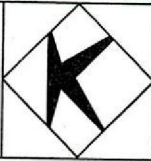


Kooshkan  
Transformers

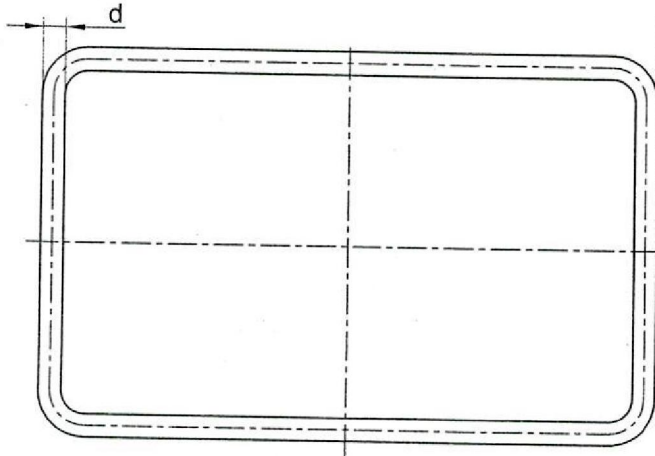


# Longitudinal Rubber gasket (Not pressed)

GD422

Dimensions are in mm

09:09:19 1400/09/22 .GD422  
GD422.pdf



Rubber gasket doesn't need complete drawings for accurate accordance .  
Respecting of given dimensions is enough for execution .

Representation method for longitudinal Rubber gasket with  $d = 12$  mm and ext .  
length of 1040 mm , is made from oil resistant rubber Wgi 55 .

Lng .Rubber gasket 12×1040 GD 422 Wgi 55 oil - resistant

|   |     |   |     |   |    |    |
|---|-----|---|-----|---|----|----|
| d | (5) | 6 | (7) | 8 | 10 | 12 |
|---|-----|---|-----|---|----|----|

Avoid the diameters that are put in parenthesis .

Permissible tolerances : accuracy acc . to DIN 7715

Material : Oil - resistant Wgi 55. acc. to AEG 550

Clophen - resistant Wgi 55. acc. to AEG 550

Execution : The heads shold be vulcanized or sticked and stick region  
shold be adapted with soft rubber specifications .

In determining the necessary length , magnitude of overlapping is not respected , for example :

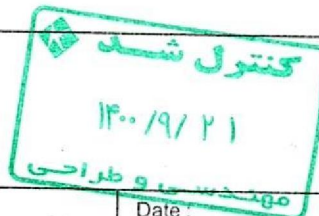
1) acc. to perbunan

2) acc. to EFRO 300/Erot

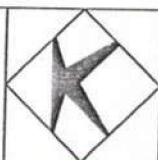
نام مدير ( و صاحب امضاي مجاز ) / امضاء :

نهر رسمي فروشنده (signet) :

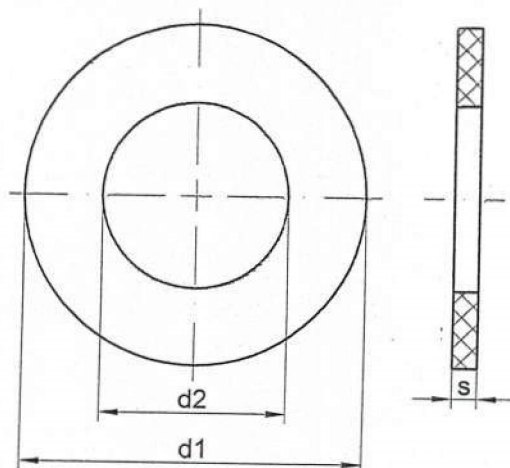
Comment:



|                   |        |        |        |        |             |
|-------------------|--------|--------|--------|--------|-------------|
| Date : ۸/۸/۱۴     | Date : | Date : | Date : | Date : | Page<br>1/1 |
| Dsgn: [Signature] | Dsgn:  | Dsgn:  | Dsgn:  | Dsgn:  |             |
| Draw: [Signature] | Draw:  | Draw:  | Draw:  | Draw:  |             |
| Appr: [Signature] | Appr:  | Appr:  | Appr:  | Appr:  |             |



1

13:06:02 1400/09/30 GD126-R1  
GD126-R1.pdf

The numbers in parentheses must use for cork rubber washer .

| Flat gasket | d1                                      | d2         | s        |
|-------------|-----------------------------------------|------------|----------|
| M1-250      | 27 <sup>+0.5</sup> <sub>0</sub><br>(32) | 13<br>(14) | 4        |
| M1-630      | 42<br>(45)                              | 21<br>(22) | 4        |
| M1-1000     | 62<br>(65)                              | 31<br>(32) | 4        |
| M1-2000     | 77<br>(80)                              | 43<br>(45) | 4        |
| M1-3150     | 87<br>(90)                              | 49<br>(50) | 4        |
| N 250       | 47<br>(50)                              | 29<br>(28) | 4        |
| N 630       | 67<br>(70)                              | 43<br>(45) | 4        |
| N 1000      | 87                                      | 54<br>(53) | 4        |
| N 2000      | 101                                     | 68<br>(66) | 4        |
| N 3150      | 122                                     | 88<br>(86) | 4        |
| N           | 106<br>(108)                            | 76         | 6<br>(4) |
| O-250       | 50                                      | 28         | 4        |
| O-630       | 67                                      | 43         |          |
| P1-250      | 42                                      | 25         | 2        |
| P2-630      | 63                                      | 40         | 4        |

Representation method for flat gasket with :  
d1=70 , d2=45 , s=4  
Flat gasket 70×45-4 GD126

نام مدیر (و صاحب امضای مجاز) / امضاء :

فهر رسمی فروشنده (signed) :

## Comment:

Material : Oil resisting rubber.

Hardness 65 to 70 shore A acc. to DIN 53505

Permissible deviation: Accuracy acc. to DIN 7715

|                  |                  |                 |                 |        |                 |
|------------------|------------------|-----------------|-----------------|--------|-----------------|
| Date : 84/8/14   | Date : 87/2/9    | Date : 95/04/28 | Date : 00.09.22 | Date : | Page<br><br>1/1 |
| Dsgn: Soltani    | Dsgn: Poursaberi | Dsgn: Azizkhani | Dsgn: Azyan     | Dsgn:  |                 |
| Ctrl: Poursaberi | Ctrl: Poursaberi | Ctrl: Afshari   | Ctrl: Shamsi    | Ctrl:  |                 |
| Appr: Rezaei     | Appr: Rezaei     | Appr: Daneshvar | Appr: Daneshvar | Appr:  |                 |

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# Washer without chamfer

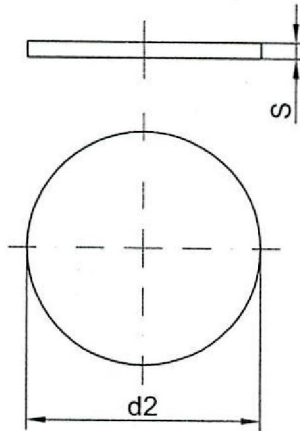
GD133

12:36:46 1400/09/15 GD133  
GD133.pdf

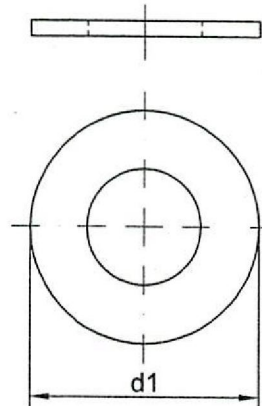
These forms of washers are used in applications which usage of ordinary washers  
Like DIN 125 , DIN 126 , DIN 440 , DIN 443 and DIN 1441 is not possible .

Dimensions are in mm

Washer without any hole .



Washer with a hole .



Lost dimensions are  
similar to the washer  
without any hole.

Representation method : Preferred changable data of dimensions , material and  
production type is taken from storage lists .  
In other times , above data is selected according to the design specifications .  
Representation method for a washer with inner diameter  $d_1 = 6.5$  mm and  
outer diameter  $d_2 = 16.5$  mm and thickness  $s = 0.5$  mm made from galvanized  
Zinc coated steel , gal Zn 8 bkcC (A3G) :  $6.5 \times 16.5 \times 0.5$  GD 133 - ST A3G .

نام مدیر ( و صاحب امضای مجاز ) / امضاء :

مهر رسمی فروشنده (signet) :

Washer  $6.5 \times 16.5 \times 0.5$  GD133-ST A3G

Permissible tolerances

| Material                                                                                                    | Respective dimension | Ranging       | Tolerances          |
|-------------------------------------------------------------------------------------------------------------|----------------------|---------------|---------------------|
| Metalic materials , Laminated wood , Laminated paper , Hard fabric , pressboard paper , compressed asbestos | d1                   | $\leq 180$    | m(Average) DIN522   |
|                                                                                                             |                      | More than 180 | H15                 |
|                                                                                                             | d2                   | $\leq 250$    | m(Average) DIN522   |
|                                                                                                             |                      | More than 250 | H16                 |
|                                                                                                             | s                    | $\leq 18$     | m(Average) DIN522*) |
|                                                                                                             |                      | More than 18  | $\pm 2$             |
|                                                                                                             | Deviation            |               | m(Average) DIN522   |
| Soft rubber                                                                                                 | Acc. to DIN 53505    |               |                     |
| Felt                                                                                                        | $\pm 5\%$            |               |                     |

\*In laminated paper and for thicknesses up to 0.5 mm , tolerances can  
exceed from permissible values with respect of the crude material .

Comment:

کنترل شد

|                |        |        |                    |        |      |
|----------------|--------|--------|--------------------|--------|------|
| Date : ۱۳۸۸/۱۲ | Date : | Date : | Date : ۱۴۰۰/۹/۱۳   | Date : | Page |
| Dsgn: سید علی  | Dsgn:  | Dsgn:  | Dsgn: مهندس و طراح | Dsgn:  |      |
| Draw: سلطان    | Draw:  | Draw:  | Draw:              | Draw:  |      |
| Appr: رحمان    | Appr:  | Appr:  | Appr:              | Appr:  | 1/2  |

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Transformers



Washer

GD133

Material :

| Abbreviation                         | Description                                                    | Extra specifications            |                                                                                                                                                                     |                                                          |
|--------------------------------------|----------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
|                                      |                                                                | Abbreviation                    | Description                                                                                                                                                         | Remarks                                                  |
| st                                   | Steel selected by the producer <sup>1</sup>                    |                                 |                                                                                                                                                                     |                                                          |
| MS                                   | Brassy (Copper and Zinc) selected by the producer <sup>1</sup> |                                 |                                                                                                                                                                     |                                                          |
| AL                                   | Aluminium alloy selected by the producer <sup>1</sup>          |                                 |                                                                                                                                                                     |                                                          |
| CU Sn                                | Bronzy selected by the producer <sup>1</sup>                   |                                 |                                                                                                                                                                     |                                                          |
| P5238                                | Insulator paper acc. to DIN 6740 .                             |                                 |                                                                                                                                                                     |                                                          |
| Paper                                | Gray paper acc. to DIN 7730 .                                  |                                 |                                                                                                                                                                     |                                                          |
| Psp 3010<br>Psp 3030<br>Psp 3050     | Press - board acc. to DIN 7733 .                               |                                 |                                                                                                                                                                     |                                                          |
| Hp2061<br>HP2061,5<br>Hgw            | Laminated paper and hard fabric acc. to DIN 7735.              |                                 |                                                                                                                                                                     |                                                          |
| PSPH                                 | Compressed wood acc. to GD 040 .                               |                                 |                                                                                                                                                                     |                                                          |
| It                                   | Compressed asbestos 200 acc. to DIN 3754                       |                                 |                                                                                                                                                                     |                                                          |
| Wgi30<br>Wgi40<br>Wgi55<br><br>Wgi65 | Soft rubber acc. to AEG 550 .                                  | LIR<br>ASK<br>OEL<br><br>OELASK | Resistant against cracks.<br>Resistant against askarel.<br>Resistant against ordinary transformer oil .<br>Resistant against ordinary transformer oil and askarel . | Z.B.Neoprene<br>Silikon<br>Z.B.Perbunan<br><br>Z.B.Viton |

1) In exceptional cases , It is possible to use special material like AL Mg3 F23 .

Execution:

|                 |            |                                                                                                           |
|-----------------|------------|-----------------------------------------------------------------------------------------------------------|
| Steel           | Polished . | blank <sup>2)</sup><br>gal Zn Bbkc C=A3G acc. to DIN 267 Blatt 9                                          |
| Copper alloy    |            | blank <sup>2)</sup><br>gal Ni 12 mt=E4A acc. to DIN 267Blatt 9<br>gal Sn 3 mt= !1A acc. to DIN 267Blatt 9 |
| Aluminium       |            | blank <sup>2)</sup>                                                                                       |
| Other materials |            | Crude <sup>2)</sup>                                                                                       |

2) Not determind as a specification .

Comment:

|                     |        |        |                 |        |             |
|---------------------|--------|--------|-----------------|--------|-------------|
| Date : ۱۴۸۴/۸/۱۴    | Date : | Date : | Date :          | Date : | Page<br>2/2 |
| Dsgn: <i>سلطانی</i> | Dsgn:  | Dsgn:  | Dsgn: ۱۴۰۰/۹/۱۳ | Dsgn:  |             |
| Draw: <i>سلطانی</i> | Draw:  | Draw:  | Draw:           | Draw:  |             |
| Appr: <i>علی</i>    | Appr:  | Appr:  | Appr:           | Appr:  |             |

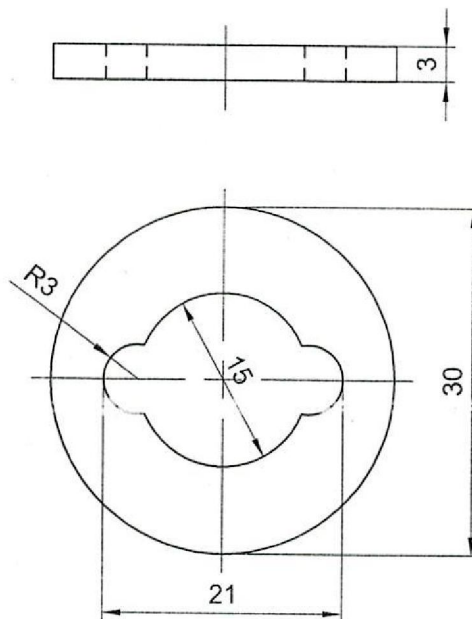
Kooshkan  
Transformers



# Asbestos washer (HV)

GD 106

09:31:44 1400/09/14 GD106  
GD106.pdf



نام مدیر (و صاحب امضای مجاز) / امضاء :

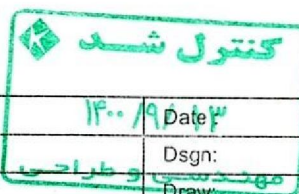
فهر رسمی فروشنده (signed) :

Comment:

NB= oil resisting rubber

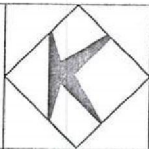
Material = NB

25 ... 2000 kVA



|                   |        |                   |        |      |
|-------------------|--------|-------------------|--------|------|
| Date : ۸۶/۸/۱۴    | Date : | Date : ۱۴۰۰/۰۹/۲۳ | Date : | Page |
| Dsgn: [Signature] | Dsgn:  | Dsgn: [Signature] | Dsgn:  |      |
| Draw: [Signature] | Draw:  | Draw: [Signature] | Draw:  |      |
| Appr: [Signature] | Appr:  | Appr:             | Appr:  | 1/1  |

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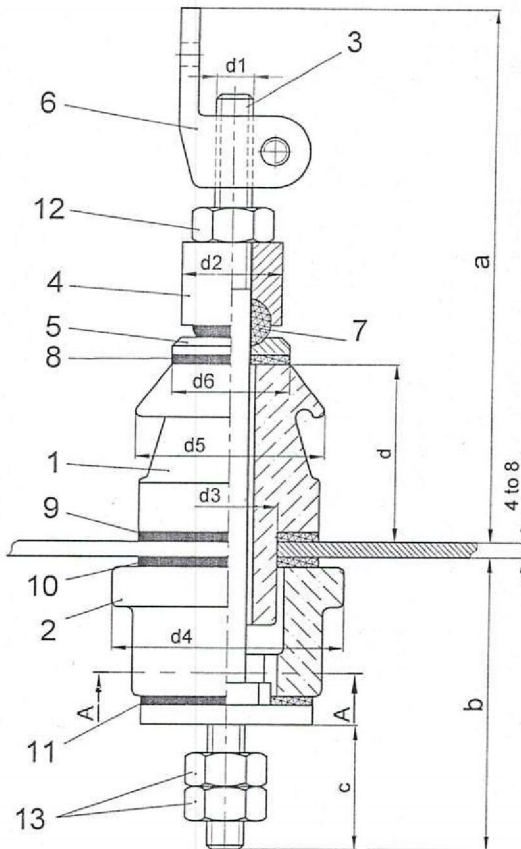


# LV Bushing (1.1 kV / 250 to 3150 A)

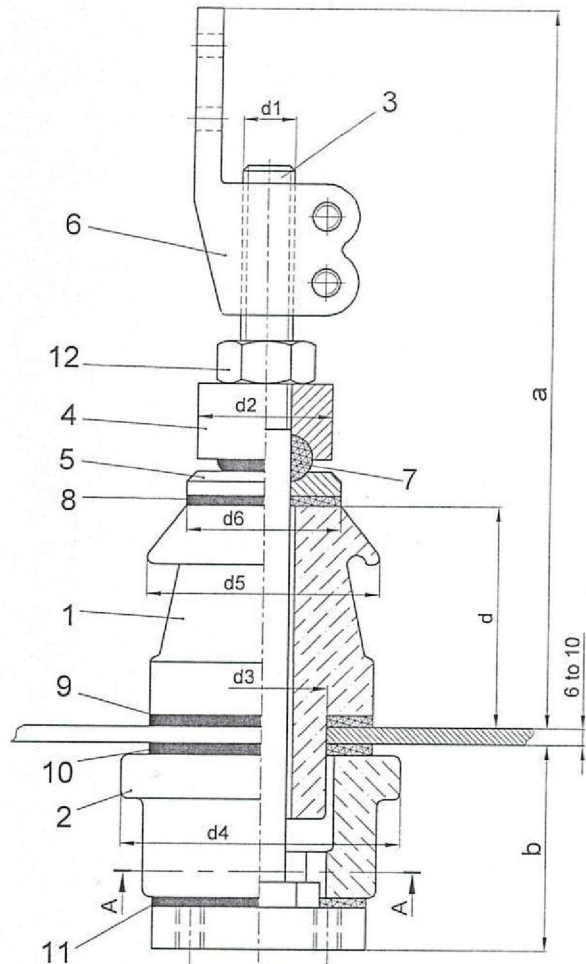
GD333

2

10:51:52 1402/07/09 GD333-R2  
GD333-R2.pdf



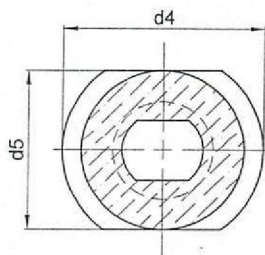
(1.1 kV / 250 , 630 A)



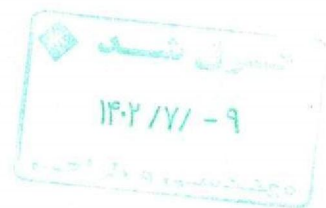
(1.1 kV / 1000, 2000, 3150 A)

نام مدیر (و صاحب امضای مجاز) / امضاء:

مهر رسمی فروشنده (signet):



Section A-A

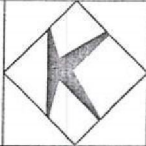


| Type       | a<br>Max. size | b<br>Max. size | c<br>Min. size | d<br>Min. size | d1    | d2 | d3 | d4  | d5  | d6  | Weight<br>(kg) |
|------------|----------------|----------------|----------------|----------------|-------|----|----|-----|-----|-----|----------------|
| 1.1 - 250  | 156            | 68             | 25             | 49             | M12   | 28 | 28 | 60  | 50  | 32  | 1              |
| 1.1 - 630  | 191            | 81             | 37             | 59             | M20   | 40 | 45 | 85  | 70  | 47  | 2.5            |
| 1.1 - 1000 | 263            | 60             | -----          | 59             | M30×2 | 56 | 56 | 110 | 90  | 65  | 5              |
| 1.1 - 2000 | 340            | 63             | -----          | 59             | M42×3 | 70 | 70 | 125 | 104 | 80  | 12             |
| 1.1 - 3150 | 372            | 70             | -----          | 59             | M48×3 | 80 | 90 | 150 | 125 | 100 | 17             |

Comment: Tolerances according to DIN 40680

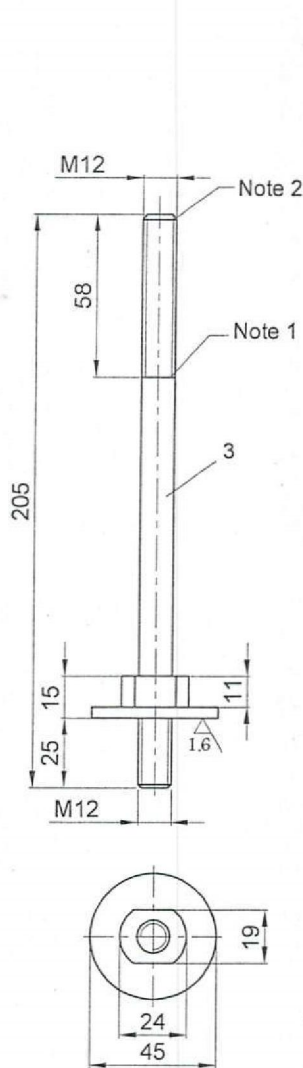
|                  |                 |                 |                 |                        |        |        |                 |
|------------------|-----------------|-----------------|-----------------|------------------------|--------|--------|-----------------|
| Date : 84.08.14  | Date : 98.02.29 | Date : 98.11.19 | Date : 00.09.22 | Date : 02.07.04        | Date : | Date : | Page<br><br>1/5 |
| Dsgn: Soltani    | Dsgn: Maboudi   | Dsgn: Bahari    | Dsgn: Asgari    | Dsgn: <i>Asgari</i>    | Dsgn:  | Dsgn:  |                 |
| Ctrl: Poursaberi | Ctrl: Afshari   | Ctrl: Afshari   | Ctrl: Shajeri   | Ctrl: <i>Asgari</i>    | Ctrl:  | Ctrl:  |                 |
| Appr: Rezaie     | Appr: Daneshvar | Appr: Daneshvar | Appr: Daneshvar | Appr: <i>Daneshvar</i> | Appr:  | Appr:  |                 |

Kooshkan  
Transformers

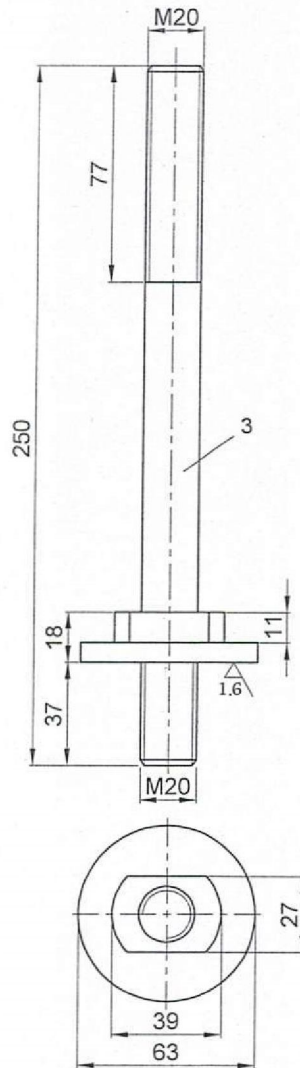


# LV Bushing (1.1 kV / 250 to 3150 A)

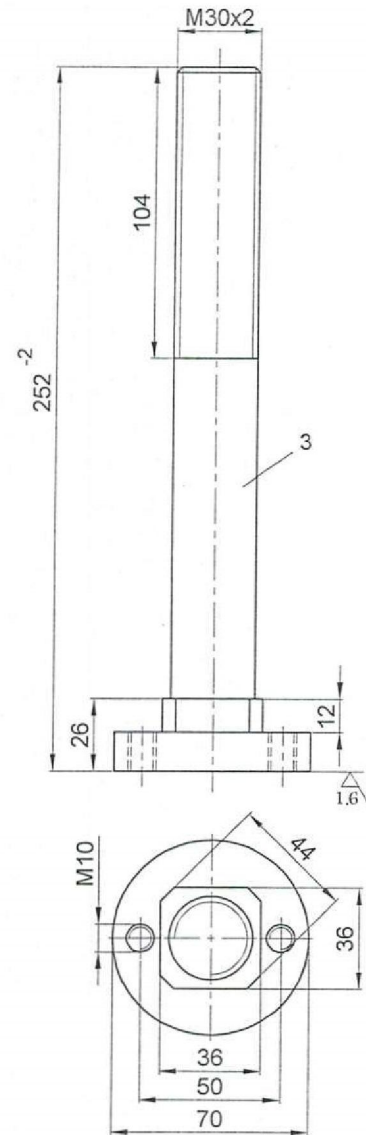
GD333



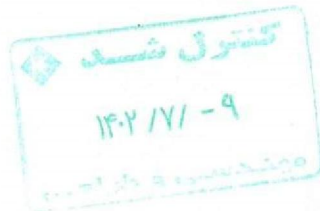
Y-250



Y-630



Z-1000



| Form   | Material                    | Wt(kg) |
|--------|-----------------------------|--------|
| Y-250  | CW614N-R500<br>DIN EN 12164 | 0.3    |
| Y-630  | CW617N-R360<br>DIN EN 12164 | 1      |
| Z-1000 |                             | 2      |

Production by Forging method

Note 1 : The beginning of thread is acc. to DIN 76 ( form B)

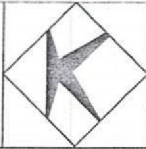
Note 2 : The end of thread is acc. to DIN 78 ( form K)

Comment: Dim Tolerances acc. to DIN ISO 2768 Surface characteristic: DIN ISO - 1302

CW614N(Cuzn39Pb3) ,CW617N(Cuzn40Pb2)

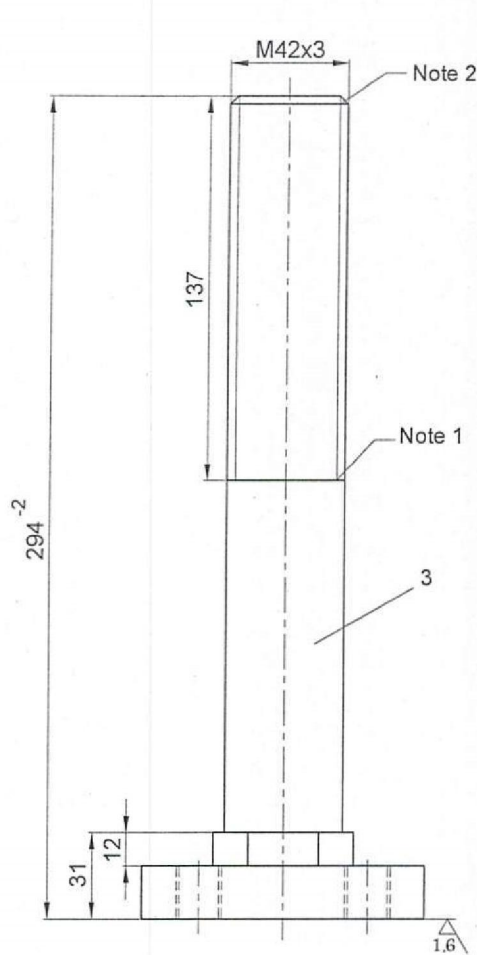
|                 |                        |        |        |        |        |                 |
|-----------------|------------------------|--------|--------|--------|--------|-----------------|
| Date : 00.09.22 | Date : 02.07.04        | Date : | Date : | Date : | Date : | Page<br><br>2/5 |
| Dsgn: Asgari    | Dsgn: <i>Asgari</i>    | Dsgn:  | Dsgn:  | Dsgn:  | Dsgn:  |                 |
| Ctrl: Shajeri   | Ctrl: <i>Asgari</i>    | Ctrl:  | Ctrl:  | Ctrl:  | Ctrl:  |                 |
| Appr: Daneshvar | Appr: <i>Daneshvar</i> | Appr:  | Appr:  | Appr:  | Appr:  |                 |

Kooshkan  
Transformers

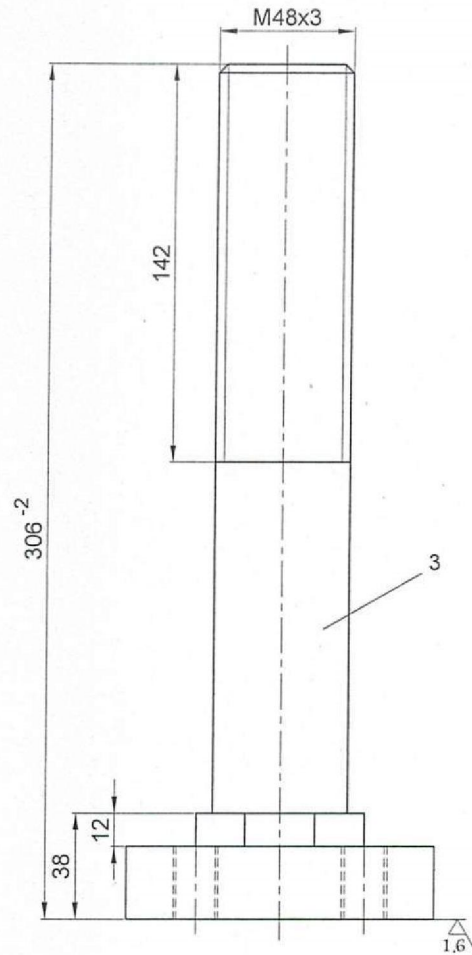


# LV Bushing (1.1 kV/ 250 to 3150 A)

GD333



Z-2000



Z-3150

Production by Forging method

Note 1 : The beginning of thread is acc. to DIN 76 ( form B)

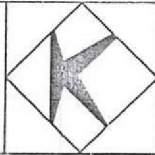
Note 2 : The end of thread is acc. to DIN 78 ( form K)

| Bolt & seat | Material                    | Wt(kg) |
|-------------|-----------------------------|--------|
| Z-2000      | CW617N-R360<br>DIN EN 12164 | 4.85   |
| Z-3150      | Cu-ETP-R250<br>DIN EN 13601 | 7.3    |

Comment: Dim Tolerances acc. to DIN ISO 2768 Surface characteristic: DIN ISO - 1302

CW617N(Cuzn40Pb2), Cu-ETP-R250( E-CuF25)

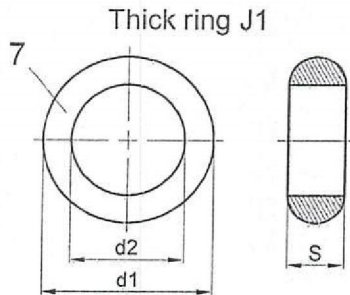
|                 |                        |        |        |        |        |                 |
|-----------------|------------------------|--------|--------|--------|--------|-----------------|
| Date : 00.09.22 | Date : 02.07.04        | Date : | Date : | Date : | Date : | Page<br><br>3/5 |
| Dsgn: Asgari    | Dsgn: <i>Asgari</i>    | Dsgn:  | Dsgn:  | Dsgn:  | Dsgn:  |                 |
| Ctrl: Shajeri   | Ctrl: <i>Asgari</i>    | Ctrl:  | Ctrl:  | Ctrl:  | Ctrl:  |                 |
| Appr: Daneshvar | Appr: <i>Daneshvar</i> | Appr:  | Appr:  | Appr:  | Appr:  |                 |



# LV Bushing (1.1 kV / 250 to 3150 A)

GD333

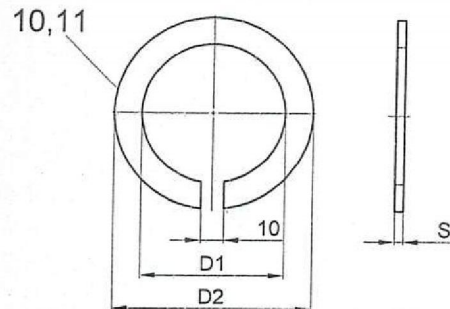
2 10:51:52 1402/07/09 GD333-R2  
GD333-R2.pdf



Representation method:  
Thick ring J1, d1=22, d2=12, s=11  
Thick ring : j1-22 x12-11 GD333

| Thick ring J | d1           | d2 | S  |
|--------------|--------------|----|----|
| J1-250       | 22 $\pm 0.3$ | 12 | 11 |
| J1-630       | 32 $\pm 0.3$ | 20 | 13 |
| J1-1000      | 45 $\pm 0.3$ | 30 | 16 |
| J1-2000      | 59 $\pm 0.3$ | 42 | 18 |
| J1-3150      | 65 $\pm 0.3$ | 48 | 18 |

Flat gasket (X,R)

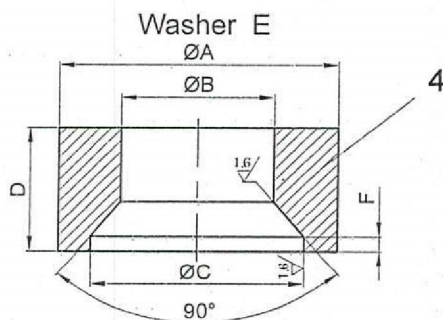


Representation method: Flat gasket X d1=54, d2=87, s=4  
Flat gasket : X-54x87-4 GD333

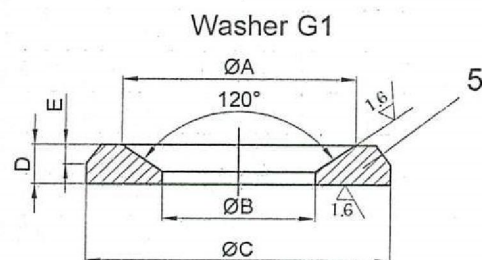
| Flat gasket | D1 | D2  | S |
|-------------|----|-----|---|
| X-1000      | 54 | 87  | 4 |
| X-2000      | 68 | 101 |   |
| X-3150      | 88 | 122 |   |
| R-1000      | 43 | 67  |   |
| R-2000      | 63 | 87  |   |
| R-3150      | 76 | 106 |   |

نام مدیر ( و صاحب امضای مجاز ) / امضاء :

مهر رسمی فروشنده (signet) :



| Form   | A  | B  | C  | D  | F   |
|--------|----|----|----|----|-----|
| E-250  | 28 | 13 | 22 | 20 | 1.5 |
| E-630  | 40 | 21 | 32 | 22 | 2   |
| E-1000 | 56 | 31 | 45 | 24 | 3   |
| E-2000 | 70 | 43 | 59 | 26 | 3   |
| E-3150 | 80 | 50 | 65 | 26 | 3   |

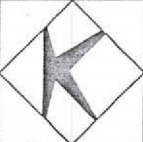


| Form    | A  | B  | C  | D | E         |
|---------|----|----|----|---|-----------|
| G1-250  | 22 | 13 | 32 | 4 | 2 x 45°   |
| G1-630  | 32 | 21 | 45 | 5 | 2.5 x 45° |
| G1-1000 | 45 | 31 | 63 | 6 | 3.5 x 45° |
| G1-2000 | 59 | 43 | 80 | 7 | 5 x 45°   |
| G1-3150 | 65 | 50 | 90 | 8 | 5 x 45°   |

Comment: Surface characteristic: DIN ISO - 1302

Material : oil resisting rubber with hardness 65 to 70 shore A acc. to DIN 53505 .

|                 |                        |        |        |        |        |             |
|-----------------|------------------------|--------|--------|--------|--------|-------------|
| Date : 00.09.22 | Date : 02.07.04        | Date : | Date : | Date : | Date : | Page<br>4/5 |
| Dsgn: Asgari    | Dsgn: <i>Asgari</i>    | Dsgn:  | Dsgn:  | Dsgn:  | Dsgn:  |             |
| Ctrl: Shajeri   | Ctrl: <i>Asgari</i>    | Ctrl:  | Ctrl:  | Ctrl:  | Ctrl:  |             |
| Appr: Daneshvar | Appr: <i>Daneshvar</i> | Appr:  | Appr:  | Appr:  | Appr:  |             |

|                       |                                                                                   |                                                                      |       |
|-----------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|-------|
| Kooshkan Transformers |  | Indoor and outdoor transformer bushings<br>(1.1 kV/ 250 ... 3150 A ) | GD333 |
|-----------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|-------|

نام مدیر ( و صاحب امضای مجاز ) / امضاء :

مهر رسمی فروشنده (signet) :

2 10:51:52 1402/07/09 GD333-R2  
GD333-R2.pdf

|         |                                  |                |                        |     | 250A                    | 630A                    | 1000A                   | 2000A                   | 3150A                   |          |
|---------|----------------------------------|----------------|------------------------|-----|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|----------|
| 13      | Hex.nut<br>DIN 934               |                | CW617N<br>DIN EN 12165 | 2   | M12                     | M20                     | ---                     | ---                     | ---                     |          |
| 12      | Hex.nut<br>DIN 934               |                | CW617N<br>DIN EN 12165 | 1   | M12                     | M20                     | M30x2                   | M42x3                   | M48x3                   |          |
| 11      | Flat gasket "P & R"              |                | PVC+NBR<br>BS EN 2842  | 1   | P1-250<br>Acc.to GD 126 | P2-630<br>Acc.to Page 4 | R-1000<br>Acc.to Page 4 | R-2000<br>Acc.to Page 4 | R-3150<br>Acc.to Page 4 |          |
| 10      | Flat gasket "O & X"              |                | PVC+NBR<br>BS EN 2842  | 1   | O-250<br>Acc.to GD 126  | O-630<br>Acc.to Page 4  | X-1000<br>Acc.to Page 4 | X-2000<br>Acc.to Page 4 | X-3150<br>Acc.to Page 4 |          |
| 9       | Flat gasket "N"                  | GD 126         | PVC+NBR<br>BS EN 2842  | 1   | N-250                   | N-630                   | N-1000                  | N-2000                  | N-3150                  |          |
| 8       | Flat gasket "M"                  | GD 126         | PVC+NBR<br>BS EN 2842  | 1   | M1-250                  | M1-630                  | M1-1000                 | M1-2000                 | M1-3150                 |          |
| 7       | Thick ring "J"                   | Page 4         | PVC+NBR<br>BS EN 2842  | 1   | J1-250                  | J1-630                  | J1-1000                 | J1-2000                 | J1-3150                 |          |
| 6       | Bushing Lug                      | Acc.to ...     |                        | 1   | GD 322                  | GD 323                  | GD 304                  | GD 305                  | GD 306                  |          |
| 5       | Washer "G1"<br>DIN 42530         | Page 4         | CW617N<br>DIN EN12165  | 1   | G1-250                  | G1-630                  | G1-1000                 | G1-2000                 | G1-3150                 |          |
| 4       | Washer "E"<br>DIN 42530          | Page 4         | CW617N<br>DIN EN12165  | 1   | E-250                   | E-630                   | E-1000                  | E-2000                  | E-3150                  |          |
| 3       | Bushing bolt & Seat<br>DIN 42530 | Page 2 and 3   |                        | 1   | Y-250                   | Y-630                   | Z-1000                  | Z-2000                  | Z-3150                  |          |
| 2       | Body isol-Down<br>DIN 42530      |                |                        | 1   | B-250                   | B-630                   | B-1000                  | B-2000                  | B-3150                  |          |
| 1       | Body isol-Top<br>DIN 42530       |                |                        | 1   | A1-250                  | A1-630                  | A1-1000                 | A1-2000                 | A1-3150                 |          |
| Part no | Denomination                     | Semi finished  | Material               | No. | Part size               |                         |                         |                         |                         | Wt. (kg) |
|         | Standard                         | Drawing number | Standard               |     |                         |                         |                         |                         |                         |          |

Comment:

CW614N(Cuzn39Pb3)  
CW617N(Cuzn40Pb2)

|                 |                 |        |        |        |        |      |
|-----------------|-----------------|--------|--------|--------|--------|------|
| Date : 00.09.22 | Date : 02.07.04 | Date : | Date : | Date : | Date : | Page |
| Dsgn: Asgari    | Dsgn: Asgari    | Dsgn:  | Dsgn:  | Dsgn:  | Dsgn:  |      |
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| Appr: Daneshvar | Appr: Daneshvar | Appr:  | Appr:  | Appr:  | Appr:  | 5/5  |

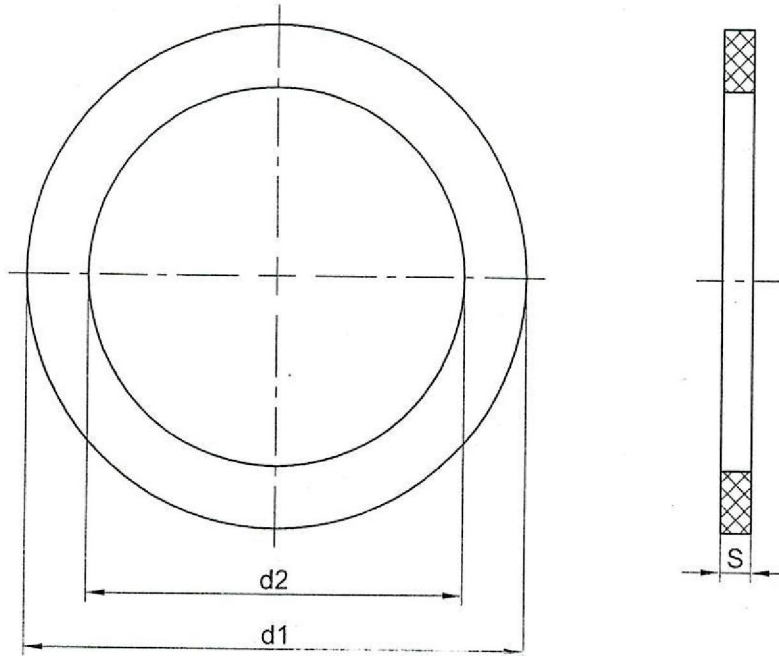
Kooshkan  
Transformers



# Flat gasket (for drain valve)

GD 121

12:25:48 1400/09/15 GD121  
GD121.pdf



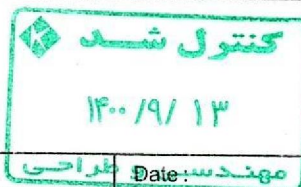
| Nr. | NW | d1 | d2 | S |
|-----|----|----|----|---|
| 1   | 22 | 46 | 34 | 4 |
| 2   | 31 | 65 | 49 | 4 |
| 3   | 40 | 80 | 61 | 4 |

نام مدیر (و صاحب امضای مجاز) / امضاء :

مهر رسمی فروشنده (signature) :

Comment:

Material : Oil resisting rubber  
Hardness 65 to 70 shore A acc. to DIN 53505  
Permissible deviation : Accuracy acc. to DIN 7715 .



|                   |        |        |                            |        |             |
|-------------------|--------|--------|----------------------------|--------|-------------|
| Date : ۸۴۸/۱۴     | Date : | Date : | Date : مهندس : [Signature] | Date : | Page<br>1/1 |
| Dsgn: [Signature] | Dsgn:  | Dsgn:  | Dsgn:                      | Dsgn:  |             |
| Draw: سلطان       | Draw:  | Draw:  | Draw:                      | Draw:  |             |
| Appr: [Signature] | Appr:  | Appr:  | Appr:                      | Appr:  |             |

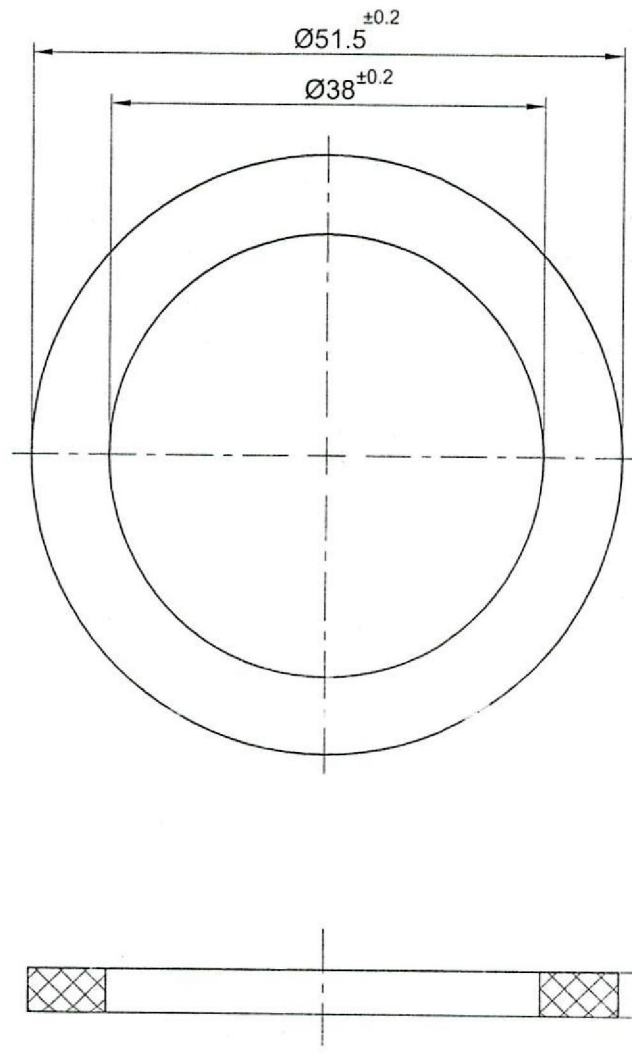
Kooshkan  
Transformers



# Flat gasket

GD 140

15:01:44 1400/09/15 GD140  
GD140.pdf

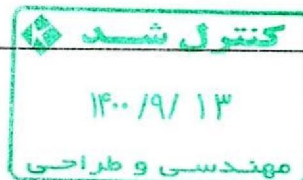


نام مدیر (و صاحب امضای مجاز) / امضاء :

مهر رسمی فروشنده (signature) :

Comment:

Material : Oil resisting rubber , Hardness : 65 to 70 shore A acc. to DIN 53505 .  
Weight of 1000 Numbers : 5.5 kg .  
Permissible tolerances Average acc. to DIN 7715



|                   |        |        |        |        |             |
|-------------------|--------|--------|--------|--------|-------------|
| Date : ۱۳۸۴/۸/۱۴  | Date : | Date : | Date : | Date : | Page<br>1/1 |
| Dsgn: [Signature] | Dsgn:  | Dsgn:  | Dsgn:  | Dsgn:  |             |
| Draw: [Signature] | Draw:  | Draw:  | Draw:  | Draw:  |             |
| Appr: [Signature] | Appr:  | Appr:  | Appr:  | Appr:  |             |

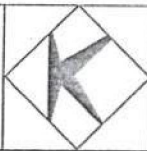
2 15:45:58 1402/04/31 GD599-R2  
GD599-R2.pdf



| Part 7<br>GD 612 | B   | W                      |                     |
|------------------|-----|------------------------|---------------------|
|                  |     | Without shut off valve | With shut off valve |
| Nr.2,4,6,8       | 105 | 367                    | 455                 |
| Nr.3,5,7,9       | 145 | 407                    | 496                 |

Parameters " L ", " M ", "  $\alpha$  ", and " Form " are represented in part list of Exp.Tank .

1/6

Kooshkan  
TransformersExpantion tank (with handhole)  
Ø400, Ø500

GD599

نام مدیر (و صاحب امضای فجاز) / امضاء :

مهر رسمی فروشنده (signet) :

2

15:45:58 1402/04/31 GD599-R2  
GD599-R2.pdf

|    |                   |                  |         | Exp.Tank diameter (Ø400) | Exp.Tank diameter (Ø500) |      |
|----|-------------------|------------------|---------|--------------------------|--------------------------|------|
| 36 | Support for plump |                  | Ust37-2 | 1                        | 1                        |      |
|    |                   | GD226(P2)-Part10 |         |                          |                          |      |
| 35 | Earthing cable    |                  |         | 1                        | 1                        | Nr.1 |
|    |                   | G.D-318          |         |                          |                          |      |
| 34 | Earthing screw    |                  |         | 2                        | 2                        | M12  |
|    |                   | G.D-501          |         |                          |                          |      |

|    |              |                    |           |   | Exp.Tank diameter (Ø400) | Exp.Tank diameter (Ø500) |
|----|--------------|--------------------|-----------|---|--------------------------|--------------------------|
| 33 | Bottom sheet |                    | S.t 37-2  | 1 | 4xØ484                   | 4xØ584                   |
|    | DIN 1543     | Page(3) , Page (4) | DIN 17100 |   |                          |                          |
| 32 | Gasket       |                    | NBR       | 1 | 4xØ394xØ484              | 4xØ494xØ584              |
|    | TWN565.51    | Page(3) , Page (4) |           |   |                          |                          |
| 31 | Flange       |                    | S.t 37-2  | 1 | 4xØ394xØ484              | 4xØ494xØ584              |
|    | DIN 1543     | Page(3) , Page (4) | DIN 17100 |   |                          |                          |

|    |               |         |          |   |           |
|----|---------------|---------|----------|---|-----------|
| 30 | Washer        |         | Dacromet | 4 | A10.5     |
|    | DIN 125       |         |          |   |           |
| 29 | Hex.nut       |         | Dacromet | 4 | M10       |
|    | DIN 934-6     |         | ISO 898  |   |           |
| 28 | threaded bolt |         |          | 4 | MP M10x20 |
|    |               | G.D-024 |          |   |           |

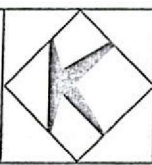
|    |             |           |          | Without shut off valve | With shut off valve |          |
|----|-------------|-----------|----------|------------------------|---------------------|----------|
| 27 | Stud bolt   |           | Dacromet | ---                    | 4                   | M12 × 70 |
|    |             | GD107(P1) | ISO 898  |                        |                     |          |
| 26 | Washer      |           | Dacromet | 8                      | 16                  | A13      |
|    | DIN 125     |           |          |                        |                     |          |
| 25 | Hex. Nut    |           | Dacromet | 8                      | 16                  | M12      |
|    | DIN 934-6   |           | ISO 898  |                        |                     |          |
| 24 | Hex. Screw  |           | Dacromet | 8                      | 8                   | M12 × 45 |
|    | DIN 933-6.8 |           | ISO 898  |                        |                     |          |
| 23 | O-ring      |           | NBR      | 2                      | 4                   | 45 × 4.5 |
|    | DIN 3771    |           |          |                        |                     |          |

|          |               |                |                        | Exp.Tank diameter (Ø400) | Exp.Tank diameter (Ø500) |           |
|----------|---------------|----------------|------------------------|--------------------------|--------------------------|-----------|
| 22       | Spring washer |                | Dacromet               | 6                        | 6                        | B10       |
|          | DIN 127       |                |                        |                          |                          |           |
| 21       | Washer        |                | Dacromet               | 32                       | 36                       | A10.5     |
|          | DIN 125       |                |                        |                          |                          |           |
| 20       | Hex. Nut      |                | Dacromet               | 26                       | 30                       | M10       |
|          | DIN 934-8     |                | ISO 898                |                          |                          |           |
| 19       | Hex. Screw    |                | Dacromet <sup>1)</sup> | 26                       | 30                       | M10 × 30  |
|          | DIN 933-8.8   |                | ISO 898                |                          |                          |           |
| Part no: | Denomination  | Code number    | Material               | No.                      | No.                      | Part size |
|          | Standard      | Drawing number | Standard               |                          |                          |           |

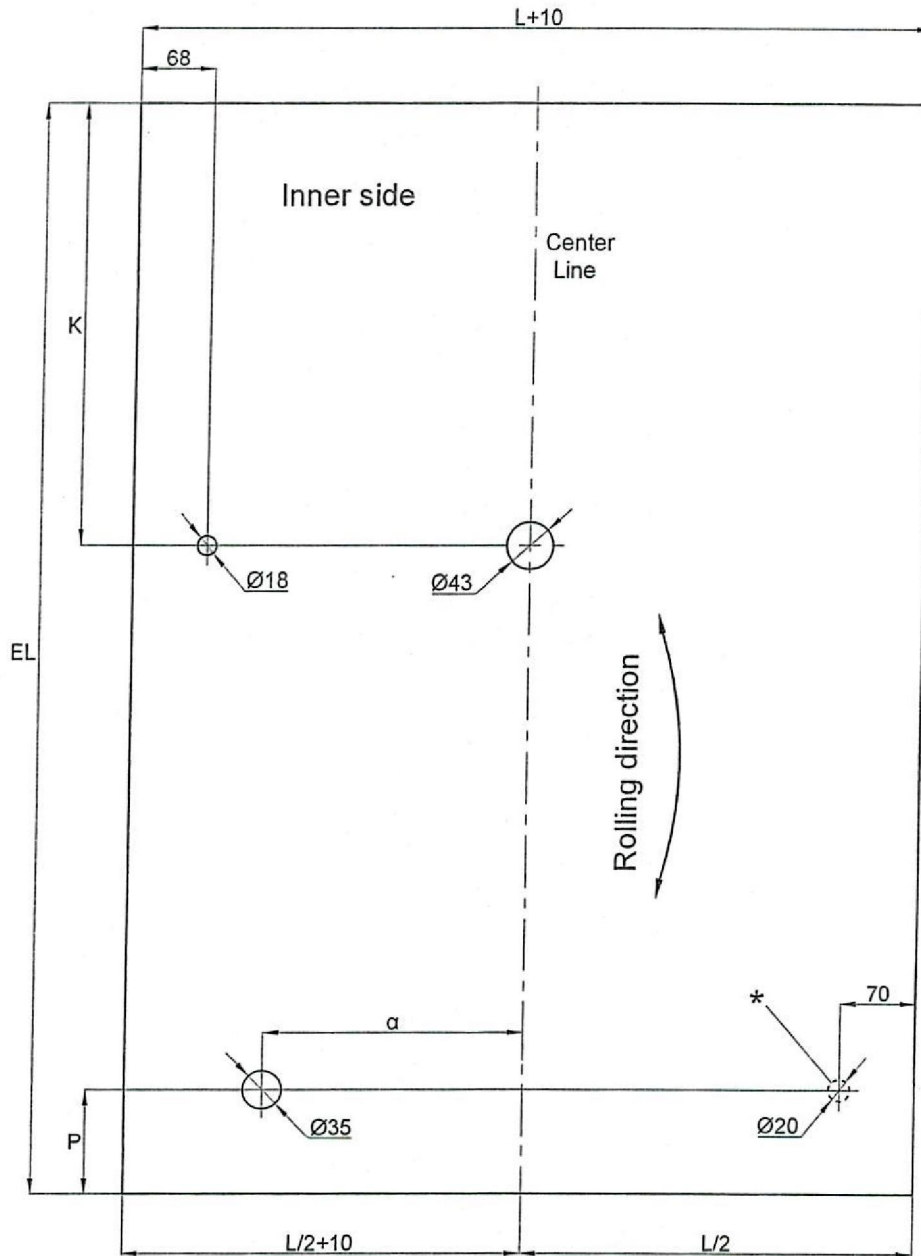
Comment:

1) Dacromet : Acc.to ASTM F1136-Coating Classification (C),min SST=1000H

|                 |                 |                 |                 |                   |        |      |
|-----------------|-----------------|-----------------|-----------------|-------------------|--------|------|
| Date : 95.08.09 | Date : 96.05.29 | Date : 96.12.19 | Date : 97.02.17 | Date : 1400.10.20 | Date : | Page |
| Dsgn: Bahari    | Dsgn: Bahari    | Dsgn: Bahari    | Dsgn: Bahari    | Dsgn: Bahari      | Dsgn:  |      |
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| Appr: Daneshvar | Appr: Daneshvar | Appr: Daneshvar | Appr: Daneshvar | Appr: Daneshvar   | Appr:  | 6/6  |



## Body Sheet

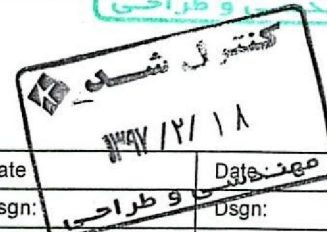
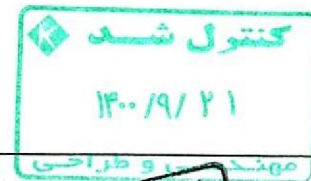


| Exp. Tank diameter (ØD) | EL                 | K   | P   | Thk. |
|-------------------------|--------------------|-----|-----|------|
| 400                     | 1263 <sup>±1</sup> | 475 | 155 | 3    |
| 500                     | 1577 <sup>±1</sup> | 632 | 155 |      |

## Comment:

\* Drill this hole when "Oil drain / Sampling device" (Part 16 in page1) is required.

Dimensions are in mm .

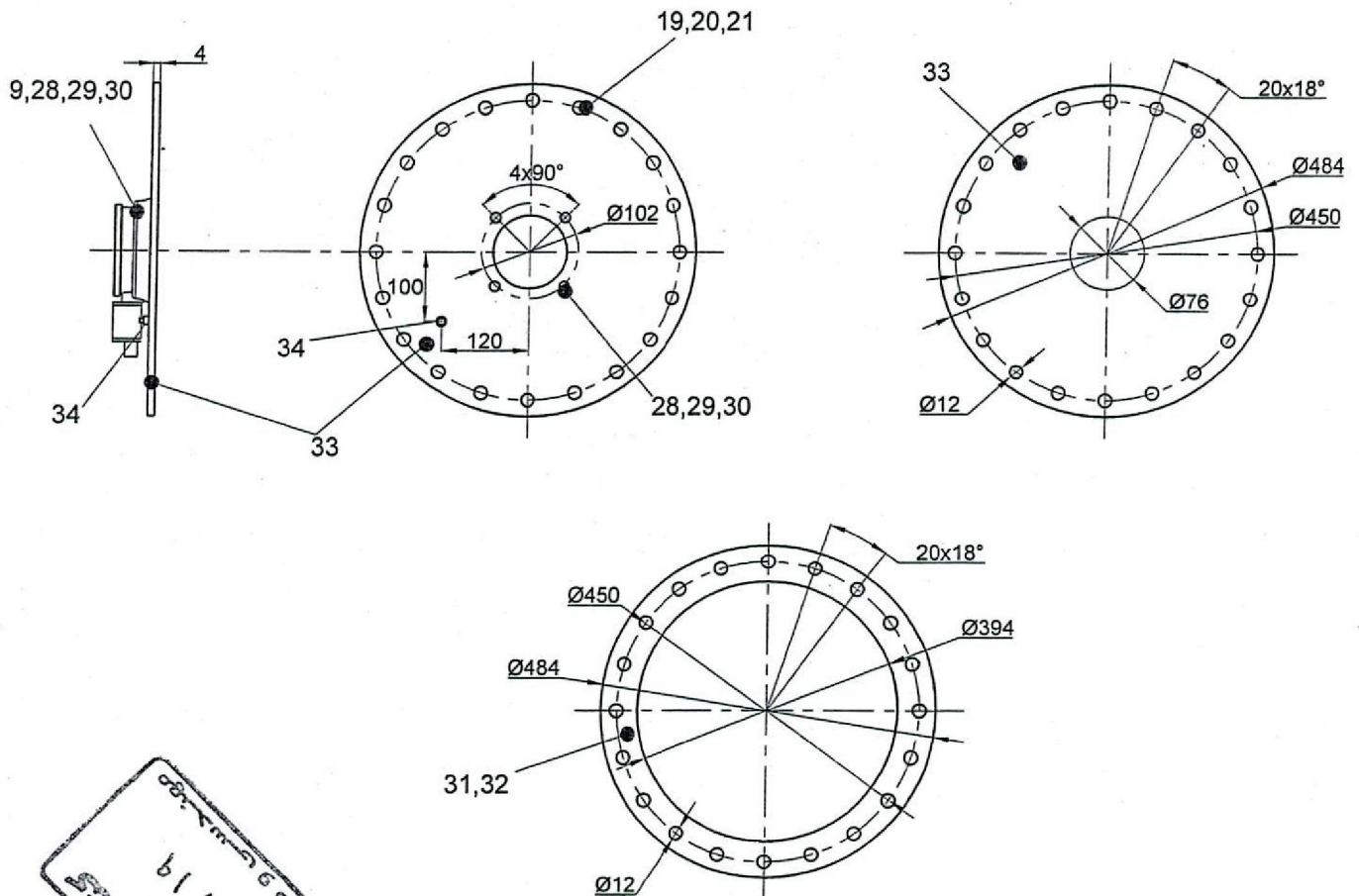


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| Date : 95.08.09 | Date : 96.05.29 | Date : 96.12.19 | Date : 97.2.17  | Date  | Date  | Page |
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## GD599

2

GD599-R2.pdf



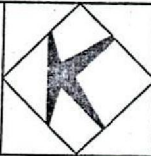
مُهر رسمی فروشنده (signet):

Comment:

کنترول شد  
۱۴۰۰/۹/۲۱  
مهندس و مراحح

|                 |                 |                 |                 |                                                                                             |                 |
|-----------------|-----------------|-----------------|-----------------|---------------------------------------------------------------------------------------------|-----------------|
| Date : 95.08.09 | Date : 96.05.29 | Date : 96.12.19 | Date : 97.02.17 | Date : 98.09.18                                                                             | Page<br><br>3/6 |
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Kooshkan  
Transformers

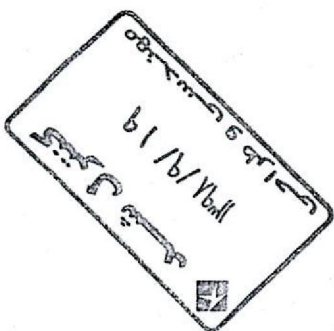
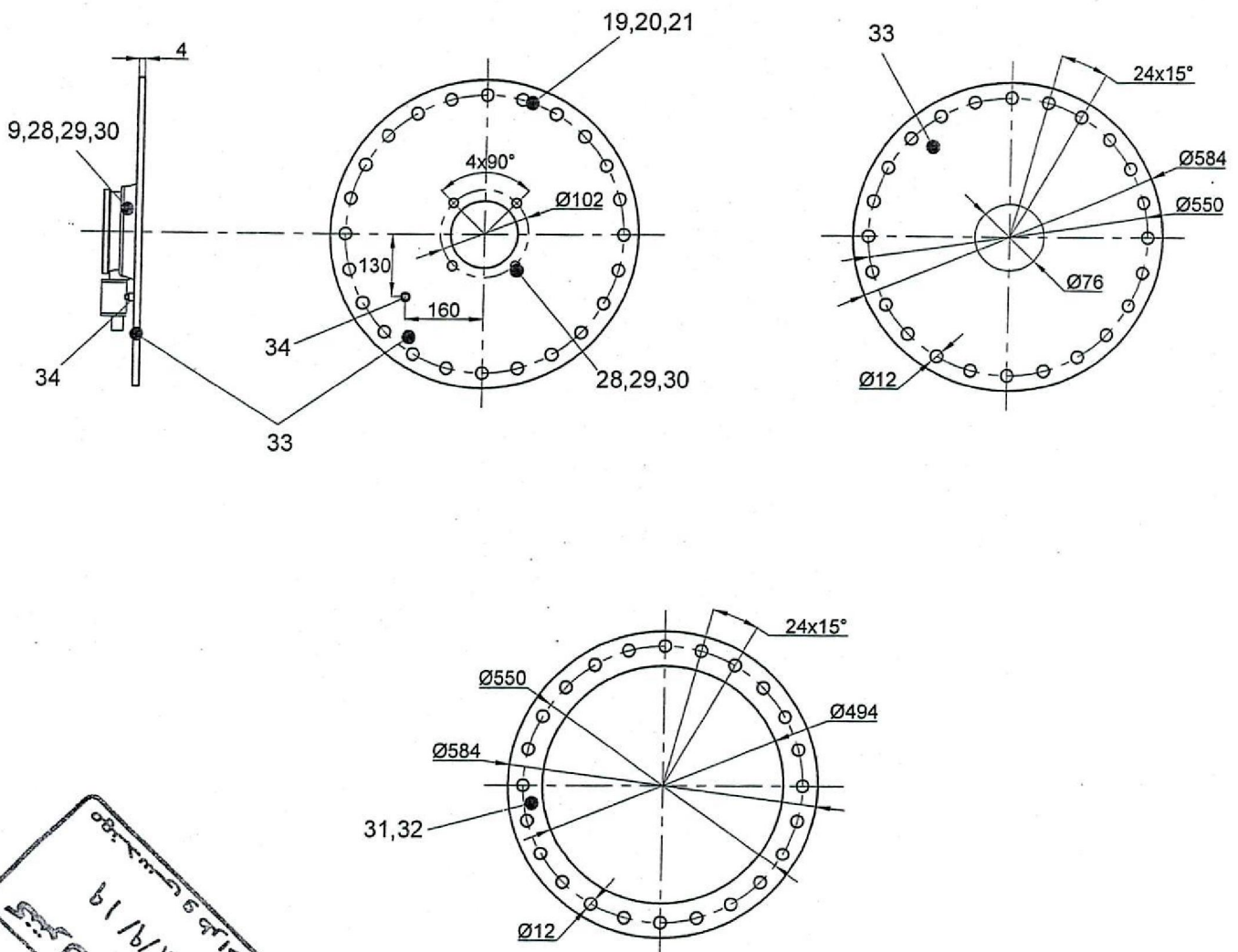


# Expantion tank (with handhole) Ø500

GD599

2

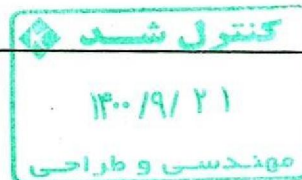
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GD599-R2.pdf



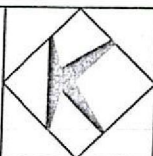
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مهر رسمی فروشنده (signed) :

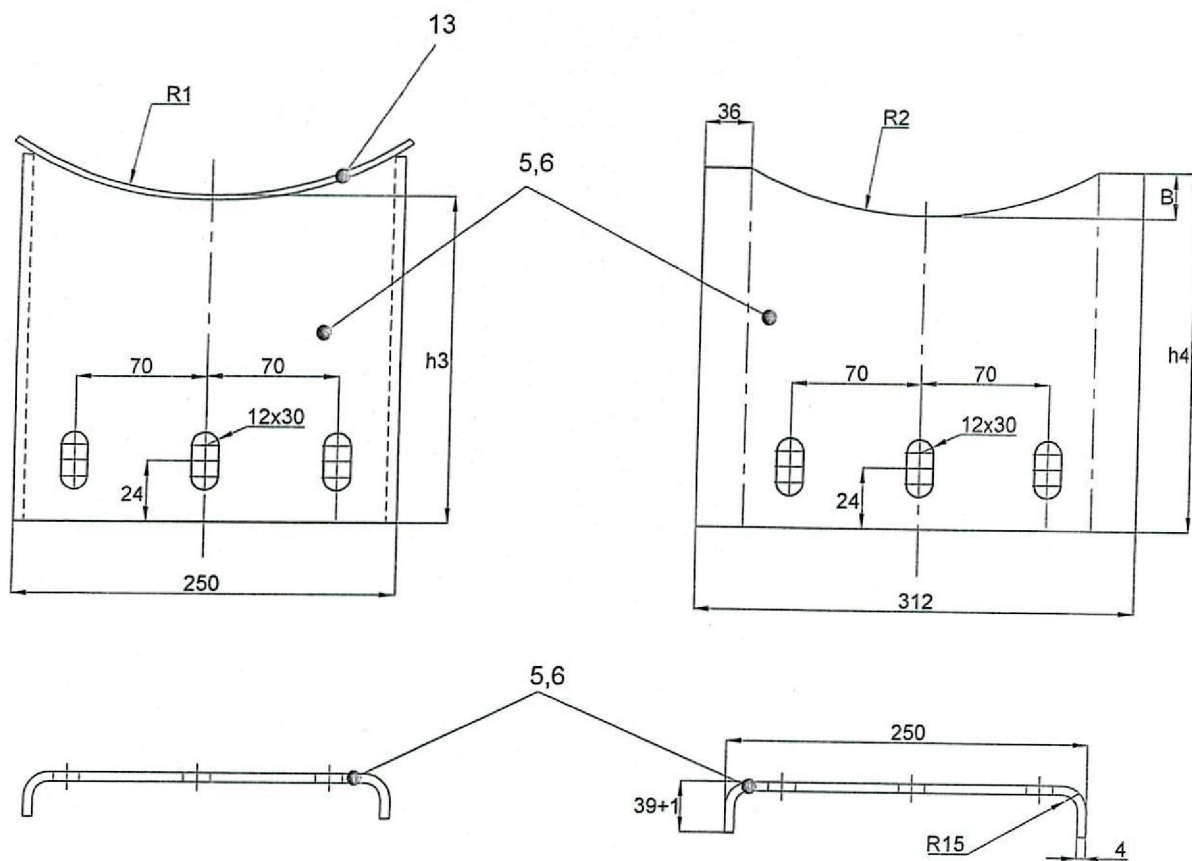
Comment:



|                 |                 |                 |                 |                 |             |
|-----------------|-----------------|-----------------|-----------------|-----------------|-------------|
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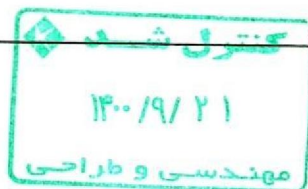
with three oval hole



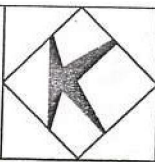
| Nr.  | Part 5    | h3  | h4  | Exp. Tank diameter (ØD) | R2  | B  |
|------|-----------|-----|-----|-------------------------|-----|----|
| Nr.1 | R10 & R20 | 224 | 258 | 400                     | 207 | 38 |
| Nr.2 | R30       | 284 | 318 |                         |     |    |
| Nr.3 | Special   | 344 | 378 |                         |     |    |
| Nr.4 | R10 & R20 | 224 | 250 | 500                     | 257 | 30 |
| Nr.5 | R30       | 284 | 310 |                         |     |    |
| Nr.6 | Special   | 344 | 370 |                         |     |    |

| Part 13<br>Nr. | Exp. Tank diameter (ØD) | R1  |
|----------------|-------------------------|-----|
| Nr.1           | 400                     | 203 |
| Nr.2           | 500                     | 253 |

Comment:



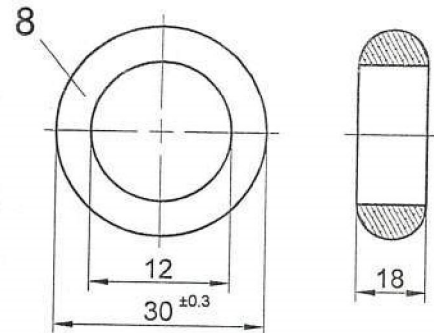
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نام مدیر (و صاحب امضای مجاز) / امضاء :

مهر رسمی فروشنده (signed) :

Thick ring

12:54:14 1400/09/30 GD334-R1  
GD334-R1.pdf

| No | Type     | Weight(kg) |
|----|----------|------------|
| 1  | 10Nf 250 | 4.5        |
| 2  | 20Nf 250 | 6.1        |
| 1  | 30Nf 250 | 7.2        |

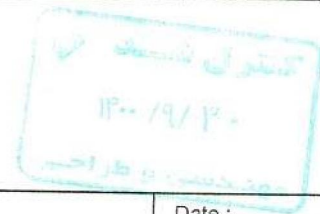
|         |                          |                |                        |     |            |         |
|---------|--------------------------|----------------|------------------------|-----|------------|---------|
| 14      | * Isol.tube              |                | Isol.pap               | 1   | B24x4x480  |         |
|         |                          | G.D-25         |                        |     |            |         |
| 13      | Spring Washer            |                | Stainless Steel A2-70  | 1   | B12        |         |
|         | DIN 127                  |                | ISO 3506               |     |            |         |
| 12      | Washer                   |                | CW617N                 | 2   | B13        |         |
|         | DIN 125                  |                | DIN EN 12165           |     |            |         |
| 11      | Hex.nut                  |                | CW617N <sup>2)</sup>   | 3   | M12        |         |
|         | DIN 934                  |                | DIN EN 12165           |     |            |         |
| 10      | Plug                     |                | GD-MS60                | 1   |            |         |
|         | DIN 42531                |                |                        |     |            |         |
| 9       | Flat gasket(H.V bushing) |                |                        | 1   |            |         |
|         |                          | G.D-106        |                        |     |            |         |
| 8       | Tinck ring               |                |                        | 1   | 30x12-18   |         |
|         |                          |                |                        |     |            |         |
| 7       | Hex.nut                  |                | Dacromet               | 4   | M10 - 6    |         |
|         | DIN 934                  |                |                        |     |            |         |
| 6       | Washer                   |                | Dacromet               | 4   | 10.5       |         |
|         | DIN 125                  |                |                        |     |            |         |
| 5       | Hex.nut                  |                | Dacromet <sup>1)</sup> | 1   | M8 - 5     |         |
|         | DIN 934                  |                |                        |     |            |         |
| 4       | Flange rine A            |                |                        | 1   |            |         |
|         |                          | G.D-300        |                        |     |            |         |
| 3       | Squeezing part E         |                |                        | 4   |            |         |
|         |                          | G.D-425        |                        |     |            |         |
| 2       | Flat gasket              |                | Ol.f.Gi                | 1   | N-106x76-6 |         |
|         |                          | G.D-126        |                        |     |            |         |
| 1       | Body isol                |                |                        | 1   |            |         |
|         | DIN 42531                | Page2          |                        |     |            |         |
| Part no | Denomination             | Semi finished  | Material               | No. | Part size  | Wt.(kg) |
|         | Standard                 | Drawing number | Standard               |     |            |         |

Comment:

\* Only for 30Nf 250

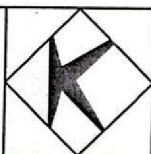
1) Dacromet : Acc.to ASTM F1136-Coating Classification (C),min SST=1000H

2) CW617N(Cuzn40Pb2)



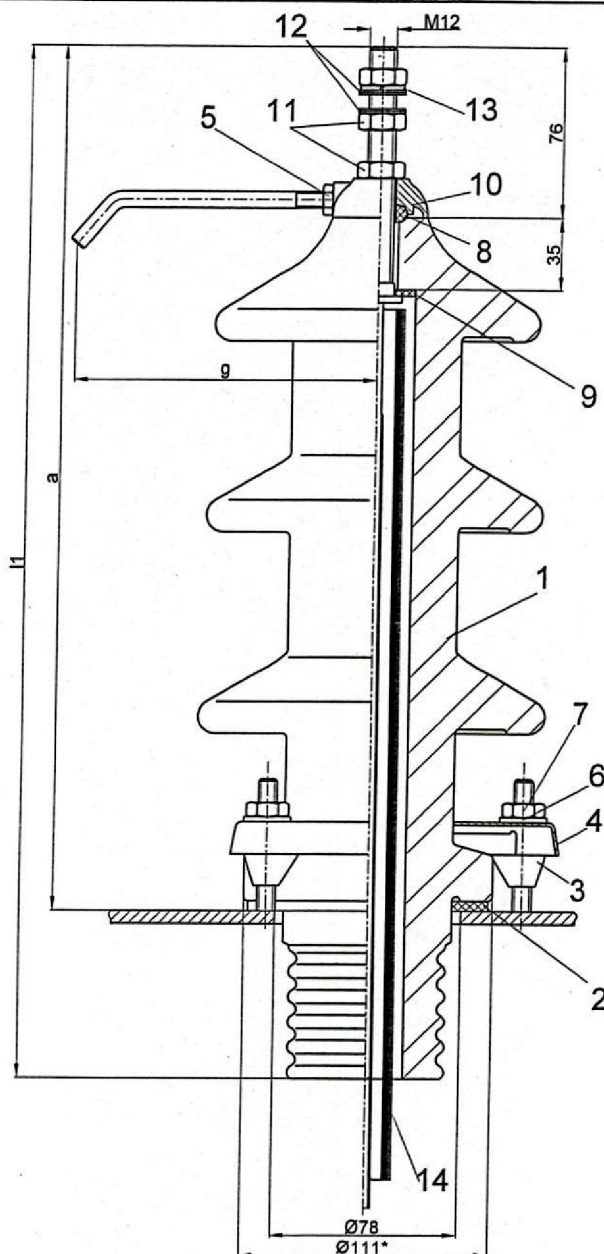
|                 |                 |        |        |        |             |
|-----------------|-----------------|--------|--------|--------|-------------|
| Date : 97.08.02 | Date : 00.09.22 | Date : | Date : | Date : | Page<br>3/3 |
| Dsgn: Maboudi   | Dsgn: Asghari   | Dsgn:  | Dsgn:  | Dsgn:  |             |
| Draw: Afshari   | Draw: Shari     | Draw:  | Draw:  | Draw:  |             |
| Appr: Daneshvar | Appr: Daneshvar | Appr:  | Appr:  | Appr:  |             |

Kooshkan  
Transformers



Indoor and outdoor transformer bushings  
Insulation class 10N to 30N 250A , Parts list

GD334

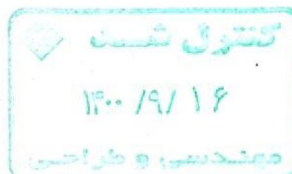


نام مدیر ( و صاحب امضای مجاز ) / امضاء :

مهر رسمی فروشنده (signet) :

| Abbreviated representation | Installation |            | a   | g   | l1  |
|----------------------------|--------------|------------|-----|-----|-----|
|                            | Outdoor (f)  | Indoor (i) |     |     |     |
| DT 10 Ni 250               | ---          | 10 N       | 260 | 135 | 321 |
| DT 10 Nf 250               | 10 N         | ---        | 310 | 150 | 371 |
| DT 20 Ni 250               | ---          | 20 N       | 310 | 135 | 371 |
| DT 20 Nf 250               | 20 N         | ---        | 385 | 150 | 461 |
| DT 30 Ni 250               | ---          | 30 N       | 385 | 135 | 461 |
| DT 30 Nf 250               | 30 N         | ---        | 485 | 170 | 561 |

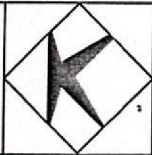
Representation method for bushing with  
insulation class of 20N - (Outdoor installation) ,  
250A (Abbr : DT 20 Nf 250) :  
Bushing DT 20 Nf 250 DIN 42531.



Comment:

Dimensions are given in mm .  
\* Max. dimension .

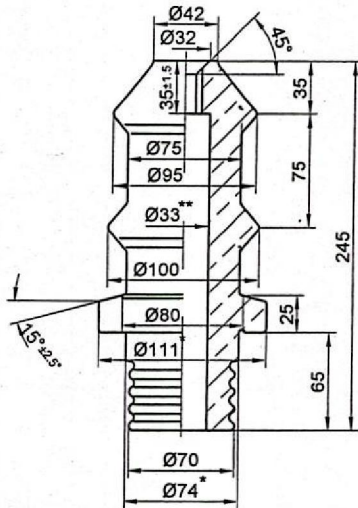
|                  |                        |        |        |        |                 |
|------------------|------------------------|--------|--------|--------|-----------------|
| Date : 84.08.14  | Date : 97.08.02        | Date : | Date : | Date : | Page<br><br>1/3 |
| Dsgn: Poursaberi | Dsgn: Maboudi          | Dsgn:  | Dsgn:  | Dsgn:  |                 |
| Cntrl: Soltani   | Cntrl: <i>AS</i>       | Cntrl: | Cntrl: | Cntrl: |                 |
| Appr: Rezaei     | Appr: <i>Dave shan</i> | Appr:  | Appr:  | Appr:  |                 |



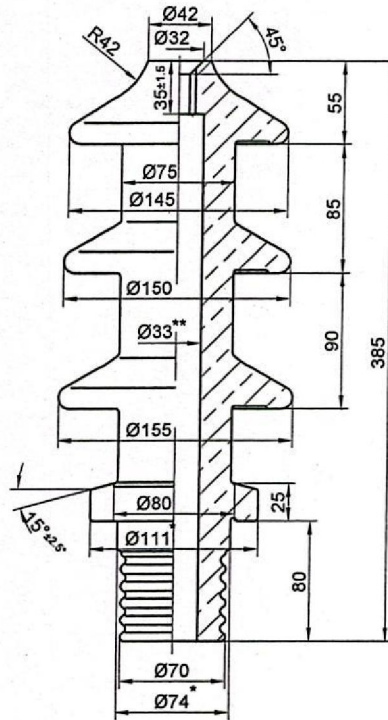
DT 20 Nf 250 & DT 30 Ni 250

DT 30 Nf 250

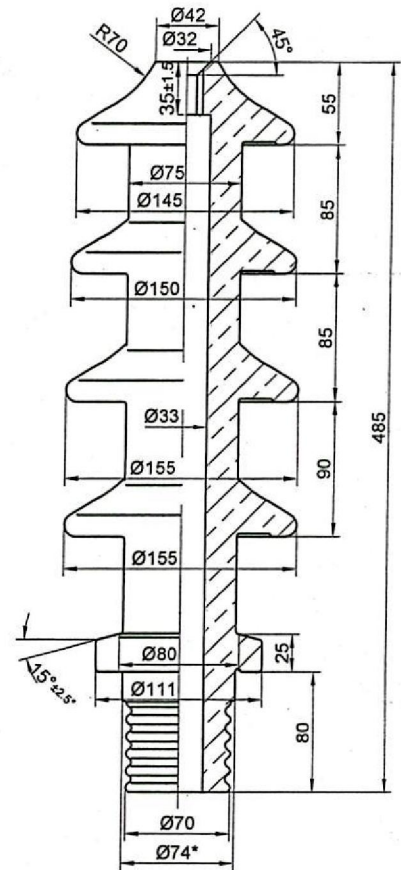
DT 10 Ni 250



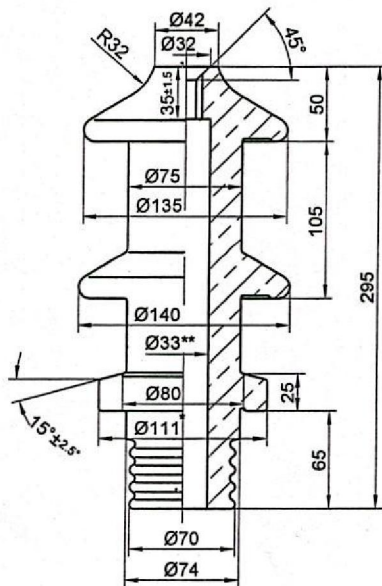
Body insulation 10 Ni DIN 42531.



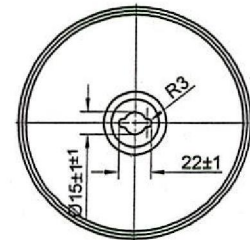
Body insulation 20 Nf DIN 42531.



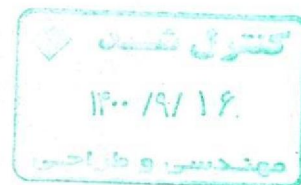
DT 10 Nf 250 & DT 20 Ni 250



Body insulation 10 Nf DIN 42531.



Body insulation 30 Nf DIN 42531.



Comment:

\* Max. dimension .

\*\* Min. dimension .

Tolerances according to DIN 40680

|                  |                           |        |        |        |                 |
|------------------|---------------------------|--------|--------|--------|-----------------|
| Date : 84.08.14  | Date : 97.08.02           | Date : | Date : | Date : | Page<br><br>2/3 |
| Dsgn: Poursaberi | Dsgn: Maboudi             | Dsgn:  | Dsgn:  | Dsgn:  |                 |
| Cntrl: Soltani   | Cntrl: <i>[Signature]</i> | Cntrl: | Cntrl: | Cntrl: |                 |
| Appr: Rezaei     | Appr: <i>[Signature]</i>  | Appr:  | Appr:  | Appr:  |                 |