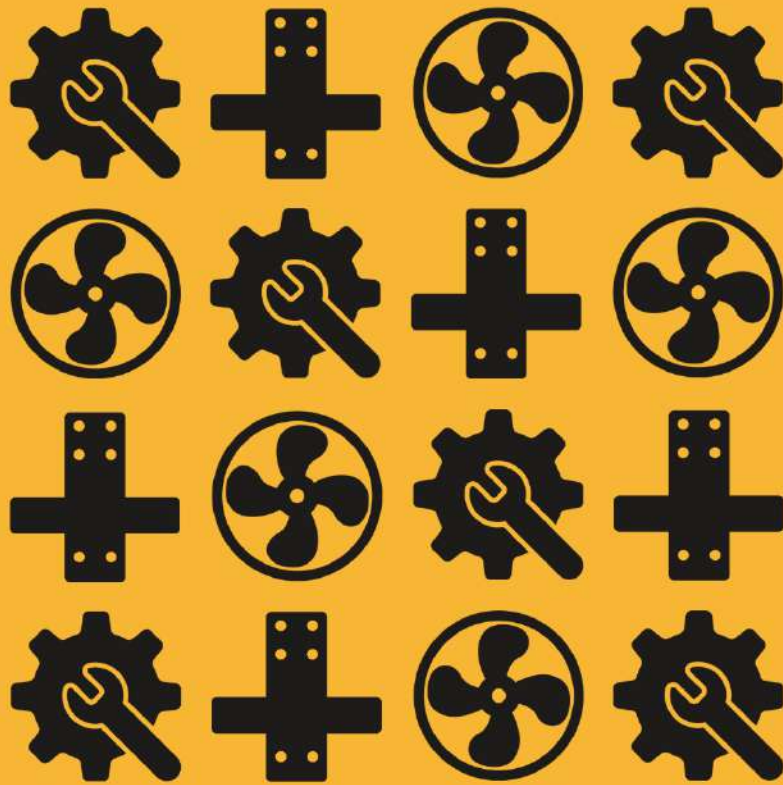


# CATÁLOGO

## DE PRODUCTOS



**electrotrans**

TURNO PARTS & BUSHINGS

# ÍNDICE

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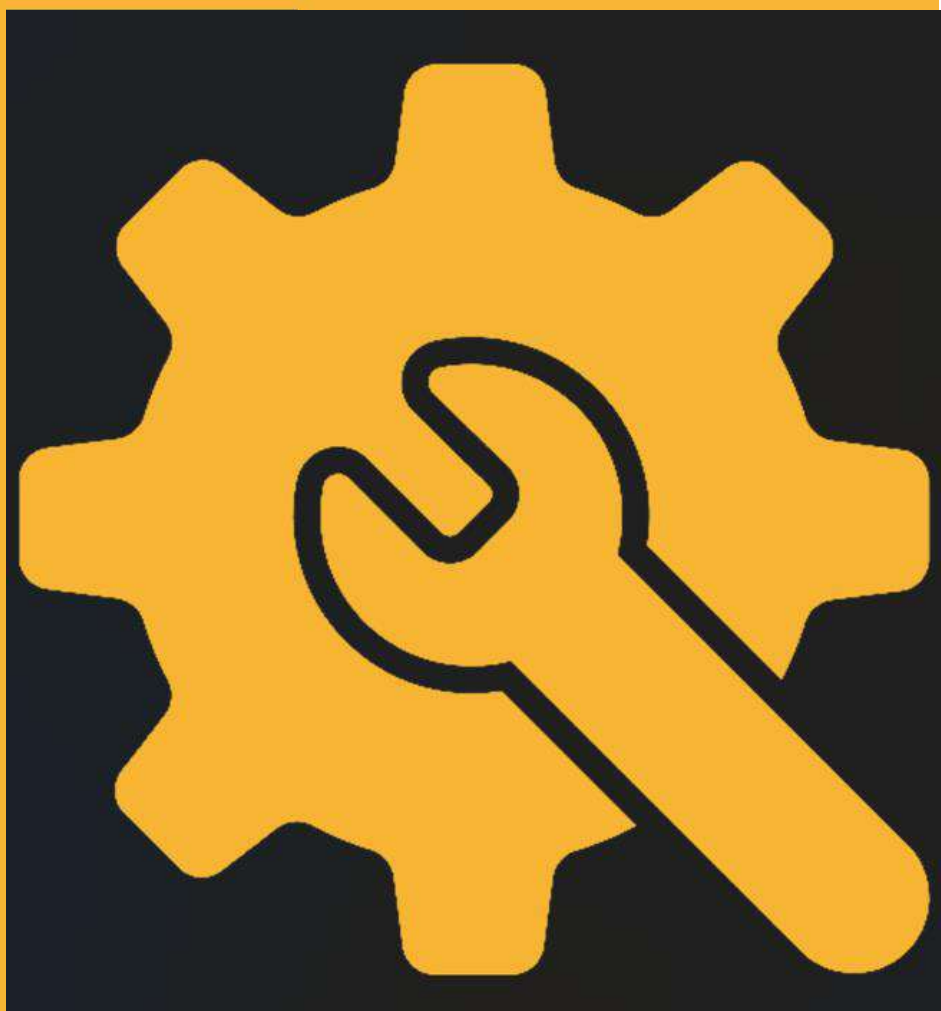


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**ACCESORIOS**

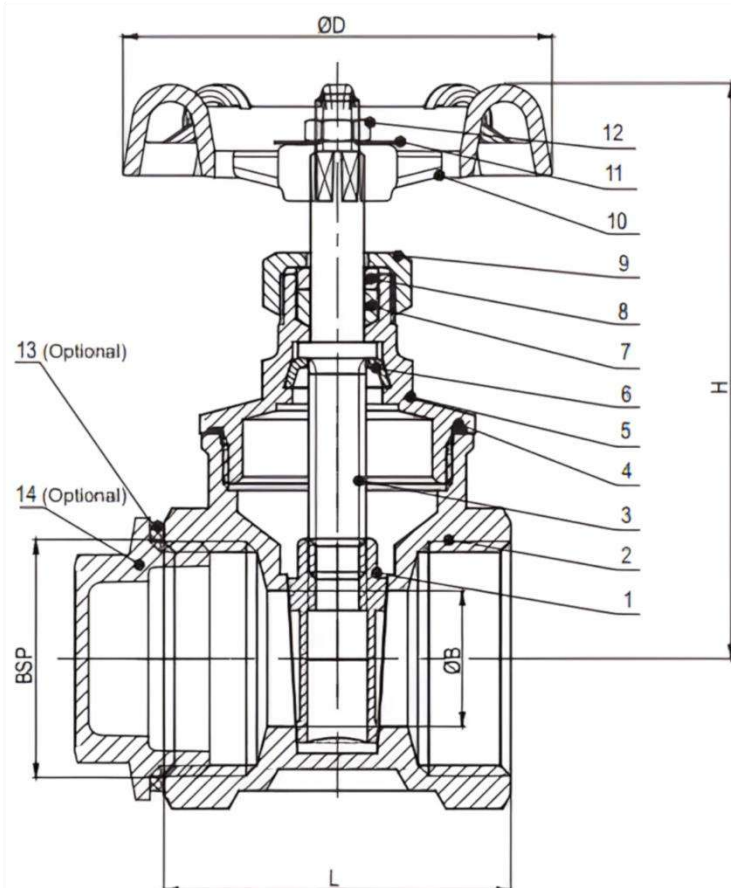
*ACCESSORIES*





## VÁLVULA DE COMPUERTA ROSCADA CON TAPA /

### SCREWED GATE VALVE WITH CAP



#### Technical Features

|                     |                 |
|---------------------|-----------------|
| Nominal pressure    | PN16            |
| Working Medium      | Transformer Oil |
| Working Temperature | -20 +120        |

#### Materials List

| NO | DESCRIPTION       | MATERIAL          |
|----|-------------------|-------------------|
| 1  | Disc              | HPb59-2RA         |
| 2  | Valve body        | HPb59-2RA         |
| 3  | Stem              | CW617N            |
| 4  | Washer ring       | PTFE              |
| 5  | Bonnet            | HPb59-2RA         |
| 6  | Lock nut          | HPb59-2RA         |
| 7  | Packing           | PTFE              |
| 8  | Gland             | Brass HPb59-2RA   |
| 9  | Packing nut       | Brass HPb59-2RA   |
| 10 | Hand Wheel        | Steel Zinc plated |
| 11 | Nameplate         | Aluminum          |
| 12 | Hex nut           | Aluminum          |
| 13 | Gasket (Optional) | PTFE              |
| 14 | Plug (Optional)   | Brass HPb59-2RA   |



#### Dimensions in mm

| Size | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   |
|------|------|------|------|--------|--------|------|
| L    | 42.5 | 45.5 | 48.5 | 56     | 58     | 62.5 |
| H    | 71.5 | 74   | 80.5 | 93.5   | 108    | 122  |
| D    | 55   | 55   | 60   | 72     | 72     | 80   |
| B    | 13   | 16   | 19   | 25     | 32     | 39   |





## VÁLVULA DE BOLA ROSCADA BLOQUEABLE DE ACERO INOXIDABLE /

THREADED BALL VALVE LOCKABLE STAINLESS STEEL

### FEATURES:

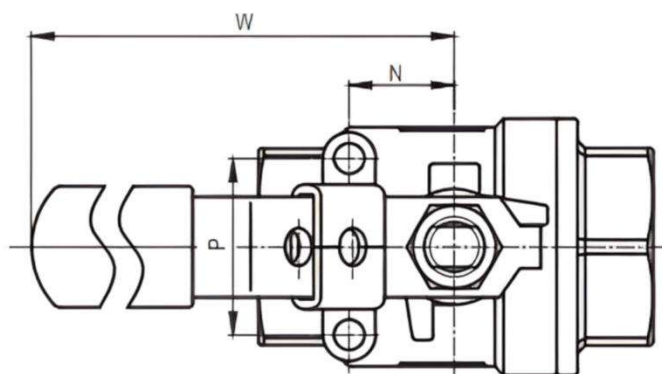
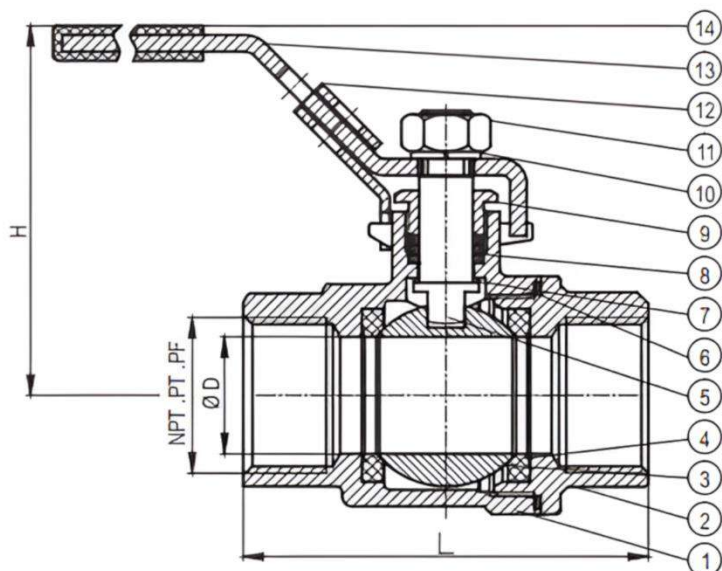
- PIPE THREAD IN ACCORDANCE: NPT, BSPT, DIN259, DIN2999, ISO 228 CLASS A
- FACE TO FACE: DIN-3202-M3
- BLOW-OUT PROOF STEM / FULL PORT
- INVESTMENT CASTING BODY
- 1000PSI(PN63)W.O.G.
- LOCKING DEVICE

### Materials List

| NO | PART NAME      | MATERIAL |        |
|----|----------------|----------|--------|
| 1  | BODY           | SS304    | SS3016 |
| 2  | CAP            | SS304    | SS3016 |
| 3  | BALL           | CF8      | CF8M   |
| 4  | SEAT           | PTFE     |        |
| 5  | STEM           | SUS304   | SUS316 |
| 6  | GASKET         | PTFE     |        |
| 7  | THRUST WASHER  | PTFE     |        |
| 8  | PACKING        | PTFE     |        |
| 9  | GLAND          | SUS304   |        |
| 10 | SPRING WASHER  | SUS304   |        |
| 11 | STEM NUT       | SUS304   |        |
| 12 | LOCKING DEVICE | SUS304   |        |
| 13 | HANDLE         | SUS304   |        |
| 14 | PLASTIC COVER  | PLASTIC  |        |

### DIMENSIONS:

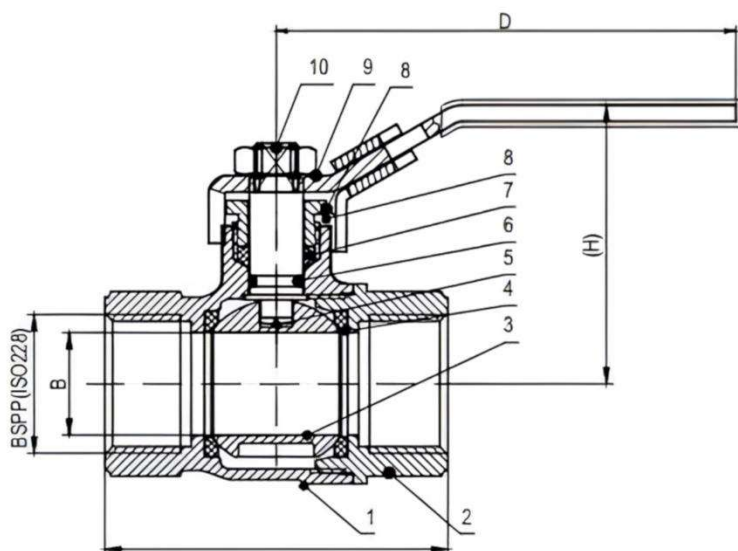
| Size |        | d    | L   | H   | W   | N    | P    |
|------|--------|------|-----|-----|-----|------|------|
| DN   | NPS    |      |     |     |     |      |      |
| 8    | 1/4"   | 11.6 | 50  | 56  | 102 | 12.7 | 28.5 |
| 10   | 3/8"   | 12.7 | 60  | 56  | 102 | 12.7 | 28.5 |
| 15   | 1/2"   | 15   | 75  | 65  | 123 | 12.7 | 28.5 |
| 20   | 3/4"   | 20   | 80  | 68  | 123 | 21   | 35   |
| 25   | 1"     | 25   | 90  | 79  | 153 | 21   | 35   |
| 32   | 1 1/4" | 32   | 110 | 84  | 153 | 23.5 | 38   |
| 40   | 1 1/2" | 40   | 120 | 94  | 183 | 23.5 | 38   |
| 50   | 2"     | 50   | 140 | 100 | 183 | 23.5 | 38   |
| 65   | 2 1/2" | 65   | 185 | 135 | 246 | 35   | 54   |
| 80   | 3"     | 80   | 205 | 145 | 246 | 35   | 54   |





## VÁLVULA DE BOLA ROSCADA BLOQUEABLE DE LATÓN / BRONCE /

THREADED BALL VALVE LOCKABLE BRASS / BRONZE



### TECHNICAL FEATURES

|                     |                 |
|---------------------|-----------------|
| Nominal pressure    | 600WOG          |
| Shell Test Pressure | 4.2MPa          |
| Air Test Pressure   | 1.31MPa         |
| Working Medium      | Transformer Oil |
| Working Temperature | -20 / +120      |

### Dimensions in mm

| Size | 1/2" | 3/4" | 1"  | 1 1/4" | 1 1/2" | 2"  |
|------|------|------|-----|--------|--------|-----|
| L    | 56   | 63   | 75  | 85     | 92.5   | 110 |
| H    | 46   | 51   | 56  | 57     | 73     | 81  |
| D    | 95   | 115  | 115 | 145    | 145    | 165 |
| B    | 14   | 19   | 24  | 31     | 31     | 49  |

### MATERIALS LIST

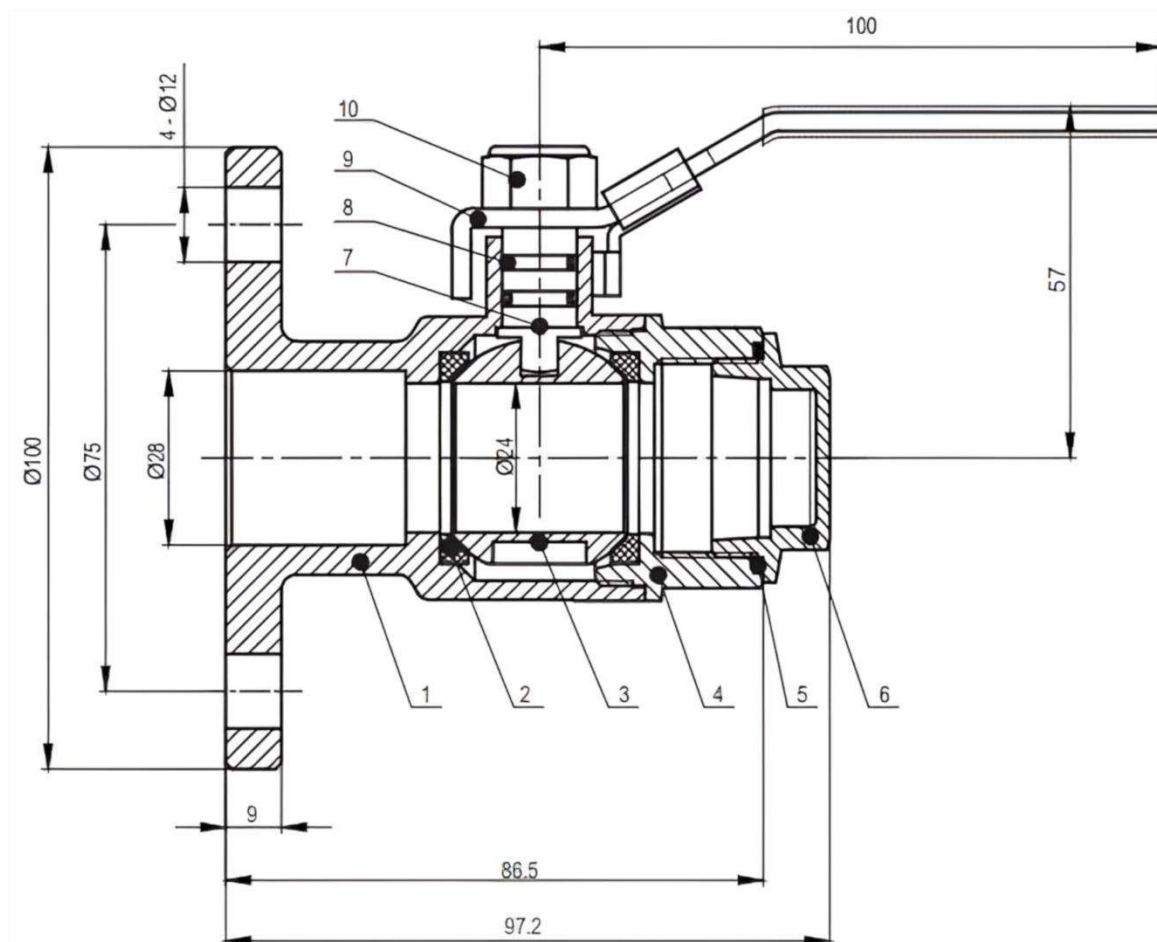
| NO | DESCRIPTION    | MATERIAL              |
|----|----------------|-----------------------|
| 1  | VALVE BODY     | CW617N                |
| 2  | BONNET         | CW617N                |
| 3  | BALL           | BRASS CHROMED PLATING |
| 4  | SEAT           | PTFE                  |
| 5  | STEM           | CW617N                |
| 6  | O-RING         | NBR                   |
| 7  | PACKING        | PTFE                  |
| 8  | PACKING NUT    | BRASS                 |
| 9  | LOCKING HANDLE | S.S.304               |
| 10 | HEX NUT        | S.S. 304              |





## VÁLVULA DE BOLA ROSCADA BLOQUEABLE DE ACERO INOXIDABLE /

THREADED BALL VALVE LOCKABLE STAINLESS STEEL

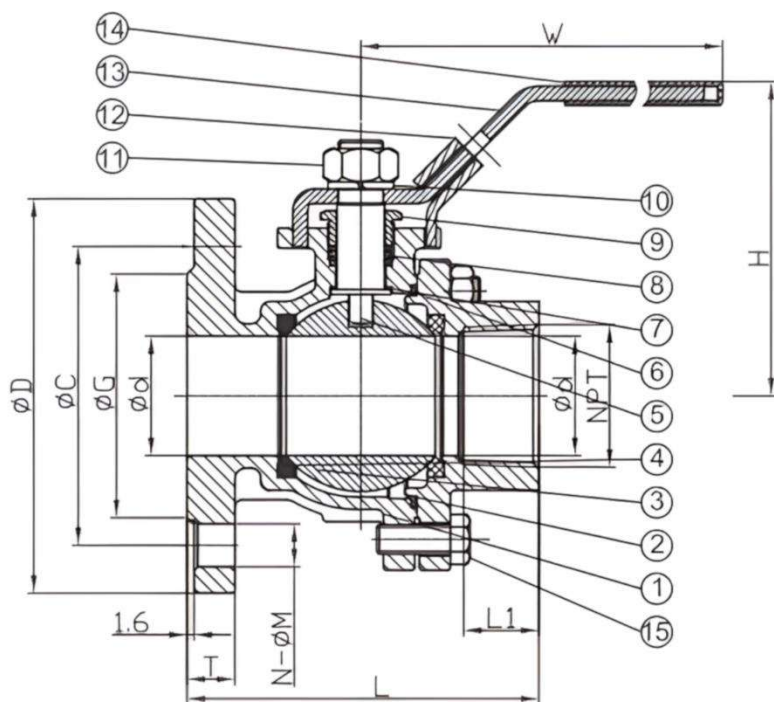


One Piece Body

| Materials List |                            |      |               |
|----------------|----------------------------|------|---------------|
| NO             | DESCRIPTION                | QTY. | MATERIAL      |
| 1              | Valve body                 | 1    | Brass CW617N  |
| 2              | Valve seat                 | 2    | PTFE          |
| 3              | Ball                       | 1    | Brass HPb58-2 |
| 4              | Bonnet                     | 1    | CW617N        |
| 5              | Gasket                     | 1    | PTFE          |
| 6              | Cap                        | 1    | Brass CW617N  |
| 7              | Stem                       | 1    | Brass CW617N  |
| 8              | O-ring                     | 2    | EPDM          |
| 9              | Handle with locking device | 1    | SS304         |
| 10             | Hex nut                    | 1    | SS304         |



**VÁLVULA DE BOLA DE DOS PIEZAS 150LB CON EXTREMO BRIDA / EXTREMO ROSCADO /**  
**TWO-PIECE BALL VALVE 150LB FLANGE END / SCREWED END**

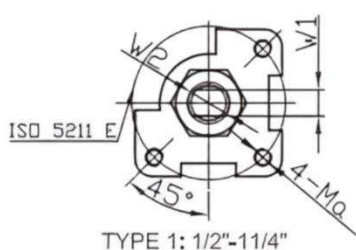


**FEATURES:**

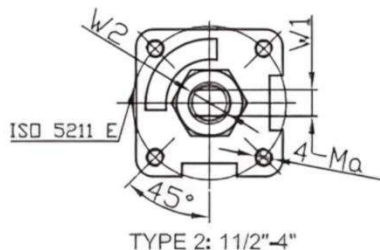
- End Flange Dimension: Asme B16.5
- Design: Asme B16.34
- Test: API 598
- With ISO 5211 Mounting Pad
- Investment Casting Body
- Blow-Out Proof Stem / Full Port
- Lever Operated / Locking Device

**MATERIALS LIST**

| NO | PART NAME      | MATERIAL |
|----|----------------|----------|
| 1  | BODY           | CF8M     |
| 2  | CAP            | CF8M     |
| 3  | BALL           | CF8M     |
| 4  | SEAT           | PTFE     |
| 5  | STEM           | SUS316   |
| 6  | GASKET         | PTFE     |
| 7  | THRUST WASHER  | PTFE     |
| 8  | PACKING        | PTFE     |
| 9  | GLAND          | SUS304   |
| 10 | SPRING WASHER  | SUS304   |
| 11 | STEM NUT       | SUS304   |
| 12 | LOCKING DEVICE | SUS304   |
| 13 | HANDLE         | SUS304   |
| 14 | PLASTIC COVER  | PLASTIC  |
| 15 | BOLT           | SUS304   |



TYPE 1: 1/2"-11/4"



TYPE 2: 1 1/2"-4"

**TEST PRESSURE:**

|                 |          |                      |
|-----------------|----------|----------------------|
| SHELL(BY WATER) | BY WATER | 450PSI               |
|                 |          | 32kg/cm <sup>2</sup> |
|                 | BY AIR   | 315PSI               |
|                 |          | 22kg/cm <sup>2</sup> |

**DIMENSIONS:**

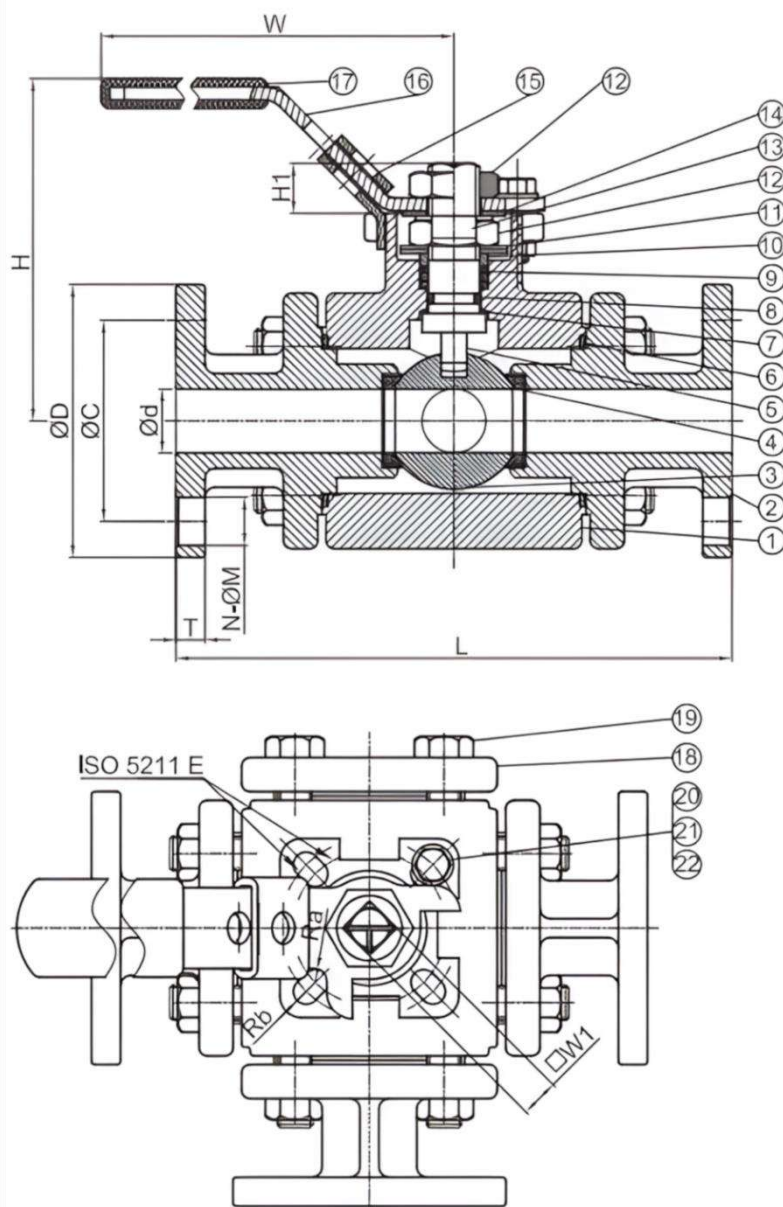
| SIZE   | d  | D   | C     | G  | T    | N-M  | L   | L1   | H   | W   | W1  | W2   | ISO 5211 | E  | Ma | NPT       |
|--------|----|-----|-------|----|------|------|-----|------|-----|-----|-----|------|----------|----|----|-----------|
| 1"     | 25 | 108 | 79.5  | 51 | 11.1 | 4-16 | 95  | 17.5 | 92  | 188 | 9.5 | 14.5 | F05      | 50 | M6 | 1"NPT     |
| 1 1/2" | 40 | 127 | 98.5  | 73 | 14.3 | 4-16 | 123 | 18.5 | 126 | 245 | 12  | 19.0 | F07      | 70 | M8 | 1 1/2"NPT |
| 2"     | 50 | 152 | 120.5 | 92 | 15.9 | 4-19 | 137 | 19.5 | 132 | 245 | 12  | 19.0 | F07      | 70 | M8 | 2"NPT     |





## VÁLVULA DE BOLA DE ACERO INOXIDABLE DE 3 VÍAS DN 25 CON EXTREMO BRIDA BLOQUEABLE DIN PN16 /

3-WAY STAINLESS STEEL BALL VALVE DN 25 FLANGED ENDS LOCKABLE DIN PN16



### FEATURES:

- TEST: EN 12266-1:2003
- INVESTMENT CASTING BODY
- WITH ISO 5211 MOUNTING PAD
- LOCKING DEVICE
- THERE ARE FOUR SEATS
- L-PORT OR T-PORT AVAILABLE / 360°PAD

### MATERIALS LIST

| NO | PART NAME      | MATERIAL    |
|----|----------------|-------------|
| 1  | BODY           | SS304 SS316 |
| 2  | CAP            | SS304 SS316 |
| 3  | BALL           | SS304 SS316 |
| 4  | SEAT           | PTFE        |
| 5  | STEM           | SS316       |
| 6  | GASKET         | PTFE        |
| 7  | THRUST WASHER  | PTFE        |
| 8  | O-RING         | VITON       |
| 9  | PACKING        | PTFE        |
| 10 | GLAND          | SS304       |
| 11 | SPRING WASHER  | SS304       |
| 12 | STEM NUT       | SS304       |
| 13 | STOP WASHER    | SS304       |
| 14 | HANDLE HEAD    | SS304       |
| 15 | LOCKING DEVICE | SS304       |
| 16 | HANDLE         | SS304       |
| 17 | PLASTIC COVER  | PLASTIC     |
| 18 | CAP-A          | SS316       |
| 19 | BOLT           | SS304       |
| 20 | STOP PIN       | SS304       |
| 21 | BOLT           | SS304       |
| 22 | NUT            | SS304       |

### FLOW PATTERN:

| PORT TYPE | 1 | 2 | 3 | 4 |
|-----------|---|---|---|---|
| T         |   |   |   |   |

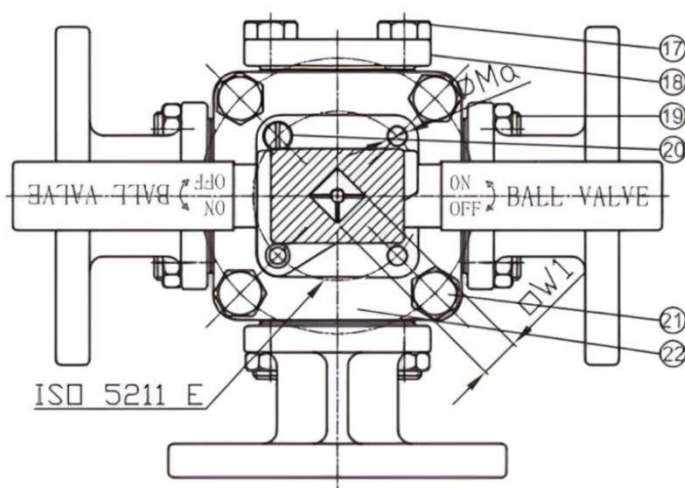
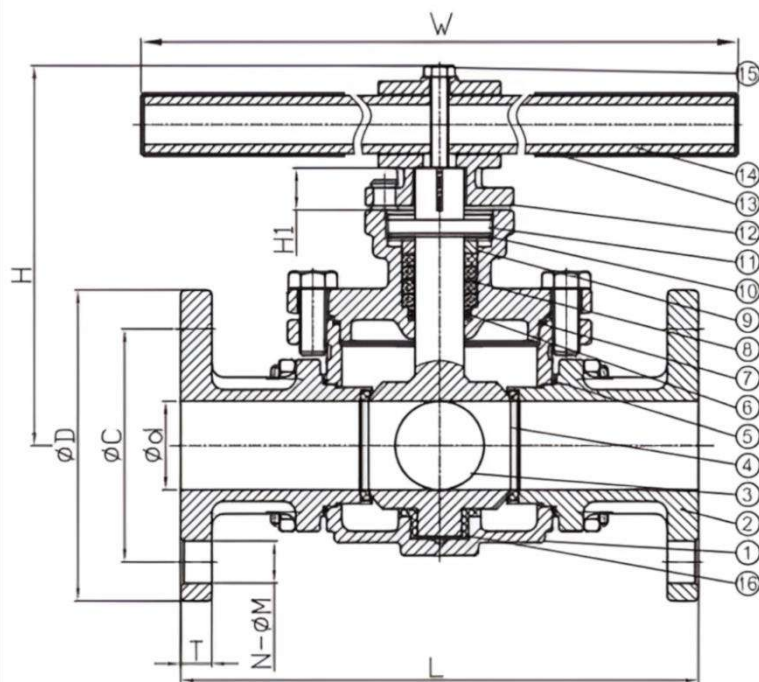
### DIMENSIONS:

| SIZE   | d  | D   | C  | T    | N | M | L   | H  | W   | ISO     | E     | H1 | W1 | Ra | Rb   |
|--------|----|-----|----|------|---|---|-----|----|-----|---------|-------|----|----|----|------|
| DN NPS |    |     |    |      |   |   |     |    |     | 5211    |       |    |    |    |      |
| 25 1"  | 25 | 108 | 85 | 12.1 | 4 | 4 | 165 | 96 | 153 | F04-F05 | 42-50 | 11 | 11 | R3 | R3.5 |



### TEST PRESSURE:

|                 |          |                      |
|-----------------|----------|----------------------|
| SHELL(BY WATER) |          | EN 12266-1           |
|                 |          | 450PSI               |
|                 |          | 32kg/cm <sup>2</sup> |
| SEAT            | BY WATER | 315PSI               |
|                 |          | 22kg/cm <sup>2</sup> |
|                 | BY AIR   | 85PSI                |
|                 |          | 6kg/cm <sup>2</sup>  |

**VÁLVULA DE BOLA DE ACERO INOXIDABLE DE 3 VÍAS DN 80 CON EXTREMO BRIDA BLOQUEABLE DIN PN16 /****3-WAY STAINLESS STEEL BALL VALVE DN 80 FLANGED ENDS LOCKABLE DIN PN16****DIMENSIONS:**

| Size   | d  | D   | C   | T  | N | M  | L   | H   | W   | ISO 5211 | E   | H1 | W1 | Ma  |
|--------|----|-----|-----|----|---|----|-----|-----|-----|----------|-----|----|----|-----|
| DN NPS |    |     |     |    |   |    |     |     |     |          |     |    |    |     |
| 80 3"  | 76 | 200 | 160 | 20 | 8 | 18 | 305 | 216 | 504 | F10      | 102 | 24 | 22 | □12 |

**FEATURES:**

- END FLANGE DIMENSION: DIN2633
- TEST:EN 12266-1:2003
- INVESTMENT CASTING BODY
- FIXED BALL / FULL PORT
- WITH ISO 5211 MOUNTING PAD
- THERE ARE FOUR SEATS
- L-PORT OR T-PORT AVAILABLE / 360°PAD

| NO | PART NAME     | MATERIAL        |
|----|---------------|-----------------|
| 1  | BODY          | SS304 SS316     |
| 2  | CAP           | SS304 SS316     |
| 3  | BALL          | SS304 SS316     |
| 4  | SEAT          | R-PTFE          |
| 5  | GASKET        | R-PTFE          |
| 6  | O-RING        | VITON           |
| 7  | GASKET        | R-PTFE          |
| 8  | PACKING       | R-PTFE          |
| 9  | GLAND         | SUS304          |
| 10 | SPRING WASHER | SUS301          |
| 11 | CAP-C         | 1.4308 (SS304)  |
| 12 | HANDLE HEAD   | 1.4308 (SS304)  |
| 13 | PLASTIC COVER | PLASTIC         |
| 14 | HANDLE POLE   | GALVANIZED PIPE |
| 15 | HANDLE BOLT   | SUS304          |
| 16 | SLEEVE        | R-PTFE          |
| 17 | CAP-B BOLT    | SUS304          |
| 18 | CAP-B         | 1.4308          |
| 19 | BOLD          | SUS304          |
| 20 | STOP PIN      | SUS304          |
| 21 | CAP-A BOLT    | SUS304          |
| 22 | CAP-A         | 1.4308          |

**FLOW PATTERN:**

| PORT TYPE | 1                                                                                     | 2                                                                                     | 3                                                                                     | 4                                                                                     |
|-----------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| L         |  |  |  |  |
| T         |  |  |  |  |

**TEST PRESSURE:**

|                 |          |                        |
|-----------------|----------|------------------------|
| SHELL(BY WATER) | BY WATER | 345PSI                 |
|                 |          | 24kg/cm <sup>2</sup>   |
|                 | BY AIR   | 250PSI                 |
|                 |          | 17.5kg/cm <sup>2</sup> |
| SEAT            | BY WATER | 85PSI                  |
|                 | BY AIR   | 6kg/cm <sup>2</sup>    |





## VÁLVULA DE COMPUERTA CON BRIDA E INDICADOR DE POSICIÓN DIN EN 12228 (BLOQUEABLE) PARA TRANSFORMADORES /

FLANGED GATE VALVE WITH POSITION INDICATOR DIN EN 12228 (LOCKABE) FOR TRANSFORMERS

### Flanged Gate Valves, PN16 nominal pressure, DIN EN 12288

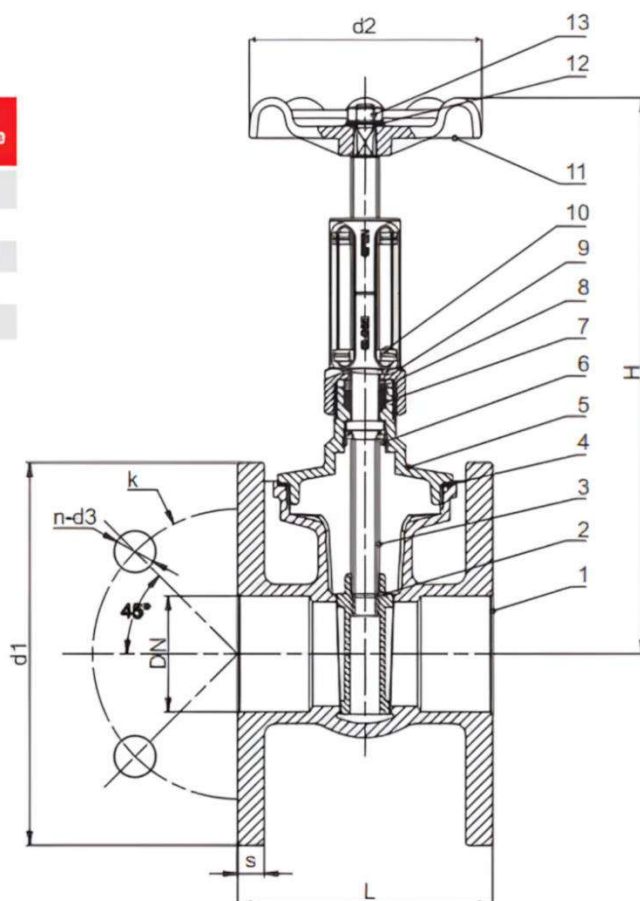
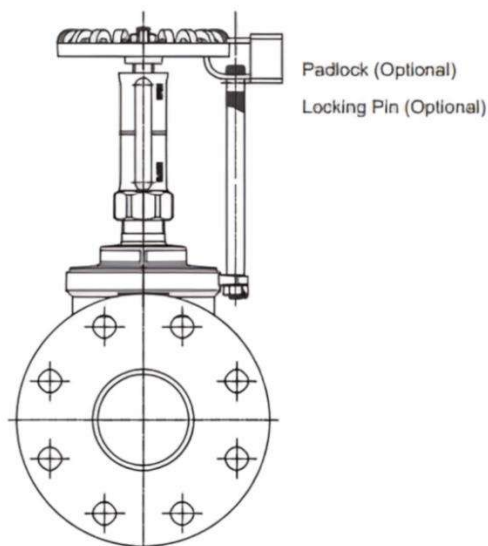
Body and all parts made of brass Ms 58 or RG 5 Bronze (red brass)  
with maintenance-free gland packing (PTFE)  
and non rising stem,  
flanged connection acc. to DIN EN 1092-1

#### Specifications

|                           |                                                      |
|---------------------------|------------------------------------------------------|
| Material                  | : Brass Ms 58 (CuZn40Pb2) or bronze RG 5 (CuSn5ZnPb) |
| Handwheel                 | : Brass (Red painted)                                |
| Wedge, cap, stem          | : Brass Ms 58 (CuZn40Pb2) or bronze RG 5 (CuSn5ZnPb) |
| Other assembly components | : A2-70 Stainless Steel                              |
| Gaskets                   | : Resistant to Transformer Oil                       |
| Temperature               | : -25°C, +120 °C                                     |
| Flange dimensions         | : EN 1092-1                                          |
| Stem                      | : Moving inner                                       |



| DN | L   | d1  | H   | d2  | s    | Holes |   |    | W(kg.) | Pressure |
|----|-----|-----|-----|-----|------|-------|---|----|--------|----------|
|    |     |     |     |     |      | k     | n | d3 |        |          |
| 25 | 80  | 115 | 80  | 60  | 10   | 85    |   | 14 | 2,3    |          |
| 40 | 100 | 150 | 100 | 80  | 10,5 | 110   | 4 | 18 | 4,2    |          |
| 50 | 110 | 165 | 110 | 100 | 11,5 | 125   |   | 18 | 4,8    | PN 16    |
| 65 | 130 | 185 | 130 | 120 | 14   | 145   |   | 18 | 8,9    |          |
| 80 | 150 | 200 | 150 | 140 | 14   | 160   | 8 | 18 | 11,4   |          |



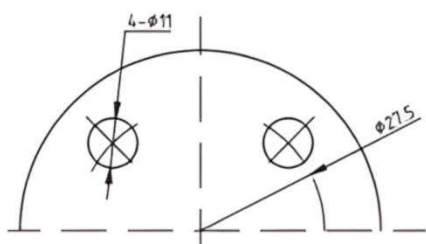
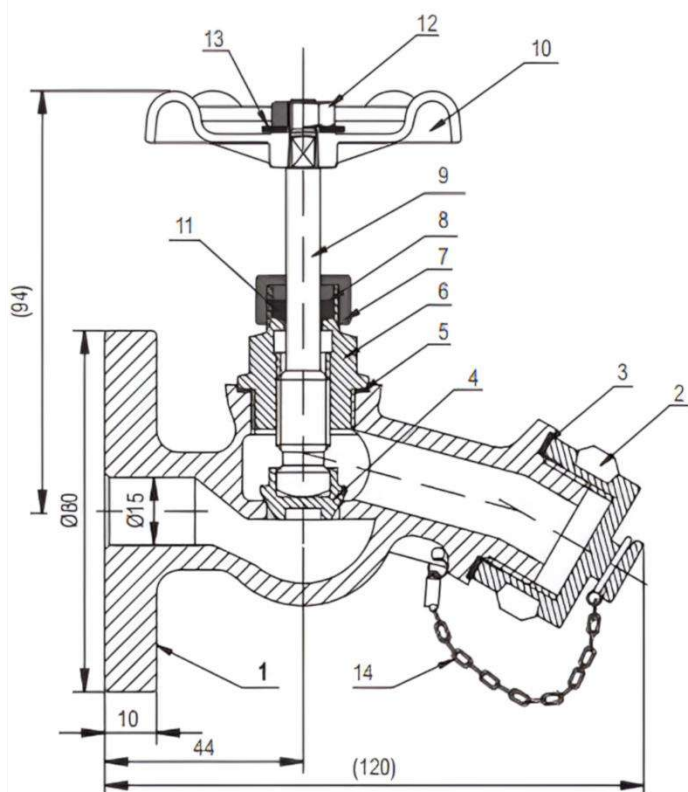


## VÁLVULA DE MUESTREO DE ACEITE DIN 42568 DN 15 O ½ " /

OIL SAMPLING VALVE DIN 42568 DN 15 OR ½ "

Body : Ms 58 or Bronze  
Valve stem seal : PTFE gland packing  
Seat packing : Metal  
Flange connection : Acc. to DIN2501

Brass Ms 58 (CuZn40Pb2)  
Bronze RG 5 (CuSn5ZnPb)



| NO | PART NAME   | MATERIAL                      |
|----|-------------|-------------------------------|
| 1  | Body        | Ms 58 (CuZn40Pb2) or RG 5     |
| 2  | Closing cap | Ms 58 (CuZn40Pb2) or RG 5     |
| 3  | Gasket      | Teflon                        |
| 4  | Seat        | Ms 58 (CuZn40Pb2) or RG 5     |
| 5  | Gasket      | PTFE                          |
| 6  | Upper Cap   | Ms 58 (CuZn40Pb2) or RG 5     |
| 7  | Nut         | Ms 58 (CuZn40Pb2) or RG 5     |
| 8  | Gland       | Ms 58                         |
| 9  | Stem        | Ms 58                         |
| 10 | Hand wheel  | Bakelite or Aluminium casting |
| 11 | Packing     | PTFE                          |
| 12 | Nut         | SS 316                        |
| 13 | Washer      | SS 316                        |
| 14 | Chain       | SS 316                        |

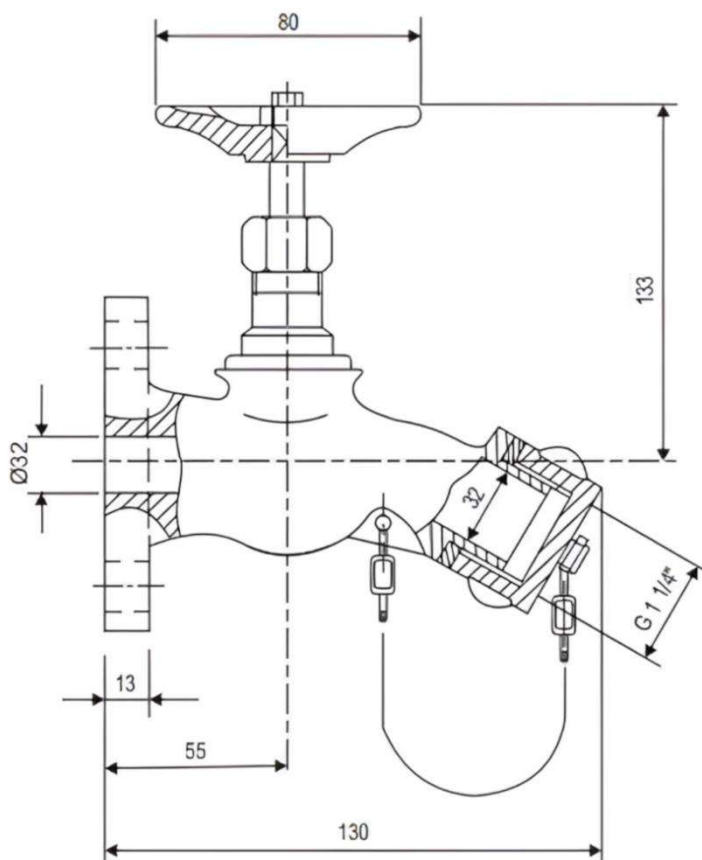
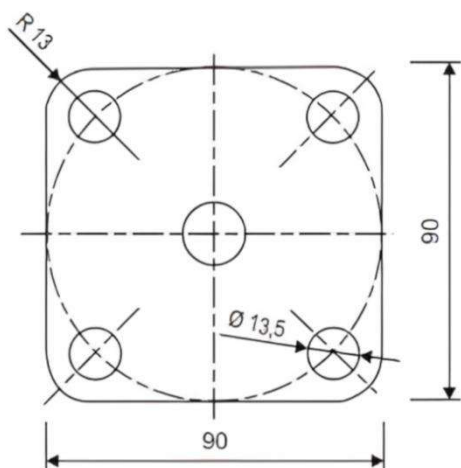


## VÁLVULA DE MUESTREO DE ACEITE DIN 42568 DN 32 /

OIL DRAIN & SAMPLING VALVE DIN 42568 DN 32

Brass Ms 58 (CuZn40Pb2)  
Bronze RG 5 (CuSn5ZnPb)

Body : Ms 58 or Bronze  
Valve stem seal : PTFE gland packing  
Seat packing : Metal  
Flange connection : Acc. to DIN2501



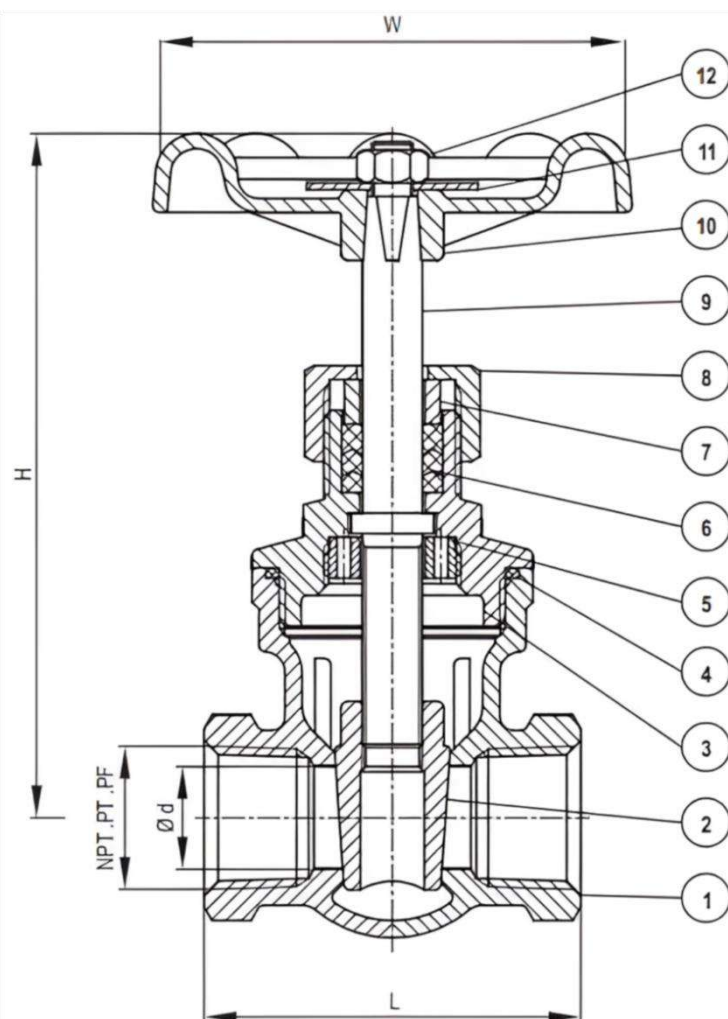
| NO | PART NAME   | MATERIAL                      |
|----|-------------|-------------------------------|
| 1  | Body        | Ms 58 (CuZn40Pb2) or RG 5     |
| 2  | Closing cap | Ms 58 (CuZn40Pb2) or RG 5     |
| 3  | Gasket      | Teflon                        |
| 4  | Seat        | Ms 58 (CuZn40Pb2) or RG 5     |
| 5  | Gasket      | PTFE                          |
| 6  | Upper Cap   | Ms 58 (CuZn40Pb2) or RG 5     |
| 7  | Nut         | Ms 58 (CuZn40Pb2) or RG 5     |
| 8  | Gland       | Ms 58                         |
| 9  | Stem        | Ms 58                         |
| 10 | Hand wheel  | Bakalite or Aluminium casting |
| 11 | Packing     | PTFE                          |
| 12 | Nut         | SS 316                        |
| 13 | Washer      | SS 316                        |
| 14 | Chain       | SS 316                        |







**VÁLVULA DE COMPUERTA CLASE 200 CON EXTREMO ROSCADO DE  
ACERO INOXIDABLE /**  
*GATE VALVE CLASS 200 SCREWED END STAINLESS STEEL*



TC311 SUSU316 A351 Gr-CF8M DIN1.4408

**FEATURES:**

- PIPE THREAD IN ACCORDANCE: NPT, BSPT, DIN259, DIN2999, ISO 228 CLASS A
- INVESTMENT CASTING BODY
- NON-RISING STEM
- 200 W.O.G.
- MATERIAL:

SUS316/ ASTM A351 Gr-CF8M/DIN1.4408

**MATERIALS LIST**

| NO | PART NAME    | MATERIAL |       |
|----|--------------|----------|-------|
| 1  | BODY         | SS304    | SS316 |
| 2  | DISC         | SS304    | SS316 |
| 3  | BONNET       | SS304    | SS316 |
| 4  | GASKET       | PTFE     |       |
| 5  | WHORL GASKET | SUS304   |       |
| 6  | PACKING      | PTFE     |       |
| 7  | GLAND        | SUS304   |       |
| 8  | CAP NUT      | CF8M     |       |
| 9  | STEM         | SUS316   |       |
| 10 | HANDLE       | ALUMINUM |       |
| 11 | NAMEPLATE    | ALUMINUM |       |
| 12 | NUT          | SUS304   |       |

**DIMENSIONS:**

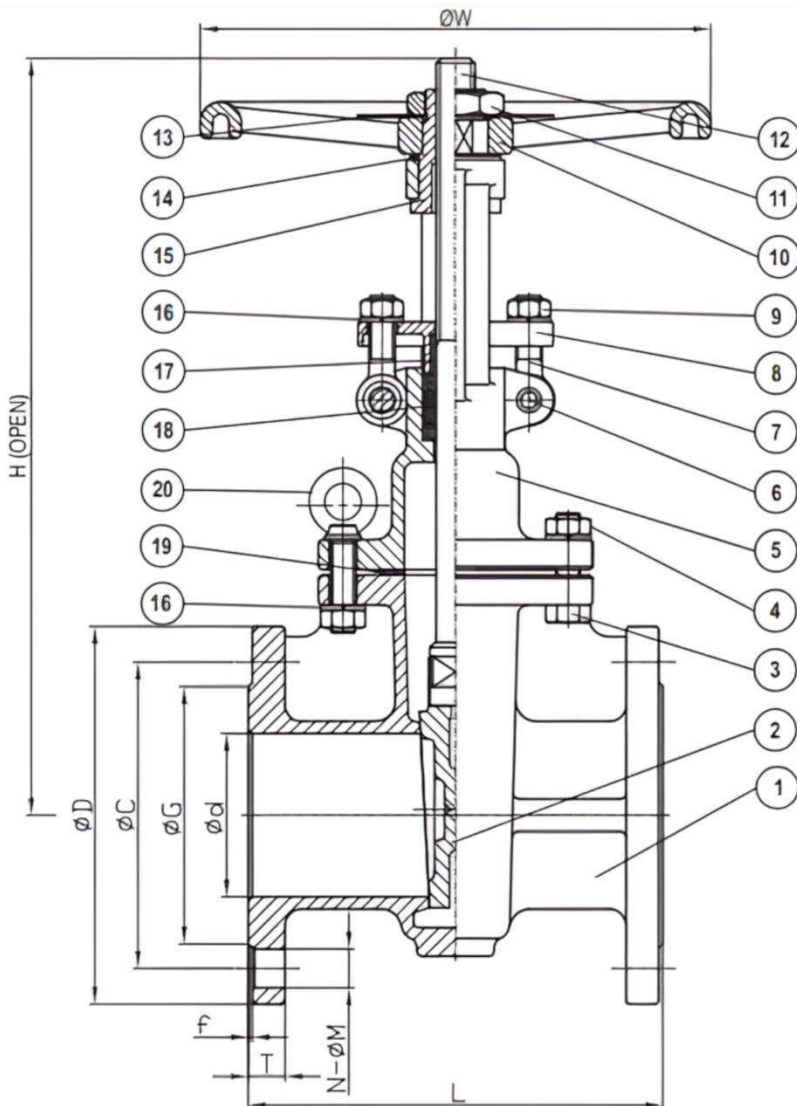
| Size |        | d  | L   | H   | W   | WEIGHT<br>KG |
|------|--------|----|-----|-----|-----|--------------|
| DN   | NPS    |    |     |     |     |              |
| 15   | 1/2"   | 15 | 55  | 101 | 70  | 0.42         |
| 20   | 3/4"   | 20 | 60  | 108 | 70  | 0.52         |
| 25   | 1"     | 25 | 65  | 115 | 80  | 0.70         |
| 32   | 1 1/4" | 32 | 75  | 132 | 80  | 1.01         |
| 40   | 1 1/2" | 38 | 85  | 149 | 90  | 1.54         |
| 50   | 2"     | 50 | 95  | 175 | 100 | 2.06         |
| 65   | 2 1/2" | 65 | 116 | 213 | 140 | 5.56         |
| 80   | 3"     | 80 | 130 | 241 | 140 | 8.63         |







**VÁLVULA DE COMPUERTA DIN-PN16 CON EXTREMO DE BRIDA DE ACERO INOXIDABLE /**  
**GATE VALVE DIN-PN16 FLANGE END STAINLESS STEEL**



**FEATURES:**

- FACE TO FACE DIMENSION: DIN3202-F4
- END FLANGE DIMENSIONS: DIN2633
- DESING: ASME B16.34
- TEST: EN 12266-1
- INVESTMENT CASTING BODY

**MATERIALS LIST**

| NO | PART NAME      | MATERIAL             |        |
|----|----------------|----------------------|--------|
| 1  | BODY           | 1.4308               | 1.4408 |
| 2  | DISC           | 1.4308               | 1.4408 |
| 3  | BOLT           | SUS304               |        |
| 4  | NUT            | SUS304               |        |
| 5  | CAP            | 1.4308               | 1.4408 |
| 6  | HINGE PIN      | SUS304               |        |
| 7  | EYE BOLT       | SUS304               |        |
| 8  | GLAND          | 1.4308               |        |
| 9  | EYE NUT        | SUS304               |        |
| 10 | HAND WHEEL     | FCD                  |        |
| 11 | NUT            | BRONZE               |        |
| 12 | STEM           | SUS304               | SUS316 |
| 13 | NAME PLATE     | SUS304               |        |
| 14 | GASKET         | BRONZE               |        |
| 15 | YOKE SLEEVE    | BRONZE               |        |
| 16 | SPRING WASHERS | SUS304               |        |
| 17 | STEM BUSHING   | PTFE                 |        |
| 18 | GLAND PACKING  | PTFE                 |        |
| 19 | GASKET         | *PTFE / 304+GRAPHITE |        |
| 20 | LIFTING RING   | SUS304               |        |

\* 5"UP GASKET: SS304+GRAPHITE

**DIMENSIONS:**

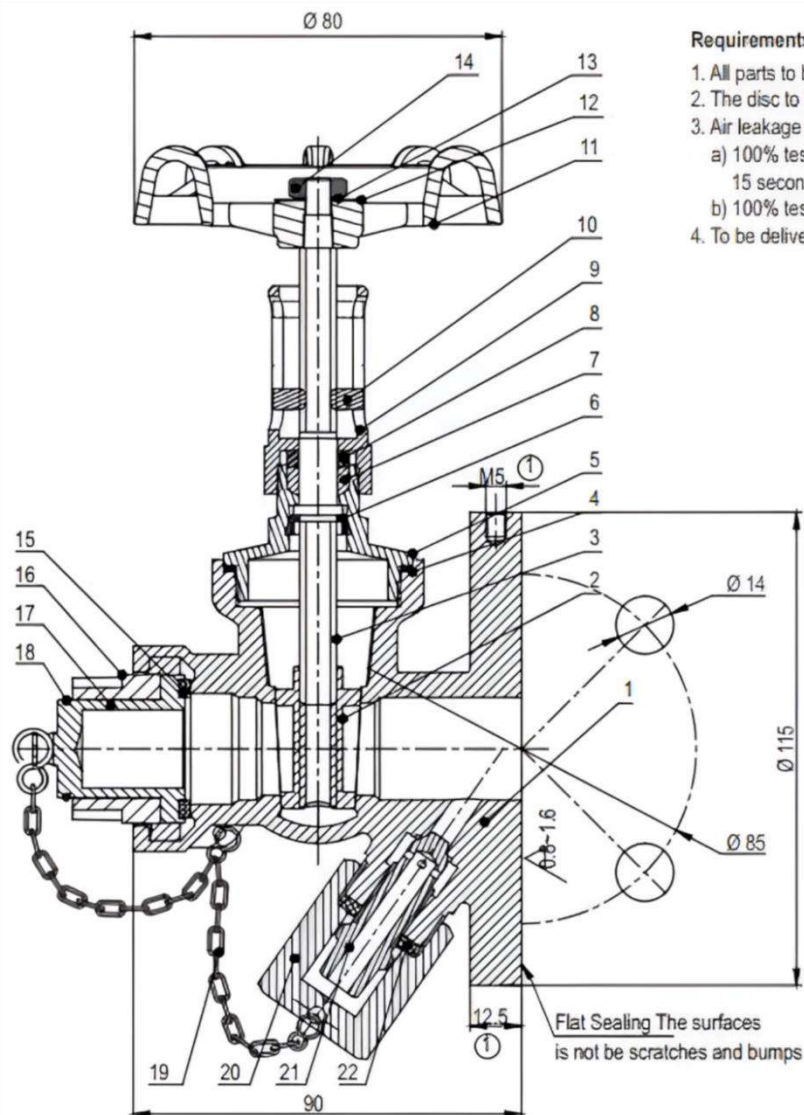
| Size   | d   | L   | H   | W   | D   | C   | G   | f   | T | N-ØM |       |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|---|------|-------|
| 2"     | 50  | 50  | 150 | 331 | 200 | 165 | 125 | 102 | 3 | 18   | 4-Ø18 |
| 2 1/2" | 65  | 65  | 170 | 393 | 200 | 185 | 145 | 122 | 3 | 18   | 4-Ø18 |
| 3"     | 80  | 80  | 180 | 470 | 250 | 200 | 160 | 138 | 3 | 20   | 8-Ø18 |
| 4"     | 100 | 100 | 190 | 545 | 250 | 220 | 180 | 158 | 3 | 20   | 8-Ø18 |
| 5"     | 125 | 125 | 200 | 640 | 300 | 250 | 210 | 188 | 3 | 22   | 8-Ø18 |
| 6"     | 150 | 150 | 210 | 740 | 300 | 285 | 240 | 212 | 3 | 22   | 8-Ø22 |
| 8"     | 200 | 200 | 230 | 910 | 350 | 340 | 295 | 268 | 3 | 24   | 8-Ø22 |





**VÁLVULA DE COMPUERTA DE BRONCE DN25 CON INDICADOR DE POSICIÓN,  
MUESTREO EN LA PARTE INFERIOR Y TAPA DN 25 /**

*DN 25 BRONZE GATE VALVE WITH POSITION INDICATOR BOTTOM SAMPLING AND CAP*



**Requirements**

1. All parts to be clean and free of oil and other impurities before assembling.
2. The disc to move up and down smoothly with opening and closing the valves
3. Air leakage test according to below
  - a) 100% testing of the external leakage, pressure (air) to be 6bar for min. 15 seconds.
  - b) 100% testing of internal leakage: Pressure (air) to be 6 bar for min. seconds.
4. To be delivered in the closed position.

**Materials List**

| NO | DESCRIPTION      | QTY. | MATERIAL      |
|----|------------------|------|---------------|
| 1  | Valve body       | 1    | Bronze C83600 |
| 2  | Disc             | 1    | Bronze C83600 |
| 3  | Stem             | 1    | Brass CW617N  |
| 4  | Washer ring      | 1    | PTFE          |
| 5  | Bonnet           | 1    | Bronze C83600 |
| 6  | Tightening Ring  | 1    | Brass HPb58-2 |
| 7  | Sealing Ring     | 1    | PTFE          |
| 8  | Clamping Nut     | 1    | Brass HPb58-2 |
| 9  | Guiding holder   | 1    | Bronze C83600 |
| 10 | Across Slider    | 1    | Bronze C83600 |
| 11 | Handlewhell      | 1    | BRASS         |
| 12 | Nameplate        | 1    | Aluminum      |
| 13 | Gasket           | 1    | SUS 304       |
| 14 | Hex Nut          | 1    | SUS 304 M6    |
| 15 | Seal ring        | 1    | NBR           |
| 16 | Sealing holder   | 1    | Brass CW617N  |
| 17 | Clamping fitting | 1    | Bronze C83600 |
| 18 | Chain            | 1    | Brass         |
| 19 | Hex cap          | 1    | Brass CW617N  |
| 20 | Drain disc       | 1    | Brass CW617N  |
| 21 | Sealing washer   | 1    | PTFE          |



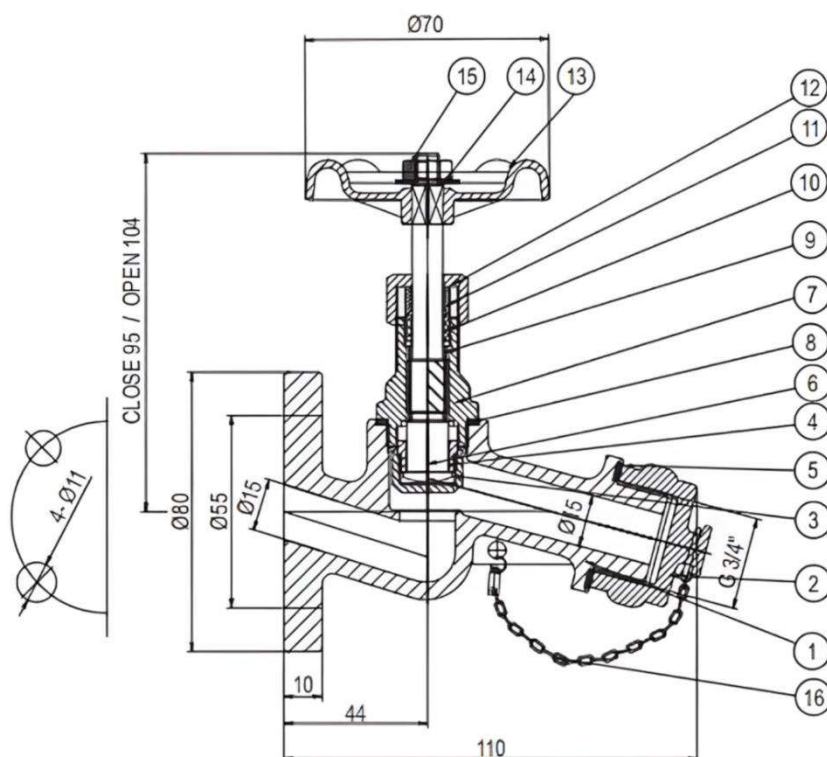


## VÁLVULA DE MUESTREO DE ACEITE DIN 42568 DN 15 OR ½ /

OIL SAMPLING VALVE DIN 42568 DN 15 OR ½

Stainless Steel 316/1.4408  
Stainless Steel 304/1.4308

Body : Stainless steel  
Valve stem seal : PTFE gland packing  
Seat packing : Metal  
Flange connection : Acc. to DIN2501



| NO | PART NAME   | MATERIAL        |
|----|-------------|-----------------|
| 1  | Body        | 1.4308 - 1.4408 |
| 2  | Closing cap | 1.4308 - 1.4408 |
| 3  | Disc        | SS 304          |
| 4  | Disc cover  | SS 304          |
| 5  | Gasket      | PTFE            |
| 6  | Stem        | SS 304          |
| 7  | Upper Cap   | 1.4308 - 1.4408 |
| 8  | Gasket      | PTFE            |
| 9  | Washer      | SS 304          |
| 10 | Packing     | PTFE            |
| 11 | Gland       | SS 304          |
| 12 | Nut         | 1.4308 - 1.4408 |
| 13 | Handle      | AL or Bakelite  |
| 14 | Nut         | SS 304          |
| 15 | Washer      | SS 304          |
| 16 | Chain       | SS 304          |





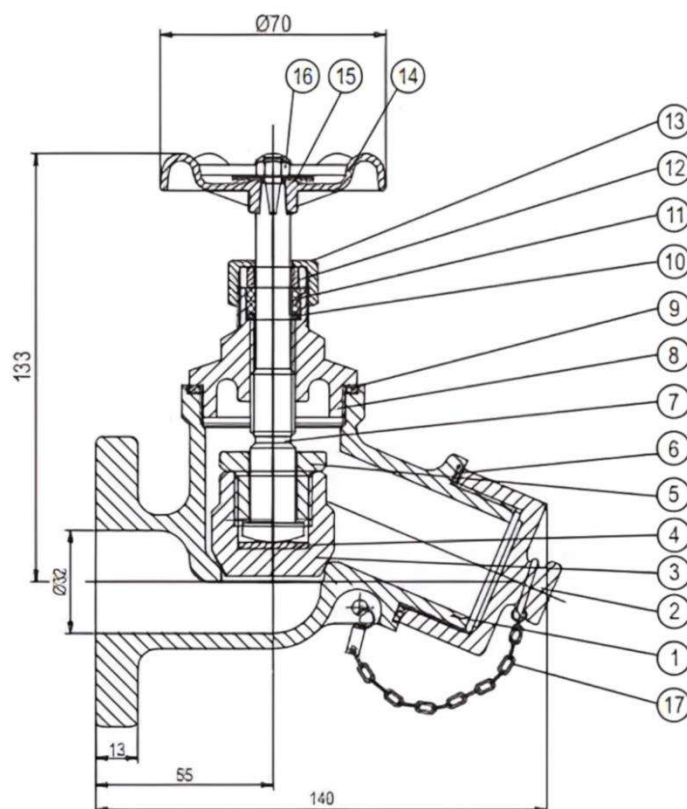
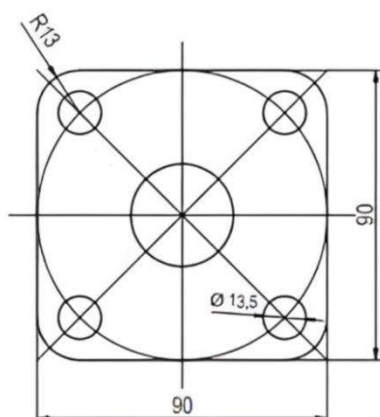


## VÁLVULA DE MUESTREO Y DRENAJE DE ACEITE DIN 42568 DN 32 /

OIL DRAIN & SAMPLING VALVE DIN 42568 DN 32

Stainless Steel 316/1.4408  
Stainless Steel 304/1.4308

Body : Stainless steel  
Valve stem seal : PTFE gland packing  
Seat packing : Metal  
Flange connection : Acc. to DIN2501



| NO | PART NAME   | MATERIAL        |
|----|-------------|-----------------|
| 1  | Body        | 1.4308 - 1.4408 |
| 2  | Closing cap | 1.4308 - 1.4408 |
| 3  | Disc        | SS 304          |
| 4  | Washer      | SS 304          |
| 5  | Disc cover  | SS 304          |
| 6  | Gasket      | PTFE            |
| 7  | Stem        | SS 304          |
| 8  | Upper Cap   | 1.4308 - 1.4408 |
| 9  | Gasket      | PTFE            |
| 10 | Washer      | SS 304          |
| 11 | Packing     | PTFE            |
| 12 | Gland       | SS 304          |
| 13 | Nut         | 1.4308 - 1.4408 |
| 14 | Handle      | AL or Bakelite  |
| 15 | Washer      | SS 304          |
| 16 | Nut         | SS 304          |
| 17 | Chain       | SS 304          |



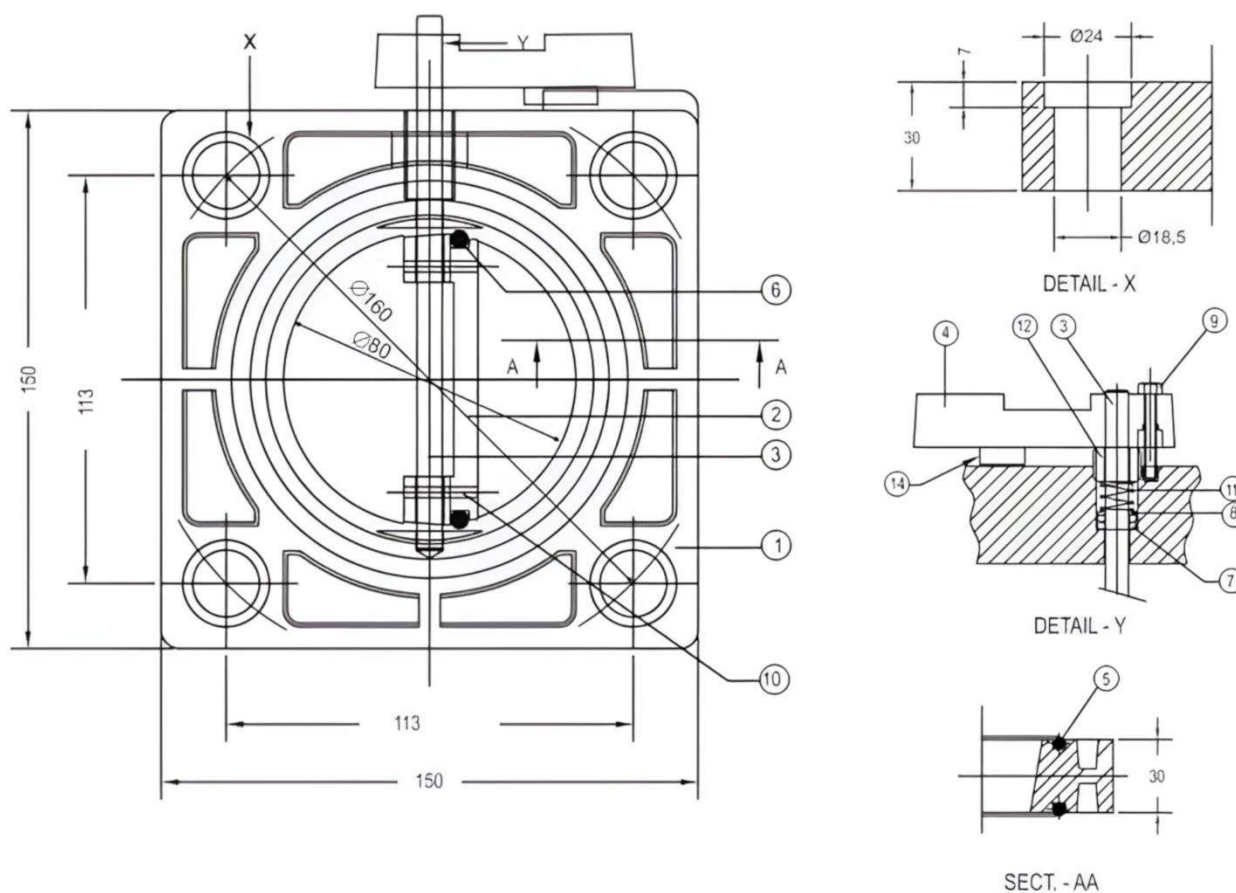




## VÁLVULA DE ALUMINIO M1 PARA RADIADOR NW 80 DIN42560 /

### ALUMINIUM BUTTERFLY VALVE M1 FOR RADIATOR NW 80 DIN42560

The aluminium die casted valve body, flap and handle. Available for mounting between flanges (wafer type) of transformer tank and radiator. Absolute Zero leakage when valve is closed. Material of sealing O-rings VITON or NBR. The valve can be fixed to the transformer-flange with help of 4 special M 16 bolts.



| No: | Description | Material  |
|-----|-------------|-----------|
| 1   | Body        | Aluminium |
| 2   | Flap        | Aluminium |
| 3   | Shaft       | St. Steel |
| 4   | Latch       | Aluminium |
| 5   | O-Ring      | NBR       |
| 6   | O-Ring      | NBR       |
| 7   | O-Ring      | NBR       |
| 8   | Washer      | A2-70     |
| 9   | Screw M5x30 | A2-70     |
| 10  | Pin         | A2-70     |
| 11  | Spring      | A2-70     |
| 12  | Prets Screw | A2-70     |



M16x101 Bolt  
Stainless or St37 zinc  
(Optional) Required 4 Pcs for Each Valve

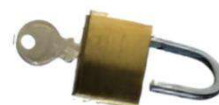
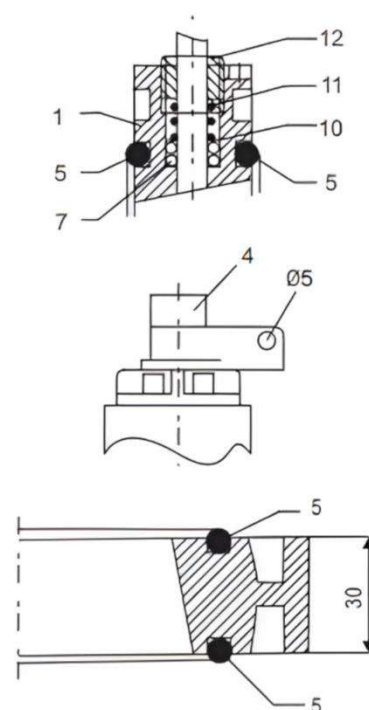
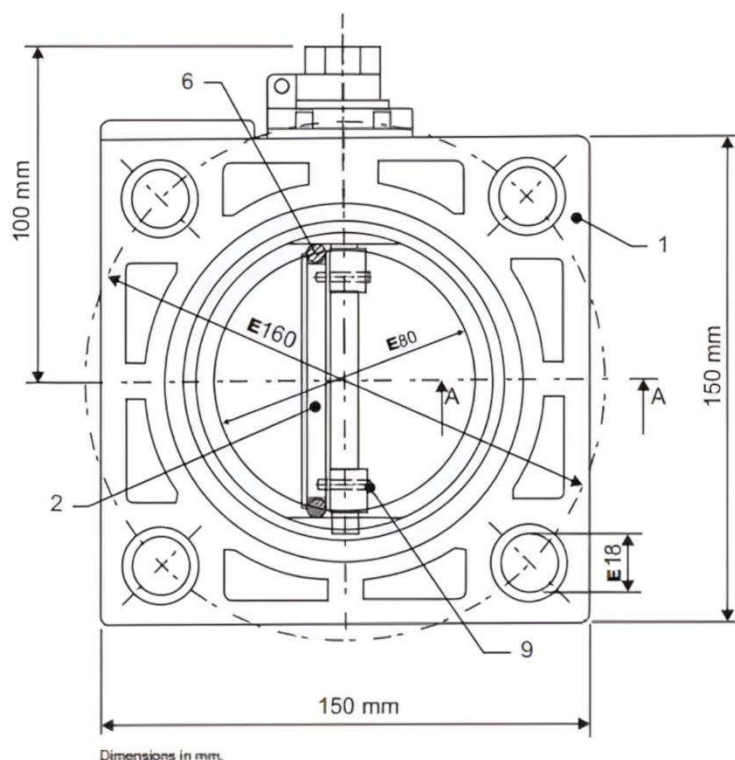




## VÁLVULA DE ALUMINIO M2 PARA RADIADOR NW 80 DIN42560 /

### ALUMINIUM BUTTERFLY VALVE M2 FOR RADIATOR NW 80 DIN42560

The aluminium die casted valve body, flap and handle. Available for mounting between flanges (wafer type) of transformer tank and radiator. Absolute Zero leakage when valve is closed. Material of sealing O-rings VITON or NBR. The valve can be fixed to the transformer-flange with help of 4 special M 16 bolts.



available  
to use pad lock

| No: | Description | Material  |
|-----|-------------|-----------|
| 1   | Body        | Aluminium |
| 2   | Flap        | Aluminium |
| 3   | Shaft       | St Steel  |
| 4   | Latch       | Aluminium |
| 5   | O-Ring      | NBR       |
| 6   | O-Ring      | NBR       |
| 7   | O-Ring      | NBR       |
| 8   | Washer      | A2-70     |
| 9   | Screw M5x30 | A2-70     |
| 10  | Pin         | A2-70     |
| 11  | Spring      | A2-70     |
| 12  | Prets Screw | A2-70     |

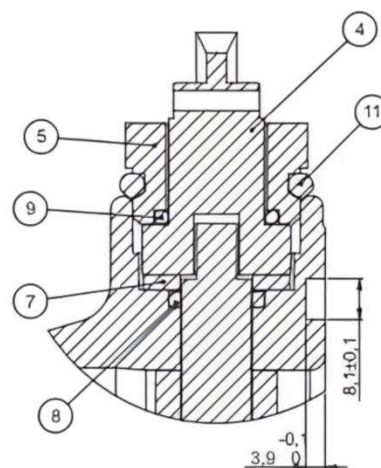
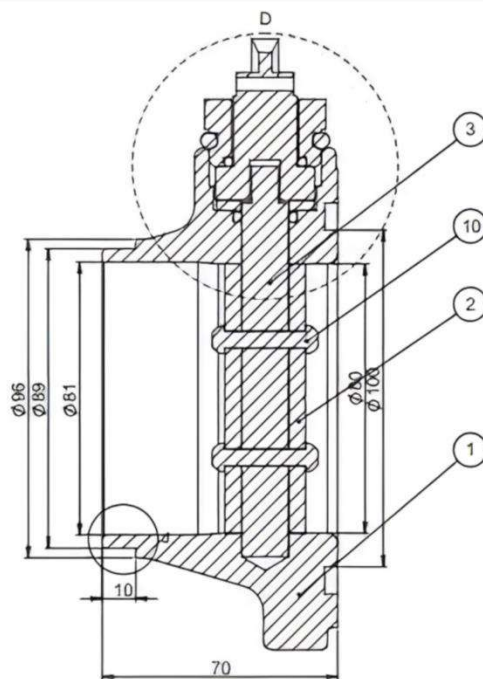
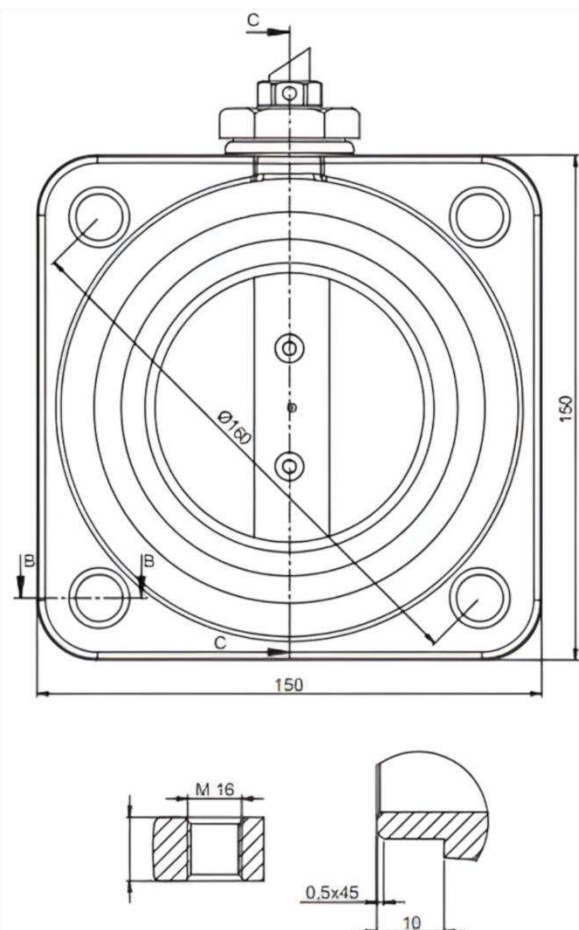


M16x101 Bolt  
Stainless or St37 zinc  
(Optional) Required 4 Pcs for Each Valve



## VÁLVULA MARIPOSA CON CUELLO DE SOLDADURA, FORMA A, DIN 42560 /

DIN 42560 FORM A WELDING NECK BUTTERFLY VALVE



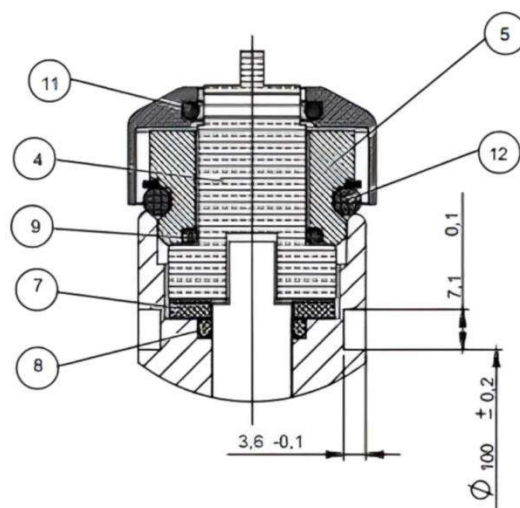
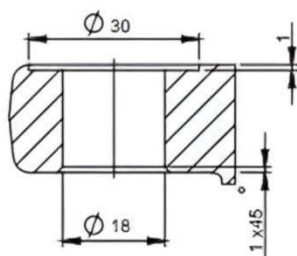
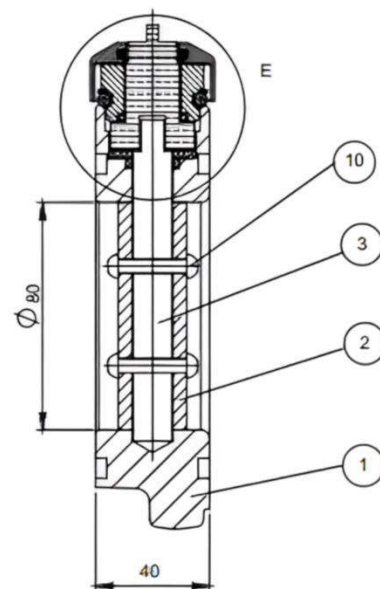
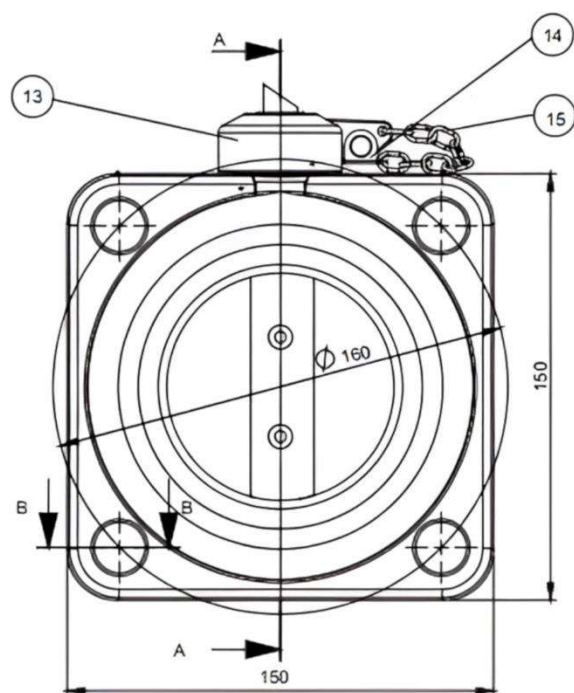
| Item | Description      | Material         | Qty |
|------|------------------|------------------|-----|
| 1    | Flange 42560     | S355J2G3         | 1   |
| 2    | Clap 42560       | GG20             | 1   |
| 3    | Spindle          | 11SMnPb30        | 1   |
| 4    | Thrust member    | Ms58             | 1   |
| 5    | Thrust screw     | Ms58             | 1   |
| 7    | Gasket DIN 42560 | AFM 39,29x14,5x3 | 1   |
| 8    | O-ring DIN 42560 | 14x3 NBR         | 1   |
| 9    | O-ring           | 19x3 VITON       | 1   |
| 10   | Pin              | S235JR,5x28      | 2   |
| 11   | O-ring           | 28x5 VITON       | 1   |





## VÁLVULA MARIPOSA CON FORMA B DIN 42560 /

DIN 42560 FORM B BUTTERFLY VALVE



| Item | Description             | Material         | Qty |
|------|-------------------------|------------------|-----|
| 1    | Flange 42560            | S355J2G3         | 1   |
| 2    | Clap 42560              | GG20             | 1   |
| 3    | Spindle                 | 11SMnPb30        | 1   |
| 4    | Thrust member           | Ms58             | 1   |
| 5    | Thrust screw            | Ms58             | 1   |
| 7    | Gasket DIN 42560        | AFM 39,29x14,5x3 | 1   |
| 8    | O-ring DIN 42560        | 14x3 NBR         | 1   |
| 9    | O-ring                  | 19x3 VITON       | 1   |
| 10   | Pin                     | S235JR,5x28      | 2   |
| 11   | O-ring                  | 19x3 VITON       | 1   |
| 12   | O-ring (Optional)       | 28x5 VITON       | 1   |
| 13   | Cap (Optional)          | MS 58            | 1   |
| 14   | Locking-ring (Optional) | Stainless Steel  | 1   |
| 15   | Chain (Optional)        | Stainless Steel  | 1   |

Items 11 - 13 - 14 - 15 - are optional

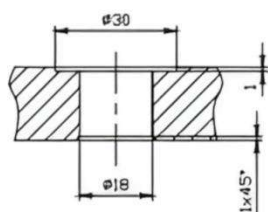
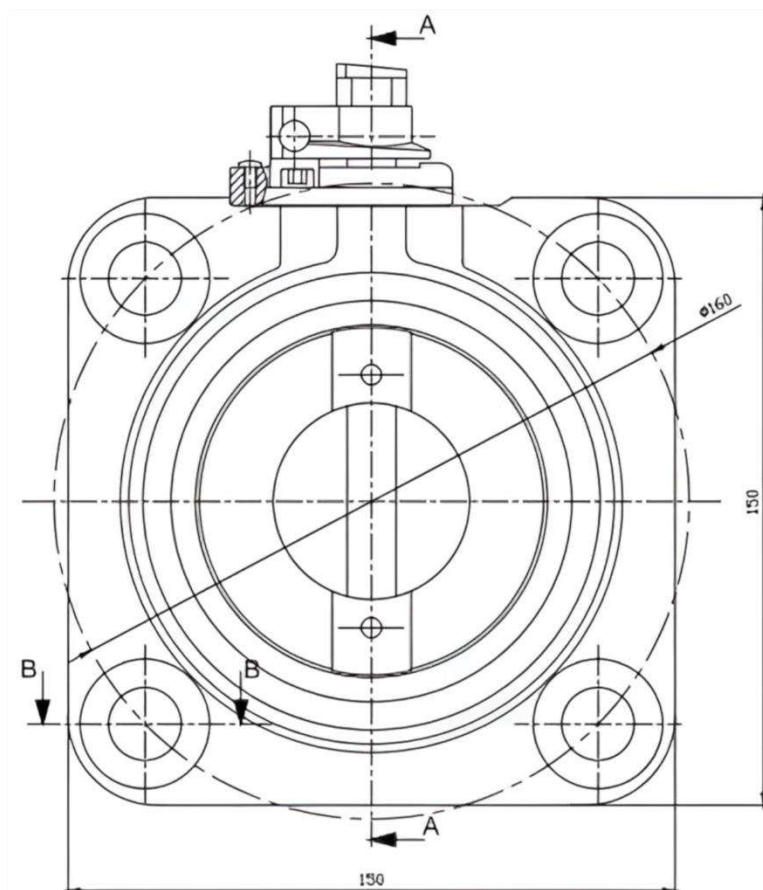




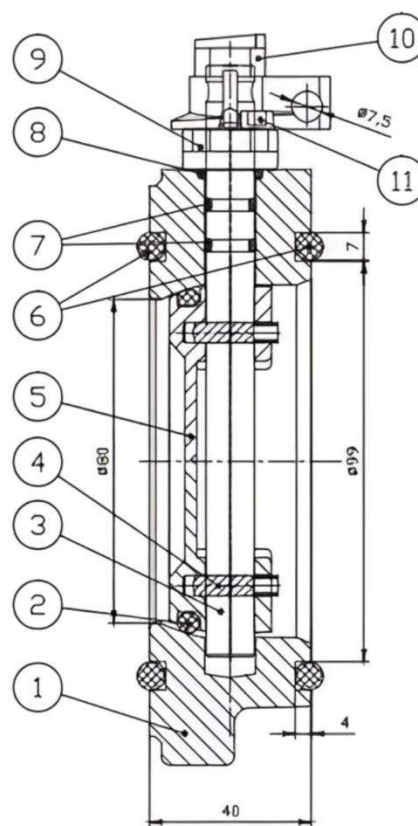


**VÁLVULA MARIPOSA DE ACERO INOXIDABLE SS316 CON FORMA B DIN 42560 /**

*DIN 42560 FORM B BUTTERFLY VALVE STAINLESS STEEL SS316*



B - B SECTION



A-A SECTION



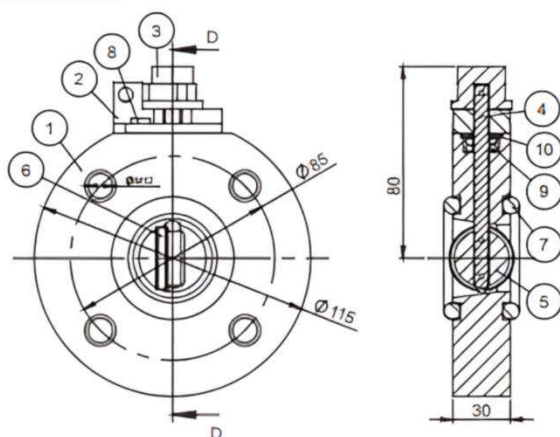
Completly Stainless Steel



## VÁLVULA MARIPOSA PARA BUCHHOLZ PN6 Y PN10 /

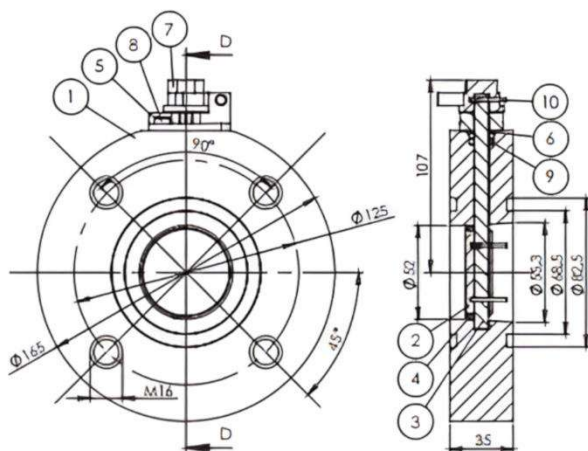
BUTTERFLY VALVE FOR BUCHHOLZ PN6 & PN10

### DN 25



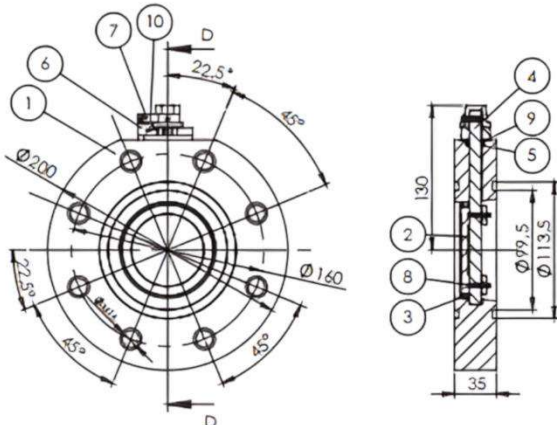
| Item | Description   | Material                                                                                           | Qty |
|------|---------------|----------------------------------------------------------------------------------------------------|-----|
| 1    | Body          | St37 <input type="checkbox"/> SS316 <input type="checkbox"/><br><input type="checkbox"/> Aluminium | 1   |
| 2    | Gland         | Brass                                                                                              | 1   |
| 3    | Drive         | Brass                                                                                              | 1   |
| 4    | Spindle       | A2-70                                                                                              | 1   |
| 5    | Throttle Clap | Brass                                                                                              | 1   |
| 6    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 1   |
| 7    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 2   |
| 8    | Bolt          | A2-70                                                                                              | 2   |
| 9    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 2   |
| 10   | Washer        | A2-70                                                                                              | 1   |

### DN 50



| Item | Description   | Material                                                                                           | Qty |
|------|---------------|----------------------------------------------------------------------------------------------------|-----|
| 1    | Body          | St37 <input type="checkbox"/> SS316 <input type="checkbox"/><br><input type="checkbox"/> Aluminium | 1   |
| 2    | Throttle Clap | Brass                                                                                              | 1   |
| 3    | Spindle       | A2-70                                                                                              | 1   |
| 4    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 1   |
| 5    | Gland         | Brass                                                                                              | 1   |
| 6    | Washer        | A2-70                                                                                              | 1   |
| 7    | Drive         | Brass                                                                                              | 1   |
| 8    | Bolt          | A2-70                                                                                              | 2   |
| 9    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 2   |
| 10   | Spring Pin    | A2-70                                                                                              | 3   |

### DN 80

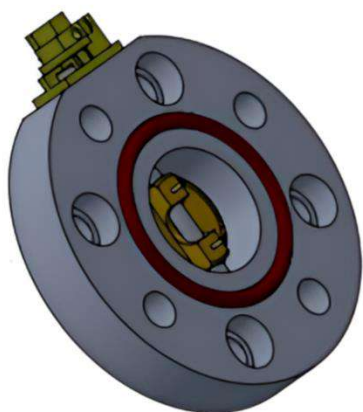
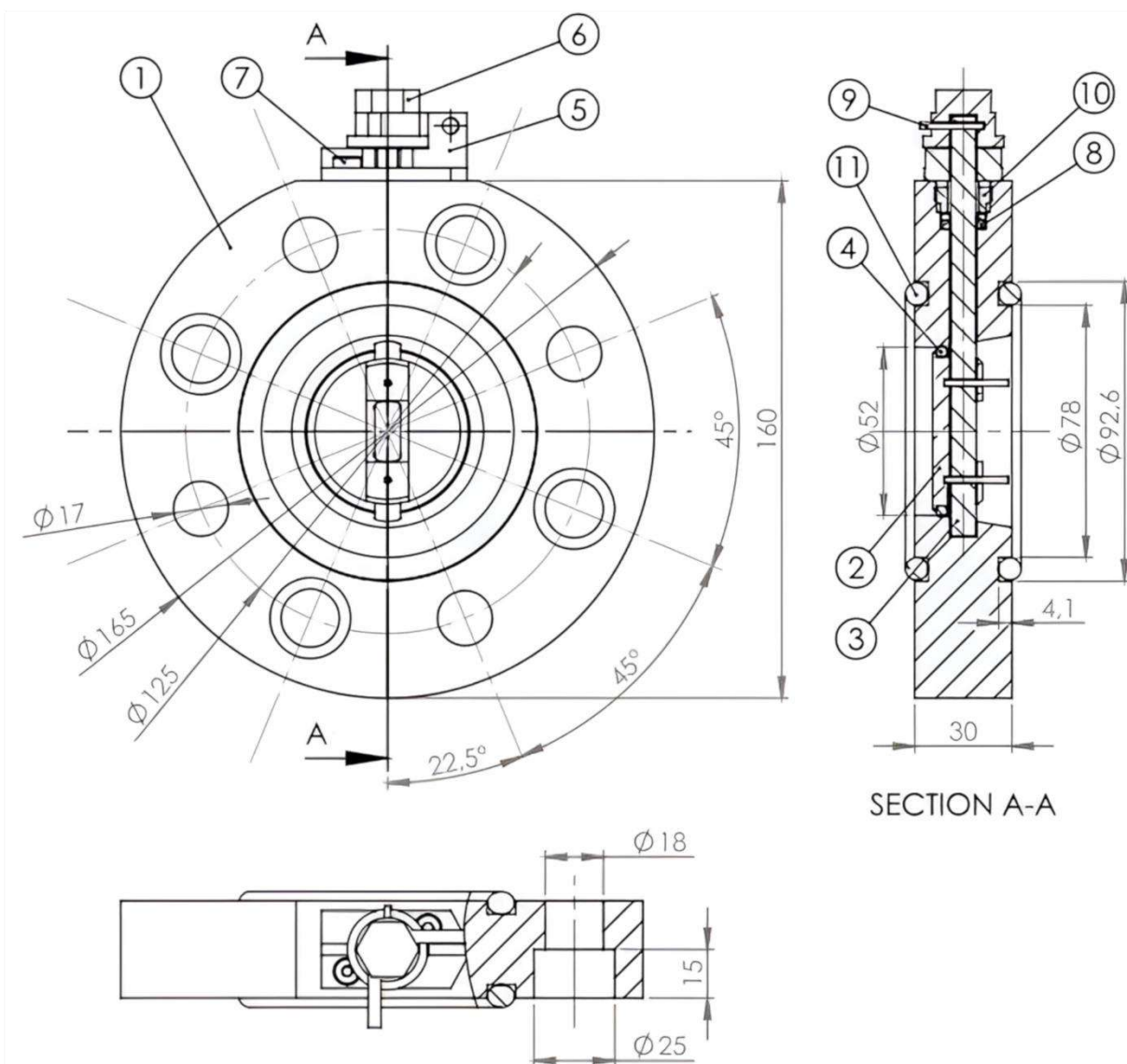


| Item | Description   | Material                                                                                           | Qty |
|------|---------------|----------------------------------------------------------------------------------------------------|-----|
| 1    | Flange Body   | St37 <input type="checkbox"/> SS316 <input type="checkbox"/><br><input type="checkbox"/> Aluminium | 1   |
| 2    | Throttle Clap | Brass                                                                                              | 1   |
| 3    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 1   |
| 4    | Spindle       | A2-70                                                                                              | 1   |
| 5    | O-ring        | NBR <input type="checkbox"/> Viton <input type="checkbox"/>                                        | 2   |
| 6    | Gland         | Brass                                                                                              | 1   |
| 7    | Drive         | Brass                                                                                              | 1   |
| 8    | Spring Pin    | A2-70                                                                                              | 3   |
| 9    | Washer        | A2-70                                                                                              | 1   |
| 10   | Bolt          | A2-70                                                                                              | 2   |



## VÁLVULA DE ESTRANGULACIÓN DN 50 /

DN 50 THROTTLE VALVE



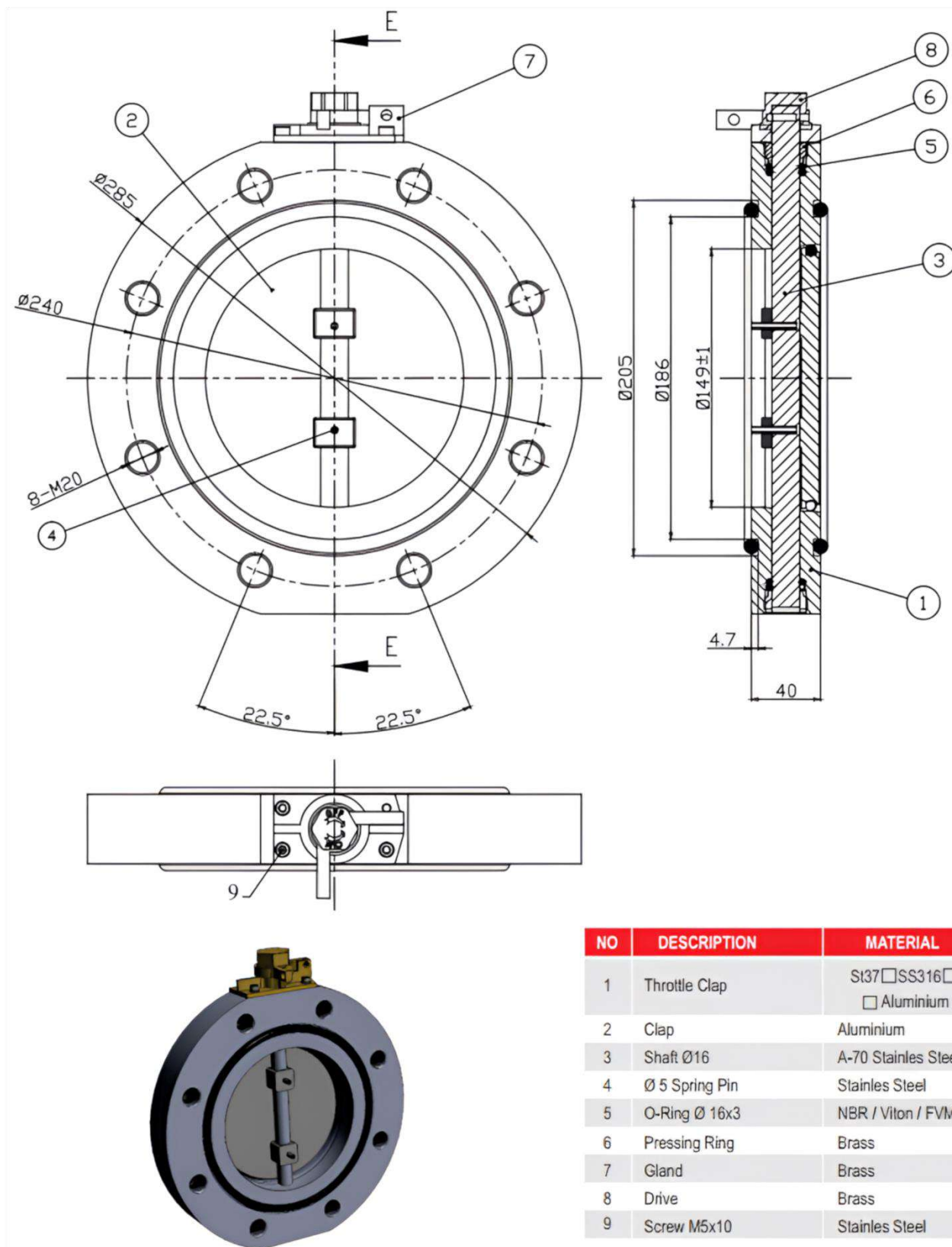
| NO | DESCRIPTION       | MATERIAL                      | QTY |
|----|-------------------|-------------------------------|-----|
| 1  | Flange Body       | Si37 □ SS316 □<br>□ Aluminium | 1   |
| 2  | Throttle Clap     | Aluminium                     | 1   |
| 3  | Sheft Ø 8         | SS316                         | 1   |
| 4  | O-Ring 44x3,5     | NBR / Viton / FVMQ            | 1   |
| 5  | Gland             | BRASS                         | 1   |
| 6  | Drive             | BRASS                         | 1   |
| 7  | DIN 7984 - M5 x20 | A2-70                         | 2   |
| 8  | O-Ring 8x3        | NBR / Viton / FVMQ            | 2   |
| 9  | Pin               | A2-70                         | 3   |
| 10 | Clap O-Ring Nut   | BRASS                         | 1   |
| 11 | O-Ring 78x7       | NBR / Viton / FVMQ            | 2   |





## VÁLVULA DE ESTRANGULACIÓN DN 150 /

DN 150 THROTTLE VALVE

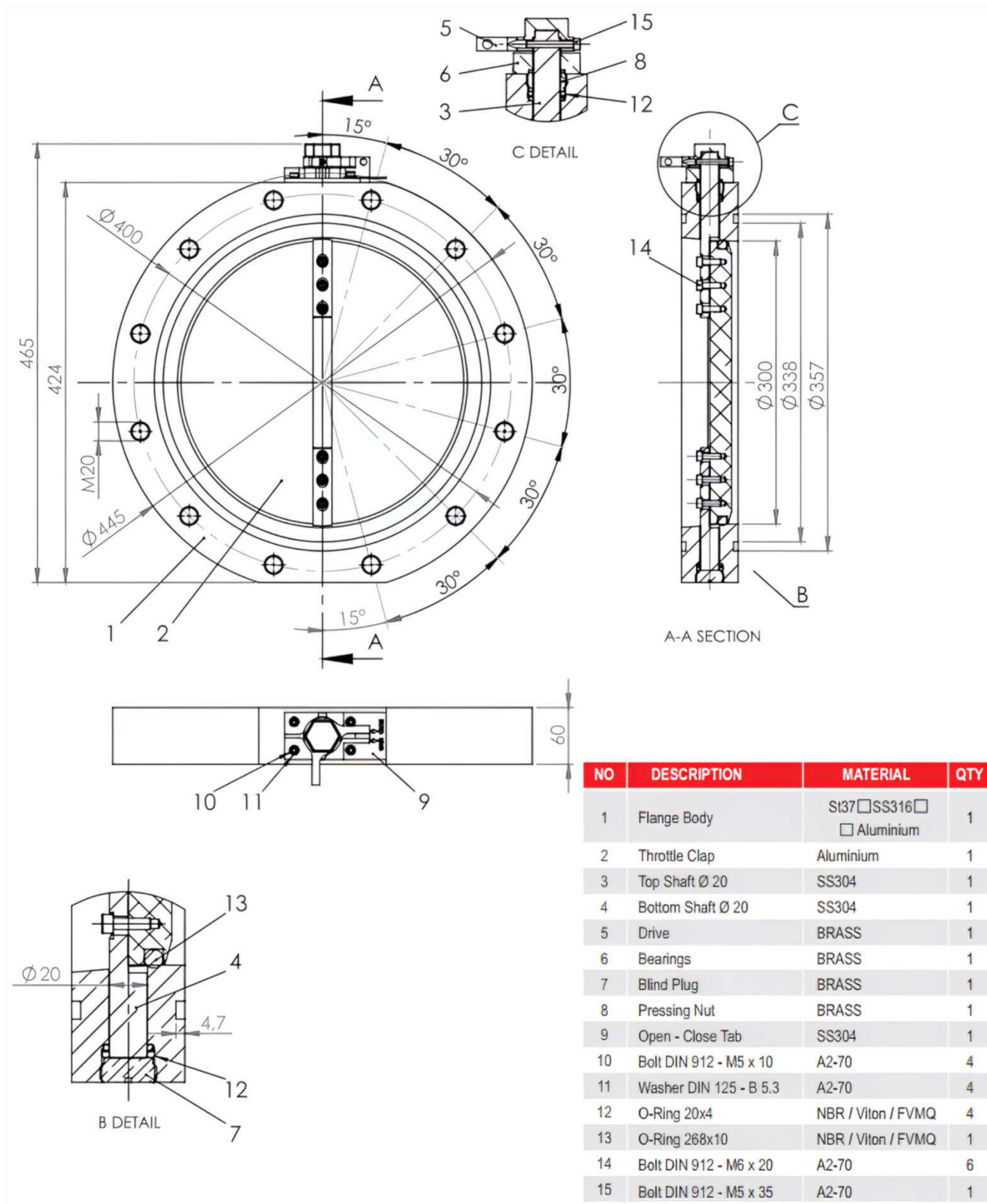






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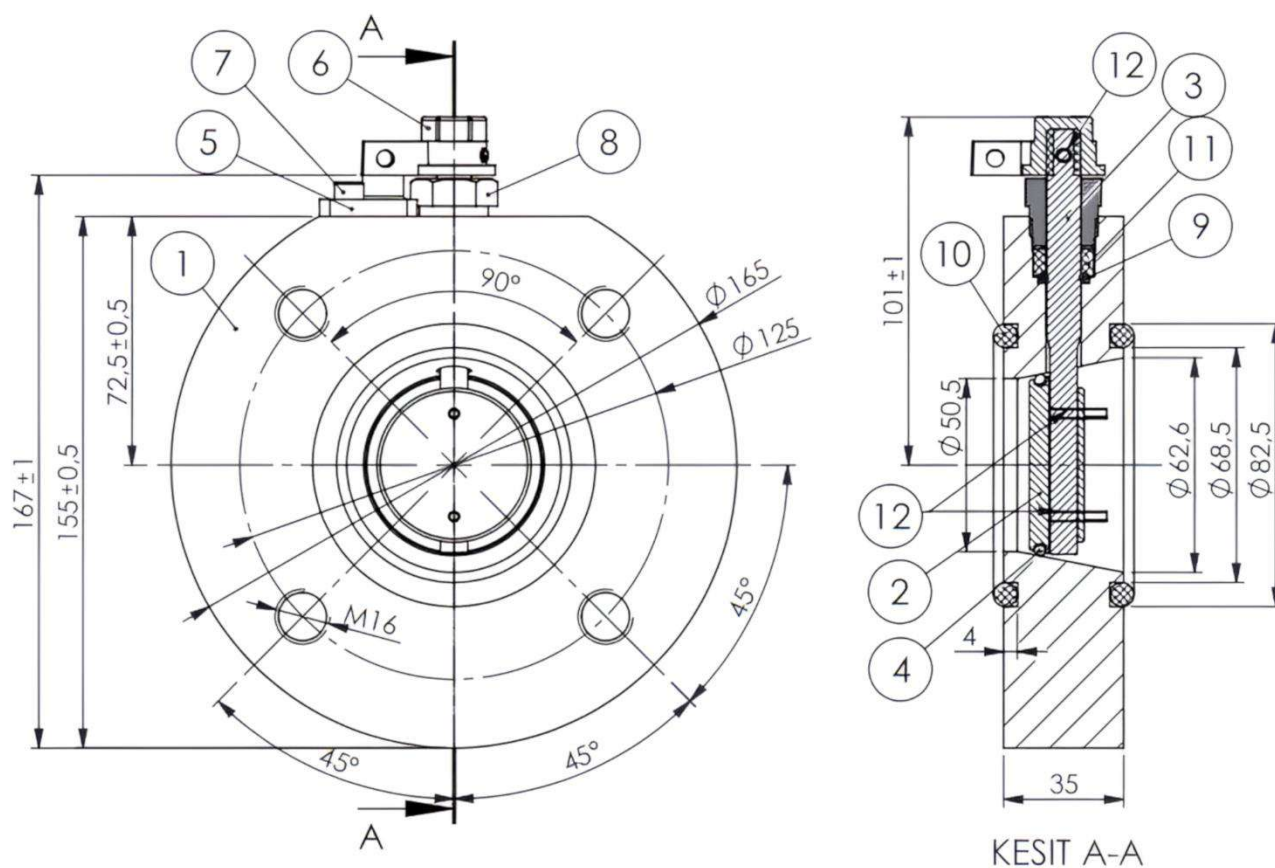
### DN 300 THROTTLE VALVE



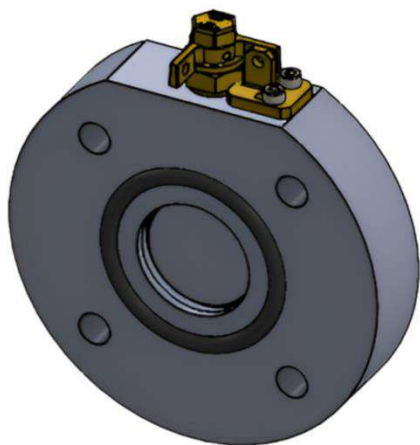


## VÁLVULA BUCHHOLZ DN50 PN 10 /

DN50 PN 10 BUCHHOLZ VALVE



**ZINC PLATED +  
RAL 7033 PAINTED**

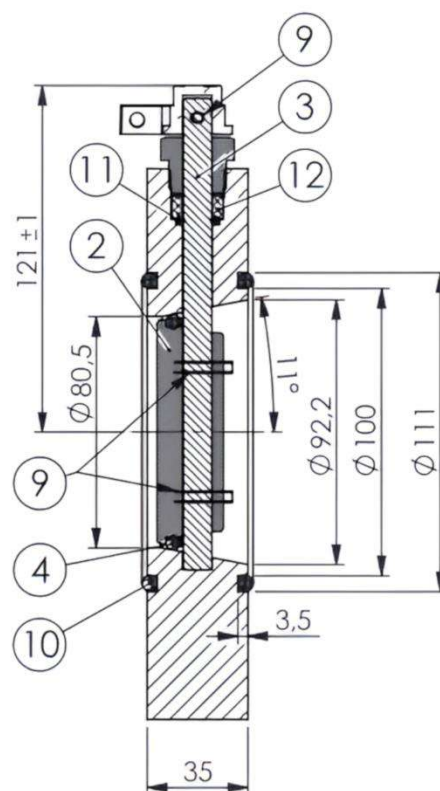
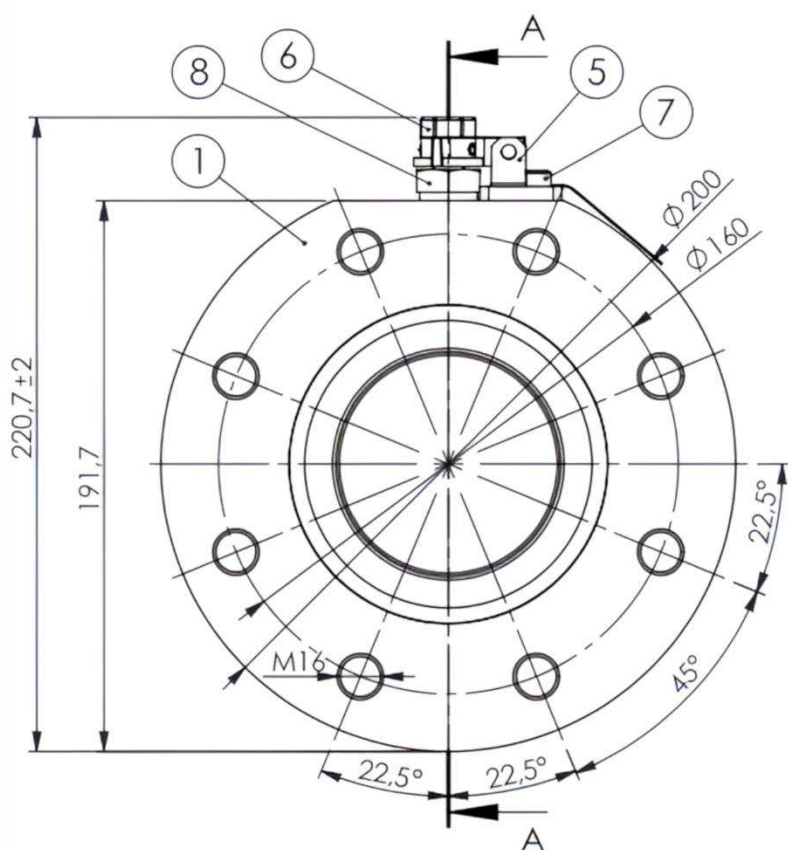


| ITEM | DESCRIPTION               | CODE NO              | MATERIAL  | QTY |
|------|---------------------------|----------------------|-----------|-----|
| 1    | FLANGE BODY               | 02.33.DN50.02.03     | ST-37     | 1   |
| 2    | THROTTLE CLAP             | 02.33.DN50.01.01     | ALUMINIUM | 1   |
| 3    | SHAFT Ø10                 | 02.33.DN50.01.04     | A2-70     | 1   |
| 4    | O-RING 40X3,5             | 02.01.40X3,5.V       | VITON     | 1   |
| 5    | GLAND                     | 02.33.DN25-100.03.02 | BRASS     | 1   |
| 6    | DRIVE                     | 02.33.DN25-100.03.01 | BRASS     | 1   |
| 7    | EN ISO 4762 M5X10         | 02.03.M5X10.05       | A2-70     | 2   |
| 8    | ADJUSTING BOLT            | 02.33.DN50.03.04     | BRASS     | 1   |
| 9    | O-RING 9X3                | 02.01.9X3.V          | VITON     | 1   |
| 10   | O-RING 68.5X6             | 02.01.68,5X6.N       | NBR       | 2   |
| 11   | TEFLON GASKET             | 02.01.DN50.PTFE      | PTFE      | 1   |
| 12   | Spring Pin ISO 13337-3x20 | 03.10.3X20.01        | A2-70     | 3   |



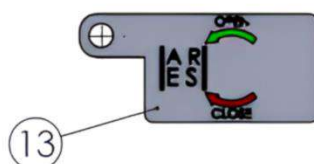
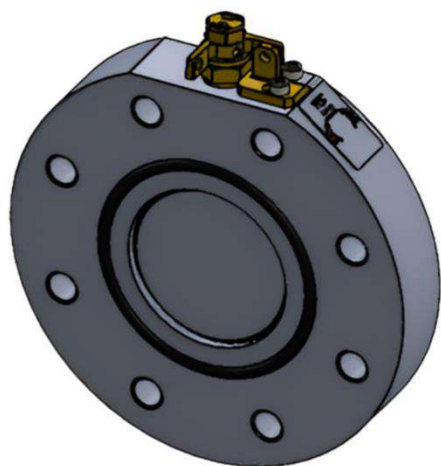
## VÁLVULA BUCHHOLZ DN50 PN 80 /

DN50 PN 80 BUCHHOLZ VALVE



KESIT A-A

ZINC PLATED  
+  
RAL 7033 PAINTED



| ITEM | DESCRIPTION        | CODE NO              | MATERIAL  | QTY |
|------|--------------------|----------------------|-----------|-----|
| 1    | FLANGE BODY        | 02.33.DN80.02.03     | ST-37     | 1   |
| 2    | THROTTLE CLAP      | 02.33.DN80.01.01     | ALUMINIUM | 1   |
| 3    | SHAFT Ø10          | 02.33.DN80.01.04     | A2-70     | 1   |
| 4    | O-RING 63X5        | 02.01.63X5.V         | VITON     | 1   |
| 5    | GLAND              | 02.33.DN25-100.03.02 | BRASS     | 1   |
| 6    | DRIVE              | 02.33.DN25-100.03.01 | BRASS     | 1   |
| 7    | ISO 4762 M5X10     | 02.03.M5X10.05       | A2-70     | 2   |
| 8    | ADJUSTING BOLT     | 02.33.DN80.03.04     | BRASS     | 1   |
| 9    | DIN EN 13337- 4X20 | 03.10.4X20.01        | A2-70     | 3   |
| 10   | O-RING 100X5,33    | 02.01.100X5,33.N     | NBR       | 2   |
| 11   | O-RING 9X3         | 02.01.9X3.V          | VITON     | 1   |
| 12   | TEFLON GASKET      | 02.01.DN80.PTFE      | PTFE      | 1   |
| 13   | TICKET             | B0777                | ALUMINIUM | 1   |





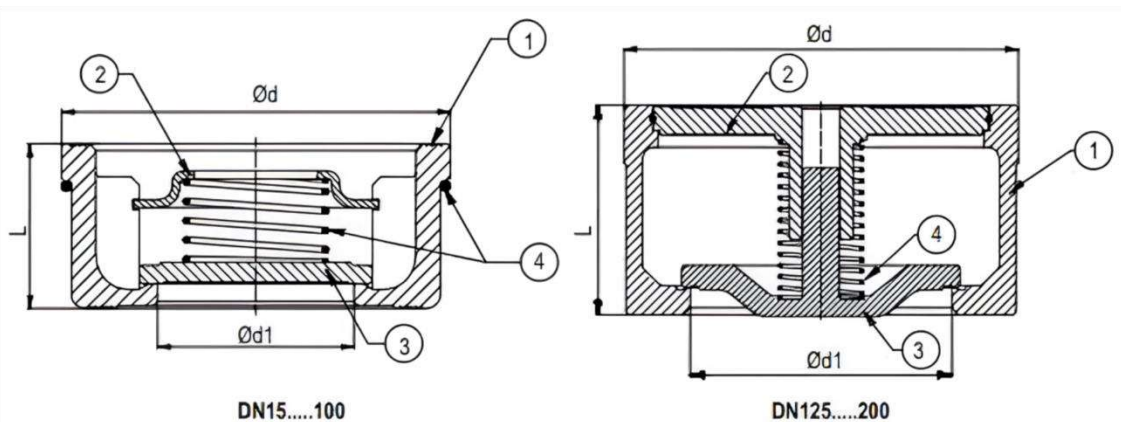
## PRESSURE SAFETY VALVE

|                    |                          |                    |                        |                                                                                                   |             |
|--------------------|--------------------------|--------------------|------------------------|---------------------------------------------------------------------------------------------------|-------------|
| 9                  | M5 NUT                   | 02.12.M5.02        | 934.M5-01              | A2-70                                                                                             | 2           |
| 8                  | O-ring 30,5x4            | 02.01.30,5X4.N     | ORG.30,5X4             | NBR                                                                                               | 1           |
| 7                  | O-ring 27x3              | 02.01.27X3.N       | ORG.27X3               | NBR                                                                                               | 1           |
| 6                  | Washer For M5            | 02.34.PSV.R1.07    | PSV.R1-06              | MS58                                                                                              | 1           |
| 5                  | Spring 1,6x17,8x34,5     | 02.34.PSV.R1.06    | PSV.R1-05              | AISI 302                                                                                          | 1           |
| 4                  | Stud M5x58               | 02.34.PSV.R1.05    | PSV.R1-04              | AISI 303                                                                                          | 1           |
| 3                  | Protection Cap           | 02.34.PSV.R1.04    | PSV.R1-03              | PA6,6 BLACK  | 1           |
|                    |                          | 02.34.PSV.R1.03    |                        | PA6,6 RED    |             |
| 2                  | Cap Of Valve             | 02.34.PSV.R1.02.01 | PSV.R1-02              | MS58                                                                                              | 1           |
| 1                  | Body Of Valve            | 02.34.PSV.R1.01.01 | PSV.R1-01.1            | MS58                                                                                              | 1           |
| SIRA NO<br>ITEM NO | PARÇA ADI<br>DESCRIPTION | KODU<br>CODE       | RESİM NO<br>DRAWING NO | MALZEME<br>MATERIAL                                                                               | ADET<br>QTY |



## VÁLVULA ANTIRRETORNO TIPO WAFER /

### NON RETURN WAFER VALVE



| NO | DN  | Size |      |      | Dimensions<br>%±15 |      |      | Minimum Opening<br>Pressure mBar |                 |                |       | Working<br>Temperature |      | Weight<br>-kg |
|----|-----|------|------|------|--------------------|------|------|----------------------------------|-----------------|----------------|-------|------------------------|------|---------------|
|    |     |      |      |      |                    |      |      | Flow Direction                   |                 |                |       |                        |      |               |
|    |     |      |      |      |                    |      |      | With Spring                      |                 | With<br>Spring |       |                        |      |               |
| ↔  | ↓   | ↑    | ↓    | °C   | PN                 |      |      |                                  |                 |                |       |                        |      |               |
| 1  | 15  | 40   | 15   | 16   | 21                 | 17   | 23   | 2.6                              | -10<br><br>+120 | 16             | 0.09  |                        |      |               |
| 2  | 20  | 47   | 20   | 19   |                    |      |      |                                  |                 |                | 0.13  |                        |      |               |
| 3  | 25  | 56   | 25   | 22   |                    |      |      |                                  |                 |                | 18.3  | 0.20                   |      |               |
| 4  | 32  | 72   | 31.5 | 28   |                    |      |      |                                  |                 |                | 16.3  | 3.9                    | 0.46 |               |
| 5  | 40  | 82   | 39   | 31.5 | 21                 | 16.2 | 24   | 4                                |                 |                | 0.60  |                        |      |               |
| 6  | 50  | 95   | 48   | 40   | 16.1               | 25   | 4.2  | 0.97                             |                 |                |       |                        |      |               |
| 7  | 65  | 115  | 64   | 46   | 15                 | 26   | 5.1  | 1.36                             |                 |                |       |                        |      |               |
| 8  | 80  | 132  | 74   | 50   | 13.7               | 26   | 5.6  | 2.07                             |                 |                |       |                        |      |               |
| 9  | 100 | 152  | 89   | 60   | 12.5               | 26.5 | 7.4  | 3.00                             |                 |                |       |                        |      |               |
| 10 | 125 | 184  | 112  | 90   | 22                 | 12   | 30   | 15                               |                 |                | 6.80  |                        |      |               |
| 11 | 150 | 209  | 132  | 106  | 23.5               | 13   | 32.5 | 17                               |                 |                | 10.00 |                        |      |               |
| 12 | 200 | 264  | 175  | 140  | 26                 | 14.5 | 35   | 18.5                             |                 |                | 20.00 |                        |      |               |

|    |             | DN15...100        | DN125...200 |
|----|-------------|-------------------|-------------|
| NO | Description | Material          | Material    |
| 1  | Body        | Brass (CuZn40Pb2) | Steel       |
| 2  | Centering   | AISI 316          | Steel       |
| 3  | Throttle    | AISI 316          | Steel       |
| 4  | Spring      | AISI 316          | AISI 316    |

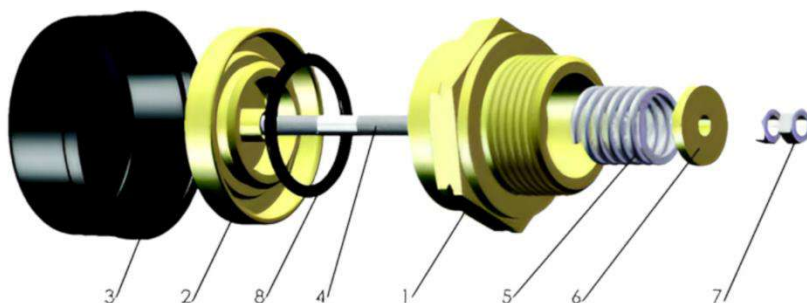
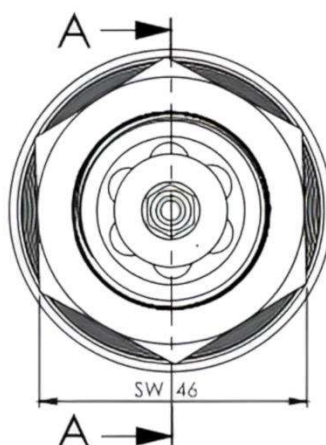
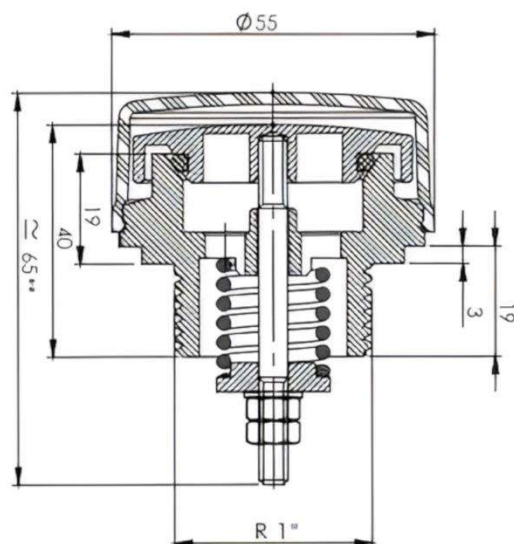
Final Paint : RAL 9006 White alu



## VALVULA DE PRESIÓN DE SEGURIDAD R 1" /

### PRESSURE SAFETY VALVE R 1"

The pressure safety valve is used as a safety element in distribution transformers but it is also suitable for hermetically sealed type transformers.



| Order No | Set Pressure |
|----------|--------------|
| PSV-20   | 20           |
| PSV-25   | 25           |
| PSV-30   | 30           |
| PSV-35   | 35           |
| PSV-40   | 40           |
| PSV-45   | 45           |
| PSV-50   | 50           |
| PSV-70   | 70           |
| PSV-75   | 75           |

| Pos. No. | Qty. | Description    | Material      |
|----------|------|----------------|---------------|
| 1        | 1    | Body of valve  | Cu Zn39 Pb3   |
| 2        | 1    | Cap of valve   | Cu Zn39 Pb3   |
| 3        | 1    | Protection cap | Plastic- Pa6  |
| 4        | 1    | Stud bolt      | M 5x60 A2     |
| 5        | 1    | Spring         | Ø19x2x24      |
| 6        | 1    | Washer         | Cu Zn39 Pb3   |
| 7        | 2    | Nut            | M5-A2 DIN 934 |
| 8        | 1    | O-Ring         | NBR70         |

These pressure safety valves are available from operating pressure of 0.2 bar to 0.7 bar. Non-standard pressure setting can also be provided on request. The long type pressure safety valve can also be manufactured with a long coil spring as the customer request.

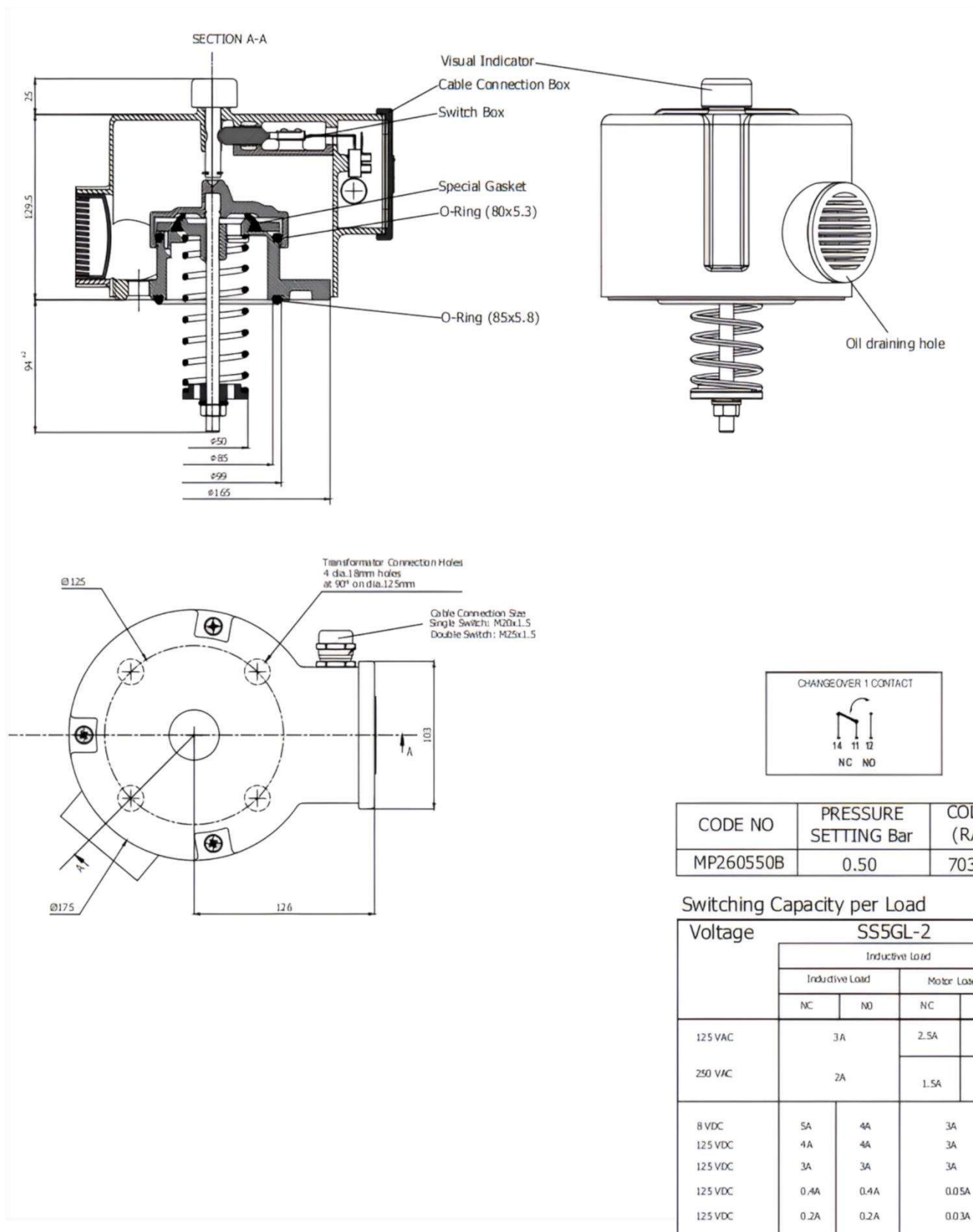
When pressure rises beyond the preset limit in the transformer tank the shutter moves up with the 'O' ring, thus releasing the excess pressure. When the pressure falls to allowable values, the spring forces the shutter back to its position automatically. The excess pressure must be relieved immediately in order to avoid damage to the transformer tank.





## VÁLVULA DE SEGURIDAD DE PRESIÓN TIPO MPRV 50 /

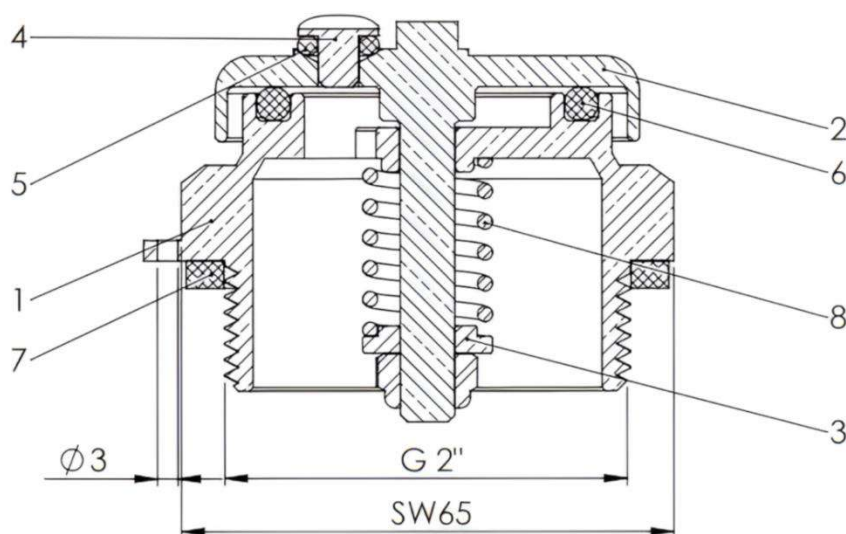
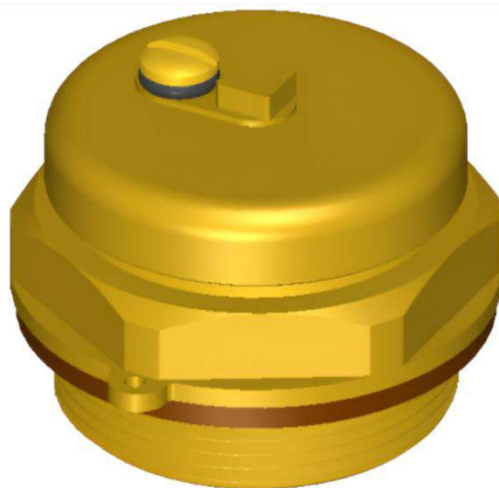
PRESSURE SAFETY VALVE TYPE MPRV 50





## VÁLVULA DE SEGURIDAD DE PRESIÓN PRD G2" /

PRESSURE SAFETY VALVE PRD G2"

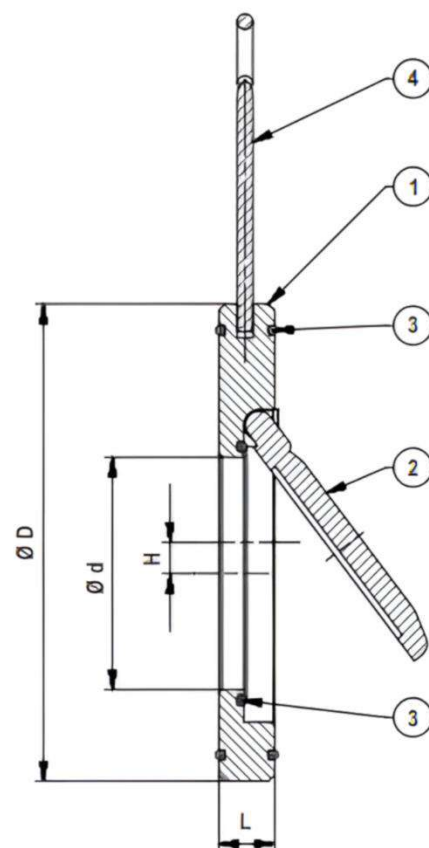
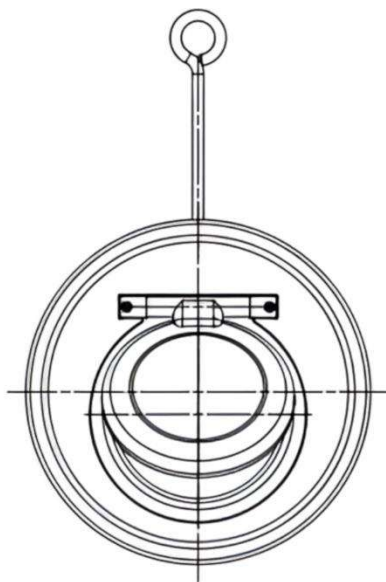


| Num./<br>No. | Adet/<br>Q'ty | Tanımlama/Description   | Açıklama/Explanation            |
|--------------|---------------|-------------------------|---------------------------------|
| 1            | 1             | Cuerpo/Body of valve    | Latón                           |
| 2            | 1             | Tapa /Cap of valve      | Latón                           |
| 3            | 1             | Arandela/Washer         | Latón                           |
| 4            | 1             | Tornillo/Screw of valve | M6 / Latón                      |
| 5            | 1             | Junta/Gasket of screw   | Viton                           |
| 6            | 1             | Junta tórica/O-ring     | NBR70                           |
| 7            | 1             | Junta/Gasket            | NBR70                           |
| 8            | 1             | Muelle/Spring           | ACERO INOXIDABLE/STAINLES STEEL |
|              |               |                         |                                 |



## VÁLVULA ANTIRRETORNO DE DISCO TIPO WAFER /

### WAFER SWING CHECK VALVE



#### MATERIALS (GS-C 25 - GP240GH)

| Parça No | Part Name | Material                                   |
|----------|-----------|--------------------------------------------|
| 1        | Body      | Cast Carbon Steel + Nickel Plated (T-0430) |
| 2        | Disk      | Cast Carbon Steel + Nickel Plated (T-0430) |
| 3        | O-Ring    | EPDM - NBR                                 |
| 4        | Eye Bolt  | Steel + Nickel Plated                      |

#### MATERIALS (G-X6CrNi - AISI303)

| Parça No | Part Name | Material                                      |
|----------|-----------|-----------------------------------------------|
| 1        | Body      | G-X6CrNi 18 9 - Cast Stainless Steel (T-0450) |
| 2        | Disk      | G-X6CrNi 18 9 - Cast Stainless Steel (T-0450) |
| 3        | O-Ring    | EPDM - NBR                                    |
| 4        | Eye Bolt  | Steel + Nickel Plated                         |

#### Dimensions

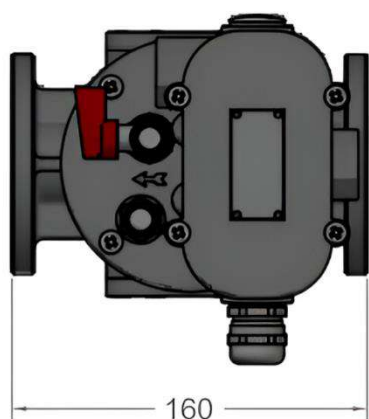
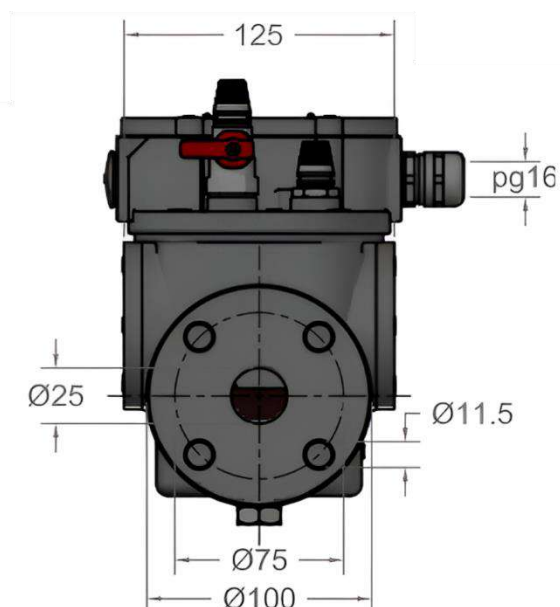
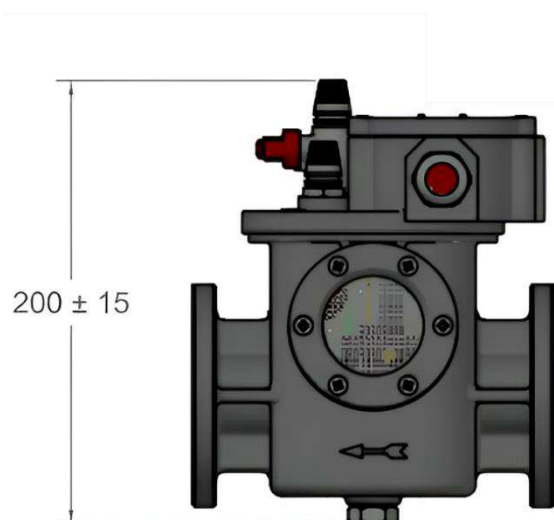
| Nominal Pressure | 16 Bar |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Nominal Diameter | DN     | 40  | 50  | 65  | 80  | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 500 | 600 |
| Valve Dimensions | ØD     | 92  | 107 | 127 | 142 | 162 | 192 | 218 | 273 | 329 | 384 | 444 | 491 | 610 | 724 |
|                  | Ød     | 22  | 32  | 40  | 54  | 70  | 92  | 114 | 154 | 200 | 235 | 280 | 316 | 405 | 486 |
|                  | L      | 14  |     |     |     | 18  |     | 20  | 22  | 26  | 28  | 38  | 44  | 56  | 62  |
|                  | H      | 0   |     | 2   | 3   | 4   | 5   | 6   | 8   | 9   | 10  | 11  | 12  | 13  | 15  |
| Weight           | kg     | 0,7 | 0.8 | 1.2 | 1.5 | 2.3 | 4.1 | 4.1 | 7   | 12  | 18  | 22  | 25  | 30  | 40  |





## RELÉ BUCHHOLZ BR25 /

BUCHHOLZ RELAY BR25

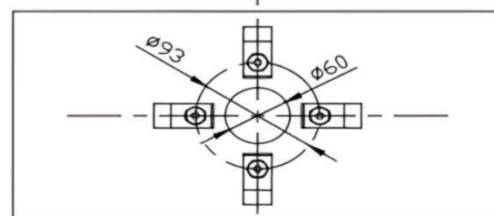
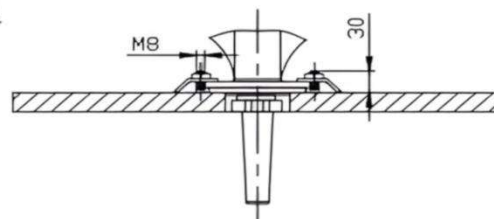
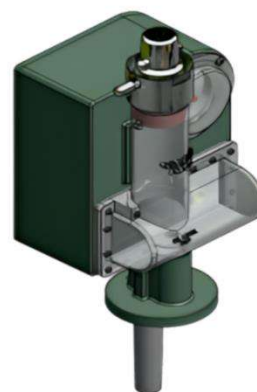
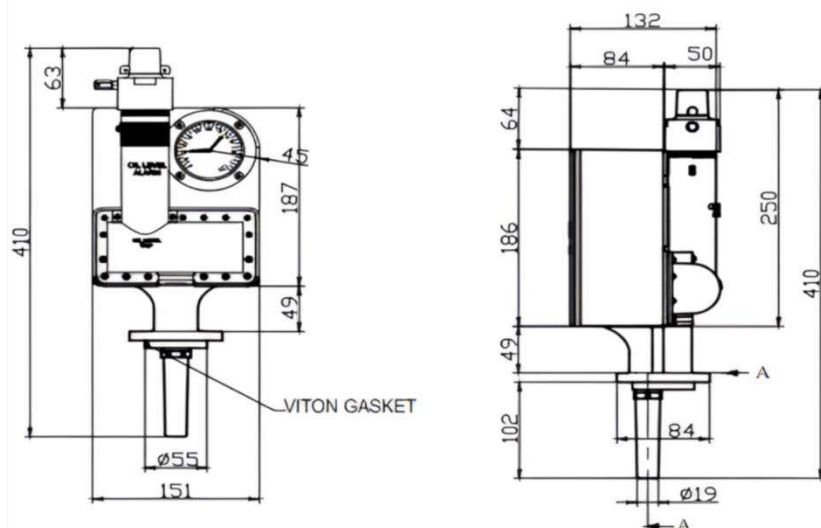
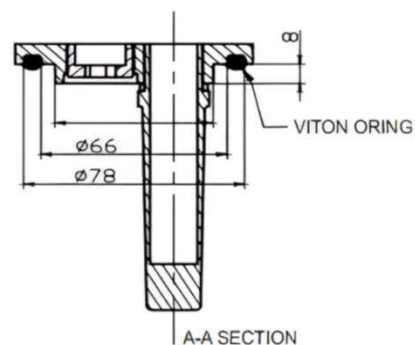
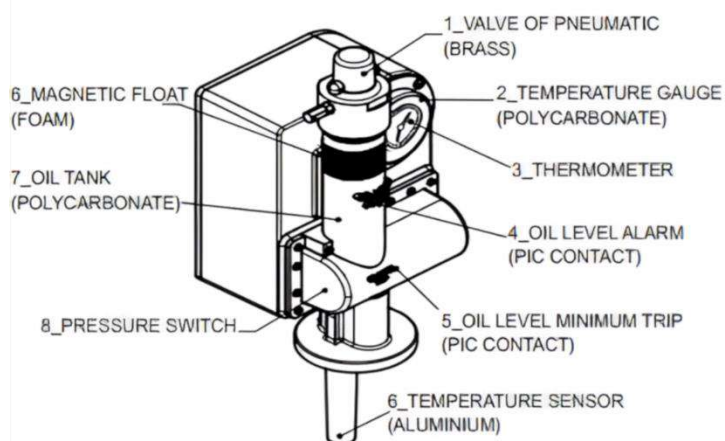


### CONNECTION DIAGRAM

|                              |                             |                                                                                                         |
|------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------|
| <b>ALARM</b><br>11 12<br>    | <b>TRIP</b><br>21 22<br>    | <b>(2 Normally Open Contact)</b><br>1 Normally Open Contact Alarm<br>1 Normally Open Contact Trip       |
| <b>ALARM</b><br>14 11 12<br> | <b>TRIP</b><br>24 21 22<br> | <b>(2 Changeover Open Contact)</b><br>1 Changeover Open Contact Alarm<br>1 Changeover Open Contact Trip |

## RELÉ DE PROTECCIÓN HERMÉTICA /

## HERMETIC PROTECTION RELAY

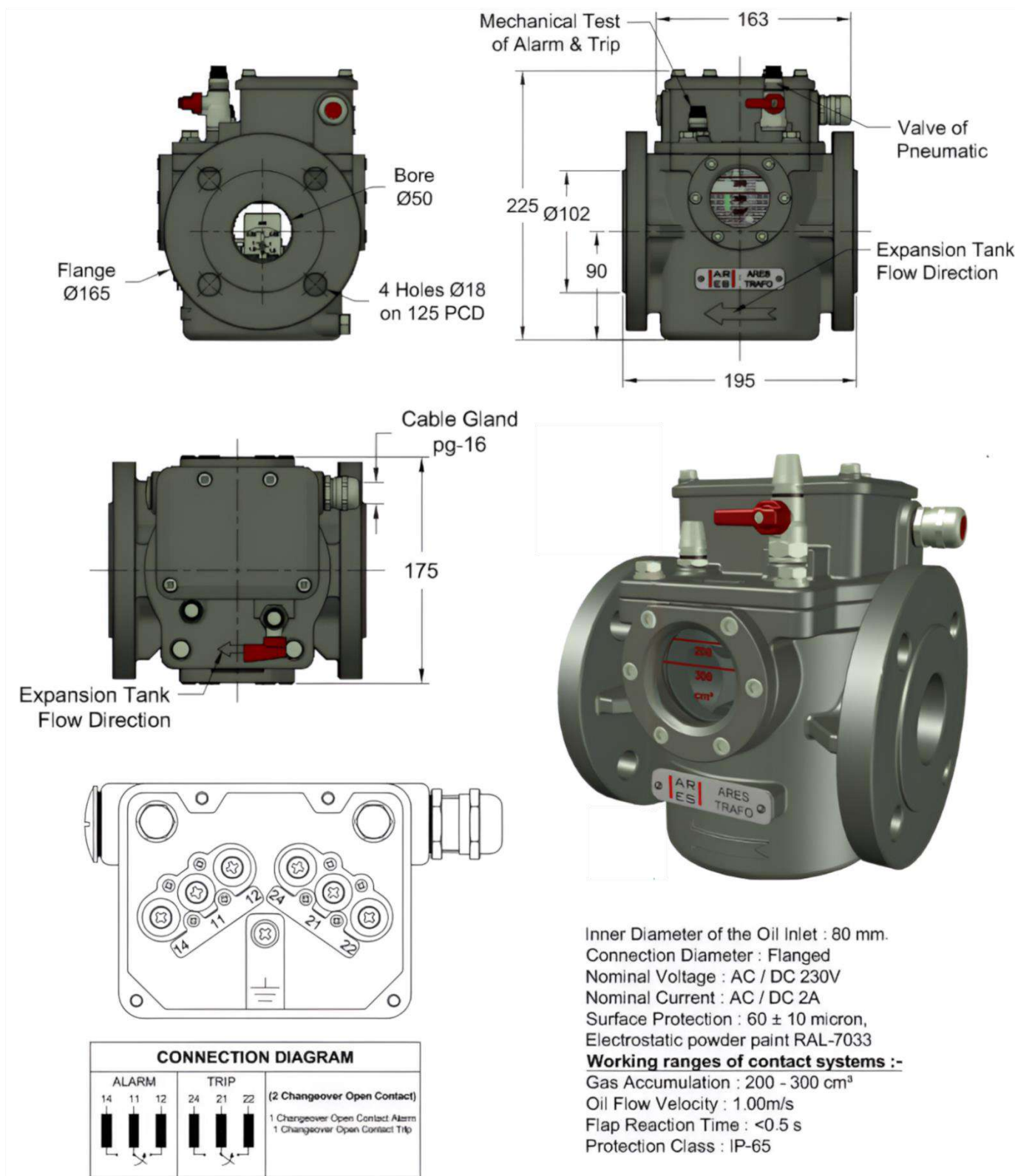


|                          |   |   |                           |   |   |          |   |   |            |    |    |             |    |        |
|--------------------------|---|---|---------------------------|---|---|----------|---|---|------------|----|----|-------------|----|--------|
|                          |   |   |                           |   |   |          |   |   |            |    |    |             |    |        |
| 1                        | 2 | 3 | 4                         | 5 | 6 | 7        | 8 | 9 | 10         | 11 | 12 | 13          | 14 | 15     |
| TEMPERATURE<br>T1 - TRIP |   |   | TEMPERATURE<br>T2 - ALARM |   |   | PRESSURE |   |   | GAS / TRIP |    |    | GAS / ALARM |    | GROUND |



## RELÉ BUCHHOLZ BR50 /

BUCHHOLZ RELAY BR50

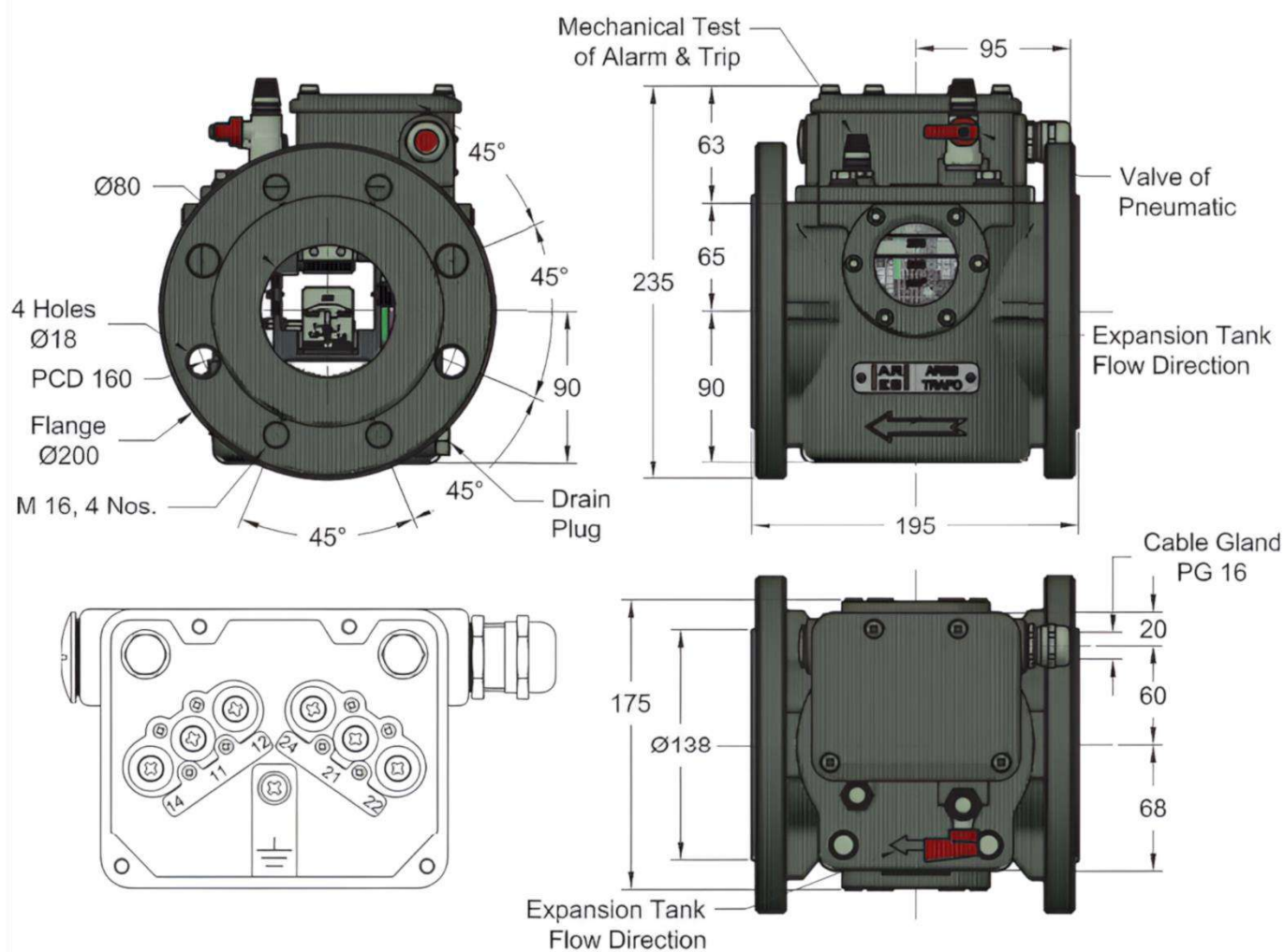






## Relé Buchholz BR80 /

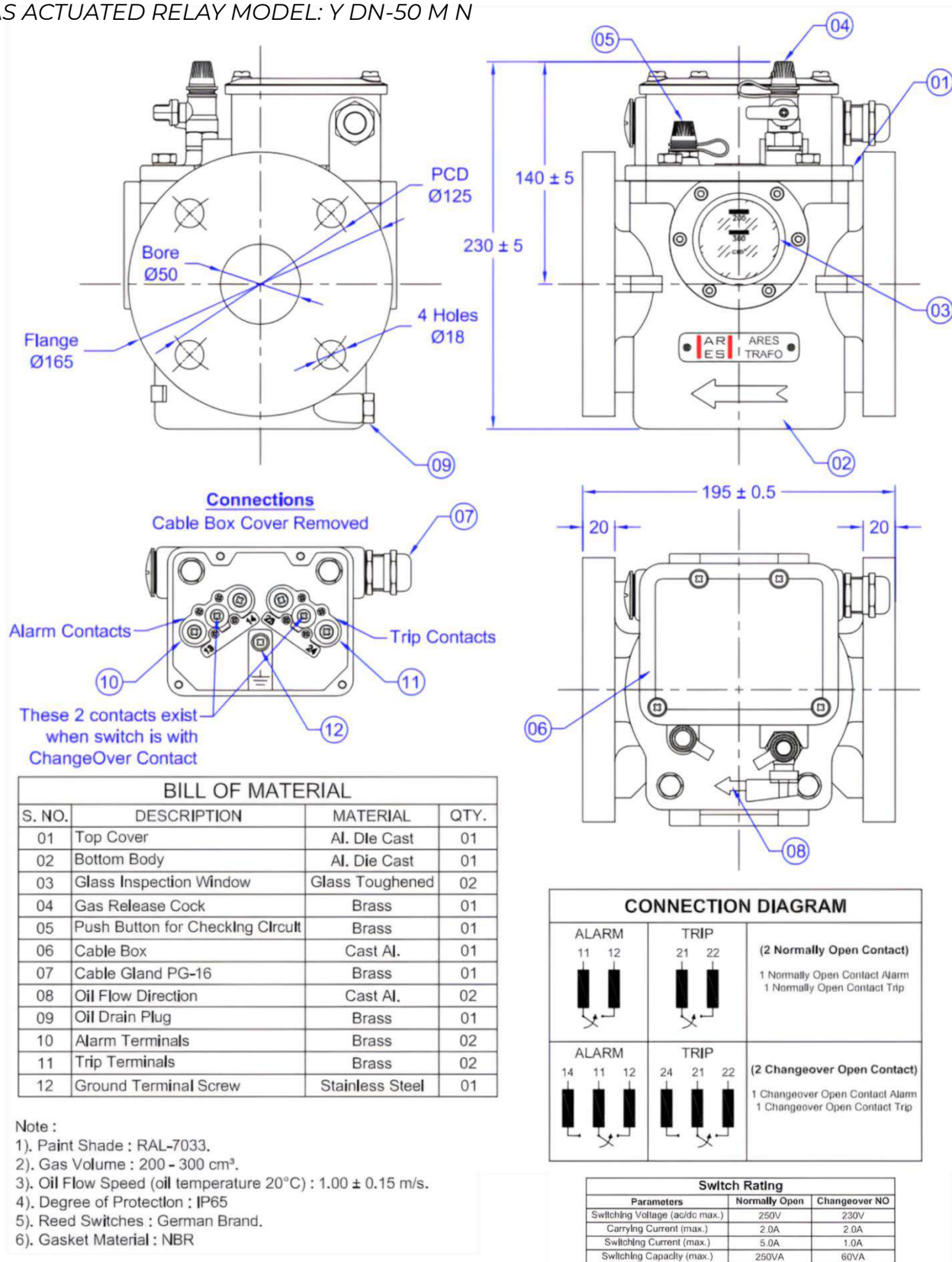
BUCHHOLZ RELAY BR80





## MODELO DE RELÉ ACTIVADO POR GAS: Y DN-50 M N /

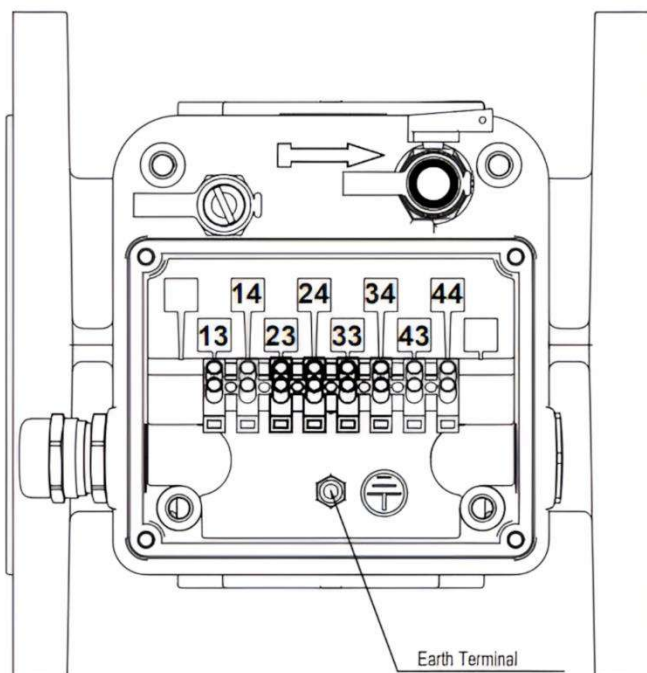
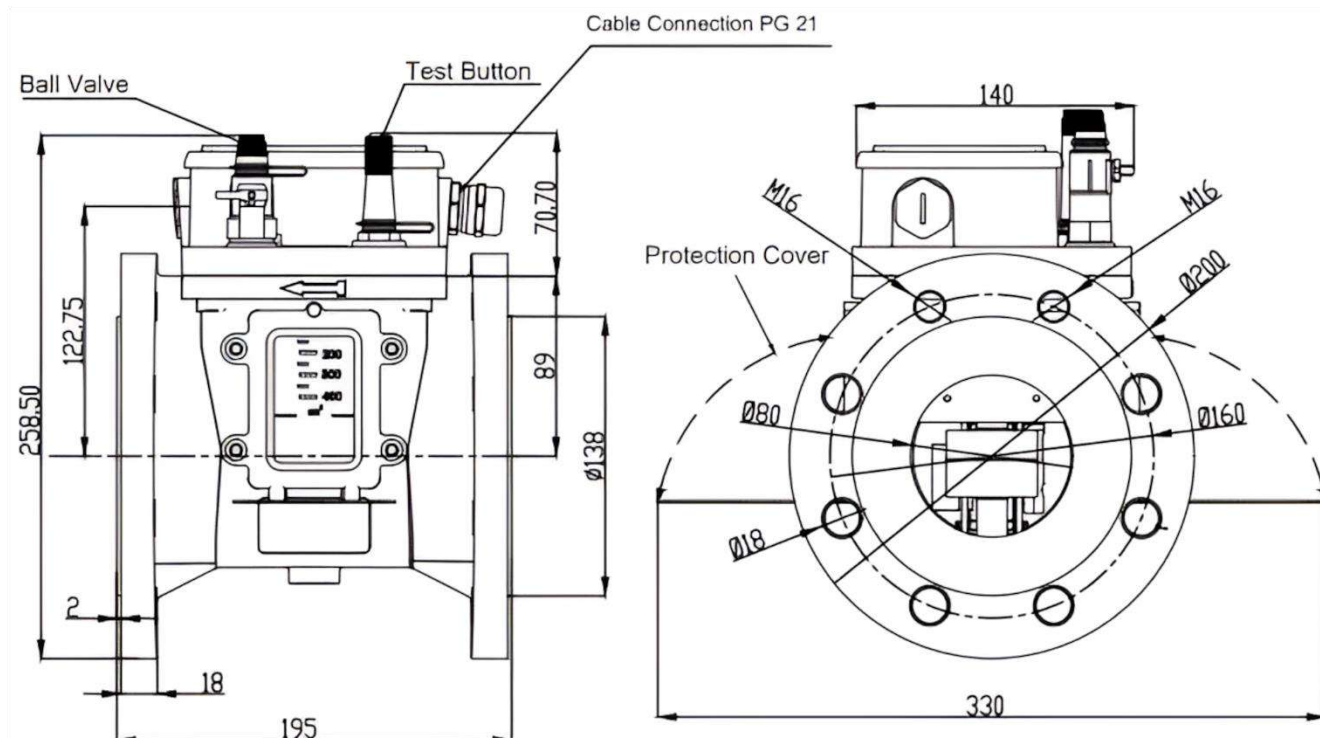
GAS ACTUATED RELAY MODEL: Y DN-50 M N





## RELÉ BUCHHLZ MBP80-F100 (DR-80) EN 50216-2 /

BUCHHLZ RELAY MBP80-F100 (DR-80) EN 50216-2



| ( 4 Normally Open ) |       |       |       |
|---------------------|-------|-------|-------|
| Yellow              | Blue  | Red   | Green |
| 1314                | 3334  | 2324  | 4344  |
|                     |       |       |       |
| Lower               | Lower | Upper | Upper |

Inner diameter of the oil inlet : 80 mm

Switch capacity : 24–220 V DC/AC

Surface protection : 60  $\pm 10$  micron Electrostatic power point

Working ranges of contacts systems

Gas accumulation 200cm<sup>3</sup>-300cm<sup>3</sup>

Oil flow velocity 1.00 m/s

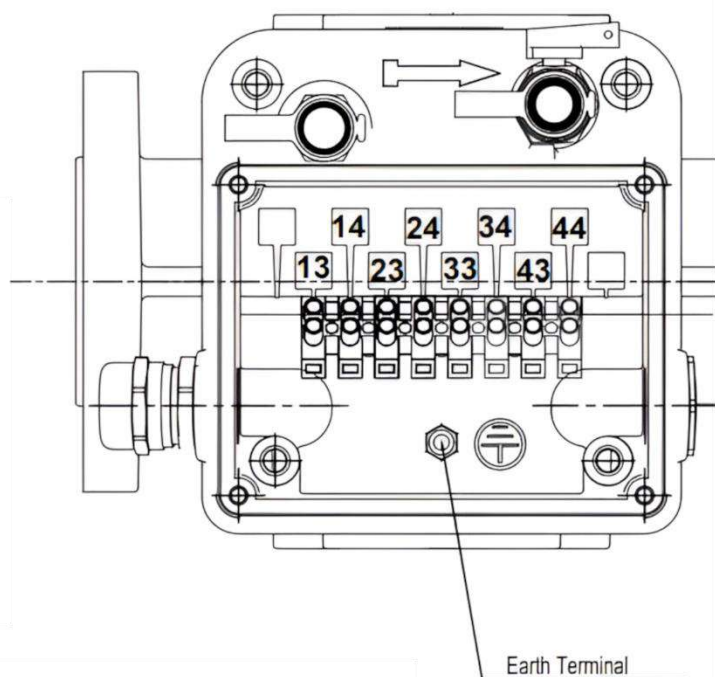
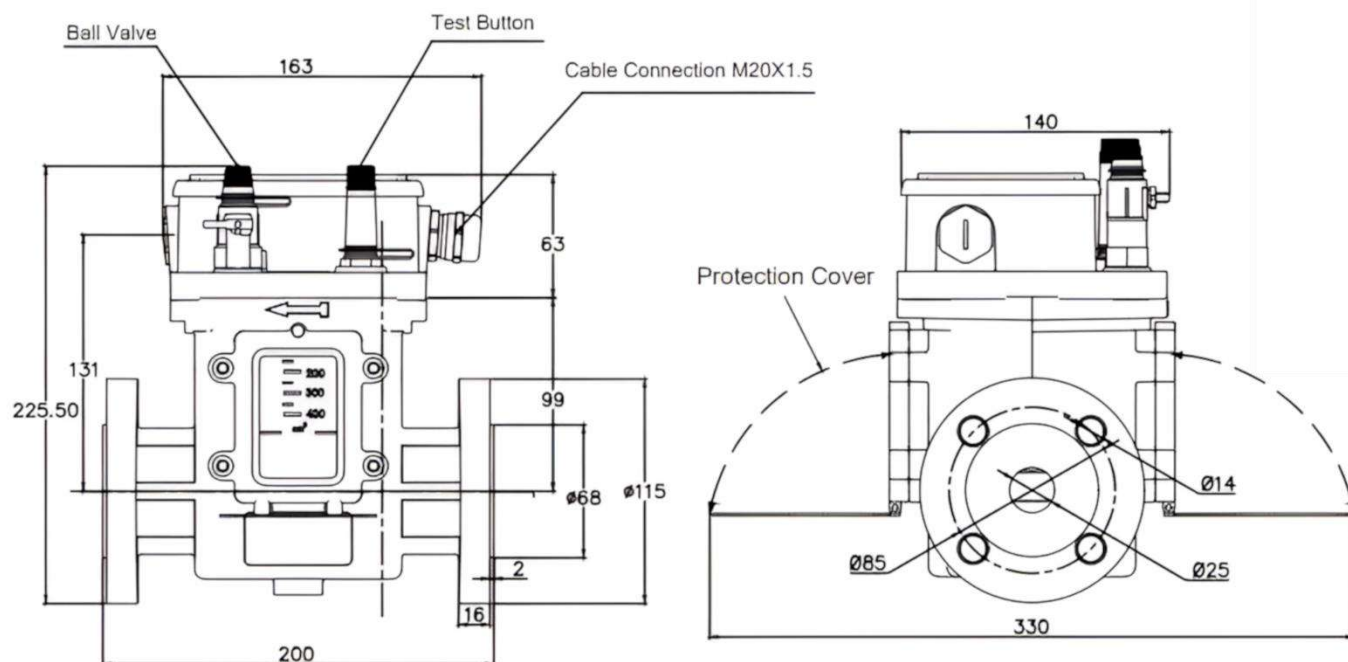
Flap reaction time < 0.5 s





**RELÉ BUCHHLZ MBP25-F50 (DR-25) EN 50216-2 RAL: 7033 /**

*BUCHHLZ RELAY MBP25-F50 (DR-25) EN 50216-2 RAL: 7033*



**( 4 Normally Open Contact )**

| Yellow | RED   | Blue  | Green |
|--------|-------|-------|-------|
| 1314   | 2324  | 3334  | 4344  |
|        |       |       |       |
| Upper  | Upper | Lower | Lower |

Inner diameter of the oil inlet : 25 mm  
Switch capacity : 24–220 V DC/AC

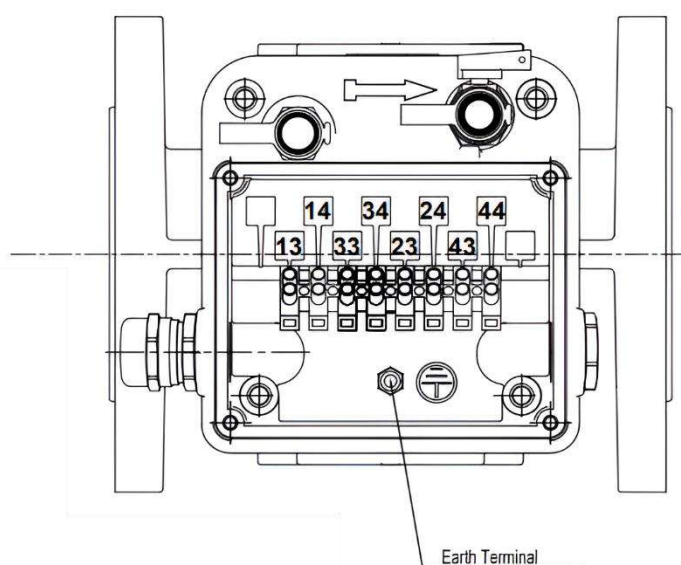
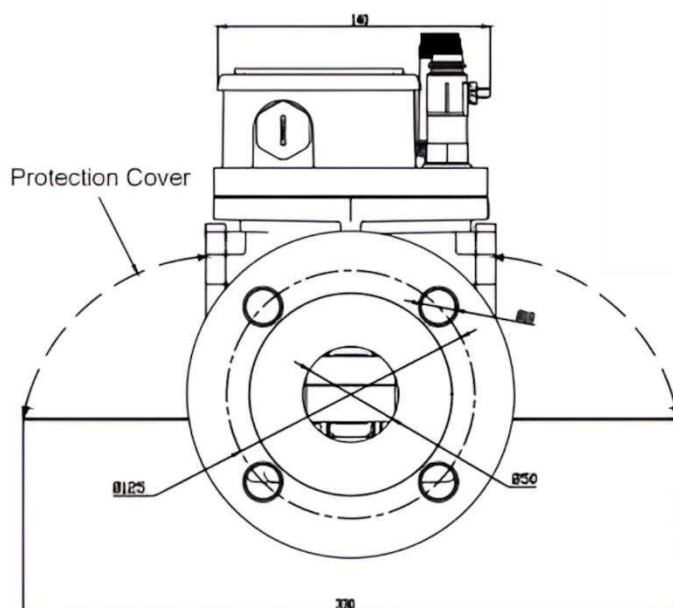
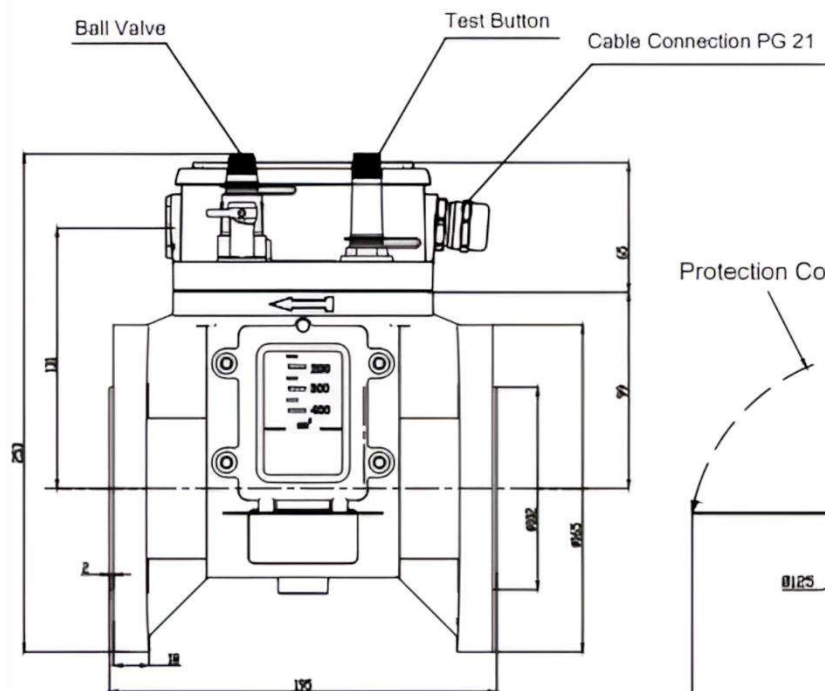
Surface protection : 60  $\pm 10$  micron Electrostatic power point  
Working ranges of contacts systems  
Gas accumulation 200cm<sup>3</sup>-300cm<sup>3</sup>  
Oil flow velocity 1 m/s  
Flap reaction time < 0.5 s





**RELÉ BUCHHLZ MBP50-F100 (DR-50) EN 50216-2 RAL: 7033 /**

*BUCHHLZ RELAY MBP50-F100 (DR-50) EN 50216-2 RAL: 7033*



| ( 4 Normally Open ) |       |       |       |
|---------------------|-------|-------|-------|
| Yellow              | Blue  | Red   | Green |
| 1314                | 3334  | 2324  | 4344  |
|                     |       |       |       |
| Lower               | Lower | Upper | Upper |

Inner diameter of the oil inlet : 50 mm  
Switch capacity : 24-220 V DC/AC

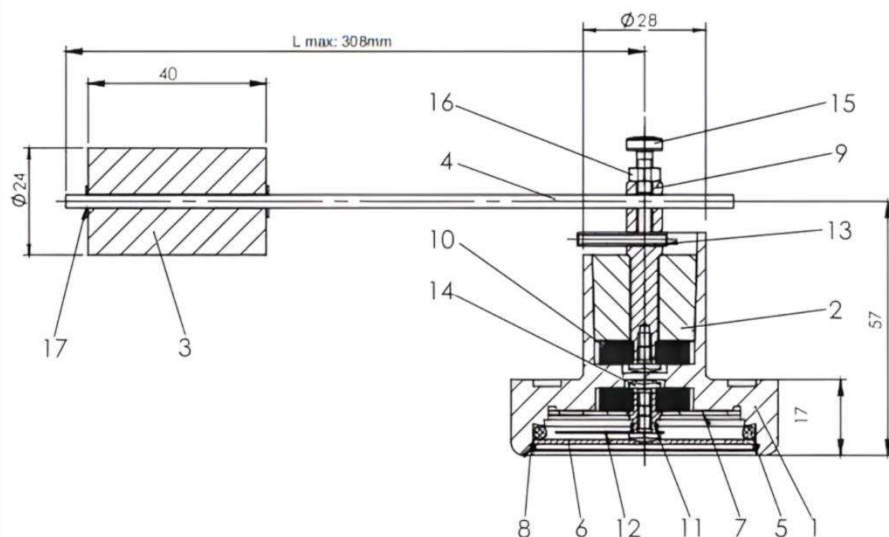
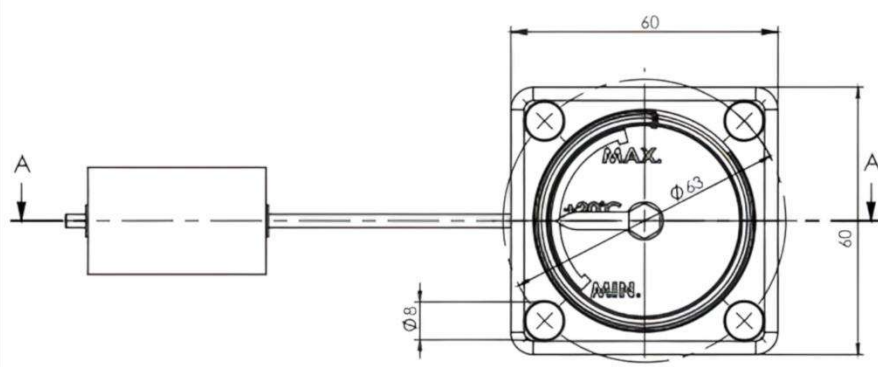
Surface protection : 60 <sup>±10</sup> micron Electrostatic power point  
Working ranges of contacts systems  
Gas accumulation 200cm<sup>3</sup>-300cm<sup>3</sup>  
Oil flow velocity 1.00 m/s  
Flap reaction time < 0.5 s



## INDICADOR DE NIVEL DE ACEITE MAGNÉTICO DIN 42569 A /

### MAGNETIC OIL LEVEL INDICATOR DIN 42569 A

The radial movement of the float is transmitted magnetically to the pointer.  
The magnet connected to the float-lever mechanism, drives the polarized indicator magnet connected to the pointer.



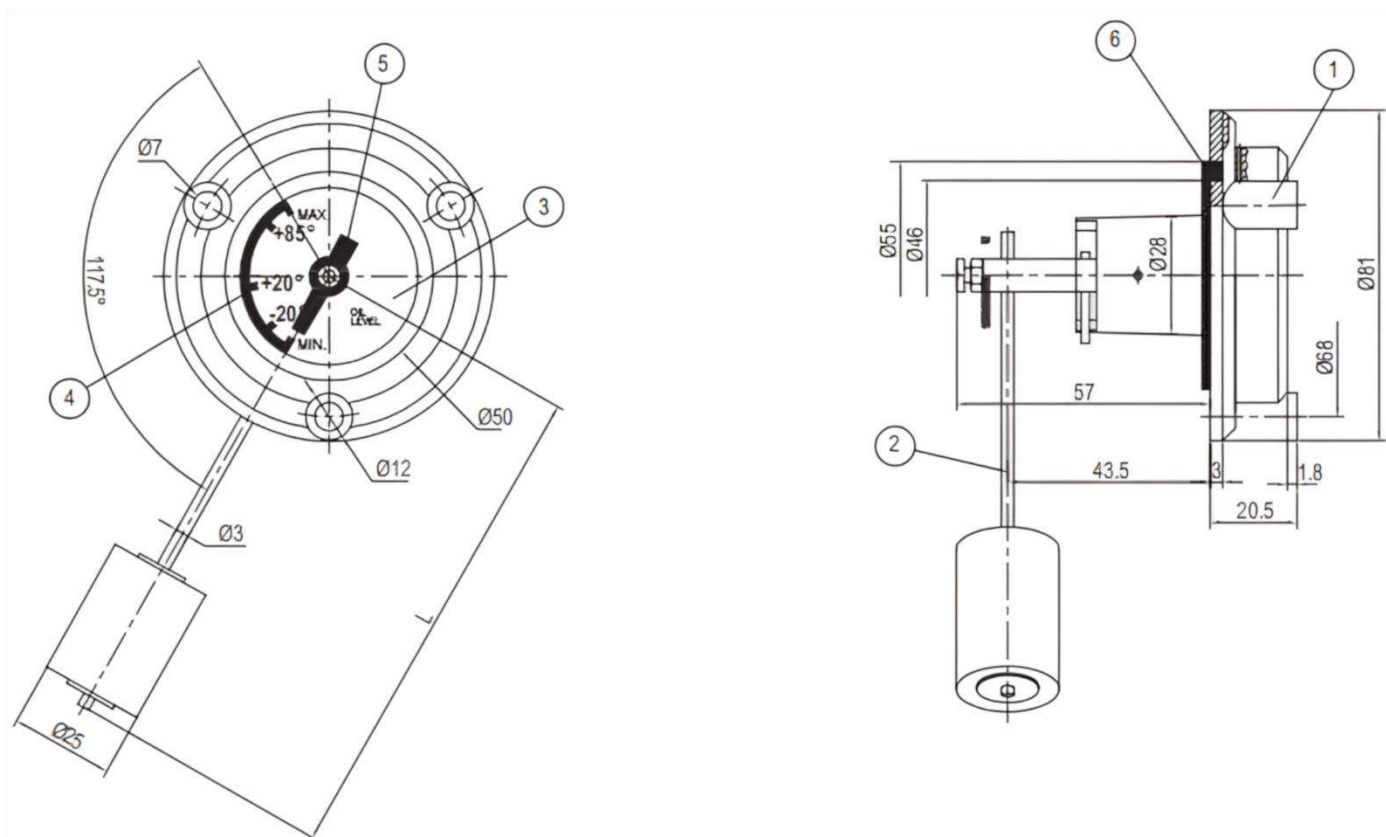
The float lever is delivered with 308 mm length as standard. It's length can be freely adjusted by the customer.

| Case            | Injected aluminium RAL 7033 |
|-----------------|-----------------------------|
| Indicator dial  | Aluminium sheet             |
| Pointer         | Brass                       |
| Indicator glass | Polycarbonate               |
| Joint glass     | Nitrile rubber              |
| Float           | Cellular type plastic foam  |

| Nr | Part Name        | Part Number   | Material             | Qty |
|----|------------------|---------------|----------------------|-----|
| 1  | Body             | DIN 42569 A-1 | GD-AL lack. RAL 7033 | 1   |
| 2  | Roll             | DIN 42569 A-2 | PA 6                 | 1   |
| 3  | Fleat            | DIN 42569 A-3 | Rohacell 51 IG       | 1   |
| 4  | Handle for Fleat | DIN 42569 A-4 | Ms 70                | 1   |



**INDICADOR DE NIVEL DE ACEITE MAGNÉTICO /**  
**MAGNETIC OIL LEVEL INDICATOR**

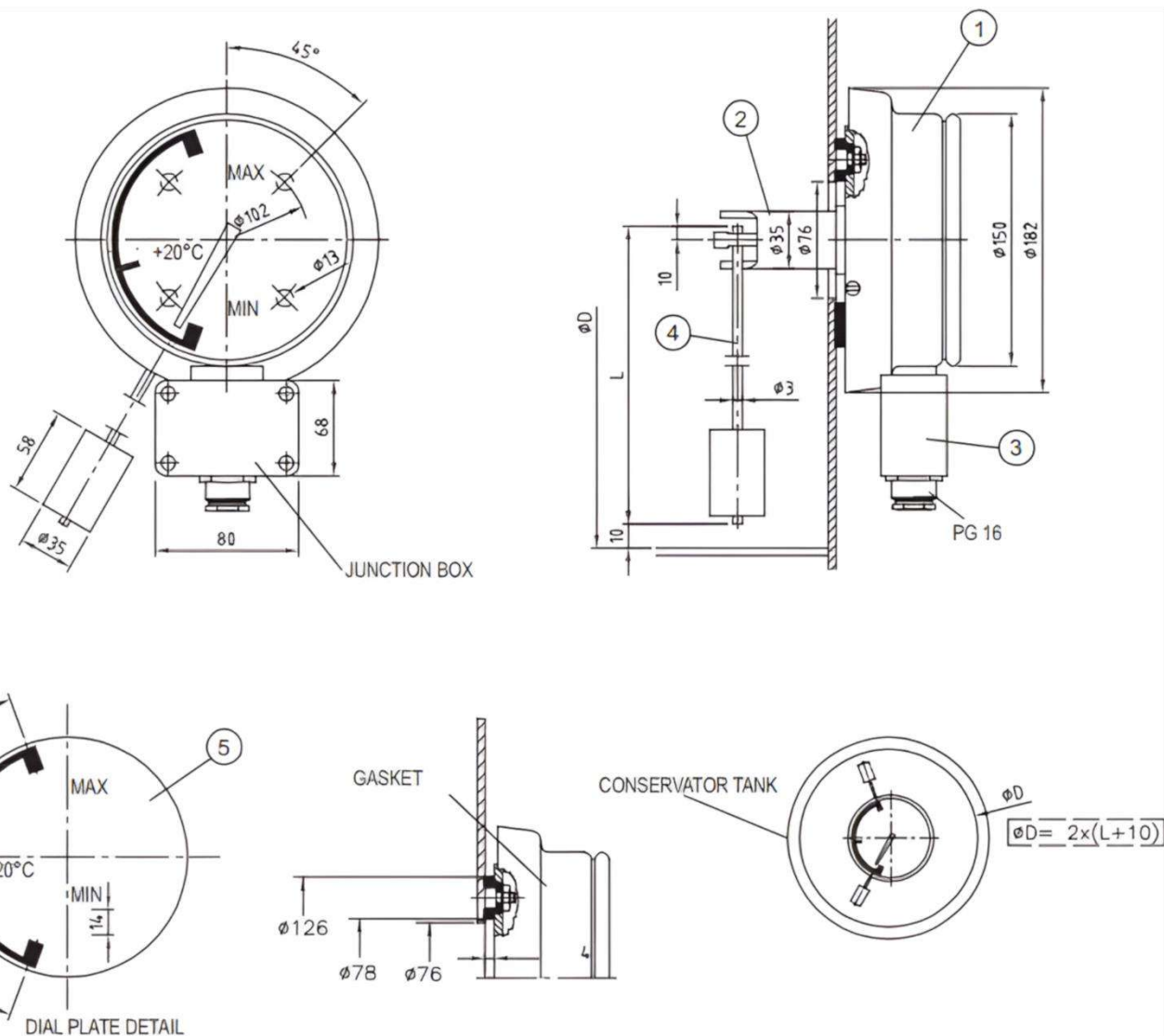


| Item | Qty | Description | Technical Data / Designation |
|------|-----|-------------|------------------------------|
| 6    | 1   | FLAT GASKET | NBR LP 1100                  |
| 5    | 1   | ARROW       | Brass Ms58                   |
| 4    | 1   | DIAL PLATE  | ALUMINIUM                    |
| 3    | 1   | FRONT GLASS | Polycarbonate 143 R          |
| 2    | 1   | FLOAT LEVER | Brass Ms 70                  |
| 1    | 1   | MAIN BODY   | ALUMINIUM                    |





## MAGNETIC OIL LEVEL INDICATOR WITH CONTACT



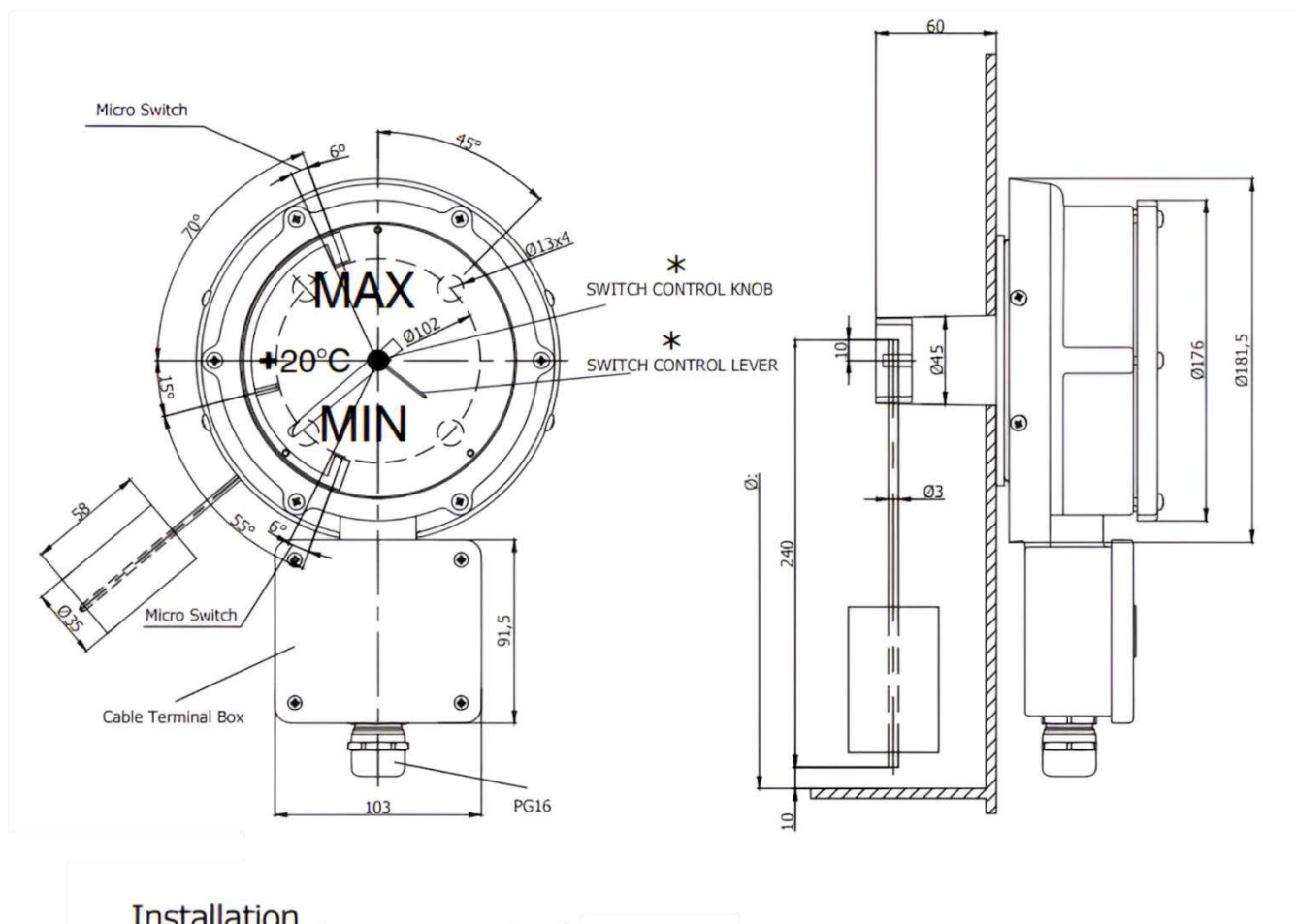
| Item | Qty | Description | Technical Data / Designation |
|------|-----|-------------|------------------------------|
| 6    | 1   | FLAT GASKET | NBR LP 1100                  |
| 5    | 1   | ARROW       | Brass Ms58                   |
| 4    | 1   | DIAL PLATE  | ALUMINIUM                    |
| 3    | 1   | FRONT GLASS | Polycarbonate 143 R          |
| 2    | 1   | FLOAT LEVER | Brass Ms 70                  |
| 1    | 1   | MAIN BODY   | ALUMINIUM                    |

Figure 1 shows four schematic diagrams labeled A, B, C, and D, each representing a different contact configuration. Diagram A shows a single contact configuration with a vertical line on the left (13) and a horizontal line on the right (14) connected by a diagonal line. Diagram B shows a single contact configuration with a vertical line on the left (14) and a horizontal line on the right (11) connected by a diagonal line. Diagram C shows a double contact configuration with two vertical lines on the left (13, 14) and two horizontal lines on the right (23, 24) connected by two diagonal lines. Diagram D shows a double contact configuration with two vertical lines on the left (14, 11) and two horizontal lines on the right (24, 21) connected by two diagonal lines.

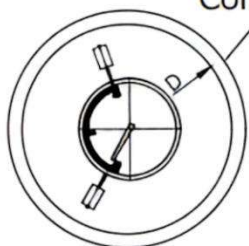


## INDICADOR DE NIVEL DE ACEITE MAGNÉTICO PARA TRANSFORMADORES (FORM B) RADIAL RAL 7033 /

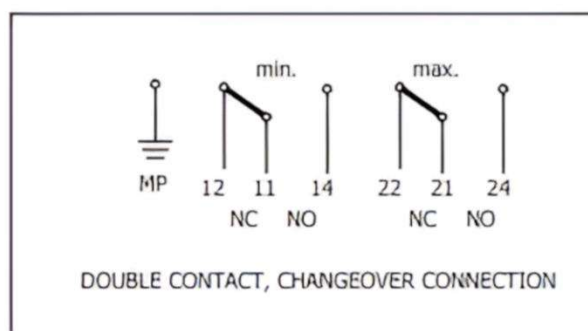
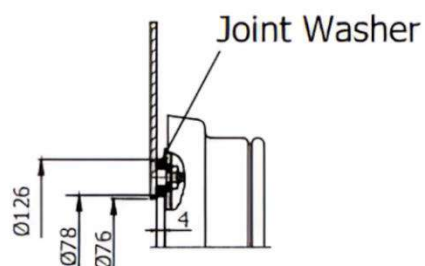
MAGNETIC OIL LEVEL INDICATOR FOR TRANSFORMERS (FORM B) RADIAL RAL 7033



### Installation Conservator Tank



Installation measure acc. with DIN 42569





OIL LEVEL INDICATOR VERTICAL R 1"

Technical drawing of a mechanical assembly, likely a valve or actuator, showing a cross-section and a top view. The drawing includes dimensions and numbered callouts (1-14) for various components.

**Dimensions:**

- Top diameter:  $\varnothing 30$
- Bottom diameter:  $\varnothing 24$
- Total height: 68
- Height from base to top of main body: 40
- Height of main body: 25
- Height of top section: 8
- Height of base: 12
- Height of mounting flange: 16
- Height of mounting flange to base: 40
- Height of mounting flange to top of main body: 68
- Height of mounting flange to base: 12
- Height of mounting flange to top of main body: 68
- Height of mounting flange to base: 12

**Callouts:**

- 1: Top of main body
- 2: Mounting flange
- 3: Base
- 4: Top of main body
- 5: Mounting flange
- 6: Base
- 7: Mounting flange
- 8: Top of main body
- 9: Base
- 10: Mounting flange
- 11: Base
- 12: Mounting flange
- 13: Base
- 14: Mounting flange

**Other Labels:**

- Max
- Min
- NV46
- X
- L1

Please inform us about required L1 dimension on order

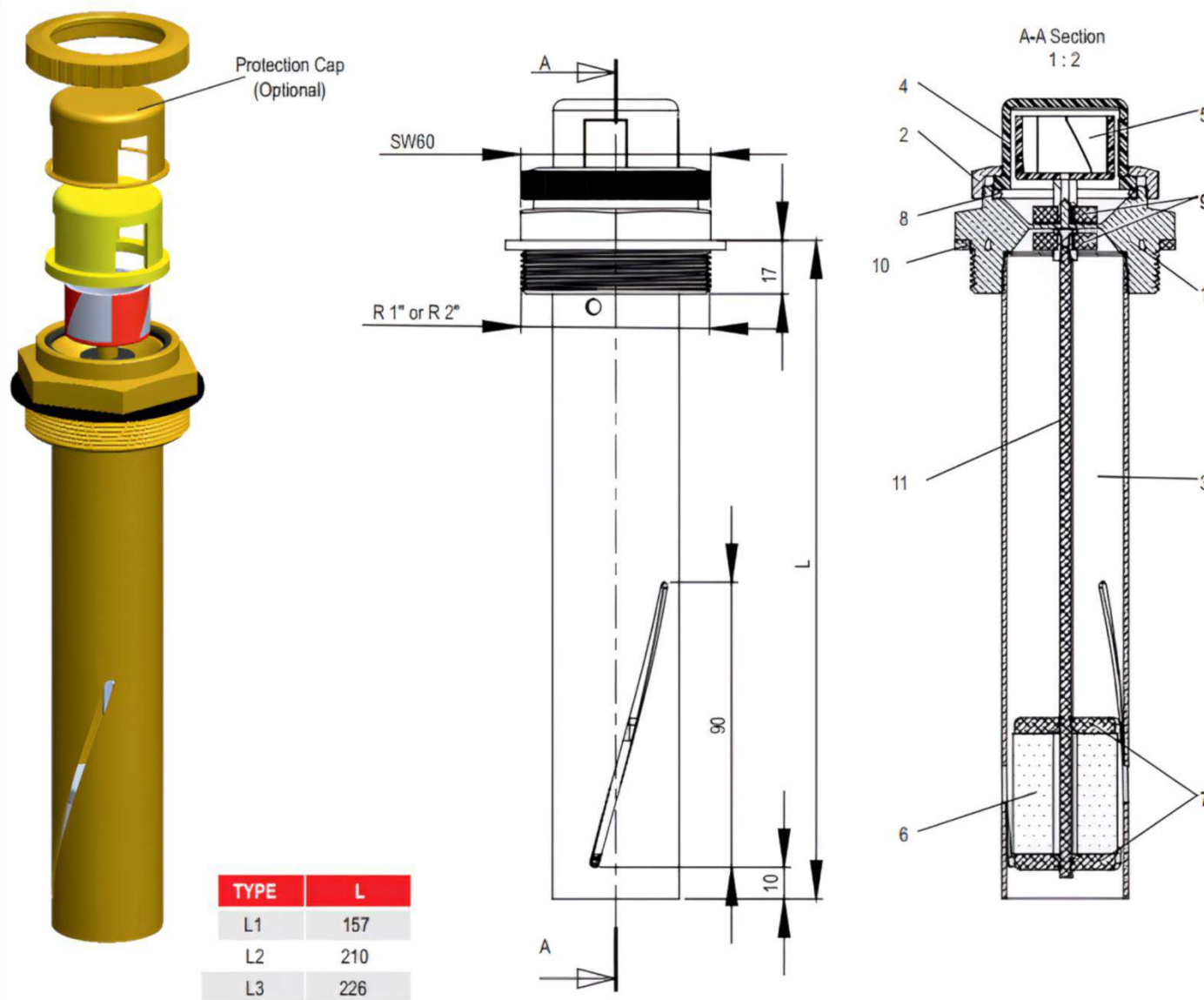
| Nr | Part Name             |
|----|-----------------------|
| 1  | Max Pointer           |
| 2  | Brass Body            |
| 3  | Float                 |
| 4  | Screen                |
| 5  | Brass Ring            |
| 6  | Sealing Or            |
| 7  | Float Shaft           |
| 9  | Ring Stopper          |
| 10 | Center Ring           |
| 11 | Brass Body            |
| 12 | Lock Screw            |
| 13 | Nbr Gasket            |
| 14 | O-ring or Flat Gasket |





## INDICADOR MAGNÉTICO DE NIVEL DE ACEITE CON FLOTADOR VERTICAL /

### MAGNETIC OIL LEVEL INDICATOR VERTICAL FLOAT



| No. | Q'ty | Description  | Explanation |
|-----|------|--------------|-------------|
| 1   | 1    | Body         | MS58        |
| 2   | 1    | Press Nut    | MS58        |
| 3   | 1    | Tube         | MS58        |
| 4   | 1    | Cap          | POLIKARBON  |
| 5   | 1    | Scale        | PA6         |
| 6   | 1    | Float        | ROHACELL    |
| 7   | 2    | Float Handle | Aluminium   |
| 8   | 1    | O-ring       | NBR70       |
| 9   | 2    | Magnet       | —           |
| 10  | 1    | Flat Gasket  | NBR70       |
| 11  | 1    | Float Lever  | Aluminium   |

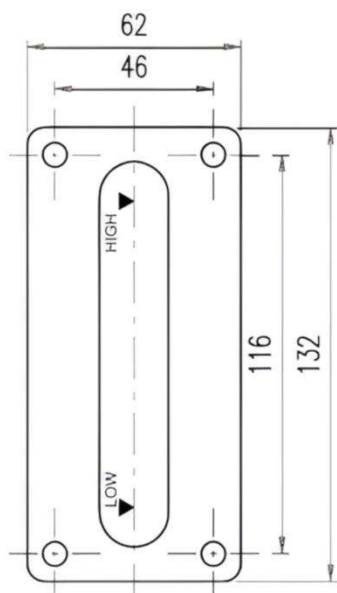




## INDICADOR DE NIVEL DE ACEITE /

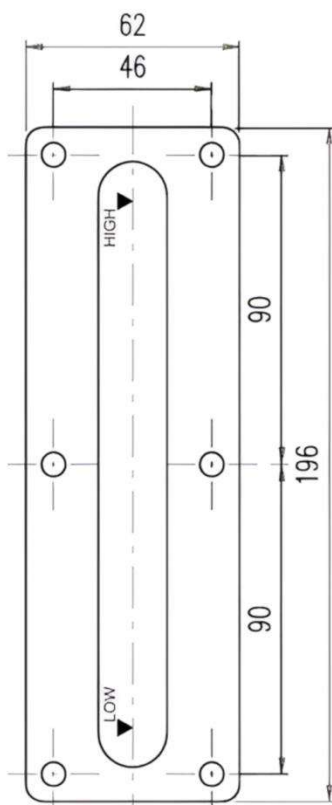
### OIL LEVEL INDICATOR

Small



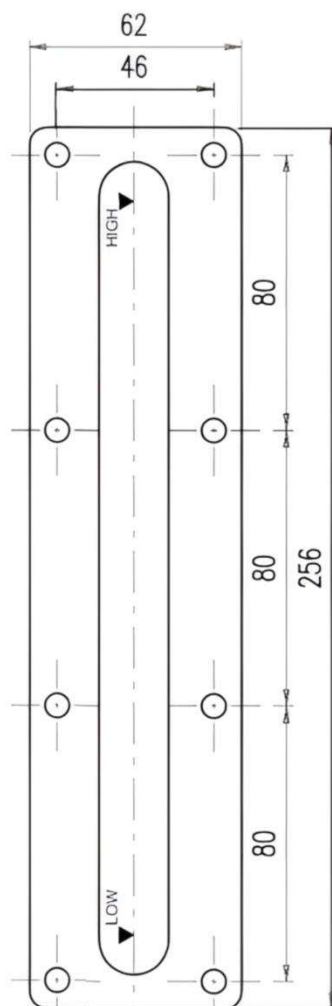
Dimensions in mm.

Medium

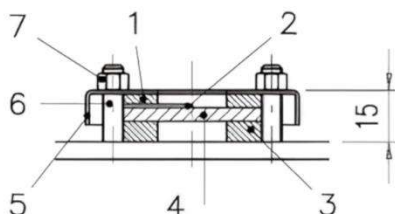


Dimensions in mm.

Large



Dimensions in mm.



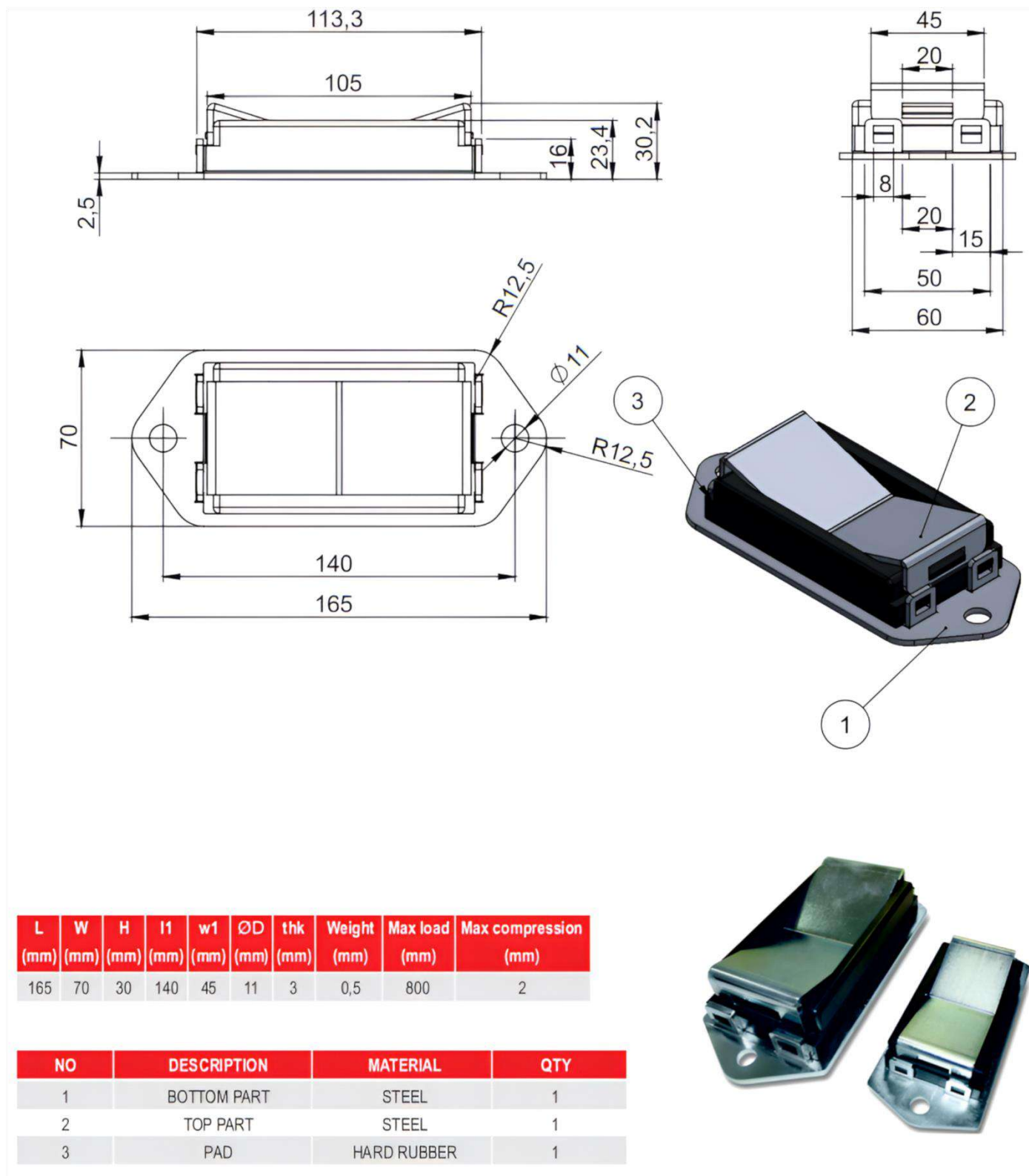
They give an optic indication of the oil level inside a transformer tank or inside a conservator. The steel frame must be bolted to the wall of an hermetic transformer or to the end of a conservator of a conventional transformer.

| No: | Description    | Material       |
|-----|----------------|----------------|
| 1   | Gasket outer   | NBR            |
| 2   | Sighting plate | Aluminium      |
| 3   | Gasket inner   | NBR            |
| 4   | Window plex    | Plexiglass     |
| 5   | Window frame   | Cr-Ni 1.5mm    |
| 6   | Stud M6        | (not supplied) |
| 7   | Nut M6         | (not supplied) |



## COJINETE ANTIVIBRACIÓN PARA RUEDAS DE Ø125 Y Ø160 /

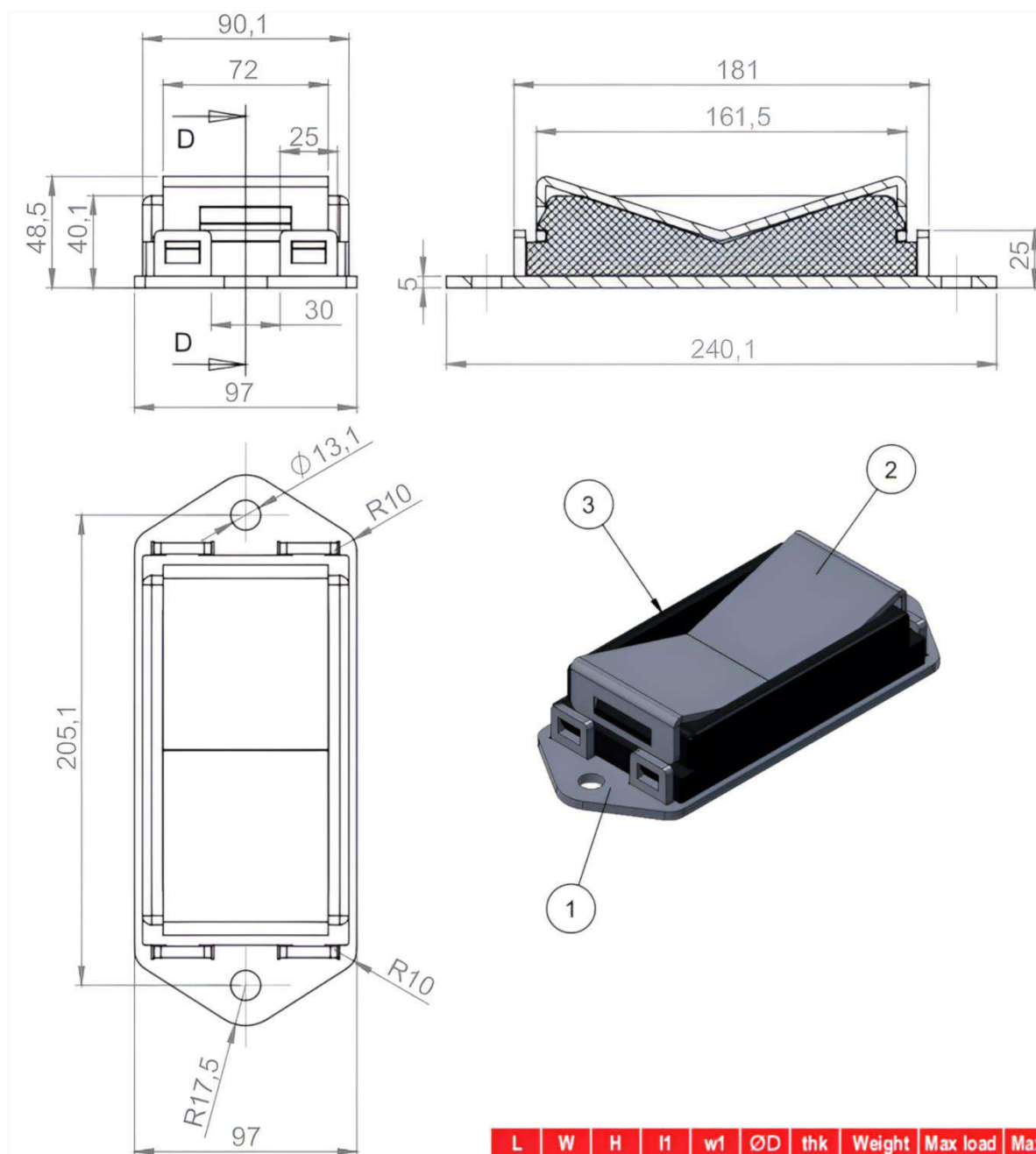
VIBRATION PAD FOR Ø125 AND Ø160 WHEELS





## COJINETE ANTIVIBRACIÓN PARA RUEDAS DE Ø200 /

VIBRATION PAD FOR Ø200 WHEELS



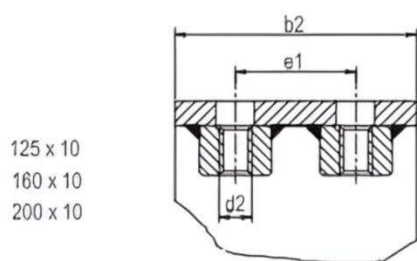
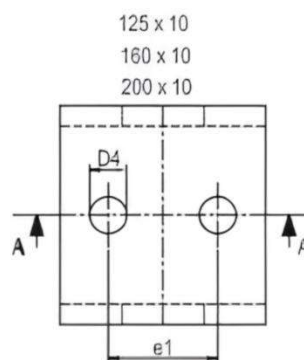
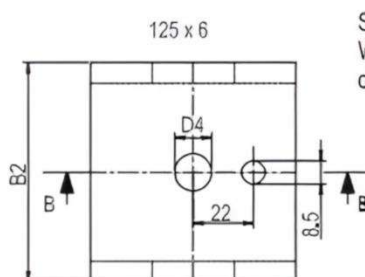
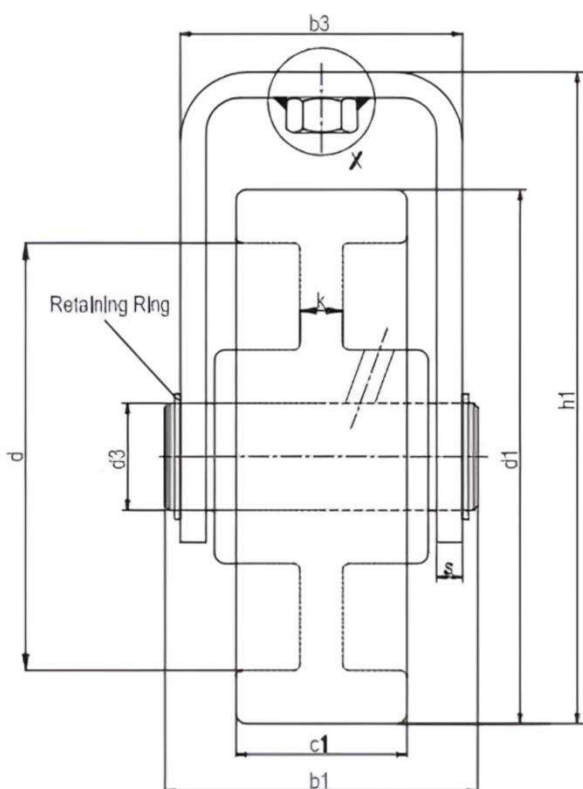
| L<br>(mm) | W<br>(mm) | H<br>(mm) | H<br>(mm) | w1<br>(mm) | ØD<br>(mm) | thk<br>(mm) | Weight<br>(mm) | Max load<br>(mm) | Max compression<br>(mm) |
|-----------|-----------|-----------|-----------|------------|------------|-------------|----------------|------------------|-------------------------|
| 240       | 97        | 50        | 205       | 72         | 13         | 5           | 1,8            | 1900             | 3                       |

| NO | DESCRIPTION | MATERIAL    | QTY |
|----|-------------|-------------|-----|
| 1  | BOTTOM PART | STEEL       | 1   |
| 2  | TOP PART    | STEEL       | 1   |
| 3  | RUBBER PAD  | HARD RUBBER | 1   |

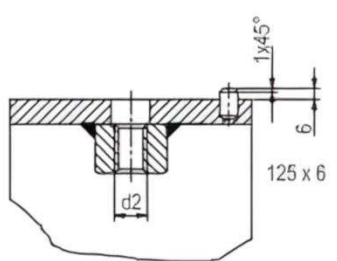


## RUEDA DE TRANSFORMADOR DIN 42561 /

### TRANSFORMER WHEEL DIN 42561



A-A Section



B-B Section

#### Parts

|               |                    |
|---------------|--------------------|
| Wheel Housing | Steel (St-37)      |
| Wheel         | Cast Iron (GG-20)  |
| Axle          | St-37 or St. Steel |

Stainless steel retaining ring is possible.  
We can manufacture your special designs  
of wheels with your sample or drawing.



Note: DIN type 125x10 and 160x10 has only 1 nut at center  
Different designs are possible to produce

#### Surface options

Zinc Plating / Hot dipped galvanizing /  
Wet or Electrostatic powder painting  
(RAL 7033)

| d1  | Ød  | k    | s  | b1  | b2  | b3  | c1 | d2  | d3 | e1 | h1  | capacity  | weight |
|-----|-----|------|----|-----|-----|-----|----|-----|----|----|-----|-----------|--------|
| 125 | 100 | 10   | 6  | 75  | 60  | 66  | 40 | M12 | 25 | -  | 152 | 1200 (kg) | 3.20   |
| 125 | 100 | 10   | 10 | 83  | 70  | 74  | 40 | M12 | 25 | 46 | 152 | 2500 (kg) | 3.90   |
| 160 | 135 | 15   | 10 | 95  | 80  | 84  | 50 | M12 | 32 | 56 | 195 | 3500 (kg) | 6.70   |
| 200 | 160 | 17.5 | 10 | 132 | 120 | 105 | 70 | M12 | 50 | 80 | 230 | 6000 (kg) | 15.75  |

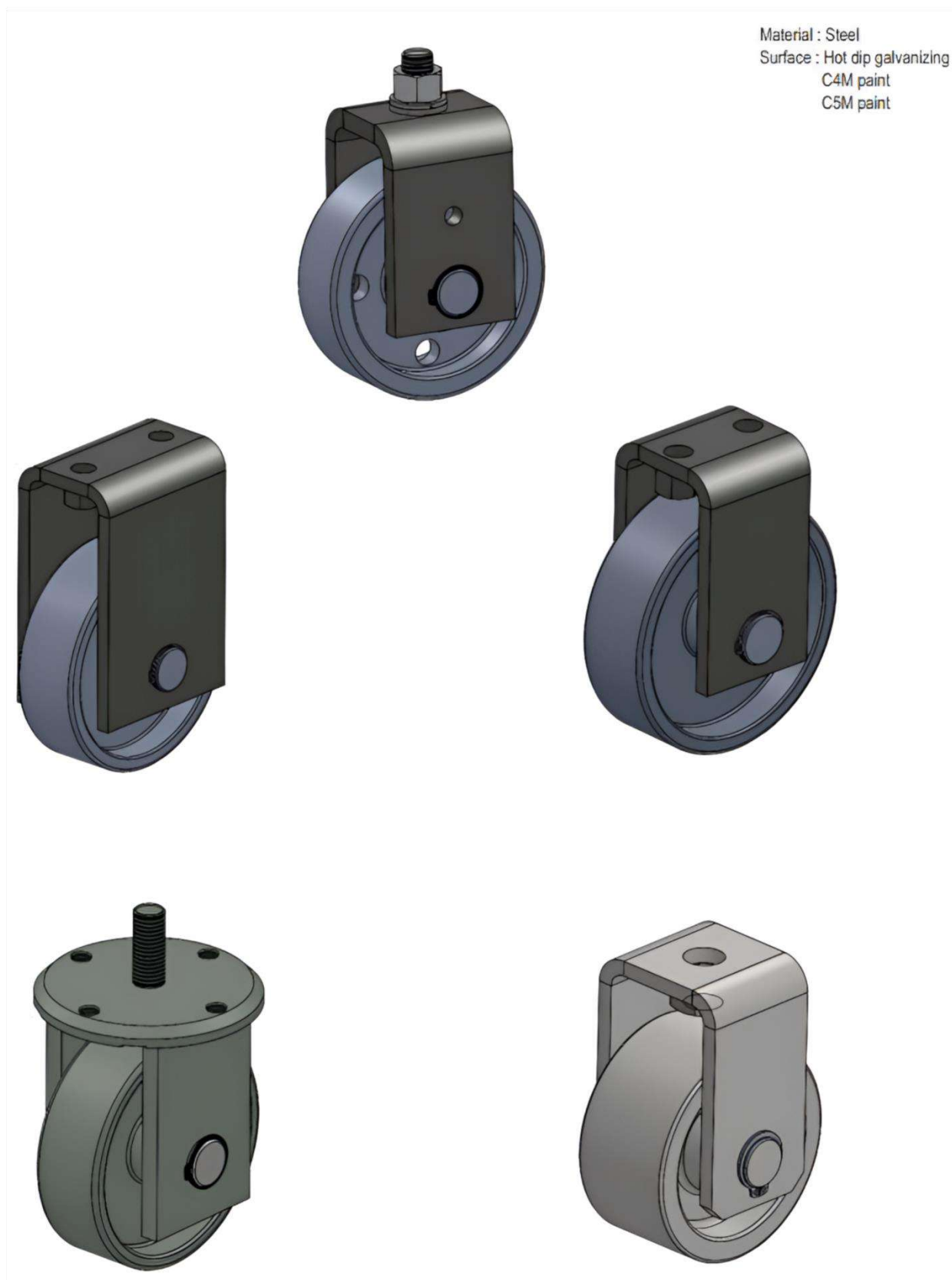
| THIN TYPE |     |   |        |
|-----------|-----|---|--------|
| d1        | Ød  | k | weight |
| 125       | 109 | 6 | 2.50   |
| 125       | 109 | 6 | 3.15   |
| 160       | 138 | 8 | 5.40   |
| 200       | 175 | 8 | 12.00  |





**RUEDAS ESEPECIALES BAJO SOLICITUD /**

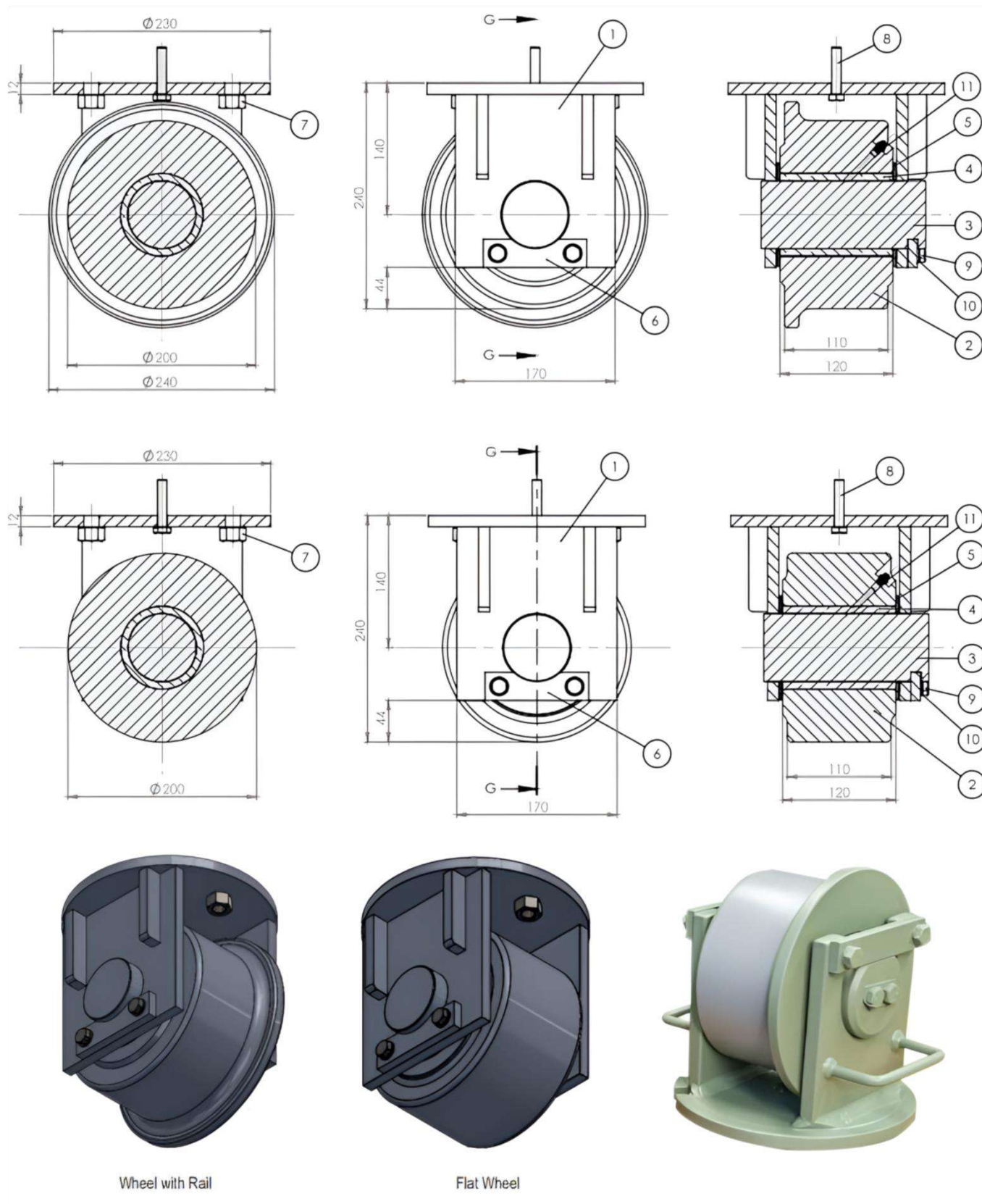
*SPECIAL WHEELS ON REQUEST*





**RUEDA DE 10 TONELADAS TIPO RIEL /**

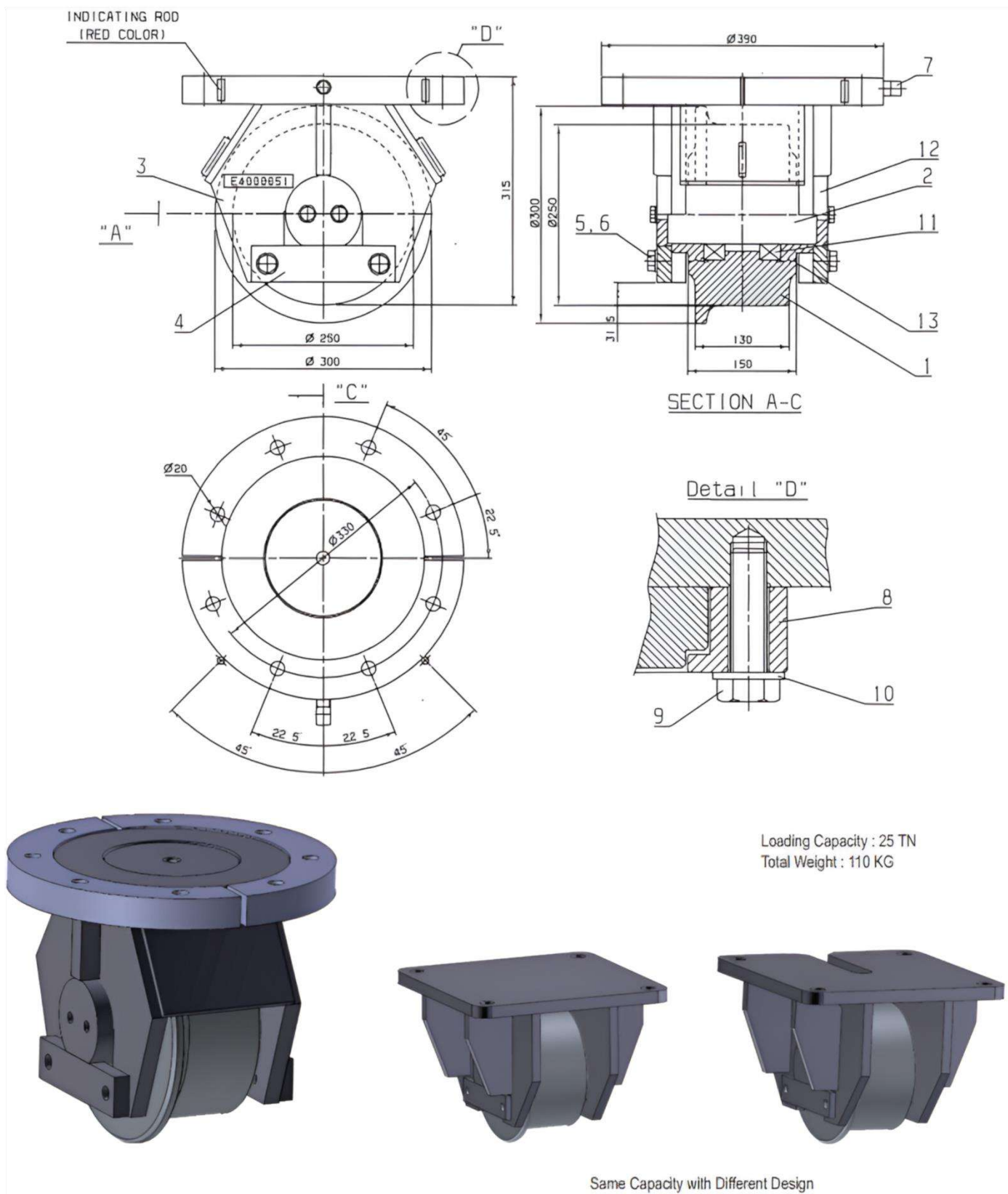
*10 TONNES WHEEL RAIL TYPE*





## RUEDA DE 25 TONELADAS TIPO RIEL /

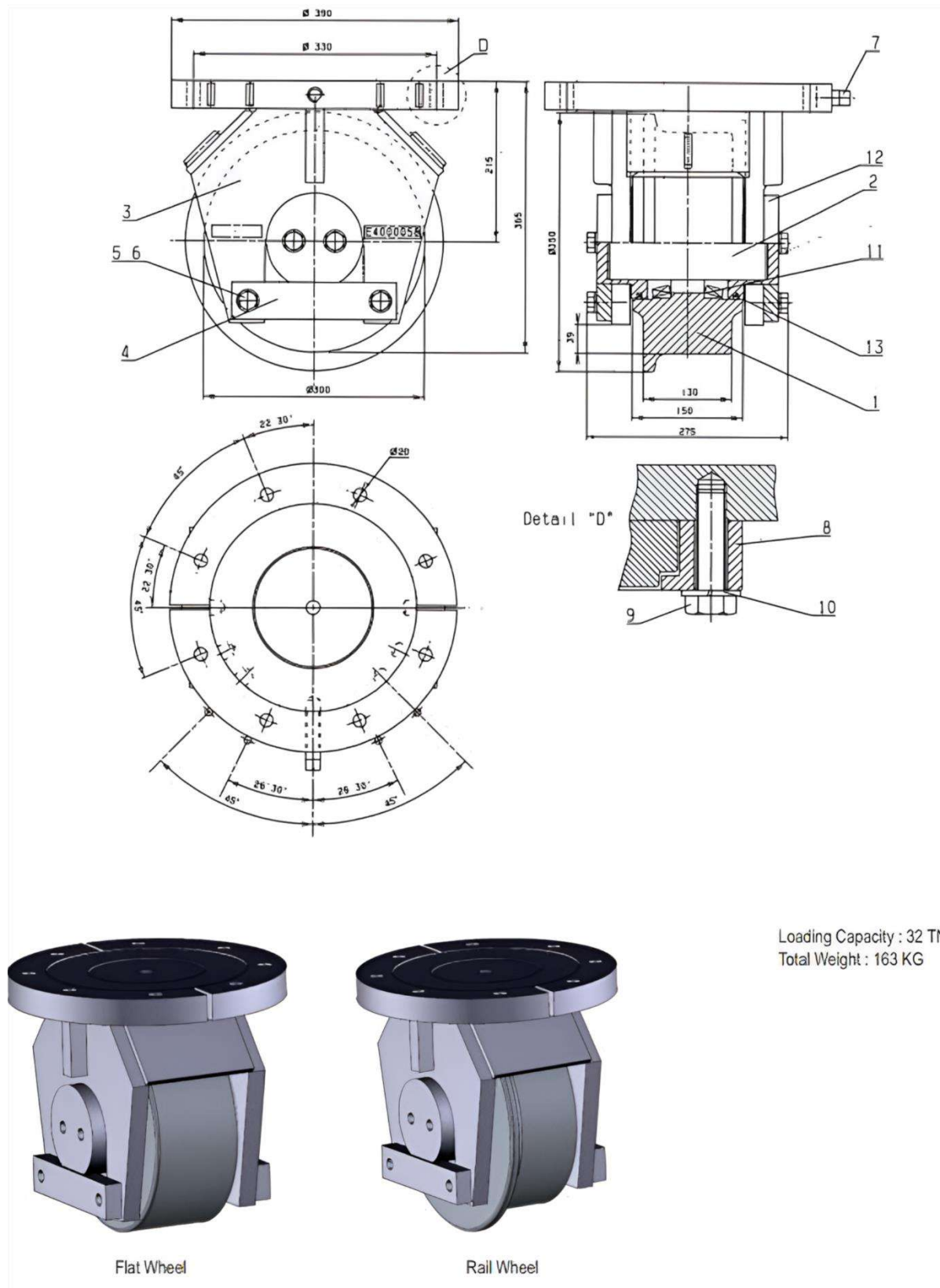
25 TONNES WHEEL RAIL TYPE





## RUEDA DE 32 TONELADAS TIPO RIEL /

32 TONNES WHEEL RAIL TYPE

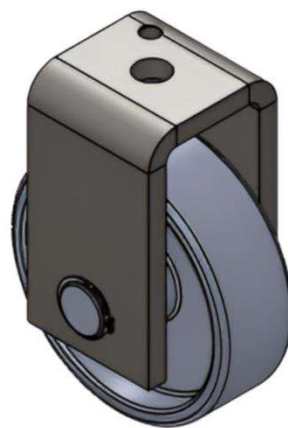
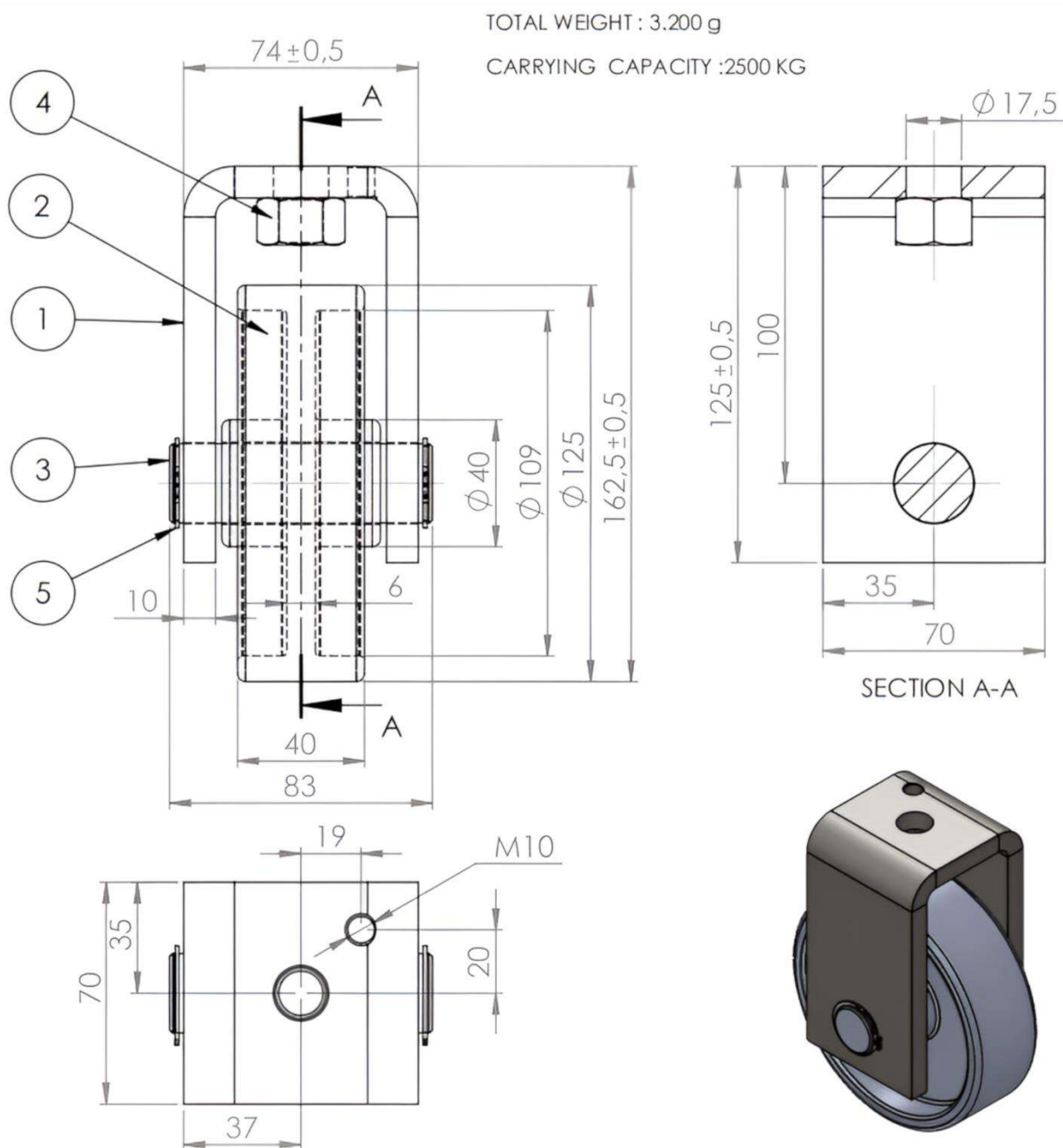






## RUEDA ESPECIAL PARA TRANSFORMADORES Ø125 /

### Ø125 SPECIAL TRANSFORMER WHEEL



|                    |                          |                   |                        |                   |                  |                     |
|--------------------|--------------------------|-------------------|------------------------|-------------------|------------------|---------------------|
| 5                  | RETAINING RING           | 02.29.25.03       | 471.25-01              |                   | 2                | 25x1.2 DIN 471-ST   |
| 4                  | NUT                      | 02.12.M16.09      | 934.M16-01             |                   | 1                | M16 ISO 4032 STEEL  |
| 3                  | SHAFT                    | 02.25.125.01      | 42561.125M-01          |                   | 1                | Ø25x83 ST 37 ZINC   |
| 2                  | Ø 125 THIN WHEEL         | 02.17.125.01.01   | 42561.125T-01          |                   | 1                | GG 20               |
| 1                  | WHEEL CAGE               | 02.18.125.10      | 01050-01               |                   | 1                | ST-37               |
| SIRA NO<br>ITEM NO | PARÇA ADI<br>DESCRIPTION | KOD NO<br>CODE NO | RESİM NO<br>DRAWING NO | AGIRLIK<br>WEIGHT | ADET<br>QUANTITY | MALZEME<br>MATERIAL |

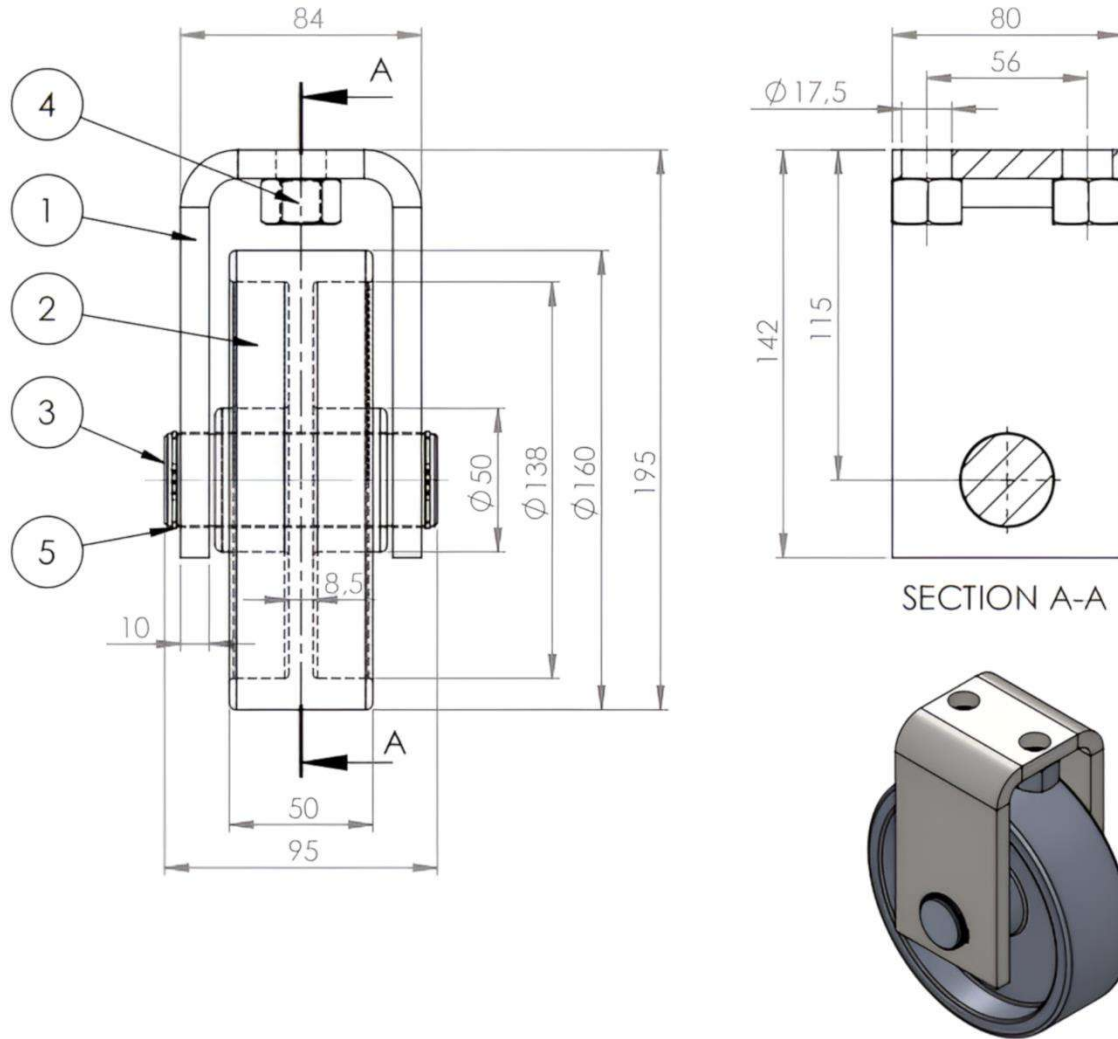


**RUEDA PARA TRANSFORMADORES Ø160 /**

**Ø160 TRANSFORMER WHEEL**

TOTAL WEIGHT : 5350 gr.

CARRYING CAPACITY: 3600 kg



ELEKTROSTATIC POWDER PAINT: RAL 7033 min. 55 MICRON

|                    |                          |                   |                        |                   |                  |                          |
|--------------------|--------------------------|-------------------|------------------------|-------------------|------------------|--------------------------|
| 5                  | RETAINING RING           | 02.29.32.03       | 471.32-01              |                   | 2                | Ø32X1,5 DIN471 - ST ZINC |
| 4                  | NUT                      | 02.12.M16.03      | 934.M16-01             |                   | 2                | M16 ISO 4032 - ST        |
| 3                  | SHAFT                    | 02.25.160.01      | 42561.160M-01          |                   | 1                | Ø32X95 ST. ZINC          |
| 2                  | WHEEL THIN               | 02.17.160.01.01   | 42561.160T-01          |                   | 1                | GG 20                    |
| 1                  | WHEEL CAGE               | 02.18.160.02      | 42561.160K-02          |                   | 1                | STEEL                    |
| SIRA NO<br>ITEM NO | PARÇA ADI<br>DESCRIPTION | KOD NO<br>CODE NO | RESİM NO<br>DRAWING NO | AĞIRLIK<br>WEIGHT | ADET<br>QUANTITY | MALZEME<br>MATERIAL      |

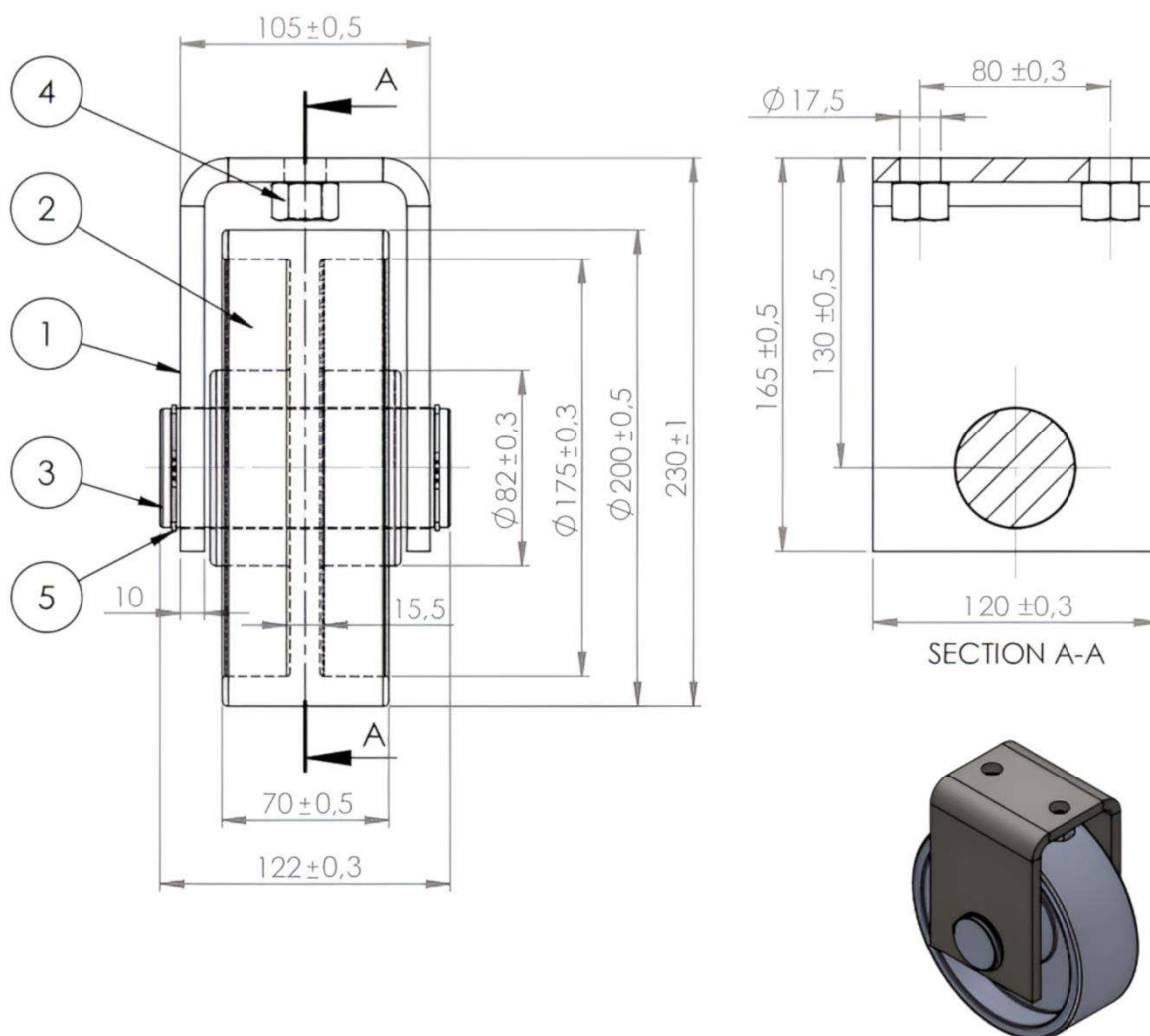


## RUEDA ESPECIAL PARA TRANSFORMADORES Ø200 /

### Ø200 SPECIAL TRANSFORMER WHEEL

TOTAL WEIGHT : 11600 gr.

CARRYING CAPACITY : 6300 kg.



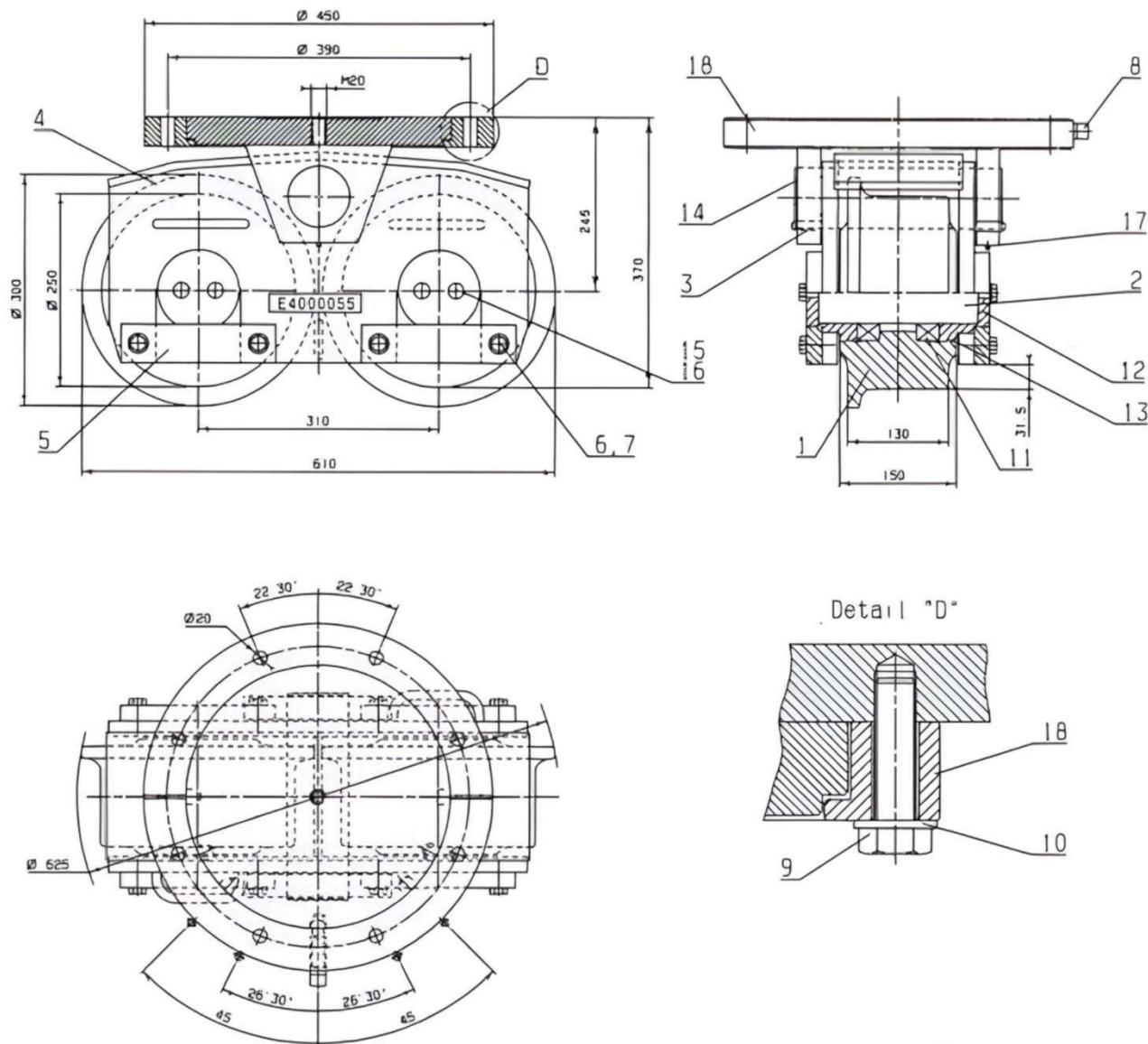
ELECTROSTATIC POWDER PAINT: RAL 7033, min. 55 MICRON

|                    |                          |                   |                        |                  |             |                       |
|--------------------|--------------------------|-------------------|------------------------|------------------|-------------|-----------------------|
| 5                  | RETAINING RING           | 02.29.50.03       | 471.50-01              |                  | 2           | Ø50x2 DIN471 ST. ZINC |
| 4                  | NUT                      | 02.12.M16.03      | 934.M16-01             |                  | 2           | M16 ISO4032 STEEL     |
| 3                  | SHAFT                    | 02.25.200.01      | 42561.200M-01          |                  | 1           | Ø50x122 ST. ZINC      |
| 2                  | WHEEL THIN               | 02.17.200.01.01   | 42561.200T-01          |                  | 1           | GG20                  |
| 1                  | WHEEL CAGE               | 02.18.200.02      | 42561.200K-02          |                  | 1           | STEEL                 |
| SIRA NO<br>ITEM NO | PARCA ADI<br>DESCRIPTION | KOD NO<br>CODE NO | RESIM NO<br>DRAWING NO | AGIRUK<br>WEIGHT | ADET<br>QTY | MALZEME<br>MATERIAL   |



## RUEDA DE 50 TONELADAS TIPO RIEL /

50 TONNES WHEEL RAIL TYPE



Loading Capacity : 50 TN  
Total Weight : 235 KG

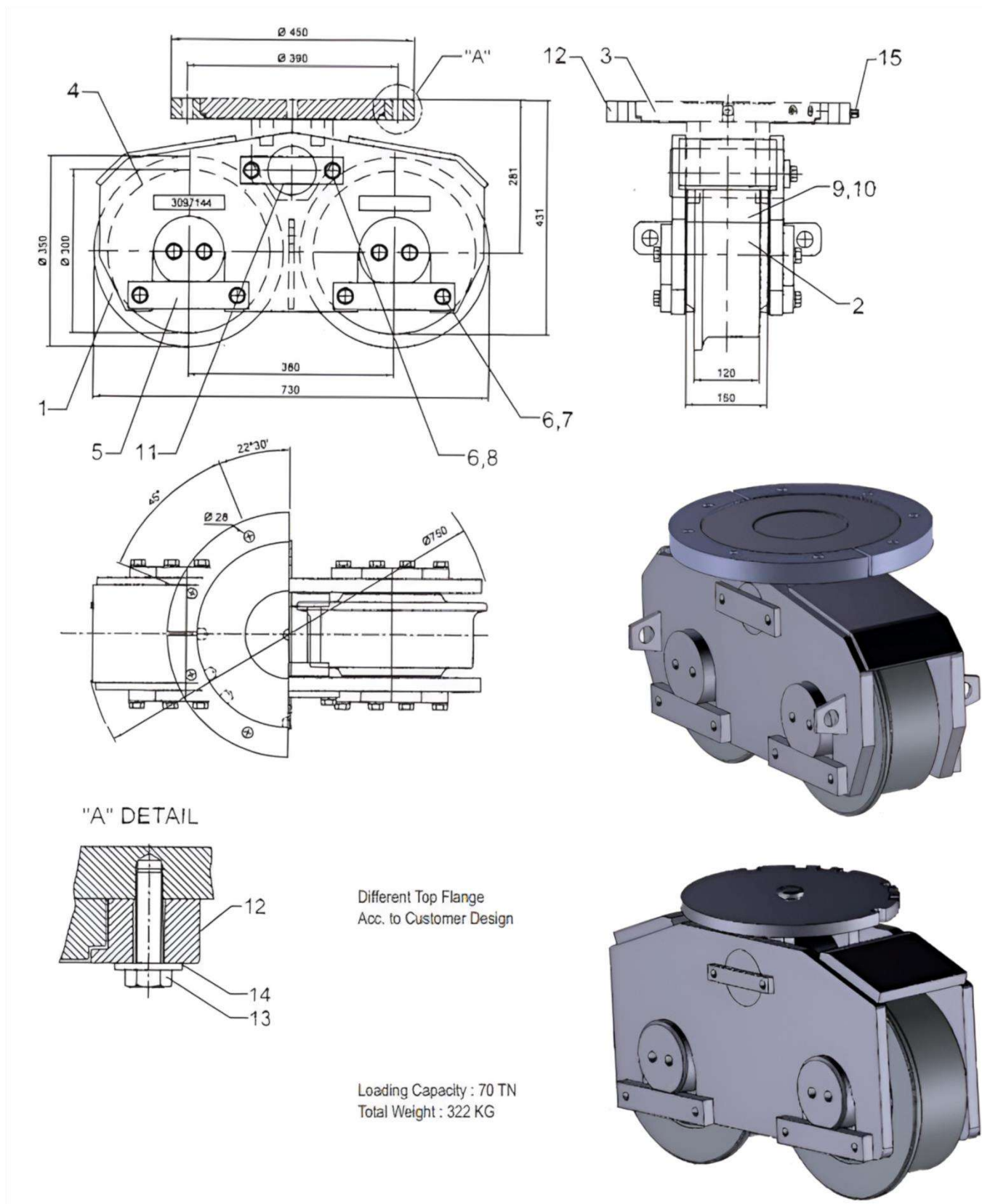






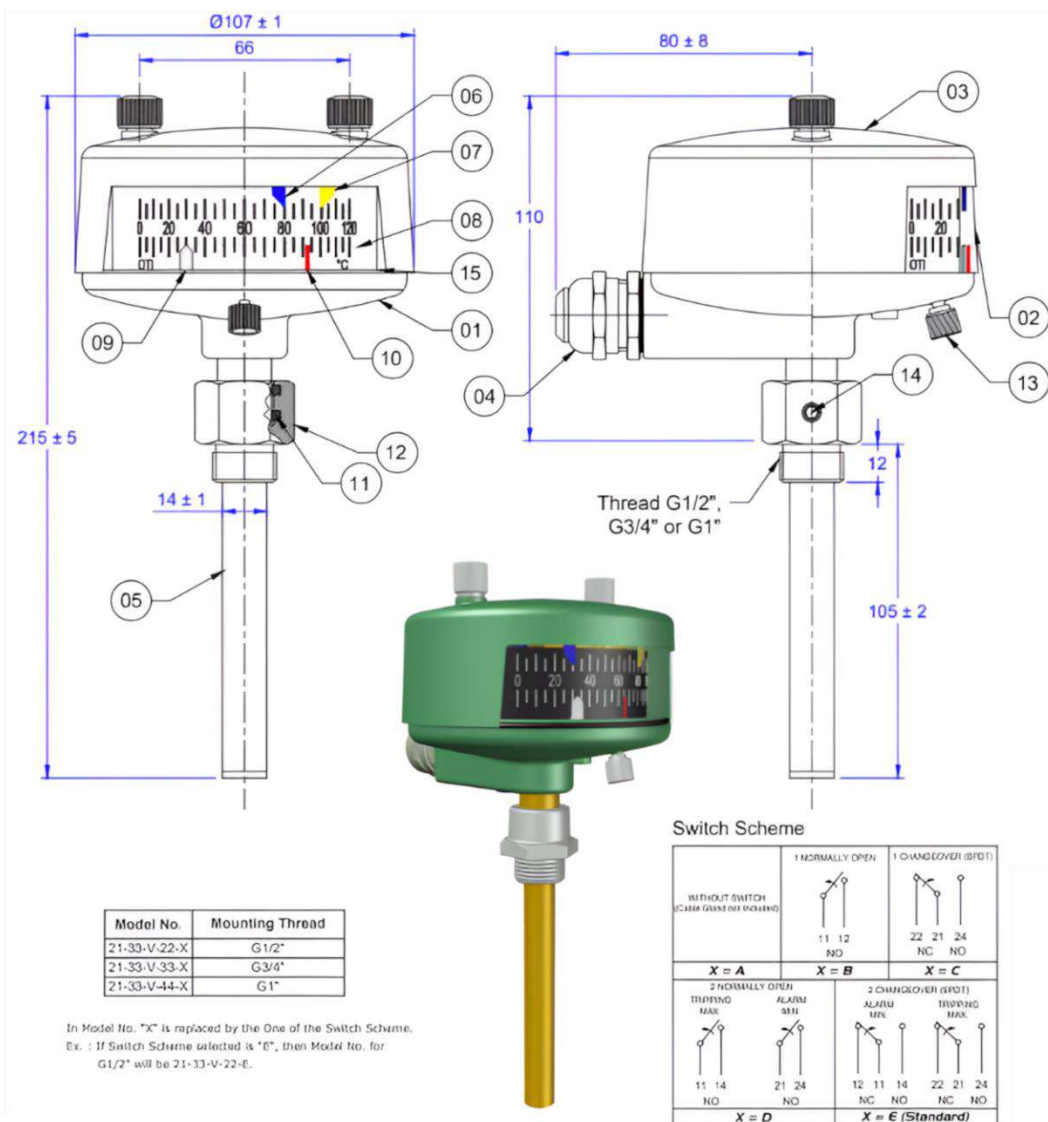
## RUEDA DE 70 TONELADAS TIPO RIEL /

70 TONNES WHEEL RAIL TYPE





## TERMÓMETRO BIMETAL / BIMETAL THERMOMETER



| Bill of Material |                                    |      |                 |
|------------------|------------------------------------|------|-----------------|
| Part No.         | Description                        | Qty. | Material        |
| 01               | Body                               | 01   | Aluminium PDC   |
| 02               | Window                             | 01   | Polycarbonate   |
| 03               | Case                               | 01   | Aluminium       |
| 04               | Cable Gland (PG 16)                | 01   | Brass           |
| 05               | Stem                               | 01   | Brass           |
| 06               | Min. Temp. Set Pointer (Blue)      | 01   | Nylon           |
| 07               | Max. Temp. Set Pointer (Yellow)    | 01   | Nylon           |
| 08               | Indicating Scale (Silver on Black) | 01   | Aluminium       |
| 09               | Temp. Indicating Pointer (White)   | 01   | Nylon           |
| 10               | Max. Indicating Pointer (Red)      | 01   | Stainless Steel |
| 11               | 'O' Ring                           | 02   | Silicon         |
| 12               | Hex. Adaptor                       | 01   | Aluminium       |
| 13               | Set Knob                           | 01   | Brass           |
| 14               | Grub Screw                         | 02   | Stainless Steel |
| 15               | Cover 'O' Ring                     | 01   | Silicon         |

### Note :

- 1). All Aluminium Parts are Shot Blasted and Powder Coated to RAL-7033.
- 2). Scale Markings are Silver Color on Black Background.
- 3). Window is U/V Stabilized Polycarbonate and Unbreakable.
- 4). All Nylon Items are U/V Stabilized.

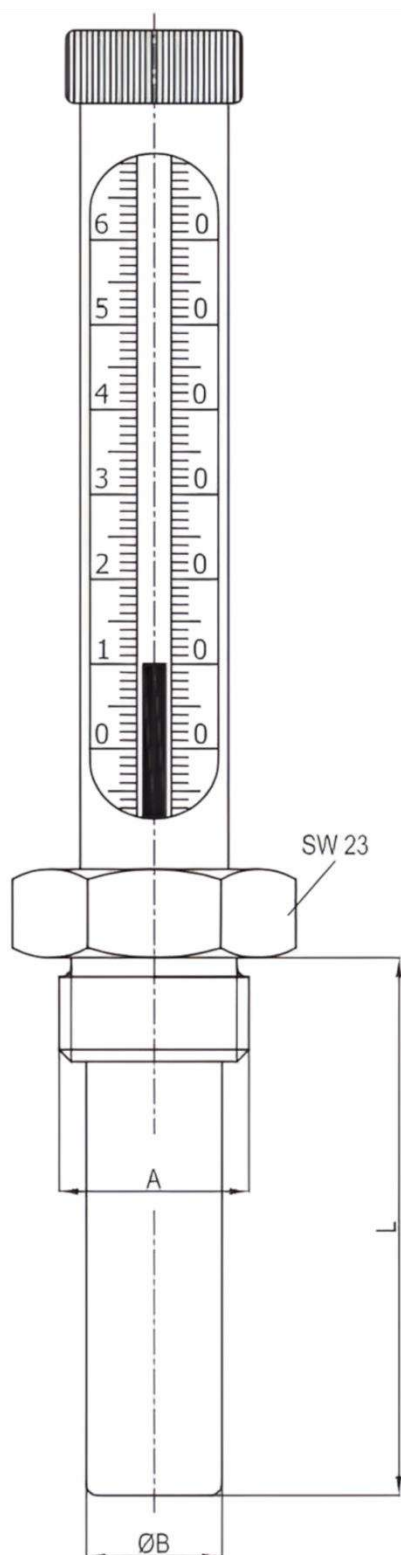
### Technical Specifications :

- 1). Operating Range : 0° to 120°C. Other Range on Request.
- 2). Mounting : G1/2", G3/4" or G1" (Vertical Type).
- 3). Accuracy : ±5°C
- 4). Switch Rating : 5A 250V AC and 5A 24V DC.
- 5). Protection Class : IP 55
- 6). Insulation : 2KV for 1 Minute.



## TERMÓMETRO DE CRISTAL DIN 16160 /

### GLASS THERMOMETER DIN 16160



#### MACHINE - GLASS THERMOMETER

|                         |          |
|-------------------------|----------|
| Working liquid          | Alcohol  |
| Working limit (C)       | 0-130°C  |
| Immersion length (L)    | 63-100mm |
| Connection diameter (A) | R1½"     |
| Bulb diameter (B)       | dia.:12  |



- These thermometers are for indoor use.

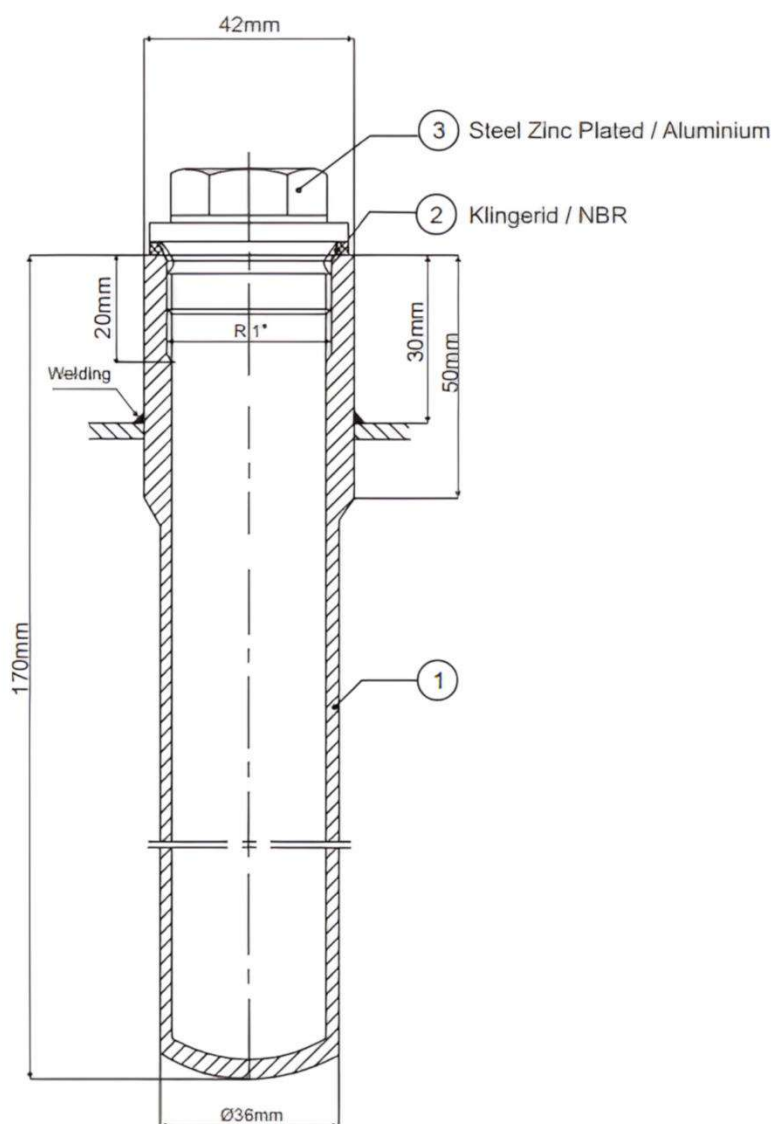


## VAINA DE TERMÓMETRO DIN 42554 /

### THERMOMETER POCKET DIN 42554

#### Features

The thermometer pocket is designed to be welded in the top of oil immersed transformers. The pocket is manufactured out of one metal-piece according to DIN 42554. This secured absolute oil-tightness.



| No: | Designation        | Remarks      | Material  |
|-----|--------------------|--------------|-----------|
| 1   | Thermometer Pocket | DIN 42554    | St 37-2   |
| 2   | Gasket             | 39x29x3      | Klingerit |
| 3   | Plug               | R 1" DIN 910 | Gal Zn    |



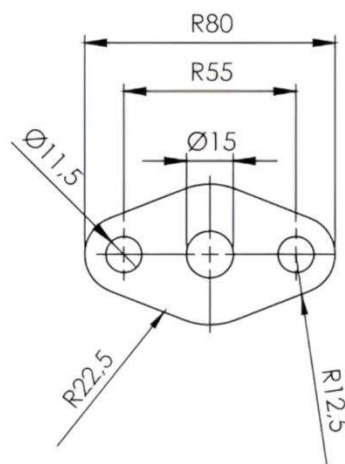
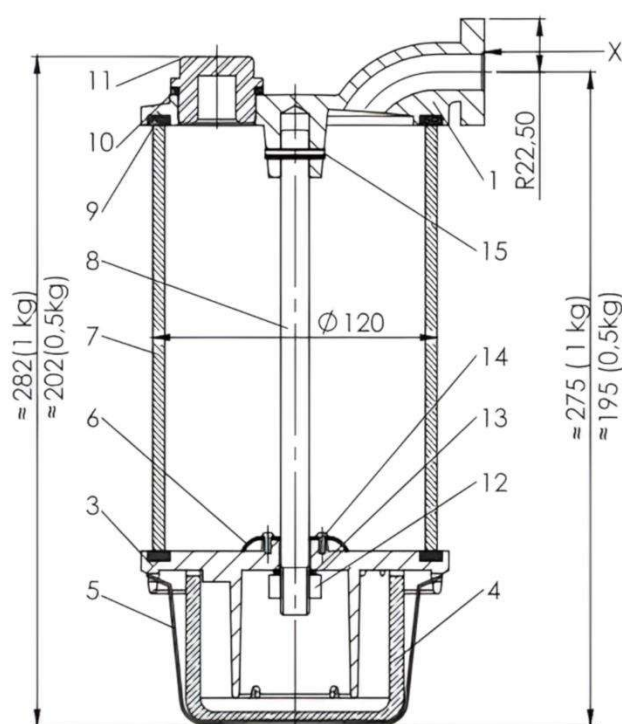


## DESHUMIFICADOR DIN 42567 FORM A /

### BREATHER DIN 42567 FORM A

| Silicagel Capacity | Form | Application  | Transformer Oil Capacity |
|--------------------|------|--------------|--------------------------|
| 0.5 kg.            | A    | 250 kVA      | 1800 kg.                 |
| 1.0 kg.            | A    | 250-5000 kVA | 3600 kg.                 |

The top and the bottom sections : Casted aluminium  
Paint : RAL 7033 electrostatic powder  
Shafts : Nickel plated steel  
Container : Glass oil bowl polycarbonate  
Bowl holder : CrNi



| Pos. No. | Qty. | Description    | Material                   |
|----------|------|----------------|----------------------------|
| 1        | 1    | Top section    | GD - AL lack RAL 7033      |
| 3        | 1    | Bottom section | GD - AL lack RAL 7033      |
| 4        | 1    | Oil bowl       | Plexiges, klar             |
| 5        | 1    | Holder         | X 12 CrNi 177              |
| 6        | 1    | Sieve          | AL 1.5 Ø                   |
| 7        | 1    | Glass cylinder | Glass 120x5x100/180        |
| 8        | 1    | Bridging plug  | St 33 galv. zn M12x125/250 |
| 9        | 2    | Gasket         | NBR 70                     |
| 10       | 1    | Gasket         | Asbestos free              |
| 11       | 1    | Plug           | GD - AL lack RAL 7033      |
| 12       | 1    | Nut            | M12 DIN 934 - 4D           |
| 13       | 1    | Spring washer  | B12 DIN 127                |
| 14       | 2    | Rivet          | 2,5x4 Alu DIN 1476         |
| 15       | 1    | Pin            | 4x24 DIN 1471              |



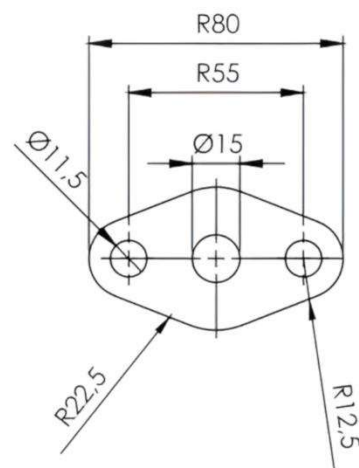
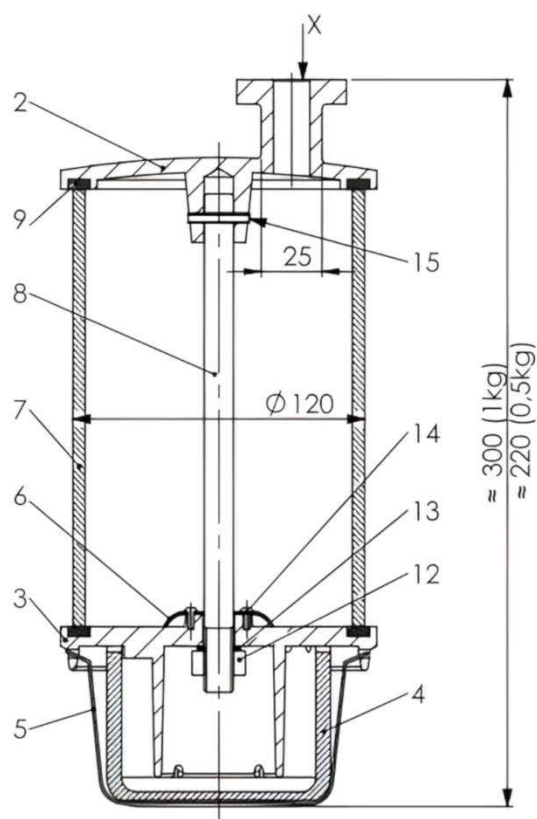


## DESHUMIFICADOR DIN 42567 FORM C /

### BREATHER DIN 42567 FORM B

| Silicagel Capacity | Form | Application  | Transformer Oil Capacity |
|--------------------|------|--------------|--------------------------|
| 0.5 kg.            | B    | 250 kVA      | 1800 kg.                 |
| 1.0 kg.            | B    | 250-5000 kVA | 3600 kg.                 |

The top and the bottom sections : Casted aluminium  
Paint : RAL 7033 electrostatic powder  
Shafts : Nickel plated steel  
Container : Glass oil bowl polycarbonate  
Bowl holder : CrNi



| Pos. No. | Qty. | Description    | Material                   |
|----------|------|----------------|----------------------------|
| 2        | 1    | Top section    | GD - AL lack RAL 7033      |
| 3        | 1    | Bottom section | GD - AL lack RAL 7033      |
| 4        | 1    | Oil bowl       | Plexiges, klar             |
| 5        | 1    | Holder         | X 12 CrNi 177              |
| 6        | 1    | Sieve          | AL 1.5 Ø                   |
| 7        | 1    | Glass cylinder | Glass 120x5x100/180        |
| 8        | 1    | Bridging plug  | St 33 galv. zn M12x125/250 |
| 9        | 2    | Gasket         | NBR 70                     |
| 12       | 1    | Nut            | M12 DIN 934 - 4D Galv. Zn  |
| 13       | 1    | Spring washer  | B12 DIN 127 - Galv. Zn     |
| 14       | 2    | Rivet          | 2,5x4 Alu DIN 1476         |
| 15       | 1    | Pin            | 4x24 DIN 1471              |



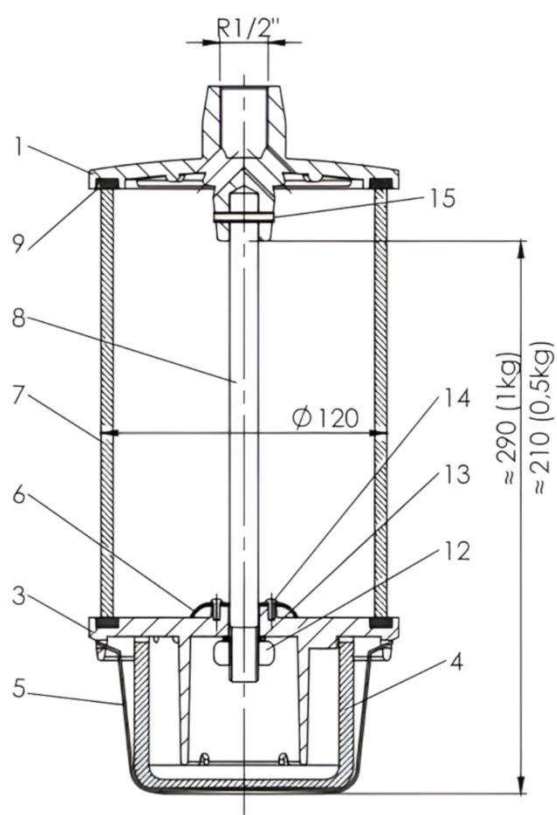


## DESHUMIFICADOR DIN 42567 CON FORMA C /

### BREATHER DIN 42567 FORM C

| Silicagel Capacity | Form | R diameter |        |      | Application  | Transformer Oil Capacity |
|--------------------|------|------------|--------|------|--------------|--------------------------|
| 0.5 kg.            | C    | R 1/2"     | R 3/4" | R 1" | 250 kVA      | 1800 kg.                 |
| 1.0 kg.            | C    | R 1/2"     | R 3/4" | R 1" | 250-5000 kVA | 3600 kg.                 |

The top and the bottom sections : Casted aluminium  
Paint : RAL 7033 electrostatic powder  
Shafts : Nickel plated steel  
Container : Glass oil bowl polycarbonate  
Bowl holder : CrNi



| Pos. No. | Qty. | Description    | Material                   |
|----------|------|----------------|----------------------------|
| 1        | 1    | Top section    | GD - AL lack RAL 7033      |
| 3        | 1    | Bottom section | GD - AL lack RAL 7033      |
| 4        | 1    | Oil bowl       | Plexiges, klar             |
| 5        | 1    | Holder         | X 12 CrNi 177              |
| 6        | 1    | Sieve          | AL 1.5 Ø                   |
| 7        | 1    | Glass cylinder | Glass 120x5x100/180        |
| 8        | 1    | Bridging plug  | St 33 galv. zn M12x125/250 |
| 9        | 2    | Gasket         | NBR 70                     |
| 12       | 1    | Nut            | M12 DIN 934 - 4D Galv. Zn  |
| 13       | 1    | Spring washer  | B12 DIN 127 - Galv. Zn     |
| 14       | 2    | Rivet          | 2,3x5 DIN1476              |
| 15       | 1    | Pin            | 4x24 DIN 1471              |

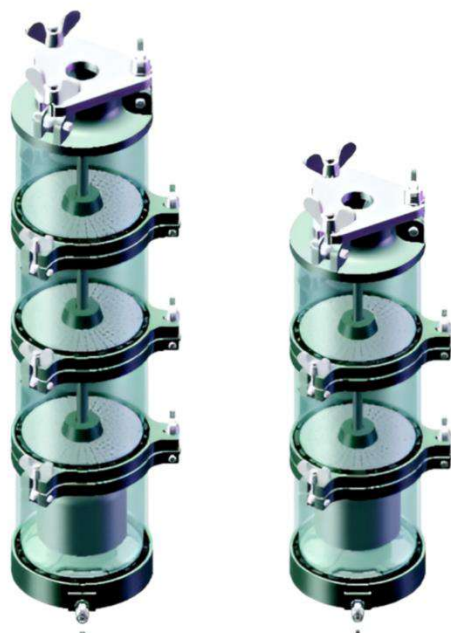
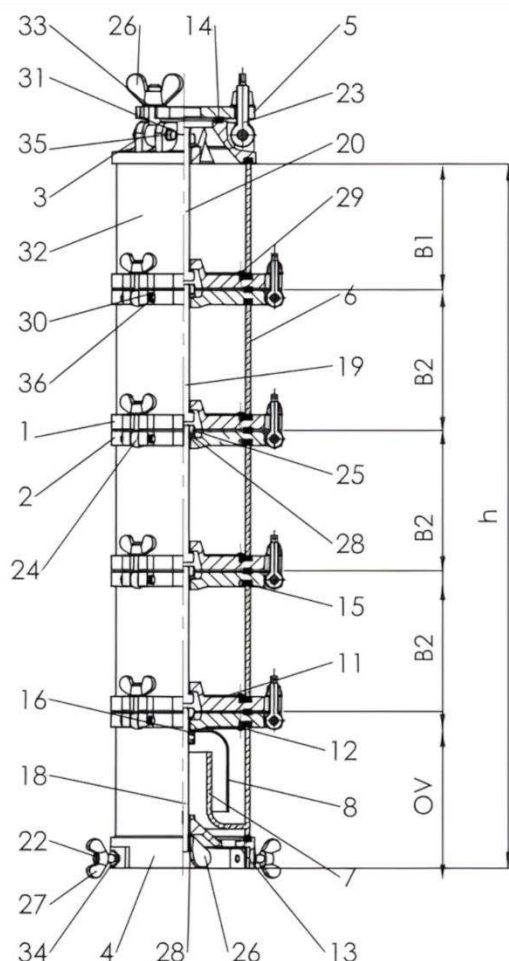






## DESHUMIFICADOR DIN 42562 L1-L2-L3-L4 /

### BREATHER DIN 42562 L1-L2-L3-L4



| Pos. No. | Grouping |    |    | Description      | Remarks          |
|----------|----------|----|----|------------------|------------------|
|          | B1       | B2 | OV |                  |                  |
| 1        | 1        | 1  | -  | Partition plate  | GG 20 gal. zn    |
| 2        | -        | 1  | 1  | Partition plate  | GG 20 gal. zn    |
| 3        | 1        | -  | -  | Top section      | GG 20 gal. zn    |
| 4        | -        | -  | 1  | Bottom section   | GG 20 gal. zn    |
| 5        | -        | -  | -  | Flange           |                  |
| 6        | 1        | 1  | 1  | Glass cylinder   | Glass            |
| 7        | -        | -  | 1  | Oil container    | Glass            |
| 8        | -        | -  | 1  | Dome             | nrSt             |
| 11       | 1        | -  | -  | Perforated plate | A1               |
| 12       | -        | -  | 1  | Perforated plate | A1               |
| 13       | -        | -  | 1  | Perforated plate | A1               |
| 14       | 1        | -  | -  | Gasket           | NBR 70           |
| 15       | 2        | 3  | 3  | Gasket           | NBR 70           |
| 16       | -        | -  | 2  | Gasket           | M1-250           |
| 18       | -        | -  | 1  | Bolt             | M12x150 - A2. 70 |
| 19       | -        | 1  | -  | Bolt             | M12x130 - A2. 70 |
| 20       | 1        | -  | -  | Bolt             | M12x140 - A2. 70 |
| 22       | -        | -  | 2  | Stud bolt        | M8x30 - A2. 70   |
| 23       | 3        | -  | -  | Eyebolt          | M12x55 A2. 70    |
| 24       | -        | 3  | 3  | Eyebolt          | M8x40 A2. 70     |
| 25       | 1        | 1  | 2  | Hexagon nut      | M12 - A2. 70     |
| 26       | 3        | -  | 1  | Wing nut         | M12-C - A2. 70   |
| 27       | -        | 3  | 5  | Wing nut         | M8-C - A2. 70    |
| 28       | 1        | 1  | 2  | Spring washer    | 12 CrN. - 177    |
| 29       | 3        | 3  | 7  | Pin              | 2,5x5 Alu        |
| 30       | -        | 6  | 6  | Circlips         | 8x0,8 - nrSt     |
| 31       | 6        | -  | -  | Circlips         | 10x1 - nrSt      |
| 32       | *        | *  | -  | Silicagel        | *-1,200 gr.      |
| 33       | 3        | -  | -  | Washer           | B13 - nrSt       |
| 34       | -        | 3  | 5  | Washer           | B8,4 - nrSt      |
| 35       | 3        | -  | -  | Stud             | 1.4305 nrSt      |
| 36       | -        | 3  | 3  | Stud             | 1.4305 nrSt      |

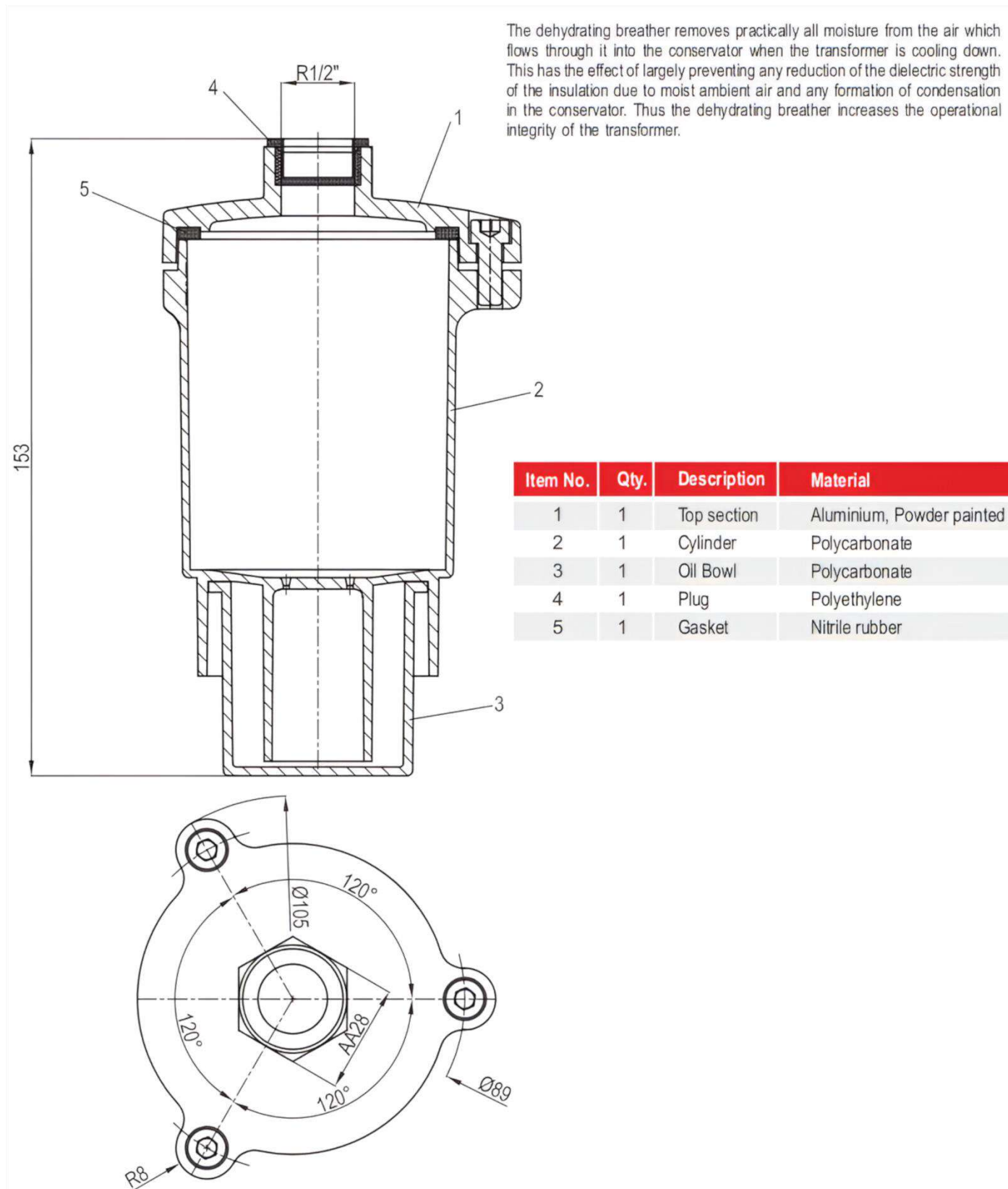
| Types of moisture holders                                       |    | L1  | L2   | L3   | L4  |
|-----------------------------------------------------------------|----|-----|------|------|-----|
| Silicagel amounth (kg.)                                         |    | 1,2 | 2,4  | 3,6  | 4,8 |
| Height (h) (± 1)                                                |    | 342 | 489  | 636  | 783 |
| Weight of moisture holders without silicagel (no filling) (kg.) |    | 9,2 | 12,6 | 16,3 | 20  |
| Assembly groups                                                 | B1 | 1   | 1    | 1    | 1   |
|                                                                 | B2 | -   | 1    | 2    | 3   |
|                                                                 | OV | 1   | 1    | 1    | 1   |





**DESHUMIFICADOR DIN 42567 0,15KG R ½ " /**

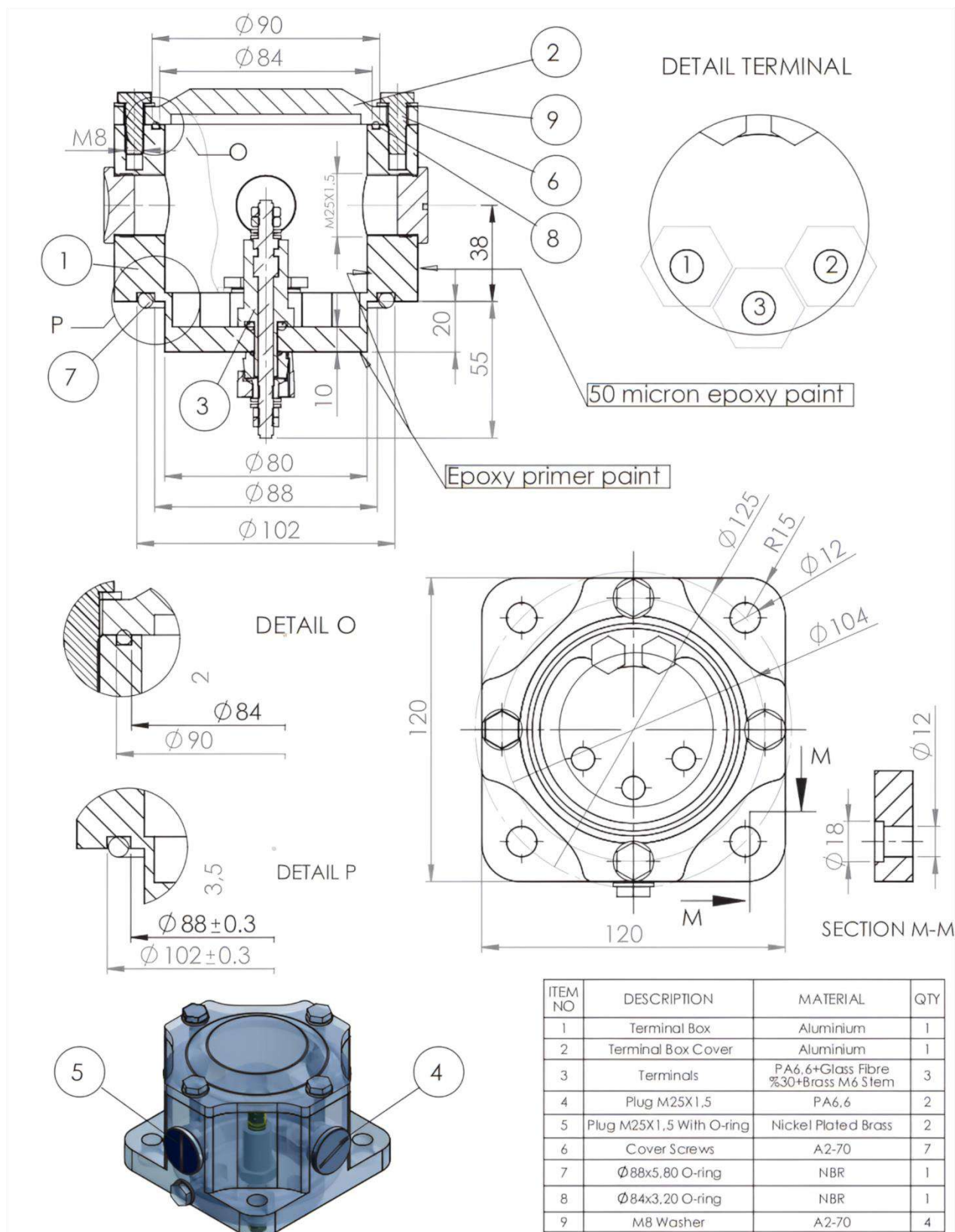
*BREATHER DIN 42567 0.15KG R 1/2 "*





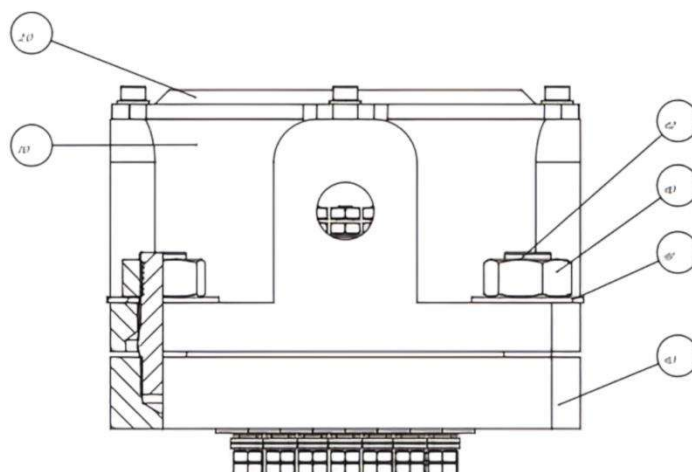
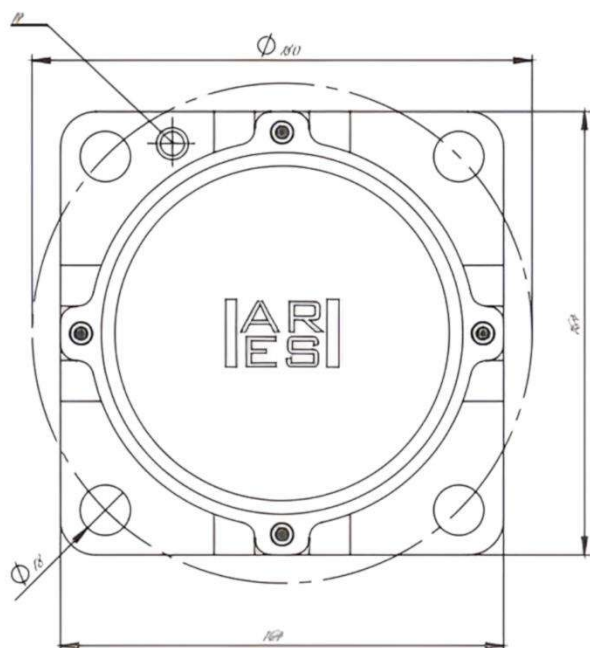
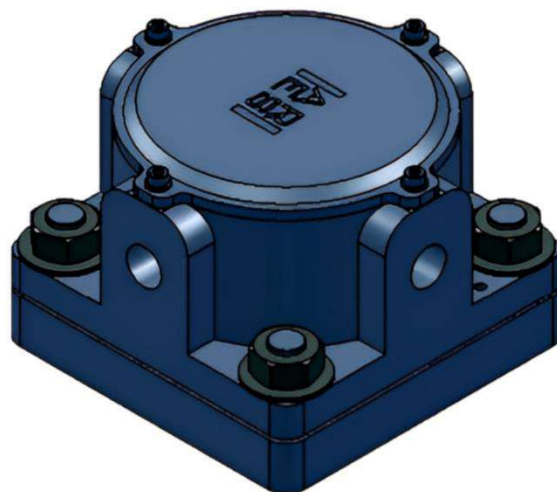
## CAJA TERMINAL CON 3 CONEXIONES /

### TERMINAL BOX WITH 3 CONNECTIONS





TERMINAL BOX WITH 6 TO 12 CONNECTORS FOR CT CONNECTION

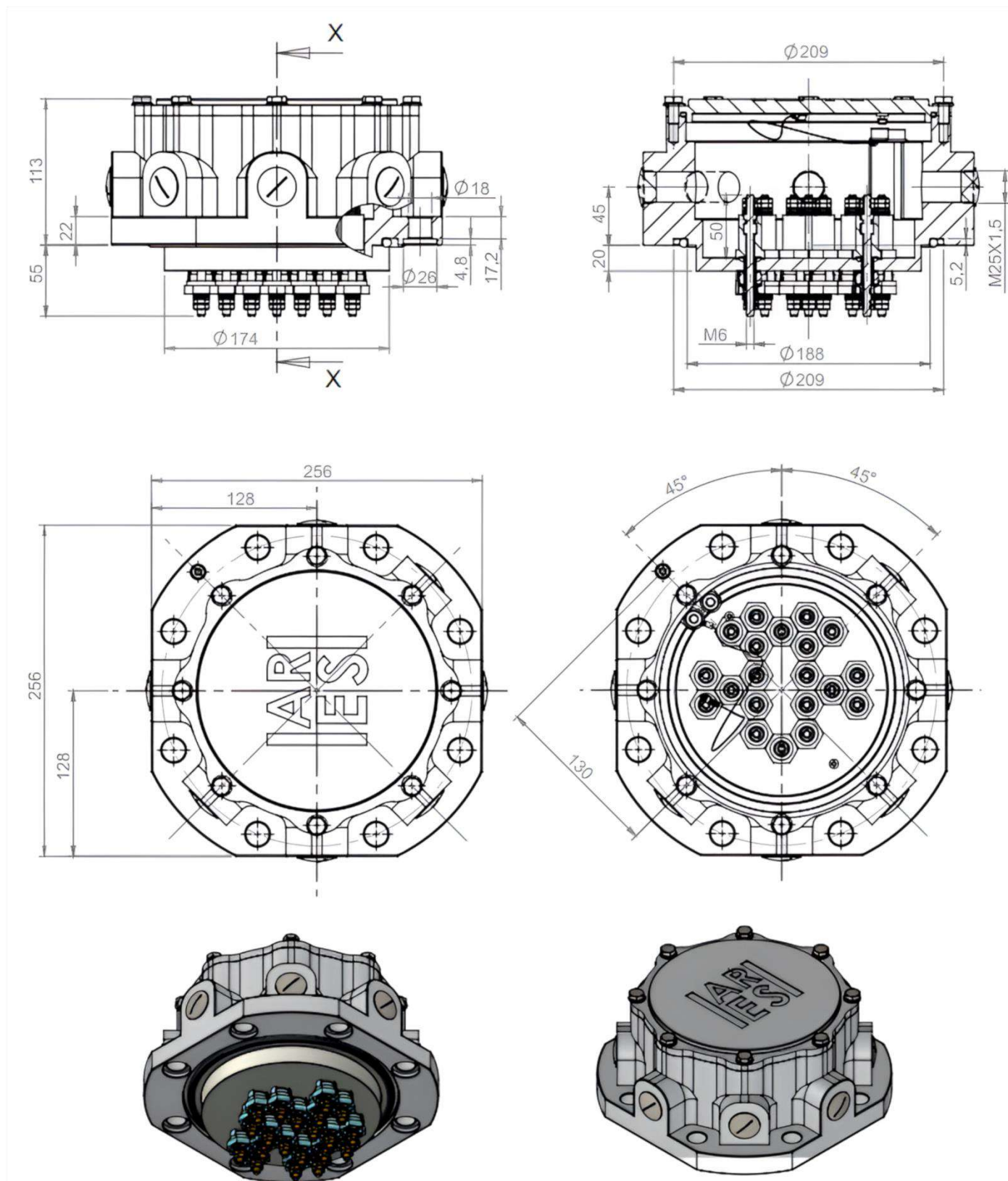


| Pos | Description           | Material                | Qty. |
|-----|-----------------------|-------------------------|------|
| 1.0 | Terminal box          | Aluminium               | 1    |
| 1.1 | Mounting flange       |                         |      |
| 1.2 | O-ring Ø126,4x6,99    | NBR                     | 1    |
| 1.3 | Cable Entry           | 1"/PG29/Ø40             |      |
| 1.4 | Earth Screws          | A2-70                   | 2    |
| 2.0 | Terminal box cover    | Aluminium               | 1    |
| 2.1 | Cover O-ring          | NBR                     | 1    |
| 2.2 | Cover Screws          | A2-70                   | 4    |
| 2.3 | Cover holding string  | Nylon                   | 1    |
| 3.0 | Terminals             | Nylon + Glass fibre %30 | 12   |
| 4.0 | M16-Hex nut           | A2-70                   | 4    |
| 4.1 | M16 - Washer          | A2-70                   | 4    |
| 4.2 | M16x25 DIN938         | Ss304                   | 4    |
| 4.3 | Flange (not supplied) | S235JR                  | 1    |





**CAJA TERMINAL (CON 20 HASTA 36 TERMINALES) /**  
*TERMINAL BOX (20 TERMINALS UP TO 36 TERMINALS)*

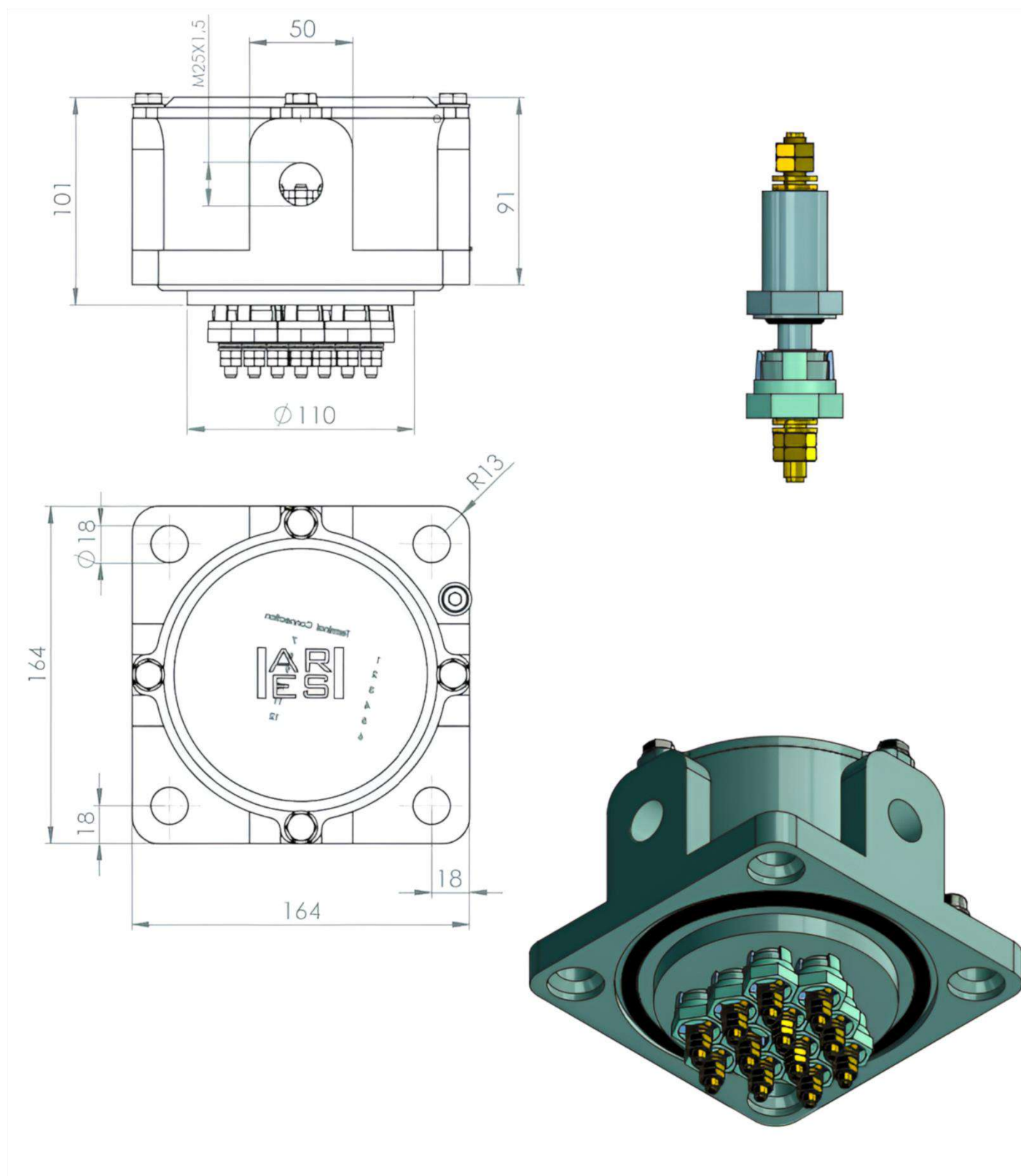






**CAJA TERMINAL CON 6 HASTA 12 CONECTORES PARA UNA CONEXIÓN CT /**

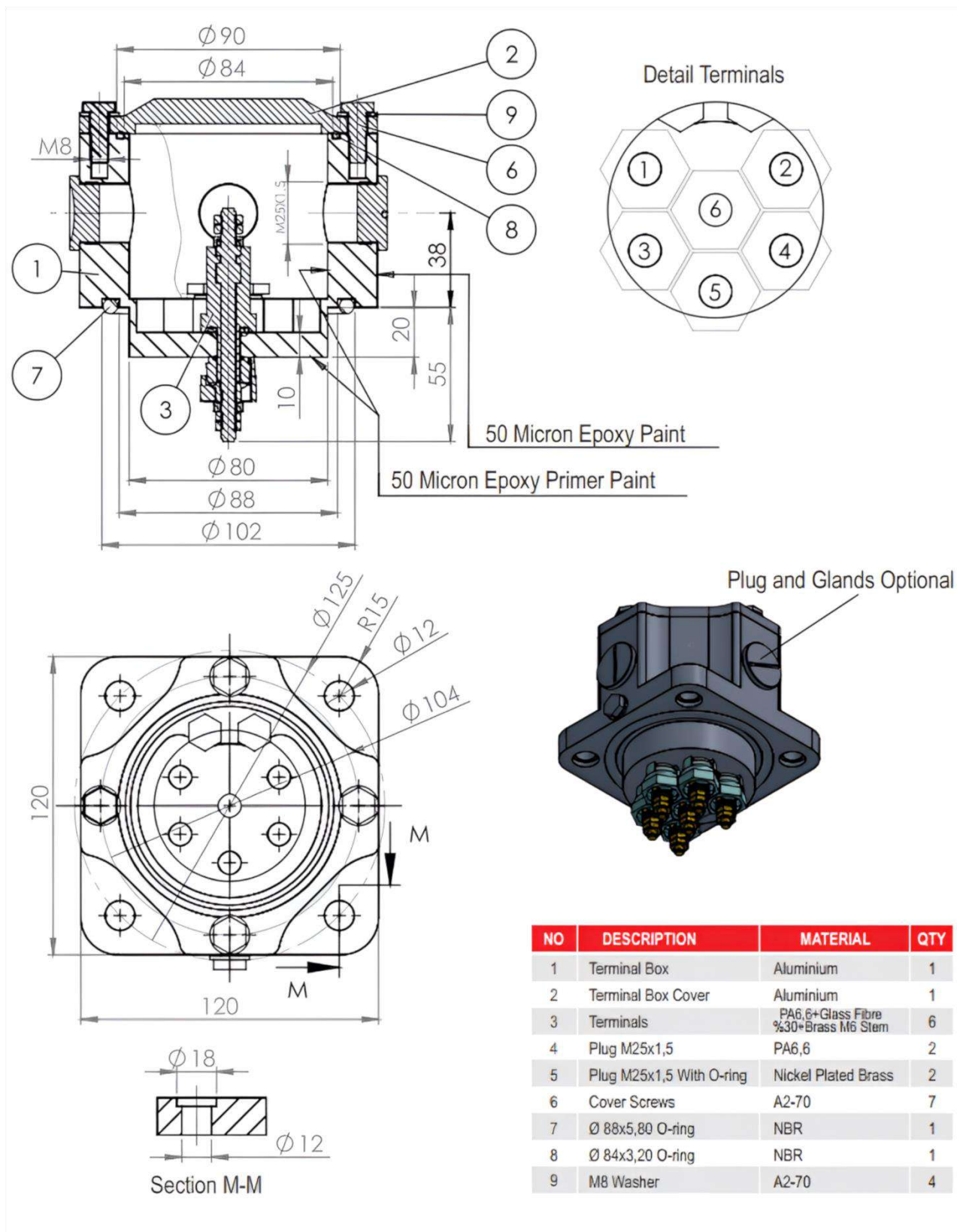
*TERMINAL BOX WITH 6 TO 12 CONNECTORS FOR CT CONNECTION*





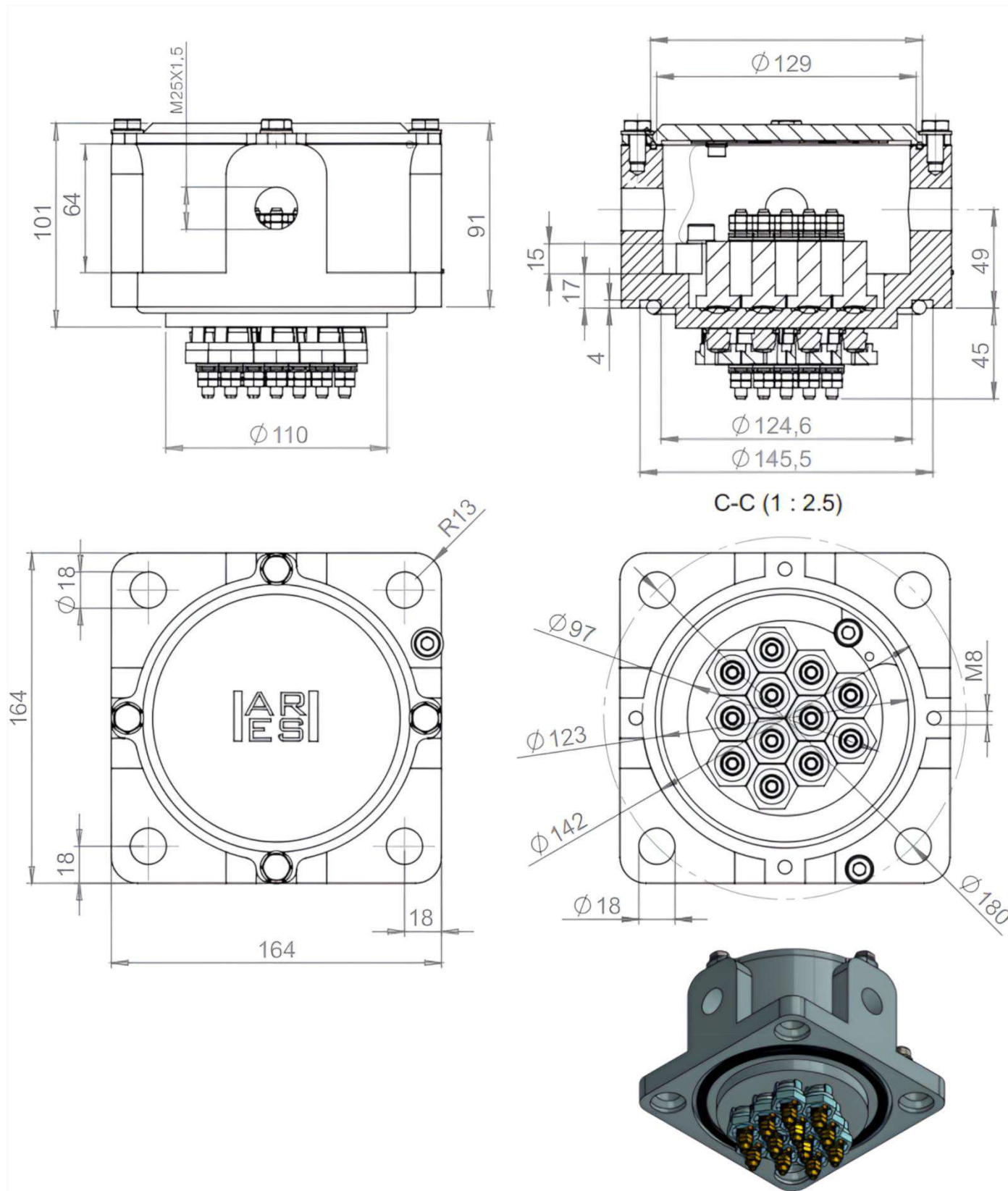
## CAJA TERMINAL S (CON 2 TERMINALES HASTA 6 TERMINALES) /

TERMINAL BOX S (2 TERMINALS UP TO 6 TERMINALS)





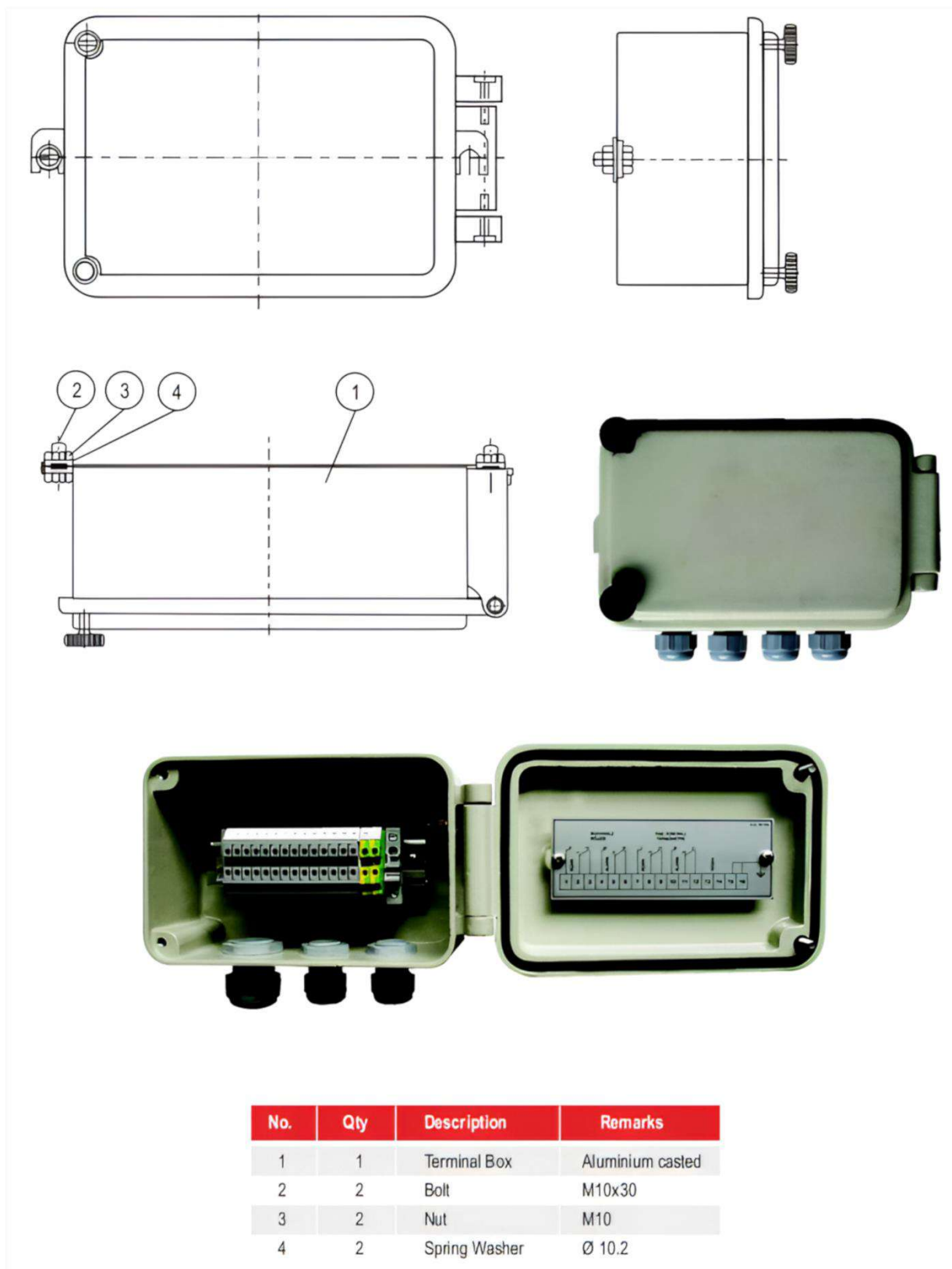
### TERMINAL BOX (6 TERMINALS UP TO 12 TERMINALS)





## CAJA TERMINAL DE ALUMINIO /

### ALUMINIUM TERMINAL BOX



| No. | Qty | Description   | Remarks          |
|-----|-----|---------------|------------------|
| 1   | 1   | Terminal Box  | Aluminium casted |
| 2   | 2   | Bolt          | M10x30           |
| 3   | 2   | Nut           | M10              |
| 4   | 2   | Spring Washer | Ø 10.2           |



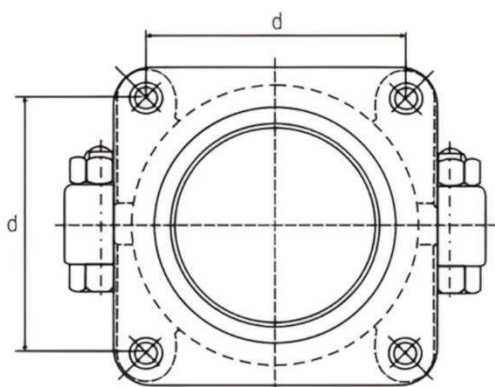
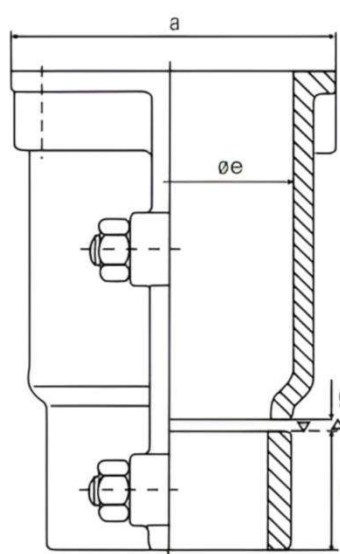
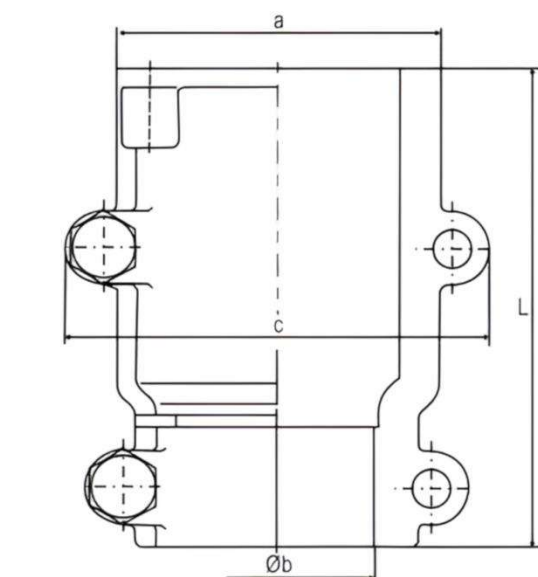


## PASACABLES DE ALUMINIO PARA CAJA DE CABLES /

### ALUMINIUM CABLE GLAND FOR CABLE BOX

Aluminium injected body (not casted), A2-70 DIN 934 hexagonal nuts and DIN933 bolts 70 $\mu$  RAL 7033 painted NBR gasket

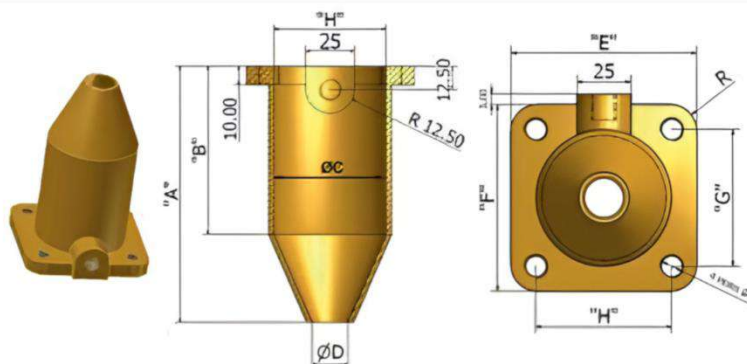
| Types | L   | a   | $\varnothing b$ | c   | d   | $\varnothing e$ | g | f  |
|-------|-----|-----|-----------------|-----|-----|-----------------|---|----|
| KB 32 | 75  | 52  | 32              | 65  | 40  | 35              | 2 | 17 |
| KB 52 | 120 | 80  | 52              | 102 | 54  | 50              | 3 | 30 |
| KB 85 | 200 | 125 | 85              | 150 | 100 | 105             | 5 | 50 |



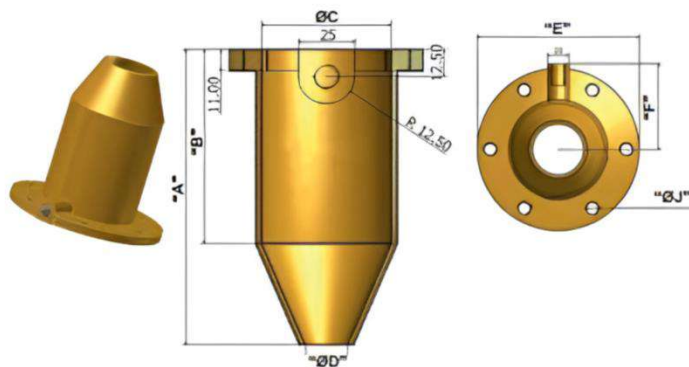


## PASACABLES DE LATÓN PARA BARRIDO /

### BRASS WIPING GLAND



| Type | Cable Ø | Dimensions |    |     |    |     |     |    |    |    |    |
|------|---------|------------|----|-----|----|-----|-----|----|----|----|----|
|      |         | A          | B  | ØC  | ØD | E   | F   | G  | H  | Ø1 | R  |
| X    | 12~51   | 137        | 90 | 60  | 19 | 90  | 90  | 66 | 66 | 12 | 12 |
| Y    | 25~78   | 155        | 95 | 108 | 32 | 114 | 123 | 95 | 86 | 14 | 14 |



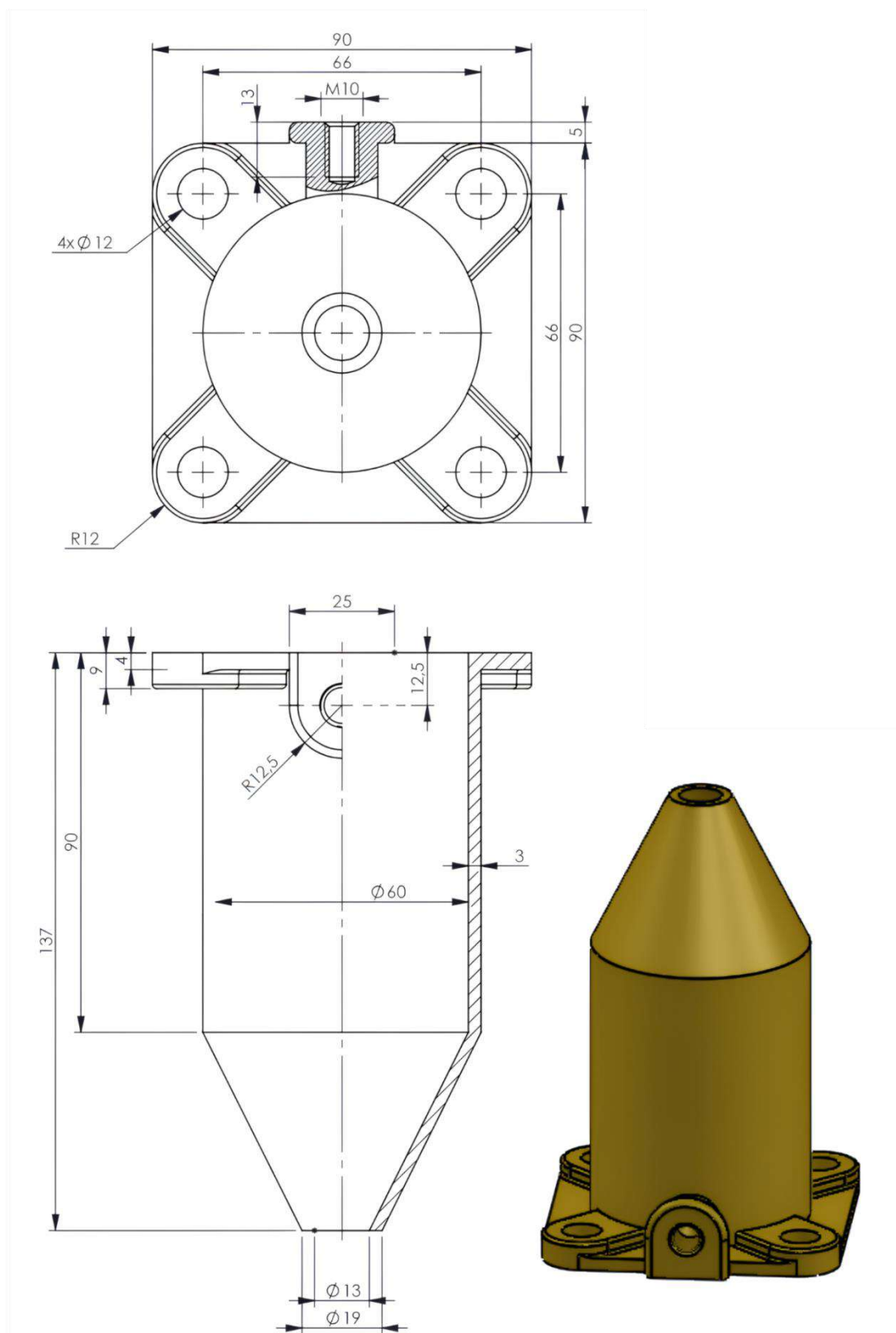
| Type | Cable Ø | Dimensions |     |     |    |     |     |    |
|------|---------|------------|-----|-----|----|-----|-----|----|
|      |         | A          | B   | ØC  | ØD | E   | F   | ØJ |
| Z    | 25~94   | 195        | 140 | 108 | 32 | 190 | 100 | 14 |





## PASACABLES X /

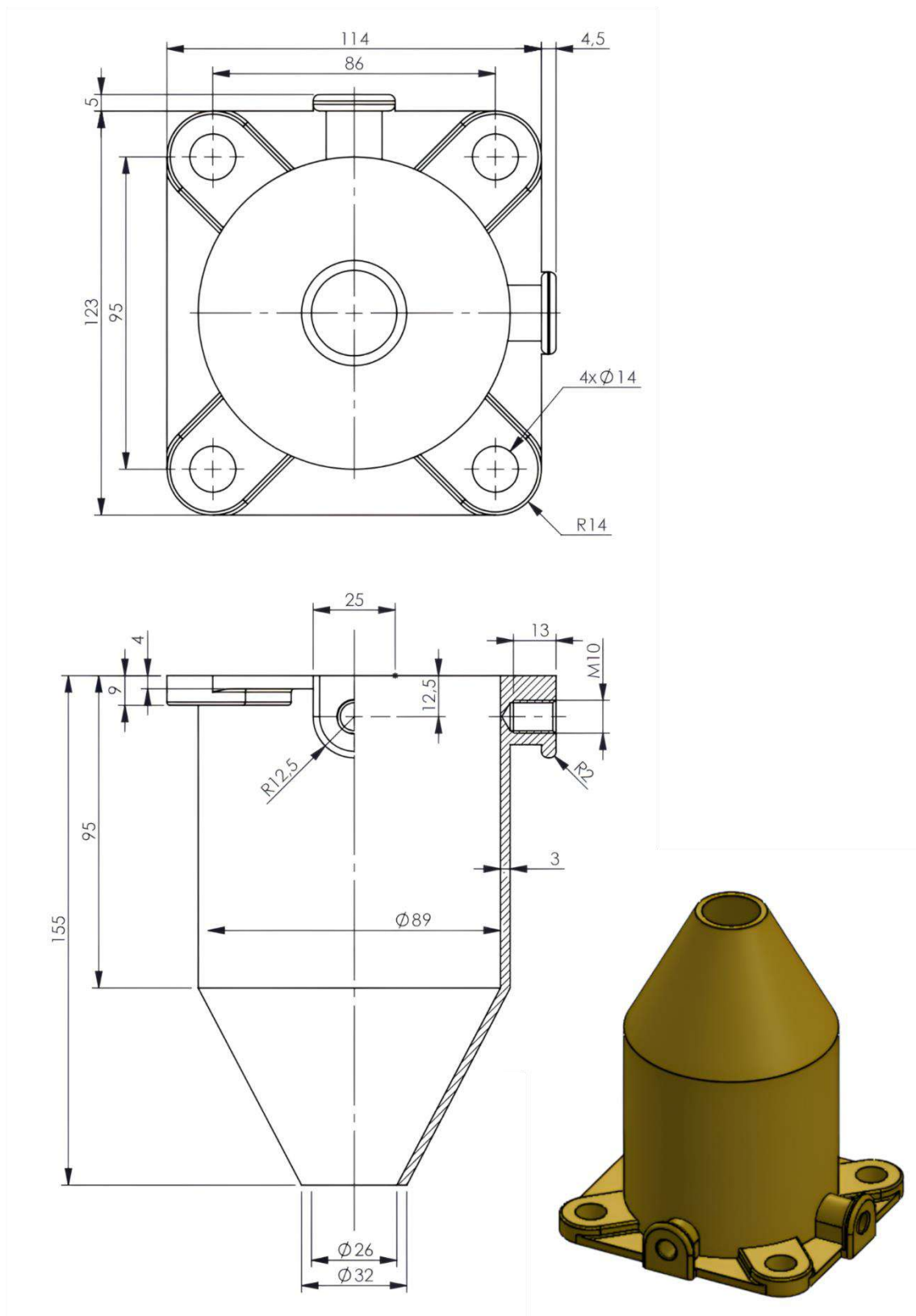
X GLAND





## PASACABLES Y /

### Y GLAND



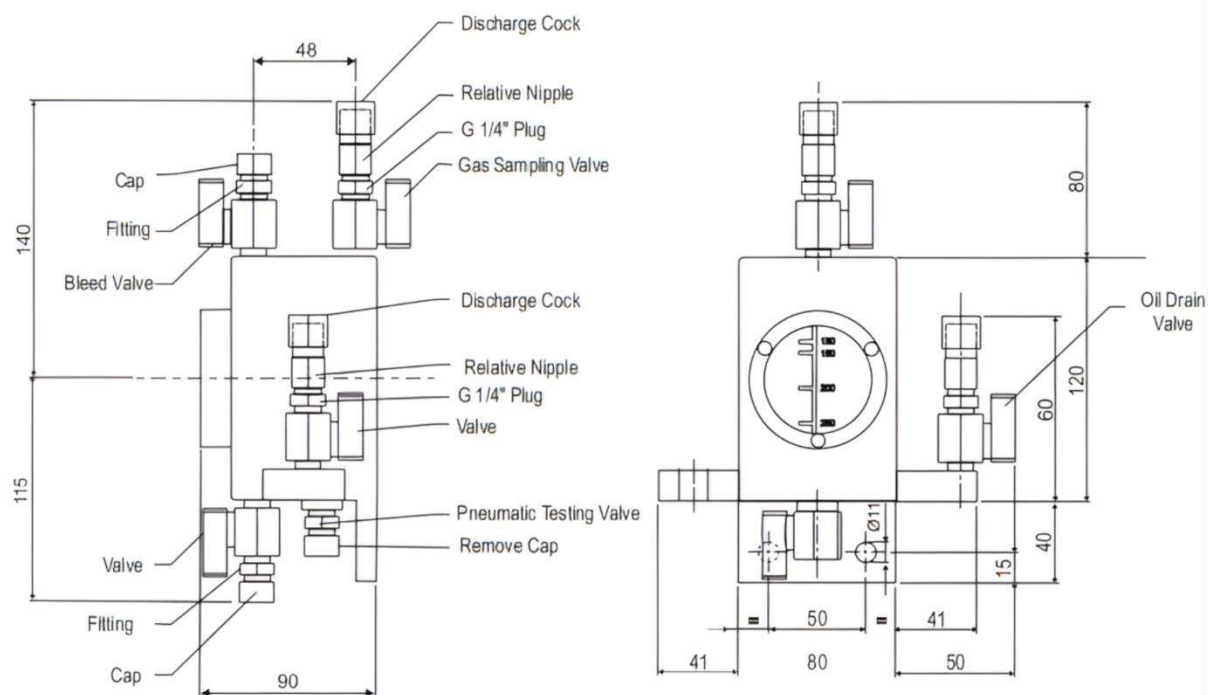




## DISPOSITIVO DE MUESTREO DE GAS PARA UN RELÉ BUCHHOLZ /

### GAS SAMPLING DEVICE FOR BUCHHOLZ RELAY

Aluminium alloy casting body with tempered glass inspection window

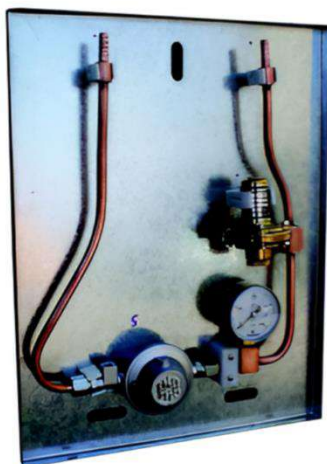
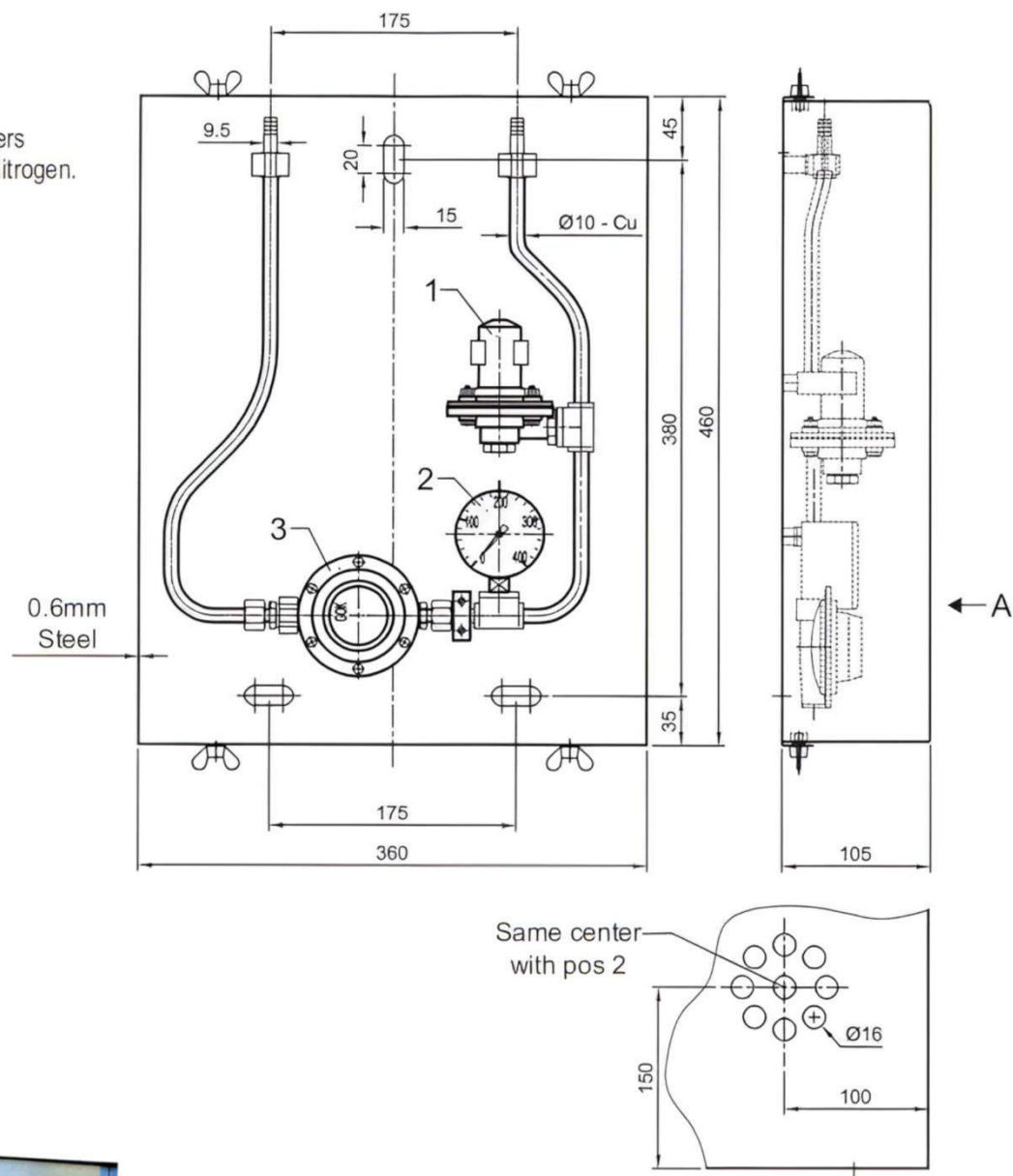




## REGULADOR DE PRESIÓN DE NITRÓGENO /

### NITROGEN PRESSURE REGULATOR

Air pressure Regulator for transportation of transformers without oil with Dry-Air or Nitrogen.



Pos 1 = Safety Valve 0.35 bar  
5 N m<sup>3</sup>/h

Pos 2 = Manometer  
0 - 400 bar

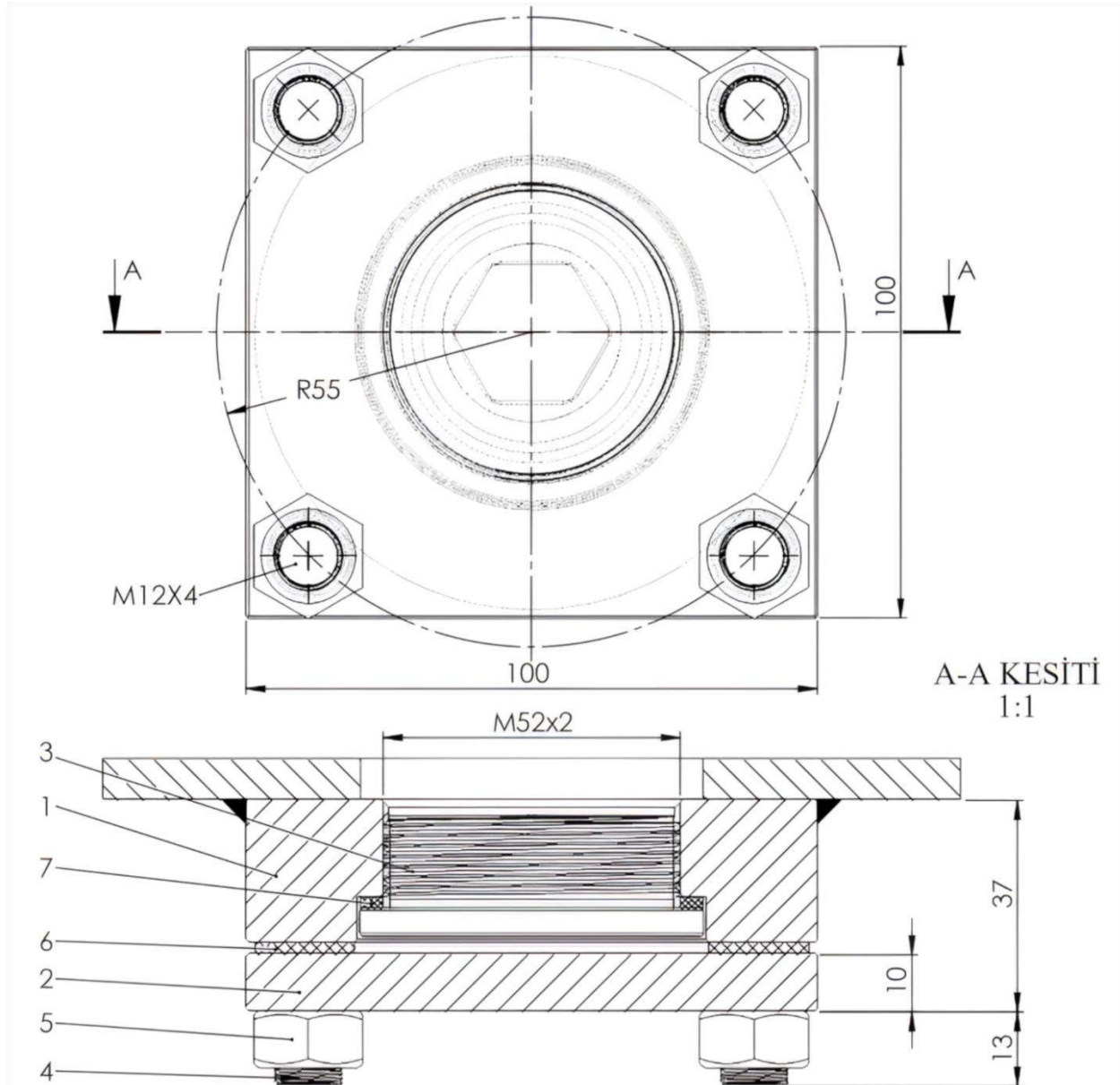
Pos 3 = Pressure Regulator  
PN/6 20L/h

Unit Weight: 4.90kg



**DRENADOR DE ACEITE DIN 42548 /**

OIL DRAIN DIN 42548

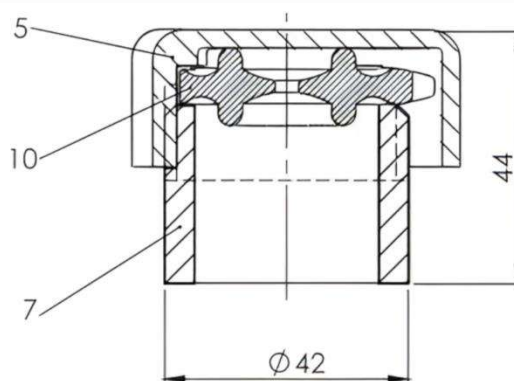


| Num./<br>No. | Adet/<br>Q'ty | Tanımlama/Description  | Açıklama/Explanation |
|--------------|---------------|------------------------|----------------------|
| 1            | 1             | Flanş/Upper Flange     | St 37-2              |
| 2            | 1             | Alt Flanş/Blind Flange | St 37-2 Galv. Zn     |
| 3            | 1             | Kör Tapa/Blind Plug    | 11SMnPb30 Galv. Zn   |
| 4            | 4             | Saplama/Stud           | St37-2 Galv. Zn      |
| 5            | 4             | Somun/Nut              | Galv. Zn             |
| 6            | 1             | Conta/Gasket           | Asbestos free        |
| 7            | 1             | Conta/Gasket           | PA6 / 60x52x2        |



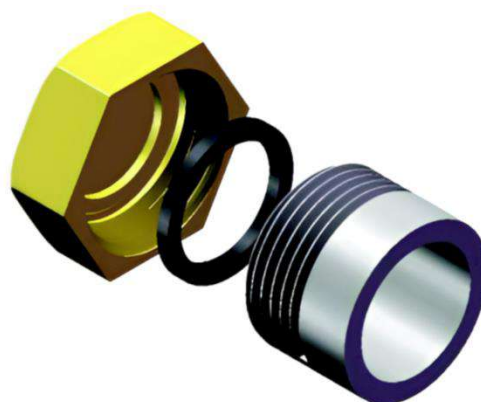
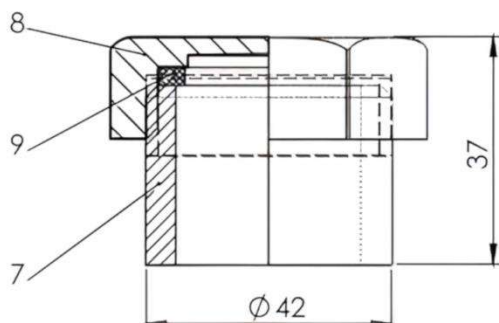
## TAPA DE LLENADO DE ACEITE, FORMA E, DIN 42553 /

OIL FILLING PLUG FORM E DIN 42553



| Item Nr. | Part Name      | Part Number   | Material |
|----------|----------------|---------------|----------|
| 5        | Cap            | 5 DIN 42 553  | GD ZnA14 |
| 7        | Socket         | 7 DIN 42 553  | St 35    |
| 10       | Labyrinth-disk | 10 DIN 42 553 | PA 6     |

## FILLING NOZZLE DIN 42553 FORM D



| Item Nr. | Part Name | Part Number  | Material         |
|----------|-----------|--------------|------------------|
| 7        | Socket    | 7 DIN 42 553 | St 35            |
| 8        | Cap       | 8 DIN 42 553 | GD ZnA14 Galvzn. |
| 9        | Gasket    | 15 DIN2691   | Asbestos free    |

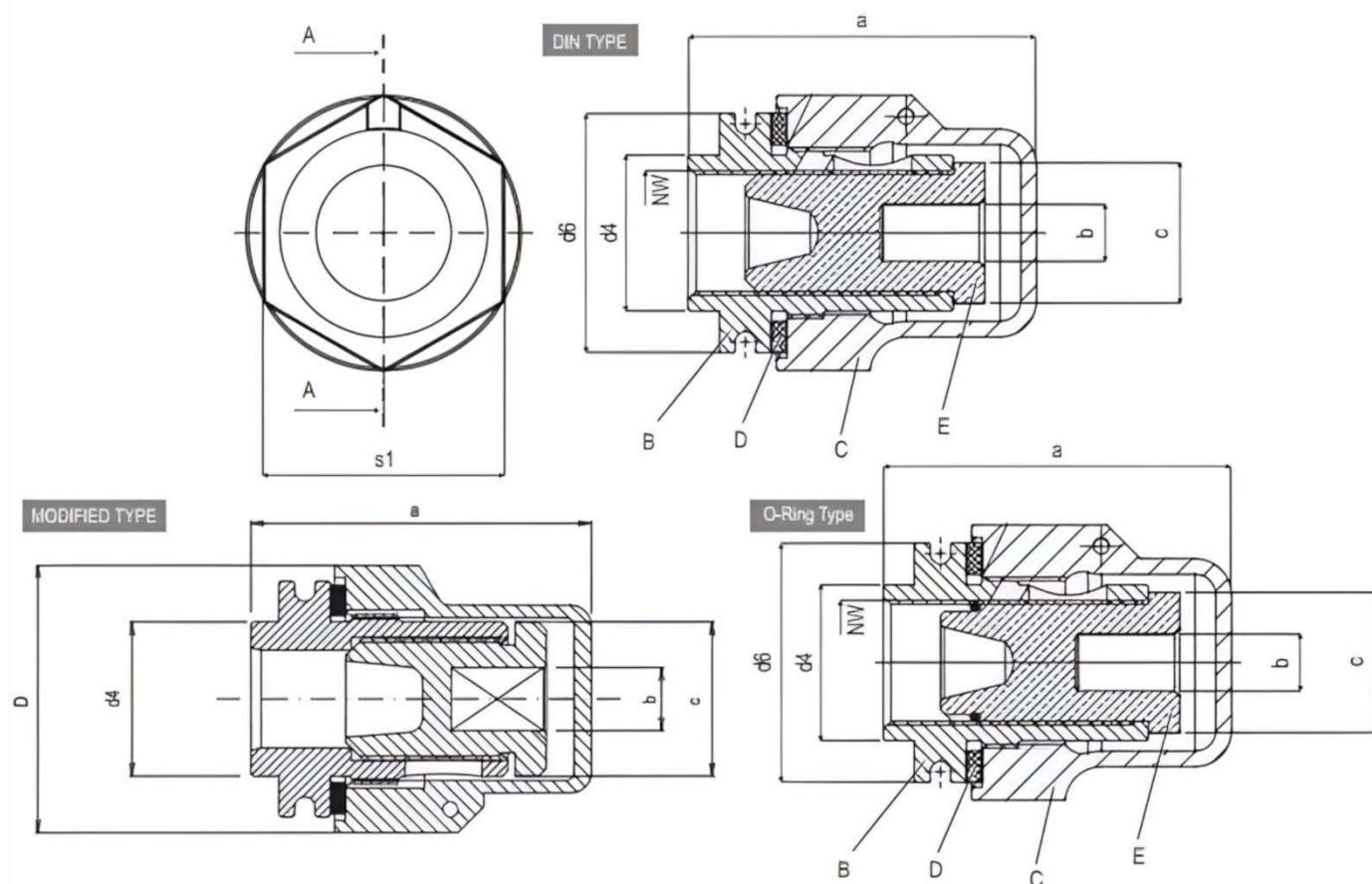




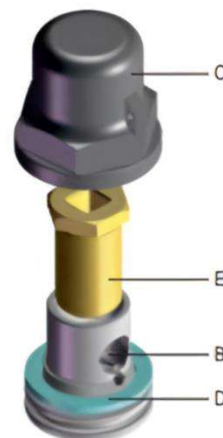
## DISPOSITIVO DE DRENAJE DE ACEITE DIN 42551 A /

### OIL DRAINING DEVICE DIN 42551 A

The oil draining device is to be welded in the transformer case. The device is to be used together with the connection pipe F DIN 42551 for draining the transformer case for regeneration purpose of the oil. The oil drain device remains tight even if the oil temperature rises to 100° C (Temperature Resistance: up to 100° C)



Brass/Aluminium stop plug is possible



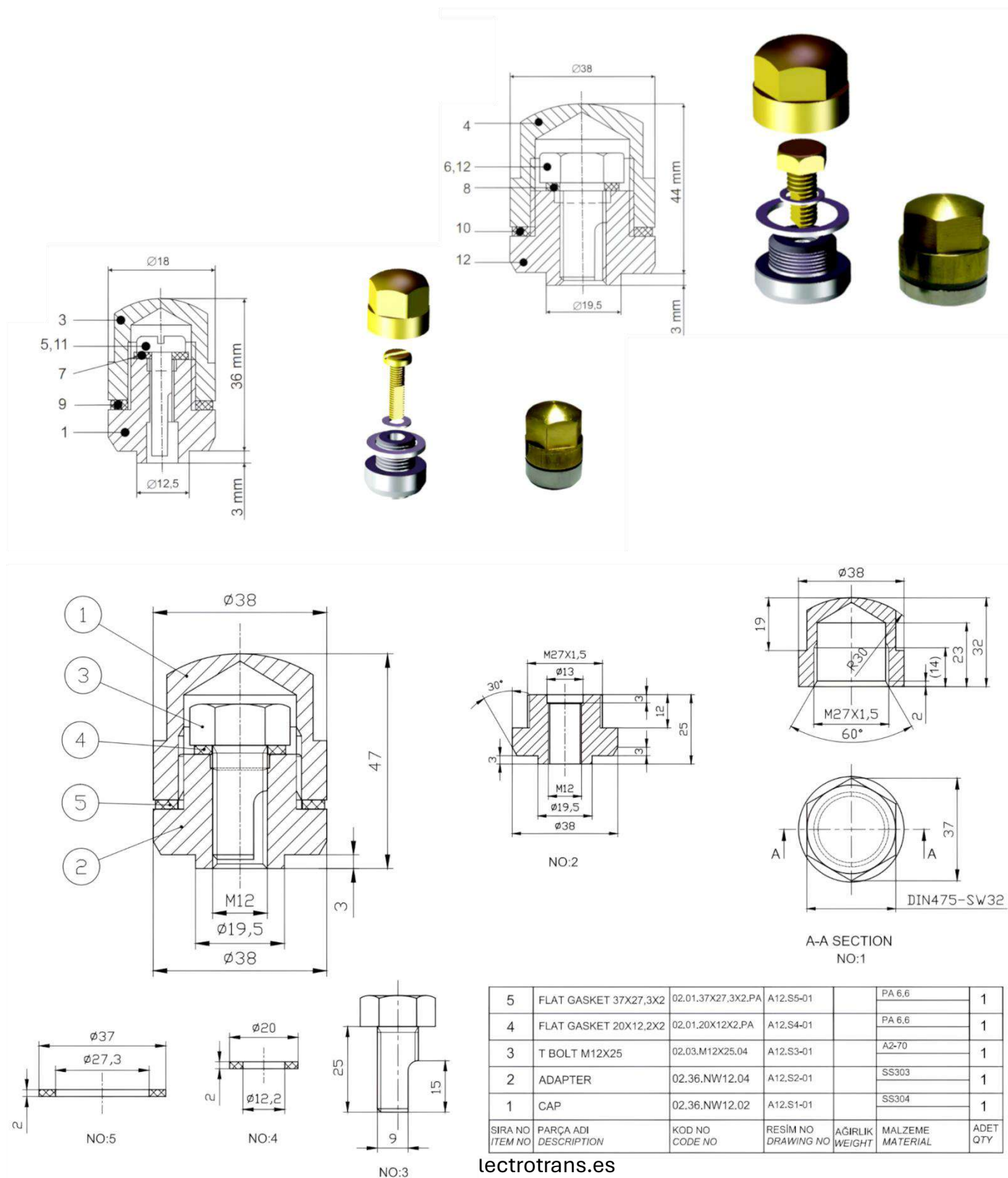
| NW   | a   | d4 | b  | c    | s1 / d6 | Weight   |
|------|-----|----|----|------|---------|----------|
| NW22 | 67  | 30 | 11 | SW27 | SW46    | 0.56 kg. |
| NW31 | 93  | 40 | 17 | SW36 | SW65    | 1.29 kg. |
| NW40 | 112 | 52 | 17 | SW46 | SW80    | 2,25 kg. |

| Qty | Code | Designation  | Material  |
|-----|------|--------------|-----------|
| 1   | B    | Drain Socket | S235JR    |
| 1   | C    | Stop Plug    | Gg20      |
| 1   | D    | Gasket       | Klingerid |
| 1   | E    | Inner Bolt   | Ms 58     |



## TORNILLO DE DRENAJE DE ACEITE DIN 42558 A 12 /

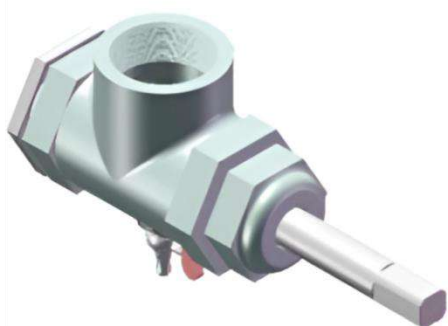
OIL DRAIN PLUG DIN 42558 A 12



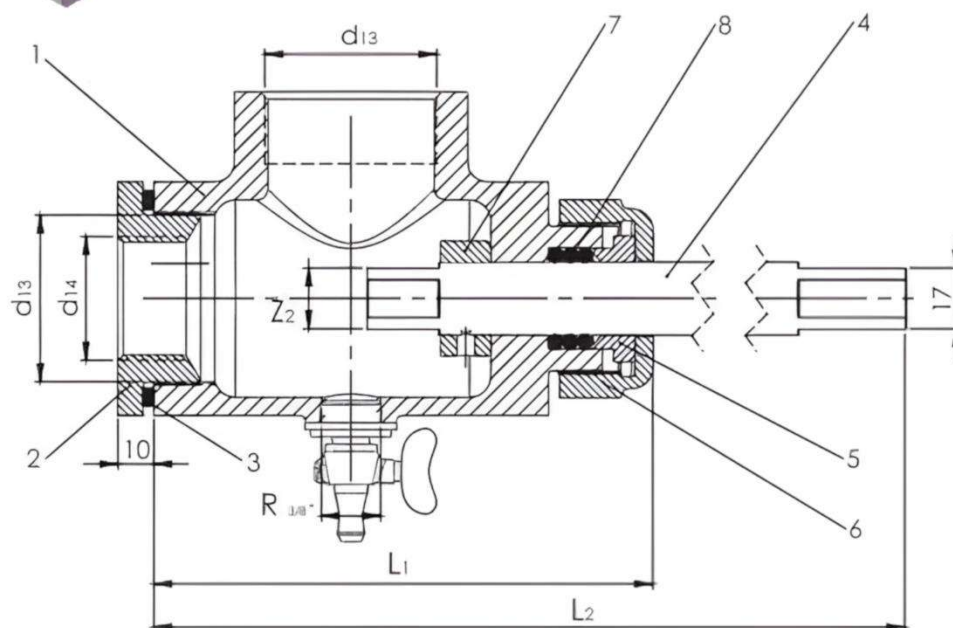


## CONEXIÓN DE TUBERÍAS DIN 42551 F /

### CONNECTION PIPE DIN 42551 F



Connection pipe is a tool to connect the oil drain valves A DIN 42551 to an extern oil-system. Connection pipe is manufactured in two sizes and can be reduced of nominal width NW 31 to NW 22 or NW 40 to NW 31



| Connection Pipe   | NW | d13      | d14      | Z2 | L1  | L2  | Weight kg. |
|-------------------|----|----------|----------|----|-----|-----|------------|
| F22/31 DIN 42 551 | 22 | M 48x1,5 | M 33x1,5 | 11 | 145 | 260 | 2,6        |
| F31/40 DIN 42 551 | 31 | M 60x2   | M 48x1,5 | 17 | 180 | 270 | 2,6        |
| F31 DIN 42 551    | 31 | M 48x1,5 | —        | 17 | 148 | 260 | 2,4        |
| F40 DIN 42 551    | 40 | M 60x2   | —        | 17 | 180 | 295 | 5,2        |

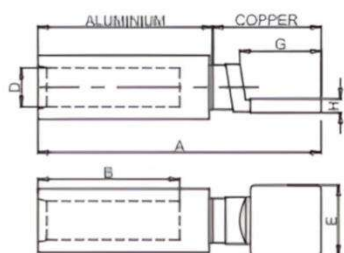
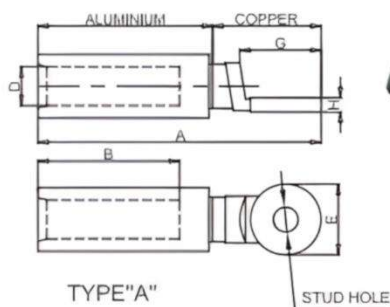
| Part Nr. | Oty | Connection Pipe | F 22/31 DIN 42 551       | F 31/40 DIN 42 551 | F 31 DIN 42 551 | F 40 DIN 42 551 | Material |
|----------|-----|-----------------|--------------------------|--------------------|-----------------|-----------------|----------|
| 1        | 1   | Housing         | G65 DIN 42 551           | G80 DIN 42 551     | G65 DIN 42 551  | G80 DIN 42 551  | GG18     |
| 2        | 1   | Reduction       | H 22/31 DIN 42 551       | H31/40 DIN 42 551  | —               | —               | St 34    |
| 3        | 1   | Gasket          | D31 DIN 42 551           | D40 DIN 42 551     | —               | —               | —        |
| 4        | 1   | Spindle         | K1 DIN 42 551            | K2 DIN 42 551      | K3 DIN 42 551   | K3 DIN 42 551   | St 34    |
| 5        | 1   | Packing Box     | L DIN 42 551             |                    |                 |                 | St 34    |
| 6        | 1   | Srew Cap        | N DIN 42 551 GG20        |                    |                 |                 | GG20     |
| 7        | 1   | Stop Ring       | B20 DIN 705 St34         |                    |                 |                 | St 34    |
| 8        | 1   | Packing         | 4x4x320 Free of asbestos |                    |                 |                 | —        |





## TERMINALES BIMETÁLICOS /

### BI-METALIC LUGS



#### NOTES:

1. DIMENSIONS ARE IN MM
2. Technical Data;  
Conductive Material  
Aluminium Sleeve 99.6% pure  
Tensile Strength 110Mpa  
Ductile Rating 28%  
Final Metal State Fully Annealed inc joint  
Joining Method Friction Welding (IEC std)

#### Electrical Properties

Resistivity 2.6 micro-ohm cm(max):aluminium  
1.1738 micro-ohm cm:copper  
Conductivity 61.8% IACS(min):aluminium  
99.7% IACS: copper  
Operating Temperature  
-40°C to 100°C

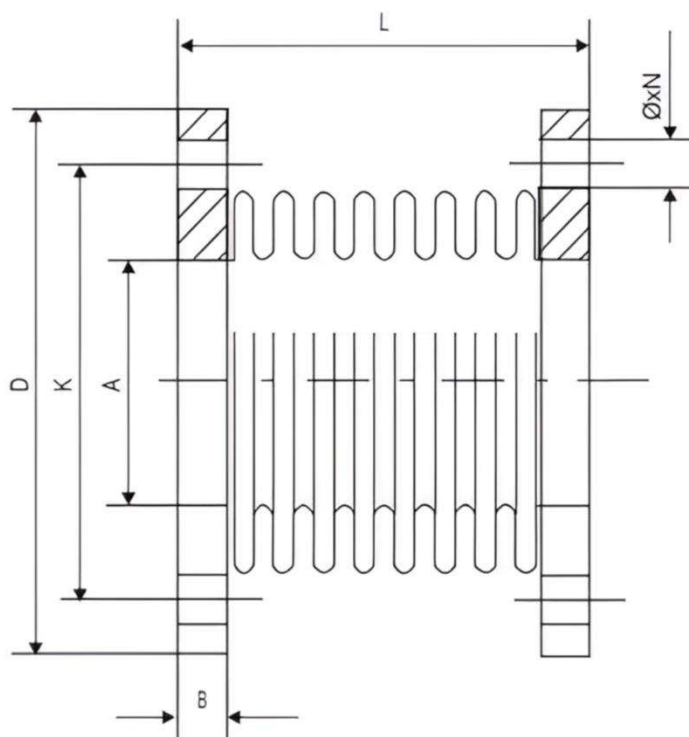
| CATALOGUE NO | NOMINAL CONDUCT OR | STUD SIZE | STUD HOLE | TYPES | DIMENSIONS (MM) |    |      |    |    |      | NO. OF CRIMPS |
|--------------|--------------------|-----------|-----------|-------|-----------------|----|------|----|----|------|---------------|
|              |                    |           |           |       | A               | B  | D    | E  | G  | H    |               |
| BML16-8      | 16                 | 8         | 8.5       | "A"   | 75              | 32 | 5.5  | 20 | 24 | 4.5  | 1             |
| BML16-10     | 16                 | 10        | 10.5      |       | 75              | 32 | 5.5  | 20 | 24 | 4.5  | 1             |
| BML25-10     | 25                 | 10        | 10.5      |       | 75              | 32 | 7.5  | 20 | 24 | 4.5  | 1             |
| BML25-12     | 25                 | 12        | 12.5      |       | 75              | 32 | 7.5  | 20 | 24 | 4.5  | 1             |
| BML35-10     | 35                 | 10        | 10.5      |       | 75              | 32 | 8.5  | 20 | 24 | 4.5  | 1             |
| BML35-12     | 35                 | 12        | 12.5      |       | 75              | 32 | 8.5  | 20 | 24 | 4.5  | 1             |
| BML50-10     | 50                 | 10        | 10.5      |       | 75              | 32 | 9.5  | 24 | 26 | 4.5  | 1             |
| BML50-12     | 50                 | 12        | 12.5      |       | 75              | 32 | 9.5  | 24 | 26 | 4.5  | 1             |
| BML70-10     | 70                 | 10        | 10.5      |       | 75              | 32 | 11.5 | 24 | 26 | 4.5  | 1             |
| BML70-12     | 70                 | 12        | 12.5      |       | 75              | 32 | 11.5 | 24 | 26 | 4.5  | 1             |
| BML95-10     | 95                 | 10        | 10.5      |       | 115             | 60 | 13.5 | 24 | 26 | 6    | 2             |
| BML95-12     | 95                 | 12        | 12.5      |       | 115             | 60 | 13.5 | 24 | 26 | 6    | 2             |
| BML120-10    | 120                | 10        | 10.5      |       | 115             | 60 | 15.5 | 30 | 33 | 6    | 2             |
| BML120-12    | 120                | 12        | 12.5      |       | 115             | 60 | 15.5 | 30 | 33 | 6    | 2             |
| BML150-10    | 150                | 10        | 10.5      |       | 120             | 60 | 16.5 | 30 | 33 | 7    | 2             |
| BML150-12    | 150                | 12        | 12.5      |       | 120             | 60 | 16.5 | 30 | 33 | 7    | 2             |
| BML185-10    | 185                | 10        | 10.5      |       | 120             | 60 | 18.5 | 35 | 38 | 7    | 2             |
| BML185-12    | 185                | 12        | 12.5      |       | 120             | 60 | 18.5 | 35 | 38 | 7    | 2             |
| BML240-10    | 240                | 10        | 10.5      |       | 135             | 60 | 22   | 35 | 38 | 7    | 2             |
| BML240-12    | 240                | 12        | 12.5      |       | 135             | 60 | 22   | 35 | 38 | 7    | 2             |
| BML300-10    | 300                | 10        | 10.5      |       | 135             | 60 | 23.5 | 36 | 38 | 7    | 2             |
| BML300-12    | 300                | 12        | 12.5      |       | 135             | 60 | 23.5 | 36 | 38 | 7    | 2             |
| BML300BL     | 300                |           |           | "B"   | 135             | 60 | 23.5 | 36 | 38 | 7    | 2             |
| BML400BL     | 400                |           |           |       | 160             | 70 | 26.5 | 50 | 52 | 10   | 2             |
| BML500BL     | 500                |           |           |       | 160             | 70 | 30   | 50 | 58 | 10.5 | 2             |





## JUNTAS DE FUELLE DE EXPANSIÓN METÁLICA /

### METAL EXPANSION BELLOW JOINTS



Stainless Steel AISI 304 Bellow  
ST 32 Carbon Steel Flanges  
Pn16 DN 25 - DN 150  
Welding ends Floating Flanges  
-196°C + 600°C

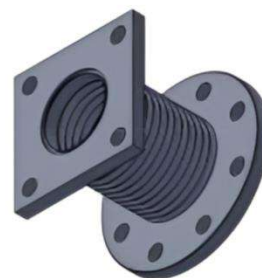


With O-ring Groove or Flat Flange

| DN<br>A | B  | D   | K   | L   | N | Ø  | Ağırlık<br>Kg/Unit |
|---------|----|-----|-----|-----|---|----|--------------------|
| 25      | 16 | 115 | 85  | 120 | 4 | 14 | 2,4                |
| 50      | 18 | 165 | 125 | 120 | 4 | 14 | 6,1                |
| 65      | 18 | 185 | 145 | 120 | 4 | 18 | 6,9                |
| 80      | 20 | 200 | 160 | 120 | 8 | 18 | 7,7                |
| 100     | 20 | 220 | 180 | 120 | 8 | 18 | 8,3                |
| 125     | 20 | 250 | 210 | 120 | 8 | 18 | 11,2               |
| 150     | 22 | 285 | 240 | 130 | 8 | 22 | 13,6               |



Stainless Braided

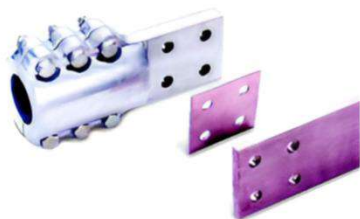


Square Flange



## COMPONENTES BIMETÁLICOS DE ACOPLAMIENTO /

### BIMETAL CUPAL COMPONENTS

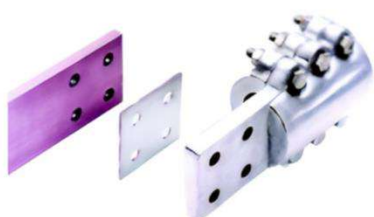


#### What is Cupal?

Cupal consists of copper sheet metal cladded on pure Aluminium (base metal), both metals being diffused together to form an inseparable whole by roll bonding process.

#### Why Cupal?

It is known that when the Aluminium Terminals are directly connected to Copper Terminals to carry current at a high voltage, a bimetallic galvanic corrosion occurs, resulting in a high resistance at the joint. The heated joints are oxidized and loses contact resulting in sparks, voltage dropout power losses and failure, damage to machinery.

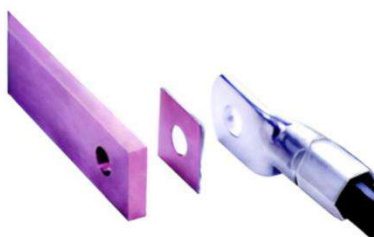
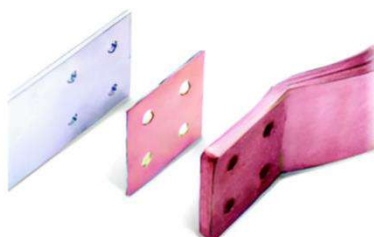


When Cupal bimetal is placed between Aluminium Terminal and Copper Terminal at the joint (with Copper facing and Aluminium facing), bimetallic galvanic corrosion is averted due to absence of air in CUPAL bimetal. CUPAL is thus used at dissimilar metals joints of Aluminium and Copper to make similar metal's contact.

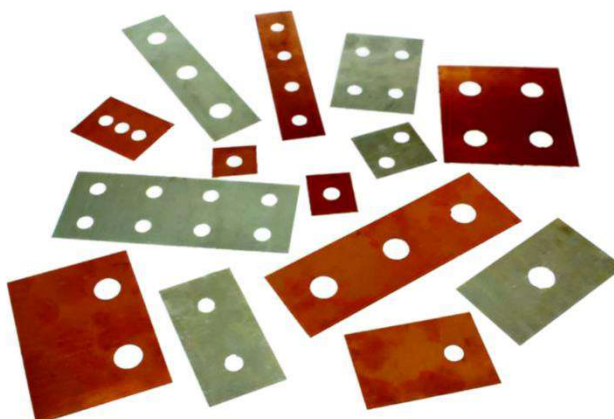
CUPAL has been successfully evaluated and used by many of the world's leading electrical equipment manufacturers.

#### Applications:

- Substation accessories like Bimetallic clamp and connectors
- Flexible connectors
- Cable clamp and cable end connectors
- Distribution and panel boards
- Isolators and switchgears
- Circuit Breakers



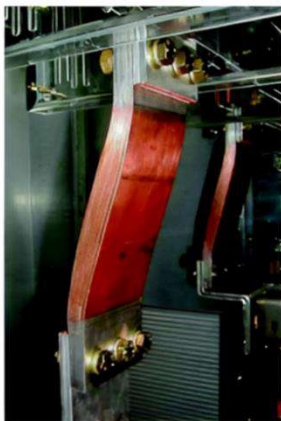
| Specifications                      | Aluminium                | Copper |
|-------------------------------------|--------------------------|--------|
| Purity                              | 99.50%                   | 99.90% |
| Standard Composition By Volume      | 80%                      | 20%    |
| Standard Composition By Weight      | 55%                      | 45%    |
| Density at 200C                     | 3,95 gms/cm <sup>3</sup> |        |
| Max electrical resistivity at 20°C  | 2,6 µO/cm                |        |
| Min electrical conductivity at 20°C | 65% IACS                 |        |





## CONECTORES FLEXIBLES /

### FLEXIBLE CONNECTORS



#### Range of application:

Press Welding provides the best mechanical & electrical properties at high temperatures. Moreover, the laminated flexibles take less cross section area than braided flexible. These are available in all sizes covering the desired cross section area. Slotted holes can be provided up on request. Our laminated flexible connectors are necessary everywhere where it is impossible to use solid bus bars to transfer the current.

#### Main applications are:

- Expansion-equilibration in bus bar-systems
- Expansion-equilibration to connect transformers and generators
- Vibration-equilibration
- Moveable current-transfer in machines and devices
- Switching elements in switches



#### Description:

Laminated flexible connectors are made out of copper in case of copper alternatively in tinned configuration. The foil-cutoffs will be stacked and after this united at the contact-areas by using a tuned process for the later application. For this we use foils from 0,05 up to 1 mm thickness. The width and thickness of the connector is chosen by the customers.

Please contact with us for detailed information. We also develop special-designs for your individual applications.



#### Procedure:

We use to produce laminated flexible copper connectors with Press welding

#### Materials:

In order to optimize the max. load and conductance of our connectors we use exclusively pure and extreme transmittable materials as foils and sheet metal covers.

For copper-connectors Cu-ETP (previously E-Cu) and Cu-HCP (previously SE-Cu) according DIN EN 13599



#### Form:

For different applications we offer a wide range of standard shapes and also special designs : S, U and V Form

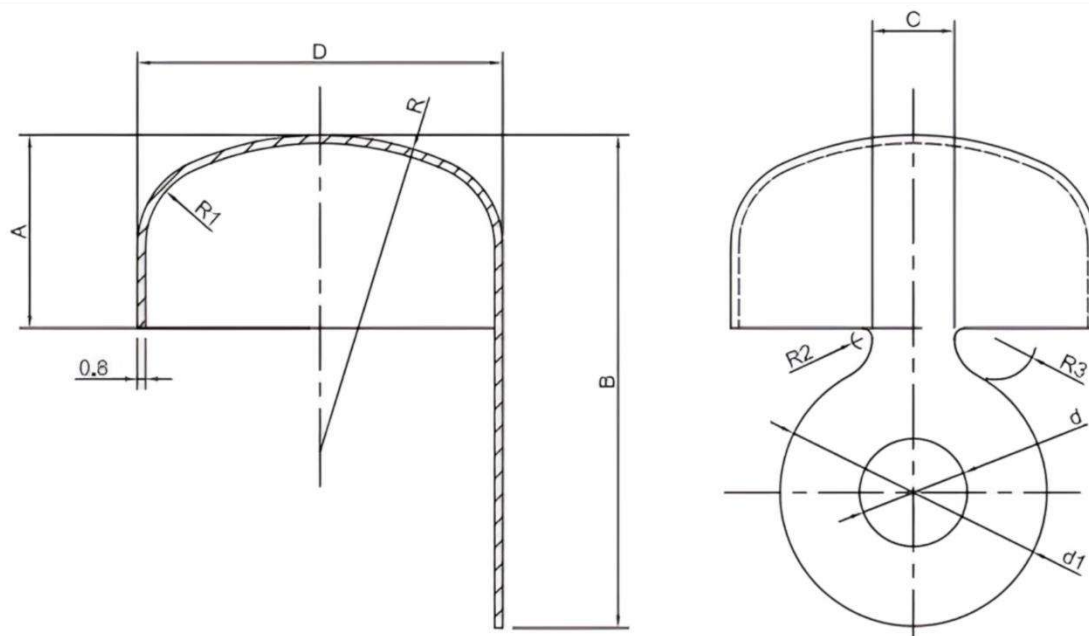






## TAPA DE PROTECCIÓN /

## SHIELDING CAP



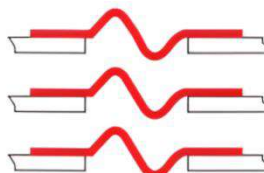
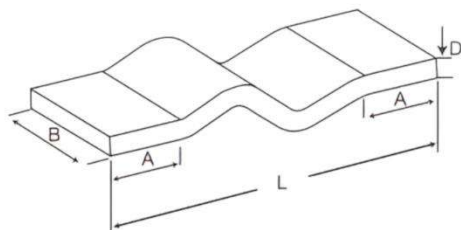
Material : Zinc Plated Steel / SS304



### STANDARD DIMENSIONS

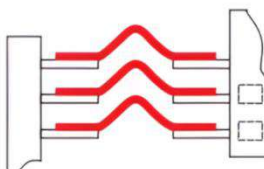
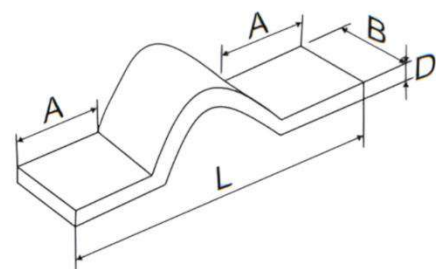
| Part Number | Size     | Material        | D  | A  | d1 | B  | C  | R  | R1 | R2 | R3 | D  |
|-------------|----------|-----------------|----|----|----|----|----|----|----|----|----|----|
| MEV0066-01  | M10      | ST-37 A3K       | 34 | 18 | 26 | 48 | 30 | 30 | 8  | 2  | 2  | 34 |
| -02         | M12      | ST-37 A3K       | 34 | 18 | 26 | 48 | 30 | 30 | 8  | 2  | 2  | 34 |
| -03         | M16      | ST-37 A3K       | 34 | 18 | 28 | 48 | 30 | 30 | 8  | 2  | 2  | 34 |
| -04         | M20      | ST-37 A3K       | 58 | 27 | 50 | 83 | 60 | 60 | 10 | 2  | 8  | 58 |
| -05         | M24      | ST-37 A3K       | 58 | 27 | 50 | 83 | 60 | 60 | 12 | 2  | 8  | 58 |
| -11         | M8 / M10 | ST-37 CR-Plated | 30 | 15 | 22 | 40 | 6  | 30 | 3  | 1  | 4  | 30 |



**CONECTORES FLEXIBLES /****FLEXIBLE CONNECTORS****S FORM - Copper flexible, laminated, preswelded, undrilled**

Expansion connectors inside of  
bus bar - systems S form

| Part<br>Name          | B<br>Width | D<br>Thickness | A Terminal |          | Dilatation |      | Nominal<br>Current 35C/65C | Cross<br>Section mm <sup>2</sup> |
|-----------------------|------------|----------------|------------|----------|------------|------|----------------------------|----------------------------------|
|                       |            |                | Lenght     | L Length | Lenght     | Form |                            |                                  |
| ARCU 38/5/60/220/S    | 38         | 5              | 60         | 220      | +/- 25     | S    | 490A                       | 240                              |
| ARCU 48/5/60/220/S    | 48         | 5              | 60         | 220      | +/- 25     | S    | 590A                       | 380                              |
| ARCU 38/10/60/250/S   | 38         | 10             | 60         | 250      | +/- 25     | S    | 720A                       | 480                              |
| ARCU 48/10/60/250/S   | 48         | 10             | 60         | 250      | +/- 25     | S    | 860A                       | 580                              |
| ARCU 58/10/80/310/S   | 58         | 10             | 80         | 310      | +/- 25     | S    | 990A                       | 780                              |
| ARCU 78/10/80/310/S   | 78         | 10             | 80         | 310      | +/- 25     | S    | 1240A                      | 980                              |
| ARCU 98/10/100/350/S  | 98         | 10             | 100        | 350      | +/- 25     | S    | 1490A                      | 1180                             |
| ARCU 118/10/100/350/S | 118        | 10             | 100        | 350      | +/- 25     | S    | 1710A                      | 1200                             |

**V FORM - Copper flexible, laminated, preswelded, undrilled**

Connections between switchgears,  
transformers or generators and  
prefabricated power networks V form

| Part<br>Name          | B<br>Width | D<br>Thickness | A Terminal |          | Dilatation |      | Nominal<br>Current 35C/65C | Cross<br>Section mm <sup>2</sup> |
|-----------------------|------------|----------------|------------|----------|------------|------|----------------------------|----------------------------------|
|                       |            |                | Lenght     | L Length | Lenght     | Form |                            |                                  |
| ARCU 38/5/50/180/V    | 38         | 5              | 50         | 180      | +/- 20     | V    | 490A                       | 190                              |
| ARCU 38/5/50/220/V    | 38         | 5              | 50         | 220      | +/- 20     | V    | 490A                       | 190                              |
| ARCU 38/5/80/280/V    | 38         | 5              | 80         | 280      | +/- 20     | V    | 490A                       | 190                              |
| ARCU 38/10/50/180/V   | 38         | 10             | 50         | 180      | +/- 20     | V    | 720A                       | 380                              |
| ARCU 38/10/50/220/V   | 38         | 10             | 50         | 220      | +/- 20     | V    | 720A                       | 380                              |
| ARCU 38/10/80/280/V   | 38         | 10             | 80         | 280      | +/- 20     | V    | 720A                       | 380                              |
| ARCU 48/5/50/220/V    | 48         | 5              | 50         | 220      | +/- 20     | V    | 590A                       | 240                              |
| ARCU 48/10/80/280/V   | 48         | 10             | 80         | 280      | +/- 20     | V    | 860A                       | 480                              |
| ARCU 58/10/70/240/V   | 58         | 10             | 70         | 240      | +/- 20     | V    | 990A                       | 580                              |
| ARCU 58/10/80/280/V   | 58         | 10             | 80         | 280      | +/- 20     | V    | 990A                       | 580                              |
| ARCU 78/10/90/280/V   | 78         | 10             | 90         | 280      | +/- 20     | V    | 1240A                      | 780                              |
| ARCU 78/10/100/320/V  | 78         | 10             | 100        | 320      | +/- 20     | V    | 1240A                      | 780                              |
| ARCU 98/10/100/300/V  | 98         | 10             | 100        | 300      | +/- 20     | V    | 1490A                      | 980                              |
| ARCU 98/10/100/320/V  | 98         | 10             | 100        | 320      | +/- 20     | V    | 1490A                      | 980                              |
| ARCU 98/10/110/360/V  | 98         | 10             | 110        | 360      | +/- 20     | V    | 1490A                      | 980                              |
| ARCU 98/15/110/360/V  | 98         | 15             | 110        | 360      | +/- 20     | V    | 2050A                      | 1470                             |
| ARCU 118/20/130/400/V | 118        | 10             | 130        | 400      | +/- 20     | V    | 1710A                      | 1180                             |



## CINTAS FLEXIBLES DE PUESTA A TIERRA CON ÁREAS DE CONTACTO PRESIONADAS SIN SOLDADURA /

### FLEXIBLE EARTHING TAPES WITH SOLDERLESS PRESSED CONTACT AREAS

Construction and application manufactured out of highly flexible braids with solderless pressed contact areas made out of seamless Cu-ETP-tubes. The crimping process is realized without using additives like tin or soldering and welding additives. We use exclusively materials of same analysis and same conductivity of 57 S (braids and tubes). Suitable as earthing tapes as well as components for current transfer. Everywhere applicable where components with high flexibility and an optimized contact resistance are needed.

#### Remark :

Manufacturing in large as well as small quantities in length acc. to your wishes. On request also with changed drilling deliverable. When placing an order please specify the wished changes.

#### Technical data :

Braids made out of annealed Cu-ETP wires surface uncoated or tinned.

wire-Ø 0,07 mm (10 mm<sup>2</sup>)

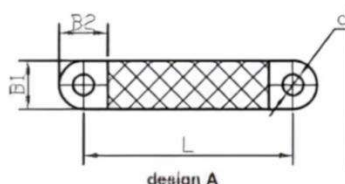
wire-Ø 0,16 mm (14 mm<sup>2</sup>)

wire-Ø 0,10 mm (16-70 mm<sup>2</sup>)

#### Contact areas :

Seamless copper tube made out of Cu-ETP material surface uncoated or tinned, ET10-100/T (tinned)

ET10-100/U (uncoated)



| Code             | Cross-section mm <sup>2</sup> | L   | B1xB2 | d    |
|------------------|-------------------------------|-----|-------|------|
| ET10-100/T or U  | 10                            | 100 | 15x15 | 6,5  |
| ET10-150/T or U  | 10                            | 150 | 15x15 | 6,5  |
| ET10-200/T or U  | 10                            | 200 | 15x15 | 6,5  |
| ET10-250/T or U  | 10                            | 250 | 15x15 | 6,5  |
| ET10-300/T or U  | 10                            | 300 | 15x15 | 6,5  |
| ET14-100/T or U  | 14                            | 100 | 20x20 | 9    |
| ET14-150/T or U  | 14                            | 150 | 20x20 | 9    |
| ET14-200/T or U  | 14                            | 200 | 20x20 | 9    |
| ET14-250/T or U  | 14                            | 250 | 20x20 | 9    |
| ET14-300/T or U  | 14                            | 300 | 20x20 | 9    |
| ET16-100/T or U  | 16                            | 100 | 20x20 | 9    |
| ET16-150/T or U  | 16                            | 150 | 20x20 | 9    |
| ET16-200/T or U  | 16                            | 200 | 20x20 | 9    |
| ET16-250/T or U  | 16                            | 250 | 20x20 | 9    |
| ET16-300/T or U  | 16                            | 300 | 20x20 | 9    |
| ET25-100/T or U  | 25                            | 100 | 25x25 | 9    |
| ET25-150/T or U  | 25                            | 150 | 25x25 | 9    |
| ET25-200/T or U  | 25                            | 200 | 25x25 | 9    |
| ET25-250/T or U  | 25                            | 250 | 25x25 | 9    |
| ET25-300/T or U  | 25                            | 300 | 25x25 | 9    |
| ET35-100/T or U  | 35                            | 100 | 30x30 | 9    |
| ET35-150/T or U  | 35                            | 150 | 30x30 | 9    |
| ET35-200/T or U  | 35                            | 200 | 30x30 | 9    |
| ET35-250/T or U  | 35                            | 250 | 30x30 | 9    |
| ET35-300/T or U  | 35                            | 300 | 30x30 | 9    |
| ET50-100/T or U  | 50                            | 100 | 30x30 | 9    |
| ET50-150/T or U  | 50                            | 150 | 30x30 | 9    |
| ET50-200/T or U  | 50                            | 200 | 30x30 | 9    |
| ET50-250/T or U  | 50                            | 250 | 30x30 | 9    |
| ET50-300/T or U  | 50                            | 300 | 30x30 | 9    |
| ET70-100/T or U  | 70                            | 100 | 40x40 | 11   |
| ET70-150/T or U  | 70                            | 150 | 40x40 | 11   |
| ET70-200/T or U  | 70                            | 200 | 40x40 | 11   |
| ET70-250/T or U  | 70                            | 250 | 40x40 | 11   |
| ET70-300/T or U  | 70                            | 300 | 40x40 | 11   |
| ET95-100/T or U  | 95                            | 100 | 30x30 | 12,5 |
| ET95-150/T or U  | 95                            | 150 | 30x30 | 12,5 |
| ET95-200/T or U  | 95                            | 200 | 30x30 | 12,5 |
| ET95-250/T or U  | 95                            | 250 | 30x30 | 12,5 |
| ET95-300/T or U  | 95                            | 300 | 30x30 | 12,5 |
| ET185-100/T or U | 185                           | 100 | 30x30 | 12,5 |
| ET185-150/T or U | 185                           | 150 | 30x30 | 12,5 |
| ET185-200/T or U | 185                           | 200 | 30x30 | 12,5 |
| ET185-250/T or U | 185                           | 250 | 30x30 | 12,5 |
| ET185-300/T or U | 185                           | 300 | 30x30 | 12,5 |

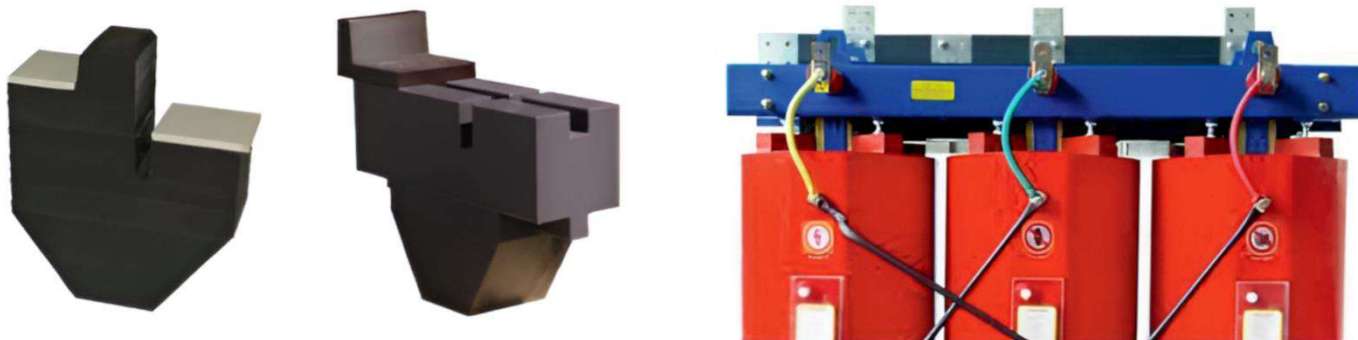






## SOPORTES DE BOBINA FABRICADOS EN POLIAMIDA FUNDIDA PA 6G /

### COIL SUPPORTS FROM CAST POLYAMIDE PA 6G



For mechanical, electrical, physical and chemical endurance choose Cast polyamide.

A full range of Cast Polyamid Coil Support Blocks in various styles according to customer request from Cast polyamide. Due to the wide number of patterns please let us have your requirements.

Tooling for special requirements is possible and PA 6G is cheaper instead of resin supports. Styles too numerous to mention so please provide us with your specific drawing.

#### Cast Polyamide PA 6G advantages:

- better mechanical stability
- lower water absorption
- better creep resistance
- better dimensional stability
- higher wear resistance

| Properties                             | Value      |          |
|----------------------------------------|------------|----------|
| Density (g/cm <sup>3</sup> )           | :1,13-1,15 | DIN53479 |
| Impact strenght J                      | :4-25      | DIN53453 |
| Hardness shore D                       | :D85-90    | DIN53505 |
| Tensile strenght (kg/cm <sup>3</sup> ) | :600-980   | DIN53455 |
| Dielectric strenght (kV/mm)            | :30        | DIN53481 |
| Service temperature C                  | :+120/+160 | DIN53481 |

#### Good damping properties

for the reduction of vibration and noise, PA 6G reduces vibration which is transferred from metallic parts. In the same way, PA 6 G allows reduction of the vibration affecting the machine frame. This way the life of transformers and their parts can be extended.

#### Good machining, dimensional stability, low residual stress

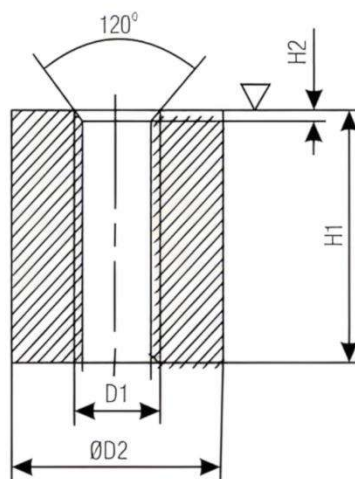
allow production of complex engineered components and application in transformer design areas. Machining can be performed with standard tools and conventional machines.





## TETONES DE SOLDADURA PARA PUESTA A TIERRA /

### WELD BOSSES FOR GROUNDING



| No    | D1    | ØD2 | H1 | H2  | Weight (kg.) |
|-------|-------|-----|----|-----|--------------|
| 31601 | M4    | 10  | 15 |     | 0,006        |
| 31602 | M6    | 10  | 20 |     | 0,012        |
| 31603 | M8    | 16  | 20 |     | 0,031        |
| 31604 | M10   | 20  | 15 | 0,5 | 0,026        |
| 31605 | M12   | 30  | 25 | 1   | 0,120        |
| 31606 | M12   | 25  | 25 | 2   | 0,120        |
| 31607 | M12   | 20  | 20 | 2   | 0,035        |
| 31608 | M8    | 16  | 20 | 2   | 0,029        |
| 31609 | R1/2" | 40  | 30 | 1   | 0,300        |
| 31610 | R1"   | 45  | 50 | -   | 0,220        |
| 31611 | M16   | 40  | 30 | 1   | 0,300        |

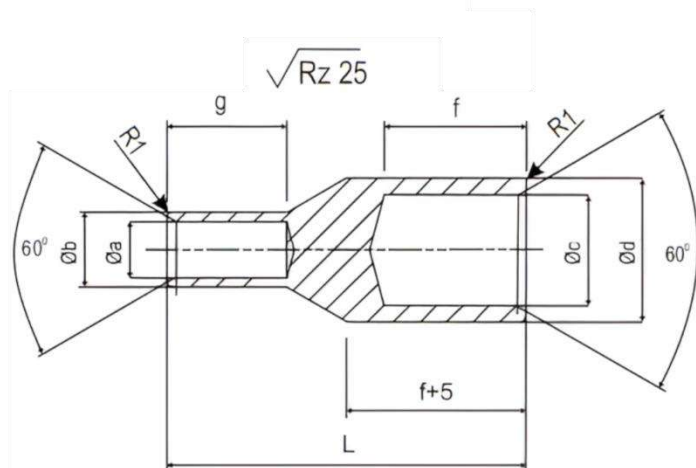




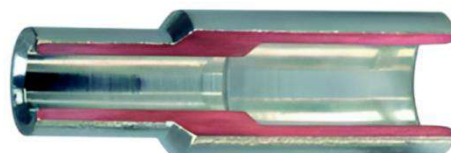


## CONECTORES REDUCTORES PARA CABLES DE COBRE MULTIFILARES /

### REDUCING CONNECTORS FOR MULTI-WIRE COPPER CABLES

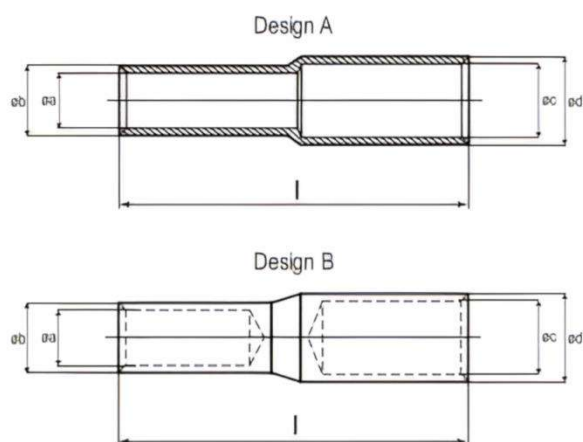


Material: copper, galvanically tinned.  
without plating available



| No | conductor diameter | braided section | braided diameter | ØA   | ØB   | ØC   | ØD   | F  | G  | L   |
|----|--------------------|-----------------|------------------|------|------|------|------|----|----|-----|
| A1 | 8                  | 50              | 10               | 8,2  | 13,5 | 11,5 | 17,0 | 32 | 24 | 66  |
| A2 | 10                 | 70              | 12               | 10,2 | 15,5 | 13,5 | 19,0 | 32 | 32 | 74  |
| A3 | 10                 | 95              | 14               | 10,2 | 15,5 | 15,5 | 20,8 | 32 | 32 | 74  |
| A4 | 12                 | 120             | 16               | 12,2 | 17,5 | 17,0 | 23,2 | 40 | 32 | 82  |
| A5 | 14                 | 150             | 18               | 14,2 | 19,5 | 19,0 | 25,3 | 40 | 32 | 82  |
| A6 | 16                 | 185             | 20               | 16,2 | 21,5 | 21,5 | 28,5 | 40 | 32 | 82  |
| A7 | 18                 | 240             | 23               | 18,2 | 23,5 | 24,5 | 32,0 | 54 | 40 | 104 |
| A8 | 20                 | 300             | 26               | 20,2 | 25,5 | 27,5 | 38,0 | 65 | 40 | 115 |

Material: tin plated Cu-ETP DIN EN 13601



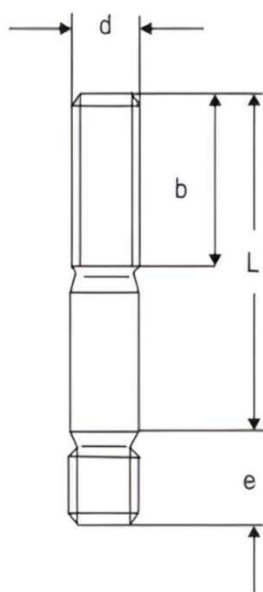
Any order dimensions are available according to individual arrangements



## PERNOS DE CONEXIÓN DE ACERO INOXIDABLE (A2-70) DIN 938 /

### STAINLESS STEEL CONNECTION STUDS (A2-70) DIN 938

Material: A2-70



| d   | b  | e  | L                                      |
|-----|----|----|----------------------------------------|
| M5  | 16 | 5  | acc. to customer request<br>20mm-220mm |
| M6  | 18 | 6  |                                        |
| M8  | 22 | 8  |                                        |
| M10 | 26 | 10 |                                        |
| M12 | 30 | 12 |                                        |
| M14 | 34 | 14 |                                        |
| M16 | 38 | 16 |                                        |
| M18 | 42 | 18 |                                        |
| M20 | 46 | 20 |                                        |
| M22 | 50 | 22 |                                        |
| M24 | 54 | 24 |                                        |

### Stud Bolts

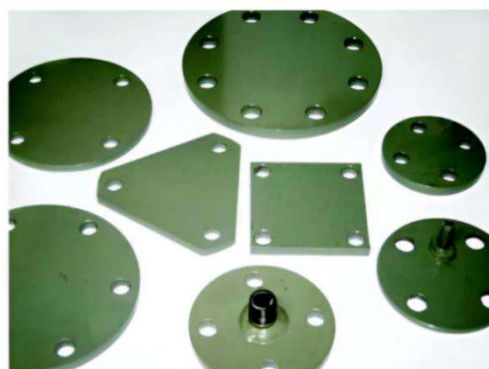
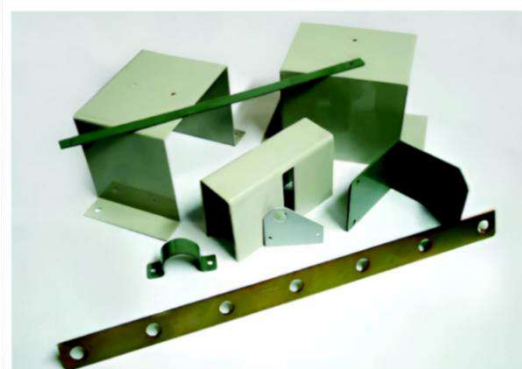


1520 different designs of stud bolts we manufacture (DIN 668/ DIN 938/ T0727 / T0729 with M6-M8-M10-M12-M16-M20-M24-M32-M36-M40-M42), We can machine as your specified dimensions for your stud bolts up to 3000 mm. Plating of electrogalvanize, silver, tin, nickel is possible.



**BRIDAS, COMPONENTES DE LATÓN Y COBRE, TUERCAS; PIEZAS SOLDADAS,  
DOBLADAS Y PINTADAS /**

*FLANGES, BRASS AND COPPER COMPONENTS, NUTS; WELDED, BENDED AND  
PAINTED PARTS*





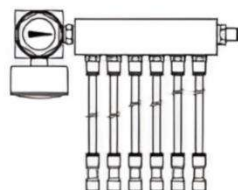


## ELEVADORES DE PRONAL /

### PRONAL LIFTING

#### PRONAL'S VTR LIFTING BAG ADVANTAGES

- NBR coated fabric bags (oil resistant)
- All dimensions possible (lifting height (stroke) will be app. Half the width of the bag).
- Thickness deflated 3mm / 5mm
- Inflation pressure up to 5 bar (under load)
- Do not damage the insulation paper
- Easy to install and to use: reduce costs !



#### GLOBAL OVERVIEW



#### PURPOSE OF PRONAL OIL TANK

PRONAL's VTR CUSHIONS are optimized solution to lift the core's windings while reducing stresses and damages on the insulation paper. Lifting the winding to adjust / insert spacers. Repairing winding during maintenance operations.

#### VTR

Pneumatic lifting bags are an alternative lifting method to insert/adjust spacers into the winding of the coil.

VTR are available in several sizes, thicknesses, working pressures. (Contact us for more technical info).

VTR are inserted between the winding and are then inflated. They smoothly lift the winding and allow the spacer insertion/adjustment.

Due to their special features, Pronal lifting bags prevent:

- Stress on the winding that could cause damage.
- Damages to the insulating paperboard.





**BORNAS  
ENCHUFABLES Y  
PASABARRAS**

*PLUG IN BUSHINGS  
AND MONOBLOCKS*





**BORNA ENCHUFABLE EPOXY /**

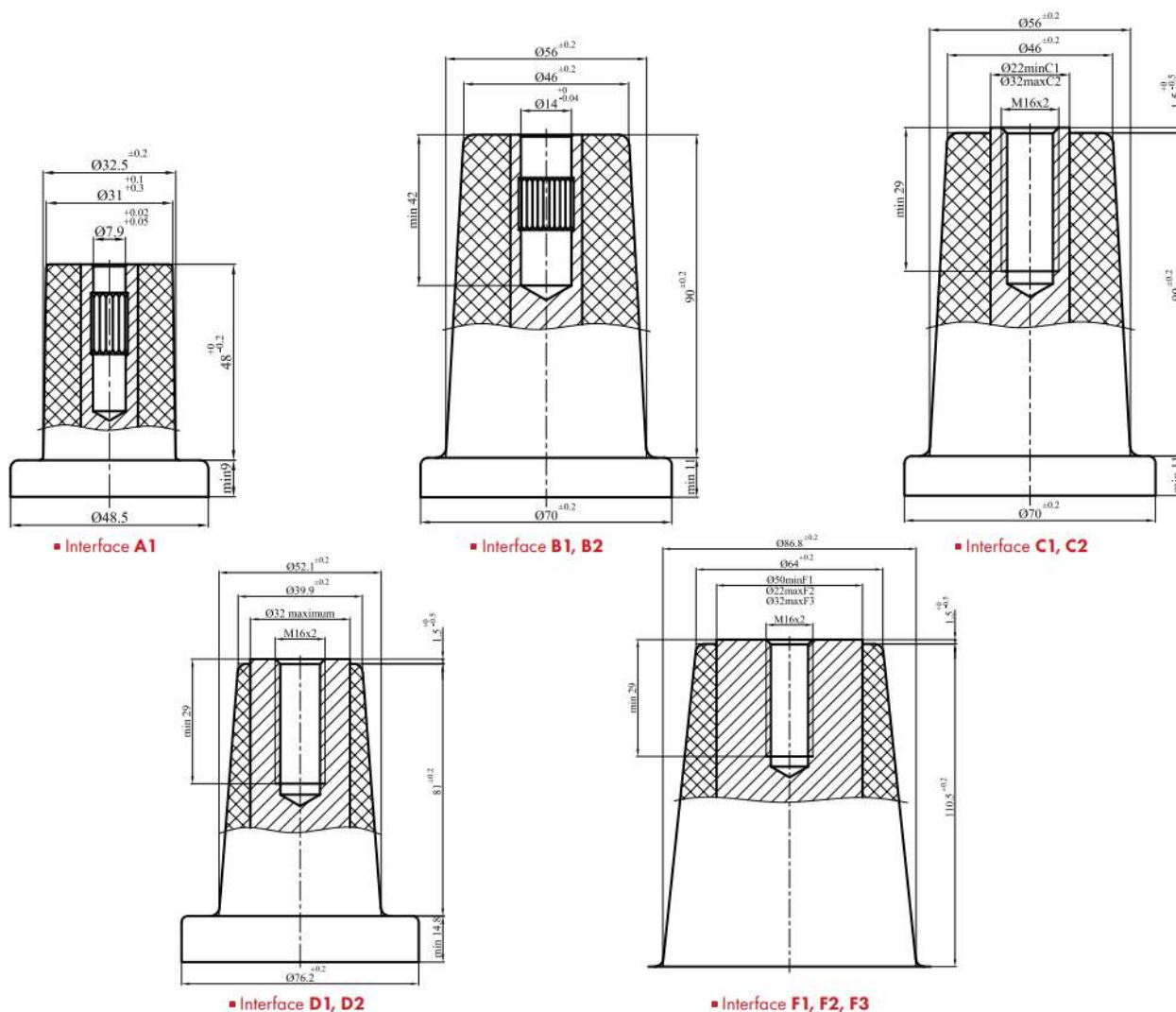
*EPOXY RESIN BUSHING*





## **DIMENSIONES DE LA CLASIFICACIÓN DE LAS INTERRELACIONES /** *DIMENSIONS OF INTERFACE CLASSIFICATION*

**Interface classifications and dimensions stated by IEC/EN 50181.**



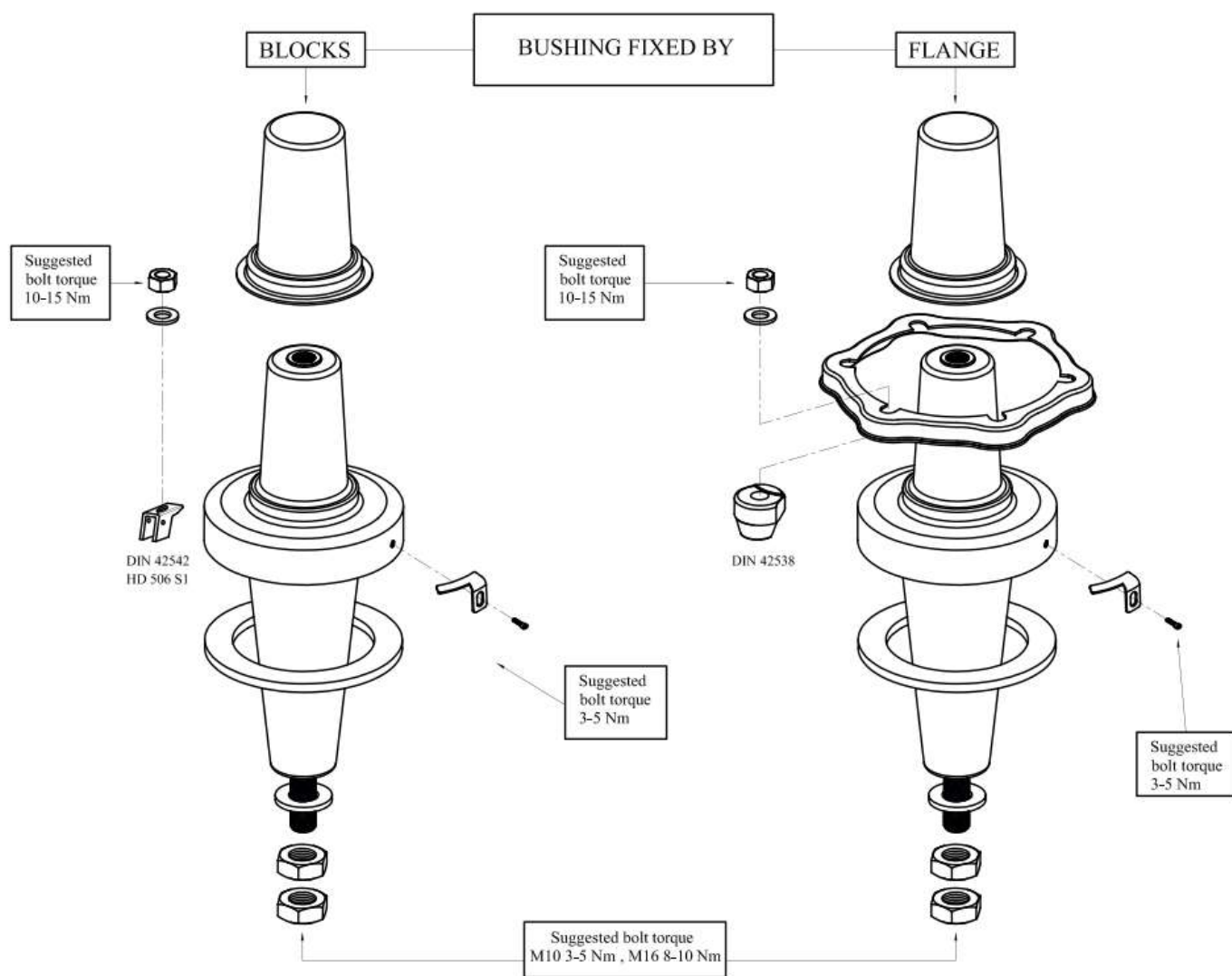
### **SHORT CIRCUIT RATINGS**

| Interface type | Contact type   | Current rating<br>(A) | RMS symm<br>(kA) |        |        | Peak symm<br>(kA) |
|----------------|----------------|-----------------------|------------------|--------|--------|-------------------|
|                |                |                       | 1 sec.           | 2 sec. | 3 sec. |                   |
| A1             | Plug in socket | 250                   | 12.5             | 9.0    | 7.5    | 31                |
| B1             | Plug in socket | 250                   | 12.5             | 9.0    | 7.5    | 31                |
| B2             | Plug in socket | 400                   | 16.0             | 11.3   | 9.2    | 40                |
| C1             | Bolted         | 630                   | 28.0             | 19.7   | 16.1   | 70                |
| C2             | Bolted         | 1250                  | 75.0             | 53.0   | 43.3   | >150              |
| D1             | Bolted         | 800                   | 50.0             | 35.3   | 28.8   | 125               |
| D2             | Bolted         | 1250                  | 75.0             | 53.0   | 43.3   | >150              |
| F1             | Bolted         | 2500                  | -                | -      | -      | -                 |
| F2             | Bolted         | 630                   | 28.0             | 19.7   | 16.1   | 70                |
| F3             | Bolted         | 1250                  | 75.0             | 53.0   | 43.3   | >150              |



## FIJACIÓN PARA EL EQUIPO DE PASATAPAS /

### FIXINGS FOR EQUIPMENT BUSHINGS





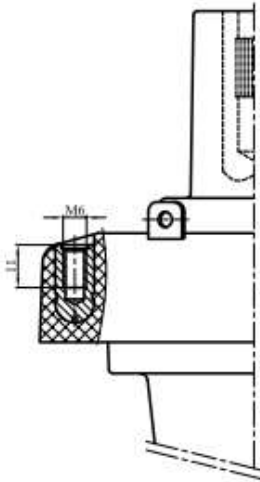


## TK 394 – TK 395/03/P ; INTERFACE A1 ; Up to 24 kV - 250 A

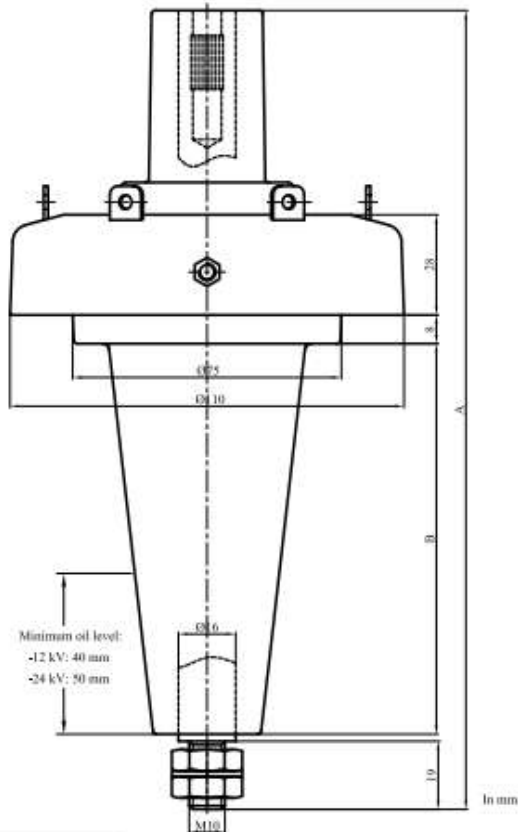
### USING FOR

Plug in Bushing could use inside of distribution Transformer with oil and other silicon cable connection using area.

#### • P- TYPE



#### • STANDART TYPE



### ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings.  
The bushings are supplied with an earth cable or an earth plate .  
This earth connection must be specified when ordering.

### STANDARTS

The plug in type bushings  
TK 394 –TK 395 /03/P was product  
the requirements of IEC TS EN 50180  
IEC TS EN 50181, IEC 60137.

### DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK394-03/-P bushings has a length B outside this standard.
- The standard bushings, TK394/TK394-03/TK395/TK395-03, are equipped with 6 tabs for the bail restraint.
- The TK394-P /TK394-03-P /TK395-P/TK395-03-P are equipped with 4 tabs and 2 pins inserts M6 (-P version).

### TESTING

All type bushings test by TAKFAN's  
Quality persons as %100 in TAKFAN  
Laboratory according to IEC 60137.  
Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (55 kV/min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

| Product Code | Voltage<br>Ur<br>(kV) | Current<br>Ir<br>(A) | Dimensions (mm) |       |
|--------------|-----------------------|----------------------|-----------------|-------|
|              |                       |                      | A               | B     |
| TK394        | 12 - 24               | 250                  | 223             | 108,5 |
| TK394 - P    | 12 - 24               | 250                  | 223             | 108,5 |
| TK394 - 03   | 12 - 24               | 250                  | 284             | 168   |
| TK394 - 03P  | 12 - 24               | 250                  | 284             | 168   |
| TK395        | 12 - 24               | 250                  | 190             | 73,5  |
| TK395 - P    | 12 - 24               | 250                  | 190             | 73,5  |
| TK395 - 03   | 12 - 24               | 250                  | 171             | 55    |
| TK395 - 03P  | 12 - 24               | 250                  | 171             | 55    |

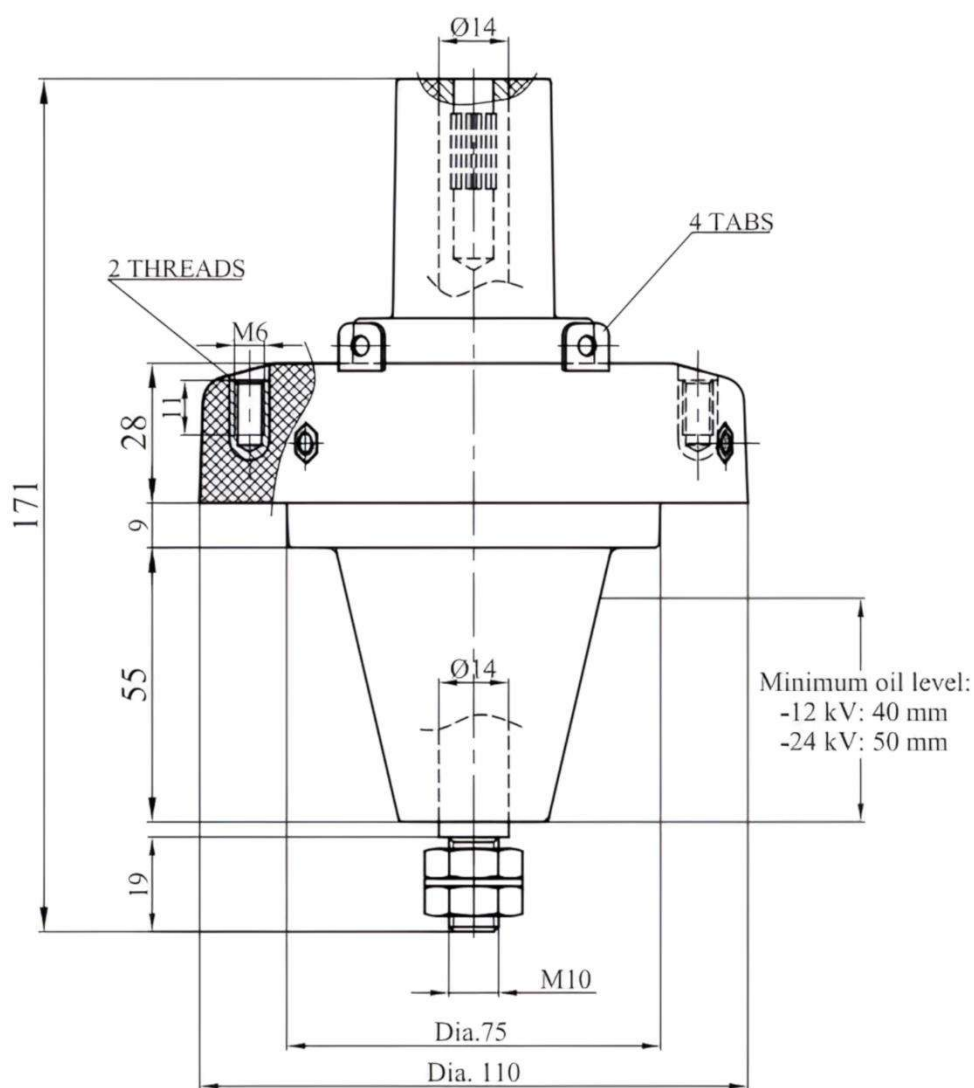


**INTERFACE A ; Up to 12-24 kV - 250 A**

ACC. CENELEC EN 50180/EN 50181  
IEC 60137

Tkfn-K180AR-3

|                                  |     |
|----------------------------------|-----|
| BIL kV<br>1.2x50 $\mu$ s         | 125 |
| P.F. WITHSTAND<br>VOLTAGE 60s-kV | 50  |



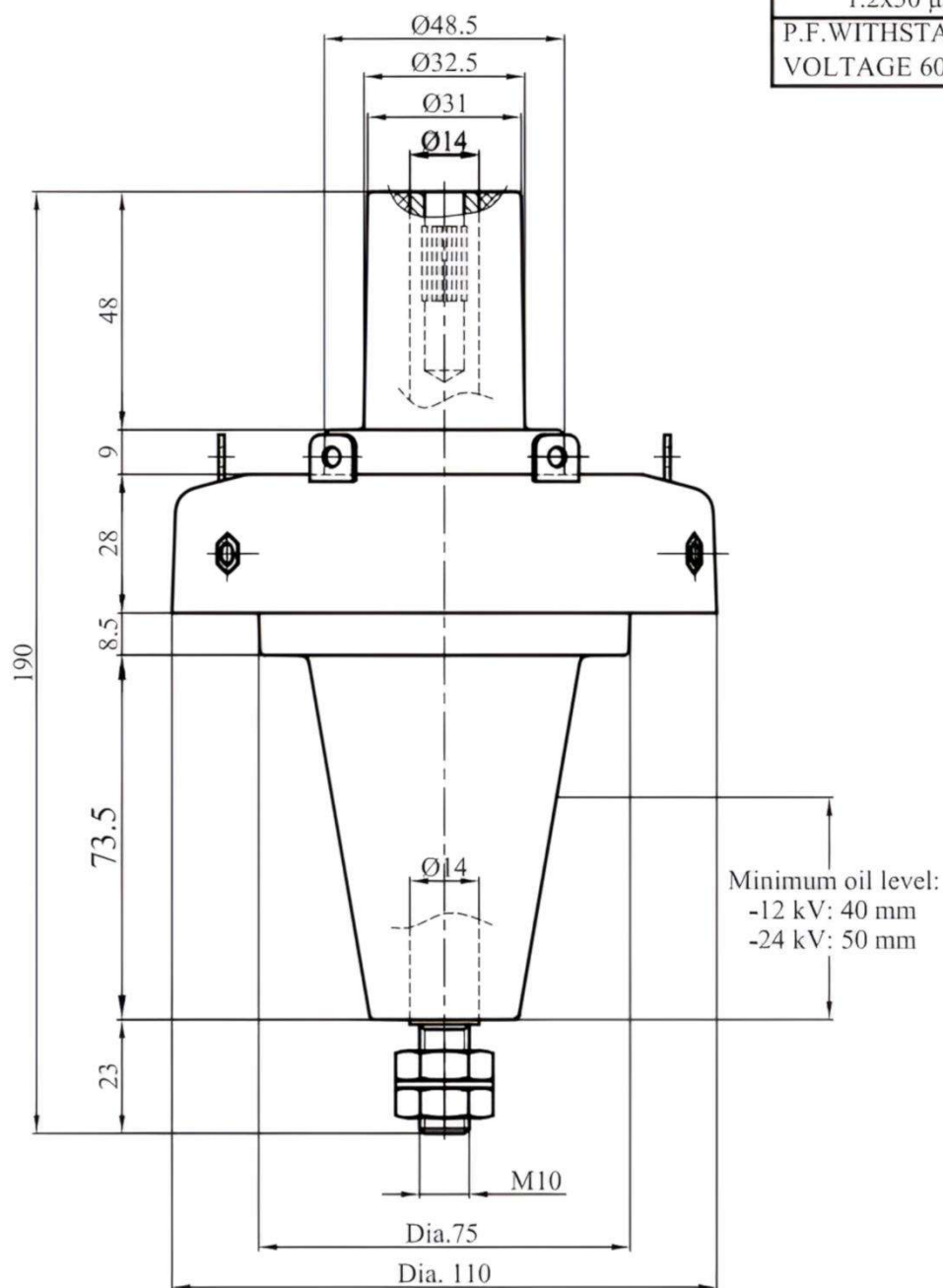
THREADED CONNECTIONS

In mm.



ACC. CENELEC EN 50180/EN 50181  
IEC 60137

|                                 |     |
|---------------------------------|-----|
| BIL kV<br>1.2x50 $\mu$ s        | 125 |
| P.F.WITHSTAND<br>VOLTAGE 60s-kV | 50  |



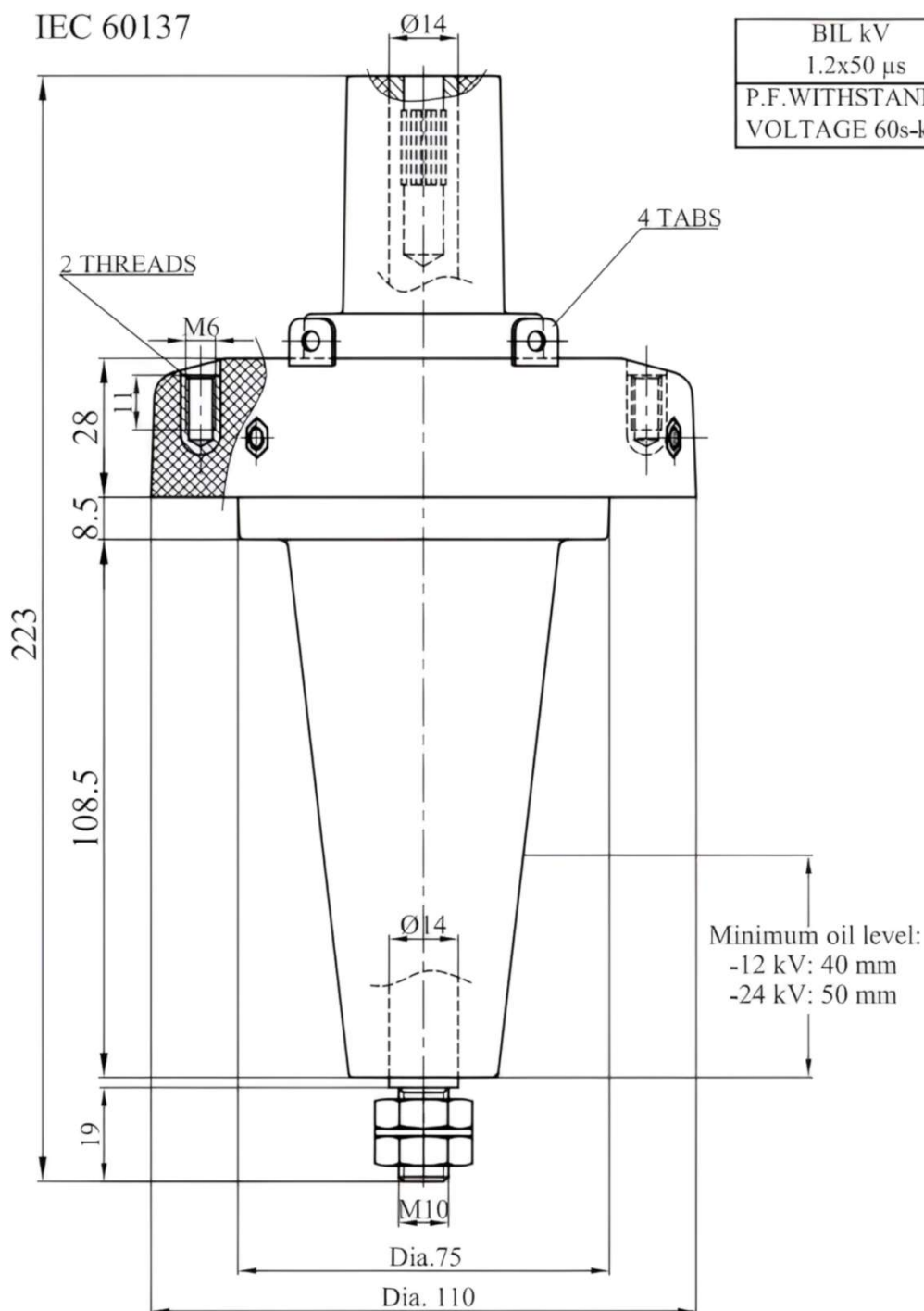
In mm.



**INTERFACE A ; Up to 24 kV - 250 A**

ACC. CENELEC EN 50180/EN 50181

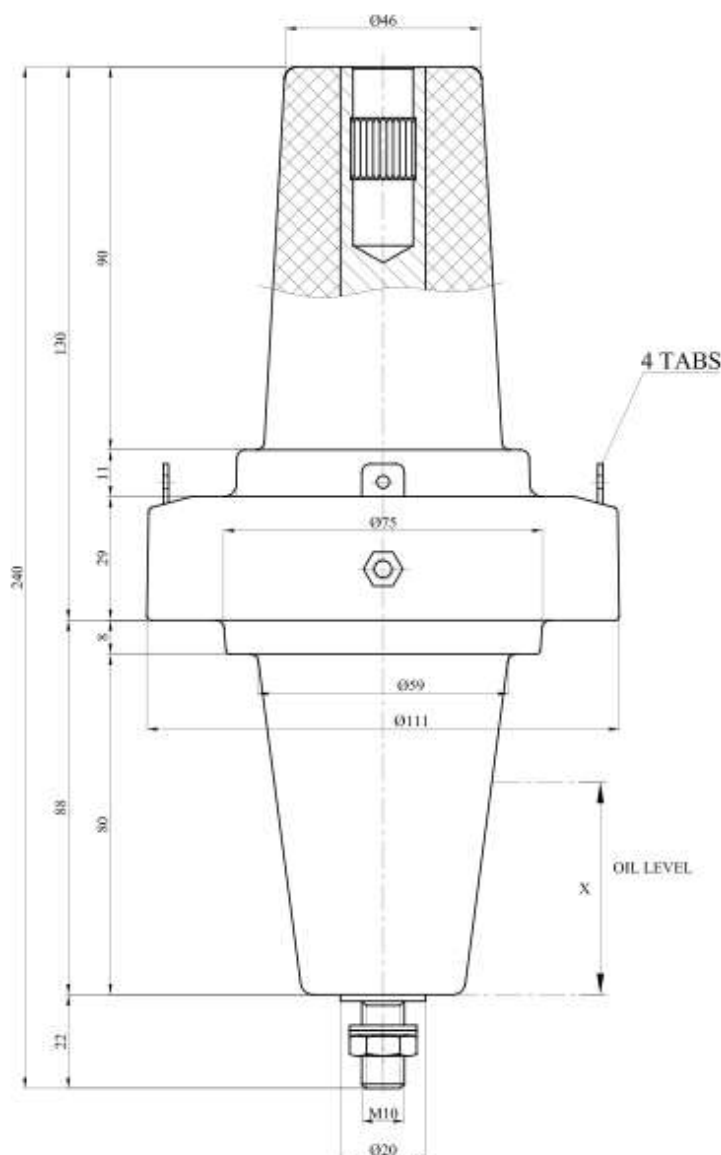
IEC 60137







## INTERFACE A ; Up to 24 kV - 250 A



## USING FOR

Plug in type bushing and bolted type bushing could use inside of distribution Transformer with oil immersed and other silicon cable connection using area.

## STANDARDS

The plug in type bushings TK 975-1/TK 975-2/TK 975-3 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

## DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings TK 975-1/TK 975-2/TK 975-3 are equipped with 4 tabs for the bail restraint.

## TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137.  
Rank of tests as a belows:

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

## ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate. This earth connection and bushing connection type must be specified when ordering.

| Product Code | Voltage<br>Ur<br>(kV) | Current<br>Ir<br>(A) | Contact<br>Type | Interface |
|--------------|-----------------------|----------------------|-----------------|-----------|
| TK 975-1     | 36                    | 250                  | Sliding         | B         |
| TK 975-2     | 36                    | 400                  | Sliding         | B         |
| TK 975-3     | 36                    | 400                  | Bolted          | C         |

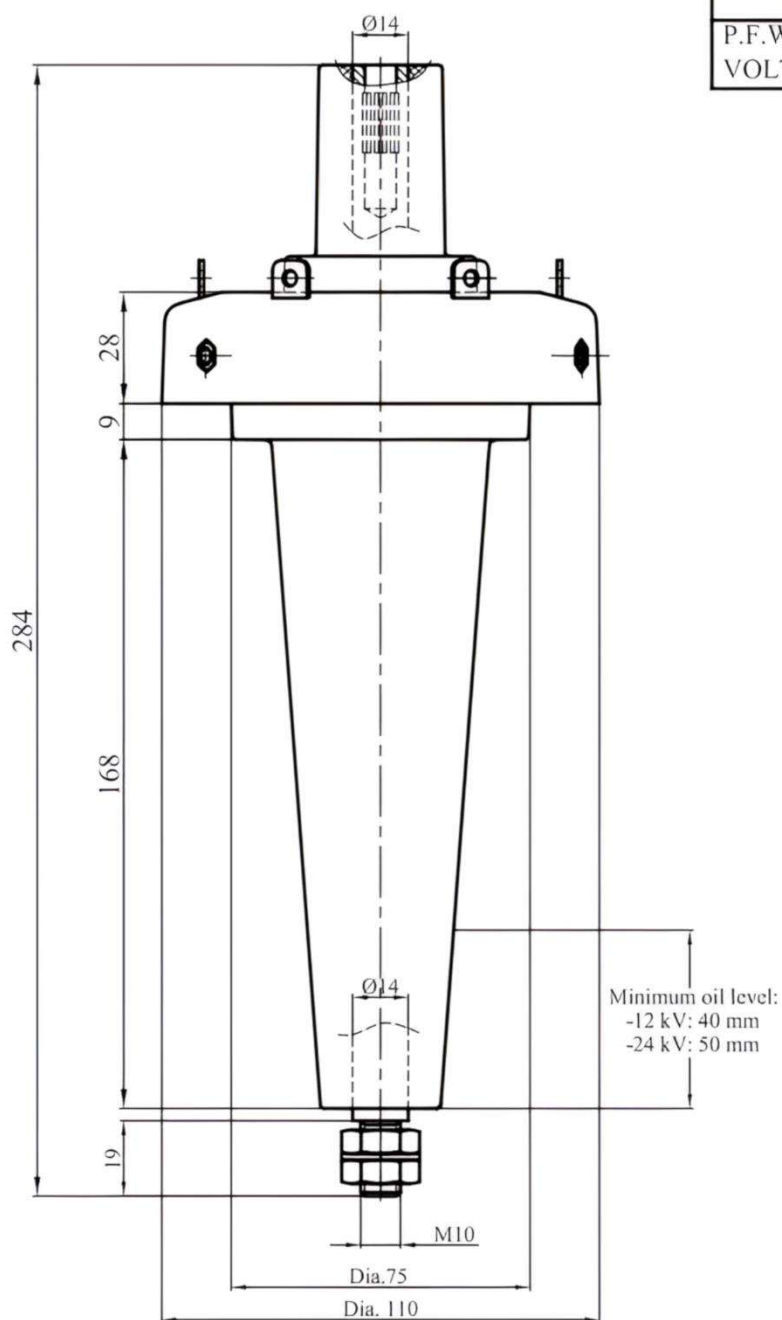


**INTERFACE A ; UP TO 12-24 kV – 250 A**

ACC. CENELEC EN 50180/EN 50181  
IEC 60137

Tkfn-K180AR-2

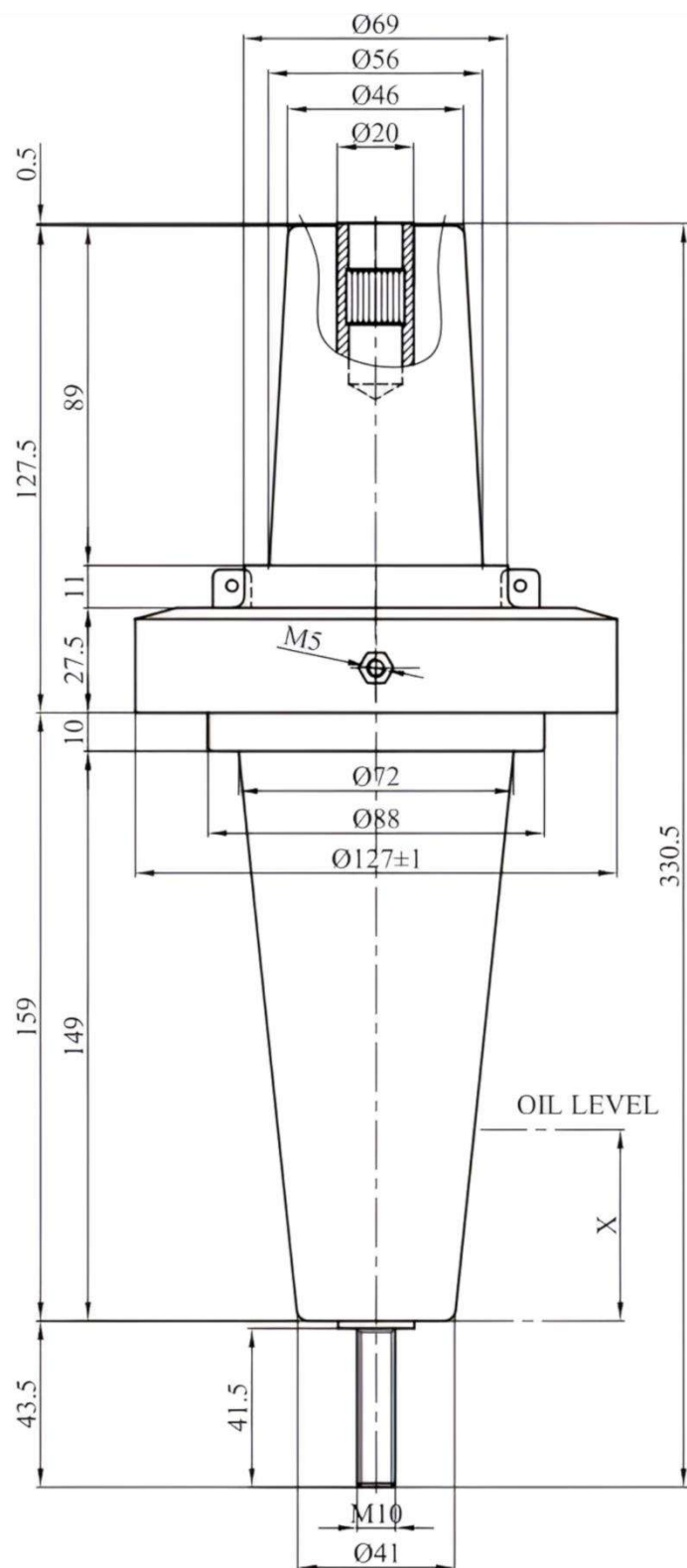
|                                 |     |
|---------------------------------|-----|
| BIL kV<br>1.2x50 $\mu$ s        | 125 |
| P.F.WITHSTAND<br>VOLTAGE 60s-kV | 50  |



In mm.



ACC. CENELEC EN 50181  
IEC 60137



|                                 |     |
|---------------------------------|-----|
| BIL kV<br>1.2x50 $\mu$ s        | 170 |
| P.F.WITHSTAND<br>VOLTAGE 60s-kV | 75  |

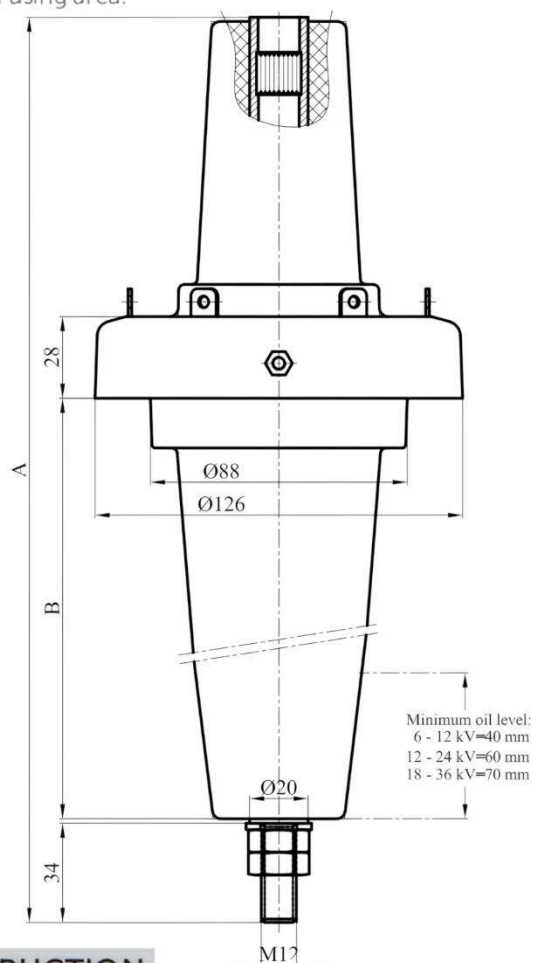
|                  |
|------------------|
| X                |
| OIL LEVEL        |
| 6 - 10 kV=40 mm  |
| 12 - 20 kV=60 mm |
| 18 - 30 kV=70 mm |



## TK 400-1, TK 400-2, TK 400-3, TK 400-4 ; INTERFACE B ; Up to 36 kV – 400 A

### USING FOR

Plug in type bushing and bolted type bushing could use inside of distribution Transformer with oil immersed and other silicon cable connection using area.



### STANDARTS

The Plug in Bushings TK 400-1, TK 400-2, TK 400-3 and TK 400-4 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

### DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings, TK 400-1, TK 400-2, TK 400-3 and TK 400-4 are equipped with 6 tabs for the bail restraint.

### TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

### ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate. 36kV/400A bushings are exigible plug in type or bolted type. This earth connection and bushing connection type must be specified when ordering.

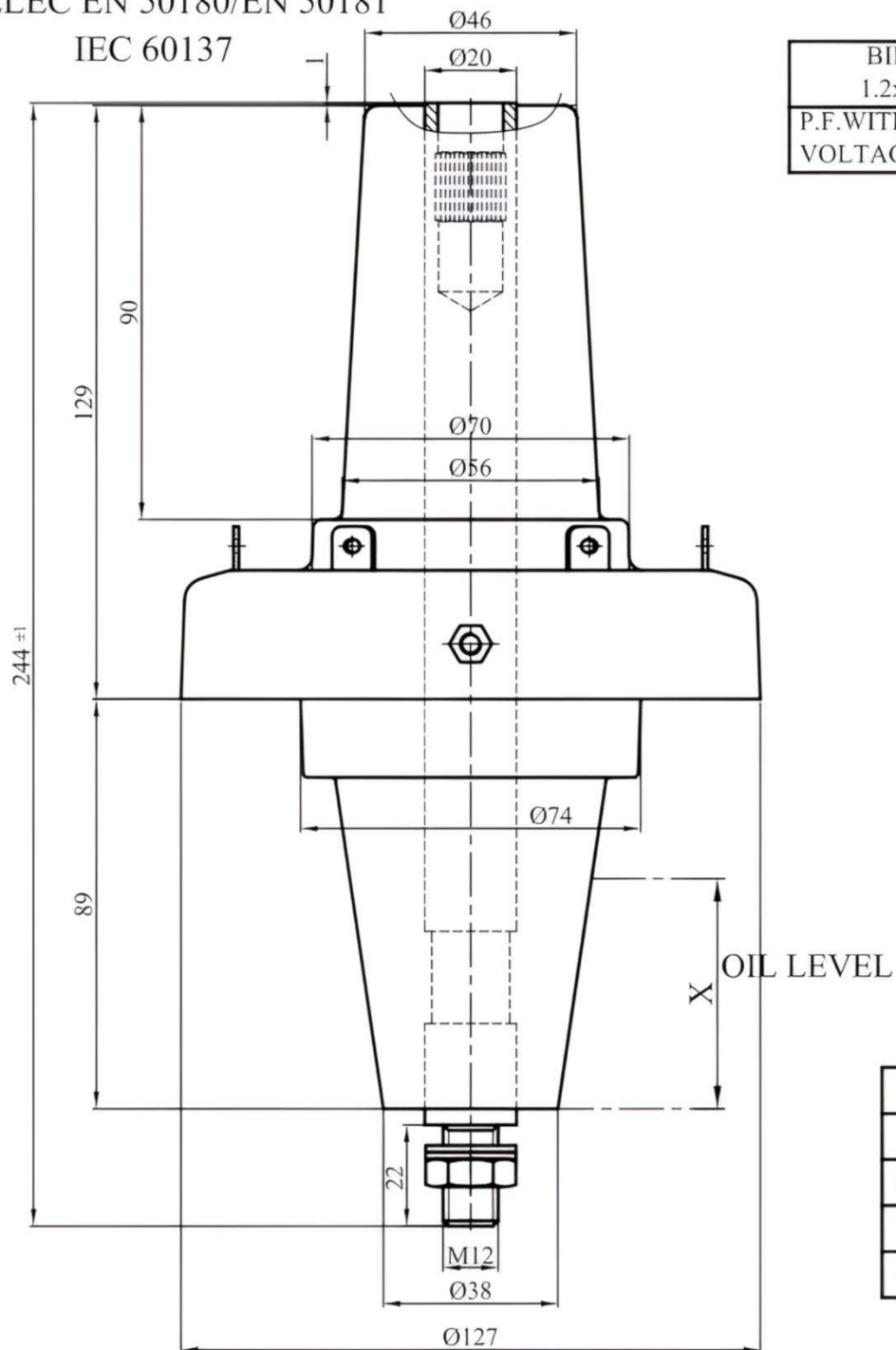
| Product Code | Voltage<br>$U_r$<br>(kV) | Current<br>$I_r$<br>(A) | Dimensions (mm) |     |
|--------------|--------------------------|-------------------------|-----------------|-----|
|              |                          |                         | A               | B   |
| TK 400 - 1   | 12 - 24 - 36             | 400                     | 244             | 89  |
| TK 400 - 2   | 12 - 24 - 36             | 400                     | 310             | 144 |
| TK 400 - 3   | 12 - 24 - 36             | 400                     | 332             | 159 |
| TK 400 - 4   | 12 - 24 - 36             | 400                     | 380             | 226 |





## ACC. CENELEC EN 50180/EN 50181

IEC 60137



In mm.

|                                 |     |
|---------------------------------|-----|
| BIL kV<br>1.2x50 $\mu$ s        | 170 |
| P.F.WITHSTAND<br>VOLTAGE 60s-kV | 70  |

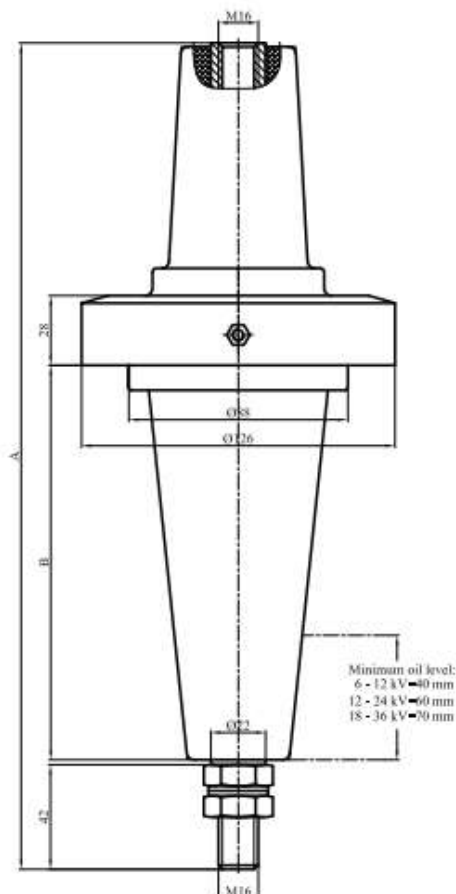
|                  |
|------------------|
| X                |
| OIL LEVEL        |
| 6 - 10 kV=40 mm  |
| 12 - 20 kV=60 mm |
| 18 - 30 kV=70 mm |



**TK 630-1, TK 630-2, TK 630-3, TK 630-4 ; INTERFACE B ; Up to 36 kV – 630 A**

### USING FOR

Bolted type bushing could use inside of distribution Transformer with oil immersed and other silicon cable connection using area.



### STANDARTS

The Plug in Bushings TK 630-1, TK 630-2, TK 630-3 and TK 630-4 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

### DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings, TK 630-1, TK 630-2 ,TK 630-3 and TK 630-4 are equipped without tab for the bail restraint.

### TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 .  
Rank of tests as a belows:

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

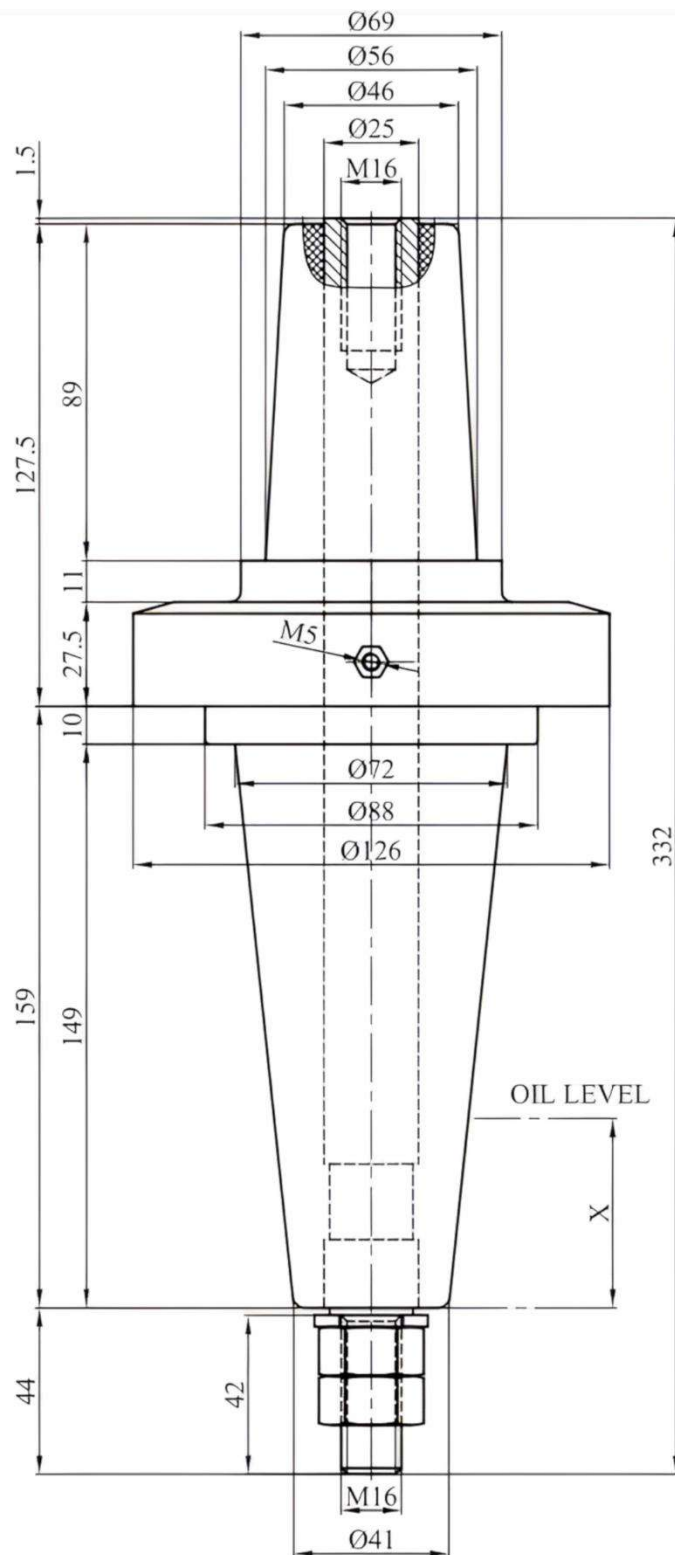
### ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . 36kV/630A bushings are exigible without tab or with 6 tabs for the bail restraint . This earth connection and bail restraint type must be specified when ordering.

| Product Code | Voltage<br>$U_r$<br>(kV) | Current<br>$I_r$<br>(A) | Dimensions (mm) |     |
|--------------|--------------------------|-------------------------|-----------------|-----|
|              |                          |                         | A               | B   |
| TK 630 - 1   | 12 - 24 - 36             | 630                     | 262             | 89  |
| TK 630 - 2   | 12 - 24 - 36             | 630                     | 332             | 159 |
| TK 630 - 3   | 12 - 24 - 36             | 630                     | 380             | 214 |
| TK 630 - 4   | 12 - 24 - 36             | 630                     | 398             | 223 |



ACC. CENELEC EN 50181  
IEC 60137



|                                 |     |
|---------------------------------|-----|
| BIL kV<br>1.2x50 $\mu$ s        | 170 |
| P.F.WITHSTAND<br>VOLTAGE 60s-kV | 75  |

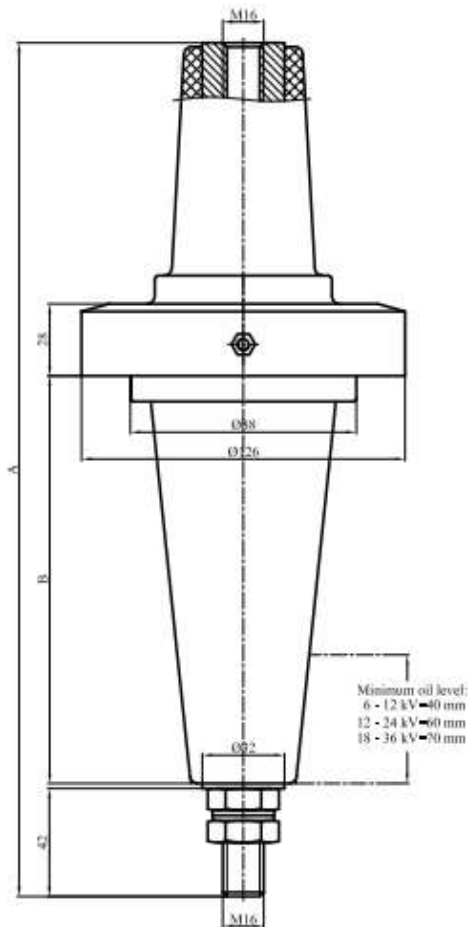
|                  |
|------------------|
| X                |
| OIL LEVEL        |
| 6 - 10 kV=40 mm  |
| 12 - 20 kV=60 mm |
| 18 - 30 kV=70 mm |



## TK 1250-1, TK 1250-2, TK 1250-3, TK 1250-4 ; INTERFACE C2 ; Up to 36 kV – 1250 A

### USING FOR

Bolted type bushing could use inside of distrubition Transformer with oil immersed and other silicon cable connection using area.



### STANDARTS

The Plug in Bushings TK 1250-1, TK 1250-2, TK 1250-3 and TK 1250-4 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

### DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The standard bushings, TK 1250-1, TK 1250-2, TK 1250-3 and TK 1250-4 are equipped without tab for the bail restraint.

### TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test (72kV/1min.)
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

### ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . 36kV/1250A bushings are exigible without tab or with 6 tabs for the bail restraint . This earth connection and bail restraint type must be specified when ordering.

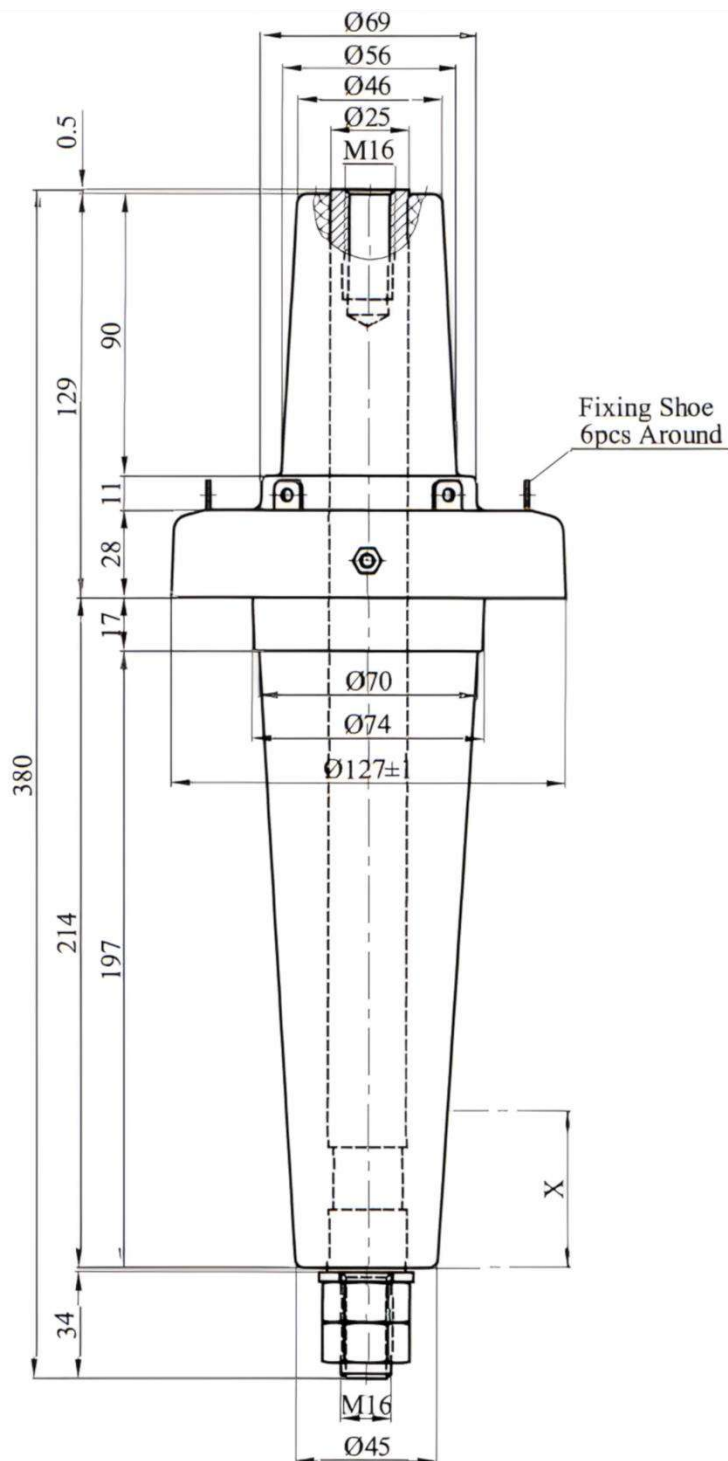
| Product Code | Voltage<br>Ur<br>(kV) | Current<br>Ir<br>(A) | Dimensions (mm) |     |
|--------------|-----------------------|----------------------|-----------------|-----|
|              |                       |                      | A               | B   |
| TK 1250 - 1  | 12 - 24 - 36          | 1250                 | 262             | 89  |
| TK 1250 - 2  | 12 - 24 - 36          | 1250                 | 332             | 159 |
| TK 1250 - 3  | 12 - 24 - 36          | 1250                 | 380             | 214 |
| TK 1250 - 4  | 12 - 24 - 36          | 1250                 | 398             | 223 |





**INTERFACE B ; UP TO 36 kV – 630 A**

ACC. CENELEC EN 50181  
IEC 60137



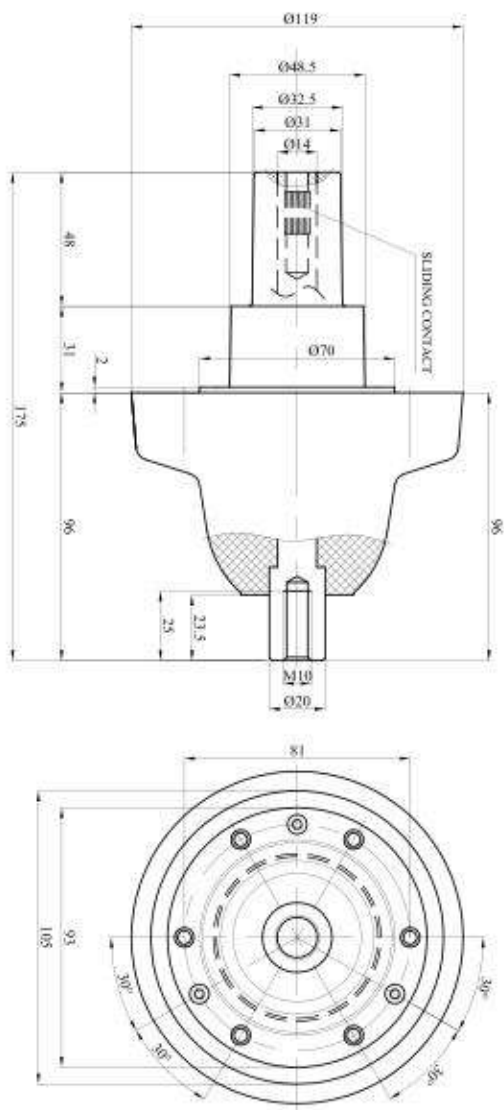
|                                 |     |
|---------------------------------|-----|
| BIL kV<br>1.2x50 µs             | 170 |
| P.F.WITHSTAND<br>VOLTAGE 60s-kV | 70  |

| X                |
|------------------|
| OIL LEVEL        |
| 6 - 10 kV=40 mm  |
| 12 - 20 kV=60 mm |
| 18 - 30 kV=70 mm |

COLOR: RAL3009 OXIDEROD  
EPOXY: HUNTSMAN GERMANY CY5997/ HY918



## TK – RMU250 ; INTERFACE A ; Up to 24 - 250 A



### USING FOR

For use in equipment insulated with SF<sub>6</sub> gas.

### STANDARTS

The plug in type bushings TK – RMU250 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

### DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK-RMU250 bushing has a shank outside this standard, adapted for use in SF<sub>6</sub> gas.

### TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

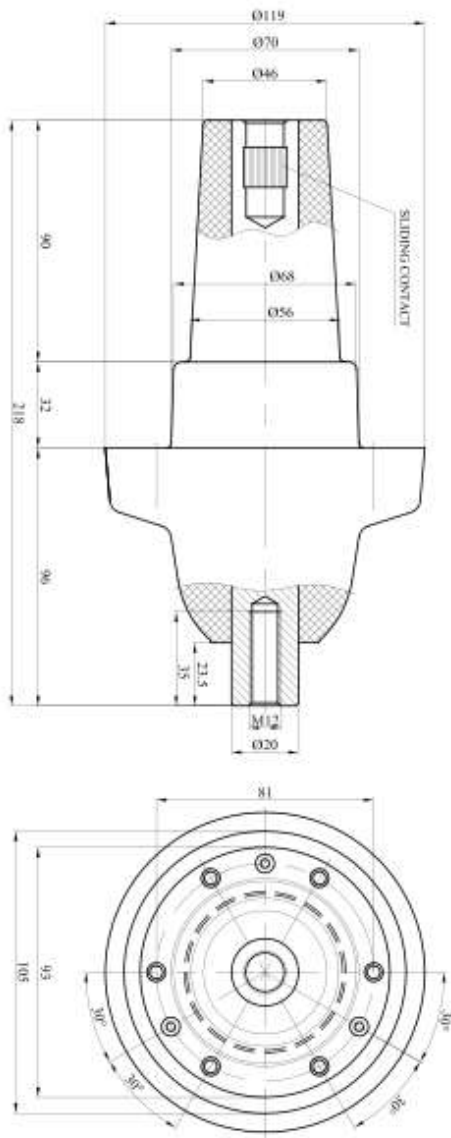
### ORDERING INSTRUCTION

To order the product bushings, simply specify the type.

| Product Code | Voltage<br>Ur<br>(kV) | Current<br>Ir<br>(A) |
|--------------|-----------------------|----------------------|
| TK - RMU250  | 12 - 24               | 250                  |



**TK – RMU400/TK – RMU250-1; INTERFACE B; Up to 36 kV – 400 A**



## USING FOR

For use in equipment insulated with SF<sub>6</sub> gas.

## STANDARDS

The plug in type bushings  
TK – RMU400/TK – RMU250-1 was  
product the requirements of IEC TS  
EN 50180 , IEC TS EN 50181, IEC  
60137.

## DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK – RMU400/TK – RMU250-1 bushing has a shank outside this standard, adapted for use in SF<sub>6</sub> gas.

## TESTING

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

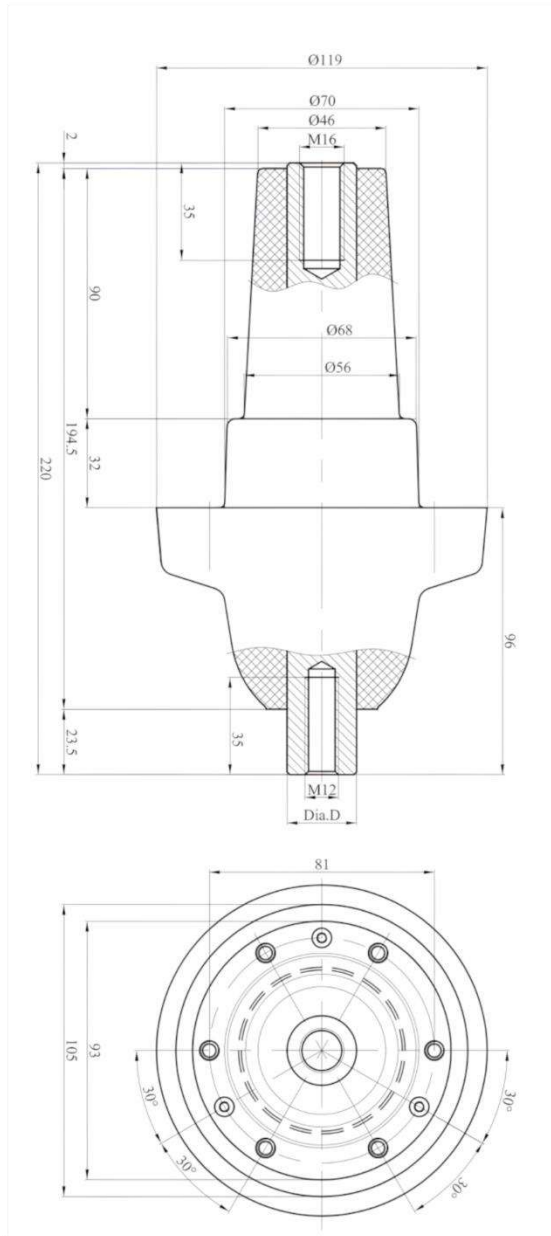
## ORDERING INSTRUCTION

To order the product bushings, simply specify the type.

| Product Code  | Voltage<br>Ur<br>(kV) | Current<br>Ir<br>(A) |
|---------------|-----------------------|----------------------|
| TK - RMU250-1 | 36                    | 250                  |
| TK - RMU400   | 12 - 24 - 36          | 400                  |



**TK – RMU630 / TK RMU1250 ; INTERFACE C ; Up to 36 kV – 1250 A**



**USING FOR**

For use in equipment insulated with SF<sub>6</sub> gas.

**STANDARTS**

The plug in type bushings TK – RMU630/TK – RMU1250 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

**DESIGN**

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.
- The TK-RMU630/TK-RMU1250 bushing has a shank outside this standard, adapted for use in SF<sub>6</sub> gas.

**TESTING**

All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Air leakage test (2 bars/min.)
- Cantilever load withstand test.
- Visual inspection and dimensional check

**ORDERING INSTRUCTION**

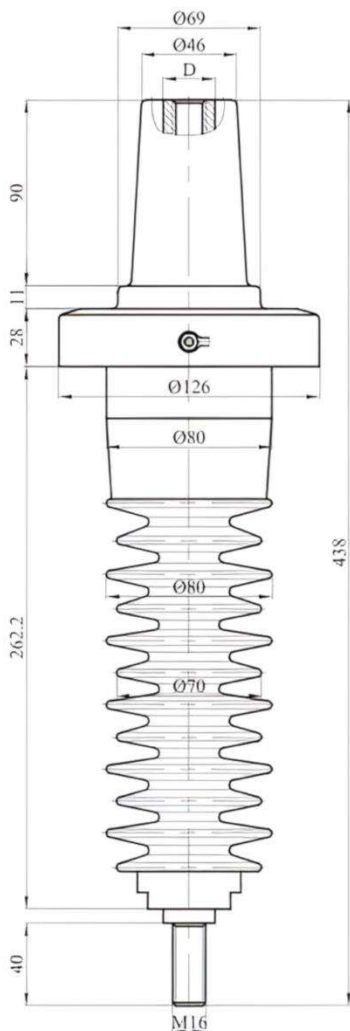
To order the product bushings, simply specify the type.

| Product Code | Voltage<br>Ur<br>(kV) | Current<br>Ir<br>(A) | Dia.D<br>(mm) |
|--------------|-----------------------|----------------------|---------------|
| TK - RMU630  | 12 - 24 - 36          | 630                  | 25            |
| TK - RMU1250 | 12 - 24 - 36          | 1250                 | 32            |





**TK - A36-1/TK-A36-2/TK-A36-3 ; INTERFACE B,C ; Up to 36 kV – 630 A**



### USING FOR

For use in equipment insulated with air, typically for dry type transformers, motors, switchgear...

### STANDARTS

The plug in type bushings TK - A36-1/TK-A36-2/TK-A36-3 was product the requirements of IEC TS EN 50180 , IEC TS EN 50181, IEC 60137.

### DESIGN

- The equipment bushings are moulded epoxy insulated parts in accordance with IEC EN 50180.

### TESTING

*All type bushings test by TAKFAN's Quality persons as %100 in TAKFAN Laboratory according to IEC 60137 . Rank of tests as a belows;*

- Dry power-Frequency voltage withstand test
- Measurement of the partial discharge quantity
- Cantilever load withstand test
- Visual inspection and dimensional check

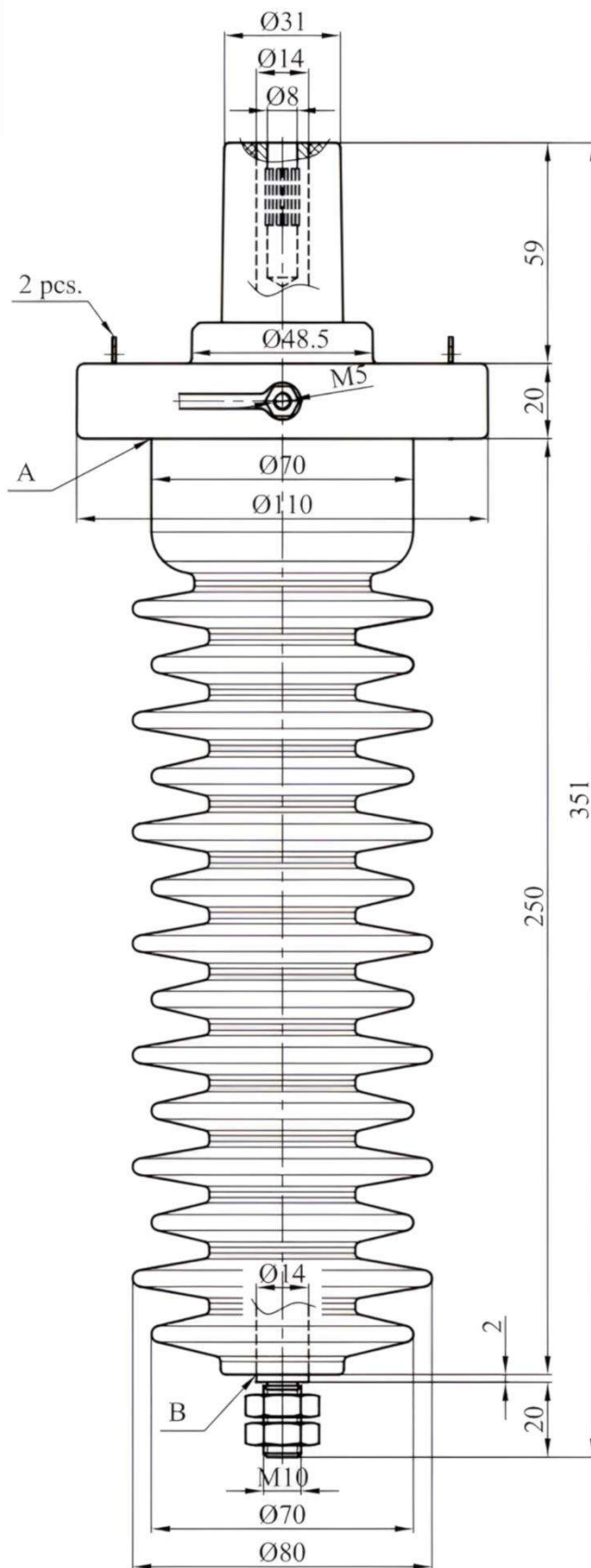
### ORDERING INSTRUCTION

To order the equipment bushing, please inform us for type of bushings. The bushings are supplied with an earth cable or an earth plate . This earth connection must be specified when ordering.

| Product Code | Voltage<br>$U_r$<br>(kV) | Current<br>$I_r$<br>(A) | D<br>(mm) | Contact<br>Type | Interface |
|--------------|--------------------------|-------------------------|-----------|-----------------|-----------|
| TK - A36 - 1 | 36                       | 250                     | 250       | Sliding         | B         |
| TK - A36 - 2 | 12 - 24 - 36             | 400                     | 400       | Sliding         | B         |
| TK - A36 - 3 | 12 - 24 - 36             | 630                     | 630       | Bolted          | C         |



**INTERFACE A1 ; UP TO 12 – 24 kV – 250 A**



**Línea de fuga (A-B) : 649 mm**



**BORNAS ENCHUFABLES Y PASABARRAS**  
*PLUG IN BUSHINGS AND MONOBLOCKS*



**electrotrans**  
TURNED PARTS & BUSHINGS

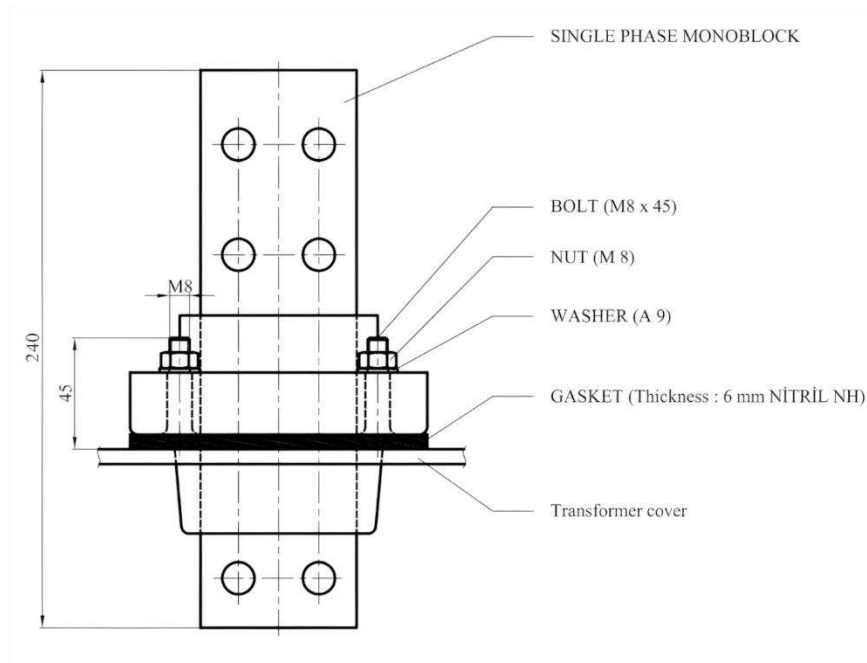
## **PASABARRAS UNIPOLARES DE RESINA FUNDIDA /**

*CAST RESIN SINGLE PHASE MONOBLOCK*





## TK – SM 1 kV / 1250 A

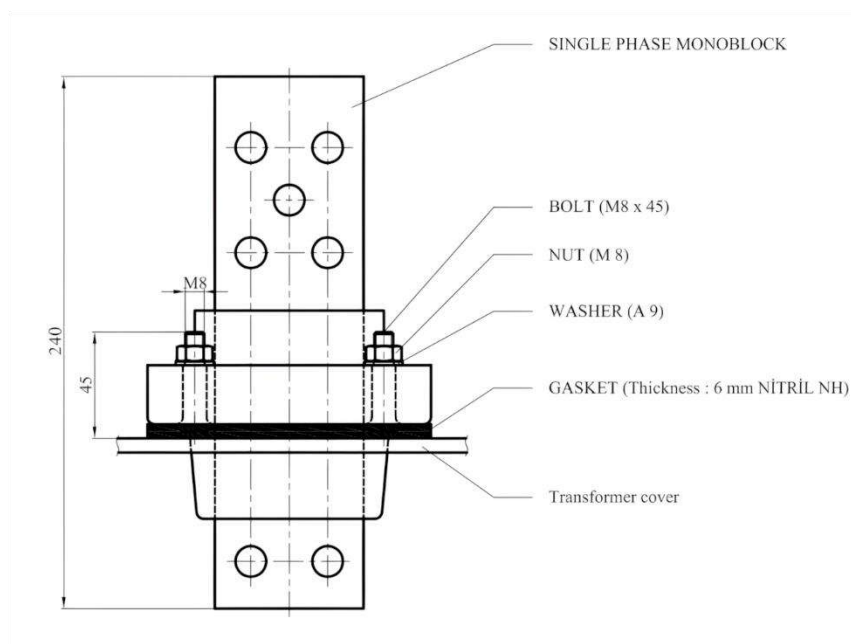


### TECHNICAL SPECIFICATIONS

#### TK-SM 1kV/1250A

Nominal Current: 1250A  
Nominal Voltage: 1 kV Dry Power  
Frequency: 10 kV Dry Lighting Impuls  
Withstand Voltage: 20kV Operating  
Temperature: -20°C÷100°C

## TK – SM 1 kV / 1600 A



### TECHNICAL SPECIFICATIONS

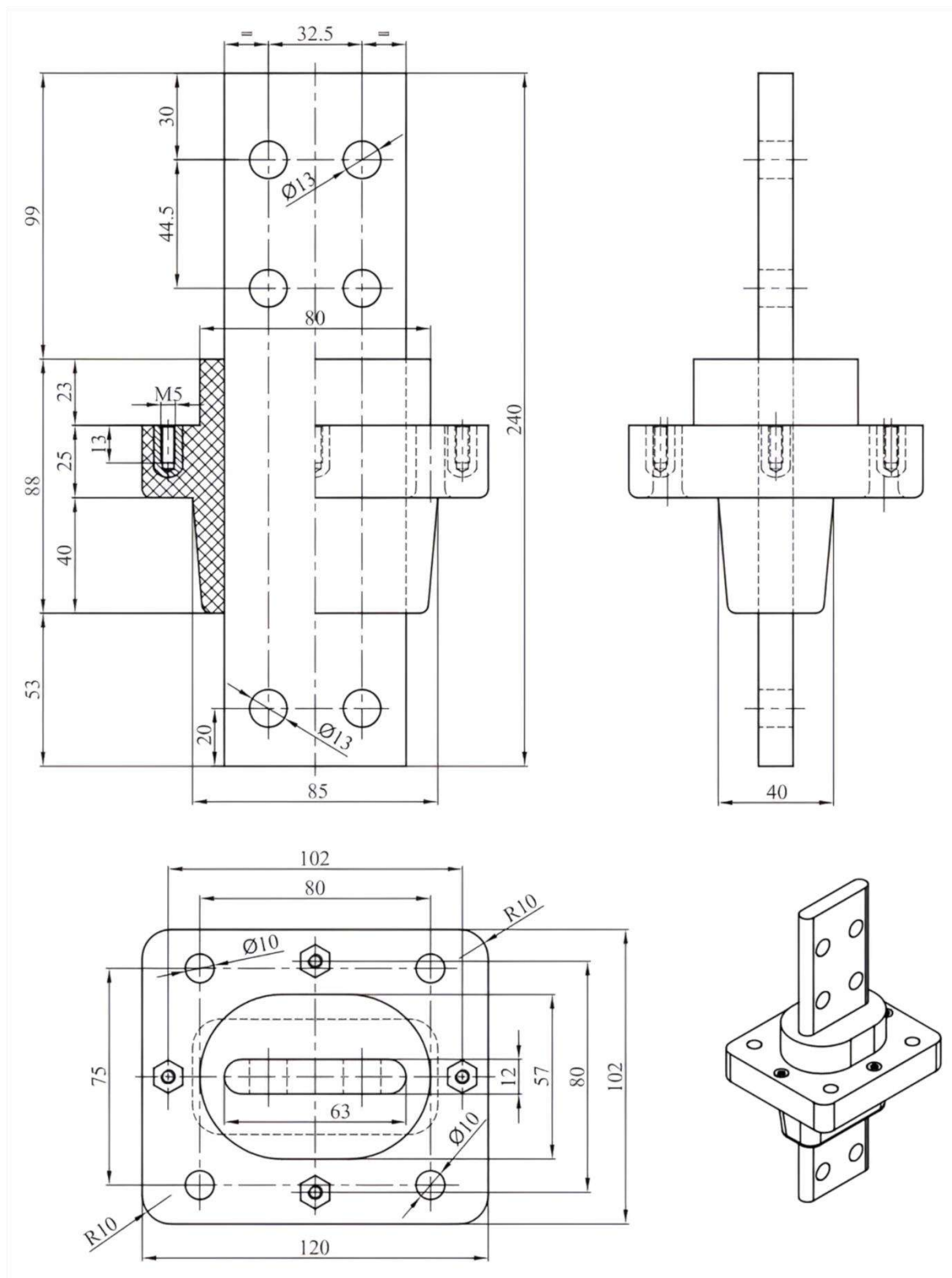
#### TK-SM 1kV/1600A

Nominal Current: 1600 A  
Nominal Voltage: 1 kV  
Dry Power Frequency: 10 kV  
Dry Lighting Impulse Withstand Voltage:  
20 kV Min Creepage  
Distance: 55 mm Max Operating Cantilever  
Load: 625 N  
Thermal Short Time Current Test: 16.5 kA  
Dynamic Short Circuit Current  
Withstand Test: 41 kA  
Operating temperature: -20°C÷100°C



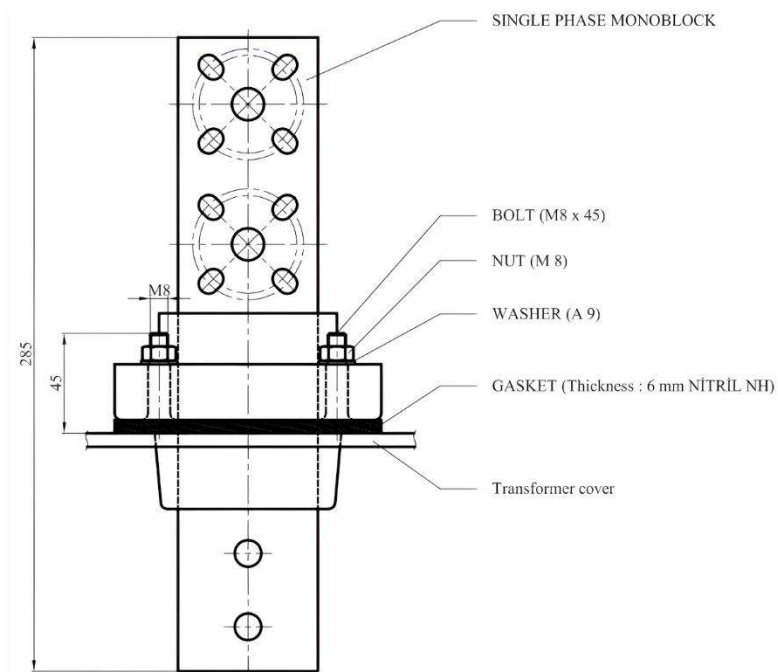


**SINGLE PHASE MONOBLOCK ( 1250 A )**





## TK – SM 1 kV / 2000 A

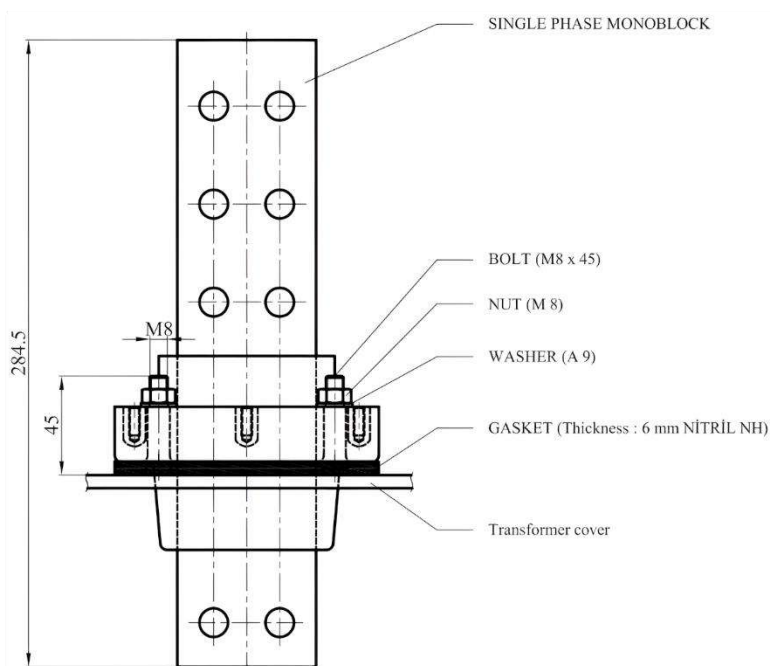


### TECHNICAL SPECIFICATIONS

#### TK-SM 1kV/2000A

Nominal current: 2000 A  
Nominal voltage: 1 kV  
Dry power frequency: 10 kV  
Dry lighting impulse withstand voltage: 20 kV  
Min creepage distance: 55 mm  
Max operating cantilever load: 1000 N  
Thermal short time current withstand test: 29 kA  
Dynamic short circuit current withstand test: 72.5 kA  
Operating temperature:  $-20^{\circ}\text{C} \div 100^{\circ}\text{C}$

## TK – SM 1 kV / 2500 A



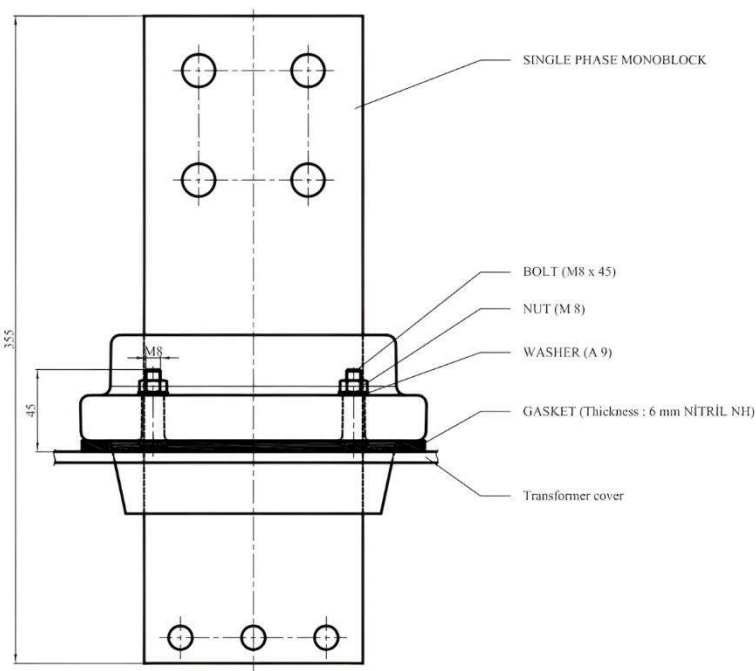
### TECHNICAL SPECIFICATIONS

#### TK-SM 1kV/2500A

Nominal current: 2500 A  
Nominal voltage: 1 kV  
Dry power frequency: 10 kV  
Dry lighting impulse withstand voltage: 20 kV  
Min creepage distance: 55 mm  
Max operating cantilever load: 1000 N  
Thermal short time current withstand test: 36 kA  
Dynamic short circuit current withstand test: 90 kA  
Operating temperature:  $-20^{\circ}\text{C} \div 100^{\circ}\text{C}$



## TK - SM 1 kV / 3150 A



### TECHNICAL SPECIFICATIONS

#### TK-SM 1kV/3150 A

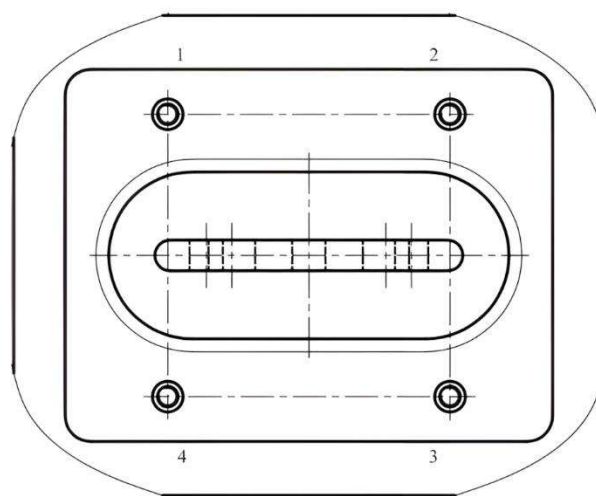
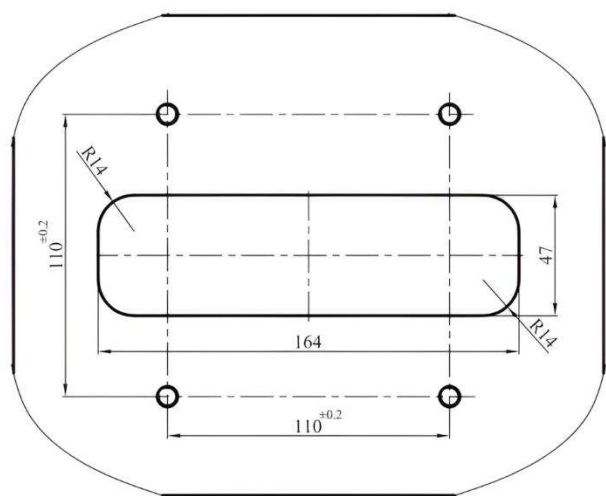
Nominal current: 3150 A  
Nominal voltage: 1 kV  
Dry power frequency: 10 kV  
Dry lighting impulse withstand voltage: 20 kV  
Operating temperature: -20°C÷100°C

## INSTRUCCIONES DE MONTAJE /

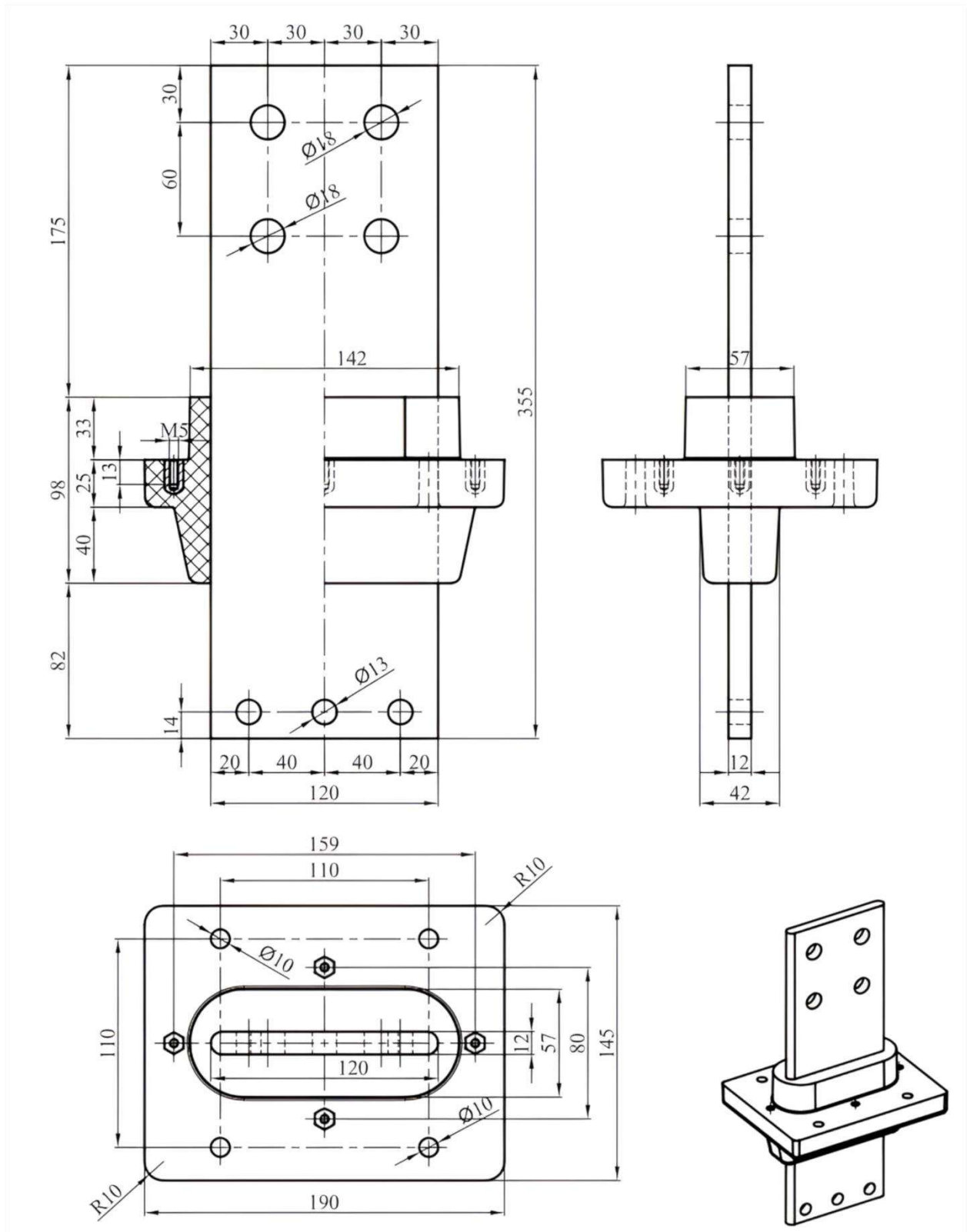
## ASSEMBLING INSTRUCTIONS



Assembling instructions:  
Screw the 4xM8 nuts according to a cross  
sequence 1-3-4-2  
1st step: 2 Nm  
2nd step: 5 Nm  
3rd step: 12 Nm (max)



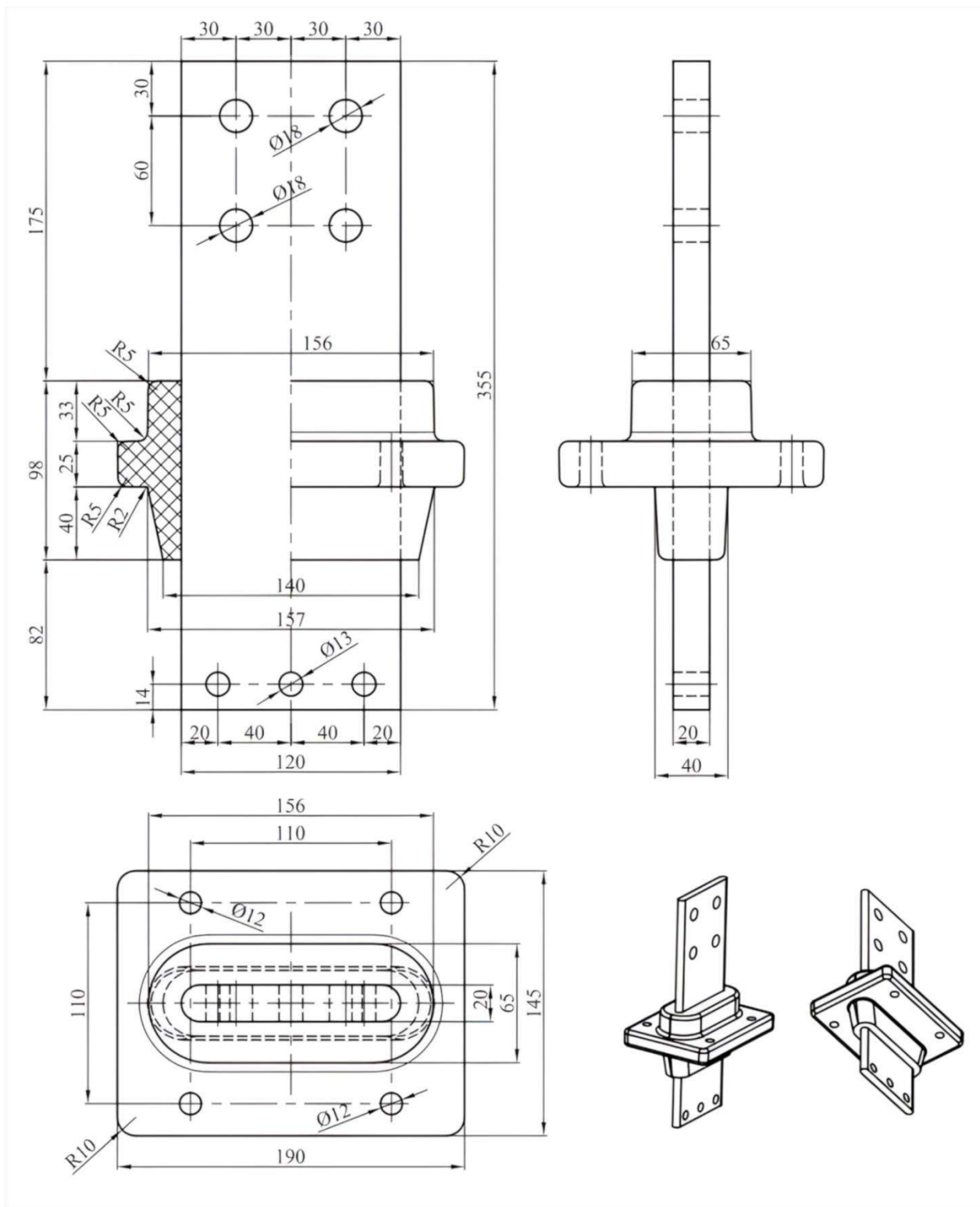
## SINGLE PHASE MONOBLOCK ( 1 kV / 3150 A )







## SINGLE PHASE MONOBLOCK ( 1 kV / 5000 A )





**PASABARRAS DE RESINA EPOXY MULTIPOLAR/**

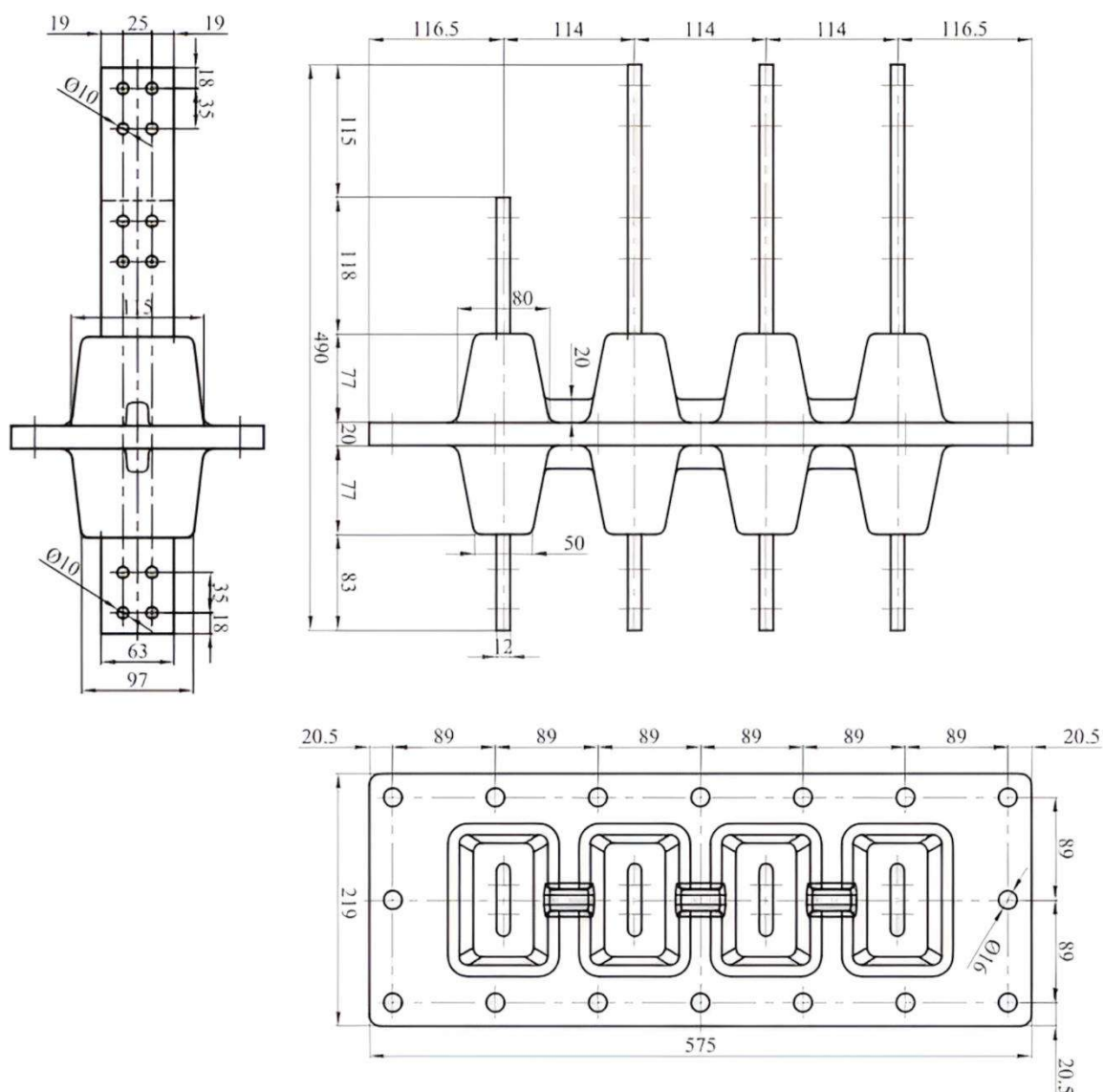
*EPOXY RESIN MONOBLOCK*







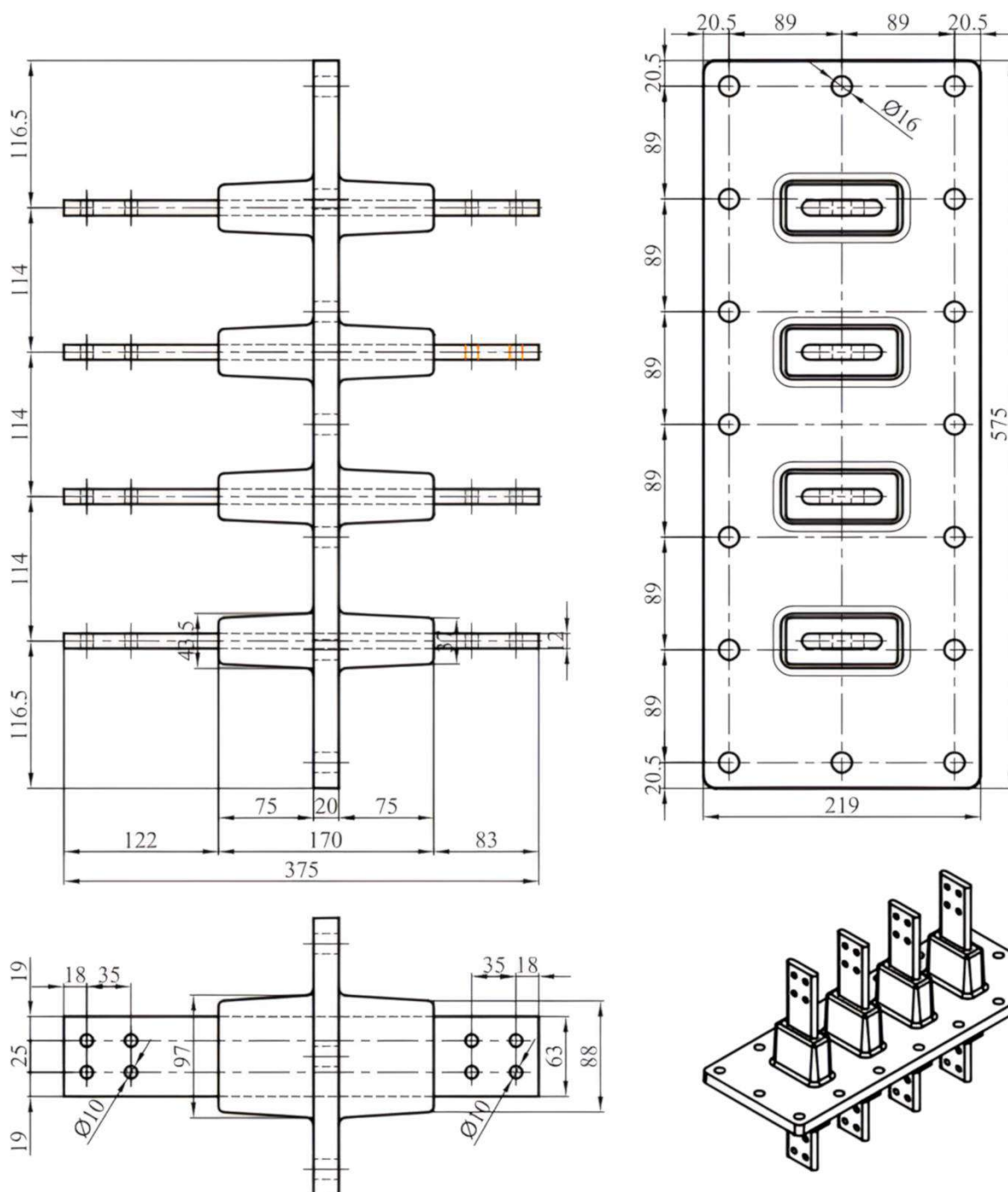
**MN 1400 A**







## CAST RESIN MONOBLOCK ( 1400-1700 A )



AIR LEAKAGE TEST %100 Test Pressure : 1.5 bar Test time: 15 m

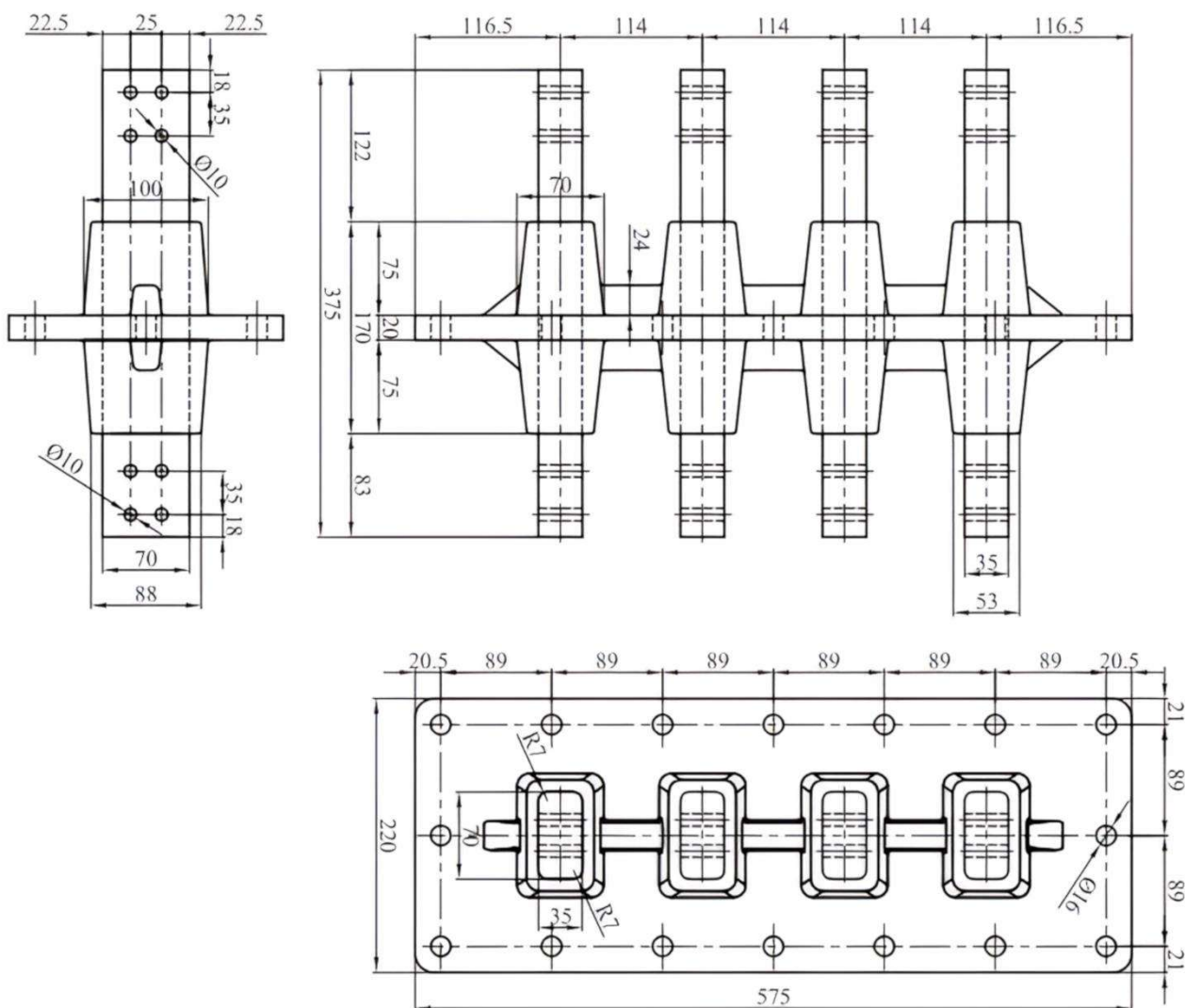
STANDARTS : BS 2562 / EN 50387

Conductor Material : El. Cu. (TIN Plated)

EPOXY : HUNTSMAN CY 5997 / HY918

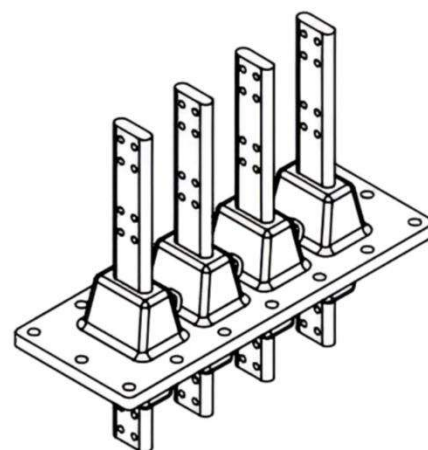
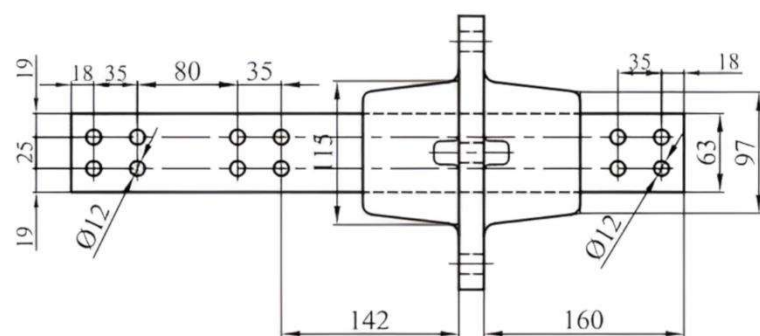
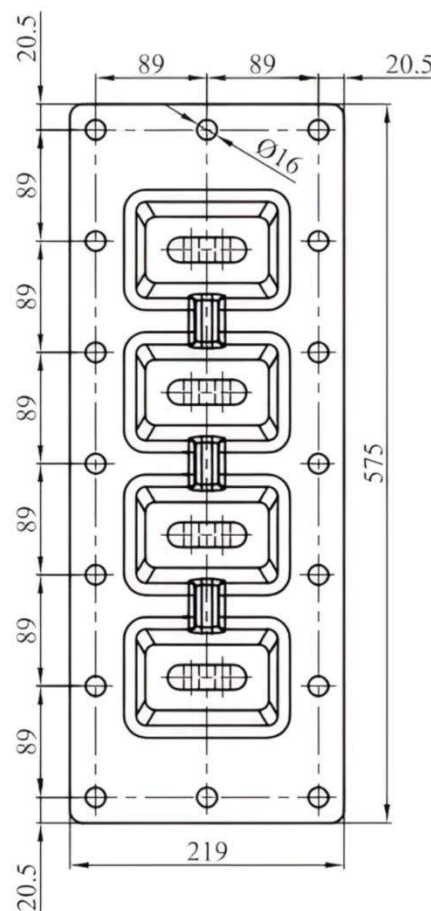
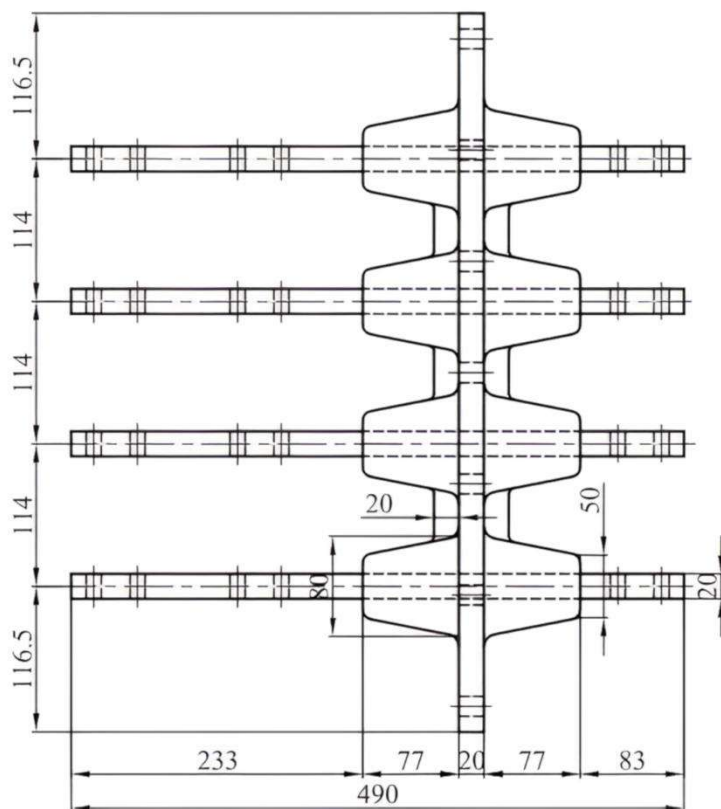


**MN 4000 A**





## CAST RESIN MONOBLOCK ( 1.1 kV / 2500 A )



AIR LEAKAGE TEST %100 Test Pressure : 1.5 bar Test Time : 15m

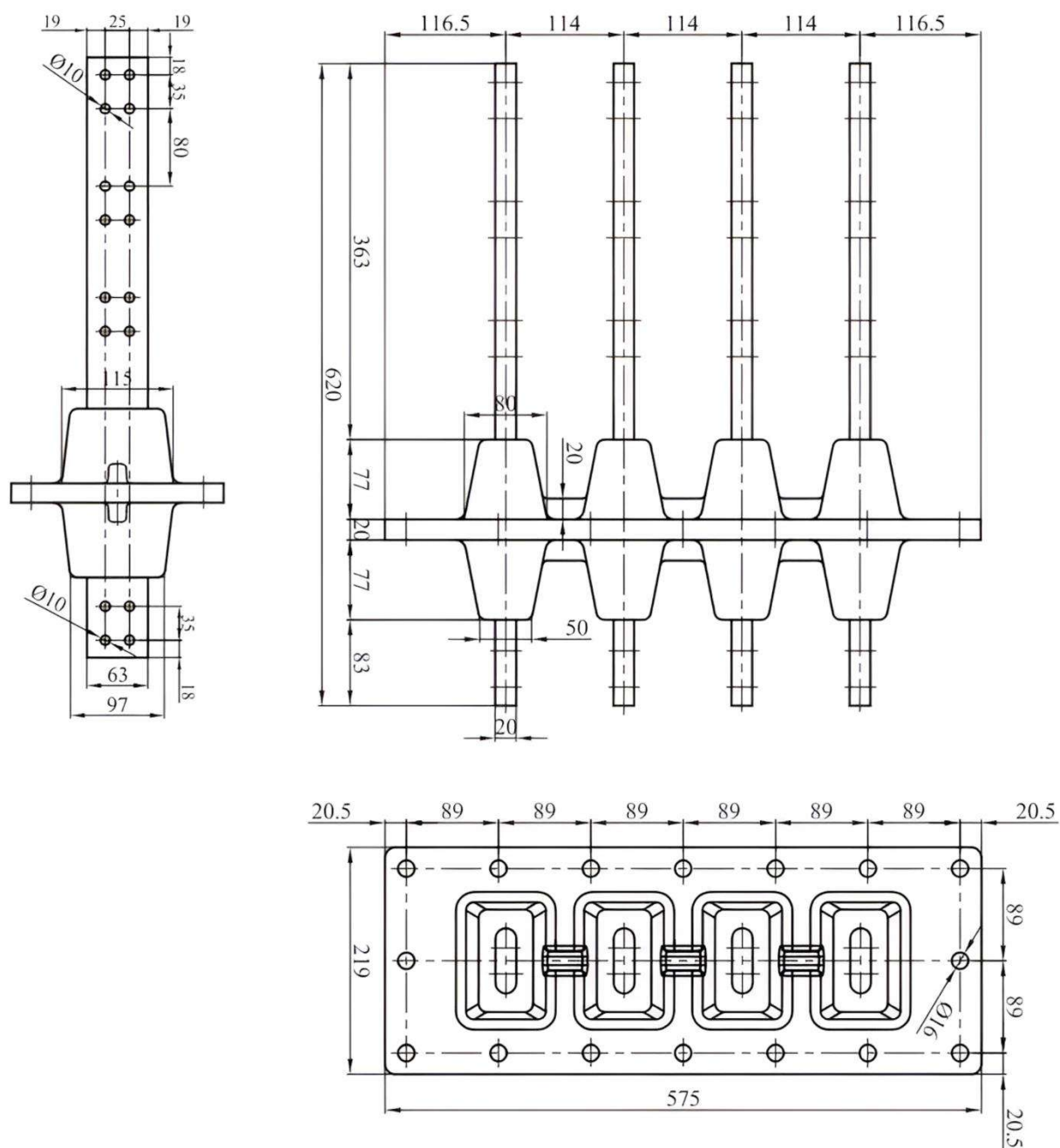
STANDARTS : BS 2562 / EN 50387

Conductor Material : El .Cu. (TIN Plated)

EPOXY : HUNTSMAN CY 5997/HY918



**TK-MN 2500 A**

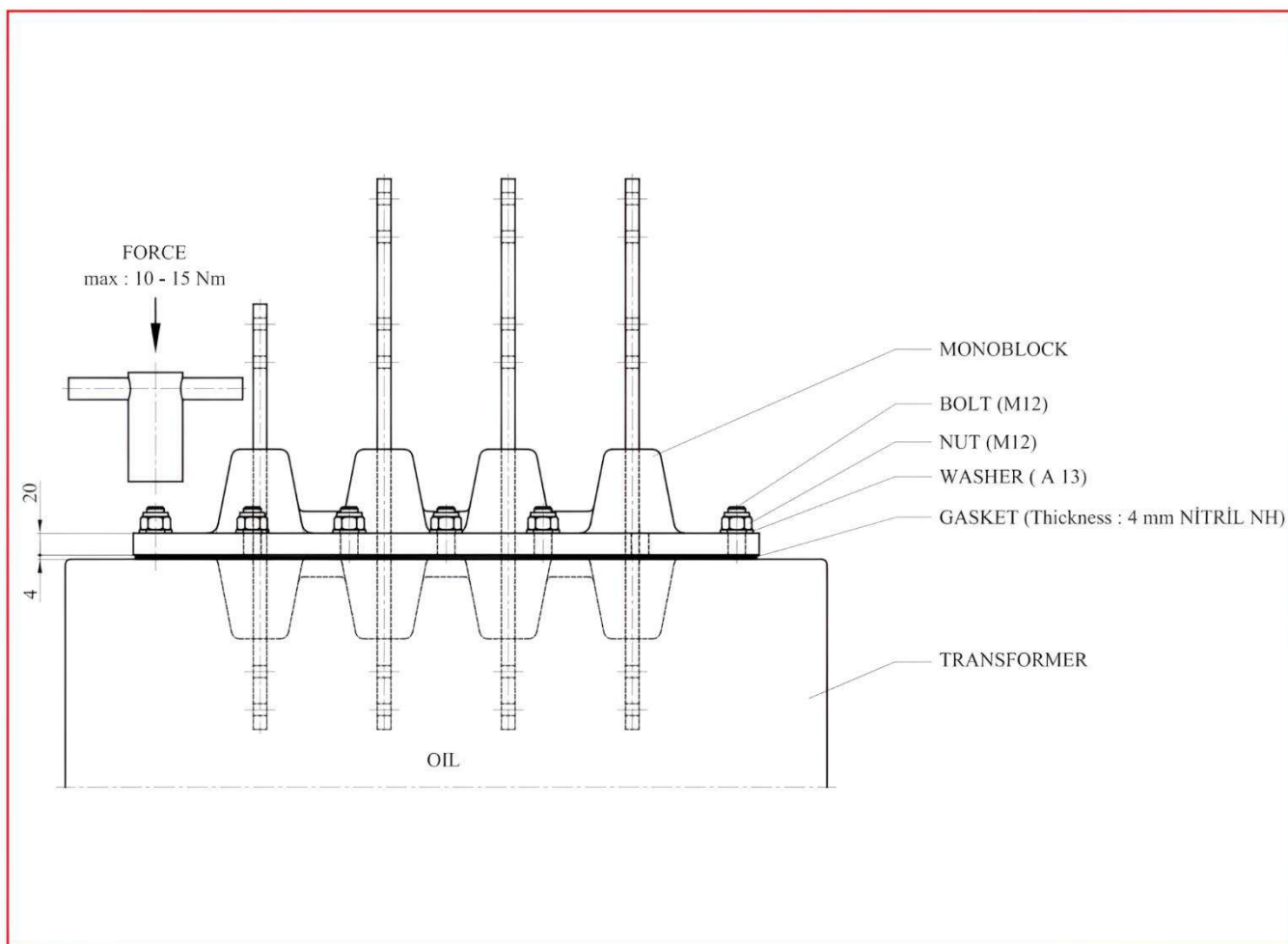






## INSTRUCCIONES GENERALES DE MONTAJE DEL PASABARRAS /

### GENERAL MONOBLOCK ASSEMBLING INSTRUCTIONS





## TERMINAL CT DE 4 VÍAS TK CT-4 /

4 WAY CT TERMINAL TK CT-4

## TERMINAL CT DE 6 VÍAS TK CT-6 /

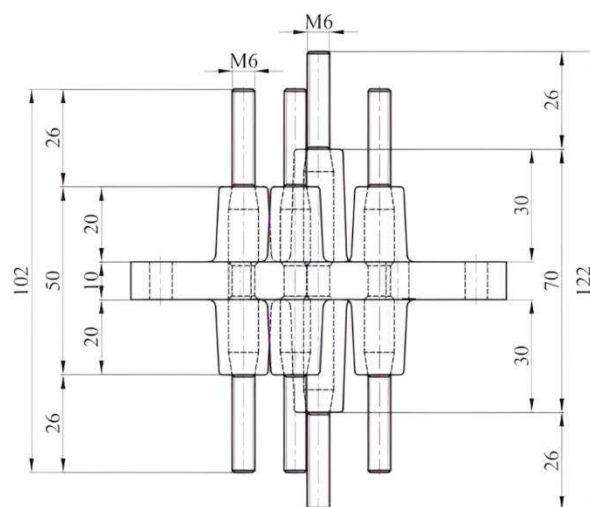
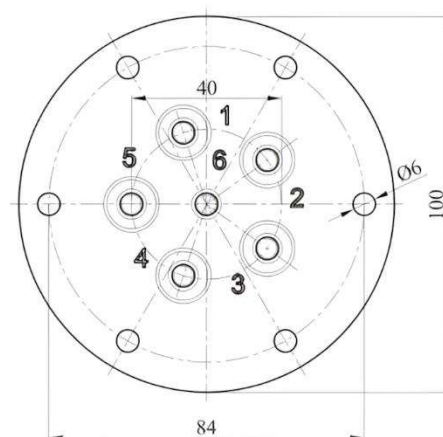
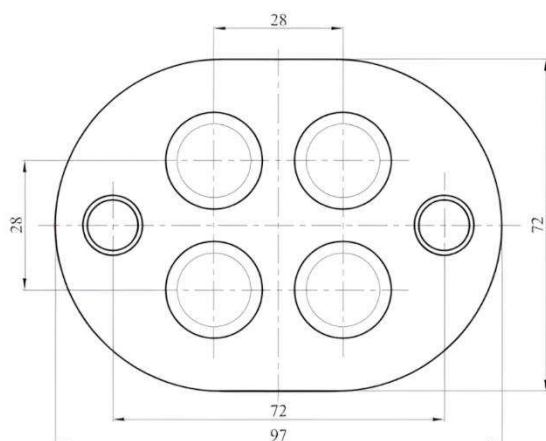
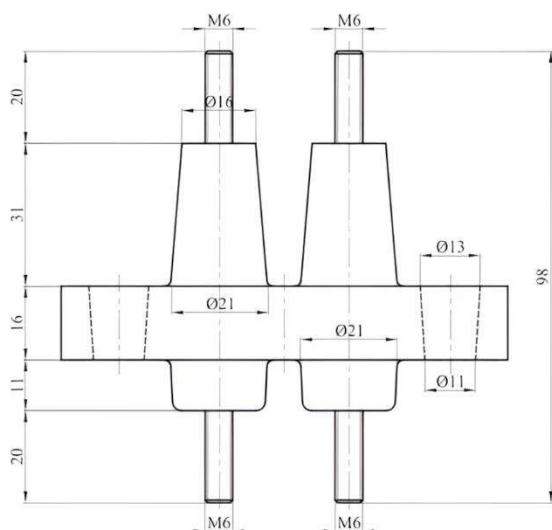
6 WAY CT TERMINAL TK CT-6

### PRODUCTION

All the insert and conductive parts of the CT Terminals are manufactured with best quality material experienced in Turkey by TAKFAN.

### TESTING

The terminal block shall be air pressure leak tested at 1 bar for 15 minutes, where there should be no signs of air leakage.



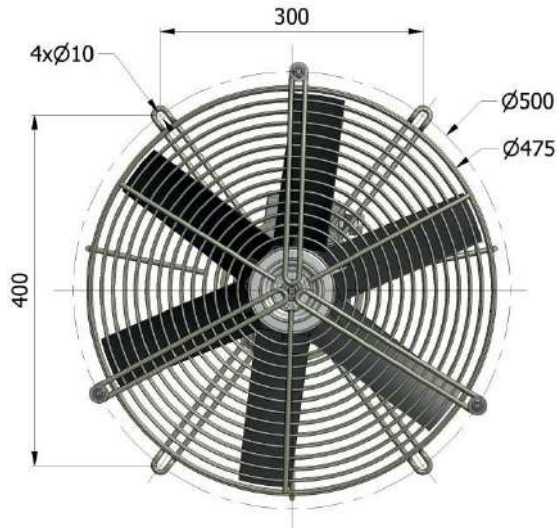
**VENTILADORES**

*FANS*





## A450G-B Balanced Performance Axial



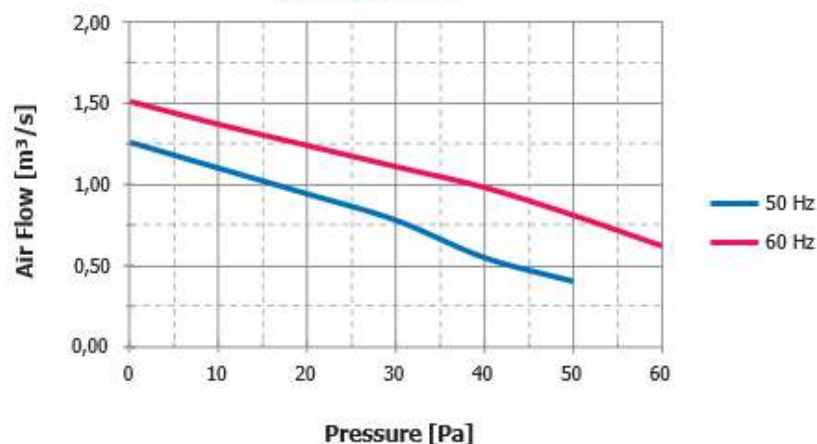
|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 6                      |                        |
| <b>Type</b>                                       | A450G-B                |                        |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 1,2 A / 0,7 A          | 1,4 A / 0,8 A          |
| <b>Input Power</b>                                | 230 W                  | 320 W                  |
| <b>Speed</b>                                      | 960 rpm                | 1152 rpm               |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 58 dB(A) / 53 dB(A)    | 62 dB(A) / 57 dB(A)    |
| <b>Air Flow</b>                                   | 1,10 m <sup>3</sup> /s | 1,35 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 11 kg                  |                        |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.  
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

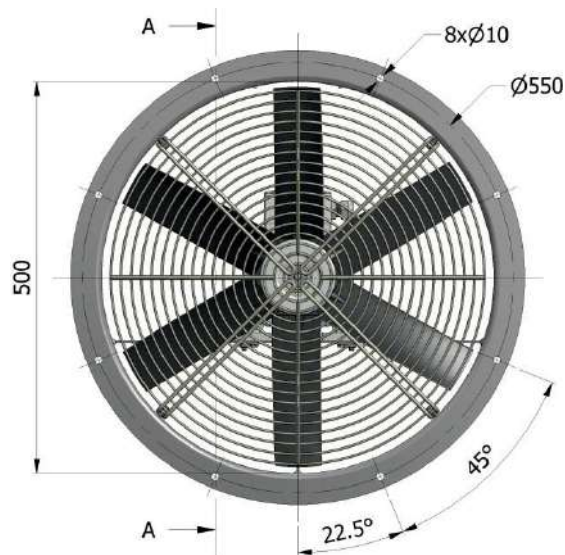
|                                                          |                                        |                                  |                                    |                                  |
|----------------------------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                            | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                             | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>                                  | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color (housing,motor,grids)</b>                       | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}\text{C}</math>)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                                   | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>                                | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

### Performance





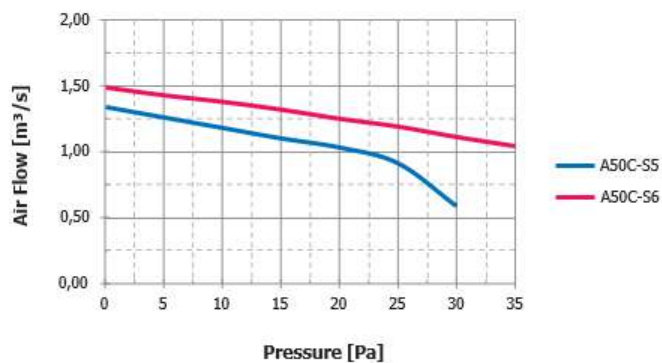
**A500C-S Low Noise Axial Fan**

|                                         |                        |                        |
|-----------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                  | 8                      |                        |
| <b>Type</b>                             | A500C-S5               | A500C-S6               |
| <b>Frequency</b> ( $\pm 2\%$ )          | 50 Hz                  | 60 Hz                  |
| <b>Voltage</b> (3ph. $\pm 5\%$ )        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                | 1,4 A / 0,8 A          | 1,4 A / 0,8 A          |
| <b>Input Power</b>                      | 220 W                  | 230 W                  |
| <b>Speed</b>                            | 720 rpm                | 864 rpm                |
| <b>Sound Pressure</b> ( $L_{PA}$ 1m/2m) | 59 dB(A) / 54 dB(A)    | 61 dB(A) / 56 dB(A)    |
| <b>Air Flow</b>                         | 1,21 m <sup>3</sup> /s | 1,39 m <sup>3</sup> /s |
| <b>Weight</b> (varies by options)       | 21 kg                  |                        |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

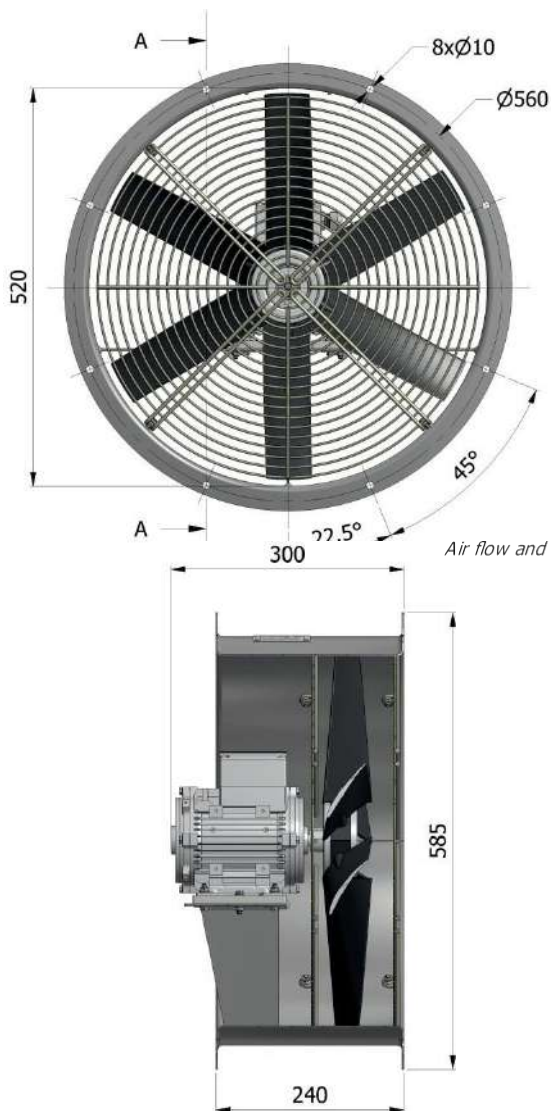
|                                      |                                        |                                    |                                  |                                  |
|--------------------------------------|----------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>        | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                         | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                  |                                  |
| <b>Protection Grids</b>              | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                  |                                  |
| <b>Color</b> (housing, motor, grids) | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient</b> (°C)        | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70   | <input type="checkbox"/> -40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>               | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>            | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                  |                                  |

**Performance**

Thermal protection requires an external control unit or relay to operate.



## A520C-B Balanced Performance Axial Fan



|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 6                      |                        |
| <b>Type</b>                                       | A520C-B5               | A520C-B6               |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 1,2 A / 0,7 A          | 1,2 A / 0,7 A          |
| <b>Input Power</b>                                | 250 W                  | 300 W                  |
| <b>Speed</b>                                      | 960 rpm                | 1152 rpm               |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 66 dB(A) / 61 dB(A)    | 69 dB(A) / 64 dB(A)    |
| <b>Air Flow</b>                                   | 1,71 m <sup>3</sup> /s | 1,80 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 22 kg                  |                        |

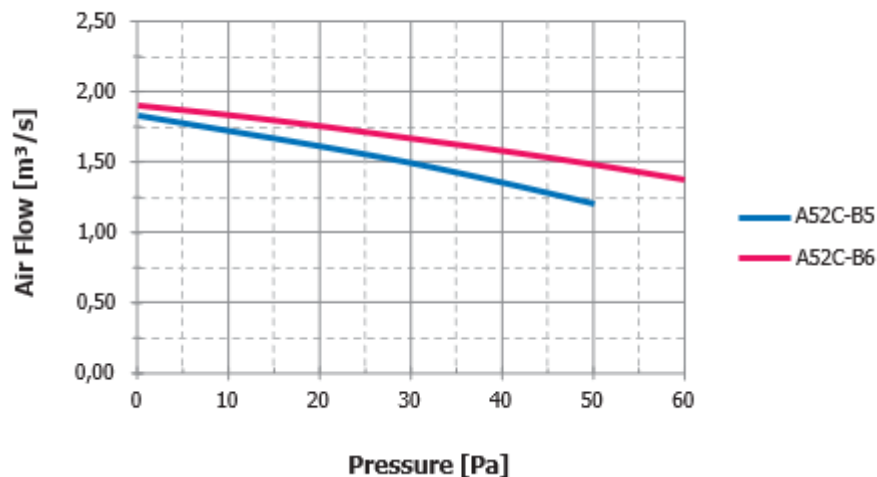
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

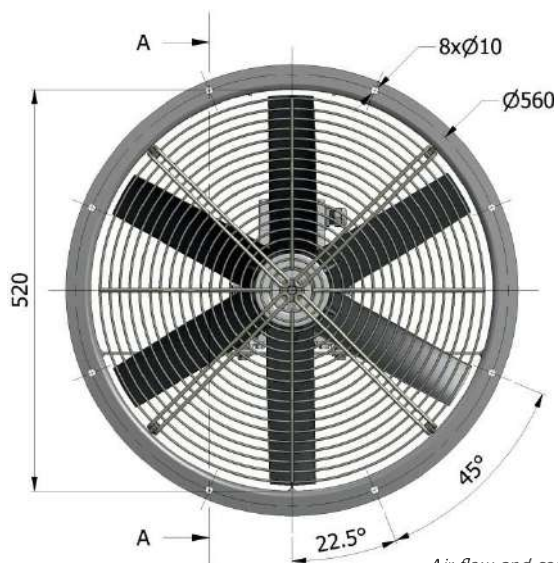
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

|                                                   |                                        |                                  |                                    |                                  |
|---------------------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                     | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                      | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>                           | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color (housing,motor,grids)</b>                | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}</math>C)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                            | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>                         | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

### Performance



**A520C-F Flow Optimized Axial Fan**

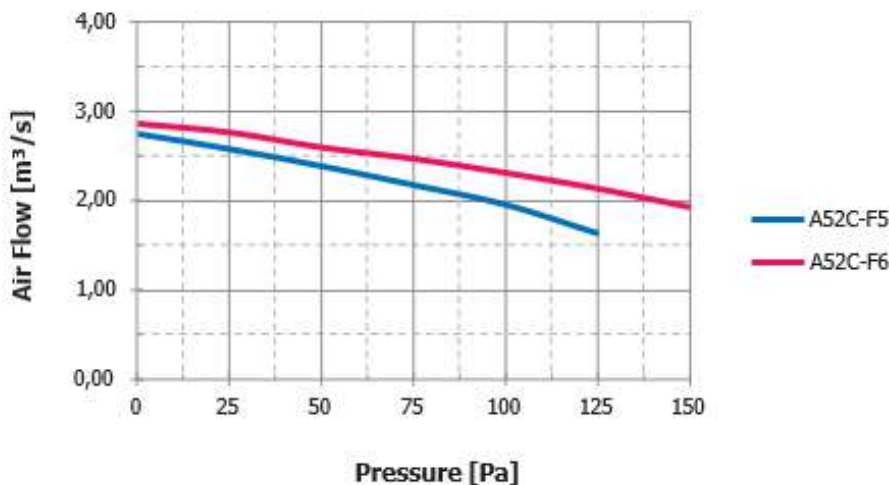
| Number of Poles                  | 4                         |                           |
|----------------------------------|---------------------------|---------------------------|
| Type                             | A520C-F5                  | A520C-F6                  |
| Frequency ( $\pm 2\%$ )          | 50 Hz                     | 60 Hz                     |
| Voltage (3ph. $\pm 5\%$ )        | 230V $\Delta$ / 400V<br>Y | 278V $\Delta$ / 480V<br>Y |
| Full Load Current                | 2,8 A / 1,6 A             | 2,8 A / 1,6 A             |
| Input Power                      | 680 W                     | 790 W                     |
| Speed                            | 1440 rpm                  | 1728 rpm                  |
| Sound Pressure ( $L_{PA}$ 1m/2m) | 77 dB(A) / 72<br>dB(A)    | 81 dB(A) / 76<br>dB(A)    |
| Air Flow                         | 2,63 m <sup>3</sup> /s    | 2,74 m <sup>3</sup> /s    |
| Weight (varies by options)       | 24 kg                     |                           |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

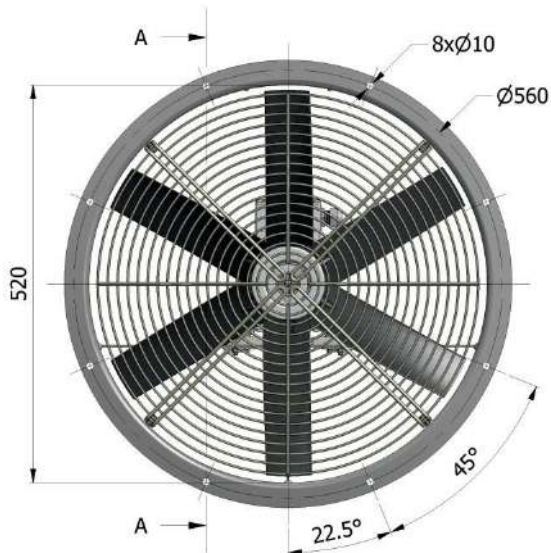
| Motor Protection Class      | <input type="checkbox"/> IP55<br>IP56  | <input type="checkbox"/>          | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
|-----------------------------|----------------------------------------|-----------------------------------|------------------------------------|----------------------------------|
| Wings                       | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/>          | <input type="checkbox"/> Aluminium |                                  |
| Protection Grids            | <input type="checkbox"/> Rear          | <input type="checkbox"/>          | <input type="checkbox"/> Front     |                                  |
| Color (housing,motor,grids) | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032  | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| Operation Ambient (°C)      | <input type="checkbox"/> - 25~+60      | <input type="checkbox"/> - 25~+70 | <input type="checkbox"/> - 40~+60  | <input type="checkbox"/> -40~+70 |
| Corrosion Class             | <input type="checkbox"/> C3            | <input type="checkbox"/> C4       | <input type="checkbox"/> C5        | Medium/High                      |
| Thermal Protection          | <input type="checkbox"/> No            | <input type="checkbox"/>          | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

**Performance**



## A520C-S Low Noise Axial Fan C-F



|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 8                      |                        |
| <b>Type</b>                                       | A520C-S5               | A520C-S6               |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 1,4 A / 0,8 A          | 1,4 A / 0,8 A          |
| <b>Input Power</b>                                | 230 W                  | 250 W                  |
| <b>Speed</b>                                      | 720 rpm                | 864 rpm                |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 60 dB(A) / 55 dB(A)    | 63 dB(A) / 58 dB(A)    |
| <b>Air Flow</b>                                   | 1,35 m <sup>3</sup> /s | 1,53 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 22 kg                  |                        |

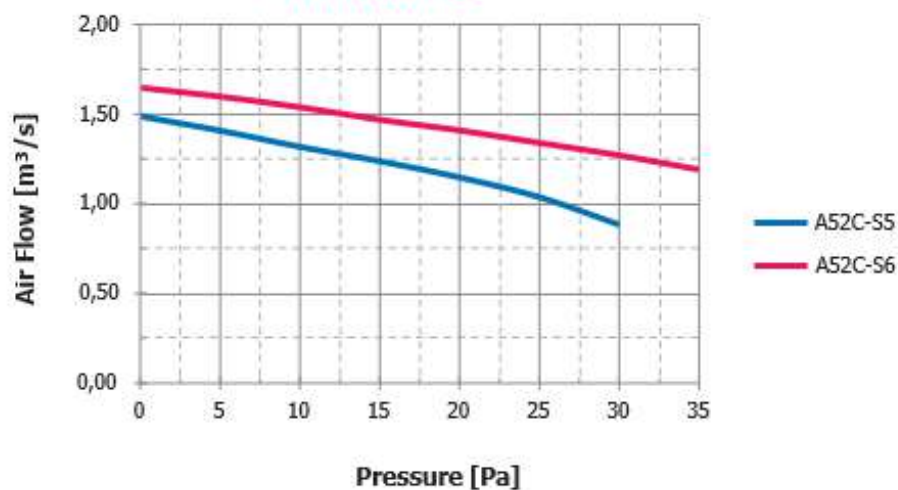
*Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.*

*SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.*

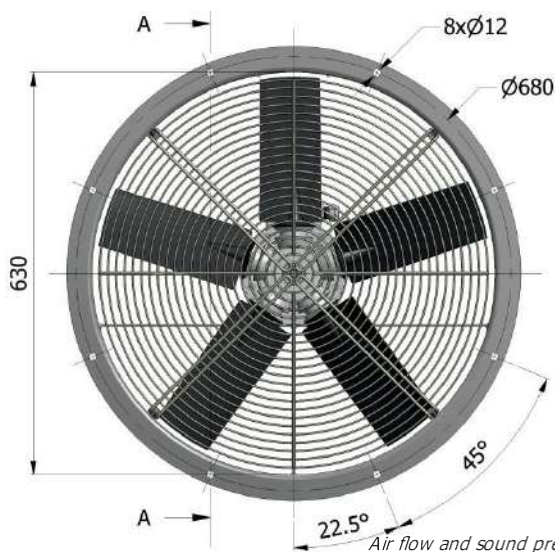
|                                                          |                                        |                                  |                                    |                                  |
|----------------------------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                            | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                             | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>                                  | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color (housing, motor, grids)</b>                     | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}\text{C}</math>)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                                   | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>                                | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

### Performance





**A630C-B Balanced Performance Axial Fan**

|                                              |                        |                        |
|----------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                       | 6                      |                        |
| <b>Type</b>                                  | A630C-B5               | A630C-B6               |
| <b>Frequency (<math>\pm 2\%</math>)</b>      | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>   | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                     | 1,9 A / 1,1 A          | 1,9 A / 1,1 A          |
| <b>Input Power</b>                           | 450 W                  | 480 W                  |
| <b>Speed</b>                                 | 960 rpm                | 1152 rpm               |
| <b>Sound Pressure (L<sub>PA</sub> 1m/2m)</b> | 67 dB(A) / 62 dB(A)    | 72 dB(A) / 67 dB(A)    |
| <b>Air Flow</b>                              | 2,81 m <sup>3</sup> /s | 2,90 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>            | 29 kg                  |                        |

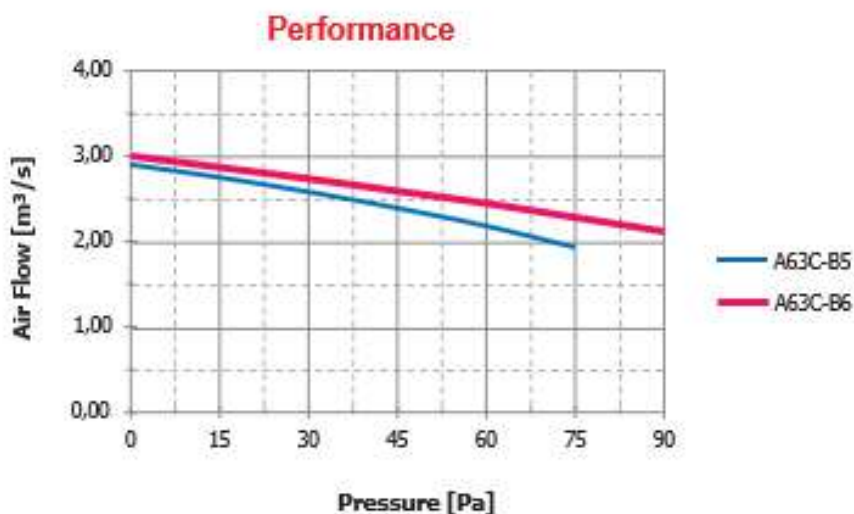
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.



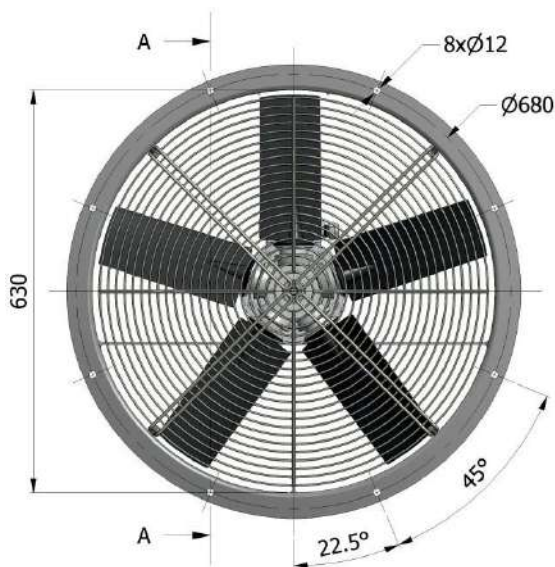
|                                      |                                        |                                    |                                  |                                  |
|--------------------------------------|----------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>        | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                         | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                  |                                  |
| <b>Protection Grids</b>              | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                  |                                  |
| <b>Color (housing, motor, grids)</b> | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient (°C)</b>        | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70   | <input type="checkbox"/> -40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>               | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>            | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                  |                                  |

Thermal protection requires an external control unit or relay to operate.





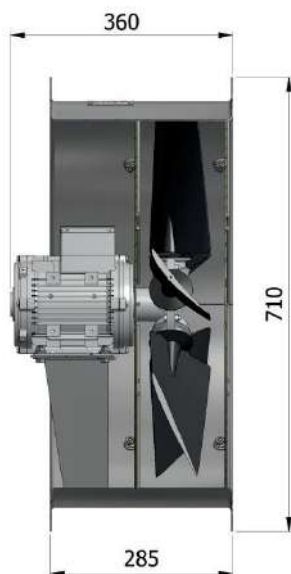
## A630C-F Flow Optimized Axial Fan



|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 4                      |                        |
| <b>Type</b>                                       | A630C-F5               | A630C-F6               |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 3,3 A / 1,9 A          | 3,3 A / 1,9 A          |
| <b>Input Power</b>                                | 830 W                  | 900 W                  |
| <b>Speed</b>                                      | 1440 rpm               | 1728 rpm               |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 78 dB(A) / 73 dB(A)    | 83 dB(A) / 78 dB(A)    |
| <b>Air Flow</b>                                   | 3,65 m <sup>3</sup> /s | 3,61 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 31 kg                  |                        |

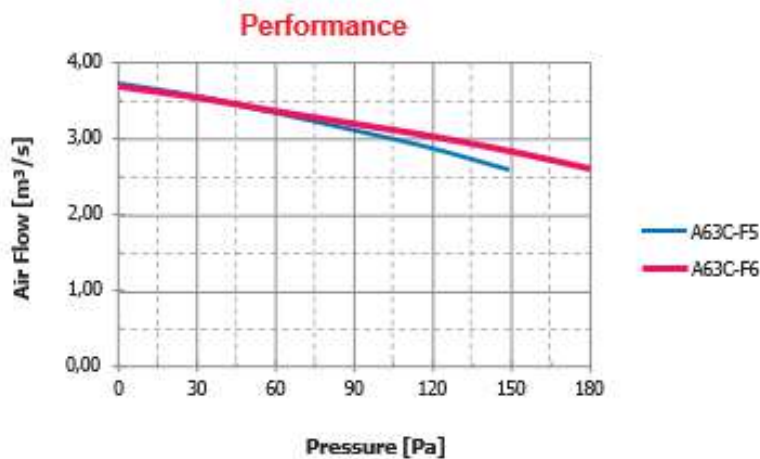
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

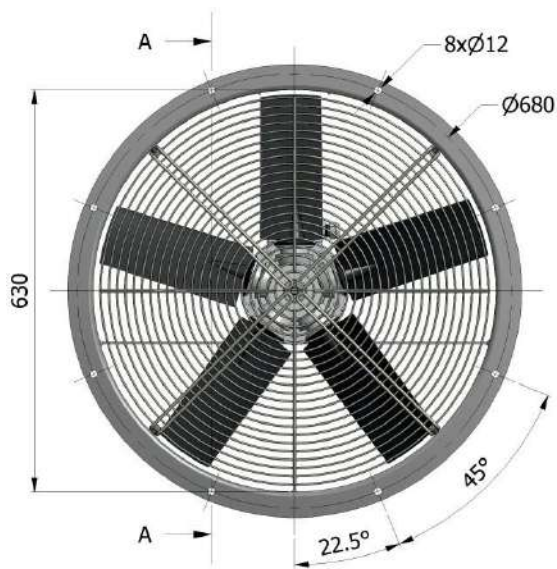
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.



|                                                          |                                        |                                    |                                  |                                  |
|----------------------------------------------------------|----------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                            | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                             | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                  |                                  |
| <b>Protection Grids</b>                                  | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                  |                                  |
| <b>Color (housing,motor,grids)</b>                       | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}\text{C}</math>)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70   | <input type="checkbox"/> -40~+70 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                                   | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>                                | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                  |                                  |

Thermal protection requires an external control unit or relay to operate.



**A630C-S Low Noise Axial Fan**

|                                         |                        |                        |
|-----------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                  | 8                      |                        |
| <b>Type</b>                             | A630C-S5               | A630C-S6               |
| <b>Frequency</b> ( $\pm 2\%$ )          | 50 Hz                  | 60 Hz                  |
| <b>Voltage</b> (3ph. $\pm 5\%$ )        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                | 1,7 A / 1,0 A          | 1,7 A / 1,0 A          |
| <b>Input Power</b>                      | 280 W                  | 370 W                  |
| <b>Speed</b>                            | 720 rpm                | 864 rpm                |
| <b>Sound Pressure</b> ( $L_{PA}$ 1m/2m) | 61 dB(A) / 56 dB(A)    | 65 dB(A) / 60 dB(A)    |
| <b>Air Flow</b>                         | 2,35 m <sup>3</sup> /s | 2,52 m <sup>3</sup> /s |
| <b>Weight</b> (varies by options)       | 30 kg                  |                        |

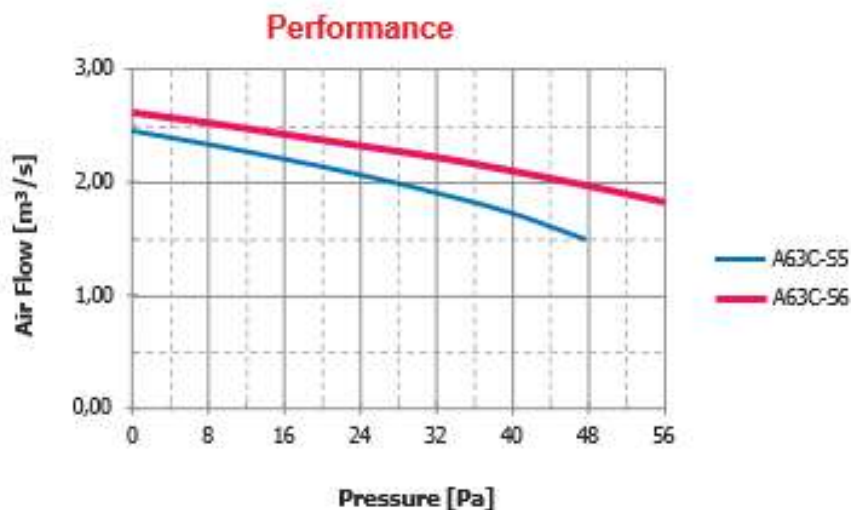
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.



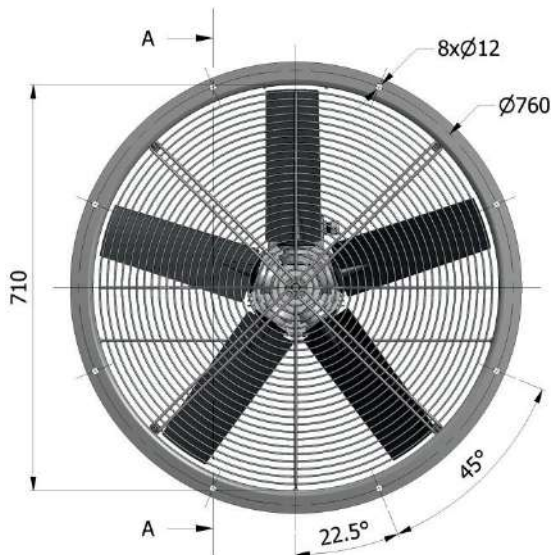
|                                    |                                        |                                    |                                  |                                  |
|------------------------------------|----------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>      | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                       | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                  |                                  |
| <b>Protection Grids</b>            | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                  |                                  |
| <b>Color</b> (housing,motor,grids) | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient</b> (°C)      | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70   | <input type="checkbox"/> -40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>             | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>          | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                  |                                  |

Thermal protection requires an external control unit or relay to operate.





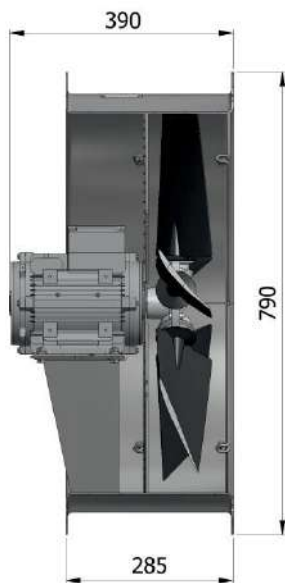
## A710C-B Balance Performance Axial



|                                         |                        |                        |
|-----------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                  | 6                      |                        |
| <b>Type</b>                             | A710C-B5               | A710C-B6               |
| <b>Frequency</b> ( $\pm 2\%$ )          | 50 Hz                  | 60 Hz                  |
| <b>Voltage</b> (3ph. $\pm 5\%$ )        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                | 3,7 A / 2,1 A          | 3,7 A / 2,1 A          |
| <b>Input Power</b>                      | 830 W                  | 880 W                  |
| <b>Speed</b>                            | 960 rpm                | 1152 rpm               |
| <b>Sound Pressure</b> ( $L_{PA}$ 1m/2m) | 75 dB(A) / 70 dB(A)    | 78 dB(A) / 73 dB(A)    |
| <b>Air Flow</b>                         | 4,48 m <sup>3</sup> /s | 4,37 m <sup>3</sup> /s |
| <b>Weight</b> (varies by options)       | 41 kg                  |                        |

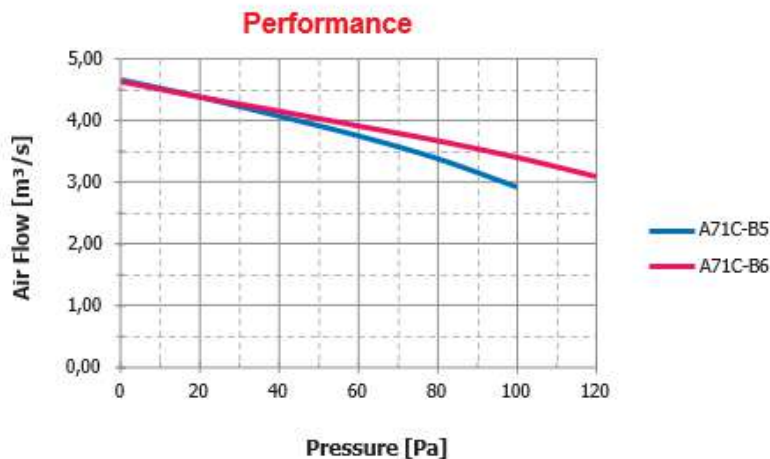
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

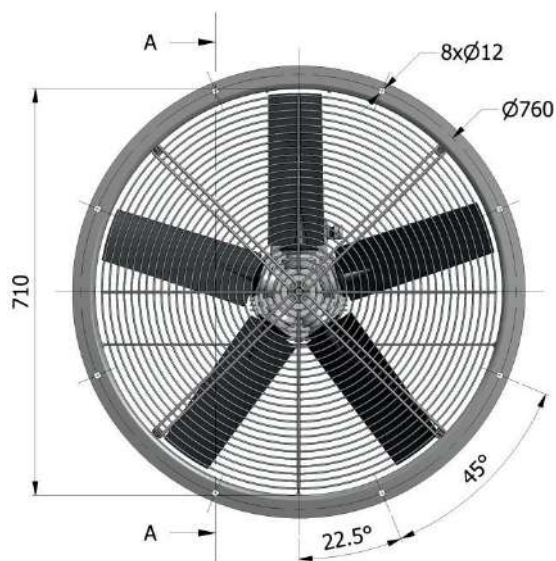


|                                      |                                                                           |                                  |                                  |                                  |
|--------------------------------------|---------------------------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>        | <input type="checkbox"/> IP55                                             | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                         | <input type="checkbox"/> GFR Polyamide <input type="checkbox"/> Aluminium |                                  |                                  |                                  |
| <b>Protection Grids</b>              | <input type="checkbox"/> Rear <input type="checkbox"/> Front              |                                  |                                  |                                  |
| <b>Color</b> (housing, motor, grids) | <input type="checkbox"/> RAL7031                                          | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient</b> (°C)        | <input type="checkbox"/> -25~+60                                          | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>               | <input type="checkbox"/> C3                                               | <input type="checkbox"/> C4      | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>            | <input type="checkbox"/> No <input type="checkbox"/> Yes                  |                                  |                                  |                                  |

Thermal protection requires an external control unit or relay to operate.



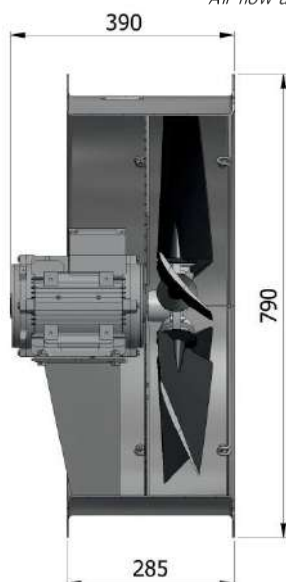


**A710C-S Low Noise Axial Fan**

|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 8                      |                        |
| <b>Type</b>                                       | A710C-S5               | A710C-S6               |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 2,1 A / 1,2 A          | 2,3 A / 1,3 A          |
| <b>Input Power</b>                                | 460 W                  | 560 W                  |
| <b>Speed</b>                                      | 720 rpm                | 864 rpm                |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 67 dB(A) / 62 dB(A)    | 71 dB(A) / 66 dB(A)    |
| <b>Air Flow</b>                                   | 3,28 m <sup>3</sup> /s | 3,51 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 41 kg                  |                        |

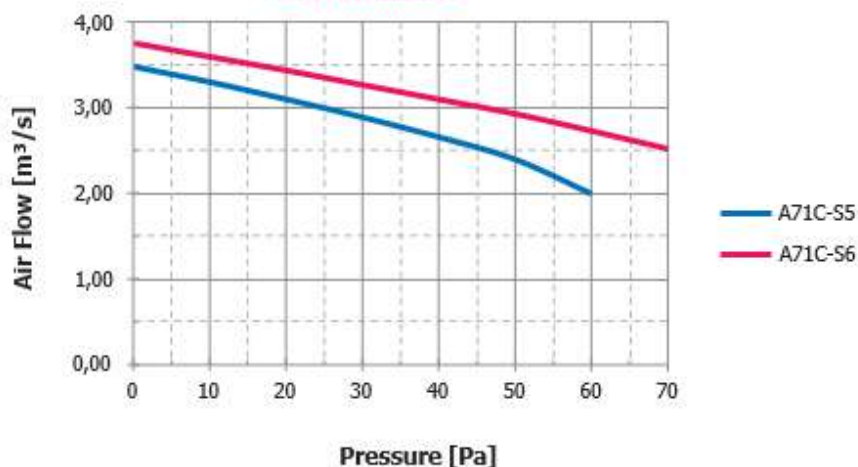
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.



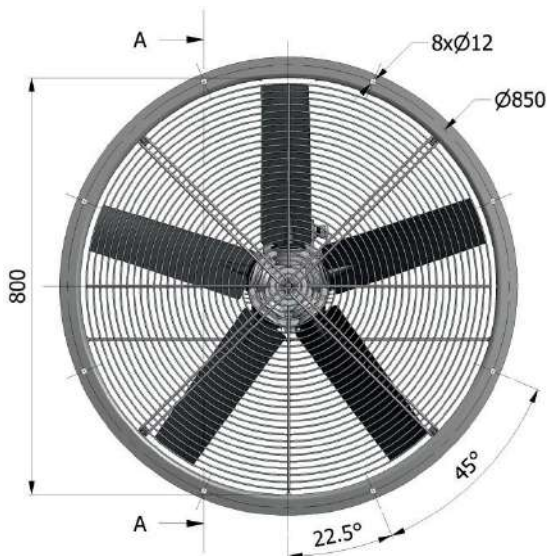
|                                                   |                                        |                                    |                                   |                                  |
|---------------------------------------------------|----------------------------------------|------------------------------------|-----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                     | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65     | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                      | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                   |                                  |
| <b>Protection Grids</b>                           | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                   |                                  |
| <b>Color (housing,motor,grids)</b>                | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033  | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}</math>C)</b> | <input type="checkbox"/> - 25~+60      | <input type="checkbox"/> - 25~+70  | <input type="checkbox"/> - 40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                            | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5       | Medium/High                      |
| <b>Thermal Protection</b>                         | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                   |                                  |

Thermal protection requires an external control unit or relay to operate.

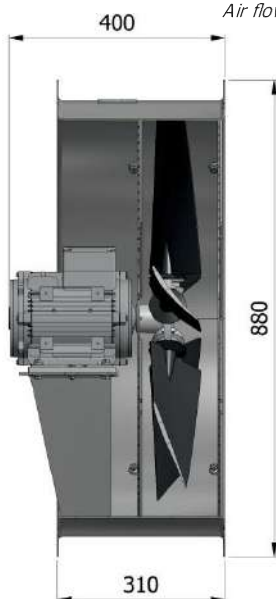
**Performance**



## A800C-B Balanced Performance Axial Fan



|                                   |                 |                 |
|-----------------------------------|-----------------|-----------------|
| <b>Number of Poles</b>            | 6               |                 |
| <b>Type</b>                       | A800C-F5        | A800C-F6        |
| <b>Frequency (±2%)</b>            | 50 Hz           | 60 Hz           |
| <b>Voltage (3ph. ±5%)</b>         | 230V Δ / 400V Y | 278V Δ / 480V Y |
| <b>Full Load Current</b>          | 5,0 A / 2,9 A   | 5,2 A / 3,0 A   |
| <b>Input Power</b>                | 900 W           | 1100 W          |
| <b>Speed</b>                      | 960 rpm         | 1152 rpm        |
| <b>Sound Pressure (LPA 1m/2m)</b> | 76 / 71 dB(A)   | 81 / 76 dB(A)   |
| <b>Air Flow</b>                   | 5,52 m³/s       | 5,69 m³/s       |
| <b>Weight (varies by options)</b> | 50 kg           |                 |



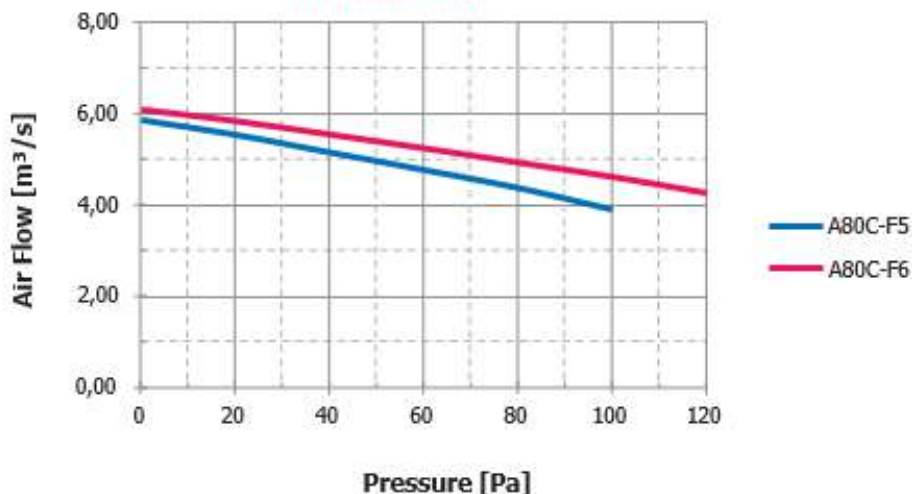
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

|                                    |                                        |                                    |                                  |                                  |
|------------------------------------|----------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>      | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                       | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                  |                                  |
| <b>Protection Grids</b>            | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                  |                                  |
| <b>Color (housing,motor,grids)</b> | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient (°C)</b>      | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70   | <input type="checkbox"/> -40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>             | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>          | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                  |                                  |

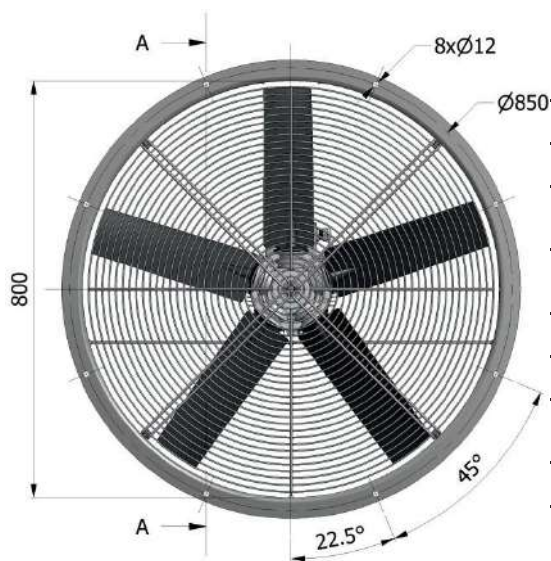
Thermal protection requires an external control unit or relay to operate.

### Performance





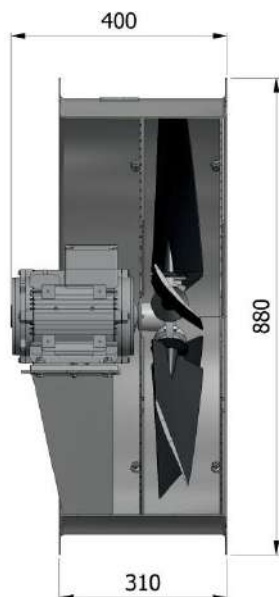
## A800C-F Flow Optimized Axial Fan



| Number of Poles                        | 6                         |                           |
|----------------------------------------|---------------------------|---------------------------|
| Type                                   | A800C-F5                  | A800C-F6                  |
| Frequency ( $\pm 2\%$ )                | 50 Hz                     | 60 Hz                     |
| Voltage (3ph. $\pm 5\%$ )              | 230V $\Delta$ / 400V<br>Y | 278V $\Delta$ / 480V<br>Y |
| Full Load Current                      | 5,0 A / 2,9<br>A          | 5,2 A / 3,0 A             |
| Input Power                            | 900 W                     | 1100 W                    |
| Speed                                  | 960 rpm                   | 1152 rpm                  |
| Sound Pressure (L <sub>PA</sub> 1m/2m) | 76 / 71<br>dB(A) dB(A)    | 81 / 76<br>dB(A) dB(A)    |
| Air Flow                               | 5,52 m <sup>3</sup> /s    | 5,69 m <sup>3</sup> /s    |
| Weight (varies by options)             | 50 kg                     |                           |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

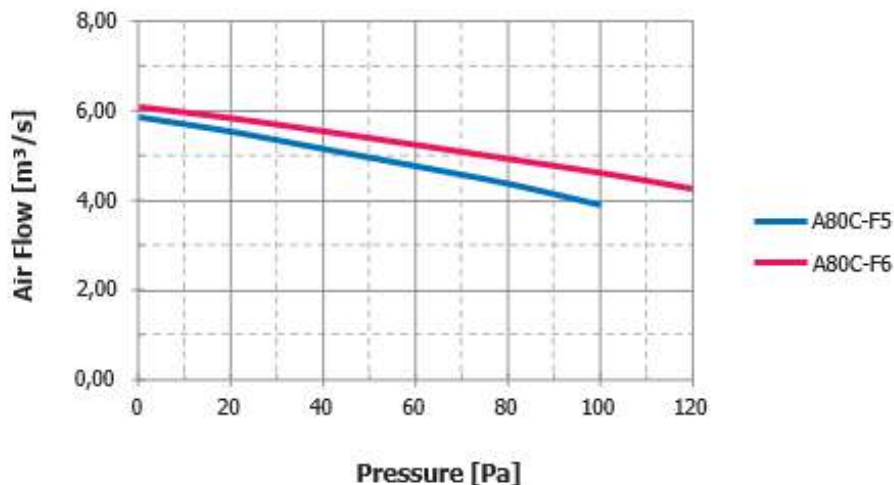
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.



| Motor Protection Class      | <input type="checkbox"/> IP55          | <input type="checkbox"/>         | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
|-----------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| Wings                       | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/>         | <input type="checkbox"/> Aluminium |                                  |
| Protection Grids            | <input type="checkbox"/> Rear          | <input type="checkbox"/>         | <input type="checkbox"/> Front     |                                  |
| Color (housing,motor,grids) | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| Operation Ambient (°C)      | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| Corrosion Class             | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| Thermal Protection          | <input type="checkbox"/> No            | <input type="checkbox"/>         | <input type="checkbox"/> Yes       |                                  |

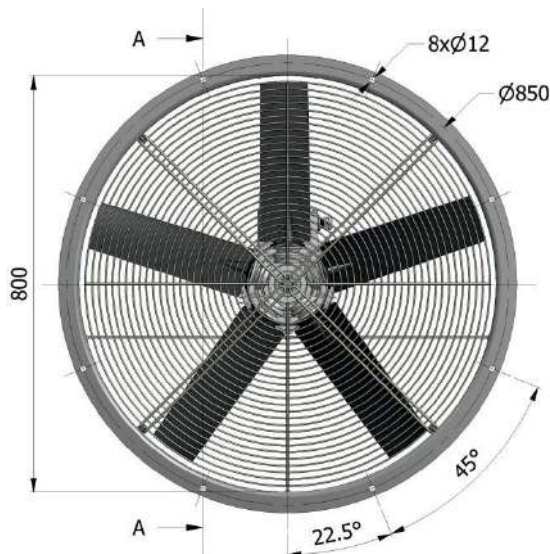
Thermal protection requires an external control unit or relay to operate.

### Performance





## A800C-S Low Noise Axial Fan



|                                         |                        |                        |
|-----------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                  | 12                     |                        |
| <b>Type</b>                             | A800C-S5               | A800C-S6               |
| <b>Frequency</b> ( $\pm 2\%$ )          | 50 Hz                  | 60 Hz                  |
| <b>Voltage</b> (3ph. $\pm 5\%$ )        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                | 3,1 A / 1,8 A          | 3,3 A / 1,9 A          |
| <b>Input Power</b>                      | 370 W                  | 560 W                  |
| <b>Speed</b>                            | 480 rpm                | 576 rpm                |
| <b>Sound Pressure</b> ( $L_{PA}$ 1m/2m) | 58 dB(A) / 53 dB(A)    | 61 dB(A) / 56 dB(A)    |
| <b>Air Flow</b>                         | 3,28 m <sup>3</sup> /s | 3,84 m <sup>3</sup> /s |
| <b>Weight</b> (varies by options)       | 54 kg                  |                        |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.

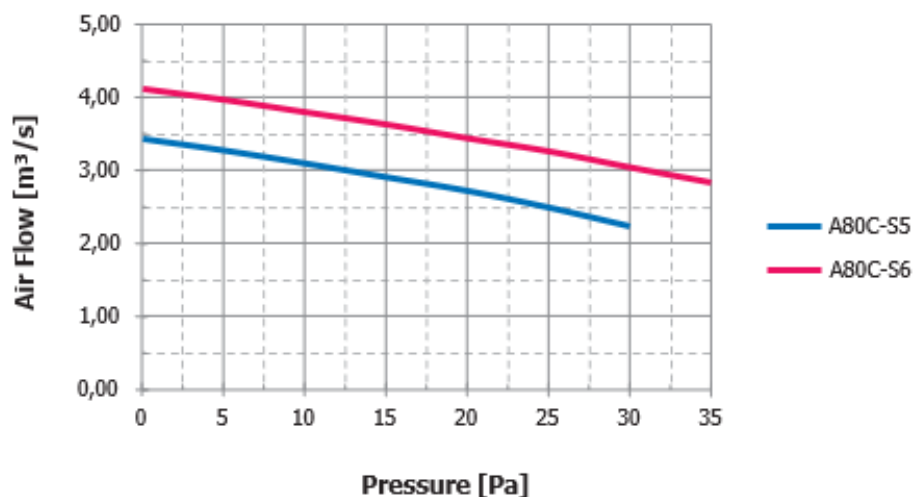
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.



|                                      |                                        |                                    |                                  |                                  |
|--------------------------------------|----------------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <b>Motor Protection Class</b>        | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56      | <input type="checkbox"/> IP65    | <input type="checkbox"/> IP66    |
| <b>Wings</b>                         | <input type="checkbox"/> GFR Polyamide | <input type="checkbox"/> Aluminium |                                  |                                  |
| <b>Protection Grids</b>              | <input type="checkbox"/> Rear          | <input type="checkbox"/> Front     |                                  |                                  |
| <b>Color</b> (housing, motor, grids) | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032   | <input type="checkbox"/> RAL7033 | <input type="checkbox"/> Other   |
| <b>Operation Ambient</b> (°C)        | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70   | <input type="checkbox"/> -40~+60 | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>               | <input type="checkbox"/> C3            | <input type="checkbox"/> C4        | <input type="checkbox"/> C5      | Medium/High                      |
| <b>Thermal Protection</b>            | <input type="checkbox"/> No            | <input type="checkbox"/> Yes       |                                  |                                  |

Thermal protection requires an external control unit or relay to operate.

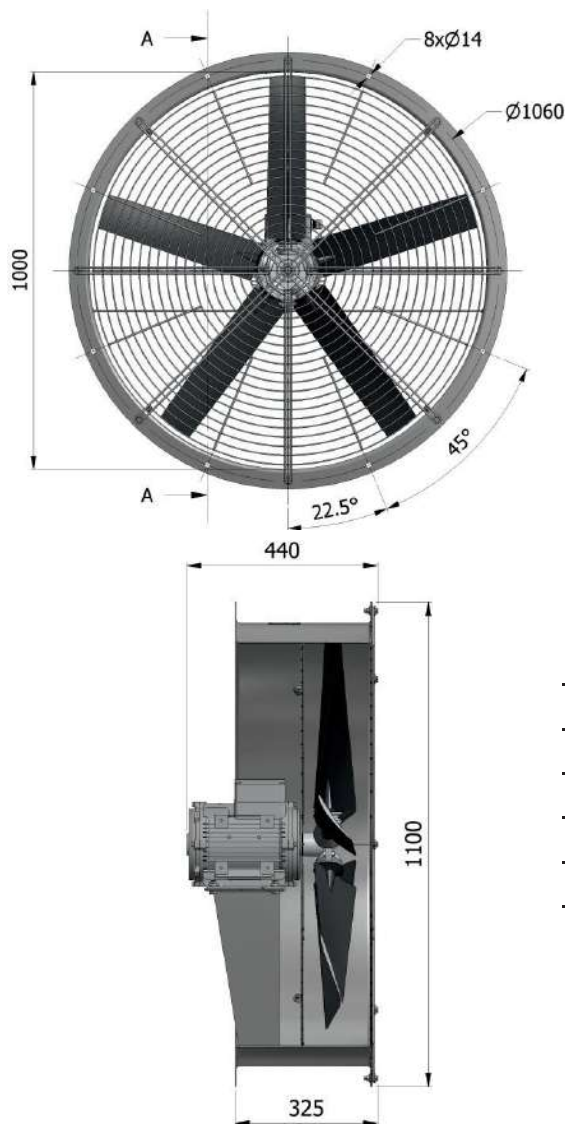
### Performance







## A1000C-S Low Noise Axial Fan



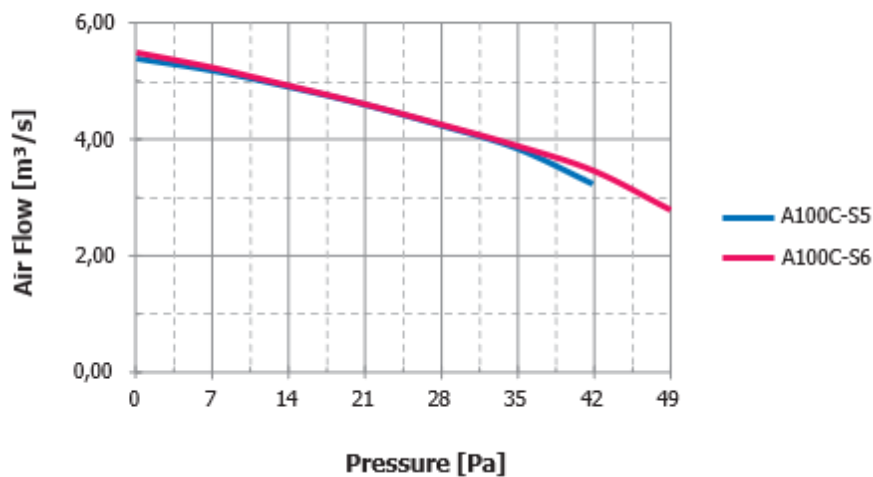
|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 12                     |                        |
| <b>Type</b>                                       | A1000C-S5              | A1000C-S6              |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 3,3 A / 1,9 A          | 3,3 A / 1,9 A          |
| <b>Input Power</b>                                | 560 W                  | 620 W                  |
| <b>Speed</b>                                      | 480 rpm                | 576 rpm                |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 63 dB(A) / 58 dB(A)    | 66 dB(A) / 61 dB(A)    |
| <b>Air Flow</b>                                   | 5,18 m <sup>3</sup> /s | 5,08 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 62 kg                  |                        |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.  
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

|                                                          |                                        |                                  |                                    |                                  |
|----------------------------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                            | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                             | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>                                  | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color (housing, motor, grids)</b>                     | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}\text{C}</math>)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                                   | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>                                | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

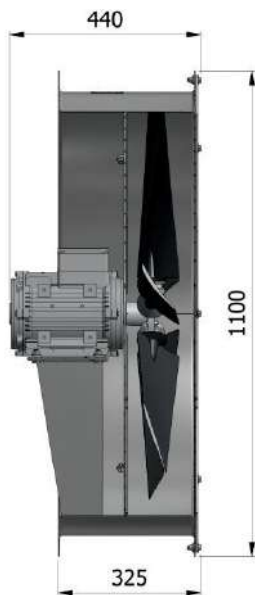
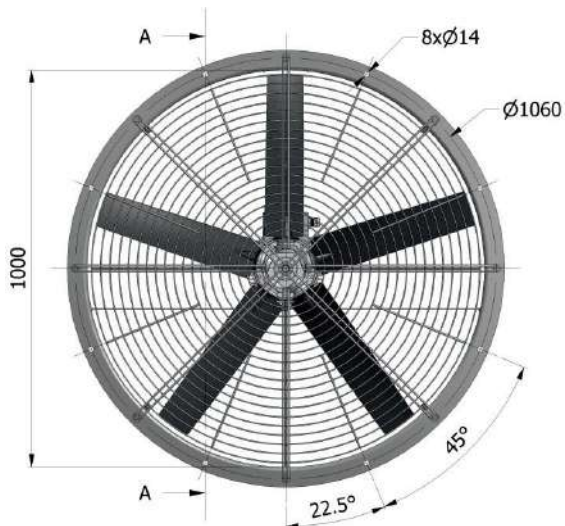
Thermal protection requires an external control unit or relay to operate.

## Performance





## A1000C-B Balanced Performance Axial Fan



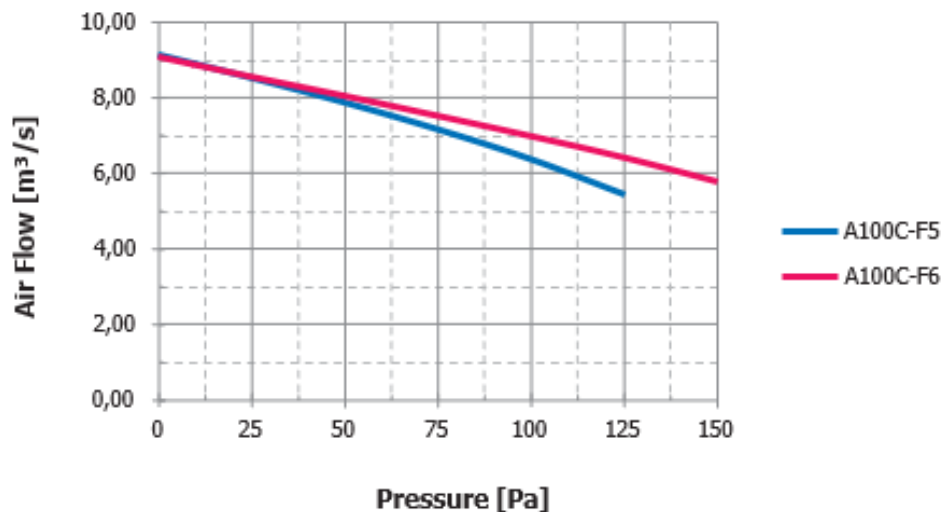
|                                         |                        |                        |
|-----------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                  | 8                      |                        |
| <b>Type</b>                             | A1000C-B5              | A1000C-B6              |
| <b>Frequency</b> ( $\pm 2\%$ )          | 50 Hz                  | 60 Hz                  |
| <b>Voltage</b> (3ph. $\pm 5\%$ )        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                | 3,8 A / 2,2 A          | 3,8 A / 2,2 A          |
| <b>Input Power</b>                      | 750 W                  | 800 W                  |
| <b>Speed</b>                            | 720 rpm                | 864 rpm                |
| <b>Sound Pressure</b> ( $L_{PA}$ 1m/2m) | 72 dB(A) / 67 dB(A)    | 76 dB(A) / 71 dB(A)    |
| <b>Air Flow</b>                         | 6,41 m <sup>3</sup> /s | 6,24 m <sup>3</sup> /s |
| <b>Weight</b> (varies by options)       | 62 kg                  |                        |

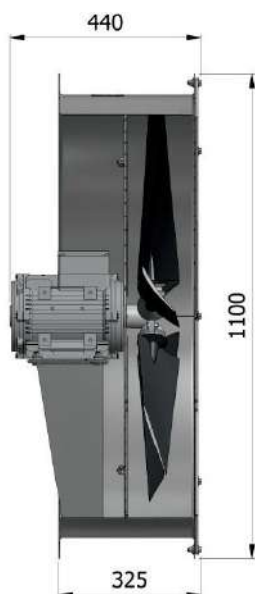
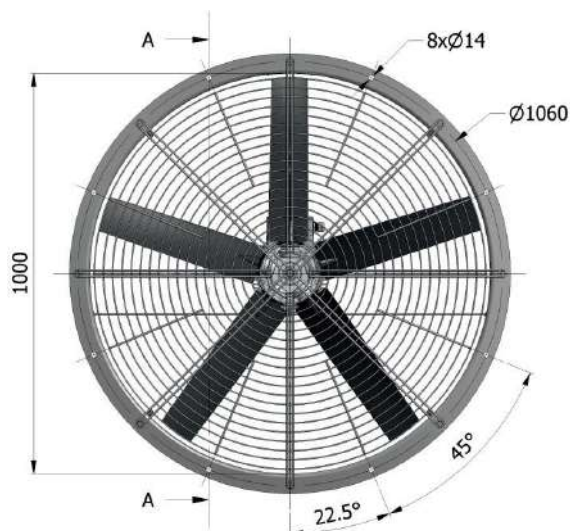
Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids. SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

|                                    |                                        |                                  |                                    |                                  |
|------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>      | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                       | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>            | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color</b> (housing,motor,grids) | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient</b> (°C)      | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>             | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>          | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

### Performance



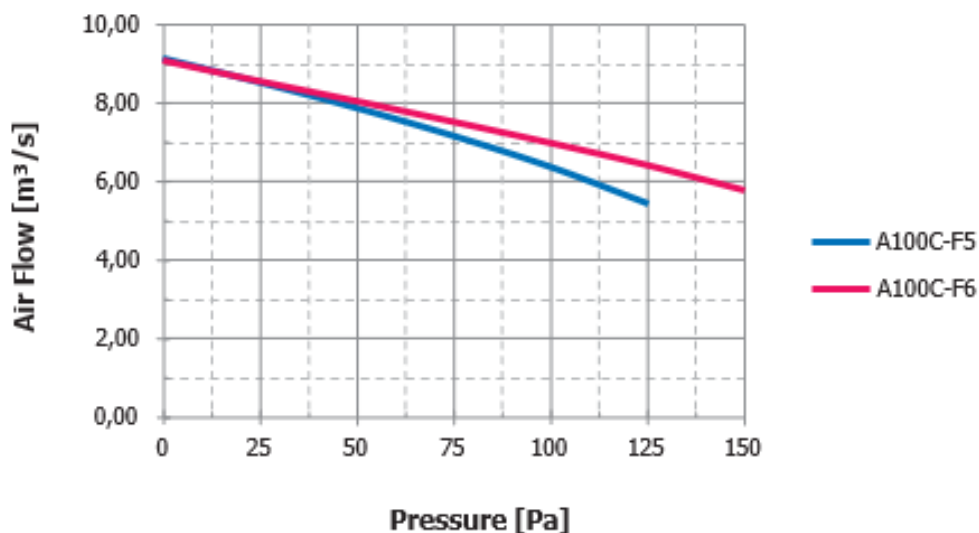
**A1000C-F Flow Optimized Axial Fan**

|                                                   |                        |                        |
|---------------------------------------------------|------------------------|------------------------|
| <b>Number of Poles</b>                            | 6                      |                        |
| <b>Type</b>                                       | A1000C-F5              | A1000C-F6              |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                  | 60 Hz                  |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y | 278V $\Delta$ / 480V Y |
| <b>Full Load Current</b>                          | 6,6 A / 3,8 A          | 6,6 A / 3,8 A          |
| <b>Input Power</b>                                | 1500 W                 | 1750 W                 |
| <b>Speed</b>                                      | 960 rpm                | 1152 rpm               |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 79 dB(A) / 74 dB(A)    | 87 dB(A) / 82 dB(A)    |
| <b>Air Flow</b>                                   | 8,64 m <sup>3</sup> /s | 8,42 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 63 kg                  |                        |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.  
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

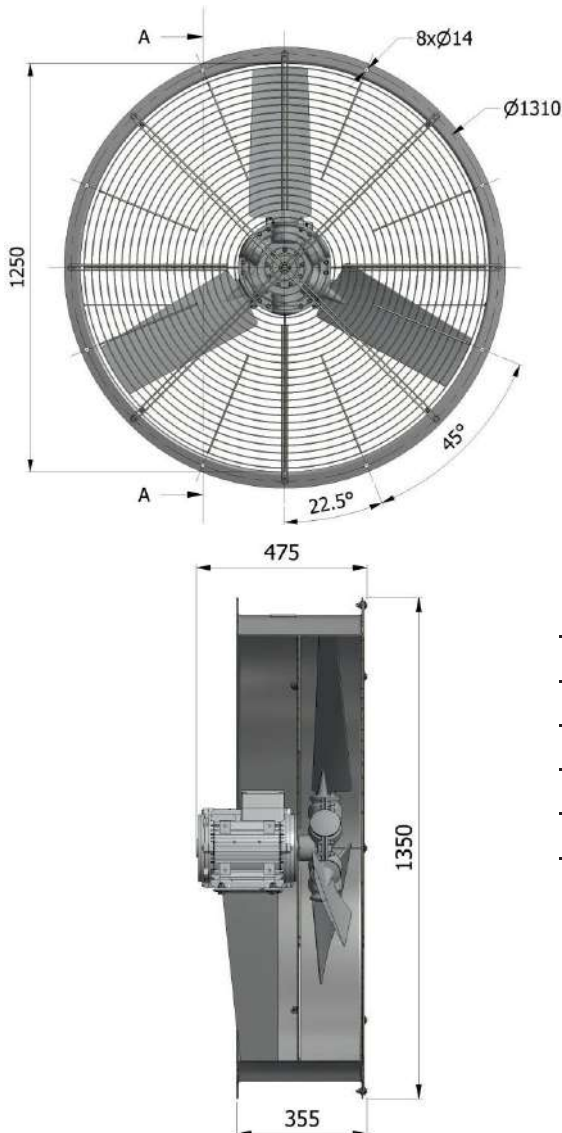
|                                                          |                                        |                                  |                                    |                                  |
|----------------------------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                            | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                             | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>                                  | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color (housing,motor,grids)</b>                       | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}\text{C}</math>)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                                   | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>                                | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

**Performance**



## A1250C-B Balanced Performance Axial Fan



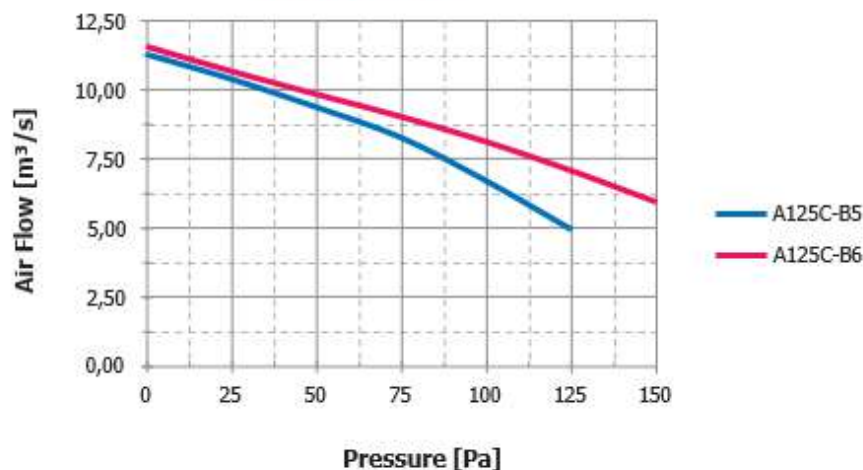
|                                                   |                         |                         |
|---------------------------------------------------|-------------------------|-------------------------|
| <b>Number of Poles</b>                            | 8                       |                         |
| <b>Type</b>                                       | A1250C-B5               | A1250C-B6               |
| <b>Frequency (<math>\pm 2\%</math>)</b>           | 50 Hz                   | 60 Hz                   |
| <b>Voltage (3ph. <math>\pm 5\%</math>)</b>        | 230V $\Delta$ / 400V Y  | 278V $\Delta$ / 480V Y  |
| <b>Full Load Current</b>                          | 7,7 A / 4,4 A           | 7,7 A / 4,4 A           |
| <b>Input Power</b>                                | 1600 W                  | 1800 W                  |
| <b>Speed</b>                                      | 720 rpm                 | 864 rpm                 |
| <b>Sound Pressure (<math>L_{PA}</math> 1m/2m)</b> | 75 dB(A) / 70 dB(A)     | 78 dB(A) / 73 dB(A)     |
| <b>Air Flow</b>                                   | 11,38 m <sup>3</sup> /s | 11,59 m <sup>3</sup> /s |
| <b>Weight (varies by options)</b>                 | 88 kg                   |                         |

Air flow and sound pressure level (SPL) are given for free blowing operation with inlet&outlet guard grids.  
SPL values at 1m are measured from side of the fan. SPL values at 2m are calculated by inverse square law.

|                                                          |                                        |                                  |                                    |                                  |
|----------------------------------------------------------|----------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| <b>Motor Protection Class</b>                            | <input type="checkbox"/> IP55          | <input type="checkbox"/> IP56    | <input type="checkbox"/> IP65      | <input type="checkbox"/> IP66    |
| <b>Wings</b>                                             | <input type="checkbox"/> GFR Polyamide |                                  | <input type="checkbox"/> Aluminium |                                  |
| <b>Protection Grids</b>                                  | <input type="checkbox"/> Rear          |                                  | <input type="checkbox"/> Front     |                                  |
| <b>Color (housing,motor,grids)</b>                       | <input type="checkbox"/> RAL7031       | <input type="checkbox"/> RAL7032 | <input type="checkbox"/> RAL7033   | <input type="checkbox"/> Other   |
| <b>Operation Ambient (<math>^{\circ}\text{C}</math>)</b> | <input type="checkbox"/> -25~+60       | <input type="checkbox"/> -25~+70 | <input type="checkbox"/> -40~+60   | <input type="checkbox"/> -40~+70 |
| <b>Corrosion Class</b>                                   | <input type="checkbox"/> C3            | <input type="checkbox"/> C4      | <input type="checkbox"/> C5        | Medium/High                      |
| <b>Thermal Protection</b>                                | <input type="checkbox"/> No            |                                  | <input type="checkbox"/> Yes       |                                  |

Thermal protection requires an external control unit or relay to operate.

### Performance







## Cooling Fan Controller ARS - PT100



### Temperature Controller For Dry Type Medium Voltage Transformers

Developed for winding temperature control of resin or dry type MV transformers. It is based on high level electromagnetic interference, also standardized. There are 4 PT100 sensor inputs. The transformer core temperature or the ambient temperature can also be measured from the 4th sensor input if the 3-phase transformer requests the winding temperatures individually as well as it can be measured. There are 4 relay outputs, ALARM, FAULT, TRIP and FAN.

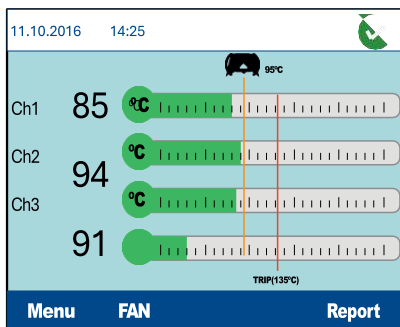
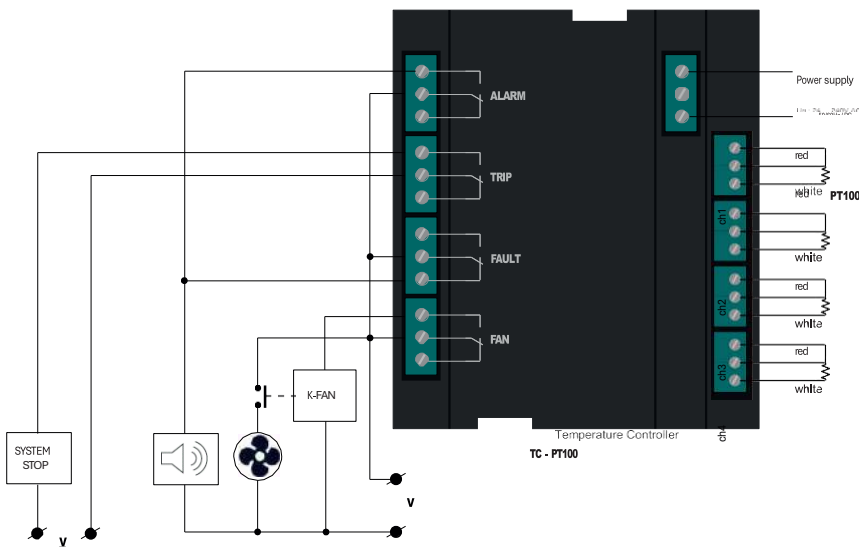
The desing, hardware and software were entirely made by ARES TRAFO engineers. State-of-the-art technology has been incorporated into this device, and features have been added that make it easier for the user to use both menus and features. The device has a color LCD display (TFT). As memory, the device has its own recording ares and records error reports.

All information and warnings that you need to know about the device are described in the user manuel. Please read this booklet carefully before commissioning your system and your own reports.

All information and warnings that you need to know about the device are described in the user manual. Please do not make anything about the topics that are not being understood without making any contact with our company.

### Features

- 24-240 VAc - Vdc 50/60 Hz ultra-wide feed input
- Easy menu design with Turkish, English and Russian language support
- Color LCD display (320x240 pixel x 2.4")
- It has 4 Pt100 (3-Wires) RTD sensor inputs
- Sensor inputs are resistant to electromagnetic interference
- Cable lengths in Pt100 are not included in the calculation
- It measures temperature between -10°C and 205°C and has  $\pm 1\%$  measurement accuracy
- 1 ALARM relay output
- 1 TRIP relay output
- There is a relay output (FAULT) for errors in one device memory (the last 40 records)
- 3VA supply available
- Intelligent Fan operation and stop algorithm saves energy in transformer cooling
- Continuously monitors temperature sensors for faults. It detects errors "Sensor cable is broken", "Sensor cable short circuit" "Sensor not attached"
- Error detection in case of data recording center failure
- Password Protection protects the Settings menu against unauthorized users
- There is a botton for making the alarm silent or for manual fan control.

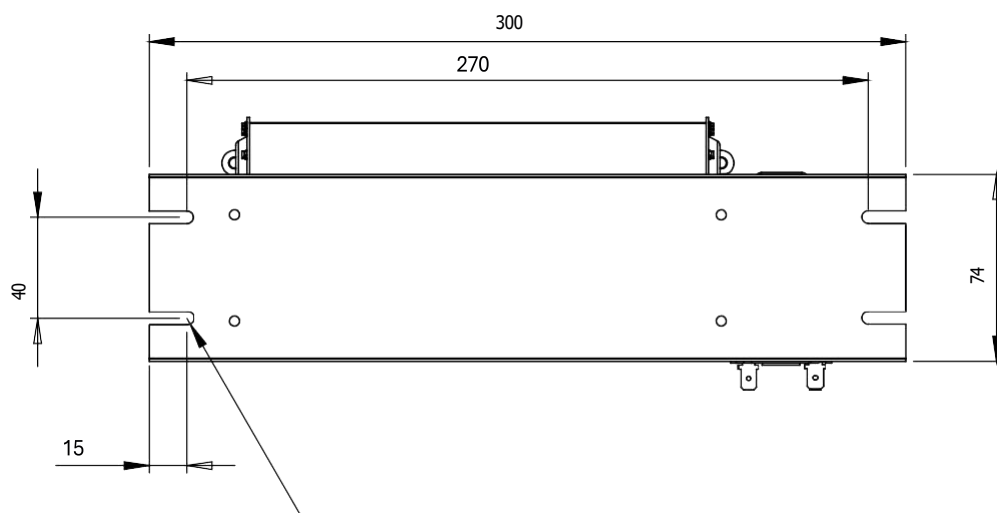
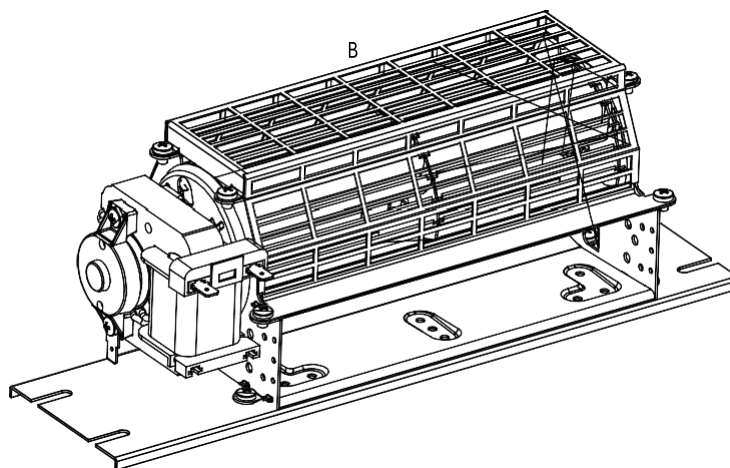
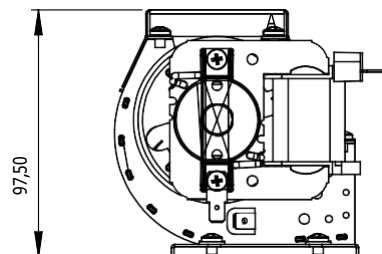
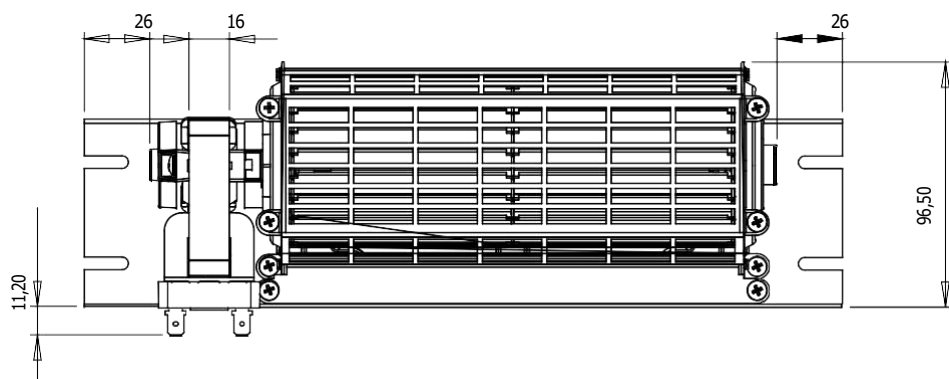


### General

The device that is developed to protect the windings of MV tarnsformers and high-power motors equipped with today's technology, is guided well equipped in terms of function richness and has added a new product to its sector with its advanced software. Additionally, the microprocessor inside is very fast and uses the operating system. This ensures that all operations can be synchronized simultaneously. Displaying the error and temperature values that may occur on the main screen during device operation is as follows.



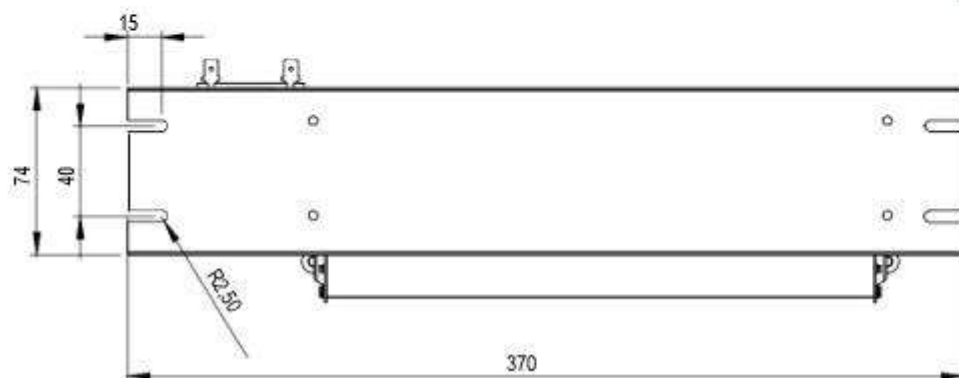
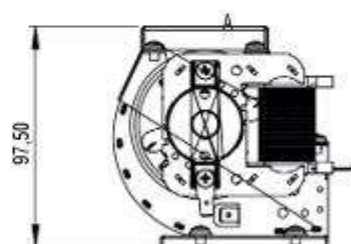
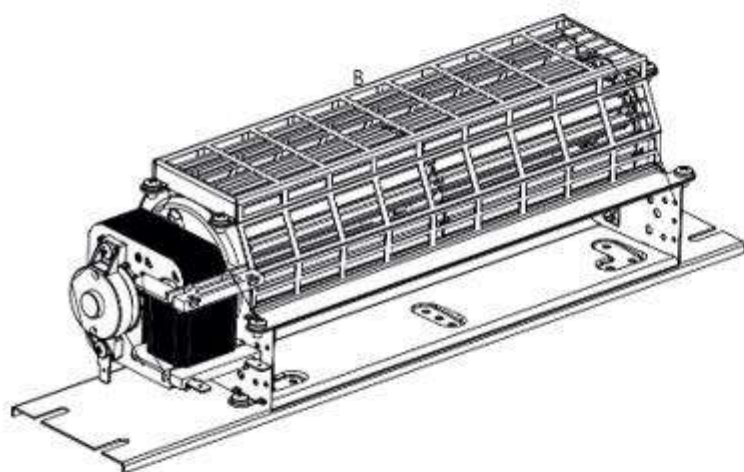
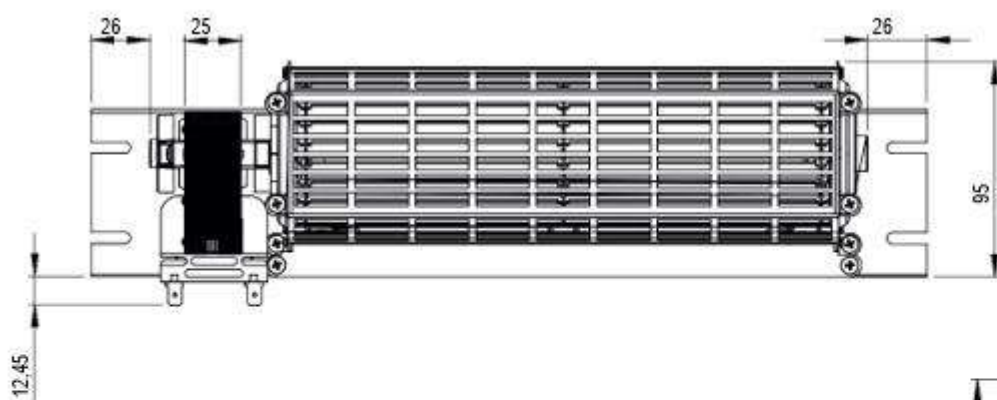
## Cooling Fan (Little) ARS 680-180G



|                |      |
|----------------|------|
| Voltage (V)    | 230  |
| Frequency (Hz) | 50   |
| Power (W)      | 32   |
| Current (mA)   | 0,24 |
| Airflow (m³/h) | 150  |
| Rpm (±100)     | 2000 |



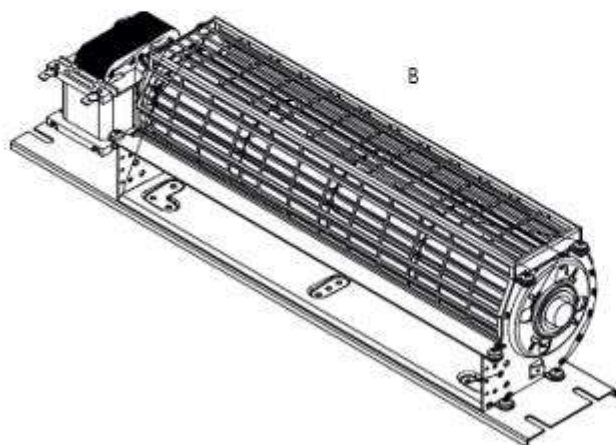
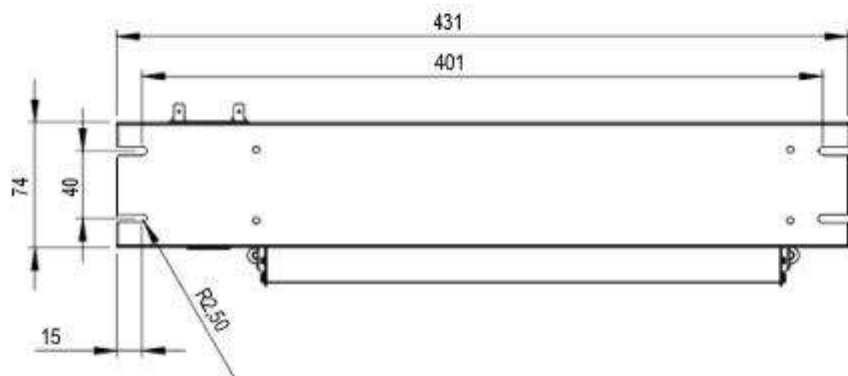
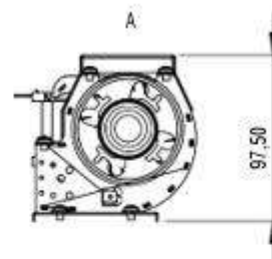
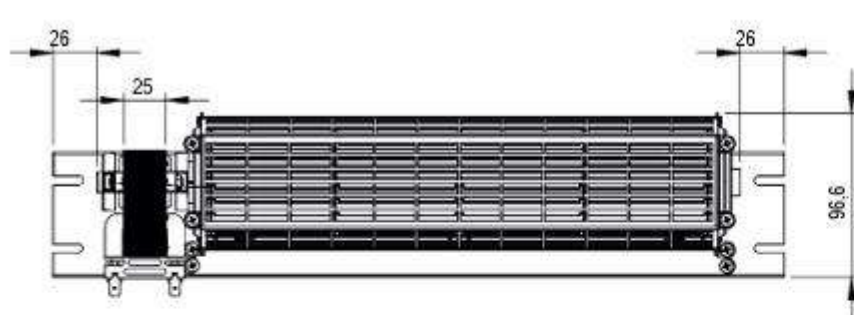
## Cooling Fan (Little) ARS 680-240G



|                |      |
|----------------|------|
| Voltage (V)    | 230  |
| Frequency (Hz) | 50   |
| Power (W)      | 48   |
| Current (mA)   | 0,32 |
| Airflow (m³/h) | 225  |
| Rpm (±100)     | 2150 |



## Cooling Fan (Little) ARS 680-300G



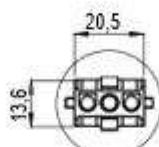
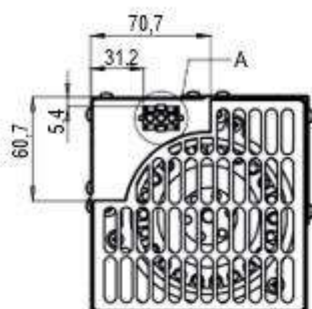
### Technical Specifications

|                |      |
|----------------|------|
| Voltage (V)    | 230  |
| Frequency (Hz) | 50   |
| Power (W)      | 52   |
| Current (mA)   | 0,40 |
| Airflow (m³/h) | 325  |
| Rpm (±100)     | 2150 |

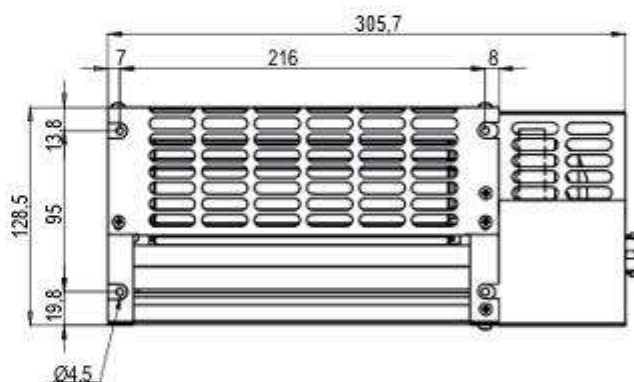
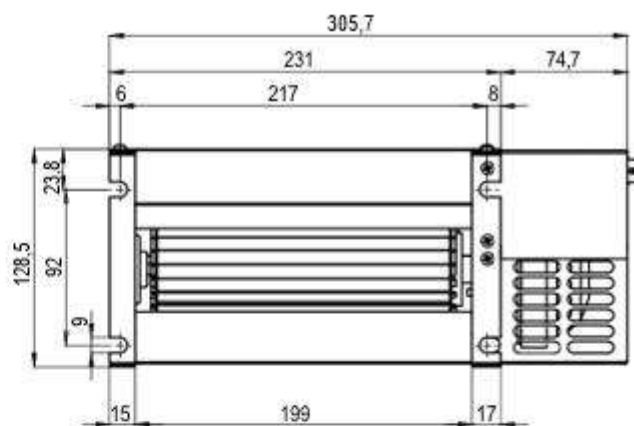
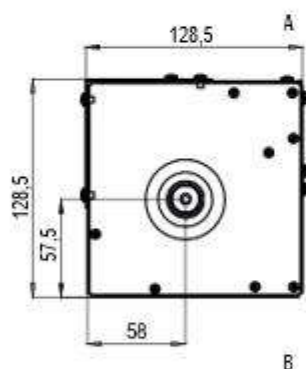




## Cooling Fan (Medium) ARS 80-180



DETAIL A  
SCALE 1: 2

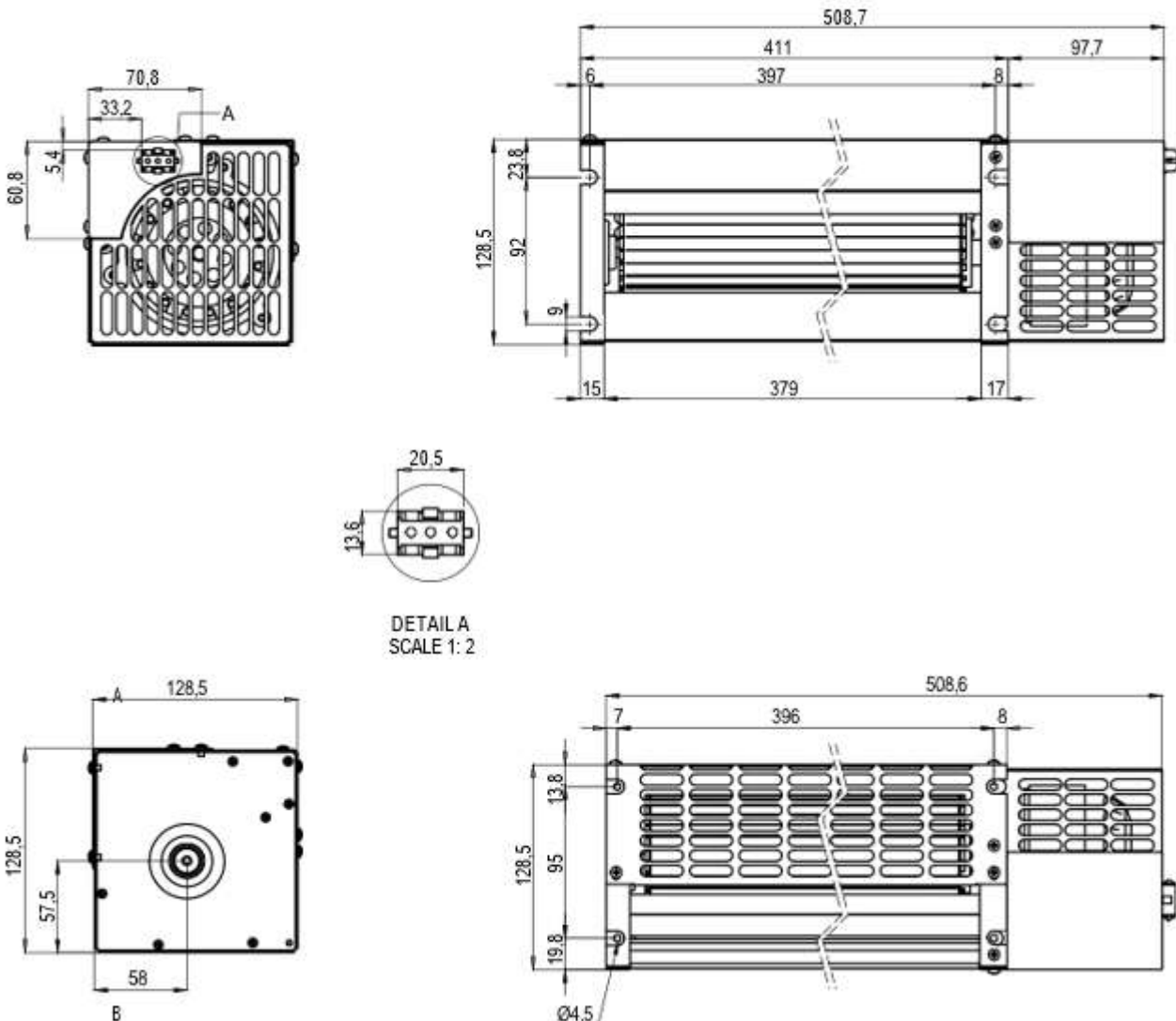


|                |      |
|----------------|------|
| Voltage (V)    | 230  |
| Frequency (Hz) | 50   |
| Power (W)      | 60   |
| Current (mA)   | 0,26 |
| Speed (rpm)    | 2450 |
| Airflow (m³/h) | 515  |
| Capacitor (µF) | 1,5  |

INSULATION CLASS (M)



## Cooling Fan (Medium) ARS 80-370

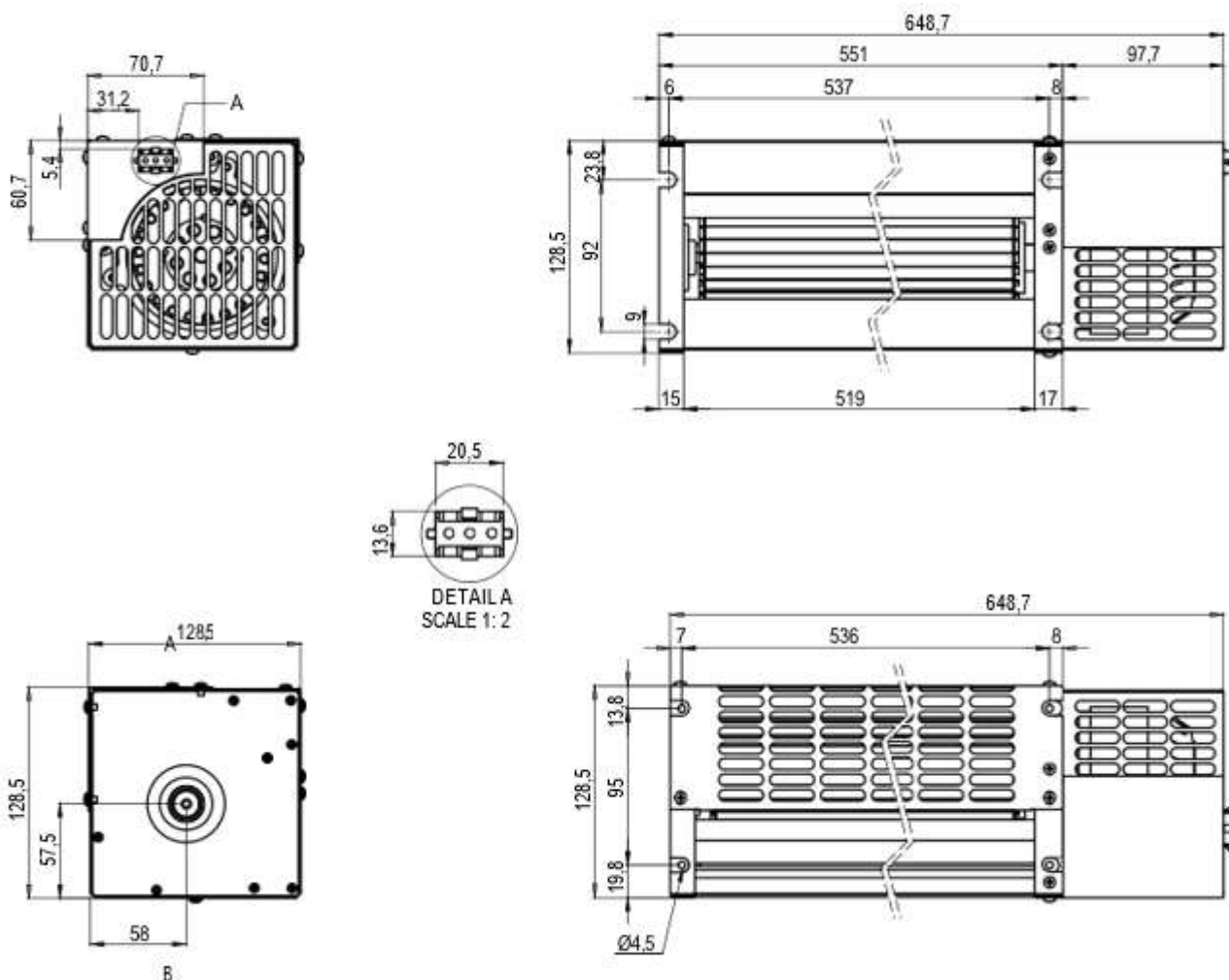


|                |      |
|----------------|------|
| Voltage (V)    | 230  |
| Frequency (Hz) | 50   |
| Power (W)      | 105  |
| Current (mA)   | 0,45 |
| Speed (rpm)    | 2620 |
| Airflow (m³/h) | 865  |
| Capacitor (µF) | 3    |

INSULATION CLASS (M)



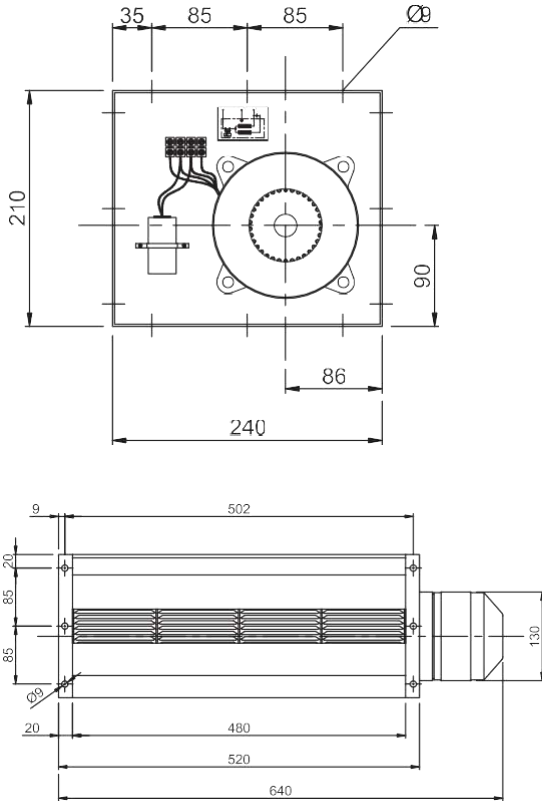
## Cooling Fan (Medium) ARS 80-500



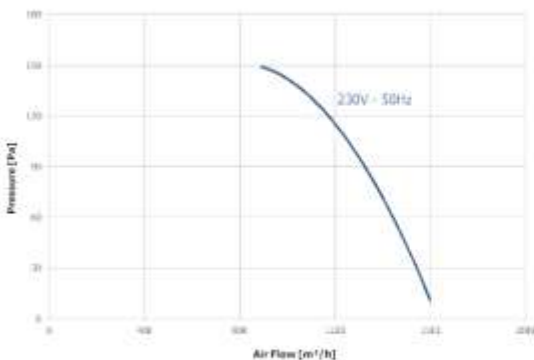
|                             |      |
|-----------------------------|------|
| Voltage (V)                 | 230  |
| Frequency (Hz)              | 50   |
| Power (W)                   | 170  |
| Current (mA)                | 0,73 |
| Speed (rpm)                 | 2580 |
| Airflow (m <sup>3</sup> /h) | 1235 |
| Capacitor (uF)              | 6    |



## Cooling Fan (Turbo) ARS 120/480-230W-4P-1600



|                               |                                       |           |
|-------------------------------|---------------------------------------|-----------|
| <b>Standard</b>               | IEC 60034-1, IEC 60335-2:80, ISO 5801 |           |
| <b>Tolerance</b>              | Class 2 acc. to DIN 24166             |           |
| <b>Balance Quality</b>        | G6.3 acc. to ISO 1940-1               |           |
| <b>Number of Poles</b>        | 4                                     |           |
| <b>Voltage (1P)</b>           | 230 V                                 |           |
| <b>Frequency</b>              | 50 Hz                                 | 60 Hz     |
| <b>Power</b>                  | 230 W                                 | 380 W     |
| <b>Current (±5%)</b>          | 1.2 A                                 | 1.9 A     |
| <b>Speed</b>                  | 1440 rpm                              | 1680 rpm  |
| <b>Noise (LpA@1m)</b>         | 69 dbA                                | 72 dbA    |
| <b>Air Flow</b>               | 1600 m³/h                             | 1800 m³/h |
| <b>Installation Position</b>  | Horizontal                            |           |
| <b>Operation</b>              | Indoor                                |           |
| <b>Operating Temperature</b>  | -25 ~ +50 °C                          |           |
| <b>Motor Insulation Class</b> | F                                     |           |
| <b>Thermal Protection</b>     | Yes (no external wiring required)     |           |
| <b>Condansator</b>            | Yes (12µf 400V)                       |           |
| <b>Weight</b>                 | 10 kg                                 |           |

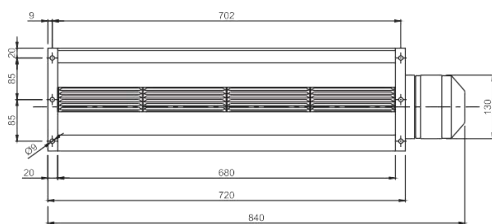
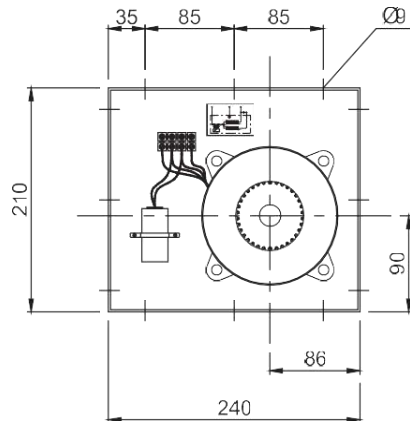


|                           |                                                                                                                                                                |                                                                        |                                                                                                                           |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Motor <sup>1</sup></b> |                                                                                                                                                                | <b>Fasteners <sup>2</sup></b>                                          |                                                                                                                           |
| Protection Class          | <input checked="" type="checkbox"/> IP44                                                                                                                       | Material                                                               | <input type="checkbox"/> Zinc Coated<br><input checked="" type="checkbox"/> Stainless Steel                               |
| <b>Wings <sup>1</sup></b> |                                                                                                                                                                | <b>Corrosion Class</b>                                                 |                                                                                                                           |
| Material                  | <input checked="" type="checkbox"/> Aluminum<br><input type="checkbox"/> Plastic                                                                               | Powder Coating                                                         | <input type="checkbox"/> C3 medium<br><input checked="" type="checkbox"/> C4 medium<br><input type="checkbox"/> C5 medium |
| <b>Housing</b>            |                                                                                                                                                                |                                                                        |                                                                                                                           |
| Material                  | <input type="checkbox"/> Galvanized Steel<br><input checked="" type="checkbox"/> Aluminum<br><input type="checkbox"/> Stainless Steel                          | <sup>1</sup> : aluminum, RAL9005<br><sup>2</sup> : delivered unpainted |                                                                                                                           |
| Color                     | <input type="checkbox"/> RAL9005<br><input type="checkbox"/> RAL7032<br><input type="checkbox"/> Custom Color<br><input checked="" type="checkbox"/> Unpainted |                                                                        |                                                                                                                           |

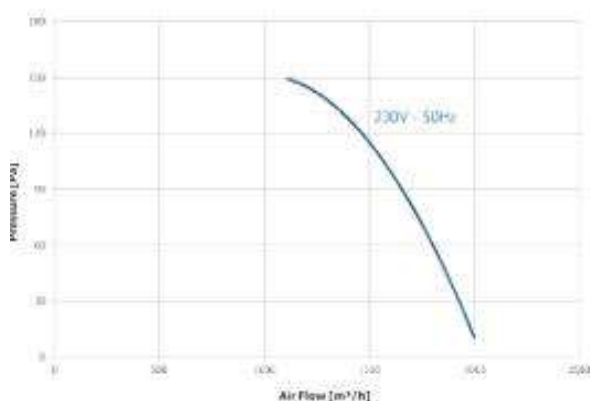




## Cooling Fan (Turbo) ARS 120/680-260W-4P-2000



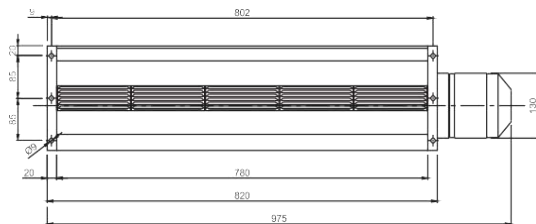
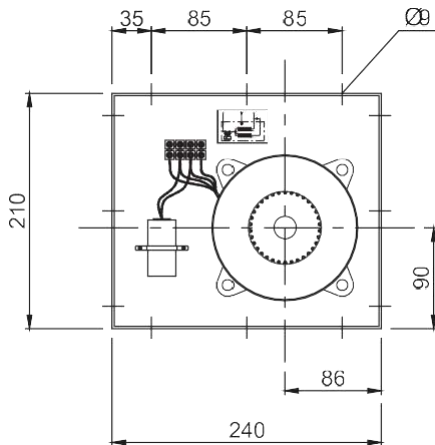
|                               |                                       |           |
|-------------------------------|---------------------------------------|-----------|
| <b>Standard</b>               | IEC 60034-1, IEC 60335-2:80, ISO 5801 |           |
| <b>Tolerance</b>              | Class 2 acc. to DIN 24166             |           |
| <b>Balance Quality</b>        | G6.3 acc. to ISO 1940-1               |           |
| <b>Number of Poles</b>        | 4                                     |           |
| <b>Voltage (1P)</b>           | 230 V                                 |           |
| <b>Frequency</b>              | 50 Hz                                 | 60 Hz     |
| <b>Power</b>                  | 260 W                                 | 425 W     |
| <b>Current (±5%)</b>          | 1.3 A                                 | 2.0 A     |
| <b>Speed</b>                  | 1400 rpm                              | 1600 rpm  |
| <b>Noise (LpA@1m)</b>         | 70 dbA                                | 74 dbA    |
| <b>Air Flow</b>               | 2000 m³/h                             | 2200 m³/h |
| <b>Installation Position</b>  | Horizontal                            |           |
| <b>Operation</b>              | Indoor                                |           |
| <b>Operating Temperature</b>  | -25 ~ +50 °C                          |           |
| <b>Motor Insulation Class</b> | F                                     |           |
| <b>Thermal Protection</b>     | Yes (no external wiring required)     |           |
| <b>Condansator</b>            | Yes (12µf 400V)                       |           |
| <b>Weight</b>                 | 11 kg                                 |           |



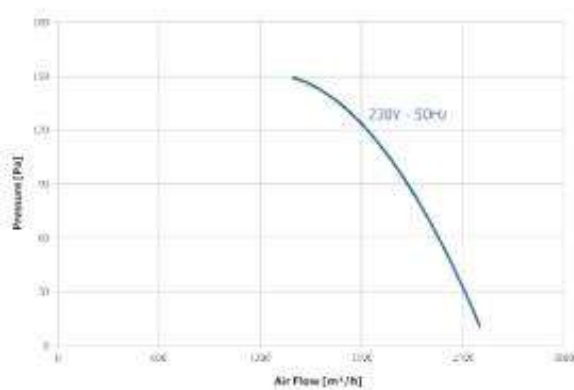
|                           |                                                                                                                                                                |                                                                        |                                                                                                                           |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Motor</b> <sup>1</sup> |                                                                                                                                                                | <b>Fasteners</b> <sup>2</sup>                                          |                                                                                                                           |
| Protection Class          | <input checked="" type="checkbox"/> IP44                                                                                                                       | Material                                                               | <input type="checkbox"/> Zinc Coated<br><input checked="" type="checkbox"/> Stainless Steel                               |
| <b>Wings</b> <sup>1</sup> |                                                                                                                                                                | <b>Corrosion Class</b>                                                 |                                                                                                                           |
| Material                  | <input checked="" type="checkbox"/> Aluminum<br><input type="checkbox"/> Plastic                                                                               | Powder Coating                                                         | <input type="checkbox"/> C3 medium<br><input checked="" type="checkbox"/> C4 medium<br><input type="checkbox"/> C5 medium |
| <b>Housing</b>            |                                                                                                                                                                |                                                                        |                                                                                                                           |
| Material                  | <input type="checkbox"/> Galvanized Steel<br><input checked="" type="checkbox"/> Aluminum<br><input type="checkbox"/> Stainless Steel                          | <sup>1</sup> : aluminum, RAL9005<br><sup>2</sup> : delivered unpainted |                                                                                                                           |
| Color                     | <input type="checkbox"/> RAL9005<br><input type="checkbox"/> RAL7032<br><input type="checkbox"/> Custom Color<br><input checked="" type="checkbox"/> Unpainted |                                                                        |                                                                                                                           |



## Cooling Fan (Turbo) ARS 120/780-350W-4P2500



|                               |                                       |           |
|-------------------------------|---------------------------------------|-----------|
| <b>Standard</b>               | IEC 60034-1, IEC 60335-2:80, ISO 5801 |           |
| <b>Tolerance</b>              | Class 2 acc. to DIN 24166             |           |
| <b>Balance Quality</b>        | G6.3 acc. to ISO 1940-1               |           |
| <b>Number of Poles</b>        | 4                                     |           |
| <b>Voltage (1P)</b>           | 230 V                                 |           |
| <b>Frequency</b>              | 50 Hz                                 | 60 Hz     |
| <b>Power</b>                  | 350 W                                 | 600 W     |
| <b>Current (±5%)</b>          | 1.7 A                                 | 3.0 A     |
| <b>Speed</b>                  | 1450 rpm                              | 1700 rpm  |
| <b>Noise (LpA@1m)</b>         | 71 dbA                                | 75 dbA    |
| <b>Air Flow</b>               | 2500 m³/h                             | 2800 m³/h |
| <b>Installation Position</b>  | Horizontal                            |           |
| <b>Operation</b>              | Indoor                                |           |
| <b>Operating Temperature</b>  | -25 ~ +50 °C                          |           |
| <b>Motor Insulation Class</b> | F                                     |           |
| <b>Thermal Protection</b>     | Yes (no external wiring required)     |           |
| <b>Condensator</b>            | Yes (16µf 400V)                       |           |
| <b>Weight</b>                 | 14 kg                                 |           |



### Motor <sup>1</sup>

Protection Class ☒ IP44

### Fasteners <sup>2</sup>

Material ☐ Zinc Coated ☒ Stainless Steel

### Wings <sup>2</sup>

Material ☒ Aluminum ☐ Plastic

### Corrosion Class

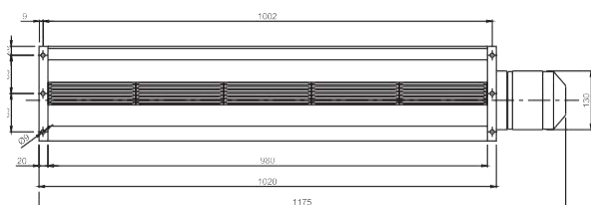
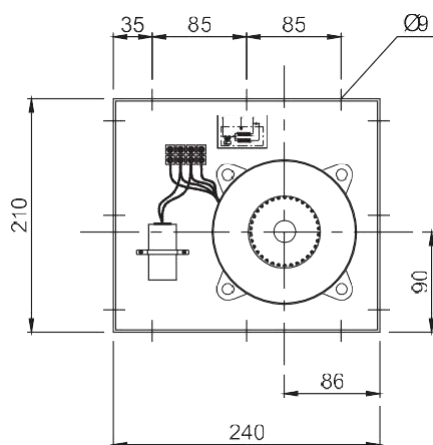
Powder Coating ☐ C3 medium ☒ C4 medium ☐ C5 medium

### Housing

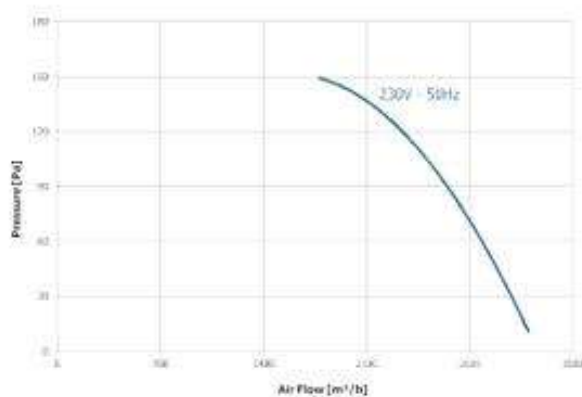
Material ☐ Galvanized Steel ☒ Aluminum ☐ Stainless Steel

<sup>1</sup> : aluminum, RAL9005  
<sup>2</sup> : delivered unpainted

Color ☐ RAL9005 ☐ RAL7032 ☐ Custom Color ☒ Unpainted

**Cooling Fan (Turbo) ARS 120/980-400W-4P-3200**

|                               |                                       |           |
|-------------------------------|---------------------------------------|-----------|
| <b>Standard</b>               | IEC 60034-1, IEC 60335-2:80, ISO 5801 |           |
| <b>Tolerance</b>              | Class 2 acc. to DIN 24166             |           |
| <b>Balance Quality</b>        | G6.3 acc. to ISO 1940-1               |           |
| <b>Number of Poles</b>        | 4                                     |           |
| <b>Voltage (1P)</b>           | 230 V                                 |           |
| <b>Frequency</b>              | 50 Hz                                 | 60 Hz     |
| <b>Power</b>                  | 400 W                                 | 670 W     |
| <b>Current (±5%)</b>          | 2.0 A                                 | 3.1 A     |
| <b>Speed</b>                  | 1430 rpm                              | 1660 rpm  |
| <b>Noise (LpA@1m)</b>         | 72 dbA                                | 77 dbA    |
| <b>Air Flow</b>               | 3200 m³/h                             | 3500 m³/h |
| <b>Installation Position</b>  | Horizontal                            |           |
| <b>Operation</b>              | Indoor                                |           |
| <b>Operating Temperature</b>  | -25 ~ +50 °C                          |           |
| <b>Motor Insulation Class</b> | F                                     |           |
| <b>Thermal Protection</b>     | Yes (no external wiring required)     |           |
| <b>Condensator</b>            | Yes (16µf 400V)                       |           |
| <b>Weight</b>                 | 15 kg                                 |           |

**Motor <sup>1</sup>**

Protection Class

☒ IP44**Fasteners <sup>2</sup>**

Material

☐ Zinc Coated  
☒ Stainless Steel**Wings <sup>1</sup>**

Material

☒ Aluminum  
☐ Plastic**Corrosion Class**

Powder Coating

☐ C3 medium  
☒ C4 medium  
☐ C5 medium**Housing**

Material

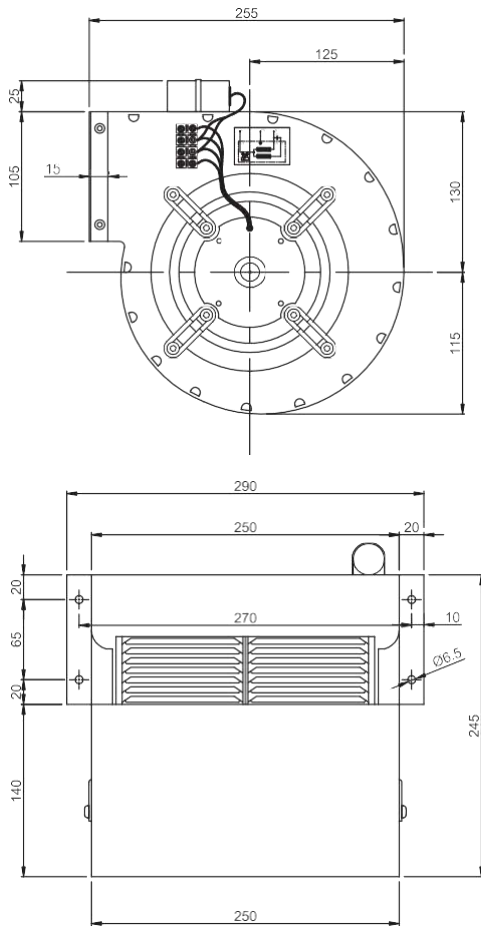
☐ Galvanized Steel  
☒ Aluminum  
☐ Stainless Steel<sup>1</sup> : aluminum, RAL9005<sup>2</sup> : delivered unpainted

Color

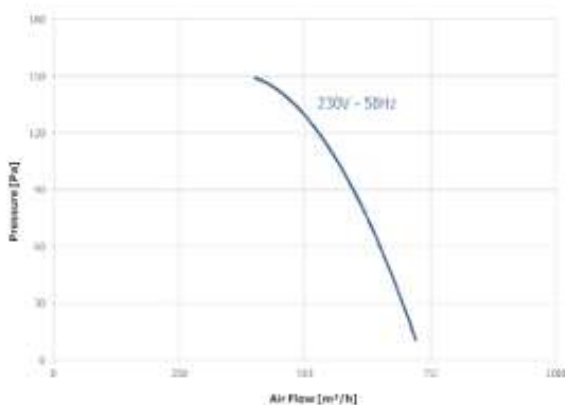
☐ RAL9005  
☐ RAL7032  
☐ Custom Color  
☒ Unpainted



## Centrifugal Fans ARS 160/250-125W-4P-720



|                               |                                       |          |
|-------------------------------|---------------------------------------|----------|
| <b>Standard</b>               | IEC 60034-1, IEC 60335-2:80, ISO 5801 |          |
| <b>Tolerance</b>              | Class 2 acc. to DIN 24166             |          |
| <b>Balance Quality</b>        | G6.3 acc. to ISO 1940-1               |          |
| <b>Number of Poles</b>        | 4                                     |          |
| <b>Voltage (1P)</b>           | 230 V                                 |          |
| <b>Frequency</b>              | 50 Hz                                 | 60 Hz    |
| <b>Power</b>                  | 125 W                                 | 145 W    |
| <b>Current (±5%)</b>          | 0,6 A                                 | 0,7 A    |
| <b>Speed</b>                  | 1400 rpm                              | 1620 rpm |
| <b>Noise (LpA@1m)</b>         | 58 dbA                                | 60 dbA   |
| <b>Air Flow</b>               | 720 m³/h                              | 820 m³/h |
| <b>Installation Position</b>  | Horizontal & Vertical                 |          |
| <b>Operation</b>              | Indoor                                |          |
| <b>Operating Temperature</b>  | -25 ~ +50 °C                          |          |
| <b>Motor Insulation Class</b> | F                                     |          |
| <b>Thermal Protection</b>     | Yes (no external wiring required)     |          |
| <b>Condansator</b>            | Yes (3µf 400V)                        |          |
| <b>Weight</b>                 | 4 kg                                  |          |



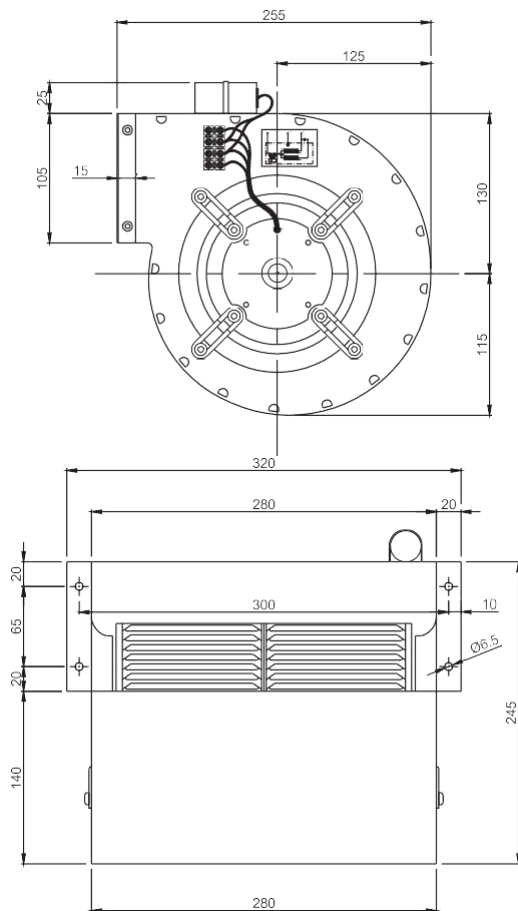
|                           |                                                                                                                                                                |                               |                                                                                                                           |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Motor <sup>1</sup></b> |                                                                                                                                                                | <b>Fasteners <sup>2</sup></b> |                                                                                                                           |
| Protection Class          | <input checked="" type="checkbox"/> IP44                                                                                                                       | Material                      | <input type="checkbox"/> Zinc Coated<br><input checked="" type="checkbox"/> Stainless Steel                               |
| <b>Wings <sup>2</sup></b> |                                                                                                                                                                | <b>Corrosion Class</b>        |                                                                                                                           |
| Material                  | <input checked="" type="checkbox"/> Aluminum                                                                                                                   | Powder Coating                | <input type="checkbox"/> C3 medium<br><input checked="" type="checkbox"/> C4 medium<br><input type="checkbox"/> C5 medium |
| <b>Housing</b>            |                                                                                                                                                                |                               |                                                                                                                           |
| Material                  | <input checked="" type="checkbox"/> Galvanized Steel<br><input type="checkbox"/> Aluminum<br><input type="checkbox"/> Stainless Steel                          |                               |                                                                                                                           |
| Color                     | <input type="checkbox"/> RAL9005<br><input type="checkbox"/> RAL7032<br><input type="checkbox"/> Custom Color<br><input checked="" type="checkbox"/> Unpainted |                               |                                                                                                                           |

<sup>1</sup> : aluminum, RAL9005  
<sup>2</sup> : delivered unpainted

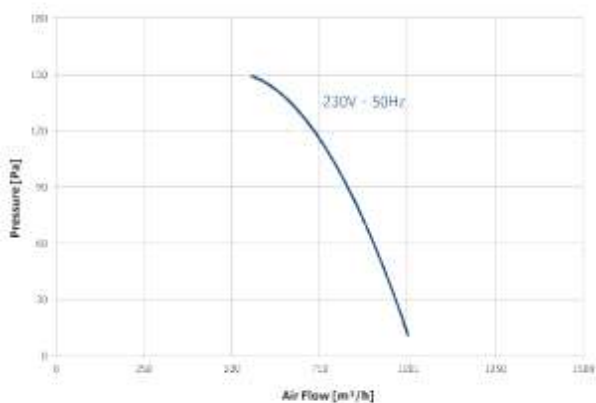




## Centrifugal Fans ARS 160/280-480W-2P-1000



|                                       |                                         |          |
|---------------------------------------|-----------------------------------------|----------|
| <b>Standard</b>                       | IEC 60034-1, IEC 60335-2:80, ISO 5801   |          |
| <b>Tolerance</b>                      | Class 2 acc. to DIN 24166               |          |
| <b>Balance Quality</b>                | G6.3 acc. to ISO 1940-1                 |          |
| <b>Number of Poles</b>                | 4                                       |          |
| <b>Voltage (1P)</b>                   | 230 V                                   |          |
| <b>Frequency</b>                      | 50 Hz                                   | 60 Hz    |
| <b>Power</b>                          | 480 W                                   | 620 W    |
| <b>Current (<math>\pm 5\%</math>)</b> | 2,2 A                                   | 2,9 A    |
| <b>Speed</b>                          | 2000 rpm                                | 1770 rpm |
| <b>Noise (LpA@1m)</b>                 | 63 dbA                                  | 62 dbA   |
| <b>Installation Position</b>          | Horizontal & Vertical                   |          |
| <b>Operation</b>                      | Indoor                                  |          |
| <b>Operating Temperature</b>          | $-25 \sim +50 \text{ }^{\circ}\text{C}$ |          |
| <b>Motor Insulation Class</b>         | F                                       |          |
| <b>Thermal Protection</b>             | Yes (no external wiring required)       |          |
| <b>Condansator</b>                    | Yes (3 $\mu\text{f}$ 400V)              |          |
| <b>Weight</b>                         | 6 kg                                    |          |



### Motor <sup>1</sup>

Protection Class

☒ IP44

### Fasteners <sup>2</sup>

Material

☐ Zinc Coated  
☒ Stainless Steel

### Wings <sup>2</sup>

Material

☒ Aluminum

### Corrosion Class

Powder Coating

☐ C3 medium  
☒ C4 medium  
☐ C5 medium

### Housing

Material

☒ Galvanized Steel  
☐ Aluminum  
☐ Stainless Steel

<sup>1</sup> : aluminum, RAL9005

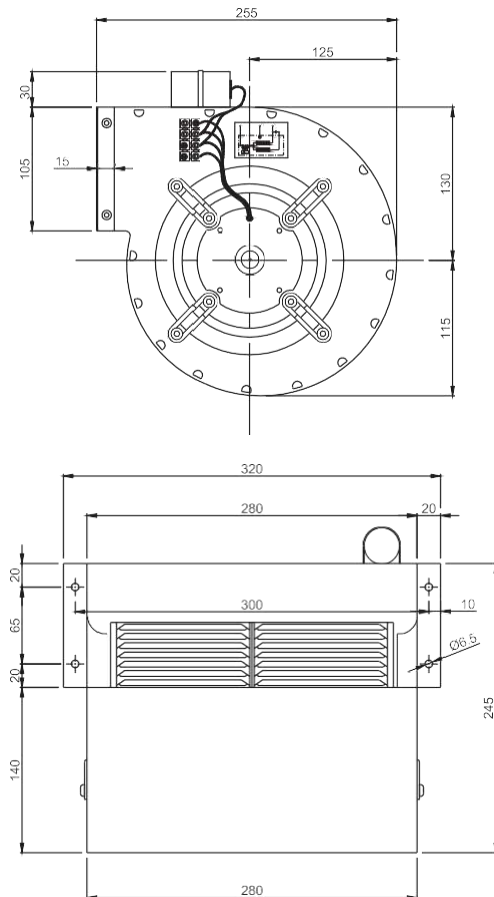
<sup>2</sup> : delivered unpainted

Color

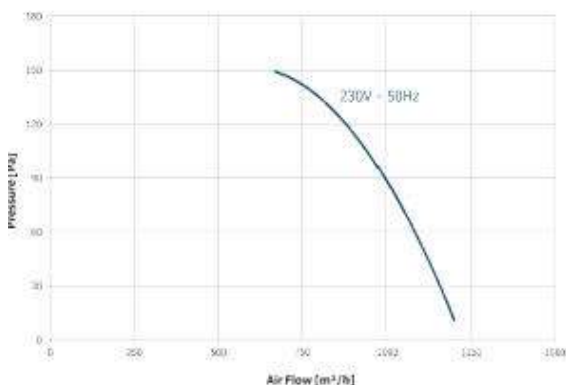
☐ RAL9005  
☐ RAL7032  
☐ Custom Color  
☒ Unpainted



## Centrifugal Fans ARS 160/280-510W-2P-1200



|                               |                                       |           |
|-------------------------------|---------------------------------------|-----------|
| <b>Standard</b>               | IEC 60034-1, IEC 60335-2:80, ISO 5801 |           |
| <b>Tolerance</b>              | Class 2 acc. to DIN 24166             |           |
| <b>Balance Quality</b>        | G6.3 acc. to ISO 1940-1               |           |
| <b>Number of Poles</b>        | 2                                     |           |
| <b>Voltage (1P)</b>           | 230 V                                 |           |
| <b>Frequency</b>              | 50 Hz                                 | 60 Hz     |
| <b>Power</b>                  | 510 W                                 | 630 W     |
| <b>Current (±5%)</b>          | 2,4 A                                 | 2,8 A     |
| <b>Speed</b>                  | 2300 rpm                              | 2180 rpm  |
| <b>Noise (LpA@1m)</b>         | 66 dbA                                | 65 dbA    |
| <b>Air Flow</b>               | 1200 m³/h                             | 1150 m³/h |
| <b>Installation Position</b>  | Horizontal & Vertical                 |           |
| <b>Operation</b>              | Indoor                                |           |
| <b>Operating Temperature</b>  | -25 ~ +50 °C                          |           |
| <b>Motor Insulation Class</b> | F                                     |           |
| <b>Thermal Protection</b>     | Yes (no external wiring required)     |           |
| <b>Weight</b>                 | 6 kg                                  |           |



|                           |                                                                                                                                                                |                                                                        |                                                                                                                           |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Motor</b> <sup>1</sup> |                                                                                                                                                                | <b>Fasteners</b> <sup>2</sup>                                          |                                                                                                                           |
| Protection Class          | <input checked="" type="checkbox"/> IP44                                                                                                                       | Material                                                               | <input type="checkbox"/> Zinc Coated<br><input checked="" type="checkbox"/> Stainless Steel                               |
| <b>Wings</b> <sup>2</sup> |                                                                                                                                                                | <b>Corrosion Class</b>                                                 |                                                                                                                           |
| Material                  | <input checked="" type="checkbox"/> Aluminum                                                                                                                   | Powder Coating                                                         | <input type="checkbox"/> C3 medium<br><input checked="" type="checkbox"/> C4 medium<br><input type="checkbox"/> C5 medium |
| <b>Housing</b>            |                                                                                                                                                                | <sup>1</sup> : aluminum, RAL9005<br><sup>2</sup> : delivered unpainted |                                                                                                                           |
| Material                  | <input checked="" type="checkbox"/> Galvanized Steel<br><input type="checkbox"/> Aluminum<br><input type="checkbox"/> Stainless Steel                          |                                                                        |                                                                                                                           |
| Color                     | <input type="checkbox"/> RAL9005<br><input type="checkbox"/> RAL7032<br><input type="checkbox"/> Custom Color<br><input checked="" type="checkbox"/> Unpainted |                                                                        |                                                                                                                           |