


# High Voltage Surge Arresters Buyer's Guide — Section PEXLIM R-Y

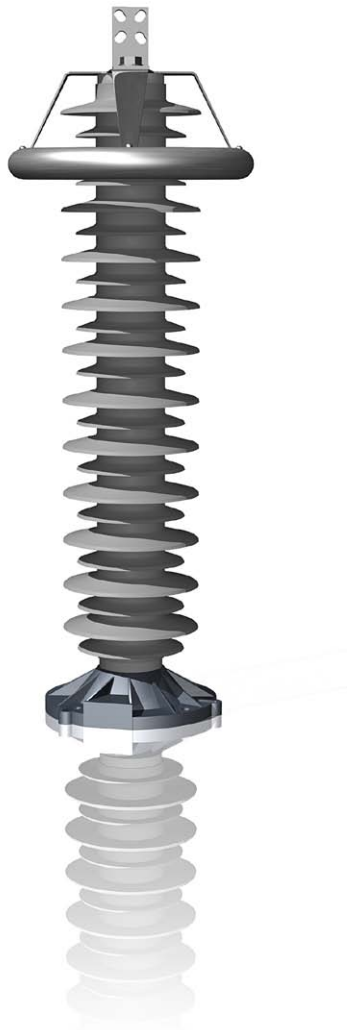
# Zinc Oxide Surge Arrester PEXLIM R-Y

Protection of switchgear, transformers and other equipment in high voltage systems against atmospheric and switching overvoltages. For use when requirements of lightning intensity, energy capability and pollution are moderate.

Superior where low weight, reduced clearances, flexible mounting, non-fragility and additional personnel safety is required.

Major component in PEXLINK™ concept for transmission line protection.

 Other data can be ordered on request. Please contact your local sales representative.



## Brief performance data

System voltages ( $U_m$ )	24 - 170 kV
Rated voltages ( $U_r$ )	18 - 144 kV
Nominal discharge current (IEC)	10 kA <sub>peak</sub>
<b>Discharge current withstand strength:</b>	
High current 4/10 $\mu$ s	100 kA <sub>peak</sub>
Low current 2000 $\mu$ s	600 A <sub>peak</sub>
<b>Energy capability:</b>	
Line discharge class (IEC)	Class 2
[2 impulses, (IEC Cl. 8.5.5)]	5.1 kJ/kV ( $U_r$ )
Fulfils/exceeds requirements of ANSI transmission-line discharge test for 170 kV systems.	
Short-circuit/Pressure relief capability	50 kA <sub>sym</sub>
External insulation	Fulfils/exceeds standards
<b>Mechanical strength:</b>	
Specified long-term load (SLL)	1 000 Nm
Specified short-term load (SSL)	1 600 Nm
<b>Service conditions:</b>	
Ambient temperature	-50 °C to +45 °C
Design altitude	max. 1 000 m
Frequency	15 - 62 Hz

# PEXLIM R-Y

## Guaranteed protective data 24 - 100 kV

Max. system voltage	Rated voltage	Max. continuous operating voltage <sup>1)</sup>		TOV capability <sup>2)</sup>		Max. residual voltage with current wave						
		as per IEC	as per ANSI/IEEE	1 s	10 s	30/60 µs			8/20 µs			
						U <sub>c</sub>	MCOV	0.5 kA	1 kA	2 kA	5 kA	10 kA
U <sub>m</sub>	U <sub>r</sub>	U <sub>c</sub>	MCOV	1 s	10 s	0.5 kA	1 kA	2 kA	5 kA	10 kA	20 kA	40 kA
kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>
24 <sup>3)</sup>	18	14.4	15.3	20.7	19.8	37.1	38.5	40.3	44.0	46.7	52.3	59.7
	21	16.8	17.0	24.1	23.1	43.2	44.9	47.0	51.3	54.4	61.0	69.7
	24	19.2	19.5	27.6	26.4	49.4	51.3	53.8	58.7	62.2	69.7	79.6
	27	21.6	22.0	31.0	29.7	55.6	57.7	60.5	66.0	70.0	78.4	89.6
36 <sup>3)</sup>	30	24.0	24.4	34.5	33.0	61.7	64.2	67.2	73.3	77.7	87.1	100
	33	26.4	26.7	37.9	36.3	67.9	70.6	73.9	80.6	85.5	95.8	110
	36	28.8	29.0	41.4	39.6	74.1	77.0	80.6	88.0	93.3	105	120
	39	31.2	31.5	44.8	42.9	80.3	83.4	87.3	95.3	102	114	130
	42	34	34.0	48.3	46.2	86.4	89.8	94.0	103	109	122	140
	48	38	39.0	55.2	52.8	98.8	103	108	118	125	140	160
52	42	34	34.0	48.3	46.2	86.4	89.8	94.0	103	109	122	140
	48	38	39.0	55.2	52.8	98.8	103	108	118	125	140	160
	51	41	41.3	58.6	56.1	105	109	115	125	133	148	170
	54	43	42.0	62.1	59.4	112	116	121	132	140	157	180
	60	48	48.0	69.0	66.0	124	129	135	147	156	175	199
	66	53	53.4	75.9	72.6	136	142	148	162	171	192	219
72	54	43	42.0	62.1	59.4	112	116	121	132	140	157	180
	60	48	48.0	69.0	66.0	124	129	135	147	156	175	199
	66	53	53.4	75.9	72.6	136	142	148	162	171	192	219
	72	58	58.0	82.8	79.2	149	154	162	176	187	209	239
	75	60	60.7	86.2	82.5	155	161	168	184	195	218	249
	84	67	68.0	96.6	92.4	173	180	188	206	218	244	279
	90	72	72.0	103	99.0	186	193	202	220	234	262	299
	96	77	77.0	110	105	198	206	215	235	249	279	319
	100	80	80.0	116	110	210	218	227	247	261	291	331
100	75	60	60.7	86.2	82.5	155	161	168	184	195	218	249
	84	67	68.0	96.6	92.4	173	180	188	206	218	244	279
	90	72	72.0	103	99.0	186	193	202	220	234	262	299
	96	77	77.0	110	105	198	206	215	235	249	279	319

More detailed information on the TOV capability and the protective characteristics are given in Publ. 1HSM 9543 13-01en.

1) The continuous operating voltages U<sub>c</sub> (as per IEC) and MCOV (as per ANSI) differ only due to deviations in type test procedures.

U<sub>c</sub> has to be considered only when the actual system voltage is higher than the tabulated.

Any arrester with U<sub>c</sub> higher than or equal to the actual system voltage divided by  $\sqrt{3}$  can be selected.

2) With prior duty equal to the maximum single-impulse energy stress (2.5 kJ/kV (U<sub>p</sub>)).

3) Arresters for system voltages 36 kV or below can be supplied, on request, when the order also includes arresters for higher system voltages.

**Arresters with lower or higher rated voltages may be available on request for special applications.**

# PEXLIM R-Y

## Guaranteed protective data 123 - 170 kV

Max. system voltage	Rated voltage	Max. continuous operating voltage <sup>1)</sup>		TOV capability <sup>2)</sup>		Max. residual voltage with current wave						
		as per IEC	as per ANSI/IEEE	1 s	10 s	30/60 $\mu$ s			8/20 $\mu$ s			
						U <sub>c</sub>	MCOV	0.5 kA	1 kA	2 kA	5 kA	10 kA
U <sub>m</sub>	U <sub>r</sub>	U <sub>c</sub>	MCOV	1 s	10 s	0.5 kA	1 kA	2 kA	5 kA	10 kA	20 kA	40 kA
kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>rms</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>	kV <sub>peak</sub>
<b>123</b>	90	72	72.0	103	99.0	186	193	202	220	234	262	299
	96	77	77.0	110	105	198	206	215	235	249	279	319
	102	78	82.6	117	112	210	218	229	250	265	296	339
	108	78	84.0	124	118	223	231	242	264	280	314	359
	120	78	98.0	138	132	247	257	269	294	311	349	398
	132	78	106	151	145	272	283	296	323	342	383	438
	138	78	111	158	151	284	295	309	338	358	401	458
	144	78	115	165	158	297	308	323	352	373	418	478
<b>145</b>	108	86	86.0	124	118	223	231	242	264	280	314	359
	120	92	98.0	138	132	247	257	269	294	311	349	398
	132	92	106	151	145	272	283	296	323	342	383	438
	138	92	111	158	151	284	295	309	338	358	401	458
	144	92	115	165	158	297	308	323	352	373	418	478
<b>170</b>	132	106	106	151	145	272	283	296	323	342	383	438
	138	108	111	158	151	284	295	309	338	358	401	458
	144	108	115	165	158	297	308	323	352	373	418	478

More detailed information on the TOV capability and the protective characteristics are given in Publ. 1HSM 9543 13-01en.

- 1) The continuous operating voltages U<sub>c</sub> (as per IEC) and MCOV (as per ANSI) differ only due to deviations in type test procedures.  
 U<sub>c</sub> has to be considered only when the actual system voltage is higher than the tabulated.  
 Any arrester with U<sub>c</sub> higher than or equal to the actual system voltage divided by  $\sqrt{3}$  can be selected.

- 2) With prior duty equal to the maximum single-impulse energy stress (2.5 kJ/kV (U<sub>p</sub>)).

**Arresters with lower or higher rated voltages may be available on request for special applications.**

# PEXLIM R-Y

## Technical data for housings

Max. system voltage $U_m$	Rated voltage $U_r$	Housing	Creepage distance	External insulation *)				Dimensions				
				1.2/50 $\mu$ s dry $kV_{peak}$	50 Hz wet (60s) $kV_{rms}$	60 Hz wet (10s) $kV_{rms}$	250/2500 $\mu$ s wet $kV_{peak}$	Mass kg	$A_{max}$ mm	B mm	C mm	Fig.
24	18-27	YV024	1863	310	150	150	250	16	641	-	-	1
36	30-48	YV036	1863	310	150	150	250	15	641	-	-	1
52	42-60	YV052	1863	310	150	150	250	15	641	-	-	1
	66	YV052	2270	370	180	180	300	17	727	-	-	1
72	54-60	YH072	1863	310	150	150	250	15	641	-	-	1
	54-72	YV072	2270	370	180	180	300	17	727	-	-	1
	75-96	YV072	3726	620	300	300	500	27	1216	-	-	2
100	75-96	YV100	3726	620	300	300	500	27	1216	-	-	2
123	90	YH123	3726	620	300	300	500	29	1219	400	160	3
	96-120	YH123	3726	620	300	300	500	27	1216	-	-	2
	90-96	YV123	4133	680	330	330	550	31	1305	400	160	3
	102-132	YV123	4133	680	330	330	550	29	1302	-	-	2
	138-144	YV123	4540	740	360	360	600	30	1388	-	-	2
145	108	YH145	3726	620	300	300	500	29	1219	400	160	3
	120	YH145	3726	620	300	300	500	26	1216	-	-	2
	108	YV145	4540	740	360	360	600	33	1391	400	160	3
	120-144	YV145	4540	740	360	360	600	30	1388	-	-	2
170	132-144	YH170	4540	740	360	360	600	32	1391	400	160	3

### Neutral-ground arresters

52	30-36	YN052	1863	310	150	150	250	14	641	-	-	1
72	42-54	YN072	1863	310	150	150	250	14	641	-	-	1
100	60	YN100	1863	310	150	150	250	14	641	-	-	1
123	72	YN123	2270	370	180	180	300	16	727	-	-	1
	84-120	YN123	3726	620	300	300	500	25	1216	-	-	2
145	75-120	YN145	3726	620	300	300	500	25	1216	-	-	2
170	75-120	YN170	3726	620	300	300	500	25	1216	-	-	2

\*) Sum of withstand voltages for empty units of arrester.

# PEXLIM R-Y

Technical data for housings

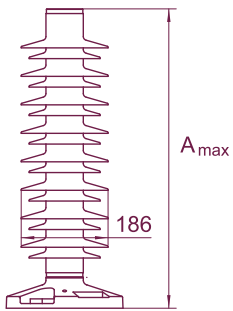


Figure 1

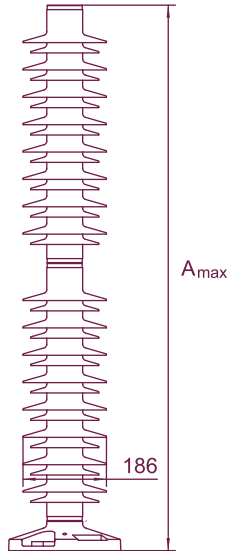


Figure 2

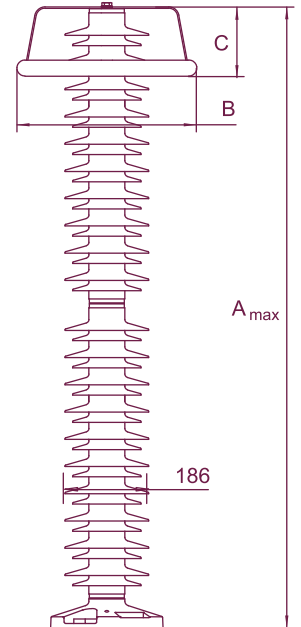
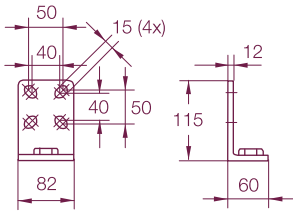


Figure 3

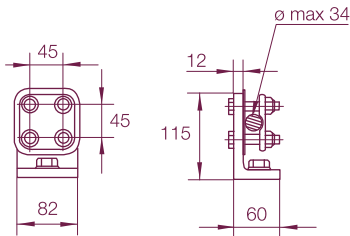
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## Accessories

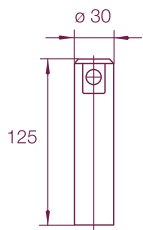
### Line terminals



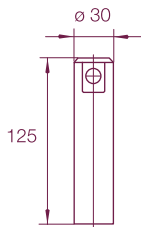
**1HSA410 000-L**  
Aluminium



**1HSA410 000-M**  
Aluminium flag with other  
items in stainless steel

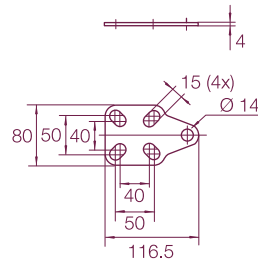


**1HSA410 000-N**  
Aluminium

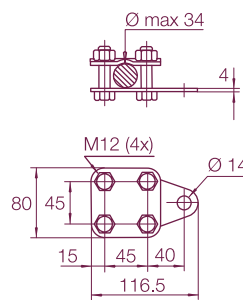


**1HSA410 000-P**  
Stainless steel

### Earth terminals

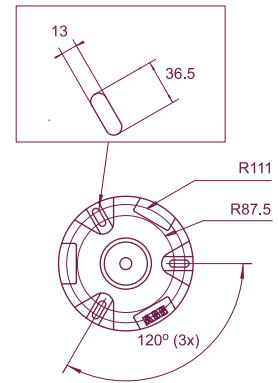
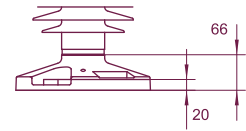


**1HSA420 000-A**  
Stainless steel

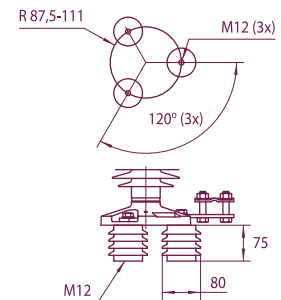


**1HSA420 000-B**  
Stainless steel

### Drilling plans



Without insulating base  
Aluminium



Insulating base  
**1HSA430 000-H**  
Epoxy resin

M12 bolts for connection to structure are not supplied by ABB. Required threaded grip length is 15-20 mm.

# PEXLIM R-Y

## Shipping data

Rated voltage  $U_r$  $kV_{rms}$	Housing	Number of arresters per crate					
		One Volume	Gross	Three Volume	Gross	Six Volume	Gross
		$m^3$	kg	$m^3$	kg	$m^3$	kg
18-27	YV024	0.5	35	0.5	65	0.9	110
30-48	YV036	0.5	36	0.5	68	0.9	116
42-60	YV052	0.5	36	0.5	68	0.9	116
66	YV052	0.5	38	0.5	74	0.9	128
54-60	YH072	0.5	36	0.5	68	0.9	116
54-72	YV072	0.5	38	0.5	74	0.9	128
75-96	YV072	0.7	51	0.7	103	1.2	181
75-96	YV100	0.7	51	0.7	103	1.2	181
90	YH123	0.7	53	0.7	109	1.2	193
96-120	YH123	0.7	52	0.7	106	1.2	187
90-96	YV123	0.7	55	0.7	115	1.2	205
102-132	YV123	0.7	54	0.7	112	1.2	199
138-144	YV123	0.9	61	0.9	123	1.5	216
108-120	YH145	0.7	54	0.7	112	1.2	199
108	YV145	0.9	62	0.9	126	1.5	222
120-144	YV145	0.9	61	0.9	123	1.5	216
132-144	YH170	0.9	63	0.9	129	1.5	228

### Neutral-ground arresters

30-36	YN052	0.5	36	0.5	68	0.9	116
42-54	YN072	0.5	36	0.5	68	0.9	116
60	YN100	0.5	36	0.5	68	0.9	116
72	YN123	0.5	38	0.5	74	0.9	128
84-120	YN123	0.7	52	0.7	106	1.2	187
75-120	YN145	0.7	52	0.7	106	1.2	187
75-120	YN170	0.7	52	0.7	106	1.2	187

Each crate contains a certain number of arrester units and accessories for assembly and erection. A packing list is attached externally on each crate.

Each separate crate is numbered and the numbers of all crates and their contents are listed in the shipping specifica-

tion. ABB reserves the right to pack arresters in the most effective/economic combination. Alternate or non-standard crates may involve additional charges.



The table above is to be seen as an approximation and specific data for deliveries may differ from the values given.

For more information please contact:

**ABB AB**  
**High Voltage Products**  
**Surge Arresters**

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[www.abb.com/arrestersonline](http://www.abb.com/arrestersonline)

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