlock

Switch-Disconnector-Fuse units type FNX can be locked in OFF position with the help of the padlock. This can be done with or without defeating door interlock.



**Auxiliary contacts** 

### **Auxiliary contacts**

1NO + 1NC auxiliary contact is available as an accessory. This can be suitably wired in the control circuit with: (as per AC - 15)

- Rated operational current (I<sub>e</sub>) 4A
- Rated operational voltage (U<sub>e</sub>) 415V

### **Moving contacts**

Moving contacts are available for range FNX 100 to FNX 800. One set of moving contact spare contains spring, guide and moving contact.

### **Fuse puller**

A fuse puller facilitates safe removal of fuses.

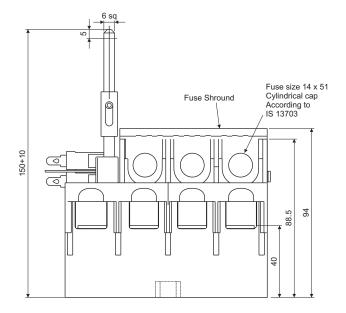


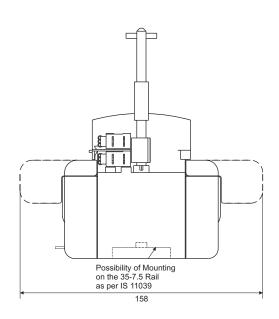
Padlock

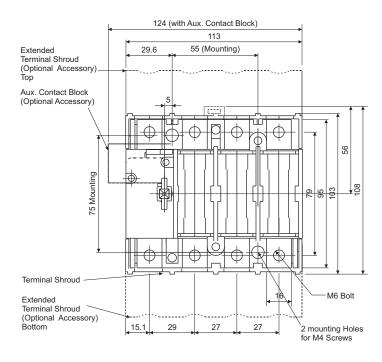


Fuse puller

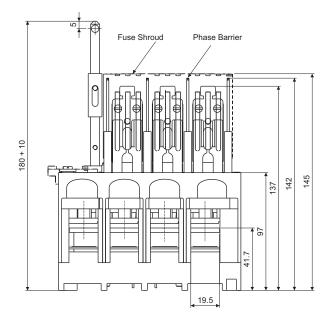
# **Type FNX 32 / FNX 63**

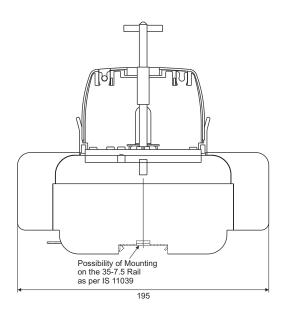


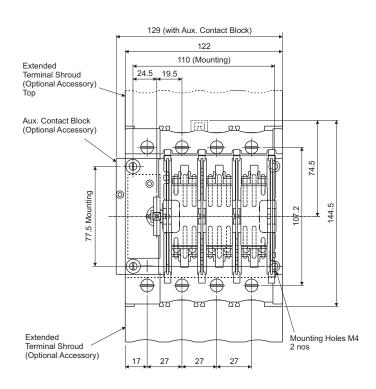




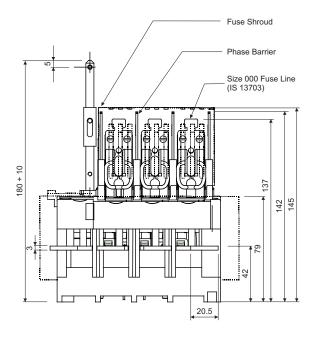
# Type FNX 100

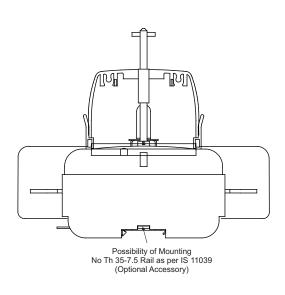


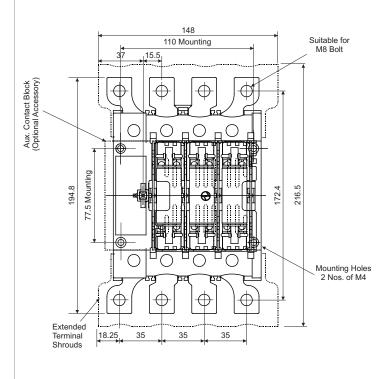




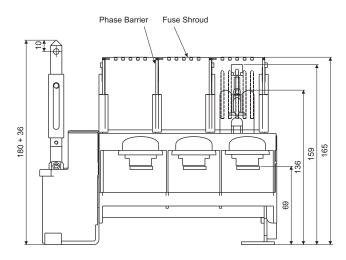
# Type FNX 125C (with Extended Terminals)

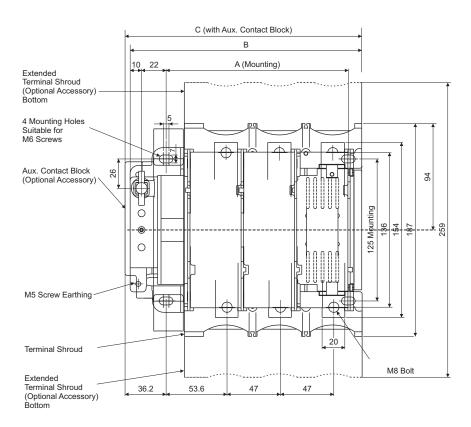






# **Type FNX 125 / FNX 160**

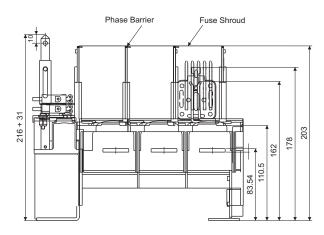


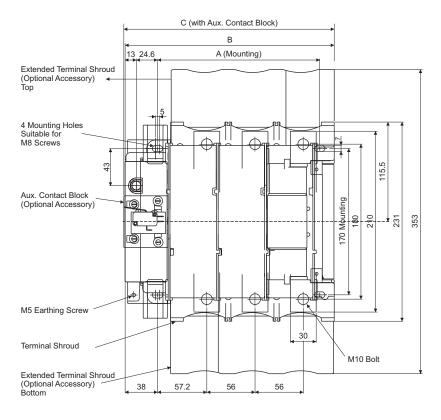


Dimensions according to rating

	Α	В	С
3 Pole	160	204	201
4 Pole	207	251	256

# **Type FNX 200 / FNX 250**

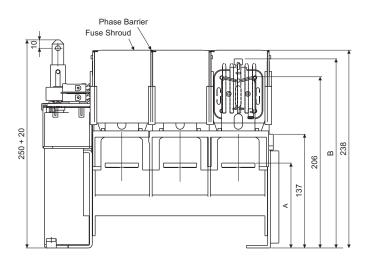


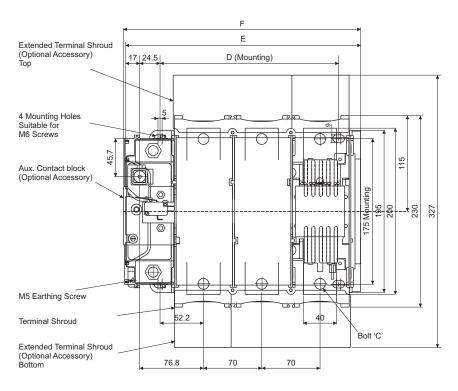


Dimensions according to No. of poles

	Α	В	С
3 Pole	188	243	244
4 Pole	244	299	300

# **Type FNX 315 / FNX 400**





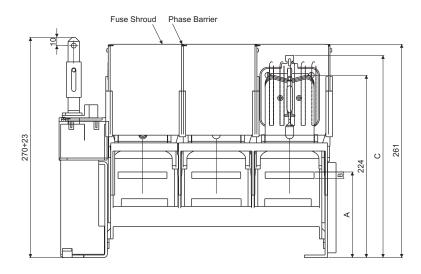
### Dimensions according to rating

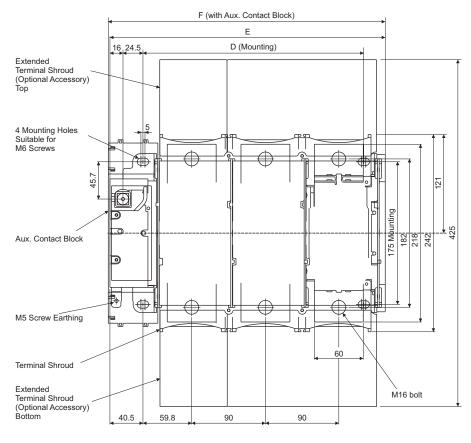
For 3/4 Pole	Α	В	С
FNX 315	103	220	M10
FNX 400	102	228	M12

### Dimensions according to No. of poles

For FNX 315/FNX 400	D	E	F
3 Pole	215	282	285
4 Pole	285	352	355

# Type FNX 630 / FNX 800





Dimensions according to rating

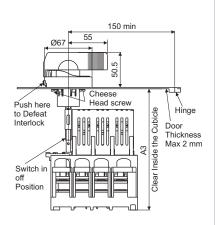
For 3/4 Pole	Α	В	С
FNX 630	103	6	249
FNX 800	105	8	250.5

Dimensions according to No. of poles

For FNX 630 / FNX 800	D	E	F
3 Pole	271	338	340
4 Pole	361	428	430

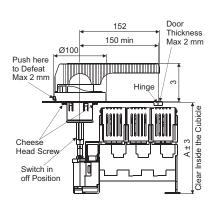
# **Installation Details**

# Assembly of handle coupling on door FNX 32 / 63 / 100



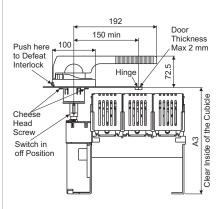
DIM	FNX 32 / FNX 63	FNX 100
Α	150 + 10	180 + 10

# Assembly of handle coupling on door FNX 125 / 160 / 200 / 250



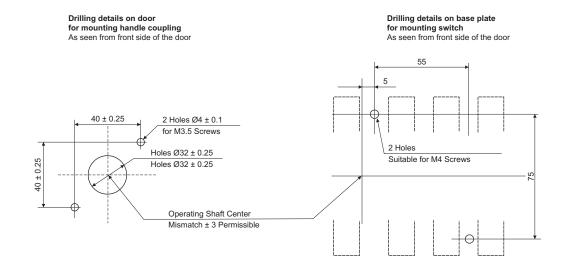
DIM	FNX 125 / FNX 160	FNX 200 / FNX 250
Α	180 + 36	216 + 31

# Assembly of handle coupling on door FNX 315 / 400 / 630 / 800



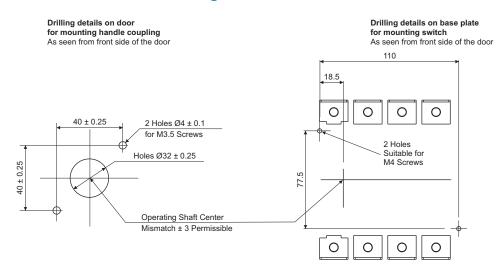
DIM	FNX 135 / FNX 400	FNX 630 / FNX 800
Α	250 + 20	270 + 23

# **Drilling details for FNX 32 / FNX 63**

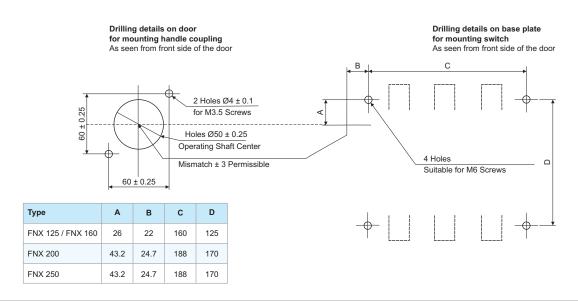


# **Installation Details**

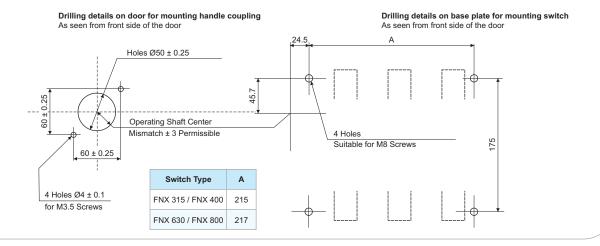
# **Drilling details for FNX 100**



# Drilling details for FNX 125 / FNX 160 / FNX 200 / FNX 250



### Drilling details for FNX 315 / FNX 400 / FNX 630 / FNX 800



# **HRC Fuses - Cylindrical**

# **Fuse Links Type HF**

### (Fuse links with cylindrical contact caps)

- Conforms to IEC60269 / IS13703
- Low watt loss Saves power
- Low let through energy
- High breaking capacity 80 kA
- Rated voltage 415 V
- Immediate fault indication through red pop up indicator
- Lower power loss in our fuses result in cooler running of associated products



# **Ordering Details**

Size	Fuse Rating (A)	Cat. Nos.	Rated watt loss
	2	SF90144	0.6
	4	SF90145	0.6
	6	SF90146	1.1
	8	SF90147	1.2
	10	SF90148	1.0
14 x 51	16	SF90150	2.4
14 X 31	20	SF90151	2.4
	25	SF90152	3.2
	32	SF90142	5.0
	40	SF90143	5.0
	50	SF90158	5.0
	63	SF90159	7.4

Fuse-pulling handle should be used for safe and easy removal of fuse links Suitable fuse - pulling handle for type HF: SK91185

# HRC Fuses - Blade / Knife type

# **Fuse Links Type HN**

### (Fuse links with blade contacts)

- Conforms to IEC60269 / IS13703
- Low watt loss Saves power
- Cooler running of associated products
- Low let through energy
- High breaking capacity 100 kA
- Immediate fault indication
- Rated voltage 415 V



Size of the fuse link	Rating (A)	Cat. Nos.	Rated watt loss	Watt loss limits as per IS 13703
	63	SF94940	5.3	
0' 000	80	SF94941	6.2	400 Amer Free 7.5 M
Size 000	100	SF94942	7	100 Amp, Fuse-7.5 W
Ę	VeW 125	SF94946	9.5	
	63	SF94027	5.7	
	80	SF94028	6.9	400 Amer Free 7 5 M
Size 00	100	SF94029	7.5	100 Amp, Fuse-7.5 W
	125	SF94030	9.8	
	160	SF94939	12	
	80	SF94128	8.3	
	100	SF94129	9.1	
Size 0	125	SF94130	11.3	160 Amp, Fuse-16 W
	160	SF94131	12.7	
	200	SF94132	14.5	
	125	SF94230	10.3	
	160	SF94231	12.3	
Size 1	200	SF94232	14.3	250 Amp, Fuse-23 W
	250	SF94233	17.3	
	315	SF94234	25.5	
	200	SF94332	14.1	
Size 2	250	SF94333	16.9	400 Amn Fuse-34 W
SIZE Z	315	SF94334	20.2	400 Amp, Fuse-34 W
	400	SF94335	24.9	
	315	SF94434	20.5	
	400	SF94435	26.7	
Size 3	500	SF94436	36.1	630 Amp, Fuse-48 W
	630	SF94437	42.2	
	800	SF94938	48	

# Notes:

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Product improvement is a continuous process. For the latest information and special application, please contact any of our offices listed here. Product photographs shown for representative purpose only.





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