

Distribution Surge Arrester

HDA-03MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 3 kV

Rated voltage

Ur: 3.75 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

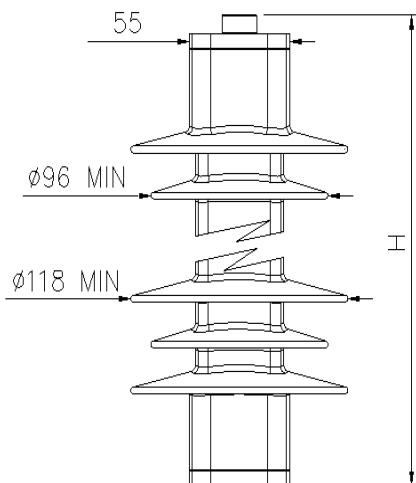
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
9.3	9.9	10.9	10.2	7.4	7.9

Power frequency voltage versus time

1 Sec. TOV: 4.5 kV

100 Sec. TOV: 4.1 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

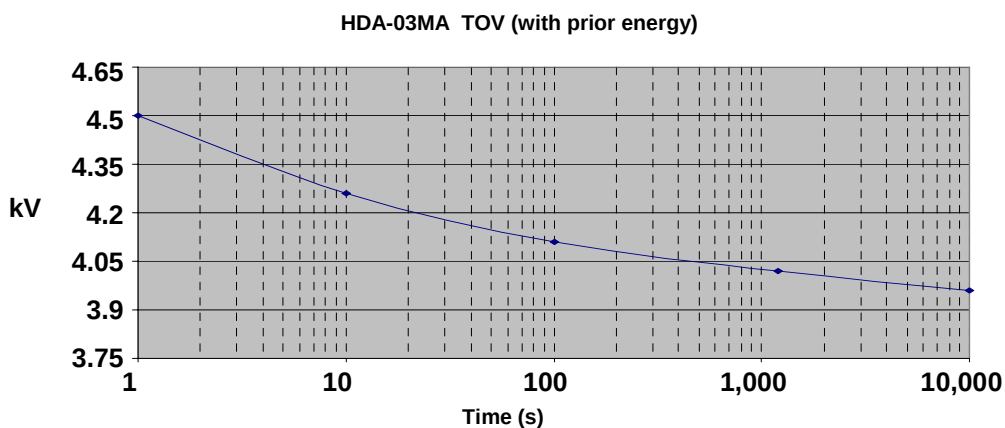
HDA-03MA

Uc: 3 kV

Ur: 3.8 kV

Manufacturing Year

MVSA-190-000-39/05-0



Distribution Surge Arrester

HDA-04MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 4 kV

Rated voltage

Ur: 5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

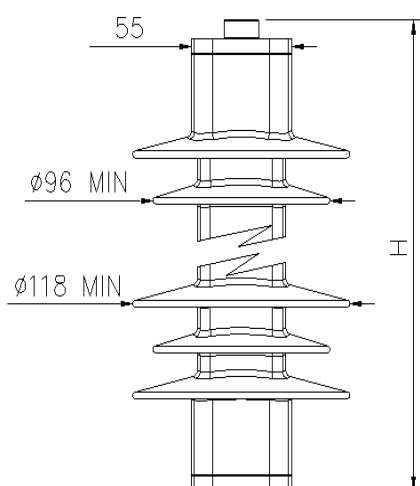
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
12.4	13.2	14.6	13.6	9.8	10.5

Power frequency voltage versus time

1 Sec. TOV: 6.0 kV

100 Sec. TOV: 5.5 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

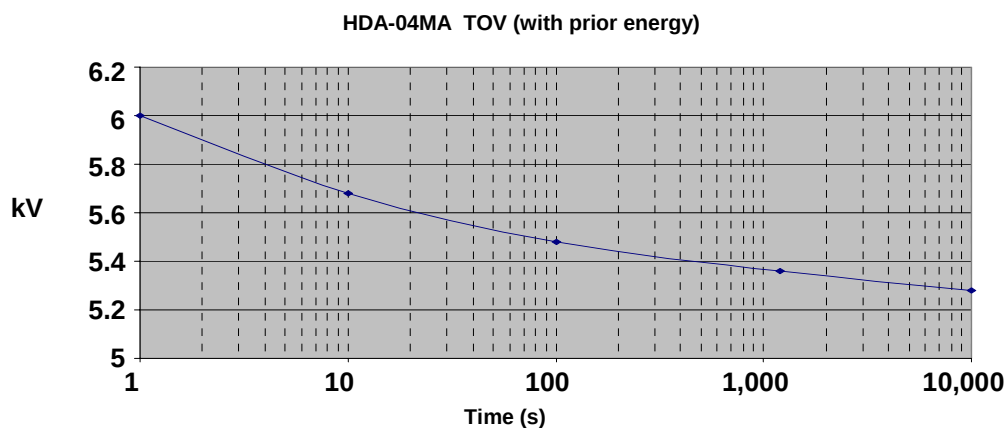
HDA-04MA

Uc: 4 kV

Ur: 5 kV

Manufacturing Year

MVSA-191-000-39/05-0



Distribution Surge Arrester

HDA-05MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 5 kV

Rated voltage

Ur: 6.25 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

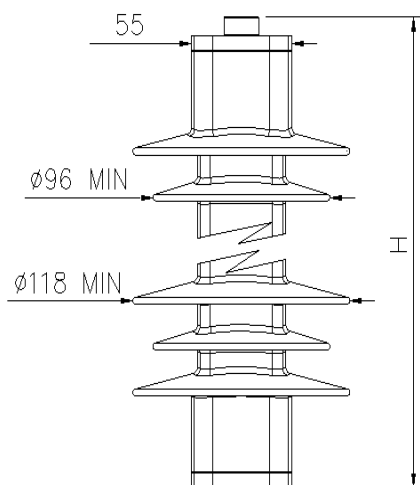
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
15.5	16.5	18.2	17.0	12.3	13.1

Power frequency voltage versus time

1 Sec. TOV: 7.5 kV

100 Sec. TOV: 6.9 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

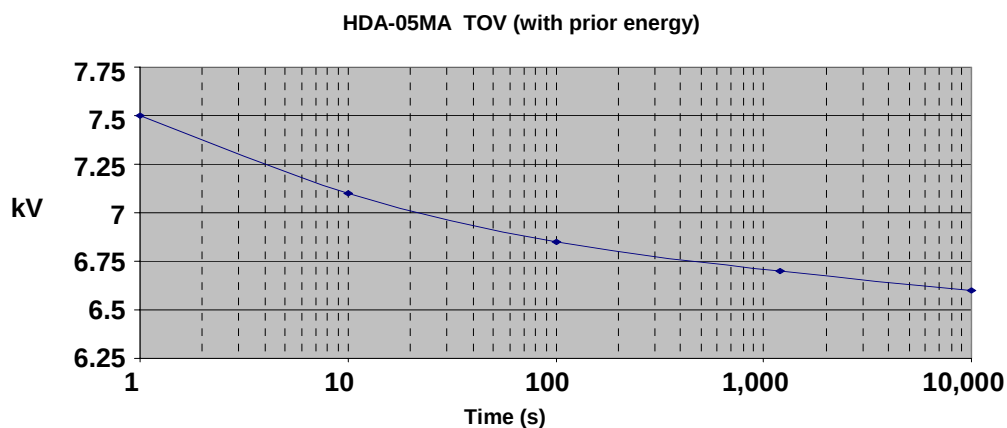
HDA-05MA

Uc: 5 kV

Ur: 6.3 kV

Manufacturing Year

MVSA-192-000-39/05-0



Distribution Surge Arrester

HDA-06LA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 6 kV

Rated voltage

Ur: 7.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

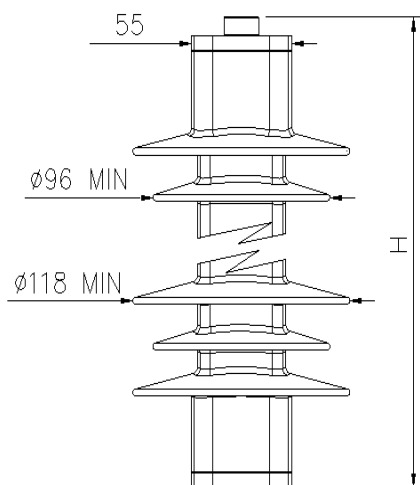
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
18.6	19.8	21.8	20.4	14.8	15.7

Power frequency voltage versus time

1 Sec. TOV: 9.0 kV

100 Sec. TOV: 8.2 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

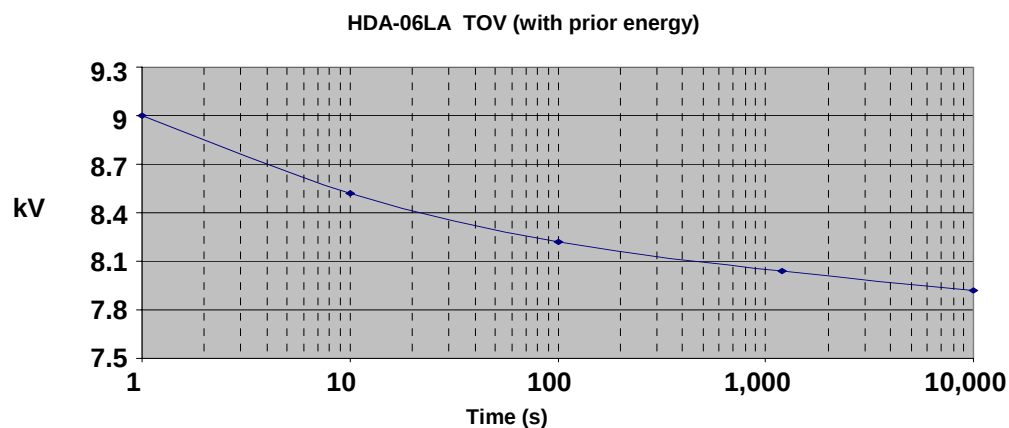
HDA-06LA

Uc: 6 kV

Ur: 7.5 kV

Manufacturing Year

MVSA-194-000-39/05-0



Distribution Surge Arrester

HDA-06MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 6 kV

Rated voltage

Ur: 7.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

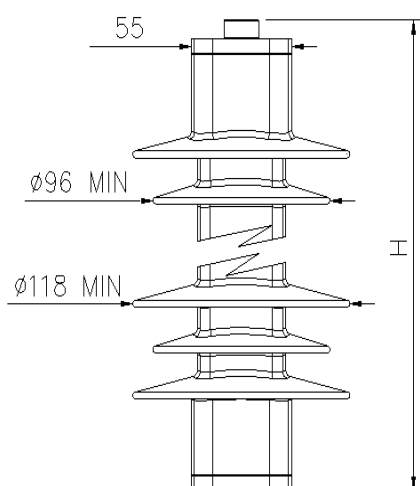
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
18.6	19.8	21.8	20.4	14.8	15.7

Power frequency voltage versus time

1 Sec. TOV: 9.0 kV

100 Sec. TOV: 8.2 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

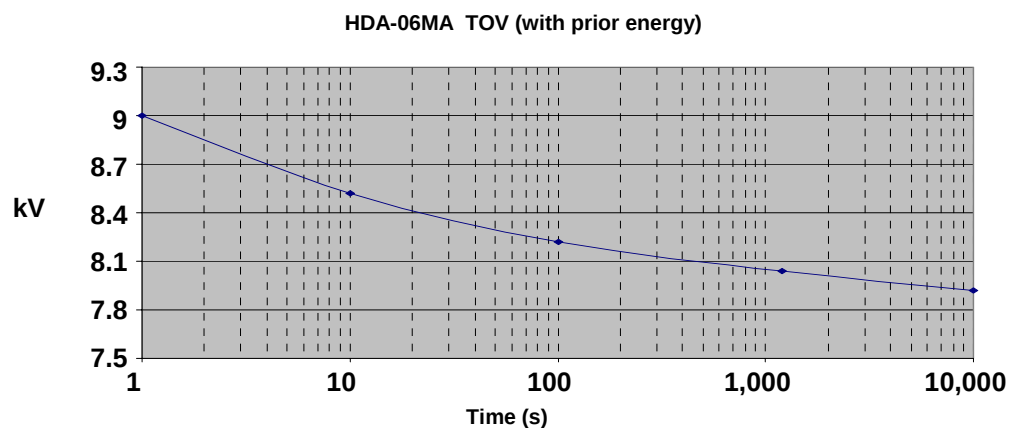
HDA-06MA

Uc: 6 kV

Ur: 7.5 kV

Manufacturing Year

MVSA-193-000-39/05-0



Distribution Surge Arrester

HDA-08LA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 8 kV

Rated voltage

Ur: 10 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

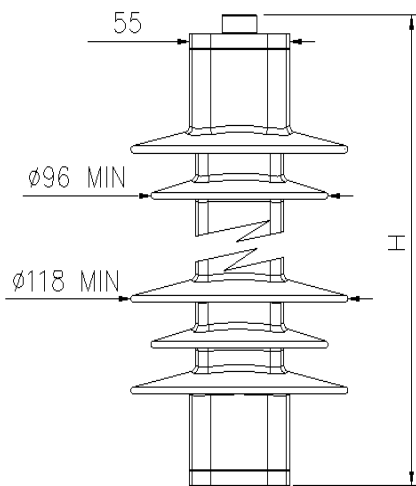
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
24.8	26.4	29.1	27.2	19.7	21.0

Power frequency voltage versus time

1 Sec. TOV: 12.0 kV

100 Sec. TOV: 11.0 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

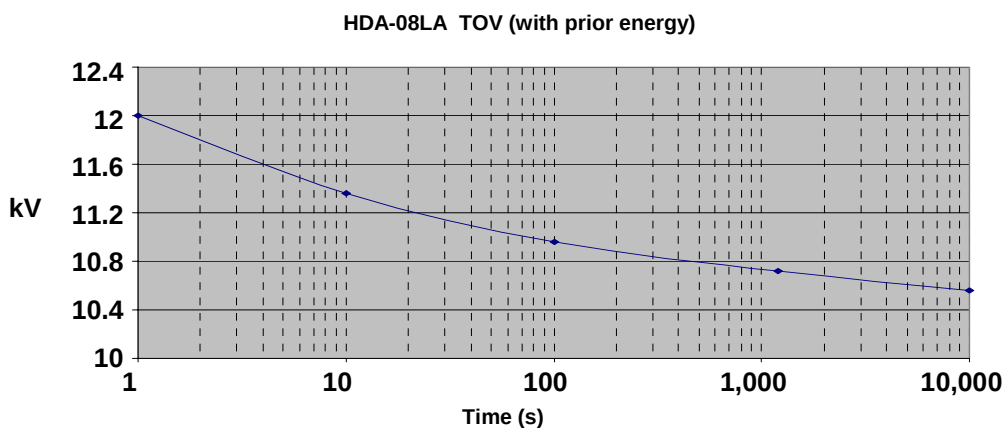
HDA-08LA

Uc: 8 kV

Ur: 10 kV

Manufacturing Year

MVSA-196-000-39/05-0



Distribution Surge Arrester

HDA-08MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 8 kV

Rated voltage

Ur: 10 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

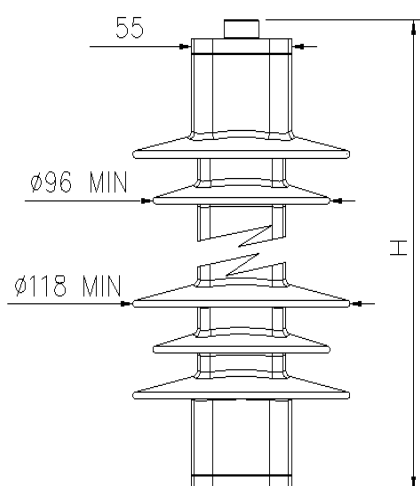
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
24.8	26.4	29.1	27.2	19.7	21.0

Power frequency voltage versus time

1 Sec. TOV: 12.0 kV

100 Sec. TOV: 11.0 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

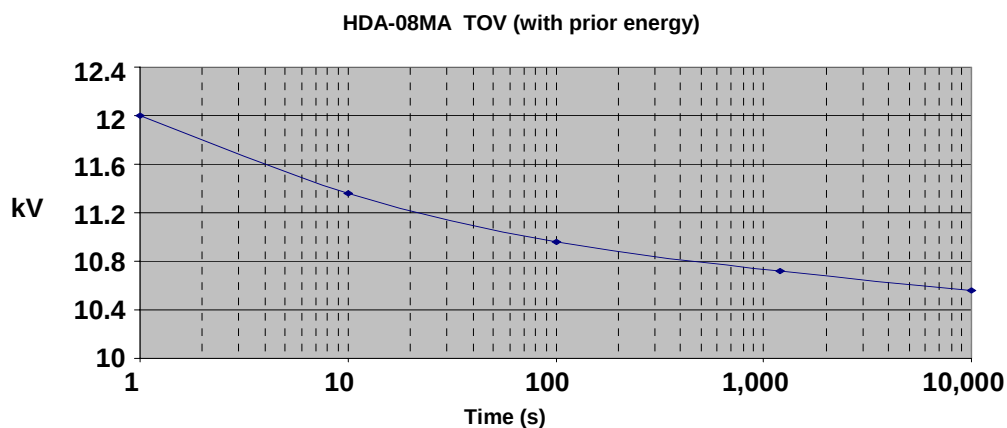
HDA-08MA

Uc: 8 kV

Ur: 10 kV

Manufacturing Year

MVSA-195-000-39/05-0



Distribution Surge Arrester

HDA-09LA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 9 kV

Rated voltage

Ur: 11.25 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

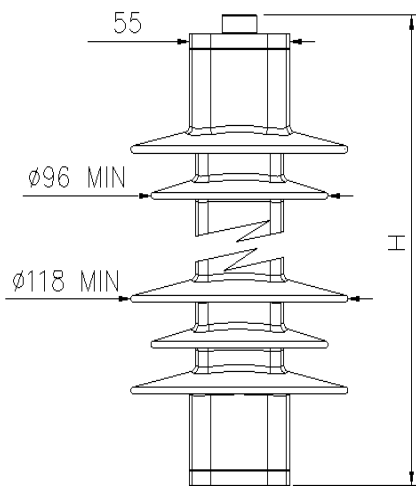
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

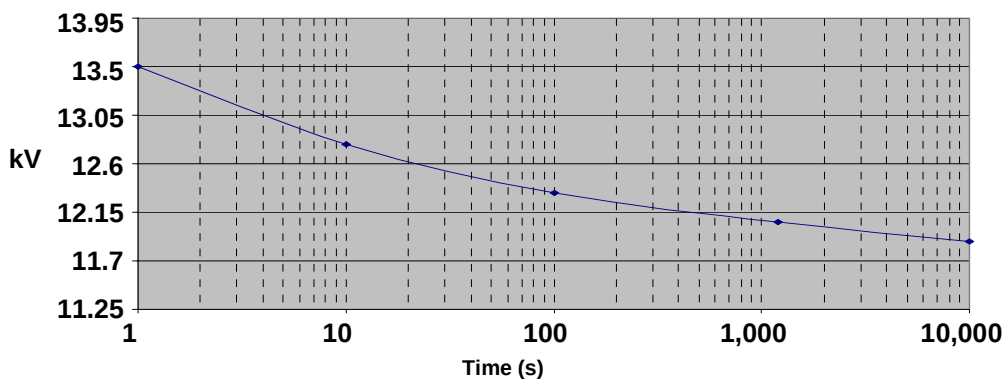
Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
27.9	29.7	32.8	30.6	22.1	23.6

Power frequency voltage versus time

1 Sec. TOV: 13.5 kV

100 Sec. TOV: 12.3 kV

HDA-09LA TOV (with prior energy)



Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

HDA-09LA

Uc: 9 kV

Ur: 11 kV

Manufacturing Year

MVSA-198-000-39/05-0

Distribution Surge Arrester

HDA-09MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 9 kV

Rated voltage

Ur: 11.25 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

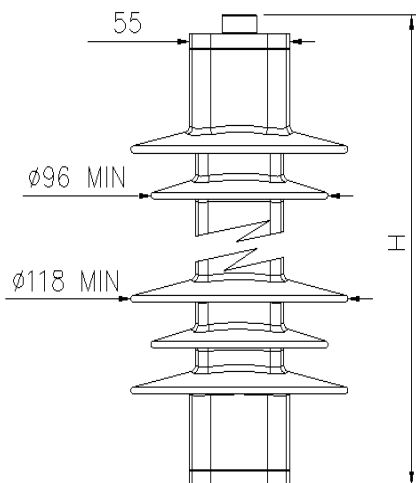
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
27.9	29.7	32.8	30.6	22.1	23.6

Power frequency voltage versus time

1 Sec. TOV: 13.5 kV

100 Sec. TOV: 12.3 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

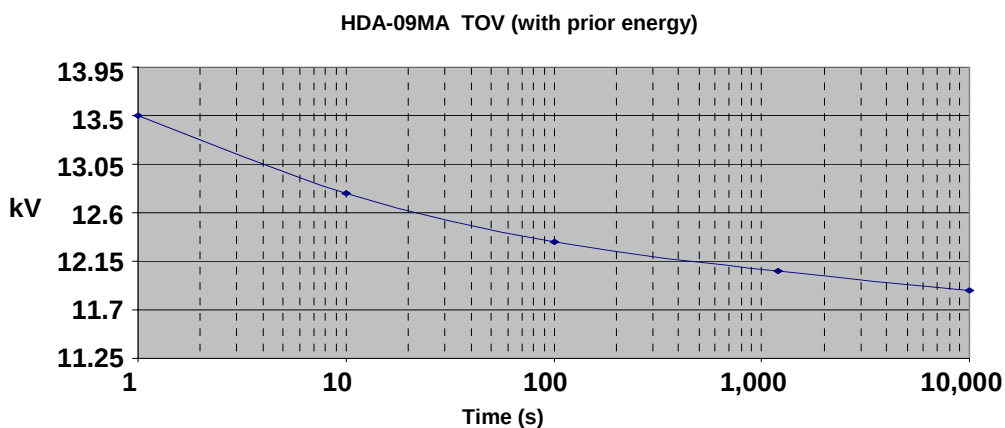
HDA-09MA

Uc: 9 kV

Ur: 11 kV

Manufacturing Year

MVSA-197-000-39/05-0



Distribution Surge Arrester

HDA-10LA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 10 kV

Rated voltage

Ur: 12.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

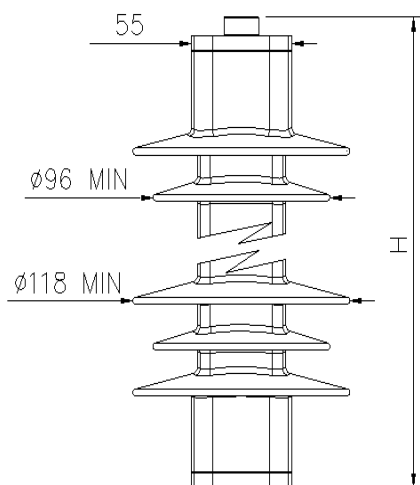
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
31.0	33.0	36.4	34.0	24.6	26.2

Power frequency voltage versus time

1 Sec. TOV: 15.0 kV

100 Sec. TOV: 13.7 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

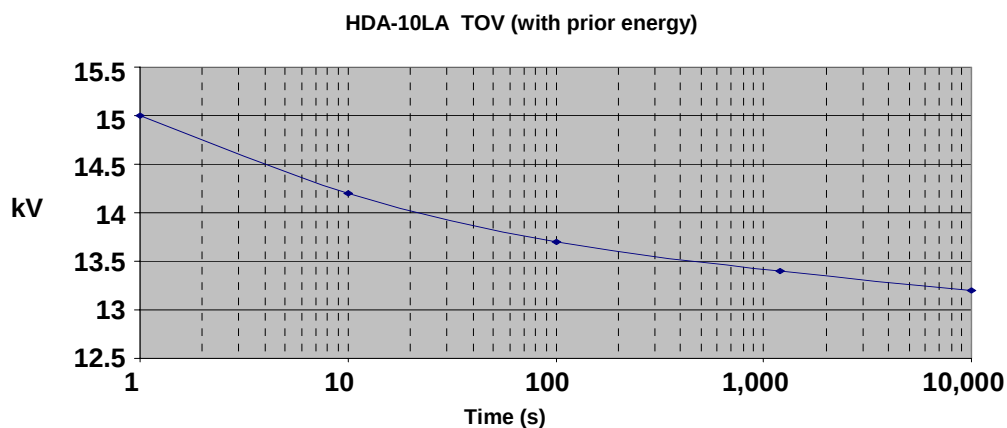
HDA-10LA

Uc: 10 kV

Ur: 13 kV

Manufacturing Year

MVSA-200-000-39/05-0



Distribution Surge Arrester

HDA-10MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 10 kV

Rated voltage

Ur: 12.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

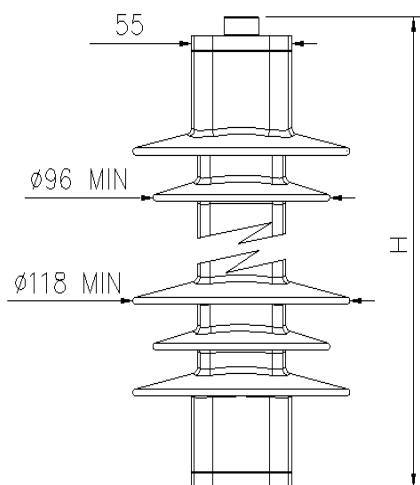
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
31.0	33.0	36.4	34.0	24.6	26.2

Power frequency voltage versus time

1 Sec. TOV: 15.0 kV

100 Sec. TOV: 13.7 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

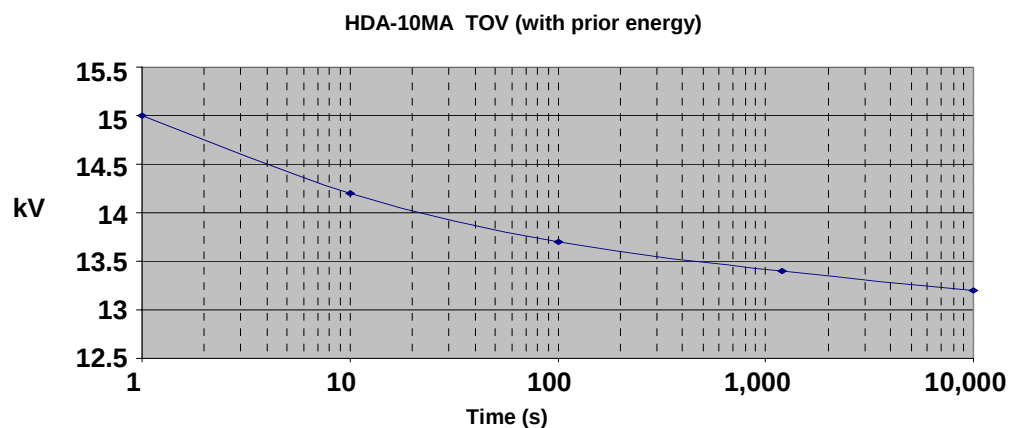
HDA-10MA

Uc: 10 kV

Ur: 13 kV

Manufacturing Year

MVSA-199-000-39/05-0



Distribution Surge Arrester

HDA-12LA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 12 kV

Rated voltage

Ur: 15 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

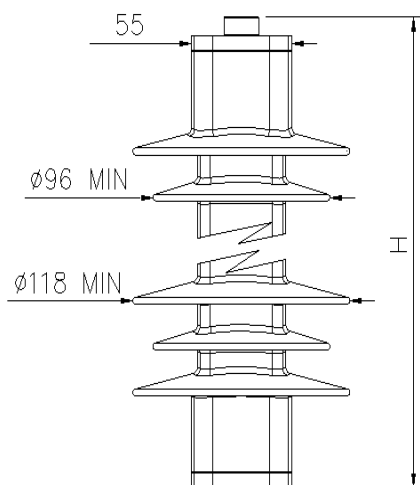
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

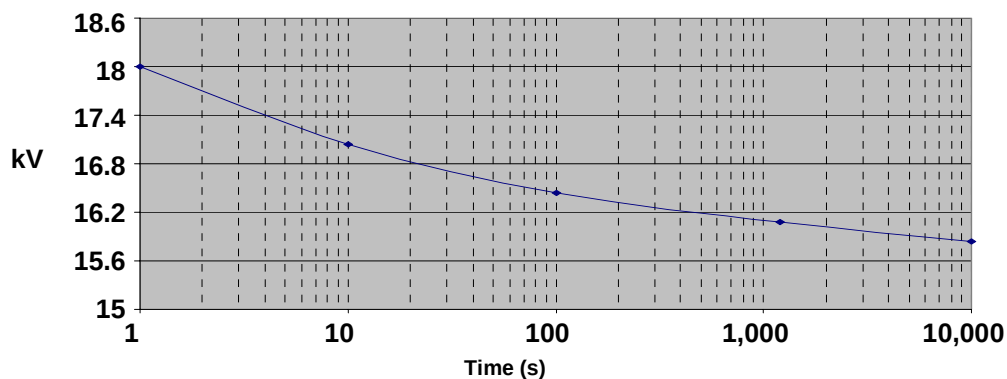
Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s
5 kA	10 kA	20 kA	10 kA	125 A 500 A
37.2	39.6	43.7	40.8	29.5 31.4

Power frequency voltage versus time

1 Sec. TOV: 18.0 kV

100 Sec. TOV: 16.4 kV

HDA-12LA TOV (with prior energy)



Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

HDA-12LA

Uc: 12 kV

Ur: 15 kV

Manufacturing Year

MVSA-202-000-39/05-0

Distribution Surge Arrester

HDA-12MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 12 kV

Rated voltage

Ur: 15 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

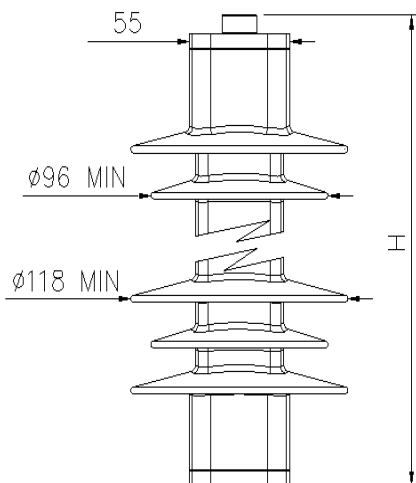
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	106
Power frequency voltage	-wet: kV	47
Overall length, (H)	mm	183
Flashover distance	mm	176
Creepage Length	mm	380
Weight	kg	1.8
No of Sheds:		5
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s
5 kA	10 kA	20 kA	10 kA	125 A 500 A
37.2	39.6	43.7	40.8	29.5 31.4

Power frequency voltage versus time

1 Sec. TOV: 18.0 kV

100 Sec. TOV: 16.4 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

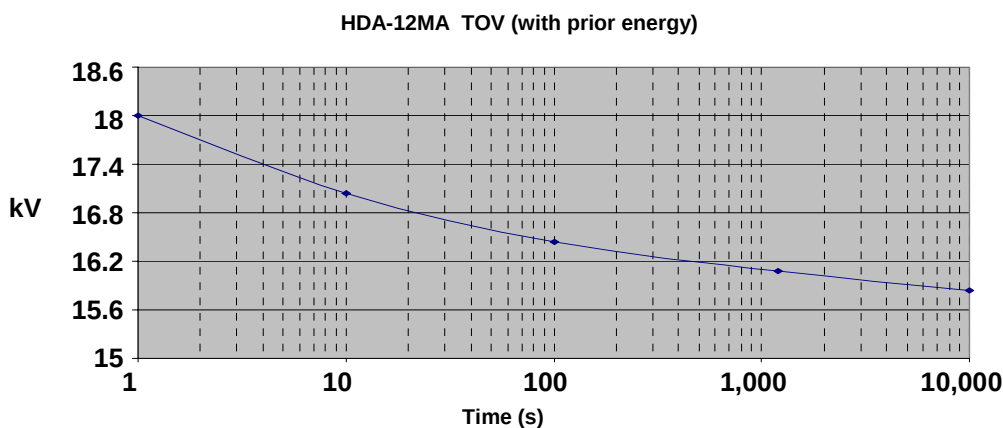
HDA-12MA

Uc: 12 kV

Ur: 15 kV

Manufacturing Year

MVSA-201-000-39/05-0



Distribution Surge Arrester

HDA-14MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 14 kV

Rated voltage

Ur: 17.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

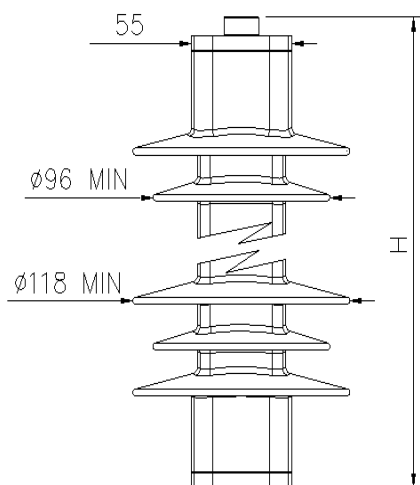
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s
5 kA	10 kA	20 kA	10 kA	125 A 500 A
43.4	46.2	51.0	47.6	34.4 36.7

Power frequency voltage versus time

1 Sec. TOV: 21.0 kV

100 Sec. TOV: 19.2 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

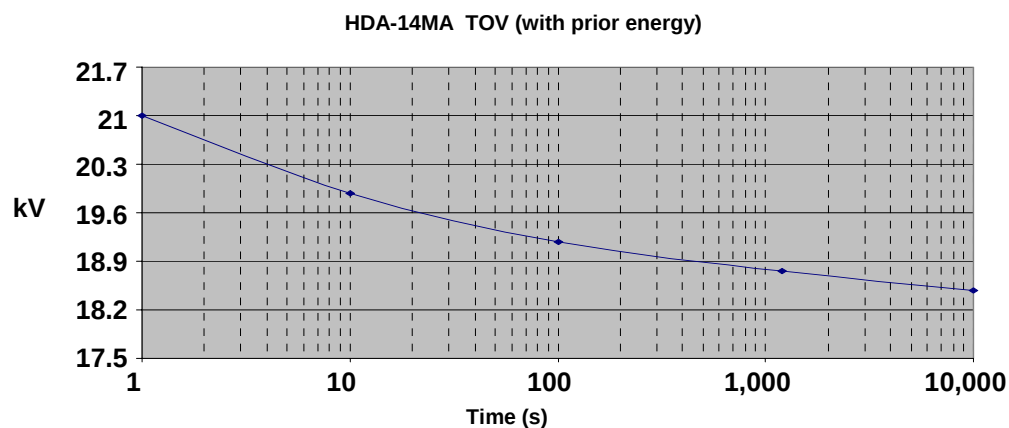
HDA-14MA

Uc: 14 kV

Ur: 18 kV

Manufacturing Year

MVSA-203-000-39/05-0



Distribution Surge Arrester

HDA-15MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 15 kV

Rated voltage

Ur: 18.75 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

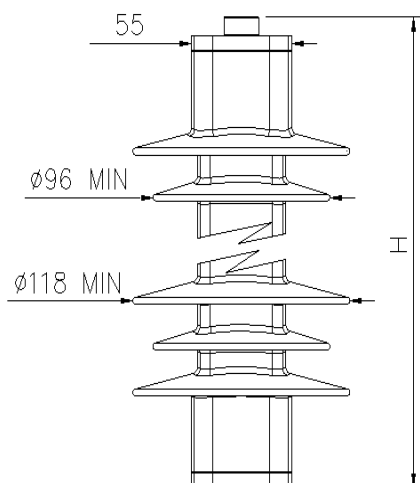
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
46.5	49.5	54.6	51.0	36.9	39.3

Power frequency voltage versus time

1 Sec. TOV: 22.5 kV

100 Sec. TOV: 20.6 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

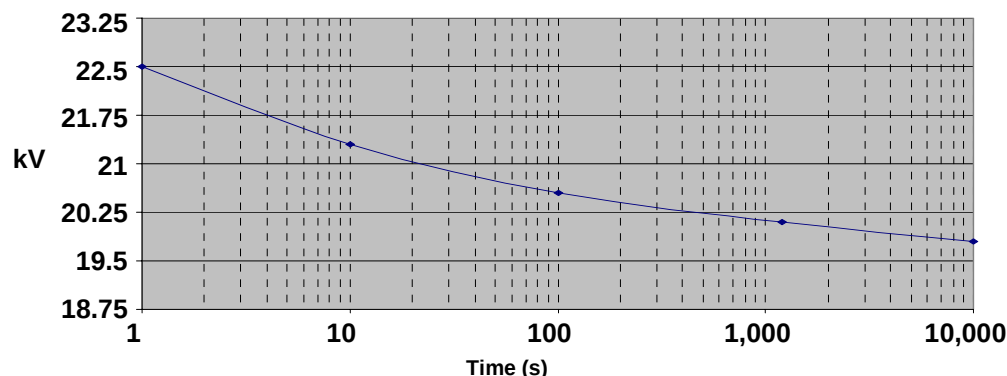
HDA-15MA

Uc: 15 kV

Ur: 19 kV

Manufacturing Year

HDA-15MA TOV (with prior energy)



MVSA-204-000-39/05-0

Distribution Surge Arrester

HDA-16MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 16 kV

Rated voltage

Ur: 20 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

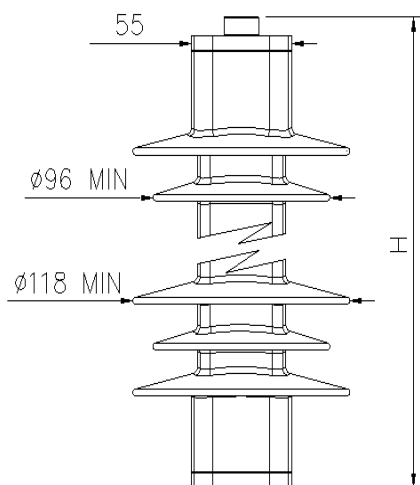
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
49.6	52.8	58.2	54.4	39.4	41.9

Power frequency voltage versus time

1 Sec. TOV: 24.0 kV

100 Sec. TOV: 21.9 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

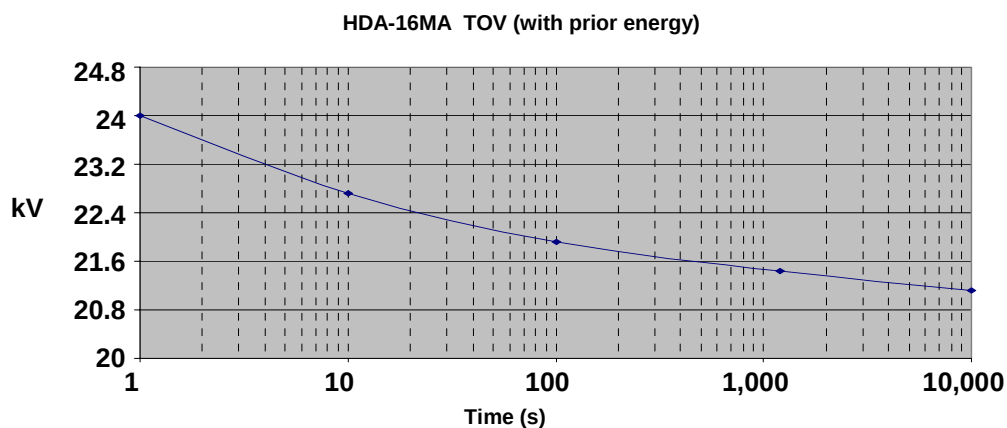
HDA-16MA

Uc: 16 kV

Ur: 20 kV

Manufacturing Year

MVSA-205-000-39/05-0



Distribution Surge Arrester

HDA-18MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 18 kV

Rated voltage

Ur: 22.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

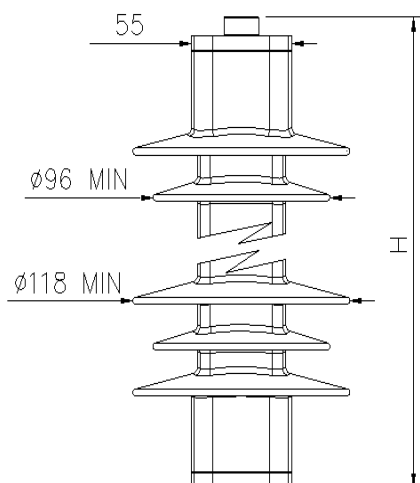
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
55.8	59.4	65.5	61.2	44.3	47.2

Power frequency voltage versus time

1 Sec. TOV: 27.0 kV

100 Sec. TOV: 24.7 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

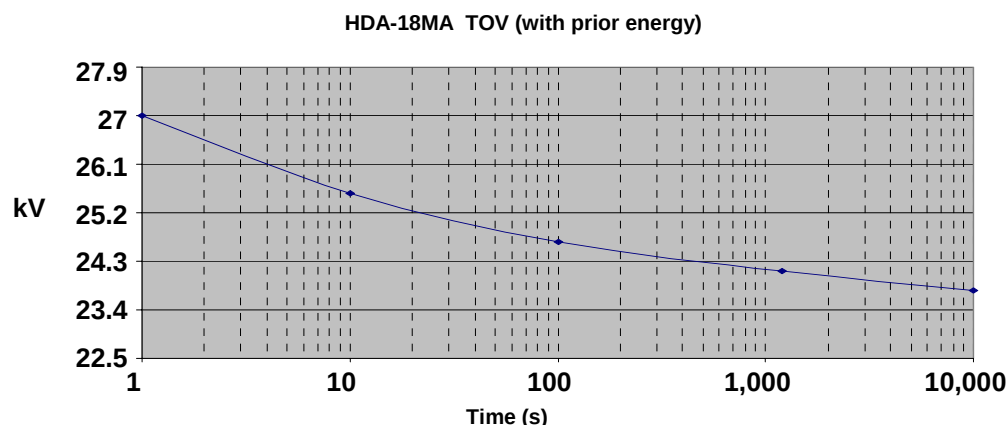
HDA-18MA

Uc: 18 kV

Ur: 23 kV

Manufacturing Year

MVSA-207-000-39/05-0



Distribution Surge Arrester

HDA-20MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 20 kV

Rated voltage

Ur: 25 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

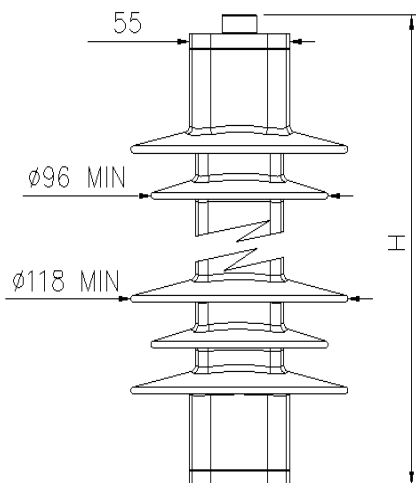
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
62.0	66.0	72.8	68.0	49.2	52.4

Power frequency voltage versus time

1 Sec. TOV: 30.0 kV

100 Sec. TOV: 27.4 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

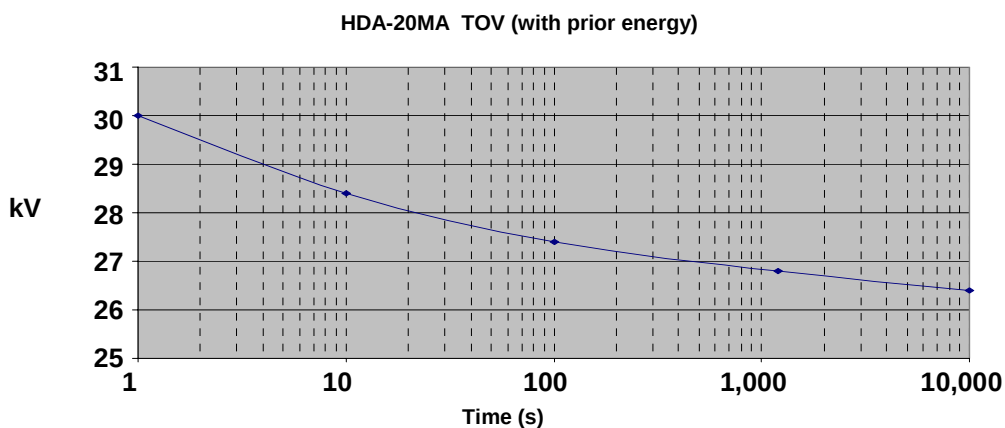
HDA-20MA

Uc: 20 kV

Ur: 25 kV

Manufacturing Year

MVSA-209-000-39/05-0



Distribution Surge Arrester

HDA-21MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 21 kV

Rated voltage

Ur: 26.25 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

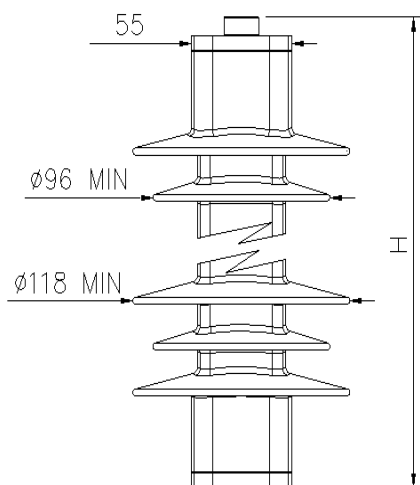
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

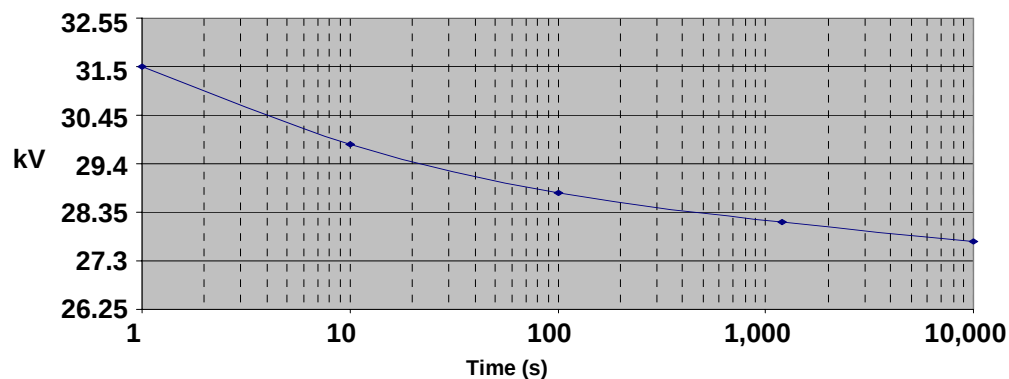
Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
65.1	69.3	76.4	71.4	51.7	55.0

Power frequency voltage versus time

1 Sec. TOV: 31.5 kV

100 Sec. TOV: 28.8 kV

HDA-21MA TOV (with prior energy)



Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

HDA-21MA

Uc: 21 kV

Ur: 26 kV

Manufacturing Year

MVSA-210-000-39/05-0

Distribution Surge Arrester

HDA-22MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 22 kV

Rated voltage

Ur: 27.5 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

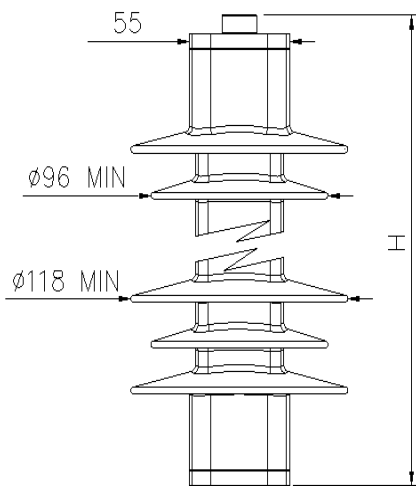
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
68.2	72.6	80.1	74.8	54.1	57.6

Power frequency voltage versus time

1 Sec. TOV: 33.0 kV

100 Sec. TOV: 30.1 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

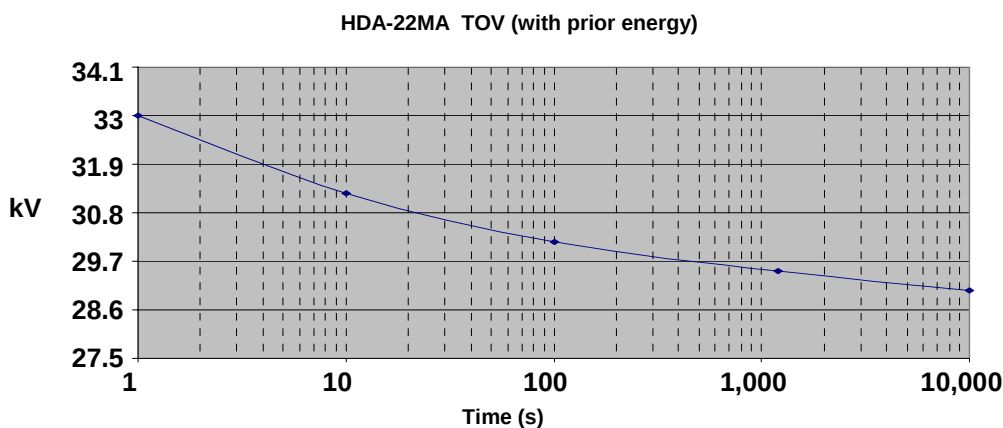
HDA-22MA

Uc: 22 kV

Ur: 28 kV

Manufacturing Year

MVSA-211-000-39/05-0



Distribution Surge Arrester

HDA-24MA -

Metal oxide arrester

Polymeric Housing

IEC 60099-4, Ed 2.0

Nominal discharge current: 10 kA

Line discharge class: 1

High current impulse 4/10 μ s: 100 kA

Energy absorption capability at

– Line discharge imp.: 4.2 kJ/kV Uc

Long Duration Ipeak 400 A

Continuous operating voltage

Uc: 24 kV

Rated voltage

Ur: 30 kV

Short circuit rating (pre-failing method)

Rated short-circuit current 40 kA

Low short-circuit current 600 A

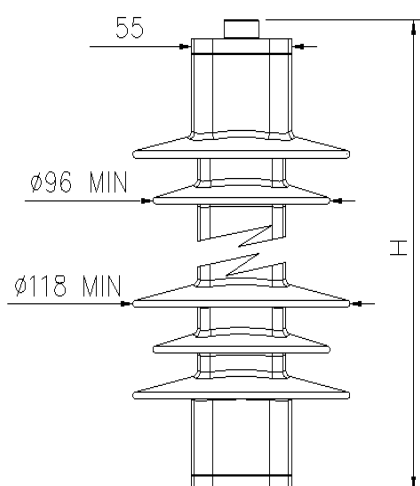
Safe non-shattering design

Mounting

Ground Lead

Line Lead

Dimensions (mm)



Arrester Housing

Impulse voltage	1,2/50 μ s kV	190
Power frequency voltage	-wet: kV	93
Overall length, (H)	mm	316
Flashover distance	mm	310
Creepage Length	mm	830
Weight	kg	3.25
No of Sheds:		12
Cantilever strength *	Nm	350
Pull strength	N	2000
Max. Torque M12 *	Nm	50

* Ref: Thermomechanical & bending moment test 60099-4

100% Routine testing

- Residual Voltage
- Reference Voltage
- Partial Discharge

Residual Voltages (kV)

Lightning current impulse 8/20 μ s:			Steep lightning current impulse 1/20 μ s	Switching current impulse 30/60 μ s	
5 kA	10 kA	20 kA	10 kA	125 A	500 A
74.4	79.2	87.4	81.6	59.0	62.9

Power frequency voltage versus time

1 Sec. TOV: 36.0 kV

100 Sec. TOV: 32.9 kV

Marking

Raychem

MO Surge Arrester

50/60 Hz

IEC 60099-4

Isc 40 kA

In 10 kA Class 1

HDA-24MA

Uc: 24 kV

Ur: 30 kV

Manufacturing Year

MVSA-212-000-39/05-0

