

# PRODUCT CATALOG



**HITECH SWITCHGEAR INDIA**  
AN ISO 9001:2015 CERTIFIED COMPANY



An insulated HRC Fuse Link of 120 kA

## Fuseology

For Total Electrical Protection

- General Industrial Purpose Fuses
- Special Purpose Fuses
- Semiconductor Protection Fuses
- Protection of Photovoltaic Systems
- Protection of P.V. Inverters



## PROFILE

Hitech Switchgear India, established more than two decade ago manufactures a low voltage, Medium voltage and High Voltage Control Switchgear electrical standard products with an enviable reputation for innovation, quality & value for money. The company has in-house R&D testing facilities with the state of the art machineries, in-house tool room, fabrications, power press, mouldings, silver plating plant & a totally mechanised state of the art assembly unit to give its customers "A total quality products".

To bring in "Better than the Best" indigenous technical line of Products viz: Special purpose fuses, Semiconductor fuses, Protection of photovoltaic system, Protection of PV inverters, Medium Voltage Fuses, High Voltage Fuses, etc. in India has always been a great challenge. Hitech Switchgear India manufactures a wide range of the fuse links, fuse bases, fuse fittings & switch disconnecter fuse units for protection of electrical & electronic circuit & power distribution products.

Our specification to which these fuses & switches are manufactured is indicated against each type. We are fully equipped to meet any requirements. All the products are available as per IEC, IS, DIN, VDE, UL, CSA, BS standards.

The company pioneering POWERGARD FUSES & POWERGARD SWITCHES Technologies is the one in the country which has the widest range of fuse links & switches under one roof. The most sophisticated design are being incorporated to attain highest breaking capacity and overload performance.

The in house R&D facility enables us to develop fuses & switches to meet any requirement as per customer specifications. Our complete range offers safe interchangeability and compatability with other brands and system of international standards.

The company also manufactures one of the most stylish, asthetics, compact, elegant with an inbuilt electrical shrouding & safety switches called  from FS 32A to 2 50A in open & as well as in Sheet Steel enclosure with both Din / BS system.

Total Quality Management - In hitech the quality is achieved through the inhouse R&D facility, Tool room, CAD room, Powerpress unit, Mouldingplant & Silver plating plant.



## NEW ULTRA ENERGY FUSES - A POWER SAVER

## TYPE SQD - KNIFE / DIN HRC FUSE LINKS



### CONSTRUCTION OF HRC FUSE LINKS

The fuse link body is made of special steatite, which is resistant to alternating temperatures.

The indicator on the front plate clearly indicated the switching condition. The indicator operates reliably upto a voltage of 10V.

The contact blades are made up of electrolytic copper and are silver plated. The fuse elements is directly welded to the blades. The simple rugged design of type SQD fuse links guarantees reliability even in severe ambient conditions.

### APPLICATION

- **Resistance level** : Current rating of fuse links should not be less than the full load current of the circuit.
- **Inductive load** : Fuse links should be selected by motors considering starting transients.
- **Cable protection**
- **Motor circuit protection**
- **Transformer protection**
- **Capacitor protection**
- **Semi conductor protection**
- **Household protection**
- **Florescent lighting**
- **Switch disconnecter fuse units.**

### SALIENT FEATURES

- Range 2A to 800A, Knife/Din type, BS/Bolted type, HTHF cylindrical type.
- Capable of interrupting very high breaking capacity upto **120 KA**.
- Reduced electromagnetic stress as a result of **low cut off current** to protect device adequately.
- Reduced thermal stress because of lower let through fault energy to eliminate mechanical damages.
- **Reduced power** consumption because of **low watt losses**.
- Suitable for **motor starting** and switching ON power **transformer** due to superior withstand capacity.
- Tamper proof characteristic.
- Good discrimination between major and minor fuse rating.
- For special applications special fuselink characteristics are made available.
- There is no emission of gas or flames in operation.
- **Very economical protection device.**
- Breaking Range & Utilization category - gG
- Rated Breaking Capacity - **120kA at 500V AC 50 Hz**
- Performance remain unaltered through out the service life.
- Ensure Continuity of Supply to healthy circuit in the events of faults as the specially designed elements provide positive discrimination.
- **Fully interchangeable with compatible Brands.**
- Designed to suit Indian & tropical climatic conditions.

### TECHNICAL DATA

Ranges :					
Din / Knite Type	:	2 -- 800A	BS/Bolted Type :	2 -- 800A	
Cylindrical HTHF	:	2 -- 63A	Rated Voltage :	500 VAC	
Conforms					
IS	:	13703			
		part 2 section 1			
IEC	:	269 - 2			
VDE	:	0636 - (part 2)			
BS	:	88			
Class of Operation	:	gG	Breaking Capacity	:	upto 120 KA at 500v AC 50 Hz





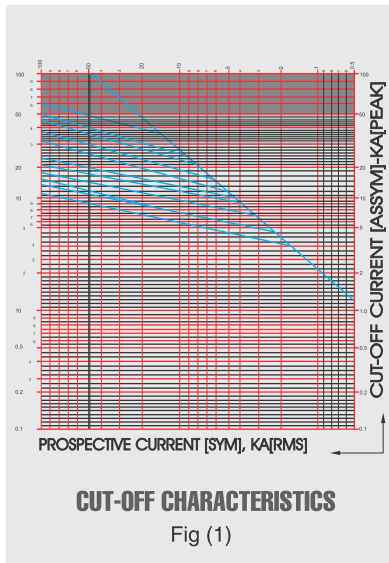
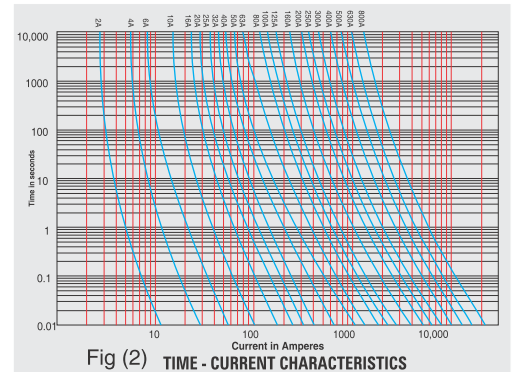


## TECHNICAL FEATURES

1. Hitech HRC FUSE LINKS have current limiting effect. They interrupt the short circuit while it is increasing and do not allow the current to reach its peak value.

The peak cut off current as a function of prospective short circuit is given in Fig (1)

2. Hitech HRC FUSE LINKS have hybrid current time characteristics with a time lag in overload region and quick response in short circuit region with Virtual pre-arching time as a function of prospective current is given in Fig (2)



Thus the fuse link do not operate on momentary over loads but at the same time ensure that the heavy short circuit currents are cleared quickly. The fuse can be used with the advantage for all types of loads, fluctuating & steady type.

3. POWER LOSS & TEMPERATURE RISE : Hitech HRC FUSE links have a low power loss and temperature rise. They comply with the demands of consumers for low loss. It also comply with the stipulations laid down in IS:13703 part 2 section 1.

Size Code	Current		Power Loss	
	in AMPERES 'A'	Maximum value as per IS : 13703 Part II Watts	Measured value of hitech® Fuse Links Watts	
SQD000	32	12	2.70	
SQD000	63	12	4.30	
SQD00	125	12	9.00	
SQD0	200	23	13.2	
SQD01	250	23	14.75	
SQD02	315	34	18.30	
SQD02	400	34	24.00	
SQD0				

Selection chart of make SQD type HRC Fuses for motor protection with DOL starter and Star Delta Starter.

FUSE SELECTION CHART FOR MOTORS

Sr. No.	Motor Rating at 415 V 3 phase, 50 Hz.		Full Load Current Amps.	Recommended fuse ratings	
	H.P.	K.W.		DOL Starter Amps.	Star-Delta Starter
1.	1	0.75	1.9	6	6
2.	1.5	1.1	2.5	10	6
3.	2.0	1.5	3.4	10.0	6
4.	3.0	2.2	4.8	20.0	10
5.	4.0	3.0	6.4	20.0	10
6.	5.0	3.75	7.8	20.0	16
7.	7.5	5.5	11.6	32.0	20
8.	10.0	7.5	14.4	40.0	25
9.	12.5	9.4	17.3	50.0	32
10.	15.0	11.0	21.1	63.0	35
11.	20.0	15.0	28.0	80.0	50
12.	25.0	18.5	35.0	80.0	63
13.	30.0	22.0	41.0	100.0	63
14.	35.0	26.0	48.0	100.0	80
15.	40.0	30.0	55.0	125.0	80
16.	45.0	34.0	62.0	125.0	80
17.	50.0	37.0	69.0	125.0	100
18.	60.0	45.0	83.0	160.0	100
19.	70.0	53.0	97.0	200.0	125
20.	75.0	55.0	103.0	200.0	125
21.	80.0	60.0	110.0	200.0	125
22.	90.0	68.0	123.0	250.0	160
23.	100.0	75.0	136.0	250.0	160
24.	125.0	94.0	171.0	300.0	200
25.	150.0	110.0	200.0	300.0	200
26.	175.0	132.0	231.0	355.0	250.
27.	200.0	150.0	263.0	425.0	250
28.	225.0	169.0	293.0	500.0	300
29.	250.0	185.0	324.0	500.0	300
30.	300.0	220.0	385.0	630.0	355
31.	350.0	261.0	449.0	-	425
32.	400.0	300.0	505.0	-	500
33.	450.0	335.0	617.0	-	630

While preparing fuse selection chart (Table - 1) for the protection of 3-phase induction motor, following assumptions were made:

1. Direct on line starter : Starting current = 7 x motor full load current for 10 sec.
2. Star-delta starter : Starting current = 3.5 x motor full load current for 20 sec.
3. For calculation of full load motor current, average efficiency, and power factors of induction motor were taken as per table-II

BHP of motor	Alternating Efficiency	3 phase Power Factor
1	0.70	0.77
5	0.81	0.82
10	1.85	0.85
20	0.85	0.85
75 and Large	0.86	0.86
	0.87	0.87

Note : Considering our non-stop efforts to introduce and incorporate latest technology, dimensions and specifications mentioned above may change without prior notice and obligation.





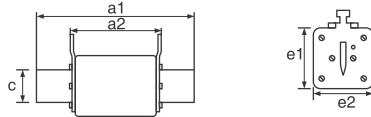
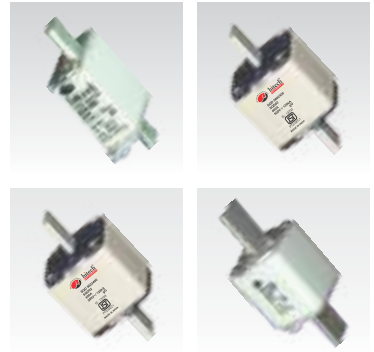


**NEW ULTRA ENERGY FUSES-A- POWER SAVER TYPE HT - BOLTED - BS - HRC FUSE LINKS**

**DIMENSIONS**

**DIN / KNIFE Type Fuse Links**

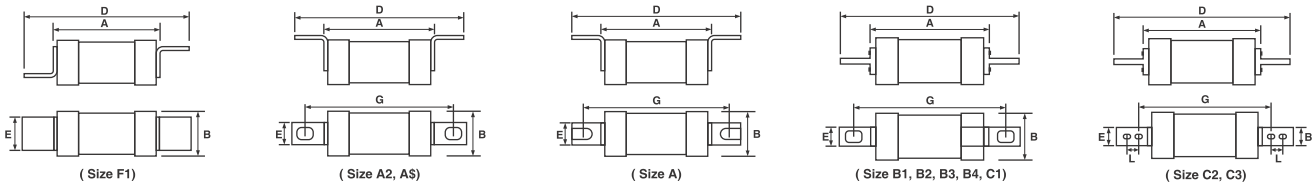
IS Size	Rating (AMPS)	Order Code	a <sub>1</sub>	a <sub>2</sub>	c	e <sub>1</sub>	e <sub>2</sub>
000	2,4,6,10,16,20, 25,32,50,63,80,100	SQD 000 2-100A	83	49	15	42.5	20
00	125,160	SQD 00 125-160A	84	50	15	45	23
0	80,100,125,160,200	SQD 0 80-200A	119	57.5	15	45.5	36.5
1	125,160,200,250,315	SQD 1 125-315A	127	64.5	20	44.5	43.5
2	200,250,350,400	SQD 2 200-400A	145.5	65	29.5	57.5	55
3	315,400,500,630,800	SQD 3 315-800A	150	68	35.5	68	66.5



**DIMENSIONAL DETAILS IN MM**

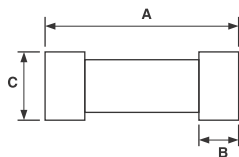
**BS/Bolted Type Fuse Links**

IS Size	Rating (A)	Order Code	A	B	D	E	G	L
F-1	2A-32A	HTNS2A to 32A	33.5	14	55	11	-	-
A1	6A-32A	HTTIA 6A to B2A	56	22	84.5	9	73	-
A2	35,50,63	HTTIS 35 to 63A	55	22	90	13	73	-
A3	80,100,125	HTTCP 80 to 125A	57	24	124	19	111	-
A4	80,100,125A	HTTC 80 to 125A	60	24	109	19	94	-
B1	80,100,125A	HTTC 80 to 125A	57	24	134	19	111	-
As per A4	125,160,200	HTTFP 125 to 200A	64.5	39.5	111	19	94	-
B2	125,160,200	HTTF 125 to 200A	64	33	135	19	111	-
B3	250,300-315	HTTKF 250 to 315A	72.6	39.5	135	25.4	111	-
B4	355,400	HTTMF 355 to 400A	75.5	51.2	134	25.4	111	-
C1	400	HTTTS 400A	75.5	51.2	157	25.4	133	-
C2	500,630	HTTTS 500 to 630A	72	73	165	25.4	133	-
C2	400,500,630	HTTM 400 to 630A	72	73	208	25.4	133	25.4



**Cylindrical Type Fuse Links**

Rating (A)	Order Code	A	B	C
2,4,6,8,10, 16,20,25, 32,40,50,63	HTHF 2-63	49.5	9	14.5





## NEW ULTRA ENERGY FUSES BSAE

### CONSTRUCTION

In fuse holder, the fuse base and fuse carrier are made of highest grade phenolic moulding confirming to IS : 1300 which have lightness non-hygroscopic, non-inflameable and good tracking resistance properties. The carrier contacts are made of phosphor bronze to give good springiness throughout the service life. The spring action holds the fuse firmly giving good electrical contact and prevents the fuse carrier from coming out of fuse-base due to vibration.

### TECHNICAL DETAILS

Type	FBB, FBDM, FBPO
Rated Voltage	500 V AC
Rated Current	AMPS
Size 00	160A
Size 01	250A
Size 02	400A
Size 03	800A

## HRC FUSE BASE SYSTEM - DIN TYPE

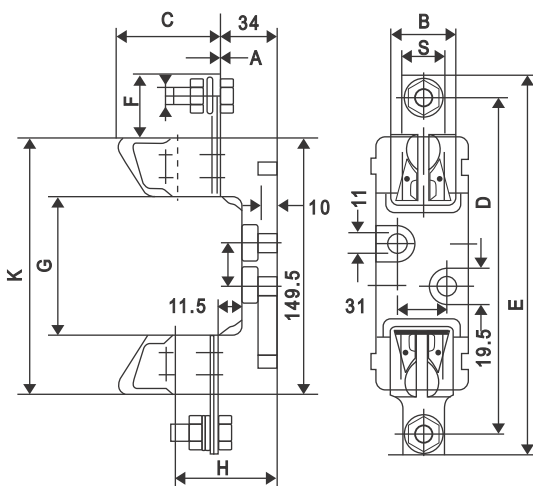
### SALIENT FEATURES

- Fully conforms to IS : 13703, 1993
- Fully interchangeable with compatible brands
- With drawble force within the limits of IS.
- Fuse bases are in three version viz : Bakelite, DMC & Porcelain.
- Size : 00,1,2 and 3
- Ratings : 160A,250A,400A and 630 A.
- Insulated DMC bases having impact strength, anti-tracking properties, non-inflammable and non-hygroscopic.
- Silver plated copper contacts for better conductivity and low temperature rise.
- Special steel springs for better grip and uniform contact pressure.

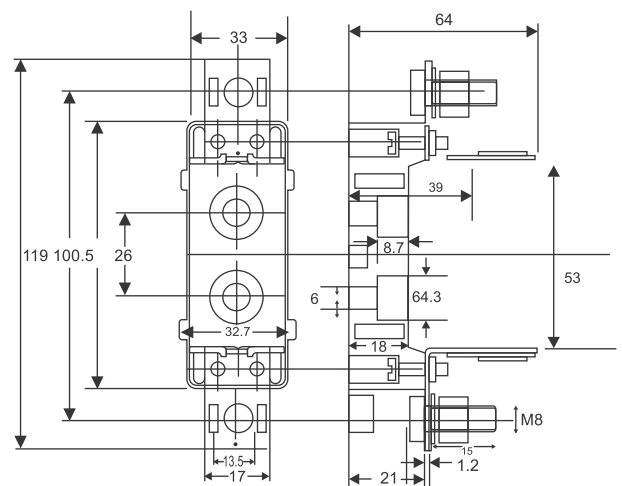
### DIMENSION (IN MM)

Size	Ordering Code	Current AMPS.	A	B	C	D	E	F	G	H	K	S	BOLT
1	FBB01-250	250	3.5	38	47	175	199	29.5	79	35	141.5	25	M 10
2	FBB02-400	400	4.4	39	61	200.5	225	35	80	70	155.5	30	M 10
3	FBB03-630	630	6	48	68	212	242	43	81	75	157	35	M 12

General Tolerance  $\pm 1.5$



FUSE BASE FBB SIZE 1,2&3



FUSE BASE FBB SIZE - 00





## NEW ULTRA ENERGY FUSE HOLDER

### CONSTRUCTION

In fuse holder, the fuse base and fuse carrier are made of highest grade phenolic moulding confirming to IS : 1300 which have lightness non-hygroscopic, non-inflameable and good tracking resistance properties. The carrier contacts are made of phosphor bronze to give good springiness throughout the service life. The spring action holds the fuse firmly giving good electrical contact and prevents the fuse carrier from coming out of fuse-base due to vibration.

### TECHNICAL DETAILS

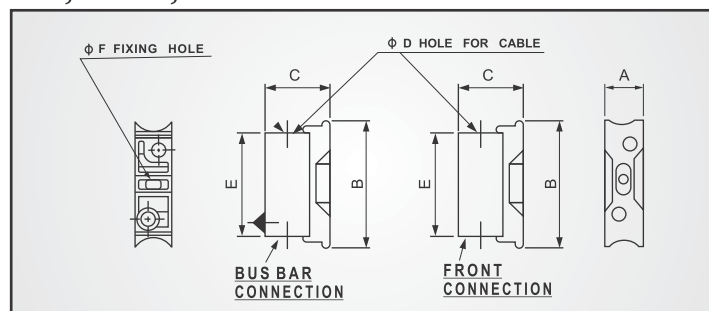
1. Type	FFB, FFDM, FFPO
2. Rated Voltage	: 500V A.C. 50 Hz
3. Rated Current	: 2A to 100A
4. Class of Operation	: gll in accordance with IS : 13703 Part I & II, IEC : 269 & BS : 88
5. Confirms to	: IS : 13703 Part - I & II IEC - 269 - II BS : 88
5. Breaking Capacity	: 80 KA at 415 V A.C. 50 Hz

## HRC FUSE HOLDER SYSTEM - BS TYPE

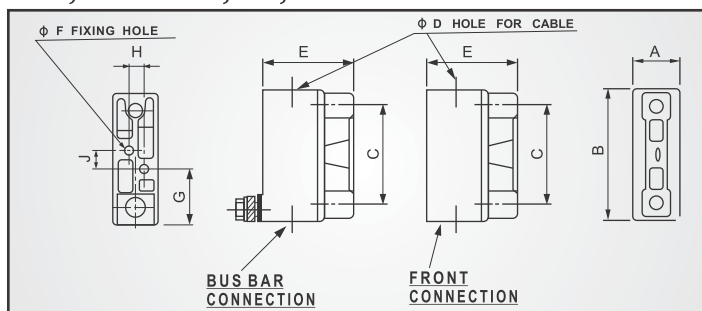
### SALIENT FEATURES

- Range : FFB, FFDM, FFPO 20, 32, 63 & 100A
- Aperture giving visible indication of operation of HBC fuselinks in mounted position.
- Carrier contact spin-riveted and fitted in the moulding to ensure perfect alignment with the base contacts.
- Brass base contact block with adequate cable hole to accommodate aluminium conductors.
- Advisable to use crimping type socket or soldering socket when connecting aluminium cable.
- Aluminium conductors can also be directly pinched in the terminal bore of the fuse fitting by adopting the following procedure :-
  - a) The individual stand of the cable should be spread-out and cleaned with wirewool or emery paper. The cleaned surface should be coated with a thin layer of suitable oxide inhibiting grease.
  - b) The cables may be terminated using the right size of screw driver for the grub screws and tightened fully.
  - c) Over tightening or use of bigger screws driver should be avoided.
  - d) At regular intervals tightness may be checked with the right screw driver.
  - e) Should the conductors be disturbed from the terminal bore, it is desirable to remake the connections.

### FFB, FFDM, 20A



### FFB, FFDM 32, 63, 100A



Rating Amps	Execution	Ordering Code FFB/FFDM	Fuse Link as per IS : 13703	A	B	C	D	E	F	G	H	J
32	Front Connection/Bus Bar type	FFB02-32 NSH/NSB	F1 (OFFSET)	24.5	82	43.5	6	66.5	5	-	-	-
32	Front Connection/BasBur Bar type	FFB02-32 SMH/SMB	A2	31	98	75	10	65	5	46	11.5	12.5
63	Front Connection/Bus Bar type	FFB02-63 SMH/SMB	A3	35	105.5	75	12	70	6	49	11.5	14.5
100	Front Connection/Bus Bar type	FFB01-100SMH/SMB	A4	47.5	129.5	94.5	14	91.5	7	53	18.5	21.5

General Tolerance  $\pm 1.5$





### Superior Protection for Solar Power Applications

Hitech Switchgear (India) Pvt. Ltd. PV Fuse Products Photovoltaic Systems up to 1000Vdc  
The demand for alternative energy has led to another innovation from the industry leader in circuit protection. The development of sophisticated solar panel systems has accelerated the demand for high performance fuse-links. The short-circuit condition associated with solar panels does not allow for sufficient current to open a standard fuse-link in a way that effectively isolates faulted PV strings. The Hitech Switchgear (India) Pvt. Ltd. ® PV fuse-links provides full range of protection where traditional protection cannot.

### Low Level Fault Protection

PV Fuse range can clear faults as low as 1.3 x I(fuse rating) at 1000Vdc. PV fuse line is designed specifically for 4", 5" and 6" Solar Cell based panels

### Superior Cycling Withstand

PV Fuse line tested in co-ordination with cycling conditions associated to Solar System operations and environmental influences

### 1000Vdc Capacity

PV Fuse line designed with a maximum operating voltage of 1000Vdc. The operating voltage is based on typical Solar Systems with L/R of 1 mS and below.

### Globally Accepted 10x38mm Dimension

PV Fuse line of 8A, 10A, 12A & 15A all available with standard ferrule and versatile PC mount options



### IEC CYLINDRICAL FUSE LINKS

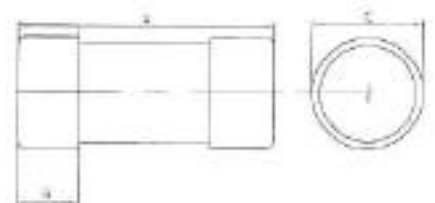
Hitech Switchgear (India) Pvt. Ltd. Ferrule fuse links 8x31 aM/gG 400 to 690VAC

Hitech ® aM and gG fuse links cover a wide range of physical sizes and ampere ratings for 400, 500, and 690VAC for protection in electrical distributions circuits and various industrial applications. Most ratings are available in size 8x31 and size 10x38 with an optional indicator, and in size 14x51 and 22x58 with an optional striker to activate an auxiliary contact. Size 10x38 is also available with a striker. All Cylindrical fuse links have ceramic bodies and silver plated contacts. Cylindrical fuse link gG are used for the protection of cables, motors and LV networks. They limit and cut off unacceptable overcurrents and short-circuit currents up to their nominal breaking capacity. Cylindrical fuse links gG also protect electrical equipment and installations against the dynamic effect of high short currents. Our technology and process was designed to ensure highly reliable technical performance.



### Reference DATA Rated Voltage: 415V ac Breaking Capacity: 33kA ASTA 20 Certified

Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	Size Standard (mm)	Pack.
415	5	HTBME42V05	BS1361	IEC60269-3	22x57	10
	10	HTBME42V10	BS1361	IEC60269-3	22x57	10
	15	HTBME42V15	BS1361	IEC60269-3	22x57	10
	20	HTBME42V20	BS1361	IEC60269-3	22x57	10
	25	HTBME42V25	BS1361	IEC60269-3	22x57	10
	30	HTBME42V30	BS1361	IEC60269-3	22x57	10
	40	HTBME42V40	BS1361	IEC60269-3	22x57	10
	45	HTBME42V45	BS1361	IEC60269-3	22x57	10
	50	HTBME42V50	BS1361	IEC60269-3	22x57	10
	60	HTBME42V60	BS1361	IEC60269-3	22x57	10
415	70	HTBME42V70	BS1361	IEC60269-3	22x57	10
	80	HTBME42V80	BS1361	IEC60269-3	22x57	10
	30	HTBMF42V30	BS1361	IEC60269-3	30X57	6
	40	HTBMF42V40	BS1361	IEC60269-3	30X57	6
	50	HTBMF42V50	BS1361	IEC60269-3	30X57	6
	60	HTBMF42V60	BS1361	IEC60269-3	30X57	6
415	70	HTBMF42V70	BS1361	IEC60269-3	30X57	6
	80	HTBMF42V80	BS1361	IEC60269-3	30X57	6
415	100	HTBMF42V100	BS1361	IEC60269-3	30X57	6
	Size (mm)	Fuse Type	Current Rating (A)		Dimensions (mm)	
22x57	BME	5, 10, 15, 20, 25, 30, 40, 45, 50, 60, 70, 80		A	B	C
30x57	BMF	30, 40, 50, 60, 70, 80, 100		57	16	22.23
				57	16	30.16



## Wedge 'J' Type Fuse Link

### Feeder Pillar & House Service Fuse Links

Powerful presence of the world's leader on the circuit protection market Hitech, electrical Protection Division, offer innovative solutions to enhance the safety of low and medium voltage installations and equipment.

Above and beyond the supply of products, the company also provides added value in the form of technical support for OEMs, electrical contractors, panel builders, plant maintenance department and utilities.

The Hitech range of low Voltage Feeder Pillar fuse links are designed for use with wedge type fuse carriers with fixing centers of 82mm and 92mm.

These are primarily for use by Electricity Supply industries in distribution pillars, open type substation boards, heavy duty service cut-outs and underground disconnecting boxes.

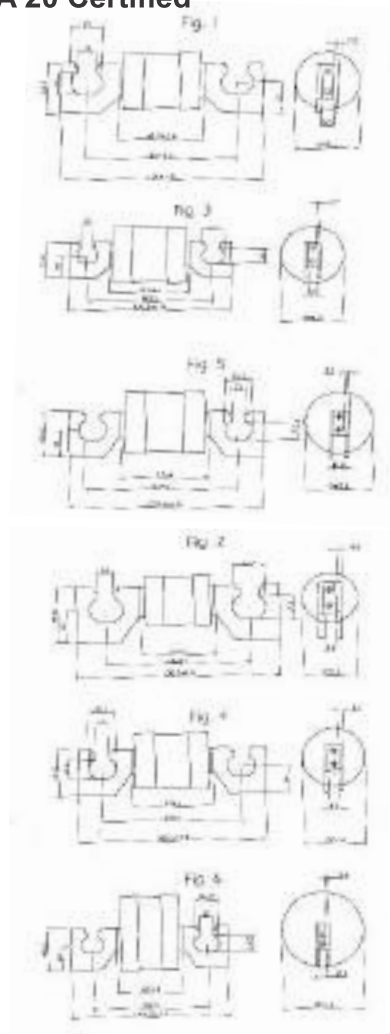
Hitech range of House Service Fuse Links are designed for use in consumer distribution boards, electricity control units, houses and office buildings.

All the fuse products featured in this catalogue are ASTA 20 certified and comply with the RoHS European Directive.



### Reference DATA Rated Voltage: 415V ac Breaking Capacity: 80kA ASTA 20 Certified

Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	Fixing Center (mm)	Pack.
415	20	HTBJU42V020PA	BS88-5	IEC60269-2	82	6
	25	HTBJU42V025PA	BS88-5	IEC60269-2	82	6
	32	HTBJU42V032PA	BS88-5	IEC60269-2	82	6
	40	HTBJU42V040PA	BS88-5	IEC60269-2	82	6
	50	HTBJU42V050PA	BS88-5	IEC60269-2	82	6
	63	HTBJU42V063PA	BS88-5	IEC60269-2	82	6
	80	HTBJU42V080PA	BS88-5	IEC60269-2	82	6
	100	HTBJU42V100PA	BS88-5	IEC60269-2	82	6
	125	HTBJU42V0125PA	BS88-5	IEC60269-2	82	6
	160	HTBJU42V0160PA	BS88-5	IEC60269-2	82	6
200	HTBJU42V0200PA	BS88-5	IEC60269-2	82	6	
415	250	HTBJU42V0250PA	BS88-5	IEC60269-2	82	3
	315	HTBJU42V0315PA	BS88-5	IEC60269-2	82	3
	355	HTBJU42V0355PA	BS88-5	IEC60269-2	82	3
	400	HTBJU42V0400PA	BS88-5	IEC60269-2	82	3
415	20	HTBJU42V020PA	BS88-5	IEC60269-2	92	6
	25	HTBJU42V025PA	BS88-5	IEC60269-2	92	6
	32	HTBJU42V032PA	BS88-5	IEC60269-2	92	6
	40	HTBJU42V040PA	BS88-5	IEC60269-2	92	6
	50	HTBJU42V050PA	BS88-5	IEC60269-2	92	6
	63	HTBJU42V063PA	BS88-5	IEC60269-2	92	6
	80	HTBJU42V080PA	BS88-5	IEC60269-2	92	6
	100	HTBJU42V0100PA	BS88-5	IEC60269-2	92	6
	125	HTBJU42V0125PA	BS88-5	IEC60269-2	92	6
	160	HTBJU42V0160PA	BS88-5	IEC60269-2	92	6
200	HTBJU42V0200PA	BS88-5	IEC60269-2	92	6	
415	250	HTBJU42V0250PA	BS88-5	IEC60269-2	92	3
	315	HTBJU42V0315PA	BS88-5	IEC60269-2	92	3
	355	HTBJU42V0355PA	BS88-5	IEC60269-2	92	3
	400	HTBJU42V0400PA	BS88-5	IEC60269-2	92	3
415	450	HTBJU42V0450PA	BS88-5	IEC60269-2	92	1
	500	HTBJU42V0500PA	BS88-5	IEC60269-2	92	1
415	560	HTBJU42V0560PA	BS88-5	IEC60269-2	92	1
	630	HTBJU42V0630PA	BS88-5	IEC60269-2	92	1





## HBSL NH Vertical Fuse Switch-Rails

### IEC NH FUSE RAILS

Size 1, 250A; Size 2, 400A; Size 3, 630A; 690VAC

Hitech NH-vertical fuse rails are touch protected IP20. HTBSL are designed for direct installation on to bus bar systems in triple pole arrangements. HTBSL size 1 250A, size 2 400A, size 3 630A are available 185 mm bus bar systems. HTBSL 250A, 400A, 630A are designed for NH fuse-links in accordance with IEC/EN 60269-2, VDE 0636-2, size 1: 250A, size 2: 400A and size 3: 630A. The system is a modular system that allows the installation of individual components. HTBSL offers the user the possibility of fast and easy installation as well as a high degree of protection during

#### FEATURES & BENEFITS

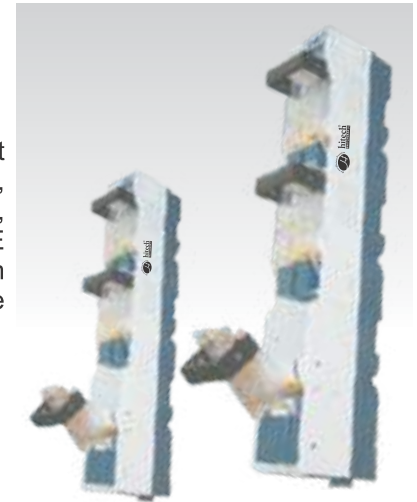
- Installation on to 185 mm bus bar system
- Dimensions of bus bars and cable terminal connections are equivalent to those of HEXVERT.

#### APPLICATIONS

- Feeder pillars
- Cable distribution cabinets
- Low voltage distribution units

#### STANDARDS

- IEC 60 269-1, IEC 60 269-2 For NH-fuse links size 1, 2, 3 in accordance with IEC/EN 60 269-2, VDE 0636-2



TECHNICAL DATA OVERVIEW	
Voltage	AC 690 VAC
Ampere Range (A)	250 ... 630 A
Size per Standard	1, 2, 3
Mounting	bus bar system 185 mm
Number of Poles	3

#### HBSL 250 A size 1 for 185 mm bus bar system

Catalog No.	Cable termination components	Package	Weight
HBL2B403K000	3 M12 bolts	1 piece	3.1 Kg
HBL2E403K000	3 M10 insert nuts	1 piece	3.0 Kg
HBL2V403K000	V-terminal 35-240 mm <sup>2</sup>	1 piece	3.5 Kg

#### HBSL 400 A size 2 for 185 mm bus bar system

Catalog No.	Cable termination components	Package	Weight
HBL2B403K000	3 M12 bolts	1 piece	3.7 Kg
HBL2E403K000	3 M10 insert nuts	1 piece	3.6 Kg
HBL2V403K000	V-terminal 35-240 mm <sup>2</sup>	1 piece	3.6 Kg

#### HBSL 630 A size 3 for 185 mm bus bar system

Catalog No.	Cable termination components	Package	Weight
HBL3B403K000	3 M12 bolts	1 piece	4.3 Kg
HBL3E403K000	3 M10 insert nuts	1 piece	4.1 Kg
HBL3V403K000	V-terminal 35-240 mm <sup>2</sup>	1 piece	3.6 Kg

#### HBSL size 00 160 A, 690VAC

TECHNICAL DATA OVERVIEW	
Ampere Range (A)	160 A
Size per Standard	00
Mounting	bus bar system 100 & 185 mm
Number of Poles	3

#### HBSL 160 A size 00 for 100 mm bus bar system

Catalog No.	Cable termination components	Package	Weight
H1.002.440	3 M8 terminal screws	1 piece	0.82 Kg
H1.002.441	3 clamp straps Cu 4-70 mm <sup>2</sup>	1 piece	0.87 Kg
H1.002.442	3 Al/Cu clamps 1,5-70mm <sup>2</sup>	1 piece	0.83 Kg
H1.002.443	with V-terminal for clamps size 00	1 piece	0.87 Kg
H1.002.444	3 frame clamps Cu 2, 5-70 mm <sup>2</sup>	1 piece	0.81 Kg

#### HBSL 160 A size 00 for 185 mm bus bar system

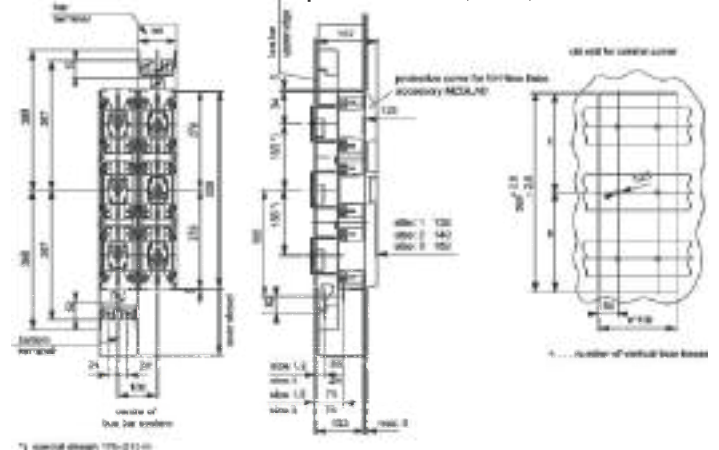
Catalog No.	Cable termination components	Package	Weight
01BSLA100	3 Al/Cu clamps 1.5-70 mm <sup>2</sup>	3 piece	1.9 Kg
01BSLN100	3 M8 terminal screws	1 piece	1.9 Kg
01BSLS100	3 clamp straps Cu 4-70 mm <sup>2</sup>	2 piece	1.9 Kg
1.000.913	with V-terminal for V Clamps size 00	4 piece	1.9 Kg

#### TECHNICAL DATA IN ACCORDANCE WITH EN / IEC 60269

	3	3	3	3	3
No. of poles/phases	250 A	400 A	630 A	160 A	630 A
Free air thermal current with NH-fuse links I <sub>n</sub>	23 W	34 W	40 W	12 W	40 W
Max. power dissipation of fuse links P <sub>n</sub>	400 A	630 A	800 A	200 A	800 A
Free air thermal current with solid links I <sub>n</sub>	65 W	126 W	161 W	1.2 W	161 W
Max. power dissipation of solid links P <sub>n</sub>	690 V	690 V	690 V	690 V	690 V
Rated operational voltage U <sub>s</sub>	1000 V	1000 V	1000 V	1000 V	1000 V
Rated insulation voltage U <sub>i</sub>	9.8 kV	9.8 kV	9.8 kV	9.8 kV	9.8 kV
Rated impulse withstand voltage U <sub>imp</sub>	50-60 Hz 50	50-60 Hz 50	50-60 Hz 50	50-60 Hz	50-60 Hz 50
Rated frequency	3	3	3	3	3
Degree of pollution	22 W	54 W	92 W	16 W	92 W
Power dissipation by I <sub>n</sub> without NH-fuse links	IP 20	IP 20	IP 20	IP 20	IP 20
Degree of protection	bus bar	bus bar	bus bar	bus bar	bus bar
Installation mode	uninterrupted	uninterrupted	uninterrupted	uninterrupted	uninterrupted
Rated duty	1	2	3	00	3
Size	M10	M12	M12	M8	M12
Cable terminal connection	300 mm <sup>2</sup>	300 mm <sup>2</sup>	300 mm <sup>2</sup>	70 mm <sup>2</sup>	300 mm <sup>2</sup>
Standard cable terminal for cable lugs Cu max.	300 mm <sup>2</sup>	300 mm <sup>2</sup>	300 mm <sup>2</sup>	70 mm <sup>2</sup>	300 mm <sup>2</sup>
for cable lugs Al max.	40 x 10 mm	40 x 10 mm	40 x 10 mm	20 x 5 mm	40 x 10 mm
for copper bars with max. dimensions	185 mm	185 mm	185 mm	100 mm	185 mm
V Shaped lugs for v-terminal clamps	5...10 mm	5...10 mm	5...10 mm	5...10 mm	5...10 mm
Bus bar connection	5...10 mm	5...10 mm	5...10 mm	5...10 mm	5...10 mm
Bus bar system					
Hooked clamp for bus bar with thickness					

## DIMENSIONS

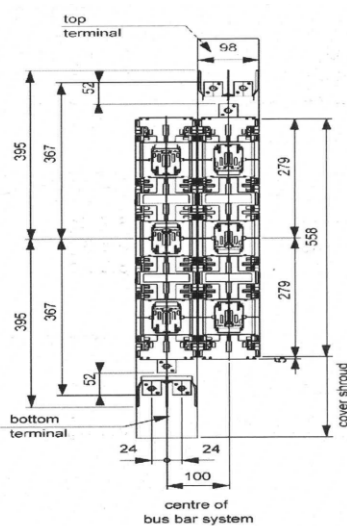
### BSL NH-fuse rails with touch protection 250A, 400A, 630A



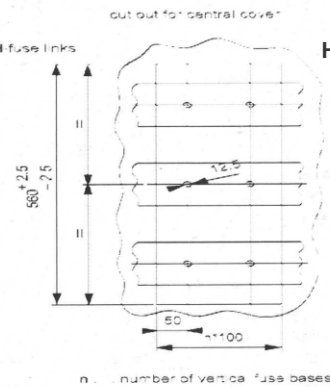
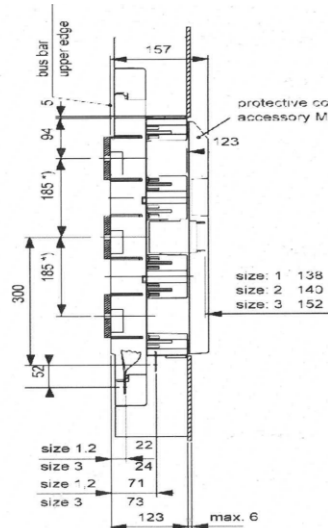


## TECHNICAL DATA IN ACCORDANCE WITH EN / IEC 60269

No. of poles/phases	3	3	3	3	3
Free air thermal current with NH-fuse links I <sub>th</sub>	250 A	400 A	630 A	160 A	160 A
Max. power dissipation of fuse links P <sub>n</sub>	23 W	34 W	40 W	12W	12W
Free air thermal current with solid links I <sub>m</sub>	400 A	630 A	800 A	200 A	200 A
Max. power dissipation of solid links P <sub>n</sub>	65 W	126 W	161 W	1.2 W	1.2 W
Rated operational voltage U <sub>6</sub>	690 V	690 V	690 V	690 V	690 V
Rated insulation voltage U <sub>i</sub>	1000 V	1000 V	1000 V	1000 V	1000 V
Rated impulse withstand voltage U <sup>^</sup>	9.8 kV	9.8 kV	9.8 kV	9.8 kV	9.8 kV
Rated frequency	50-60 Hz 50	50-60 Hz 50	50-60 Hz 50	50-60 Hz	50-60 Hz
Degree of pollution	3	3	3	3	3
Power dissipation by I <sub>m</sub> without NH-fuse links	22 W	54 W	92 W	16W	21 W
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Installation mode	bus bar	bus bar	bus bar	bus bar	bus bar
Rated duty	uninterrupted	uninterrupted	uninterrupted	uninterrupted	uninterrupted
Size	1	2	3	00	00
Cable terminal connection	M10	M12	M12	M8	M8
Standard cable terminal for cable lugs Cu max.	300 mm <sup>2</sup>	300 mm <sup>2</sup>	300 mm <sup>2</sup>	70 mm <sup>2</sup>	70 mm <sup>2</sup>
for cable lugs Al max.	300 mm <sup>2</sup>	300 mm <sup>2</sup>	300 mm <sup>2</sup>	70 mm <sup>2</sup>	70 mm <sup>2</sup>
for cable lugs Al max.	40 x 10 mm	40x10 mm	40 x 10 mm	20 x 5 mm	20 x 5 mm
for copper bars with max. dimensions				10-95mm <sup>2</sup>	10-95 mm <sup>2</sup>
V Shaped lugs for v-terminal clamps	185 mm	185 mm	185 mm	100 mm	185 mm
Bus bar connection	5...10 mm	5...10 mm	5...10 mm	5...10 mm	5...10 mm
Bus bar system					
Hooked clamp for bus bar with thickness					



\*) special design 178-210 m



## DIMENSIONS

**HBSL NH-fuse rails with touch protection 250A, 400A, 630A**

## High Speed Semi Conductor fuses

### SQUARE BODY HIGH-SPEED FUSE LINKS AC PROTECTION

Hitech Switchgear (India) Pvt. Ltd.

Protek® Size 000/00 aR/gR 500 to 690VAC (IEC) / 700V AC (UL)

The 690/700V Protek ® fuse-link provide maximum flexibility in equipment design and ultimate protection for small power conversion equipment.

These ultra-fast acting aR/gR fuses have been engineered to provide state of the art protection for semiconductors: diodes, thyristors and IGBT devices.

They are assembled with die-cut elements embedded in solidified sand, which helps control arcing characteristics for a lower I<sub>2t</sub> and high interrupting rating level.

All contact surfaces are silver plated and all hardware is non magnetic.

Each fuse link can be equipped with a low voltage trip-indicator which can operate a field mountable microswitch.



## HITECH MEDIUM VOLTAGE PRODUCTS

### Current limiters and Ultra Fast Earthing Switches

Current limiting fuses	
• Ratings	• Versions
• 3.6 ... 36kV	• Indoor/outdoor
• 6 ... 315A	• Different length
• up to 50kA	• Manufactured in
• Types	• India
• CEF – back up fuses	
• CMF – motor protection fuses	

- Features
- Designed and tested for cooperation with switch dis-connectors and for SF6 compact switchgear
- High breaking capacity
- Low power losses
- Dimensions according to DIN and BS
- Striker pin medium type



## HITECH MEDIUM VOLTAGE PRODUCTS

### Current limiters and Ultra Fast Earthing Switches

#### Current limiters type “I<sub>s</sub>-Limiter”

- Ratings
- ... 40.5 kV; ... 5.000 A; ... 210 kA<sub>rms</sub> <sup>[1]</sup>
- Versions
- Fixed or Truck mounted; Loose component supply
- Manufactured in
- India
- Description
- Solves short-circuit problems in new substations and substation extensions
- Peak short-circuit current will never be reached



### Medium Voltage Fuse Links HV Type Series I 12 kV AND 24 kV With Pin Strike 20 N IEC 282-1

Nominal Voltage Un kV	Rated Current I <sub>n</sub> A	Dimensions			Breaking Capacity kA	Minimum Breaking Current I <sub>b</sub> A	Resistance when cold Ω	Watts loss at I <sub>n</sub> w
		D mm	L mm	Weight kg				
10	2	50	290	138	60	10	2.300±0.100	8
	4	50	290	138	60	18	1.025±0.060	10
	6.3	50	290	138	60	32	0.300±0.012	11
	10	50	290	138	60	45	0.180±0.008	18
	16	50	290	138	60	72	0.100±0.005	24
	20	50	290	138	60	98	0.060±0.004	26
	25	50	290	138	60	113	0.051±0.003	31
	32	50	290	1.38	60	148	2.040±0.002	41
	40	60	290	1.95	60	180	0.030±0.002	48
	50	75	290	2.40	60	225	0.024±0.002	60
	63	75	290	2.40	60	284	0.018±0.002	71
20	2	50	442	1.9	40	8	3.860±0.190	14
	4	50	442	1.9	40	14	1.720±0.090	18
	6.3	50	442	1.9	40	24	0.485±0.015	20
	10	50	442	1.9	40	36	0.280±0.010	28
	16	50	442	1.9	40	58	0.140±0.005	36
	20	50	442	1.9	40	72	0.090±0.005	36
	25	50	442	1.9	40	96	0.080±0.005	50
	32	50	442	1.9	40	155	0.055±0.003	56
	40	60	442	2.7	40	200	0.040±0.002	64
	50	75	442	3.4	40	275	0.033±0.002	82
	63	75	442	3.4	40	315	0.024±0.002	95



## Medium Voltage Fuse Links Hv Type Series II 12 kV AND 24 kV With Pin Strike 20 N IEC 282-1

Nominal Voltage Un kV	Rated Current In A	Dimensions			Breaking Capacity kA	Minimum Breaking Current Ib A	Resistance when cold $\Omega$	Watts loss at In w
		D mm	L mm	Weight kg				
10	2	42	358	1.00	60	10	2.300±0.100	8
	4	42	358	1.00	60	18	1.025±0.060	10
	6,3	42	358	1.00	60	32	0.300±0.012	11
	10	42	358	1.00	60	45	0.180±0.008	18
	16	42	358	1.00	60	72	0.100±0.005	24
20	2	42	508	1.4	40	8	3.860±0.190	14
	4	42	508	1.4	40	14	1.720±0.090	18
	6,3	42	508	1.4	40	24	0.485±0.015	20
	10	42	508	1.4	40	36	0.280±0.010	28
	16	42	508	1.4	40	58	0.140±0.005	36

### TECHNICAL SPECIFICATION FOR MEDIUM VOLTAGE FUSE LINKS HV TYPE SERIES I AND SERIES II 12 kV AND 24 kV 20 N

RATED CURRENT											
	Unit	2A	4A	6,3 A	10A	16A	20A	25A	32A	40A	63A
Dimension of the Contact diameter	mm	φ45	φ45	φ45	φ45	φ45	φ45	φ45	φ45	φ45	φ45
		290/422*	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*
Internal Contact	mm	358/508	358/508	358/508	358/508	358/508	358/508	358/508	358/508	358/508	358/508
Nominal Voltage	kV	10/20	10/20	10/20	10/20	10/20	10/20	10/20	10/20	10/20	10/20
Maximum Voltage	kV	12/24	12/24	12/24	12/24	12/24	12/24	12/24	12/24	12/24	12/24
rated power loss	W	8/14	10/18	11/20	18/28	24/36	26/36	31/50	41/56	48/64	71/95
Rate frequency	Hz	50	50	50	50	50	50	50	50	50	50
Striker type	N	20	20	20	20	20	20	20	20	20	20
Breaking capacity	kA	60/40	60/40	60/40	60/40	60/40	60/40	60/40	60/40	60/40	60/40

#### \*-Regarding only Serie I

Standard specification	IEC 282-1	Material of fuse links body	Glazed porcelain brown
Class of fuse link	Back up fuse link	Arc extinguishing material	Quartz dry sand
Material of fuse links contacts	Cu (Copper)	Colour striker	Red
Material contacts surface	Ni (Nickel)	Temperature rise limits	Table 8 IEC 282-1
Material of melting elements	Silver-Plated	Sealing of fuse link	Hermetically sealed resistant to temperature

### Medium Voltage Fuse Links Fen, Fin And Fitn Type Serie Iv 24 Kv

Nominal Voltage Un kV	Rated Current In A	Dimensions			Breaking Capacity kA	Minimum Breaking Current Ib A	Resistance when cold $\Omega$	Watts loss at In w
		D mm	L mm	Weight kg				
20	2.5	50	508	2.0	40	8	3.860±0.190	14
	4	50	508	2.0	40	14	1.720±0.090	18
	6.3	50	508	2.0	40	24	0.485±0.015	20
	10	50	508	2.0	40	36	0.280±0.010	28
	16	50	508	2.0	40	58	0.140±0.005	34
	20	50	508	2.0	40	72	0.090±0.005	36
	25	50	508	2.0	40	96	0.080±0.003	50
	31.5	50	508	2.0	40	155	0.055±0.003	56
20	40	60	442	2.9	40	180	0.040±0.002	64
	50	75	442	3.5	40	200	0.033±0.002	85
	63	75	442	3.5	40	230	0.024±0.002	95
	80	75	442	3.5	40	280	0.018±0.002	110
	100	75	442	3.5	40	340	0.015±0.002	180
	125	75	442	3.5	40	380	0.012±0.002	240
	160	75	442	3.5	40	560	0.009±0.002	340





**MEDIUM VOLTAGE FUSE LINKS HV TYPE SERIES III 12 KV AND 24 KV WITH PIN STRIKE 50 N 80 N AND 120 N IEC 282-1**

Nominal Voltage Un kV	Rated Current In A	Dimensions			Weight kg	Breaking Capacity kA	Minimum Breaking Current Ib A	Resistance when cold $\Omega$	Watts loss at In w
		D mm	L mm						
10	6.3	50	290		1.38	60	32	0.300±0.012	11
	10	50	290		1.38	60	45	0.180±0.008	18
	16	50	290		1.38	60	72	0.100±0.005	24
	20	50	290		1.38	60	98	0.060±0.004	26
	25	50	290		1.38	60	113	0.051±0.003	31
	32	50	290		1.38	60	148	2.040±0.002	41
	40	60	290		1.95	60	180	0.030±0.002	48
	50	75	290		2.40	60	225	0.024±0.002	60
	63	75	290		2.40	60	284	0.018±0.002	71
20	6.3	50	442		1.9	40	24	0.485±0.015	20
	10	50	442		1.9	40	36	0.280±0.010	28
	16	50	442		1.9	40	58	0.140±0.005	36
	20	50	442		1.9	40	72	0.090±0.005	36
	25	50	442		1.9	40	96	0.080±0.005	50
	32	50	442		1.9	40	155	0.055±0.003	56
	40	60	442		2.7	40	200	0.040±0.002	64
	50	75	442		3.4	40	275	0.033±0.002	82
	63	75	442		3.4	40	315	0.024±0.002	95

**TECHNICAL SPECIFICATION FOR MEDIUM VOLTAGE FUSE LINKS HV TYPE SERIES III 12 KV AND 24 KV 50 N, 80 N AND 120 N**

	RATED CURRENT								
	Unit	6,3 A	10A	16A	20A	25A	32A	40A	63A
Dimension of the Contact diameter	mm	φ45	φ45	φ45	φ45	φ45	φ45	φ45	φ45
Internal Contact	mm	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*	290/422*
Nominal Voltage	kV	10/20	10/20	10/20	10/20	10/20	10/20	10/20	10/20
Maximum Voltage	kV	12/24	12/24	12/24	12/24	12/24	12/24	12/24	12/24
rated power loss	W	11/20	18/28	24/36	26/36	31/50	41/56	48/64	71/95
Rate frequency	Hz	50	50	50	50	50	50	50	50
Striker type	N	20	20	20	20	20	20	20	20
Breaking capacity	kA	60/40	60/40	60/40	60/40	60/40	60/40	60/40	60/40

**\*-Regarding only Serie I**

Standard specification	IEC 282-1	Material of fuse links body	Glazed porcelain brown
Class of fuse link	Back up fuse link	Arc extinguishing material	Quartz dry sand
Material of fuse links contacts	Cu (Copper)	Colour striker	Red
Material contacts surface	Ni (Nickel)	Temperature rise limits	Table 8 IEC 282-1
Material of melting elements	Silver-Plated	Sealing of fuse link	Hermitically sealed resistant to temperature

**High Voltage Fuses For Measuring Voltage Transformers Series Type SERIES V 12 kV, 15,5 kV, 25,5 kV AND 36 kV**



Nominal Voltage Un kV	Rated Current In A	Dimensions			Breaking Capacity kA	Resistance when cold $\Omega$
		D mm	L mm	C mm		
12	2	20,5	257	13,5	45	1.320
15,56	2	20,5	257	13,5	32	1.380
25,5	2	20,5	340	13,5	25	1.850
36	2	36	400	25	25	1.850



The company also produces HV fuses on customer's request with different diameter of the porcelain body and the contacts.





**FUSE HOLDER WITH AN ARRESTER**

The best parameters of the fuse bases meet the requirements of IEC 282-1. The dimensions are according to BDS 8945-79

Type	Nominal voltage kV	Type of installation	Dimensions								Weight kg
			A	B	C	D	E	F	G		
SVvP 10	10	Indoor	295	140	435	230	185	80	325	5,5	
SVvP 20	20	Indoor	445	290	580	295	185	80	475	7,6	
SVvP 35	35	Indoor	540	385	680	435	220	80	570	14,5	
SVvPO 10	10	outdoor	295	145	435	600	220	80	325	17,7	
SVvPO 20	20	outdoor	445	300	600	420	220	80	475	18,3	
SVvPO 35	35	outdoor	540	390	680	560	220	100	570	30	

## Hitech DC Switches HS5000 & HS6000 ranges

Hitech HS5000 & HS6000 DC range of switch dis-connectors are available for application in 1000V & 1500V DC systems these are used in Photovoltaic application and are employed in Solar inverters & combiner boxes. HS5000 & HS6000 DC switches are designed in accordance with the standards of IEC/EN 60947-3.



### SALIENT FEATURES:

- Quick make and break operation.
- Suitable for multi voltage application (Contacts in series).
- Four break points per pole.
- Clear ON-OFF Indication.
- Direct handle with padlock feature.
- Panel handle with door interlock & padlock features.
- Terminal shrouds and bridging links are available.
- Auxiliary contacts for control application.

For additional information please refer Hitech's detailed catalogue on switch dis-connectors.

## Hitech switch disconnectors for AC application

Hitech AC switch dis-connectors (HS5000 & HS6000) are designed in accordance with the standards of IEC/EN 60947-3.

### Salient features:

- Available from 63A to 3150A.
- On load switching of loads up to 1000 VAC.
- Rated breaking current of up to 8 times the rated operational current.
- High making and withstanding currents of up to 100 kA short circuit current. Uninterrupted duties in extreme tropic and arctic conditions.
- Protection against accidental over voltages in equipments connected between phase and neutral. Four pole standard version(3P+N) with advanced switched neutral pole(early make& late break).
- Reliable isolation and contact position indication throughout the lifetime of the switch even after short circuits.
- Molded case design with frame parts of non-flammable glass fibre reinforced polyester with high mechanical and electrical tracking resistance and with low water absorption.
- Excellent thermal and dielectric properties of insulating materials adjacent to current carrying parts.
- Knife type contacts with self wiping action provide increased contact pressure under high starting currents and short circuit conditions.
- Knife type contacts are shock and vibration proof.
- Four breaking points per pole with two double break contacts.
- Two stage make/break contacts ensures working contact is free of the damaging effect of the electric arc. An additional section is provided to take up the strain.
- Quick make - break action with a spring loaded energy mechanism ensures independent operation.

For additional information please refer Hitech detailed catalogue on switch disconnectors.



conforms to Standards IS:13703 part 2 sec 1/IEC 269  
IS:13947-3/IEC 60947-3



"Electricity is an inseparable part of our daily life. But uncontrolled electrical power can be extremely dangerous, overloads, crowded wiring, short circuits and all kinds of interruption in electric supply can lead to devastating & colossal losses to life and properties. Hence, use of protective device is advisable"



## The switching machine $\equiv$ Type FS

### SWITCH DISCONNECTOR FUSE UNITS



IMAX SWITCHES is uniquely inbuilt, shrouded, compact with generous terminal capacity and a fused short circuit capacity upto 80 KA.

IMAX SWITCHES are feature rich with aesthetic looks, elegance, sturdy & economical. Features that no other SDF offers. Because of these unique characteristics the IMAX SWITCHES are in the frontline of protection.



- i - Indigenous
- i - instant power saver
- i - intelligent
- i - inbuilt electrical shroudings
- i - instant rich looks

#### INNOVATIVE DESIGN :

The design of imax switch type FS is based on the innovative : 'QUAD BREAK' principle. This design enables a drastic reduction in the intensity of arc, which is produced at the time of breaking. During breaking the current path is broken at four places in series, thus the arc is reduced. This leads to less strain on the contacts and the life of the switch is increased.

The moving contacts are designed to make two parallel current paths, which produce high electro-magnetic attraction forces during high faults and increase the contact pressure, this eliminates chance of arcing at the contacts and allow the fuse to safely clear the fault. The self-cleaning contacts ensure wiping of deposits during each operation and increase the life of the contacts.

#### TOTAL SAFETY :

The fuses in imax switches type FS are stationary and are isolated at the both the incoming and outgoing ends, this offers complete safety for fuse replacement in OFF condition.

The switch mechanism is quick-make quick-break i.e. independent of operating speed. Positive ON/OFF indication is provided at the switch handle and mechanism assembly.

The complete range from 32A to 250A is offered in TP/TPN versions. Phase barriers are provided as a standard feature to prevent any accidental fault between the fuses.

### GENERAL CHARACTERISTIC

- Complies with IEC 947-3/IS 13947 part 3
- Hitech fuses short circuit capacity : upto 80 KA
- No movement of fuses / long life : Stationery fuses with double break arrangement ensure long mechanical & electrical life of switch fuses. The fuse does not run the risk of getting popped out due to shock of movement.
- Kompact size / space saving in panels, mcc's & db's. As a result of patented contact construction & the quick make, quick break mechanism, the switch disconnecter fuse unit are very compact.
- Unique handle with unmatched standard
- Provide Ip54 degree of protection. □ Adjustable telescopic shaft. □ Unbreakable engineering plasting moulded handles.
- Provisions for Defeating interlock. □ Door interlocking in 'ON' position. □ Padlocking facilities both in ON & OFF position.
- ◆ Full range of accessories ◆ Door interlock handle ◆ Terminal shrouds ◆ AC23A utilisation category pertaining to frequent Switching of motor loads or other highly inductive loads with making & breaking condition as under.

Operational Current (Ie)	Making Capacity	Breaking Capacity
0<Ie<100A	10xIe at 105% rated voltage at 0.45 p.f.	8xIe at 105% rated voltage at 0.45 p.f.
100A<Ie	10xIe at 105% rated voltage at 0.35 p.f.	8xIe at 105% rated voltage at 0.35 p.f.







## SALIENT FEATURES

- ◆ Range : Switch disconnector fuse units from 32A to 250A
- ◆ Available in isolable neutral switched neutral design.
- ◆ The unique contact system and quick Switching mechanism prevents contacts from opening at extreme fault currents.
- ◆ Fuse links remains isolated from both incoming and outgoing circuits, when the switch is in OFF position.
- ◆ Available with Knife fuse contacts & also bolted on request.
- ◆ Available in open execution and with enclosure.
- ◆ Can be mounted in vertical or horizontal position.
- ◆ Padlock, door interlock and defeat interlock provided.
- ◆ Ideally suited for power control centres (PCC).
- ◆ The Switch disconnector fuses are designed to perform as
  - (i) Main Switches (ii) Motor circuits switches (AC23 rating upto 660V) (iii) Isolator switches (iv) Local safety switches (v) Special switches
- ◆ Ambient temp 60°C, derating 20%, mounting on ceiling derating 10%, Mounting on wall, horizontal fuses, derating 8%.
- ◆ Max power dissipation of fuse link 16W.
- ◆ The capacitor rating of the switch disconnector fuse units is limited by the fuse link.
- ◆ Some fuse links limit these further starting current characteristics must be considered separately.
- ◆ Max power dissipation 50w.
- ◆ UC-415V, at 660V max peak let through current is 8KA.
- ◆ Phase barrier & Terminal shrouds are standard accessories
- ◆ Maximum ground clearance.

### Strong Point

- ◆ Range: 32A to 250A TP/TPN versions, 415V, 50Hz.
- ◆ Conforms to limit IS 13947-3 / IEC 947-3.
- ◆ Separate bridge for each pole.
- ◆ Separate arcing / current carrying zone.
- ◆ Clear on/off indicator.

## TECHNICAL CHARACTERISTIC

### Technical Data Switch Disconnector Fuse - Type FS - IS 13947-3 / IEC 947-3

Type Designation		FS32	FS63	FS100	FS125	FS160	FS200	FS250
No. of poles		TP/TPN	TP/TPN	TP/TPN	TP/TPN	TP/TPN	TP/TPN	TP/TPN
Rated thermal current (Ith) (at 40°C)	A	32	63	100	125	160	200	250
Rated operational voltage (Ue)	V	415	415	415	415	415	415	415
Rated insulation voltage (Ui)	V	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage (Uimp)	kV	8	8	12	12	12	12	12
Dielectric Strength 50Hz 1 min.	kV	6	6	10	10	10	10	10
Rated frequency	Hz	50-60	50-60	50-60	50-60	50-60	50-60	56-60
Conventional enclosed thermal current at 40°C (Ithe)	A	32	63	100	125	160	200	250
Rated operational current (Ie) @ 415V,	A							
AC-21A utilization category	A	32	63	100	125	160	200	250
AC-22A utilization category	A	32	63	100	125	160	200	250
AC-23A utilization category	A	32	63	100	125	160	200	250
Rated making capacity (415v, Cos =0.35)(0.45*)	A(rms)	320*	630*	1000	1250	1600	2000	2500
Rated breaking capacity (415v, Cos =0.35)(0.45*)	A(rms)	256*	504*	800	1000	1280	1600	2000
Rated fused short circuit current	kA	80	80	80	80	80	80	80
Capacitor duty at 415V, 50-60Hz	kVAR	15	30	45	55	57	90	110
Mechanical life (Operating cycles)		15000	15000	10000	10000	10000	10000	10000
Electrical life (Operating cycles)		1500	1500	1000	1000	1000	1000	1000
Terminal size	mm	12x2	12x2	16x4	16x4	16x4	25x4	25x4
Terminal capacity	mm2	25	25	70	95	95	185	185
Details of Hitech Fuses Suitable for Switch Disconnector Fuse Unit								
Type designation of fuse		HTHF	HTHF	SQD000	SQD00	SQD00	SQD0	SQD01
Size of fuse as per IS-13703 (Part I & II)		A1	A2	A3	A3	A4	B2	B3
Ratings of Indo hitech make fuses BS type available	A	6-32	6-63	6-100	6-125	6-160	32-200	32-250
Ambient Temperature	°C	40	40	40	40	40	40	40
Weight	kg	1.1	1.1	3	3	3.5	5.3	5.5
Maximum Torque (On terminal bolt)	Nm	4.5	4.5	9.0	9.0	9.0	20	20
Conformance to Standard		IS 13947(Part 3), IEC 60947-3, EN 60947-3						

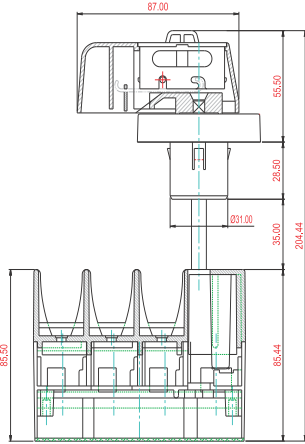
\*Please contact for details



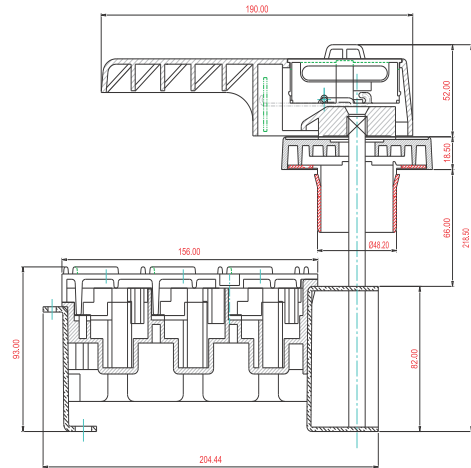


**OVERALL DIMENSION**

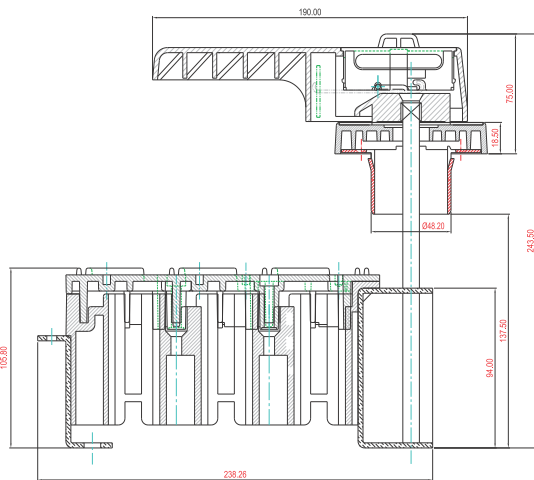
Switch Disconnecter Fuse (TPN)  
Type FS 32 / FS 63



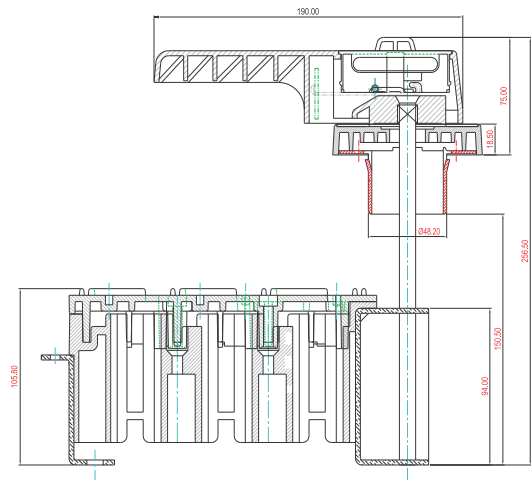
Switch Disconnecter Fuse (TPN)  
Type FS 100/125/160



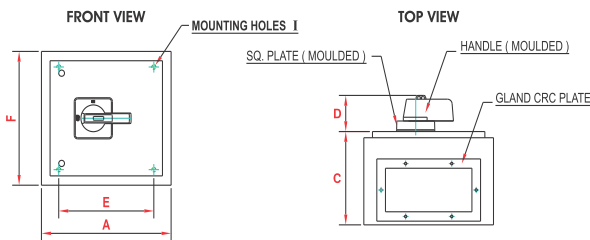
Switch Disconnecter Fuse (TPN)  
Type FS 200



Switch Disconnecter Fuse (TPN)  
Type FS 250



**FS Switch Disconnecter Fuse (TPN) in Sheet Steel Enclosure**



Rating	A	B	C	D	E	F	G	H	I
32	225	215	150	60	175	165	180	100	4 X Ø7
63	225	215	150	60	175	165	180	100	4 X Ø7
100	320	290	180	80	215	190	255	110	4 X Ø9
125	320	290	180	80	215	190	255	110	4 X Ø9
160	320	290	180	80	215	190	255	110	4 X Ø9
200	370	300	205	80	265	190	290	125	4 X Ø9
250	370	300	220	80	265	190	290	125	4 X Ø9

ILLUSTRATION NOT TO SCALE Sheet Thickness 1.6 mm.





## SWITCH DISCONNECTOR FUSE UNIT - FS - DETAILS OF VARIOUS IMPORTANT PARTS

Phase barriers an additional safety feature to eliminate the possibility of interphase short circuit

### Handle Coupling :

- Easy fixing on panel door
- Door Interlock
- Padlock
- Flexibility

### Terminal Shrouds:

The terminals can be shrouded for protection against phase-phase short circuit through an external conducting path and also for protection against accidental human contact to live terminals.

### Visual ON-OFF indication

### Stationery fuses :

Fuses remain stationary during switching operation.

### Built-in neutral :

Switch-Disconnecter Fuse Consist of an integral, neutral, making the units suitable for 3-phase, 4-wire application. FS 32/63 has switched neutral while higher ratings have isolable neutral.

### Positive isolation of fuses :

In I-max Type FS Switch Disconnecter fuse units fuses are isolated from both sides. This offers safety to operating personnel while replacing fuses.

### Mechanism :

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

### Flexibility in mounting :

The Switch-Disconnecter fuse units can be mounted at any angle in a vertical plane.

## SPECIAL FEATURES OF TYPE FS SERIES:

- Kompact design saves space
- Quad break contact system
- High making & breaking capacity
- High electrical & mechanical life.
- Ease of maintenance
- Electrodynamic compensation
- Full AC-23A rating for the complete range
- Highest fused short circuit capacity
- Quick make/Quick break/positive break
- Separate arcing/current carrying zone
- Clear ON/OFF indicator
- High clearance & creepages
- Separate bridge for each pole
- Phase barrier & Terminal shroud as a standard accessory
- Maximum ground clearance
- Fuse stationery & isolated from both sides
- Replaceable contacts for enhanced life
- Suitable for vertical & horizontal orientation





# HITECH SWITCHGEAR INDIA

AN ISO 9001:2015 CERTIFIED COMPANY



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- B.A.R.C.
- B.E.S.T Undertaking. (Mumbai)
- Currency Note Press. (Nashik)
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- R.E.B. (JVVNL, Jaipur)
- R.E.B. (AVVNL, Ajmer)
- Sanjay Gandhi Thermal Power Station (MPEB)



Regd. Office & Works :

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