

Zinc Oxide Surge Arrester PEXLIM R

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.



Brief performance data

| | |
|---|---------------------------|
| System voltages (U_m) | 24 - 170 kV |
| Rated voltages (U_r) | 18 - 144 kV |
| Nominal discharge current (IEC) | 10 kA _{peak} |
| Classifying current (ANSI/IEEE) | 10 kA _{peak} |
| Discharge current withstand strength: | |
| High current 4/10 μs | 100 kA _{peak} |
| Low current 2 000 μs | 600 A _{peak} |
| Energy capability: | |
| 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 _{sym} |
| External insulation | Fulfils/exceeds standards |
| Mechanical strength: | |
| Specified continuous load (SCL) | 1 000 Nm |
| Specified short-term load (SSL) | 1 600 Nm |
| Service conditions: | |
| Ambient temperature | -50 °C to +45 °C |
| Design altitude | max. 1 000 m |
| Frequency | 15 - 62 Hz |



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

Guaranteed protective data

| Max. System Voltage | Rated Voltage | Max. continuous operating voltage 1) | | TOV capability 2) | | Max. residual voltage with current wave | | | | | | |
|---------------------|---------------|--------------------------------------|---------------------------|--------------------------|---------------------------|---|----------------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | | as per IEC | | as per ANSI/IEEE | | 30/60 μ s | | | 8/20 μ s | | | |
| | | U_C kV _{rms} | MCOV kV _{rms} | 1 s kV _{rms} | 10 s kV _{rms} | 0.5 kA kV _{peak} | 1 kA kV _{peak} | 2 kA kV _{peak} | 5 kA kV _{peak} | 10 kA kV _{peak} | 20 kA kV _{peak} | 40 kA kV _{peak} |
| 24 ³⁾ | 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 ³⁾ | 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 | 75 | 60 | 60.7 | 86.2 | 82.5 | 155 | 161 | 168 | 184 | 195 | 218 |
| 100 | 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 |
| | 108 | 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 |
| | 145 | 108 | 86 | 86.0 | 124 | 118 | 223 | 231 | 242 | 264 | 280 | 314 |
| 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 |
| 170 | | 106 | 106 | 151 | 145 | 272 | 283 | 296 | 323 | 342 | 383 | 438 |
| 170 | 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_C (as per IEC) and MCOV (as per ANSI) differ only due to deviations in type test procedures.

U_C has to be considered only when the actual system voltage is higher than the tabulated.

Any arrester with U_C 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_T)).

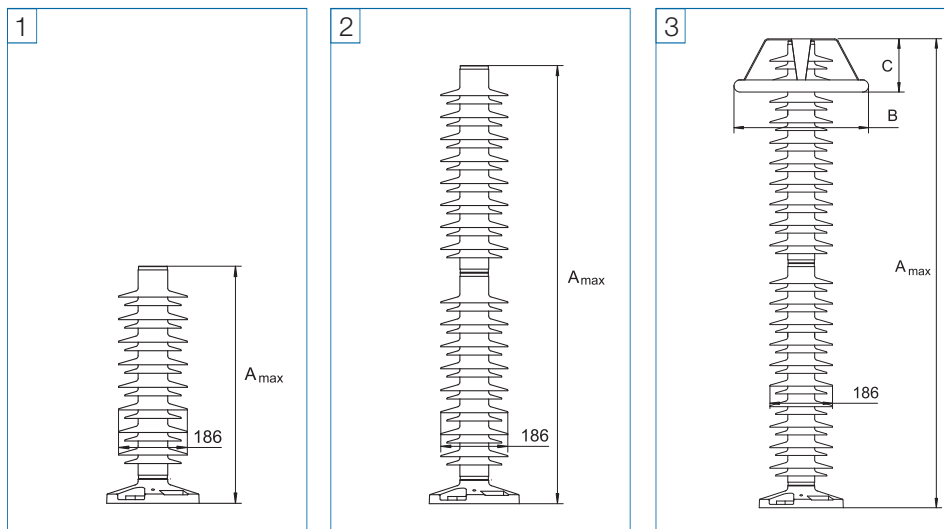
3) Arresters for system voltages 36 kV or below can be supplied, on request, when the order also includes arresters for higher system voltages.

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

Technical data for housings

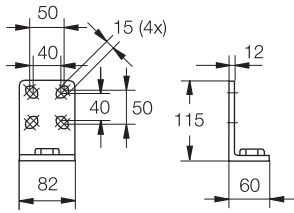
| Max. system voltage | Rated Voltage | Housing | Cree-page distance | External insulation | | | | Dimensions | | | | |
|---------------------------------|---------------|---------|--------------------|--------------------------------|----------------------------|----------------------------|----------------------------------|------------|-----------|-----|-----|------|
| | | | | 1.2/50 μ s dry kV_{peak} | 50 Hz wet (60s) kV_{rms} | 60 Hz wet (10s) kV_{rms} | 250/2500 μ s wet kV_{peak} | Mass kg | A_{max} | B | C | Fig. |
| 24 | 18-27 | YV024 | 1863 | 310 | 150 | 150 | 250 | 13 | 641 | - | - | 1 |
| | 36 | YV036 | 1863 | 310 | 150 | 150 | 250 | 14 | 641 | - | - | 1 |
| 52 | 42-60 | YV052 | 1863 | 310 | 150 | 150 | 250 | 14 | 641 | - | - | 1 |
| | 66 | YV052 | 2270 | 370 | 180 | 180 | 300 | 16 | 727 | - | - | 1 |
| 72 | 54-60 | YH072 | 1863 | 310 | 150 | 150 | 250 | 14 | 641 | - | - | 1 |
| | 54-72 | YV072 | 2270 | 370 | 180 | 180 | 300 | 16 | 727 | - | - | 1 |
| | 75-96 | YV072 | 3726 | 620 | 300 | 300 | 500 | 24 | 1216 | - | - | 2 |
| 100 | 75-96 | YV100 | 3726 | 620 | 300 | 300 | 500 | 24 | 1216 | - | - | 2 |
| 123 | 90 | YH123 | 3726 | 620 | 300 | 300 | 500 | 26 | 1236 | 400 | 160 | 3 |
| | 96-120 | YH123 | 3726 | 620 | 300 | 300 | 500 | 25 | 1216 | - | - | 2 |
| | 90-96 | YV123 | 4133 | 680 | 330 | 330 | 550 | 28 | 1322 | 400 | 160 | 3 |
| | 102-132 | YV123 | 4133 | 680 | 330 | 330 | 550 | 27 | 1302 | - | - | 2 |
| | 138-144 | YV123 | 4540 | 740 | 360 | 360 | 600 | 29 | 1388 | - | - | 2 |
| 145 | 108 | YH145 | 3726 | 620 | 300 | 300 | 500 | 27 | 1236 | 400 | 160 | 3 |
| | 120 | YH145 | 3726 | 620 | 300 | 300 | 500 | 25 | 1216 | - | - | 2 |
| | 108 | YV145 | 4540 | 740 | 360 | 360 | 600 | 30 | 1408 | 400 | 160 | 3 |
| | 120-144 | YV145 | 4540 | 740 | 360 | 360 | 600 | 29 | 1388 | - | - | 2 |
| 170 | 132-144 | YH170 | 4540 | 740 | 360 | 360 | 600 | 31 | 1408 | 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.

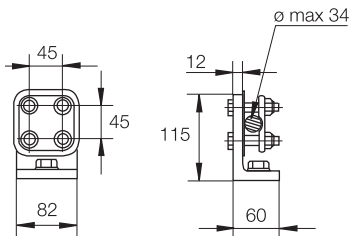


Accessories

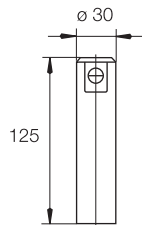
Line terminals



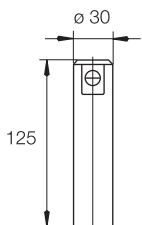
1HSA410 000-L
Aluminium



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

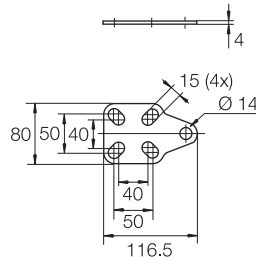


1HSA410 000-N
Aluminium

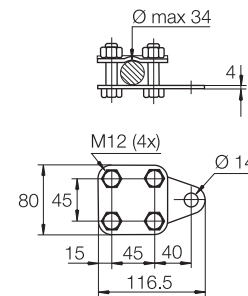


1HSA410 000-P
Stainless steel

Earth terminals



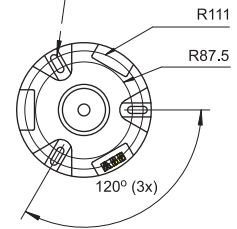
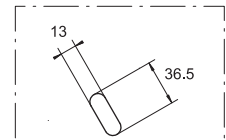
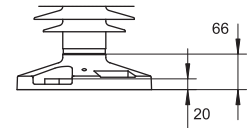
1HSA420 000-A
Stainless steel



1HSA420 000-B
Stainless steel

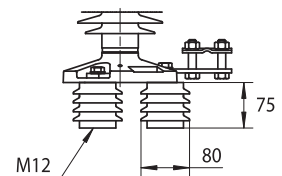
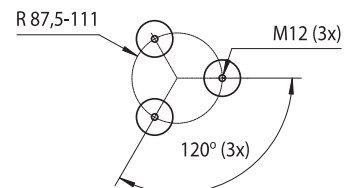
Drilling plans

Without insulating base



Aluminium

With 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.

Shipping data

| Rated Voltage U_r kV _{rms} | Housing | Number of arresters per crate | | | | | |
|---|---------|-------------------------------|-------------|--------------------------|-------------|--------------------------|-------------|
| | | One | | Three | | Six | |
| | | Volume m ³ | Gross kg | Volume m ³ | Gross kg | Volume m ³ | Gross 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 |
| 108-120 | YH145 | 0.7 | 54 | 0.7 | 112 | 1.2 | 199 |
| 138-144 | YV123 | 0.9 | 61 | 0.9 | 123 | 1.5 | 216 |
| 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 specification. 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.