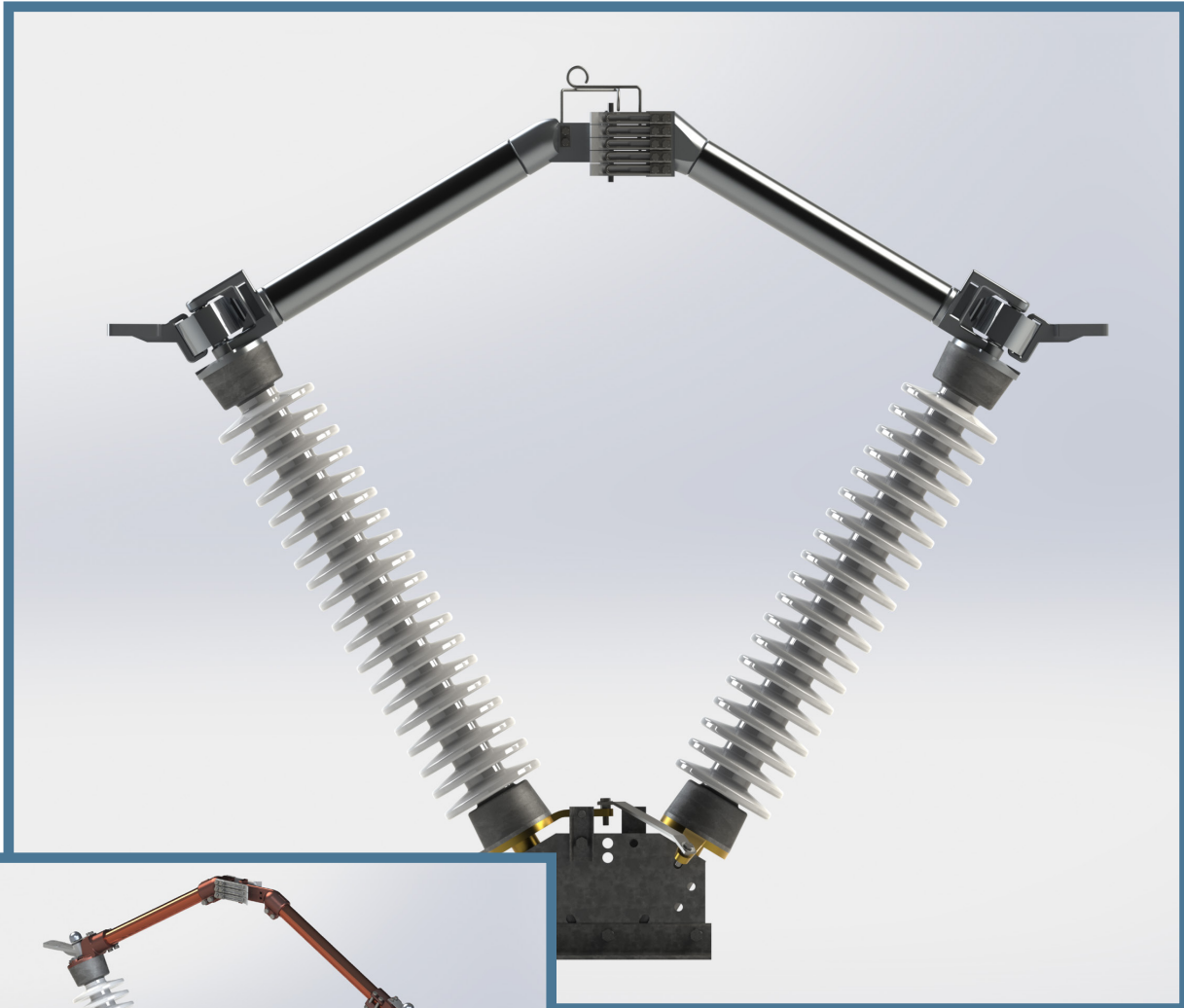


TYPE V CENTER BREAK SWITCH

010-191002.1
(Rev. of 010-180117.1)

3-PHASE, GROUP-OPERATED (SUBSTATION AND TRANSMISSION APPLICATIONS)



***Available in Copper**

- **Horizontal upright, vertical or underhung mounting**
- **15KV through 230KV**
- **600A through 4000A**
- **Manual or motor operated control mechanism**

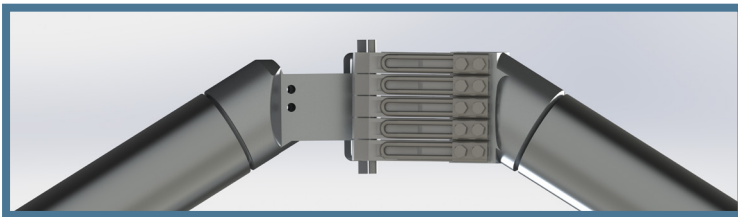
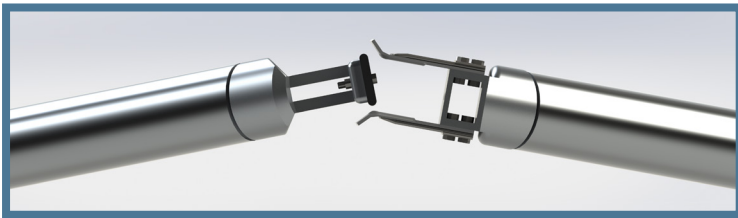


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FEATURES OF TYPE V SWITCH

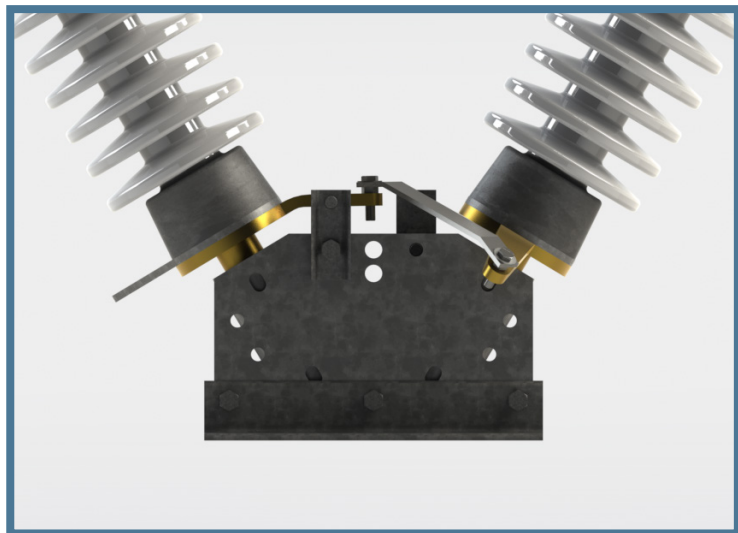
A 3-phase, group operated, center break, air break switch for substations and transmission lines. Since 1961, components of this design have proven their adaptability to system requirements and the validity of the philosophy "simplicity means reliability."

- Tubular or flat truss type blade.
- Silver contact surfaces.
- Assembled and adjusted at the factory.
- Switch controls available for manual (swing handle or gear), or motor driven operation.
- Available with various current interrupting devices.
- Ratings from 15kV to 230kV --- 600A to 4000A.



Positive Contact Assembly

Current transfer points are independent contact shoes with silver to silver contact surfaces (heavy plating, inserts or flame spray metallizing as the application requires). Individual stainless steel backup springs on each shoe assures high pressure contact wiping on the tubular blade switch. Phosphor bronze backup springs perform the same function on the flat blade switch.

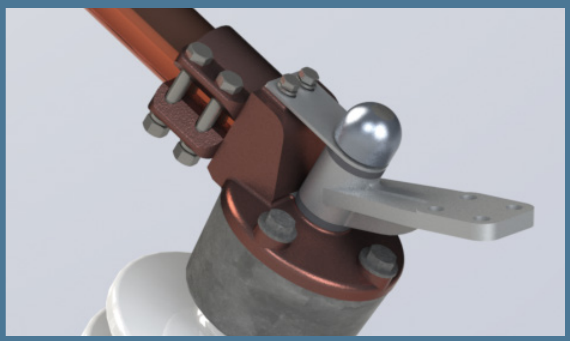
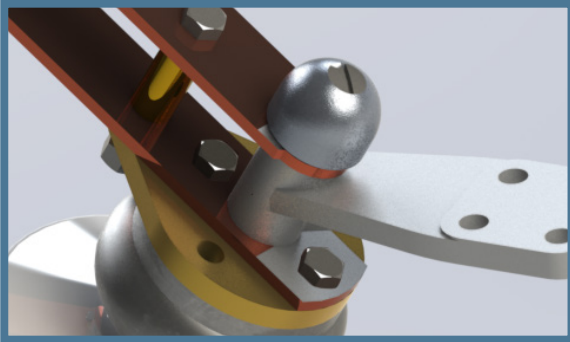


Maintenance Free Bearing Design and Positive Linkage Tie

Each insulator stack is supported by double ball bearings permanently lubricated and sealed for the life of the switch. The two rotating insulators are locked together through a maintenance-free tie rod which assures proper alignment at the switch contacts. The base assembly has open position and close position stops for a 90° full throw of the switch. Galvanized steel mounting angles are engineered to the customers structure.

Copper Positive Hinge Contact

The hinge swivels on a stainless steel bearing rod. A high pressure stainless steel spring, outside the current path, applies pressure to the silver to silver current transfer points.



Laminate Hinge Contact

The hinge swivels on a stainless steel bearing rod. Hinge design utilizes a welded lamination to carry the current.



OPERATING CONTROL MECHANISM

The standard control mechanism is the torsional type using galvanized steel pipe. This control includes a toggle arrangement to assure mechanical locking of the switch poles in the open and closed positions. This arrangement gives the V switch maximum mechanical capability for ease of operation under normal and icing conditions. The manual swing handle or optional gear operator can be padlocked in either the open or closed position. The torsional control pipe can be converted to power operation.

CURRENT INTERRUPTING DEVICES

Arcing Horns

Arcing horns are designed to prevent arcing at the main switch contacts. They have no interrupting rating, however, they are commonly used to interrupt small values of current such as transformer magnetizing current, or the charging current of a short length of line.

Quick-Break

The quick-break circuit interrupter is capable of interrupting a limited amount of line charging or transformer magnetizing current. It provides high speed contact separation by the means of a spring loaded whip.

RVI-38 Vacuum Interrupter

The vacuum interrupter will permit currents up to 2000 amperes to be interrupted. Loop splitting or parallel switching up to 161kV, if peak recovery voltage does not exceed 30kV. It is in the power circuit for only a few seconds during the opening operation, and is not in the circuit while the switch is closed or closing. Continuous, momentary, and impulse ratings of the switch are unaffected.

TYPE V SWITCH SPECIFICATIONS

010-191002.1
(Rev. of 010-180117.1)

kV Nom. (kV Max.)	Amps Cont. (kAmps Mom.)	Insulator T.R. No.	B.I.L.	Catalog Number	Dimensions (in)								Single Pole Weight (Lbs.)
					A	B	C	D	E	F	G	H	
COPPER TRUSS BLADE SWITCHES													
15 (15.5)	600 (40) 1200 (61)	205	110	VF156 VF1512	16 1/8	4 5/8	25	33 1/4	20 1/2	13 3/8	20 3/8	24 5/8	98 110
23 (27)	600 (40) 1200 (61)	208	150	VF236 VF2312	19 5/8	6	29 7/8	38 1/8	24 5/8	15 7/8	22 7/8	27 1/8	126 138
34.5 (38)	600 (40) 1200 (61)	210	200	VF346 VF3412	23 1/4	6 3/16	33 11/16	42 7/16	28 3/4	19 1/2	26 3/4	30 13/16	142 154
46 (48.3)	600 (40) 1200 (61)	214	250	VF466 VF4612	26 5/8	8 3/4	39 5/8	48 3/8	32 1/2	22	29 1/4	37 1/2	156 168
69 (72.5)	600 (40) 1200 (61)	216	350	VF696 VF6912	33 1/2	9 7/8	47 5/8	56 3/8	41	26 3/4	34	42 3/16	219 231
COPPER TUBULAR BLADE SWITCHES													
23 (27)	1200 (61) 1600 (80)	208	150	V2312 V2316	20 1/4	5 3/4	30 1/2	39 1/4	24 9/16	15 7/8	22 7/8	27 1/8	157 159
34.5 (38)	1200 (61) 1600 (80)	210	200	V3412 V3416	23 1/4	6 3/16	33 11/16	42 7/16	28 3/4	19 1/2	26 3/4	30 13/16	175 177
46 (48.3)	1200 (61) 1600 (80)	214	250	V4612 V4616	26 5/8	8 3/4	39 5/8	48 3/8	32 1/2	22	29 1/4	37 1/2	191 194
69 (72.5)	1200 (61) 1600 (80)	216	350	V6912 V6916	33 1/2	9 7/8	47 5/8	56 3/8	41	26 3/4	34	42 3/16	265 270
115 (123)	1200 (61) 1600 (80)	286	550	V11512 V11516	49 1/2	16 1/4	70	78 3/4	61 1/2	38 1/2	45 3/4	63 3/8	475 482
138 (145)	1200 (61) 1600 (80)	288	650	V13812 V13816	57 1/4	19 1/8	80 5/8	89 3/8	71	44	51 1/4	74	507 516
161 (170)	1200 (61) 1600 (80)	291	750	V16112 V16116	64 1/8	21 1/2	89 7/8	98 5/8	79	49 1/2	56 3/4	79 1/2	659 669
230 (245)	1200 (61) 1600 (80)	304	900	V23012 V23016	79 7/8	28 7/8	113	121 5/8	97 1/4	59	66 1/4	89	757 770
	1200 (61) 1600 (80)	312	1050	V23012Z V23016Z	89 7/8	32 7/8	127	N/A	113 3/4	68 7/16	75 11/16	N/A	813 829

NOTES

1. Dimensions are in inches and are for NEMA standard station post insulators. See drawing on p. 6.
2. Counterbalance supplied as required at higher voltage ratings.
3. Grounding switches available - consult factory.
4. Polymer insulators available on some switches up to 138kV.
5. Non-standard insulators are available upon request.

TYPE V SWITCH SPECIFICATIONS

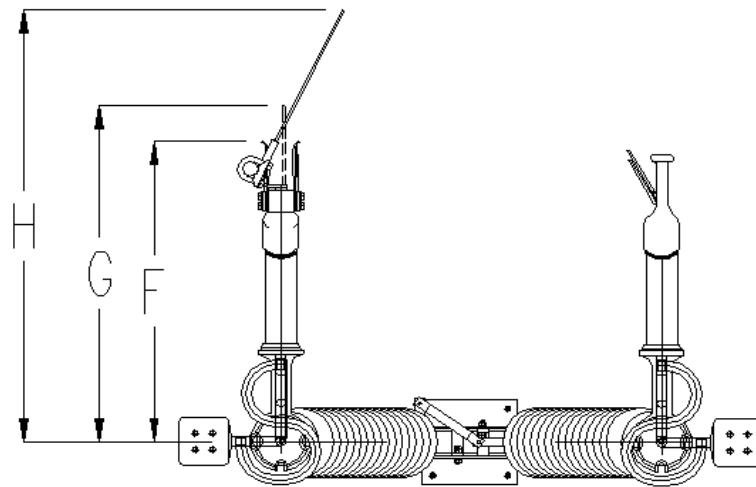
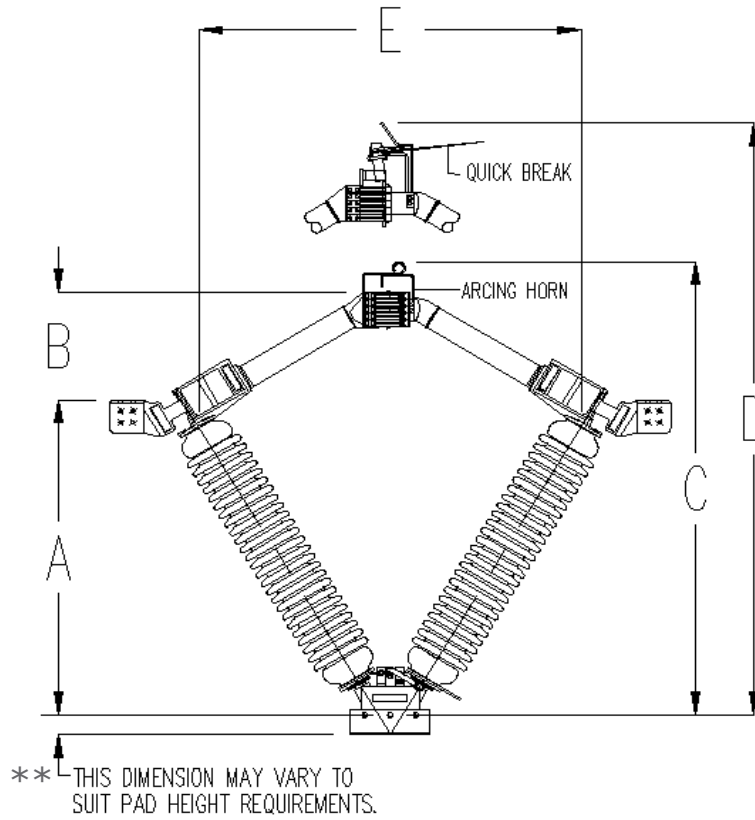
kV Nom. (kV Max.)	Amps Cont. (kAmps Mom.)	Insulator T.R. No.	B.I.L.	Catalog Number	Dimensions (in)								Single Pole Weight (Lbs.)
					A	B	C	D	E	F	G	H	
ALUMINUM TUBULAR BLADES													
15 (15.5)	1200 (61) 2000 (100)	205	110	AV1512	16 1/2	4 1/8	26 1/8	30	20 1/2	13 3/8	20 3/8	24 5/8	92
				AV1520	17 1/4	5 1/4	28	32					97
23 (27)	1200 (61) 2000 (100) 3000(120)	208	150	AV2312	20	5 3/8	30 7/8	34 11/16	24 1/2	17 7/8	21 5/8	27 1/8	116
				AV2320	20 3/4	6 1/2	32 3/4	36 1/2					121
				AV2330	22 1/4	7	33 3/4	38 9/16					148
34.5 (38)	1200 (61) 2000 (100) 3000 (120)	210	200	AV3412	23 1/4	6 5/8	35 3/8	39 3/16	28 5/8	20 3/4	24 1/2	30 13/16	132
				AV3420	24	7 3/4	37 1/4	41					138
				AV3430	25 9/16	8 1/4	38 3/8	43 1/16					165
46 (48.3)	1200 (61) 2000 (100) 3000 (120)	214	250	AV4612	26 3/4	7 3/4	40	43 13/16	33 3/4	23 1/8	26 7/8	37 1/2	147
				AV4620	27 1/2	8 7/8	41 7/8	45 1/2					154
				AV4630	29	9 7/16	43	47 5/8					181
69 (72.5)	1200 (61) 2000 (100) 3000 (120) 4000 (120)	216	350	AV6912	33 1/2	10 3/8	50 3/8	54 3/16	41	27 5/16	31 5/8	42 3/16	218
				AV6920	34 1/2	11 1/2	52 1/4	56					225
				AV6930	35 13/16	11 7/8	52 5/16	57					255
				AV6940	37 3/16	11 1/4	53 13/16	57 11/16					265
115 (123)	1200 (61) 2000 (100) 3000 (120) 4000 (120)	286	550	AV11512	49 1/2	16 3/8	71 3/8	75 3/16	61 1/4	39 7/16	43 1/8	63 3/8	433
				AV11520	50 1/4	17 1/2	73 1/4	77					478
				AV11530	51 5/16	17 7/8	73 11/16	78 5/16					515
				AV11540	52 11/16	17 1/8	75 3/16	79 1/16					527
138 (145)	1200 (61) 2000 (100) 3000 (120) 4000 (120)	288	650	AV13812	57 1/4	19 1/8	81 7/8	85 11/16	70 1/2	44 13/16	48 1/2	74	462
				AV13820	58	20 1/4	83 3/4	87 1/2					508
				AV13830	59	20 5/8	84 3/16	88 13/16					548
				AV13840	60 3/8	20	85 11/16	89 9/16					561
161 (170)	1200 (61) 2000 (100) 3000 (120) 4000 (120)	291	750	AV16112	64	21 3/4	91 1/4	95	78 3/4	49 5/8	53 5/16	79 1/2	611
				AV16120	64 3/4	22 7/8	93 1/8	97					658
				AV16130	65 7/8	23	93 1/2	98 3/16					700
				AV16140	67 1/4	22 3/8	95	98 7/8					715
230 (245)	1200 (61) 2000 (100) 3000 (120) 4000 (120)	304	900	AV23012	79 1/2	27 1/4	112 1/4	116	97 1/4	60 7/16	64 1/8	85	703
				AV23020	80 1/4	28 3/8	114 1/8	118					752
				AV23030	81 5/16	28 5/8	114 1/2	119 3/16					799
				AV23040	82 11/16	28	116	119 7/8					816
	1200 (61) 2000 (100) 3000 (120) 4000 (120)	312	1050	AV23012Z	89 1/2	31 5/8	126 5/8	N/A	109 11/16	67 1/2	71 9/16	N/A	755
AV23020Z				90 1/4	32 3/4	128 1/2	804						
AV23030Z				91 3/8	33	128 15/16	856						
AV23040Z				92 3/4	32 3/8	130 7/16	881						

NOTES

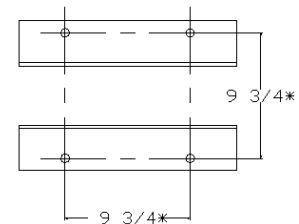
- Dimensions are in inches and are for NEMA standard station post insulators. See drawing on p. 6.
- Counterbalance supplied as required at higher voltage ratings.
- Grounding switches available - consult factory.
- Polymer insulators available on switches up to 138kV.
- Non-standard insulators are available upon request.

TYPE V SWITCH SPECIFICATIONS

010-191002.1
(Rev. of 010-180117.1)



** THIS DIMENSION WILL VARY FOR DIFFERENT PAD HEIGHT REQUIREMENTS - MINIMUM 1 3/4"



* Base mounting customized to meet customer requirements



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