# NH Renew Platform - Innovative Materials

- Aluminum contacts and cover plates:
  Aluminum is the third most abundant element in the earth's crust. It is the most common metal on earth, 800 times more common than copper.




- Ceramics fuse-link body:
  100% natural material.

- Through-lay fuse-element:
  Copper is 860 times more abundant element than silver.

- Various connection types
  U-screw
  S-screw
  E-screw
  G-flush end

- Certificates pending
  UL recognized
  IEC CB

- Microswitch available
  Designed and developed by ETI




- NH RENEW platform includes 4 patents
  - Aluminum contacts
    Specially shaped fastener and contact designed in one piece
  - M-effect in combination with through-lay
    Enables full-range characteristics
  - Position of fuse-elements
    Increased breaking capacity
  - Fuse-element
    Patented design of specially shaped fuse-elements which improves cycling operation



# NH 3L aR / aBat Fuse-Link 1500V d.c.

## General characteristics

| | |
|---|---|
| Rated voltage | 1500V d.c., L/R=3ms |
| Rated current | 315 - 1250A |
| Breaking capacity | 250kA |
| Characteristic | aR, aBat |
| Standard | IEC 60269-4, IEC 60269-7, UL 248-13, UL248-21 |
| Application | For Ultra Quick protection in DC systems. |

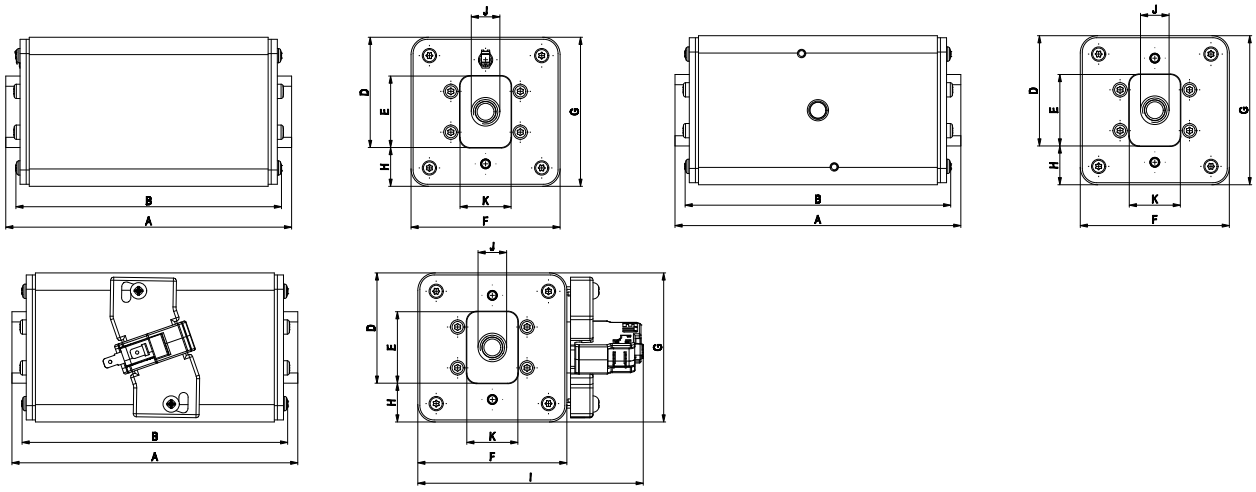
## NH aR / aBat fuse-link 1500V d.c.

| Size | $I_n$ [A] | $S_{170}$ screw contact | $U_{170}$ screw contact | $E_{170}$ screw contact | $G_{140}$ flush end contact | Pre-arcing Joule integral [$A^2s$] | Operating Joule integral [$A^2s$] | Power dissipation [0,7 x $I_n$] Pd [W] | Power dissipation [$I_n$] Pd [W] | g | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NH3L | 315 | 004109000 | 004109020 | 004109120 | 004109040 | 70.000 | 630.000 | 25,6 | 68 | 1615 | 1/9 |
| | 350 | 004109001 | 004109021 | 004109121 | 004109041 | 125.000 | 1.125.000 | 25,4 | 64 | | |
| | 400 | 004109002 | 004109022 | 004109122 | 004109042 | 150.000 | 1.350.000 | 31,2 | 82 | | |
| | 450 | 004109003 | 004109023 | 004109123 | 004109043 | 130.000 | 1.170.000 | 28,9 | 73 | | |
| | 500 | 004109004 | 004109024 | 004109124 | 004109044 | 215.000 | 1.935.000 | 27,5 | 67 | | |
| | 630 | 004109005 | 004109025 | 004109125 | 004109045 | 290.000 | 2.610.000 | 38,2 | 98 | | |
| | 750 | 004109006 | 004109026 | 004109126 | 004109046 | 380.000 | 3.012.000 | 53,9 | 147 | | |
| | 800 | 004109007 | 004109027 | 004109127 | 004109047 | 430.000 | 3.365.000 | 60,9 | 170 | | |
| | 900 | 004109008 | 004109028 | 004109128 | 004109048 | 475.000 | 3.620.000 | 78,6 | 239 | | |
| | 1000 | 004109009 | 004109029 | 004109129 | 004109049 | 530.000 | 3.760.000 | 93,8 | 300 | | |
| | 1100 | 004109010 | 004109030 | 004109130 | 004109050 | 670.000 | 3.900.000 | 109,3 | 375 | | |
| | 1250 | 004109011 | 004109031 | 004109131 | 004109051 | 740.000 | 4.683.000 | - | - | | |
| NH3L type with microswitch | 315 | 004109060 | 004109080 | 004109140 | 004109100 | 70.000 | 630.000 | 25,6 | 68 | | |
| | 350 | 004109061 | 004109081 | 004109141 | 004109101 | 125.000 | 1.125.000 | 25,4 | 64 | | |
| | 400 | 004109062 | 004109082 | 004109142 | 004109102 | 150.000 | 1.350.000 | 31,2 | 82 | | |
| | 450 | 004109063 | 004109083 | 004109143 | 004109103 | 130.000 | 1.170.000 | 28,9 | 73 | | |
| | 500 | 004109064 | 004109084 | 004109144 | 004109104 | 215.000 | 1.935.000 | 27,5 | 67 | | |
| | 630 | 004109065 | 004109085 | 004109145 | 004109105 | 290.000 | 2.610.000 | 38,2 | 98 | | |
| | 750 | 004109066 | 004109086 | 004109146 | 004109106 | 380.000 | 3.012.000 | 53,9 | 147 | | |
| | 800 | 004109067 | 004109087 | 004109147 | 004109107 | 430.000 | 3.365.000 | 60,9 | 170 | | |
| | 900 | 004109068 | 004109088 | 004109148 | 004109108 | 475.000 | 3.620.000 | 78,6 | 239 | | |
| | 1000 | 004109069 | 004109089 | 004109149 | 004109109 | 530.000 | 3.760.000 | 93,8 | 300 | | |
| | 1100 | 004109070 | 004109090 | 004109150 | 004109110 | 670.000 | 3.900.000 | 109,3 | 375 | | |
| | 1250 | 004109071 | 004109091 | 004109151 | 004109111 | 740.000 | 4.683.000 | - | - | | |

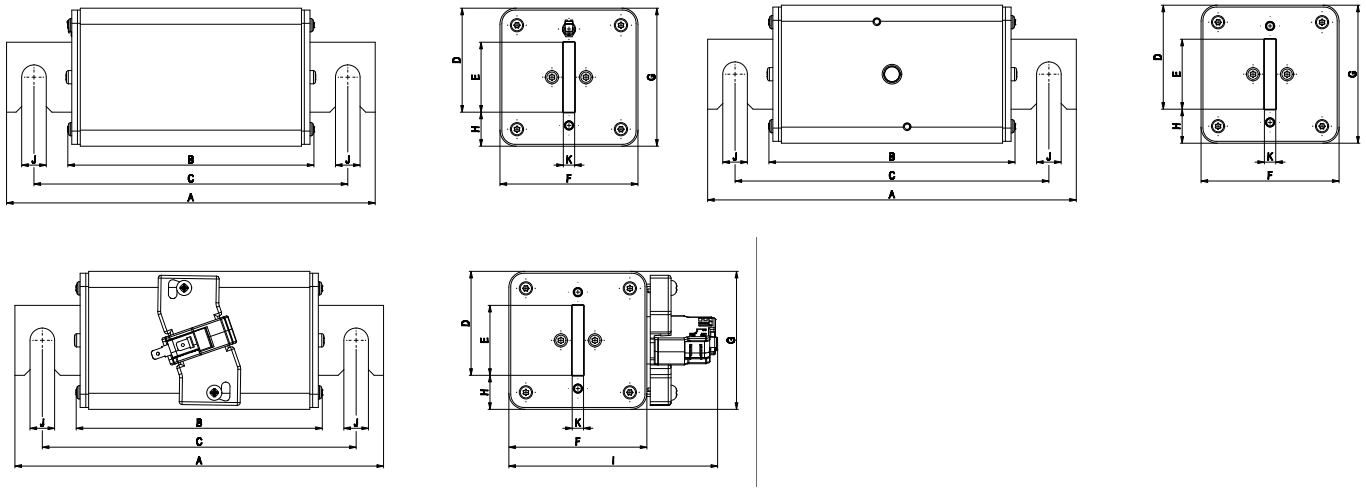
## Accessories

| Type | Max. current | Voltage range | Connection | Conection type | Code No. | g | |
|---|---|---|---|---|---|---|---|
| Microswitch | 5A | 250V a.c. | Fast-on terminals 6,3x0,8mm | C, NO, NC | 422334100 | 15 | 12 |

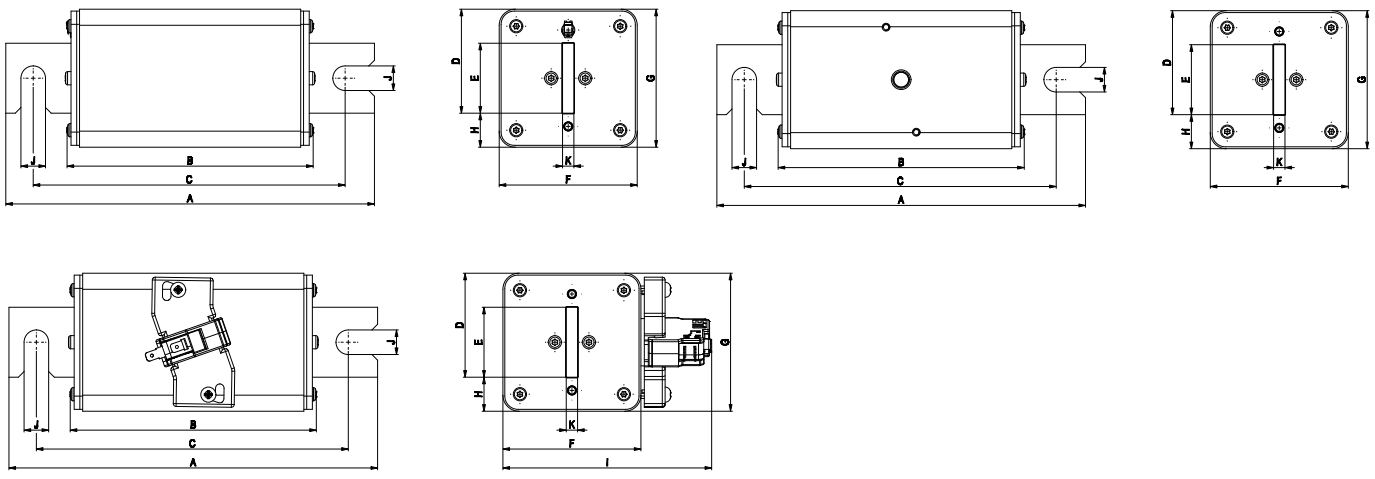
NH3L G$_{140}$



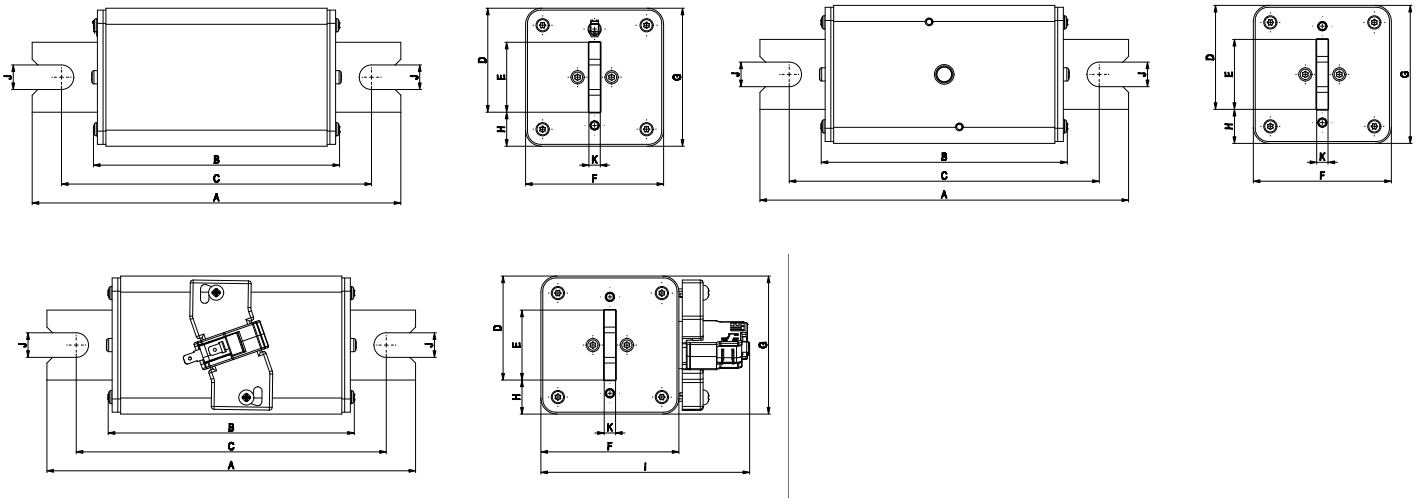

NH3L E$_{170}$



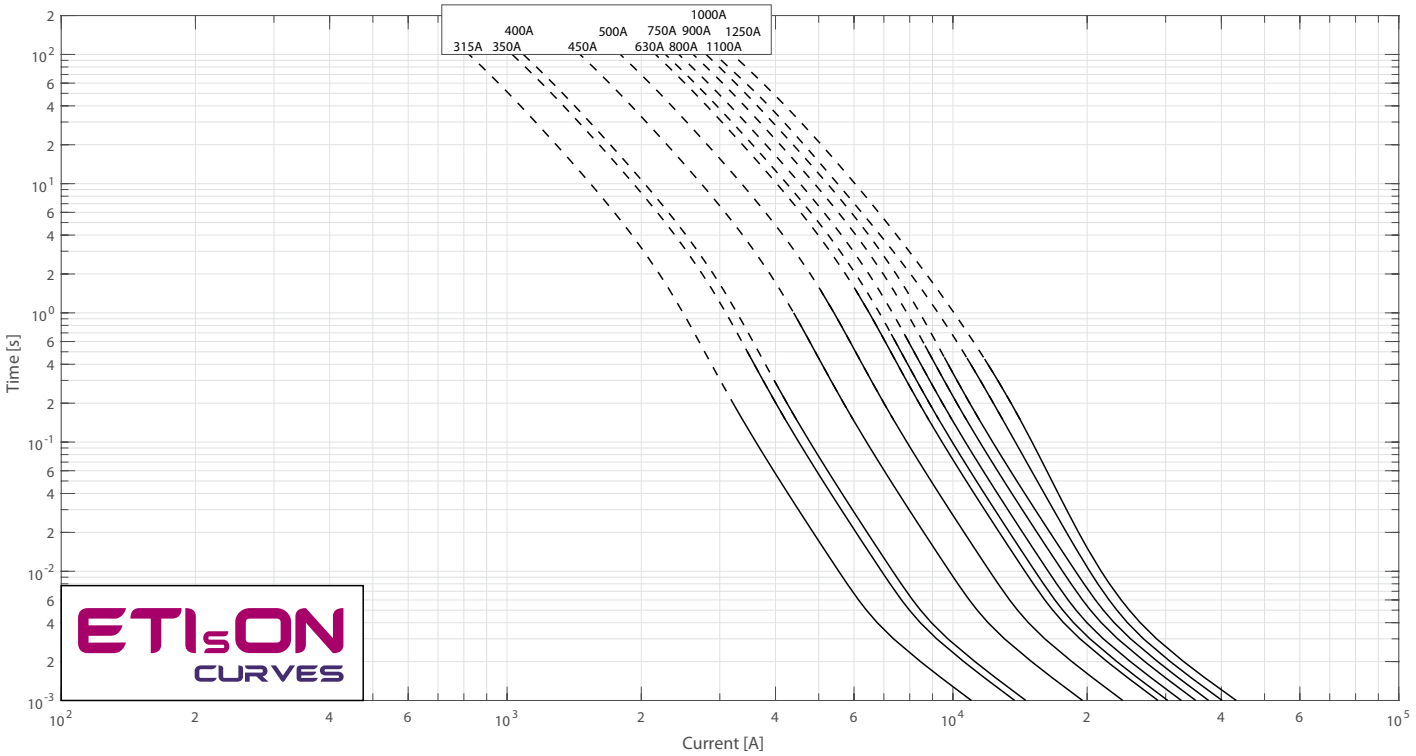

NH3L S$_{170}$



NH3L U$_{170}$



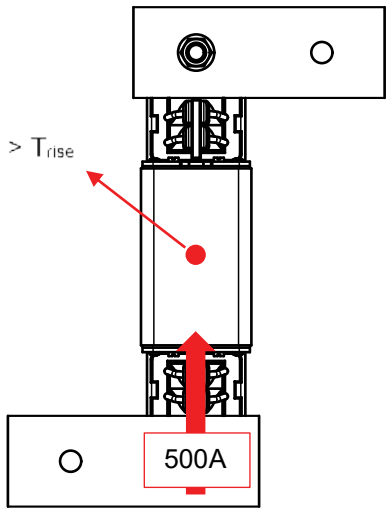

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NH3L S,U | 195 | 130 | 165 | 55 | 37 | 73 | 73 | 18 | 111 | 13 | 6 |
| NH3L G | 140 | 130 | / | 54 | 35 | 73 | 73 | 19 | 111 | M12 | 25 |

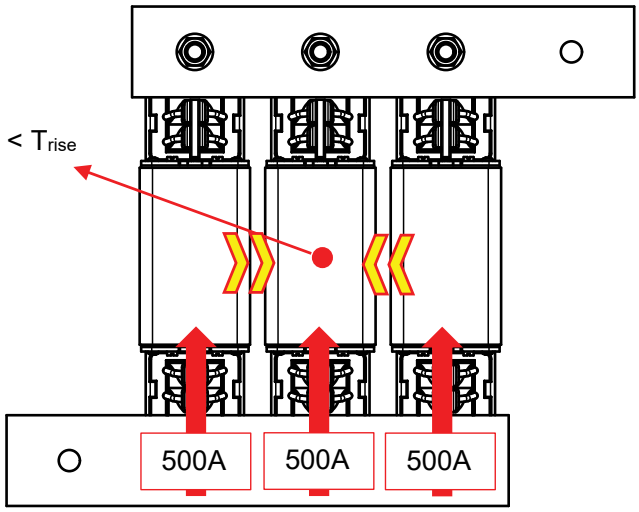


# Parallel connection of fuse-links to increase the rated current

Rules for parallel connection of fuse-links:

- The fuse-links have to be the same type, size, and rating.
- The combination of parallel fuses must be selected by the manufacturer.
- The current rating of parallel-connected fuse-links is lower than the sum of the single fuse-links ($n \times I_n > I_{n\ parallel}$).
- The current distribution on all parallel fuse-links must be the same.
- Parallel fuse-links must be connected as prescribed by the manufacturer.
- The incoming and outgoing connection must have prescribed cross-section.
- The values of power dissipation are equal to the sum of values of power dissipation of a single fuse-link.
- The Pre-arcing
- Joule integral is approximately equal to $n^2 \times I^2t_{[single\ fuse\text{-}link]}$.
- Breaking capacity is not larger than I1 of a single fuse-link.
- The cut-off current is approximately equal $n \times I_{cut\text{-}off\ [single\ fuse\text{-}link]}$.
- The temperature rise of each parallel fuse-links is higher than the temperature rise of single fuse-link.




**Parallel solutions**

| Type | Code No. |
|---|---|
| NH 550V | On request |
| NH 700V | |
| NH 800V | |
| NH 1000V | |
| NH 1100V | |
| NH 1500V | |