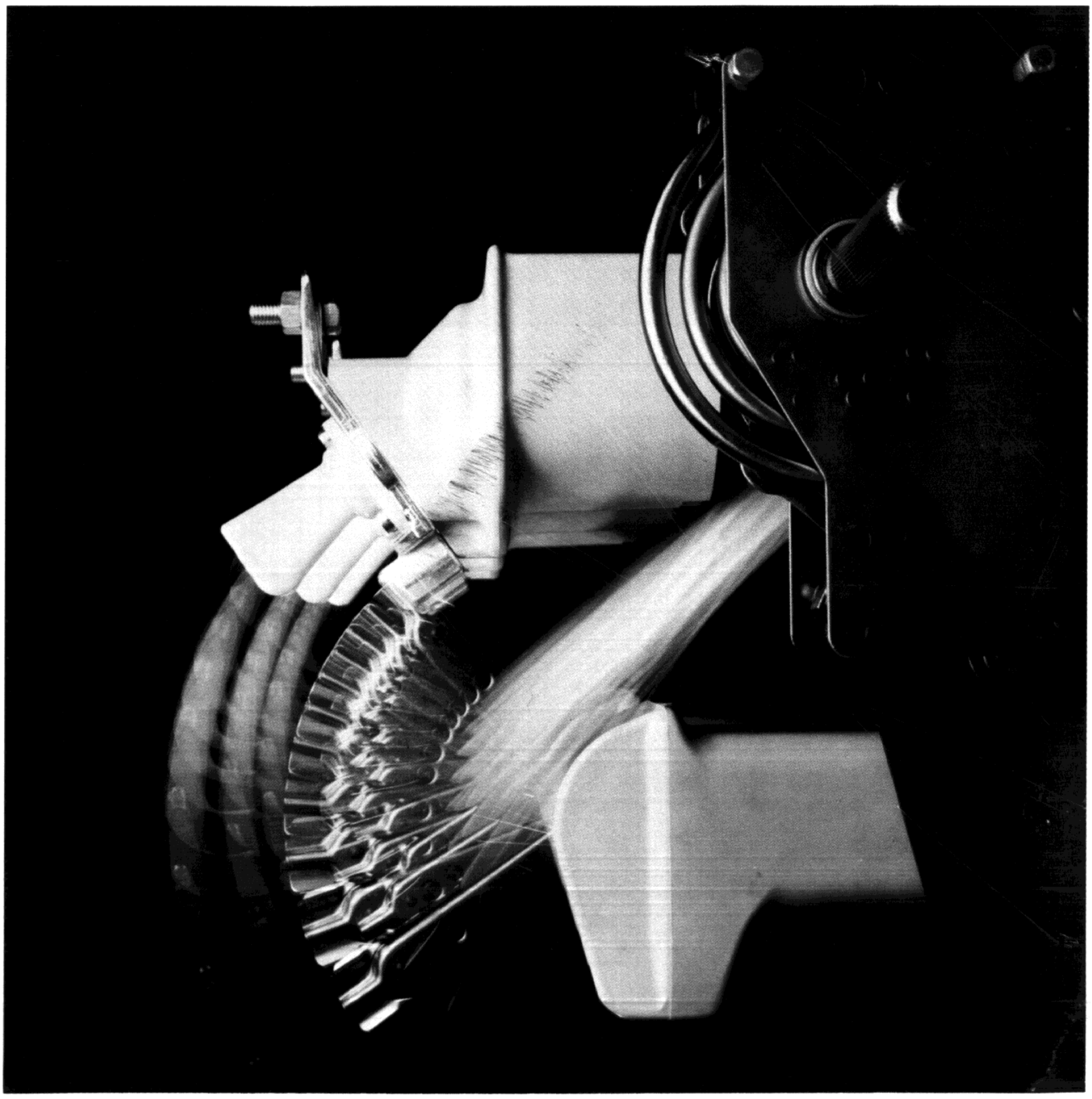
BBC
BROWN BOVERI

I-T-E Versa-Rupter Indoor Interrupter Switch

4.76 thru 25.8 Max. Voltage
200 thru 600 Amperes

Bulletin 2.1.3-1A

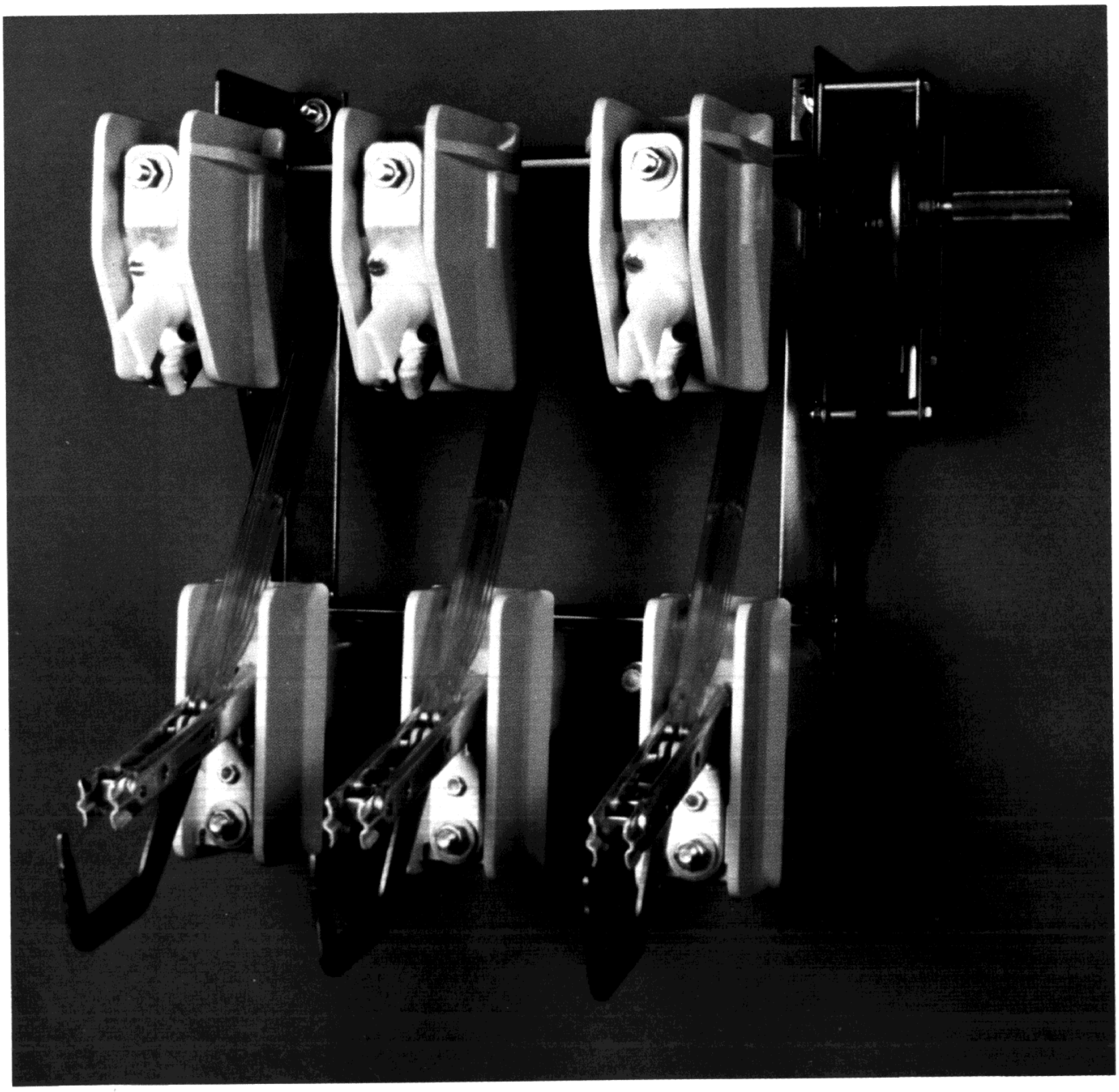


Brown Boveri Electric

Versa-Rupter Standard Features

Brown Boveri Electric has greatly expanded your options for the 80's with this unique, new indoor interrupter switch. The Versa-Rupter is a general purpose interrupter switch suitable for all types of load break applications. The design principle is based on the combination of a number of autonomous modules to give high flexibility, short delivery time and a minimum of necessary spare parts. With ratings of 4.76, 15 and 25.8kV, 200 and 600A continuous, the Versa-Rupter also offers these standard features

- Three-pole frame mounting
- Glass reinforced polyester insulation
- Compact, lightweight design
- Versatile operating mechanism locations
- Mounting for CL-14 fuse



Plus These Value Added Benefits

- Built-in inner and outer phase barriers
- Dual arc extinguishing system
- Innovative space-saving design
- Total motor operation

General Description

The Versa-Rupter is a three-pole, two position, gang-operated interrupter switch. The three poles, stored energy operating mechanism and gang-operated mechanism parts are mounted on a steel frame with complete factory alignment and adjustment of parts and ready for installation. The switch insulation system is glass reinforced polyester providing maximum impact resistance, mechanical strength and electrical properties including track resistance and flame retardance. The interrupting medium is a dual arc extinguishing system utilizing an auto-pneumatic air blast and hard gas nozzle principle. The well balanced utilization of this dual system results in a very reliable and durable arc extinguishing system for rated currents.

The switch is designed to accommodate two types of manual operating handle locations to permit optimum use of enclosure space. A chain drive front operator can be mounted to the left or right of enclosure at the desired height. A direct drive side operator can be mounted on either the left or right hand side of the enclosure. Both types are designed for Kirk™ key interlocks and have provisions for padlocks.

Ratings

Table 1 — Interrupting

Interrupting Life on Close-Open Duty Cycle				Fault Closing Three-Phase RMS Asym kA
Max. Design, kV.	Power Factor	Current, A.	Number of Interruptions	
4.76	0.7	200	105	30
		600		45
15		200		40
		600		
25.8		600		30

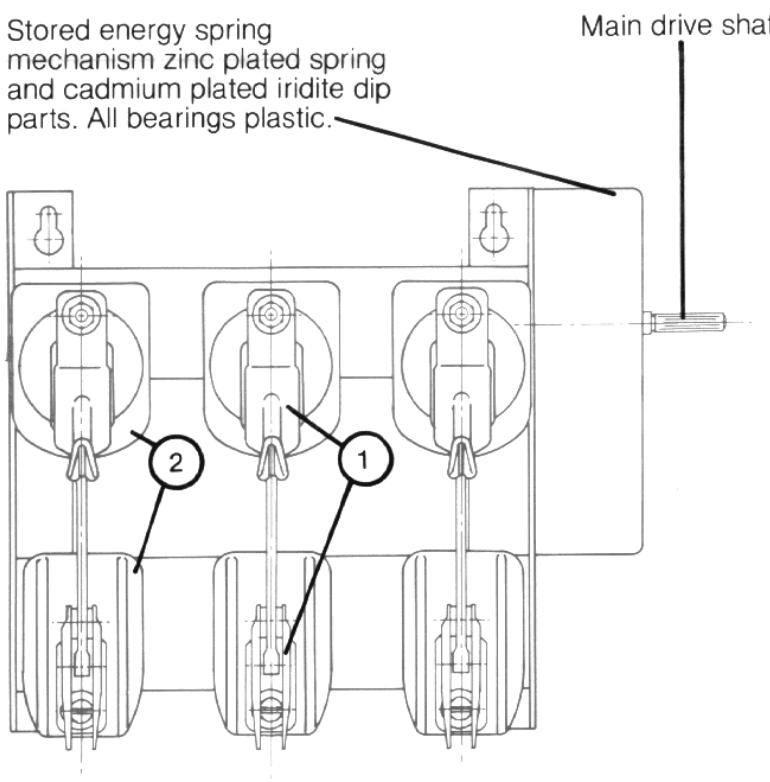
Table 2 — Voltage

Nom. Design, kV.	Max. Design, kV.	Withstand	
		60 Hz	Impulse, kV.
4.16	4.76	19	60
13.8	15	36	95
23	25.8	60	125

Table 3 — Current

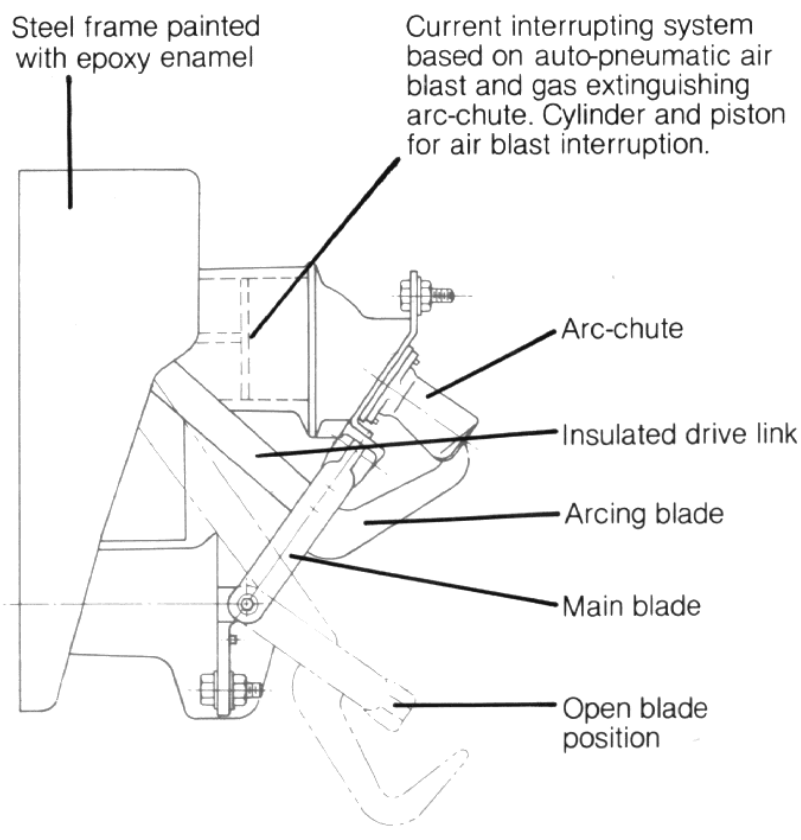
Cont., Current, A.	Max. Design, kV.	10 Cycle Momentary RMS Asym. kA.	2-Second Short-Time RMS Sym. kA.
200	4.76	30	20
600		45	30
200	15	40	25
600			
600	25.8	30	20

Construction Features



(1) Main blades, jaw and hinge contacts completely silver plated
(2) Reinforced glass polyester insulators

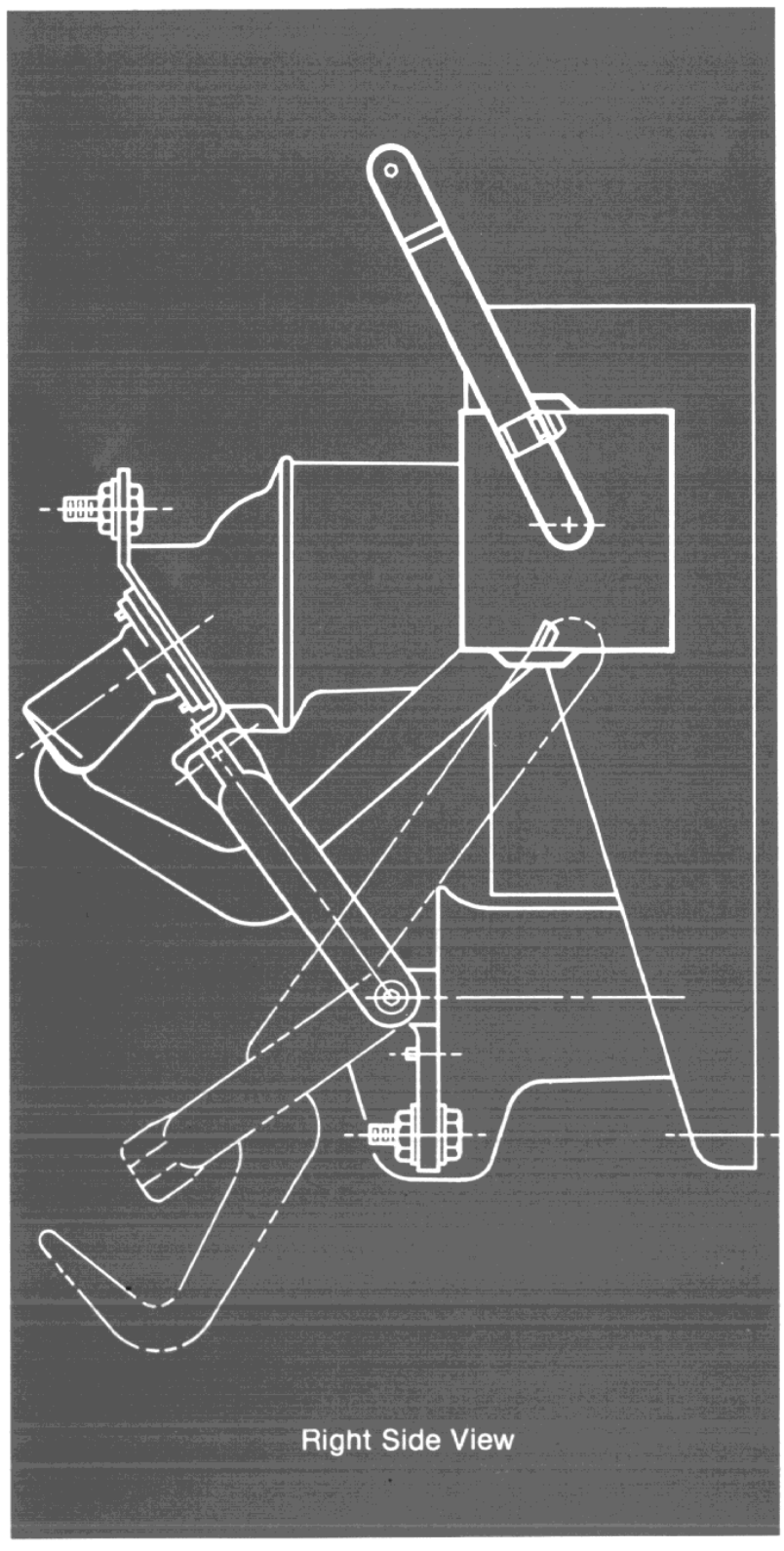
Front View



Left Side View

Direct Drive Side Operator

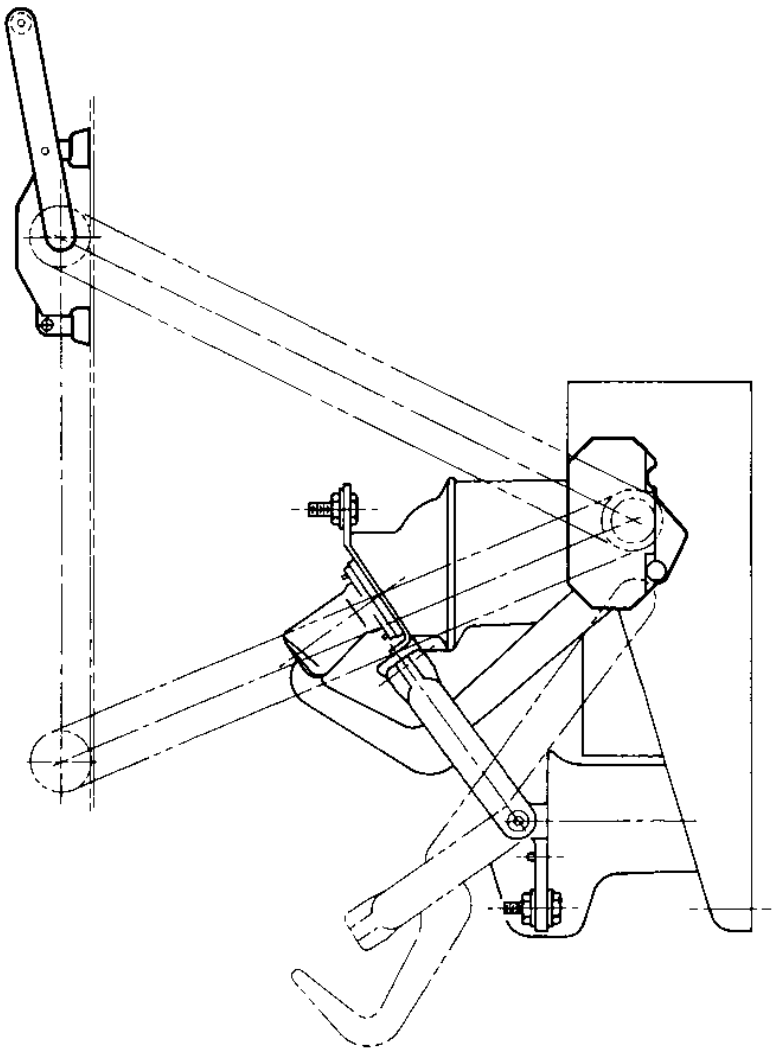
The direct drive side operator can be mounted on either the left or right side of the enclosure. Single-enclosure units and secondary unit substations requiring one primary switch are specific applications where the side operator can be used. The handle is designed for Kirk™ key interlocks which provide for a wide variety of switch interlocking applications. It also has provisions for padlocking in either the open or closed position as a standard feature.



Right Side View

Chain Drive Front Operator

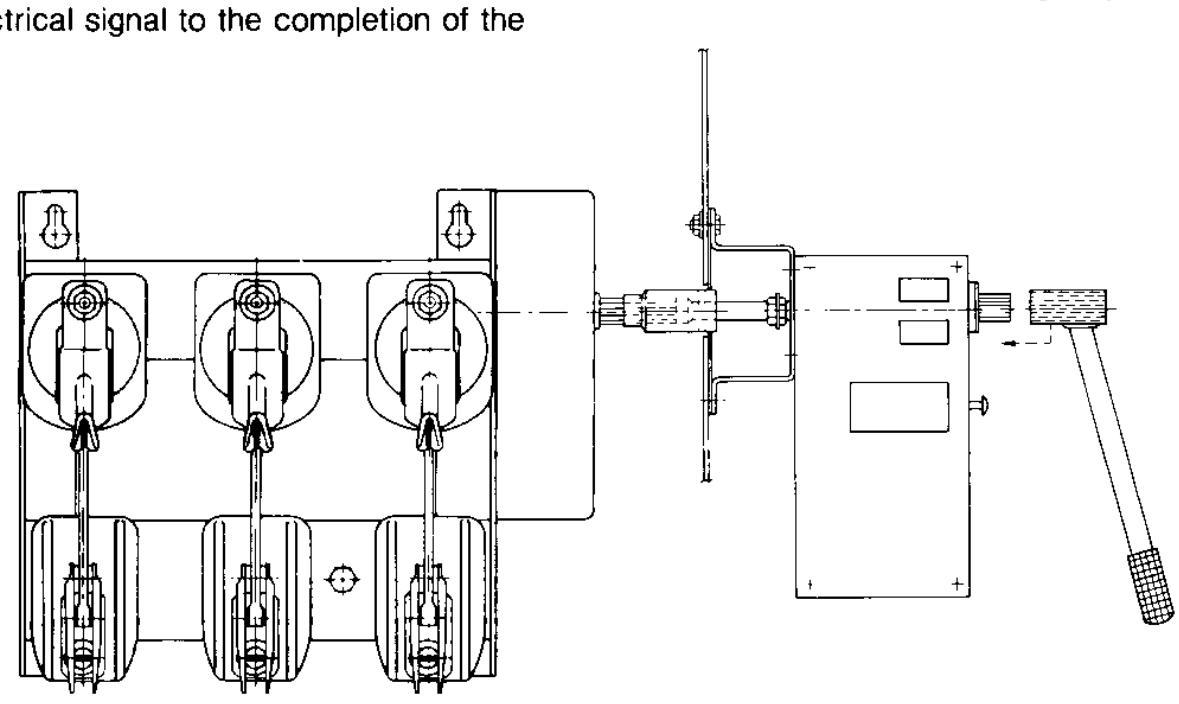
The chain drive front operator can be mounted to suit individual design requirements without restriction to a fixed position. The chain drive handle can be mounted to the left or right on the front or back, and can be located at any height desired to meet the enclosure design. The handle is designed for Kirk™ key interlocks which provide for a wide variety of switch interlocking applications. It also has provisions for padlocking in either the open or closed position as a standard feature.



Motor Operator

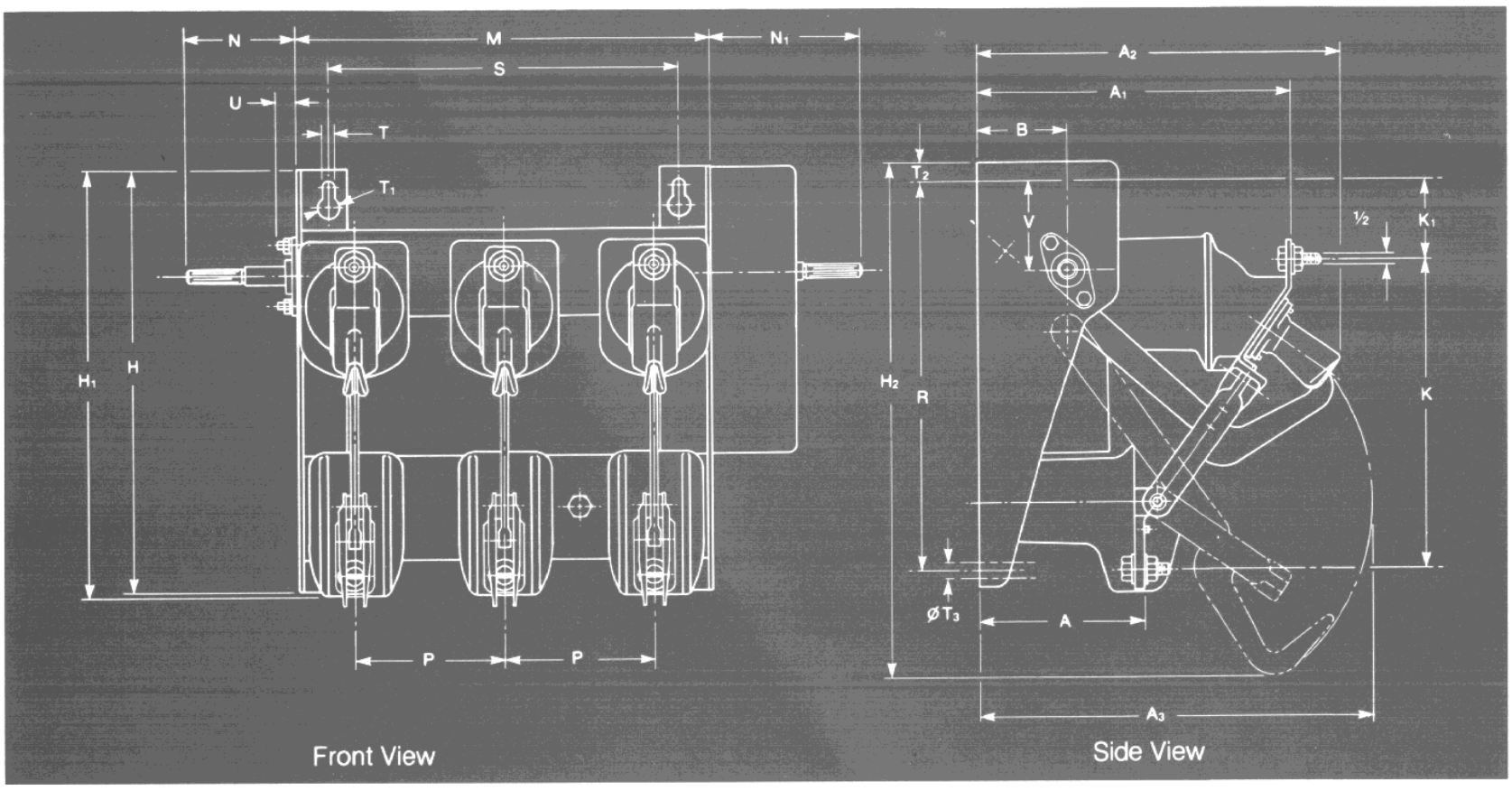
For automatic transfer or remote control, the motor and gear unit is coupled to the stored energy mechanism shaft to charge the spring for switch operation. The total time from the instant the motor receives the electrical signal to the completion of the switch closing or opening operation is 6 seconds.

The motor can be mounted to the right side of the switch as shown or to the left side, if required. A loose handle is furnished for emergency manual operation.



Dimensions

Frame Mounted Un-Fused Switch



Max. Voltage KV.	UNIT	A	A1	A2	A3	B	H	H1	H2	K	K1	M	N	N1	P	R	S	T	T1	T2	T3	U	V
4.76	INCH	6 9/16"	12 19/32"	14 1/4"	15 1/2"	3 17/32"	16 5/8"	16 27/32"	20 3/32"	12 7/32"	2 1/2"	16 17/32"	4 13/16"	6 15/32"	5 29/32"	14 3/4"	13 25/32"	19/32"	1"	1 5/16"	23/32"	1 7/32"	2 31/32"
	MM	166	320	362	394	90	422	428	510	310	63	412	122	164	150	375	350	15	25	33	15	31	75
15	INCH	8 27/32"	14 3/4"	16 15/32"	20 1/8"	3 27/32"	21 1/32"	22 23/32"	23 5/8"	17 3/8"	3 7/16"	17 13/16"	4 13/16"	6 15/32"	6 11/16"	19 11/16"	15 9/16"	19/32"	1"	23/32"	23/32"	1 7/32"	3 11/32"
	MM	225	375	418	511	98	534	577	600	441	87	452	122	164	170	500	395	15	25	18	15	31	90
25.8	INCH	8 27/32"	14 3/4"	16 15/32"	20 1/8"	3 27/32"	21 1/32"	22 23/32"	23 5/8"	17 3/8"	3 7/16"	26 1/16"	7 5/16"	7 31/32"	10 13/16"	19 11/16"	23 13/16"	19/32"	1"	23/32"	23/32"	1 7/32"	3 11/32"
	MM	225	375	418	511	98	534	577	600	441	87	662	186	202	275	500	605	15	25	18	15	31	90

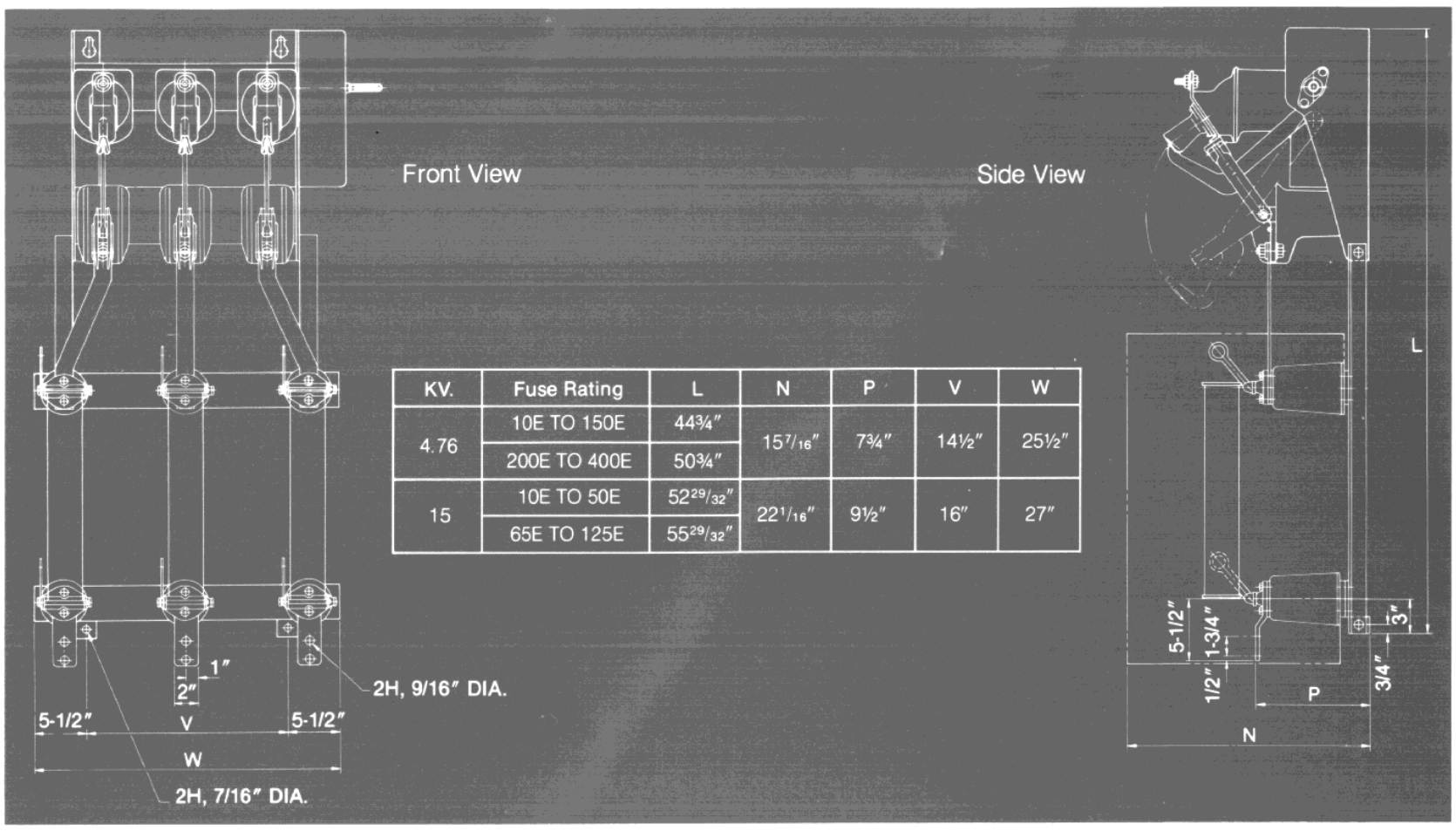
Guide Specifications

Indoor load interrupter switches (hereafter referred to as switch) shall be three pole, two position, gang-operated. The three switch poles, stored-energy operating mechanism and gang-operated mechanism parts shall be mounted on a rigid steel frame forming a unitized assembly to withstand mechanical stresses caused by short circuit currents. The switch shall be equipped with a stored-energy quick make-and-break device to open and close the switch independent of speed with which the handle is moved.

The switch insulation system shall be reinforced glass polyester designed to provide maximum electrical properties, mechanical strength and extended creepage distances. This insulation system shall have operating experience of at least 15 years under similar conditions. The switch insulation phase to phase and phase to ground barriers will be an integral part of the insulation system to assure proper insulation of live parts.

The switch shall have separate main blade make-and-break contacts to provide maximum endurance for fault close and load interrupting duty. The main blade contacts shall be silver plated copper, designed to maintain high-pressure contact when engaged with jaw and hinge. The jaw and hinge shall be a one-piece forged copper alloy completely silver plated to provide

Frame Mounted Fused Switch



KV.	Fuse Rating	L	N	P	V	W
4.76	10E TO 150E	44¾″	15 7/16″	7¾″	14½″	25½″
	200E TO 400E	50¾″				
15	10E TO 50E	52 29/32″	22 1/16″	9½″	16″	27″
	65E TO 125E	55 29/32″				

Max. Voltage KV.	UNIT	A_1	A_2	A_3	A_5	B	D	K_1	M	N	N_1	P	R	R_1	R_2	S	T	T_1	T_2	T_3
4.76	INCH	12 19/32″	14¼″	15½″	6 13/16″	3 17/32″	3 17/32″	3 1/16″	16 7/32″	4 13/16″	6 15/32″	5 29/32″	15 11/32″	12 19/32″	3 11/32″	13 25/32″	19/32″	1″	23/32″	19/32″
	MM	320	362	394	173	90	90	78	412	122	164	150	390	320	85	350	15	25	18	15
15	INCH	14¾″	16 15/32″	19 17/32″	8 31/32″	3 27/32″	3 17/32″	3 7/16″	17 25/32″	4 13/16″	6 15/32″	6 11/16″	19 11/16″	12 7/32″	9⅛″	15 9/16″	19/32″	1″	23/32″	19/32″
	MM	375	418	496	228	98	90	87	452	122	164	170	500	310	232	395	15	25	18	15

maximum heat dissipation and current transfer. The arc extinguishing system shall be a dual arrangement utilizing a auto-pneumatic air blast and gas extinguishing arc-chute to achieve maximum arc extinction.

The switch operating handle shall be externally mounted on the front or side of the enclosure and is non-removable to insure continuity of operation and immediate availability for emergency operations. The handle will include switch position "open" and "closed" indicators. The handle shall have provisions for padlocking in either the open or closed position for Kirk™ key interlocks.

The interrupter switches shall be rated 200 and 600 amperes continuous and interrupting. The momentary and fault-closed maximum ratings shall be 45 kA. at 4.76, 25kA. at 15 and 30 kA. at 25.8kV. Fused switch continuous, fault-close and interrupting ratings shall be dependent upon the specified fuse characteristics.

All components of the switch shall be completely checked and operated in compliance with quality assurance procedure IAP-PFI 3.5 to insure that all parts function as intended after manufacture and assembly. Testing shall consist of power frequency withstand and mechanical operation.

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