

Bussmann®

D & DO LOW VOLTAGE FUSE SYSTEM



COOPER Bussmann

Bussmann®

CIRCUIT PROTECTION SOLUTIONS

Bussmann are one of the world's leading suppliers of fuses and fusible protection systems. Provider of the world's first truly global product line, each product is backed by an efficient world-wide distribution network service and unrivalled technical support. Bussmann circuit protection solutions comply with major international standards: BS, IEC, DIN and UL.

A comprehensive range of circuit protection solutions fused and non-fused.

D&D0 - 2004

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NH FUSE SYSTEM



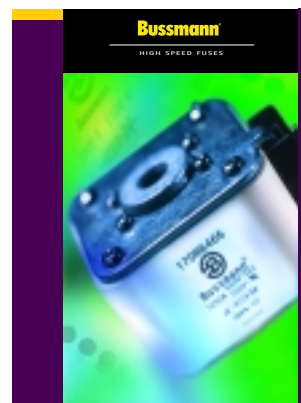
LOW VOLTAGE FUSE LINKS



IEC BUSBAR FUSE SYSTEM



IEC CYLINDRICAL FUSE SYSTEM



HIGH SPEED FUSES



HIGH VOLTAGE PRODUCTS

Your Representative

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D0 FUSE LINKS

D0 fuse-links are used as the most reliable protection of electro installation, control and signal circuits against overload and short-circuit currents. The whole system D0 contains a complete range of fuse-links, standard ceramic and new plastic bases, fuse disconnectors and all necessary accessories. It is dimensioned for rated voltages 400 V a.c. resp. 250 V d.c. The system D0 is intended to be used in residential, business and similar buildings. When it is used in industrial plants, it is necessary to take into account the requirements of the standard IEC 60664-1 concerning the air insulation distances, creeping distances and mounting distances.

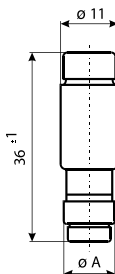
Advantages of D0 are the following:

- low power loss
- cooler running
- saving of storage and mounting place
- constant quality control of parts and final products

Technical data:

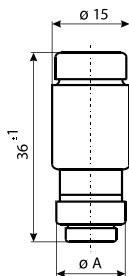
| | |
|---|--|
| Rated voltage U_N | 400V; 250V AC |
| Rated current I_N | DO1 2 - 16 A, DO2 20 - 63 A, D03 80 - 100 A |
| Breaking capacity at 1, 1 U_N | 50 kA $\cos\phi = 0,1$ 8 kA $\text{--- } T = 15 \text{ ms}$ |
| Fusing characteristics Standards | gG - gL IEC 60269, EN 60269, DIN VDE 0636, DIN EN 60269-1 (VDE 0636 Teil 10), DIN EN 60269-3 (VDE 0636 Teil 30), DIN VDE 0636-301, IEC 60269-1,3 EN 60269-1,3 SIST EN 60269 |

Fuse-Links D01 gG (gL) for fuse base E 14



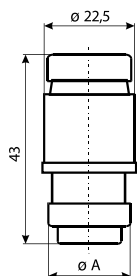
| I_N (A) | colour | part No. | weight (g) | packaging (pcs) | dimension (ØA) |
|-----------|--------|----------|------------|-----------------|----------------|
| 2 | pink | 2NZ01 | 6 | 10/500 | 7.3 |
| 4 | brown | 4NZ01 | 6 | 10/500 | 7.3 |
| 6 | green | 6NZ01 | 6 | 10/500 | 7.3 |
| 10 | red | 10NZ01 | 6 | 10/500 | 8.5 |
| 13 | black | 13NZ01 | 6 | 10/500 | 8.5 |
| 16 | grey | 16NZ01 | 6 | 10/500 | 9.7 |

Fuse-Links D02 gG (gL) for fuse base E 18



| I_N (A) | colour | part No. | weight (g) | packaging (pcs) | dimension (ØA) |
|-----------|--------|----------|------------|-----------------|----------------|
| 20 | blue | 20NZ02 | 11 | 10/500 | 10.9 |
| 25 | yellow | 25NZ02 | 12 | 10/500 | 12.1 |
| 32 | black | 32NZ02 | 13 | 10/500 | 13.3 |
| 35 | white | 35NZ02 | 13 | 10/500 | 13.3 |
| 40 | black | 40NZ02 | 13 | 10/500 | 13.3 |
| 50 | white | 50NZ02 | 13 | 10/500 | 14.5 |
| 63 | copper | 63NZ02 | 15 | 10/500 | 15.9 |

Fuse-Links D03 gG (gL) for fuse base M 30 x 2



| I_N (A) | colour | part No. | weight (g) | packaging (pcs) | dimension (ØA) |
|-----------|--------|----------|------------|-----------------|----------------|
| 80 | silver | 80NZ03 | 35 | 10 | 21.4 |
| 100 | red | 100NZ03 | 35 | 10 | 21.4 |

D0 FUSE BASES

Application

The D0 fuse bases are designed for use in distribution boxes in domestic and public buildings. Total security against live parts is achieved by installing D0 fuse bases into the distribution boxes.

























Advantages

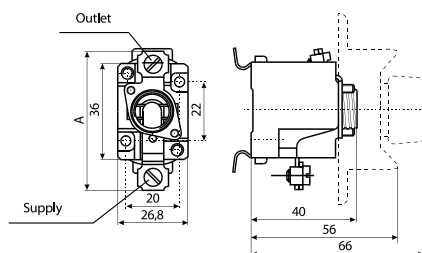
- modular construction-module 9 mm
- smaller weight and smaller height (66 mm) provide installation into the flush-mounting distribution boxes, the depth of which is 80 mm only
- by the aid of gauge-piece key it is possible to change the gauge rings
- the possibility of simple substitution of base D0 1 with D0 2.

Technical data:

























| | |
|---|---|
| Rated voltage U_N | 400 V |
| Rated current I_N | D01 16 A, D02 63 A |
| Cross-section of connecting lead Standards | D01 1-4 mm 2 D02 1,5-25 mm 2 IEC 60269, EN 60269, DIN VDE 0636, SIST EN 60269 |

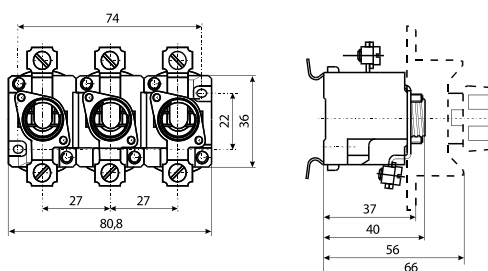
Single-pole fuse bases D0

| type | part No. | $I_N(A)$ | screw | with protection cover | without protection cover | click-on mounting | screw mounting | connections outlet | connections supply | cross-section of connecting lead (mm ²) | dimens. A (mm) | weight (g) | packaging (pcs) |
|-------------|-----------|----------|-------|-----------------------|--------------------------|-------------------|----------------|---|--|---|----------------|------------|-----------------|
| D01N - K | FRN01C | 16 | E14 | x | | X | |  |  | 1.5 - 4 | 53 | 68 | 15/300 |
| D01V - K | FN01C | 16 | E14 | x | | | X |  |  | 1.5 - 4 | 53 | 66 | 15/300 |
| D02N - K | FRN02C | 63 | E18 | x | | X | |  |  | 2.5 - 25 | 57 | 87 | 15/300 |
| D02V - K | FN02C | 63 | E18 | x | | | X |  |  | 2.5 - 25 | 57 | 80 | 15/300 |
| D02N M6 - K | FRN02C-A | 63 | E18 | x | | X | |  |  | 2.5 - 25 | 57 | 82 | 15/300 |
| D02V M6 - K | FRN02C-SA | 63 | E18 | x | | | X |  |  | 2.5 - 25 | 57 | 80 | 15/300 |
| D01N | FRN01-B | 16 | E14 | | x | X | |  |  | 1.5 - 4 | 53 | 56 | 15/300 |
| D01V | FRN01-SB | 16 | E14 | | x | | X |  |  | 1.5 - 4 | 53 | 59 | 15/300 |
| D02N | FRN02-D | 63 | E18 | | x | X | |  |  | 2.5 - 25 | 57 | 80 | 15/300 |
| D02V | FRN02-SD | 63 | E18 | | x | | X |  |  | 2.5 - 25 | 57 | 77 | 15/300 |
| D02N M6 | FRN02-E | 63 | E18 | | x | X | |  |  | 2.5 - 25 | 57 | 75 | 15/300 |
| D02V M6 | FRN02-SE | 63 | E18 | | x | | X |  |  | 2.5 - 25 | 57 | 72 | 15/300 |



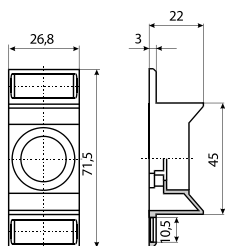
Three-pole fuse bases D0

| type | part No. | $I_N(A)$ | screw | with protection cover | without protection cover | click-on mounting | screw mounting | connections outlet | connections supply | cross-section of connecting lead (mm ²) | dimens. A (mm) | weight (g) | packaging (pcs) |
|---------------|------------|----------|-------|-----------------------|--------------------------|-------------------|----------------|---|--|---|----------------|------------|-----------------|
| D01N/3 - K | TFRN01C | 16 | E14 | x | | X | |  |  | 1.5 - 4 | 53 | 216 | 5/100 |
| D01V/3 - K | TFN01C | 16 | E14 | x | | | X |  |  | 1.5 - 4 | 53 | 187 | 5/100 |
| D02N/3 - K | TFRN02C | 63 | E18 | x | | X | |  |  | 2.5 - 25 | 57 | 252 | 5/100 |
| D02V/3 - K | TFN02C | 63 | E18 | x | | | X |  |  | 2.5 - 25 | 57 | 246 | 5/100 |
| D02N/3 M6 - K | TFRN02C-A | 63 | E18 | x | | X | |  |  | 2.5 - 25 | 57 | 237 | 5/100 |
| D02V/3 M6 - K | TFRN02C-SA | 63 | E18 | x | | | X |  |  | 2.5 - 25 | 57 | 231 | 5/100 |
| D01N/3 | TFRN01-B | 16 | E14 | | x | X | |  |  | 1.5 - 4 | 53 | 176 | 5/100 |
| D01V/3 | TFRN01-SB | 16 | E14 | | x | | X |  |  | 1.5 - 4 | 53 | 170 | 5/100 |
| D02N/3 | TFRN02-D | 63 | E18 | | x | X | |  |  | 2.5 - 25 | 57 | 235 | 5/100 |
| D02V/3 | TFRN02-SD | 63 | E18 | | x | | X |  |  | 2.5 - 25 | 57 | 229 | 5/100 |
| D02N/3 M6 | TFRN02-E | 63 | E18 | | x | X | |  |  | 2.5 - 25 | 57 | 220 | 5/100 |
| D02V/3 M6 | TFRN02-SE | 63 | E18 | | x | | X |  |  | 2.5 - 25 | 57 | 214 | 5/100 |



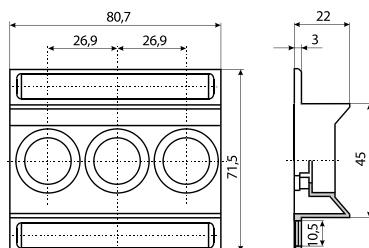
PROTECTION COVER FOR D0 FUSE BASES

D01, D02



| type | for fuse base | part No. | weight (g) | packaging (pcs) |
|------|---------------|----------|------------|-----------------|
| D01 | D01V, D01N | SFPCD01 | 8 | 50/700 |
| D02 | D02V, D02N | SFPCD02 | 8 | 50/700 |

D01/3, D02/3



| type | for fuse base | part No. | weight (g) | packaging (pcs) |
|-------|----------------|----------|------------|-----------------|
| D01/3 | D01V/3, D01N/3 | TFPCD01 | 17 | 14/280 |
| D02/3 | D02V/3, D02N/3 | TFPCD02 | 16 | 14/280 |

PLASTIC BASE PPD01 AND PPD02

- 1: PPD01 for fuse links D01, 2 - 16A 400V a.c.
2: PPD02 for fuse links D02, 20 - 63A 400V a.c.

Standards

IEC 60269, EN 60269, DIN, VDE 0636

Application

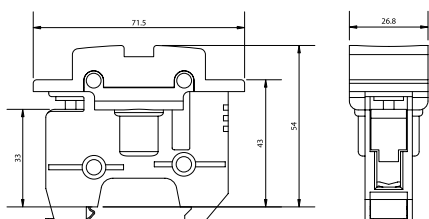
They are mainly intended for distribution boxes in dwellings, office blocks and schools.

Total security against live parts is achieved by installing D0 fuse bases into the distribution boxes type DIDO.

Advantages

- Connection at the input is possible with a clamp or with a screw, at the output it is possible to connect with a clamp
- Mounting is on a standard DIN rail 35 mm (EN 50 022 and DIN EN 60715)
- Temperature resistant material
- Smaller weight of the product
- Layout is adjusted for modern built in devices.

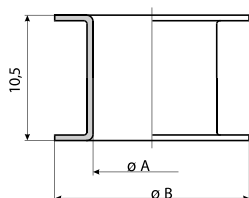
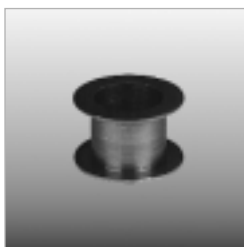
Models: Single and three-pole version.



| type | number of poles | I _N (A) | part No. | weight (g) | packaging (pcs) |
|---------|-----------------|--------------------|----------|------------|-----------------|
| PPD01-1 | 1 | 16 | DD01-1 | 70 | 15 |
| PPD01-3 | 3 | 16 | DD01-3 | 220 | 3 |
| PPD02-1 | 1 | 63 | DD02-1 | 86 | 15 |
| PPD02-3 | 3 | 63 | DD02-3 | 270 | 3 |

GAUGE PIECES

V D01 for fuse base E 14

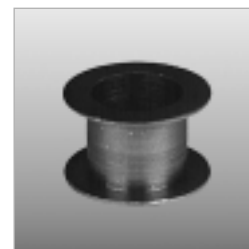
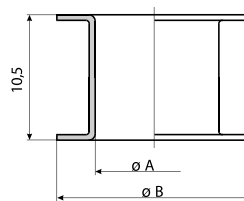


| I _N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension (ØA) | dimension (ØB) |
|--------------------|----------|--------|------------|-----------------|----------------|----------------|
| 2 | 2GN01 | 1001 | pink | 1 50/500 | 7.9 | 12 |
| 4 | 4GN01 | 1002 | brown | 1 50/500 | 7.9 | 12 |
| 6 | 6GN01 | 1003 | green | 1 50/500 | 7.9 | 12 |
| 10 | 10GN01 | 1004 | red | 1 50/500 | 9.1 | 12 |

V D02 for fuse base E 18

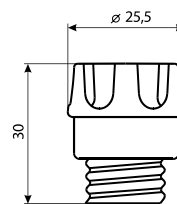
| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension (ØA) | dimension (ØB) |
|-----------|----------|--------|------------|-----------------|----------------|----------------|
| 2* | 2GN02 | pink | 1 | 50/500 | 7.9 | 16.6 |
| 4* | 4GN02 | brown | 1 | 50/500 | 7.9 | 16.6 |
| 6* | 6GN02 | green | 1 | 50/500 | 7.9 | 16.6 |
| 10* | 10GN02 | red | 1 | 50/500 | 9.1 | 16.6 |
| 16* | 16GN02 | grey | 1 | 50/500 | 10.3 | 16.6 |
| 20 | 20GN02 | blue | 1 | 50/500 | 11.5 | 16.6 |
| 25 | 25GN02 | yellow | 1 | 50/500 | 12.7 | 16.6 |
| 35 | 35GN02 | black | 1 | 50/500 | 13.9 | 16.6 |
| 50 | 50GN02 | white | 1 | 50/500 | 15.1 | 16.6 |

* for using fuse links D01 and fuse bases D02



Fuse carriers D0

| type | part No. | screw | weight (g) | packaging (pcs) |
|--------|----------|-------|------------|-----------------|
| KN D01 | CN01 | E 14 | 14 | 20/500 |
| KN D02 | CN02 | E 18 | 17 | 20/500 |



Special holder

| part No. | weight (g) | packaging (pcs) |
|----------|------------|-----------------|
| DO-SFH | 1 | 25/300 |



Gauge piece key

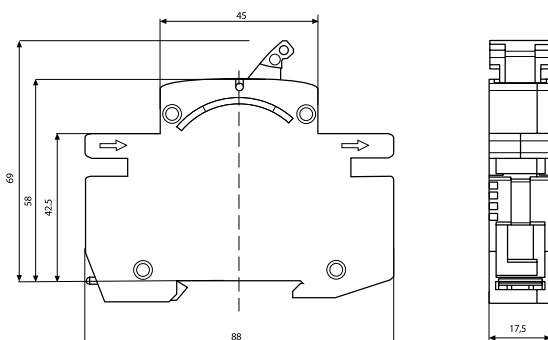
| part No. | weight (g) | packaging (pcs) |
|----------|------------|-----------------|
| D0-GPK | 17 | 20/120 |



FUSE-SWITCH DISCONNECTOR VLD01

Fuse switch disconnecter is a protection device with an exchangeable holder. This system enables the following protecting advantages, concerning the DO fuse:

- Replacement of the fuse-link can be done with a mobile holder, without danger of direct contact to the live parts.
- The device can be switched on without screwing, contact pressure is applied automatically by a spring.
- Complete protection against touch by VBG 4.
- In position 1 and 0, the fuse-link operation indicator is visible through a transparent window.



Operating Principles of VLD01

Exchangeable holder for fuse-links D01 (2A to 6A, 10A, 16A) has also the function of a switch lever, to switch on and off the VLD01. The exchangeable holder can be replaced with an additional tool and it is used for mounting on the carrier rail according to EN 50 002 and DIN EN 60715 standards, in a way that the stopper is below.

Technical data:

| | |
|---|---------------------------|
| Rated voltage U_N | 230V, 230/400V, 400V a.c. |
| Rated current I_N | 2- 6A, 10A, 16A |
| Rated frequency f_N | 45-62 Hz |
| Utilization category | AC22 |
| Mechanical life | 10.000 cycles |
| Electrical life | 5.000 cycles |
| Poles | 1p, 1p+N, 2p, 3p, 3p+N |
| Standards | VDE 0638, DIN 43880 |
| Connection | 25mm ² |

VLD01 1P


| I_N (A) | U_N (V) | part No. | weight (g) | packaging (pcs) |
|-----------|-----------|-------------|------------|-----------------|
| 6 | 230/400 | VLD01-1P6A | 67 | 10/100 |
| 10 | 230/400 | VLD01-1P10A | 67 | 10/100 |
| 16 | 230/400 | VLD01-1P16A | 67 | 10/100 |

VLD01 1P+N


| I_N (A) | U_N (V) | part No. | weight (g) | packaging (pcs) |
|-----------|-----------|--------------|------------|-----------------|
| 6 | 230 | VLD01-1PN6A | 135 | 5/50 |
| 10 | 230 | VLD01-1PN10A | 135 | 5/50 |
| 16 | 230 | VLD01-1PN16A | 135 | 5/50 |

VLD01 2P

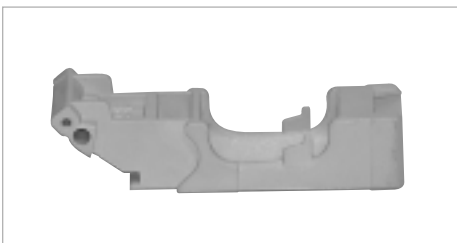

| I_N (A) | U_N (V) | part No. | weight (g) | packaging (pcs) |
|-----------|-----------|-------------|------------|-----------------|
| 6 | 400 | VLD01-2P6A | 135 | 5/50 |
| 10 | 400 | VLD01-2P10A | 135 | 5/50 |
| 16 | 400 | VLD01-2P16A | 135 | 5/50 |

VLD01 3P


| I_N (A) | U_N (V) | part No. | weight (g) | packaging (pcs) |
|-----------|-----------|-------------|------------|-----------------|
| 6 | 400 | VLD01-3P6A | 203 | 3/30 |
| 10 | 400 | VLD01-3P10A | 203 | 3/30 |
| 16 | 400 | VLD01-3P16A | 203 | 3/30 |

VLD01 3P+N


| I_N (A) | U_N (V) | part No. | weight (g) | packaging (pcs) |
|-----------|-----------|--------------|------------|-----------------|
| 6 | 400 | VLD01-3PN6A | 270 | 2/20 |
| 10 | 400 | VLD01-3PN10A | 270 | 2/20 |
| 16 | 400 | VLD01-3PN16A | 270 | 2/20 |

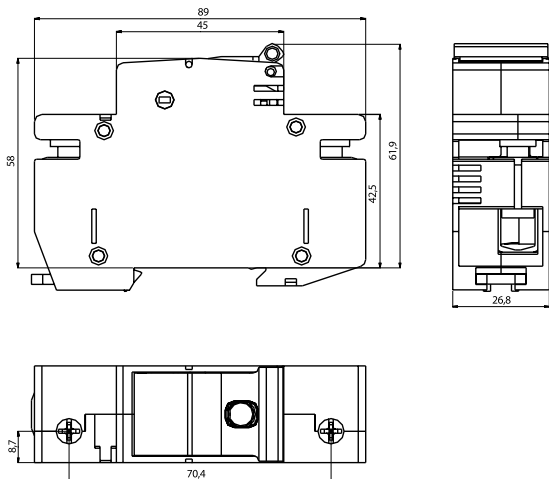
Accessories


| accessories | part No. | weight (g) | packaging (pcs) |
|-------------|----------|------------|-----------------|
| holder/2-6A | D012-6A | 6 | 15/600 |
| holder/10A | D0110A | 6 | 15/600 |
| holder/16A | D0116A | 6 | 15/600 |

SWITCH - DISCONNECTOR - FUSE STVD02

Switch disconnecter Fuse is a device which combines the functions of the switch and of the fuse D0. The system enables the following advantages of protection in comparison with the fuse D0:

- The changing of the fuse link without danger of direct touch of live parts.
- Snap-on mounting on rail according to VOK 50022 and DIN EN 60715.
- The complete protection against touch according to VBG 4.
- The possibility of connecting supply from the upper or from the lower side.
- It can be used as a main switch and tariff fuse in a single device.
- Possibility of sealing in ON or OFF positions with or without fuse-link.



Technical data:

| | |
|--|--|
| Standards | VDE 0638 EN 60 947-3, DIN VDE 0113, DIN VDE 0110 |
| Number of poles | 1p, 1p+N, 2p, 3p, 3p+N |
| Rated voltage | 230/400V a.c., 110V (2p) d.c. |
| Rated breaking capacity | 50 kA |
| Rated insulation voltage | 400V |
| Rated impulse resistance voltage | 8000V |
| Category of use according to DIN VDE 0638 | AC 22(63A), AC 23(35A), DC 22 (63A) |
| Category of use according to DIN E 60 947-3 | |
| Mechanical life | 5.000 cycles |
| Electrical life | 300 cycles |
| Temperature of environment | -5 C to +40 C |
| Air humidity | 90% |
| Degree of protection | IP 00 according to / nach DIN 40 050 |
| Connection clamps | Up to 35mm 2 (multiwire conductor) with screw +/- |
| Possibility of sealing | in ON or OFF position |

STVD02

| type | number of poles | I _N (A) | part No. | weight (g) | packaging (pcs) |
|------------|-----------------|--------------------|-------------|------------|-----------------|
| STV D02-1 | 1 | 63 | STV-D02-1P | 119 | 12 |
| STV D02-1N | 1+N | 63 | STV-D02-1PN | 238 | 6 |
| STV D02-2 | 2 | 63 | STV-D02-2P | 238 | 6 |
| STV D02-3 | 3 | 63 | STV-D02-3P | 357 | 4 |
| STV D02-3N | 3+N | 63 | STV-D02-3PN | 476 | 3 |



SWITCH DISCONNECTOR FUSE STVD02 ACCESSORIES

Gauge pieces

| I _N (A) | part No. | weight (g) | packaging (pcs) |
|--------------------|--------------|------------|-----------------|
| 20 | STVGP-DO2-20 | 0.8 | 50 |
| 25 | STVGP-DO2-25 | 0.6 | 50 |
| 35 | STVGP-DO2-35 | 0.5 | 50 |
| 50 | STVGP-DO2-50 | 0.4 | 50 |

Their function is to limit the use of D0 fuse-links to user prescribed rated currents. The gauge piece can be inserted into the holder, when the fuse holder is extracted from the housing.



Adapter

| part No. | weight (g) | packaging (pcs) |
|----------|------------|-----------------|
| STV-ADP | 2.5 | 20 |

Its function is to allow the use of D01 fuse links (2-16A) with the fuse switch disconnecter STV D02.



AUXILIARY SWITCH STV

Auxiliary switch STV is intended to be mounted with switches of series STV. The width of apparatus is 9mm, other dimensions comply with STV series switches. Auxiliary switch STV serves for distant signalization of the state of contacts (on/off) of STV switch for circuit control.



| type | contacts | weight (g) | part No. |
|-------------|--------------------------------|------------|------------|
| PS STV - MD | 1 x b contacts, 1 x a contacts | 50 | STV-ADP-MD |
| PS STV - 2M | 2 x b contacts | 50 | STV-ADP-2M |
| PS STV - 2D | 2 x a contacts | 50 | STV-ADP-2D |

a... make contact
b... break contact

Technical data:

| | |
|--|--|
| Rated current I_N | AC12 6A at 230V ~ DC12 1A at 110V = |
| Rated conditional short circuit current | 1kA at 20A fuse link |
| Standards | EN 62019 |

D FUSE LINKS

D type fuse-links are used to protect electric, signal and control l/t characteristics of type fuse-links comply with the following standards:
IEC 60269/1, DIN VDE 0636/301 and CEE 16.

CEE 16 standard regulates two types of characteristics:

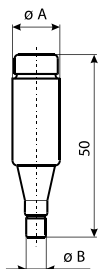
- quick characteristics, in ETI the so-called DZ and
- time-lag, in ETI the so-called TDZ.

VDE 0603/301 and IEC 60269-1 regulates the gG characteristics (protection in the whole range of the breaking capacity of the fuse). Because their breaking characteristics are completely in accordance with CEE 16 requirements for slow characteristics, they can also be labeled as TDZ.

Technical data:

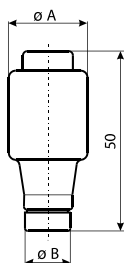
| | |
|--|---|
| Rated voltage U_N | 500 V |
| Rated current I_N | DI, DII 2 do 25 A, DIII 32 do 63 A DIV 80 do 100 A, DV 125 do 200 A 50 kA ~ $\cos\phi = 0,2$ 8kA == T = 15ms |
| Breaking capacity at 1, $1U_N$ | gL - gG, TDZ, DZ C - VDE 0110 |
| Fusing characteristics | DIN EN 60269-1 (VDE 0636 Teil 10) |
| Insulating class | DIN EN 60269-3 (VDE 0636 Teil 30) |
| Standards | DIN VDE 0636-301 IEC 60269-1 IEC 60269-3 EN 60269-1 EN 60269-3 CEE 16 |

DI for fuse base E 16



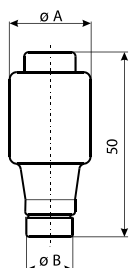
| I_N (A) | colour | part No. DZ | code No. gG, gL, TDZ | weight (g) | packaging (pcs) | dimension ØA ØB | |
|-----------|--------|-------------|----------------------|------------|-----------------|--------------------|----|
| 2 | pink | 2D16Q | 2D16 | 12 | 20/500 | 13.2 | 6 |
| 4 | brown | 4D16Q | 4D16 | 12 | 20/500 | 13.2 | 6 |
| 6 | green | 6D16Q | 6D16 | 12 | 20/500 | 13.2 | 6 |
| 10 | red | 10D16Q | 10D16 | 13 | 20/500 | 13.2 | 8 |
| 16 | grey | 16D16Q | 16D16 | 14 | 20/500 | 13.2 | 10 |
| 20 | blue | 20D16Q | 20D16 | 15 | 20/500 | 13.2 | 12 |
| 25 | yellow | 25D16Q | 25D16 | 16 | 20/500 | 13.2 | 14 |

DII for fuse base E 27



| I_N (A) | colour | part No. DZ | code No. gG, gL, TDZ | weight (g) | packaging (pcs) | dimension ØA ØB | |
|-----------|--------|-------------|----------------------|------------|-----------------|--------------------|----|
| 2 | pink | 2D27Q | 2D27 | 27 | 5/500 | 21.5 | 6 |
| 4 | brown | 4D27Q | 4D27 | 27 | 5/500 | 21.5 | 6 |
| 6 | green | 6D27Q | 6D27 | 27 | 5/500 | 21.5 | 6 |
| 10 | red | 10D27Q | 10D27 | 27 | 5/500 | 21.5 | 8 |
| 13 | black | | 13D27 | 27 | 5/500 | 21.5 | 8 |
| 16 | grey | 16D27Q | 16D27 | 28 | 5/500 | 21.5 | 10 |
| 20 | blue | 20D27Q | 20D27 | 29 | 5/500 | 21.5 | 12 |
| 25 | yellow | 25D27Q | 25D27 | 30 | 5/500 | 21.5 | 14 |

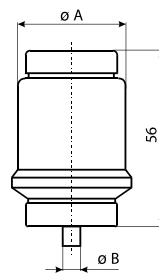
DIII for fuse base E 33



| I_N (A) | colour | part No. DZ | code No. gG, gL, TDZ | weight (g) | packaging (pcs) | dimension ØA ØB | |
|-----------|--------|-------------|----------------------|------------|-----------------|--------------------|----|
| 32 | black | | 32D33 | 48 | 5/500 | 27 | 16 |
| 35 | black | 35D33Q | 35D33 | 48 | 5/500 | 27 | 16 |
| 40 | black | | 40D33 | 48 | 5/500 | 27 | 16 |
| 50 | white | 50D33Q | 50D33 | 49 | 5/500 | 27 | 18 |
| 63 | copper | 63D33Q | 63D33 | 52 | 5/500 | 27 | 20 |

DIV for fuse base R1 1/4"

| $I_N(A)$ | colour | part No. DZ | code No. gG, gL, TDZ | weight (g) | packaging (pcs) | dimension $\varnothing A$ $\varnothing B$ | |
|----------|--------|----------------|-------------------------|---------------|--------------------|--|---|
| 80 | silver | 80D125Q | 80D125 | 105 | 10/100 | 33 | 5 |
| 100 | red | 100D125Q | 100D125 | 110 | 10/100 | 33 | 7 |



DV for fuse base R 2"

| $I_N(A)$ | colour | part No. DZ | code No. gG, gL, TDZ | weight (g) | packaging (pcs) | dimension $\varnothing A$ $\varnothing B$ | |
|----------|--------|----------------|-------------------------|---------------|--------------------|--|---|
| 125 | yellow | 125D200Q* | 125D200* | 185 | 10/60 | 46 | 5 |
| 160 | copper | 160D200Q* | 160D200* | 210 | 10/60 | 46 | 7 |
| 200 | blue | 200D200Q* | 200D200* | 215 | 10/60 | 46 | 9 |

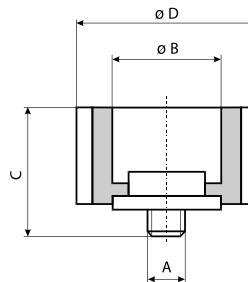
* special order



GAUGE PIECES

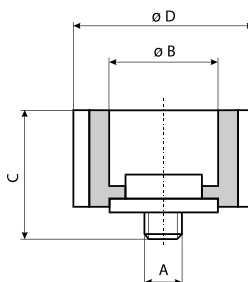
VD II for fuse base E 27

| $I_N(A)$ | colour | part No. | weight (g) | packaging (pcs) | dimension | | | |
|----------|--------|----------|---------------|--------------------|-----------|------|----|----|
| | | | | | A | B | C | D |
| 2 | pink | 2GD27 | 13 | 25/1500 | 3/16" | 6.5 | 17 | 24 |
| 4 | brown | 4GD27 | 13 | 25/1500 | 3/16" | 6.5 | 17 | 24 |
| 6 | green | 6GD27 | 13 | 25/1500 | 3/16" | 6.5 | 17 | 24 |
| 10 | red | 10GD27 | 11 | 25/1500 | 3/16" | 8.5 | 17 | 24 |
| 16 | grey | 16GD27 | 11 | 25/1500 | 3/16" | 10.5 | 17 | 24 |
| 20 | blue | 20GD27 | 11 | 25/1500 | 3/16" | 12.5 | 17 | 24 |
| 25 | yellow | 25GD27 | 11 | 25/1500 | 3/16" | 14.5 | 17 | 24 |



VD III for fuse base E33

| $I_N(A)$ | colour | part No. | weight (g) | packaging (pcs) | dimension | | | |
|----------|--------|----------|---------------|--------------------|-----------|------|----|----|
| | | | | | A | B | C | D |
| 35 | black | 35GD33 | 19 | 25/850 | 3/16" | 16.5 | 17 | 30 |
| 50 | white | 50GD33 | 18 | 25/850 | 3/16" | 18.5 | 17 | 30 |
| 63 | copper | 63GD33 | 16 | 25/850 | 3/16" | 20.5 | 17 | 30 |



D TYPE FUSE BASES

Application

The fuse bases type D are made to be incorporated into distribution boxes for individual applications, in industrial and public buildings. The bases most up-to-date design are EZN for mounting on rails (according to EN 50022 and DIN EN 60715) and bases EZR type, because they can be directly fastened on the EZR-busbar.

Technical data:

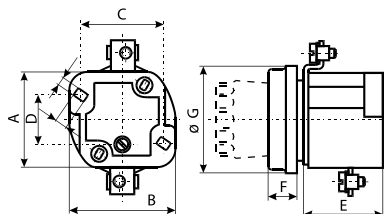
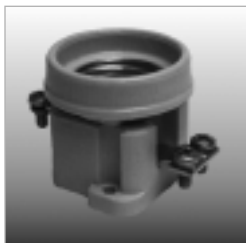
| | |
|---|---|
| Rated voltage U_N | 500 V |
| Rated current I_N | DII 25 A, DIII 63 A |
| Insulating class | po VDE 0110 C |
| Cross-section of connecting lead | DII 1 to 10 mm ² DIII 2,5 to 25 mm ² |
| Standards, publications | IEC 60269, EN 60269, DIN VDE 0636 |

SINGLE-POLE FUSE BASES

EZ

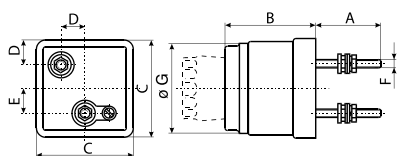
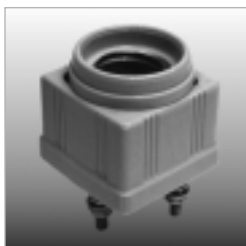
HVB

| type | $I_N(A)$ | part No. | screw | weight (g) | packaging (pcs) | dimension | | | | | | |
|------|----------|----------|-------|------------|-----------------|-----------|----|----|----|----|----|----|
| | | | | | | A | B | C | D | E | F | G |
| EZ | 25 | SFD27 | E 27 | 122 | 36/288 | 41 | 47 | 36 | 20 | 35 | 13 | 46 |
| EZ | 63 | SFD33 | E 33 | 175 | 15/180 | 45 | 56 | 45 | 20 | 36 | 14 | 58 |



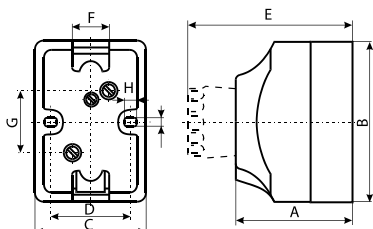
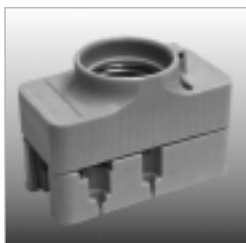
TZ

| type | $I_N(A)$ | part No. | screw | weight (g) | packaging (pcs) | dimension | | | | | | |
|------|----------|----------|-------|------------|-----------------|-----------|----|----|------|----|---|----|
| | | | | | | A | B | C | D | E | F | G |
| TZ | 25 | SFD27-TZ | E 27 | 185 | 24/192 | 26 | 50 | 53 | 13.5 | 14 | M | 46 |
| TZ | 63 | SFD33-TZ | E 33 | 368 | 10/100 | 31 | 58 | 64 | 16 | 18 | M | 58 |



UZ, UZN

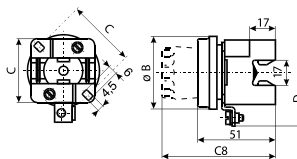
| type | $I_N(A)$ | part No. | screw | weight (g) | packaging (pcs) | dimension | | | | | | | |
|------|----------|-----------|-------|------------|-----------------|-----------|----|----|----|----|----|-----|-----|
| | | | | | | A | B | C | D | E | F | G | I |
| UZ | 25 | SFD27-UZ | E 27 | 200 | 10/200 | 56 | 80 | 41 | 33 | 82 | 20 | 4.5 | 4.5 |
| UZN | 25 | SFD27-UZN | E 27 | 202 | 10/180 | 56 | 80 | 41 | 33 | 82 | 20 | 4.5 | 4.5 |
| UZ | 63 | SFD33-UZ | E 33 | 300 | 6/60 | 56 | 90 | 52 | 41 | 82 | 28 | 4.5 | 4.5 |
| UZN | 63 | SFD33-UZN | E 33 | 302 | 6/60 | 56 | 90 | 52 | 41 | 82 | 28 | 4.5 | 4.5 |



* UZ - For mounting with screws
* UZN - For mounting on rail

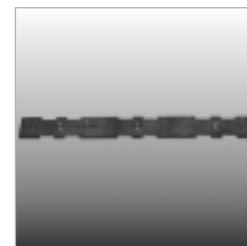
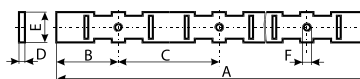
EZR

| type | I _N (A) | part No. | screw | weight (g) | packaging (pcs) | dimension | | | |
|--------|--------------------|-----------|-------|------------|-----------------|-----------|----|------|----|
| | | | | | | A | B | C | D |
| EZR 25 | 25 | SFD27-EZR | E 27 | 97 | 15/195 | 42 | 46 | 45 | 35 |
| EZR 63 | 63 | SFD33-EZR | E 33 | 132 | 15/180 | 47 | 58 | 48.5 | 38 |



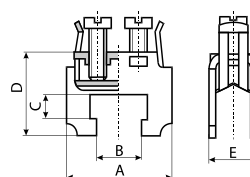
Busbar for fuse base EZR

| type | I _N (A) | part No. | screw | weight (g) | packaging (pcs) | dimension | | | | | |
|--------|--------------------|----------|-------|------------|-----------------|-----------|----|----|---|----|-------|
| | | | | | | A | B | C | D | E | F |
| EZR 25 | 25 | SFD27-BB | E 27 | 380 | 50 | 1000 | 32 | 52 | 3 | 16 | 3/16" |
| EZR 63 | 63 | SFD33-BB | E 33 | 380 | 50 | 1000 | 38 | 62 | 3 | 16 | 3/16" |



Terminals for neutral terminals and busbars ERZ

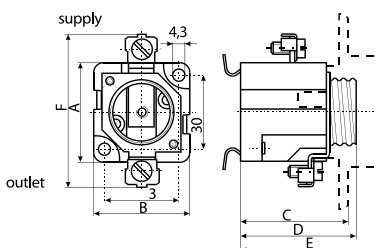
| part No. | for cross section (mm ²) | weight (g) | packaging (pcs) | dimension | | | | |
|----------|--------------------------------------|------------|-----------------|-----------|------|-----|------|------|
| | | | | A | B | C | D | E |
| SFD27-NT | 16 | 9 | 100/2200 | 25 | 12.5 | 3.5 | 17 | 7.3 |
| SFD33-NT | 35 | 21 | 100/2200 | 28 | 12.5 | 6.5 | 21.5 | 12.6 |



EZN, EZV

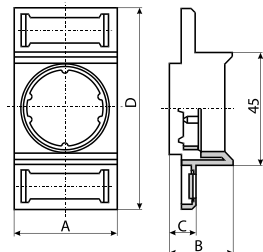
| type | I _N (A) | part No. | screw | weight (g) | packaging (pcs) | dimension | | | | | |
|------------|--------------------|--------------|-------|------------|-----------------|-----------|----|----|----|----|----|
| | | | | | | A | B | C | D | E | F |
| EZN 25® | 25 | SFRD27 | E27 | 104 | 15/195 | 41 | 39 | 44 | 47 | 60 | 62 |
| EZN 63® | 63 | SFRD33 | E33 | 148 | 15/180 | 43 | 47 | 44 | 47 | 56 | 79 |
| EZN 63-M6® | 63 | SFD33-EZN-M6 | E33 | 148 | 15/180 | 43 | 47 | 44 | 47 | 56 | 79 |
| EZV 25 | 25 | SFD27-EZV | E27 | 102 | 15/195 | 41 | 39 | 44 | 47 | 60 | 62 |
| EZV 63 | 63 | SFD33-EZV | E33 | 146 | 15/180 | 43 | 47 | 44 | 47 | 56 | 79 |
| EZV 63-M6 | 63 | SFD33-EZV-M6 | E33 | 146 | 15/180 | 43 | 47 | 44 | 47 | 56 | 79 |
| EZN 25-ZP* | 25 | SFD27-EZN-ZP | E27 | 120 | 10/130 | 41 | 39 | 44 | 47 | 60 | 62 |
| EZN 63-ZP* | 63 | SFD33-EZN-ZP | E33 | 163 | 10/120 | 43 | 47 | 44 | 47 | 56 | 79 |
| EZV 25-ZP* | 25 | SFD27-EZV-ZP | E27 | 112 | 10/130 | 41 | 39 | 44 | 47 | 60 | 62 |
| EZV 63-ZP* | 63 | SFD33-EZV-ZP | E33 | 153 | 10/120 | 43 | 47 | 44 | 47 | 56 | 79 |

- * EZV - For mounting with screws
- * EZN - For mounting on rail

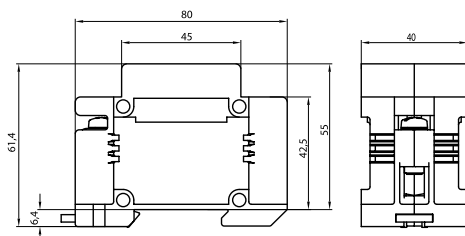


Protection cover for fuse bases EZN and EZV

| type | I _N (A) | part No. | screw | weight (g) | packaging (pcs) | dimension | | | |
|----------|--------------------|----------|-------|------------|-----------------|-----------|----|------|----|
| | | | | | | A | B | C | D |
| EZN, EZV | 25 | SFPRD27 | E 27 | 16 | 30/390 | 40 | 24 | 10.8 | 80 |
| EZN, EZV | 63 | SFPRD33 | E 33 | 12 | 30/360 | 49 | 21 | 9 | 80 |



D Comfort



| type | part No. | weight (g) | packaging (pcs) |
|-------------|-----------|------------|-----------------|
| DII comfort | SFD27-CFT | 137 | 3/105 |

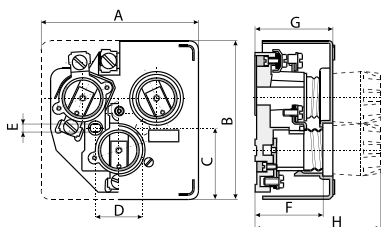
Technical data:

| | |
|--|---|
| Rated voltage U_N | 500V |
| Rated current I_N | 25 A |
| For fuse-links type DII | acc. to IEC/EN 60269-3 |
| Gauge pieces VDII | acc. to IEC/EN 60269-3 |
| Cross section of connecting leads | 1.5 - 25 mm ² |
| Screws | with ±head |
| Mounting possibilities: | - with screws - mounting on the rail EN 50022 and EN60715 |

D TYPE THREE-POLE FUSE BASES

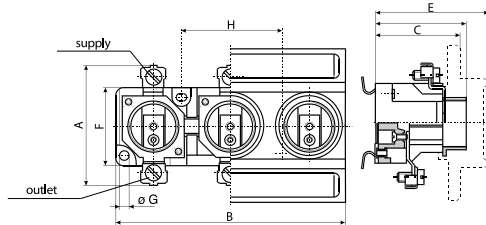
EZN/3, EZV/3 - Delta

| type | I _N (A) | part No. | weight (g) | packaging (pcs) | dimension | | | | | | | |
|----------|--------------------|-----------|------------|-----------------|-----------|-----|----|----|-----|----|----|----|
| | | | | | A | B | C | D | E | F | G | H |
| EZN 25/3 | 25 | TFD27-EZN | 410 | 8 | 106 | 106 | 48 | / | / | 45 | 52 | 86 |
| EZV 25/3 | 25 | TFD27-EZV | 400 | 8 | 106 | 106 | 48 | 32 | 5.2 | 45 | 52 | 86 |
| EZN 63/3 | 63 | TFD33-EZN | 590 | 8 | 127 | 130 | 54 | / | / | 45 | 52 | 85 |
| EZV 63/3 | 63 | TFD33-EZV | 580 | 8 | 127 | 130 | 54 | 32 | 5.2 | 45 | 52 | 85 |

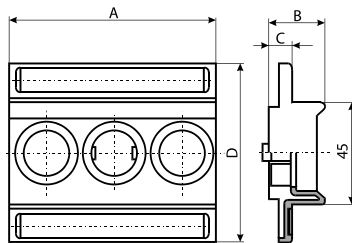
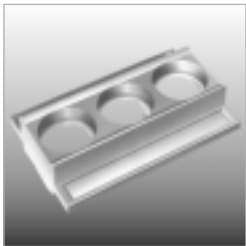


EZN/3, EZV/3 - Linear

| type | I _N (A) | part No. | screw | weight | packaging (pcs) | dimension | | | | | | | |
|----------|--------------------|----------|-------|--------|-----------------|-----------|-----|----|----|----|----|-----|----|
| | | | | | | A | B | C | D | E | F | ØG | H |
| EZN 25/3 | 25 | TFRD27 | E27 | 352 | 4/60 | 41 | 121 | 44 | 47 | 60 | 30 | 4.3 | 50 |
| EZV 25/3 | 25 | TFD27 | E27 | 346 | 4/60 | 41 | 121 | 44 | 47 | 60 | 30 | 4.3 | 50 |
| EZN 63/3 | 63 | TFRD33 | E33 | 488 | 6/42 | 43 | 148 | 44 | 47 | 56 | 32 | 4.3 | 62 |
| EZV 63/3 | 63 | TFD33 | E33 | 484 | 6/42 | 43 | 148 | 44 | 47 | 56 | 32 | 4.3 | 62 |

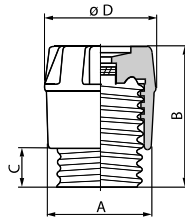


Protection cover for fuse bases EZN/3 and EZV/3



| type | part No. | weight (g) | packaging (pcs) | dimension | | | |
|---------------|----------|------------|-----------------|-----------|----|------|----|
| | | | | A | B | C | D |
| EZN, EZV 25/3 | TFPCD27 | 40 | 12/120 | 121 | 24 | 10.8 | 80 |
| EZN, EZV 63/3 | TFPCD33 | 40 | 12/120 | 148 | 21 | 9 | 80 |

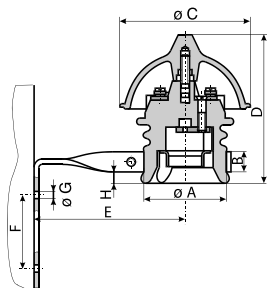
Fuse Carriers



| type | I _N (A) | part No. | screw | weight (g) | packaging (pcs) | dimension | | | |
|--------|--------------------|----------|-------|------------|-----------------|-----------|----|----|----|
| | | | | | | A | B | C | D |
| K DII | 25 | CD27 | E27 | 35 | 50/600 | E | 44 | 12 | 34 |
| K DIII | 63 | CD33 | E33 | 59 | 30/360 | E | 44 | 12 | 43 |

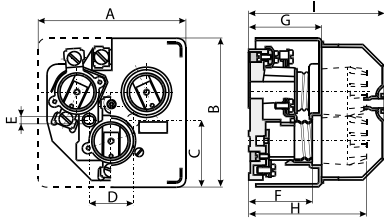
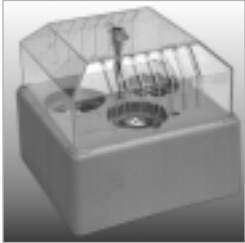
Fuse bases for Overhead Lines

| type | I _N (A) | part No. | weight (g) | packaging (pcs) | dimension | | | | | | | |
|------|--------------------|-----------|------------|-----------------|-----------|----|-----|-----|-----|----|----|----|
| | | | | | ØA | B | ØC | D | E | F | ØG | H |
| FZ | 25 | SFD27-OHL | 750 | 1/22 | 61 | 14 | 104 | 118 | 90 | 50 | 7 | 20 |
| FZ | 63 | SFD33-OHL | 1050 | 1/16 | 70 | 21 | 114 | 120 | 130 | 58 | 7 | 21 |

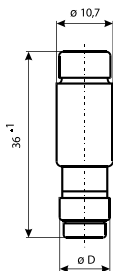


Amoured Fuse Bases

| type | part No. | weight (g) | packaging (pcs) | dimension | | | | | | | | |
|---------|-------------|------------|-----------------|-----------|-----|----|----|-----|----|----|----|----|
| | | | | A | B | C | D | E | F | G | H | I |
| T 25/3N | SFD27-ARM3N | 460 | 4 | 106 | 106 | 48 | / | / | 45 | 52 | 86 | 97 |
| T 63/3N | SFD33-ARM3N | 660 | 4 | 127 | 130 | 54 | / | / | 45 | 52 | 85 | 97 |
| T 25/3V | SFD27-ARM3V | 450 | 4 | 106 | 106 | 48 | 32 | 5.2 | 45 | 52 | 86 | 97 |
| T 63/3V | SFD33-ARM3V | 650 | 4 | 127 | 130 | 54 | 32 | 5.2 | 45 | 52 | 85 | 97 |

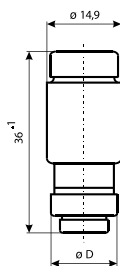


Fuse-link D 01 ULTRA-QUICK® for base E14



| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØD |
|-----------|----------|--------|------------|-----------------|--------------|
| 2 | 2NZ01R | pink | 6 | 10/500 | 7.3 |
| 4 | 4NZ01R | brown | 6 | 10/500 | 7.3 |
| 6 | 6NZ01R | green | 6 | 10/500 | 7.3 |
| 10 | 10NZ01R | red | 6 | 10/500 | 8.5 |
| 16 | 16NZ01R | grey | 6 | 10/500 | 9.7 |

Fuse-link D 02 ULTRA-QUICK® for base E18



| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØD |
|-----------|----------|--------|------------|-----------------|--------------|
| 20 | 20NZ02R | blue | 11 | 10/500 | 10.9 |
| 25 | 25NZ02R | brown | 12 | 10/500 | 12.1 |
| 35 | 35NZ02R | black | 13 | 10/500 | 13.3 |
| 50 | 50NZ02R | white | 13 | 10/500 | 14.5 |
| 63 | 63NZ02R | copper | 15 | 10/500 | 15.9 |

Technical data:

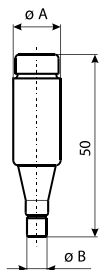
Fuse-link
 Rated voltage U_N
 Rated current I_N
 Breaking Capacity I1
 Fusing characteristic

D 01 / D 02 ULTRA QUICK
 400 V ~ / 250 V
 2 - 63 A
 50 kA ~ / 8 kA
 gR

$I^2 \cdot s$ values D0 ULTRA-QUICK®

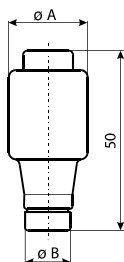
| Rated current (A) | Melting integral (A ² ·s) | Total integral (A ² ·s) | | |
|-------------------|--------------------------------------|------------------------------------|----------|----------|
| | | at 100 V | at 200 V | at 400 V |
| 2 | 1 | 2.3 | 4 | 6.3 |
| 4 | 2 | 4.7 | 8 | 13 |
| 6 | 5 | 7 | 12 | 20 |
| 10 | 12 | 25 | 40 | 65 |
| 16 | 35 | 70 | 100 | 200 |
| 20 | 55 | 120 | 180 | 275 |
| 25 | 85 | 160 | 280 | 480 |
| 35 | 180 | 250 | 450 | 1000 |
| 50 | 250 | 550 | 850 | 1800 |
| 63 | 550 | 800 | 1200 | 2500 |

Fuse-link D I ULTRA-QUICK® for base E16



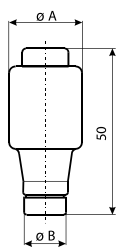
| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØB |
|-----------|----------|--------|------------|-----------------|--------------|
| 2 | 2D16R | pink | 12 | 20/500 | 6 |
| 4 | 4D16R | brown | 12 | 20/500 | 6 |
| 6 | 6D16R | green | 12 | 20/500 | 6 |
| 10 | 10D16R | red | 13 | 20/500 | 8 |
| 16 | 16D16R | grey | 14 | 20/500 | 10 |
| 20 | 20D16R | blue | 15 | 20/500 | 12 |
| 25 | 25D16R | yellow | 16 | 20/500 | 14 |

Fuse-link D II ULTRA-QUICK® for base E27



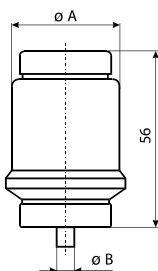
| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØB |
|-----------|----------|--------|------------|-----------------|--------------|
| 2 | 2D27R | pink | 27 | 5/500 | 6 |
| 4 | 4D27R | brown | 27 | 5/500 | 6 |
| 6 | 6D27R | green | 27 | 5/500 | 6 |
| 10 | 10D27R | red | 27 | 5/500 | 8 |
| 16 | 16D27R | grey | 28 | 5/500 | 10 |
| 20 | 20D27R | blue | 29 | 5/500 | 12 |
| 25 | 25D27R | yellow | 30 | 5/500 | 14 |
| 30 | 30D27R | black | 30 | 5/500 | 14 |

Fuse-link D III ULTRA-QUICK® for base E33



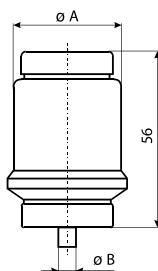
| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØB |
|-----------|----------|--------|------------|-----------------|--------------|
| 35 | 35D33R | black | 48 | 5/500 | 16 |
| 50 | 50D33R | white | 49 | 5/500 | 18 |
| 63 | 63D33R | copper | 52 | 5/500 | 20 |

Fuse-link D IV ULTRA-QUICK® for base R1 1/4"



| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØB |
|-----------|----------|--------|------------|-----------------|--------------|
| 80 | 80D125R | silver | 105 | 10/100 | 5 |
| 100 | 100D125R | red | 110 | 10/100 | 7 |

Fuse-link D V ULTRA-QUICK® for base R2"



| I_N (A) | part No. | colour | weight (g) | packaging (pcs) | dimension ØB |
|-----------|----------|--------|------------|-----------------|--------------|
| 125 | 125D200R | yellow | 185 | 10/60 | 5 |
| 160 | 160D200R | copper | 210 | 10/60 | 7 |
| 200 | 200D200R | blue | 215 | 10/60 | 9 |

$I^2 \cdot t$ values D ULTRA-QUICK®

| Rated current (A) | Melting integral (A ² ·s) | Max Total integral (A ² ·s) | | |
|-------------------|--------------------------------------|--|----------|----------|
| | | at 125 V | at 250 V | at 500 V |
| 2 | 0.7 | 1.8 | 3.5 | 5.8 |
| 4 | 1.8 | 4.1 | 6 | 11 |
| 6 | 4 | 6 | 10 | 18 |
| 10 | 8 | 12.5 | 23 | 40 |
| 16 | 16.2 | 34 | 40 | 60 |
| 20 | 35.8 | 67 | 85 | 139 |
| 25 | 48.9 | 85 | 116 | 205 |
| 30 | 85 | 120 | 170 | 310 |
| 35 | 135 | 220 | 300 | 539 |
| 50 | 340 | 600 | 780 | 1250 |
| 63 | 530 | 850 | 1115 | 1890 |
| 80 | 980 | 1480 | 2110 | 4200 |
| 100 | 1950 | 3000 | 4200 | 8450 |
| 125 | 3100 | 4300 | 6000 | 16000 |
| 160 | 10000 | 12000 | 18000 | 24000 |
| 200 | 17000 | 22000 | 31000 | 40000 |

Technical data:

| | |
|---------------------------------------|--|
| Fuse-link | DI, D II, D III, D IV, D V, ULTRA QUICK® |
| Rated voltage U_N | 500 V ~ / 315 V == |
| Rated current I_N | 2 - 200 A |
| Breaking Capacity I1 | 50 kA ~ / 8 kA == |
| Fusing characteristic | gR |

D&D0 FUSE LINKS

Description:

Fuse-links are the oldest protective devices in the electrical industry. The protection by fuses is based on the principle a piece of wire melting at the point of defect of an electric circuit. For this purpose a sufficient amount of energy is necessary, which is called the Joule integral $I^2 t$. In order to adapt the fuse-links to specific protection requirements, various time current characteristics have been developed. A time current characteristic is a graphical representation of the melting time as a function of the overload current. The type of fuse is chosen based on the operational range of the fuse and the type of object under protection.

Marks

Fuse marking consists of two letters where the first letter denotes the function class and the second the type of facility under protection.

Example: gG; g: protects a facility across the entire current axis; G: the facility under protection is electrical installation.

Function class of fuses

It determines the range on the current axis for which a fuse-link is capable of breaking a circuit.

Function class g

The entire range of operation of a fuse. Fuse-links continuously conduct rated currents and in case of a defect in the circuit they break all currents from the lowest melting current up to the highest breaking capacity (protection against overload and short circuits).

Function class a

These fuses provide limited range of protection. Fuse-links conduct continuously the rated currents and in case of a defect in the circuit they break all currents from a multiple of rated current up to the breaking current (protection against short circuits).

Facilities under protection

L: cables and mains
 B: mining equipment
 M: switching devices
 R: semiconductors
 T: transformers

The types of fuse-links used for protection of the specified objects

gG: total range of protection -cable and mains
 aM: partial range of protection -switching devices
 aR: partial range of protection - semiconductors
 gR: total range of protection - semiconductors
 gB: total range of protection -mining equipment
 gTr: total range of protection -transformers

Semiconductors in rectifiers require quick fuse-links of type aR and gR for protection. ULTRA-QUICK fuse-links comply with the following regulations: VDE 0636/23, VDE 0636/33, IEC 60269, DIN 57636, DIN 43620, DIN43653, DIN 49522.

The requirements with which fuse-links for protection of semiconductors must comply are:

- high breaking capacity and quick action
- high current limitation
- low watts loss
- they should not be subject to ageing

ULTRA QUICK fuse-links provide optimum protection of semiconductors, being used for special purposes:

A: $I_{pol} \leq I_{Niv}$

The current passing through the semiconductor must be smaller or the same as the rated current of the fuse-link. Here you have to consider special ways of load (periodical, non-periodical, uniform, non-uniform) and other influences (thermal influences, cooling).

B: $U_{pol} \leq U_{Niv}$

The operating voltage on the semiconductor must be smaller or the same as the rated voltage of the fuse-link. In case of doubt the rated voltage of the semiconductor element to be protected can be used as a guideline.

C: $\int i_{pol}^2 dt > \int i_{Niv}^2 dt$

The total Joule-integral of the chosen fuse-link $I^2 dt$ must be lower than the limit integral of the semiconductor. If this data is not directly stated, it can be calculated from the data for the maximum permissible surge forward current for the duration of one-half period (10ms) - I_{TSM} in the following way:

$$\int i_{POL}^2 dt = \frac{(I_{TSM})^2}{2} T$$

D: $I_k < I_{rv}$

The highest possible surge forward current of the short circuit which can appear in a circuit must be lower than the rated breaking capacity of the fuse-link.

E: $U_{RRM} > U_L$ $U_{DRM} > U_L$

The switching voltage (arc voltage) of the fuse-link must be lower than the repetitive peak voltage of the semiconductor in the negative or positive direction.

D&DO CROSS REFERENCE TABLE

| Size | Class | Rating | Bussmann | Ferraz Shawmut | ETI | M Schneider | Siemens | SIBA | Weber | Bals |
|--------------|-------|--------|----------|----------------|---------|-------------|----------|----------------|---------------|------|
| D01 | D01 | 2 | 2NZ01 | 1700.002 | 2211001 | 0810 | 5SE2 202 | 10 027 04 2A | 8 111 100 281 | 910 |
| | | 4 | 4NZ01 | 1700.004 | 2211002 | 0811 | 5SE2 204 | 10 027 04 4A | 8 111 100 481 | 911 |
| | | 6 | 6NZ01 | 1700.006 | 2211003 | 0812 | 5SE2 206 | 10 027 04 6A | 8 111 100 681 | 912 |
| | | 10 | 10NZ01 | 1700.01 | 2211004 | 0813 | 5SE2 210 | 10 027 04 10A | 8 111 101 081 | 913 |
| | | 13 | 13NZ01 | 1700.013 | - | 081301 | - | - | - | - |
| | | 16 | 16NZ01 | 1700.016 | 2211005 | 0814 | 5SE2 216 | 10 027 04 16A | 8 111 101 681 | 914 |
| D02 | D01 | 20 | 20NZ02 | 1701.02 | 2212001 | 0815 | 5SE2 220 | 10 028 04 20A | 8 111 202 081 | 915 |
| | | 25 | 25NZ02 | 1701.025 | 2212002 | 0816 | 5SE2 225 | 10 028 04 25A | 8 111 202 581 | 916 |
| | | 32 | 32NZ02 | 1701.032 | 2212006 | 0817 | - | - | 8 111 203 581 | - |
| | | 35 | 35NZ02 | 1701.035 | 2212003 | 0818 | 5SE2 235 | 10 028 04 35A | - | 917 |
| | | 40 | 40NZ02 | - | 2212007 | - | - | - | - | - |
| | | 50 | 50NZ02 | 1701.05 | 2212004 | 0818 | 5SE2 250 | 10 028 04 50A | 8 111 205 081 | 918 |
| D03 | D01 | 63 | 63NZ02 | 1701.063 | 2212005 | 0819 | 5SE2 263 | 10 028 04 63A | 8 111 206 381 | 919 |
| | | 80 | 80NZ02 | 1702.08 | 2213001 | 0820 | - | 10 029 04 80A | 2 111 308 081 | - |
| | | 100 | 100NZ02 | 1702.1 | 2213002 | 0821 | - | 10 029 04 100A | 2 111 310 081 | - |
| DI / E16 | D01 | 2 | 2D16 | 594.0027 | 2311401 | 0207 | 5SA2 11 | 10 002 04 2A | 2 118 800 201 | 927 |
| | | 4 | 4D16 | 594.0047 | 2311402 | 0208 | 5SA2 21 | 10 002 04 4A | 2 118 800 401 | 928 |
| | | 6 | 6D16 | 594.0067 | 2311403 | 0209 | 5SA2 31 | 10 002 04 6A | 2 118 800 601 | 929 |
| | | 10 | 10D16 | 594.0107 | 2311404 | 0210 | 5SA2 51 | 10 002 04 10A | 2 118 801 001 | 9210 |
| | | 16 | 16D16 | 594.0167 | 2311405 | 0211 | 5SA2 61 | 10 002 04 16A | 2 118 801 601 | 9211 |
| | | 20 | 20D16 | 594.0207 | 2311406 | 0212 | 5SA2 71 | 10 002 04 20A | 2 118 802 002 | 9212 |
| DII / E27 | D01 | 25 | 25D16 | 594.0257 | 2311407 | 0213 | 5SA2 81 | 10 002 04 25A | 2 118 802 501 | 9213 |
| | | 2 | 2D27 | 597.0027 | 2312401 | 028001 | 5SB2 11 | 10 005 04 2A | 8 115 200 231 | 9214 |
| | | 4 | 4D27 | 597.0047 | 2312402 | 028101 | 5SB2 21 | 10 005 04 4A | 8 115 200 431 | 9215 |
| | | 6 | 6D27 | 597.0067 | 2312403 | 028201 | 5SB2 31 | 10 005 04 6A | 8 115 200 631 | 9216 |
| | | 10 | 10D27 | 597.0107 | 2312404 | 028301 | 5SB2 51 | 10 005 04 10A | 8 115 201 031 | 9217 |
| | | 16 | 16D27 | 597.0167 | 2312405 | 028501 | 5SB2 61 | 10 005 04 16A | 8 115 201 631 | 9218 |
| DIII / E33 | D01 | 20 | 20D27 | 597.0207 | 2312406 | 028601 | 5SB2 71 | 10 005 04 20A | 8 115 202 031 | 9219 |
| | | 25 | 25D27 | 597.0257 | 2312407 | 028701 | 5SB2 81 | 10 005 04 25A | 8 115 202 531 | 9220 |
| | | 32 | 32D33 | 598.0327 | 2313404 | - | - | - | - | - |
| | | 35 | 35D33 | 598.0357 | 2313401 | 0288 | 5SB4 11 | 10 007 04 35A | 8 115 303 501 | 9221 |
| | | 40 | 40D33 | - | 2313405 | - | - | - | - | - |
| | | 50 | 50D33 | 598.0507 | 2313402 | 0289 | 5SB4 21 | 10 007 04 50A | 8 115 305 001 | 9222 |
| DIV / R 1 ¼" | D01 | 63 | 63D33 | 598.0637 | 2313403 | 0290 | 5SB4 31 | 10 007 04 63A | 8 115 306 301 | 9223 |
| | | 80 | 80D125 | 598.0807 | 2314401 | 0268 | 5SC2 11 | 10 009 04 80A | - | - |
| | | 100 | 100D125 | 595.1007 | 2314402 | 0269 | 5SC2 21 | 10 009 04 100A | - | - |
| DIV / R 2" | D01 | 125 | 125D200 | 595.1257 | 2315401 | 0270 | - | 10 010 04 125A | - | - |
| | | 160 | 160D200 | 596.1607 | 2315402 | 0271 | - | 10 010 04 160A | - | - |
| | | 200 | 200D200 | 596.2007 | 2315403 | 0272 | - | 10 010 04 200A | - | - |

| Size | Class | Rating | Bussmann | Ferraz Shawmut | ETI | M Schneider | Siemens | SIBA | Weber | Bals |
|--------------|-------------|--------|----------|----------------|---------|-------------|---------|---------------|---------------|------|
| DI / E16 | Fast Acting | 2 | 2D16Q | 594.002 | 2312101 | 0200 | 5SA1 11 | 10 002 01 2A | 2 114 800 201 | - |
| | | 4 | 4D16Q | 594.004 | 2312102 | 0201 | 5SA1 21 | 10 002 01 4A | 2 114 800 401 | - |
| | | 6 | 6D16Q | 594.006 | 2312103 | 0202 | 5SA1 31 | 10 002 01 6A | 2 114 800 601 | - |
| | | 10 | 10D16Q | 594.01 | 2312104 | 0203 | 5SA1 51 | 10 002 01 10A | 2 114 801 001 | - |
| | | 16 | 16D16Q | 594.016 | 2312105 | 0204 | 5SA1 61 | 10 002 01 16A | 2 114 801 601 | - |
| | | 20 | 20D16Q | 594.02 | 2312106 | 0205 | 5SA1 71 | 10 002 01 20A | 2 114 802 001 | - |
| DII / E27 | Fast Acting | 25 | 25D16Q | 594.025 | 2312107 | 0206 | 5SA1 81 | 10 002 01 25A | 2 114 802 501 | - |
| | | 2 | 2D27Q | 597.002 | 2311101 | 022001 | 5SB1 11 | - | 8 111 200 231 | - |
| | | 4 | 4D27Q | 597.004 | 2311102 | 022101 | 5SB1 21 | - | 8 111 200 431 | - |
| | | 6 | 6D27Q | 597.006 | 2311103 | 022201 | 5SB1 31 | - | 8 111 200 631 | - |
| | | 10 | 10D27Q | 597.01 | 2311104 | 022301 | 5SB1 51 | - | 8 111 201 031 | - |
| | | 16 | 16D27Q | 597.016 | 2311105 | 022501 | 5SB1 61 | - | 8 111 201 631 | - |
| DIII / E33 | Fast Acting | 20 | 20D27Q | 597.02 | 2311106 | 022601 | 5SB1 71 | - | 8 111 202 031 | - |
| | | 25 | 25D27Q | 597.025 | 2311107 | 022701 | 5SB1 81 | - | 8 111 202 531 | - |
| | | 35 | 35D33Q | 598.035 | 2313101 | 0228 | 5SB3 11 | - | 8 111 303 501 | - |
| DIV / R 1 ¼" | Fast Acting | 50 | 50D33Q | 598.05 | 2313102 | 0229 | 5SB3 21 | - | 8 111 305 001 | - |
| | | 63 | 63D33Q | 598.063 | 2313203 | 0230 | 5SB3 31 | - | 8 111 306 301 | - |
| | | 80 | 80D125Q | - | 2314101 | 0231 | 5SC1 11 | - | - | - |
| DV / R 2" | Fast Acting | 100 | 100D125Q | - | 2314102 | 0232 | 5SC1 21 | - | - | - |
| | | 125 | 125D200Q | - | 2315101 | 0235 | - | - | - | - |
| | | 160 | 160D200Q | - | 2315102 | 0236 | - | - | - | - |
| | | 200 | 200D200Q | - | 2315103 | 0237 | - | - | - | - |

D&D0 CROSS REFERENCE TABLE

| Size | Class | Rating | Bussmann | Ferraz Shawmut | ETI | M Schneider | Siemens | SIBA | Weber | Bals |
|----------------|-------------|----------|----------|----------------|---------|-------------|----------------|---------------|---------------|------|
| D01 | Ultra Rapid | 2 | 2NZ01R | 1700.0026 | 4311001 | 011 002 | - | 10 027 07 2A | - | - |
| | | 4 | 4NZ01R | 1700.0046 | 4311002 | 011 004 | - | 10 027 07 4A | - | - |
| | | 6 | 6NZ01R | 1700.0066 | 4311003 | 011 006 | - | 10 027 07 6A | - | - |
| | | 10 | 10NZ01R | 1700.0106 | 4311004 | 011 010 | - | 10 027 07 10A | - | - |
| | | 16 | 16NZ01R | 1700.0166 | 4311005 | 011 016 | - | 10 027 07 16A | - | - |
| D02 | | 20 | 20NZ02R | 1701.0206 | 4312001 | 012 020 | - | 10 028 07 20A | - | - |
| | | 25 | 25NZ02R | 1701.0256 | 4312002 | 012 025 | - | 10 028 07 25A | - | - |
| | | 35 | 35NZ02R | 1701.0356 | 4312003 | 012 035 | - | 10 028 07 35A | - | - |
| | | 50 | 50NZ02R | 1701.0506 | 4312004 | 012 050 | - | 10 028 07 50A | - | - |
| | | 63 | 63NZ02R | 1701.0636 | 4312005 | 012 063 | - | 10 028 07 63A | - | - |
| DI / E16 | | 2 | 2D16R | - | 4321001 | 013 002 | - | 10 002 07 2A | - | - |
| | | 4 | 4D16R | - | 4321002 | 013 004 | - | 10 002 07 4A | - | - |
| | | 6 | 6D16R | - | 4321003 | 013 006 | - | 10 002 07 6A | - | - |
| | | 10 | 10D16R | - | 4321004 | 013 010 | - | 10 002 07 10A | - | - |
| | | 16 | 16D16R | - | 4321005 | 013 016 | - | 10 002 07 16A | - | - |
| | | 20 | 20D16R | - | 4321006 | 013 020 | - | 10 002 07 20A | - | - |
| DII / E27 | | 25 | 25D16R | - | 4321007 | 013 025 | - | 10 002 07 25A | - | - |
| | | 2 | 2D27R | 597.0028 | 4322001 | 014 002 | - | 10 005 07 2A | 2 175 200 201 | - |
| | | 4 | 4D27R | 597.0048 | 4322002 | 014 004 | - | 10 005 07 4A | 2 175 200 401 | - |
| | | 6 | 6D27R | 597.0068 | 4322003 | 014 006 | - | 10 005 07 6A | 2 175 200 601 | - |
| | 10 | 10D27R | 597.0108 | 4322004 | 014 010 | - | 10 005 07 10A | 2 175 201 001 | - | |
| | 16 | 16D27R | 597.0168 | 4322005 | 014 016 | 5SD4 20 | 10 005 07 16A | 2 175 201 601 | - | |
| DII / E33 | 20 | 20D27R | 597.0208 | 4322006 | 014 020 | 5SD4 30 | 10 005 07 20A | 2 175 202 001 | - | |
| | 25 | 25D27R | 597.0258 | 4322007 | 014 025 | 5SD4 40 | 10 005 07 25A | 2 175 202 501 | - | |
| | 30 | 25D27R | 597.0308 | 4322008 | - | 5SD4 80 | 10 005 07 30A | - | - | |
| | 35 | 35D33R | 598.0358 | 4323001 | 015 035 | 5SD4 50 | 10 007 07 35A | 2 175 203 501 | - | |
| | 50 | 50D33R | 598.0508 | 4323002 | 015 050 | 5SD4 60 | 10 007 07 50A | 2 175 205 001 | - | |
| | 63 | 63D33R | 598.0638 | 4323003 | 015 063 | 5SD4 70 | 10 007 07 63A | 2 175 206 301 | - | |
| DIV / R 1 1/4" | 80 | 80D125R | 598.0808 | 4324001 | 016 080 | 5SD5 10 | 10 009 07 80A | - | - | |
| | 100 | 100D125R | 598.1008 | 4324002 | 016 100 | 5SD5 20 | 10 009 07 100A | - | - | |
| DV / R 2" | 125 | 125D200R | 596.1258 | 4325001 | 017 125 | - | 10 010 07 125A | - | - | |
| | 160 | 160D200R | 596.1608 | 4325002 | 017 160 | - | 10 010 07 160A | - | - | |
| | 200 | 200D200R | 596.2008 | 4325002 | 017 200 | - | 10 010 07 200A | - | - | |