

Surge arrester

POLIM-K



Product description:

- Metal-oxide (MO) surge arrester without spark gap, designed and type tested according to IEC 60099-4, with own ABB metal-oxide resistors since more than 30 years
- Direct molded silicone housing in patented loop design for best environmental robustness
- 100% in-house production – fully in charge of complete process
- High quality, safe and reliable, maintenance free
- For alternating current (AC) systems
- For indoor and outdoor installations

Especially recommended for overvoltage protection of:

- MV distribution transformer
- Pole mounted MV transformer
- MV cable and cable termination
- Air insulated MV switchgear and panel
- Further MV distribution equipment

Additional certification:

- Shock and vibration tested according to IEC 61373
- Fire and smoke behavior tested and classified according to EN 45545-2

Technical data

Classification according to IEC 60099-4

Arrester class	SL, Station Low
Line discharge class (LD)	2
Nominal discharge current I_n (8/20 μ s)	10 kA _{peak}
Repetitive charge transfer rating Q_{rs}	1.0 As (C)
Rated thermal energy	
W_{th} at $T_{amb} = 40\text{ }^\circ\text{C}$	4.5 kJ/kV (U_r) = 5.6 kJ/kV (U_c)
W_{th} at $T_{amb} = 55\text{ }^\circ\text{C}$	4.0 kJ/kV (U_r) = 5.0 kJ/kV (U_c)
High current impulse I_{nc} (4/10 μ s)	100 kA _{peak}
Long duration current impulse	500 A for 2000 μ s
Short circuit rating I_s	50 kA _{rms} for 0.2 s

Power frequency voltage versus time characteristics (TOV)

With no prior duty energy input

U_{TOV} at $t = 1\text{ s}$	1.170 U_r = 1.463 U_c
U_{TOV} at $t = 3\text{ s}$	1.145 U_r = 1.431 U_c
U_{TOV} at $t = 10\text{ s}$	1.118 U_r = 1.398 U_c

With prior duty energy input of 4.0 kJ/kV (U_r) = 5.0 kJ/kV (U_c)

U_{TOV} at $t = 1\text{ s}$	1.120 U_r = 1.400 U_c
U_{TOV} at $t = 3\text{ s}$	1.090 U_r = 1.362 U_c
U_{TOV} at $t = 10\text{ s}$	1.066 U_r = 1.333 U_c

Mechanical loads

Torque	50 Nm
Tensile strength axial	1000 N
Short term load SSL perpendicular to axis	250 Nm
Long term load SLL perpendicular to axis	250 Nm

Service conditions

Ambient air temperature T_{amb}	-60 to +55 $^\circ\text{C}$ (for temperatures up to 80 $^\circ\text{C}$ consider instructions of application guidelines)
Altitude of installation	up to 1800 m (for higher altitudes contact ABB)
Frequency of system voltage	15 to 62 Hz

Electrical data

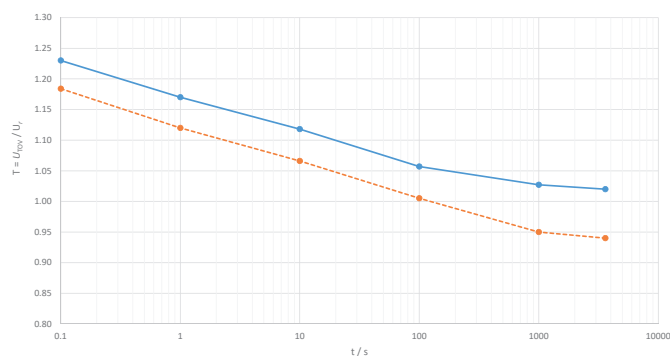
Continuous operating voltage U_c	Rated voltage U_r	Residual voltage U_{res} at specified impulse current (Maximum value)									
		Steep current impulse wave 1/... μ s		Lightning current impulse wave 8/20 μ s					Switching current impulse wave 30/60 μ s		
		5 kA	10 kA	1 kA	2.5 kA	5 kA	$I_n=10$ kA	20 kA	0.125 kA	0.25 kA	0.5 kA
kV_{rms}	kV_{rms}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}
4	5.0	13.0	14.7	11.0	11.8	12.5	13.4	15.2	9.8	10.2	10.5
6	7.5	19.4	21.9	16.4	17.6	18.6	20.0	22.6	14.6	15.1	15.6
8	10.0	25.9	29.3	21.9	23.5	24.9	26.7	30.2	19.5	20.2	20.9
10	12.5	32.3	36.5	27.4	29.4	31.0	33.3	37.7	24.4	25.2	26.0
12	15.0	38.8	43.8	32.8	35.2	37.2	40.0	45.2	29.2	30.2	31.2
14	17.5	45.3	51.1	38.3	41.1	43.5	46.7	52.8	34.1	35.3	36.5
16	20.0	51.6	58.4	43.8	47.0	49.6	53.3	60.3	39.0	40.3	41.6
18	22.5	58.1	65.7	49.2	52.8	55.8	60.0	67.8	43.8	45.3	46.8
20	25.0	64.5	72.9	54.7	58.7	62.0	66.6	75.3	48.7	50.3	52.0
22	27.5	71.0	80.2	60.2	64.6	68.2	73.3	82.9	53.6	55.4	57.2
24	30.0	77.5	87.6	65.6	70.4	74.4	80.0	90.4	58.4	60.4	62.4
26	32.5	83.9	94.8	71.1	76.3	80.6	86.6	97.9	63.3	65.4	67.6
28	35.0	90.4	102.1	76.6	82.2	86.8	93.3	105.5	68.2	70.5	72.8
30	37.5	96.8	109.4	82.0	88.0	93.0	99.9	112.9	73.0	75.5	78.0
32	40.0	103.2	116.7	87.5	93.9	99.2	106.6	120.5	77.9	80.5	83.2
34	42.5	109.7	124.0	93.0	99.8	105.4	113.3	128.1	82.8	85.6	88.4
36	45.0	116.1	131.2	98.4	105.6	111.6	119.9	135.5	87.6	90.6	93.6
38	47.5	122.6	138.6	103.9	111.5	117.8	126.6	143.1	92.5	95.6	98.8
40	50.0	129.0	145.8	109.3	117.3	123.9	133.2	150.6	97.3	100.6	103.9
42	52.5	135.5	153.1	114.8	123.2	130.2	139.9	158.1	102.2	105.7	109.2
44	55.0	142.0	160.4	120.3	129.1	136.4	146.6	165.7	107.1	110.7	114.4

Housing and TOV Characteristics

Continuous operating voltage U_c	Housing size *	Creepage distance mm	Flashover distance mm	Recommended clearances		Height H mm	Weight kg	Insulation withstand voltage of housing			
				E mm	F mm			1.2/50 μ s		50 Hz, 60 s, wet	
								required values acc. to EN/IEC kV_{peak}	guaranteed kV_{peak}	required values acc. to EN/IEC kV_{rms}	guaranteed kV_{rms}
4	20	384	199	68	132	199	2.0	18	113	9	56
6	20	384	199	89	132	199	2.0	26	113	13	56
8	20	384	199	110	133	199	2.0	35	113	17	56
10	30	504	239	132	154	239	2.6	44	136	21	67
12	30	504	239	153	175	239	2.6	52	136	25	67
14	30	504	239	175	196	239	2.6	61	136	30	67
16	30	504	239	196	217	239	2.6	70	136	34	67
18	40	625	279	217	238	279	3.0	78	159	38	79
20	40	625	279	239	259	279	3.0	87	159	42	79
22	70	985	399	260	280	399	4.2	96	227	46	113
24	70	985	399	282	301	399	4.2	104	227	50	113
26	70	985	399	303	322	399	4.2	113	227	54	113
28	70	985	399	325	343	399	4.2	122	227	59	113
30	70	985	399	346	364	399	4.2	130	227	63	113
32	70	985	399	367	385	399	4.2	139	227	67	113
34	90	1460	552	389	407	549	5.6	148	314	71	156
36	90	1460	552	410	427	549	5.6	156	314	75	156
38	90	1460	552	432	449	549	5.6	165	314	79	156
40	90	1460	552	453	470	549	5.6	174	314	83	156
42	90	1460	552	474	491	549	5.6	182	314	88	156
44	90	1460	552	496	512	549	5.6	191	314	92	156

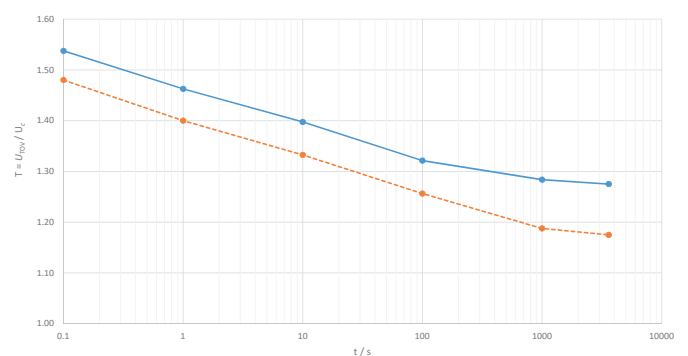
* Other combinations may be available upon request

Power frequency voltage-versus time characteristics (TOV) based on U_c



- without prior duty energy input
- with prior duty 4.0 kJ/kV (U_c) = 5.0 kJ/kV (U_c) energy input Samples preheated to 60 °C

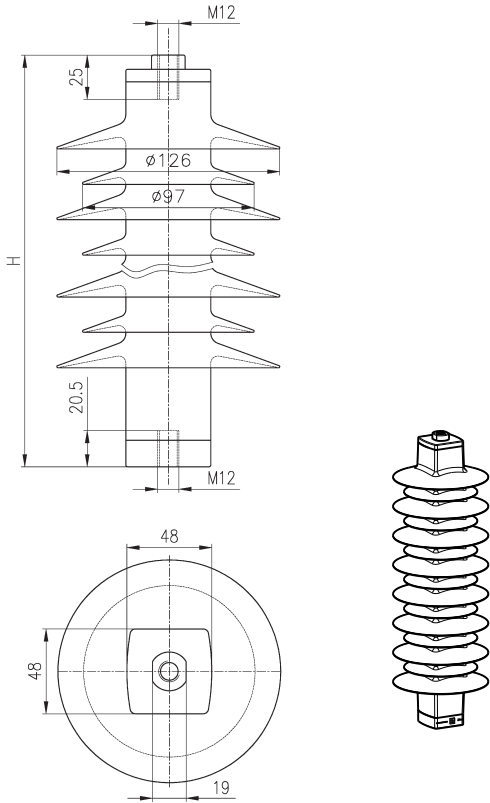
Power frequency voltage-versus time characteristics (TOV) based on U_c



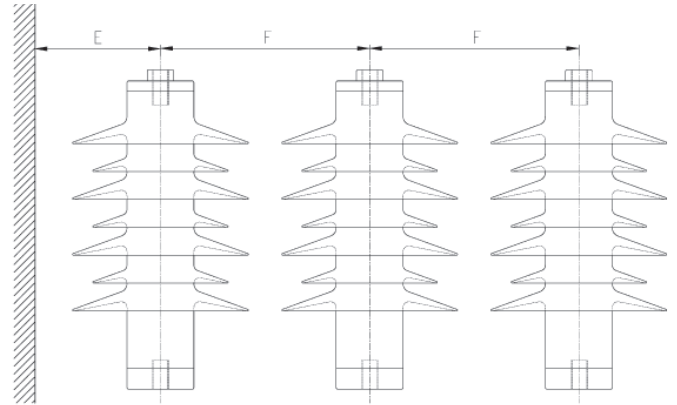
- without prior duty energy input
- with prior duty 4.0 kJ/kV (U_c) = 5.0 kJ/kV (U_c) energy input Samples preheated to 60 °C

Dimensions

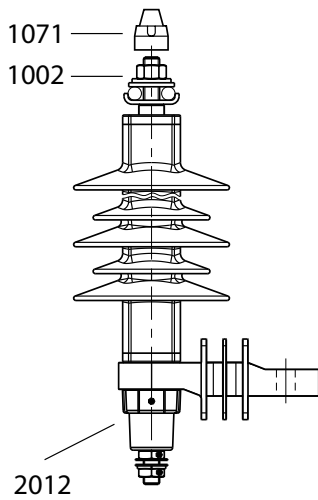
Standard dimensions without accessories



Dimensions according to outline drawing 1HC0053587 Outline drawings with accessories on request



Structure of type designation with optional accessories (Example)

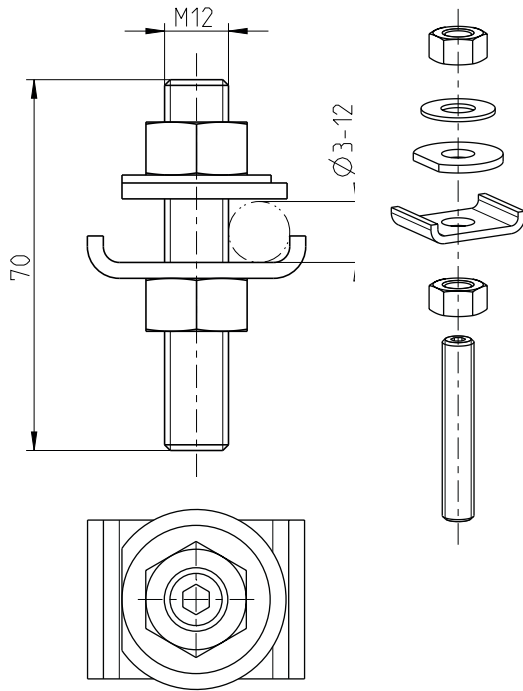


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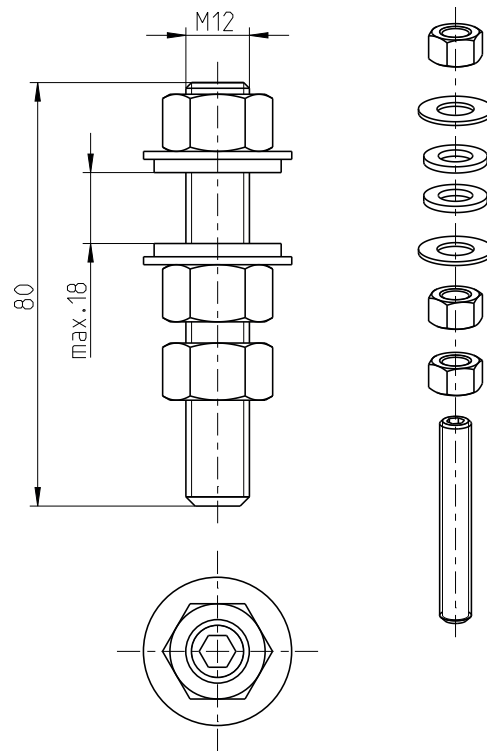
- Type of surge arrester
- U_c = Continuous operating voltage
- Housing
- Type of top accessory (optional)
- Type of bottom accessory (optional)

Common Top Accessories (optional)

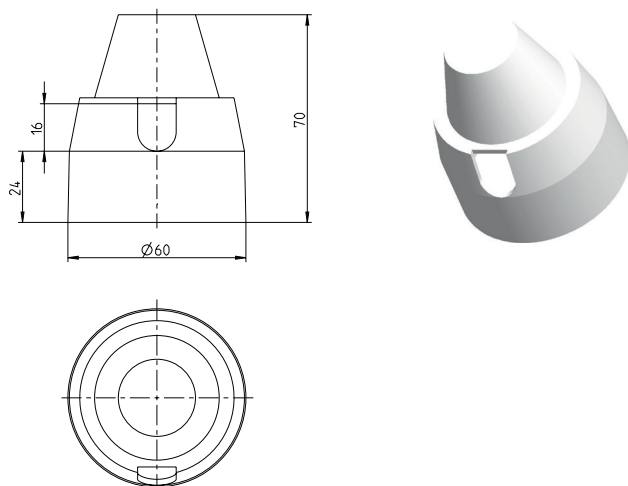
Type 1002 Clamp type connector (stainless steel)



Type 1023 Threaded stud with nuts M12x80 (stainless steel)

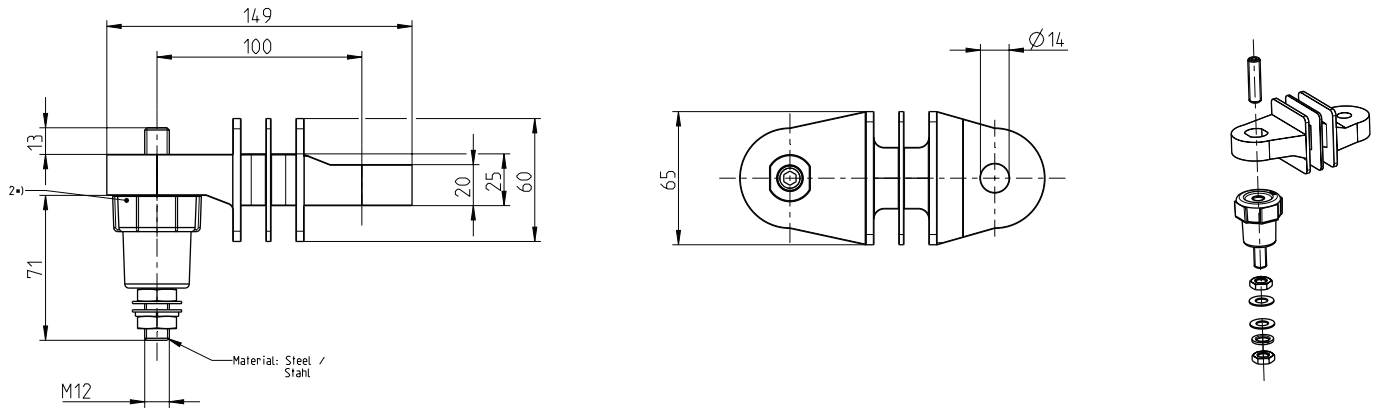


Type 1071 Bird cap

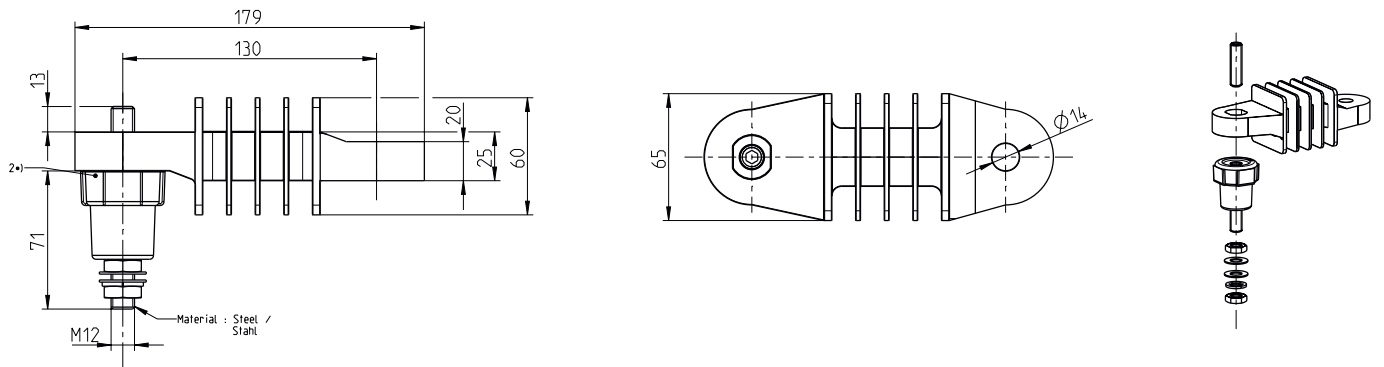


Common Bottom Accessories (optional)

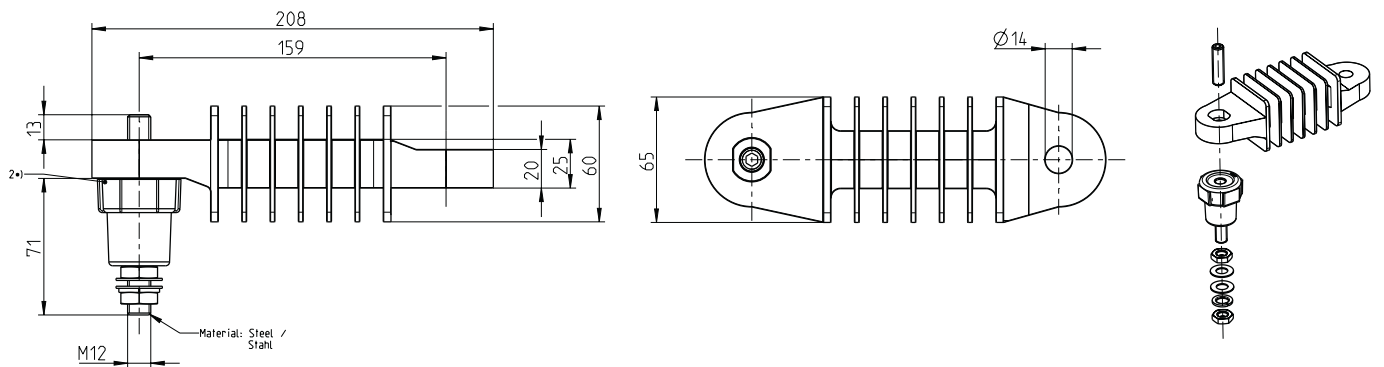
Type 2011 Insulating bracket with disconnecter ($U_c = 4..12$ kV)



Type 2012 Insulating bracket with disconnecter ($U_c = 13..24$ kV)



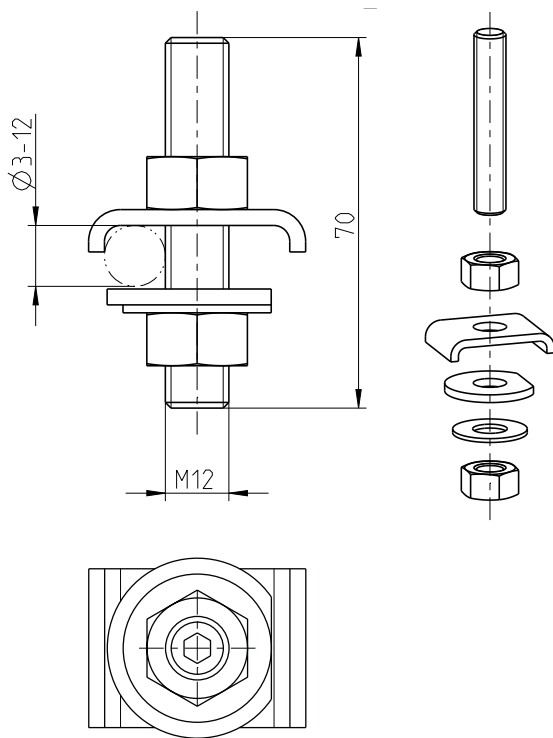
Type 2013 Insulating bracket with disconnecter ($U_c > 24$ kV)



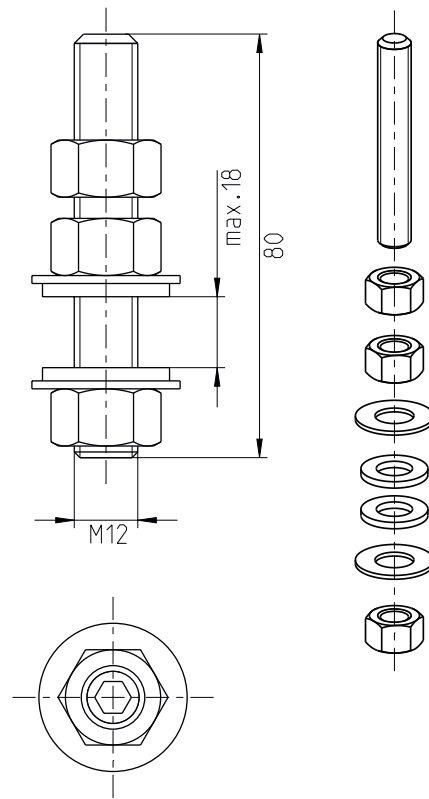
Dimensions (mm)

Common Bottom Accessories (optional)

Type 2020 Clamp type connector (stainless steel)



Type 2000 Threaded stud with nuts M12x80 (stainless steel)



For more information please contact:

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For detailed information for dimensioning of our products see following ABB documents:

- Application guidelines
 - Overvoltage protection
 - Metal oxide surge arresters in medium voltage systems
- Application guidelines
 - Overvoltage protection
 - Metal oxide surge arresters in railway facilities

For pdf or print version please send E-mail to:
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