3M™ Elbow Surge Arrester 635-SA Series

35 kV Class – 600A Interface

(IEEE Std 386™ Interface 13)

Data Sheet **January 2024**

General Information

The 3M Elbow Surge Arrester 635-SA Series is a gapless, metal oxide varistor (MOV) type arrester in a compact, deadfront EPDM insulated package, directly interfaceable with IEEE 386 Interface 13 bushings (35kV Class – 600A) without the need for adapters or reducers.

The arrester housing interface conforms to IEEE Std 386™ standard and meets the requirements of IEEE Std C62.11™ 8.17, thanks to it isolated chamber design and fiberglass wrapping around the MOV module.

The 3M Elbow Surge Arrester 635-SA Series is designed to provide shielded, dead-front arrester protection for 35kV underground systems. It limits over-voltages to acceptable levels, protecting equipment and extending service life.



Agency Approvals & Self Certifications

The 3M Elbow Surge Arrester 635-SA Series complies with IEEE Std C62.11™ and IEEE Std 386™.

For RoHS and REACH information, please visit www.3M.com/regs

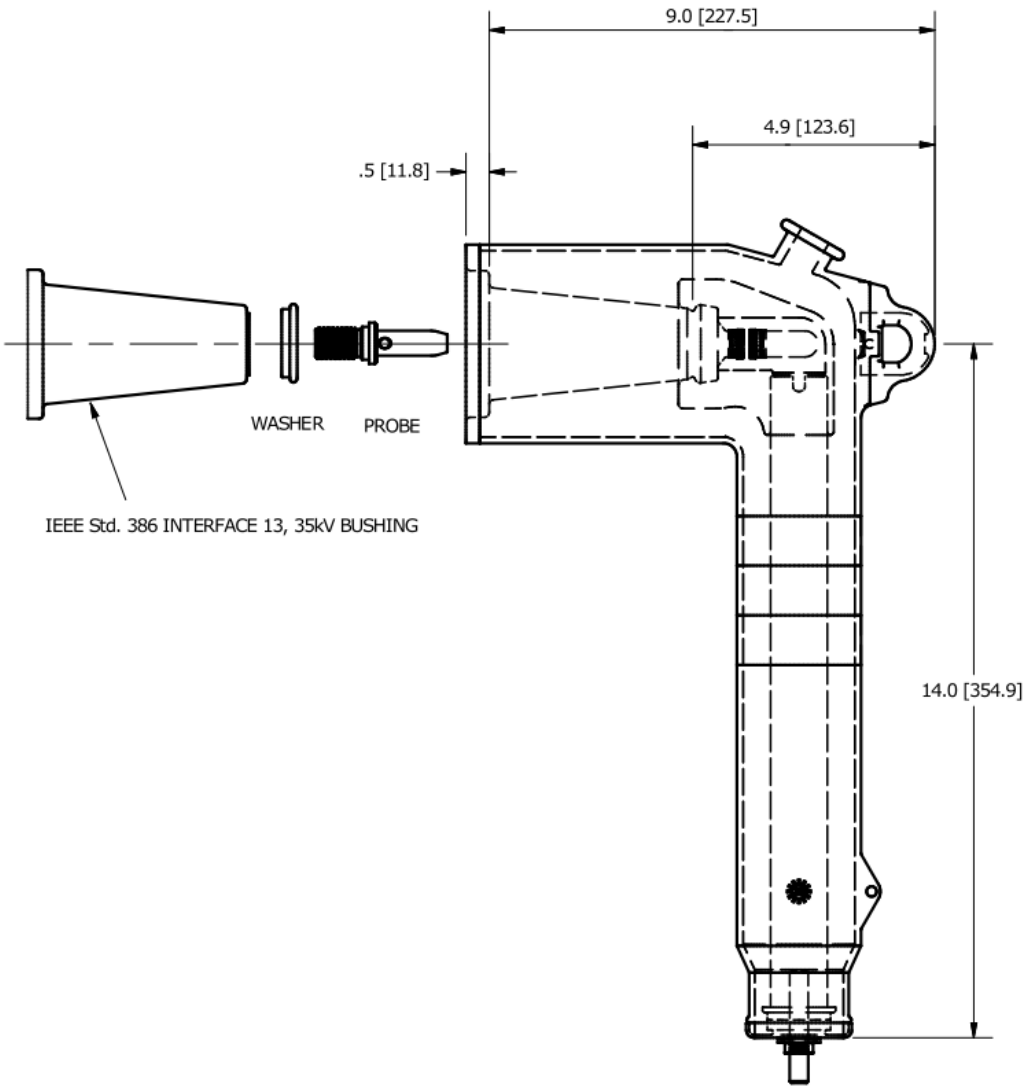
Applications

Installing a 3M Elbow Surge Arrester 635-SA Series, at the end of a radial system or at both ends of an open point in a loop circuit will provide excellent protection against high voltage surges resulting from lightning or switching. When combined with a station class (riser pole) arrester, optimum protection can be achieved.

3M™ Elbow Surge Arrester 635-SA Series – 35 kV Class

Construction

The 3M™ Elbow Surge Arrester 635-SA Series is constructed of peroxide-cured EPDM rubber that offers proven, uncompromised reliability and dimensional stability.
The arrester body has a molded shield, made of peroxide-cured EPDM rubber, which meets all requirements of IEEE Std 592™ for exposed semi-conducting shields. A fiberglass wrap ensures that the MOV block stack remains in one piece and prevents the blocks from breaching the side wall should the arrester fail. An ID Band provides clear visual identification of the arrester MCOV and duty cycle ratings.



Product Selection and Installation

All 3M Elbow Surge Arrester 635-SA Series must only be installed and operated when the system is de-energized.be installed on or removed from de-energized systems. No special tools are required.

CAUTION: Working around energized systems may cause serious injury or death. This arrester should be installed, operated and serviced only by competent personnel familiar with safety practices. De-energize and ground all electrical systems before installing product.

Part Number	Duty Cycle (kV)	MCOV (kV)
635-SA27	27	22.0
635-SA30	30	24.4
635-SA33	33	27.0
635-SA36	36	29.0

Temporary overvoltage (TOV) capability

The Temporary Overvoltage (TOV) capability of the 3M Elbow Surge Arrester 635-SA Series, is shown in Figure 1.

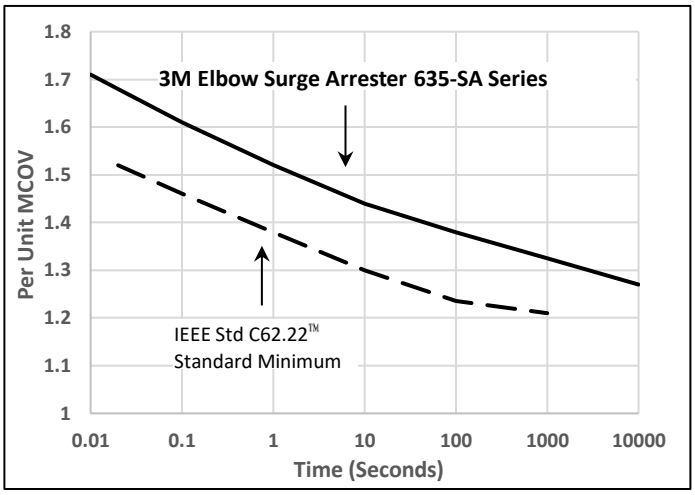


Figure 1. Temporary overvoltage curve. No prior duty at 85C.

Performance Characteristics

The 3M Elbow Surge Arrester 635-SA Series was tested in accordance with applicable sections of IEEE Std 386™ (Separable Insulated Connector Systems for Power Distribution Systems Above 600 V) and IEEE Std C62.11™ (Metal Oxide Surge Arresters for Alternating Current Power Circuits) with test levels chosen that represent typical underground distribution systems.

3M™ Elbow Surge Arrester 635-SA Series – 35 kV Class

Protective Characteristics

The protective characteristics of the 3M™ Elbow Surge Arrester 635-SA Series, is shown in Table 1:

Table 1. Electrical ratings and characteristics

			Maximum discharge voltage (kV crest) 8/20 µs Current Wave					
Duty cycle voltage rating (kV)	**MCOV (kV)**	**0.5µS 5kA (kV Crest)**	**1.5 kA**	**3 kA**	**5 kA**	**10 kA**	**20 kA**	**40 kA**
27	22.0	89.6	70.8	75.4	80.4	90.5	104.6	130.7
30	24.4	99.5	78.7	83.8	89.3	100.6	116.2	145.2
33	27.0	107.6	86.6	92.2	98.3	110.7	127.9	159.8
36	29.0	119.3	94.4	100.5	107.2	120.7	139.4	174.3

Production Tests

The 3M Elbow Surge Arrester 635-SA Series is 100% factory tested for Partial Discharge and either AC 60 Hz (50kV for 60s) or Impulse (BIL) (150kV 1.2 x 50µS wave) on housing per IEEE Std 386™, also 100% factory tested for Partial Discharge on complete arrester.

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