



January 15, 1986
Supersedes Price List 38-170, Pages 1-2,
dated September 11, 1985
Prices effective January 15, 1986
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Selling Policy 50-000
Mailed to: E, D, C/38-000A, 44-900A

Outdoor
3-36KV
0-10000 Feet

Surge Arresters Type HMX Type RMX

Design Features

This price list provides list prices for the Type RMX and HMX Metal Oxide Arresters. These arresters have been designed and tested to conform to draft 6 of the "Standard for Metal Oxide Surge Arresters for Alternating-Current Power Circuits" developed by working group 3.3.11 of the surge protective devices committee of the IEEE Power Engineering Society.

The HMX Arrester is designed to meet or exceed the standards for a "Heavy Duty Distribution Class" arrester.

The RMX Arrester is a special purpose arrester with special protective characteristics for use at the overhead to underground transition point (riser pole). Standards do not describe requirements for riser pole arresters. However the Westinghouse Riser Pole Type RMX Arrester meets or exceeds all of the requirements for the "Heavy Duty Distribution Class" arrester.

Standard Bill of Material

Each of the common styles listed below include the following accessories:

- Weather sealed porcelain enclosure
- Top terminal nut and clamp
- Bottom terminal nut and clamp
- Individually packed in corrugated carton

Other Options

In addition to the configurations listed on this page other options are available. See page 2 of this price list for ordering information.

Heavy Duty Distribution Class Type HMX Gapless Metal Oxide

KV Rating	MCOV Rating	Direct Connected With Disconnector And Xarm Brkt				Direct Connected With Disconnector and Clamp Only			
		No Insulating Cap		With Insulating Cap		No Insulating Cap		With Insulating Cap	
		HMX	List Price	HMX	List Price	HMX	List Price	HMX	List Price
3	2.55	HX03D0DA11	\$ 53.00	HX03D0DA21	\$ 54.20	HX03D0BA11	\$ 48.20	HX03D0BA21	\$ 49.40
6	5.10	HX06D0DA11	67.00	HX06D0DA21	68.20	HX06D0BA11	62.20	HX06D0BA21	63.40
9	7.65	HX09D0DA11	83.00	HX09D0DA21	84.20	HX09D0BA11	78.20	HX09D0BA21	79.40
10	8.40	HX10D0DA11	91.00	HX10D0DA21	92.20	HX10D0BA11	86.20	HX10D0BA21	87.40
12	10.20	HX12D0DA11	100.00	HX12D0DA21	101.20	HX12D0BA11	95.20	HX12D0BA21	96.40
15	12.70	HX15D0DA11	127.00	HX15D0DA21	128.20	HX15D0BA11	122.20	HX15D0BA21	123.40
18	15.30	HX18D0DA11	150.00	HX18D0DA21	151.20	HX18D0BA11	145.20	HX18D0BA21	146.40
21	17.00	HX21D0DA11	161.00	HX21D0DA21	162.20	HX21D0BA11	156.20	HX21D0BA21	157.40
24	19.50	HX24D0DA11	182.00	HX24D0DA21	183.20	HX24D0BA11	177.20	HX24D0BA21	178.40
27	22.00	HX27D0DA11	204.00	HX27D0DA21	205.20	HX27D0BA11	199.20	HX27D0BA21	200.40
30	24.40	HX30D0DA11	234.00	HX30D0DA21	235.20	HX30D0BA11	229.20	HX30D0BA21	230.40
36	29.00	HX36D0DA11	266.00	HX36D0DA21	267.20	HX36D0BA11	261.20	HX36D0BA21	262.40

Special Purpose Riser Pole Arrester Type RMX Gapless Metal Oxide

KV Rating	MCOV Rating	Direct Connected With Disconnector And Xarm Brkt				Direct Connected With Disconnector and Clamp Only			
		No Insulating Cap		With Insulating Cap		No Insulating Cap		With Insulating Cap	
		RMX	List Price	RMX	List Price	RMX	List Price	RMX	List Price
9	7.65	RX09D0DA11	\$133.80	RX09D0DA21	\$135.00	RX09D0BA11	\$129.00	RX09D0BA21	\$130.20
10	8.40	RX10D0DA11	153.80	RX10D0DA21	155.00	RX10D0BA11	149.00	RX10D0BA21	150.20
12	10.20	RX12D0DA11	160.80	RX12D0DA21	162.00	RX12D0BA11	156.00	RX12D0BA21	157.20
15	12.70	RX15D0DA11	195.80	RX15D0DA21	197.00	RX15D0BA11	193.00	RX15D0BA21	194.20
18	15.30	RX18D0DA11	232.80	RX18D0DA21	234.00	RX18D0BA11	228.00	RX18D0BA21	229.20
21	17.00	RX21D0DA11	267.80	RX21D0DA21	269.00	RX21D0BA11	263.00	RX21D0BA21	264.20
24	19.50	RX24D0DA11	305.80	RX24D0DA21	307.00	RX24D0BA11	301.00	RX24D0BA21	302.20
27	22.00	RX27D0DA11	350.80	RX27D0DA21	352.00	RX27D0BA11	346.00	RX27D0BA21	347.20



HMX & RMX Metal Oxide Arresters

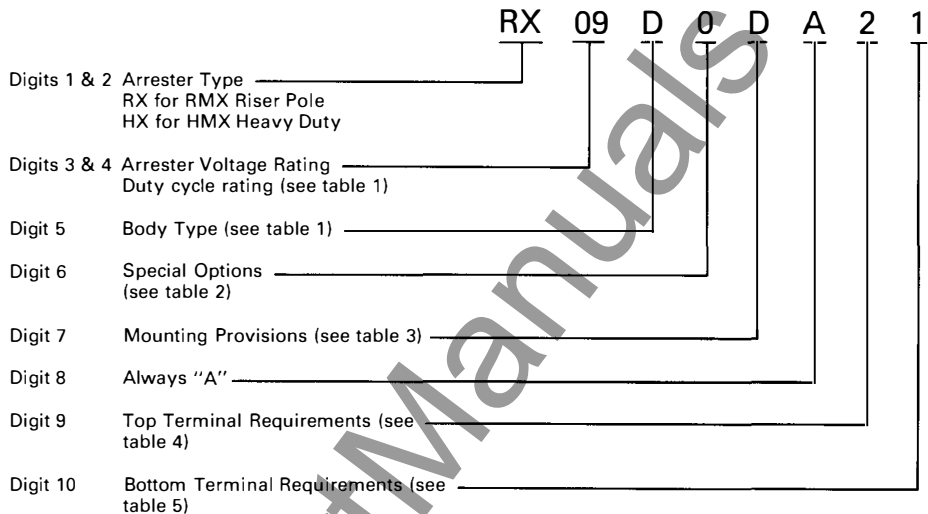
The RMX and HMX arresters are defined by a catalog numbering system which functionally describes all the desired options as well as the arrester rating and type.

This catalog number system is described here to provide for an easy approach to identifying the required arrester configuration.

In addition a list price may be developed by adding the component list prices for all the selected options.

Note: Not all possible combinations have been established as buildable styles in the factory. Please contact your Westinghouse office before entering orders.

Westinghouse Metal Oxide Arrester Catalog Number System



Body Styles for HMX and RMX Metal Oxide Arresters

Table 1: Basic Arrester Body Styles

KV Rating	Type HMX Heavy Duty Arresters	List Price	Type RMX Heavy Duty Arresters	List Price
Ref. Style Dropout	Ref. Style Non-Dropout		Ref. Style Dropout	Ref. Style Non-Dropout
3	HX03D	\$ 45.00	HX03N	\$ 40.00
6	HX06D	59.00	HX06N	54.00
9	HX09D	75.00	HX09N	70.00
10	HX10D	83.00	HX10N	78.00
12	HX12D	92.00	HX12N	87.00
15	HX15D	119.00	HX15N	114.00
18	HX18D	142.00	HX18N	137.00
21	HX21D	153.00	HX21N	148.00
24	HX24D	174.00	HX24N	169.00
27	HX27D	196.00	HX27N	191.00
30	HX30D	226.00	HX30N	221.00
36	HX36D	258.00	HX36N	253.00

Table 2: Special Options

Description	Cat. No.	List Price Adder
No Special Options	0	\$0.00
1 - 9" Line Lead Unassembled	1	1.00
1 - 18" Line Lead Unassembled	2	2.00
1 - 24" Line Lead Unassembled	3	3.00
Bulk Packing	A	-2.00

Table 3: Mounting Bracket Options

Description	Cat. No.	List Price Adder
No Mtg. Clamp or Bracket	A	\$0.00
Mtg. Clamp Only	B	1.20
Mtg. Clamp Only Attached to Arrester	C	1.30
Std. Mtg. Clamp & XARM Bracket	D	6.00
Mtg. Clamp With "L" Brkt. Only	E	4.20
Mtg. Clamp With Reversed XARM Brkt.	F	5.00
Mtg. Clamp With "T" Bracket	G	9.00
Galvanized Transformer Mtg. Brkt.	H	7.00

Table 4: Top Terminal Options

Description	Cat. No.	List Price Adder
Terminal Clamp & Nut	1	\$ 1.00
Terminal Clamp, Nut and Insulating Cap	2	2.20
Transformer Gap Strap	3	1.20
Protecto-Combo, Terminal Components	4	12.00
External Gap With Terminal Clamp & Nut (3-10KV)	5	25.00
External Gap With Terminal Clamp & Nut (12-18KV)	6	37.50
Threaded Stud Only	9	0.00

Table 5: Bottom Terminal Options

Description	Cat. No.	List Price Adder
Terminal & Nut	1	\$1.00
Terminal, Nut and Insulating Cap	2	2.20
Terminal, Nut, Insul. Cap, and Grnd. Sleeve	3	4.00
Ground Strap Only	4	1.60
Threaded Stud Only	9	0.00

Westinghouse Electric Corporation
T & D Components Division
Bloomington, Indiana 47401



April, 1986
Supersedes Product Bulletin 38-150
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Mailed to: E, D, C/38-000A, 44-900A

Indoor, Outdoor
0-10000 Ft Altitude
3-36 KV

Metal Oxide Heavy Duty Distribution Class Surge Arrester Type HMX

Application

The HMX arrester is a heavy duty gapless metal oxide arrester with excellent protective characteristics for use on the distribution system. It is designed to protect distribution transformers and associated line equipment from the occasional high voltage surges resulting from lightning or switching operations.

Construction

The Type HMX gapless arrester consists of moxide metal oxide disks in a hermetically sealed enclosure. The HMX arrester is offered in many variations. See Price List 38-120 for an explanation of all of the options. Standard ratings are offered from 3 through 36 kV.

Service Conditions

HMX arresters are designed for indoor or outdoor applications at altitudes from 0 to 10,000 feet. They are also designed for an ambient temperature of -40°C to $+40^{\circ}\text{C}$. Temporary ambients exceeding 40°C are permissible – up to 60°C . However, it is recommended that Westinghouse be consulted for proper arrester selection for applications where ambient conditions will exceed 40°C .

Application Table

Table 1 shows standard distribution system voltages and the lowest arrester MCOV rating which Westinghouse recommends. The MCOV figures can be related to arrester duty cycle ratings in the table on the next page.

Metal oxide arresters applied on solidly grounded systems must be able to withstand the maximum line-to-ground voltage of the system continuously. Those applied to ungrounded systems must be able to withstand line-to-line voltage for the duration of a single phase-to-ground fault. Westinghouse metal oxide arresters can handle 1.11 times MCOV for 2000 hours, therefore allowing ample time to clear any fault off of the system. Low resistance grounded circuits are defined as systems with resistors rated for ten seconds. If there is a single phase fault, the arrester must be able to withstand line-to-line voltage for ten seconds.

Standard Design Features

Low front of wave and impulse sparkover due to gapless construction.

Low discharge characteristics due to moxide disk formulation.

Tested per the latest draft of "Standards for Metal Oxide Surge Arresters for Alternating-Current Power Circuits" as prepared by Working Group 3.3.11 Surge Protective Devices Committee, IEEE Power Engineering Society. A complete design test report is available from your Westinghouse Bloomington representative at any time.

High current short duration capability; 100,000 amps, 2 shots.

Low-current long duration capability; 250 amps for 2000 μSec .

Elastomer gasket sealing system on both ends of the arrester.

100% helium mass spectrometer production leak test.

Wet process high strength porcelain housing.

Standard line-mounting or transformer-mounting provisions.



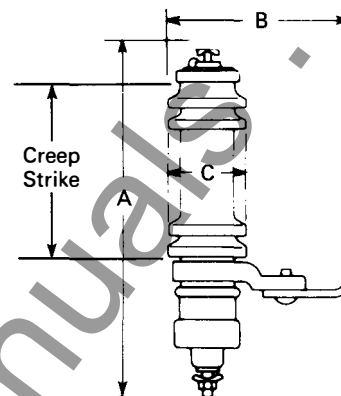
Table 1 – Suggested Westinghouse Metal Oxide Arrester MCOV Ratings for Various Distribution System Voltages

System Voltage Line to Line KVrms		Minimum Arrester MCOV – KV		
Nominal	Maximum	Effectively Grounded Neutral Circuits	Ungrounded Circuits	Low Resistance Grounded Circuits
2.40	2.54	2.55	2.55	2.55
4.16	4.37	2.55	5.10	5.10
4.80	5.04	5.10	5.10	5.10
6.90	7.25	5.10	7.65	5.10
8.32	8.74	5.10	8.40	7.65
12.00	12.60	7.65	12.70	8.40
12.47	13.09	7.65	12.70	10.20
13.20	13.86	8.40	12.70	10.20
13.80	14.49	8.40	15.30	10.20
20.78	21.82	12.70	19.50	15.30
22.86	24.00	15.30	22.00	17.00
23.00	24.15	15.30	22.00	17.00
24.94	26.19	15.30	24.40	19.50
34.50	36.23	22.00	N/A	24.40
46.00	48.30	29.00	N/A	N/A



Weights and Dimensions (Approximate)

Arrester Rating	MCOV KVrms	Dimensions in Inches for Direct Connected Styles					
		A	B	C	Creep	Strike	Weight Lbs.
3	2.55	8.6"	7.92"	3.60"	3.50"	2.38"	9.0
6	5.1	8.6"	7.92"	3.60"	6.00"	4.25"	9.6
9	7.65	11.5"	7.92"	3.60"	10.50"	7.13"	11.4
10	8.4	11.5"	7.92"	3.60"	10.50"	7.13"	11.5
12	10.2	14.3"	7.92"	3.60"	13.00"	8.94"	11.9
15	12.7	17.7"	7.92"	3.60"	13.00"	8.94"	13.0
18	15.3	19.8"	7.92"	3.60"	16.00"	10.84"	14.6
21	17.0	23.3"	7.92"	3.60"	18.00"	11.94"	16.0
24	19.5	26.3"	7.92"	3.60"	21.00"	14.81"	19.1
27	22.0	29.0"	8.75"	3.95"	21.00"	14.81"	24.6
30	24.4	30.0"	8.75"	4.50"	31.10"	16.75"	25.0
33	26.7	30.0"	8.75"	4.50"	31.10"	16.75"	26.1
36	29.0	30.0"	8.75"	4.50"	31.10"	16.75"	26.7



Performance Characteristics: Type HMX Heavy Duty Distribution Arresters

Arrester Rating	MCOV KVrms	.5 μ Sec 10KA Fast Front KV Peak	Discharge Voltage KV Peak 8 x 20 μ Sec Current Waves KA					
			1.5	3.0	5.0	10.0	20.0	40.0
3	2.55	10.8	7.7	8.1	8.5	9.1	9.7	10.4
6	5.1	21.7	15.3	16.3	17.0	18.2	19.4	20.8
9	7.65	32.5	23.0	24.4	25.5	27.3	29.2	31.3
10	8.4	34.8	24.6	26.1	27.3	29.2	31.3	33.5
12	10.2	43.3	30.7	32.5	34.0	36.3	38.9	41.7
15	12.7	54.2	38.3	40.6	42.6	45.4	48.6	52.1
18	15.3	65.0	46.0	48.8	51.1	54.5	58.3	62.5
21	17.0	73.0	51.6	54.8	57.3	61.2	65.5	70.2
24	19.5	84.0	59.3	63.1	66.1	70.5	75.4	80.9
27	22.0	94.6	67.0	71.0	74.4	79.4	85.0	91.1
30	24.4	105.5	74.6	79.1	82.9	88.5	94.7	101.5
33	26.7	116.3	82.3	87.3	91.4	97.6	104.4	111.9
36	29.0	126.6	90.2	95.8	100.5	107.2	115.2	123.4

Arrester Energy Capability

Metal oxide arresters have much higher energy absorbing capability than conventional arresters of the same class and rating. For most applications, the energy requirements of the application are well within the energy capability of the arrester selected on the basis of continuous operating voltage and short time overvoltage. The Westinghouse HMX gapless surge arrester can absorb 1.4 kilojoules per kilovolt of arrester rating either in one single discharge or smaller multiple discharges within seconds of each other. After allowing sufficient time to cool, the maximum energy discharge can be repeated many times.

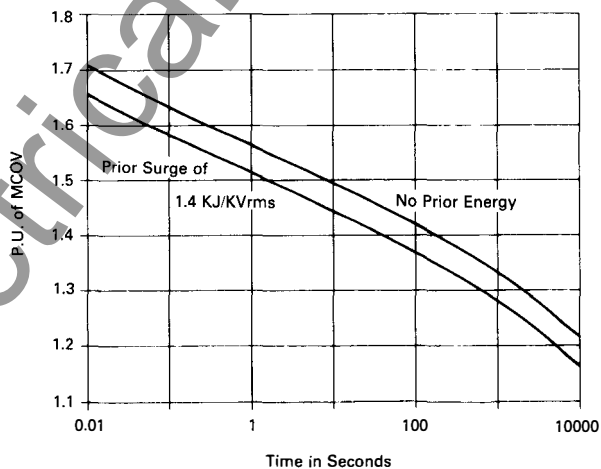


Figure 1 shows the short time overvoltage capability of the HMX Arrester.

Figure 1 – Westinghouse Overvoltage Capabilities Heavy Duty Distribution Arrester (HMX)

For further information, refer to Price List 38-120.

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38-120 P WE A
Price List

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May 5, 1975

Supersedes 38-120 P WE A, pages 1-4, dated
September 3, 1974

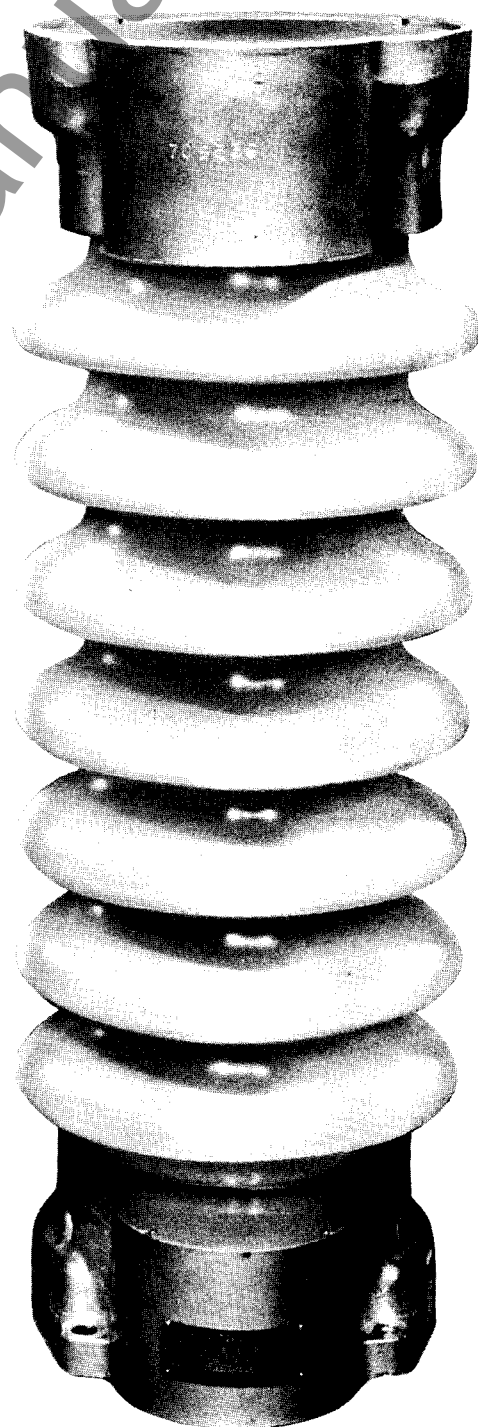
E, D, C/1981/PL

Prices effective May 5, 1975; subject to
change without notice.

Selling Policy 38-000

0 to 10,000 Feet Altitude
Outdoor or Indoor, Single Pole
3 to 120 Kv, Self-Supporting

Station Class Autovalve Surge Arresters Type SV





Assembly Make-up

Complete Arrester		Arrester Units	Grading Ring Assembly Style No.	Outline Drawing Number Gray
Kv	Gray Style	Quantity Required		
For SV Arresters – Porcelain Top				
3	173C232G01		....	680A552
6	173C232G02		....	680A552
9	173C232G03		....	680A552
12	173C232G04		....	680A552
15	173C232G05		....	680A552

For SV Arresters – Metal Top

		3 Kv	6 Kv	9 Kv	12 Kv	15 Kv		
3	792C846G01	1	....	....	....	....	....	679A953
6	792C846G02	....	1	....	....	....	....	679A953
9	792C846G03	....	....	1	....	....	....	679A953
12	792C846G04	....	....	....	1	....	....	679A953
15	792C846G05	....	....	....	....	1	....	679A953
		21 Kv	24 Kv	30 Kv	36 Kv			
21	792C846G06	1	....	....	....	....	....	679A953
24	792C846G07	....	1	....	....	....	....	679A953
30	792C846G08	....	....	1	....	....	....	679A953
36	792C846G10	....	....	....	1	....	....	679A953
39	792C846G11	2	....	....	....	....	....	679A975
48	792C846G12	....	2	....	....	....	....	679A975
60	792C846G13	....	....	2	....	....	....	679A975
72	792C846G14	....	....	....	2	....	....	679A975
90	792C846G40	....	....	3	....	1151 599	630A080	
96	792C846G15	....	1	....	2	1151 599	679A976	
108	792C846G16	....	....	....	3	1616 742	679A976	
120	792C846G17	....	2	....	2	1616 742	679A977	

Unit Styles

(These Style Numbers are not to be used when ordering Complete Arresters.)

For SV Arrester Metal Top

	Gray Style Numbers
3 kv	792C847G01
6 kv	792C847G02
9 kv	792C847G03
12 kv	792C847G04
15 kv	792C847G05
21 kv	792C847G07
24 kv	792C847G08
30 kv	792C847G09
36 kv	792C847G10

Further Information

DB 38-121: Autovalve Surge Arresters.
P. Data 38-126
D.S. 38-122

Westinghouse Electric Corporation
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