

Overhead Switches

Hookstick-Operated

Catalog 14B - February 2024



M3 Disconnect Switches

15kV, 27kV and 38kV Max; 600 or 900 Amp; 40kA Momentary

Application

The Chance M3 Disconnect Switch is a single-phase hookstick-operated switch. It is for manual switching of overhead lines on electrical distribution systems up to 38kV. Design variations allow for applications as a distribution switch or a substation switch. Rated for 600 or 900 amps continuous, 40,000 amps momentary and 25,000 amps sym. 2-seconds short-time withstand, the M3 may be applied on:

- Dip/Riser poles
- Single crossarm
- Double crossarm
- Aluminum or steel structure

and wherever a disconnect switch is desirable for line sectionalizing. The addition of optional bypass studs allows for bypassing reclosers, regulators, capacitor banks or metering devices.

Operation

All Chance M3 disconnect switches include Loadbreak hooks which serve both as a blade closing guide and for use with a portable Loadbreak tool. To open the switch under load, use only an approved Loadbreak tool and refer to the tool manufacturer for instructions.

Positive latching is provided. Silver-plating on the contact areas enhances efficient current transfer. For easy opening and ice-breaking action, the pull ring activates the latch as a pry-out lever.

Distribution Class Ratings

Nominal Voltage/BIL	15kV/110kV, 27kV/125kV, 38/150kV, 38/200kV
Continuous Current	600 or 900 amp
Momentary Current	40,000 amperes asymmetrical
Short Time Withstand Current 2-sec.	25,000 amperes sym
Deadending	8,000 lb. (3629 kg) working load

Distribution Class Insulators

Distribution class insulators are 2 1/4" (57 mm) bolt-circle, provided with 110, 125, 150, or 200kV BIL respectively for the 15, 27 and 38kV ratings. These are available in either ESP™ silicon alloy rubber or porcelain insulators. The 38kV 200kV BIL insulator is available in ESP™ only.

Distribution Class (2.25" Bolt-Circle) Switch Ratings

Max. kV	Rated BIL*	Material	Switch Electrical Ratings				Insulator Mechanical Ratings				
			Leakage Distance, inches (mm)	Dry Arc Distance, inches (mm)	60 Hz Flash-over, kV*		Cantilever, pounds (N)	Tension, pounds (N)	Torsion, in.-lb. (Nm)	Compression, pounds (N)	Weight, lb. (kg)
					Wet	Dry					
15	110	ESP Rubber	17.2 (437)	7.1 (180)	30	38	1,200 (5,338)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	2.90 (1.32)
		Porcelain	10.5 (267)	6.0 (152)	30	38	1,200 (5,338)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	7.73 (3.51)
27	125	ESP Rubber	21.9 (556)	8.1 (206)	45	50	1,000 (4,448)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	3.30 (1.50)
		Porcelain	15.5 (394)	7.0 (178)	45	50	1,000 (4,448)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	9.00 (4.08)
38	150	ESP Rubber	28.0 (711)	10.0 (254)	60	70	800 (3,559)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	4.50 (2.04)
		Porcelain	24.0 (610)	9.5 (241)	60	70	800 (3,559)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	11.45 (5.19)
38	200	ESP Rubber	52.0 (1320)	15.7 (399)	95	80	800 (3,559)	5,000 (22,241)	3,000 (339)	5,000 (22,241)	10.3 (4.67)

*ANSI Rating. Less than test results. Test reports available upon request.

Components of the M3 Switch

1. Bypass Studs (Optional)

Two copper alloy bypass studs used for regulator, reclosers, and metering devices for bypassing operations. Provides superior corrosion protection as well as high conductivity. Chance hot line clamps are to be used in conjunction with this option (refer to section 13 of the Chance catalog for selection of proper clamp).

2. Terminal Pad (Standard)

High conductivity tin-plated copper, NEMA two-hole terminal pad.

3. Back-up Springs (Standard)

Two stainless steel springs (300 series) for high strength and superior corrosion resistance to maintain efficient current transfer at the stationary contact and end of blade.

4. Loadbreak Hooks (Standard)

Hot dipped galvanized steel to ASTM A153 for corrosion protection to be used with portable Loadbreak tool. Also acts as a blade guide to increase the side loading capabilities during switch closing.

5. Copper Blade (Standard)

High conductivity copper blade and silver-plated moving contact areas. The blade utilizes four-finger contact design for superior performance on momentary currents. Blade is triangulated and edge-formed for superior stiffness and blade side-loading capability during closing.

6. Stainless steel pin (Standard)

Stainless steel pin can be positioned to stop the blade at 90° (as supplied) or 160°.

7. 160° Open Position Latch (Optional)

This is a 300 series stainless steel latch to hold the blade in the 160° open position.

8. Parallel Groove Connectors (Optional)

Catalog No. ATC1343, fortified cadmium-plated aluminum parallel groove clamp, furnished with galvanized steel bolts and nuts and will accept #2 through 500 kcmil aluminum or copper conductor.

9. Insulators

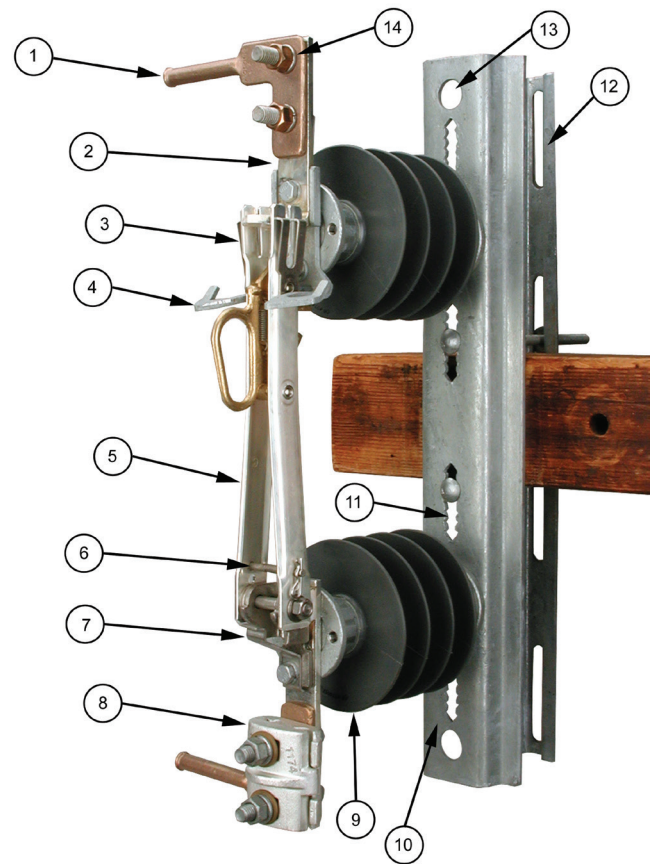
Available in 2.25-inch (57 mm) bolt circle distribution insulators of light weight ESP™ silicon polymer rubber or porcelain.

10. Switch Base

Bases are hot dip galvanized to ASTM A153 for corrosion protection and can be mounted with the supplied back-strap on a single or double crossarm; they can also be mounted on aluminum or steel equipment mounts. See drawings on pages 6-7 for dimensions.

11. Serrated Slots (Standard)

For retaining 3/8" (9.5 mm) carriage bolts, which are included, with the mounting back-strap when ordered. Smooth slots are available as an option. (Distribution switches only)



12. Back-strap (Standard)

Comes with hardware to match the distribution base ordered: U-shaped for rigidity and strength. Galvanized to ASTM A153 for corrosion protection. (Distribution switches only)

13. Dead-end Provision (Standard)

Holes for dead-ending conductors are stamped out of the galvanized steel base. Rated for 8,000 lb. (3629 kg) working load. Hole size is 1" (25.4 mm)

14. Captive Hardware (Optional)

Two stainless steel spline bolts pressed into each terminal pad, bronze nut and stainless steel lock washer included.

M3 Disconnect Switches

ESP™ Insulators, available in four insulation levels



End Fittings

Ductile iron castings are mechanically crimped directly to the fiberglass rod. The crimp requires no intermovement of the parts to achieve high strength, nor does it introduce potting compounds or adhesives.

Weathersheds

ESP™ insulators are the same proven material used in PDV arresters, Hi*Lite and Veri*Lite insulators and PDI dead-ends. ESP™ is a polymer compound made by alloying silicone and EPDM rubber. This alloy offers the desirable toughness and resistance to tracking of Ohio Brass's original EPR, with the hydrophobic characteristics derived from low molecular weight silicone oils.

Structural design of ESP™ insulator

Rod

ESP™ insulator fiberglass rod is produced from the highest quality material. Strands are aligned for the maximum tensile strength. The rod is filled with electrical grade glass fibers.

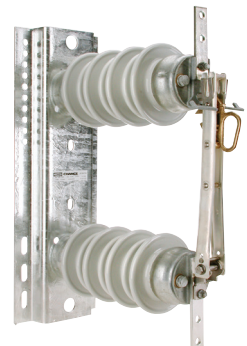
Ohio Brass uses several tests to evaluate materials. Tracking, QUV, corona cutting, salt fog, oxidative stability and variations of differential thermal analysis tests assure the quality of OB's shed material. For further information on our polymers ask your Hubbell representative for the publication "Polymer Materials for Insulator Weathersheds" EU1264-H.

Station Class (3" (76mm) Bolt-Circle) Switch Ratings

Max. kV	Rated BIL*	Material	Electrical				Mechanical			
			Leakage Distance, inches (mm)	Dry Arc Distance, inches (mm)	60 Hz Flashover, kV*		Cantilever, pounds (N)	Tension, pounds (N)	Torsion, in.-lb. (Nm)	Compression, pounds (N)
					Wet	Dry				
15	110	Polymer	19.0 (483)	8.0 (203)	45	50	2,000 (8,896)	8,500 (37,810)	7,000 (791)	10,000 (44,482)
		Porcelain	15.5 (394)	7.0 (178)	45	50	2,000 (8,896)	8,500 (37,810)	7,000 (791)	10,000 (44,482)
27	150	Porcelain	24.0 (610)	9.5 (241)	60	70	2,000 (8,896)	10,000 (44,482)	8,000 (904)	10,000 (44,482)
27	200	Cycloaliphatic Epoxy	52.0 (1,320.8)	14 (355.6)	80	95	2,000 (8,896)	12,000 (53,378)	N/A†	30,000 (133,446)

*ANSI Rating. Less than test results. Test reports available upon request.

† Torsion rating not required per ANSI C29.1

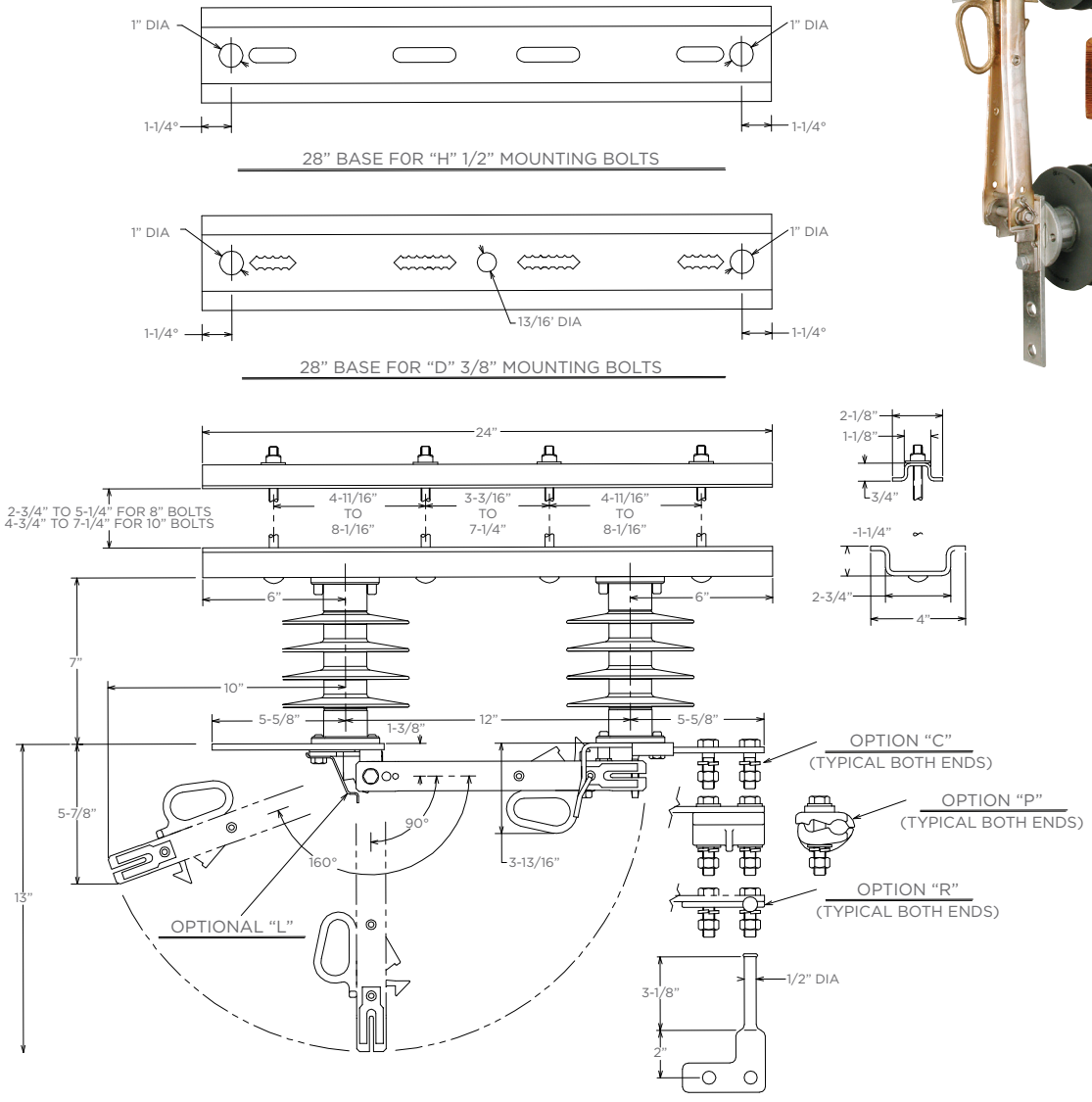
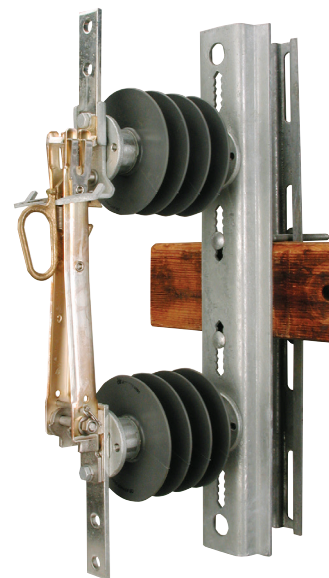


Station Class Insulators

Station class insulators are available with Sky-Glaze horizon-blending 3" (76 mm) bolt-circle, which provide 110 and 150kV BIL respectively for the 15 and 27kV substation switches. These are available in porcelain or at 15kV polymer (cycloaliphatic).

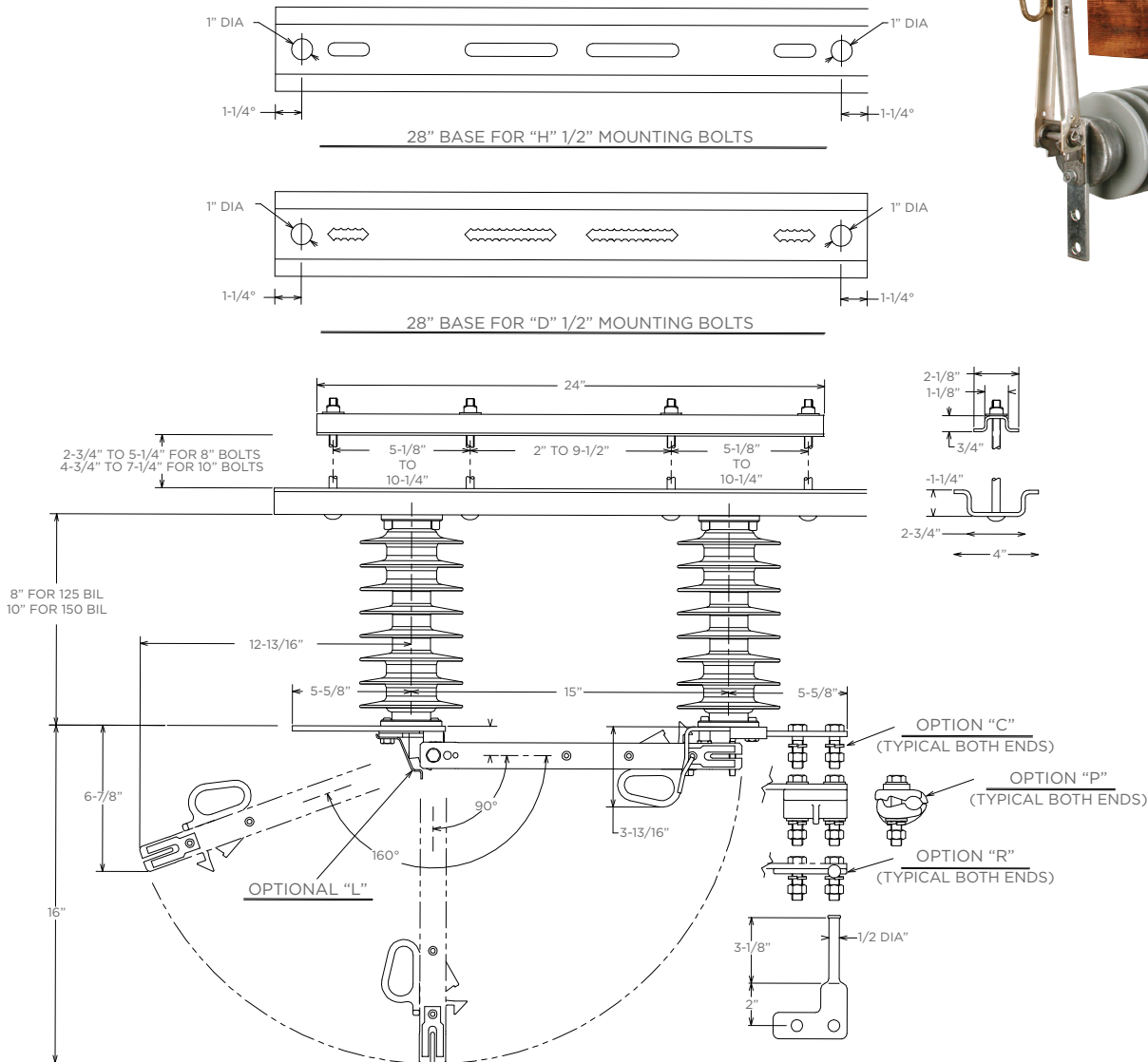
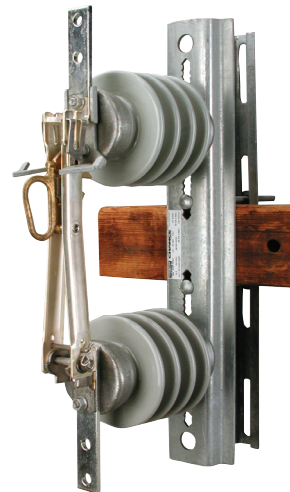
Substation-style Station Class M3S switch is made for mounting on a steel structure or on a pole-mounted aluminum or steel equipment mount.

Dimensional Data
Distribution Class M3 Switch
110kV BIL - 600 Amp & 900 Amp



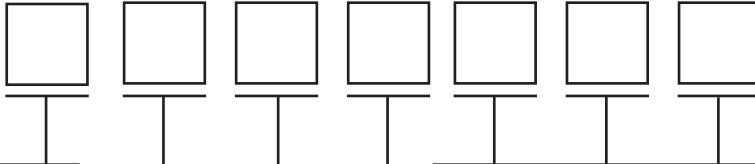
OVERHEAD SWITCHES, HOOKSTICK-OPERATED
M3 Disconnect Switch

Dimensional Data
Distribution Class M3 Switch
125kV BIL - 600 & 900 Amp
150kV BIL - 600 & 900 Amp



Ordering Information
Distribution Class M3 Switch - RUS Listed

M3



Base

D = Distribution base, serrated slots with four 3/8" x 8/10" (9.5 mm x 203 mm/254 mm) carriage bolts and backstrap
H = Distribution base, smooth slots with four 1/2" x 8/10" (12.7 mm x 203 mm/254 mm) carriage bolts and backstrap

Rated Current

6 = 600 AMP
9 = 900 AMP

Insulation

2 = 15kV 110BIL Porcelain
3 = 27kV 125BIL Porcelain
4 = 38kV 150BIL Porcelain
6 = 15kV 110BIL Polymer
7 = 27kV 125BIL Polymer
8 = 38kV 150BIL Polymer
9 = 38kV 200BIL Polymer

Options

C = Captive Hardware*
 Consists of 4 each: 1/2" (12.7 mm) - 13 stainless steel bolts, 1/2" (12.7 mm) flatwasher / lockwasher, 1/2" (12.7 mm) 13 bronze nut

L = Open Position Latch (P8070181P)
 Stainless steel latch for holding the blade in the 160° open position

N = Load Break Interrupter
 Uses the C8180001 interrupter used on our AR Automation Ready Gang Operated Switch
 Currently available on 15kV 900A models only. Consult factory for 27kV and 38kV options

P = Parallel Groove Terminals* (ATC1343 2 per switch)
 Two complete connectors and hardware. Accepts #2 - 500 kcmil (Copper or Aluminum)

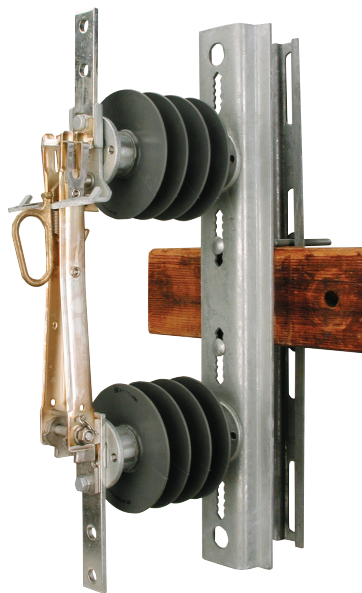
R = Bypass Studs (P8070166P 2 per switch)
 Two copper alloy bypass studs, which can be used for regulator or recloser bypassing

S = Stainless Steel
 Includes stainless steel base, back strap, carriage bolt assy and insulator caps
 Currently available on 38kV Max 150BIL ESP polymer and 900A current rating only

**NOTE: Captive Hardware and Parallel Groove Terminals CANNOT be ordered together.*

Bolt Length

A = 10" (254 mm) Length
B = 8" (203 mm) Length



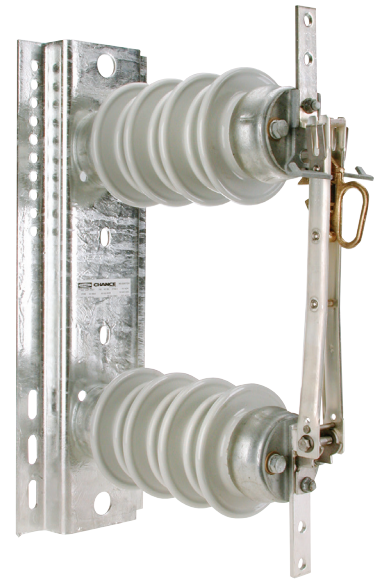
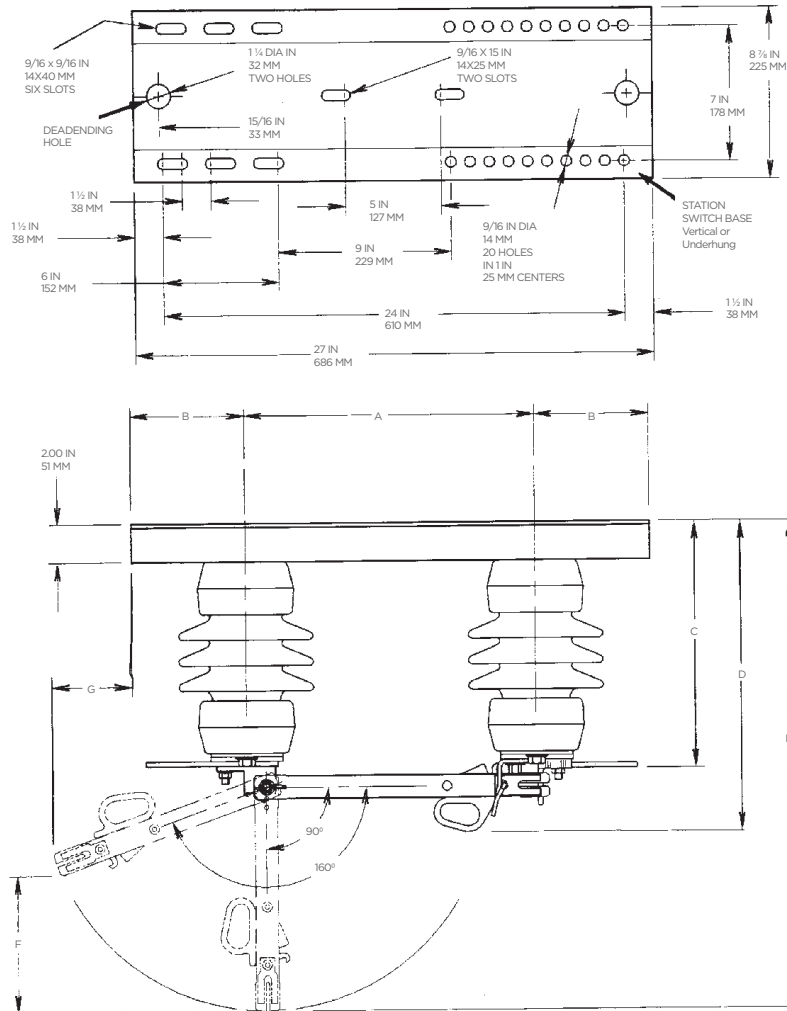
OVERHEAD SWITCHES, HOOKSTICK-OPERATED
M3 Disconnect Switch

Dimensional Data

Station Class M3S Switch

Station base: Hat-shaped, 6 slots, 20 holes, integral deadending holes on each end

Insulation: Porcelain, 3 in. (76 mm) Bolt Circle, NEMA



Dimensions (Vertical and Underhung) 27" (686 mm) Base

BIL	A		B		C		D		E		F		G	
	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.
110kV	12	305	7-1/2	190	12-27/32	326	14-1/8	358	24-11/16	627	7-21/32	194	3-13/32	86
150kV	15-1/8	384	51-5/16	151	16-27/32	428	18-1/8	460	31-13/16	808	9-11/16	246	5	127

Ordering Information
Station Class M3S Switch - RUS Listed

M3 **S**

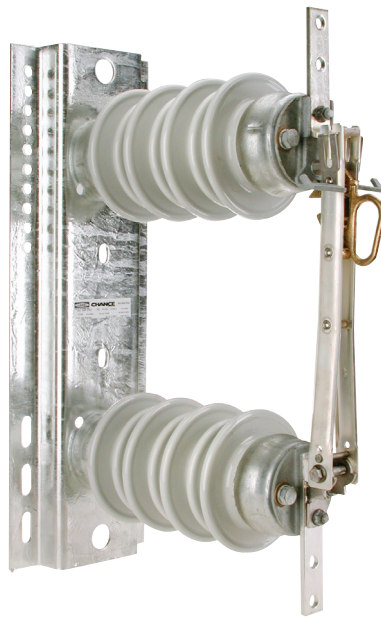
Base
S = Station Class Base
 Mounted on a steel structure or pole-mounted using an aluminum or steel mounting bracket.

Rated Current
6 = 600 AMP
9 = 900 AMP

Insulation 3" (76 mm) Bolt Circle
2 = 15kV 110BIL Porcelain
4 = 27kV 150BIL Porcelain
6 = 15kV 110BIL Polymer
8 = 27kV 150BIL Polymer

Options
C = Captive Hardware*
 Consists of 4 each: 1/2" (12.7 mm) - 13 stainless steel bolts, 1/2" (12.7 mm) flatwasher / lockwasher, 1/2" (12.7 mm) - 13 bronze nut
L = Open Position Latch (P8070181P)
 Stainless steel latch for holding the blade in the 160° open position
P = Parallel Groove Terminals* (ATC1343 2 per switch)
 Two complete connectors and hardware. Accepts #2 - 500 kcmil (Copper or Aluminum)
R = Bypass Studs (P8070166P 2 per switch)
 Two copper alloy bypass studs, which can be used for regulator or recloser bypassing

**NOTE: Captive Hardware and Parallel Groove Terminals CANNOT be ordered together.*



OVERHEAD SWITCHES, HOOKSTICK-OPERATED

M3C Disconnect Switch

Single-Insulator Disconnect Switch

- 15kV, 27kV and 38kV max.
- 600 and 900 Amperes

Description and Application

The M3C single-insulator disconnect switch is fully rated for 600A or 900A. It is principally used for manual switching of overhead lines on distribution circuits up to 38kV. The switch is easy to install using a crossarm mounting bracket in the same manner as a cutout.

Components of the M3C Switch

1. Terminal Pads (All)

Tin-plated high-conductivity copper, NEMA two-hole terminal pad. Parallel Groove connectors (Cat. No. ATC1343) and captive hardware are available as options.

2. Loadbreak Hooks

Hot-dipped galvanized steel hooks are provided as standard.

3. Disconnect Blade

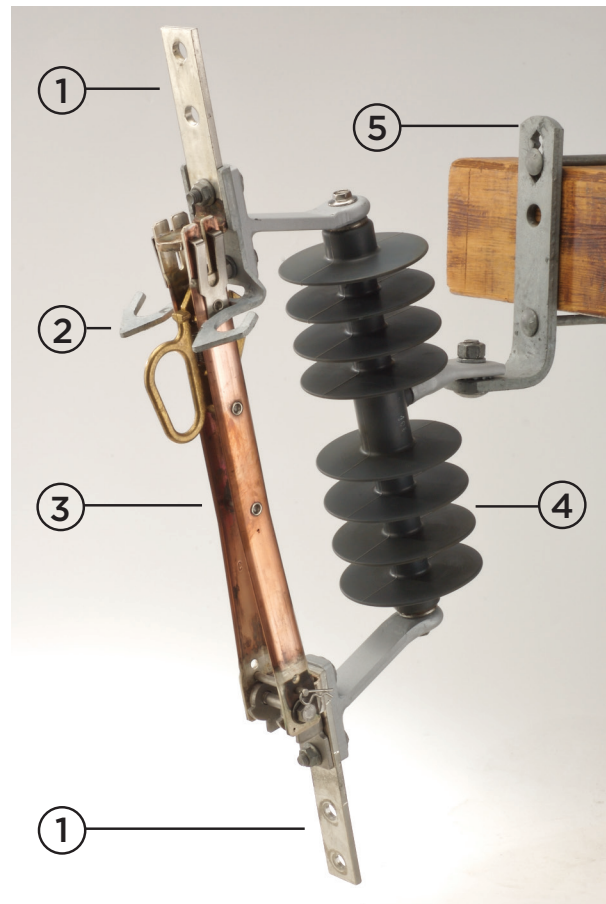
The disconnect blade is of the same construction as that used on the M3 Hookstick Disconnect Switch. The high-conductivity copper blade is silver-plated at all contact areas. Stainless-steel back-up springs are used to maintain efficient current transfer between the stationary contact and the end of the blade. See Catalog page 14B-3 for further description.

4. Insulator

ESP™ silicon-alloy rubber, as used for the C-Polymer Cutout.

5. Pole Mount Bracket Options

Bracket options include NEMA B, Extended NEMA B and D - Pole Mount.



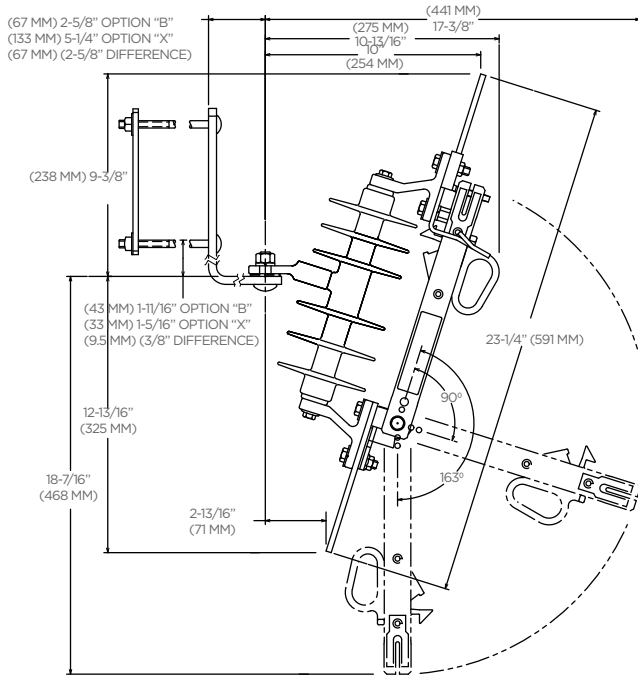
Specifications

- **Nominal voltage ratings:** 15kV, 27kV and 38kV
- **Lightning impulse peak withstand ratings:** 110, 125 or 150kV BIL
- **Continuous current rating:** 600 or 900 amperes
- **Short-time current withstand rating:**
 - 600 Amp**
 - 25 kA symmetrical for 2 seconds
 - 65 kA peak
 - 900 Amp**
 - 25 kA symmetrical for 3 seconds
 - 65 kA peak

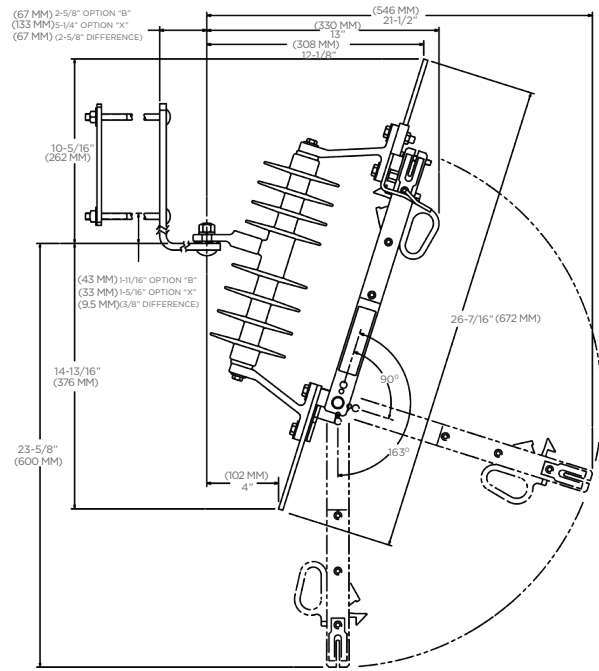
OVERHEAD SWITCHES, HOOKSTICK-OPERATED M3C Disconnect Switch

Dimensional Data

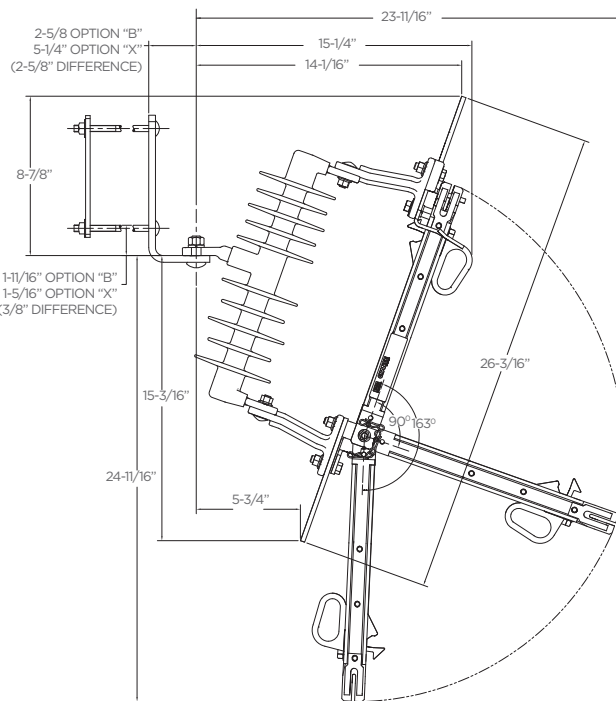
- 15, 27 and 38kV max.
- 600 and 900 Amperes



15kV max. (110kV BIL)



27kV max. (125kV BIL)

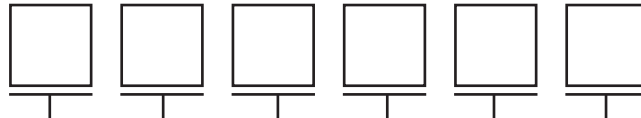


38kV max. (150kV BIL)

OVERHEAD SWITCHES, HOOKSTICK-OPERATED M3C Disconnect Switch

Ordering Information M3C Switch - RUS Listed

M3C



Switch Rating

15 = 15kV max. (110kV BIL)
25 = 27kV max. (125kV BIL)
35 = 38kV max. (150kV BIL)

Current Rating

6 = 600 Amp
9 = 900 Amp

Options

B = NEMA "B" Mounting Bracket
 For crossarm (1 1/2" (38 mm) bolt)

C = Captive Hardware*
 Consists of 4 each: 1/2" (12.7 mm) - 13 stainless steel bolts, 1/2" (12.7 mm) flatwasher / lockwasher, 1/2" (12.7 mm) 13 bronze nut

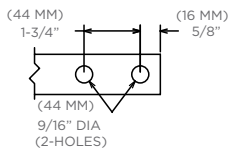
D = "D" Mounting Bracket
 D-shape bracket for pole mount

N = Load Break Interrupter
 Uses the C8180001 interrupter used on our AR Automation Ready Gang Operated Switch

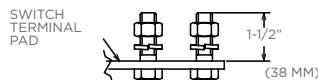
Currently available on 15kV, 900A models only. Consult factory for 27kV and 38kV options.

P = Parallel Groove Terminals*
(Cat. No. ATC1343, 2 per switch)
 Two complete connectors and hardware. Accepts #2 - 500 kcmil (Copper or Aluminum)

X = Extended Mounting Bracket
 For crossarm, horizontal section is 2 5/8" (67 mm) longer than B bracket



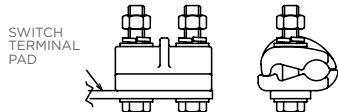
TERMINAL PADS DETAIL



SWITCH TERMINAL PAD

OPTION "C" CAPTIVE HARDWARE

CONSIST OF 4 EACH: 1/2" STAINLESS STEEL BOLTS, LOCKWASHERS, & NUTS

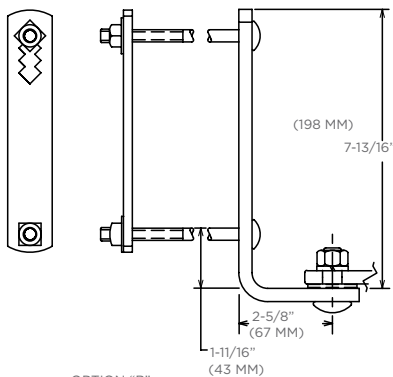


SWITCH TERMINAL PAD

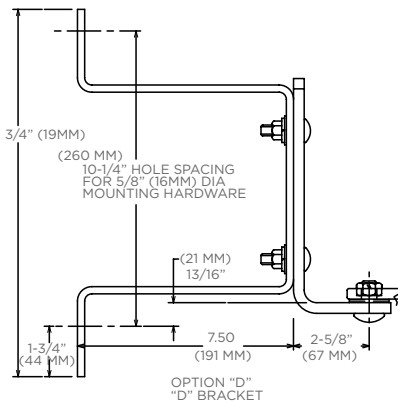
OPTION "P" PARALLEL GROOVE TERMINALS

CONSIST OF 2 EACH: CONNECTORS & HARDWARE FOR #2-500 KCMIL COPPER OR ALUMINUM CONDUCTOR

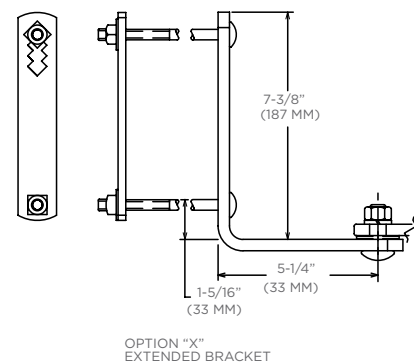
**NOTE: Captive Hardware and Parallel Groove Terminals CANNOT be ordered together.*



OPTION "B" NEMA "B" BRACKET



OPTION "D" "D" BRACKET

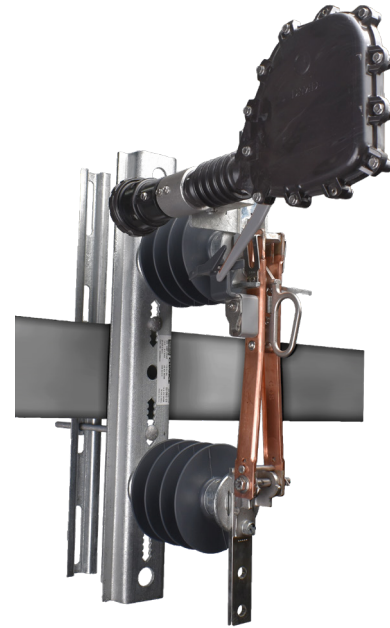


OPTION "X" EXTENDED BRACKET

OVERHEAD SWITCHES, HOOKSTICK-OPERATED M3D and M3C Loadbreak Disconnect Switches

M3D Loadbreak: Specifications

- **Nominal voltage rating:** 15kV
- **Lighting impulse peak withstand rating:** 110kV BIL
- **Continuous current rating:** 900 amperes
- Refer to standard M3D for all other distribution class ratings.
- Refer to ordering information on Page 7.
- For alternate voltage classes, consult factory



Standard Stock Configuration: M3D96AN

M3C Loadbreak: Specifications

- **Nominal voltage rating:** 15kV
- **Lighting impulse peak withstand rating:** 110kV BIL
- **Continuous current rating:** 600 or 900 amperes
- Refer to standard M3C for all other distribution class ratings.
- Refer to ordering information on Page 12.
- For alternate voltage classes, consult factory



Standard Stock Configuration: M3C159BN

Application

The Loadbreak M3D and M3C provides an effective and efficient way to disconnect loads without the use of a separate Loadbreak Tool. Line crews can work more quickly and safely with less equipment on hand. With its single pull operation, the Loadbreak M3D and M3C can safely isolate portions of the distribution system with the same ease as a standard single phase disconnect.

Interrupter

Same as used on our AR GOAB Switch. Interrupter provides current interruption without external arc or flame. High-strength polyurethane material for strength, weatherability and UV resistance. Bolted tongue-in-groove mounting ensures positive alignment.

This is a Load-breaking device, does not operate as a Load-make device.

OVERHEAD SWITCHES, HOOKSTICK-OPERATED

ALTD Line Tension Disconnect Switch

- 200kV BIL
- 600 and 900 Amperes

Application

The Chance Line Tension Disconnect switches are single-phase hookstick operated for manual switching of de-energized or parallel circuits of overhead lines on an electrical distribution system of 15 through 38kV, 200kV BIL. They are installed directly into the line. Rated for 600 and 900 amperes continuous current, the ALTD may be applied wherever a disconnect switch is desirable for line sectionalizing. A properly rated ALTD switch should be selected for each installation with consideration to continuous current, BIL and rated voltage.

The ALTD also can be equipped with a load-breaking interrupter or used with a portable Loadbreak tool for load breaking.

Operation

All Chance ALTD disconnect switches include galvanized steel Loadbreak hooks for use with a portable Loadbreak tool. To open the switch under load, use an approved Loadbreak tool or device designated for use with this type of switch.

For easy opening and ice-breaking action, the pull ring activates the latch as a pry-out lever. The hook portion of the contact casting coordinates with the blade latch for positive closure.

Design Features

Lightweight, ESP™ silicon polymer rubber insulators. Chance ALTD switches utilize polymer ESP insulators. The insulator provides 26" (660 mm) leakage distance and BIL rating of 200kV.

Chance has over 25 years of field experience with polymer insulation and over 35 years experience with versatile electrical polymer distribution products.

Low profile: The light weight and narrow profile of the hookstick operated ALTD permits quick in-line mounting in an inverted underhung position.

Copper blade is a rigid H-frame trussed by stainless-steel shoulder pins. Stainless-steel bolts, nuts and compression washers at both ends maintain high pressure contact with bronze hinge and jaw castings. Standard blade opening is 90° or 180° with the stop-pin removed.

Installation: For deadending directly to the switch insulator, the ALTD installs in-line via strain clamps or two bolt full-tension crimp connectors.

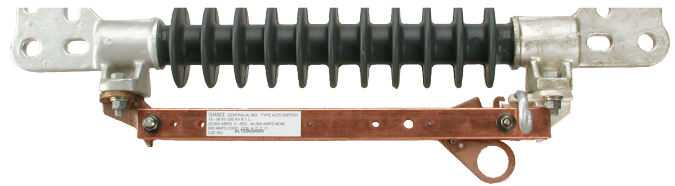
Corona ring: An integral full corona ring on castings makes for reduced electrical stress resulting in longer insulator life. The weathershed skirts and leakage distance provide improved resistance to contamination and flashover.

Puncture resistance: The full length dielectric and weathershed thickness give extra dielectric-puncture strength.

Impact strength: High impact strength of the ESP insulator enhances storage, transit and handling properties.

End-fittings: End-fittings make for rugged dependability and strength. The ALTD provides for both a mechanical and electrical connection on a common terminal pad at each end. Terminal Pads are plated aluminum and accept either copper or aluminum NEMA two hole terminal connectors.

Catalog No. ALTD06200R
RUS Listed



ALTD with common plated-aluminum terminal pad at each end for mechanical and electrical connections, and ESP™ insulator.

ALTD Switch with Arc Chute Interrupter

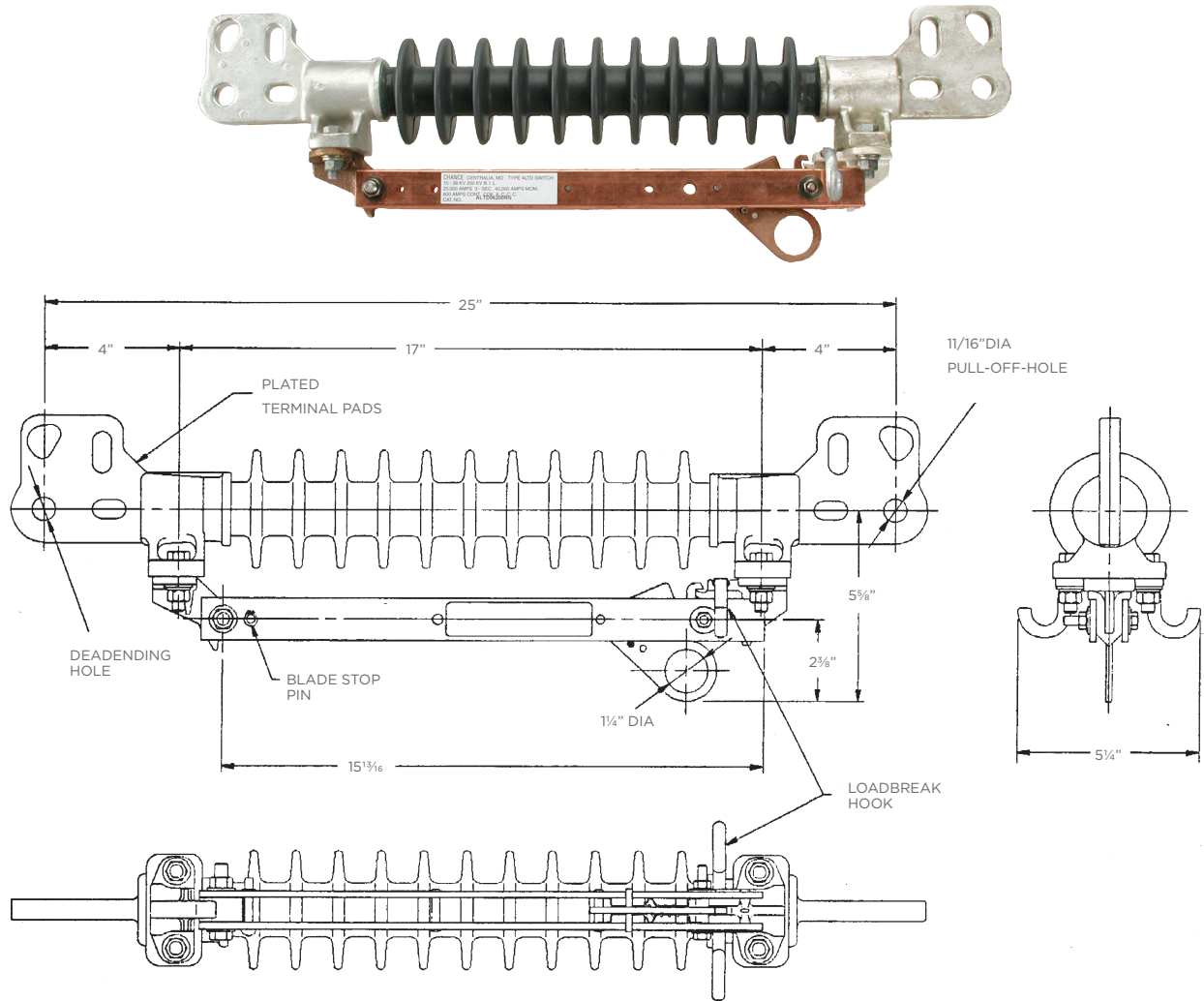
With the addition of the arc chute interrupter, the switch becomes a Loadbreak device allowing the ALTD switch to interrupt load currents up to 600 amperes at 15.5kV recovery voltage. Switching of loop circuits up to 600 amps is another capability of the arc chute interrupter. The ALTD switch with arc chute interrupter is also rated for interruption of magnetizing current, line charging current, cable charging current, and capacitor switching.



Catalog No. ALTD06200RL

ALTD with factory mounted load-breaking arc chute interrupter and ESP insulator.

Dimensional Data- 600 Amp



Ordering Information

Catalog Number	BILkV	Cont. Amps	Momentary Amperes	Rated Ultimate Strength lb.	Weight	
					lb.	kg.
*ALTD06200R	200	600	40,000	15,000	11	4.9
*ALTD06200RL	200	600	40,000	15,000	13	5.7

*Suffix "L" indicates 600-Amp Arc Chute interrupter.

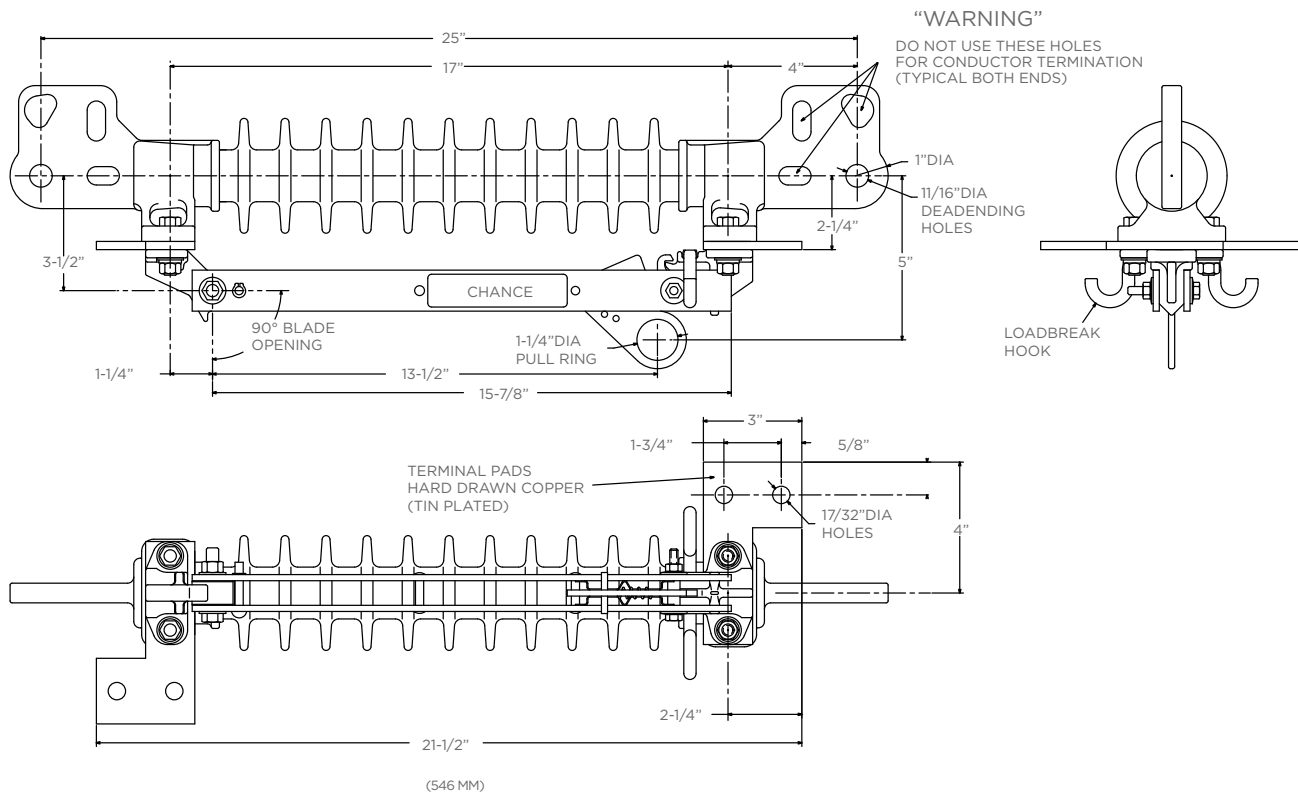
*RUS Listed.

Suffix	Description	Weight, lb. (kg)
B	4 stainless-steel terminal bolts	3/4 (0.34)
C	Extension link/angle adapter	3 1/2 (1.6)
T	Terminal Connectors (PG ATC 1343)	1 (0.45)

NOTE: Options B and T cannot be ordered together.

OVERHEAD SWITCHES, HOOKSTICK-OPERATED
ALTD Switch

Dimensional Data- 900 Amp



Ordering Information

Catalog Number	BILkV	Cont. Amps	Momentary Amperes	Rated Ultimate Strength		Weight	
				lb.	kg.	lb.	kg.
ALTD09200R	200	900	40,000	15,000	6804	12	5.3

Suffix	Description	Weight, lb. (kg)
B	4 stainless-steel terminal bolts	3/4 (0.34)
C	Extension link/angle adapter	3 1/2 (1.6)
T	Terminal Connectors (PG ATC 1343)	1 (0.45)

NOTE: Options B and T cannot be ordered together.

Optional Mounting Equipment

Stainless-Steel Terminal Bolts (Option B)

Option includes four each of all stainless-steel terminal fastening hardware: 1/2"-13 x 2" (12.7 mm - 13 x 51 mm) bolts, flat washers, lockwashers and nuts.

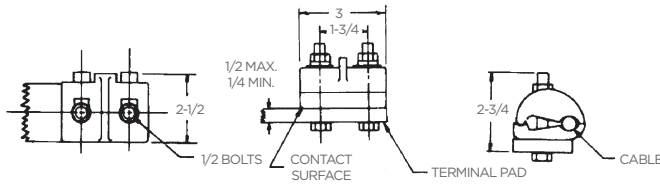
Extension Link/Adapter (Option C)

This optional assembly provides a twist-free application by attaching one end of the ALTD switch to a clamp-top insulator.

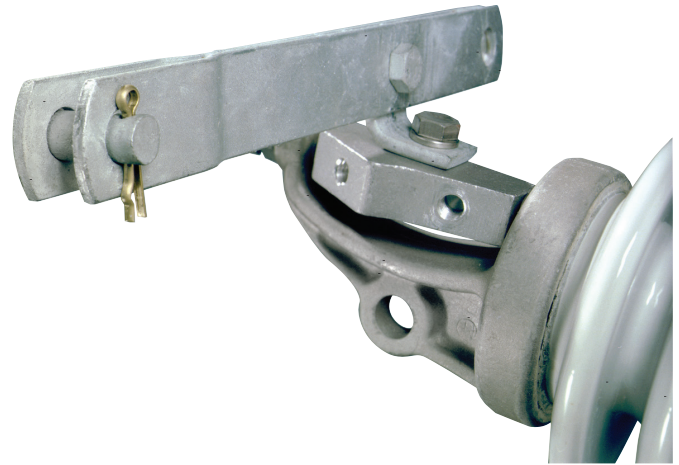
The adapter portion enables the desired plane of blade movement to be attained regardless of the angle the supporting insulator makes with the pole. Also, blades can be made to operate in parallel planes or in different planes, if line configuration and ease of access make this advantageous. The desired plane of blade action can be set for use on pole-top insulators, on horizontal or 5° standoffs and on 15° or 30° side-mounted standoffs.

Terminal Connectors (Option T)

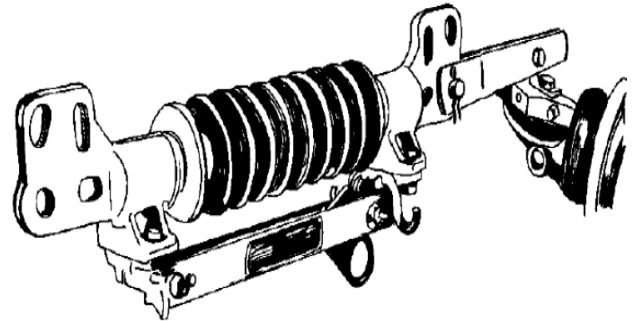
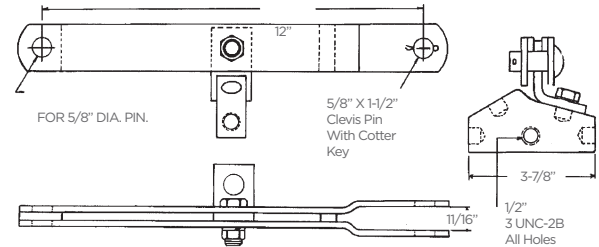
Catalog No. ATC1343, fortified cadmium-plated aluminum parallel groove clamp, furnished with galvanized steel bolts and nuts and will accept #2 through 500 kcmil aluminum or copper conductor.



To order these accessories at additional cost, add letter suffix indicated to switch number above. Also add accessory weight to switch weight. Items selected are packed with the switch and carton so marked. Example: For switch with four stainless-steel terminal bolts, extension-link assembly and parallel-groove terminal connectors, order ALTD06200RCT.



Detail of link mounted on adapter positioned in clamp-top insulator to provide vertical blade opening.



Extension link mounting on 15° standoff for vertical blade opening.

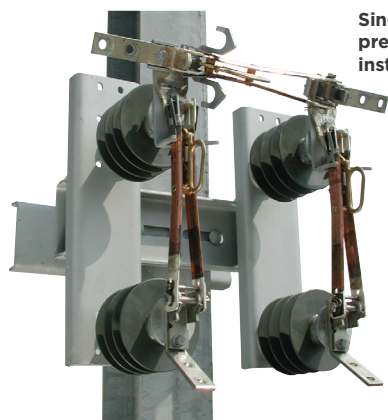
OVERHEAD SWITCHES, HOOKSTICK-OPERATED

BP3 Recloser Bypass Switch

- 3-Pull Operation
- Rated 600 Amps & 900 Amps
- 15, 27 & 38kV
- Single and Three-Phase Units

Principal Application: Recloser Maintenance

By design, the BP3 Switch provides an economical means for bypassing and disconnecting a pole-mounted distribution recloser. This permits de-energized periodic maintenance of the recloser without interrupting service. The BP3 Switch accomplishes this by a combination of three disconnect switches mounted on a common base. By operating the blades in proper sequence, the recloser is bypassed and isolated from the distribution system.



Single-Phase Units ship preassembled for easy installation.

- Pole Mounting
- Back Strap Mounting

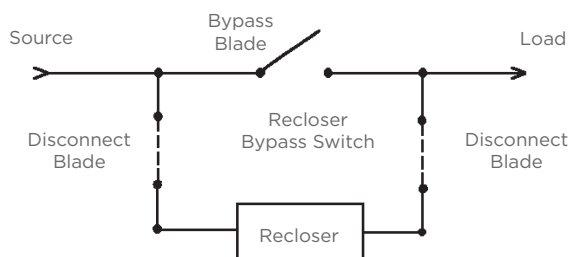
Operation

Figures below illustrate the BP3 Bypass Switch operation.

In normal operation, the bypass switchblade is open and the two disconnect blades are closed, allowing the recloser to be in the circuit.

When recloser maintenance, testing, repair or removal is

Normal Operating Position



Features

- ESP™ Silicon Alloy Rubber 2.25 in. (57 mm) Bolt-Circle Insulators
- Fully-welded mounting base
- Angled Terminal Pads
- Utilizes live parts from M3 switches



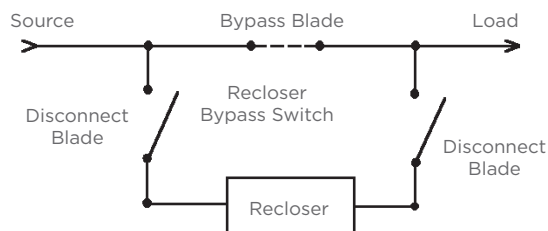
Three-Phase Units ship pre-assembled on a crossarm, the complete assembly ready for easy installation at the site. Choose steel or fiberglass crossarm.



required, first close the bypass blade to provide a parallel current path. Then open the recloser's internal contacts. And last, open both disconnect blades of the bypass switch.

In this way, service continuity is maintained and the recloser is isolated from the line. To put the recloser back in service, the switch operating procedure is reversed.

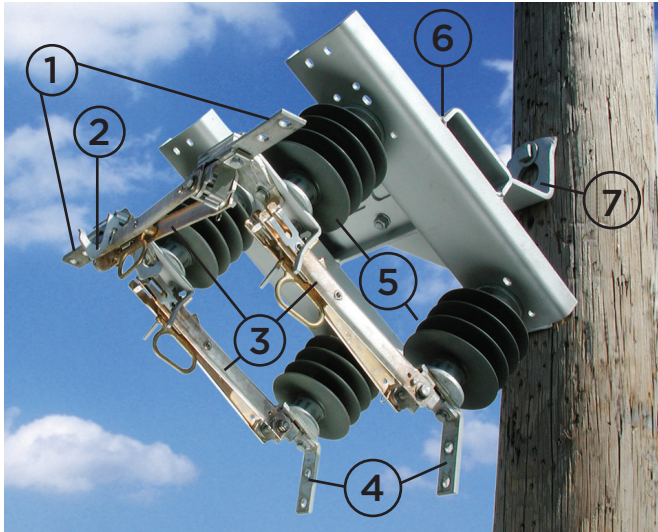
Bypass Operating Position



Advantages

- Time proven insulator material provides maximum leakage distance and minimizes weight, up to 25% lighter than competitive designs
- Maximum rigidity, eliminates possibility of misalignment compared to bolt-together designs
- Maintains switch alignment for smooth, positive blade operation
- Facilitates connection to recloser with maximum pole clearance
- Time proven design provides reliable service under anticipated service conditions

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BP3 Recloser Bypass Switch



Components of the BP3 Switch

1. Terminal Pads (All)

Tin-plated high conductivity copper, NEMA two-hole terminal pad. Parallel Groove connectors (ATC1343) and captive hardware are available as options.

2. Loadbreak Hooks

Hot dipped galvanized steel hooks. To allow use of portable Loadbreak tool. Provided on bypass blade only.

3. Bypass and Disconnect Blades

The bypass and disconnect blades are of the same construction as those used on the M3 Hookstick Disconnect Switch. They are high conductivity copper blades, silver-plated at all contact areas. Stainless-steel back-up springs are used to maintain efficient current transfer between the stationary contact and the end of the blade. The bypass blade is available in either right or left opening configurations (hinge on right or left). See Catalog page 14B-3 for further description.

4. Angled Terminal Pads

Angled construction allows for easier connection to a recloser while maintaining maximum pole clearance.

5. Insulators

ESP Enhanced Silicon Polymer, 2.25" (57 mm) and 3" (76.2 mm) bolt circle insulators.

6. Switch Base

Welded-construction galvanized steel base provides maximum rigidity to maintain consistent switch alignment for positive blade operation.

7. Pole Mounting Bracket

Single-piece galvanized steel mounting bracket facilitates ease of installation. A backstrap mounting option also is available.

Performance Specifications

- 600 Amps & 900 Amps Continuous
- 65 kA Peak Withstand

Max. Design, kV	Lightning Impulse Withstand Rating BIL, kV	Leakage Distance, in. (mm)	Weight, lb. (kg)
17.1	110	17.2 (437)	56 (25.4)
29	125	21.9 (556)	62 (28.1)
29	150	28.2 (716)	65 (29.5)
38	200	52 (1321)	127 (57.7)

Switch Variations

Right or Left Bypass Blade Opening (BP3R or BP3L)

- Right or left bypass blade opening may be specified. Right opening bypass blade opens to the right of the operator when standing in front of the switch. Left opening bypass blade opens to the left
- **Angled or Non-Angled Bypass Blade**
see drawings on page 20

Switch Mounting: Four options available:

- **No Mounting Bracket (No option letter in Cat. No.)**
Provides holes and slots in the switch base for direct mounting to a vertical structure. The user supplies the mounting hardware and must drill structure to match the hardware
- **Back Strap (Option B)**
Provides a galvanized-steel back strap and hardware for vertical-structure mounting, includes two each 1/2" (12.7 mm) by 8" (203 mm) and 10" (254 mm) long carriage bolts, square nuts and flat washers
- **Pole Mounting Bracket (Option M)**
Provides a galvanized-steel bracket for wood pole mounting and hardware to attach the switch to the bracket. The user supplies the bracket-to-pole hardware. (If the pole is other than wood, contact your factory representative.)
- **Three-Phase Mounting alternative**

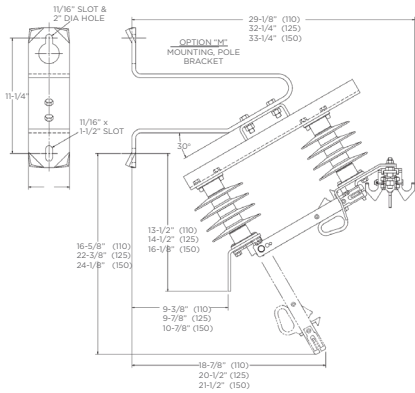
Terminal Connectors: Five options available:

- **No Terminal Hardware (No option letter in Cat. No.)**
User supplies terminal connectors and mounting hardware
- **Captive Hardware (Option C)**
Provides 1/2" (12.7 mm) by 1 3/4" (44 mm) long stainless bolt secured into each terminal pad hole. Each bolt is supplied with a hex nut and lock washer. Terminal connectors supplied by the user
- **Bypass Blade Only Aluminum Terminals (Option D)**
Provides cast-aluminum compression terminal for connecting aluminum cable to flat pad. Conductors 0.772" (19.6 mm) - 0.814" (20.7 mm)
- **Bronze Terminal Connectors (Option G)**
Provides bronze-alloy terminal connectors with 3/4" (19 mm)-dia hex clamping bolt for connecting copper cable to copper flat. Conductors 0.204" (5.18 mm) - 0.575" (14.6 mm)
- **Aluminum Terminal Connectors (Option P)**
Four fortified cadmium-plated aluminum parallel-groove terminal connectors (ATC1343) with terminal pad mounting hardware supplied. Connectors accommodate conductor sizes from No. 2 solid Copper through 500 MCM Copper or Aluminum

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BP3 Recloser Bypass Switch

Dimensional Data

Angled Bypass Blade - Pole Mounting

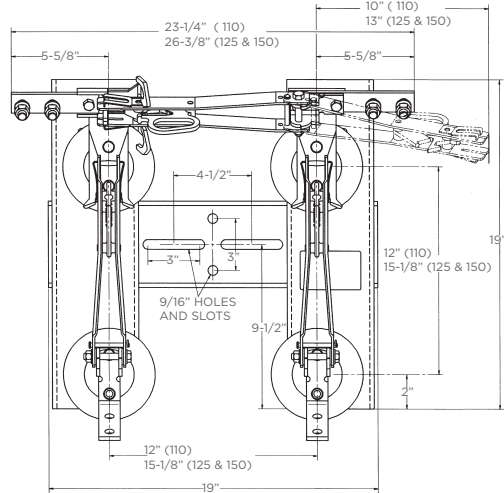
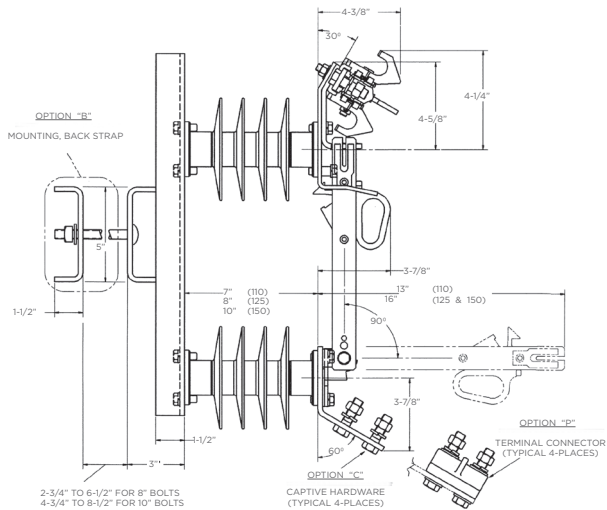


Single-Phase BP3 Switch

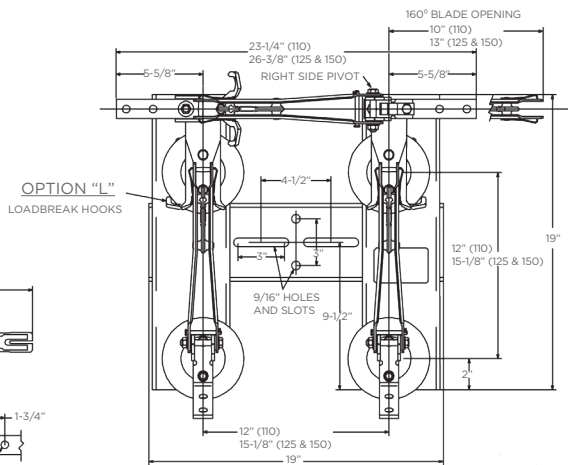
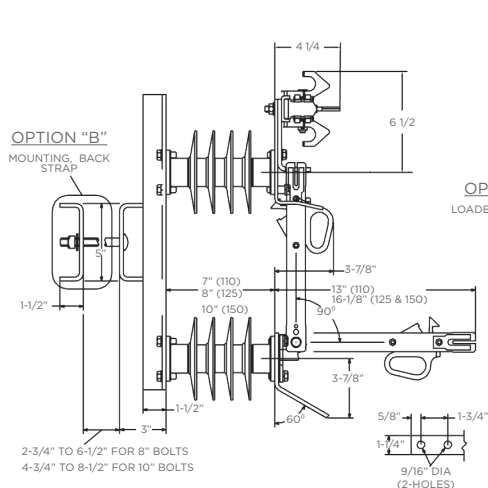
Rating	Net Weight, lb. (kg)			Crate Dimensions, inches (mm)			
	Switch	Opt. B	Opt. M	Crate	L	W	H
110kV BIL (17.1kV)	56 (25.4)	19 (8.6)	14 (6.4)	40 (18.1)	29 (737)	29 (737)	22 (559)
125kV BIL (29kV)	60 (27.2)						
150kV BIL (29kV)	65 (29.5)						
150kV BIL (38kV)	65 (29.5)			53 (24)	36 (914)	36 (914)	28 (711)
200kV BIL (38kV)	127 (57.7)						

NOTE: Illustrations here show only Right bypass switch blade opening. Left bypass switch blade opening will be opposite as shown but does not change installation or operation procedures.

Angled Bypass Blade - Back Strap Mounting



Non-Angled Bypass Blade - Back Strap Mounting [Not Available on Three-Phase Units]



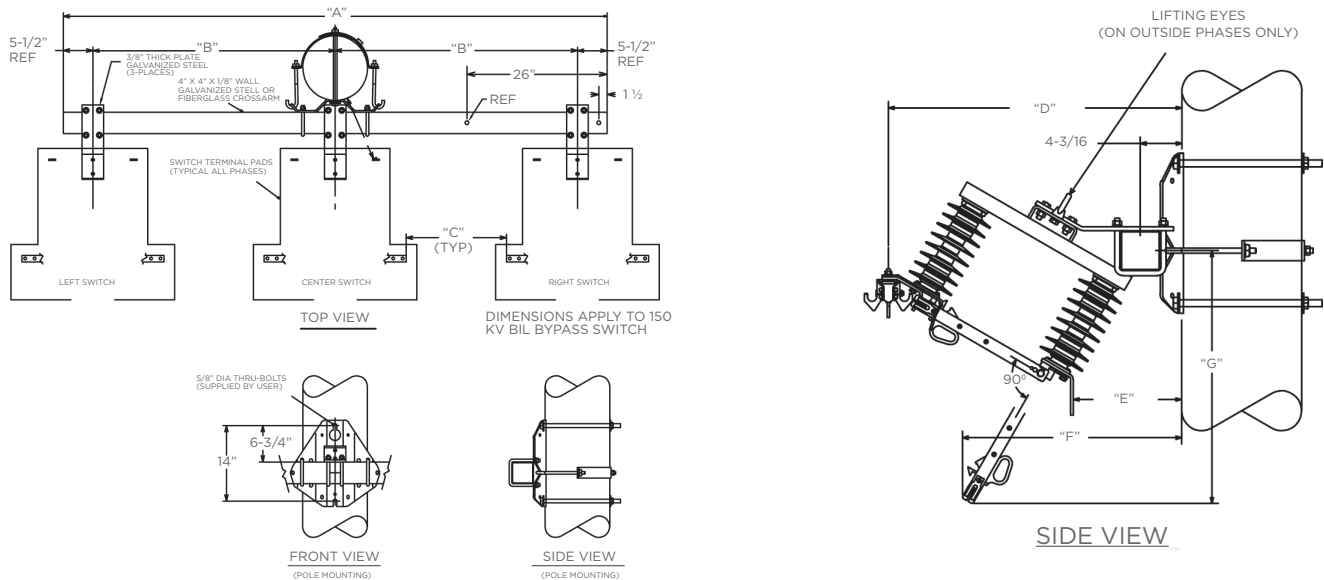
Terminal Pads Detail

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BP3 Recloser Bypass Switch

Dimensional Data Three-Phase BP3 Switch

Rating	Dimensions, inches (mm)							Net Weight, lb. (kg)			Crate Dimensions, inches (mm)		
	A	B	C	D	E	F	G	Switch		Crate	Length	Width	Height
								Steel Crossarm	Fiberglass Crossarm				
110kV BIL 101" Crossarm	101 (2565)	45 (1143)	22-3/4 (578)	25-3/8 (645)	9-1/2 (241)	19 (483)	20 (508)	280 (127)	265 (120)	110 (50)	123 (3124)	33-1/2 (851)	38-1/4 (972)
125kV BIL 101" Crossarm			18-5/8 (473)	28-1/2 (724)	10 (254)	21-1/8 (537)	23-1/2 (597)	290 (132)	275 (125)				
150kV BIL 101" Crossarm			18-5/8 (473)	29-1/2 (749)	11 (279)	22-1/8 (562)	25-1/4 (641)	305 (138)	290 (132)				
110kV BIL 124" Crossarm	124 (3150)	56-1/2 (1435)	23-3/8 (594)	25-3/8 (645)	9-1/2 (241)	19 (483)	20 (508)	285 (129)	275 (125)	135 (61)	147 (3734)	33-1/2 (851)	38-1/4 (972)
125kV BIL 124" Crossarm			30-3/8 (772)	28-1/2 (724)	10 (254)	21-1/8 (537)	23-1/2 (597)	295 (134)	285 (129)				
150kV BIL 124" Crossarm			30-3/8 (772)	29-1/2 (749)	11 (279)	22-1/8 (562)	25-1/4 (641)	310 (141)	300 (136)				

Angled Bypass Blade ONLY on Three-Phase Units

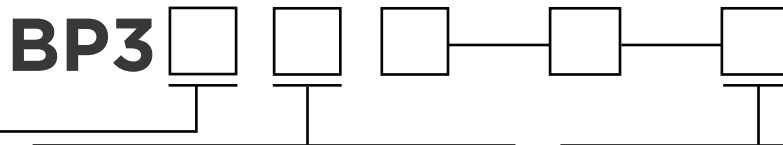


NOTE: Illustrations here show only Right bypass switch blade opening. A Right opening bypass blade opens to the right of the operator when standing in front of the switch. Left bypass switch blade opening will be opposite as shown but does not change installation or operation procedures.

BP3 Recloser Bypass Switch

Ordering Information

BP3 Recloser Bypass Switch Single-Phase and Three-Phase Units - RUS Listed



<p>Non-Angled Bypass Blade [Not available for Three-Phase units]</p> <p>A = Left hand opening B = Right hand opening</p>
<p>Angled Bypass Blade</p> <p>R = Right hand opening L = Left hand opening</p>

Insulation	
600A Rating	
1	15kV, 110kV BIL [17.1kV max. design, 17.2" (437 mm) leakage distance]
2	27kV, 125kV BIL [29kV max. design, 21.9" (556 mm) leakage distance]
3	27kV, 150kV BIL [29kV max. design, 28.2" (716 mm) leakage distance]
4	38kV, 150kV BIL [38kV max. design, 28.2" (716 mm) leakage distance]
900A Rating	
5	15kV, 110kV BIL [17.1kV max. design, 17.2" (437 mm) leakage distance]
6	27kV, 125kV BIL [29kV max. design, 21.9" (556 mm) leakage distance]
7	27kV, 150kV BIL [29kV max. design, 28.2" (716 mm) leakage distance]
8	34.5kV, 150kV BIL (38kV max. design, 28.2" (716 mm) leakage distance)
9	38kV, 200kV BIL (38kV max. design, 52" (1321) leakage distance)

Options
B = Mounting, Back Strap (not available with Option M)
C = Captive Terminal Hardware (not available with Option P)
D = CCLS814C Connectors (bypass blade terminals only)
G = SWL025B Terminal Connectors
L = Loadbreak Hooks included on disconnect blades
M = Mounting, Pole Bracket (not available with Option B)
P = ATC1343 Terminal Connectors
For Three-Phase BP3 units only:
W = 3 Switches mounted on standard 100" (2565 mm) steel crossarm
X = 3 Switches mounted on 124" (3150 mm) steel crossarm
Y = 3 Switches mounted on standard 100" (2565 mm) fiberglass crossarm
Z = 3 Switches mounted on 124" (3150 mm) fiberglass crossarm

NOTES: Options C and P cannot be specified together.

If Option D is specified with Option G or P, Option D is applied to the bypass blade terminals and Option G or P is applied to the disconnect blade terminals.

Options B and M are not used for 3-phase configuration.

CCLS814C - Aluminum Compression Terminal Cable to Flat, Conductor Range 0.772" - 0.814".

SWL025B - Bronze Bolted Terminal, Conductor Range #4 Sol - 250 MCM.

ATC1343 - Cadmium Plated PG Terminal, Aluminum or Copper Conductors, Conductor Range #2 - 500 MCM.

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BPF Fused Recloser Bypass Switch

Station Class

- 15 & 27kV
- 100 & 200 Amp Fusing (Dependent on Fuse Link Used)

Description and Application

The BPF Fused Recloser Bypass Switch is used to bypass and isolate substation reclosers for routine maintenance and repair. The switch usually is applied in combination with a separately mounted M3S companion disconnect switch.

The BPF Fused Recloser Bypass Switch consists of a 600 Amp Loadbreak disconnect switch in series with a C cutout fuse holder, which provides protection to the circuit while the recloser is out of service. Both devices are mounted on a common mounting channel for ease of installation. Both 100 Amp and 200 Amp fuse holders are available to fit specific installation requirements.

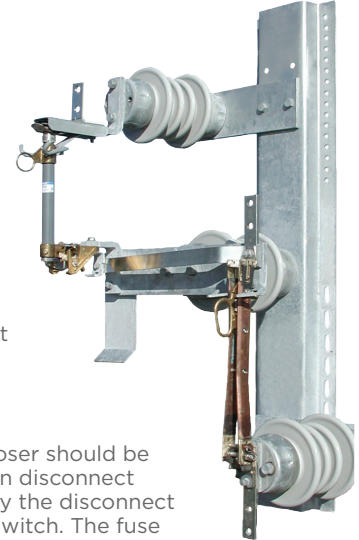
The BPF Fused Recloser Bypass Switch is available in ratings of 15kV - 110kV BIL and 27kV - 150kV BIL with either 100 Amp or 200 Amp Fuse Holders. The fuse mounting can be either on the right- or left-hand side of the switch.

Operation

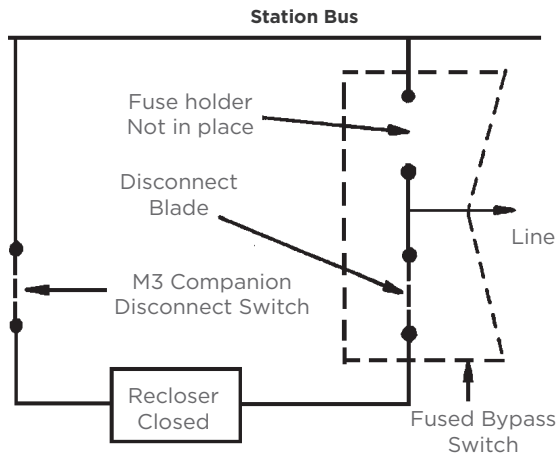
Operation of the BPF Fused Recloser Bypass Switch is shown in the figure below (shown with an M3S companion disconnect switch). In normal operation the fuse holder is

disconnected and the circuit recloser provides circuit protection. To bypass the recloser for repair, maintenance, etc., the cutout fuse holder with appropriate fusing is installed in the bypass disconnect and closed and the series disconnect switch blade is opened to isolate the recloser. The M3S companion disconnect switch is opened last to completely isolate the recloser from the circuit.

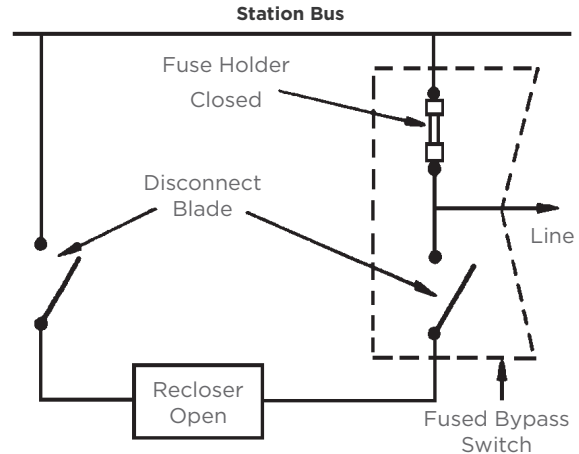
To restore service, the recloser should be closed. The M3S companion disconnect switch is closed followed by the disconnect blade on the BPF Bypass Switch. The fuse holder is then opened and removed.



Normal Operating Position



Bypass Position



Performance Specifications

- 600 Amps Continuous
- 65 kA Peak Withstand

Max. Design, kV	Fuse, Cont. Amps * up to 100/200A	Lightning Impulse Withstand Rating BIL, kV	Interrupting Rating, kA asym.	3 in. (76mm) Bolt Circle Insulator TR No.	Weight	
					lb.	kg.
15	100	110	10.0	205	125	56.7
15	200	110	12.0	205	125	56.7
27	100	150	8.0	208	140	63.5
27	200	150	10.0	208	140	63.5

* Up to 100/200A based on Fuse Link used.

OVERHEAD SWITCHES, HOOKSTICK-OPERATED

BPF Fused Recloser Bypass Switch

Components of the BPF Fused Recloser Bypass Switch

1. Terminal Pads (All)

Tin-plated high-conductivity copper, NEMA two-hole terminal pad. Parallel Groove connectors (Cat. No. ATC1343) and captive hardware are available as options.

2. Loadbreak Hooks

Hot-dipped galvanized steel hooks are provided as standard on the disconnect blade and fuse holder.

3. Disconnect Blade

The bypass disconnect blade is of the same construction as that used on the M3 Hookstick Disconnect Switch. They are high-conductivity copper blades, silver-plated at all contact areas. Stainless-steel back-up springs are used to maintain efficient current transfer between the stationary contact and the end of the blade. See Catalog Section 14B-3 for further description.

4. Type-C Cutout Fuse Holder

The same fuse holder used in Type-C Cutouts, with a wealth of field operating history. Available with either 100 Amp or 200 Amp Fuse Holders and mounting on the right- or left-hand side of the switch assembly.

5. Insulators

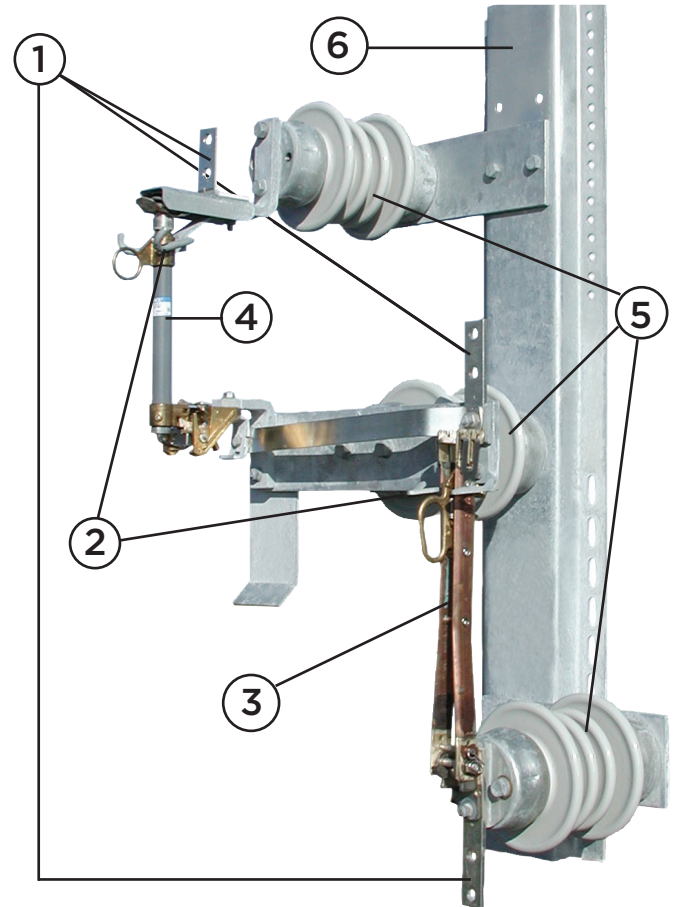
Insulators are ANSI/NEMA 3-inch (76 mm) bolt circle TR 205 or 208 Porcelain Type.

6. Mounting Base

Formed galvanized-steel base provides maximum rigidity and is designed for substation structure mounting.

Features

- M3 Switch blades and stationary contact
- Type-C Cutout fuse holder
- Formed galvanized-steel mounting base



Advantages

- Utilizes proven current-carrying components from the M3 Switch
- Field-proven performance from the Type-C Cutout
- Provides maximum strength and rigidity

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BPF Fused Recloser Bypass Switch

Ordering Information

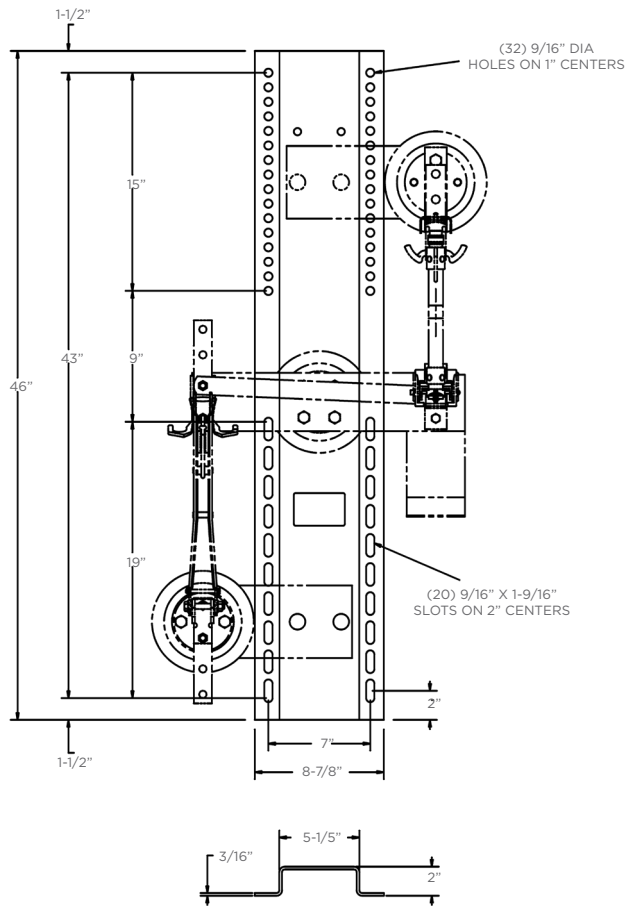
BPF Fused Recloser Bypass Switch - RUS Listed

BPF

Fuse Alignment	Voltage, Insulation	Fusing	Options
R = Fuse on Right side L = Fuse on Left side	1 = 15kV, 110kV BIL 2 = 27kV, 150kV BIL	1 = 100 Amp Type-C 2 = 200 Amp Type-C	C = Captive Terminal Hardware (not available with Option P) P = Terminal Connectors (ATC1343, 3 per switch) (not available with Option C)

Dimensional Data

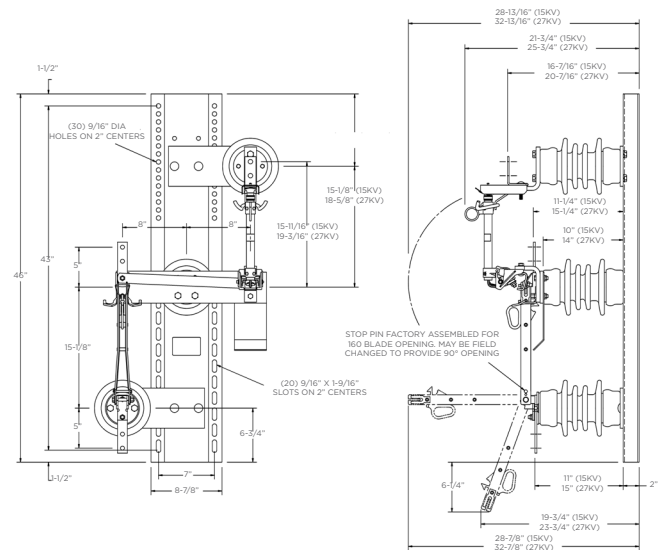
BPF: Base Detail



Replacement Fuse Holders

Ratings		Catalog No.
15kV	100 Amp	T710112T
15kV	200 Amp	T710143T
27kV	100 Amp	T710311T
27kV	200 Amp	T710342T

BPF: Overall Dimensions



OVERHEAD SWITCHES, HOOKSTICK-OPERATED

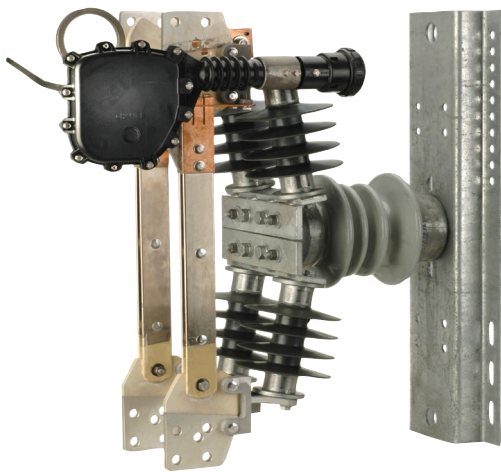
BPR Regulator Bypass Switch

Distribution Class or Station Class

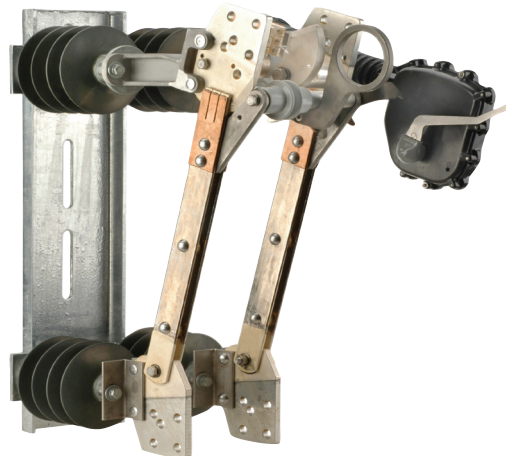
- 15.5, 27 & 38kV
- Single-Pull Operation

Designed for Applications

By design, the BPR Regulator Bypass switch allows undisturbed continuity of service and provides an economic means for bypassing and disconnecting a distribution or substation voltage regulator for maintenance. It is designed for use with all voltage regulators that can be set on neutral for the switching operation. This includes all single and three phase regulators except three-phase induction regulators. The BPR Switch is automatically sequenced to bypass the voltage regulator with a single pull operation, without interrupting service to the system. That is, the voltage regulator is always bypassed in proper sequence without any specific operation actions by the operator.



BPRS Station Switch
Continuous Current Ratings:
600Amps and 1200Amps



BPRD Distribution Switch
Continuous Current Rating:
600 Amps

The BPRD Switch for Distribution voltage regulators is applied where isolation from the system is required to perform periodic maintenance. A 600-Amp rated switch, the BPRD is available in system application ratings of 15kV - 110kV BIL, 27kV - 150kV BIL, and 38kV - 150kV BIL (for use on grounded-wye systems). The BPRD switch utilizes a mounting base designed for crossarms, poles and other distribution applications.

The BPRS Switch for Station Class voltage regulators is applied where isolation from the system is required to perform periodic maintenance. Available in 600 and 1200-Amp ratings switch, the BPRS is available in voltage application ratings of 15kV - 110kV BIL and 27/38kV - 200kV BIL (can be used on grounded-wye systems). The BPRS switch utilizes a mounting base designed for substation structures.

Performance Specifications

Application, Catalog No.	Design kV, Nom./Max	BIL Rating, kV	Continuous Current Rating, Amperes	Peak Withstand, Peak Amperes	Short Time Withstand, Amps	Weight	
						lb.	kg.
Distribution, BPRD06	15/17.1	110	600	65,000	25,000	75	34.0
	27/29	150	600	65,000	25,000	80	36.3
	38/38 [†]	150	600	65,000	25,000	80	36.3
Station, BPRS06	15/17.1	110	600	65,000	25,000	90	40.8
	27/29 & 34.5/38 [†]	200	600	65,000	25,000	95	43.1
Station, BPRS12	15/17.1	150	1200	99,000	40,000	90	40.8
	27/29 & 34.5/38 [†]	200	1200	99,000	40,000	95	43.1

[†]38.0kV grounded-wye application only

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BPR Regulator Bypass Switch

Automatic Sequenced Operation

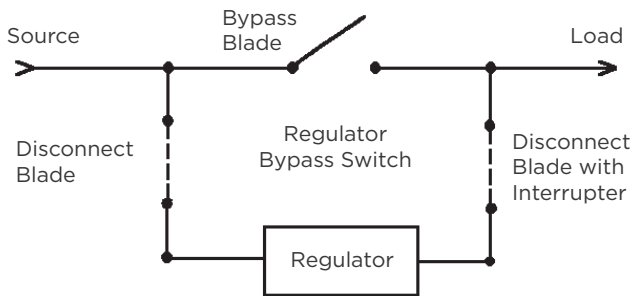
Both the BPRD and BPRS are single-pull sequenced switches. **A single pull on the pull ring on opening** performs four switching operations (A, B, C, D) in proper sequence as shown.

During the closing operation, the automatic sequence is reversed. The enforced sequence operation minimizes the possibility of operator error. Instructions included with the

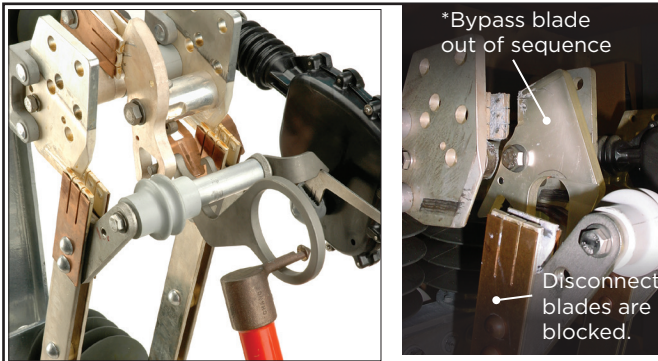
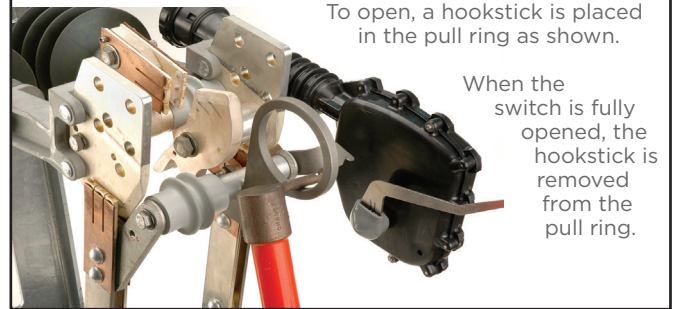
BPR switch outline how to properly release the Bypass blade latch, rotate the Bypass blade and check operating sequence prior to operating the switch for the first time.

*Should the Bypass blade become out-of-sequence, its latching mechanism interferes to prohibit the Disconnect blades from closing.

Normal Operating Position

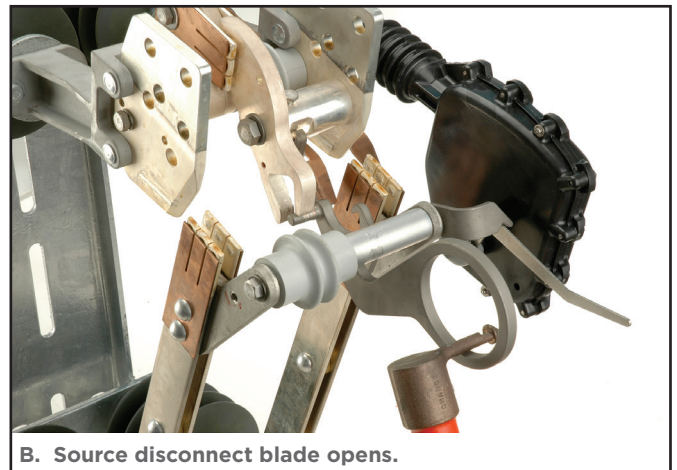


A. Cont. Bypass blade is open and disconnect blades are closed.



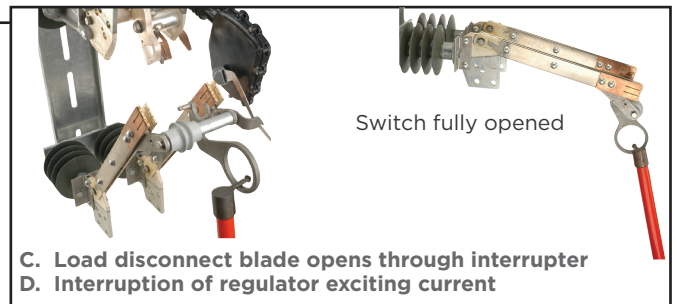
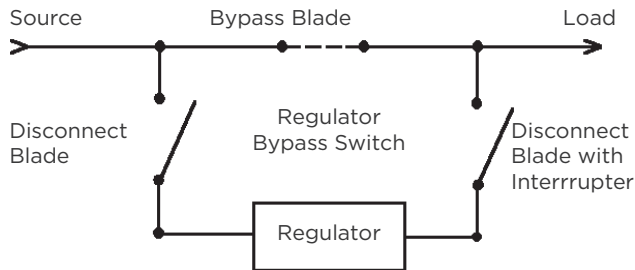
A. Bypass blade closes.

*When closing the switch, if the Bypass blade is out of sequence for any reason, the Disconnect blades are prevented from closing.



B. Source disconnect blade opens.

Bypass Operating Position



C. Load disconnect blade opens through interrupter D. Interruption of regulator exciting current

Features

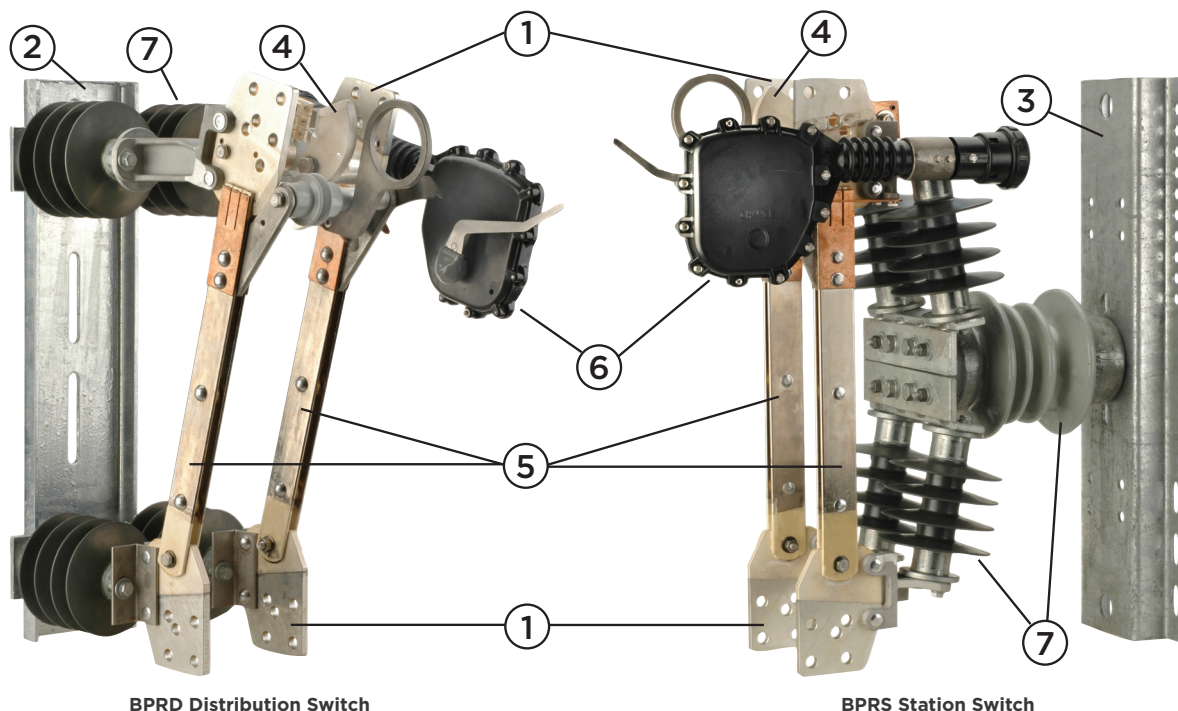
- Distribution base design and resultant angled switch mounting
- Versatile terminal pad design
- BPRS is the only single-pull 1200-Amp regulator bypass switch available
- ESP® silicone alloy rubber insulators

Advantages

- Mounts without drilling holes or additional mounting brackets. Angled mounting facilitates opening and closing operation
- Allows use of NEMA 2-hole or 4-hole terminals and training of incoming conductors for the most desirable connections
- Provides the reliability of single-pull operation, plus reduced size and weight for a 1200-Amp switch
- Time-proven technology for long-term performance and light weight

OVERHEAD SWITCHES, HOOKSTICK-OPERATED
BPR Regulator Bypass Switch

Components of the BPR Switch



BPRD Distribution Switch

BPRS Station Switch

1. Terminal Pads

High-conductivity tin-plated copper terminal pad accommodates NEMA two-hole or four-hole configurations. To permit "training" incoming conductors for the most convenient connections, the terminal pad design provides extra bolt holes.

2. Mounting Base - BPRD Distribution Switch

Versatile galvanized-steel base design permits mounting on distribution poles as well as single or double crossarms. Angled mounting of the base places the switch at 15° for easy opening and closing operation.

3. Mounting Base - BPRS Station Switch

Galvanized-steel base design permits convenient mounting on substation structures.

4. Bypass Blade

The bypass blade is silver-plated high-conductivity copper. It is mechanically connected to the disconnect blades to operate in proper sequence.

5. Disconnect Blades

The disconnect blades are high-conductivity copper, silver-plated at all contact areas. These blades are mechanically connected to the bypass blade to operate in proper sequence.

6. Interrupter

Interrupter technology will properly interrupt all expected regulator exciting currents during bypass operation.

7. Insulators

ESP™ silicone polymer rubber, 2.25-inch (57 mm) bolt circle insulators. See Catalog page 14B-2 for further description. BPRS switch utilizes a TR-rated station post insulator to meet most substation requirements.

Ordering Information - RUS Listed

Distribution Switch - 600 Amp Rating

BPRD06

Voltage, Insulation
1 = 15kV, 110kV BIL (17.1kV Max.)
2 = 27kV, 150kV BIL (29kV Max.)
3 = 38kV, 150kV BIL

Optional
B = Crossarm BackStrap Assembly

Station Switch - 600 & 1200 Amp Rating

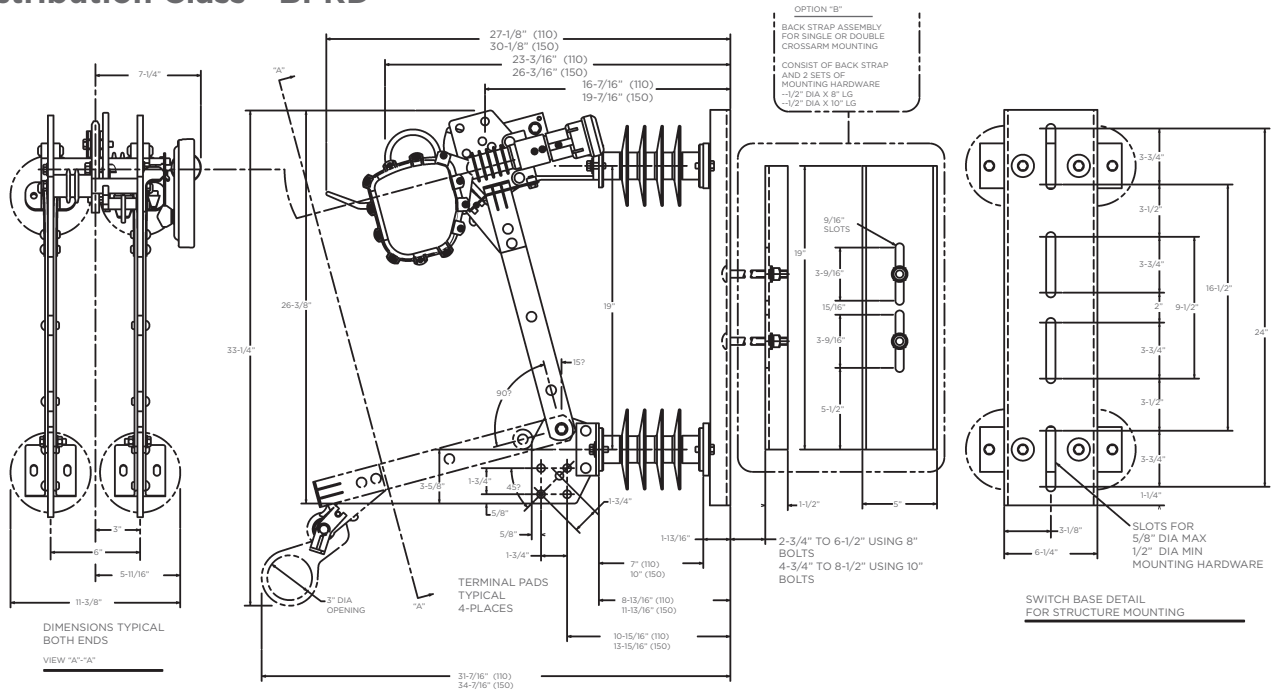
BPRS

Continuous Current Rating
06 = 600 Amp
12 = 1200 Amp

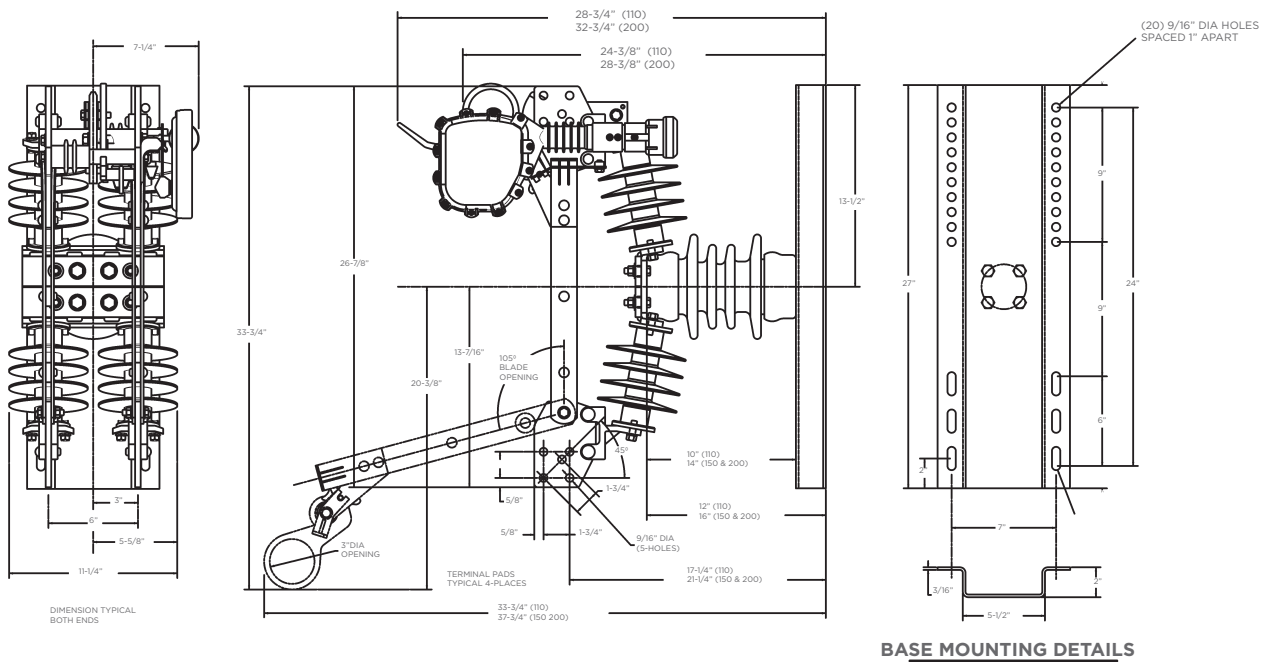
Voltage, Insulation
1 = 15kV, 150kV BIL (17.1kV Max.)
2 = 29/38kV, 200kV BIL

OVERHEAD SWITCHES, HOOKSTICK-OPERATED BPR Regulator Bypass Switch

Dimensional Data Distribution Class - BPRD



Substation Class - BPRS



HUBBELL[®]

Power Systems, Inc.

8100 Churchill Avenue, Leeds, Alabama 35094
www.hubbell.com/hubbellpowersystems | (205) 699-0840

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