





RELIABILITY ON DEMAND

Since 1953, Turner Electric has operated under the guiding principal that we will deliver quality products with exceptional customer service. Initially started as a transmission switch company, we have extended our products and services in order to better serve the utility industry. Turner has a full range of products for Transmission, Substation, and Distribution applications. We also provide many accessories such as the TECO-Rupters for superior load interruption, ground mats, and motor operators.

Turner Electric provides innovative switching solutions for all of your needs. We can customize our switches to meet your specifications or you can choose to design to our standard switch set up. Standard switch control mechanism drawings are available to assist in the initial design phase for utilities moving to standardization on installations, Turner provides specialized drawings and Bills of Materials designed to match the existing requirements that can be used again and again. These unique Bills of Material and customer specific catalog numbers, eliminate the need for extended engineering and approval time on future orders.

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TURNER ELECTRIC IS THE INDUSTRY CHOICE FOR TRANSMISSION SWITCHES

For 60 years, we have provided the highest quality products and developed the concept for “Substation in the Sky.” We offer phase over phase construction versus phase next to phase, allowing the switch apparatus to be installed on the utility high voltage transmission line right of way. No additional land is required.

Traditionally, these switches have been offered only in copper. We still offer these proven “D” style switches, but we also listened to you and designed a completely new line employing aluminum. The new “BearTrap” Line is rich with benefits and features.

BearTrap Switch

Tired of trying to remember if the switch is supposed to be closed slow and smooth or needs to be slammed shut? The new BearTrap Switch eliminates all of the confusion. Its operation is completely speed independent. The switch can be securely closed, no matter if the action is fast or slow.

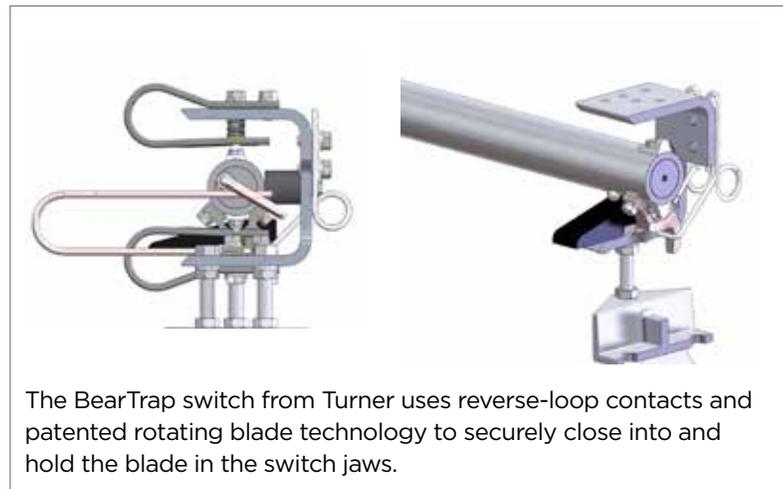
Reverse-loop, silver plated copper jaw contacts employ the natural repulsion of magnetic fields moving in opposite directions to exert holding forces against the blade edges. In fault conditions, the increased current flow increases the magnetic repulsion, which creates a high pressure force on the blade tip, holding the blade in the jaw. They are also tapered inward, designed to guide the blade further into the jaw to ensure secure seating.

The aluminum tubular blade design provides the proper combination of current carrying capacity and rigidity. Silver-plated copper profiles are easily field-replaceable, as are the stationary and moving arcing horns.

Both the blade and jaw contacts are wiped clean during the closing action to ensure a low resistance current transfer. A heavy-duty static blade-locking device keeps the blade closed despite temporary faults or surge currents.

The BearTrap Switch from Turner employs a patented ramp and pin to securely position the blade in the jaw.

The blade lock assembly is designed to pull the blade further into the jaw. During the switch opening sequence, as the blade rotates 30 degrees in the jaw. This action, exclusive to Turner’s switches, breaks up contamination and ice up to 3/4”, and releases the contact friction, allowing the blade to easily be removed from the contacts.



The BearTrap switch from Turner uses reverse-loop contacts and patented rotating blade technology to securely close into and hold the blade in the switch jaws.

Hinge Mechanism

The hinge end of the switch is enclosed to permanently protect it from the elements and offers a continuous current carrying path. There are only two current transfer points in the hinge. The terminal pad is threaded to a stationary contact block creating a spring loaded, silver to silver connection.

Upgrade-Ability

Switch current rating upgrades are easily and economically accomplished in minutes by even in-experienced line crews. Ratings can be increased from 600 amps to 1200 amps simply by adding bolt-on contact fingers to the jaw.

Main Bearing Assembly And Stationary Insulator Mounting

The main pivot bearing assembly consists of two tapered roller bearings, which are adjusted and factory lubricated. They require no further attention for the life of the switch. These bearings are protected with a permanent o-ring seal and plug.



Leveling Screws

Leveling screws are provided on the movable and stationary insulator mounting flange to facilitate easy alignment of the insulator stacks. Adjusting the movable mount leveling screws raises or lowers the end of the switch blade allowing simple, correct blade to jaw contact interface.

Mounting Flexibility

Turner offers the BearTrap switch for a variety of transmission and substation mounting applications

Please see the following pages, which outline the available one, two, and three way configurations. All frames are designed and constructed for termination of the transmission line a 10,000 pounds working load. Line angles at full tension are limited to +/- 5 Degrees of 90 or 180 Degree dead end. If there is an application outside of these parameters, please contact the factory.

Generally, 2 and 3 way switches at 115kV and above must be mounted on steel, concrete, or laminated wood poles.

Accessories

Operating Mechanism complete with any of the following:

- Swing Handle (standard)
- Worm Gear
- Motor Operator

TECO-Rupter (see pages 28 and 31)

- Full Load Break
- Loop Split
- Line Charging

High Speed Quick Whips

Wood, Steel, Concrete or Laminated Wood

- Pole Mounting
- Provisions

Extension Rods for Dead Ends

Blade Position Indicator

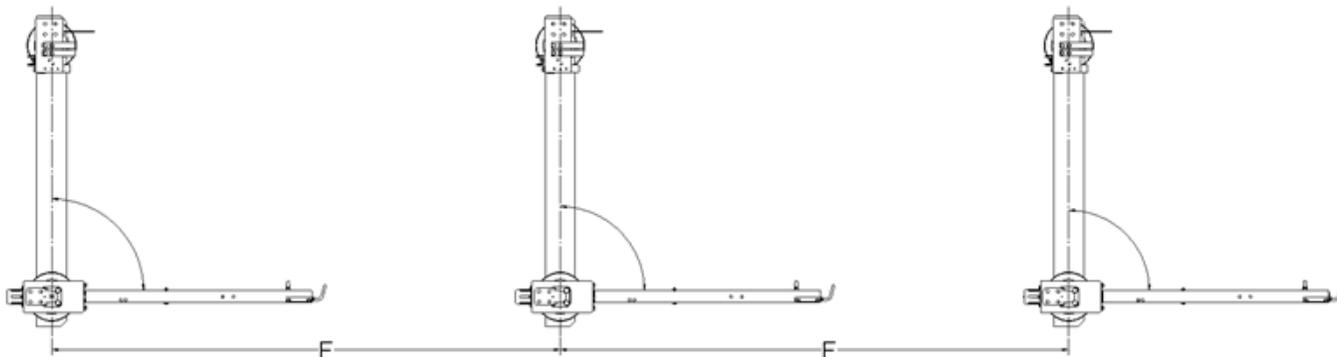
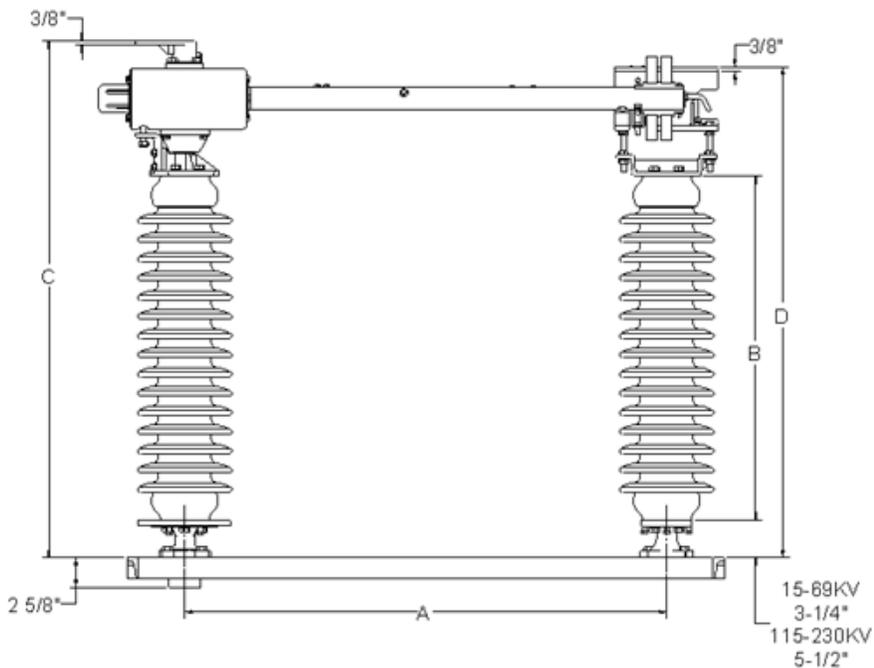
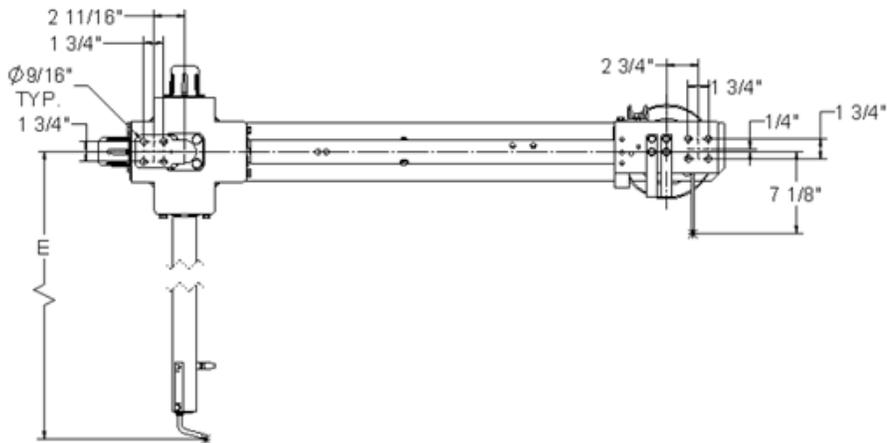
Utilities need to know when a switch is closed correctly. As an optional feature, Turner developed a new open/close position indicator. The indicator is fully integrated in the True Turn technology and provides positive visual confirmation that the blade contacts are securely seated in the jaw contacts.





BearTrap TU-1TS2 1-WAY

The TU-1TS2 switch mounting flexibility makes it ideal for phase-over-phase, delta (phase-opposite-phase) and phase-next-to-phase configurations on poles, on platforms or on substation structures. Designed as a stock switch, the TU-1TS2 is suitable for almost any application.



Ratings and Designation TU-ITS2

Voltage	Switch Rating		Station Post Insulators	Catalog Number	
	Continuous Current (Amps)	Peak Withstand Current (Amps)	Technical Reference Number	Horizontal Mounting	Vertical Mounting
15kV	600	65,000	TR205	TU-ITS21506	TU-ITS2V01506
	1200	99,000		TU-ITS201512	TU-ITS2V01512
	2000	164,000		TU-ITS201520	TU-ITS2V01520
23kV	600	65,000	TR208	TU-ITS202306	TU-ITS2V02306
	1200	99,000		TU-ITS202312	TU-ITS2V02312
	2000	164,000		TU-ITS202320	TU-ITS2V02320
34kV	600	65,000	TR210	TU-ITS203406	TU-ITS2V03406
	1200	99,000		TU-ITS203412	TU-ITS2V03412
	2000	164,000		TU-ITS203420	TU-ITS2V03420
46kV	600	65,000	TR214	TU-ITS204606	TU-ITS2V04606
	1200	99,000		TU-ITS204612	TU-ITS2V04612
	2000	164,000		TU-ITS204620	TU-ITS2V04620
69kV	600	65,000	TR216	TU-ITS206906	TU-ITS2V06906
	1200	99,000		TU-ITS206912	TU-ITS2V06912
	2000	164,000		TU-ITS206920	TU-ITS2V06920
115kV	600	65,000	TR286	TU-ITS211506	TU-ITS2V11506
	1200	99,000		TU-ITS211512	TU-ITS2V11512
	2000	164,000		TU-ITS211520	TU-ITS2V11520
138kV	600	65,000	TR288	TU-ITS213806	TU-ITS2V13806
	1200	99,000		TU-ITS213812	TU-ITS2V13812
	2000	164,000		TU-ITS213820	TU-ITS2V13820
161kV	600	65,000	TR291	TU-ITS216106	TU-ITS2V16106
	1200	99,000		TU-ITS216120	TU-ITS2V16120
	2000	164,000		TU-ITS216120	TU-ITS2V16120
230kV	600	65,000	TR304	TU-ITS223006	TU-ITS2V23006
	1200	99,000		TU-ITS223012	TU-ITS2V23012
	2000	164,000		TU-ITS223020	TU-ITS2V23020

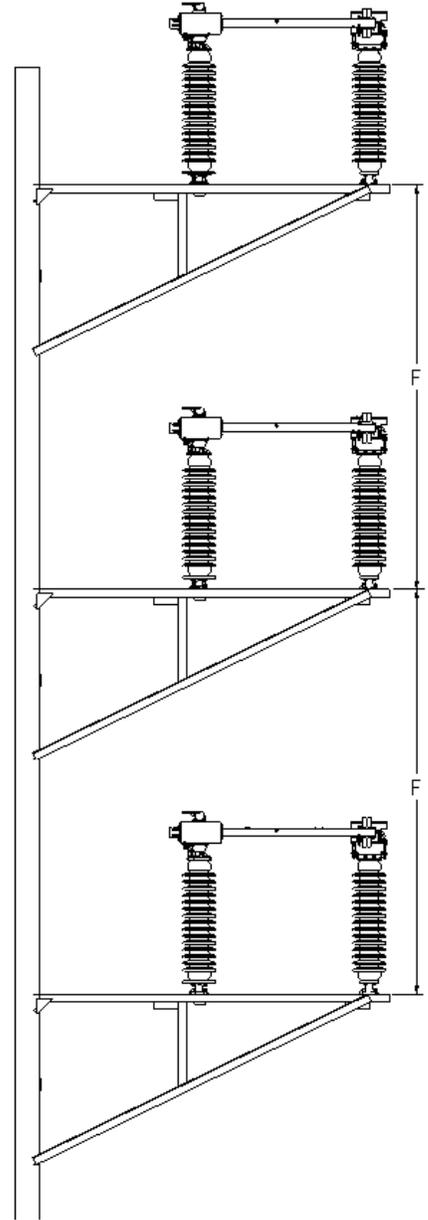
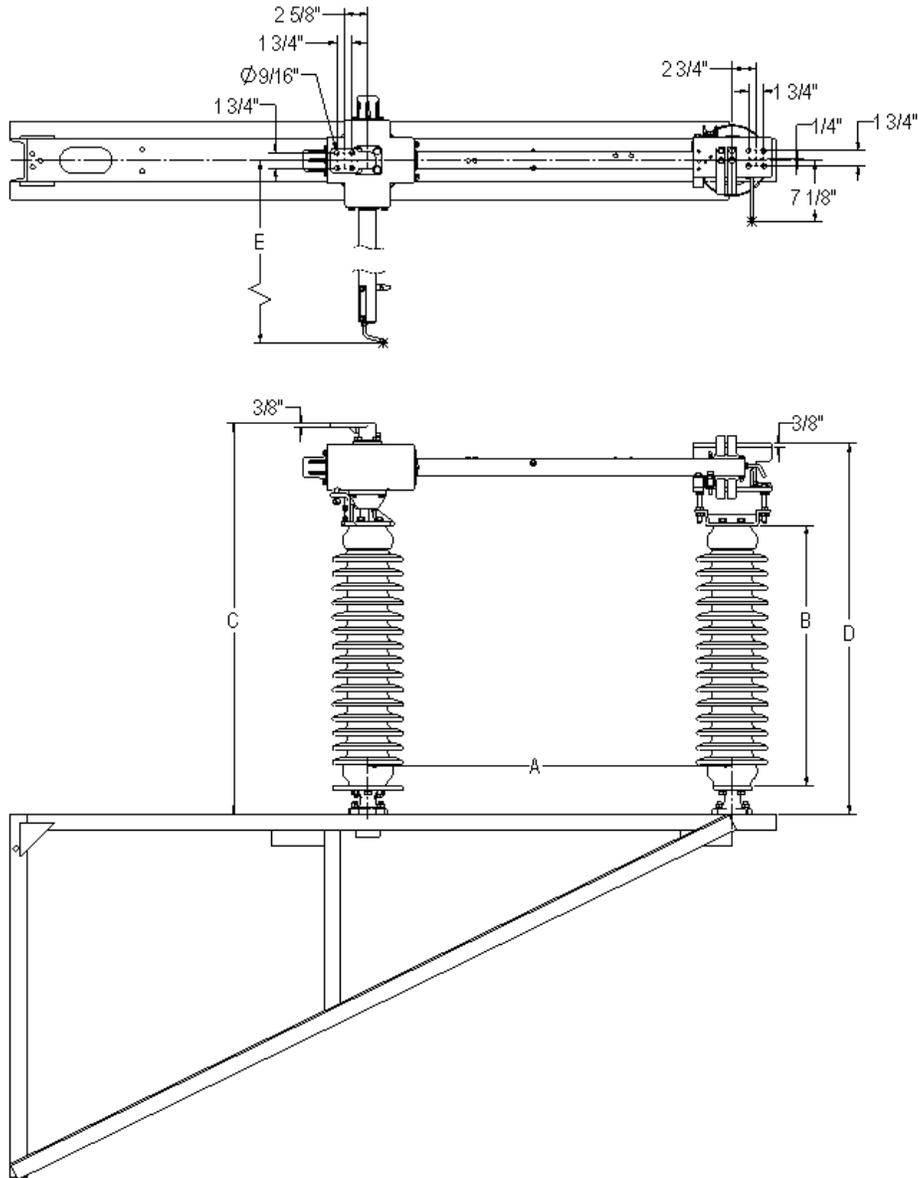
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	25	22-3/4	23	43
23	22	14	29	26-3/4	26	49
34	25	18	33	30-3/4	29	55
46	30	22	37	34-3/4	34	63
69	42	30	45	42-3/4	46	85
115	60	45	62-1/4	60	64	125
138	72	54	71-1/4	69	76	147
161	84	62	79-1/4	79	88	168



BearTrap TU-1AS2, 1, 2, 3 or 4-Way

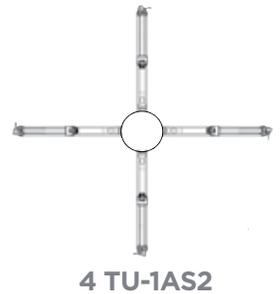
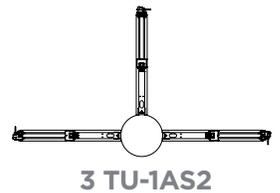
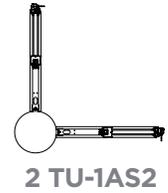
The TU-1AS2 switch is our most versatile. The unique frame design, with conductor deadends right on the frame, easily orients itself to the line angle. Additional positions can be added quickly and with minimal effort. TU-1AS2 switches are available in one, two, three and four way mounting configurations for inline or 90 degree takeoffs. Add to this a specially designed "Pole Bracket" and you have maximum switching flexibility.





Ratings and Designation TU-1AS2

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	TU-1AS2P01506
		1200	38	99,000		TU-1AS2P01512
		2000	63	164,000		TU-1AS2P01520
23kV	150kV	600	25	65,000	TR208	TU-1AS2P02306
		1200	38	99,000		TU-1AS2P02312
		2000	63	164,000		TU-1AS2P02320
34kV	200kV	600	25	65,000	TR210	TU-1AS2P03406
		1200	38	99,000		TU-1AS2P03412
		2000	63	164,000		TU-1AS2P03420
46kV	250kV	600	25	65,000	TR214	TU-1AS2P04606
		1200	38	99,000		TU-1AS2P04612
		2000	63	164,000		TU-1AS2P04620
69kV	350kV	600	25	65,000	TR216	TU-1AS2P06906
		1200	38	99,000		TU-1AS2P06912
		2000	63	164,000		TU-1AS2P06920
115kV	550kV	600	25	65,000	TR286	TU-1AS2P11506
		1200	38	99,000		TU-1AS2P11512
		2000	63	164,000		TU-1AS2P11520
138kV	650kV	600	25	65,000	TR288	TU-1AS2P13806
		1200	38	99,000		TU-1AS2P13812
		2000	63	164,000		TU-1AS2P13820
161kV	750kV	600	25	65,000	TR291	TU-1AS2P16106
		1200	38	99,000		TU-1AS2P16112
		2000	63	164,000		TU-1AS2P16120



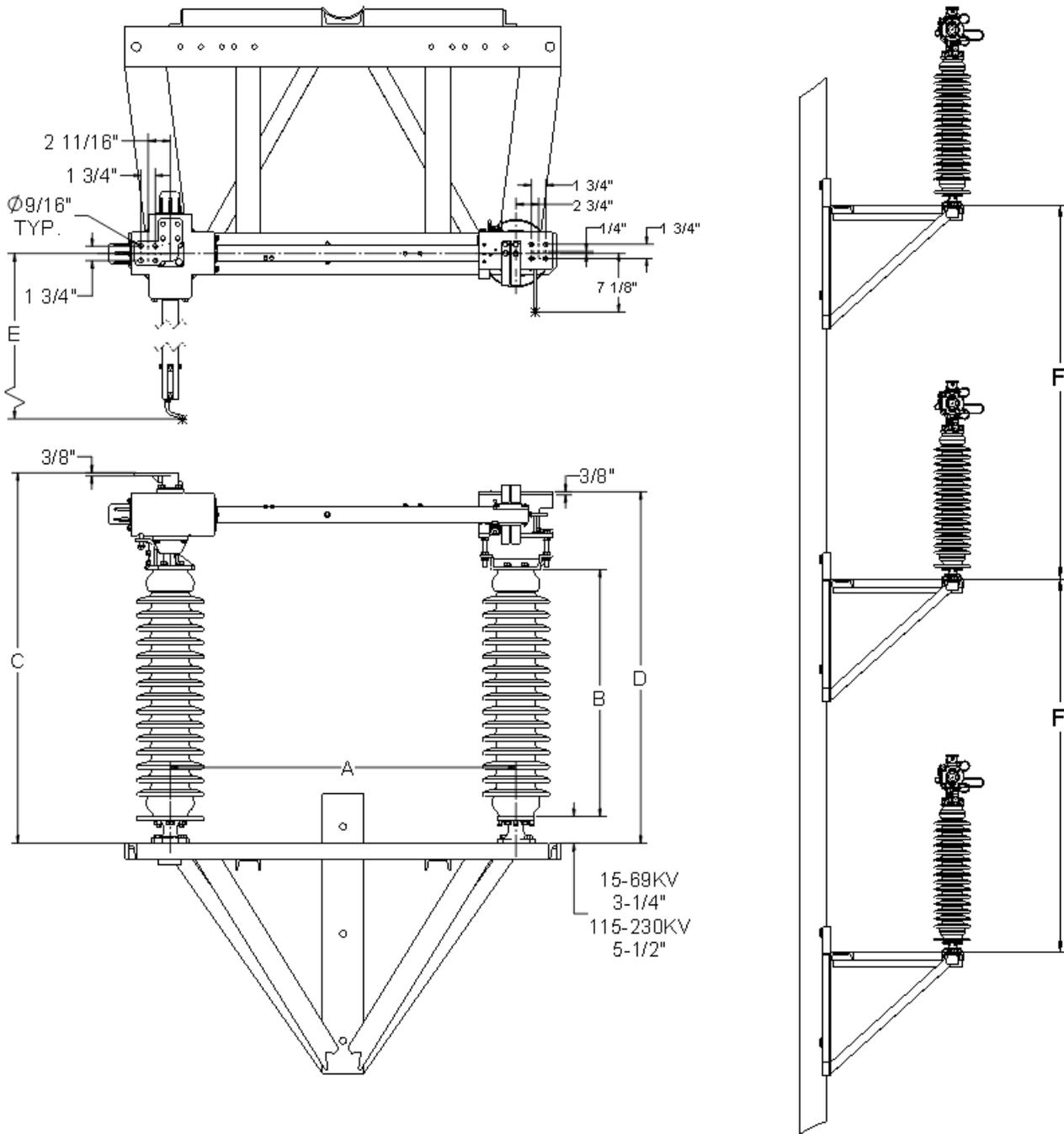
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	25	22-3/4	23	48
23	22	14	29	26-3/4	26	60
34	25	18	33	30-3/4	29	72
46	30	22	37	34-3/4	34	78
69	42	30	45	42-3/4	46	108
115	60	45	62-1/4	60	64	162
138	72	54	71-1/4	69	76	192
161	84	62	79-1/4	79	88	216



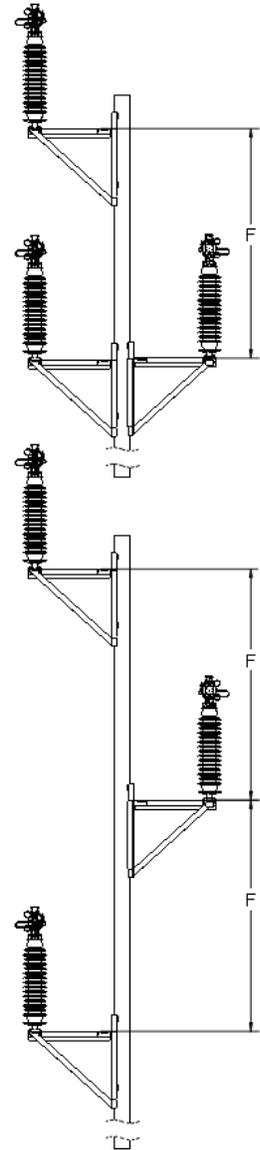
BearTrap TU-1CS2 1-WAY

The TU-1CS2 switches employ a specially designed, lightweight aluminum frame which eliminates the need for pole cross arms or braces. The versatile design makes them ideal for phase-over-phase and phase-next-to-phase configurations on transmission poles. The frames are suitable for mounting on wood, steel, concrete or laminated wood poles. The 2TSB and 3TSB switches eliminate Right-of-Way and real estate issues, as well as the associated legal considerations.



Ratings and Designation TU-1CS2

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	TU-1CS2P01506
		1200	38	99,000		TU-1CS2P01512
		2000	63	164,000		TU-1CS2P01520
23kV	150kV	600	25	65,000	TR208	TU-1CS2P02306
		1200	38	99,000		TU-1CS2P02312
		2000	63	164,000		TU-1CS2P02320
34kV	200kV	600	25	65,000	TR210	TU-1CS2P03406
		1200	38	99,000		TU-1CS2P03412
		2000	63	164,000		TU-1CS2P03420
46kV	250kV	600	25	65,000	TR214	TU-1CS2P04606
		1200	38	99,000		TU-1CS2P04612
		2000	63	164,000		TU-1CS2P04620
69kV	350kV	600	25	65,000	TR216	TU-1CS2P06906
		1200	38	99,000		TU-1CS2P06912
		2000	63	164,000		TU-1CS2P06920
115kV	550kV	600	25	65,000	TR286	TU-1CS2P11506
		1200	38	99,000		TU-1CS2P11512
		2000	63	164,000		TU-1CS2P11520
138kV	650kV	600	25	65,000	TR288	TU-1CS2P13806
		1200	38	99,000		TU-1CS2P13812
		2000	63	164,000		TU-1CS2P13820
161kV	750kV	600	25	65,000	TR291	TU-1CS2P16106
		1200	38	99,000		TU-1CS2P16112
		2000	63	164,000		TU-1CS2P16120



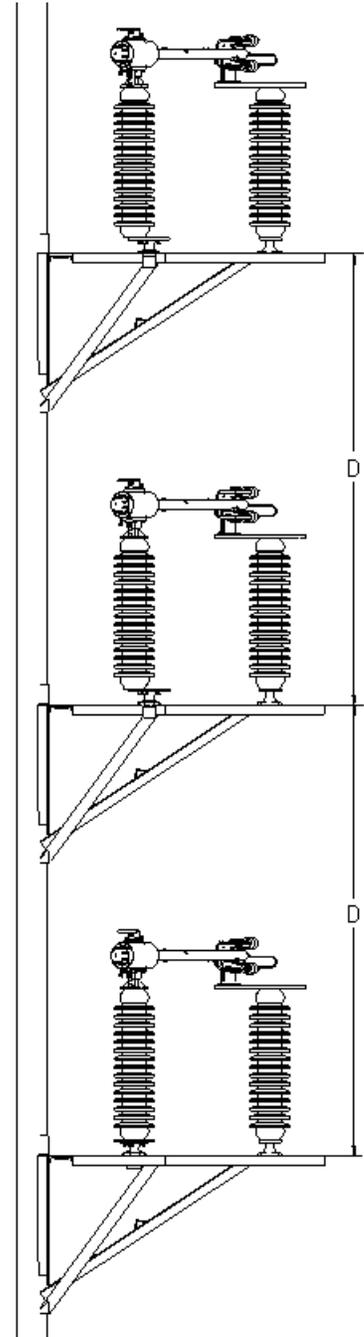
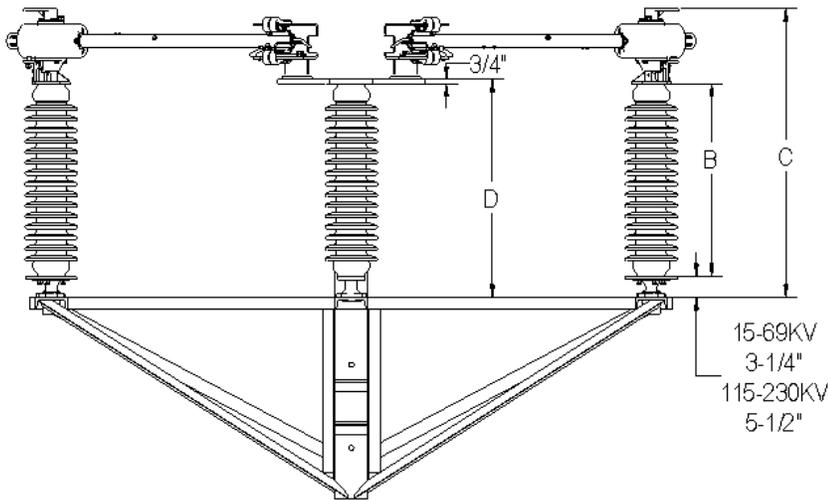
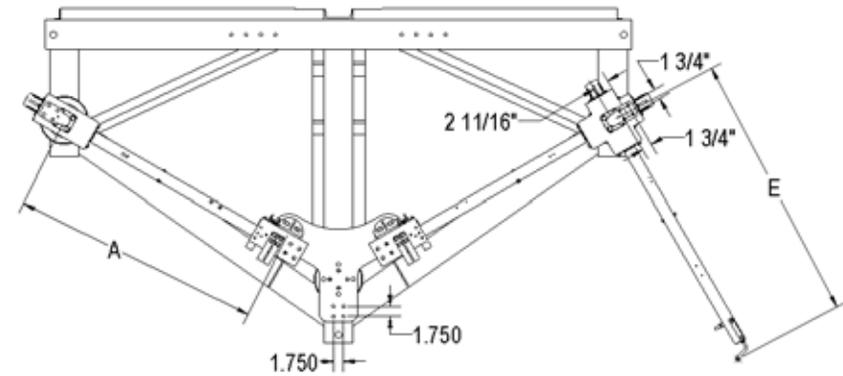
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	25	22-3/4	23	54
23	22	14	29	26-3/4	26	60
34	25	18	33	30-3/4	29	72
46	30	22	37	34-3/4	34	84
69	42	30	45	42-3/4	46	86
115	60	45	62-1/4	60	64	144
138	72	54	71-1/4	69	76	156
161	84	62	79-1/4	79	88	168



BearTrap TU-2TS2 2-WAY

The TU-2TS2 switches employ a specially designed, lightweight aluminum frame which eliminates the need for pole cross arms or braces. The versatile design makes them ideal for phase-over-phase and phase-next-to-phase configurations on transmission poles. The frames are suitable for mounting on wood, steel, concrete or laminated wood poles. The TU-2TS2 and TU-3TS2 switches eliminate Right-of-Way and real estate issues, as well as the associated legal considerations.





Ratings and Catalog Designation TU-2TS2

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	TU-2TS201506
		1200	38	99,000		TU-2TS201512
		2000	63	164,000		TU-2TS201520
23kV	150kV	600	25	65,000	TR208	TU-2TS202306
		1200	38	99,000		TU-2TS202312
		2000	63	164,000		TU-2TS202320
34kV	200kV	600	25	65,000	TR210	TU-2TS203406
		1200	38	99,000		TU-2TS203412
		2000	63	164,000		TU-2TS203420
46kV	250kV	600	25	65,000	TR214	TU-2TS204606
		1200	38	99,000		TU-2TS204612
		2000	63	164,000		TU-2TS204620
69kV	350kV	600	25	65,000	TR216	TU-2TS206906
		1200	38	99,000		TU-2TS206912
		2000	63	164,000		TU-2TS206920
115kV	550kV	600	25	65,000	TR286	TU-2TS211506
		1200	38	99,000		TU-2TS211512
		2000	63	164,000		TU-2TS211520
138kV	650kV	600	25	65,000	TR288	TU-2TS213806
		1200	38	99,000		TU-2TS213812
		2000	63	164,000		TU-2TS213820
161kV	750kV	600	25	65,000	TR291	TU-2TS216106
		1200	38	99,000		TU-2TS216112
		2000	63	164,000		TU-2TS216120

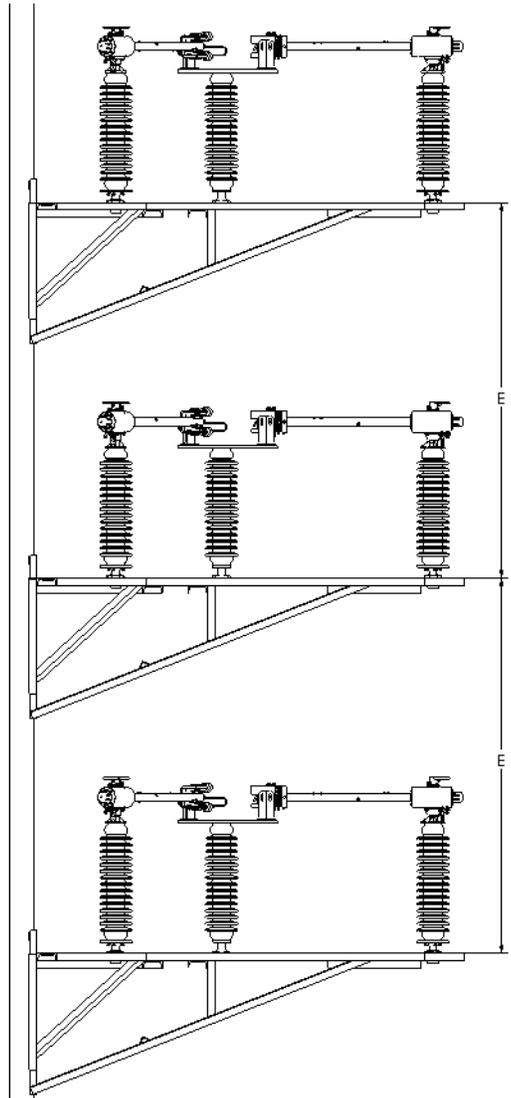
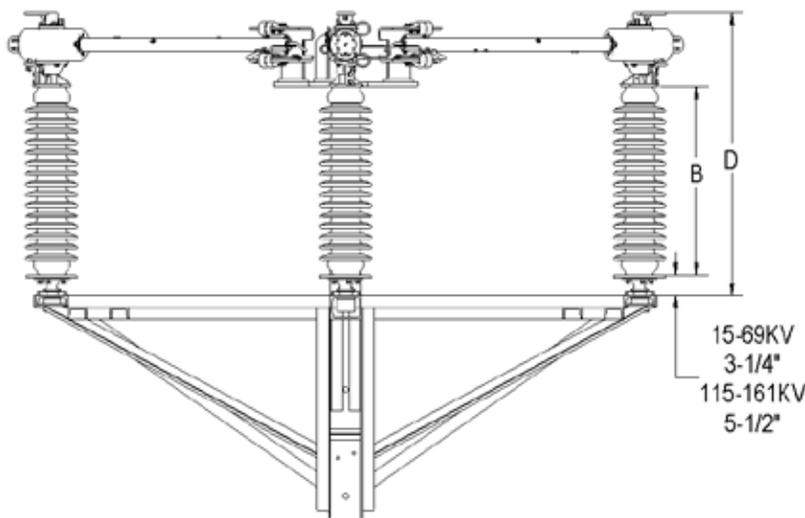
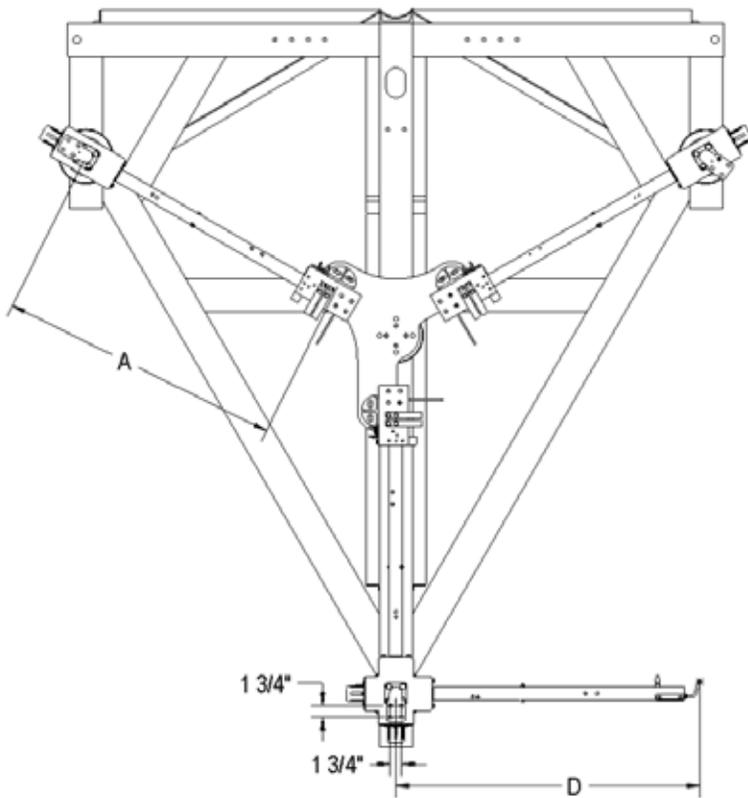
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	25	14	23	54
23	22	14	29	18	26	60
34	25	18	33	22	29	72
46	30	22	37	26	34	84
69	42	30	45	34	46	108
115	60	45	62-1/4	51-1/4	64	144
138	72	54	71-1/4	60-1/4	76	156
161	84	62	79-1/4	68-1/4	88	168



BearTrap TU-3TS2 3-WAY

The TU-3TS2 3-Way switches employ a specially designed, light weight aluminum frame which eliminates the need for pole cross arms or braces. The versatile design makes them ideal for phase-over-phase and phase-next-to-phase configurations on transmission poles. The frames are suitable for mounting on wood, steel, concrete or laminated wood poles. The TU-2TS2 and TU-3TS2 switches eliminate Right-of-Way and real estate issues, as well as the associated legal considerations.





Ratings and Designation TU-3TS2

Switch Rating					Station Post Insulators	Catalog Number
Voltage	BIL	Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	TU-3TS201506
		1200	38	99,000		TU-3TS201512
		2000	63	164,000		TU-3TS201520
23kV	150kV	600	25	65,000	TR208	TU-3TS202306
		1200	38	99,000		TU-3TS202312
		2000	63	164,000		TU-3TS202320
34kV	200kV	600	25	65,000	TR210	TU-3TS203406
		1200	38	99,000		TU-3TS203412
		2000	63	164,000		TU-3TS203420
46kV	250kV	600	25	65,000	TR214	TU-3TS204606
		1200	38	99,000		TU-3TS204612
		2000	63	164,000		TU-3TS204620
69kV	350kV	600	25	65,000	TR216	TU-3TS206906
		1200	38	99,000		TU-3TS206912
		2000	63	164,000		TU-3TS206920
115kV	550kV	600	25	65,000	TR286	TU-3TS211506
		1200	38	99,000		TU-3TS211512
		2000	63	164,000		TU-3TS211520
138kV	650kV	600	25	65,000	TR288	TU-3TS213806
		1200	38	99,000		TU-3TS213812
		2000	63	164,000		TU-3TS213820
161kV	750kV	600	25	65,000	TR291	TU-3TS216106
		1200	38	99,000		TU-3TS216112
		2000	63	164,000		TU-3TS216120

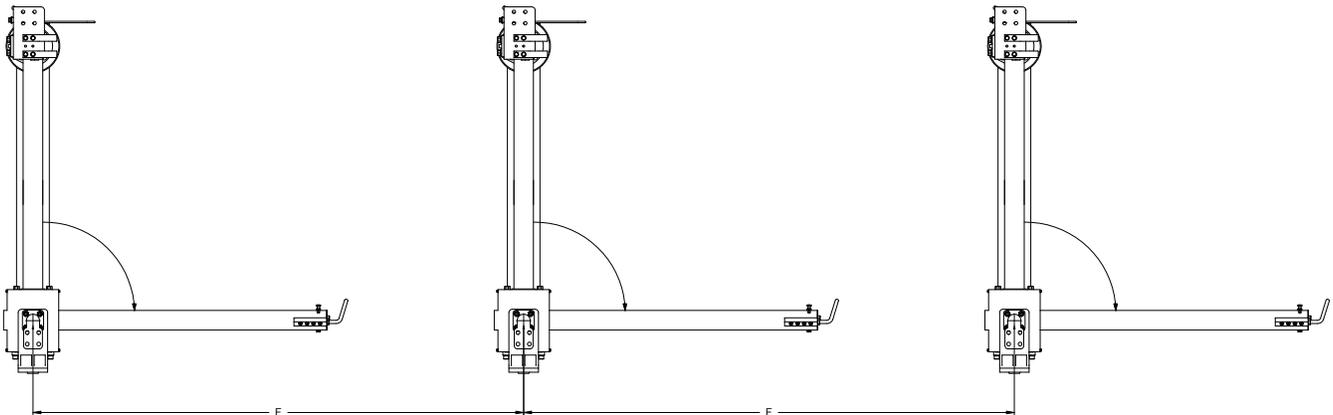
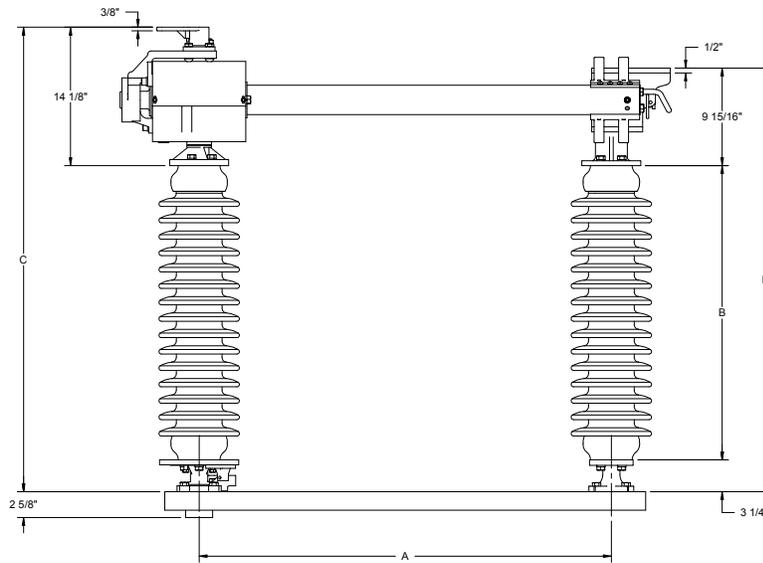
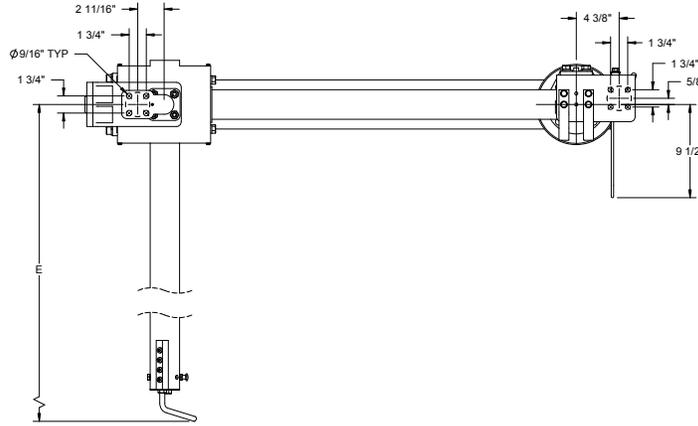
Dimensions in Inches

kV	A	B	C	D	E
15	19	10	25	23	54
23	22	14	29	26	60
34	25	18	33	29	78
46	30	22	37	34	84
69	42	30	45	46	96
115	60	45	62-1/4	64	
138	72	54	71-1/4	76	
161	84	62	79-1/4	88	



1TSB 1-WAY

The 1TSB switch mounting flexibility makes it ideal for phase-over-phase, delta (phase-opposite-phase) and phase-next-to-phase configurations on poles, on platforms or on substation structures. Designed as a stock switch, the 1TSB is suitable for almost any application.





Ratings and Catalog Numbers

Voltage	Switch Rating		Station Post Insulators	Catalog Number	
	Continuous Current (Amps)	Peak Withstand Current (Amps)	Technical Reference Number	Horizontal Mounting	Vertical Mounting
15kV	600	65,000	TR205	1TSB01506	1TSBV01506
	1200	99,000		1TSB01512	1TSBV01512
	2000	164,000		1TSB01520	1TSBV01520
23kV	600	65,000	TR208	1TSB02306	1TSBV02306
	1200	99,000		1TSB02312	1TSBV02312
	2000	164,000		1TSB02320	1TSBV02320
34kV	600	65,000	TR210	1TSB03406	1TSBV03406
	1200	99,000		1TSB03412	1TSBV03412
	2000	164,000		1TSB03420	1TSBV03420
46kV	600	65,000	TR214	1TSB04606	1TSBV04606
	1200	99,000		1TSB04612	1TSBV04612
	2000	164,000		1TSB04620	1TSBV04620
69kV	600	65,000	TR216	1TSB06906	1TSBV06906
	1200	99,000		1TSB06912	1TSBV06912
	2000	164,000		1TSB06920	1TSBV06920
115kV	600	65,000	TR286	1TSB11506	1TSBV11506
	1200	99,000		1TSB11512	1TSBV11512
	2000	164,000		1TSB11520	1TSBV11520
138kV	600	65,000	TR288	1TSB13806	1TSBV13806
	1200	99,000		1TSB13812	1TSBV13812
	2000	164,000		1TSB13820	1TSBV13820
161kV	600	65,000	TR291	1TSB16106	1TSBV16106
	1200	99,000		1TSB16120	1TSBV16120
	2000	164,000		1TSB16120	1TSBV16120
230kV	600	65,000	TR304	1TSB23006	1TSBV23006
	1200	99,000		1TSB23012	1TSBV23012
	2000	164,000		1TSB23020	1TSBV23020

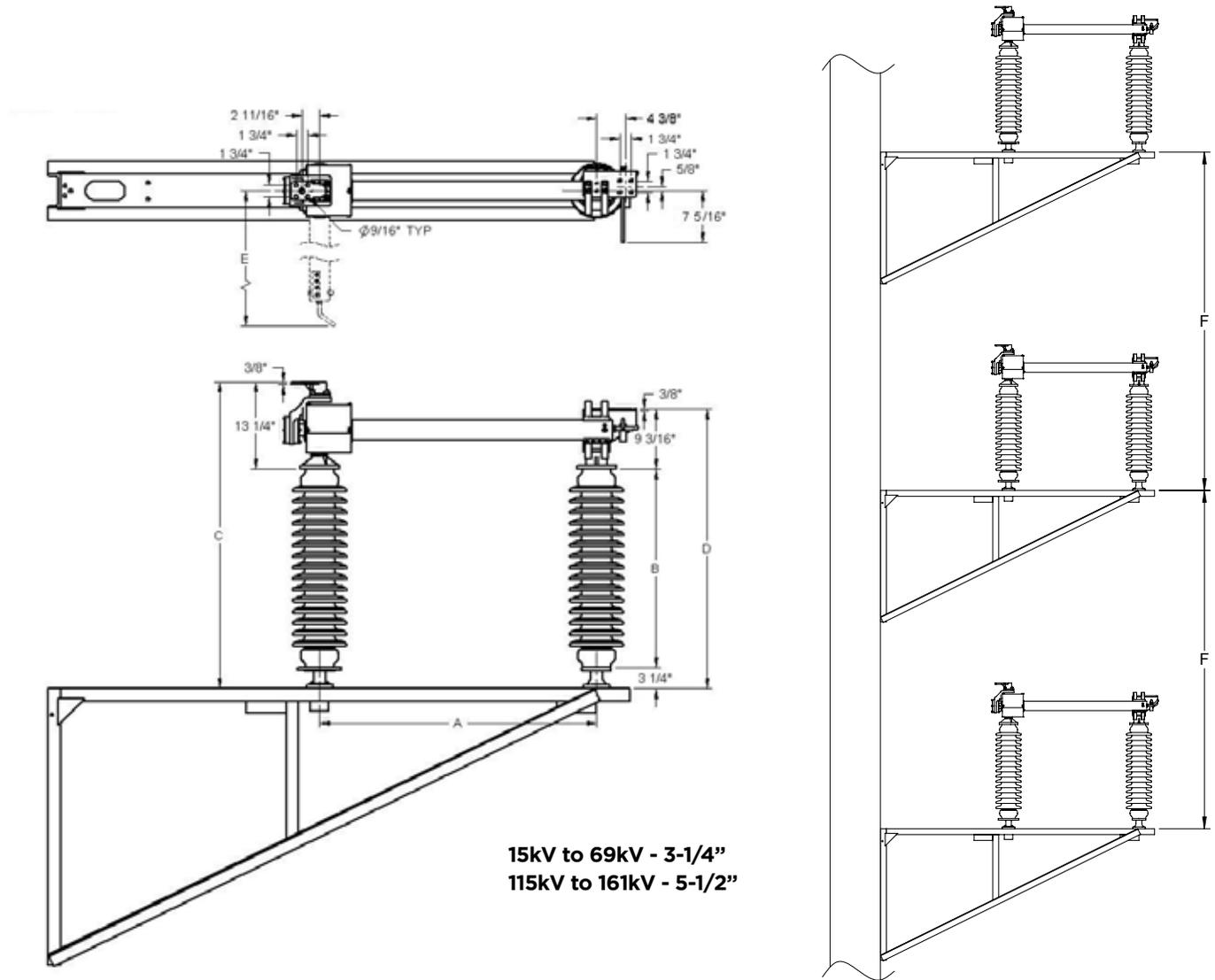
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	26-1/2	22-7/16	25-5/16	48
23	22	14	30-1/2	26-7/16	28-5/16	54
34	25	18	34-1/2	30-7/16	31-5/16	60
46	30	22	38-1/2	34-7/16	36-5/16	78
69	42	30	46-1/2	42-7/16	48-5/16	90
115	60	45	63-3/4	59-11/16	66-5/16	126
138	72	54	72-3/4	68-11/16	78-5/16	150
161	84	62	80-3/4	76-11/16	90-5/16	168
161	112	80	98-3/4	94-11/16	118-5/16	216



ASB 1, 2, 3 OR 4-WAY

The ASB switch is our most versatile. The unique frame design, with conductor deadends right on the frame, easily orients itself to the line angle. Additional positions can be added quickly and with minimal effort. ASB switches are available in one, two, three and four way mounting configurations for inline or 90 degree takeoffs. Add to this a specially designed "Pole Bracket" and you have maximum switching flexibility.



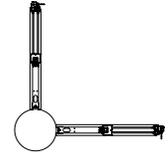


Ratings and Catalog Numbers

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	1ASBP01506
		1200	38	99,000		1ASBP01512
		2000	63	164,000		1ASBP01520
23kV	150kV	600	25	65,000	TR208	1ASBP02306
		1200	38	99,000		1ASBP02312
		2000	63	164,000		1ASBP02320
34kV	200kV	600	25	65,000	TR210	1ASBP03406
		1200	38	99,000		1ASBP03412
		2000	63	164,000		1ASBP03420
46kV	250kV	600	25	65,000	TR214	1ASBP04606
		1200	38	99,000		1ASBP04612
		2000	63	164,000		1ASBP04620
69kV	350kV	600	25	65,000	TR216	1ASBP06906
		1200	38	99,000		1ASBP06912
		2000	63	164,000		1ASBP06920
115kV	550kV	600	25	65,000	TR286	1ASBP11506
		1200	38	99,000		1ASBP11512
		2000	63	164,000		1ASBP11520
138kV	650kV	600	25	65,000	TR288	1ASBP13806
		1200	38	99,000		1ASBP13812
		2000	63	164,000		1ASBP13820
161kV	750kV	600	25	65,000	TR291	1ASBP16106
		1200	38	99,000		1ASBP16112
		2000	63	164,000		1ASBP16120



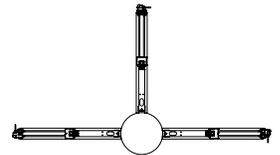
1 ASB



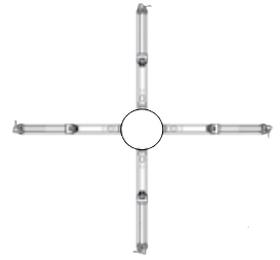
2 ASB



2 ASB



3 ASB



4 ASB

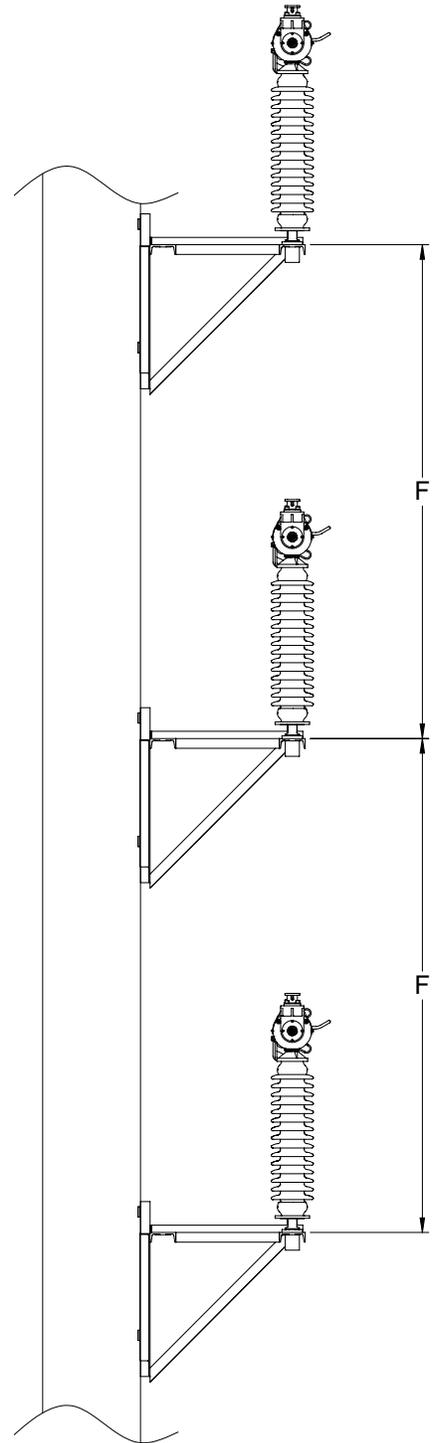
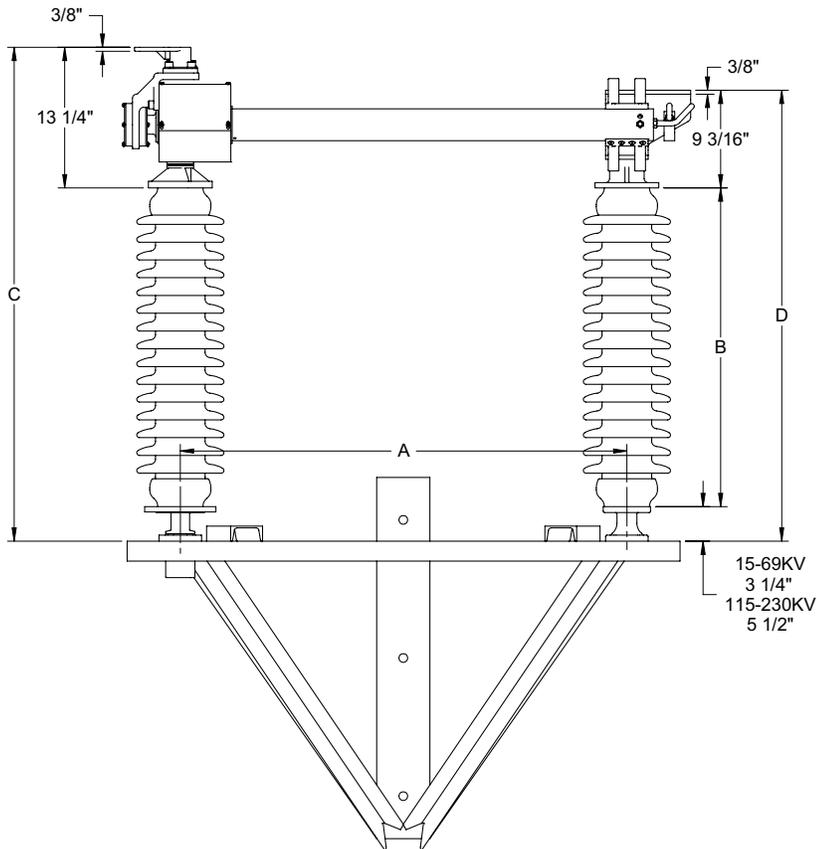
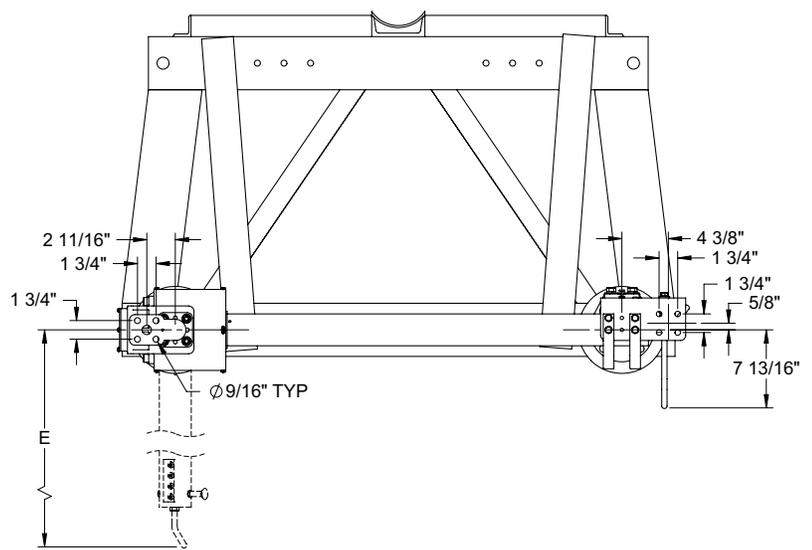
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	26-1/2	22-7/16	25-5/16	48
23	22	14	30-1/2	26-7/16	28-5/16	60
34	25	18	34-1/2	30-7/16	31-5/16	72
46	30	22	38-1/2	34-7/16	36-5/16	78
69	42	30	46-1/2	42-7/16	48-5/16	108
115	60	45	63-3/4	59-11/16	66-5/16	162
138	72	54	72-3/4	68-11/16	78-5/16	192
161	84	62	80-3/4	76-11/16	90-5/16	216



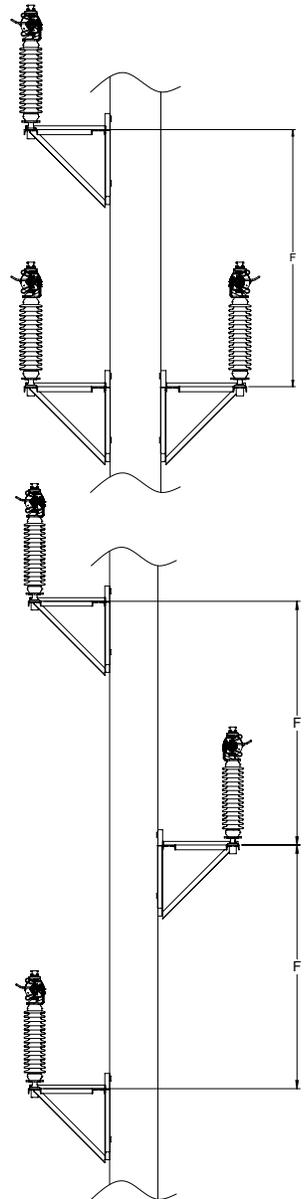
1CSB 1-WAY

The 1CSB switch design is ideal for phase-over-phase and pole-saving triangular or delta mounting configurations. Both tangent and 90 degree lines are easily managed. In addition, if a line is to be dead-ended to the pole, a front mounting switch frame is available to move the vertical operating pipe off of the thru-line pole face.



Ratings and Catalog Numbers

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	1CSBP01506
		1200	38	99,000		1CSBP01512
		2000	63	164,000		1CSBP01520
23kV	150kV	600	25	65,000	TR208	1CSBP02306
		1200	38	99,000		1CSBP02312
		2000	63	164,000		1CSBP02320
34kV	200kV	600	25	65,000	TR210	1CSBP03406
		1200	38	99,000		1CSBP03412
		2000	63	164,000		1CSBP03420
46kV	250kV	600	25	65,000	TR214	1CSBP04606
		1200	38	99,000		1CSBP04612
		2000	63	164,000		1CSBP04620
69kV	350kV	600	25	65,000	TR216	1CSBP06906
		1200	38	99,000		1CSBP06912
		2000	63	164,000		1CSBP06920
115kV	550kV	600	25	65,000	TR286	1CSBP11506
		1200	38	99,000		1CSBP11512
		2000	63	164,000		1CSBP11520
138kV	650kV	600	25	65,000	TR288	1CSBP13806
		1200	38	99,000		1CSBP13812
		2000	63	164,000		1CSBP13820
161kV	750kV	600	25	65,000	TR291	1CSBP16106
		1200	38	99,000		1CSBP16112
		2000	63	164,000		1CSBP16120



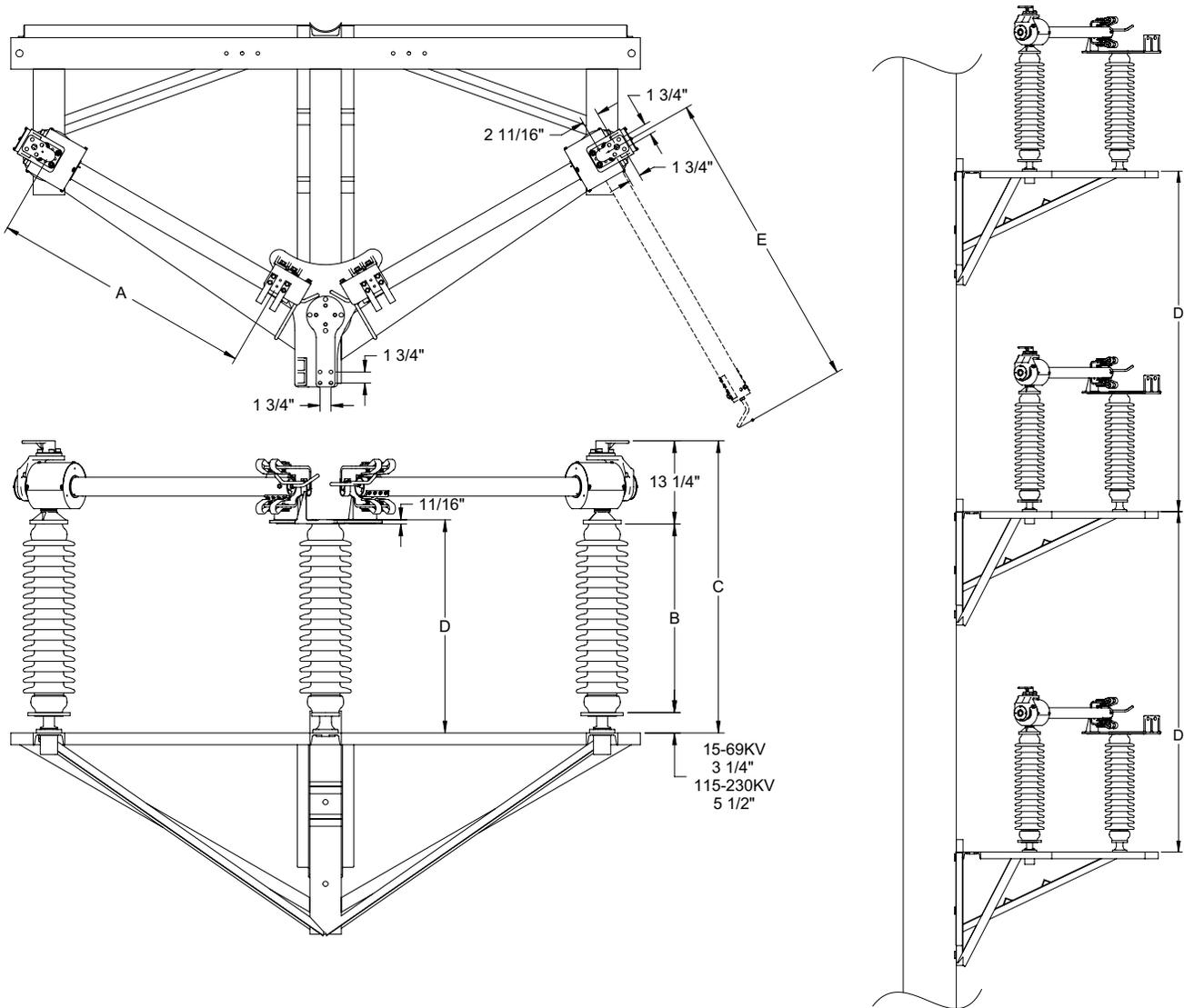
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	26-1/2	22-1/2	25-5/16	54
23	22	14	30-1/2	26-1/2	28-5/16	60
34	25	18	34-1/2	30-1/2	31-5/16	72
46	30	22	38-1/2	34-1/2	36-5/16	84
69	42	30	46-1/2	42-1/2	48-5/16	96
115	60	45	63-3/4	59-11/16	66-5/16	144
138	72	54	72-3/4	68-11/16	78-5/16	156
161	84	62	80-3/4	76-11/16	90-5/16	168



2TSB 2-WAY

The 2TSB switches employ a specially designed, lightweight aluminum frame which eliminates the need for pole cross arms or braces. The versatile design makes them ideal for phase-over-phase and phase-next-to-phase configurations on transmission poles. The frames are suitable for mounting on wood, steel, concrete or laminated wood poles. The 2TSB and 3TSB switches eliminate Right-of-Way and real estate issues, as well as the associated legal considerations.





Ratings and Catalog Numbers

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	2TSB01506
		1200	38	99,000		2TSB01512
		2000	63	164,000		2TSB01520
23kV	150kV	600	25	65,000	TR208	2TSB02306
		1200	38	99,000		2TSB02312
		2000	63	164,000		2TSB02320
34kV	200kV	600	25	65,000	TR210	2TSB03406
		1200	38	99,000		2TSB03412
		2000	63	164,000		2TSB03420
46kV	250kV	600	25	65,000	TR214	2TSB04606
		1200	38	99,000		2TSB04612
		2000	63	164,000		2TSB04620
69kV	350kV	600	25	65,000	TR216	2TSB06906
		1200	38	99,000		2TSB06912
		2000	63	164,000		2TSB06920
115kV	550kV	600	25	65,000	TR286	2TSB11506
		1200	38	99,000		2TSB11512
		2000	63	164,000		2TSB11520
138kV	650kV	600	25	65,000	TR288	2TSB13806
		1200	38	99,000		2TSB13812
		2000	63	164,000		2TSB13820
161kV	750kV	600	25	65,000	TR291	2TSB16106
		1200	38	99,000		2TSB16112
		2000	63	164,000		2TSB16120

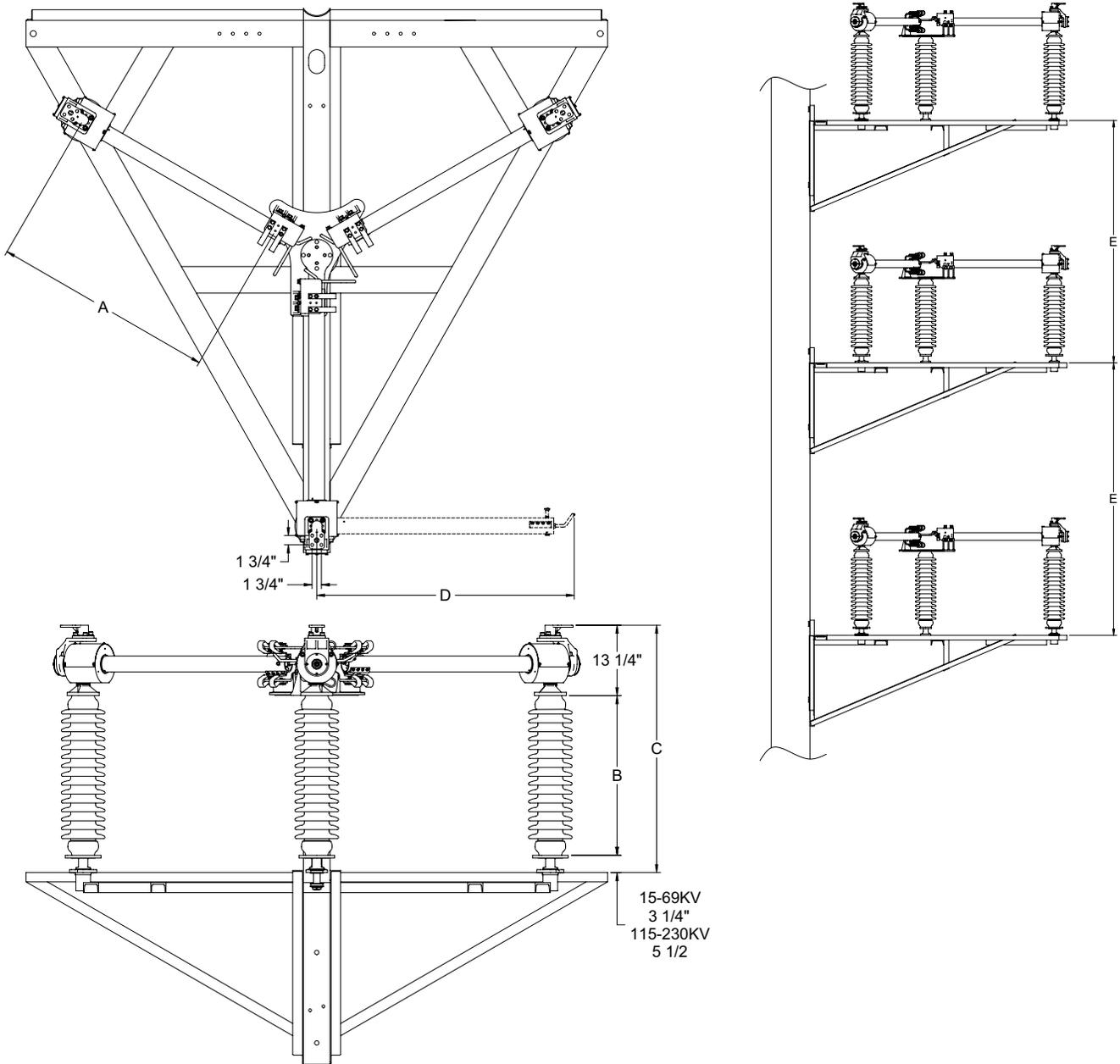
Dimensions in Inches

kV	A	B	C	D	E	F
15	19	10	26-1/2	13-15/16	25-3/4	54
23	22	14	30-1/2	17-15/16	28-3/4	60
34	25	18	34-1/2	21-15/16	31-3/4	72
46	30	22	38-1/2	25-15/16	36-3/4	84
69	42	30	46-1/2	33-15/16	48-3/4	108
115	60	45	63-3/4	51-3/16	66-3/4	144
138	72	54	72-3/4	60-3/16	78-3/4	156
161	84	62	80-3/4	68-3/16	90-3/4	168



3TSB 3-WAY

The 3TSB switches employ a specially designed, light weight aluminum frame which eliminates the need for pole cross arms or braces. The versatile design makes them ideal for phase-over-phase and phase-next-to-phase configurations on transmission poles. The frames are suitable for mounting on wood, steel, concrete or laminated wood poles. The 2TSB and 3TSB switches eliminate Right-of-Way and real estate issues, as well as the associated legal considerations.





Ratings and Catalog Numbers

Switch Rating					Station Post Insulators	Catalog Number
Voltage	BIL	Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Horizontal Mounting
15kV	110kV	600	25	65,000	TR205	3TSB01506
		1200	38	99,000		3TSB01512
		2000	63	164,000		3TSB01520
23kV	150kV	600	25	65,000	TR208	3TSB02306
		1200	38	99,000		3TSB02312
		2000	63	164,000		3TSB02320
34kV	200kV	600	25	65,000	TR210	3TSB03406
		1200	38	99,000		3TSB03412
		2000	63	164,000		3TSB03420
46kV	250kV	600	25	65,000	TR214	3TSB04606
		1200	38	99,000		3TSB04612
		2000	63	164,000		3TSB04620
69kV	350kV	600	25	65,000	TR216	3TSB06906
		1200	38	99,000		3TSB06912
		2000	63	164,000		3TSB06920
115kV	550kV	600	25	65,000	TR286	3TSB11506
		1200	38	99,000		3TSB11512
		2000	63	164,000		3TSB11520
138kV	650kV	600	25	65,000	TR288	3TSB13806
		1200	38	99,000		3TSB13812
		2000	63	164,000		3TSB13820
161kV	750kV	600	25	65,000	TR291	3TSB16106
		1200	38	99,000		3TSB16112
		2000	63	164,000		3TSB16120

Dimensions in Inches

kV	A	B	C	D	E
15	19	10	26-1/2	25-3/4	54
23	22	14	30-1/2	28-3/4	60
34	25	18	34-1/2	31-3/4	78
46	30	22	38-1/2	36-3/4	84
69	42	30	46-1/2	48-3/4	96
115	60	45	63-3/4	66-3/4	
138	72	54	72-3/4	78-3/4	
161	84	62	80-3/4	90-3/4	



TRANSMISSION “D” SWITCHES...COPPER CONSTRUCTION, FIELD PROVEN PERFORMANCE

Turner “D” switches are one of the most versatile, severe-duty, switching products available. The flexible mounting ability makes it ideal in phase-over-phase, delta and phase-next-to-phase configurations on poles, platforms, and substation structures. Transmission, substation, and platform mounted switches are extremely difficult and costly to remove and service, so Turner’s philosophy is to design in reliability.

Its simplistic, easily-mounted construction and flexible configurations make it truly a switch for all reasons. A rigid, hard drawn copper blade with locking device, silver-to-copper contacts, double spring arcing horns and sealed hinge contacts provide heavy-duty construction. Add to this Turner’s 60 plus years of field proven experience in air break switches and you have maximum switching reliability. Two insulator stack construction instead of the traditional three reduces the



cost of material, assembly and installation. This all adds up to what we call Switchability!

Turner Type “D” switches can be used for station isolating and bypassing, distribution and transmission line sectionalizing or isolating arrestors, metering equipment and other apparatus. Right hand or left hand opening can be specified at time of order. They are easily upgraded for automatic operation and load breaking. Several factory designs and fabricated steel and aluminum switch mounting platforms are available for various line designs, custom designs are also available.

Type “D” Operating Features

Type “D” switches are operated from ground level with a standard 2” IPS steel vertical operating pipe assembly with a manual swing handle lever. The control lever incorporates a ground shunt, is padlockable and can be supplied for clockwise or counterclockwise operation. A steel shaft with self piercing set screw clevises is used for coupling and pinning the switch. Electric motor operators are available for remote, automatic or SCADA control. Turning the operating lever rotates the main vertical operating shaft which moves the insulator stack with the main contact blade. The turning motion rotates the contact blade to facilitate a smooth, effortless positive opening motion. This action releases contact pressure within the spring jaw

assembly which helps maintain a clean contact surface, and enhances ice or contamination breaking action.

During closing, the main blade contacts remain in the straight or “cammed up” position, allowing effective contact cleaning. A locking device holds the blade securely in the jaw.

Double spring quick-whips interrupt limited amounts of charging or load currents when opening. Arcing is kept away from main contact surfaces. If the magnitude of the current exceeds the quick-whip capability, a TECO-Rupter full load break vacuum interrupter is available.

Hinge Mechanism

The current carrying path on the hinge end of the switch is continuous and enclosed to permanently protect it from the elements. The terminal pad is threaded to a stationary contact block; the connection is spring loaded, silver to silver. As the switch rotates during the opening and closing cycle, the terminal pad is held in place by the conductor and the switch can move without restriction. Inside the hinge housing, current transfer from the stationary block to the moveable blade is through a series of silver contact rivets. Beryllium Copper backing springs apply continuous pressure around the contact shoes. This hinge configuration assures maximum service life and minimum maintenance.



Jaw Contacts and Blade

The high constant pressure contact shoes are of cast, heat-treated, high conductivity Beryllium Copper. Although contact pressure is factory adjusted, should field adjustment ever be necessary, it can easily be made. In addition, contact replacement is fast and easy.

The tubular blade is designed of hard-drawn copper to provide the proper combination of current-carrying capacity and rigidity. The blade tip is Beryllium Copper, heat-treated and strato-milled to provide a machined current transfer surface. The coin silver overlays provide high pressure, silver to copper contact with the Beryllium Copper jaw surfaces when the tip is in the jaw.

The blade tip engages the jaw contacts in an upright position to form a high-pressure contact. The blade and jaw contacts are wiped clean during the closing action to assure a low resistance current transfer. A blade locking device keeps the blade closed despite temporary faults, surges, twisting structures or galloping conductors. Double spring type quick whips provide interruption of limited amounts of charging and load currents.

The opening action of the Turner D Style Transmission switch is unique. Prior to the blade disengaging from the jaw contact the blade contact rotates 22 degrees in the jaw. This exclusive Turner Action releases all contact friction and breaks any ice or contamination in the jaw area which may impede an easy opening cycle. The Turner switch provides effortless switch opening regardless of environmental or time effects.



Main Bearing Assembly

The main pivot bearing assembly consists of two tapered roller bearings, which are adjusted and lubricated at the factory and require no further attention for the life of the switch. These bearings are protected with a permanent o-ring seal and plug.

Four leveling screws are provided on the sub-base of each insulator stack to facilitate easy alignment after assembling the insulators on the switch. Adjusting the screws raises or lowers the end of the switch blade and orients the blade to contact interface correctly.

Tightening the insulator bolts holds the alignment fast. Leveling screws are also provided on all stationary insulator pedestals.

Mounting Flexibility

To accommodate the variety of transmission structures and locations, Turner offers a variety of operating and mounting configurations. Controls can be supplied for clockwise or counter-clockwise opening if requested, or may be changed in the field as required.

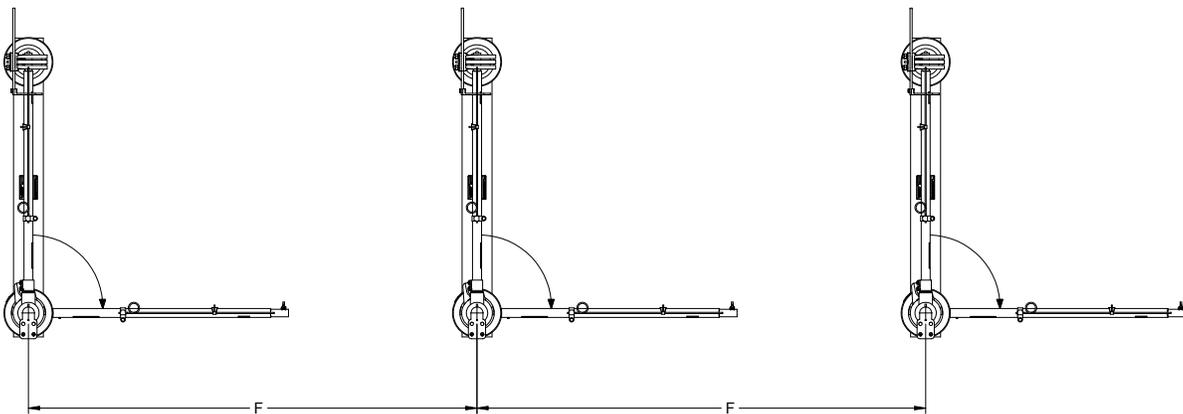
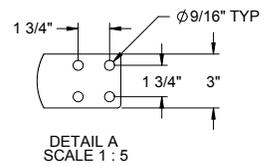
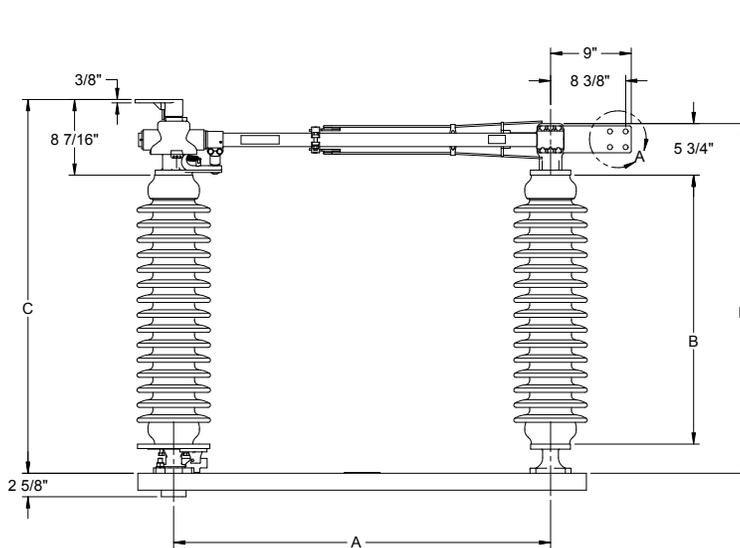
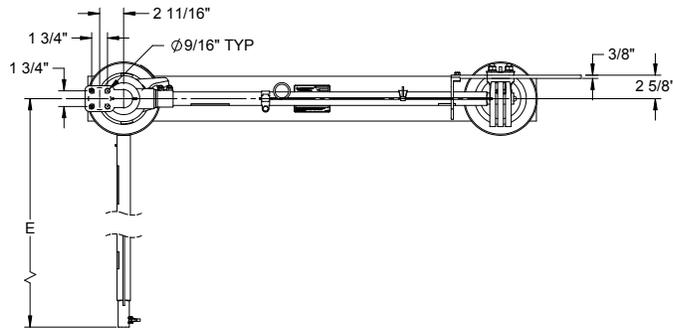
Turner's standard operating mechanism for side break switches consists of vertical steel operating pipe, with or without an 8 foot fiberglass insulating section, and a steel or fiberglass interphase shaft, with self-piercing set screw clevises for coupling and pinning the switch crank arm and vertical pipe guides.





1D 1-WAY

The 1D switch mounting flexibility makes it ideal for phase-overphase, delta (phase-opposite-phase), and phase-next-to-phase configurations on poles, on platforms, or on substation structures. Designed as a stock switch, the 1D is suitable for almost any application.





Ratings and Catalog Numbers

Switch Rating					Station Post Insulators	Catalog Number	
Voltage	BIL	Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Horizontal Mounting	Vertical Mounting
15kV	110kV	600	25	65,000	TR205	1D01506	1DV01506
		1200	38	99,000		1D01512	1DV01512
		2000	63	164,000		1D01520	1DV01520
23kV	150kV	600	25	65,000	TR208	1D02306	1DV02306
		1200	38	99,000		1D02312	1DV02312
		2000	63	164,000		1D02320	1DV02320
34kV	200kV	600	25	65,000	TR210	1D03406	1DV03406
		1200	38	99,000		1D03412	1DV03412
		2000	63	164,000		1D03420	1DV03420
46kV	250kV	600	25	65,000	TR214	1D04606	1DV04606
		1200	38	99,000		1D04612	1DV04612
		2000	63	164,000		1D04620	1DV04620
69kV	350kV	600	25	65,000	TR216	1D06906	1DV06906
		1200	38	99,000		1D06912	1DV06912
		2000	63	164,000		1D06920	1DV06920
115kV	550kV	600	25	65,000	TR286	1D11506	1DV11506
		1200	38	99,000		1D11512	1DV11512
		2000	63	164,000		1D11520	1DV11520
138kV	650kV	600	25	65,000	TR288	1D13806	1DV13806
		1200	38	99,000		1D13812	1DV13812
		2000	63	164,000		1D13820	1DV13820
161kV	750kV	600	25	65,000	TR291	1D16106	1DV16106
		1200	38	99,000		1D16112	1DV16112
		2000	63	164,000		1D16120	1DV16120

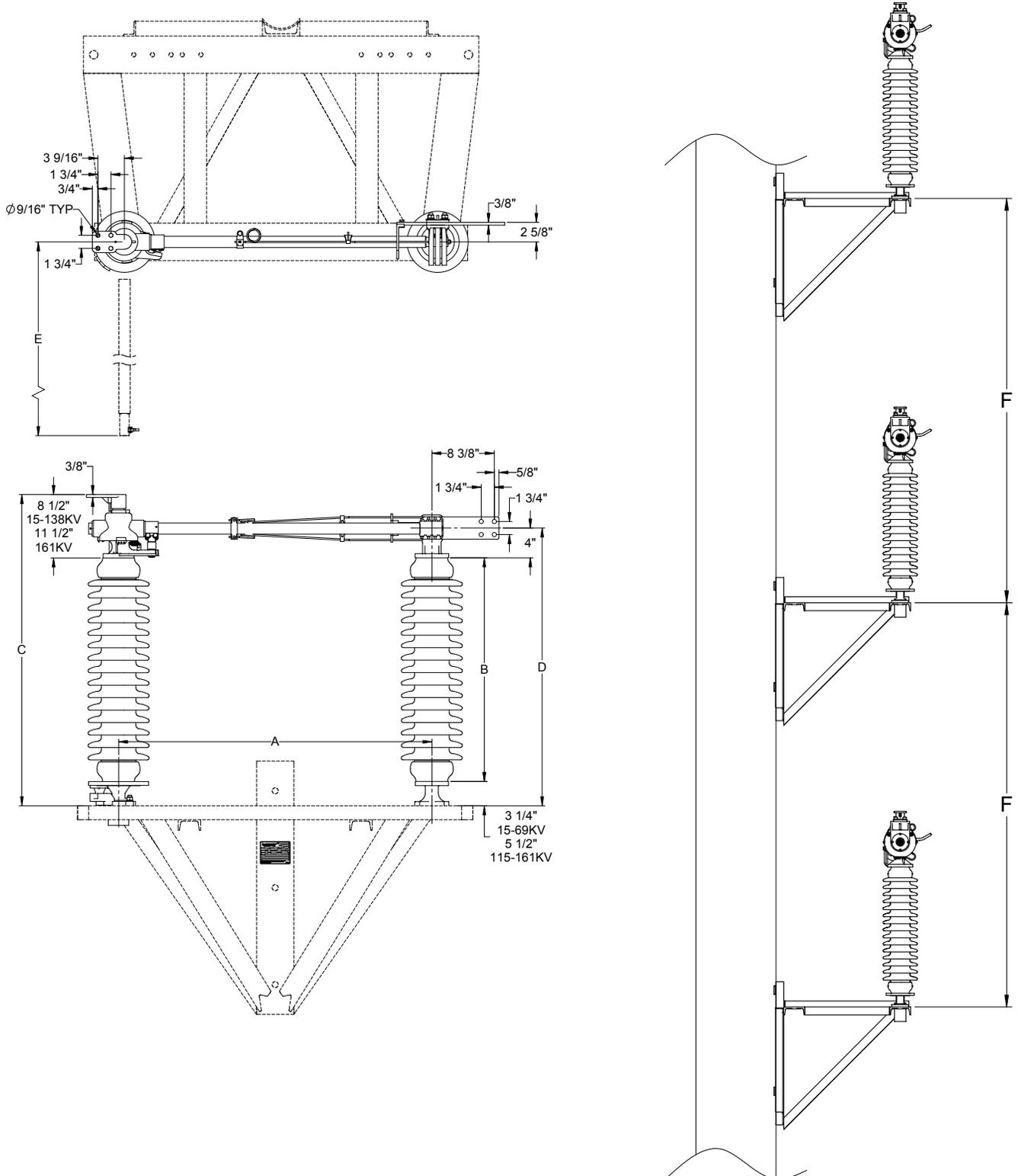
Dimensions in Inches

kV	A	B	C	D	E	F
15	18	10	21-3/4	17-1/4	19-3/8	33
23	18	14	25-3/4	21-1/4	19-3/8	36
34	24	18	29-3/4	25-1/4	25-3/8	48
46	30	22	33-3/4	29-1/4	31-3/8	60
69	42	30	41-3/4	37-1/4	43-3/8	84
115	60	45	59	54-1/2	61-3/8	116
138	72	54	68	63-1/2	73-3/8	147
161	84	62	79	72-1/4	85-3/8	180



1CD 1-WAY

The 1CD switch design is ideal for phase-over-phase and pole-saving triangular or delta mounting configurations. Both tangent and 90 degree lines are easily managed. In addition, if a line is to be dead-ended to the pole, a front mounting switch frame is available to move the vertical operating pipe off of the thru-line pole face.





Ratings and Catalog Numbers

Switch Rating					Station Post Insulators	Catalog Number
Voltage	BIL	Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	1CD01506
		1200	38	99,000		1CD01512
		2000	63	164,000		1CD01520
23kV	150kV	600	25	65,000	TR208	1CD02306
		1200	38	99,000		1CD02312
		2000	63	164,000		1CD02320
34kV	200kV	600	25	65,000	TR210	1CD03406
		1200	38	99,000		1CD03412
		2000	63	164,000		1CD03420
46kV	250kV	600	25	65,000	TR214	1CD04606
		1200	38	99,000		1CD04612
		2000	63	164,000		1CD04620
69kV	350kV	600	25	65,000	TR216	1CD06906
		1200	38	99,000		1CD06912
		2000	63	164,000		1CD06920
115kV	550kV	600	25	65,000	TR286	1CD11506
		1200	38	99,000		1CD11512
		2000	63	164,000		1CD11520
138kV	650kV	600	25	65,000	TR288	1CD13806
		1200	38	99,000		1CD13812
		2000	63	164,000		1CD13820
161kV	750kV	600	25	65,000	TR291	1CD16106
		1200	38	99,000		1CD16112
		2000	63	164,000		1CD16120

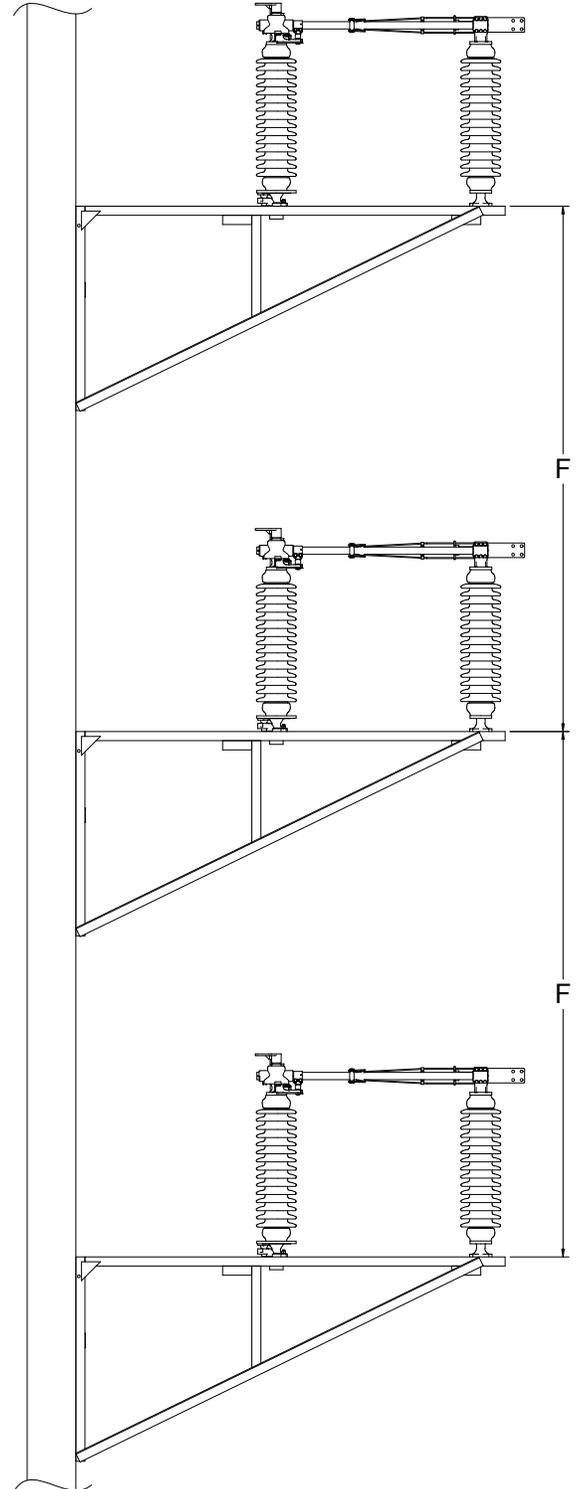
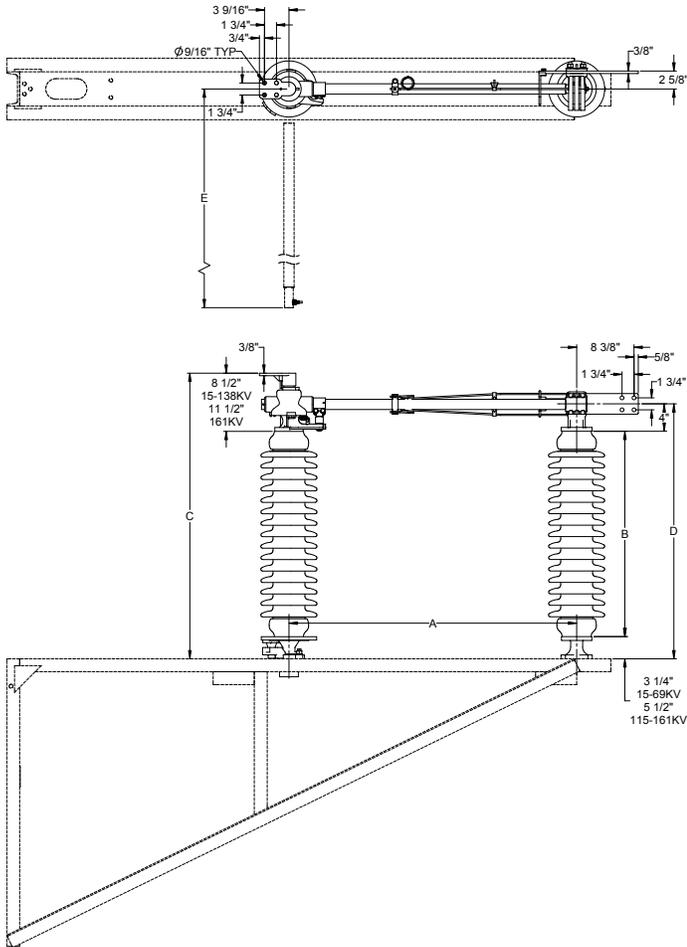
Dimensions in Inches

kV	A	B	C	D	E	F
15	18	10	21-3/4	17-1/4	19-3/8	72
23	18	14	25-3/4	21-1/4	19-3/8	72
34	24	18	29-3/4	25-1/4	25-3/8	96
46	30	22	33-3/4	29-1/4	31-3/8	96
69	42	30	41-3/4	37-1/4	43-3/8	108
115	60	45	59	54-1/2	61-3/8	144
138	72	54	68	63-1/2	73-3/8	240
161	84	62	79	72-1/4	85-3/8	240



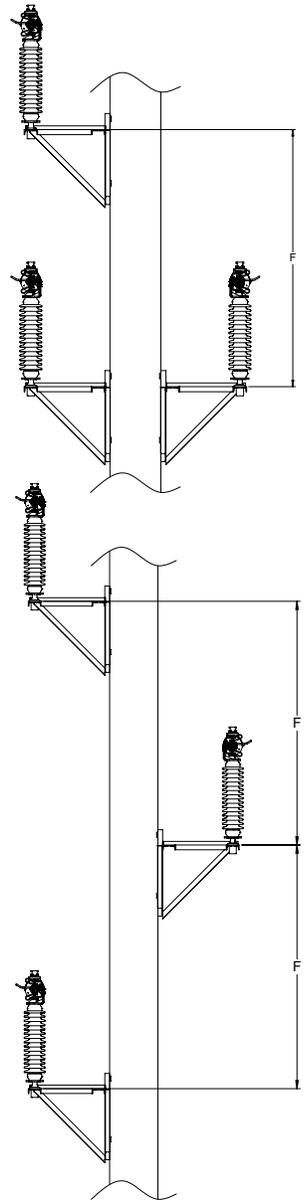
AD 1, 2, 3 OR 4-WAY

The 1AD switch is our most versatile. The unique frame design, with conductor dead-ends right to the frame, easily orients itself to the line angle. Additional positions can be added quickly and with minimal effort. 1AD switches are available in one, two, three, and four way mounting configurations for inline or 90 degree takeoffs.



Ratings and Catalog Numbers

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Phase over Phase Mounting
15kV	110kV	600	25	65,000	TR205	1AD01506
		1200	38	99,000		1AD01512
		2000	63	164,000		1AD01520
23kV	150kV	600	25	65,000	TR208	1AD02306
		1200	38	99,000		1AD02312
		2000	63	164,000		1AD02320
34kV	200kV	600	25	65,000	TR210	1AD03406
		1200	38	99,000		1AD03412
		2000	63	164,000		1AD03420
46kV	250kV	600	25	65,000	TR214	1AD04606
		1200	38	99,000		1AD04612
		2000	63	164,000		1AD04620
69kV	350kV	600	25	65,000	TR216	1AD06906
		1200	38	99,000		1AD06912
		2000	63	164,000		1AD06920
115kV	550kV	600	25	65,000	TR286	1AD11506
		1200	38	99,000		1AD11512
		2000	63	164,000		1AD11520
138kV	650kV	600	25	65,000	TR288	1AD13806
		1200	38	99,000		1AD13812
		2000	63	164,000		1AD13820
161kV	750kV	600	25	65,000	TR291	1AD16106
		1200	38	99,000		1AD16112
		2000	63	164,000		1AD16120



Dimensions in Inches

kV	A	B	C	D	E	F
15	18	10	21-3/4	17-1/4	19-3/8	72
23	18	14	25-3/4	21-1/4	19-3/8	72
34	24	18	29-3/4	25-1/4	25-3/8	96
46	30	22	33-3/4	29-1/4	31-3/8	96
69	42	30	41-3/4	37-1/4	43-3/8	96
115	60	45	59	54-1/2	61-3/8	240
138	72	54	68	63-1/2	73-3/8	240
161	84	62	79	72-1/4	85-3/8	240



Ratings and Catalog Numbers

Switch Rating					Station Post Insulators	Catalog Number
Voltage	BIL	Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Horizontal Mounting
15kV	110kV	600	25	65,000	TR205	2D01506
		1200	38	99,000		2D01512
		2000	63	164,000		2D01520
23kV	150kV	600	25	65,000	TR208	2D02306
		1200	38	99,000		2D02312
		2000	63	164,000		2D02320
34kV	200kV	600	25	65,000	TR210	2D03406
		1200	38	99,000		2D03412
		2000	63	164,000		2D03420
46kV	250kV	600	25	65,000	TR214	2D04606
		1200	38	99,000		2D04612
		2000	63	164,000		2D04620
69kV	350kV	600	25	65,000	TR216	2D06906
		1200	38	99,000		2D06912
		2000	63	164,000		2D06920
115kV	550kV	600	25	65,000	TR286	2D11506
		1200	38	99,000		2D11512
		2000	63	164,000		2D11520
138kV	650kV	600	25	65,000	TR288	2D13806
		1200	38	99,000		2D13812
		2000	63	164,000		2D13820
161kV	750kV	600	25	65,000	TR291	2D16106
		1200	38	99,000		2D16112
		2000	63	164,000		2D16120

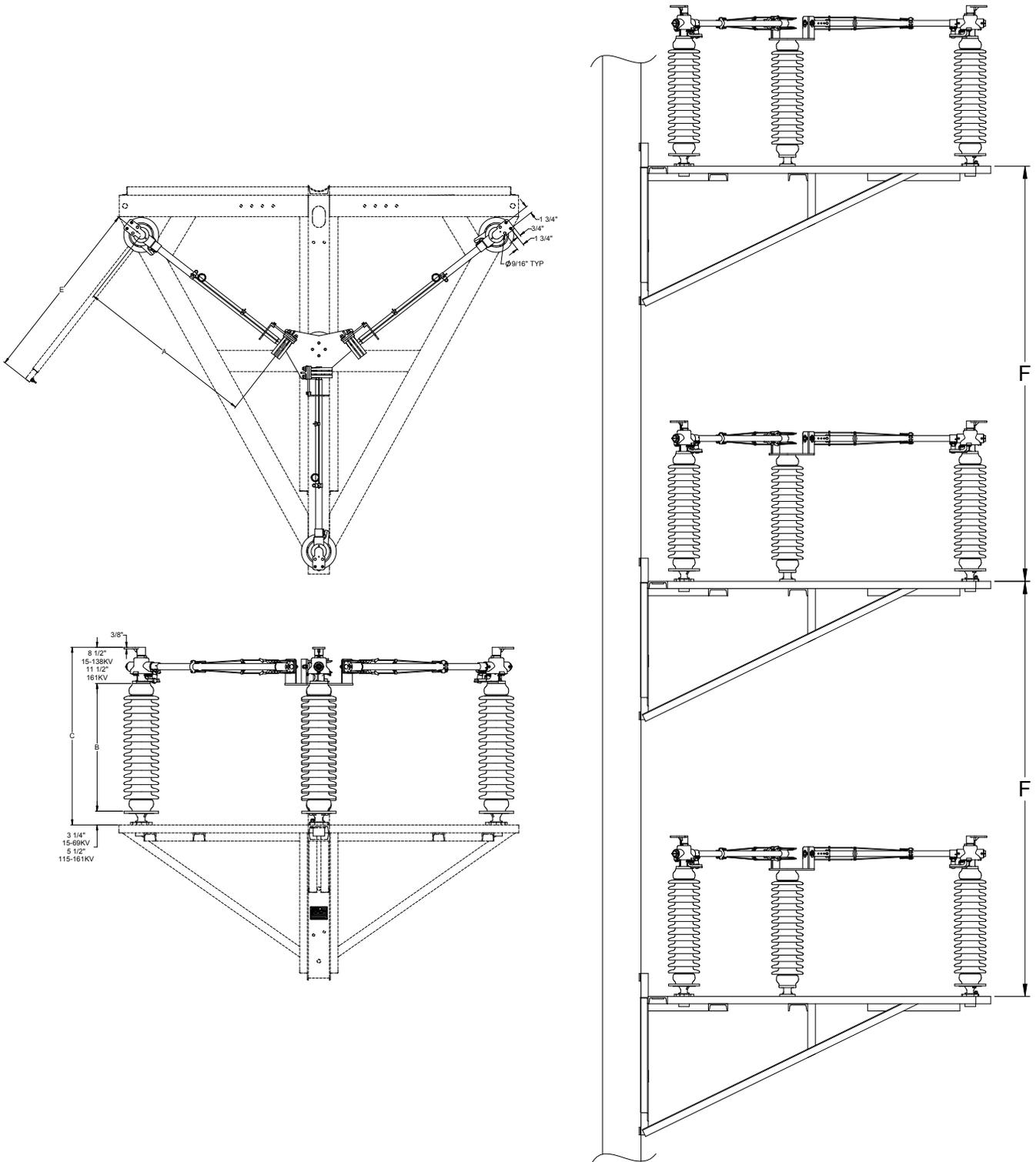
Dimensions in Inches

kV	A	B	C	D	E	F
15	18	10	21-3/4	13-5/8	19-3/8	72
23	18	14	25-3/4	17-5/8	19-3/8	72
34	24	18	29-3/4	21-5/8	25-3/8	96
46	30	22	33-3/4	25-5/8	31-3/8	96
69	42	30	41-3/4	33-5/8	43-3/8	108
115	60	45	59	50-7/8	61-3/8	240
138	72	54	68	59-7/8	73-3/8	240
161	84	62	79	67-7/8	85-3/8	264



3D 3-WAY

The 3D switches employ a specially designed, lightweight aluminum frame which eliminates the need for pole cross arms or braces. The versatile design makes them ideal for phase-over-phase configurations on transmission poles. The frames are suitable for mounting on wood, steel, concrete or laminated wood poles. The 2D and 3D switches eliminate Right-of-Way and real estate issues, as well as the associated legal considerations.





Ratings and Catalog Numbers

Voltage	BIL	Switch Rating			Station Post Insulators	Catalog Number
		Continuous Current (Amps)	Short Time Rating (3 Sec) kA	Peak Withstand Current (amps)	Technical Reference Number	Horizontal Mounting
15kV	110kV	600	25	65,000	TR205	3D01506
		1200	38	99,000		3D01512
		2000	63	164,000		3D01520
23kV	150kV	600	25	65,000	TR208	3D02306
		1200	38	99,000		3D02312
		2000	63	164,000		3D02320
34kV	200kV	600	25	65,000	TR210	3D03406
		1200	38	99,000		3D03412
		2000	63	164,000		3D03420
46kV	250kV	600	25	65,000	TR214	3D04606
		1200	38	99,000		3D04612
		2000	63	164,000		3D04620
69kV	350kV	600	25	65,000	TR216	3D06906
		1200	38	99,000		3D06912
		2000	63	164,000		3D06920
115kV	550kV	600	25	65,000	TR286	3D11506
		1200	38	99,000		3D11512
		2000	63	164,000		3D11520
138kV	650kV	600	25	65,000	TR288	3D13806
		1200	38	99,000		3D13812
		2000	63	164,000		3D13820
161kV	750kV	600	25	65,000	TR291	3D16106
		1200	38	99,000		3D16112
		2000	63	164,000		3D16120

Dimensions in Inches

kV	A	B	C	D	F
15	18	10	21-3/4	19-3/8	72
23	18	14	25-3/4	19-3/8	72
34	24	18	29-3/4	25-3/8	96
46	30	22	33-3/4	31-3/8	96
69	42	30	41-3/4	43-3/8	108
115	60	45	59	61-3/8	240
138	72	54	68	73-3/8	240
161	84	62	79	85-3/8	288



TECO-RUPTERS SAVE MAINTENANCE, DOWNSTREAM EQUIPMENT, AND THE ENVIRONMENT

No Maintenance Required

Vacuum bottles are 100% tested in the factory, not once, but three times, before shipment to the customer. According to the manufacturer's records, "once a Vacuum Interrupter is in the field for 3 to 5 years, it will be vacuum tight for life. During those early years, there is less than 1 chance in 1,000,000 of a vacuum leak occurring." ¹

There is no scheduled maintenance required with a TECO-Rupter. Once installed, it will remain ready for duty until called upon to interrupt load current, magnetizing current, transformer current, loop or parallel circuits or split ties in either a substation or a transmission application.

Unlike alternate dielectric interrupters, TECO-Rupters do not have to be checked annually to confirm proper gas pressure or presence of oil.



Vacuum Bottles Do Not Vent to the Atmosphere

Unlike interruption dielectrics that vent greenhouse gases to the environment, vacuum bottles vent nothing. Current interruption and arc extinction occur in the void of the vacuum, leaving no ash, residue, or by product.

Continued focus on maintaining a clean environment for current and future generations is clearly a desirable attribute for anyone charged with designing apparatus. There are choices in interrupting dielectrics today. We believe in making the clean choice—vacuum.



TECO-RUPTER VACUUM CIRCUIT INTERRUPTER

For more than 35 years, Turner Electric's TECO-Rupter Vacuum Interrupters have been the technology of choice for loop and load break applications because of their current interrupting ability, superior reliability, and ease of application. The TECO-Rupter offers industry leading performance levels including superior TRV ratings compared to other load break technologies such as SF6, longer service life, and greater interrupting capacity.



TECO-RUPTERS offer the following advantages over other technologies:

Long Life and Maintenance-Free Operation:

Controlled contact erosion results in long electrical life. Contacts are enclosed within the vacuum Interrupter. More than a million vacuum contacts remain in use.

Durable Housing

New long life fiberglass housing is lightweight yet strong. It is treated with UV inhibiting paint preventing "blooming".

Excellent Sticking Resistance

Hard contact material minimizes contact sticking in vacuum and is ideal for high current applications.

No Atmospheric Contact Contamination

No oxides and corrosion layers can form on the contacts.

No Environmental Effects

Current interruption occurs in a vacuum; no greenhouse or toxic gases are emitted as in the application of SF6 based interruption technology.

Very Low Current Chop

The low average cutoff current results in a minimal induced transient voltage spike so that surge suppressors are not required.

Excellent Design

Simple design = lower maintenance time and cost versus SF6 puffer technology.

No Noise, No Flash

Arcing is confined inside the vacuum interrupter.





TECO-RUPTER APPLICATIONS

The Turner TECO-Rupter vacuum circuit interrupter is offered as an attachment to the Turner switch, as well as designs of other switch manufacturers. The interrupter can be attached to vertical break, side break, hooksticks, and center break switch designs. Different models of the TECO-Rupter can interrupt various types of circuits..



Loop Splitting or Parallel Break

Normally, these are single vacuum contact devices that can interrupt up to 2000 amps (type RLS) and 3000 amps (type RLM) and 230kV, under parallel conditions. In this case, rated voltage will still exist on both sides of the switch after the open operation. The peak recovery voltage must not exceed 50kV RMS for the single contact Type RLS or 80kV RMS for the Type RLM. More contacts can be added to address higher recovery voltages. Please consult the factory. Type RLS and RLB TECORupters can interrupt up to 2000 amps up to 230kV and Type RLM TECO-Rupters can interrupt up to 3000 amps up to 230kV.

Line Charging

A full voltage multiple stack interrupter may be utilized from 15kV through 230kV for interruption of line or bus charging currents and transformer magnetizing currents up to a value of 100 amps at 0% power factor, capacitive or inductive. The nameplate operating current of the switch is not a factor in the application of this device. Type RLS and RLM TECO-Rupters can interrupt up to 100 amps of line charging current up to 34kV while the Type RLB can interrupt 100 amps up to 230kV.

Load Interruption

A full voltage multiple stack interrupter may be applied from 15kV through 230kV for interruption of actual load current at 70% power factor. Type RLS TECO-Rupters can interrupt 2000 amps up to 34kV, Type RLM can interrupt 3000 amps up to 34kV and Type RLB can interrupt 2000 amps up to 230kV. The TECO-Rupter is only in the circuit momentarily during the opening sequence. Contact test studs are located on the exterior of the housing and allow for an independent Hi-Pot test of each vacuum contact with the actuating arm.

Ordering Information

There are currently more than 1,000 pre-engineered designs to retrofit TECO-Rupter to other manufacturers' switches. To see if we have one designed for your application, please contact your local representative or the factory and provide the following information:

- Switch manufacturer
- Catalog number
- kV and current ratings

If we don't have one, we can design one for you. The design and set up is free. Our engineering staff and design team will develop a pre-engineered kit that will reduce field modification, human error, and installation time.



TECO-RUPTER TYPES

Type RLS TECO-Rupters can break load up to 2000A and interrupt line charging up to 100A from 15kV through 34kV; and can interrupt up to 2000A in parallel circuits from 15kV through 230kV.

Type RLM TECO-Rupters can break load up to 3000A and interrupt line charging up to 100A from 15kV through 34kV; and can interrupt up to 3000A in parallel circuits from 15kV through 230kV.

Type RLB TECO-Rupters can break load up to 2000A, interrupt line charging up to 100A, and can interrupt up to 2000A in parallel circuits from 15kV through 230kV.

TECO-Rupter Ratings and Types									
Maximum kV	Type RLS			Type RLM			Type RLB		
	Loop Splitting	Loop Breaking*	Line Charging	Loop Splitting	Loop Breaking*	Line Charging	Loop Splitting	Loop Breaking*	Line Charging
15	2000A	2000A	100A	3000A	3000A	100A	2000A	2000A	100A
23	2000A	2000A	100A	3000A	3000A	100A	2000A	2000A	100A
34	2000A	2000A	100A	3000A	3000A	100A	2000A	2000A	100A
46	2000A			3000A			2000A	2000A	100A
69	2000A			3000A			2000A	2000A	100A
115	2000A			3000A			2000A	2000A	100A
138	2000A			3000A			2000A	2000A	100A
151	2000A			3000A			2000A	2000A	100A
230	2000A			3000A			2000A	2000A	100A

* Load Break Capacity at 70% Power Factor. For capacitor bank applications, contact the factory.

NOTE: In General, type RLS TECO-Rupters are used in loop split circuits up to 2000A, type RLM TECO-Rupters are used in loop split circuits up to 3000A, and type RLB TECO-Rupters are used in full load break applications up to 2000A.



Transmission Catalog

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Hubbell has a policy of continuous product improvement. Please visit hubbellpowersystems.com to confirm current design specifications

