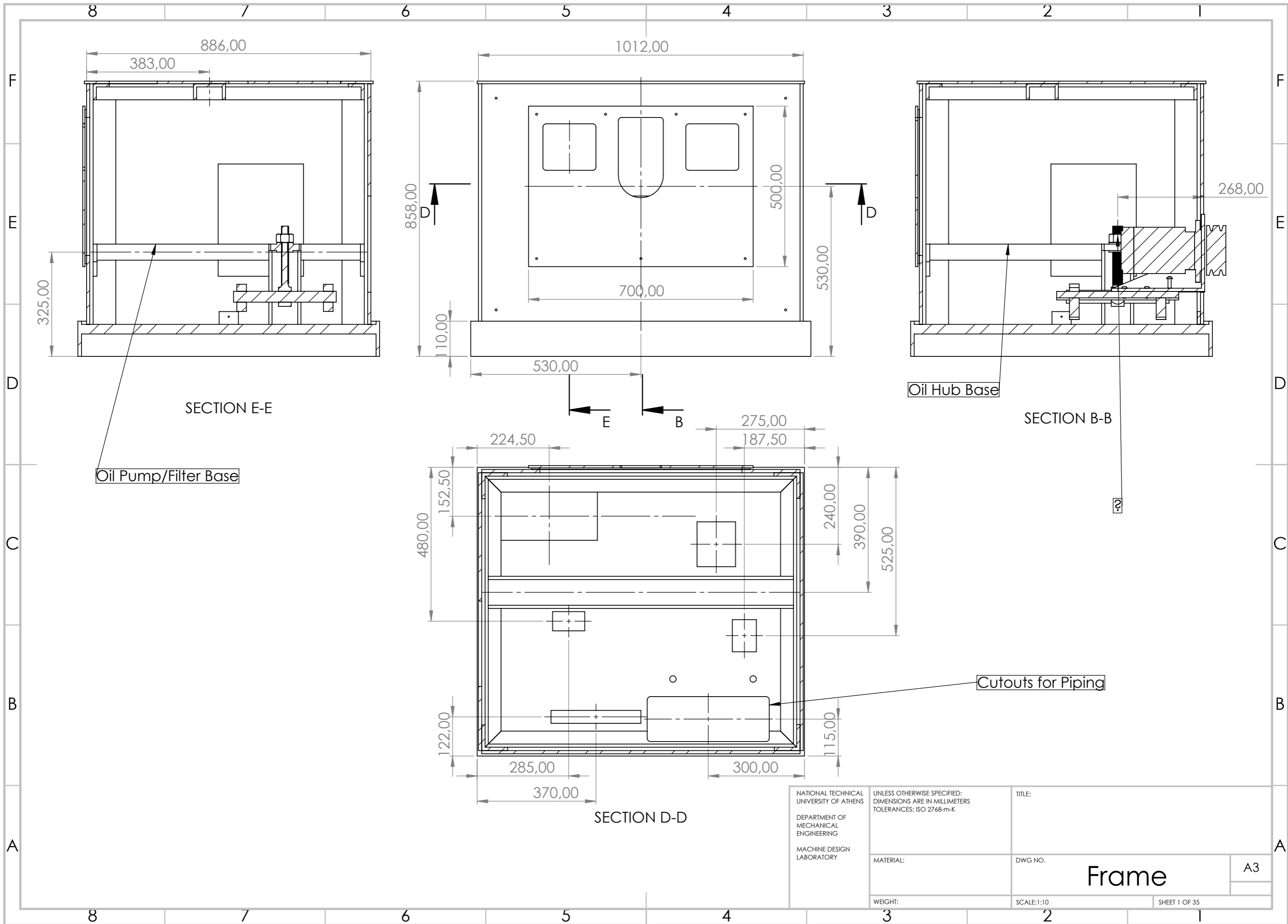
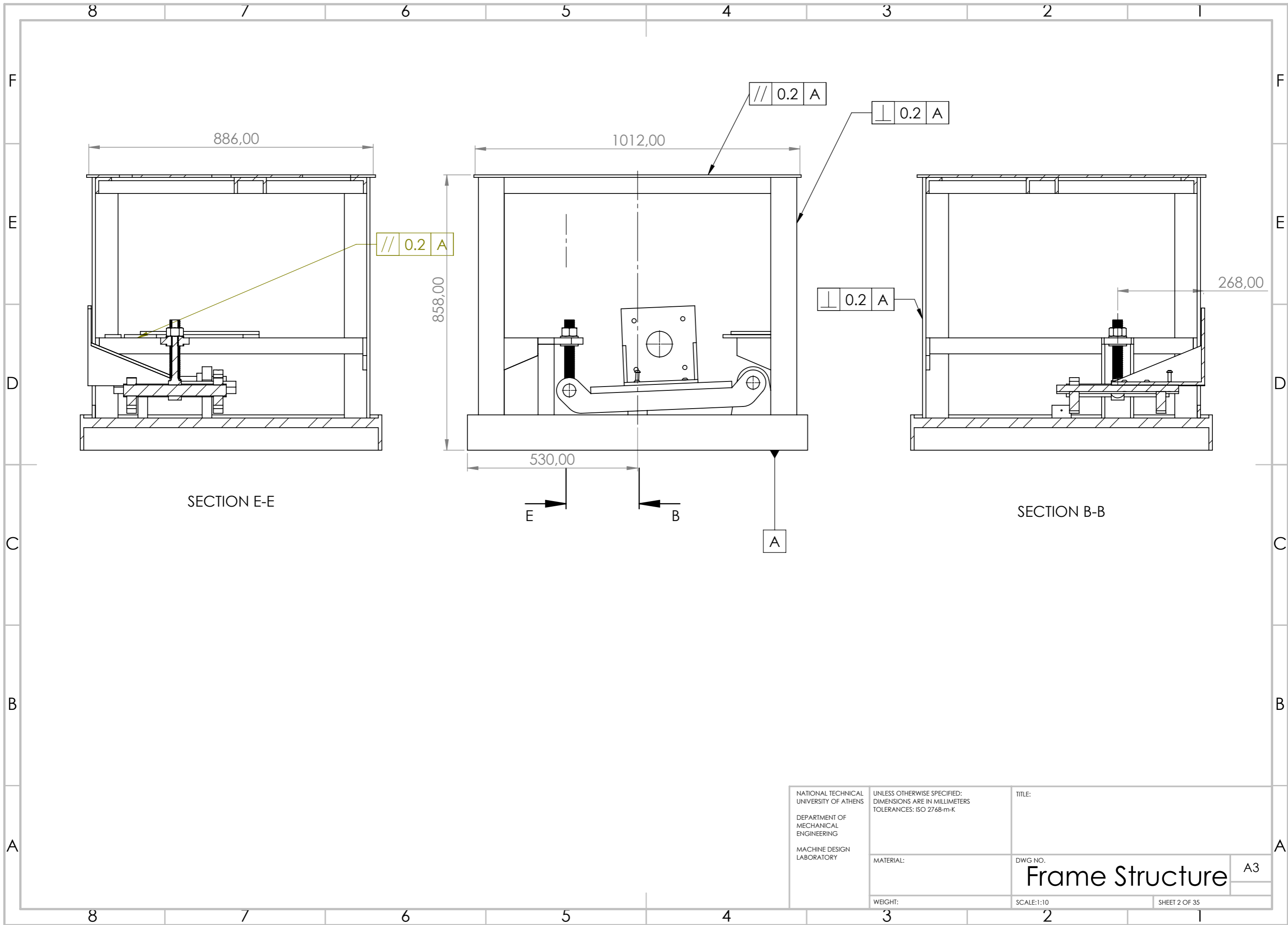


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-mS | TITLE: |
| | MATERIAL: | DWG NO. 01 Tribometer A1 |
| WEIGHT: | SCALE: 1:10 | SHEET 1 OF 1 |

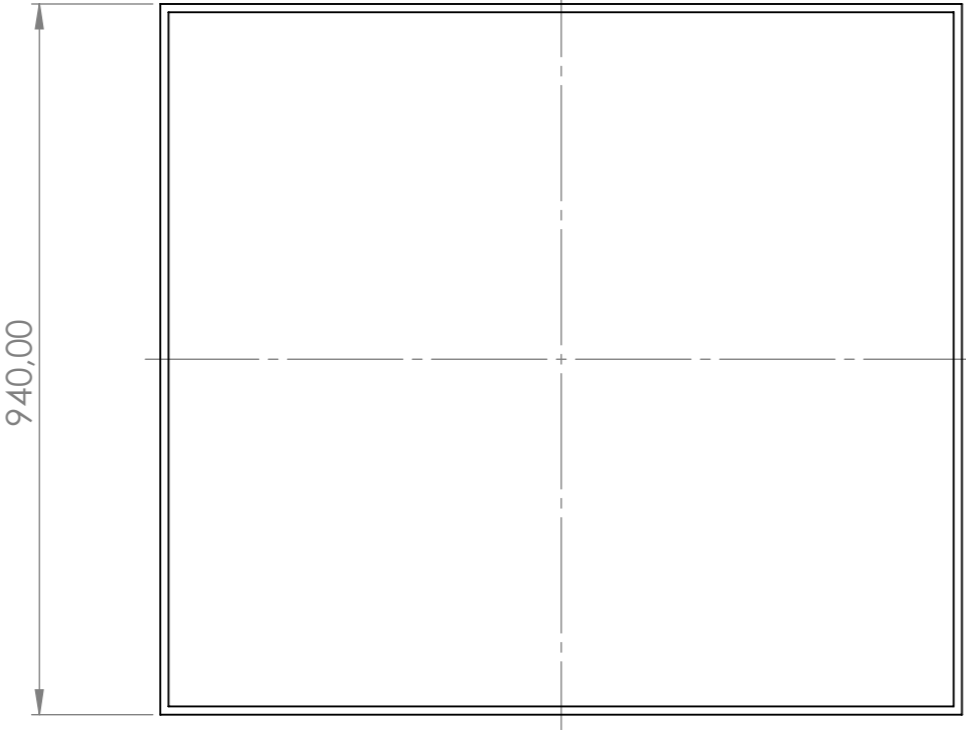
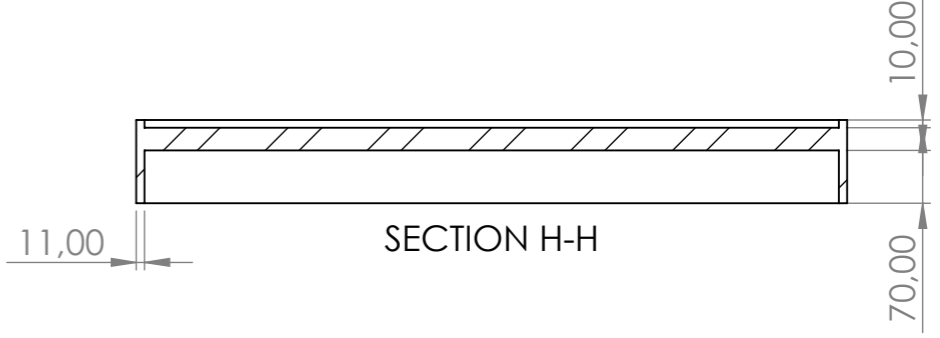
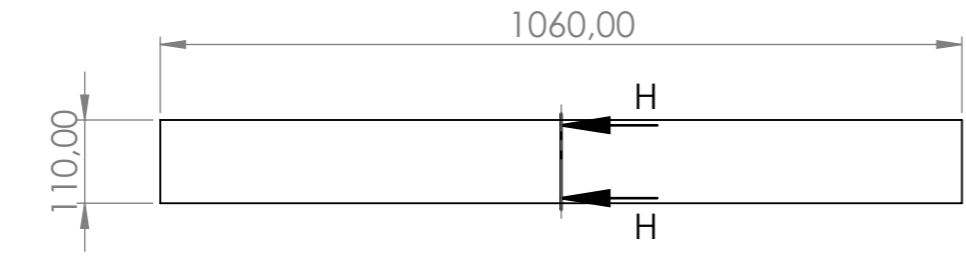
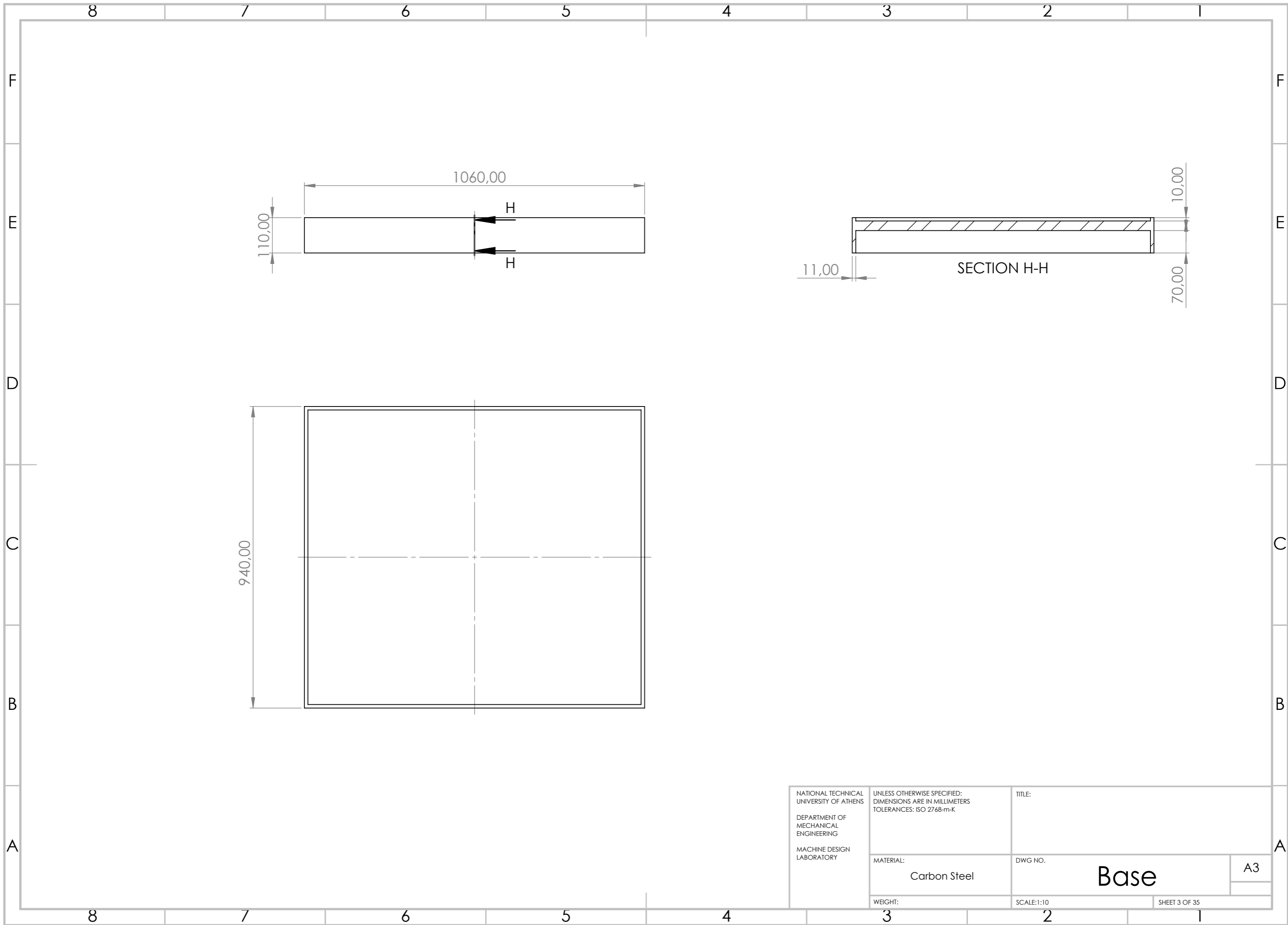


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE: 1:10 | SHEET 1 OF 35 |

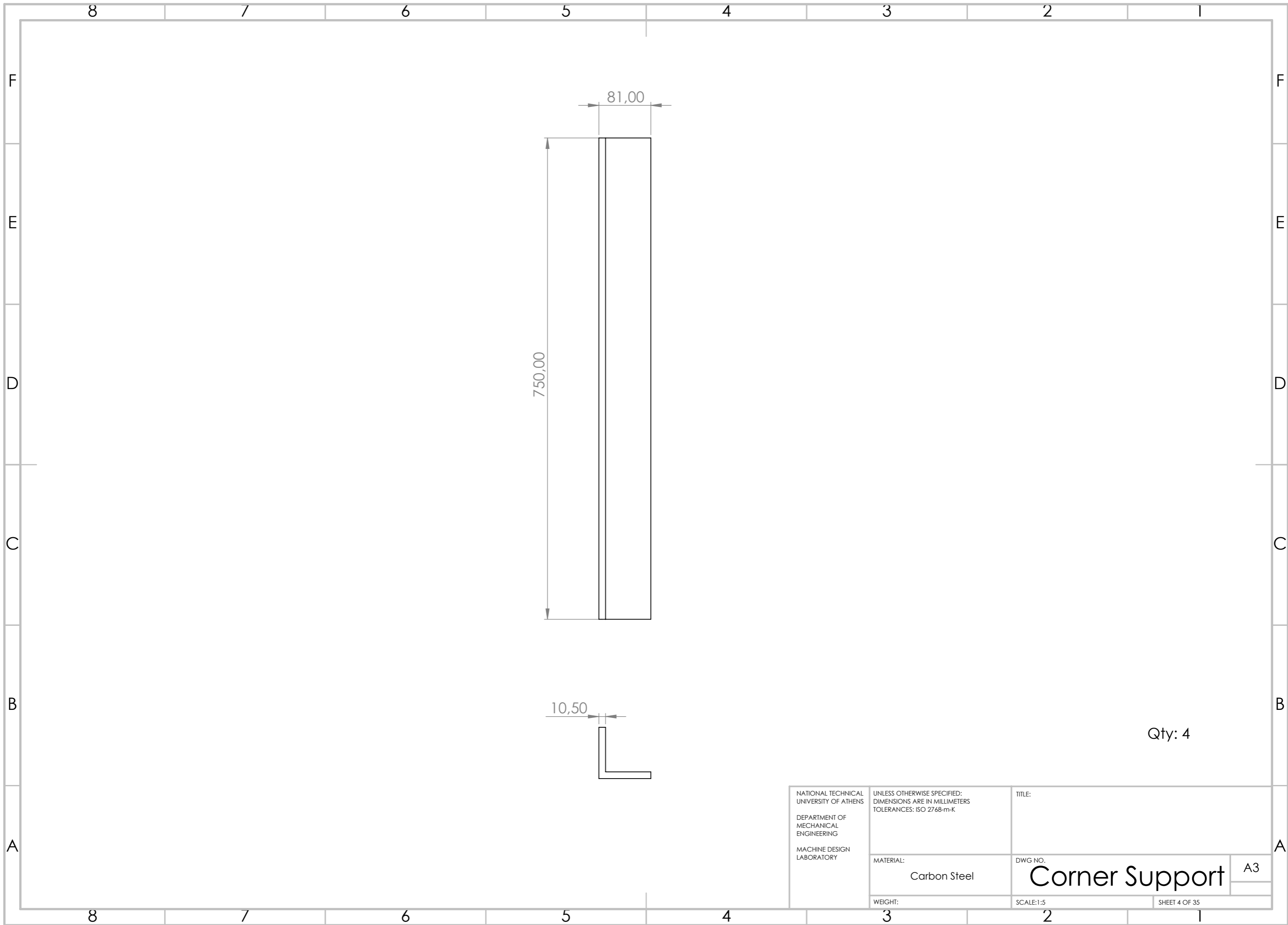
Frame



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG. NO. | A3 |
| | WEIGHT: | SCALE: 1:10 | SHEET 2 OF 35 |
| | | <h1>Frame Structure</h1> | |

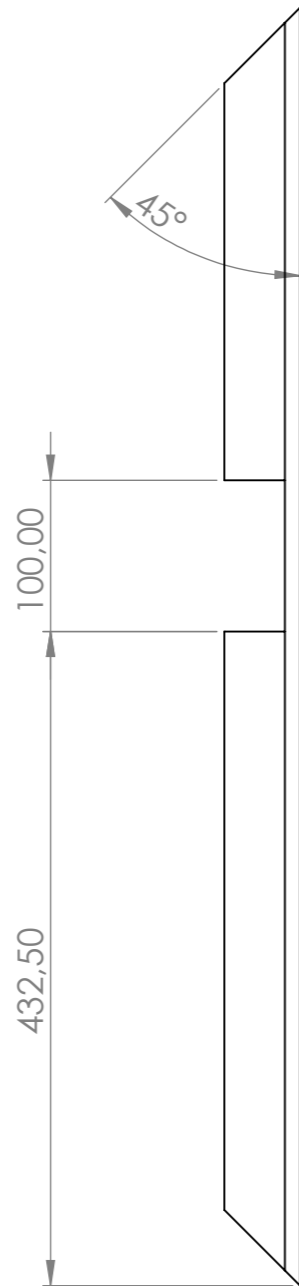
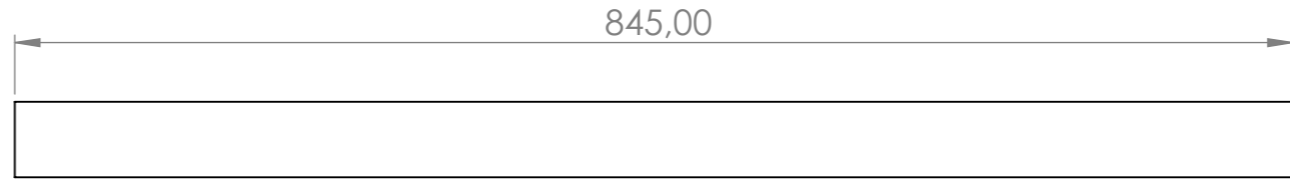
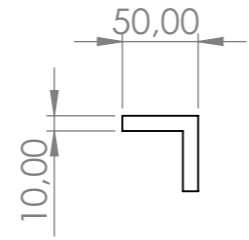


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Base | A3 |
| | WEIGHT: | SCALE:1:10 | SHEET 3 OF 35 |



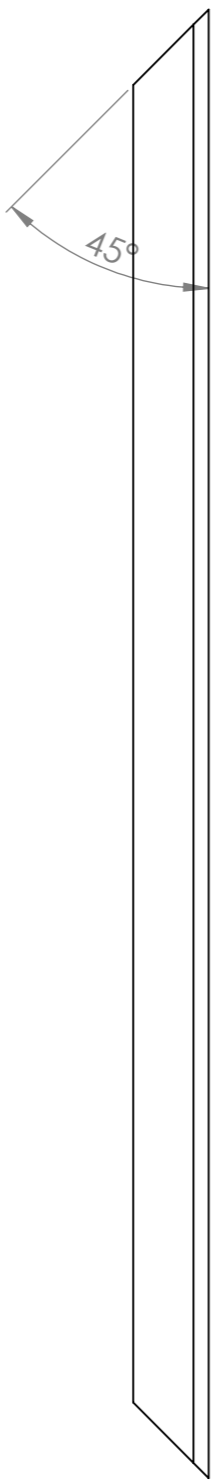
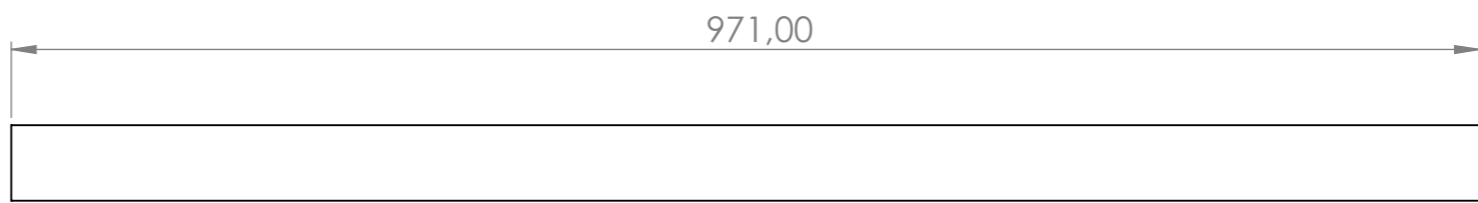
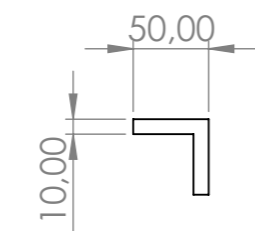
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Corner Support | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 4 OF 35 |

Qty: 4



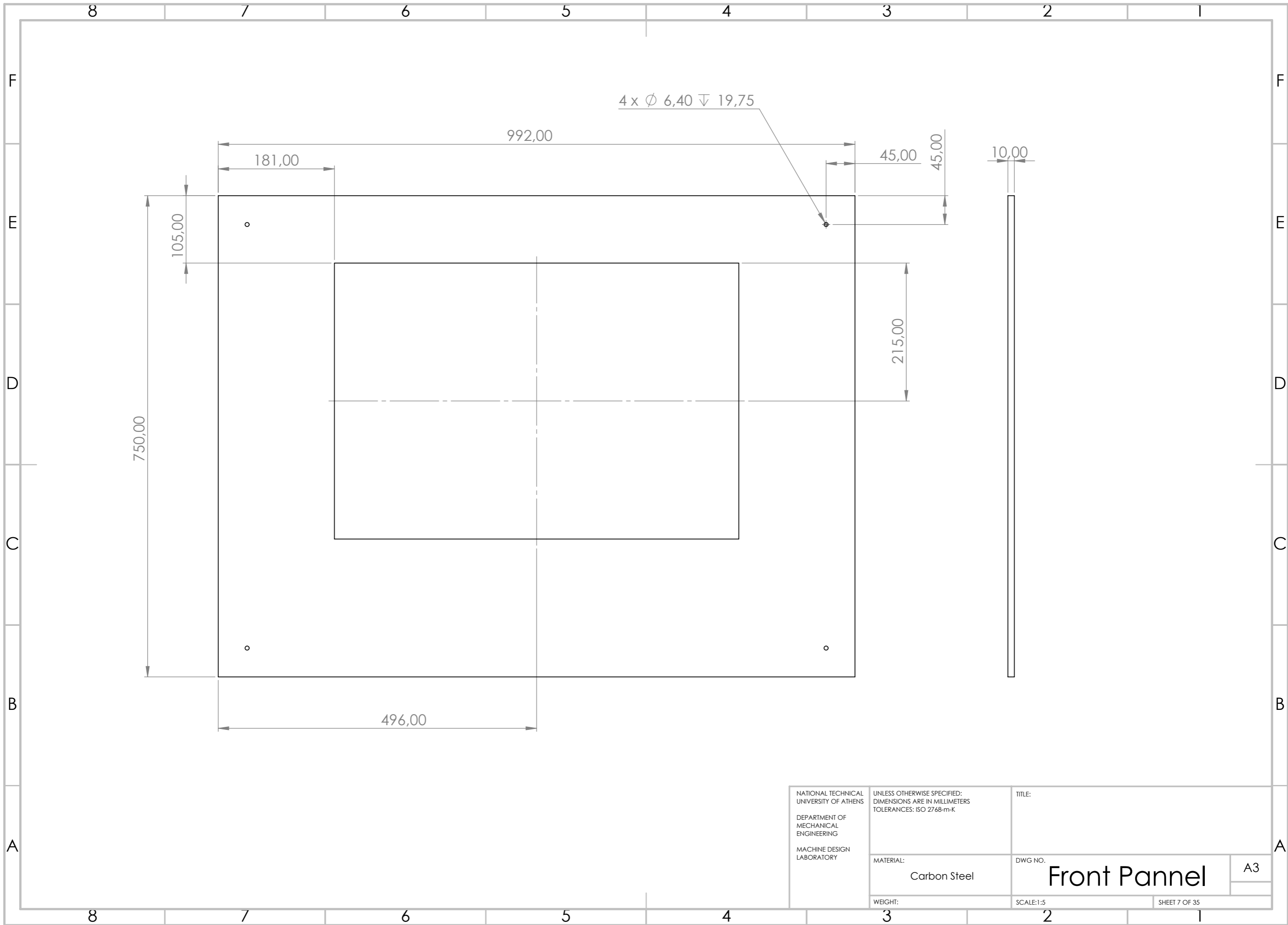
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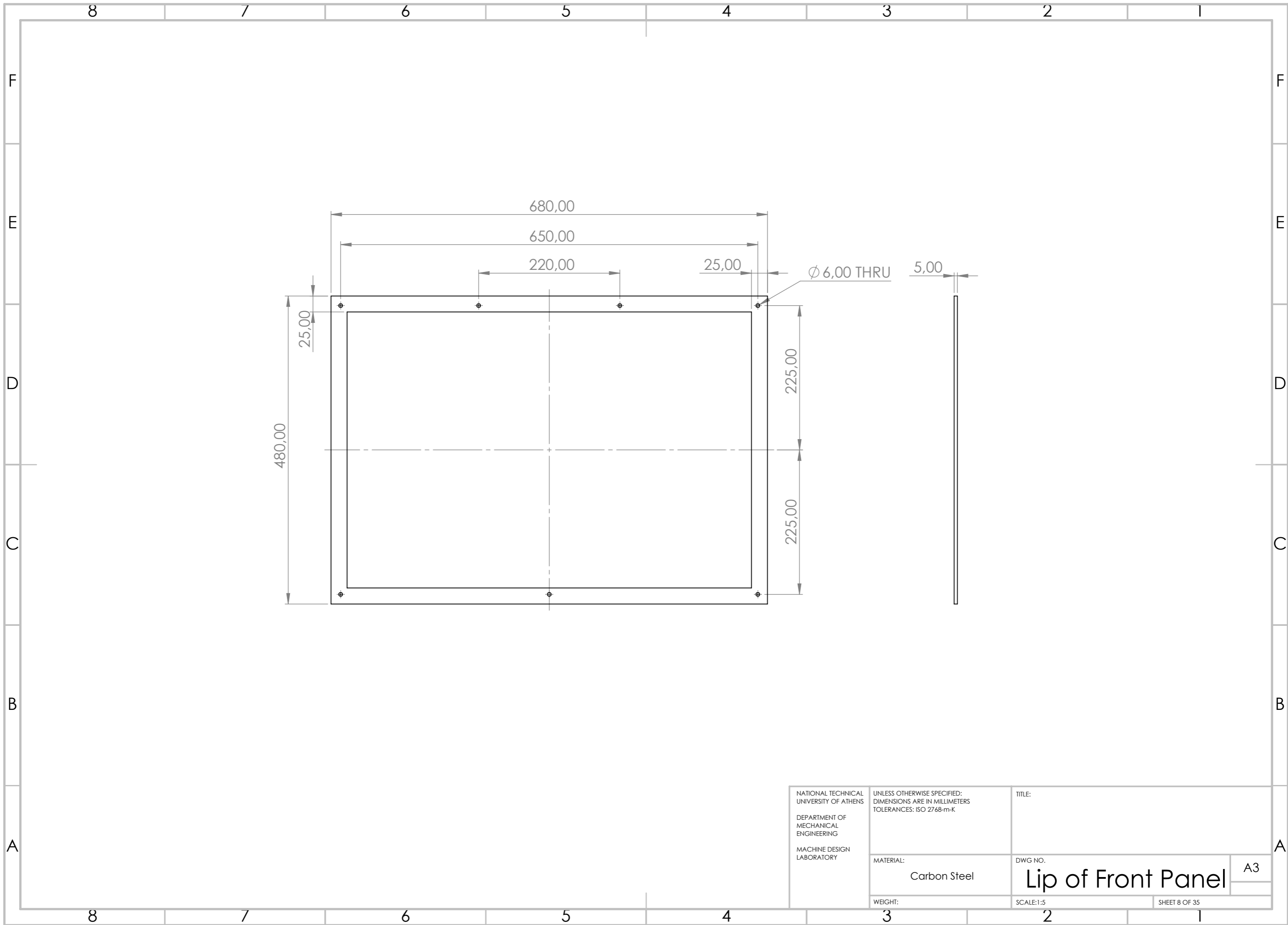
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG. NO. Top Support A1 | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 5 OF 35 |



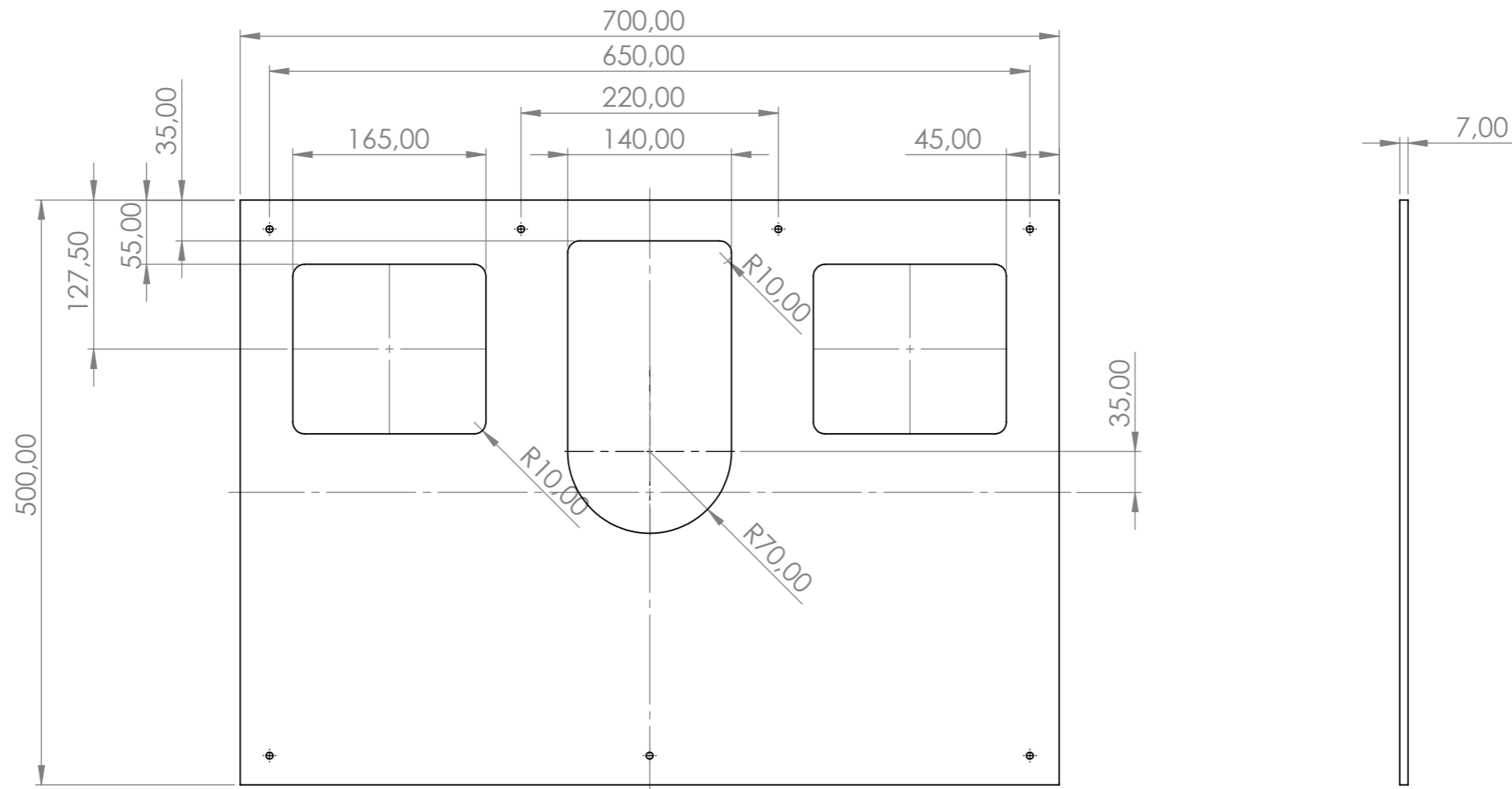
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Top Support B1 | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 6 OF 35 |

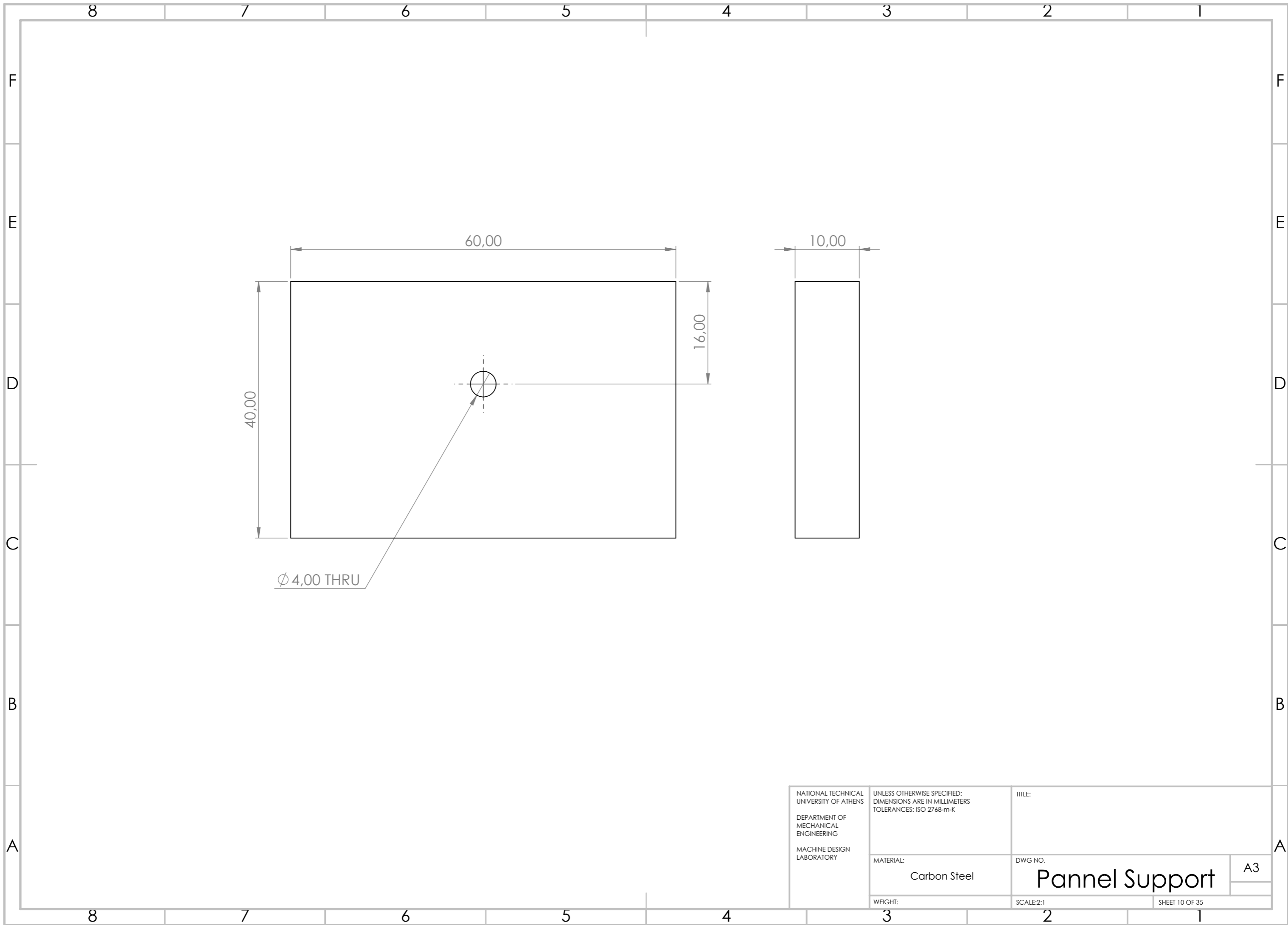




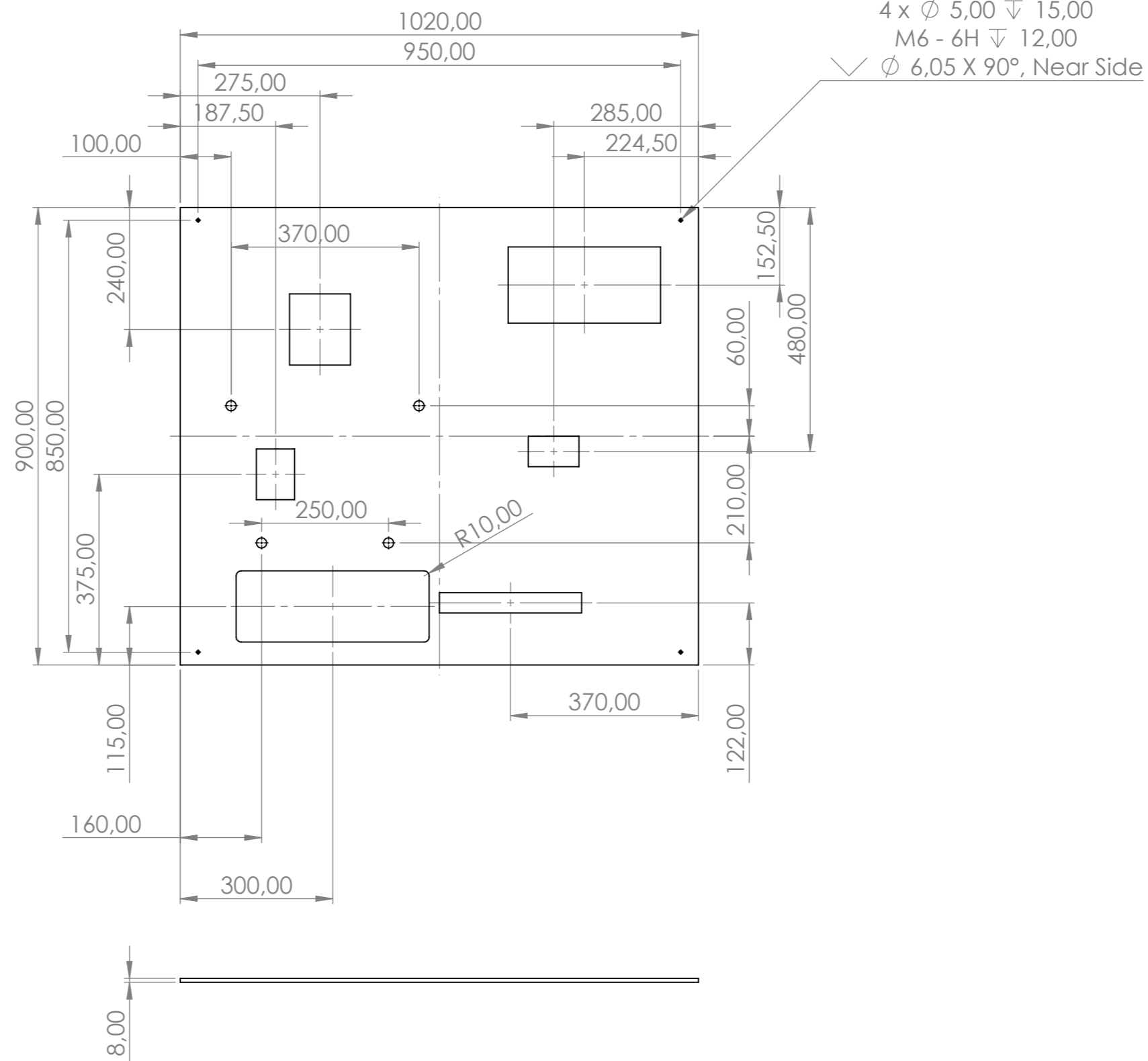
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Lip of Front Panel | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 8 OF 35 |



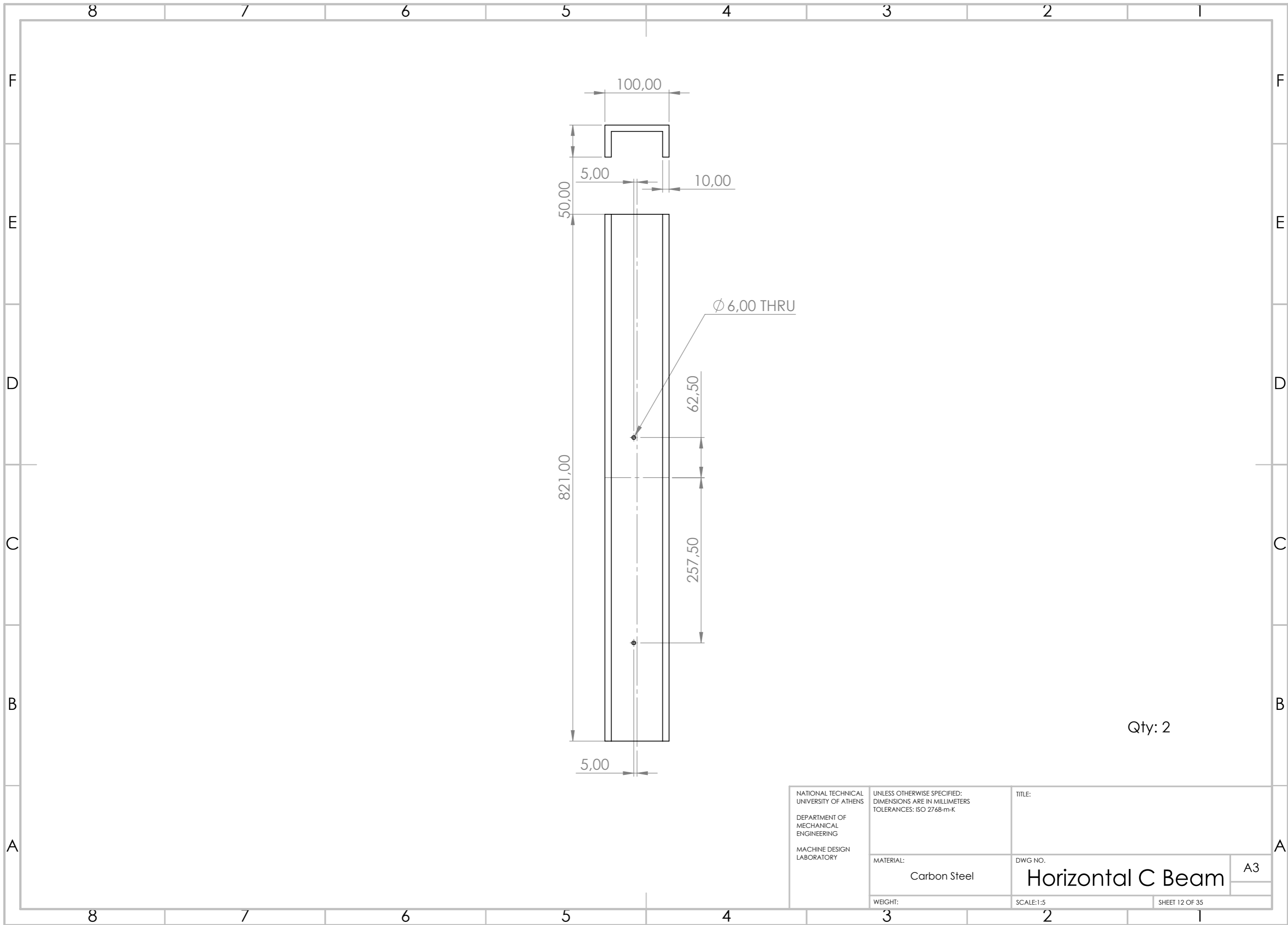
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 9 OF 35 |
| <h1>Gages Panel</h1> | | | |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Pannel Support | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 10 OF 35 |

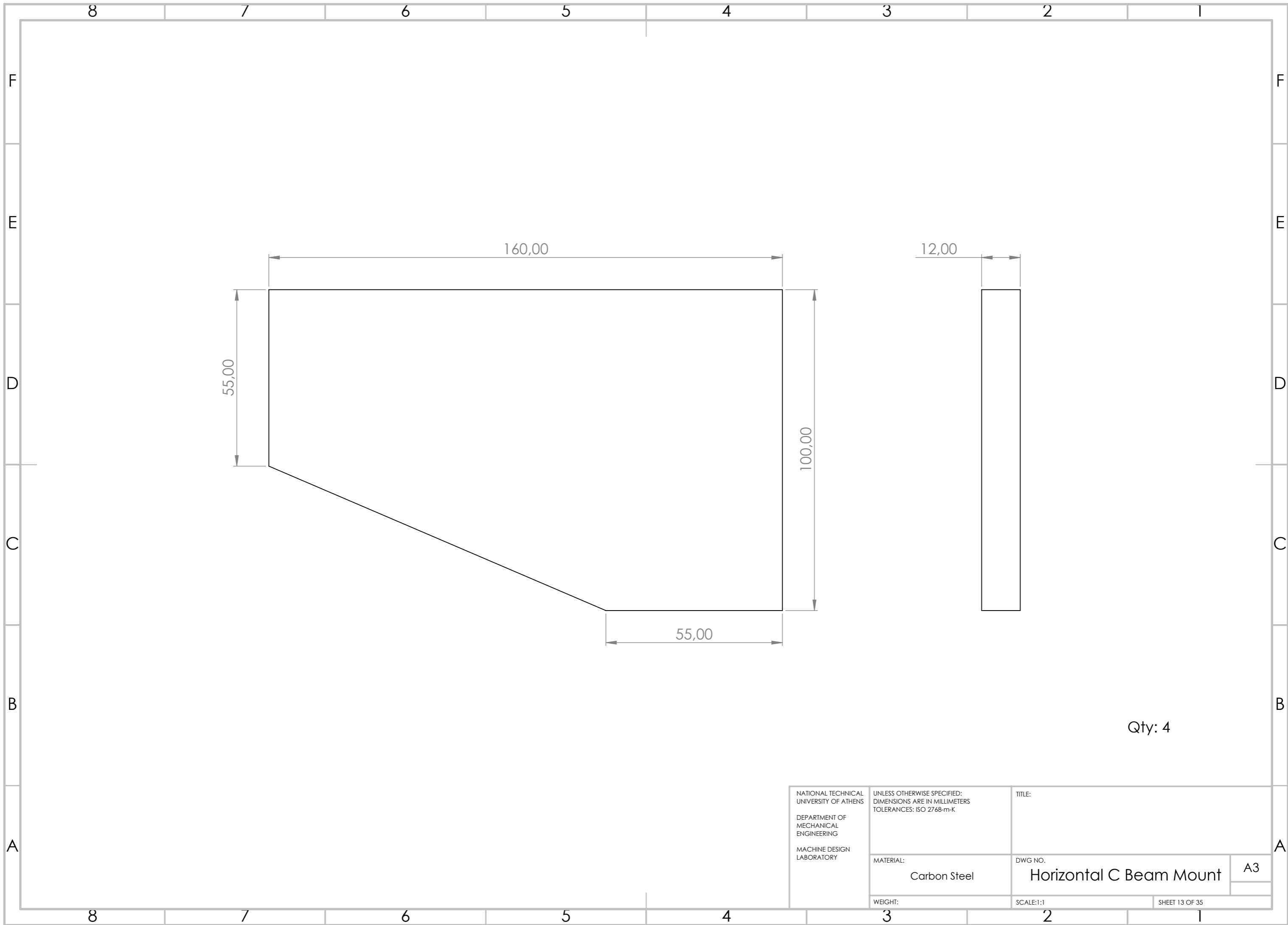


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. | A3 |
| | WEIGHT: | SCALE: 1:10 | SHEET 11 OF 35 |
| | | <h1>Top Panel</h1> | |



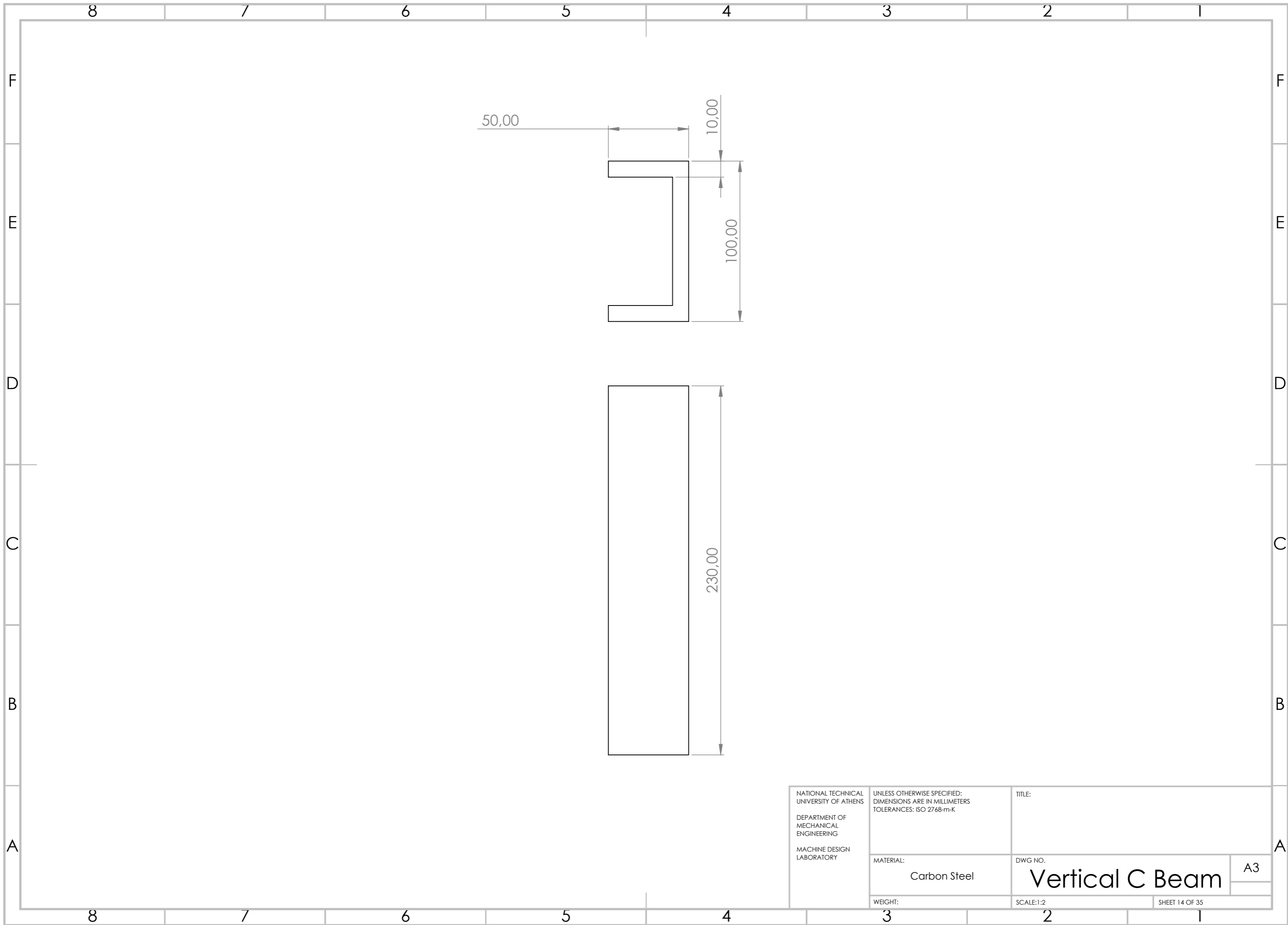
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Horizontal C Beam | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 12 OF 35 |

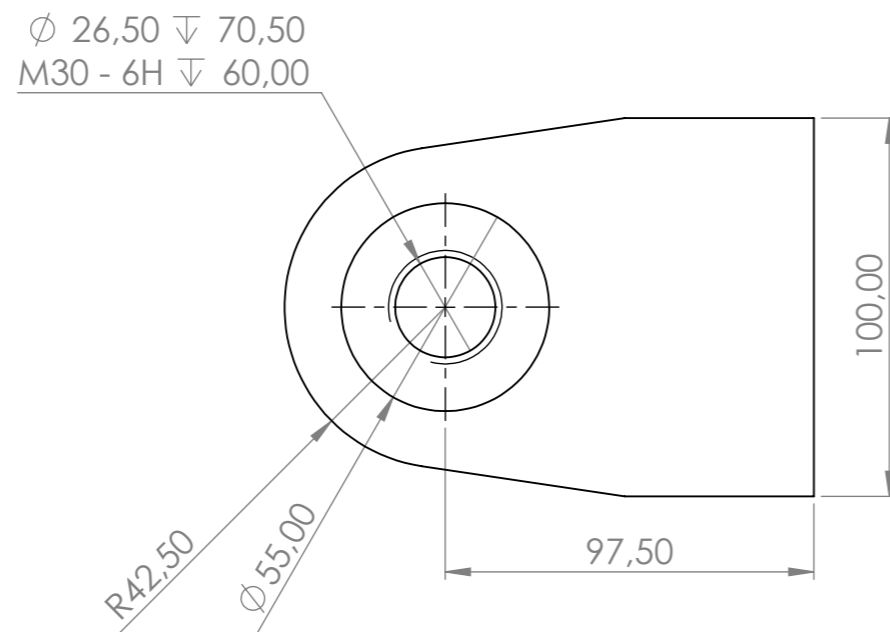
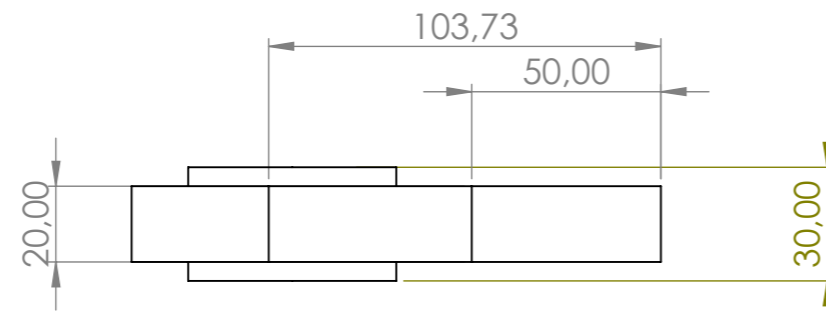


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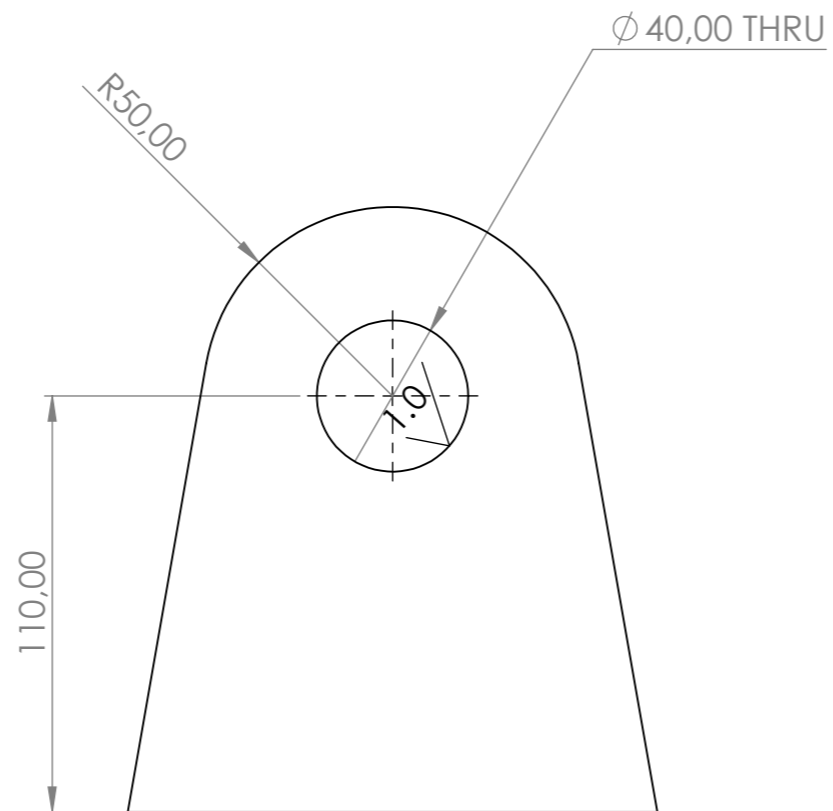
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Horizontal C Beam Mount | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 13 OF 35 |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Vertical C Beam | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 14 OF 35 |

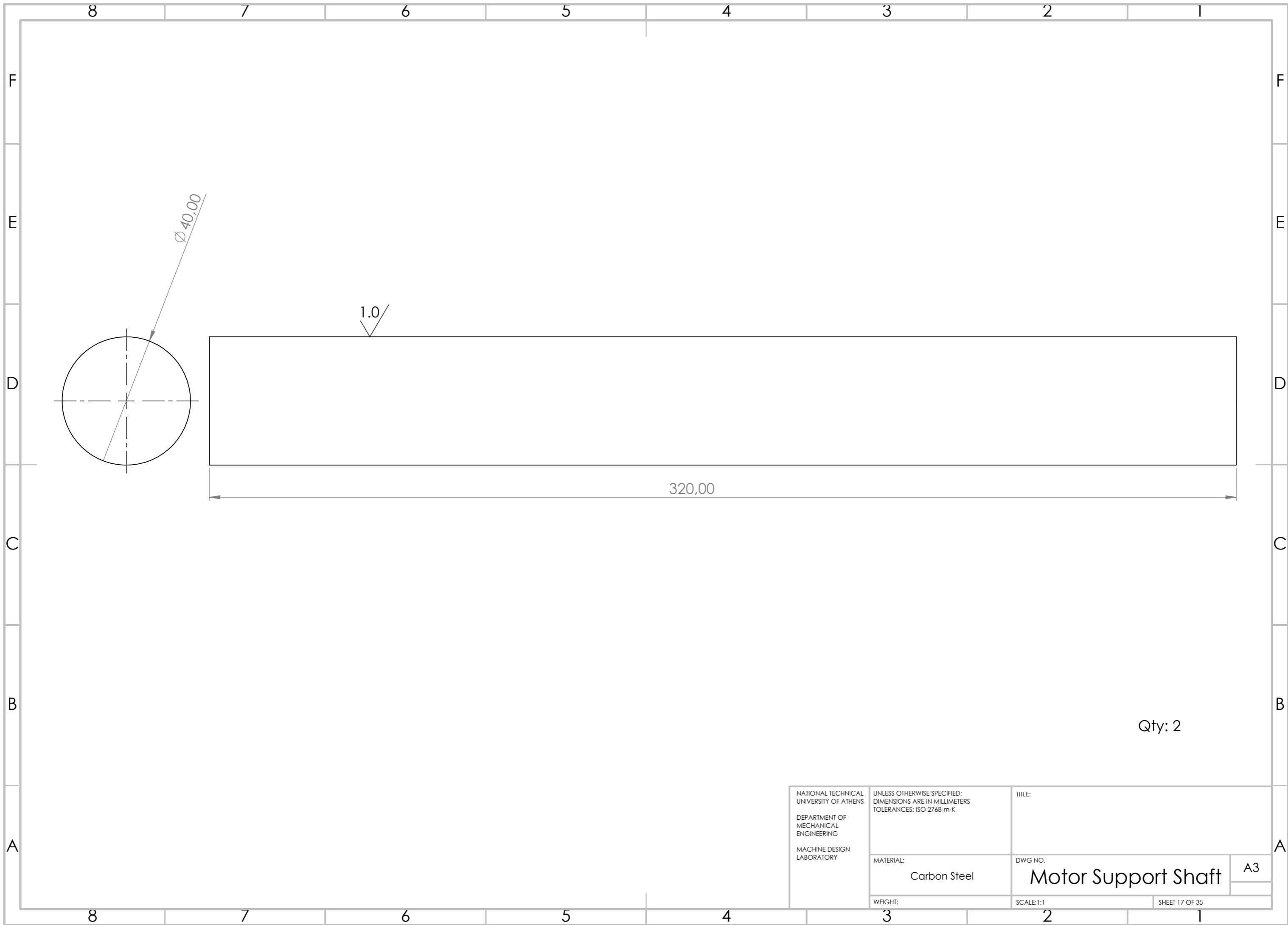


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Belt Tightening Bolt Mount | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 15 OF 35 |



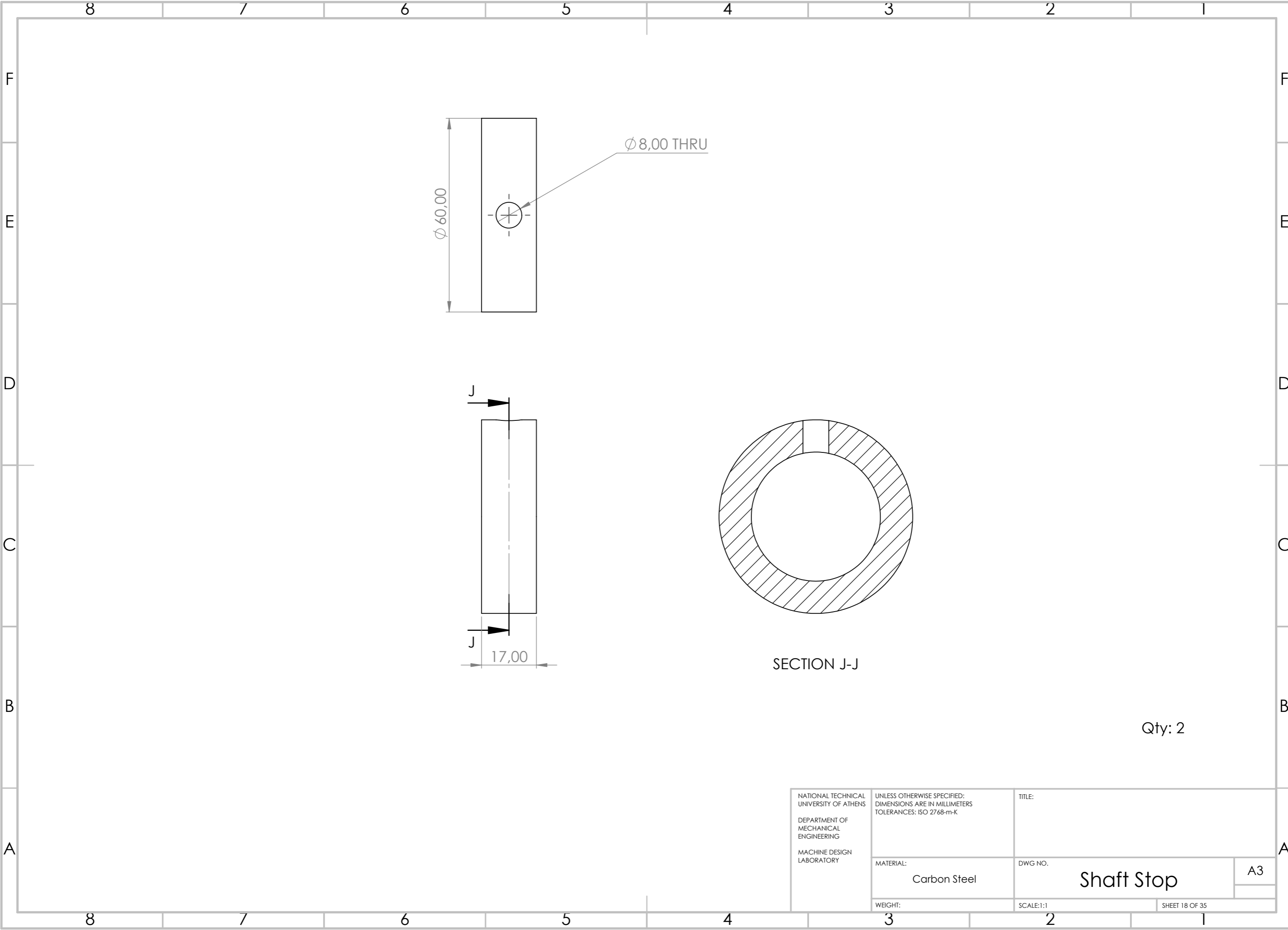
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Bottom Motor Support | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 16 OF 35 |



Qty: 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Motor Support Shaft | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 17 OF 35 |



Ø 8,00 THRU

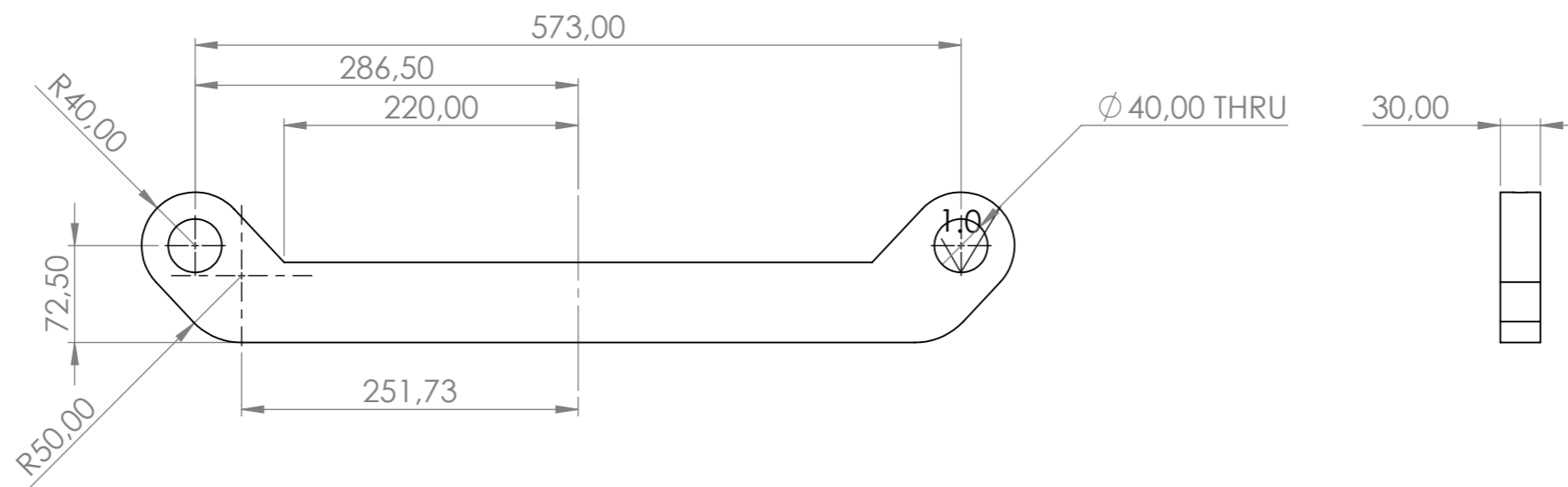
Ø 60,00

17,00

SECTION J-J

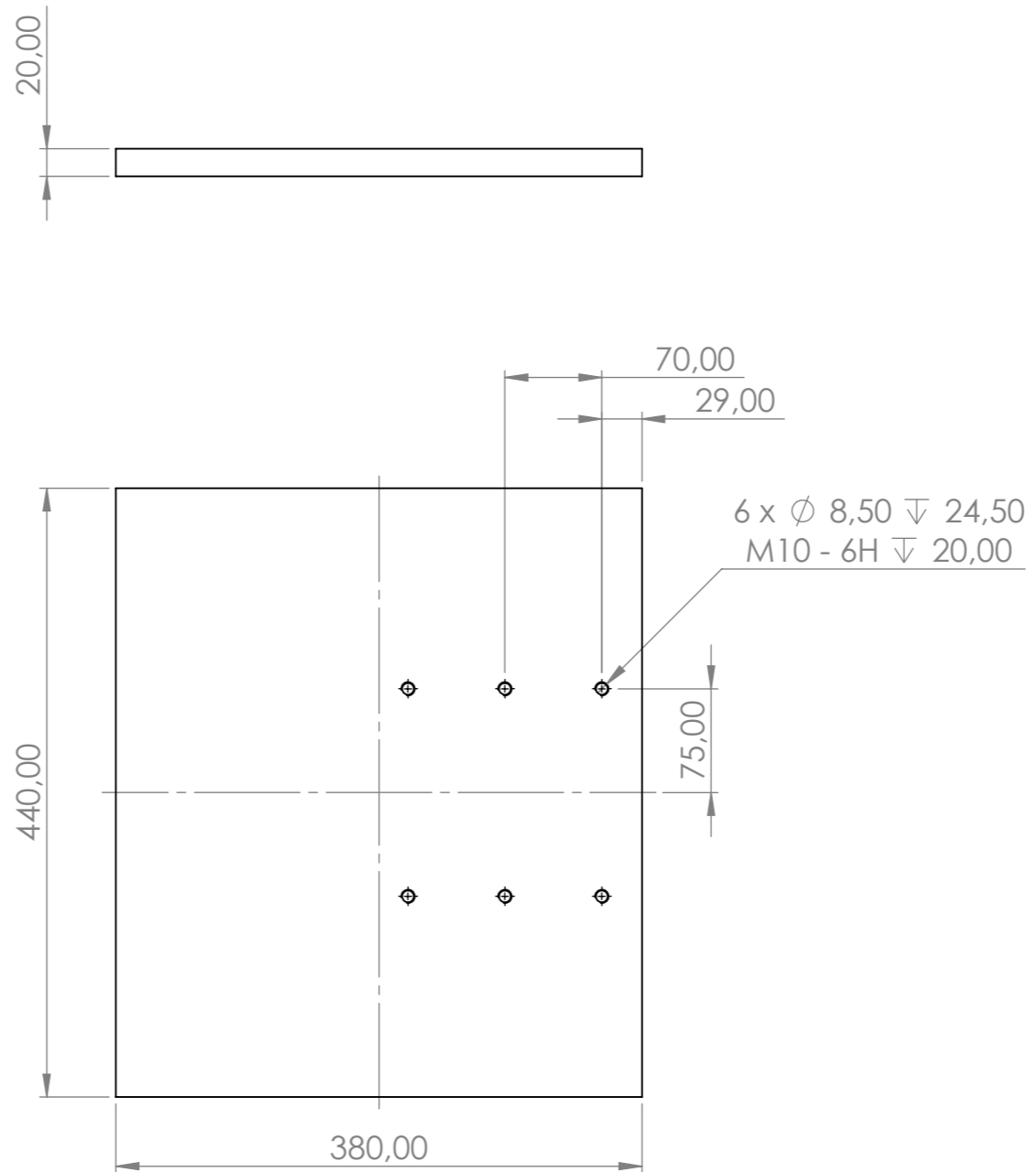
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Shaft Stop | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 18 OF 35 |

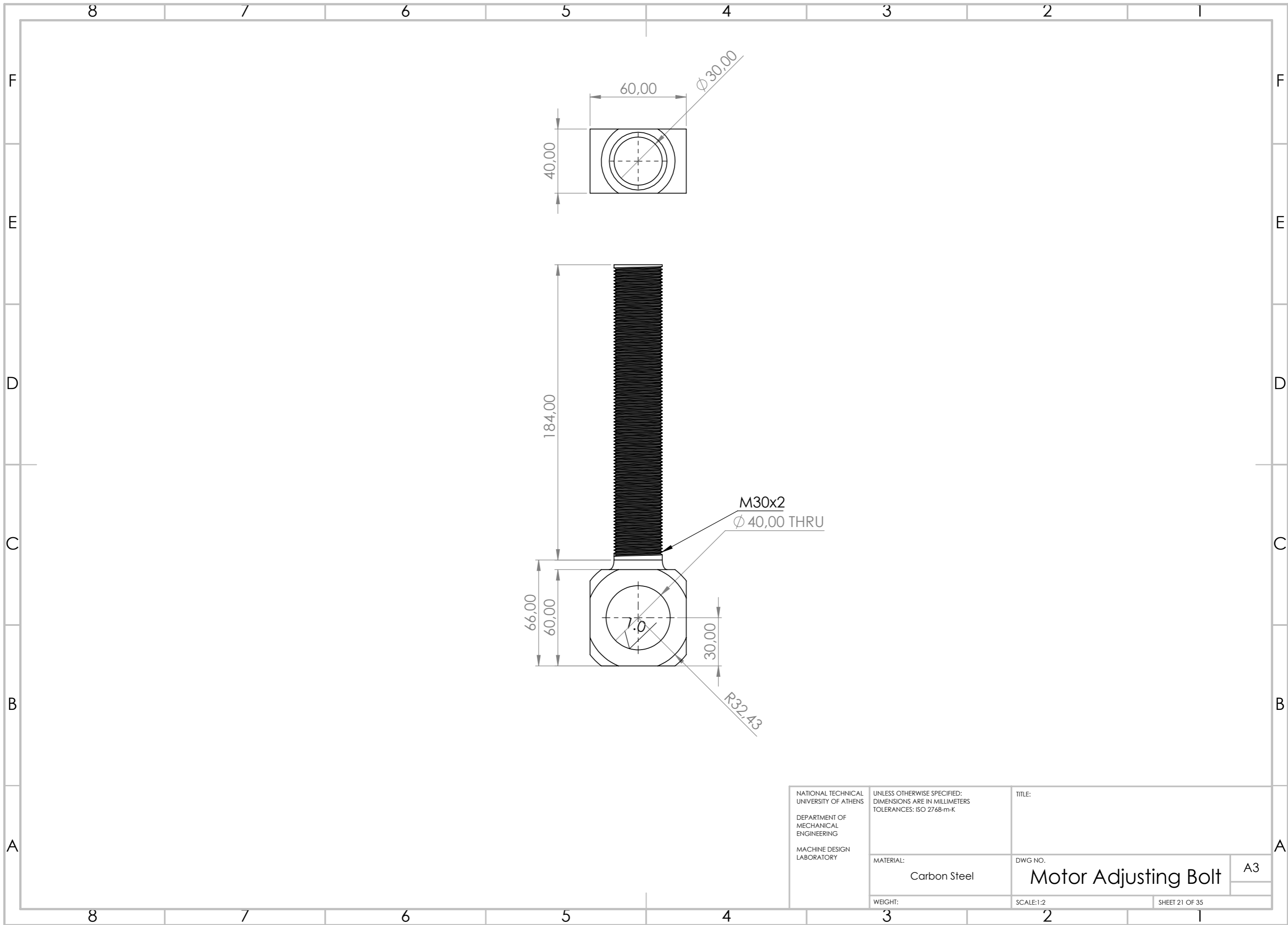


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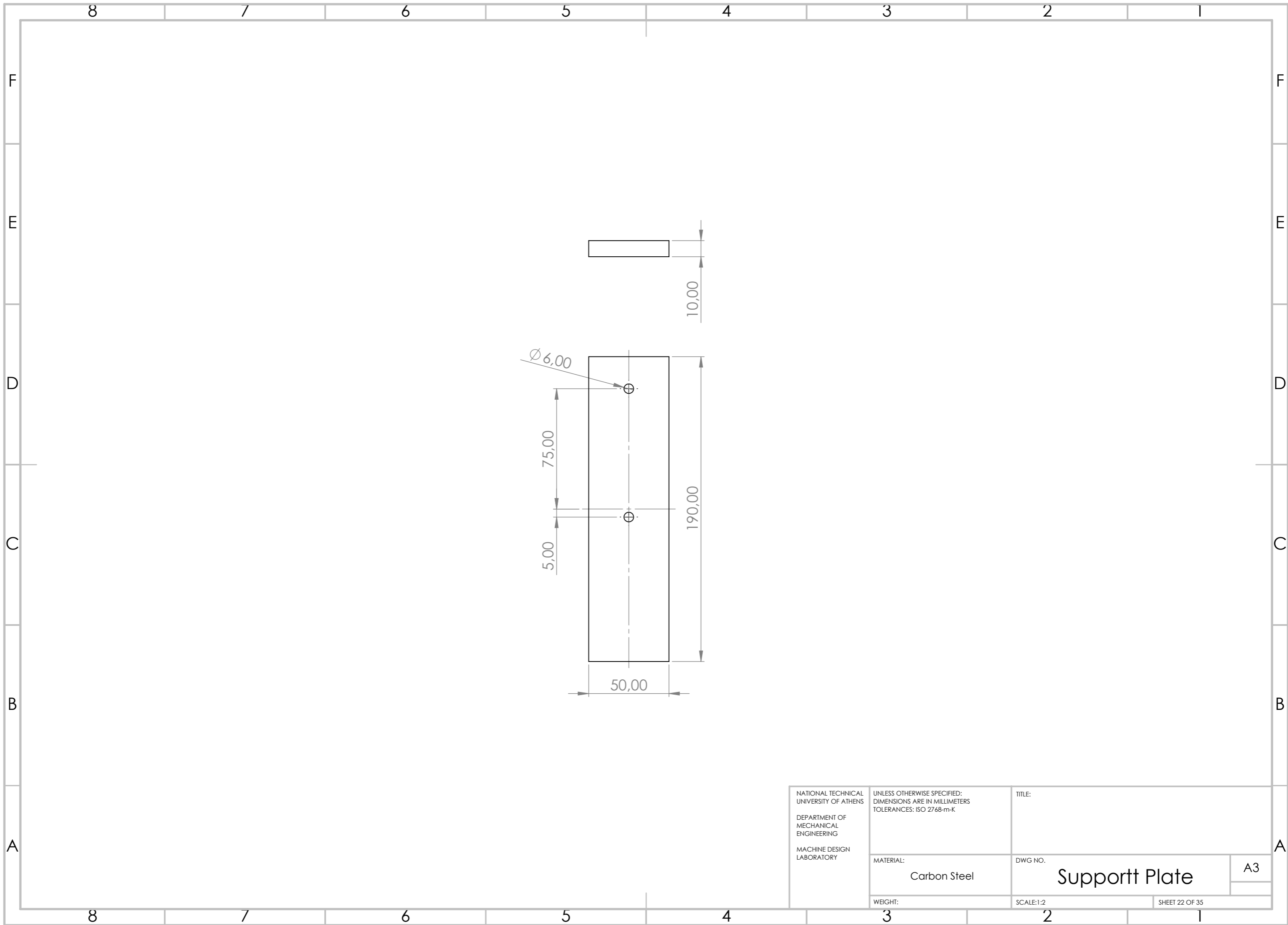
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Motor Bed Support | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 19 OF 35 |



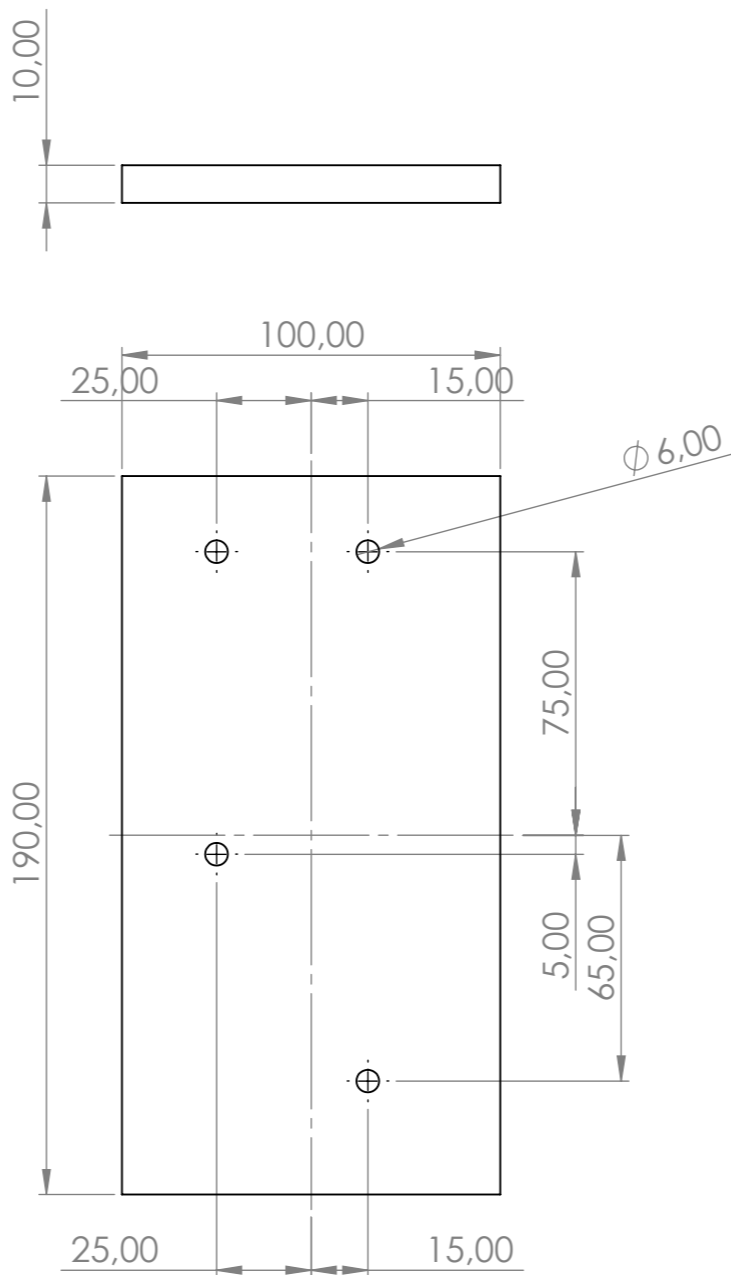
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: <p style="text-align: center;">Carbon Steel</p> | DWG NO. | <p style="text-align: center; font-size: 1.2em;">Motor Bed</p> |
| | WEIGHT: | SCALE: 1:5 | SHEET 20 OF 35 |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Motor Adjusting Bolt | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 21 OF 35 |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 22 OF 35 |
| | | Supportt Plate | |



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UNIVERSITY OF ATHENS

DEPARTMENT OF
MECHANICAL
ENGINEERING

MACHINE DESIGN
LABORATORY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES: ISO 2768-m-K

TITLE:

MATERIAL:
Carbon Steel

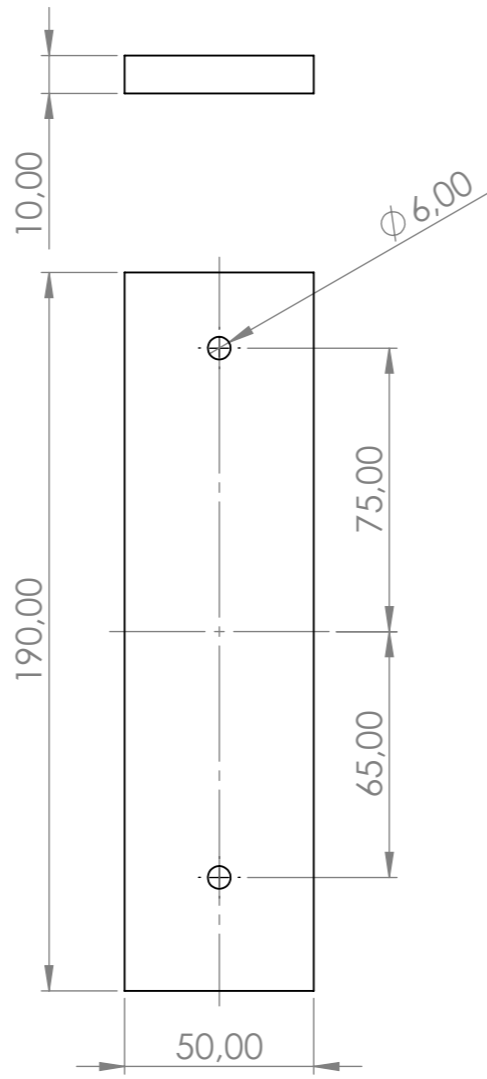
DWG NO.
Supportt Plate 2

A3

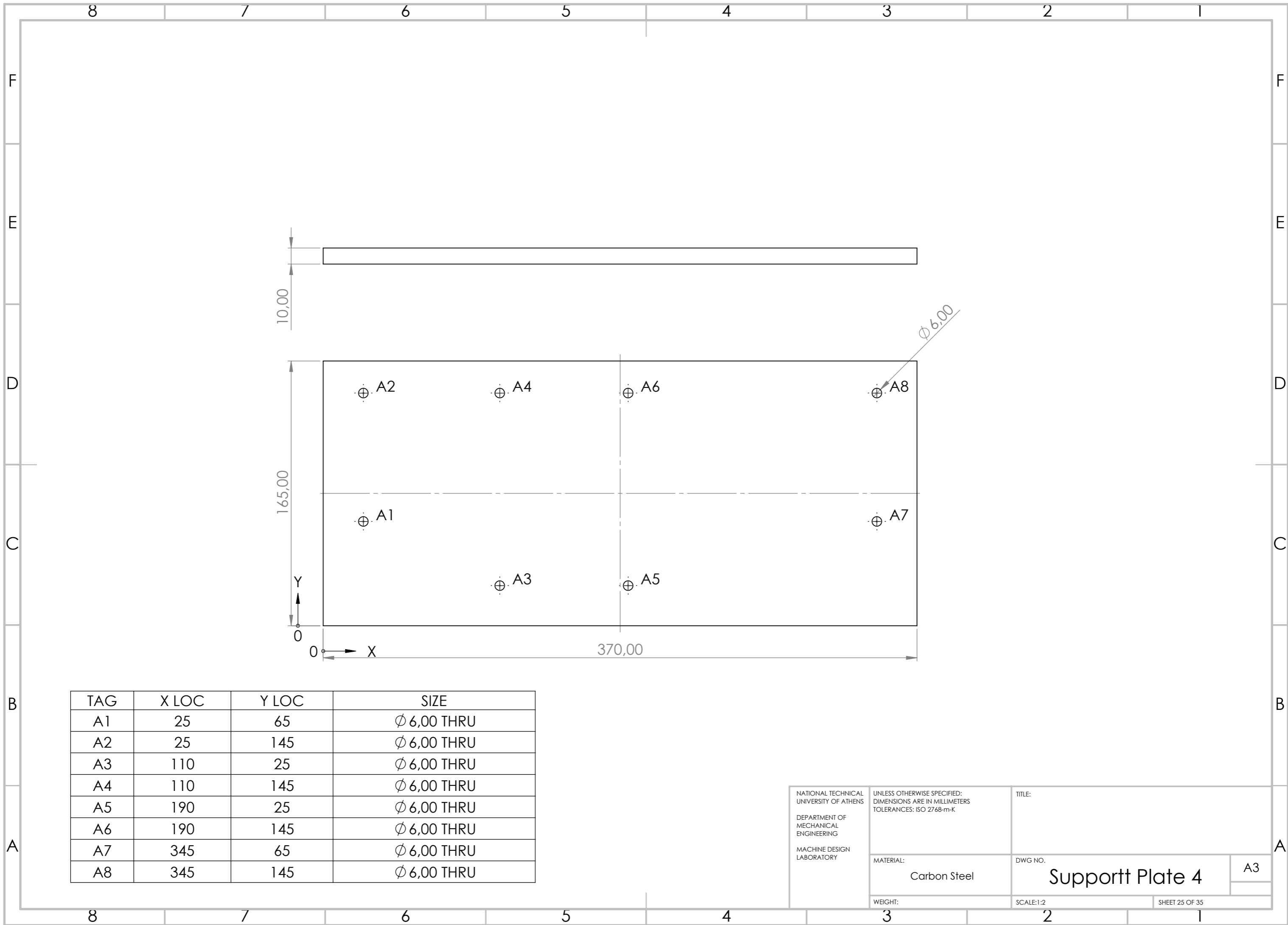
WEIGHT:

SCALE:1:2

SHEET 23 OF 35

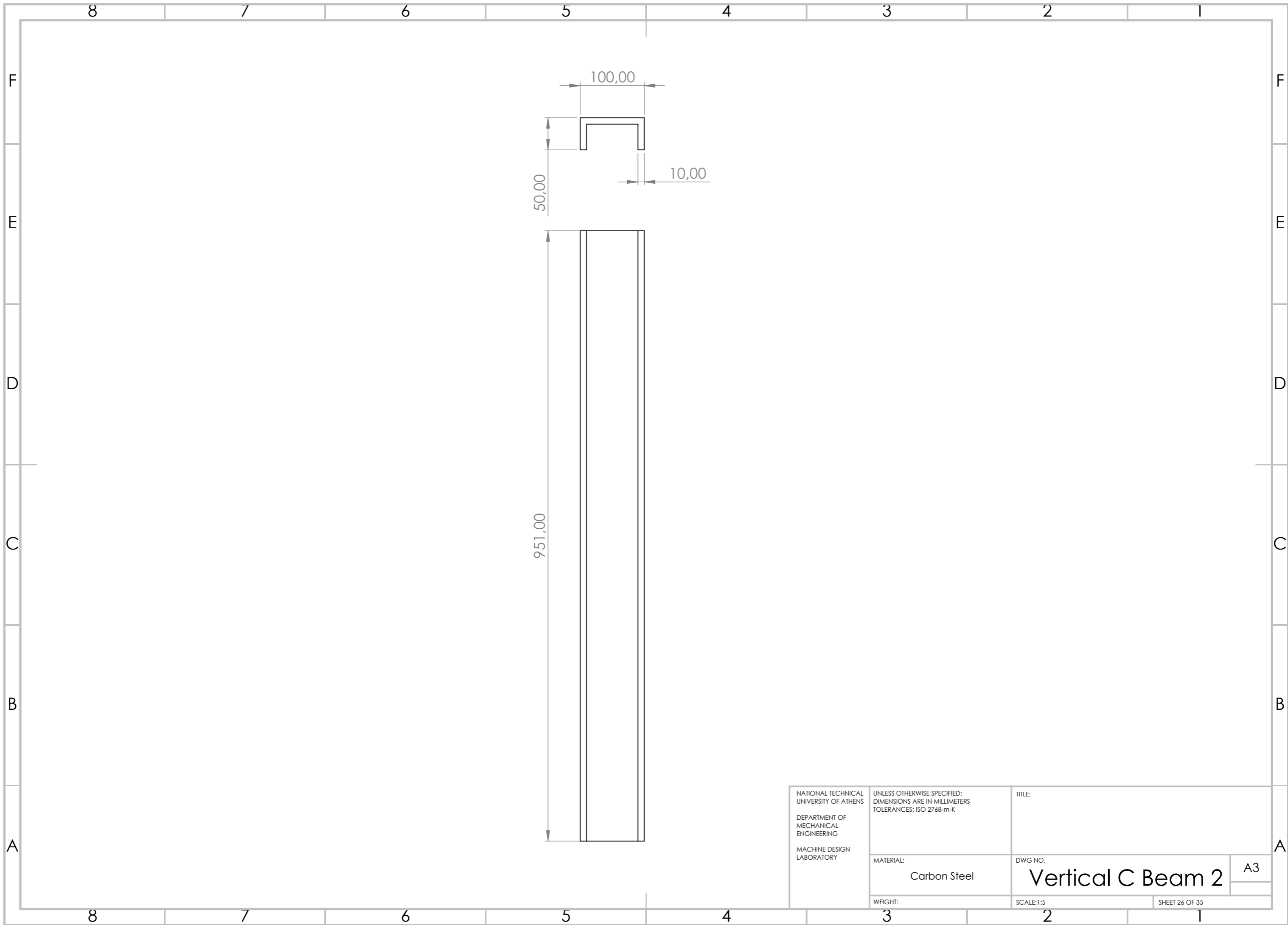


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Supportt Plate 3 | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 24 OF 35 |



| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|-------------|
| A1 | 25 | 65 | Ø 6,00 THRU |
| A2 | 25 | 145 | Ø 6,00 THRU |
| A3 | 110 | 25 | Ø 6,00 THRU |
| A4 | 110 | 145 | Ø 6,00 THRU |
| A5 | 190 | 25 | Ø 6,00 THRU |
| A6 | 190 | 145 | Ø 6,00 THRU |
| A7 | 345 | 65 | Ø 6,00 THRU |
| A8 | 345 | 145 | Ø 6,00 THRU |

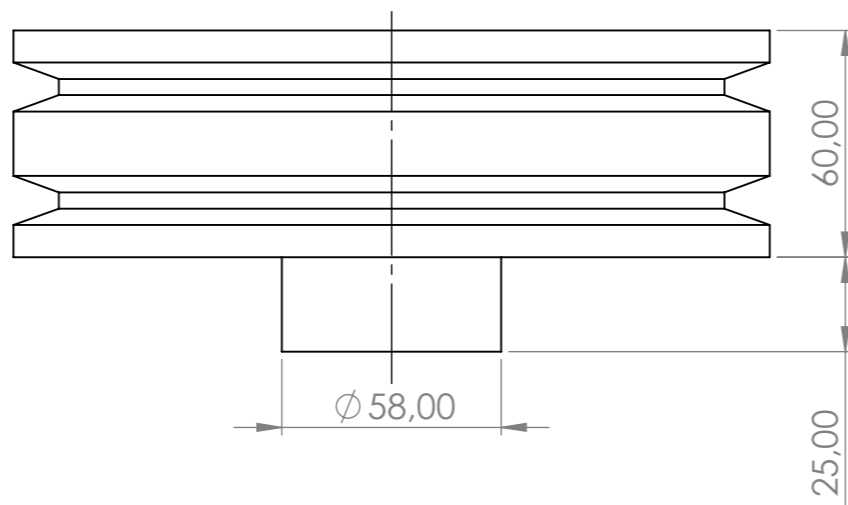
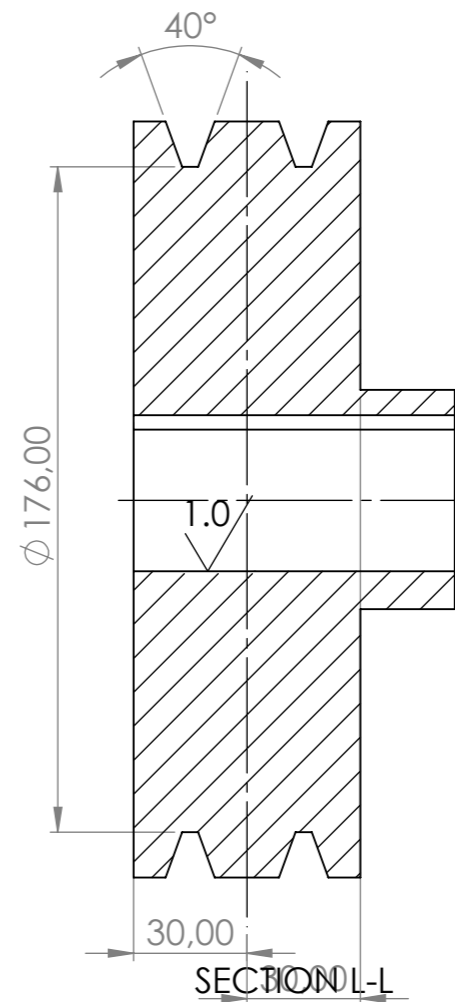
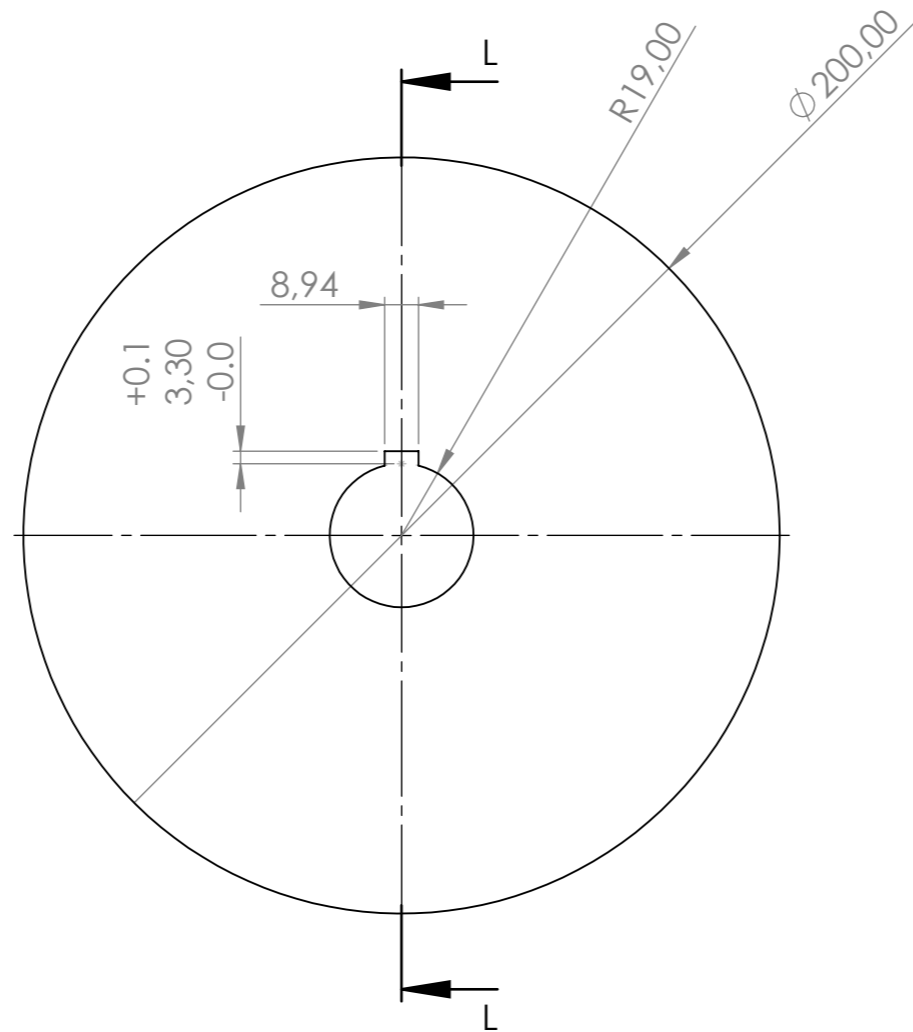
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO.: Supportt Plate 4 | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 25 OF 35 |



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50,00
10,00

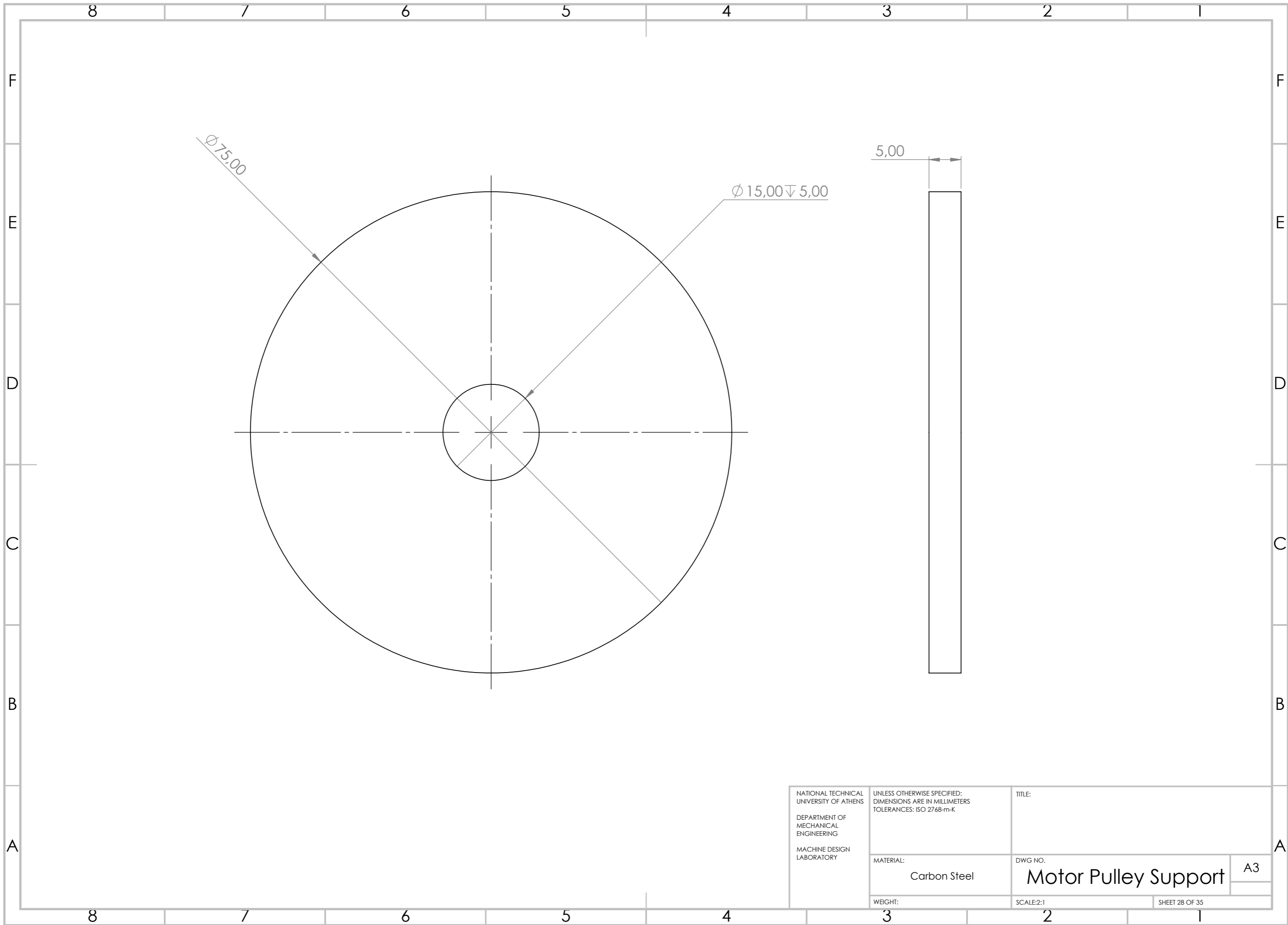
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Vertical C Beam 2 | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 26 OF 35 |

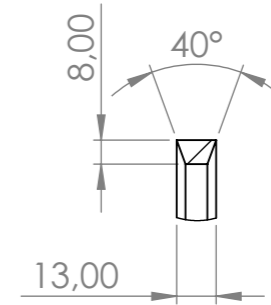
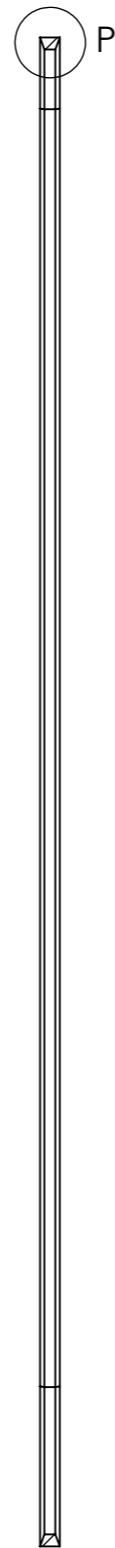
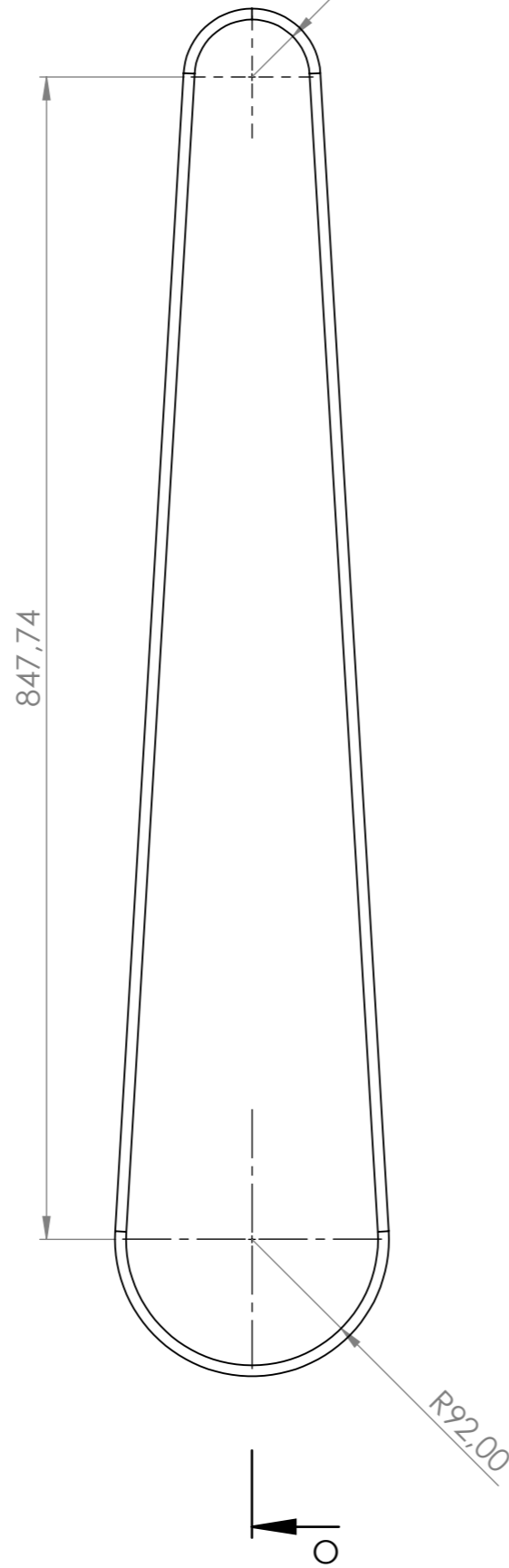


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 27 OF 35 |

Motor Pulley



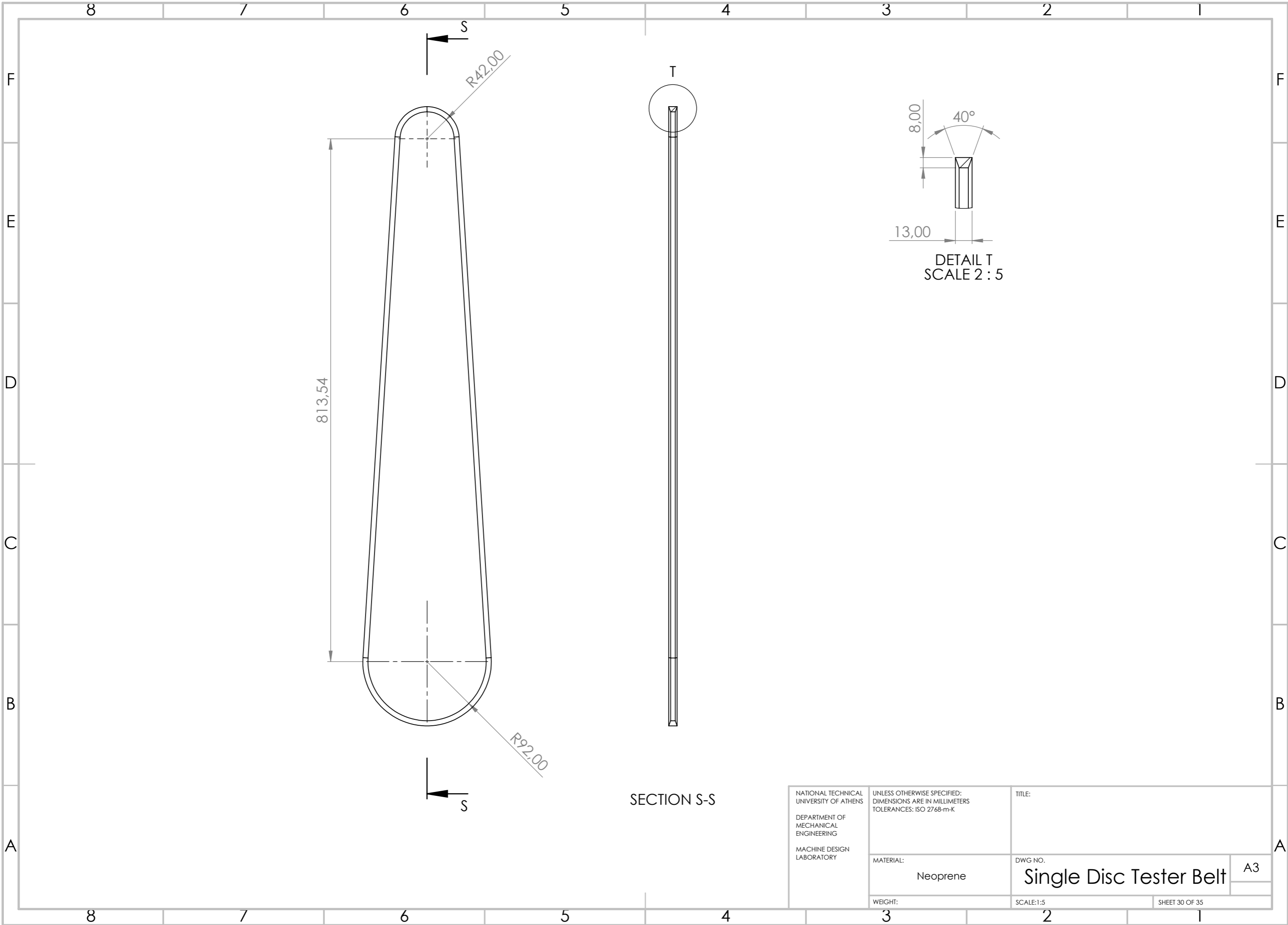
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Motor Pulley Support | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 28 OF 35 |



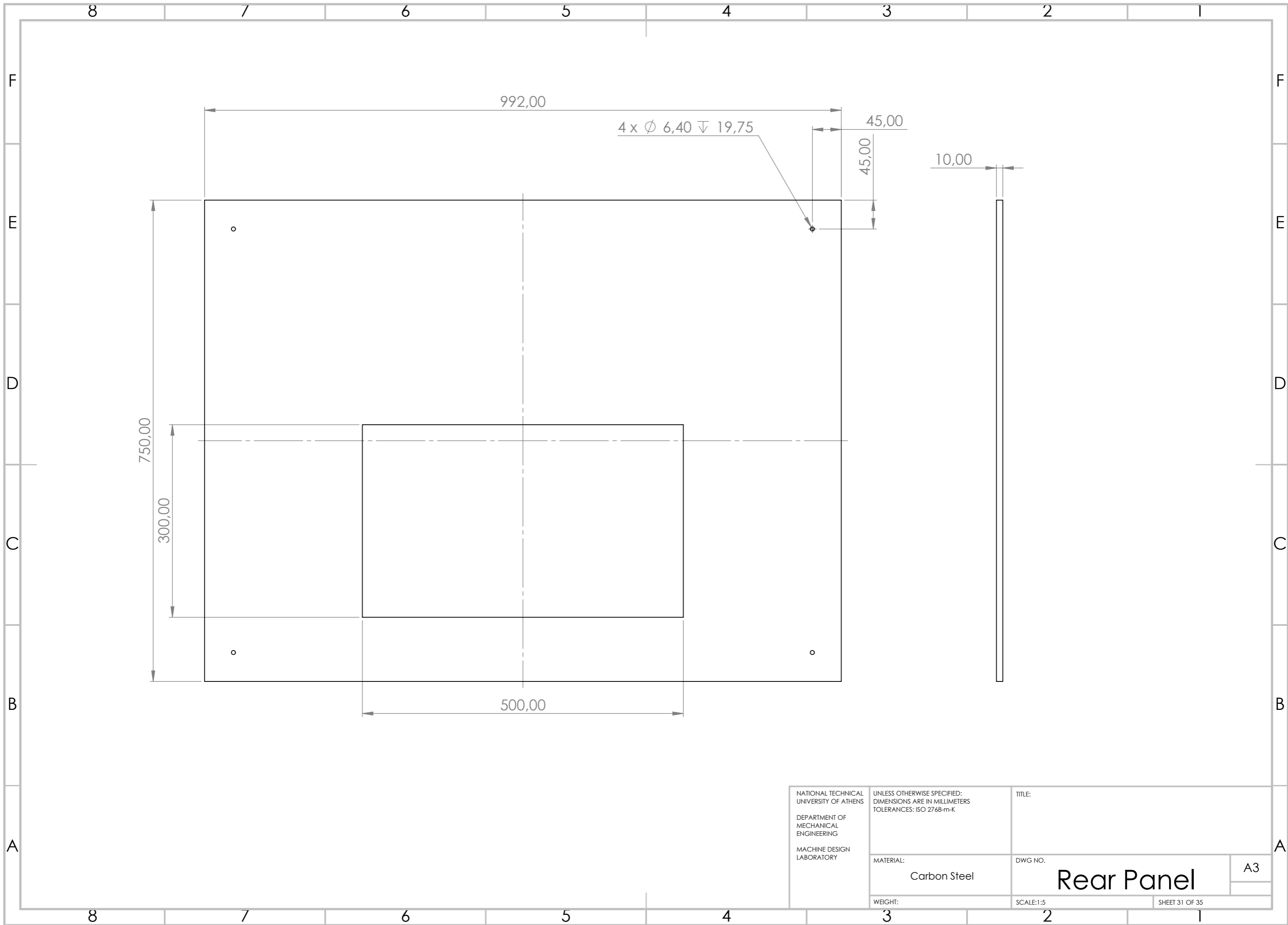
DETAIL P
SCALE 2 : 5

SECTION O-O

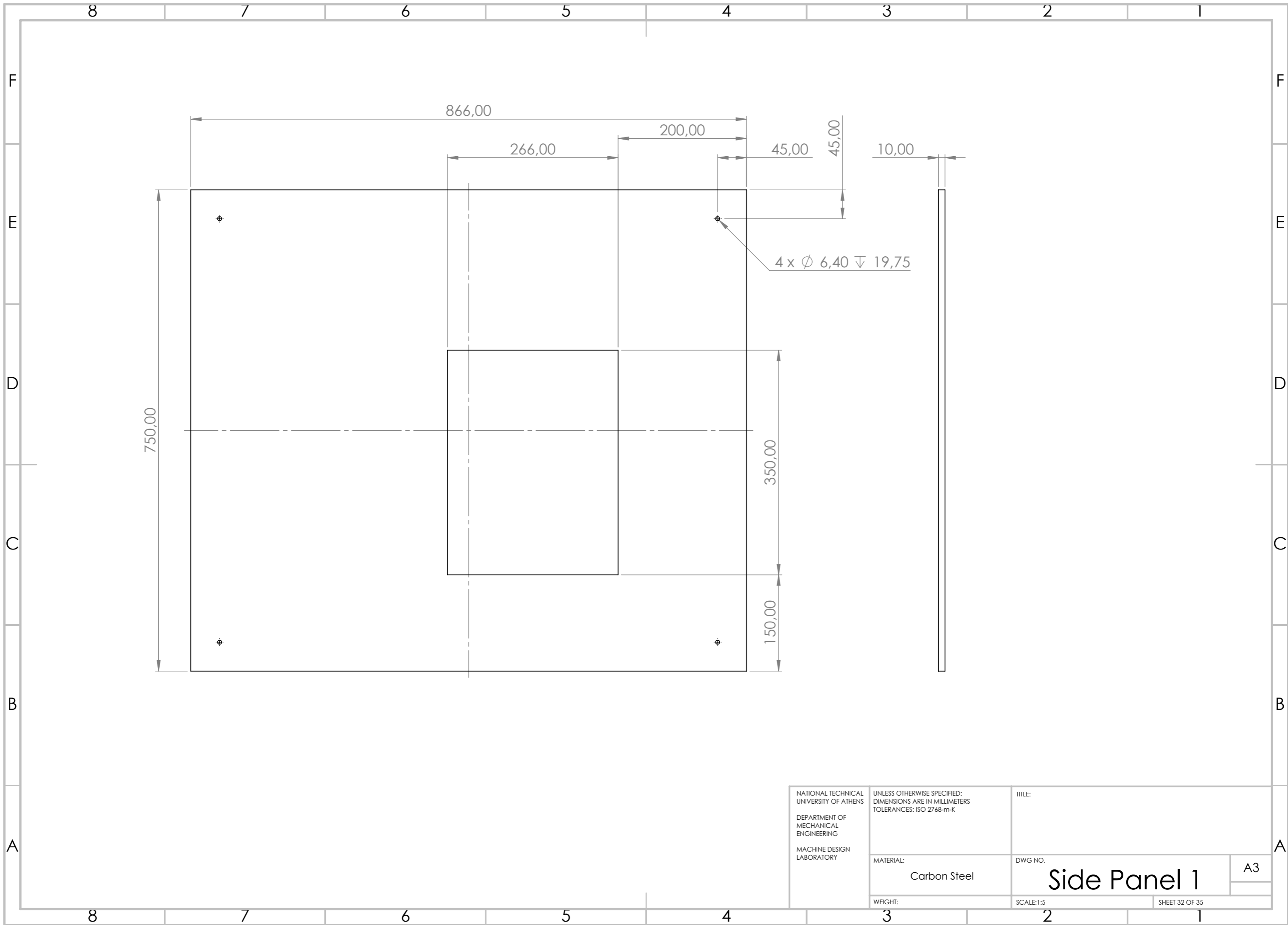
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Neoprene | DWG NO.: Wear Tester Belt | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 29 OF 35 |



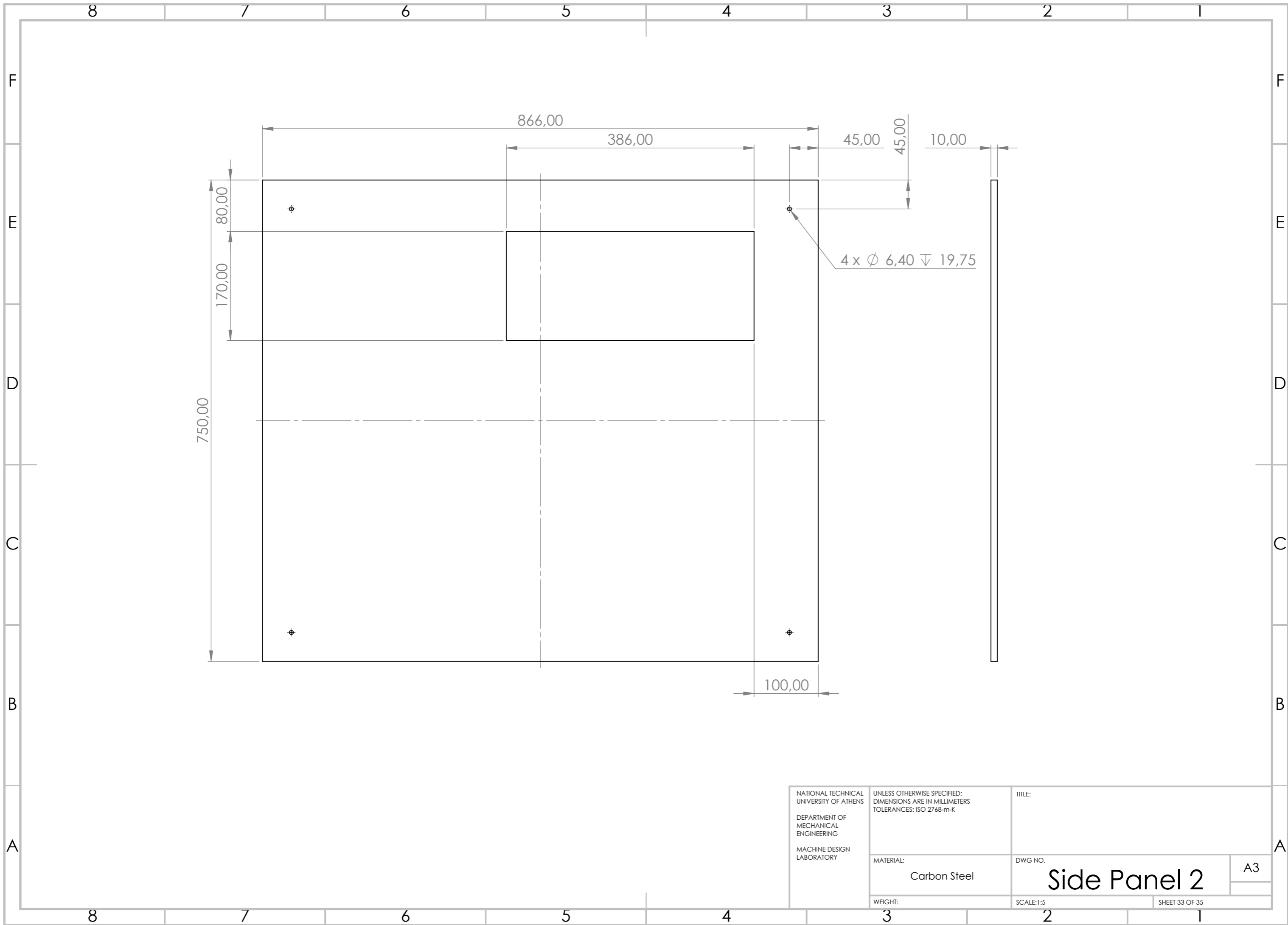
| | | | |
|--|--|--------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Neoprene | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 30 OF 35 |
| | | Single Disc Tester Belt | |



| | | | |
|--|--|------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO.: Rear Panel | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 31 OF 35 |

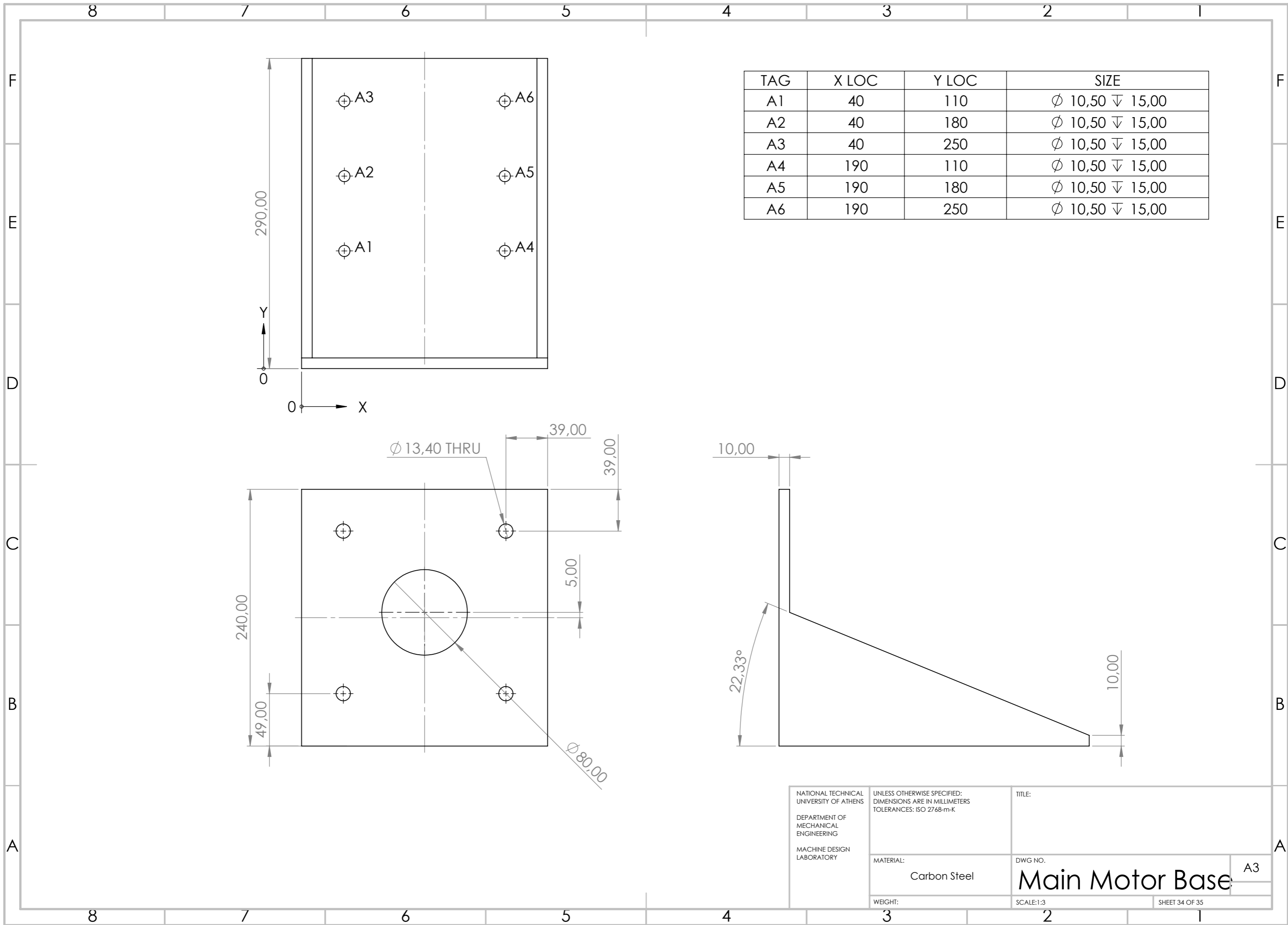


| | | | |
|--|--|--------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. Side Panel 1 | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 32 OF 35 |

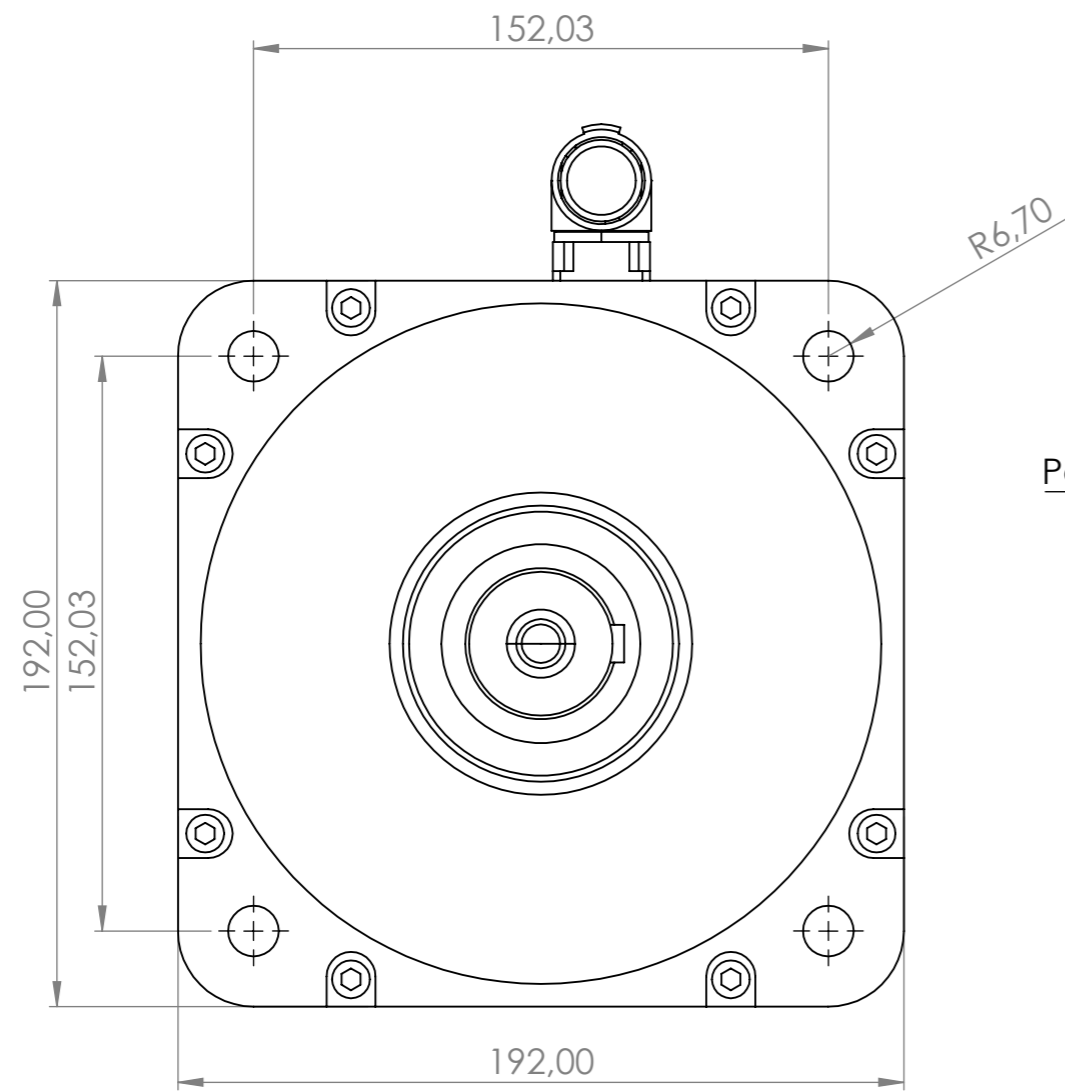


| | | | |
|--|--|------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 33 OF 35 |

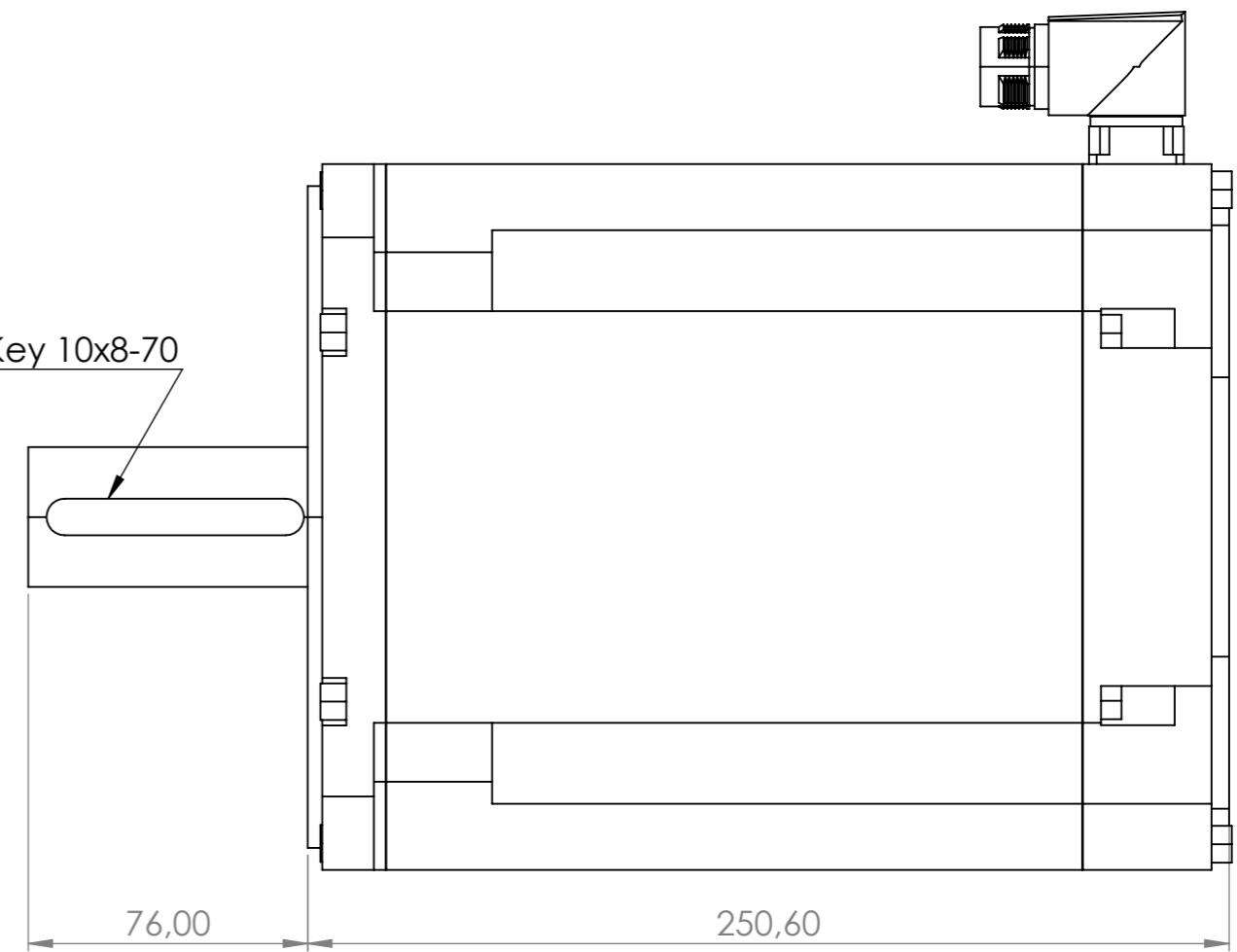
Side Panel 2



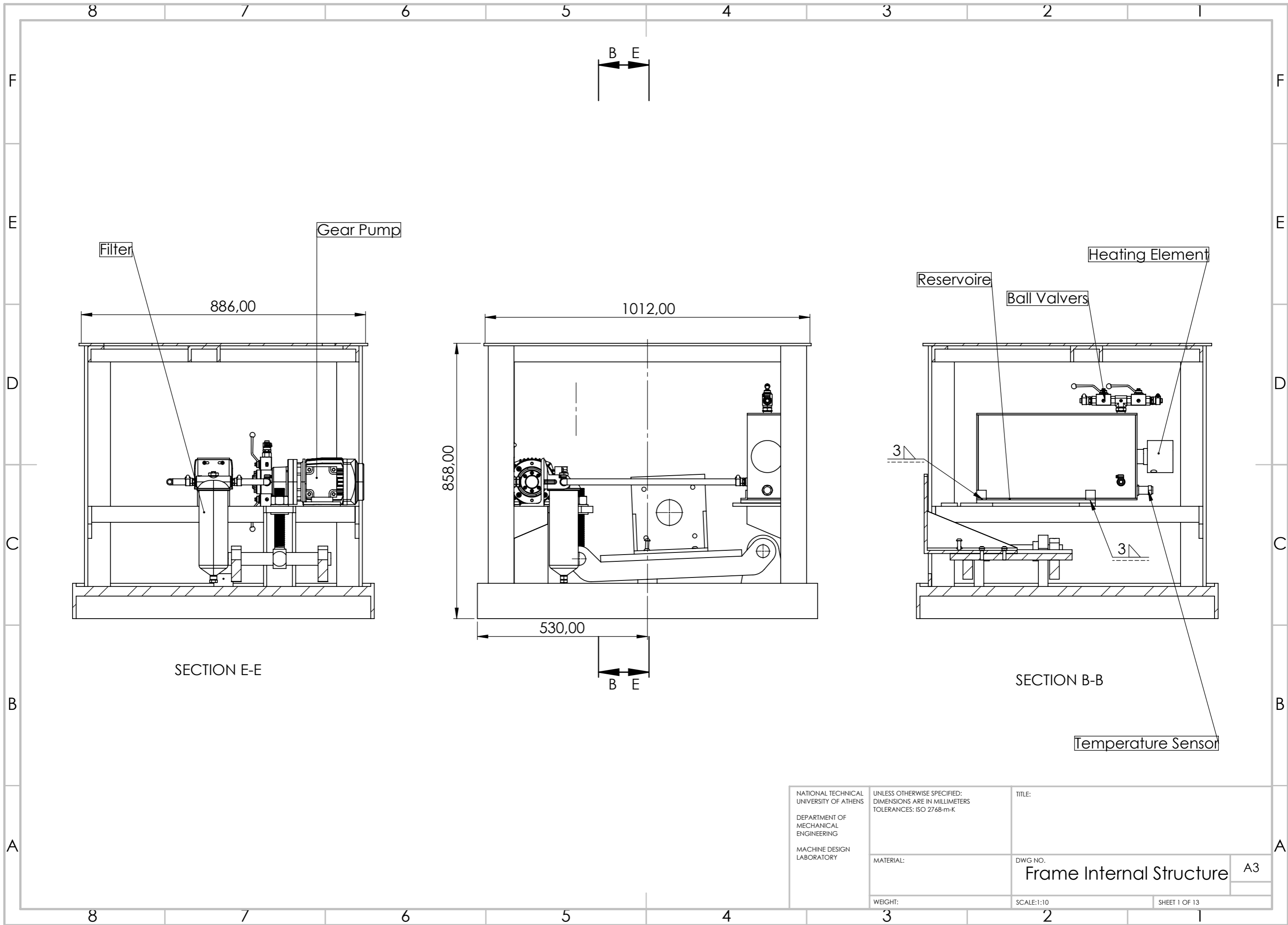
| | | | |
|--|--|----------------|-----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Carbon Steel | DWG NO. | A3 |
| | WEIGHT: | SCALE: 1:3 | Main Motor Base |
| | | SHEET 34 OF 35 | |



Parallel Key 10x8-70



| | | | |
|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: AKM2G_71X_ACD 2CA00 | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 35 OF 35 |
| | | Main Motor | |

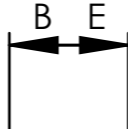


Filter

Gear Pump

886,00

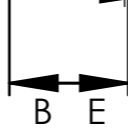
SECTION E-E



1012,00

858,00

530,00



Heating Element

Reservoir

Ball Valves

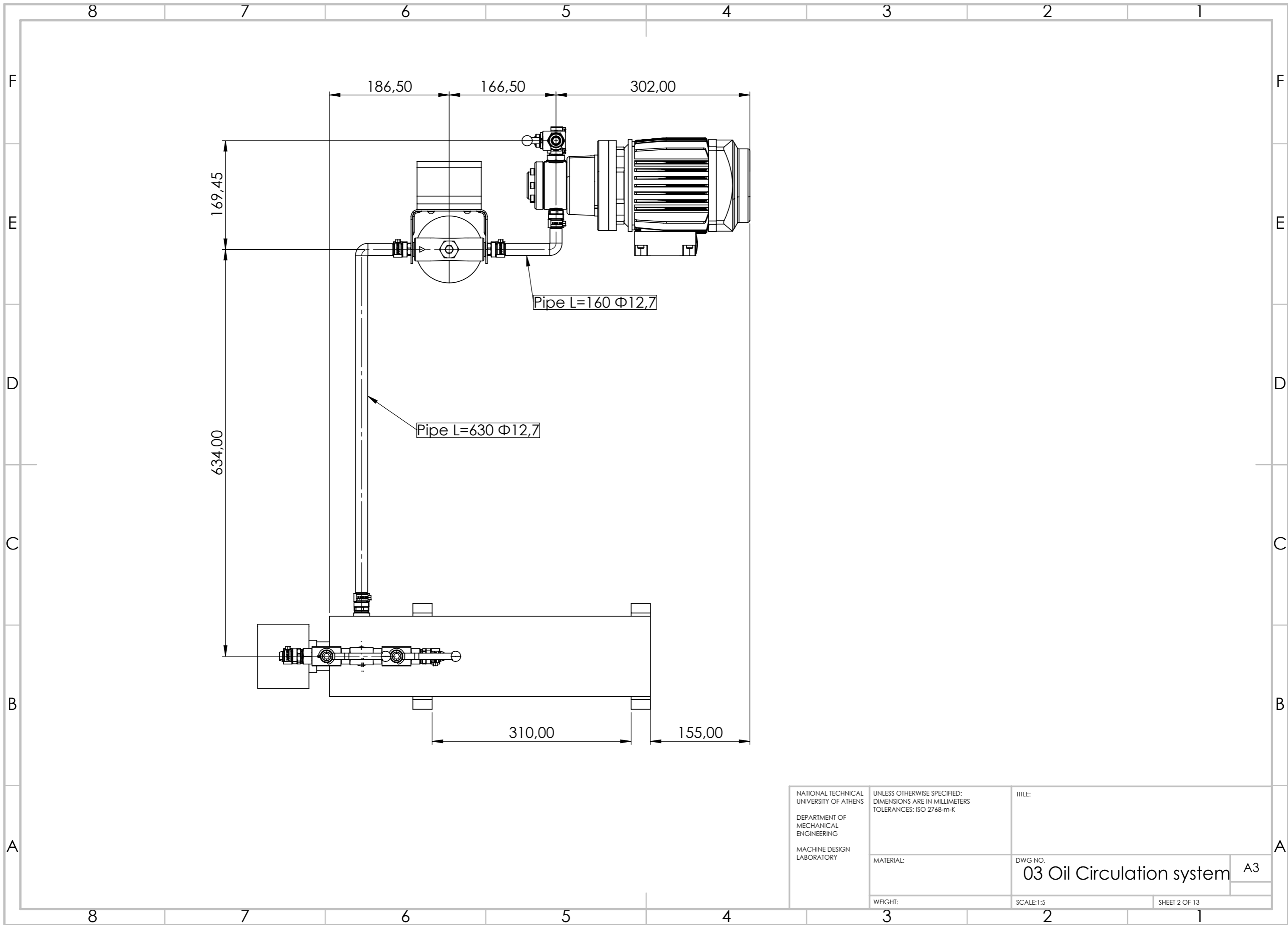
3

3

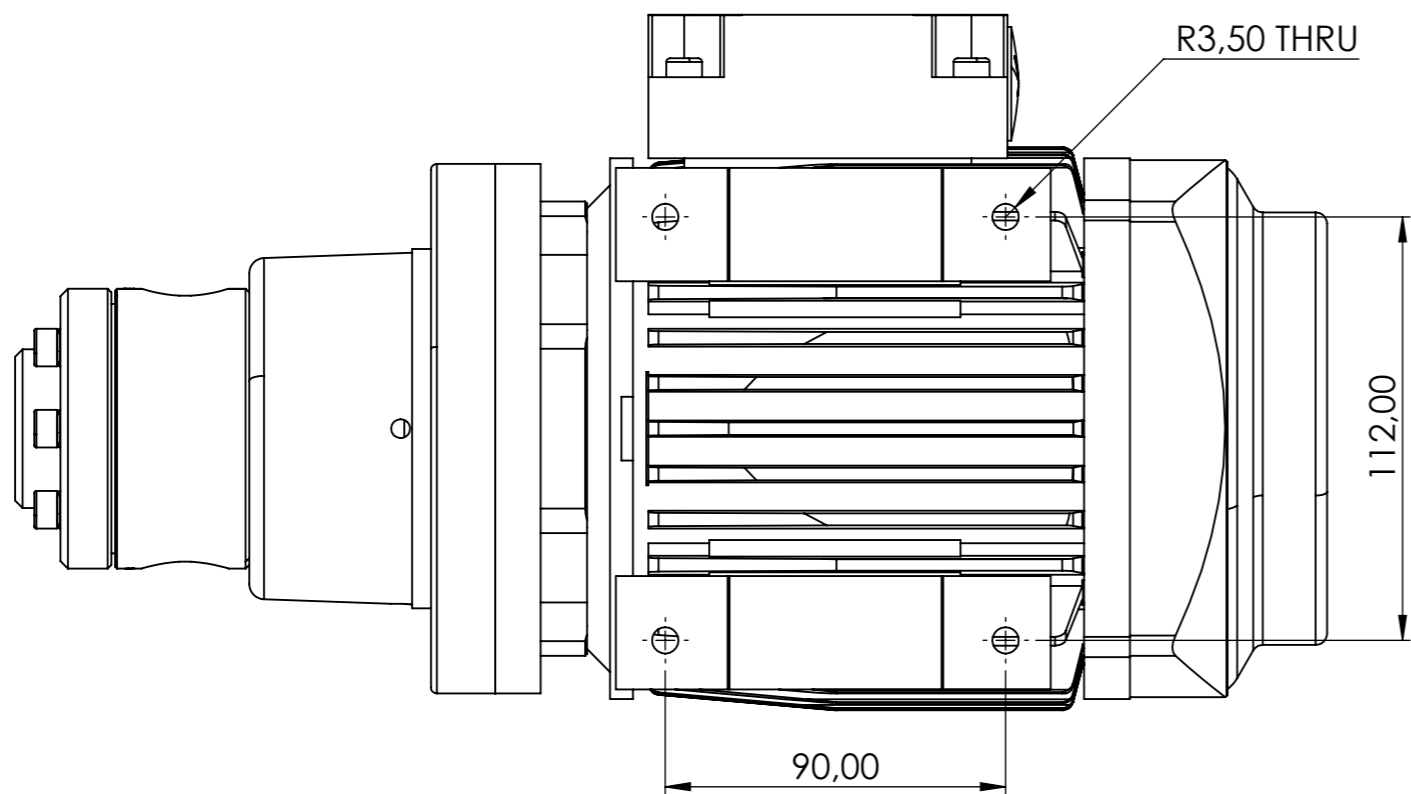
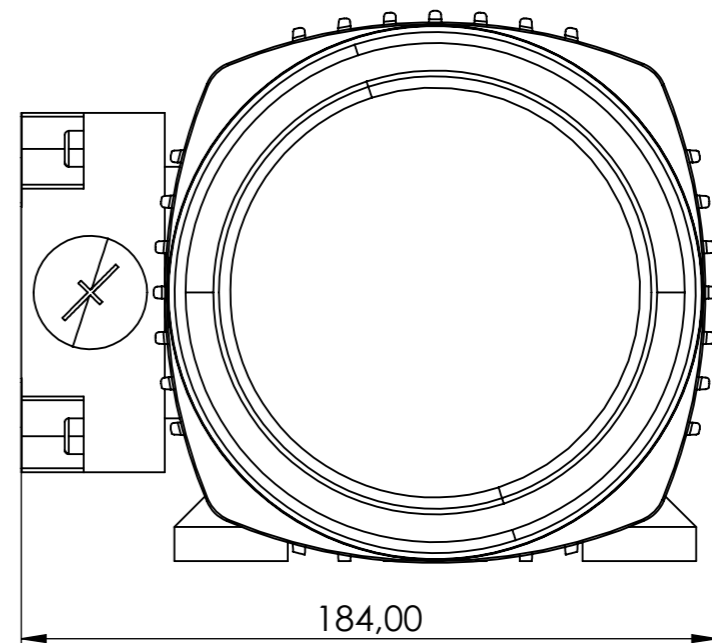
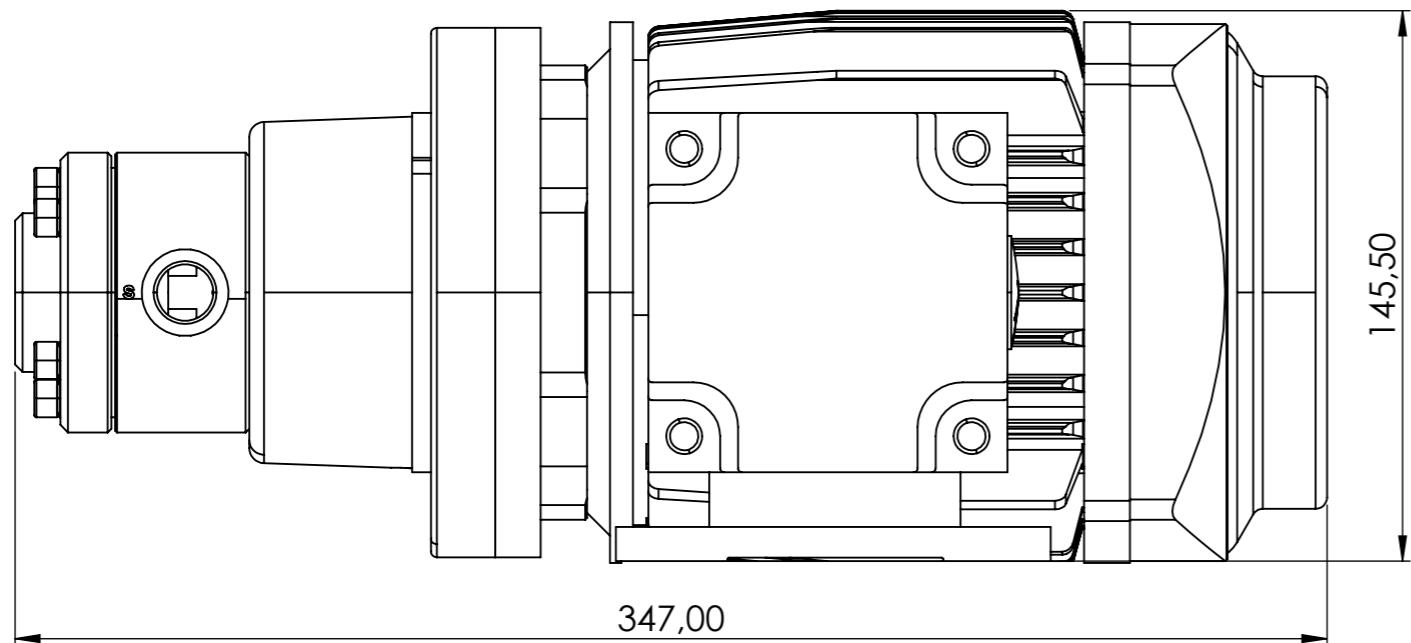
SECTION B-B

Temperature Sensor

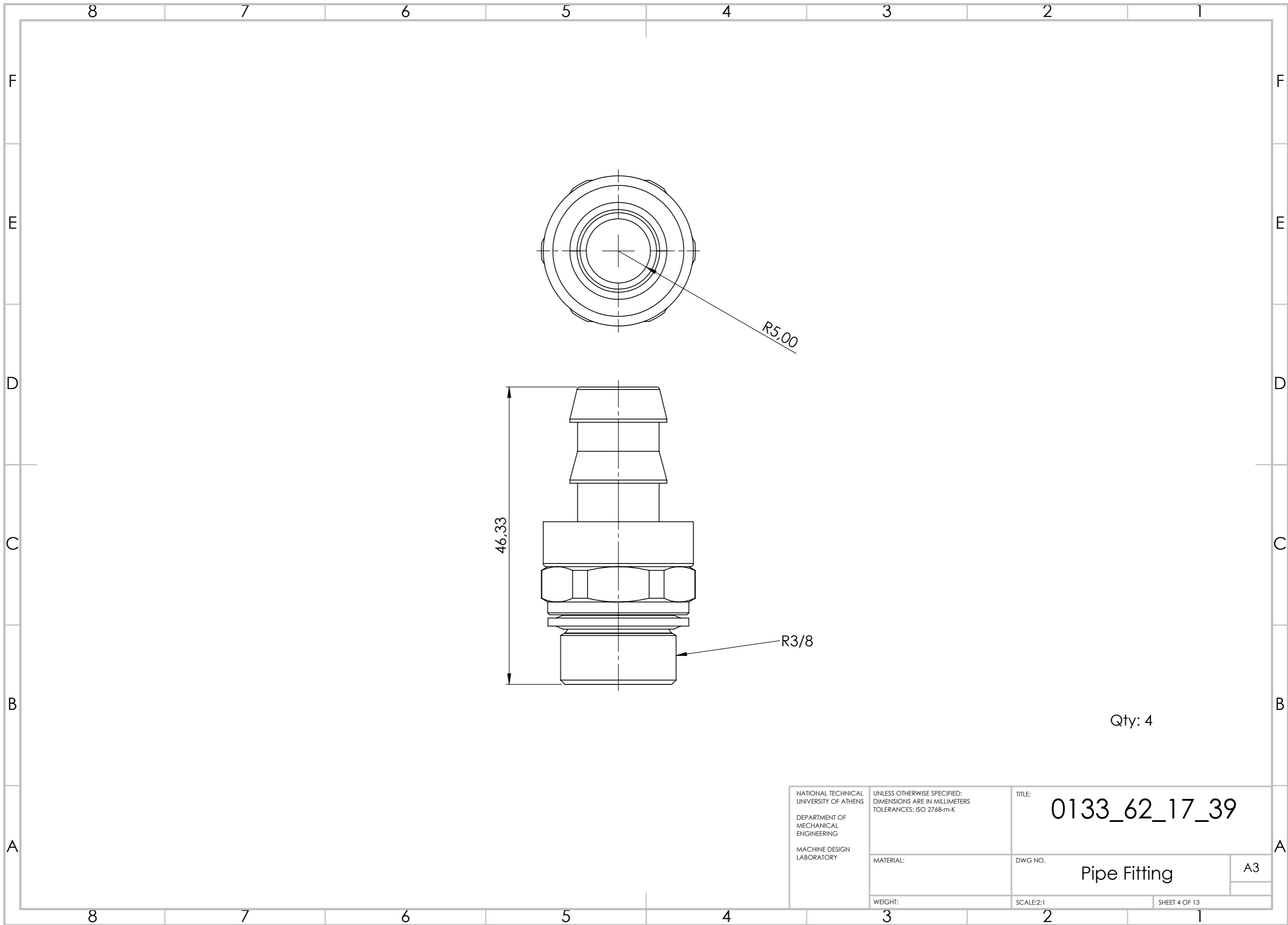
| | | | |
|--|--|---------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:10 | SHEET 1 OF 13 |
| | | Frame Internal Structure | |



| | | | |
|--|--|---|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. 03 Oil Circulation system | |
| | WEIGHT: | SCALE:1:5 | SHEET 2 OF 13 |



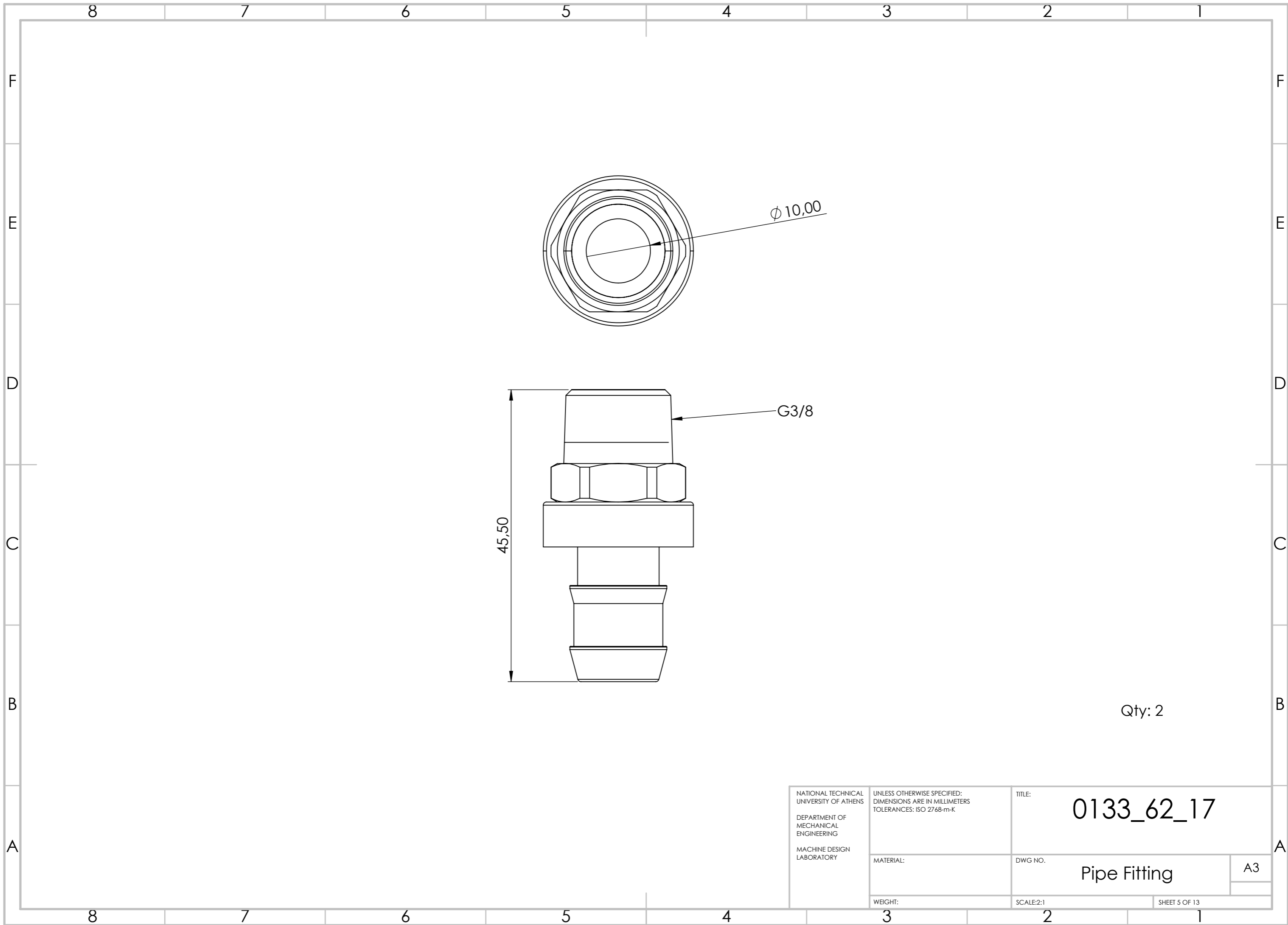
| | | | |
|--|--|-------------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 143_11NF02D_RA_1GP | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 3 OF 13 |



Qty: 4

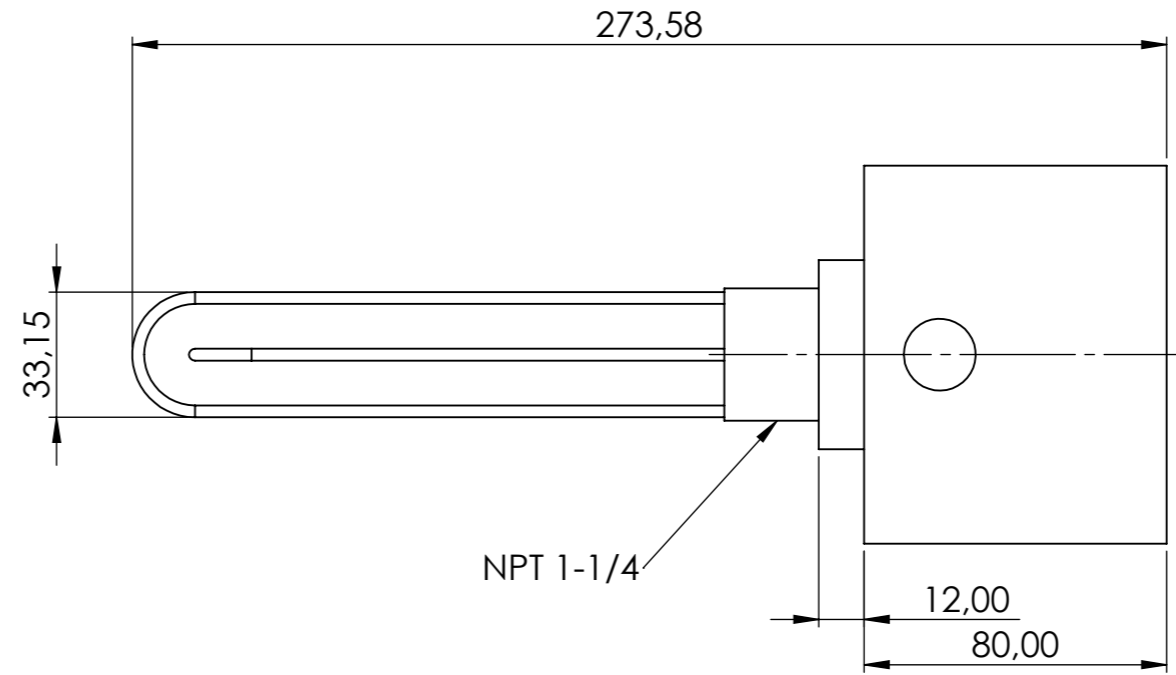
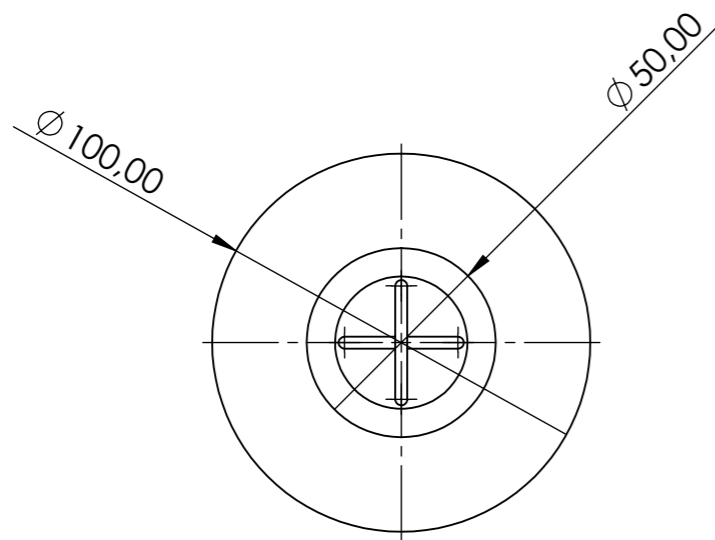
| | | | |
|--|--|----------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1>0133_62_17_39</h1> | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 4 OF 13 |

Pipe Fitting

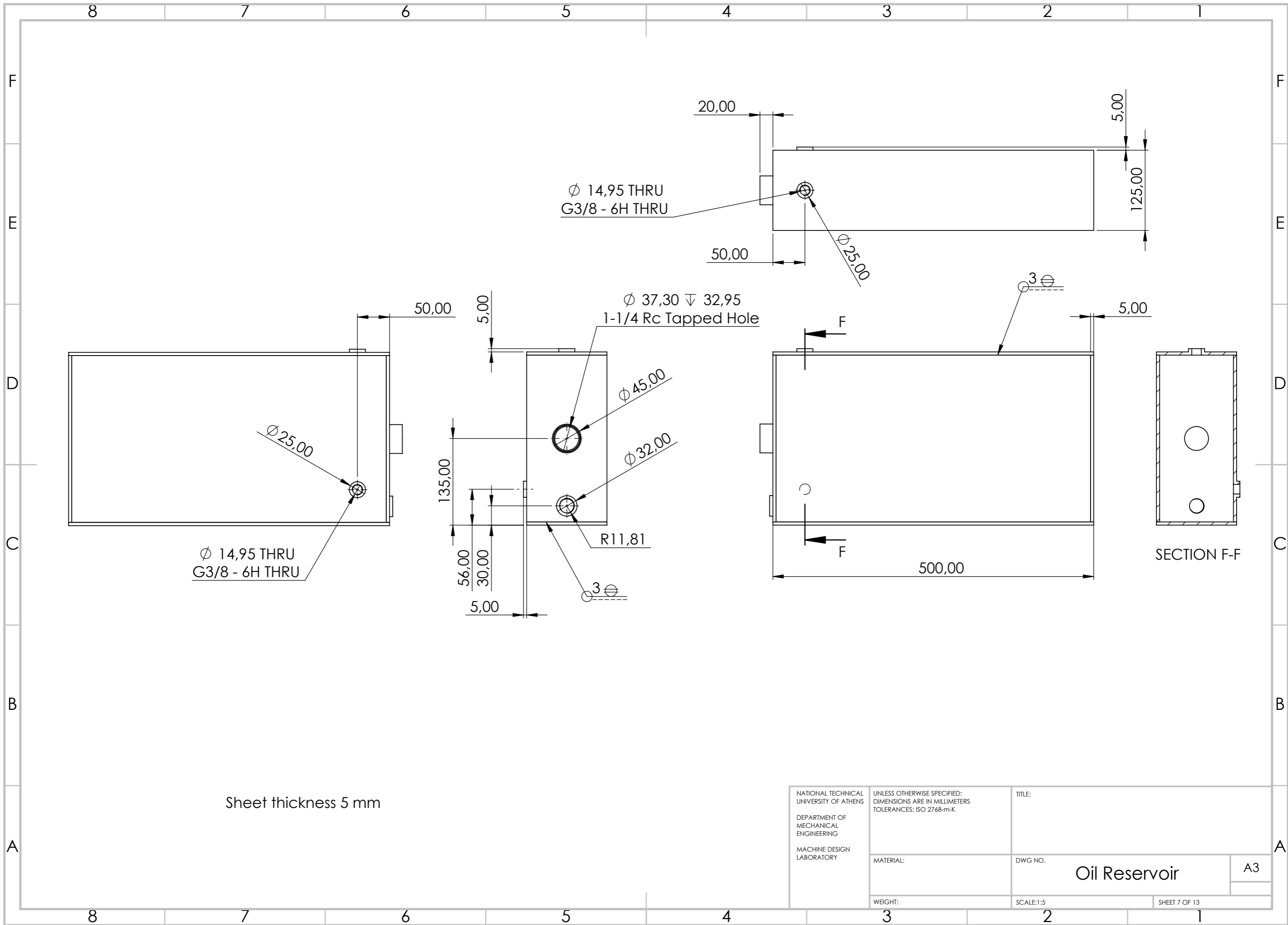


Qty: 2

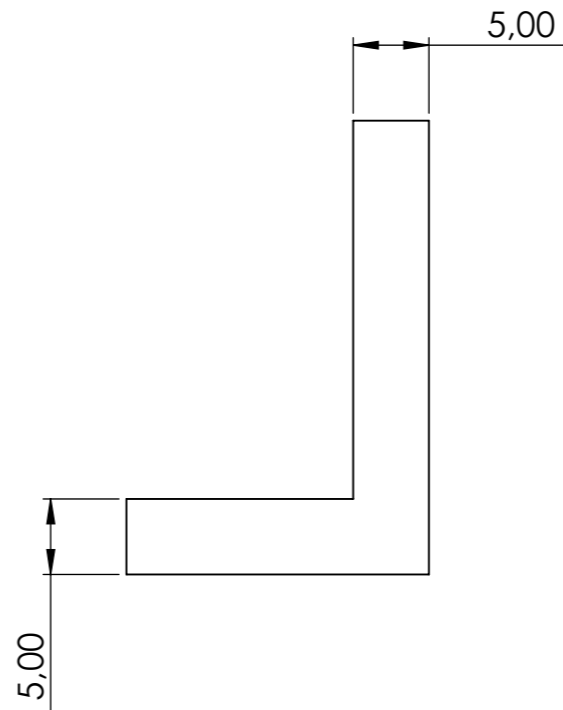
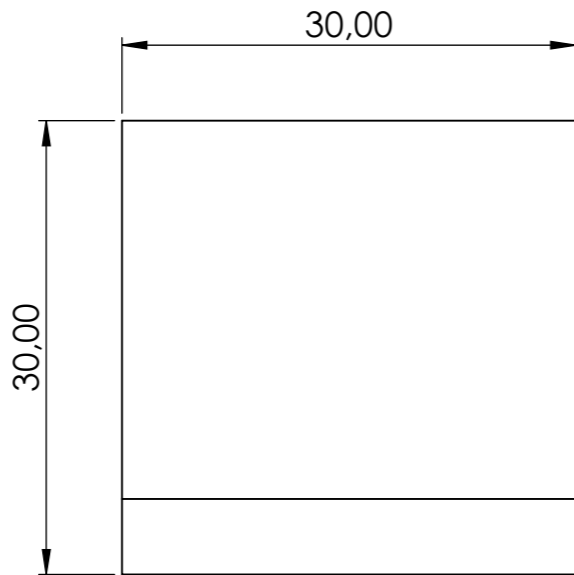
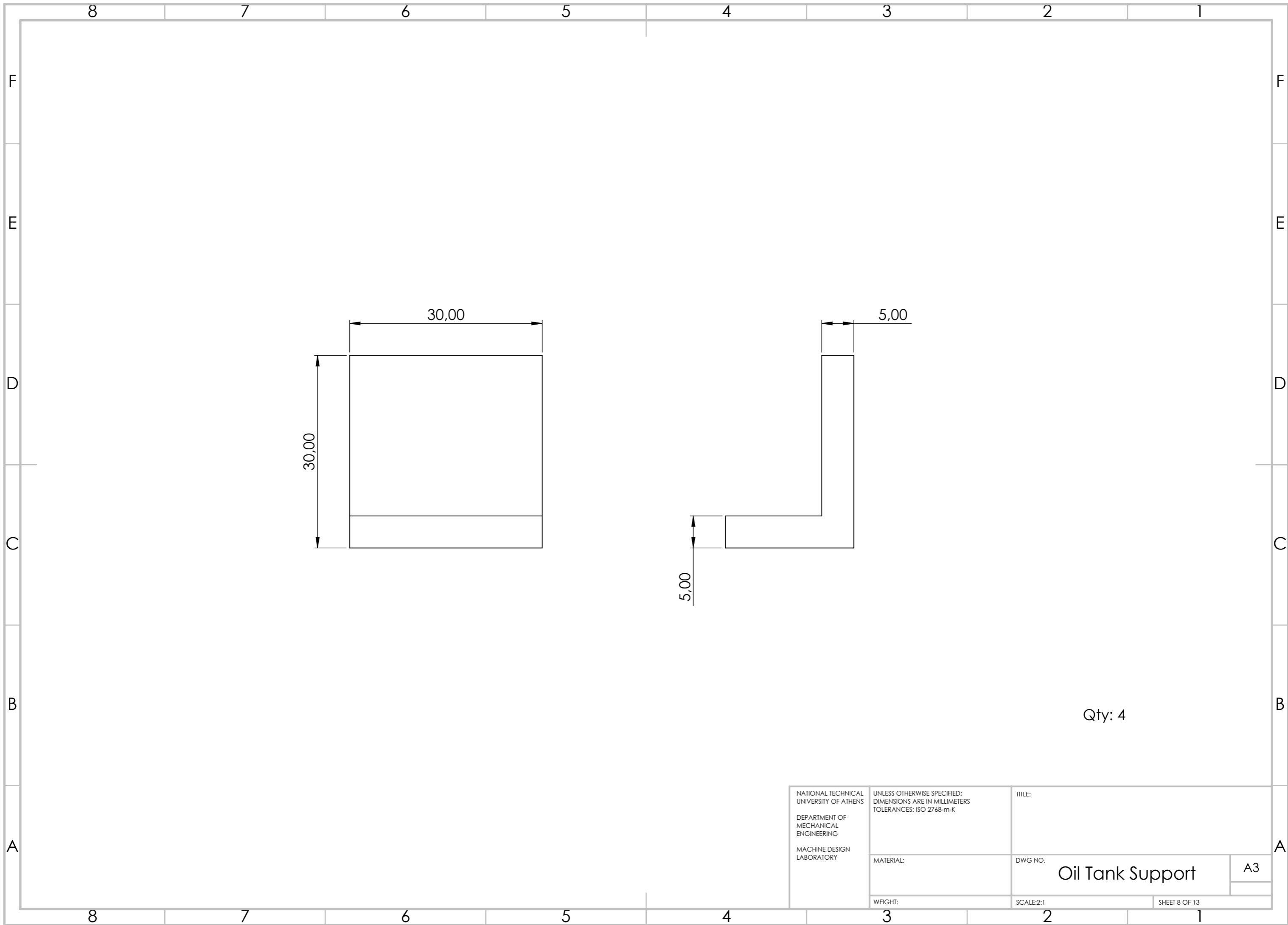
| | | | |
|--|--|--------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 0133_62_17 | |
| | MATERIAL: | DWG NO. Pipe Fitting | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 5 OF 13 |



| | | | |
|--|--|-------------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1>MTS-120</h1> | |
| | MATERIAL: | DWG NO. <h2>Heating Element</h2> | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 6 OF 13 |



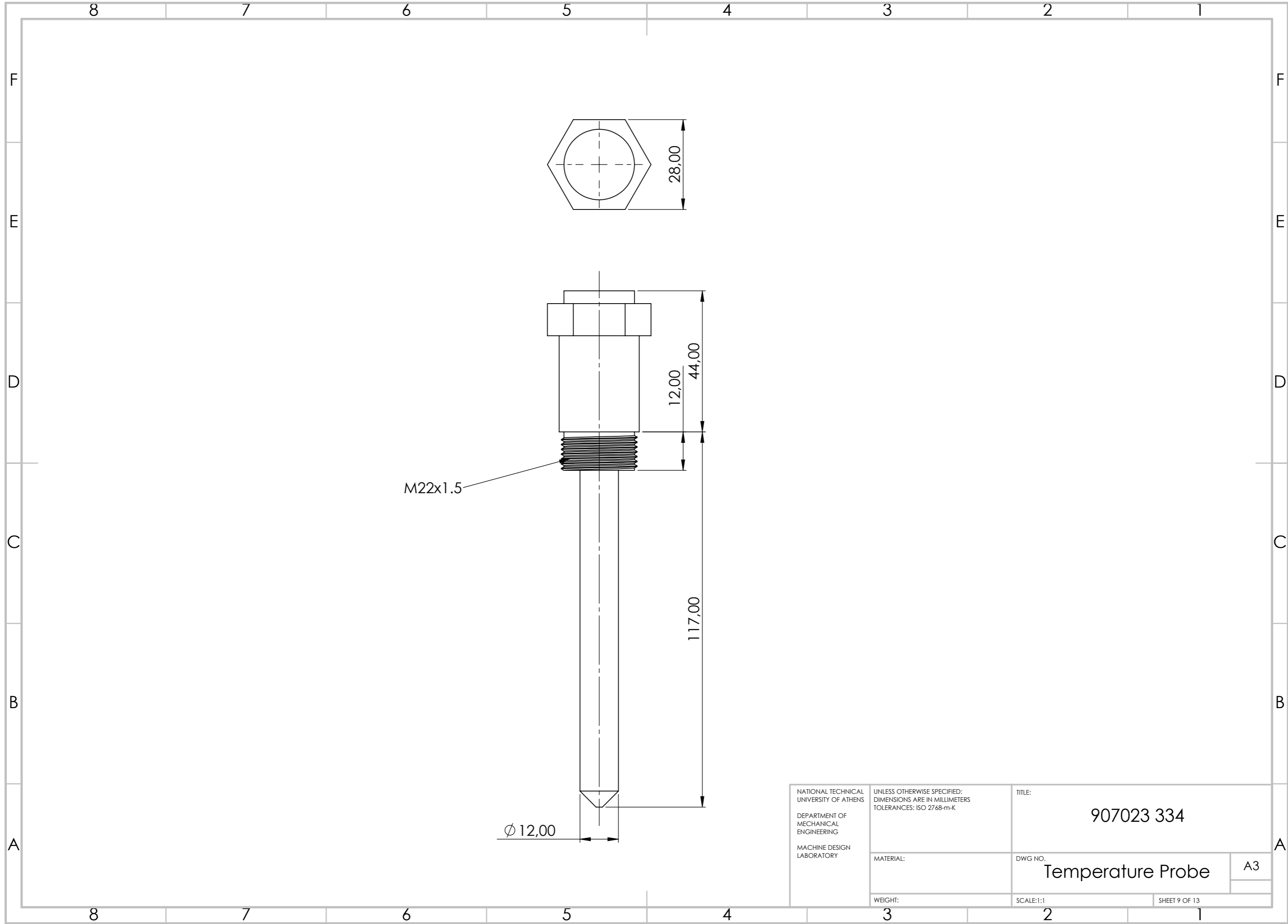
| | | | |
|--|--|---------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE: 1:5 | Oil Reservoir |
| | | SHEET 7 OF 13 | |



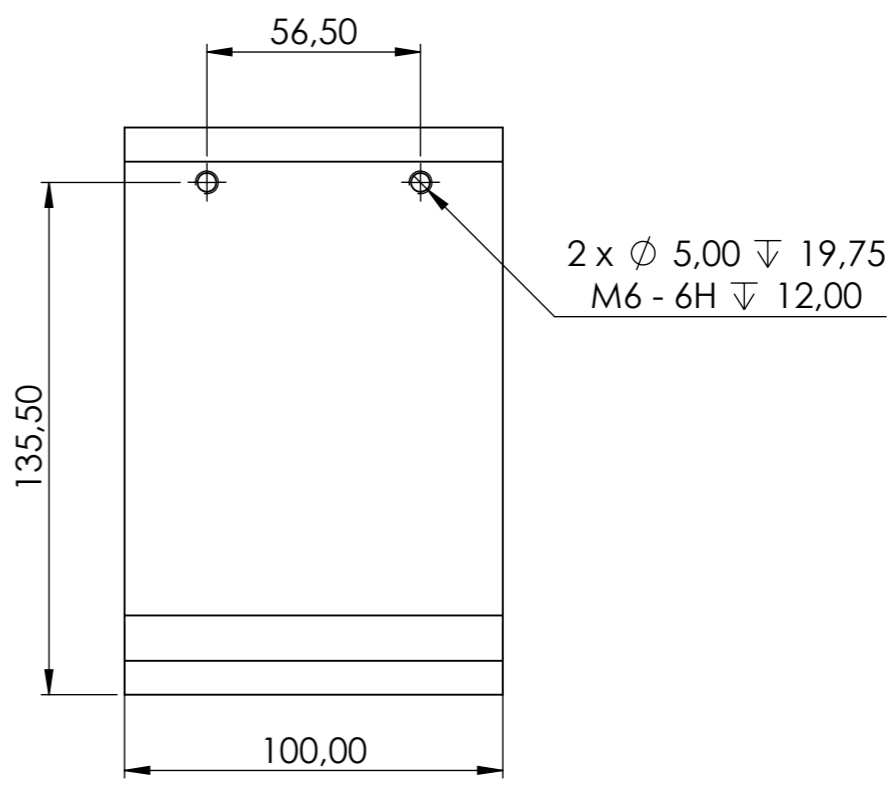
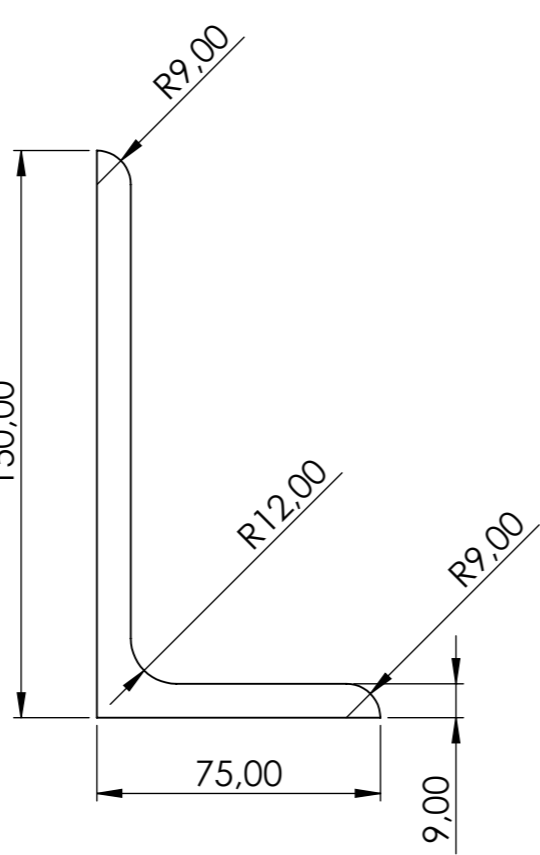
Qty: 4

| | | | |
|--|--|-----------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 8 OF 13 |

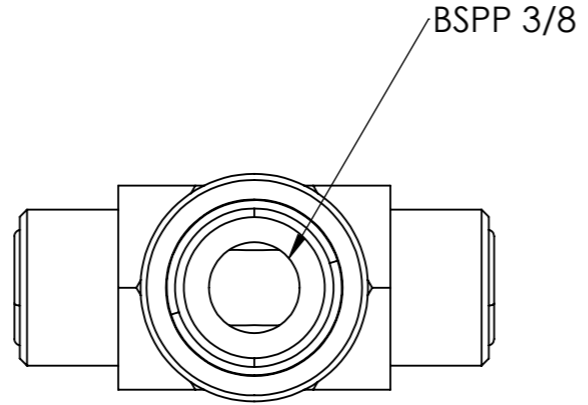
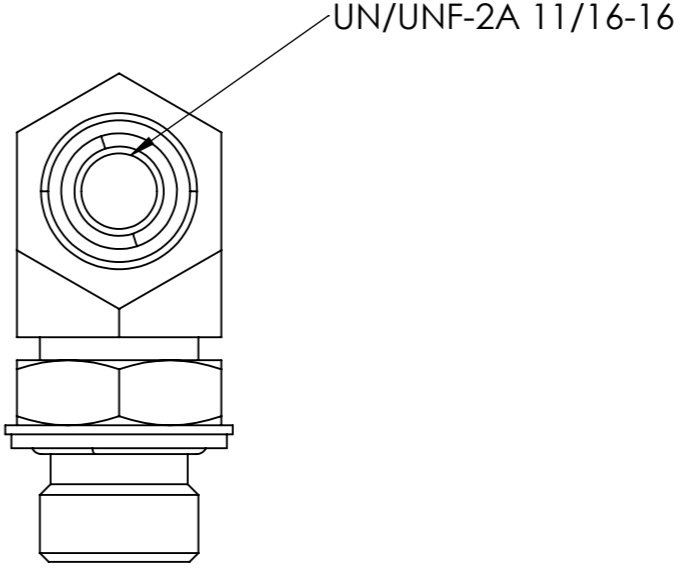
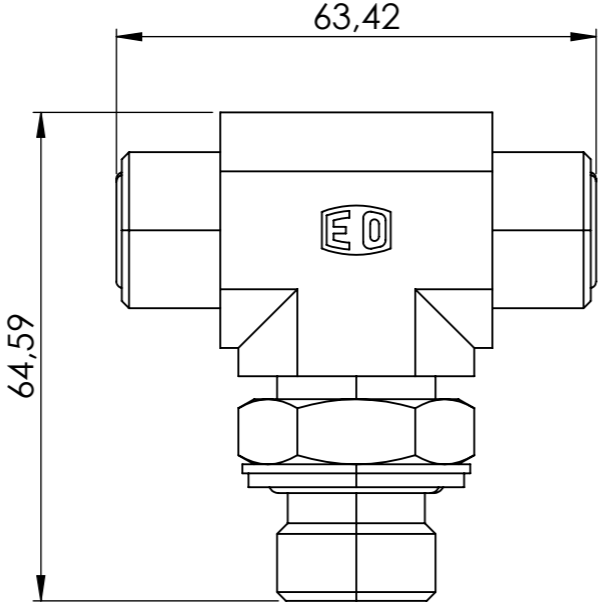
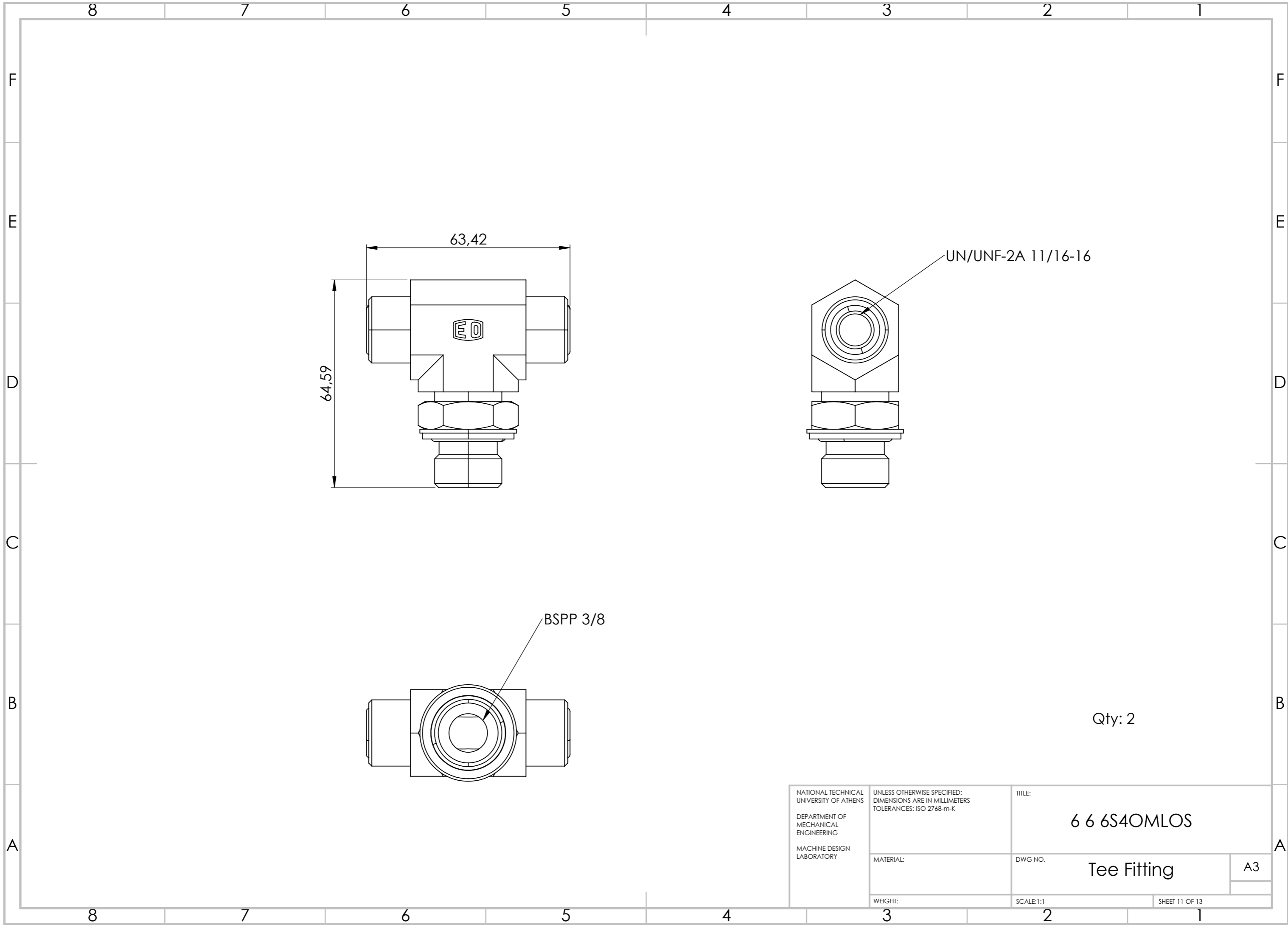
Oil Tank Support



| | | | |
|--|--|------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 907023 334 | |
| | MATERIAL: | DWG NO. Temperature Probe | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 9 OF 13 |

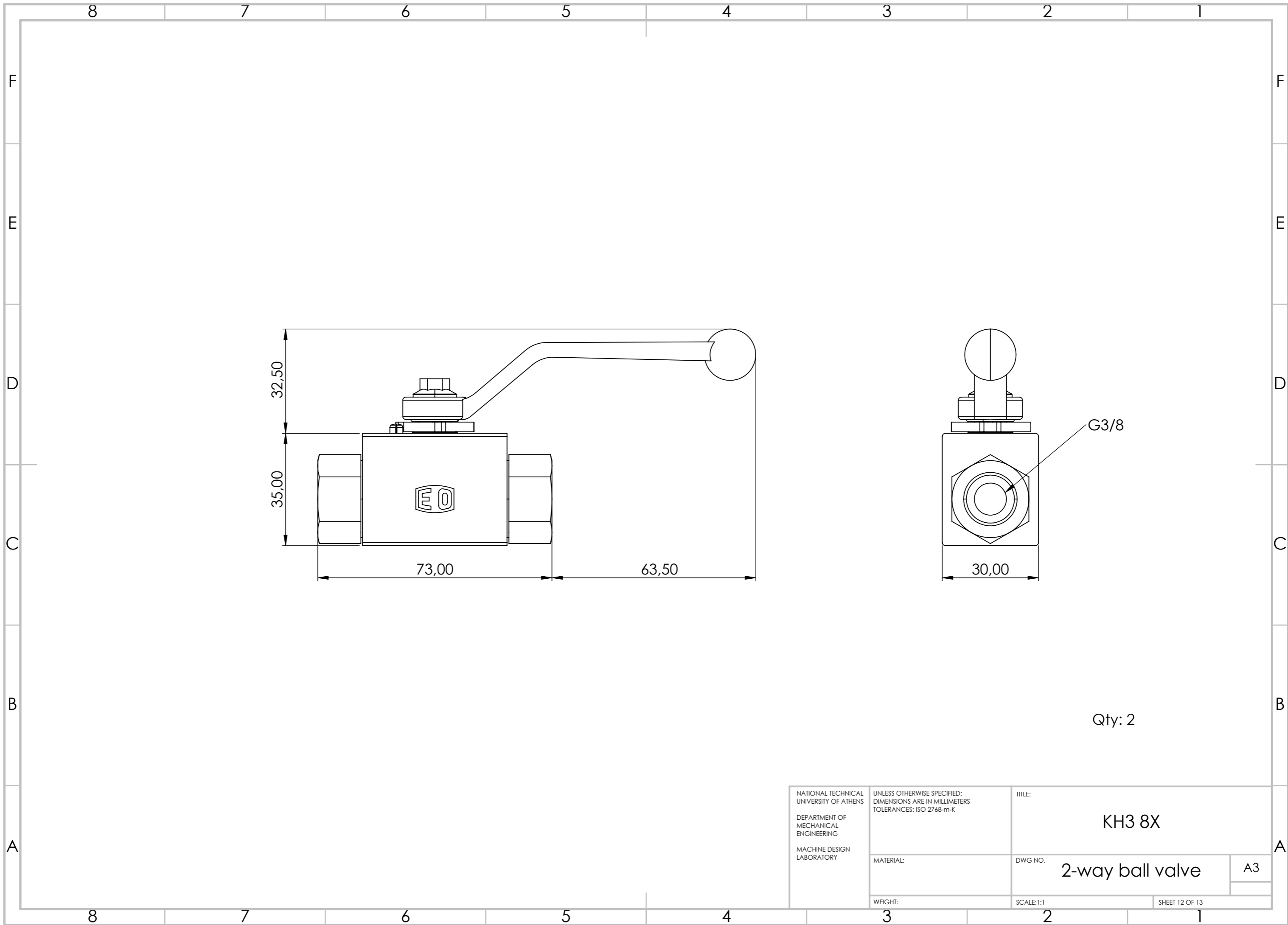


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|--|--|------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Angle | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 10 OF 13 |



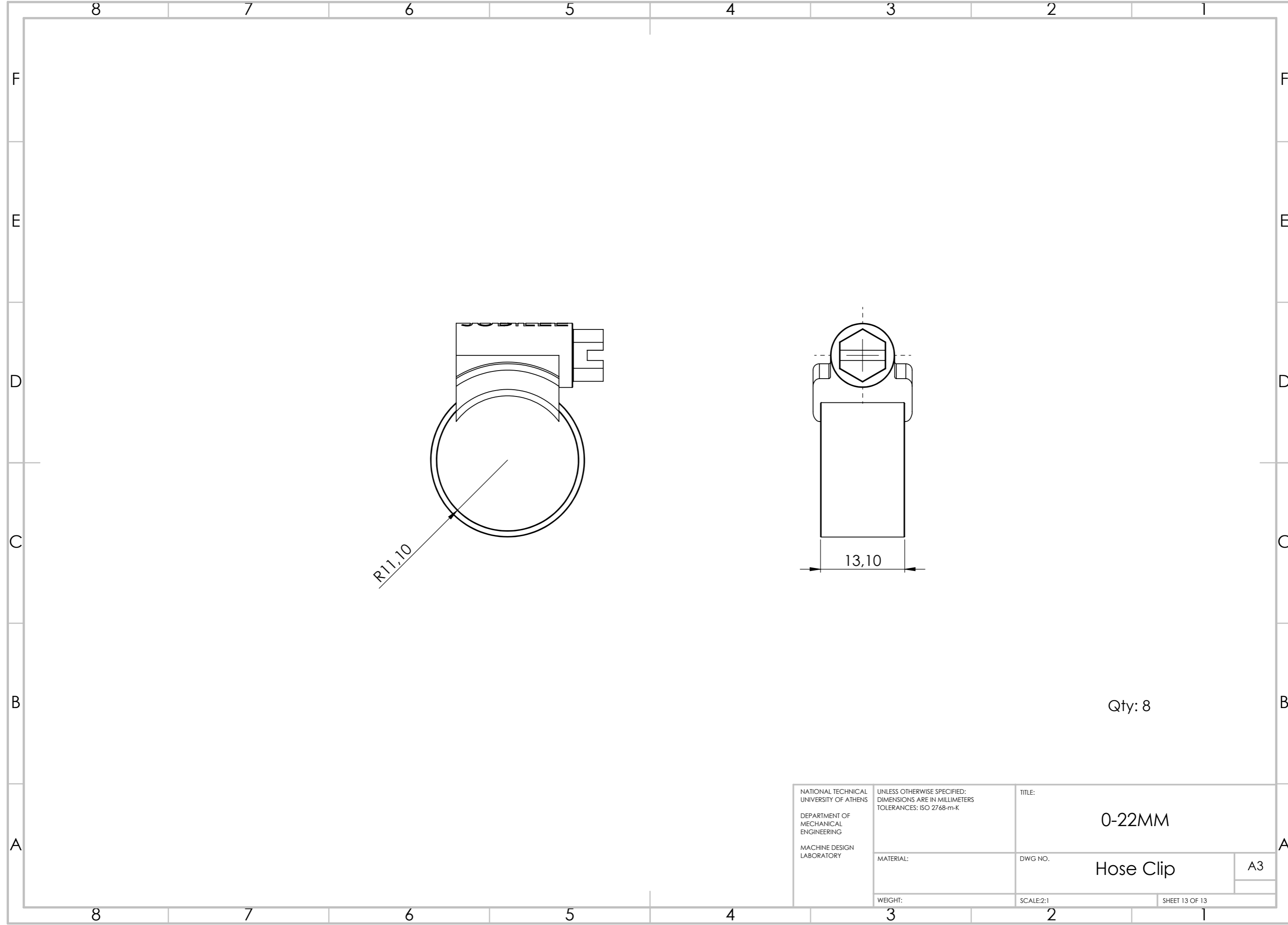
Qty: 2

| | | | |
|--|--|-----------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 6 6 6S4OMLOS | |
| | MATERIAL: | DWG NO. Tee Fitting | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 11 OF 13 |



Qty: 2

| | | | |
|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h2 style="text-align: center;">KH3 8X</h2> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">2-way ball valve</h2> | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 12 OF 13 |

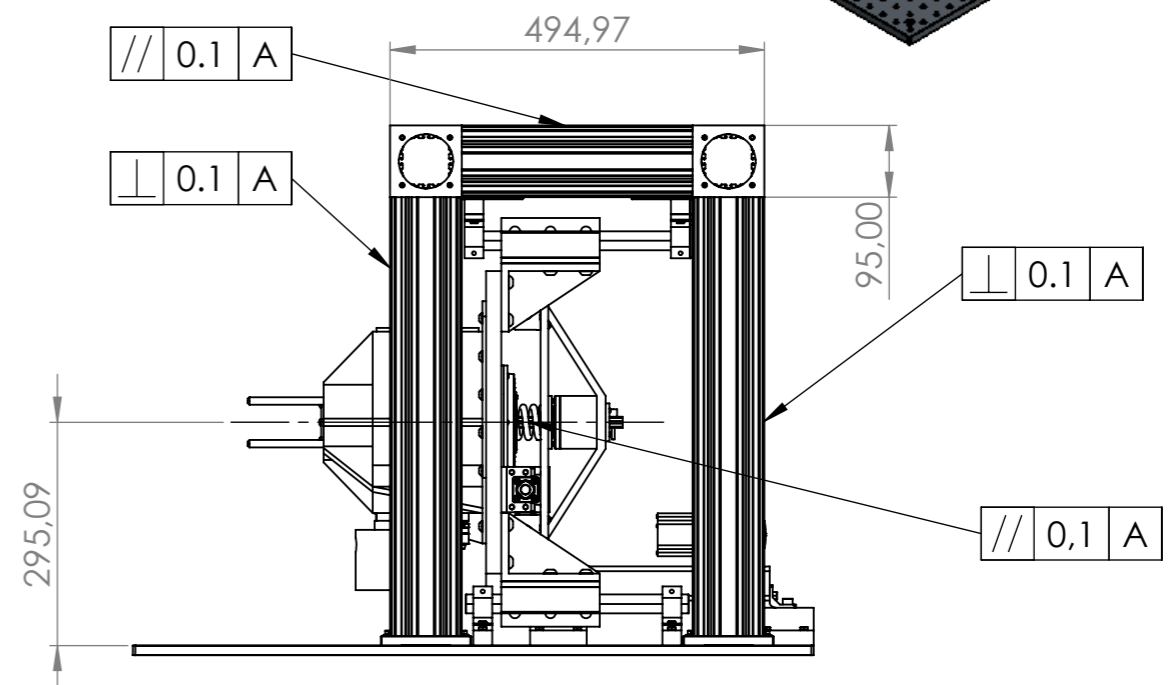
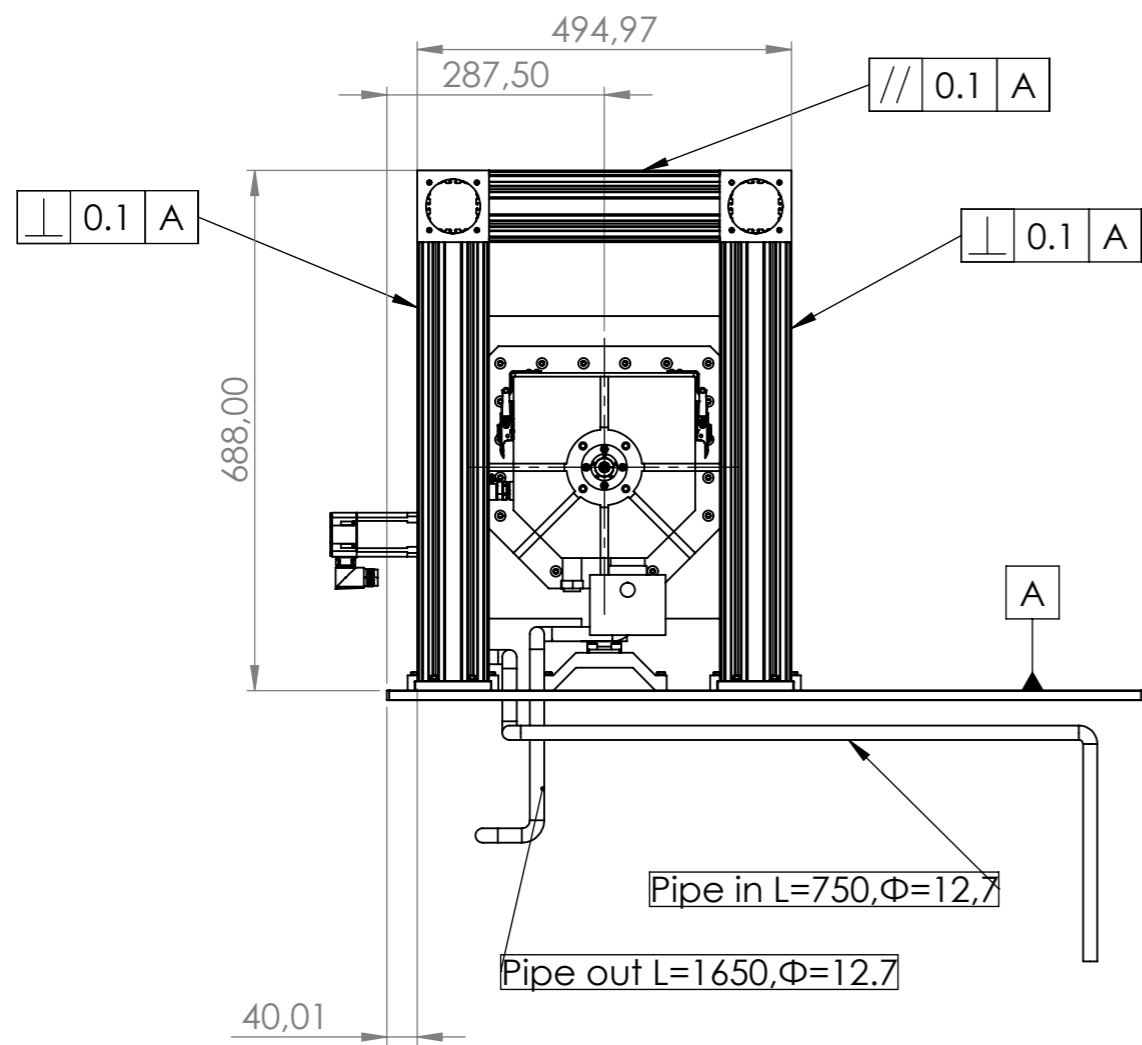
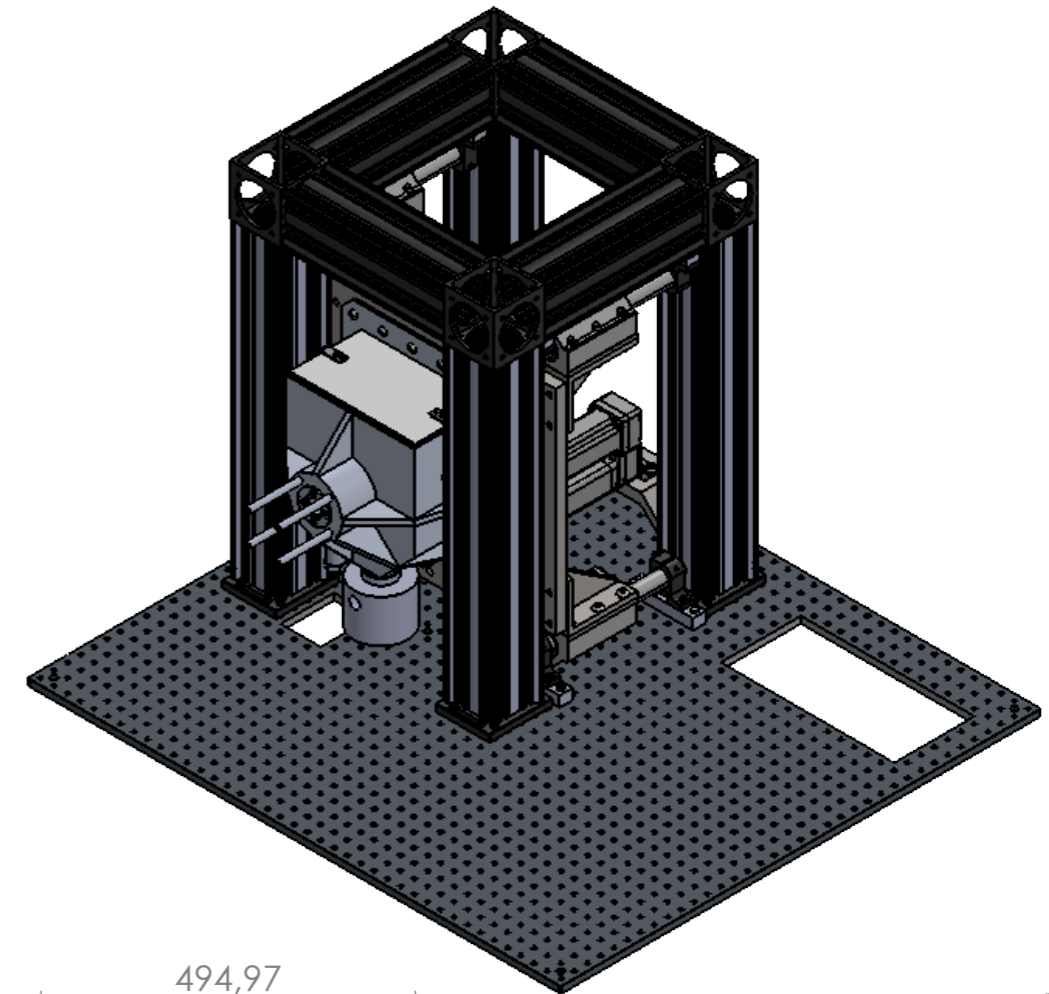
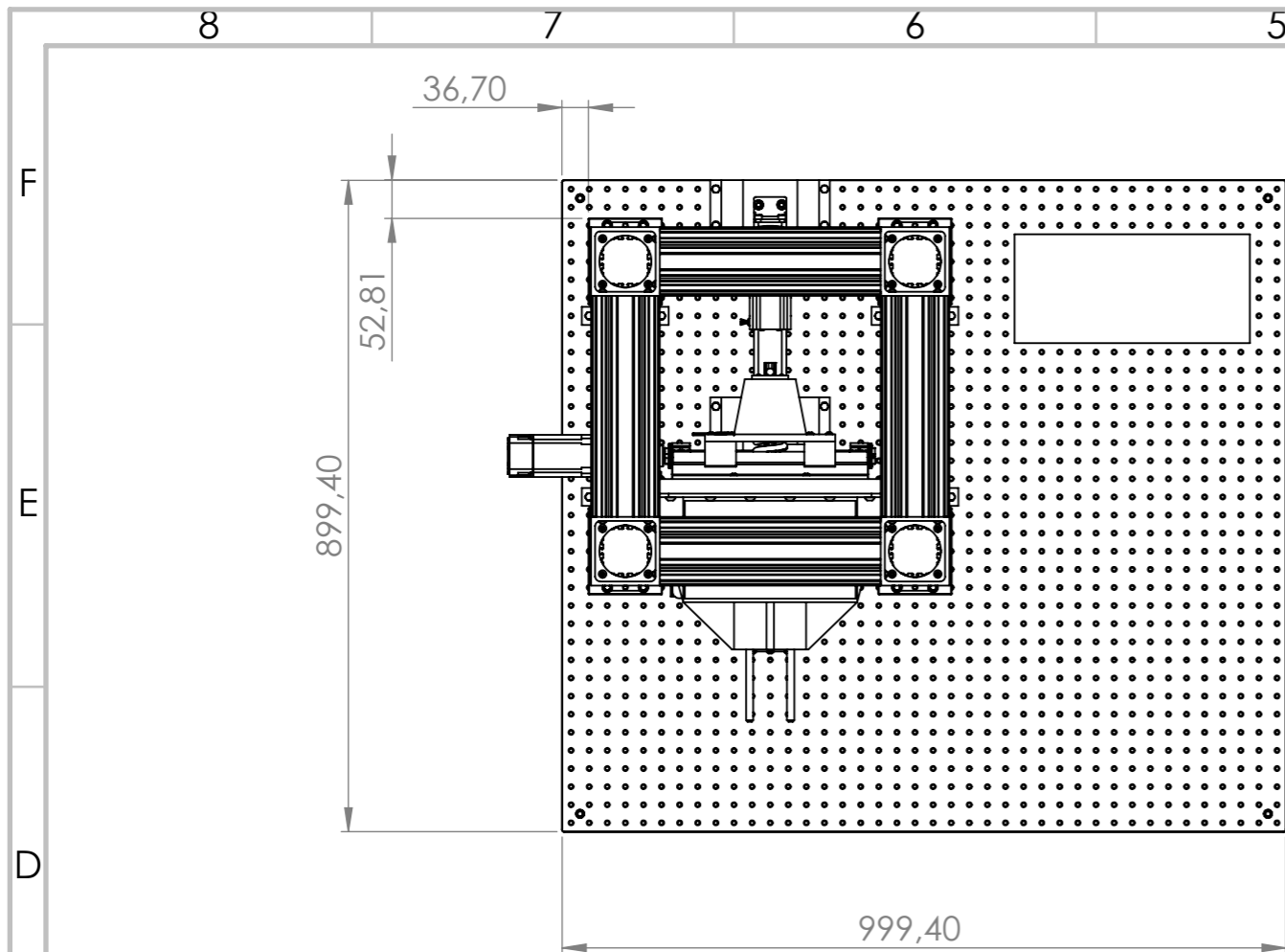


R11,10

13,10

Qty: 8

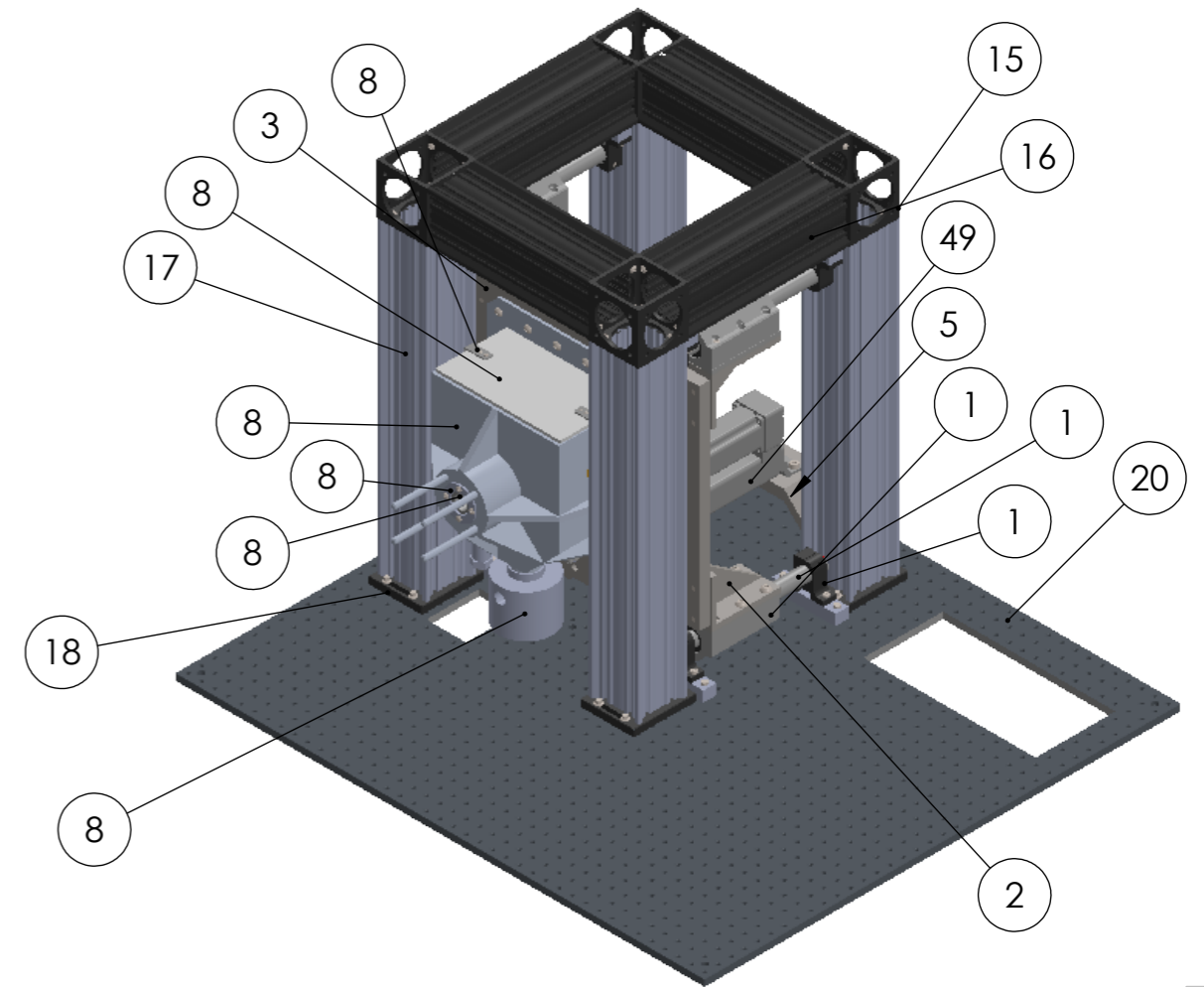
| | | | |
|--|--|--------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 0-22MM | |
| | MATERIAL: | DWG NO. Hose Clip | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 13 OF 13 |



| | | |
|--|--|----------------------------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: |
| | MATERIAL: | DWG NO. 04 Wear Tester |
| WEIGHT: | SCALE:1:10 | SHEET 1 OF 51 |

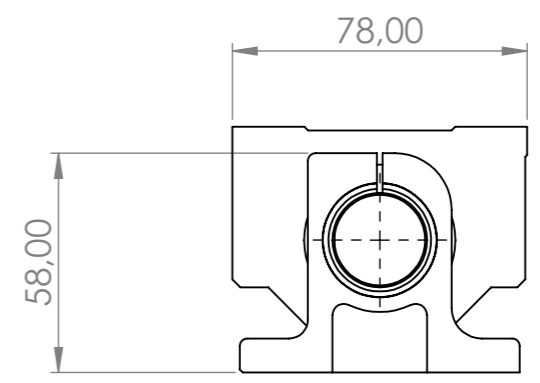
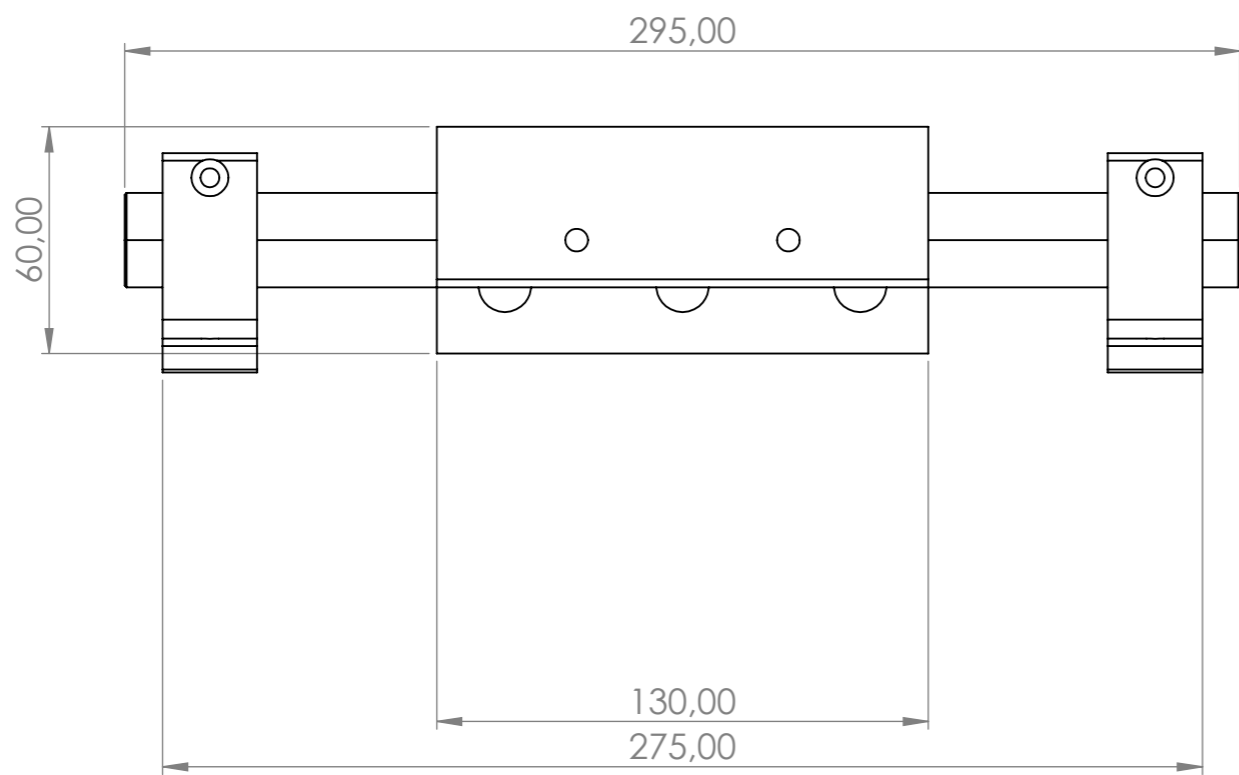
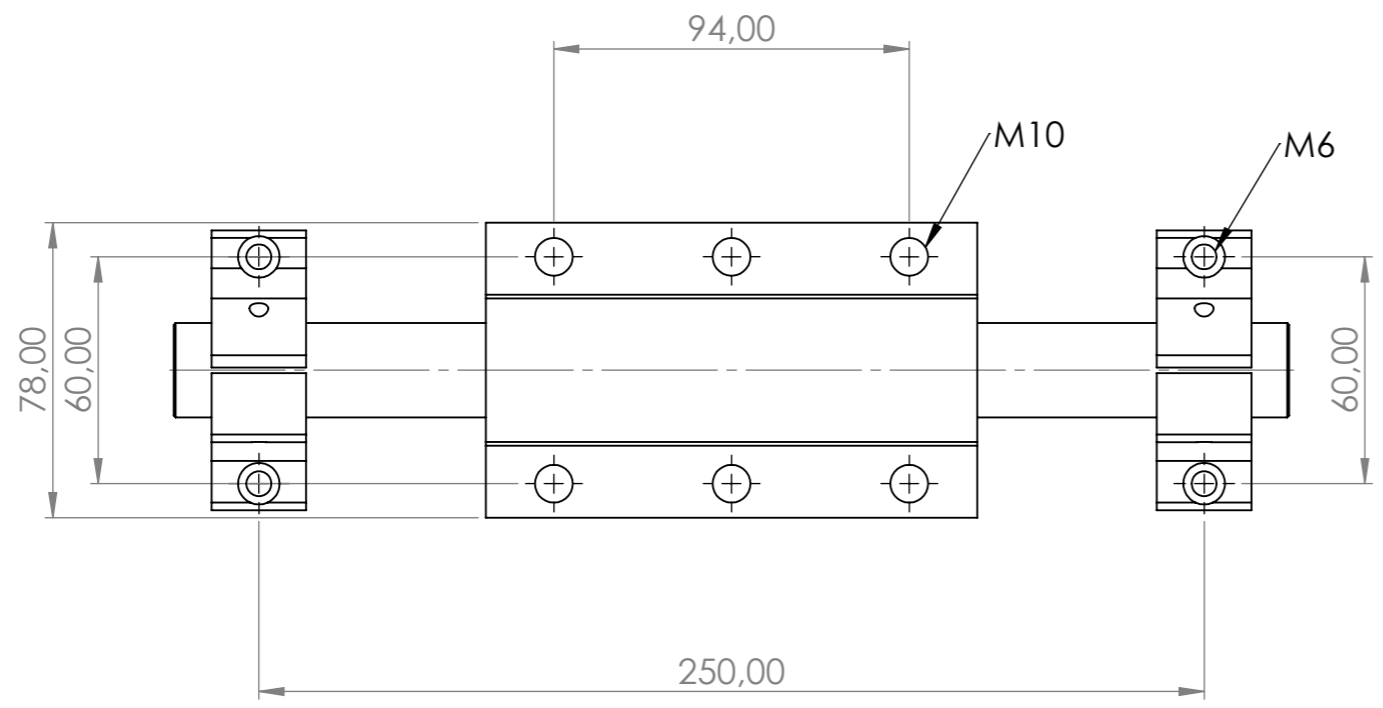
A3

| ITEM NO. | PART NUMBER | QTY. |
|----------|--|------|
| 1 | 1NA_M25_PNOL300 | 4 |
| 2 | Z axis bed support | 4 |
| 3 | Z axis bed | 1 |
| 4 | Z axis case | 1 |
| 5 | actuator base | 2 |
| 6 | actuator base x axis | 1 |
| 7 | Pin-chuck | 1 |
| 8 | Oil bucket assembly | 1 |
| 9 | Bellow | 1 |
| 10 | pipe output | 1 |
| 11 | pipe input | 1 |
| 12 | Jubilee Clip-Size 3-65mm Dia | 1 |
| 13 | 1PA_M16_LWOL270 | 2 |
| 14 | XT95P12_M-Solidworks | 4 |
| 15 | XT95C1-Solidworks | 4 |
| 16 | XT95B-300-Solidworks | 4 |
| 17 | XT95B-600-Solidworks | 4 |
| 18 | XT95P3-Solidworks | 4 |
| 19 | adaptor rail guide beam | 4 |
| 20 | | 1 |
| 21 | adaptor rail guide bed | 4 |
| 22 | AKM2G 22X_ACD2CA00 | 1 |
| 23 | KGT G 1605 P3 RH B BK 0038 290 00 B BK 0038 M E KK R 0 3 | 1 |
| 24 | Ruland_msc-12-12-x | 1 |
| 25 | leadscrew mounting feet | 2 |
| 26 | shaft pin | 1 |
| 27 | 0133 62 17 39 | 2 |
| 28 | Jubilee Clip-SIZE 0-22MM DIA | 2 |
| 29 | bellow ring | 1 |
| 30 | ISO 4014 - M6 x 30 x 18-N | 16 |
| 31 | ISO 1207 - M6 x 25 - 25N | 16 |
| 32 | ISO 1207 - M5 x 25 - 25N | 8 |
| 33 | ISO 4162 - M6 x 25 x 25-N | 16 |
| 34 | ISO 4762 M6 x 25 - 25N | 16 |
| 35 | ISO 4762 M8 x 20 - 20N | 4 |
| 36 | ISO 4762 M6 x 50 - 24N | 8 |
| 37 | ISO 7380 - M6 x 25 - 25N | 48 |
| 38 | ISO 7380 - M10 x 40 - 40N | 16 |
| 39 | ISO 7380 - M10 x 30 - 30N | 16 |
| 40 | ISO 7380 - M8 x 20 - 20N | 16 |
| 41 | ISO 7380 - M5 x 20 - 20N | 12 |
| 42 | ISO 7380 - M5 x 30 - 30N | 16 |
| 43 | ISO 7380 - M5 x 16 - 16N | 8 |
| 44 | ISO 7380 - M3 x 12 - 12N | 6 |
| 45 | ISO 4026 - M6 x 25-N | 8 |
| 46 | ISO 4026 - M10 x 50-N | 8 |
| 47 | O-ring hub back | 1 |
| 48 | O-ring hub cap | 1 |
| 49 | Linear Actuator | 1 |



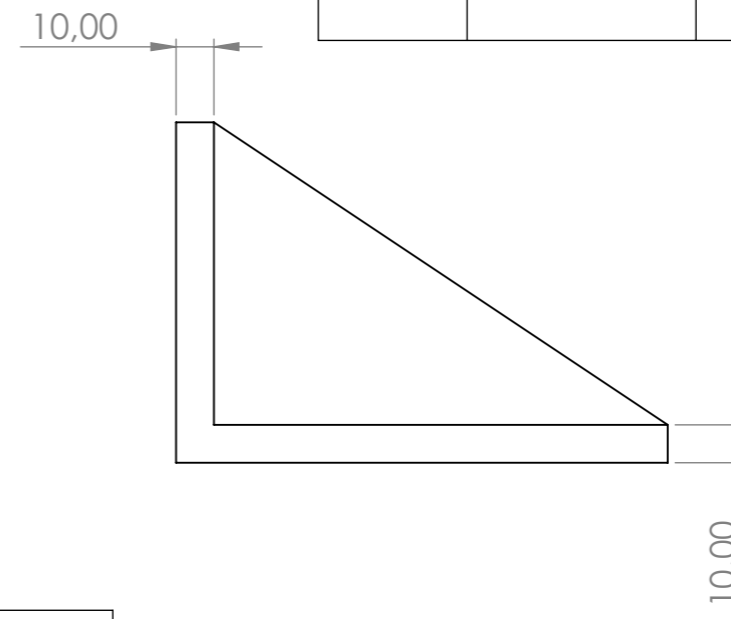
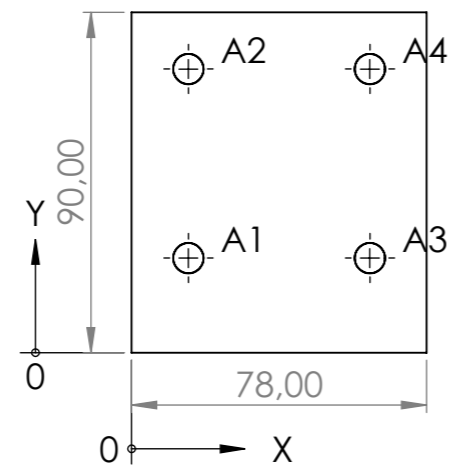
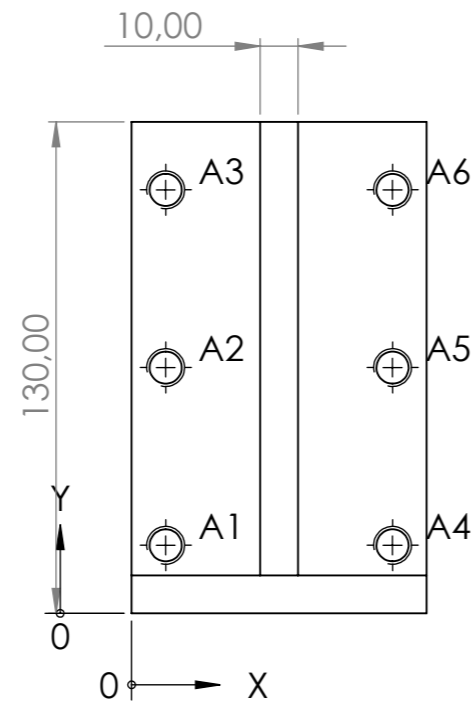
| | | | |
|--|--|------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:10 | SHEET 2 OF 51 |

04 Wear Tester



Qty: 4

| | | | |
|--|--|---|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 1NA_M25_PN0L30 0 | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 3 OF 51 |
| | | Linear Guide | |



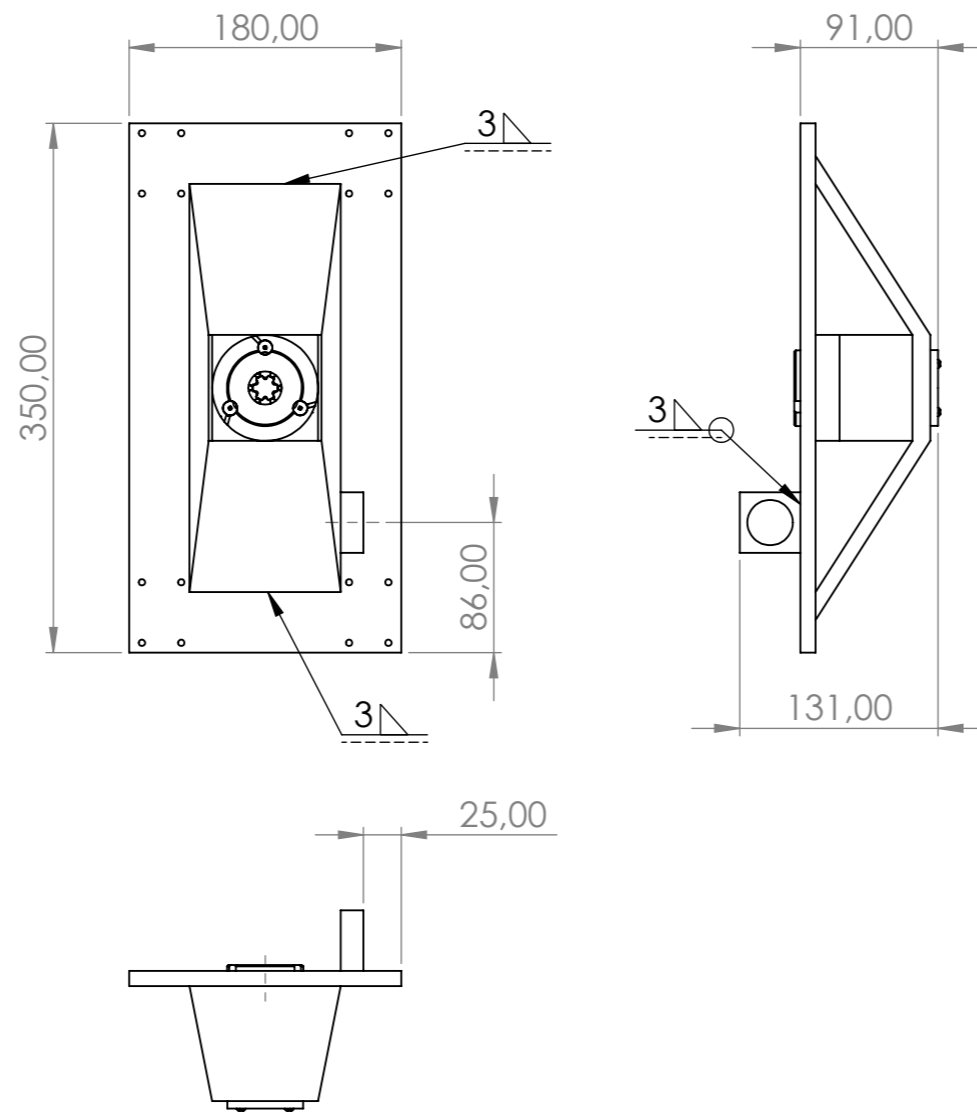
| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|--|
| A1 | 9 | 18 | ϕ 8,50 ∇ 10,00 M10 - 6H ∇ 20,00 \surd ϕ 10,05 X 90°, Near Side |
| A2 | 9 | 65 | ϕ 8,50 ∇ 10,00 M10 - 6H ∇ 20,00 \surd ϕ 10,05 X 90°, Near Side |
| A3 | 9 | 112 | ϕ 8,50 ∇ 10,00 M10 - 6H ∇ 20,00 \surd ϕ 10,05 X 90°, Near Side |
| A4 | 69 | 18 | ϕ 8,50 ∇ 10,00 M10 - 6H ∇ 20,00 \surd ϕ 10,05 X 90°, Near Side |
| A5 | 69 | 65 | ϕ 8,50 ∇ 10,00 M10 - 6H ∇ 20,00 \surd ϕ 10,05 X 90°, Near Side |
| A6 | 69 | 112 | ϕ 8,50 ∇ 10,00 M10 - 6H ∇ 20,00 \surd ϕ 10,05 X 90°, Near Side |

| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|--|
| A1 | 15 | 25 | ϕ 6,80 ∇ 10,00 M8 - 6H ∇ 16,00 \surd ϕ 8,05 X 90°, Near Side |
| A2 | 15 | 75 | ϕ 6,80 ∇ 10,00 M8 - 6H ∇ 16,00 \surd ϕ 8,05 X 90°, Near Side |
| A3 | 63 | 25 | ϕ 6,80 ∇ 10,00 M8 - 6H ∇ 16,00 \surd ϕ 8,05 X 90°, Near Side |
| A4 | 63 | 75 | ϕ 6,80 ∇ 10,00 M8 - 6H ∇ 16,00 \surd ϕ 8,05 X 90°, Near Side |

Qty: 4

| | | | |
|--|--|--------------------|--|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | |
| | WEIGHT: | SCALE:1:2 | |
| | | Z axis bed support | |
| | | SHEET 4 OF 51 | |

A3



| ITEM NO. | PART NUMBER | QTY. |
|----------|--------------------------------------|------|
| 1 | Z axis precision motion case | 1 |
| 2 | 7828129 | 1 |
| 3 | spring spacer 6732 | 1 |
| 4 | 0067463.step | 6 |
| 5 | 0067464.step | 6 |
| 6 | Part3.step | 6 |
| 7 | 0067465.step | 6 |
| 8 | cable1.step | 6 |
| 9 | DB 9.step | 6 |
| 10 | spacer 6722 | 1 |
| 11 | ball spline nut stop | 1 |
| 12 | Copy of 3.2mm^AN1015.STEP | 1 |
| 13 | MMACH-A005632.STEP | 1 |
| 14 | Copy of 4.75mm OD Spring^AN1015.STEP | 1 |
| 15 | MMACH-A005631.STEP | 1 |
| 16 | ISO 4762 M5 x 35 - 22N | 8 |
| 17 | ISO 7380 - M3 x 12 - 12N | 4 |

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|--|--|---------------|-------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:5 | Z axis Case |
| | | SHEET 5 OF 51 | |

8 7 6 5 4 3 2 1

F

F

E

E

D

D

C

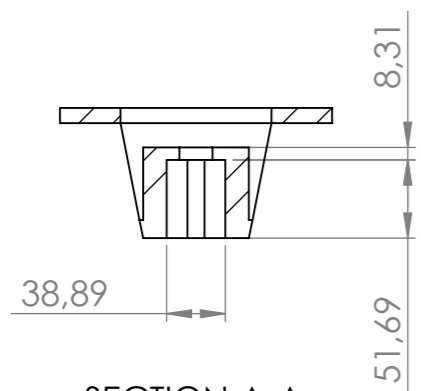
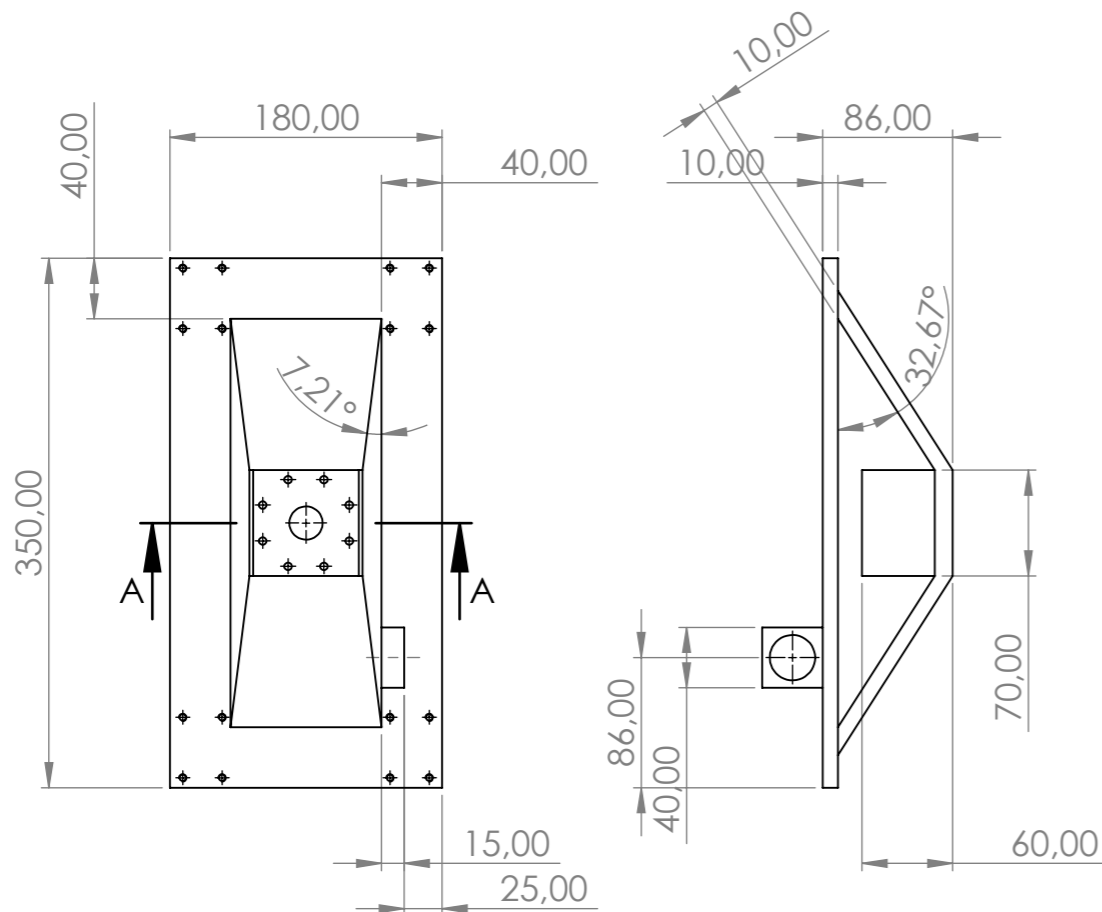
C

B

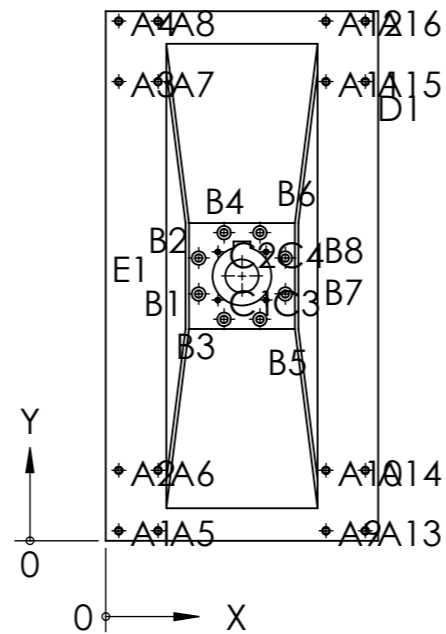
B

A

A



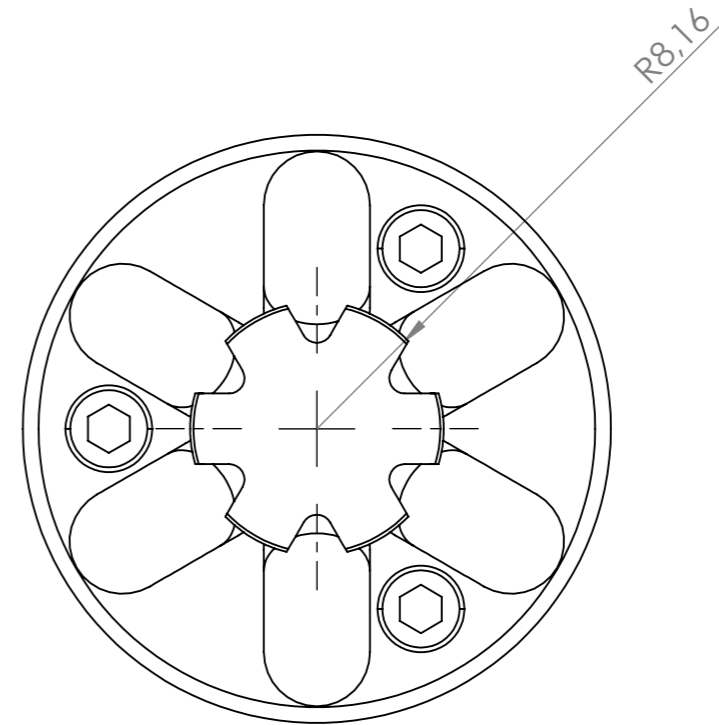
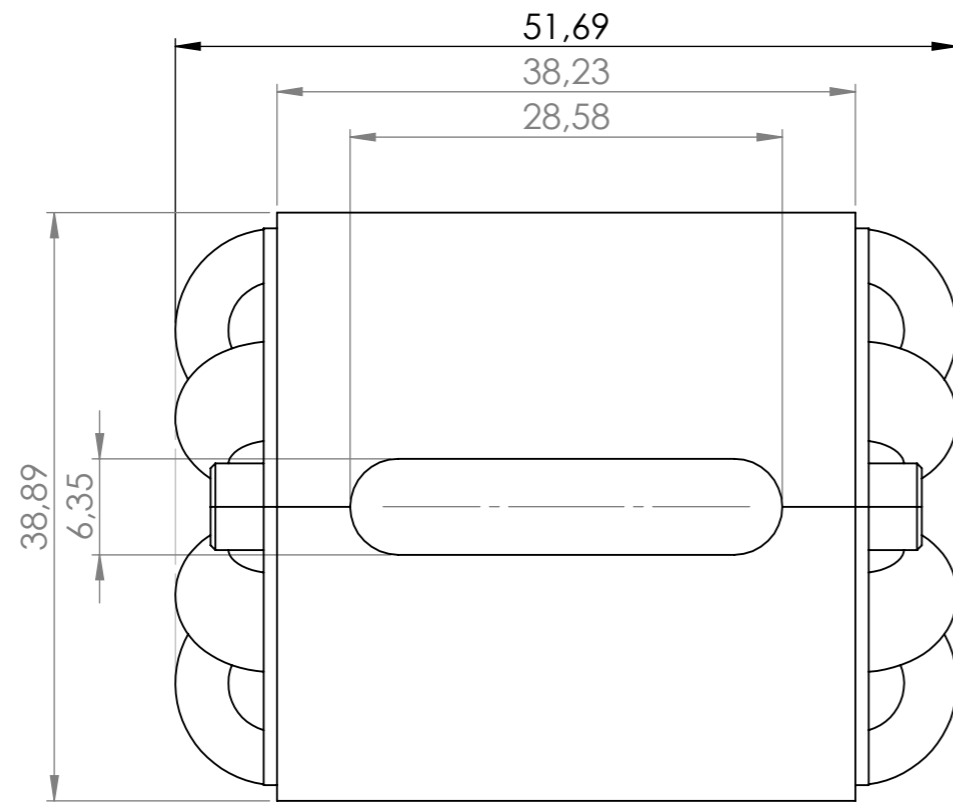
SECTION A-A



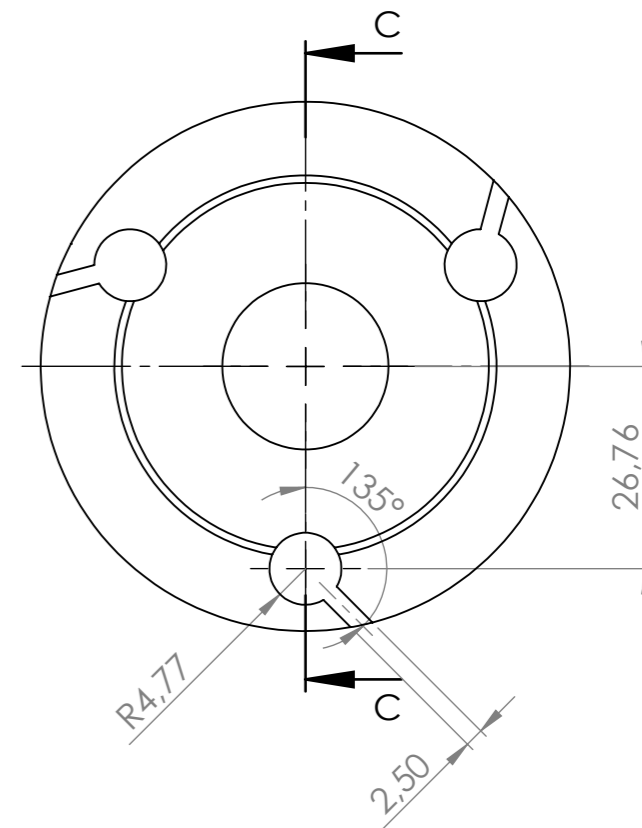
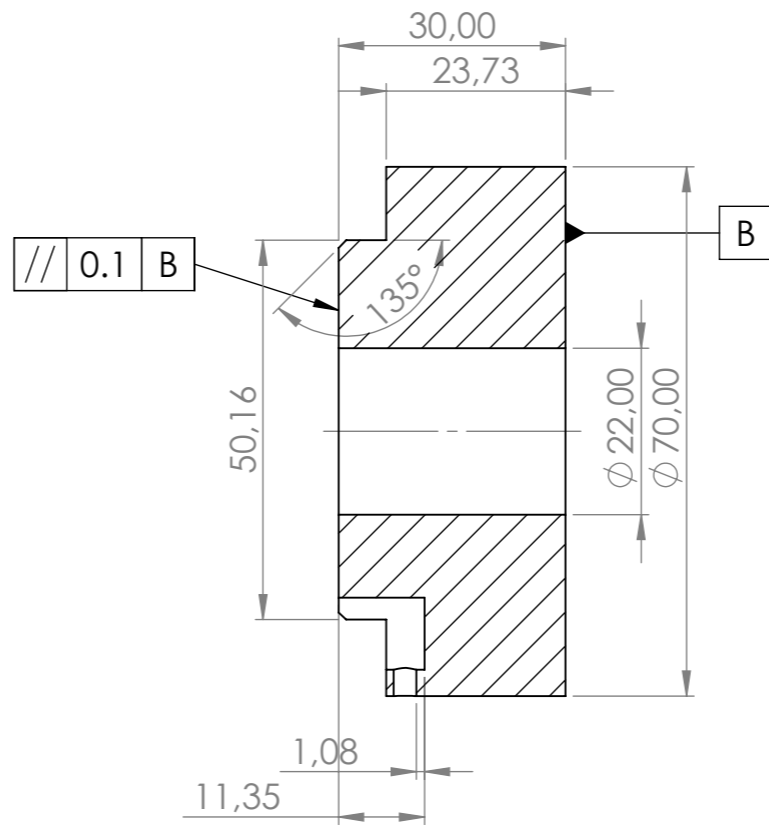
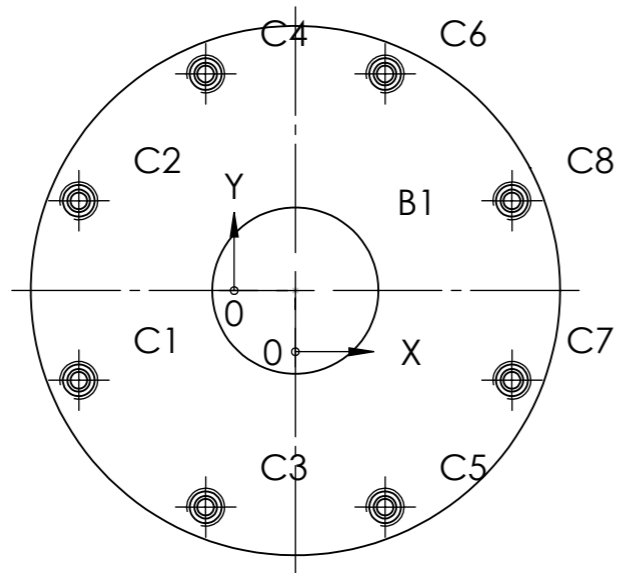
| TAG | XLOC | YLOC | SIZE |
|-----|--------|--------|---|
| A1 | 8,50 | 6,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A2 | 8,50 | 46,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A3 | 8,50 | 303,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A4 | 8,50 | 343,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A5 | 34,50 | 6,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A6 | 34,50 | 46,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A7 | 34,50 | 303,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A8 | 34,50 | 343,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A9 | 145,50 | 6,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A10 | 145,50 | 46,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A11 | 145,50 | 303,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A12 | 145,50 | 343,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A13 | 171,50 | 6,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A14 | 171,50 | 46,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A15 | 171,50 | 303,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| A16 | 171,50 | 343,50 | ∅ 4,20 THRU ALL M5 - 6H ∇ 10,00 ∇ ∅ 5,05 X 90°, Near Side |
| B1 | 61,36 | 163,14 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B2 | 61,36 | 186,86 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B3 | 78,14 | 146,36 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B4 | 78,14 | 203,64 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B5 | 101,86 | 146,36 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B6 | 101,86 | 203,64 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B7 | 118,64 | 163,14 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| B8 | 118,64 | 186,86 | ∅ 5,00 THRU ∇ ∅ 9,00 ∇ 35,00 |
| C1 | 74,09 | 159,09 | ∅ 2,50 ∇ 7,50 M3 - 6H ∇ 6,00 ∇ ∅ 3,05 X 90°, Near Side |
| C2 | 74,09 | 190,91 | ∅ 2,50 ∇ 7,50 M3 - 6H ∇ 6,00 ∇ ∅ 3,05 X 90°, Near Side |
| C3 | 105,91 | 159,09 | ∅ 2,50 ∇ 7,50 M3 - 6H ∇ 6,00 ∇ ∅ 3,05 X 90°, Near Side |
| C4 | 105,91 | 190,91 | ∅ 2,50 ∇ 7,50 M3 - 6H ∇ 6,00 ∇ ∅ 3,05 X 90°, Near Side |
| D1 | 90 | 175,01 | |
| E1 | 90 | 176,71 | |

| | | | |
|--|--|------------------------------|----|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | Aluminium 1060 Alloy | Z axis Precision Motion Case | |
| WEIGHT: | SCALE:1:5 | SHEET 6 OF 51 | |

8 7 6 5 4 3 2 1



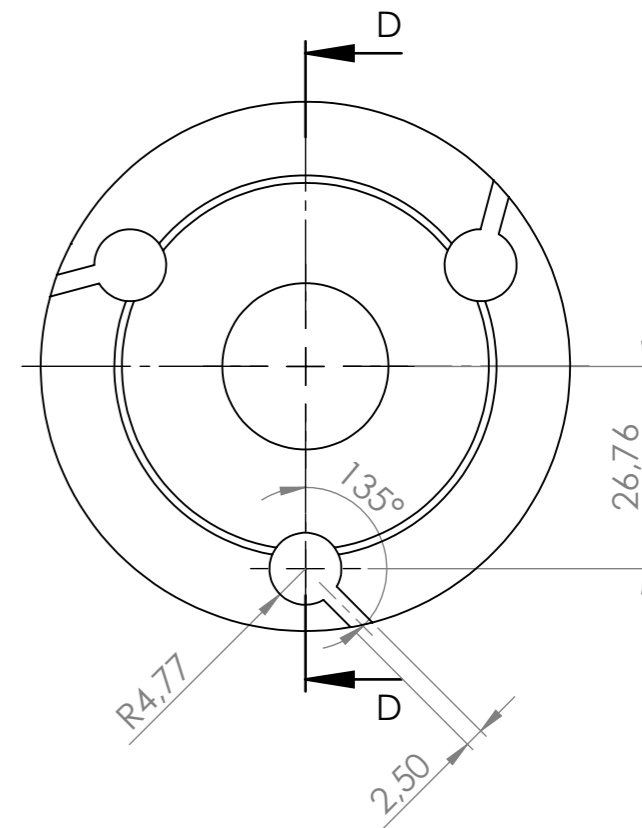
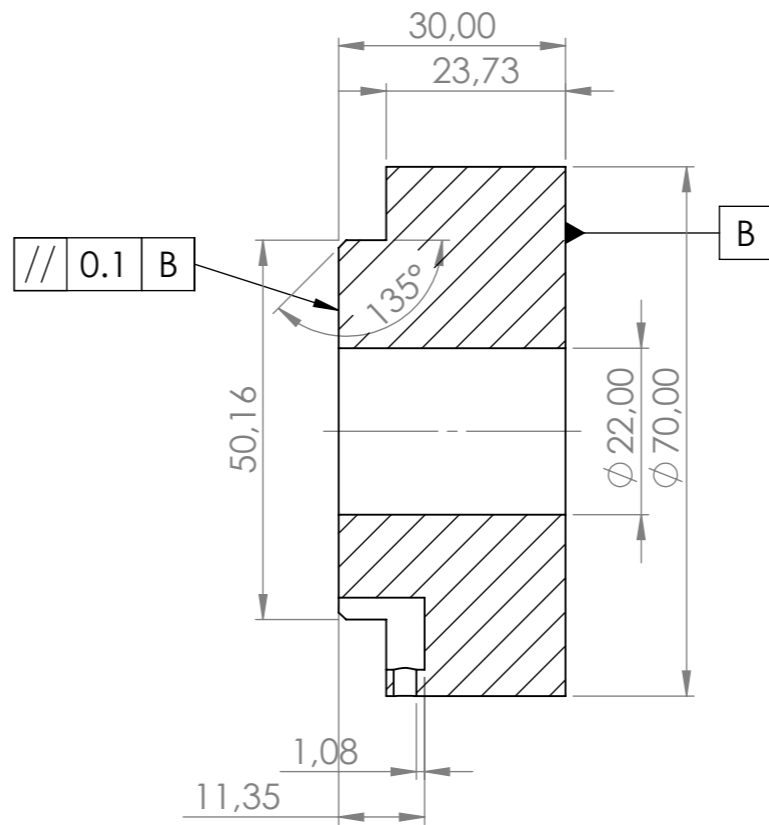
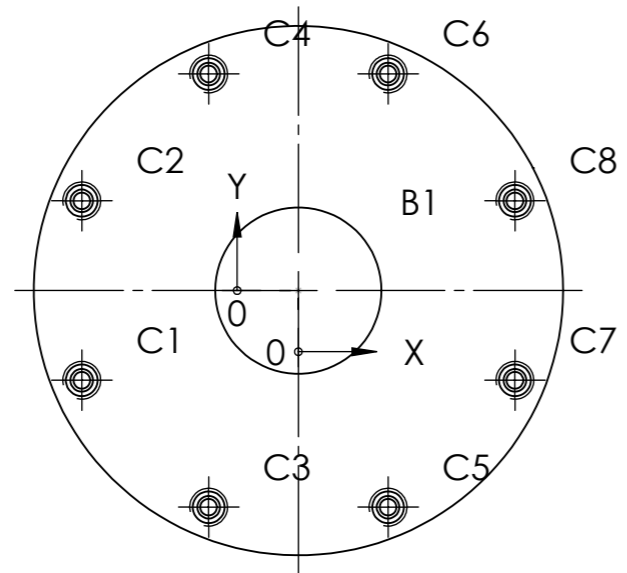
| | | | |
|--|--|--|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">7828129</h1> | |
| | MATERIAL: | DWG. NO. <h2 style="text-align: center;">Splined bushing</h2> | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 7 OF 51 |



SECTION C-C

| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|-----------------------------------|
| B1 | 0 | 0 | Ø 22,00 THRU |
| C1 | -28,64 | -11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C2 | -28,64 | 11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C3 | -11,86 | -28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C4 | -11,86 | 28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C5 | 11,86 | -28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C6 | 11,86 | 28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C7 | 28,64 | -11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C8 | 28,64 | 11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |

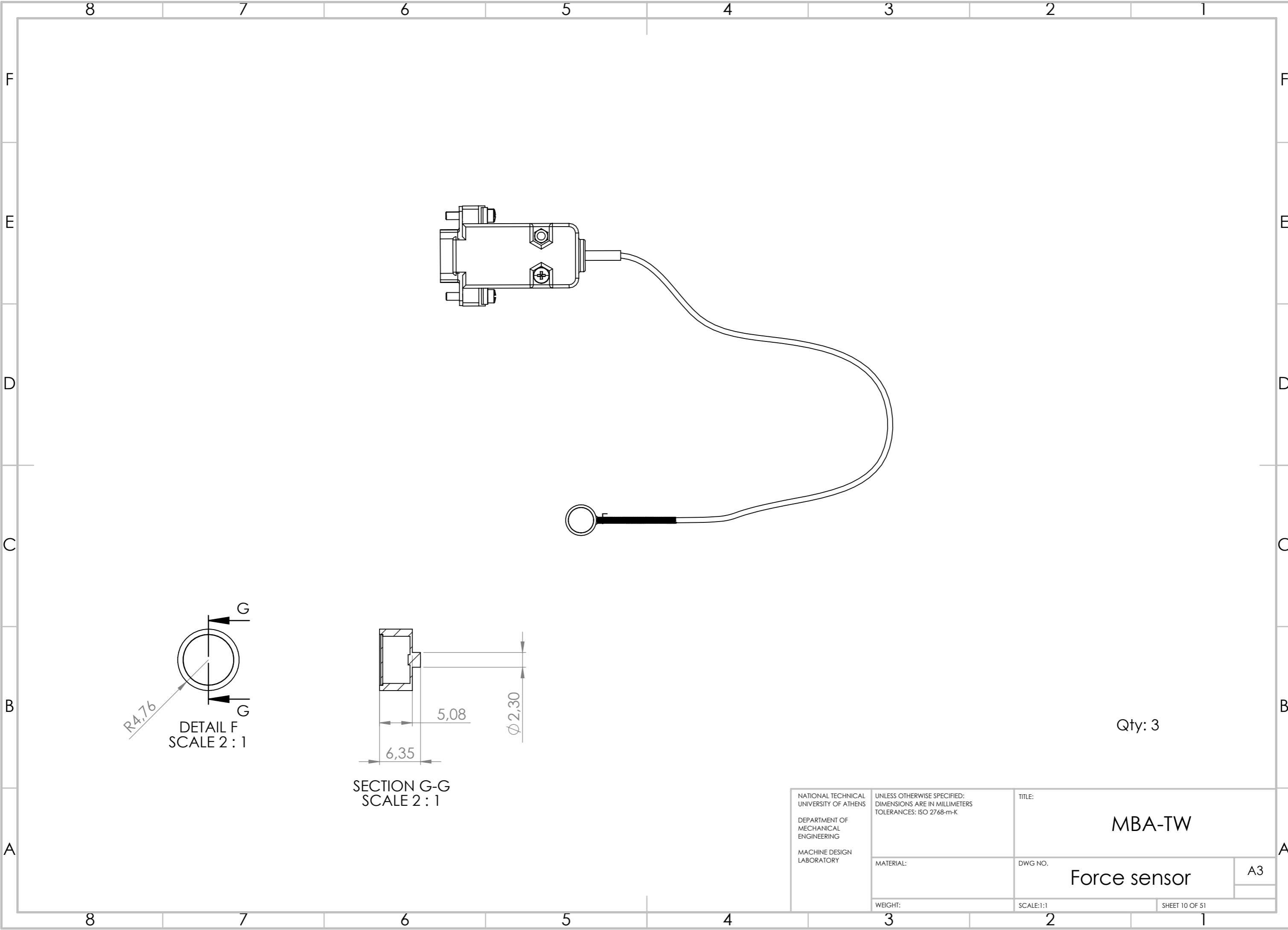
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. Spring Spacer 6732 | A3 |
| WEIGHT: | SCALE:1:1 | SHEET 8 OF 51 | |



SECTION D-D

| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|-----------------------------------|
| B1 | 0 | 0 | Ø 22,00 THRU |
| C1 | -28,64 | -11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C2 | -28,64 | 11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C3 | -11,86 | -28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C4 | -11,86 | 28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C5 | 11,86 | -28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C6 | 11,86 | 28,64 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C7 | 28,64 | -11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |
| C8 | 28,64 | 11,86 | Ø 4,20 √ 12,40 M5 - 6H √ 10,00 |

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|--|--|-------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. Spring Spacer 6722 | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 9 OF 51 |

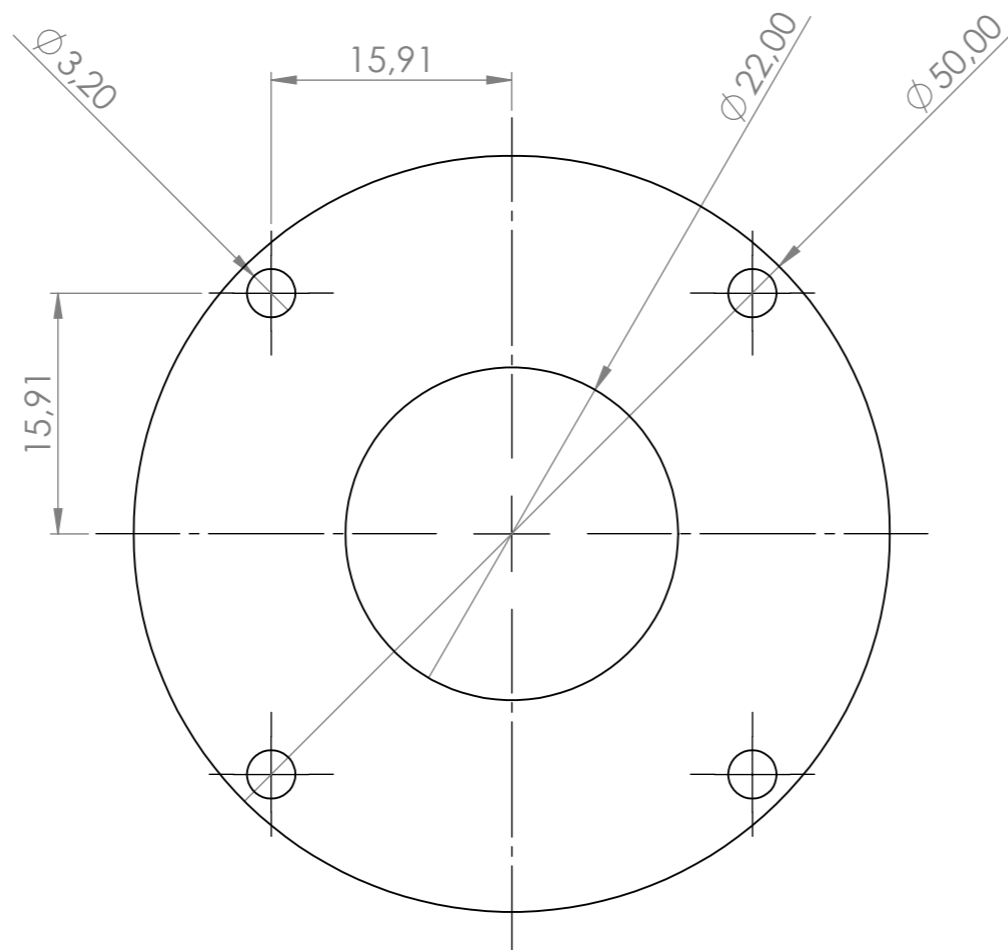


$R4,76$
 DETAIL F
 SCALE 2 : 1

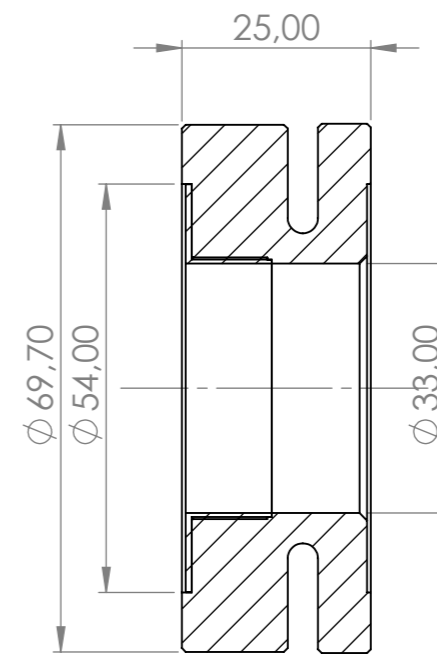
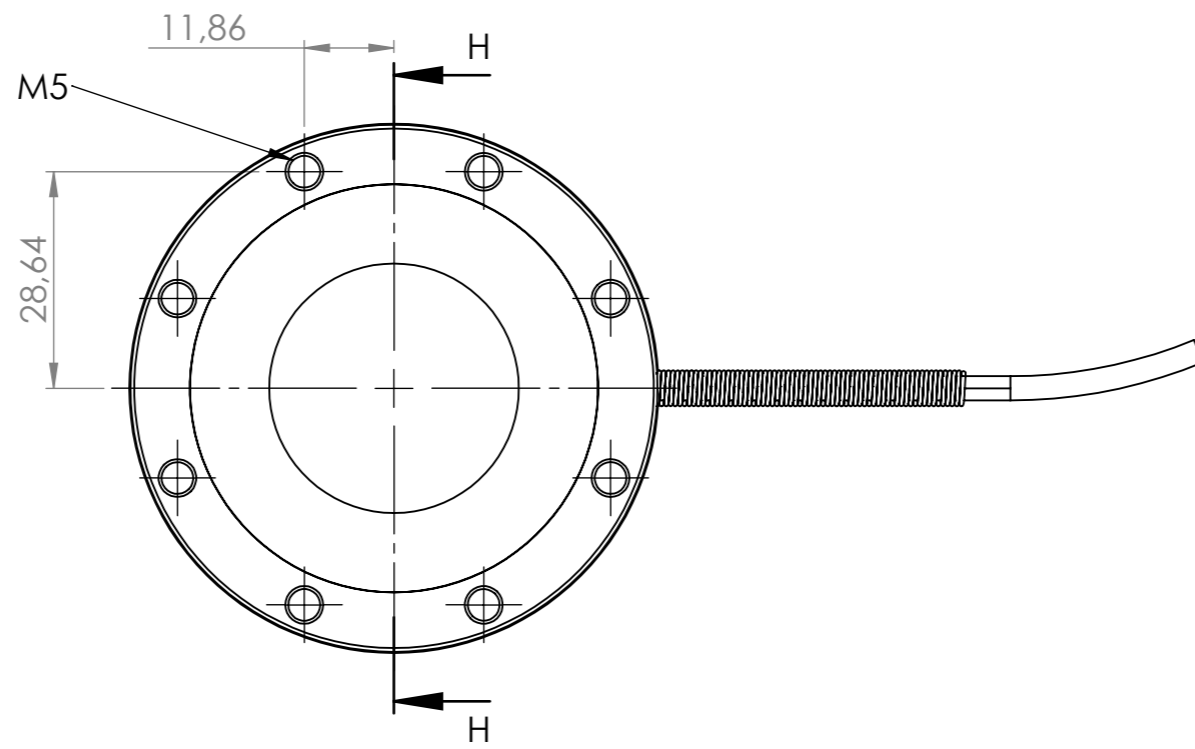
SECTION G-G
 SCALE 2 : 1
 6,35
 5,08
 $\phi 2,30$

Qty: 3

| | | | |
|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h2 style="text-align: center;">MBA-TW</h2> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Force sensor</h2> | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 10 OF 51 |

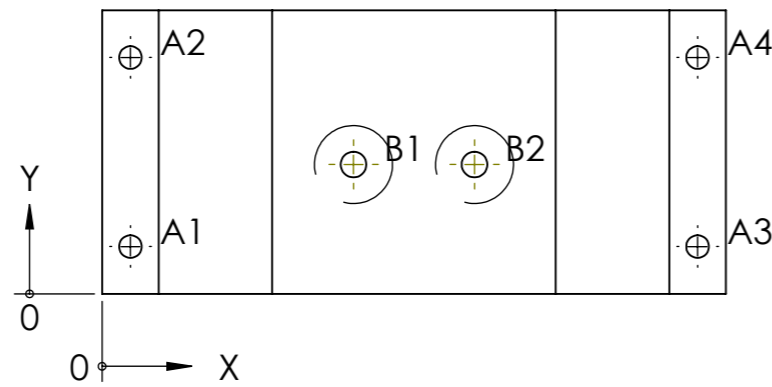
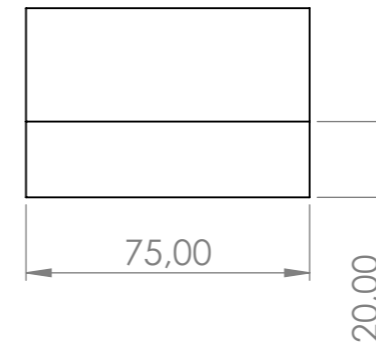
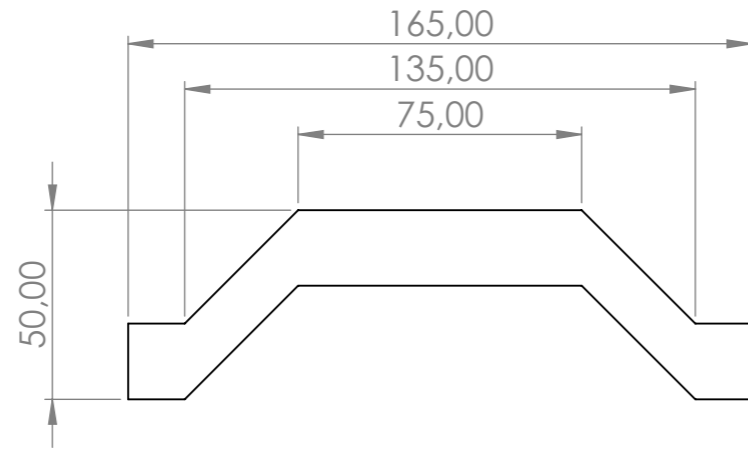


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Ball Spline Nut Stop | A3 |
| | WEIGHT: | SCALE: 2:1 | SHEET 11 OF 51 |



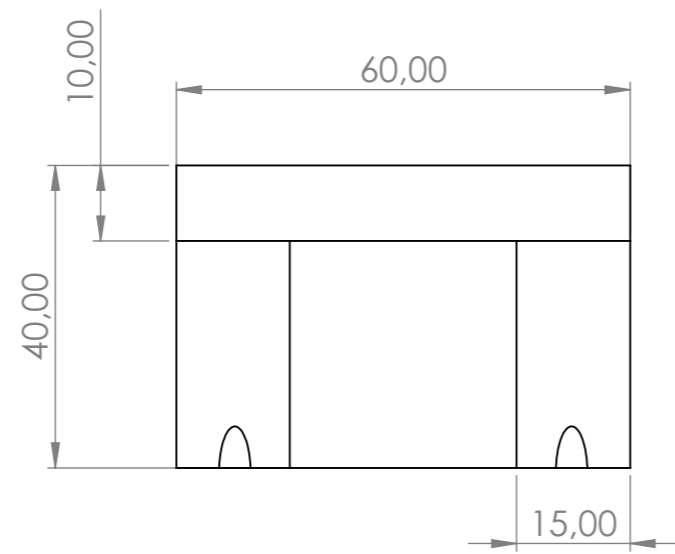
SECTION H-H

| | | | |
|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">JF1 5kN</h1> | |
| | MATERIAL: | DWG NO. Force Sensor Base - heavy loading | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 12 OF 51 |

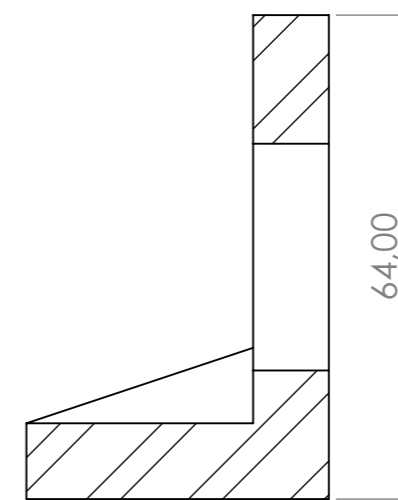
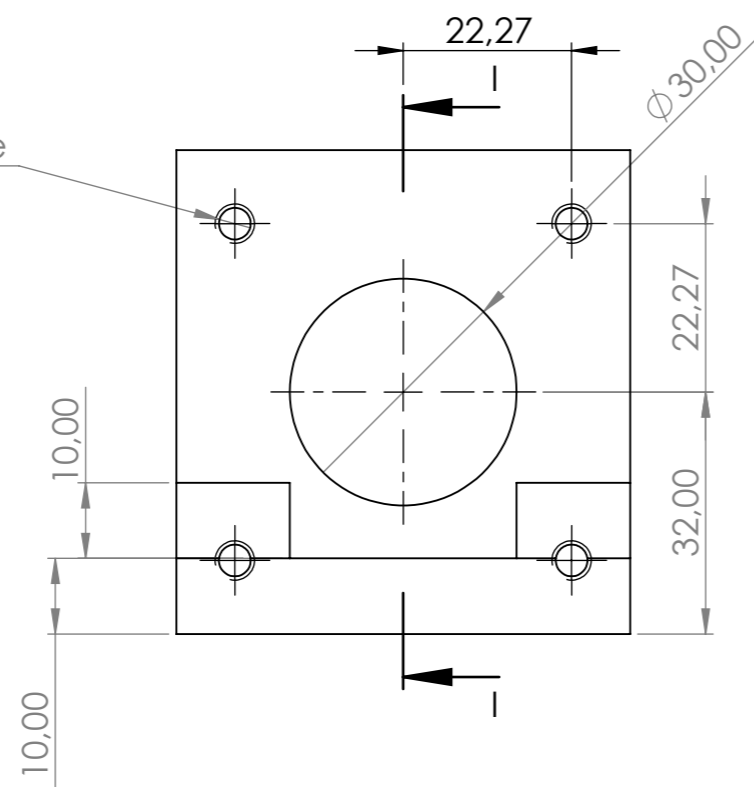


| TAG | X LOC | Y LOC | SIZE |
|-----|--------|-------|--|
| A1 | 7,50 | 12,50 | Ø 6,00 THRU |
| A2 | 7,50 | 62,50 | Ø 6,00 THRU |
| A3 | 157,50 | 12,50 | Ø 6,00 THRU |
| A4 | 157,50 | 62,50 | Ø 6,00 THRU |
| B1 | 66,50 | 34,20 | Ø 6,80 ∇ 20,00 M8 - 6H ∇ 16,00 ✓ Ø 8,05 X 90°, Near Side |
| B2 | 98,50 | 34,20 | Ø 6,80 ∇ 20,00 M8 - 6H ∇ 16,00 ✓ Ø 8,05 X 90°, Near Side |

| | | | |
|--|--|-----------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 13 OF 51 |
| | | Linear Actuator Base | |



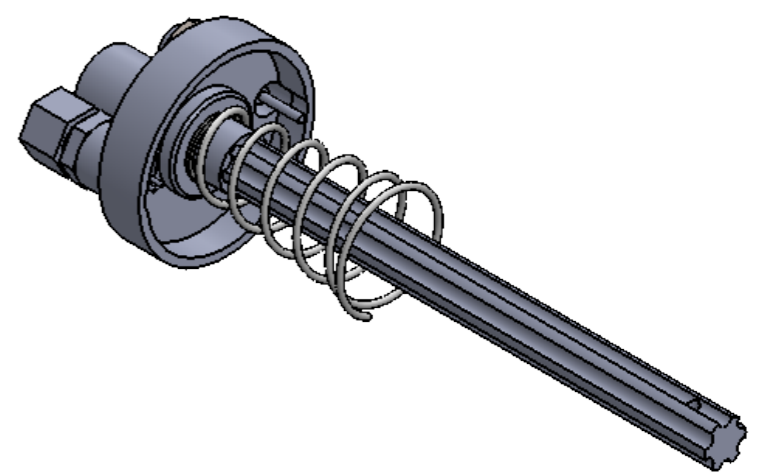
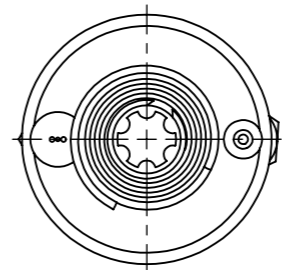
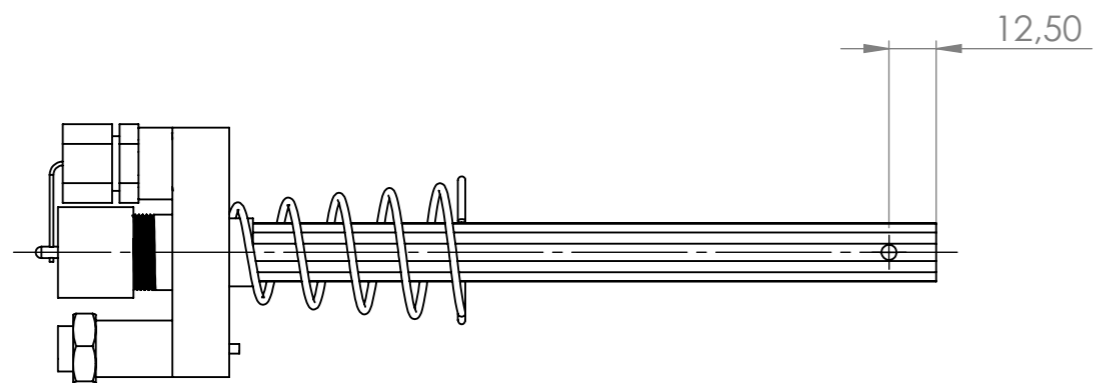
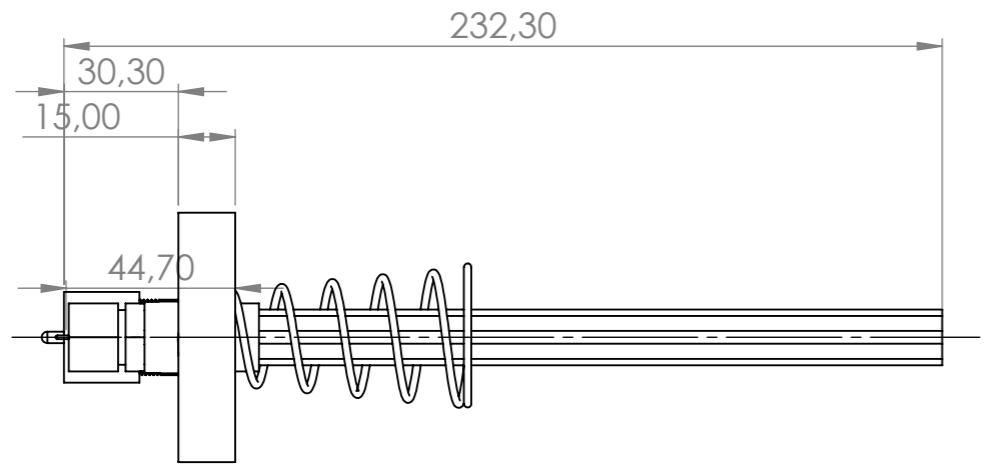
4 x ϕ 4,20 THRU ALL
 M5 - 6H ∇ 10,00
 \surd ϕ 5,05 X 90°, Near Side



SECTION I-I

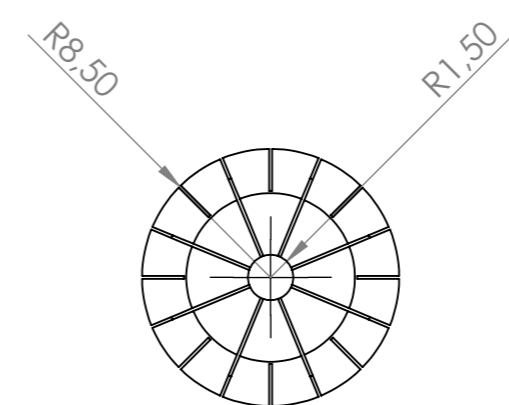
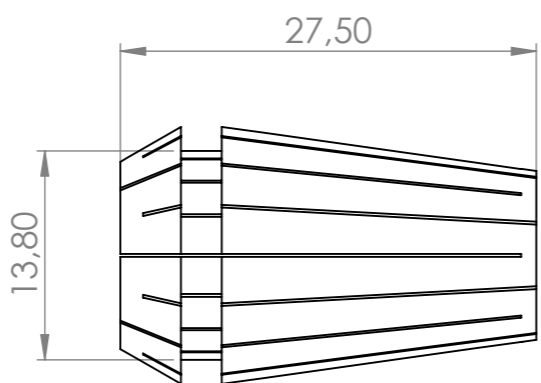
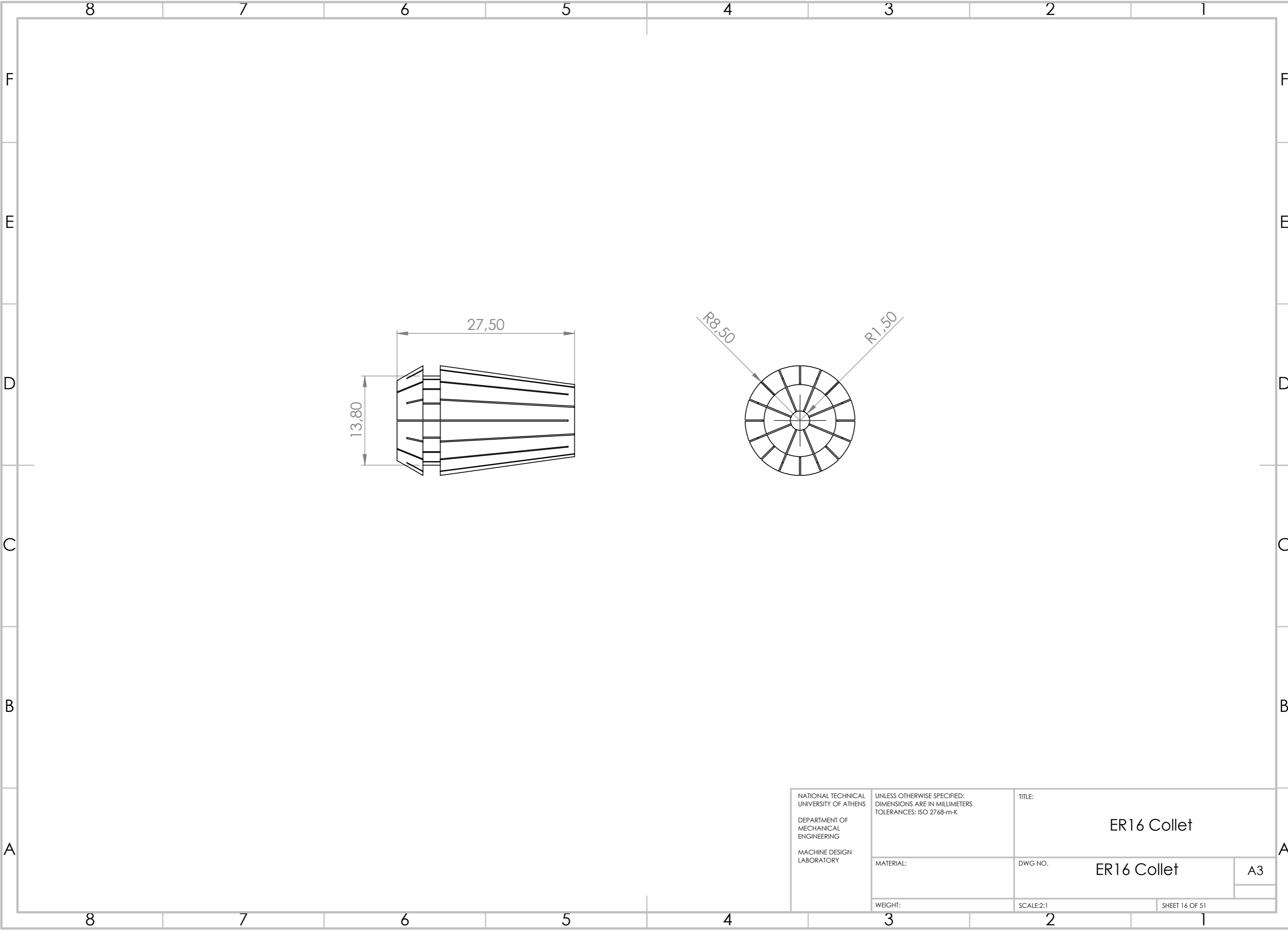
| | | | |
|--|--|-----------|--------------------------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. | Linear Actuator Base X axis |
| | WEIGHT: | SCALE:1:1 | SHEET 14 OF 51 |

A3

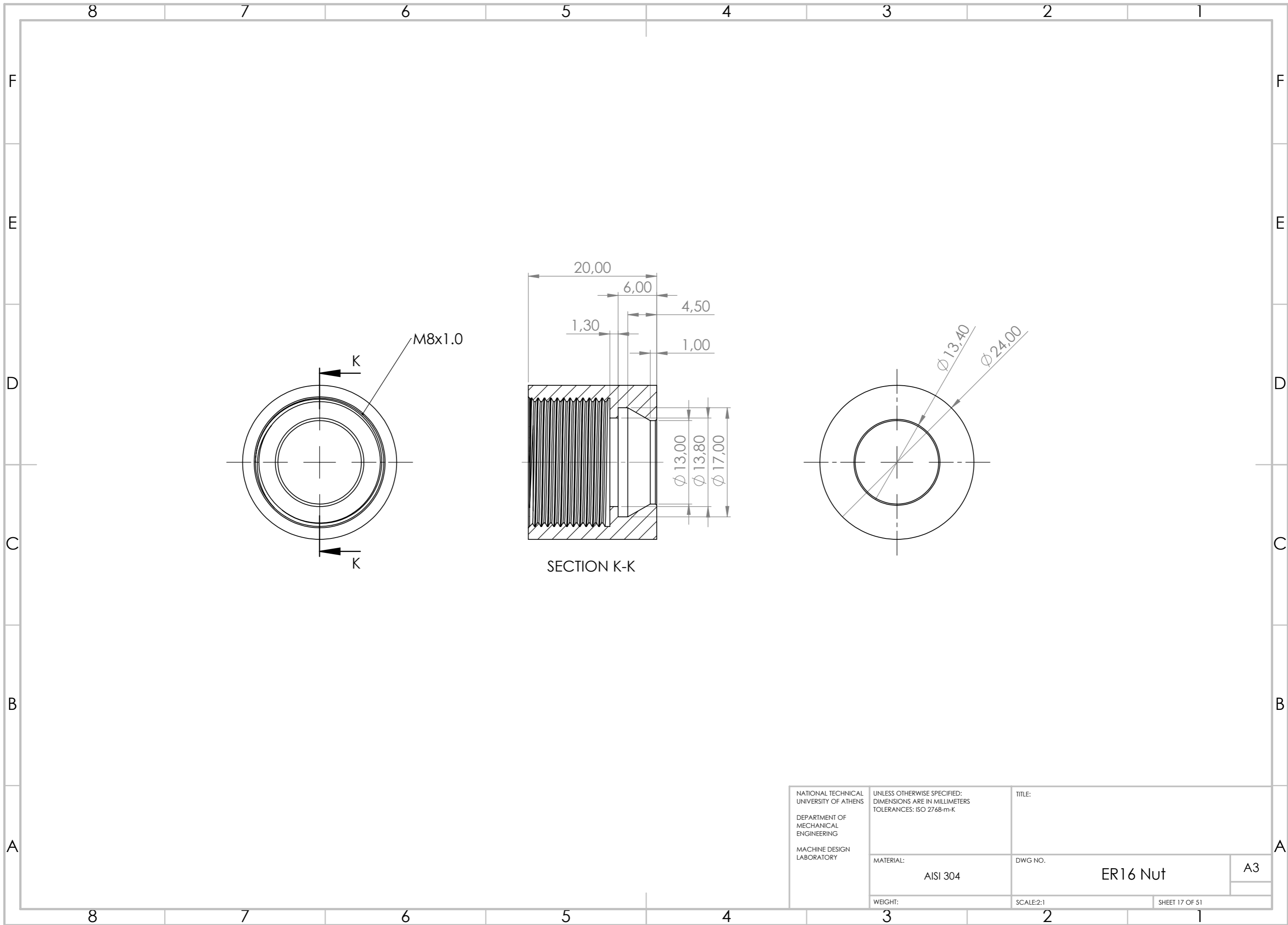


| ITEM NO. | PART NUMBER | QTY. |
|----------|-------------------------|------|
| 1 | ER16 COLLET | 1 |
| 2 | ER16 Nut | 1 |
| 3 | ER16 Chuck | 1 |
| 4 | pin | 1 |
| 5 | 6305-Lesjofors | 1 |
| 6 | spring spacer | 1 |
| 7 | 6732-Lesjofors | 1 |
| 8 | 6722-Lesjofors | 1 |
| 9 | FS_018 | 1 |
| 10 | 6722-SHRINKED-Lesjofors | 1 |
| 11 | 6732-SHRINKED-Lesjofors | 1 |
| 12 | 6305-SHRINKED-Lesjofors | 1 |
| 13 | ES-S2 | 1 |
| 14 | ISO - 4035 - M12 - N | 1 |
| 15 | temp sensor body | 1 |
| 16 | temp sensor probe | 1 |

| | | | |
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | Specimen and Chuck Assembly |
| | WEIGHT: | SCALE:1:2 | A3 |



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|--|--|---------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: ER16 Collet | |
| | MATERIAL: | DWG NO. ER16 Collet | A3 |
| | WEIGHT: | SCALE: 2:1 | SHEET 16 OF 51 |



F
E
D
C
B
A

F
E
D
C
B
A

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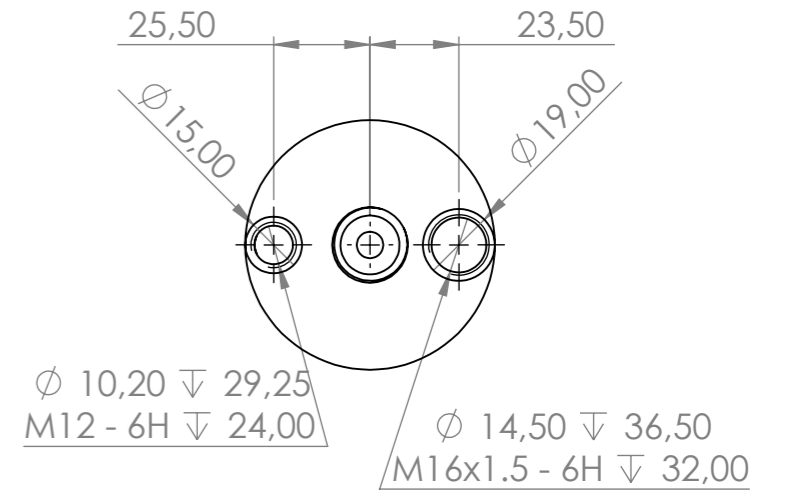
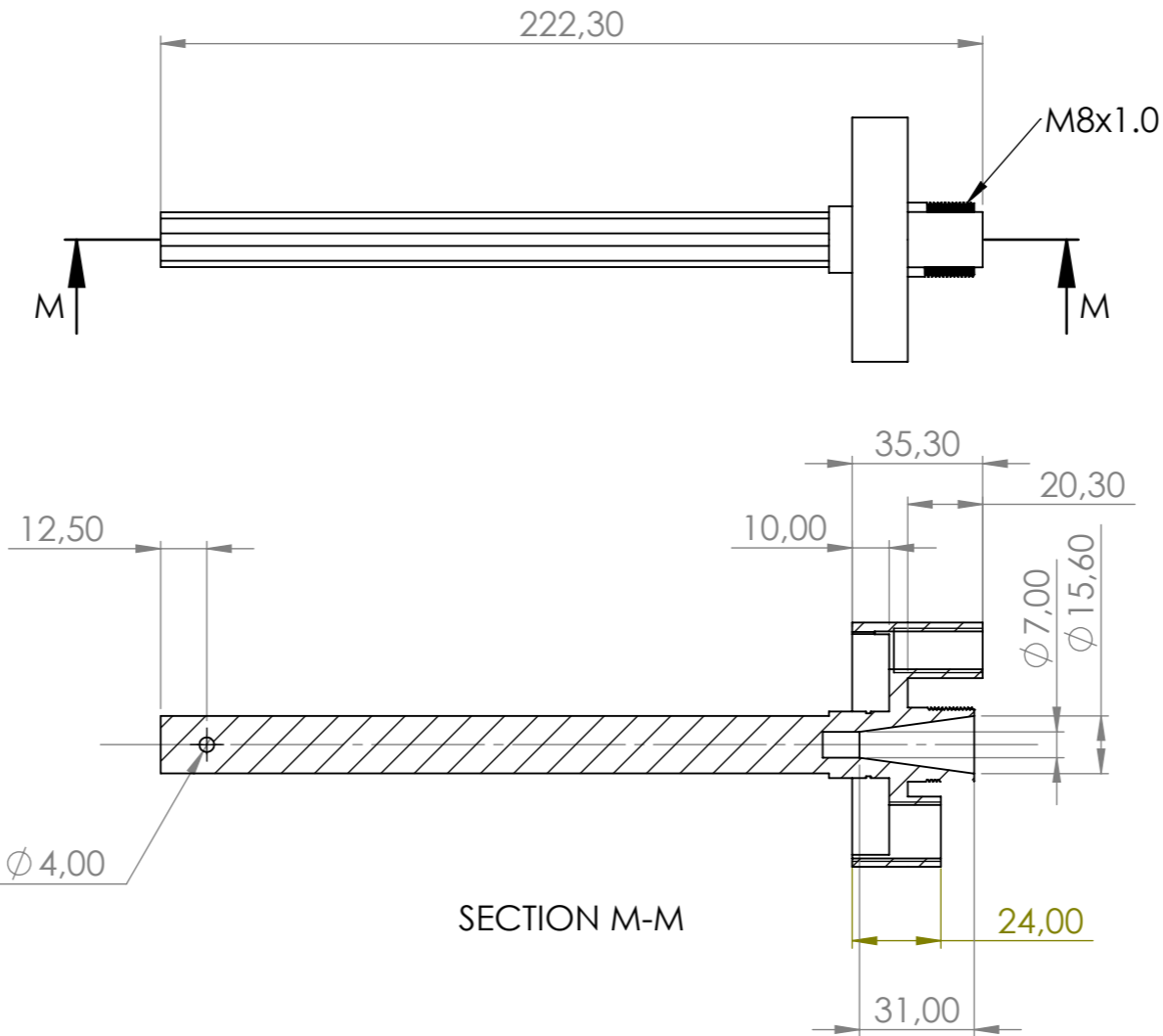
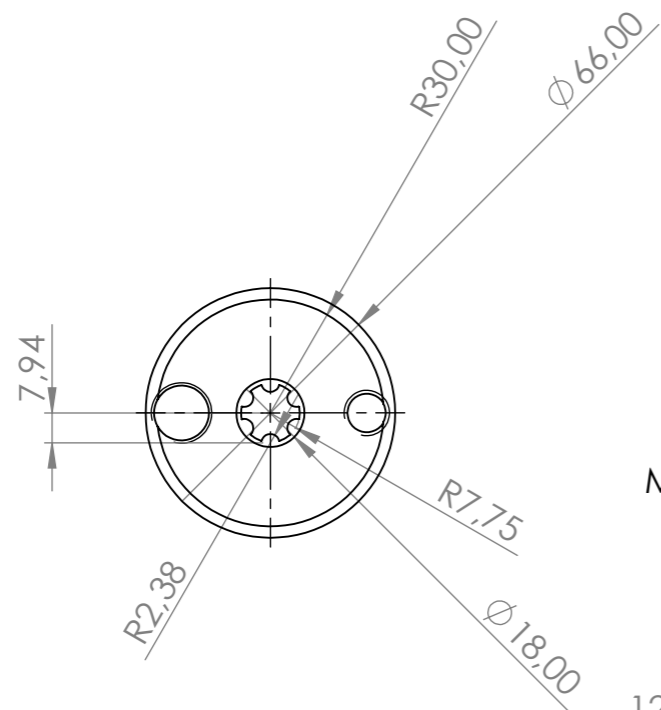
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3

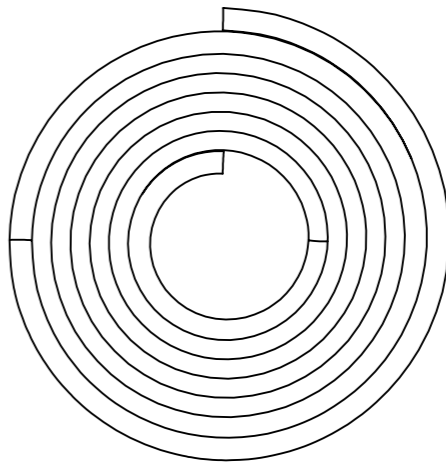
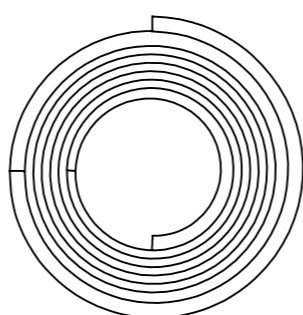
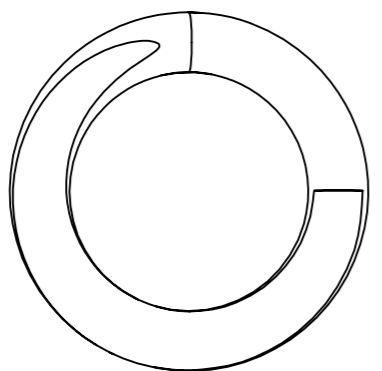
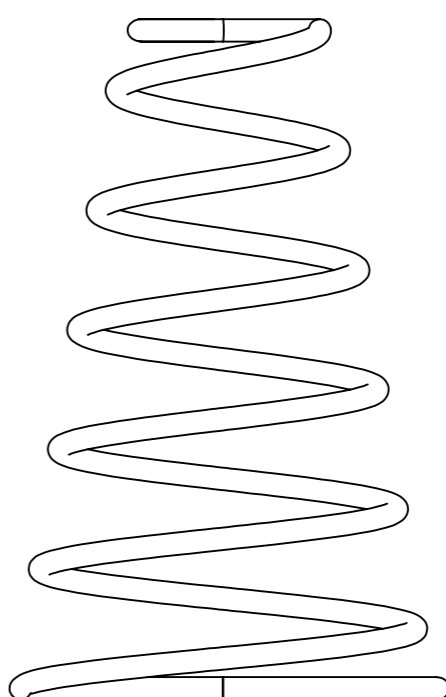
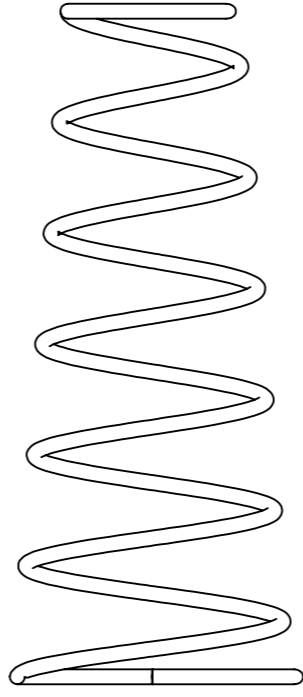
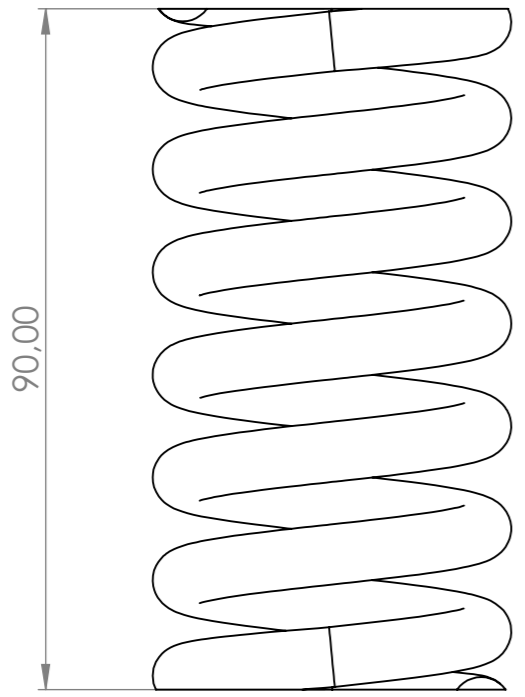
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. ER16 Nut | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 17 OF 51 |



| | | | |
|--|--|---------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. ER16 Shaft chuck | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 18 OF 51 |

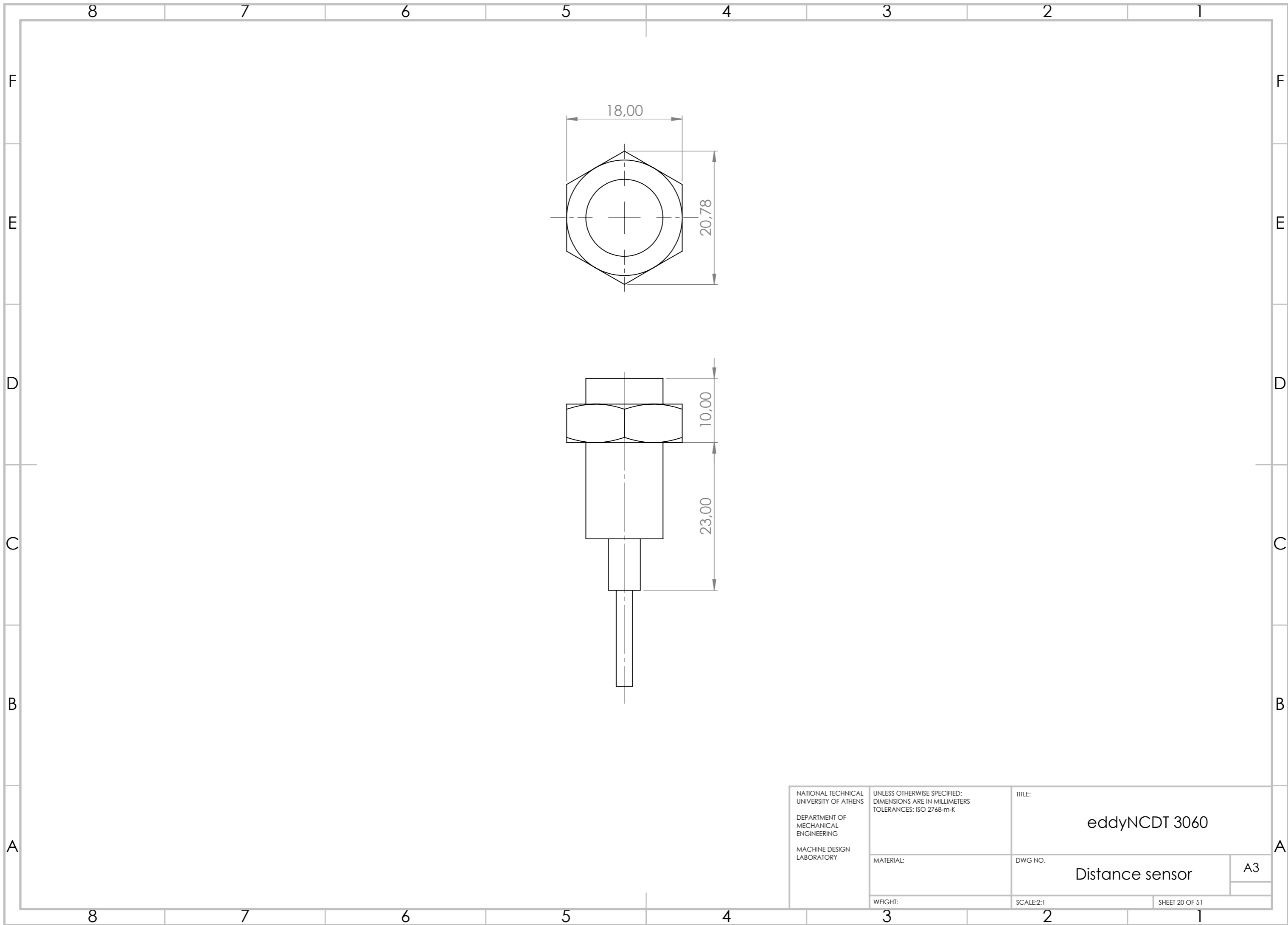


6305
Df=8mm
Di=31,5mm

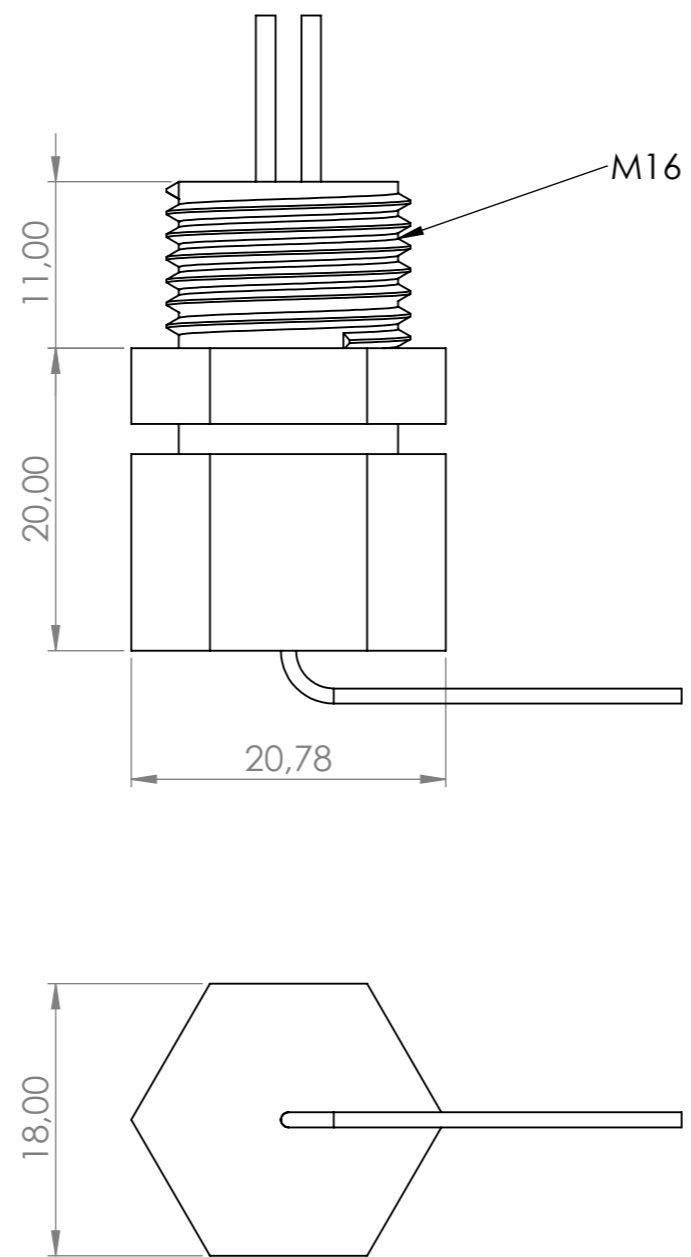
6722
Df=2mm
Di=18mm
Do=40mm

6732
Df=3mm
Di=18mm
Do=60mm

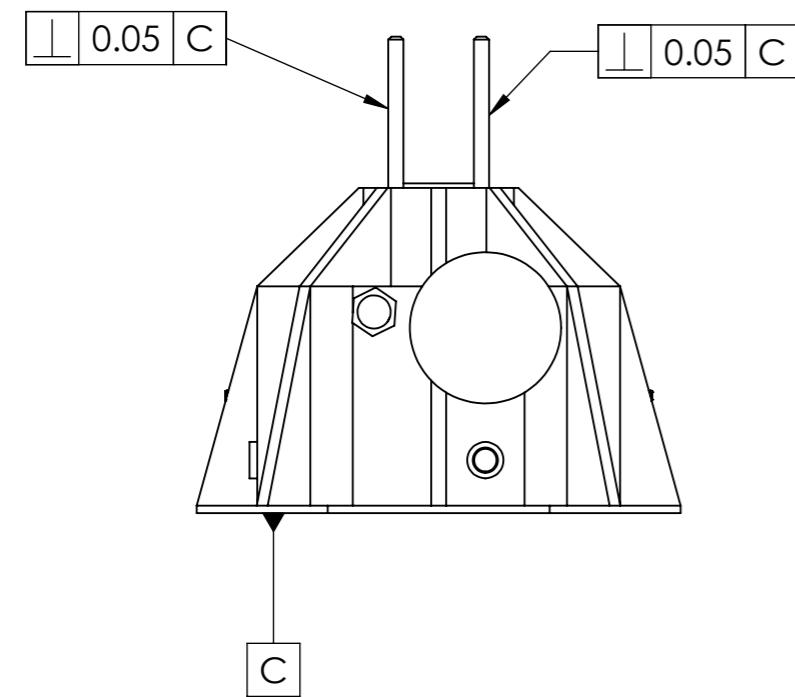
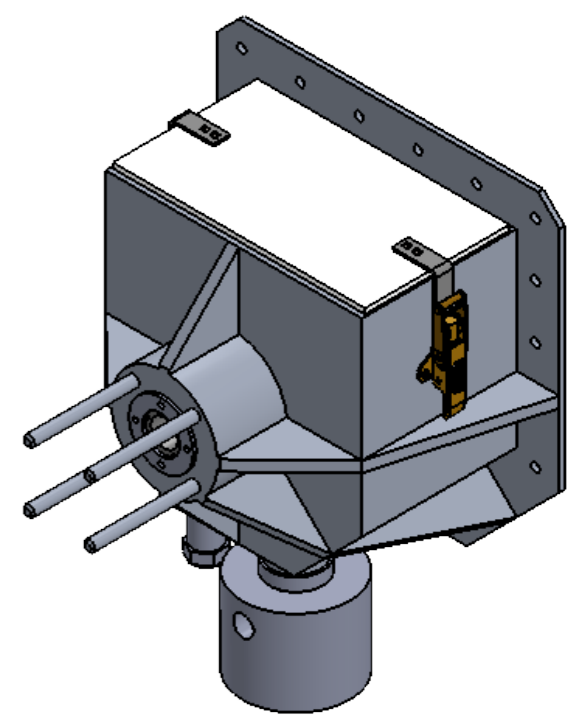
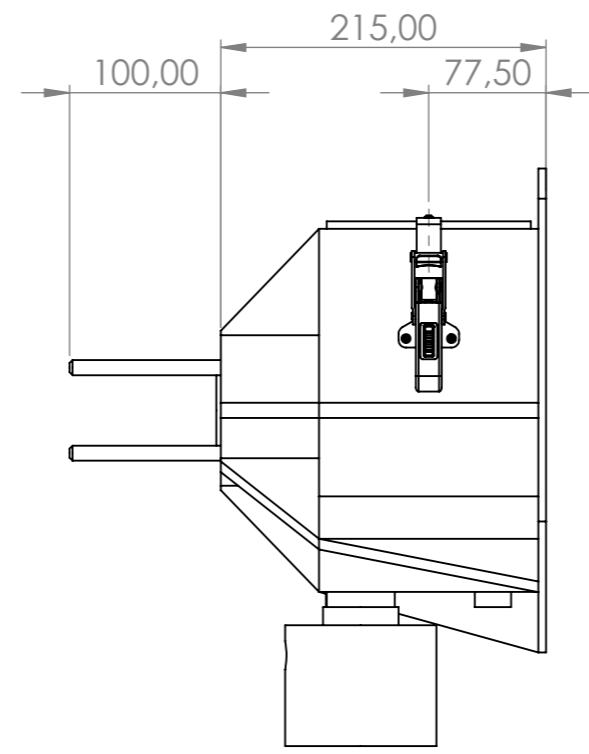
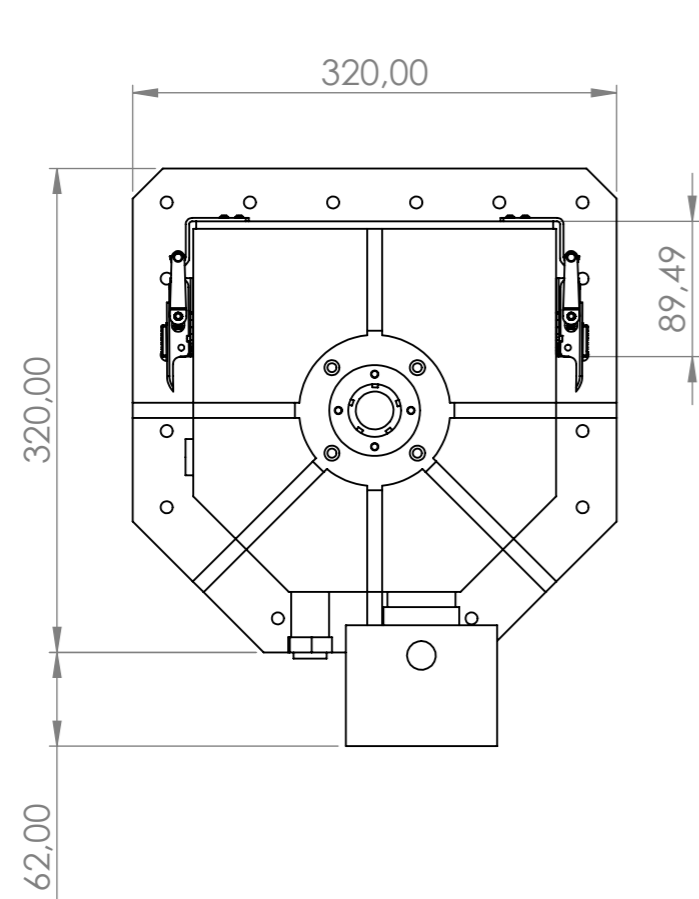
| | | | |
|--|--|---|---------------------------------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">6305 - 6722 - 6732</p> | |
| | MATERIAL: <p style="text-align: center;">EN 10270-1</p> | DWG NO. <p style="text-align: center;">Springs</p> | <p style="text-align: center;">A3</p> |
| | WEIGHT: | SCALE:1:1 | SHEET 19 OF 51 |



| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">eddyNCDT 3060</p> | |
| | MATERIAL: | DWG NO. <p style="text-align: center;">Distance sensor</p> | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 20 OF 51 |

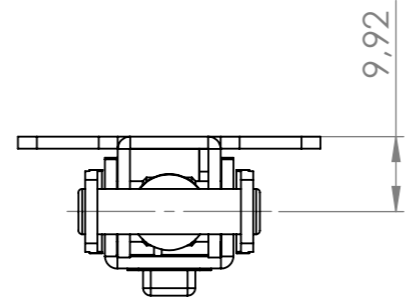
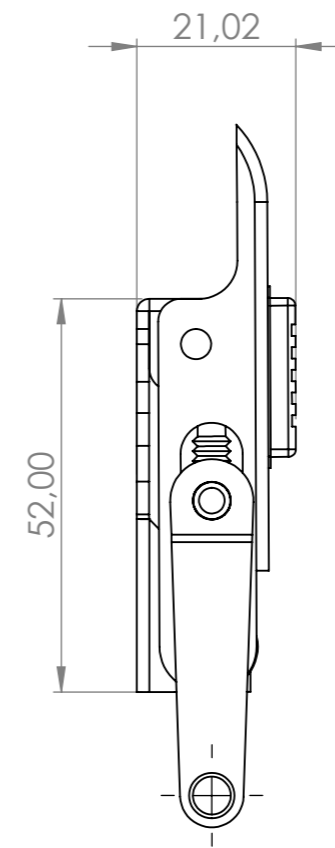
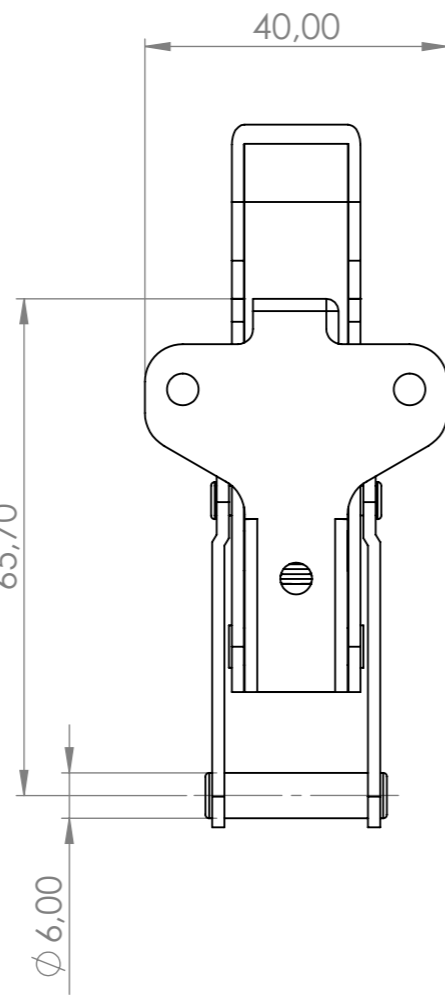


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 12-K-450-321-1.0-2I-3P5A-A30 | |
| | MATERIAL: | DWG NO. Temperature Sensor | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 21 OF 51 |



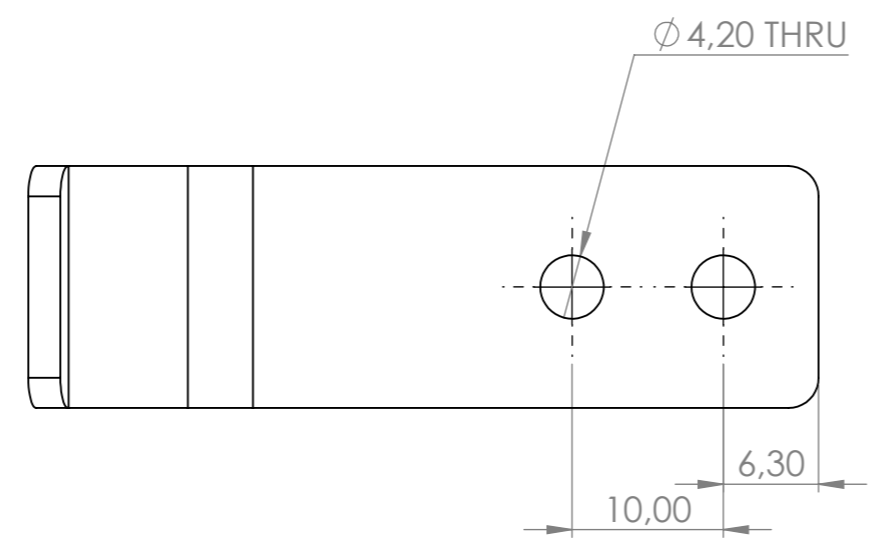
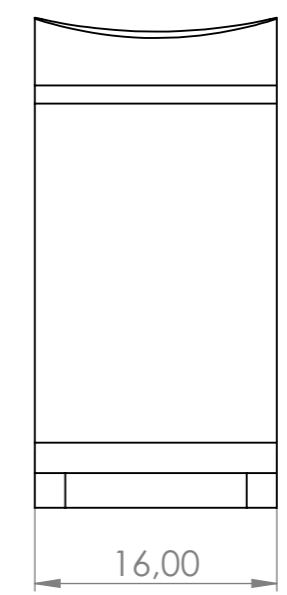
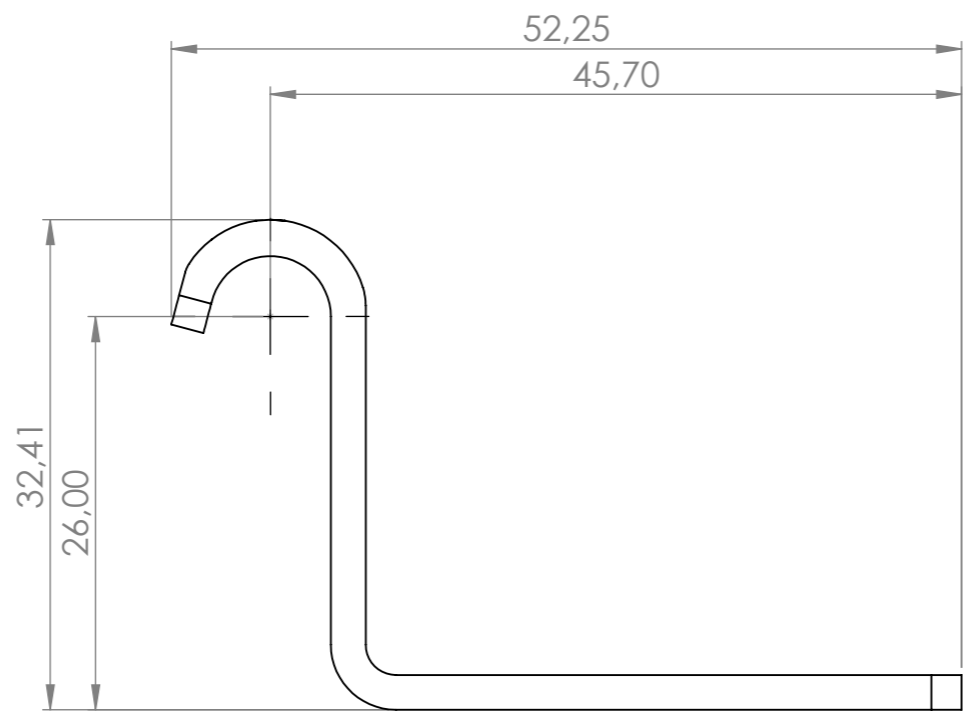
| ITEM NO. | PART NUMBER | QTY. |
|----------|--|------|
| 1 | 655BC | 2 |
| 2 | 655A | 2 |
| 3 | 655-3 | 2 |
| 4 | 655-6 | 2 |
| 5 | 655-1 | 2 |
| 6 | RIVET | 2 |
| 7 | 655J | 2 |
| 8 | 655-4 | 2 |
| 9 | 655H | 2 |
| 10 | 655K | 2 |
| 11 | 1610D | 2 |
| 12 | 575-4 | 2 |
| 13 | Catch Plate 03-1655SS.stp | 2 |
| 14 | Oil bucket cover | 1 |
| 15 | Retainer flange | 2 |
| 16 | oil hub | 1 |
| 17 | SSEM25 | 1 |
| 18 | trelleborg_tru000250-n7mm_e3jm56ezkxt6lsqaxs38kgcsm_01 | 1 |
| 19 | trelleborg_tru000250-n7mm_e3jm56ezkxt6lsqaxs38kgcsm_02 | 1 |
| 20 | trelleborg_tru000250-n7mm_e3jm56ezkxt6lsqaxs38kgcsm_03 | 1 |
| 21 | trelleborg_tru000250-n7mm_e3jm56ezkxt6lsqaxs38kgcsm_04 | 1 |
| 22 | trelleborg_tru000250-n7mm_e3jm56ezkxt6lsqaxs38kgcsm_05 | 1 |
| 23 | trelleborg_tru000250-n7mm_e3jm56ezkxt6lsqaxs38kgcsm_06 | 1 |
| 24 | humidity temp probe type 907023 334 | 1 |
| 25 | immersion heater | 1 |
| 26 | ISO 7380 - M3 x 12 - 12N | 4 |
| 27 | Washer ISO 7092 - 3 | 4 |
| 28 | ISO 4762 M2 x 5 - 5N | 4 |
| 29 | ISO - 4032 - M3 - W - N | 4 |

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | Oil Hub Assembly |
| WEIGHT: | SCALE:1:5 | SHEET 22 OF 51 | |
| | | | A3 |



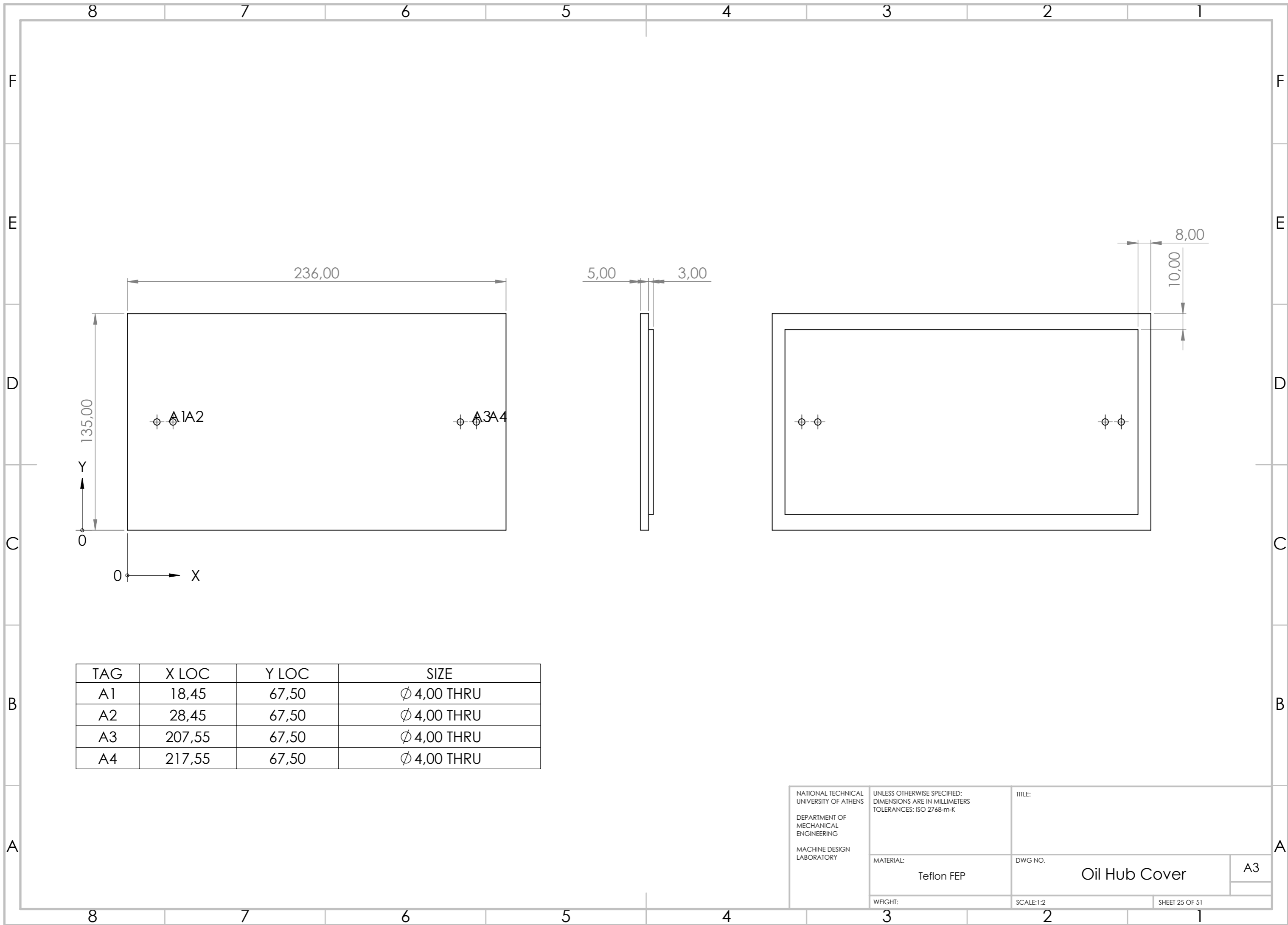
Qty: 2

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|--|--|--|---------------------------------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">611610</p> | |
| | MATERIAL: | DWG NO. <p style="text-align: center;">Toggle latch</p> | <p style="text-align: center;">A3</p> |
| | WEIGHT: | SCALE:1:1 | SHEET 23 OF 51 |



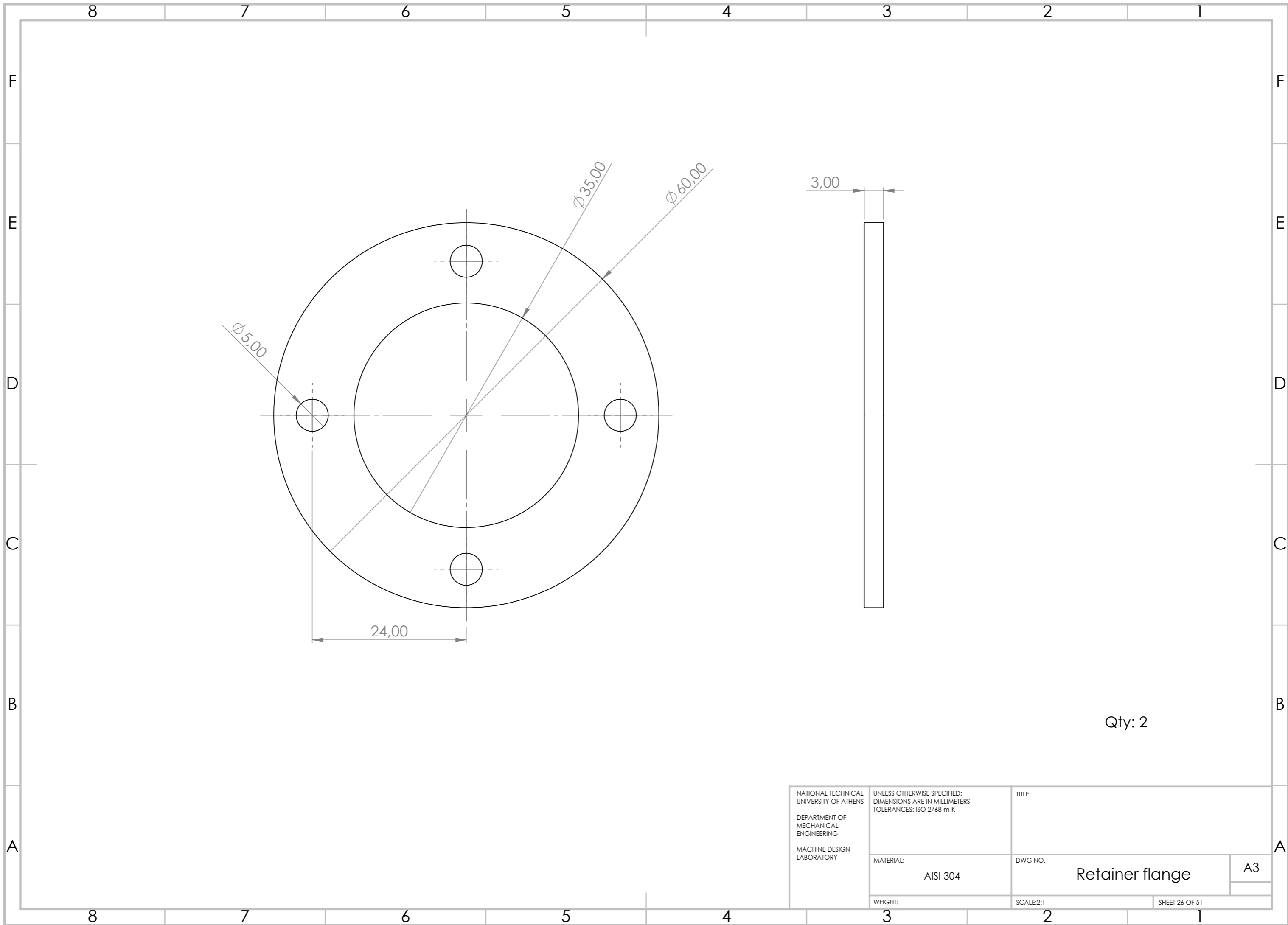
Qty: 2

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|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">031655SS</p> | |
| | MATERIAL: | DWG NO. <p style="text-align: center;">Toggle latch Catch plate</p> | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 24 OF 51 |



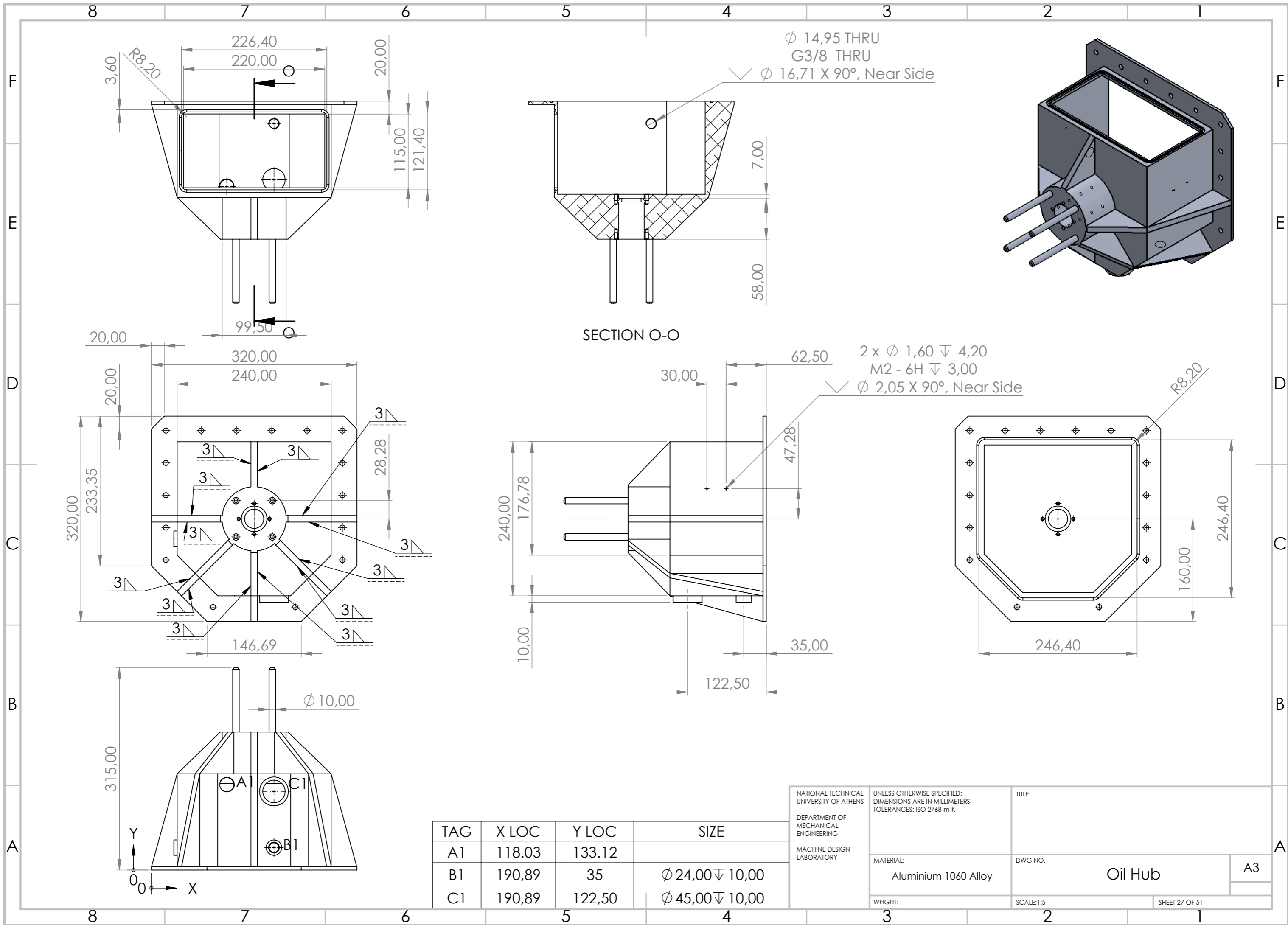
| TAG | X LOC | Y LOC | SIZE |
|-----|--------|-------|-------------|
| A1 | 18,45 | 67,50 | ∅ 4,00 THRU |
| A2 | 28,45 | 67,50 | ∅ 4,00 THRU |
| A3 | 207,55 | 67,50 | ∅ 4,00 THRU |
| A4 | 217,55 | 67,50 | ∅ 4,00 THRU |

| | | | |
|--|--|------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Teflon FEP | DWG NO. Oil Hub Cover | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 25 OF 51 |



Qty: 2

| | | | |
|--|--|--------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Retainer flange | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 26 OF 51 |



| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|---------------------------|
| A1 | 118,03 | 133,12 | |
| B1 | 190,89 | 35 | $\phi 24,00 \nabla 10,00$ |
| C1 | 190,89 | 122,50 | $\phi 45,00 \nabla 10,00$ |

| | | | |
|--|--|----------------|----|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO.: | A3 |
| WEIGHT: | SCALE: 1:5 | SHEET 27 OF 51 | |

8

7

6

5

4

3

2

1

F

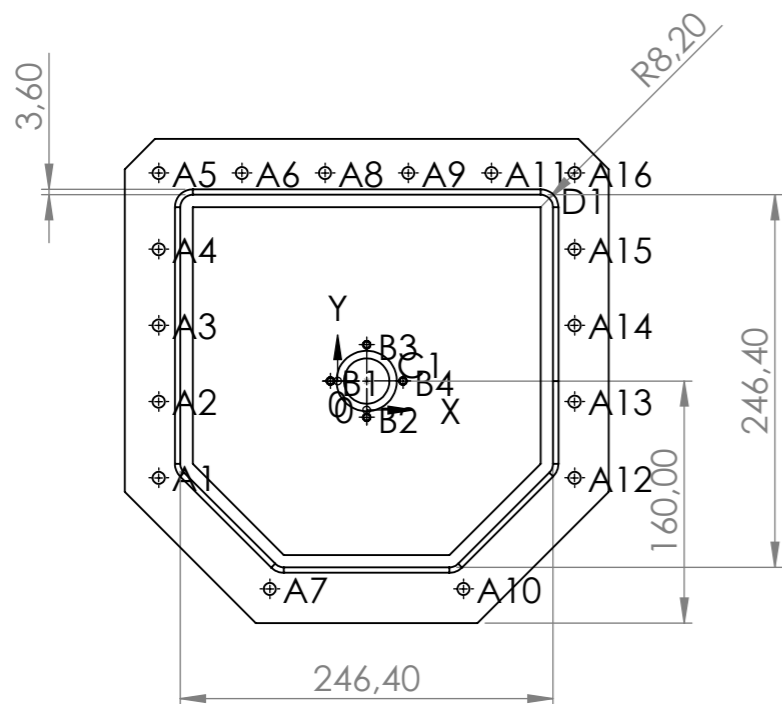
E

D

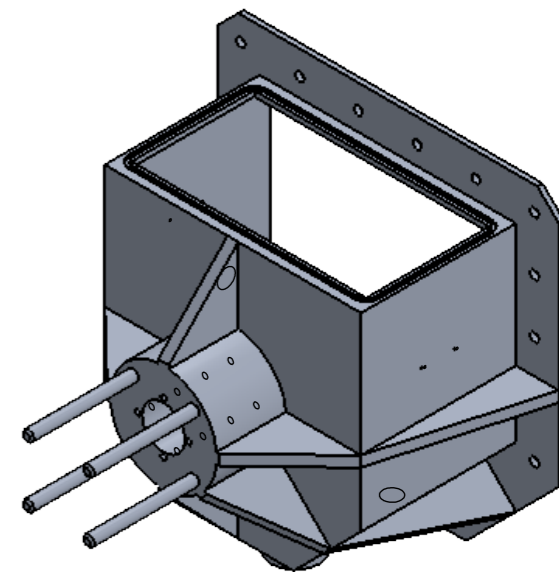
C

B

A



| TAG | X LOC | Y LOC | SIZE |
|-----|---------|---------|--|
| A1 | -137,50 | -64,03 | Ø 8,00 THRU |
| A2 | -137,50 | -13,64 | Ø 8,00 THRU |
| A3 | -137,50 | 36,74 | Ø 8,00 THRU |
| A4 | -137,50 | 87,12 | Ø 8,00 THRU |
| A5 | -137,50 | 137,50 | Ø 8,00 THRU |
| A6 | -82,50 | 137,50 | Ø 8,00 THRU |
| A7 | -64,03 | -137,50 | Ø 8,00 THRU |
| A8 | -27,50 | 137,50 | Ø 8,00 THRU |
| A9 | 27,50 | 137,50 | Ø 8,00 THRU |
| A10 | 64,03 | -137,50 | Ø 8,00 THRU |
| A11 | 82,50 | 137,50 | Ø 8,00 THRU |
| A12 | 137,50 | -64,03 | Ø 8,00 THRU |
| A13 | 137,50 | -13,64 | Ø 8,00 THRU |
| A14 | 137,50 | 36,74 | Ø 8,00 THRU |
| A15 | 137,50 | 87,12 | Ø 8,00 THRU |
| A16 | 137,50 | 137,50 | Ø 8,00 THRU |
| B1 | -24 | 0 | Ø 4,20 ∇ 15,00 M5 - 6H ∇ 10,00 ✓ Ø 5,05 X 90°, Near Side |
| B2 | 0 | -24 | Ø 4,20 ∇ 15,00 M5 - 6H ∇ 10,00 ✓ Ø 5,05 X 90°, Near Side |
| B3 | 0 | 24 | Ø 4,20 ∇ 15,00 M5 - 6H ∇ 10,00 ✓ Ø 5,05 X 90°, Near Side |
| B4 | 24 | 0 | Ø 4,20 ∇ 15,00 M5 - 6H ∇ 10,00 ✓ Ø 5,05 X 90°, Near Side |
| C1 | 0 | 0 | Ø 40,00 THRU Ø 30,00 ∇ 12,00 L Ø 40,00 ∇ 7,00 |
| D1 | 0 | 0 | |



F

E

D

C

B

A

NATIONAL TECHNICAL
UNIVERSITY OF ATHENSDEPARTMENT OF
MECHANICAL
ENGINEERINGMACHINE DESIGN
LABORATORYUNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES: ISO 2768-m-K

TITLE:

MATERIAL:

Aluminium 1060 Alloy

DWG NO.

Oil Hub

A3

WEIGHT:

SCALE:1:5

SHEET 28 OF 51

8

7

6

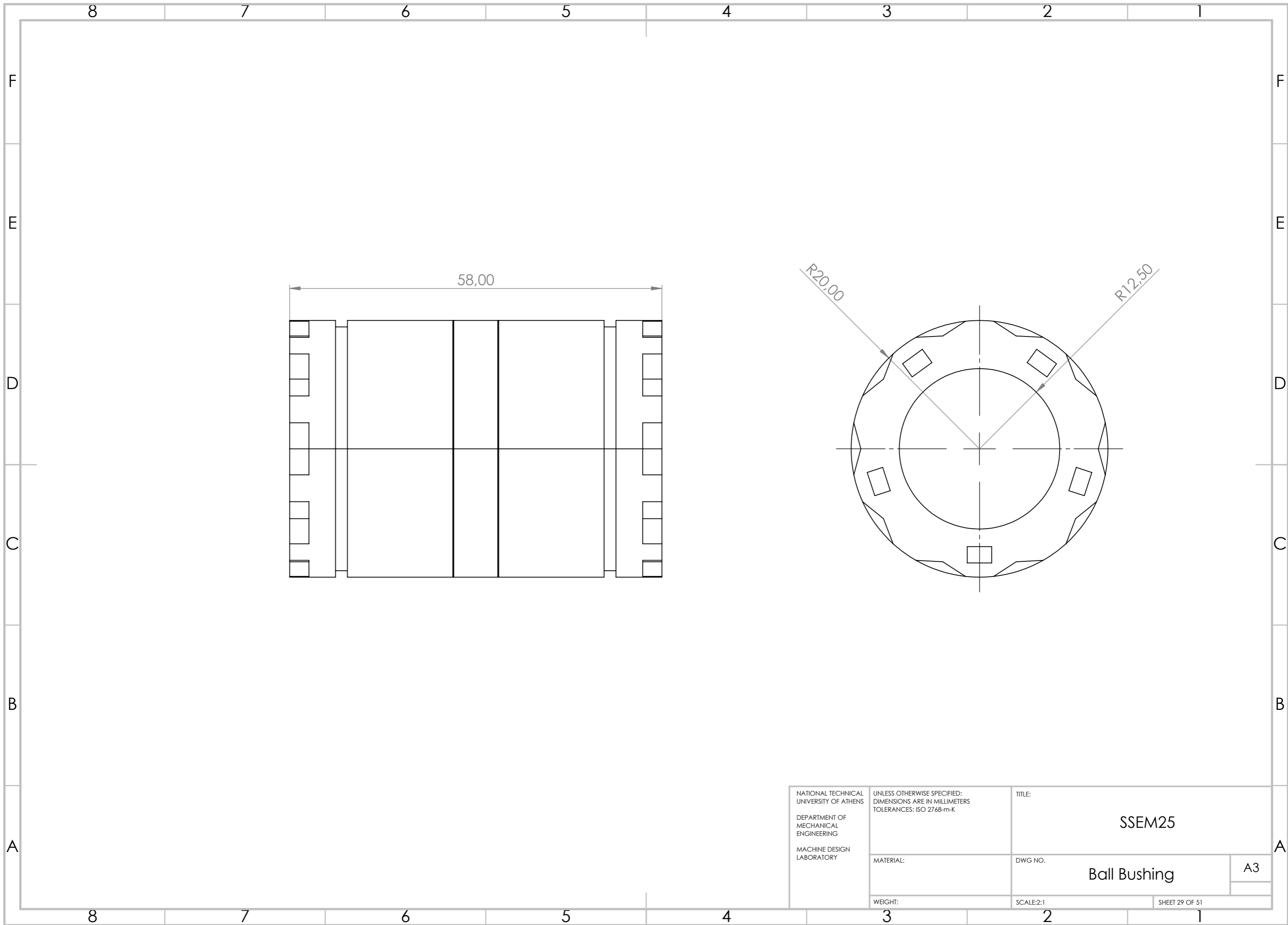
5

4

3

2

1



58,00

R20,00

R12,50

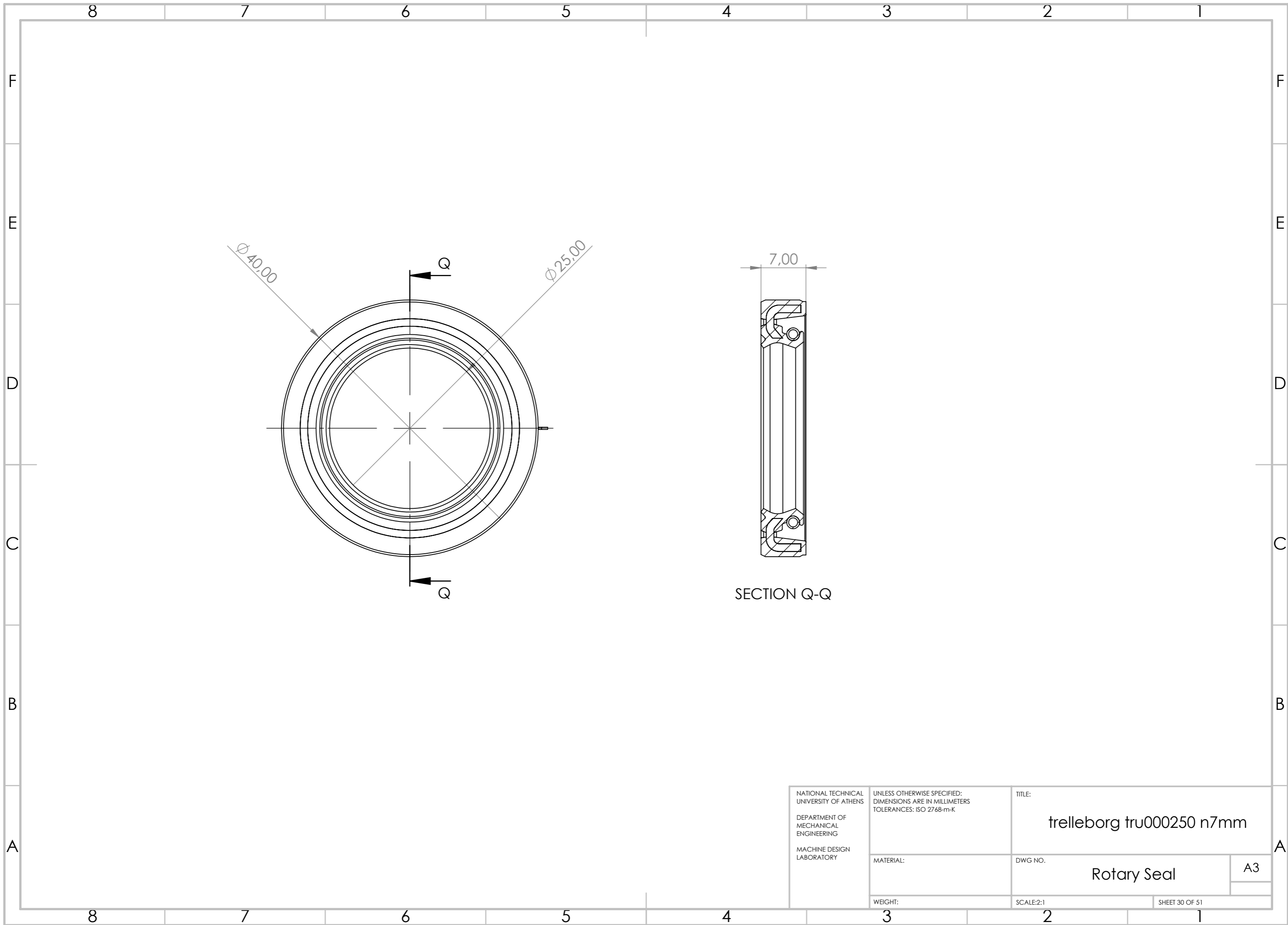
| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">SSEM25</p> | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 29 OF 51 |

SSEM25

Ball Bushing

A3

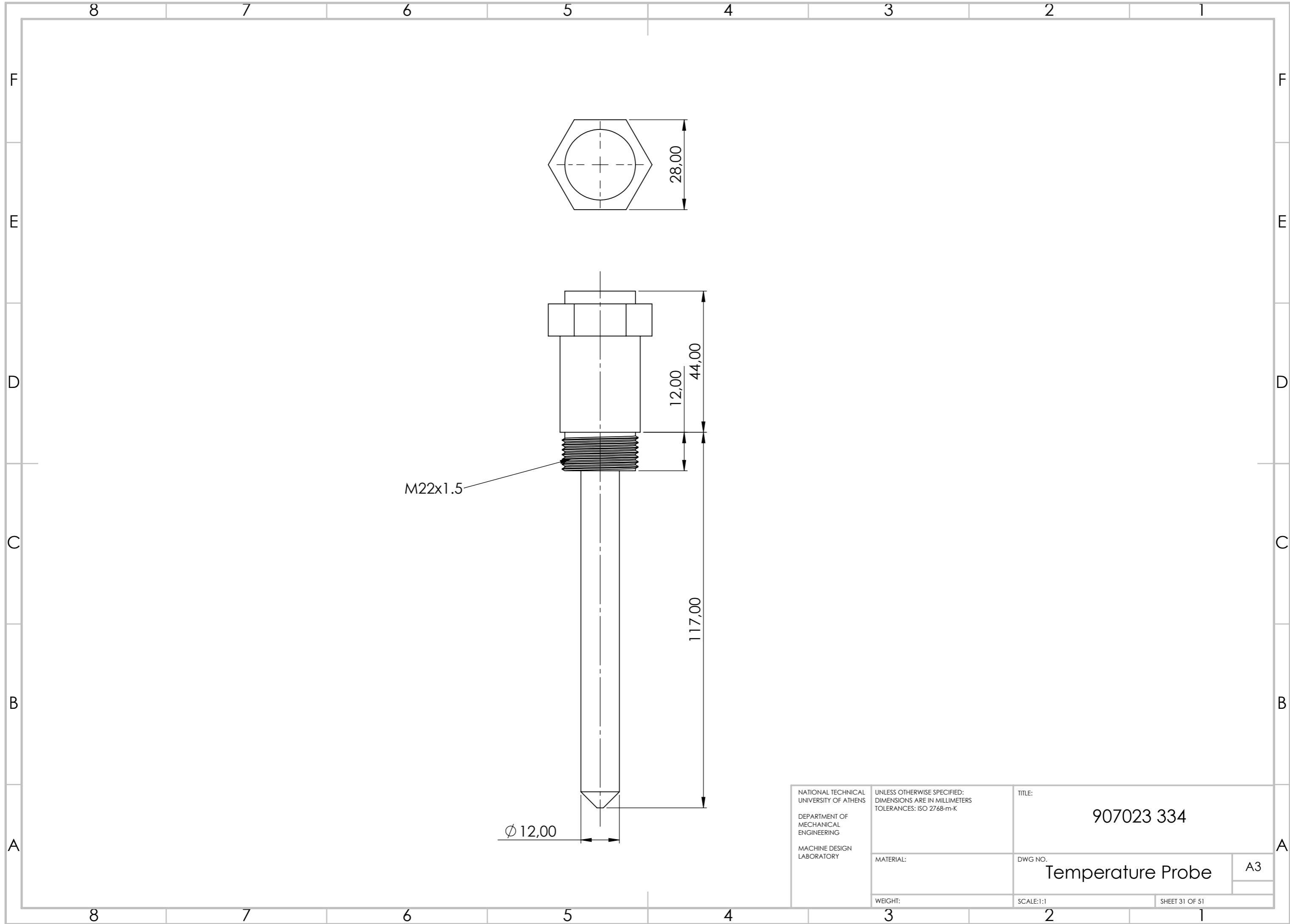
SHEET 29 OF 51



SECTION Q-Q

| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: trelleborg tru000250 n7mm | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 30 OF 51 |

Rotary Seal



M22x1.5

Ø 12,00

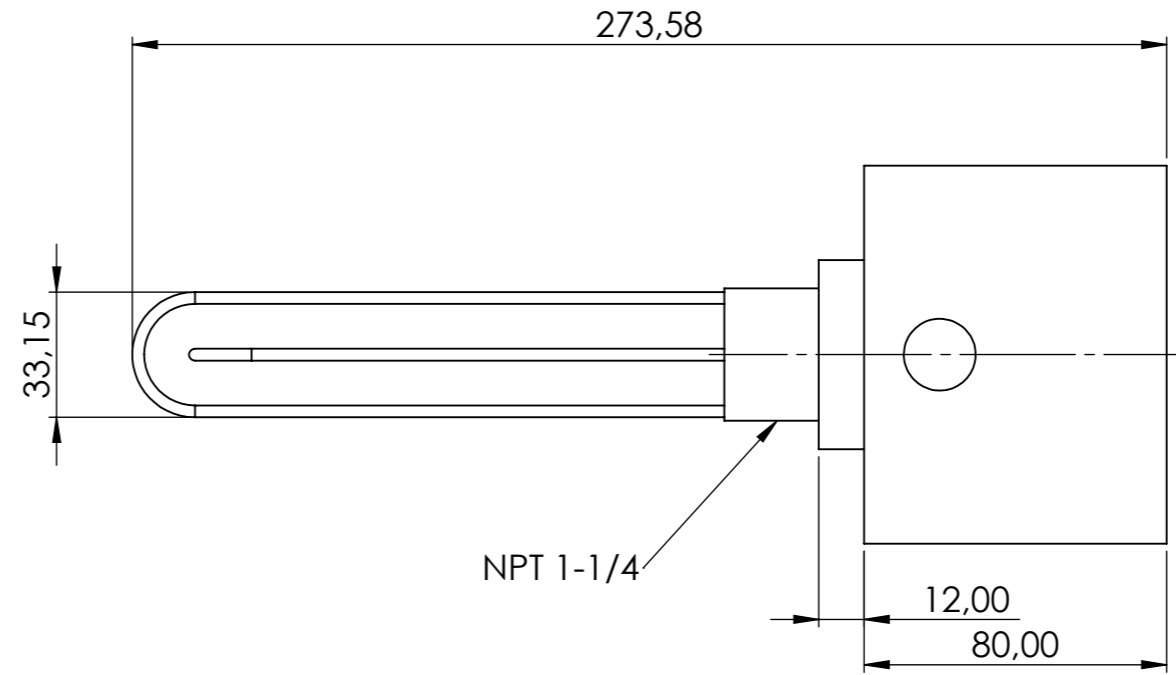
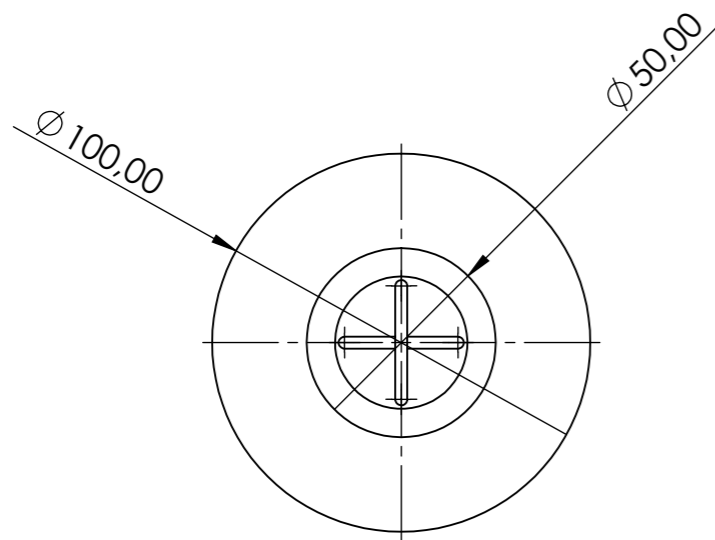
28,00

12,00

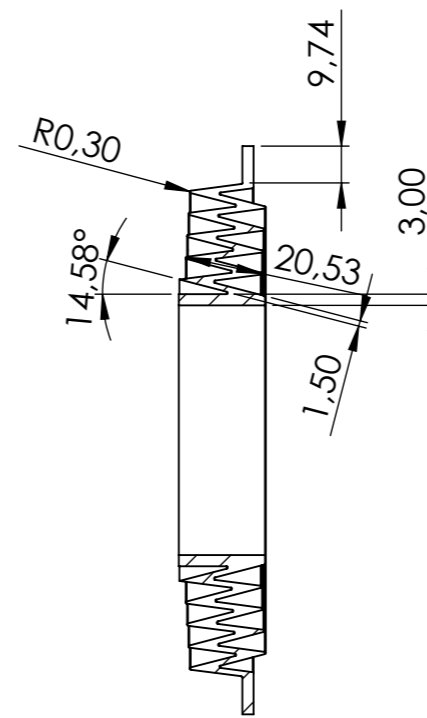
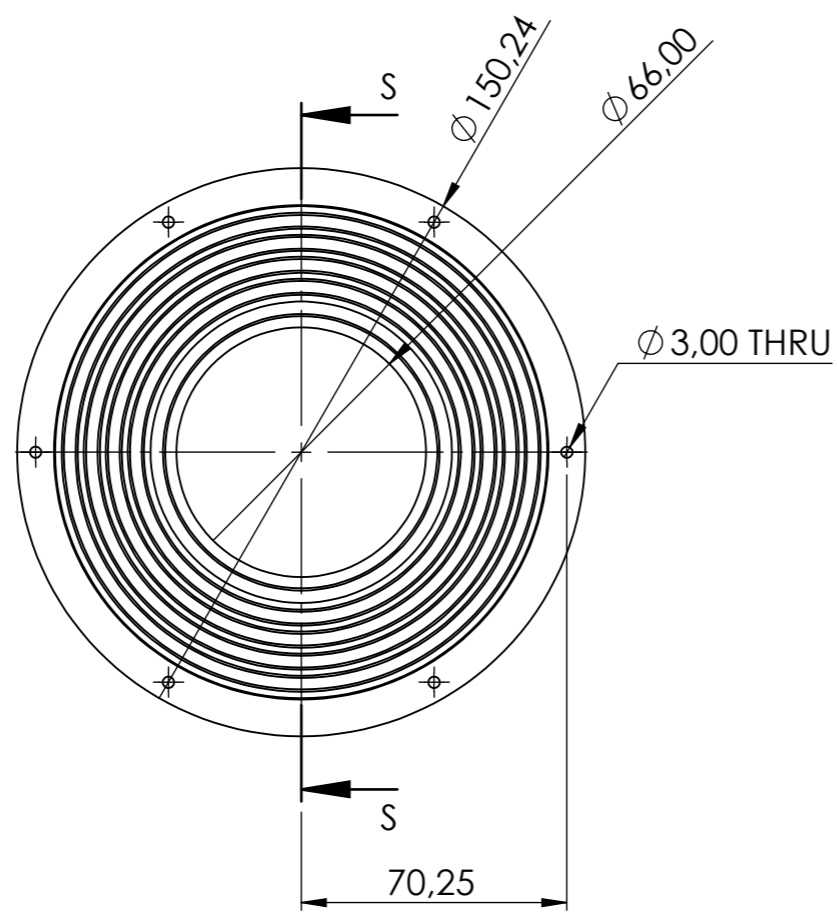
44,00

117,00

| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">907023 334</p> | |
| | MATERIAL: | DWG NO. <p style="text-align: center;">Temperature Probe</p> | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 31 OF 51 |

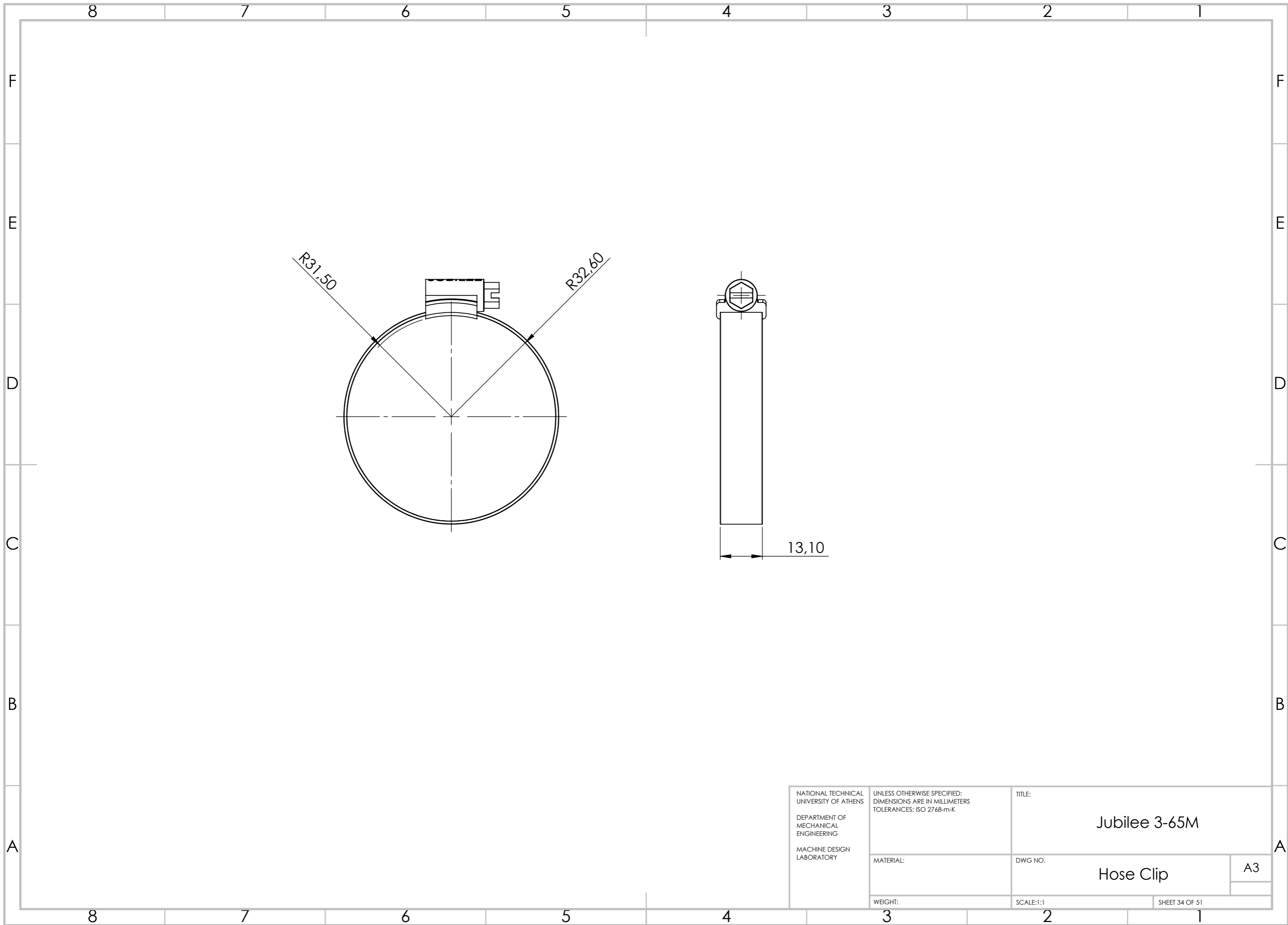


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|--|--|-----------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: MTS-120 | |
| | MATERIAL: | DWG NO. Heating Element | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 32 OF 51 |

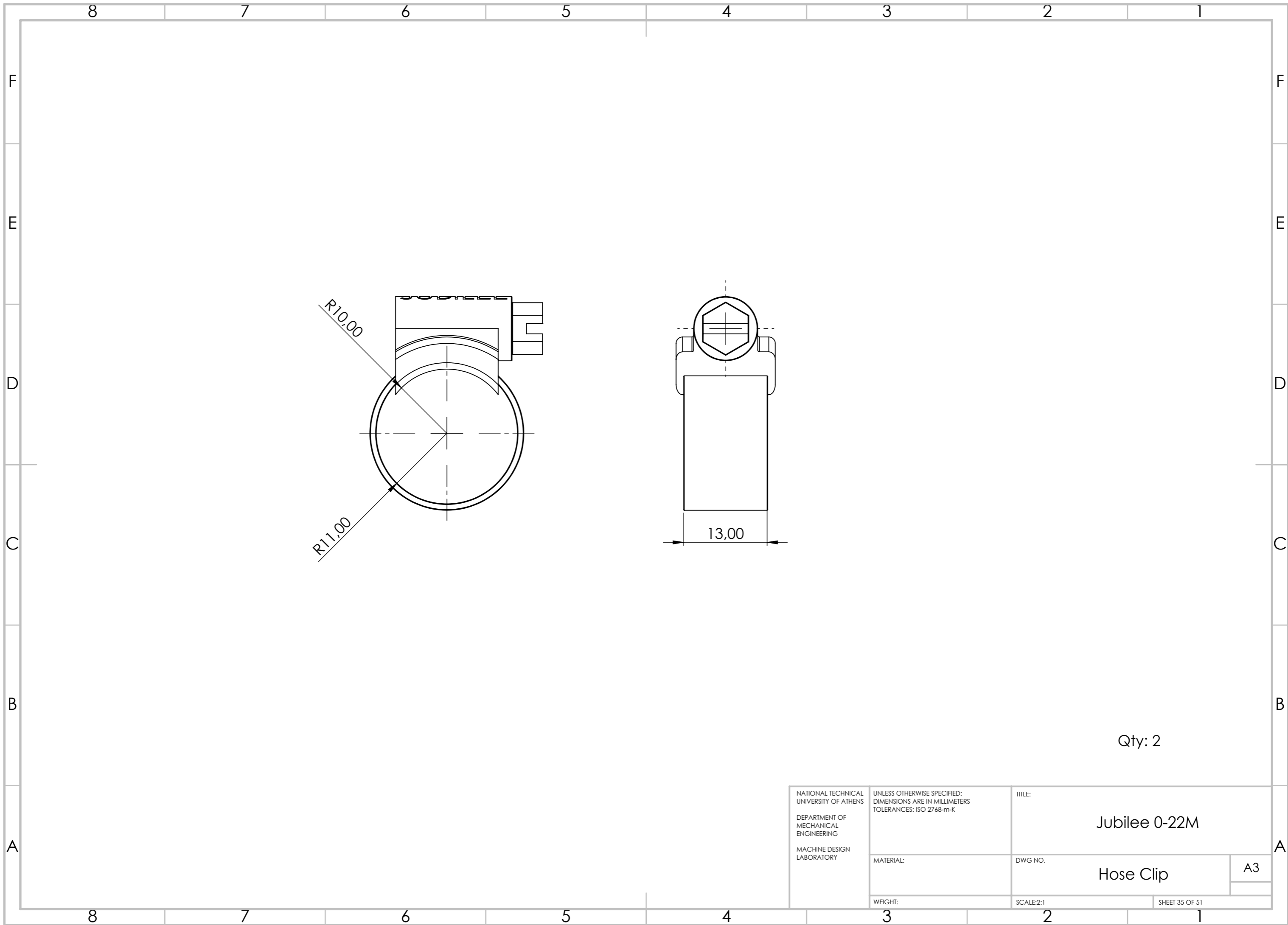


SECTION S-S

| | | | |
|--|--|-----------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: PEBA (TPE) | DWG NO. Bellow | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 33 OF 51 |

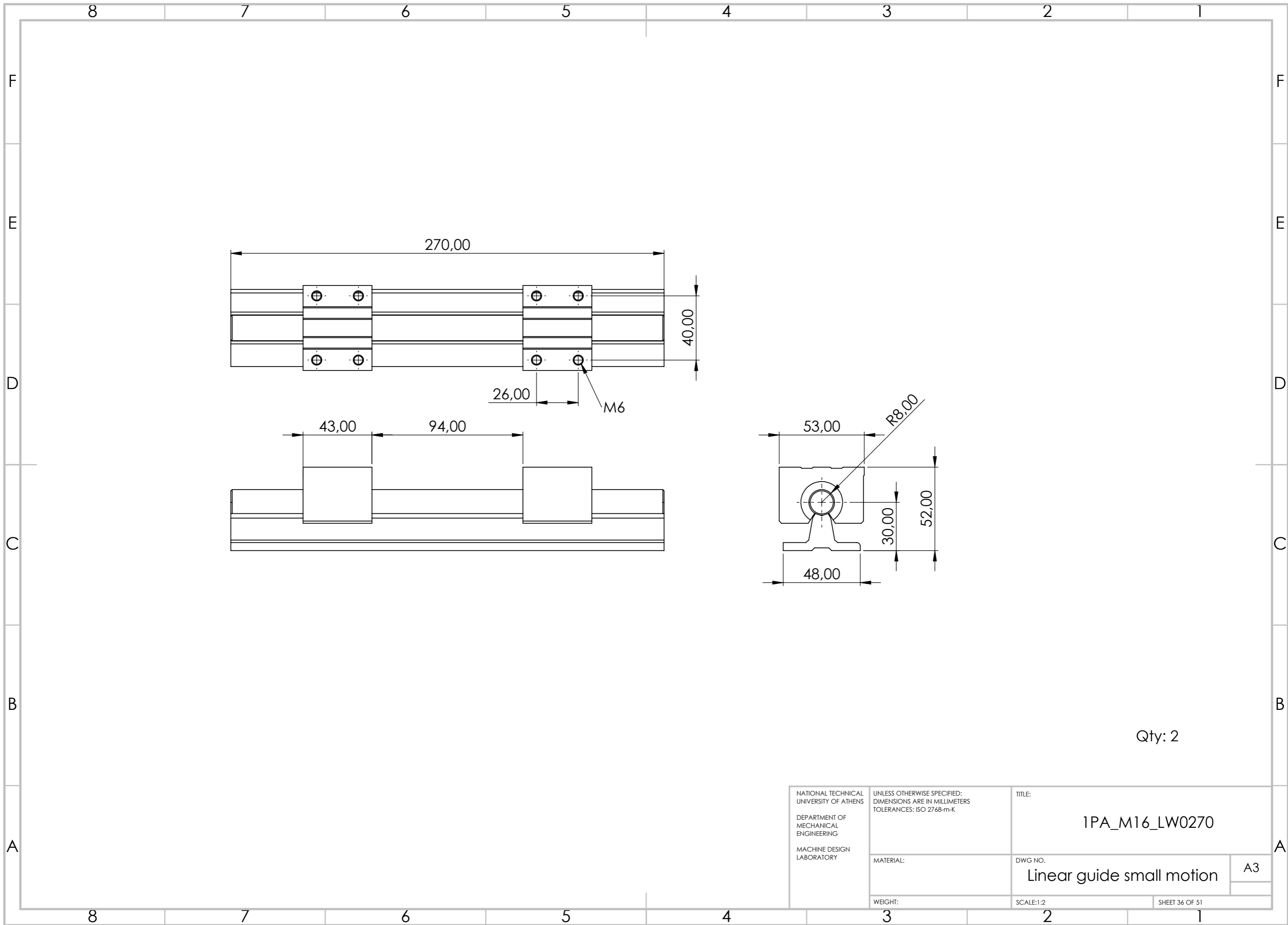


| | | | |
|--|--|-----------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: Jubilee 3-65M | |
| | MATERIAL: | DWG NO. Hose Clip | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 34 OF 51 |

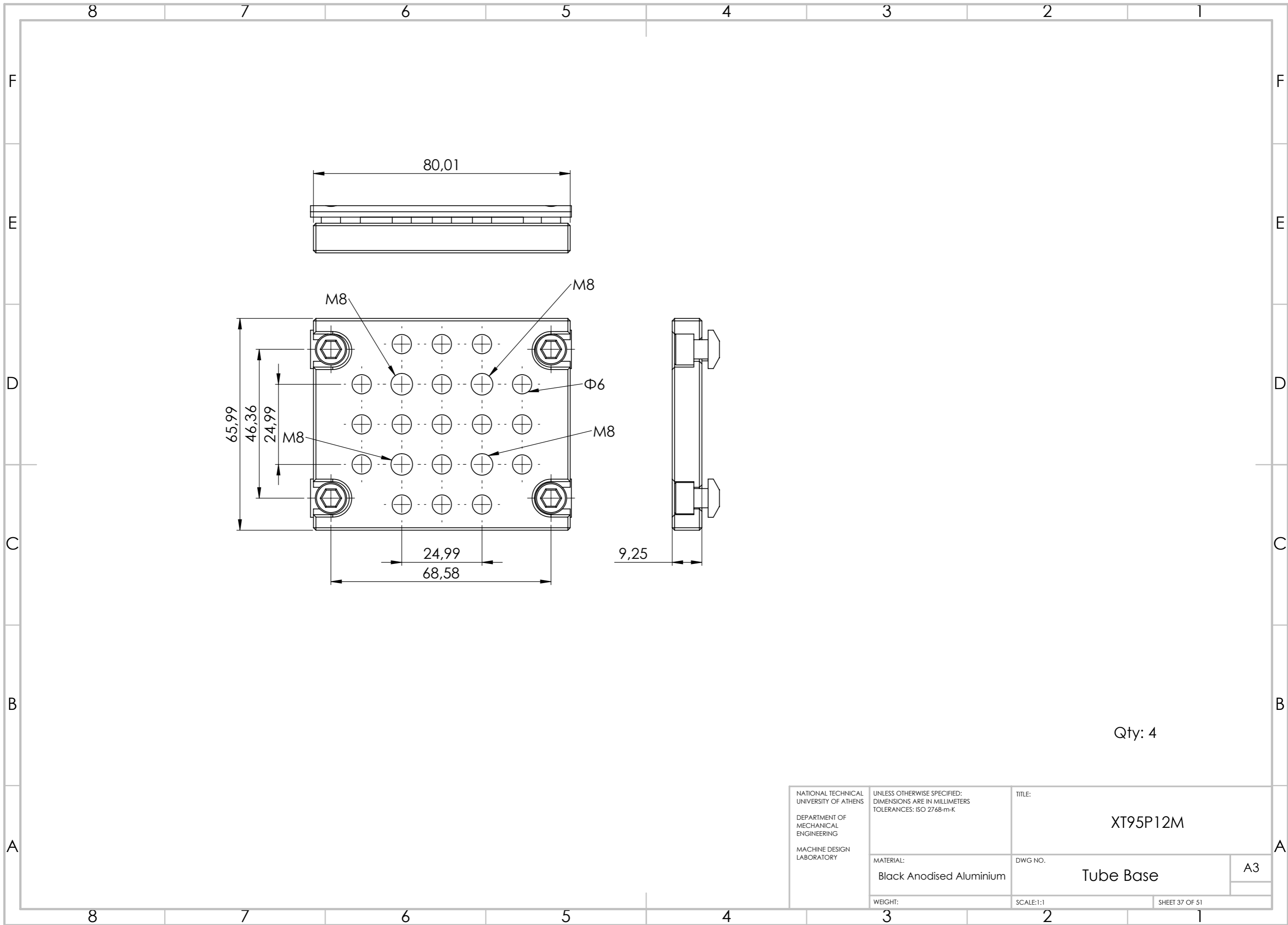


Qty: 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: Jubilee 0-22M | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 35 OF 51 |

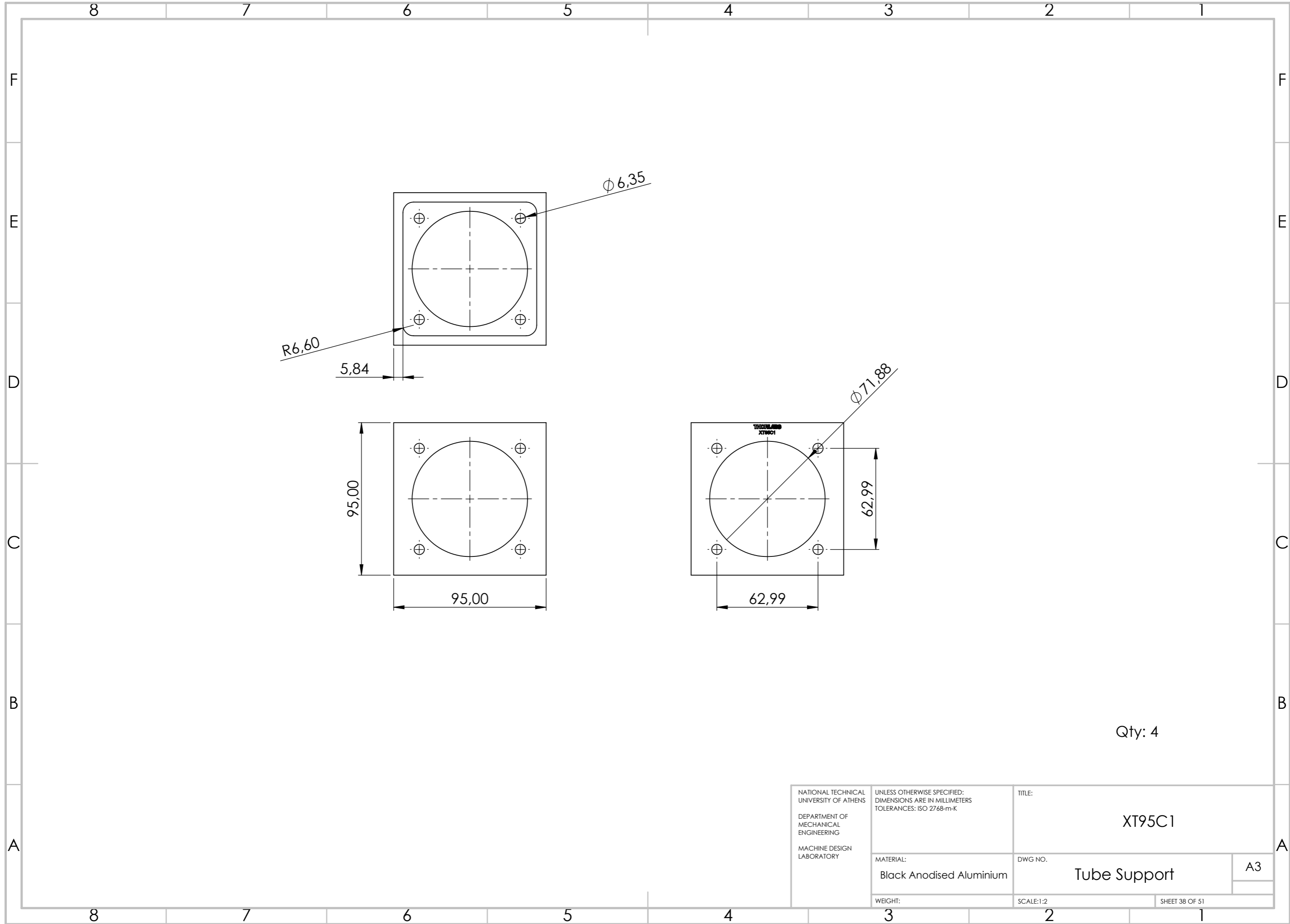


Qty: 2



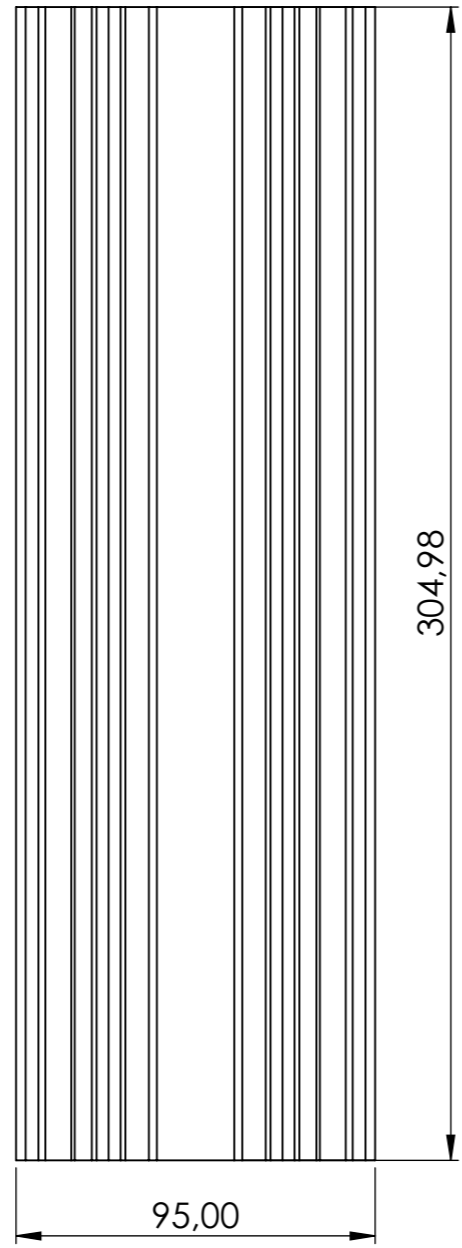
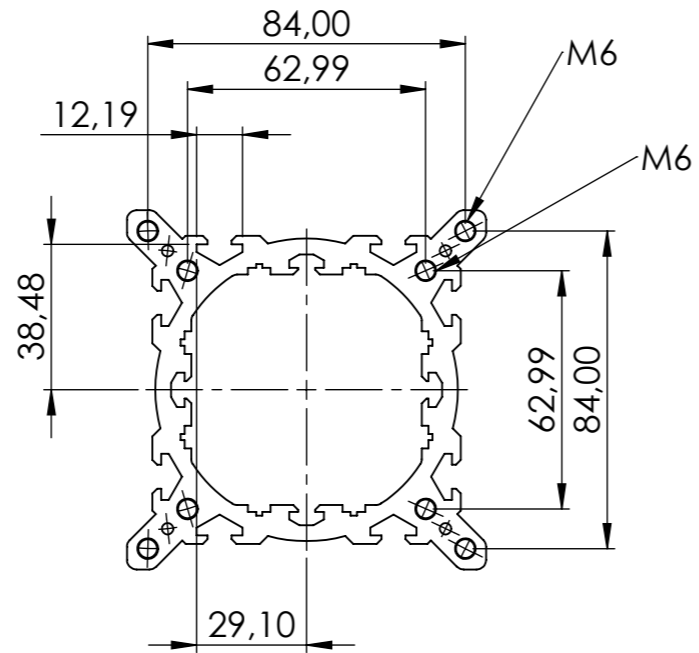
Qty: 4

| | | | |
|--|--|-------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: XT95P12M | |
| | MATERIAL: Black Anodised Aluminium | DWG NO. Tube Base | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 37 OF 51 |



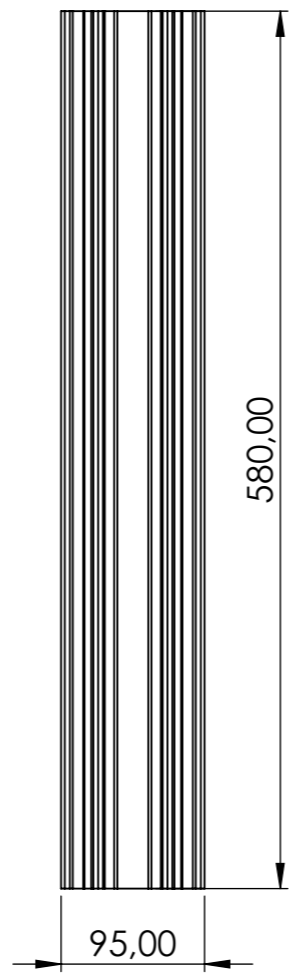
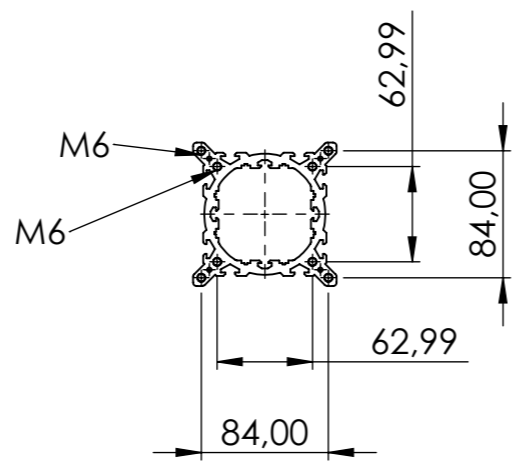
Qty: 4

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|--|--|--|---------------------------------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">XT95C1</p> | |
| | MATERIAL: <p style="text-align: center;">Black Anodised Aluminium</p> | DWG NO. <p style="text-align: center;">Tube Support</p> | <p style="text-align: center;">A3</p> |
| | WEIGHT: | SCALE: 1:2 | SHEET 38 OF 51 |



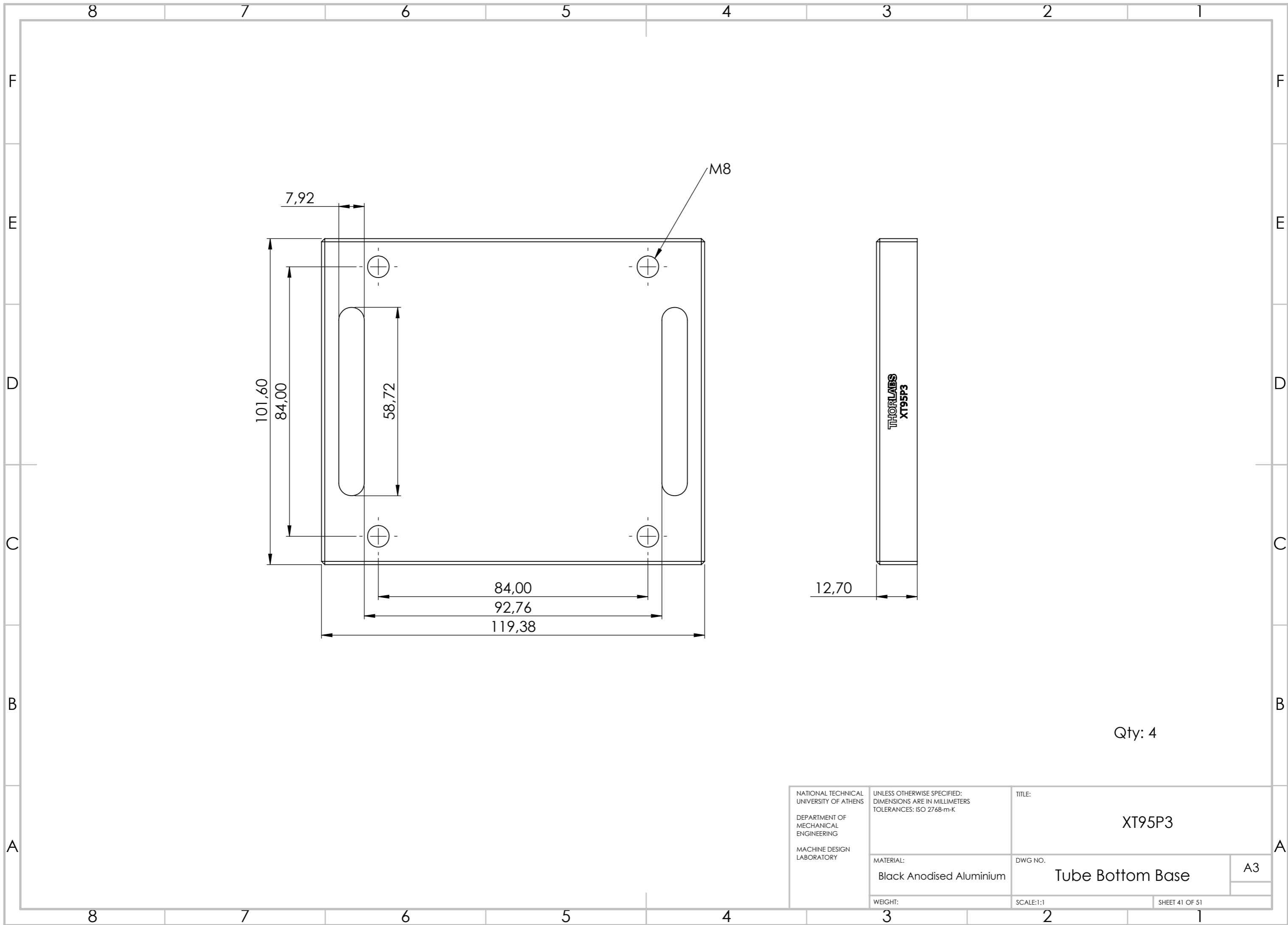
Qty: 4

| | | | |
|--|--|--------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: XT95B 300 | |
| | MATERIAL: Black Anodised Aluminium | DWG NO. Tube Short | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 39 OF 51 |



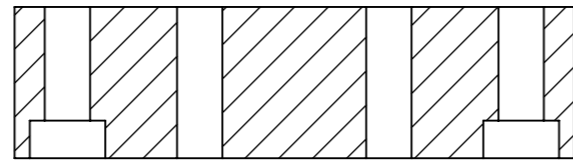
Qty: 4

| | | | |
|--|--|--------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: XT95B 600 | |
| | MATERIAL: Black Anodised Aluminium | DWG NO. Tube Large | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 40 OF 51 |

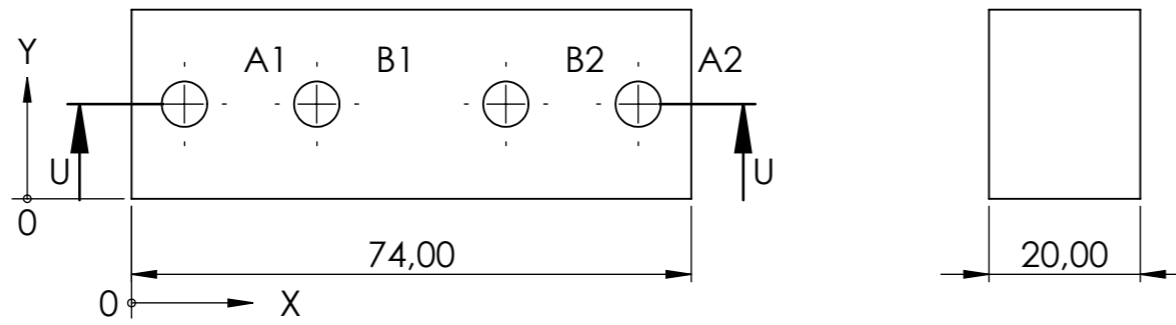


Qty: 4

| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">XT95P3</p> | |
| | MATERIAL: Black Anodised Aluminium | DWG NO. Tube Bottom Base | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 41 OF 51 |



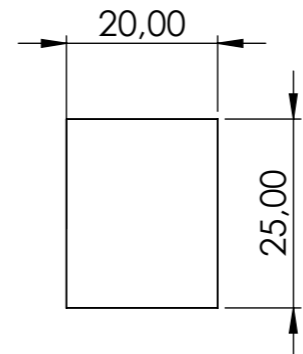
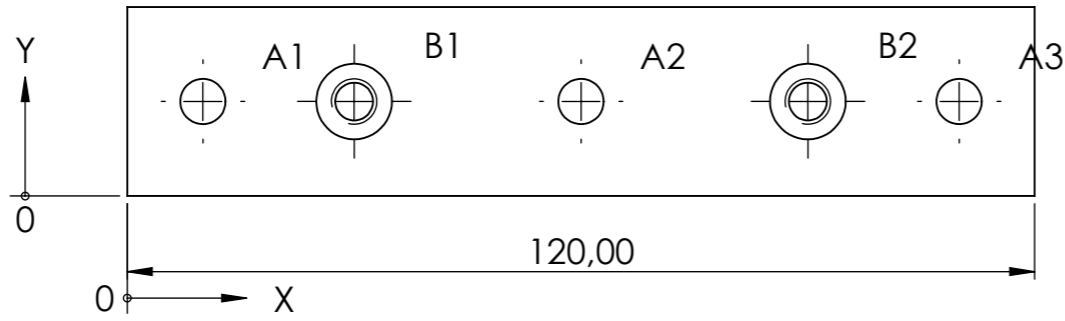
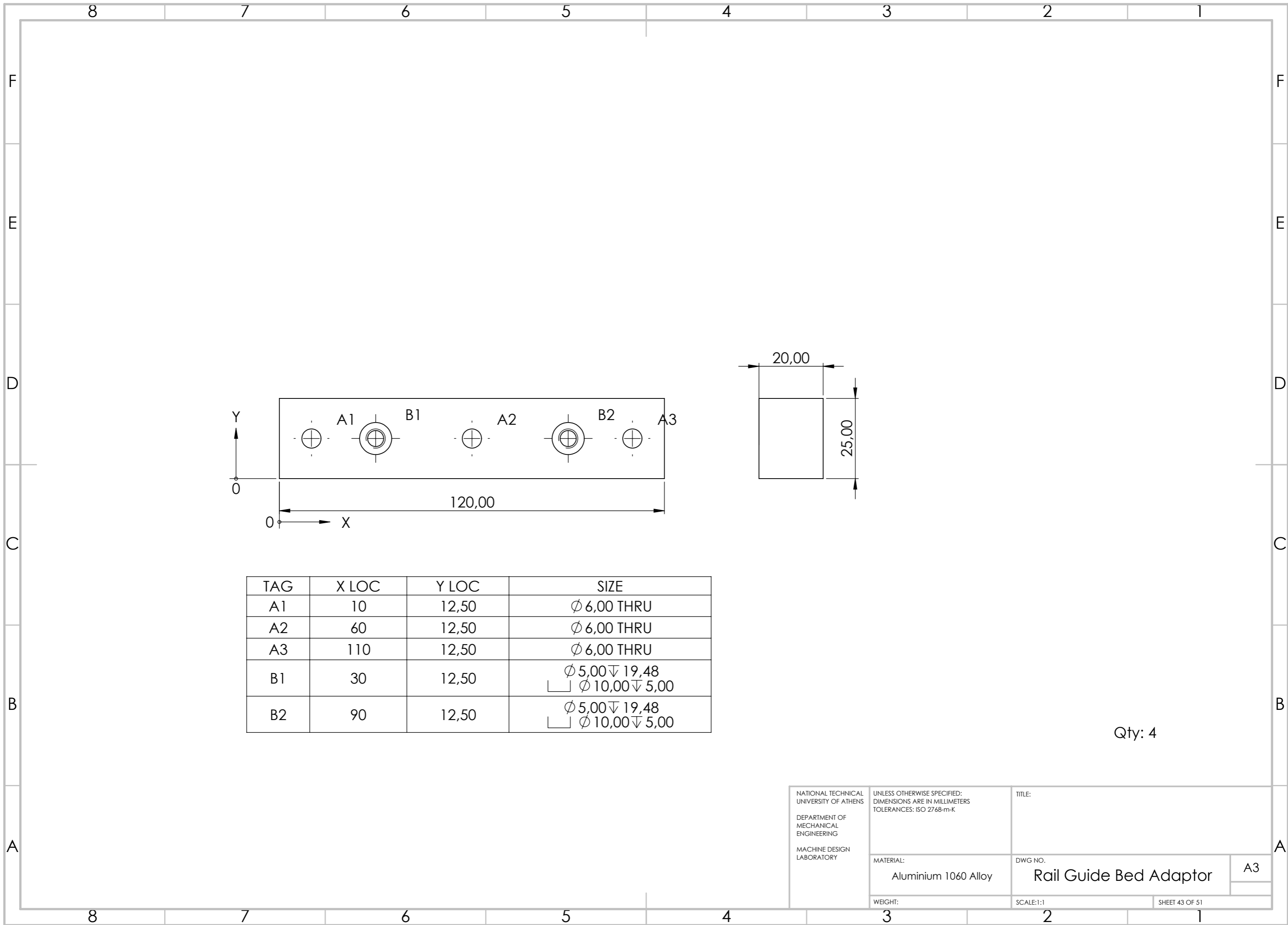
SECTION U-U



| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|-------------|
| A1 | 7 | 12,50 | Ø 6,00 |
| A2 | 67 | 12,50 | Ø 6,00 |
| B1 | 24,50 | 12,50 | Ø 6,00 THRU |
| B2 | 49,50 | 12,50 | Ø 6,00 THRU |

Qty: 4

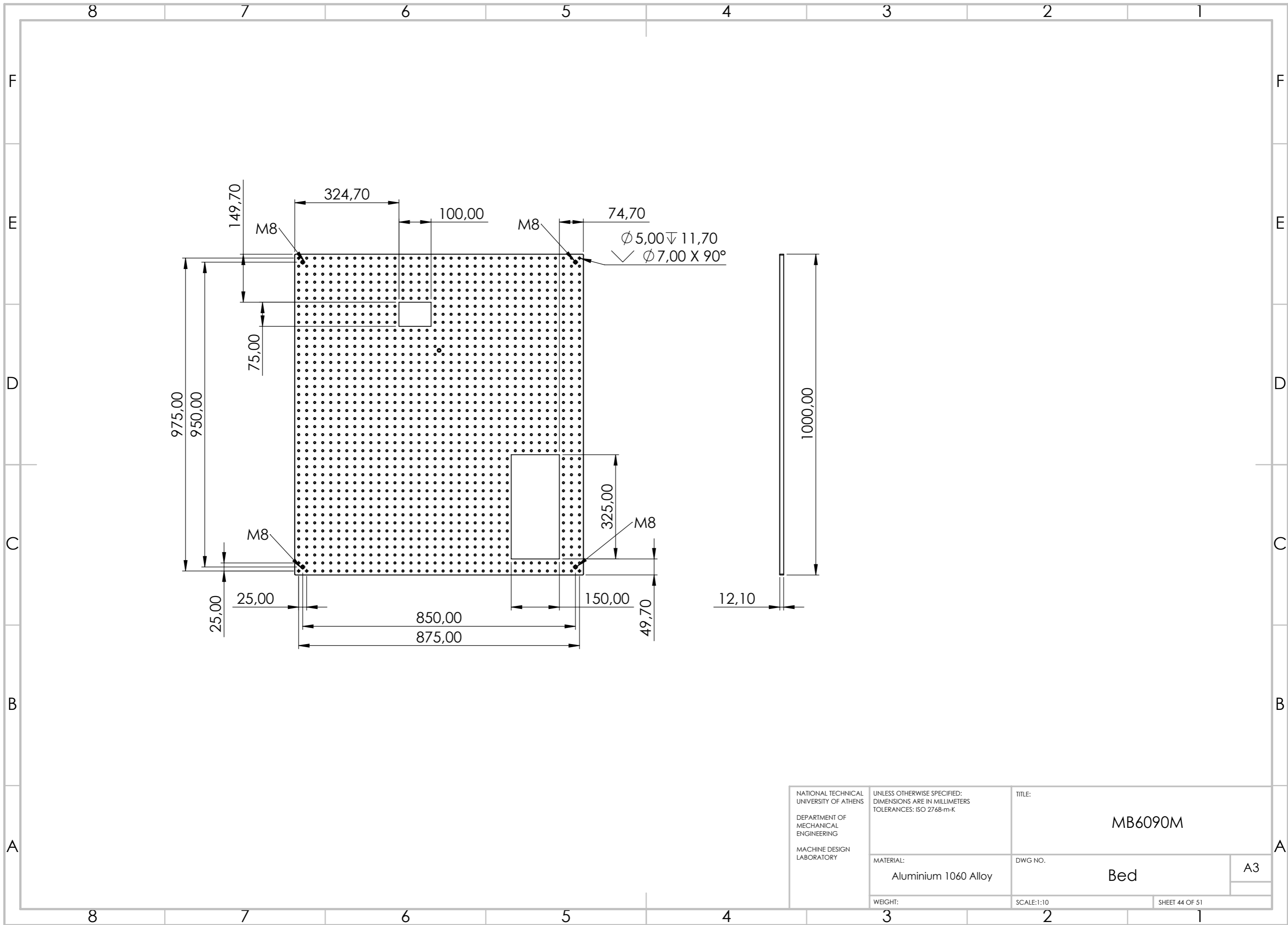
| | | | |
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. Rail Guide Beam Adaptor | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 42 OF 51 |



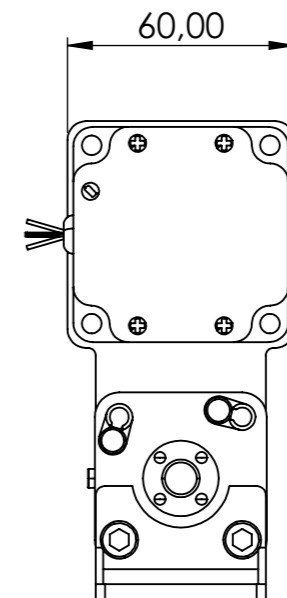
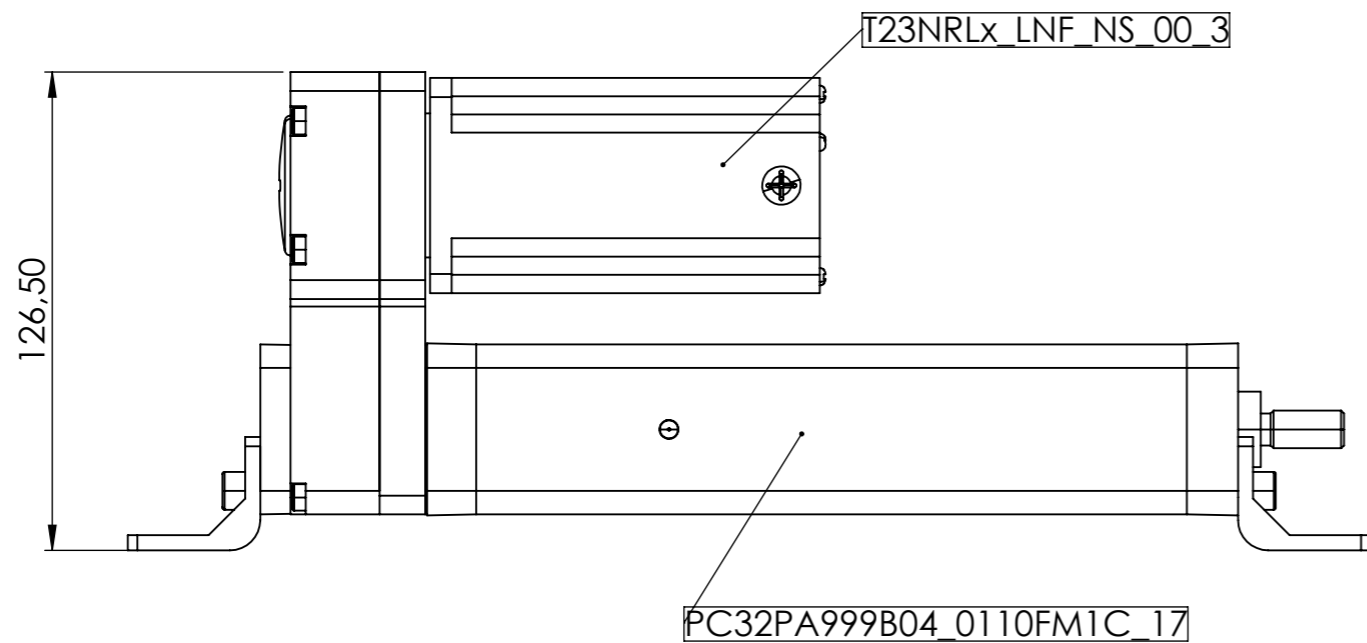
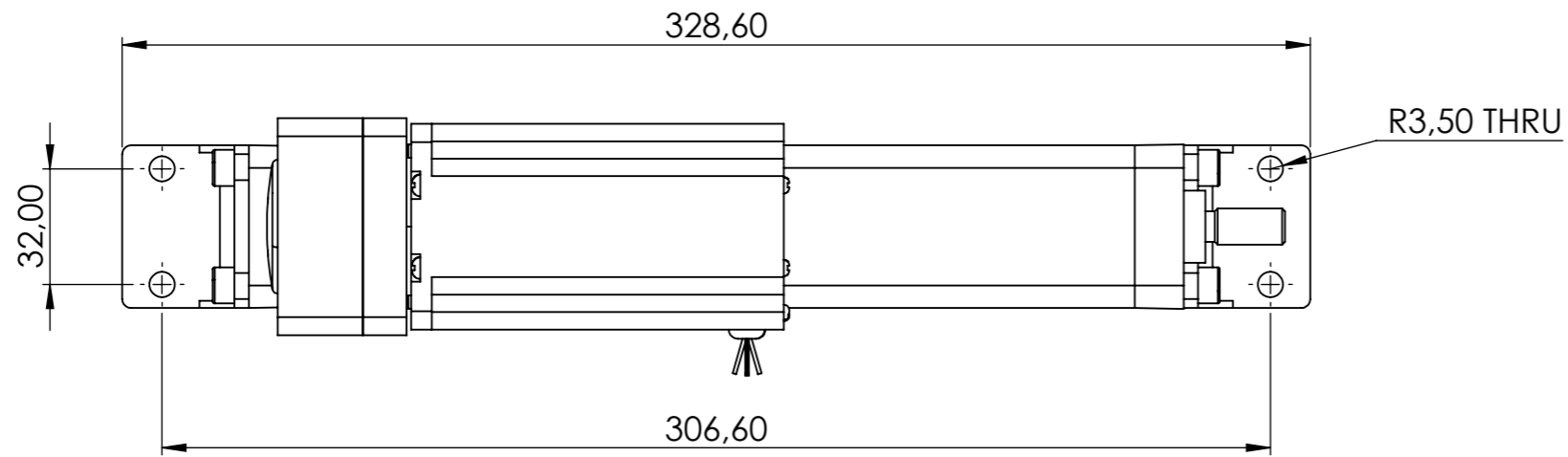
| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|--------------------------------------|
| A1 | 10 | 12,50 | Ø 6,00 THRU |
| A2 | 60 | 12,50 | Ø 6,00 THRU |
| A3 | 110 | 12,50 | Ø 6,00 THRU |
| B1 | 30 | 12,50 | Ø 5,00 ∇ 19,48 └─┘ Ø 10,00 ∇ 5,00 |
| B2 | 90 | 12,50 | Ø 5,00 ∇ 19,48 └─┘ Ø 10,00 ∇ 5,00 |

Qty: 4

| | | | |
|--|--|-----------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. Rail Guide Bed Adaptor | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 43 OF 51 |



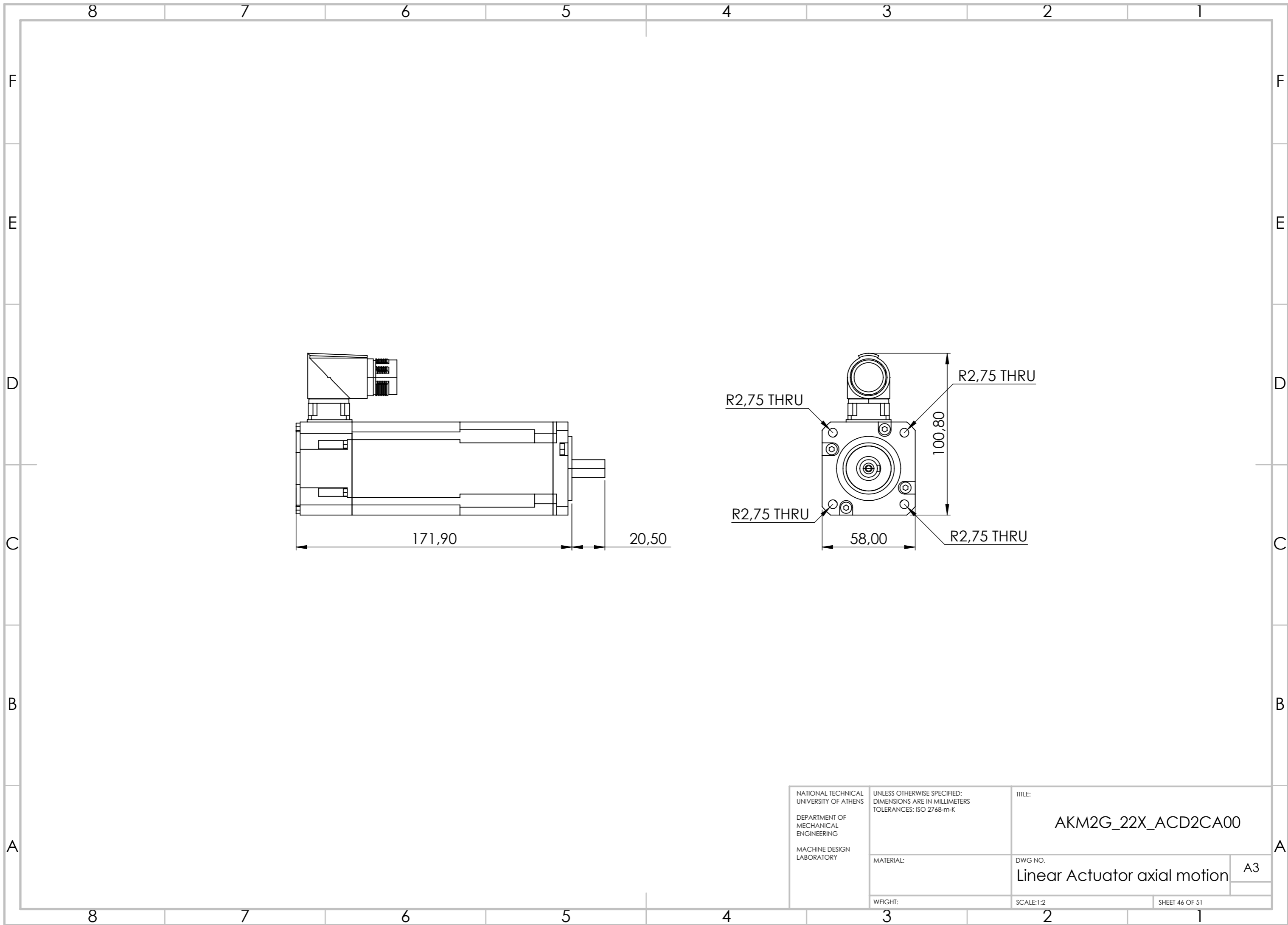
| | | | |
|--|--|------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: MB6090M | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. Bed | A3 |
| | WEIGHT: | SCALE:1:10 | SHEET 44 OF 51 |

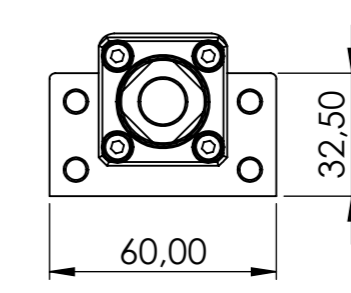
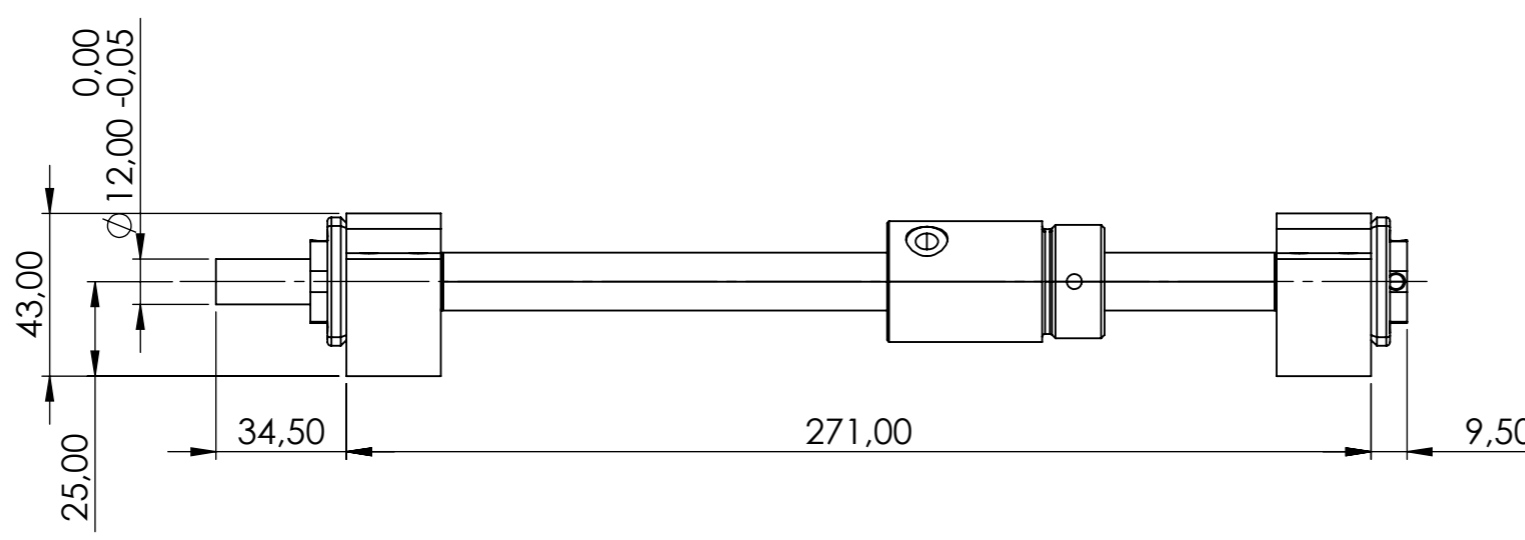
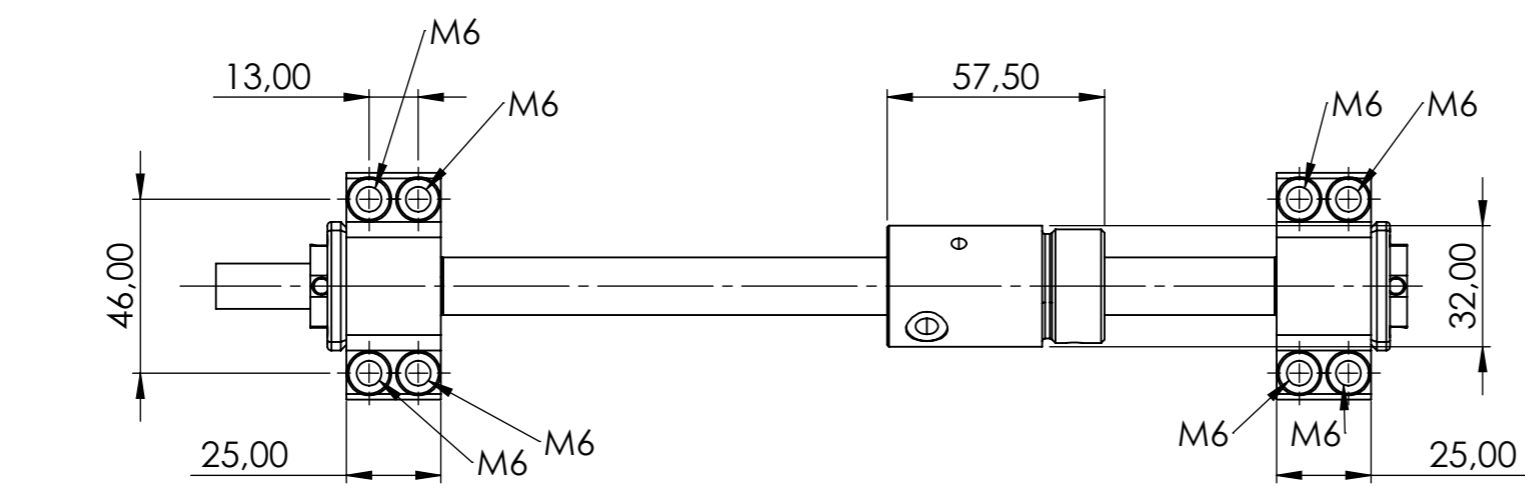


| ITEM NO. | PART NUMBER | QTY. |
|----------|-----------------------|------|
| 1 | T23NRLx_LNF_NS_00 | 1 |
| 2 | PC32PA999B04_0110FM1C | 1 |

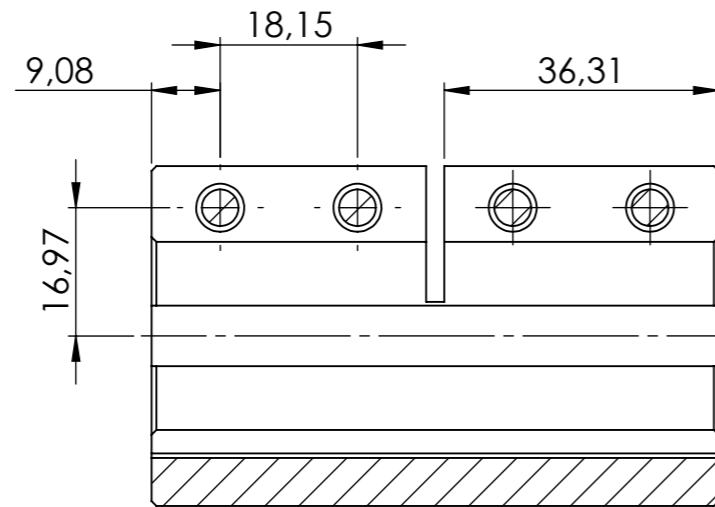
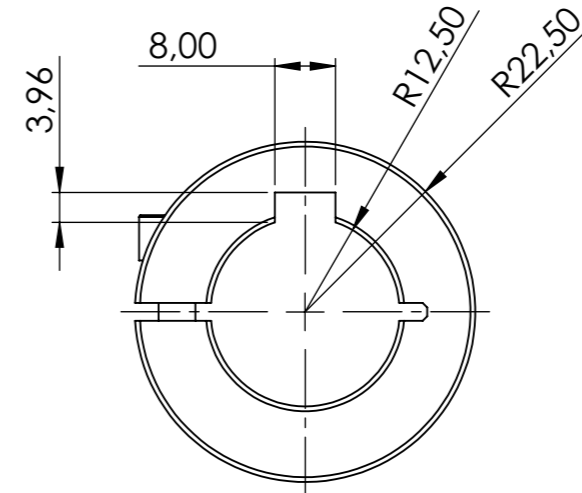
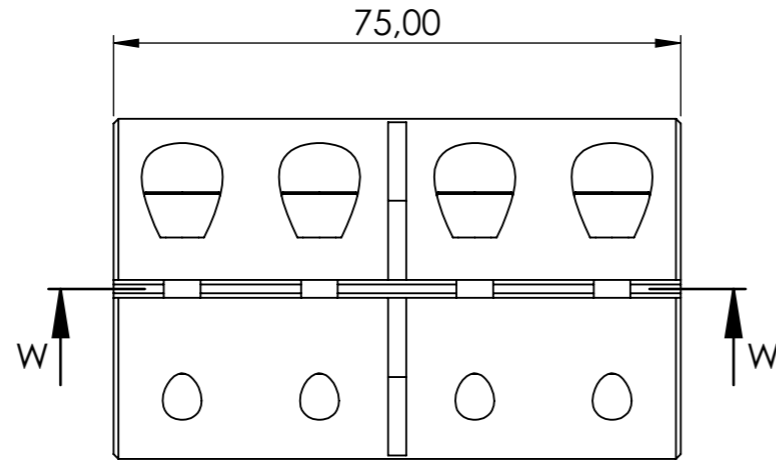
| | | | |
|--|--|-----------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 45 OF 51 |

Linear Actuator axial motion



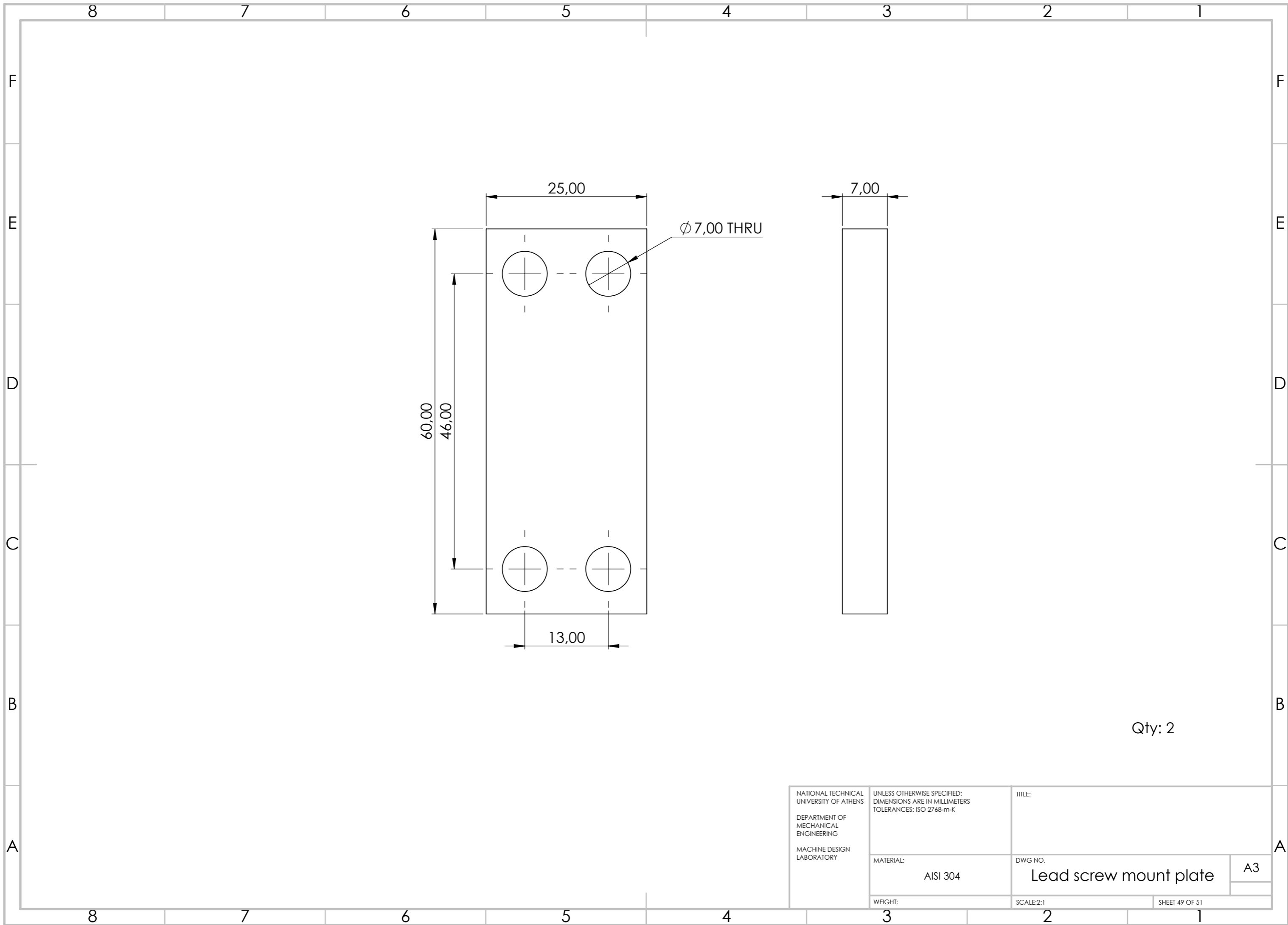


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: KGT_G_1605_P3_RH_B_BK_0038_290_00_B_BK_0038_M_E_KK_R_0_3 | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 47 OF 51 |
| | | Lead screw | |



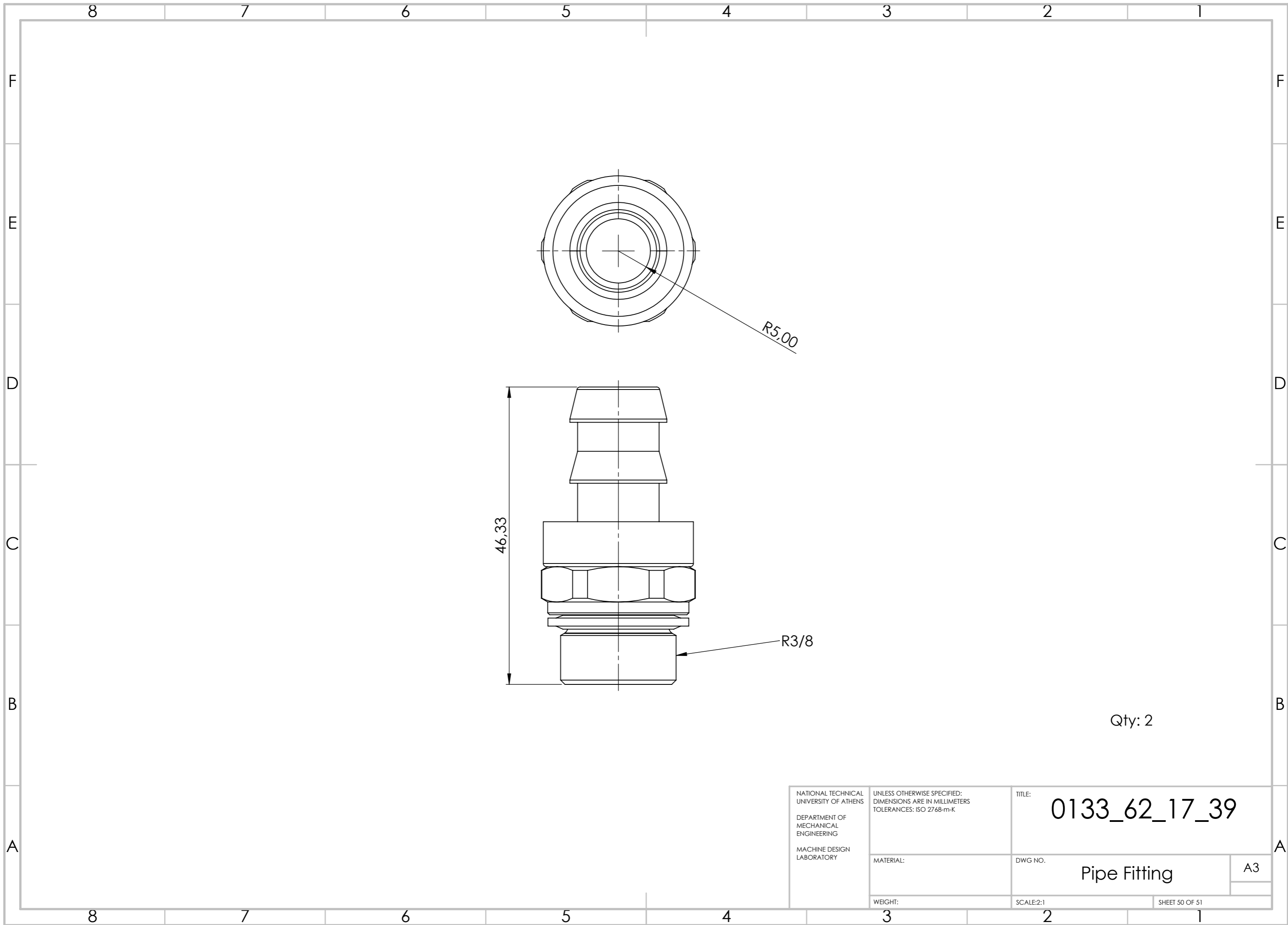
SECTION W-W

| | | | |
|--|--|--------------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: Ruland msc 12 12 x | |
| | MATERIAL: | DWG NO. Coupler of Lead screw | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 48 OF 51 |



Qty: 2

| | | | |
|--|--|---------------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Lead screw mount plate | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 49 OF 51 |



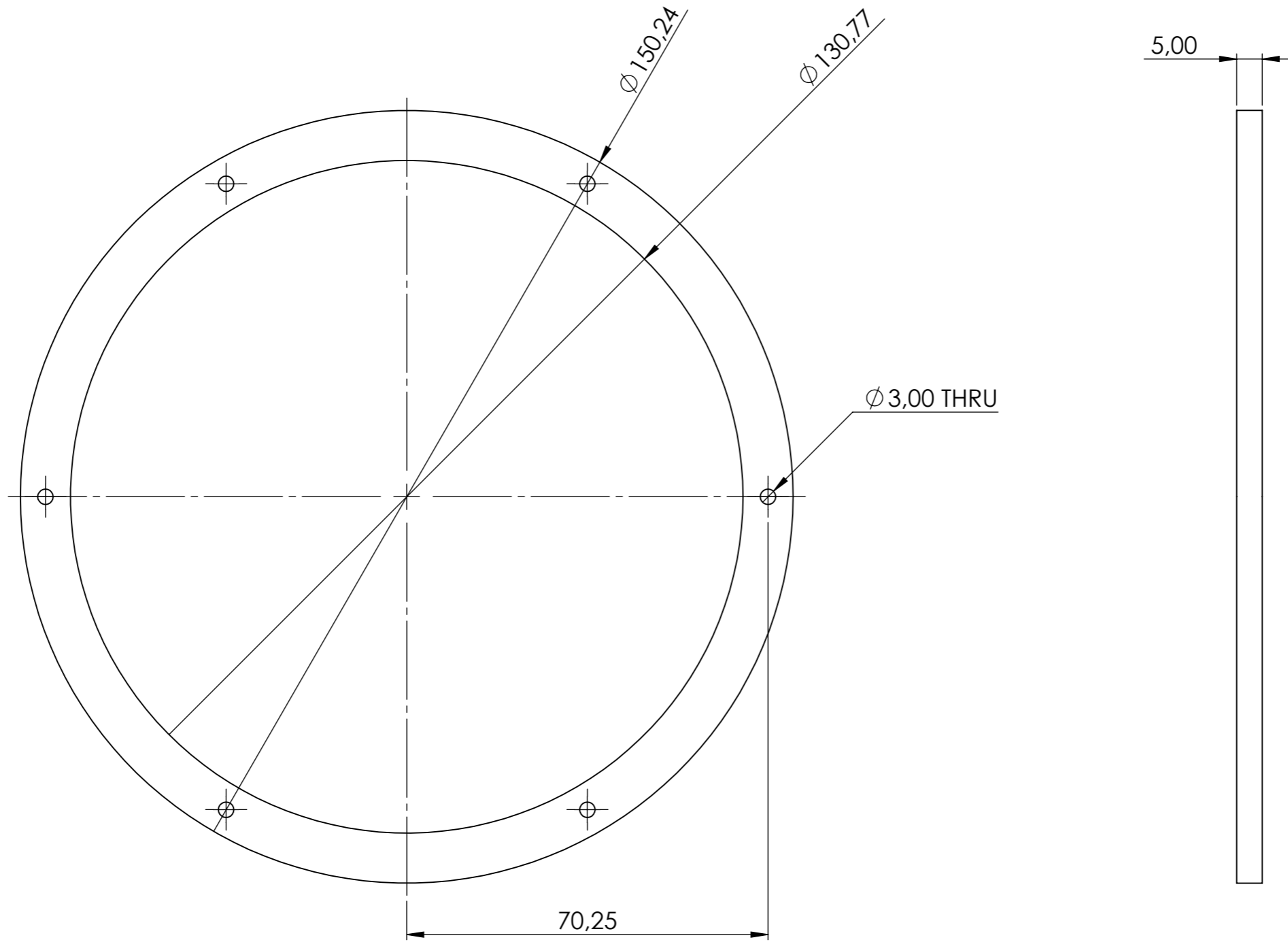
R5,00

46,33

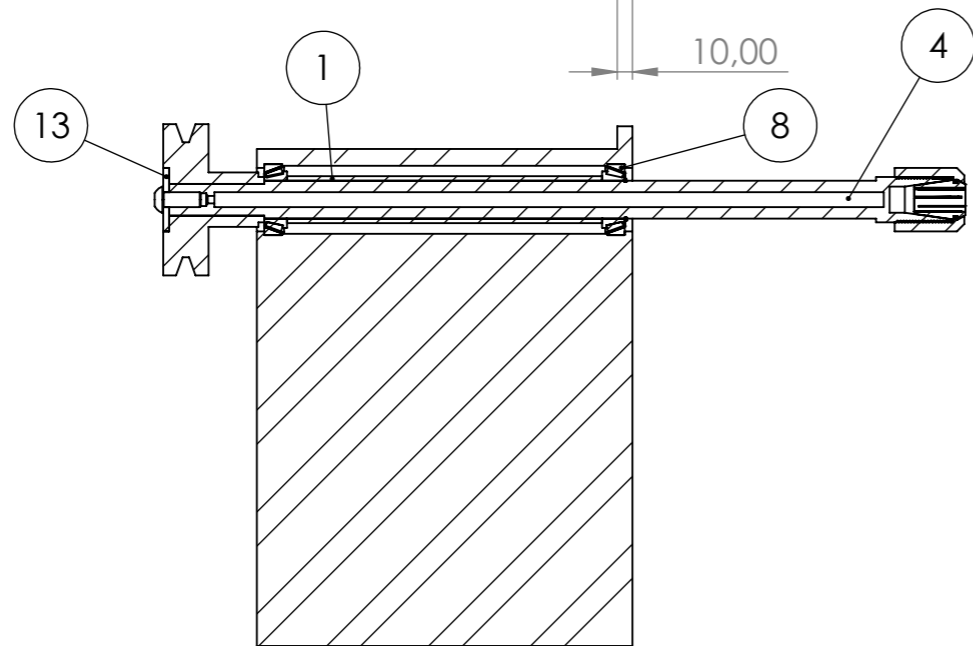
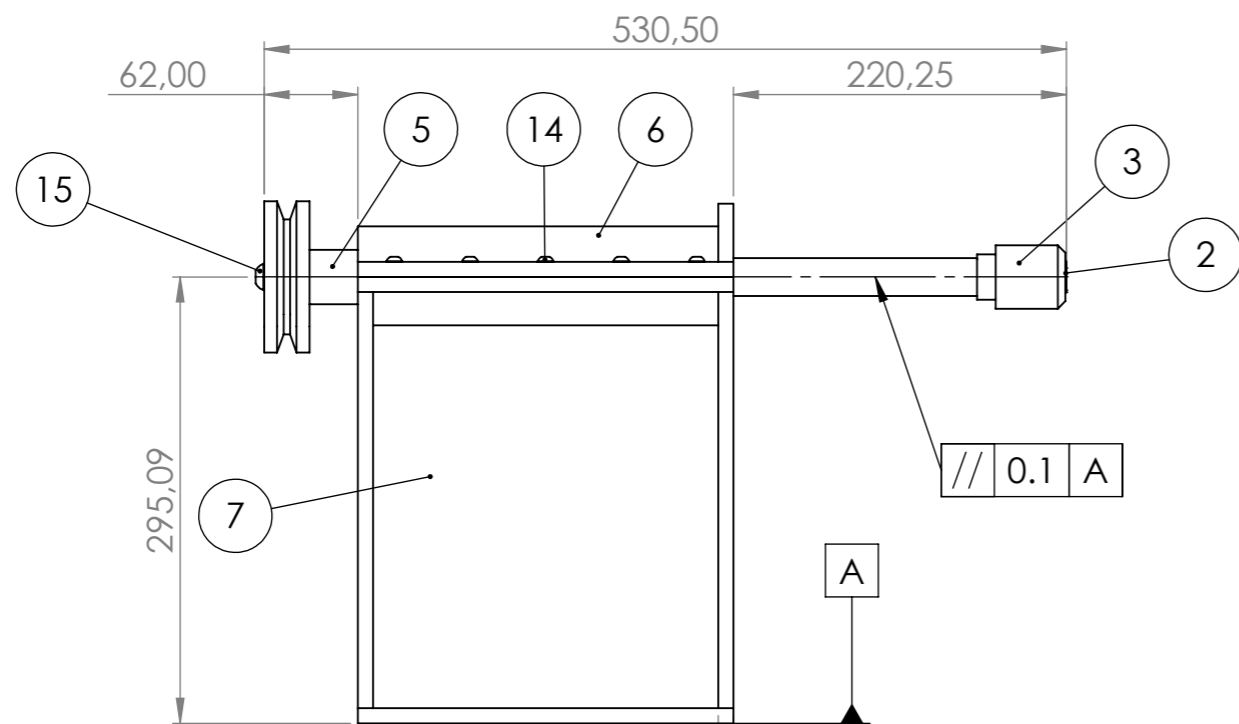
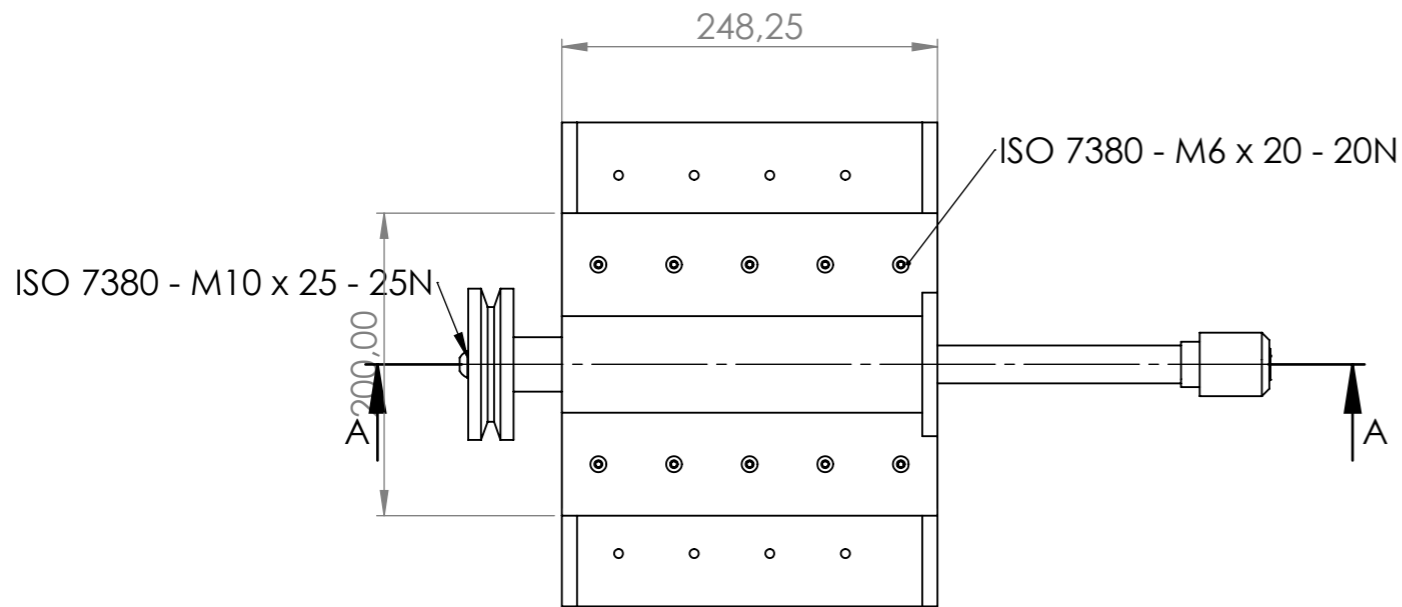
R3/8

Qty: 2

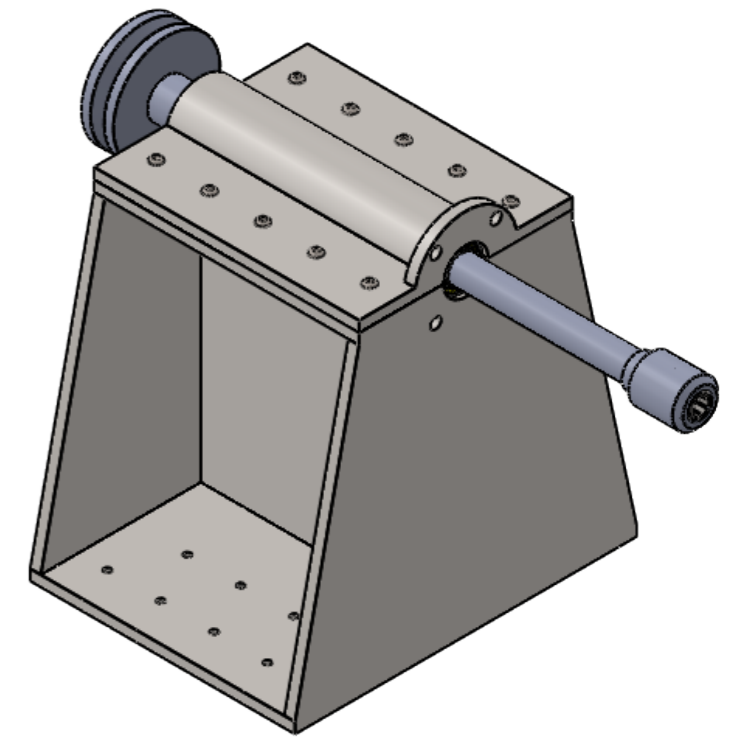
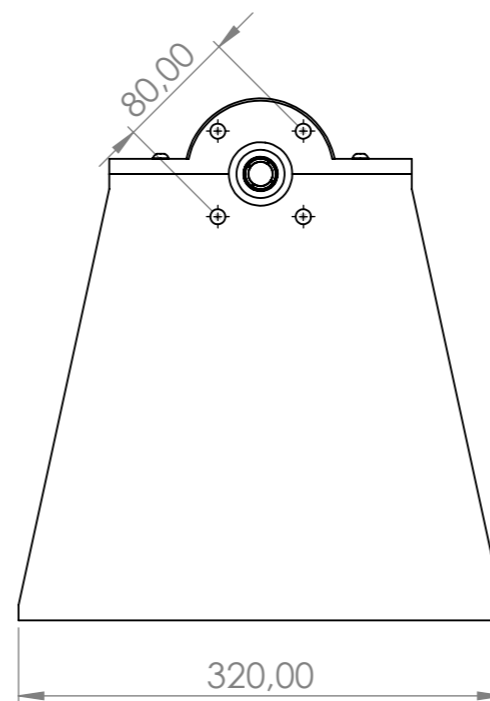
| | | | |
|--|--|----------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1>0133_62_17_39</h1> | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 50 OF 51 |
| | | Pipe Fitting | |



| | | | |
|--|--|----------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Bellow Ring | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 51 OF 51 |



SECTION A-A



| ITEM NO. | PART NUMBER | QTY. |
|----------|----------------------------------|------|
| 1 | 1.02.20 Spindle sleeve | 1 |
| 2 | ER25 collet | 1 |
| 3 | ER25 Nut | 1 |
| 4 | ER25 Chuck | 1 |
| 5 | 1.02.22 Belt Rotor | 1 |
| 6 | 1.02.23 Spindle enclosure | 1 |
| 7 | 1.02.24 Spindle enclosure bottom | 1 |
| 8 | 32005_X_3 | 2 |
| 9 | 32005_X_5 | 38 |
| 10 | 32005_X_25 | 2 |
| 11 | 32005_X_27 | 2 |
| 12 | ES_25 | 1 |
| 13 | pulley fixture | 1 |
| 14 | ISO 7380 - M6 x 20 - 20N | 10 |
| 15 | ISO 7380 - M10 x 25 - 25N | 1 |

NATIONAL TECHNICAL UNIVERSITY OF ATHENS
DEPARTMENT OF MECHANICAL ENGINEERING
MACHINE DESIGN LABORATORY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES: ISO 2768-m-K

TITLE:

MATERIAL:

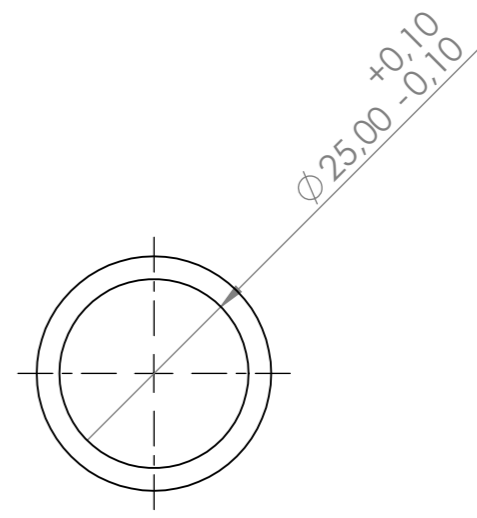
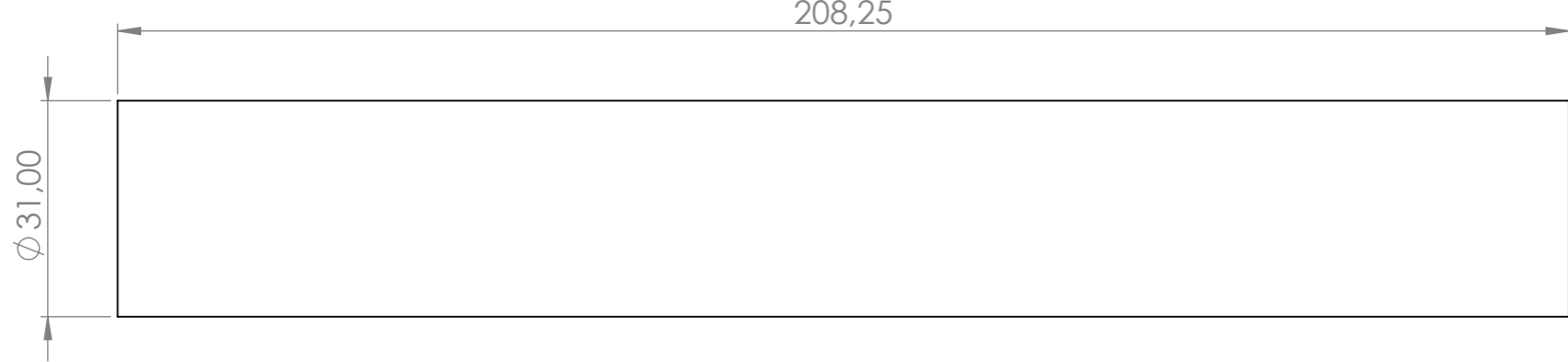
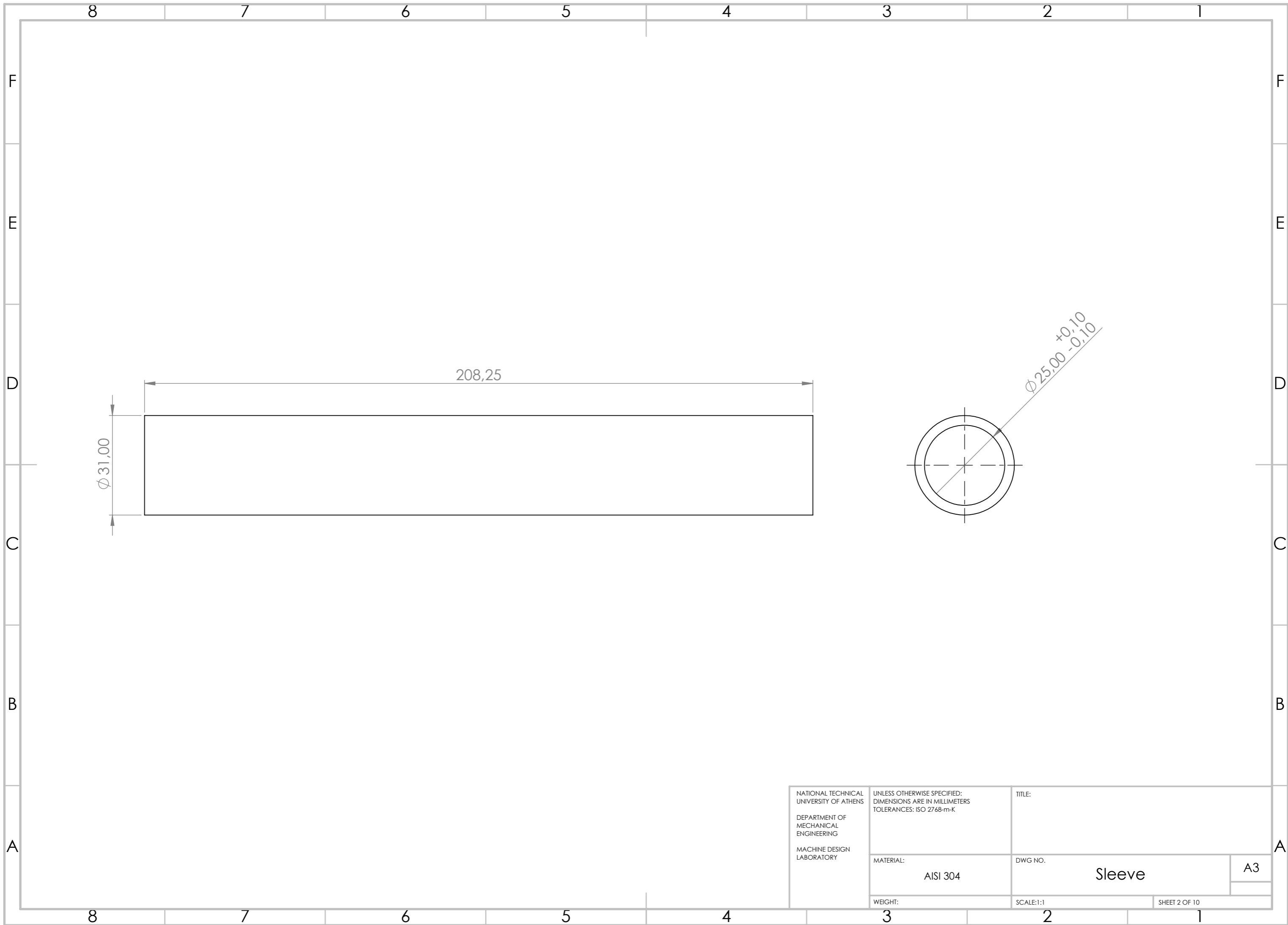
DWG NO.

C45 Spindle chuck assembly fix A3

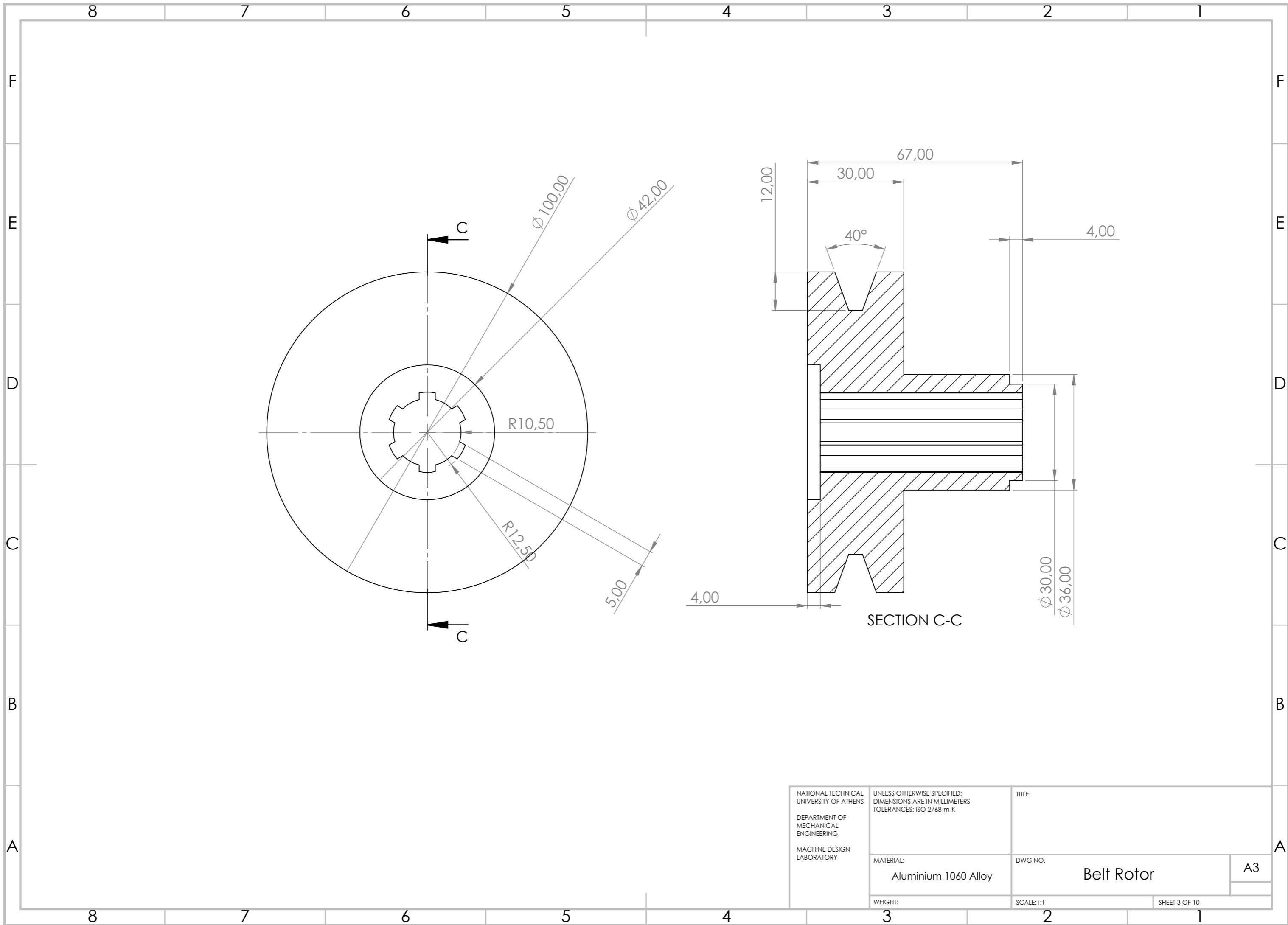
WEIGHT:

SCALE:1:5

SHEET 1 OF 10



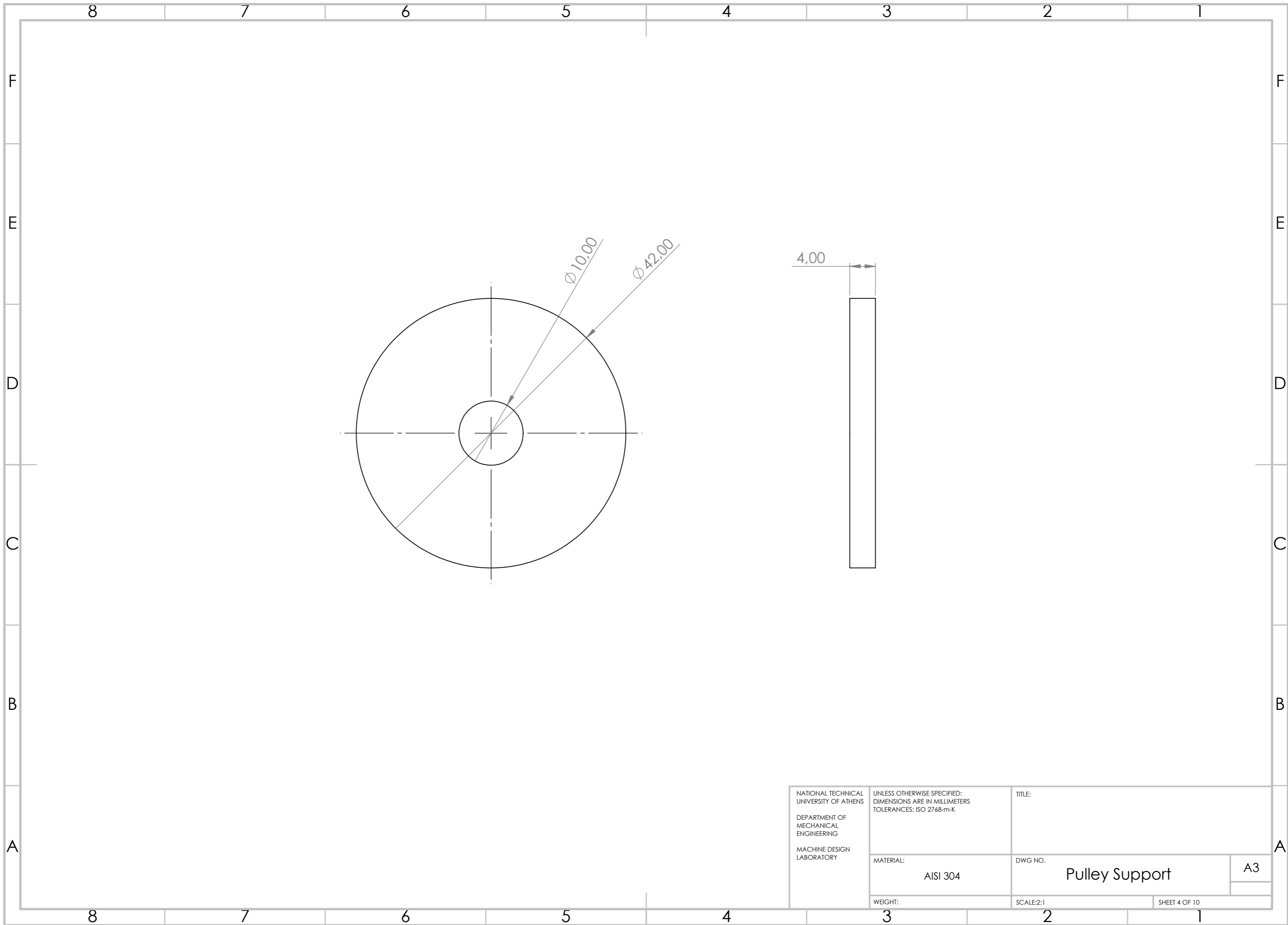
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Sleeve | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 2 OF 10 |



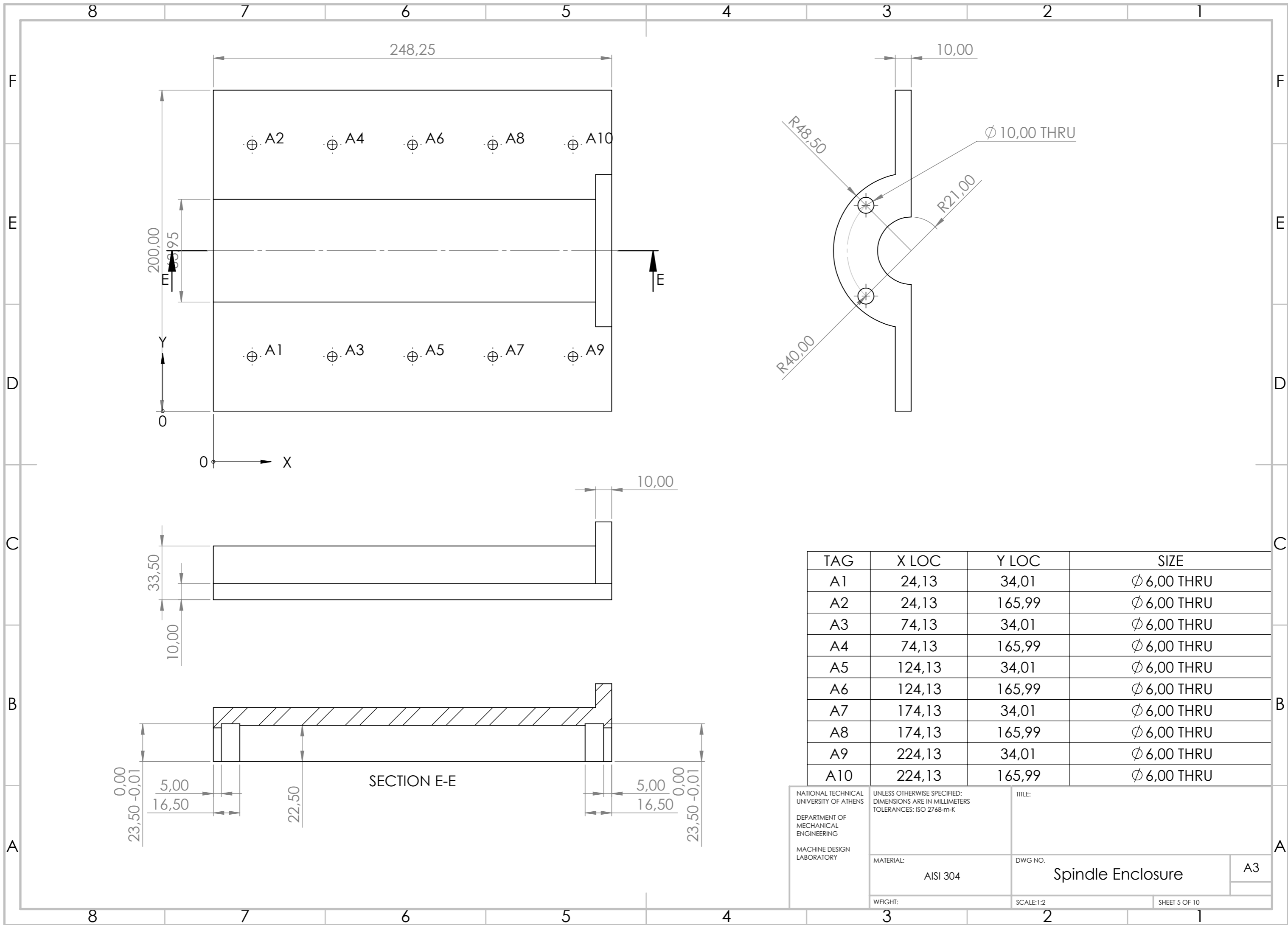
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: Aluminium 1060 Alloy | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 3 OF 10 |

Belt Rotor

A3



| | | | |
|--|--|---------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Pulley Support | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 4 OF 10 |

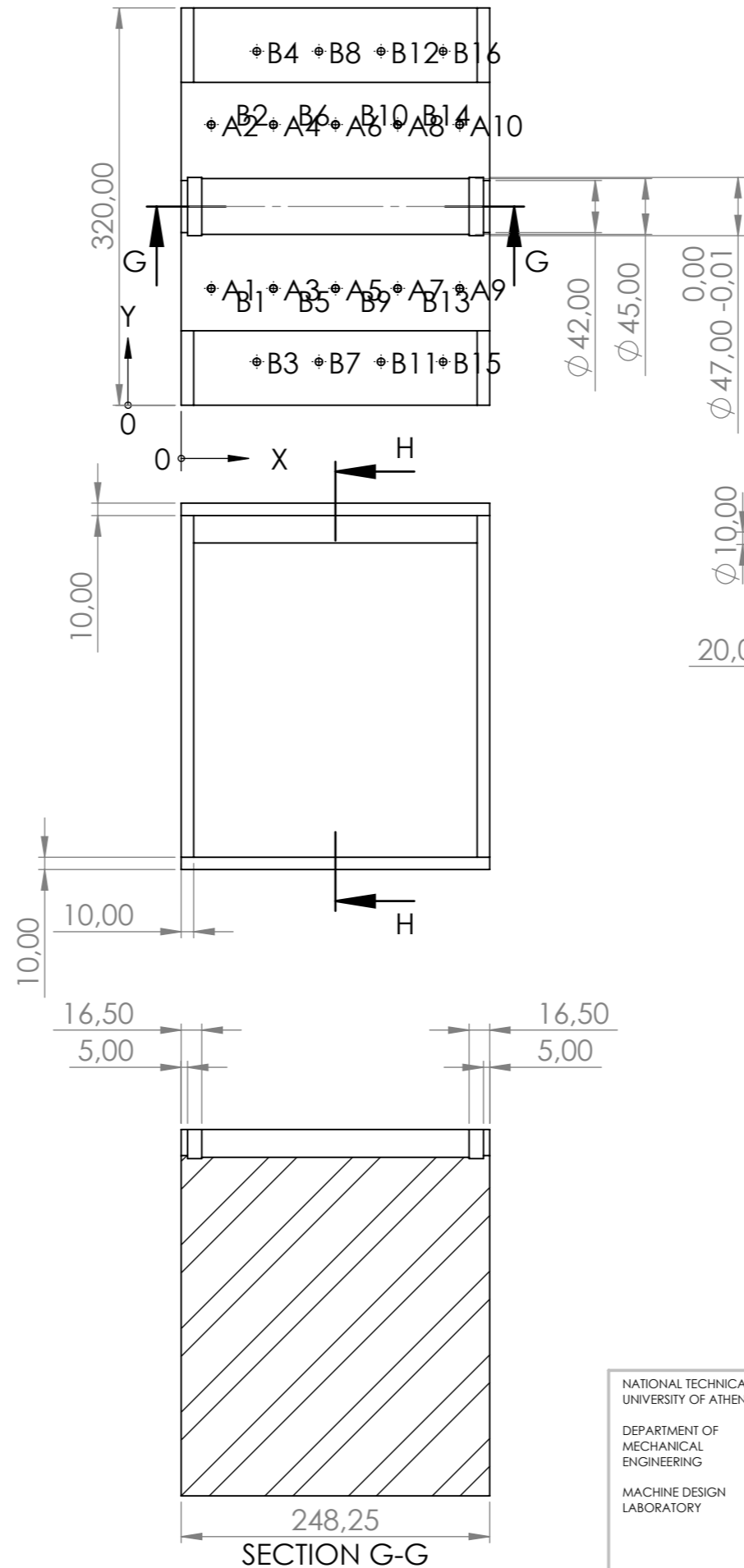


| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|-------------|
| A1 | 24,13 | 34,01 | Ø 6,00 THRU |
| A2 | 24,13 | 165,99 | Ø 6,00 THRU |
| A3 | 74,13 | 34,01 | Ø 6,00 THRU |
| A4 | 74,13 | 165,99 | Ø 6,00 THRU |
| A5 | 124,13 | 34,01 | Ø 6,00 THRU |
| A6 | 124,13 | 165,99 | Ø 6,00 THRU |
| A7 | 174,13 | 34,01 | Ø 6,00 THRU |
| A8 | 174,13 | 165,99 | Ø 6,00 THRU |
| A9 | 224,13 | 34,01 | Ø 6,00 THRU |
| A10 | 224,13 | 165,99 | Ø 6,00 THRU |

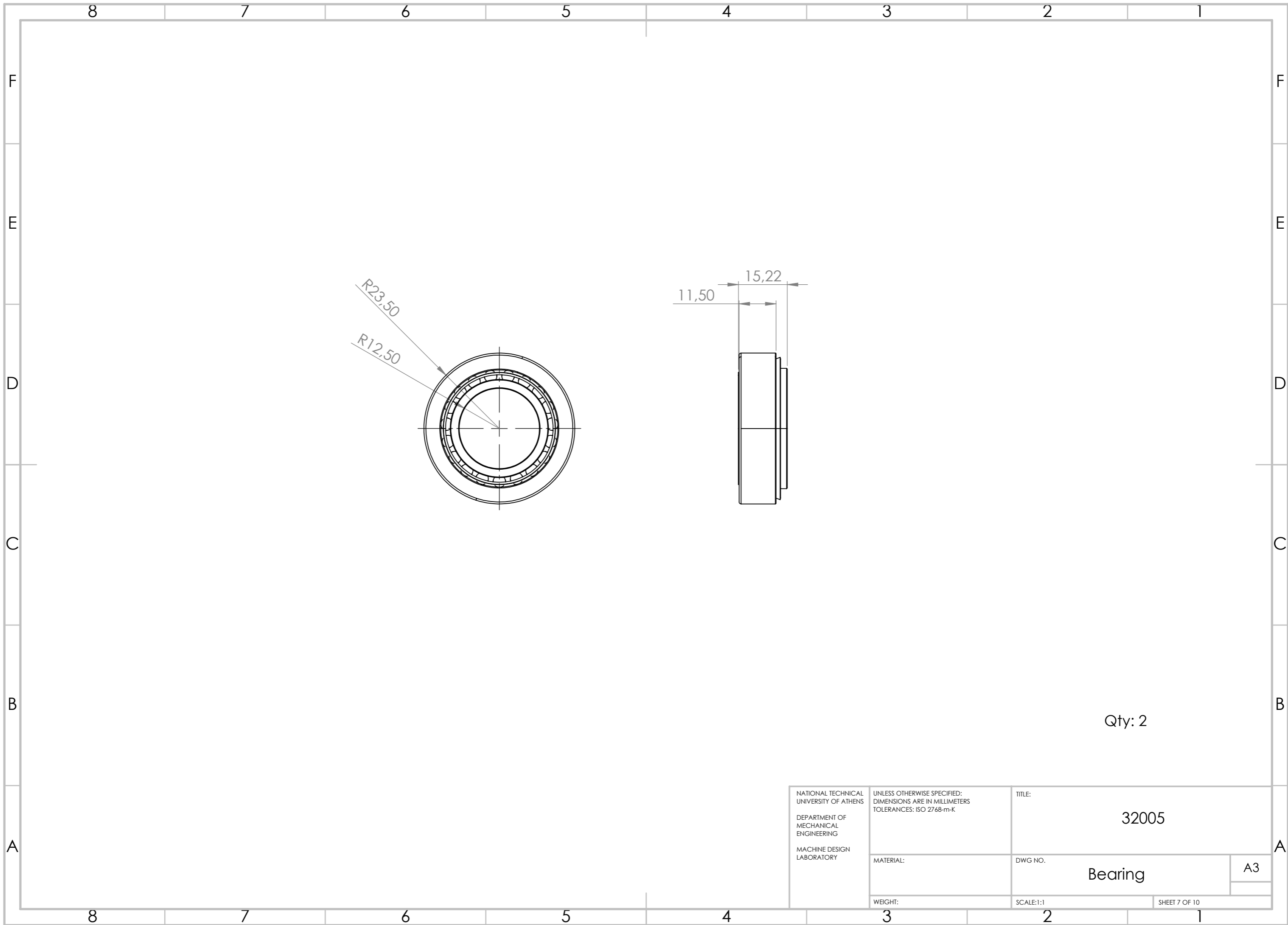
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | | TITLE: | |
| | MATERIAL: AISI 304 | | DWG NO. Spindle Enclosure | |
| | WEIGHT: | | SCALE:1:2 | |

A3

| TAG | X LOC | Y LOC | SIZE |
|-------|--------|--------|--|
| F A1 | 24,13 | 94,01 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| A2 | 24,13 | 225,99 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| E A3 | 74,13 | 94,01 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| E A4 | 74,13 | 225,99 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| A5 | 124,13 | 94,01 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| A6 | 124,13 | 225,99 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| D A7 | 174,13 | 94,01 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| A8 | 174,13 | 225,99 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| A9 | 224,13 | 94,01 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| C A10 | 224,13 | 225,99 | ϕ 5,00 ∇ 15,00 M6 - 6H ∇ 12,00 ϕ 6,05 X 90°, Near Side |
| B1 | 35,75 | 85 | ϕ 6,00 THRU |
| B2 | 35,75 | 235 | ϕ 6,00 THRU |
| B3 | 60,75 | 35 | ϕ 6,00 THRU |
| B4 | 60,75 | 285 | ϕ 6,00 THRU |
| B5 | 85,75 | 85 | ϕ 6,00 THRU |
| B6 | 85,75 | 235 | ϕ 6,00 THRU |
| B7 | 110,75 | 35 | ϕ 6,00 THRU |
| B8 | 110,75 | 285 | ϕ 6,00 THRU |
| B9 | 135,75 | 85 | ϕ 6,00 THRU |
| B10 | 135,75 | 235 | ϕ 6,00 THRU |
| B11 | 160,75 | 35 | ϕ 6,00 THRU |
| B12 | 160,75 | 285 | ϕ 6,00 THRU |
| B13 | 185,75 | 85 | ϕ 6,00 THRU |
| B14 | 185,75 | 235 | ϕ 6,00 THRU |
| B15 | 210,75 | 35 | ϕ 6,00 THRU |
| B16 | 210,75 | 285 | ϕ 6,00 THRU |

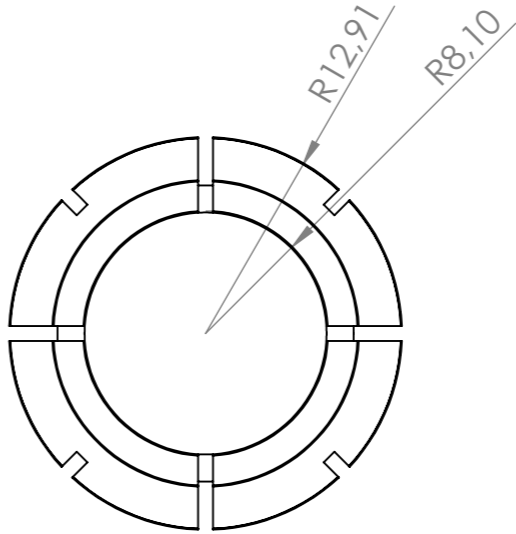
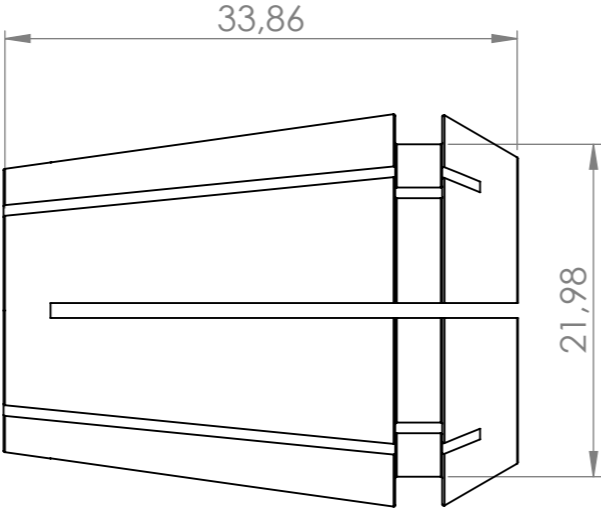
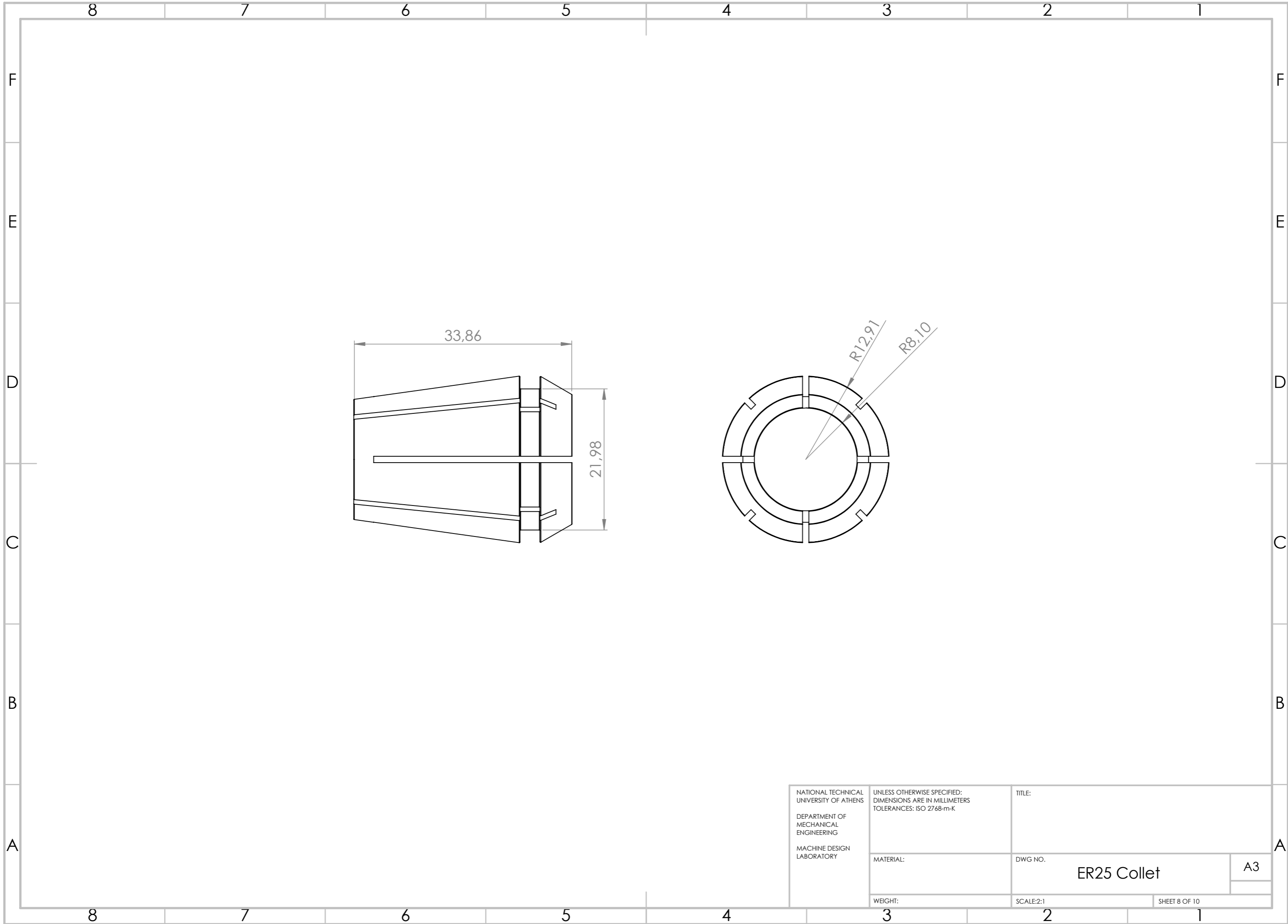


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Spindle Enclosure Base | A3 |
| | WEIGHT: | SCALE: 1:5 | SHEET 6 OF 10 |



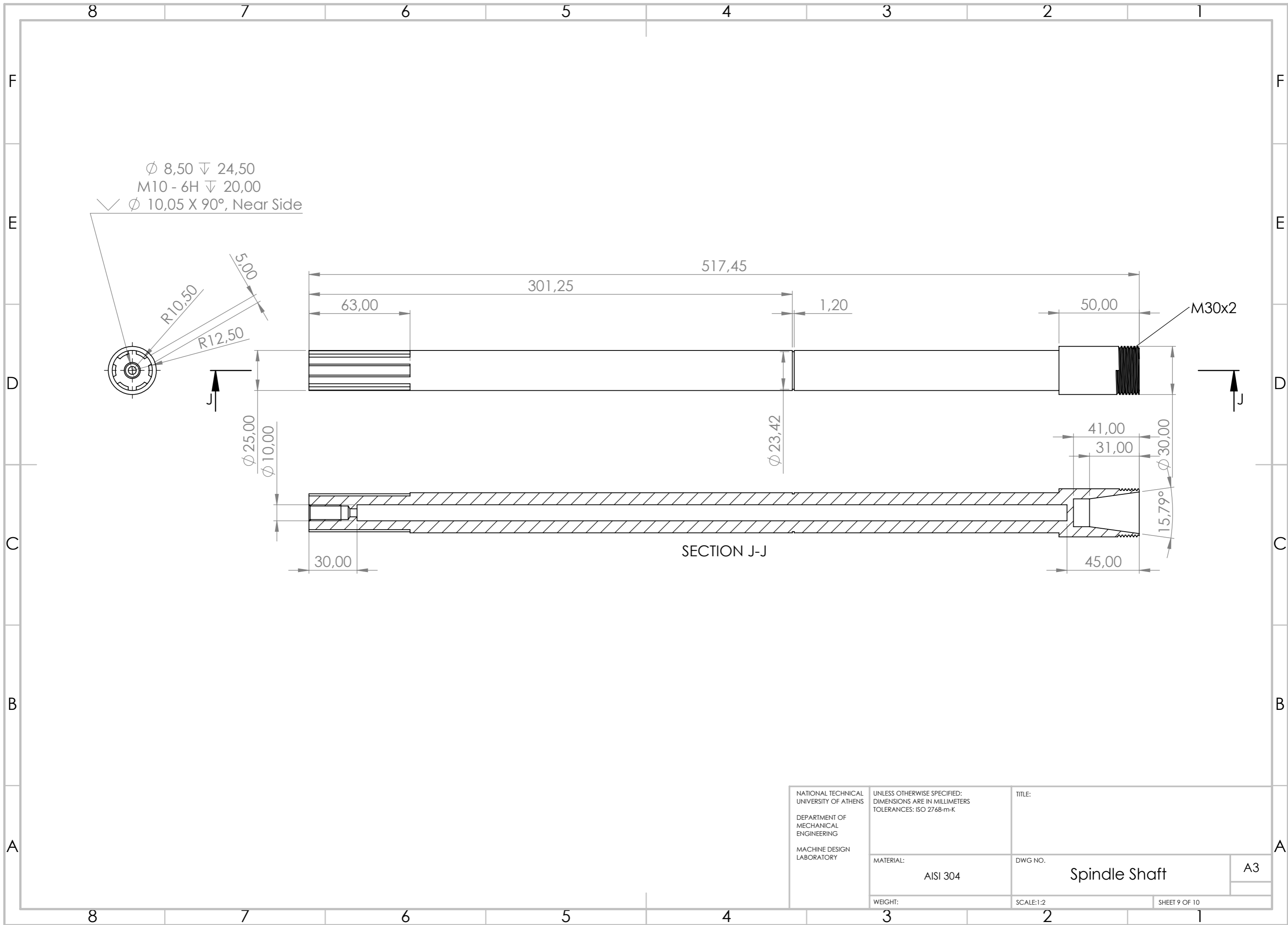
Qty: 2

| | | | |
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">32005</p> | |
| | MATERIAL: | DWG NO. <p style="text-align: center;">Bearing</p> | <p style="text-align: center;">A3</p> |
| | WEIGHT: | SCALE:1:1 | SHEET 7 OF 10 |

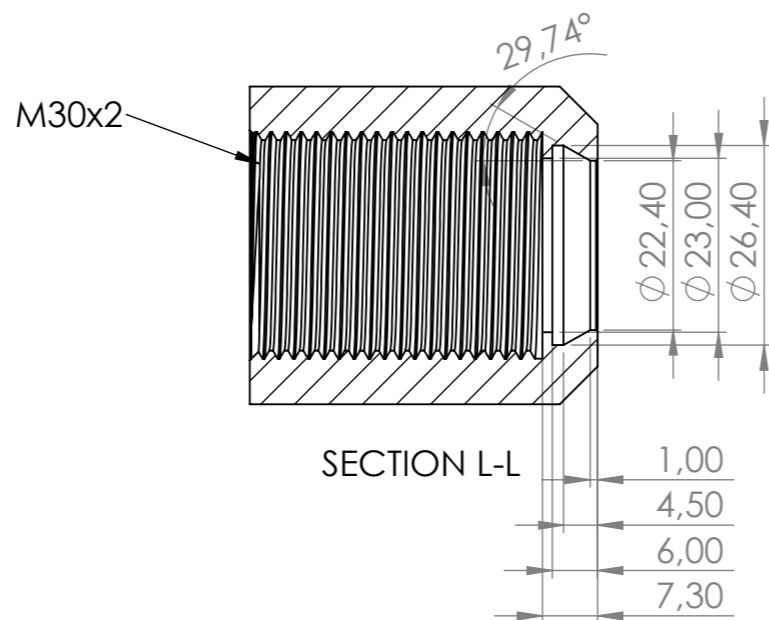
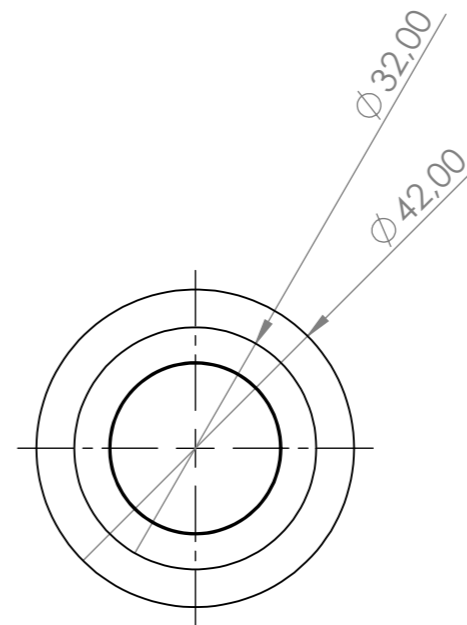
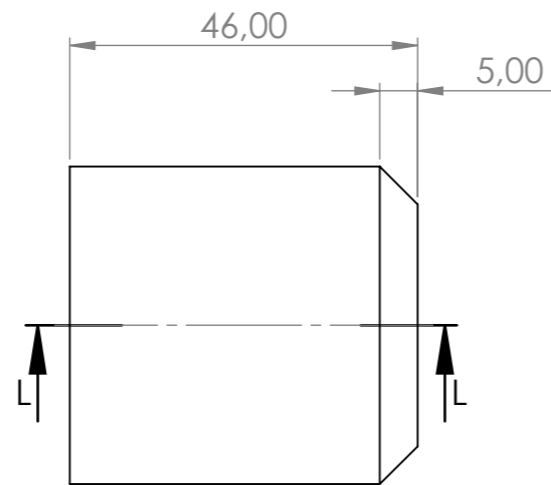


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|--|--|------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE: 2:1 | SHEET 8 OF 10 |

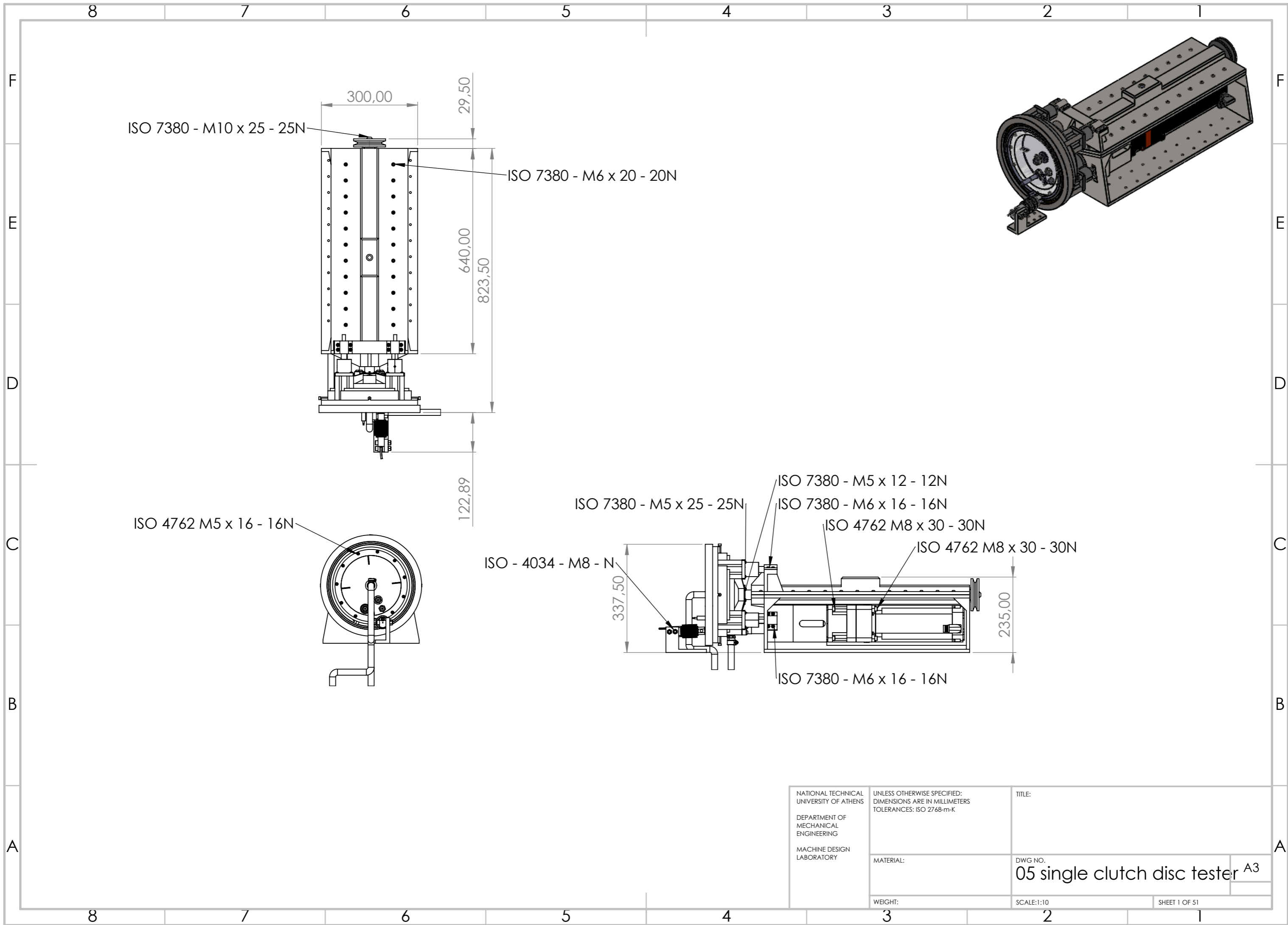
ER25 Collet



| | | | |
|--|--|------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Spindle Shaft | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 9 OF 10 |

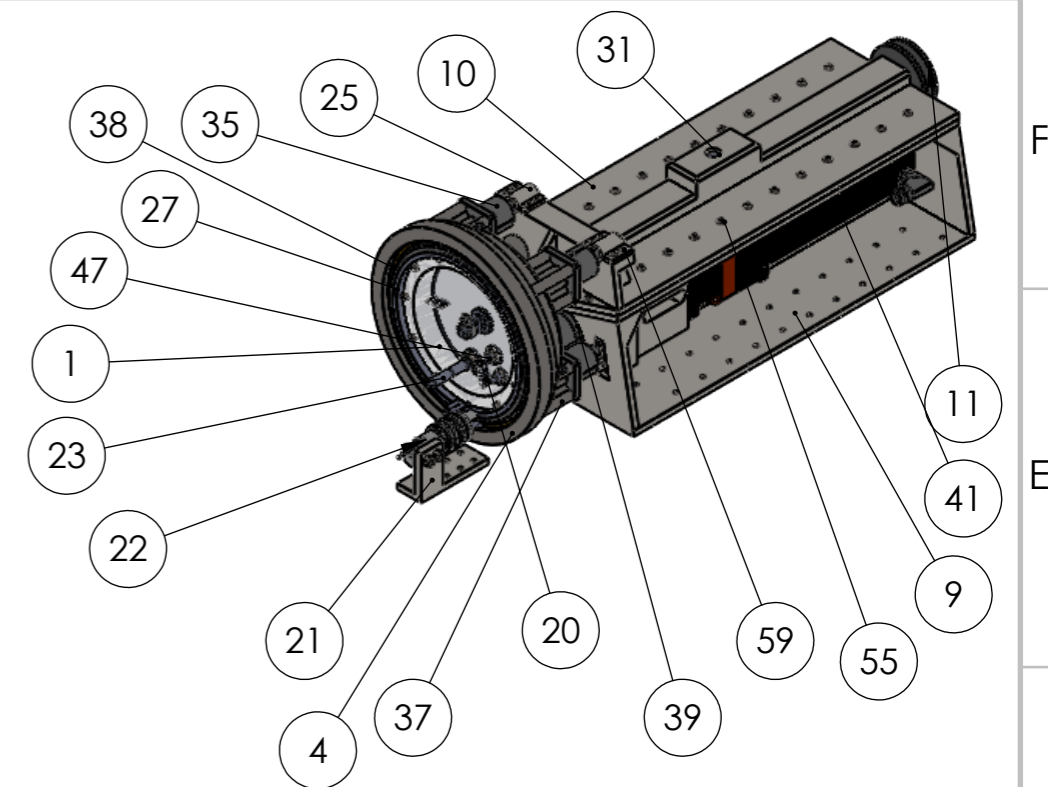


| | | | |
|--|--|----------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Spindle Nut | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 10 OF 10 |

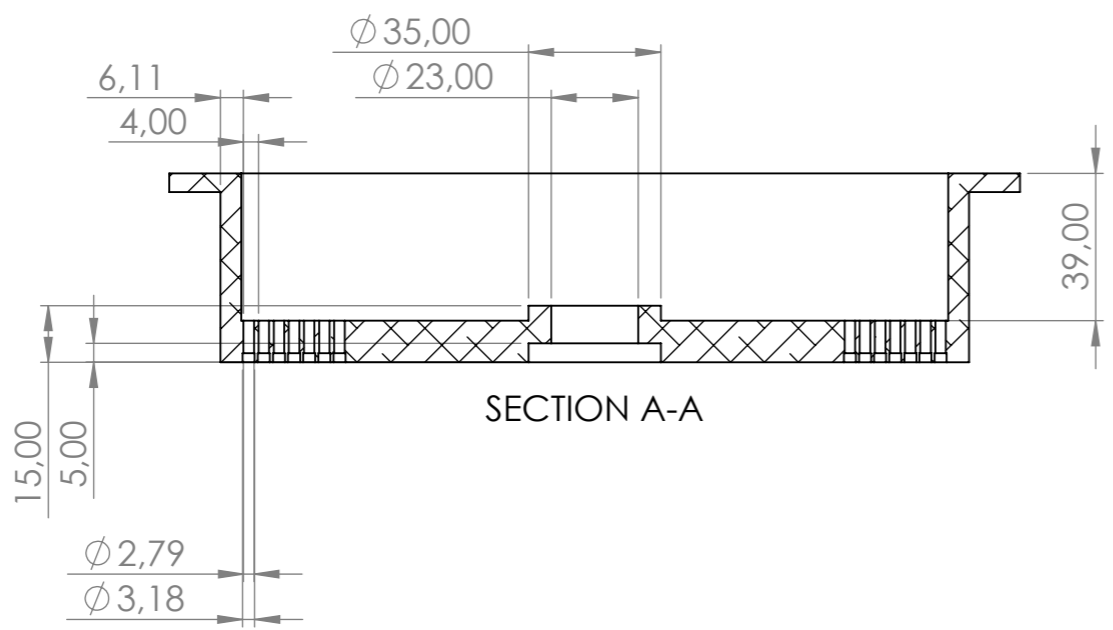
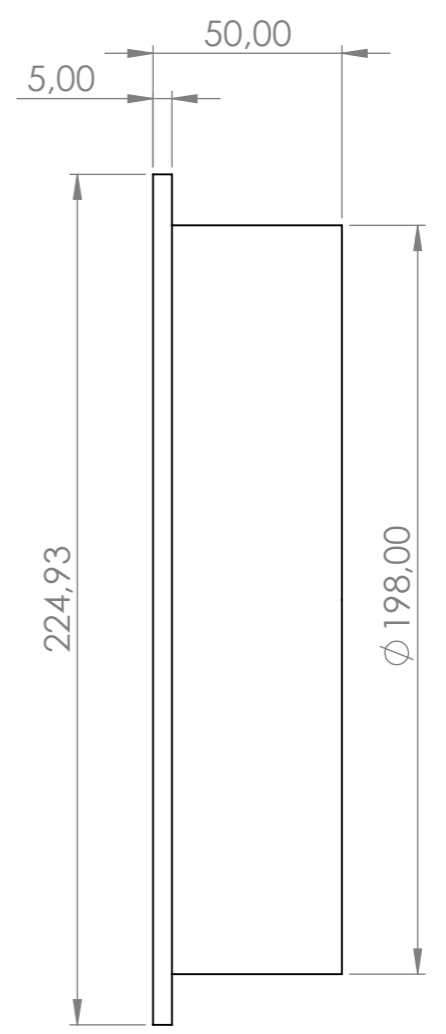
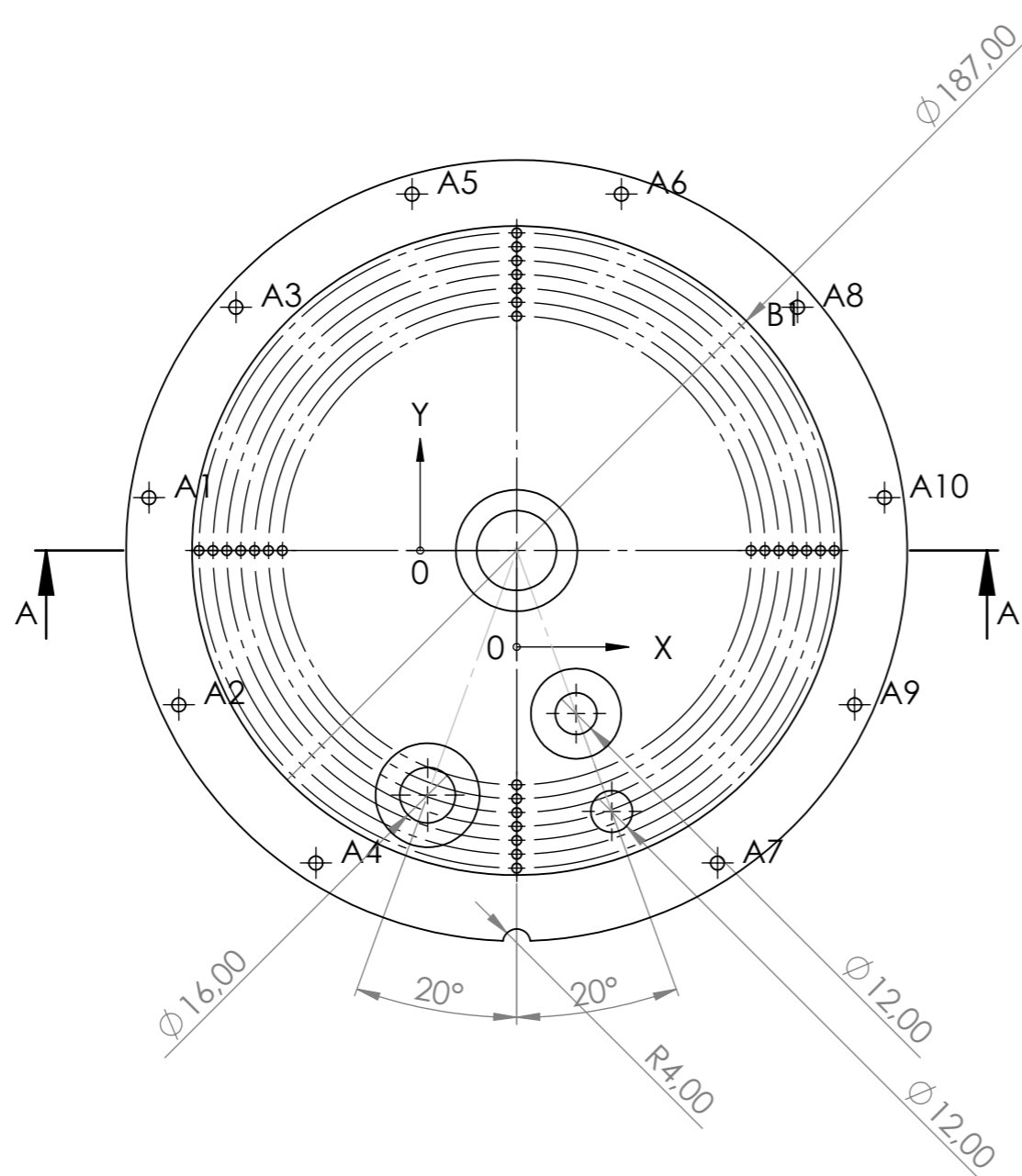


| | | | |
|--|--|--|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. 05 single clutch disc tester A3 | |
| | WEIGHT: | SCALE: 1:10 | SHEET 1 OF 51 |

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. | ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|---|-------------|------|----------|--|---|------|
| 1 | plastic plate | | 1 | 45 | spacer ring | | 3 |
| 2 | metal plate | | 1 | 46 | bearing stop | | 1 |
| 3 | Retainer flange | | 1 | 47 | eddyNCDT 3060 | | 2 |
| 4 | locker | | 1 | 48 | SPM08 | | 1 |
| 5 | clutch disc holder | | 1 | 49 | temp sensor 12-K-450-321-1.0-21-3P5A-A30 | | 1 |
| 6 | clutch disc holder flex | | 1 | 50 | 0133_62_17_39 | NOT SPECIFIED | 2 |
| 7 | clutch disc | | 1 | 51 | fitting adaptor | | 1 |
| 8 | Spindle shaft short | | 1 | 52 | fitting ring^single clutch disc tester | | 1 |
| 9 | case bottom part | | 1 | 53 | Jubilee Clip-SIZE 0-22MM DIA | Worm Drive Hose Clip Mild Steel and Stainless Steel | 2 |
| 10 | case top part | | 1 | 54 | ISO 7380 - M10 x 25 - 25N | | 2 |
| 11 | pulley 2 | | 1 | 55 | ISO 7380 - M6 x 20 - 20N | | 24 |
| 12 | 11740 Check Valve_1_8_ | | 4 | 56 | ISO 7380 - M5 x 25 - 25N | | 16 |
| 13 | valve cap | | 4 | 57 | ISO 7380 - M8 x 25 - 25N | | 8 |
| 14 | pipe in | | 1 | 58 | ISO 7380 - M5 x 12 - 12N | | 4 |
| 15 | pipe out | | 1 | 59 | ISO 7380 - M6 x 16 - 16N | | 16 |
| 16 | pulley fixture | | 1 | 60 | ISO 7380 - M5 x 20 - 20N | | 1 |
| 17 | 32005_X | | 4 | 61 | ISO 7380 - M5 x 10 - 10N | | 5 |
| 18 | bearing spacer | | 1 | 62 | ISO 4762 M10 x 30 - 30N | | 6 |
| 19 | trelleborg_tjb1a0300-t251_bklxe074r281q0mkrz65w71ym | | 1 | 63 | ISO 4762 M2 x 3 - 3N | | 1 |
| 20 | Miniature Pressure Transducer EPB-B0 | | 28 | 64 | ISO 4762 M8 x 40 - 28N | | 2 |
| 21 | Force trans base | | 1 | 65 | ISO 4762 M8 x 30 - 30N | | 8 |
| 22 | OBBS 10...250 kg | | 1 | 66 | ISO 4762 M6 x 40 - 24N | | 4 |
| 23 | Inductive Sensor LVDT Series LVIT | | 1 | 67 | ISO 4762 M5 x 16 - 16N | | 10 |
| 24 | Tank connector | | 1 | 68 | ISO - 4034 - M8 - N | | 2 |
| 25 | Shaft Collar | | 4 | 69 | O-ring clutch | | 1 |
| 26 | m_210_250_22 | | 1 | 70 | ISO - 4035 - M12 - N | | 2 |
| 27 | metal support ring of glass | | 1 | 71 | ISO - 4035 - M16 - N | | 1 |
| 28 | DNS_210 | | 1 | 72 | SSUFB12 | | 1 |
| 29 | DNS_240 | | 1 | | | | |
| 30 | bushing adaptor | | 1 | | | | |
| 31 | Torque trans | | 1 | | | | |
| 32 | torque trans key | | 2 | | | | |
| 33 | Spindle shaft short B | | 1 | | | | |
| 34 | bearing spacer sleeve | | 2 | | | | |
| 35 | SSUFB12 | | 3 | | | | |
| 36 | 3_4LCTL202_000202 | | 3 | | | | |
| 37 | back cover | | 1 | | | | |
| 38 | KAYDON_BEARINGS_k25020xp0 | | 1 | | | | |
| 39 | KGT_D_4010_P3_RH_X_6000_00_X_F_E_KK_R_0_3 | | 1 | | | | |
| 40 | DT115_004_0_RM115_71 | | 1 | | | | |
| 41 | AKM2G_54X_ACD2CA00 | | 1 | | | | |
| 42 | Ruland_mclc-25-25-x | | 1 | | | | |
| 43 | 52408 | | 1 | | | | |
| 44 | FS_30 | | 3 | | | | |



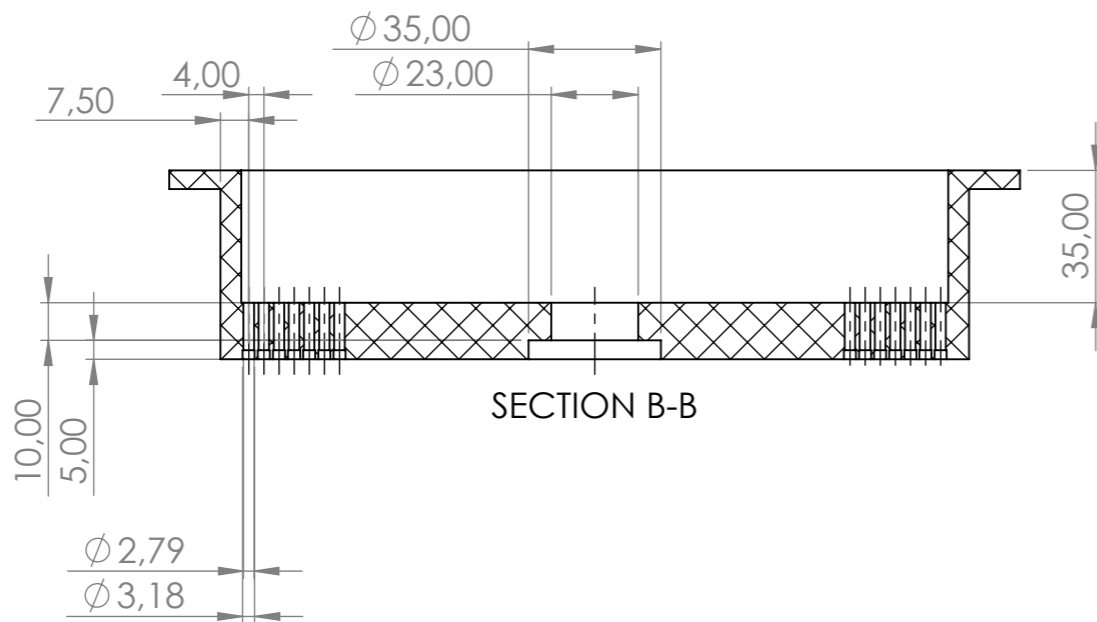
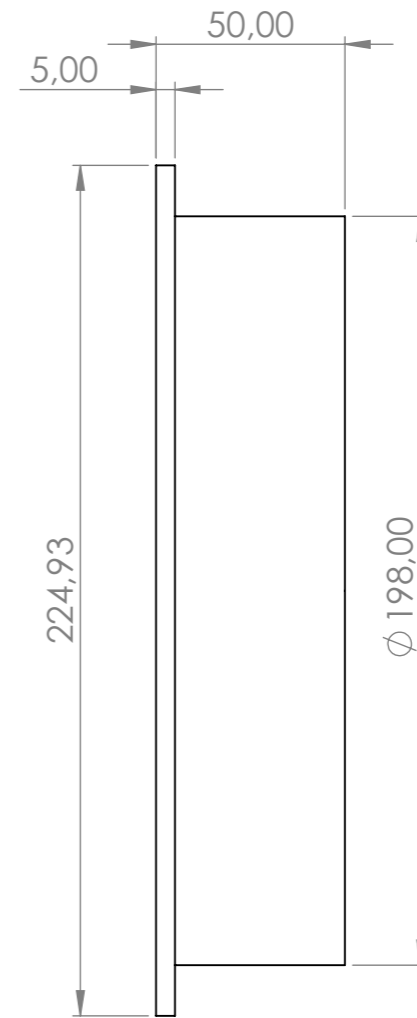
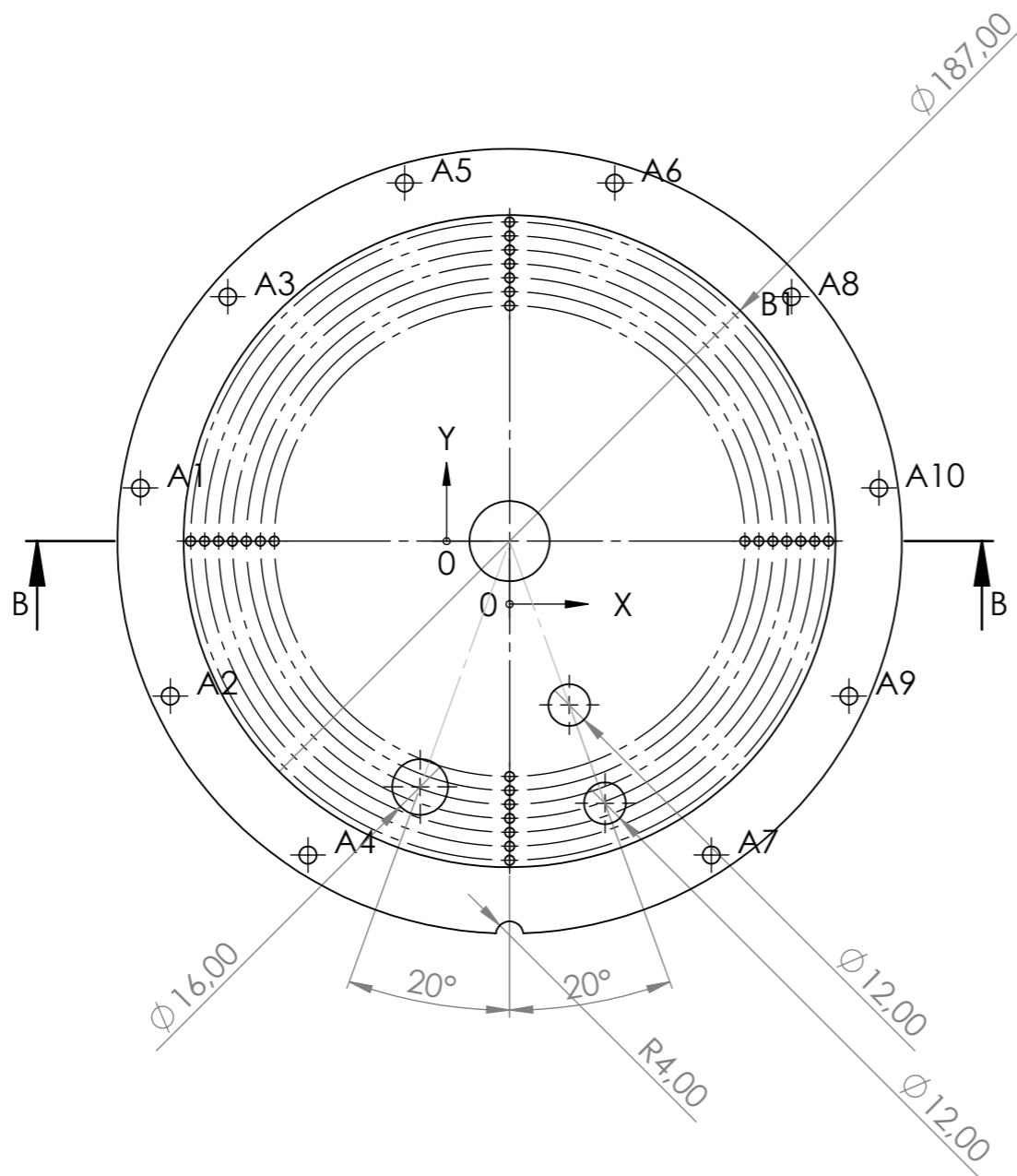
| | | | |
|--|--|---|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. 05 single clutch disc tester A3 | |
| | WEIGHT: | SCALE:1:10 | SHEET 2 OF 51 |



| TAG | X LOC | Y LOC | SIZE |
|-----|---------|--------|----------------------------|
| A1 | -105,91 | 15,23 | $\phi 4,00$ THRU |
| A2 | -97,33 | -44,45 | $\phi 4,00$ THRU |
| A3 | -80,87 | 70,07 | $\phi 4,00$ THRU |
| A4 | -57,85 | -90,01 | $\phi 4,00$ THRU |
| A5 | -30,15 | 102,67 | $\phi 4,00$ THRU |
| A6 | 30,15 | 102,67 | $\phi 4,00$ THRU |
| A7 | 57,85 | -90,01 | $\phi 4,00$ THRU |
| A8 | 80,87 | 70,07 | $\phi 4,00$ THRU |
| A9 | 97,33 | -44,45 | $\phi 4,00$ THRU |
| A10 | 105,91 | 15,23 | $\phi 4,00$ THRU |
| B1 | 0 | 0 | $\phi 187,00 \nabla 39,00$ |

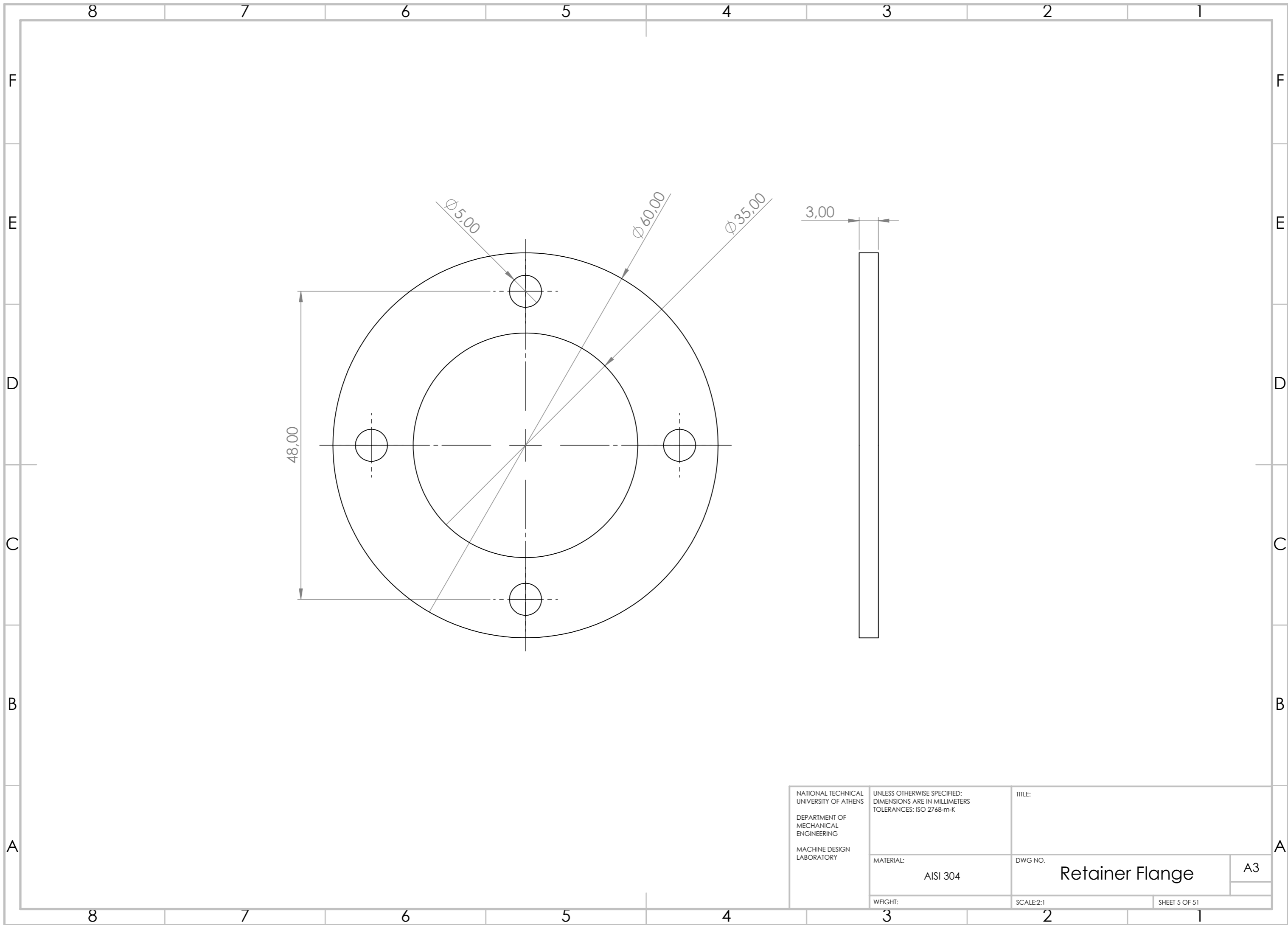
| | | | | |
|--|--|--|-----------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | | TITLE: | |
| | MATERIAL: Polycarbonate (PC) | | DWG NO. | A3 |
| | WEIGHT: | | SCALE:1:2 | SHEET 3 OF 51 |

Plastic Plate

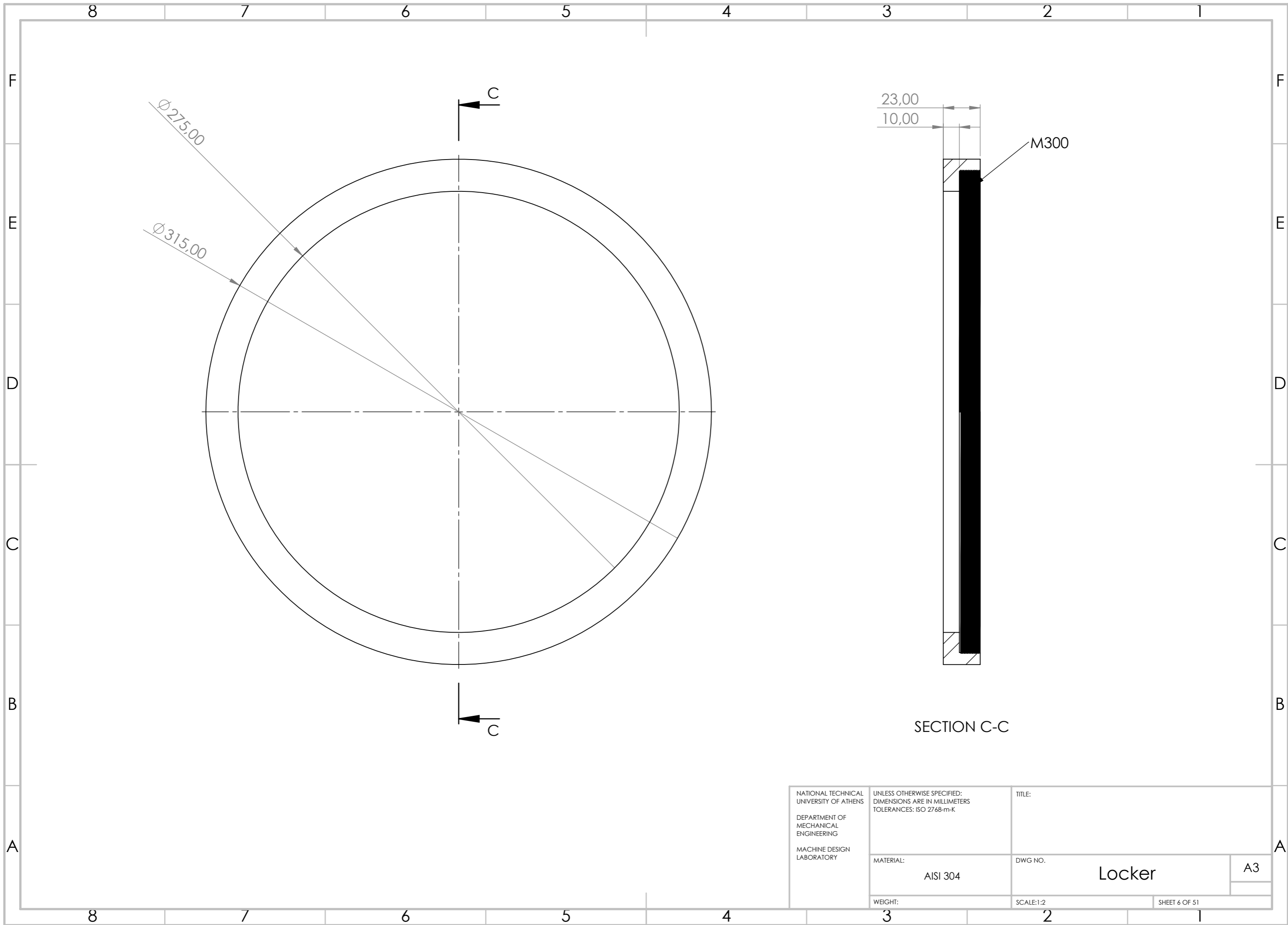


| TAG | X LOC | Y LOC | SIZE |
|-----|---------|--------|----------------------------|
| A1 | -105,91 | 15,23 | $\phi 5,00$ THRU |
| A2 | -97,33 | -44,45 | $\phi 5,00$ THRU |
| A3 | -80,87 | 70,07 | $\phi 5,00$ THRU |
| A4 | -57,85 | -90,01 | $\phi 5,00$ THRU |
| A5 | -30,15 | 102,67 | $\phi 5,00$ THRU |
| A6 | 30,15 | 102,67 | $\phi 5,00$ THRU |
| A7 | 57,85 | -90,01 | $\phi 5,00$ THRU |
| A8 | 80,87 | 70,07 | $\phi 5,00$ THRU |
| A9 | 97,33 | -44,45 | $\phi 5,00$ THRU |
| A10 | 105,91 | 15,23 | $\phi 5,00$ THRU |
| B1 | 0 | 0 | $\phi 187,00 \nabla 35,00$ |

| | | | | |
|--|--|--|----------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | | TITLE: | |
| | MATERIAL: Polycarbonate (PC) | | DWG NO. | A3 |
| | WEIGHT: | | SCALE:1:2 | SHEET 4 OF 51 |
| | | | Plastic Plate | |



| | | | |
|--|--|--------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Retainer Flange | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 5 OF 51 |



$\varnothing 275,00$

$\varnothing 315,00$

23,00

10,00

M300

SECTION C-C

| | | | |
|--|--|-----------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Locker | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 6 OF 51 |

8 7 6 5 4 3 2 1

F

F

E

E

D

D

C

C

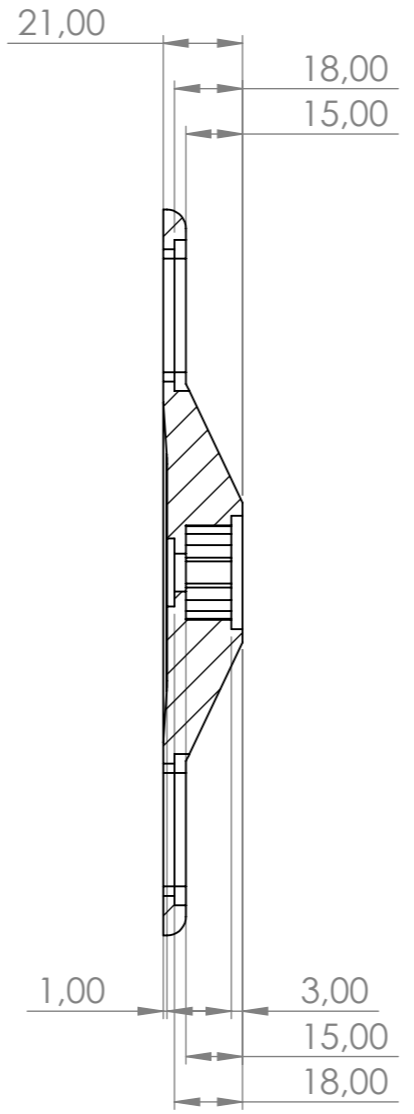
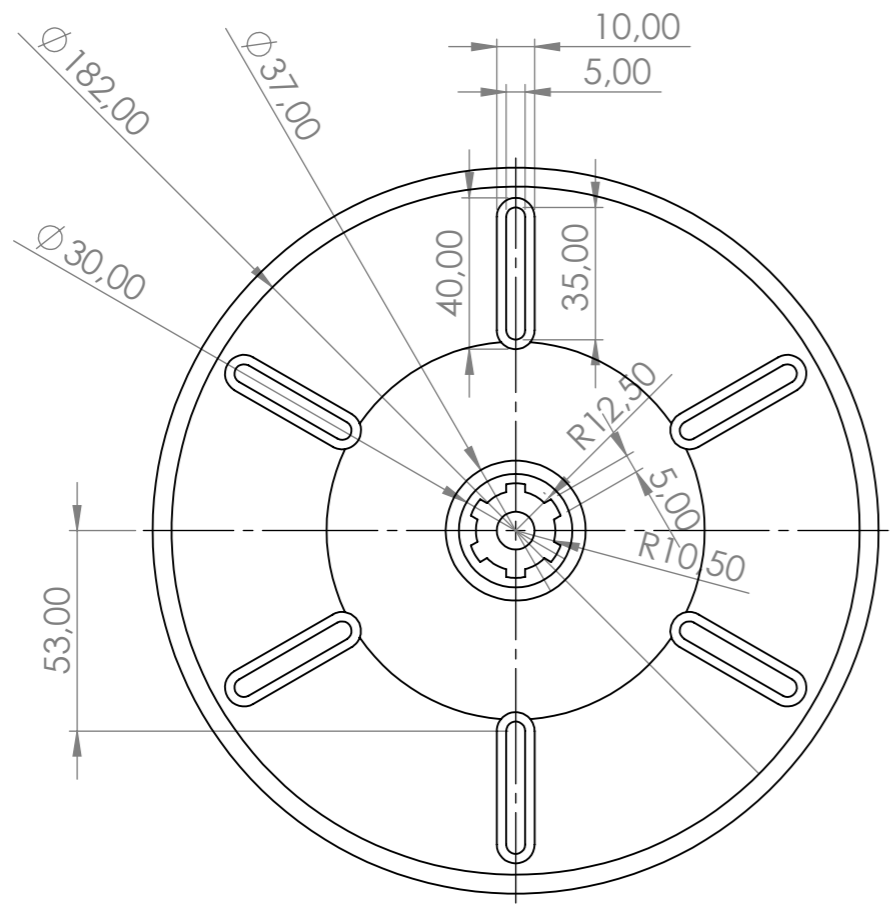
B

B

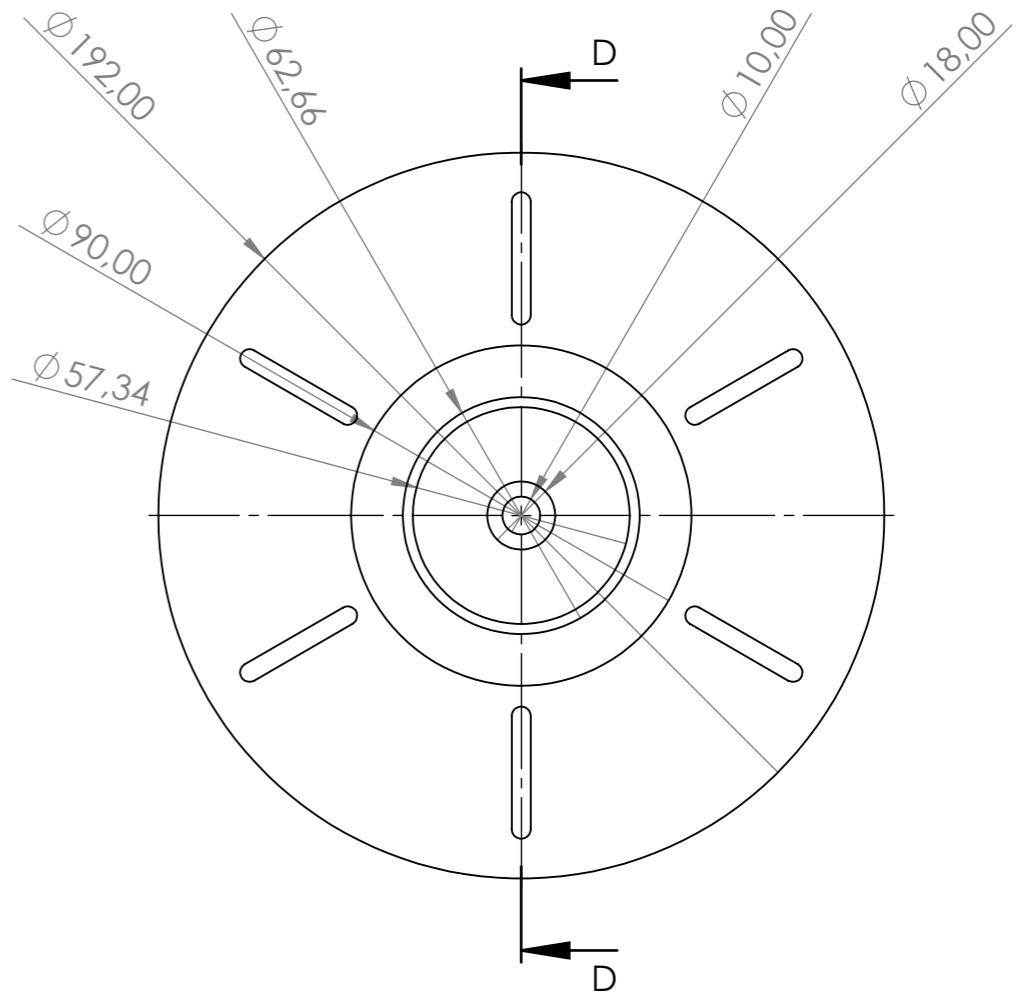
A

A

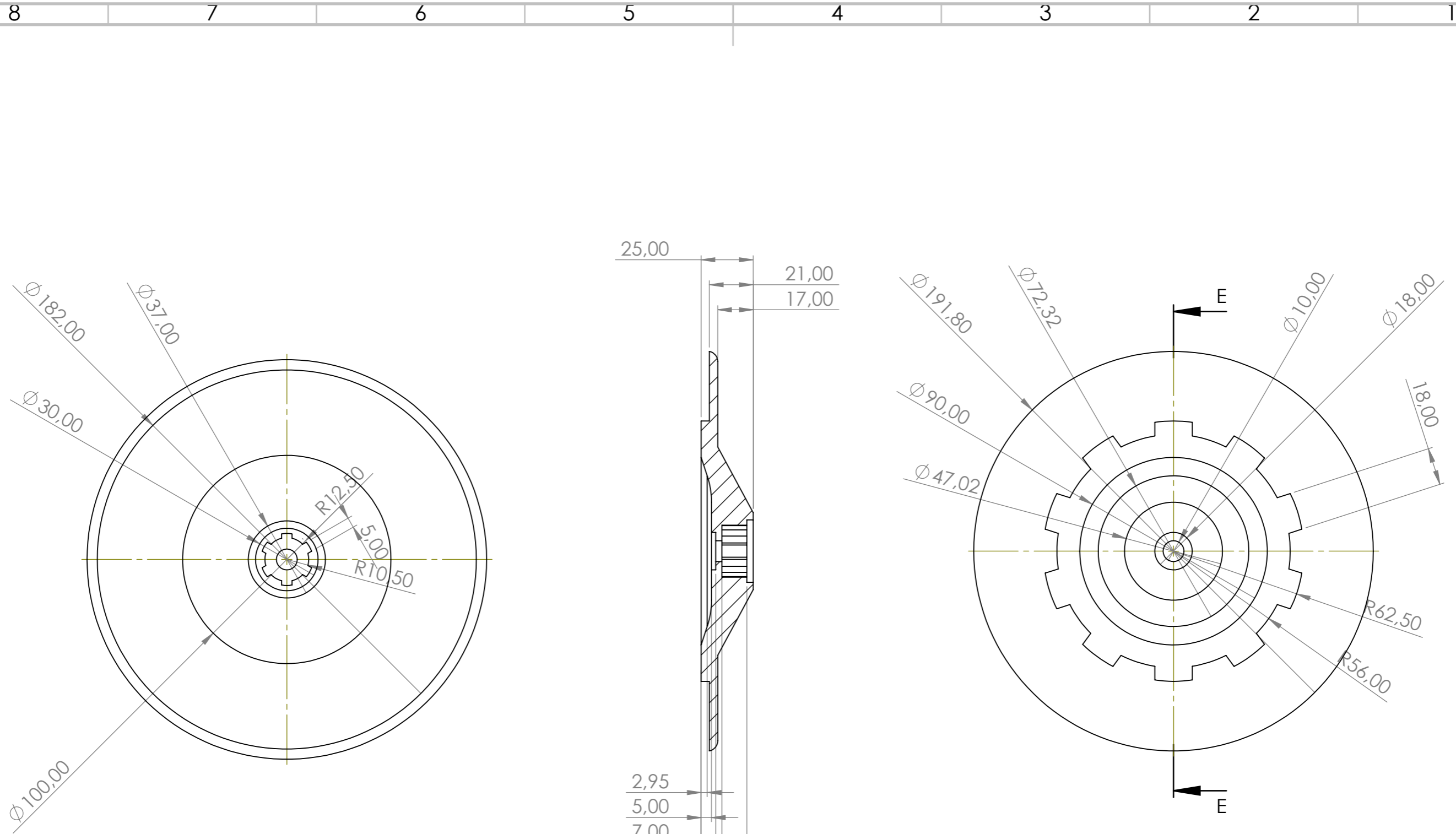
8 7 6 5 4 3 2 1



SECTION D-D

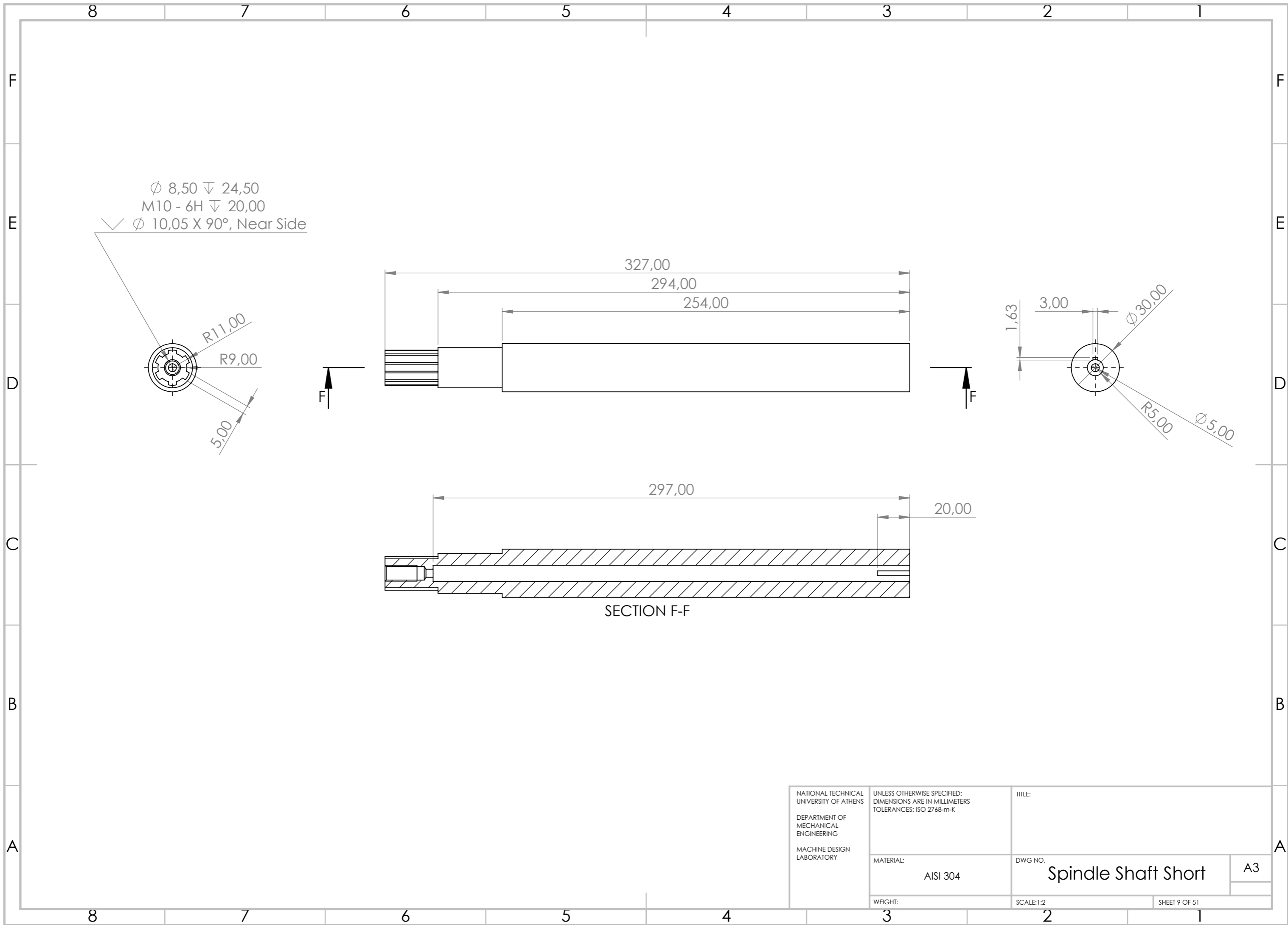


| | | | |
|--|--|-------------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Clutch Disk Holder Rigid | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 7 OF 51 |

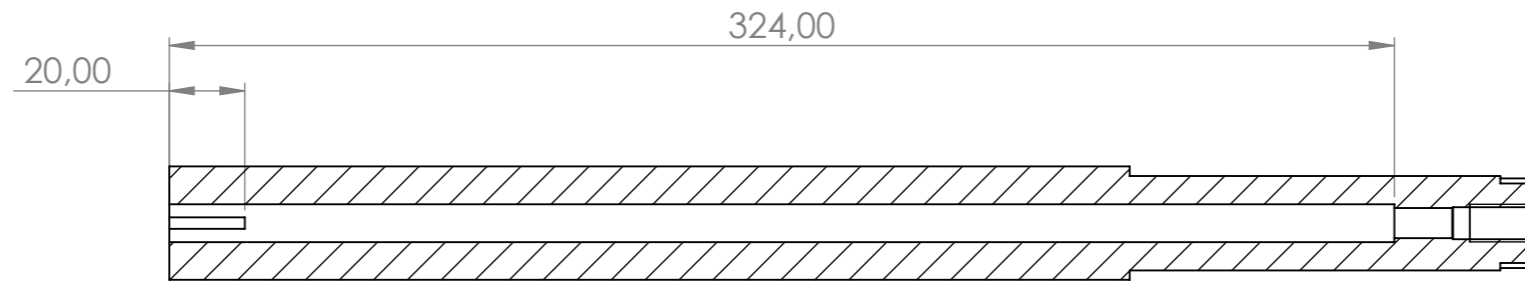
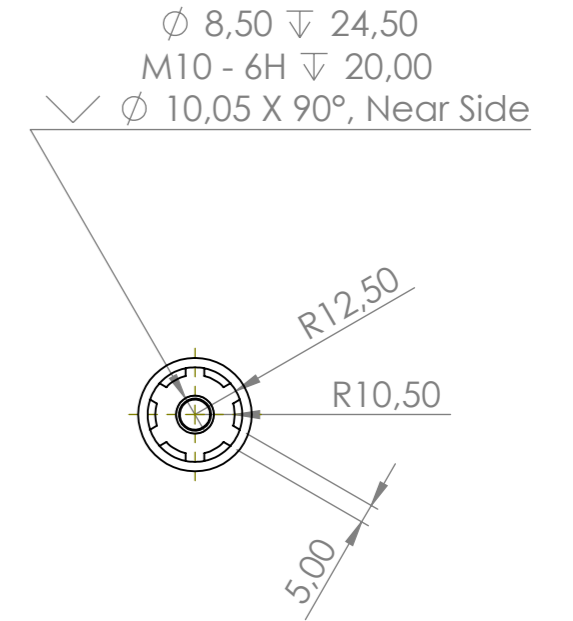
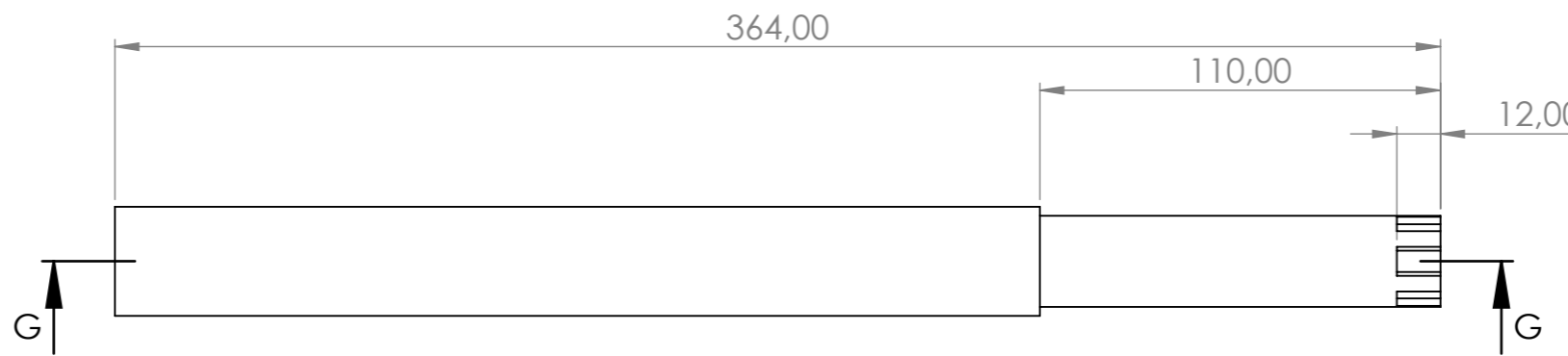
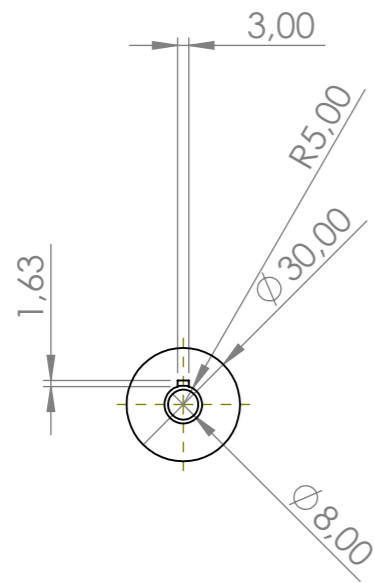


SECTION E-E

| | | | |
|--|--|-------------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Clutch Disk Holder Rigid | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 8 OF 51 |

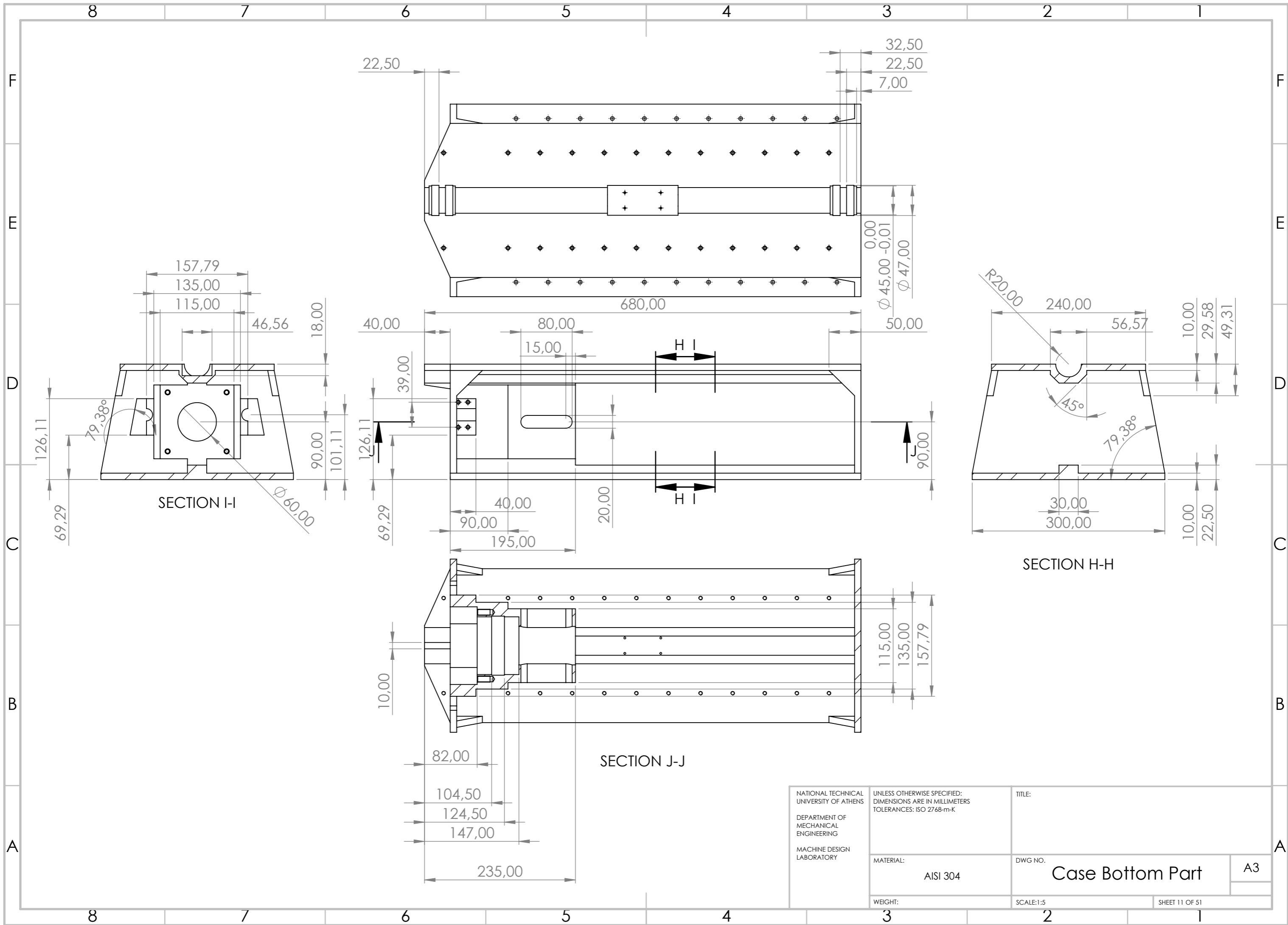


| | | | |
|--|--|--------------------------------|---------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Spindle Shaft Short | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 9 OF 51 |

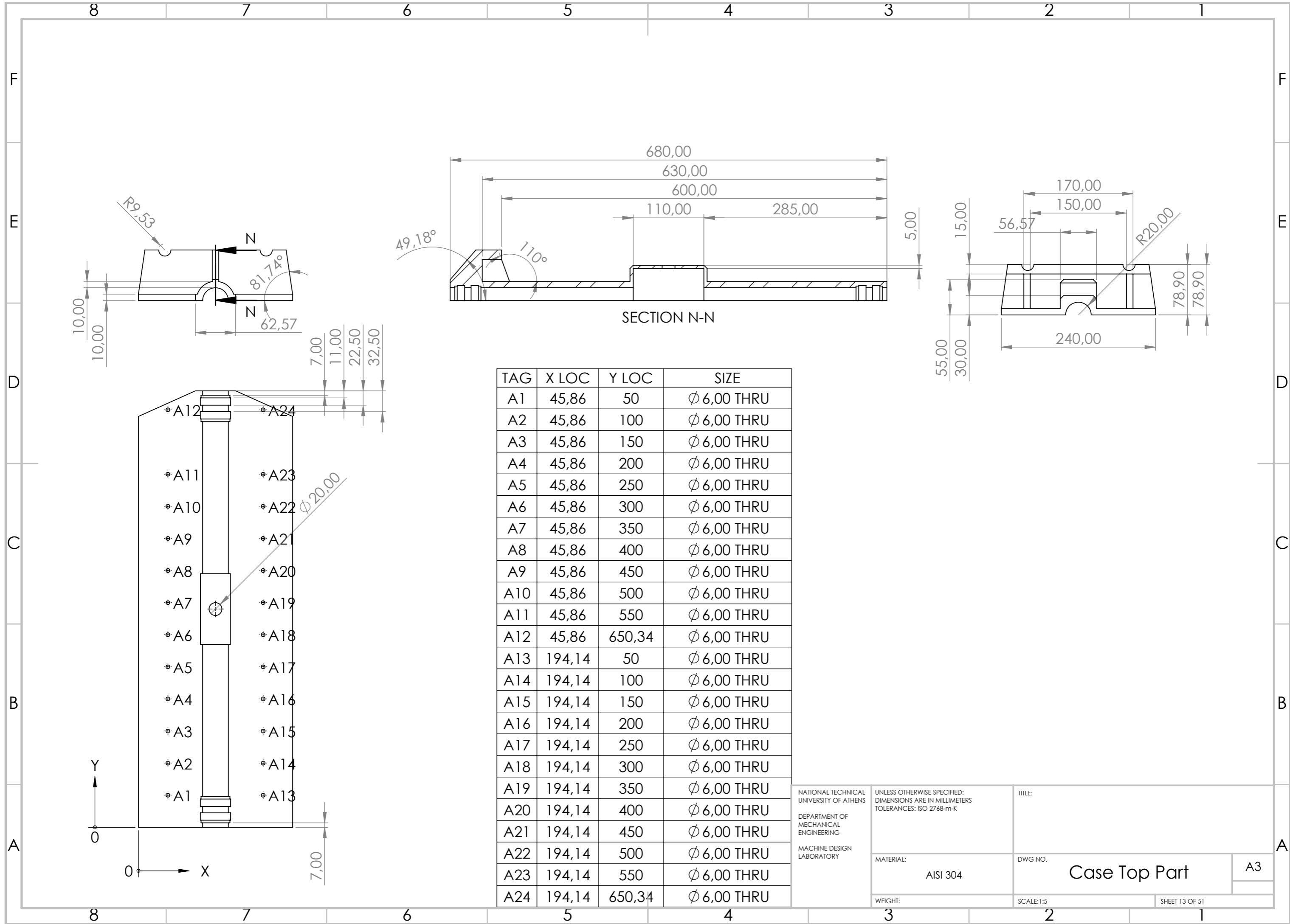


SECTION G-G

| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Spindle Shaft Short B | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 10 OF 51 |

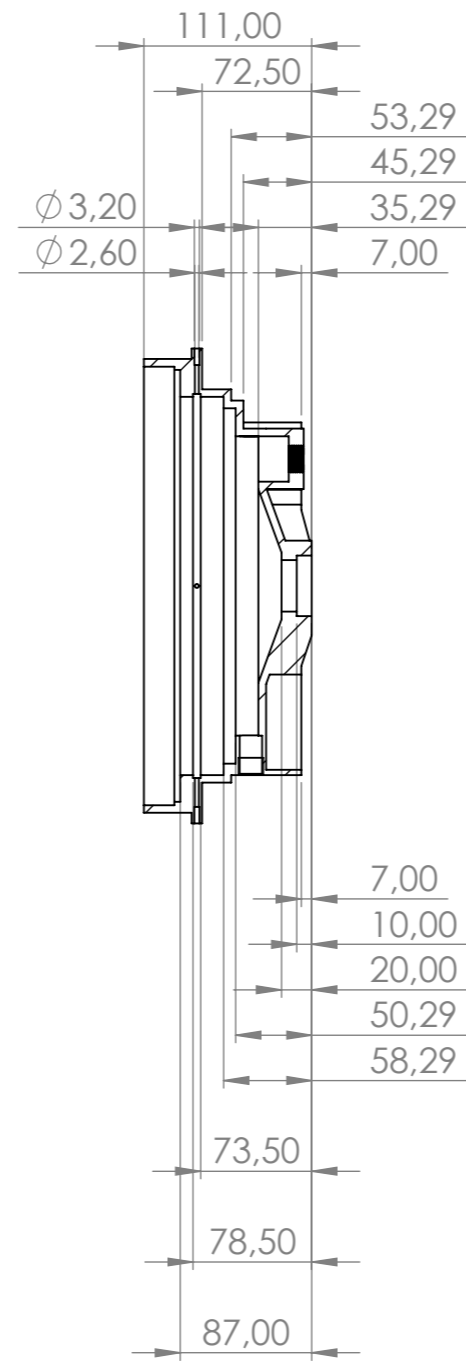
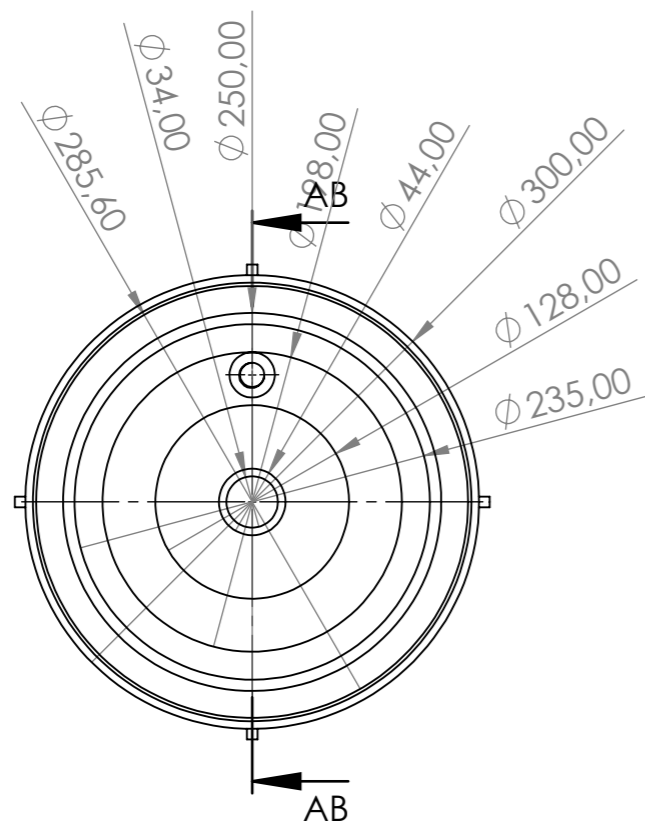


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|--|--|---------------------------------|----|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Case Bottom Part | A3 |
| WEIGHT: | SCALE:1:5 | SHEET 11 OF 51 | |

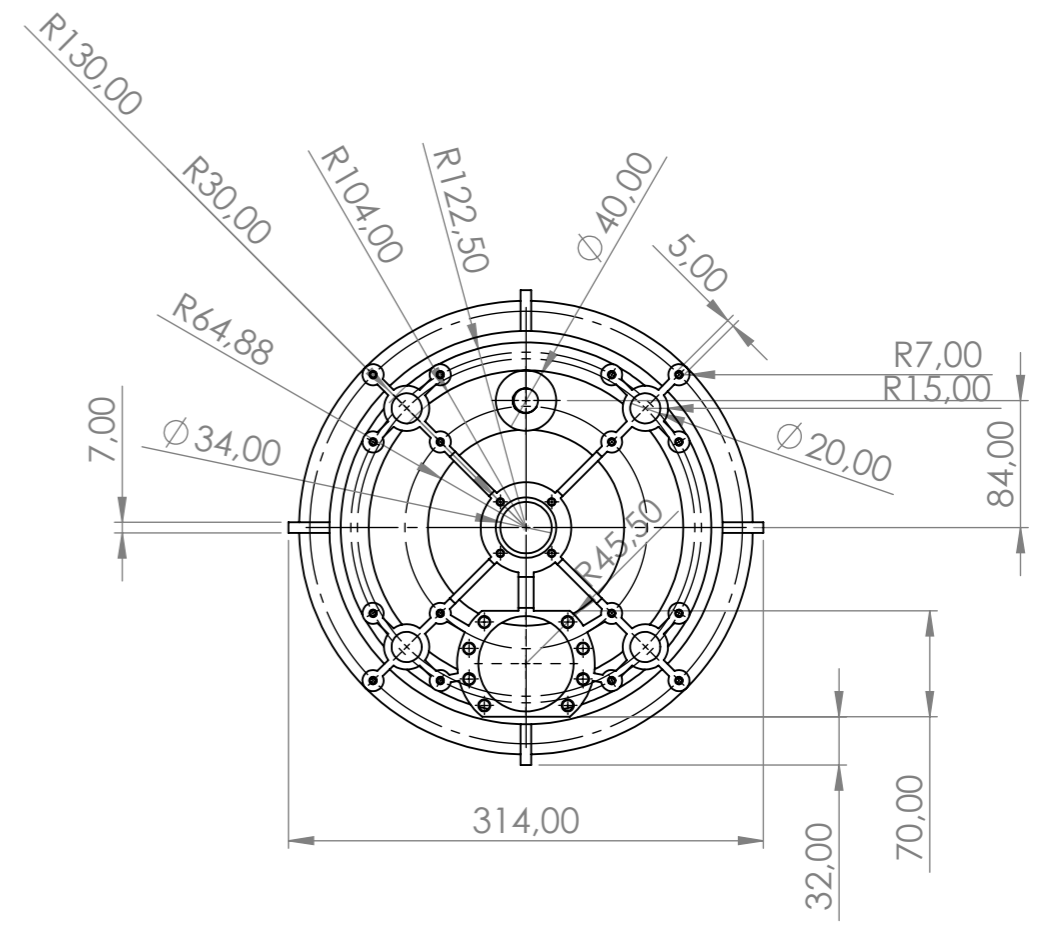


| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|------------------|
| A1 | 45,86 | 50 | $\phi 6,00$ THRU |
| A2 | 45,86 | 100 | $\phi 6,00$ THRU |
| A3 | 45,86 | 150 | $\phi 6,00$ THRU |
| A4 | 45,86 | 200 | $\phi 6,00$ THRU |
| A5 | 45,86 | 250 | $\phi 6,00$ THRU |
| A6 | 45,86 | 300 | $\phi 6,00$ THRU |
| A7 | 45,86 | 350 | $\phi 6,00$ THRU |
| A8 | 45,86 | 400 | $\phi 6,00$ THRU |
| A9 | 45,86 | 450 | $\phi 6,00$ THRU |
| A10 | 45,86 | 500 | $\phi 6,00$ THRU |
| A11 | 45,86 | 550 | $\phi 6,00$ THRU |
| A12 | 45,86 | 650,34 | $\phi 6,00$ THRU |
| A13 | 194,14 | 50 | $\phi 6,00$ THRU |
| A14 | 194,14 | 100 | $\phi 6,00$ THRU |
| A15 | 194,14 | 150 | $\phi 6,00$ THRU |
| A16 | 194,14 | 200 | $\phi 6,00$ THRU |
| A17 | 194,14 | 250 | $\phi 6,00$ THRU |
| A18 | 194,14 | 300 | $\phi 6,00$ THRU |
| A19 | 194,14 | 350 | $\phi 6,00$ THRU |
| A20 | 194,14 | 400 | $\phi 6,00$ THRU |
| A21 | 194,14 | 450 | $\phi 6,00$ THRU |
| A22 | 194,14 | 500 | $\phi 6,00$ THRU |
| A23 | 194,14 | 550 | $\phi 6,00$ THRU |
| A24 | 194,14 | 650,34 | $\phi 6,00$ THRU |

| | | | |
|--|--|----------------|--|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | |
| | AISI 304 | Case Top Part | |
| WEIGHT: | SCALE:1:5 | SHEET 13 OF 51 | |

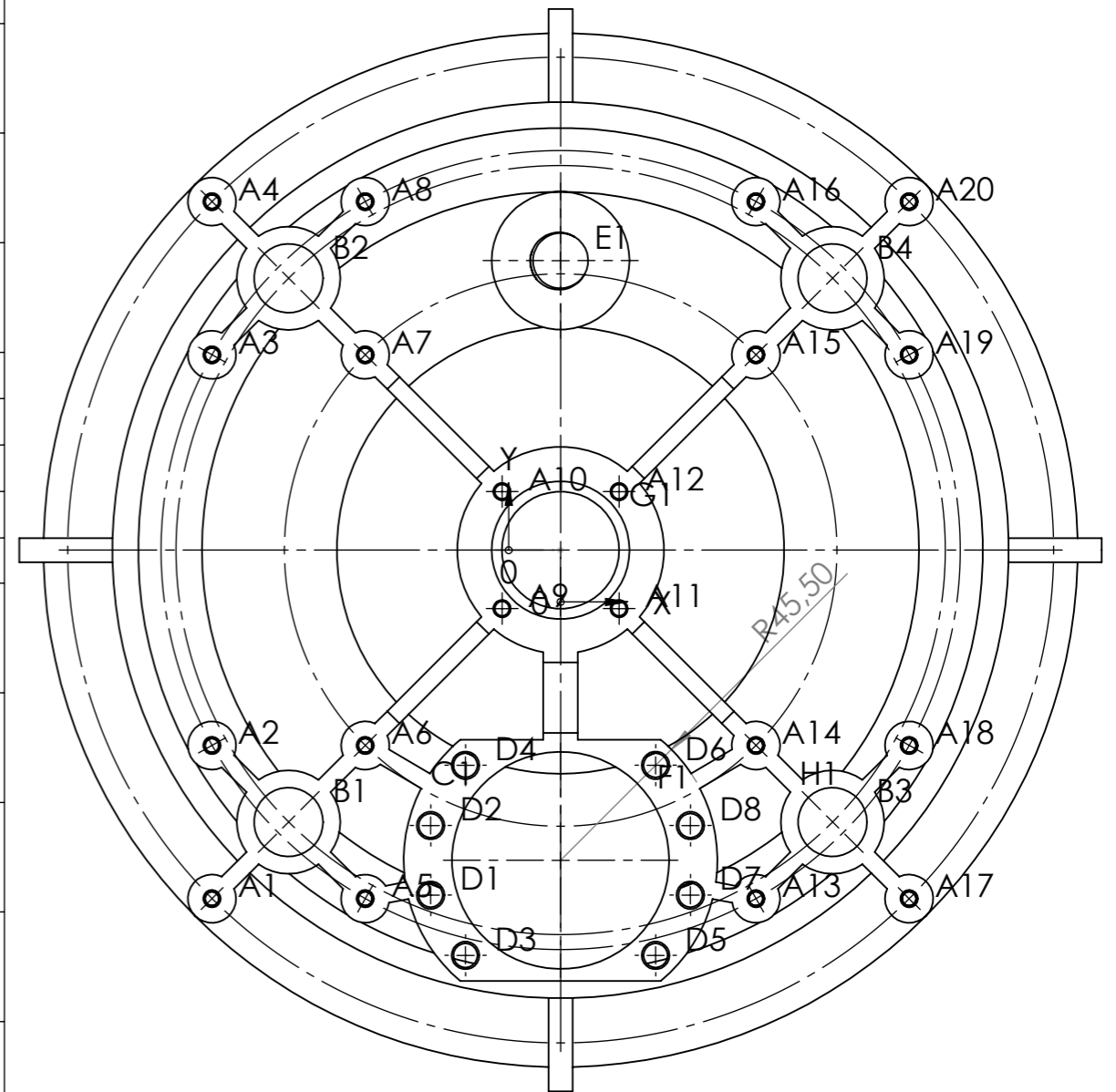


SECTION AB-AB

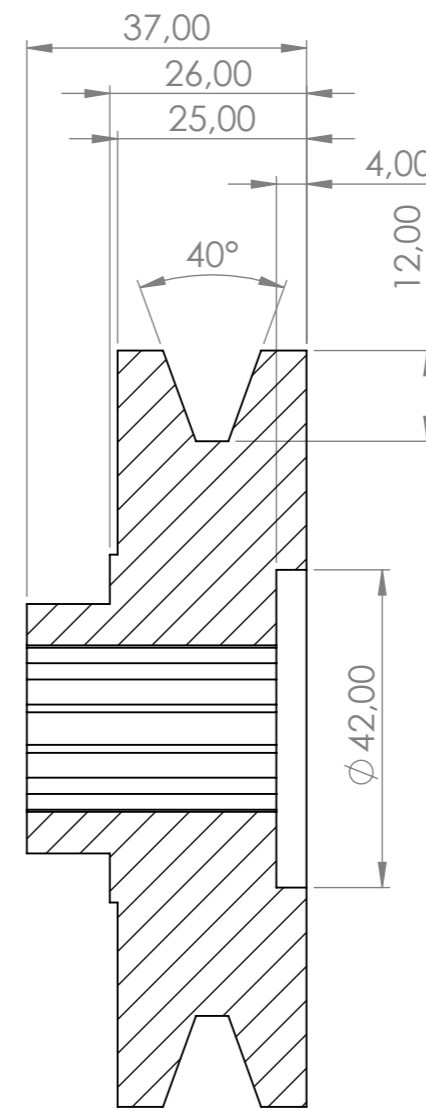
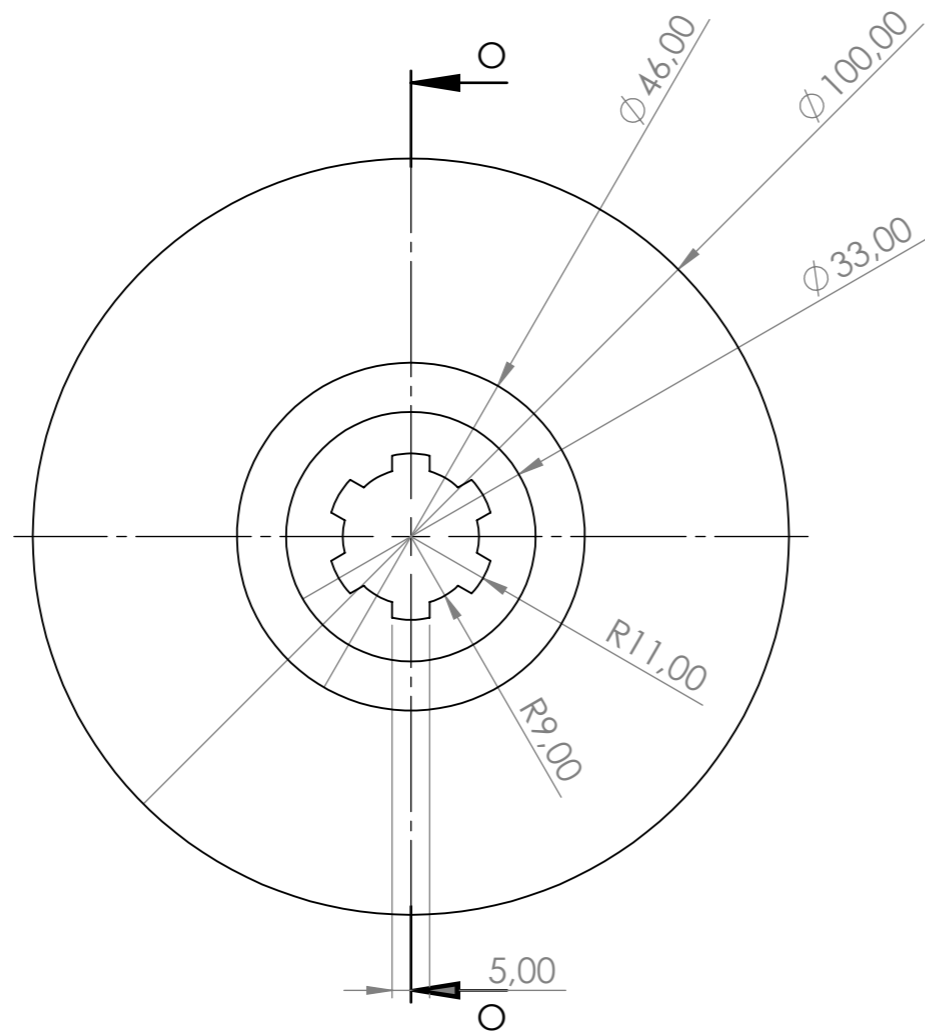


| | | | |
|--|--|------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Case Top Part | A3 |
| | WEIGHT: | SCALE:1:5 | SHEET 14 OF 51 |

| | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|-----|---------|---------|--|-----|--------|---------|--|
| | TAG | X LOC | Y LOC | SIZE | TAG | X LOC | Y LOC | SIZE |
| F | A1 | -101,12 | -101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | A18 | 101,12 | -56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side |
| | A2 | -101,12 | -56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | A19 | 101,12 | 56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side |
| | A3 | -101,12 | 56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | A20 | 101,12 | 101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side |
| E | A4 | -101,12 | 101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | B1 | -78,89 | -78,89 | ϕ 20,00 ∇ 23,29 |
| | A5 | -56,67 | -101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | B2 | -78,89 | 78,89 | ϕ 20,00 ∇ 23,29 |
| | A6 | -56,67 | -56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | B3 | 78,89 | -78,89 | ϕ 20,00 ∇ 23,29 |
| | A7 | -56,67 | 56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | B4 | 78,89 | 78,89 | ϕ 20,00 ∇ 23,29 |
| | A8 | -56,67 | 101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | C1 | -53,55 | -79,77 | |
| D | A9 | -16,97 | -16,97 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D1 | -37,67 | -100,09 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| | A10 | -16,97 | 16,97 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D2 | -37,67 | -79,91 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| | A11 | 16,97 | -16,97 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D3 | -27,58 | -117,58 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| | A12 | 16,97 | 16,97 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D4 | -27,58 | -62,42 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| C | A13 | 56,67 | -101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D5 | 27,58 | -117,58 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| | A14 | 56,67 | -56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D6 | 27,58 | -62,42 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| | A15 | 56,67 | 56,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D7 | 37,67 | -100,09 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| B | A16 | 56,67 | 101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | D8 | 37,67 | -79,91 | ϕ 6,80 ∇ 19,75 M8 - 6H ∇ 16,00 ϕ 8,05 X 90°, Near Side |
| | A17 | 101,12 | -101,12 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 ϕ 5,05 X 90°, Near Side | E1 | -0,63 | 83,93 | |
| A | | | | | F1 | 0 | -90 | ϕ 63,00 ∇ 23,29 |
| | | | | | G1 | 0 | 0 | ϕ 34,00 ∇ 20,00 ϕ 40,00 ∇ 10,00 |
| | | | | | H1 | 53,55 | -79,77 | |

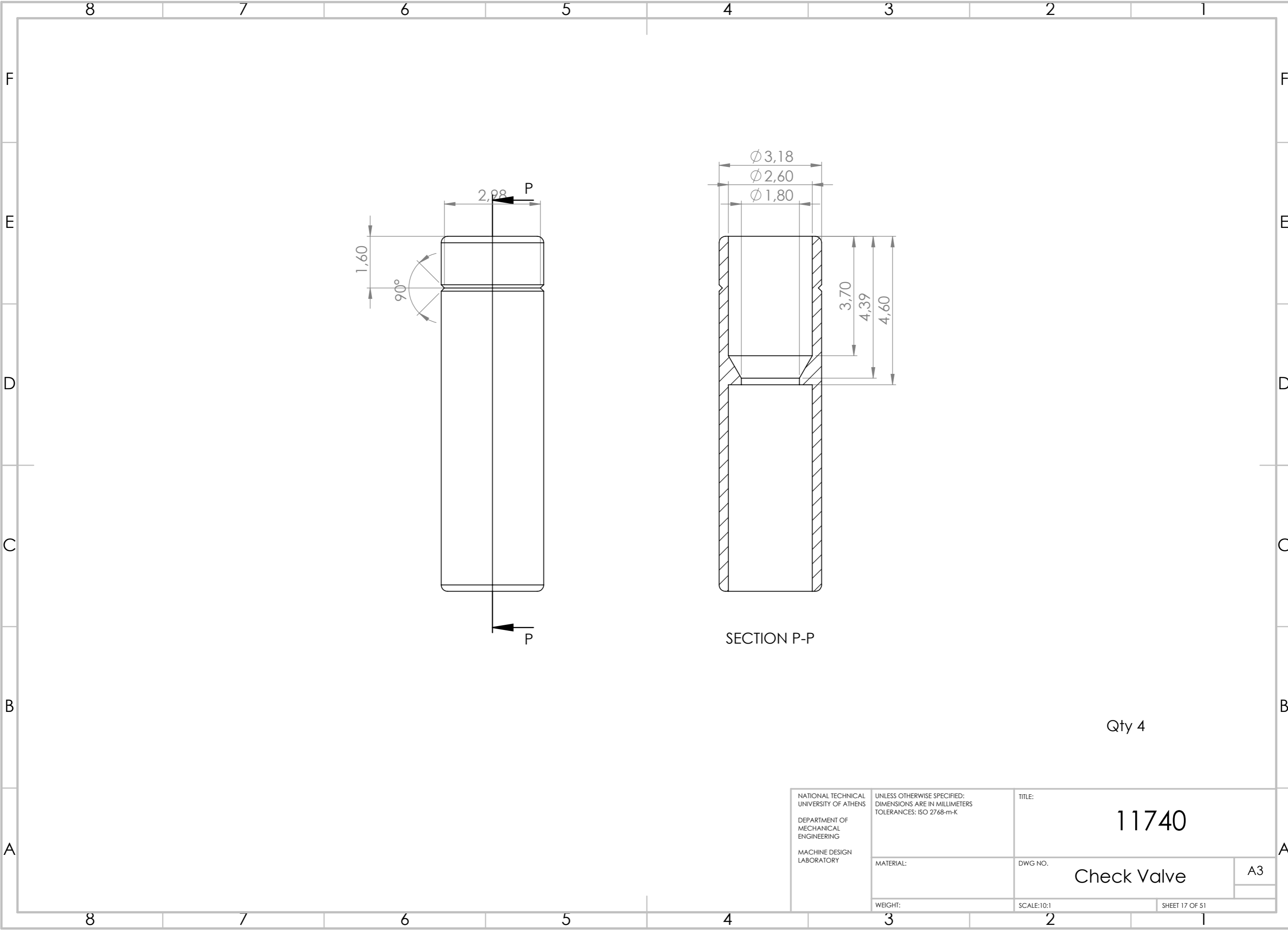


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|--|--|---------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. | |
| | AISI 304 | Case Top Part | |
| | WEIGHT: | SCALE:1:2 | SHEET 15 OF 51 |



SECTION O-O

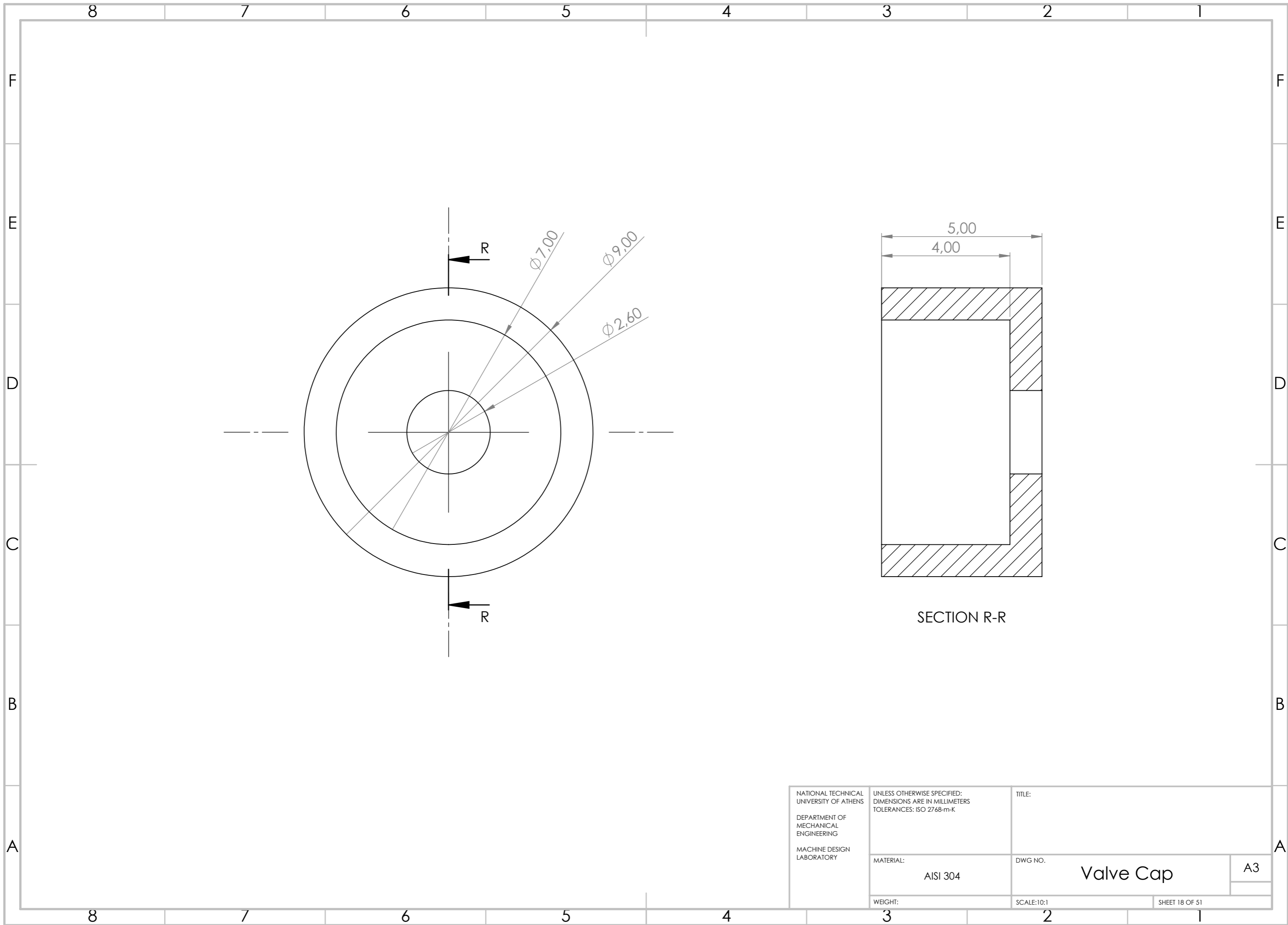
| | | | |
|--|--|-----------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Pulley | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 16 OF 51 |



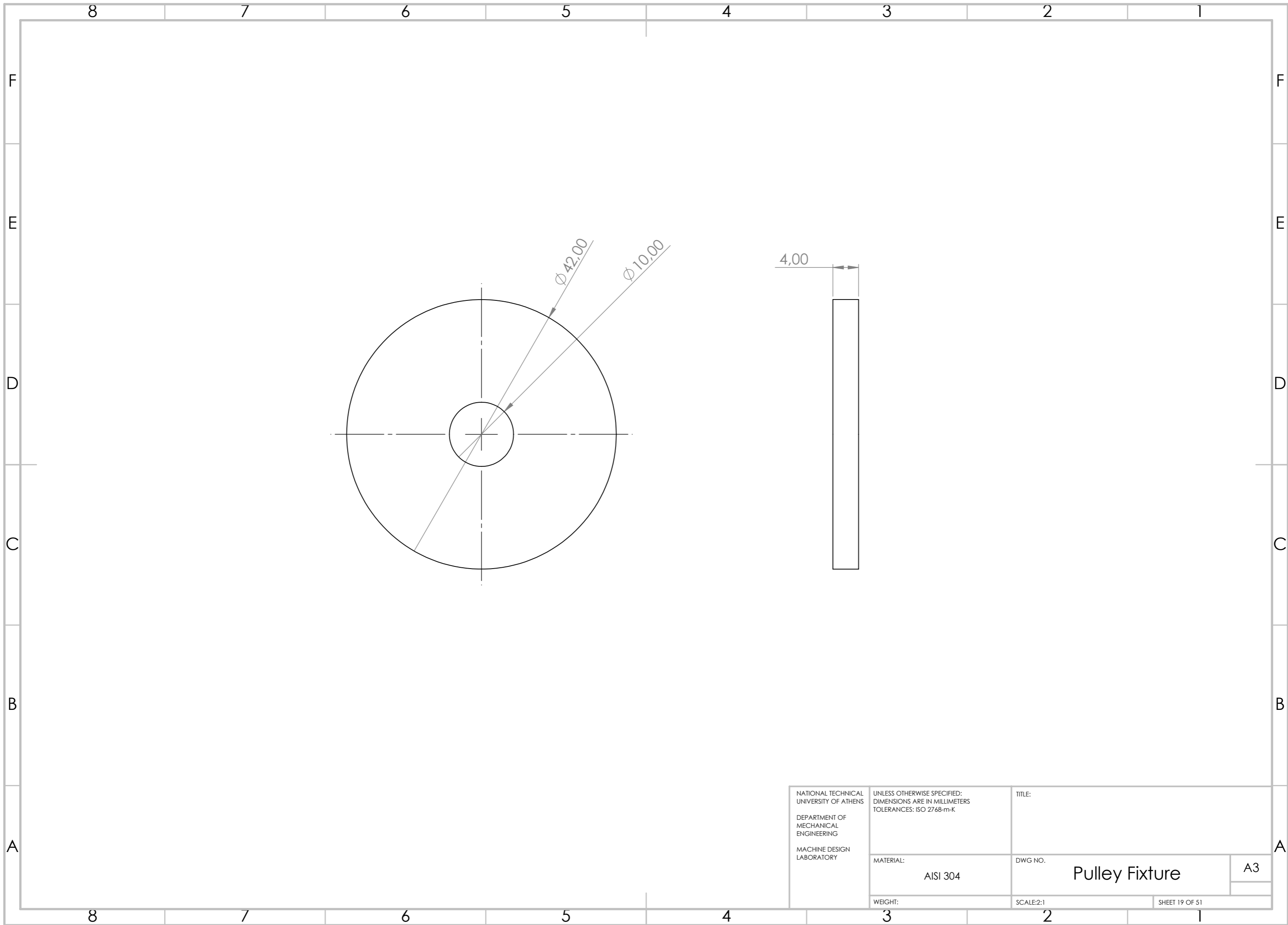
SECTION P-P

Qty 4

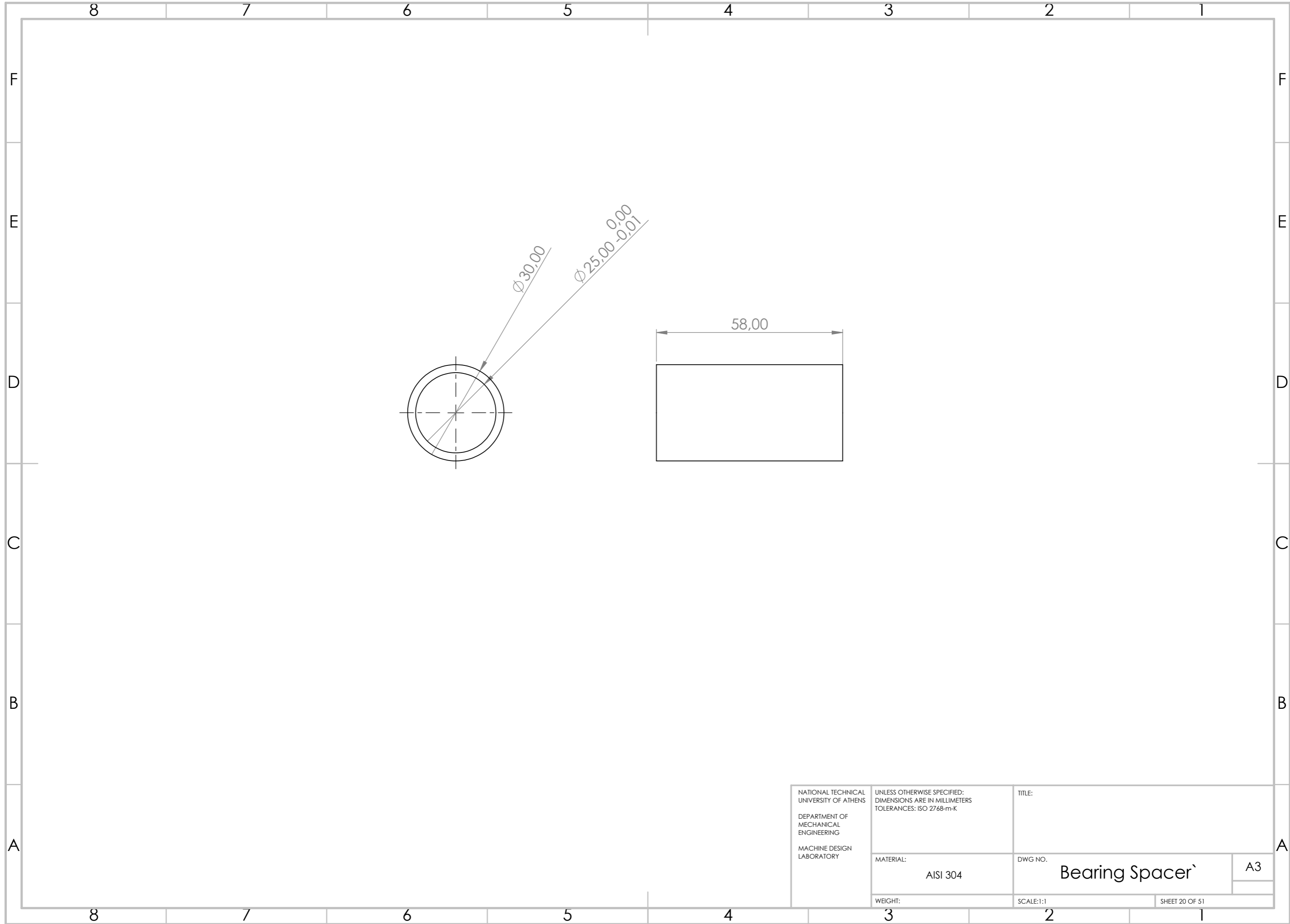
| | | | |
|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">11740</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Check Valve</h2> | A3 |
| | WEIGHT: | SCALE:10:1 | SHEET 17 OF 51 |



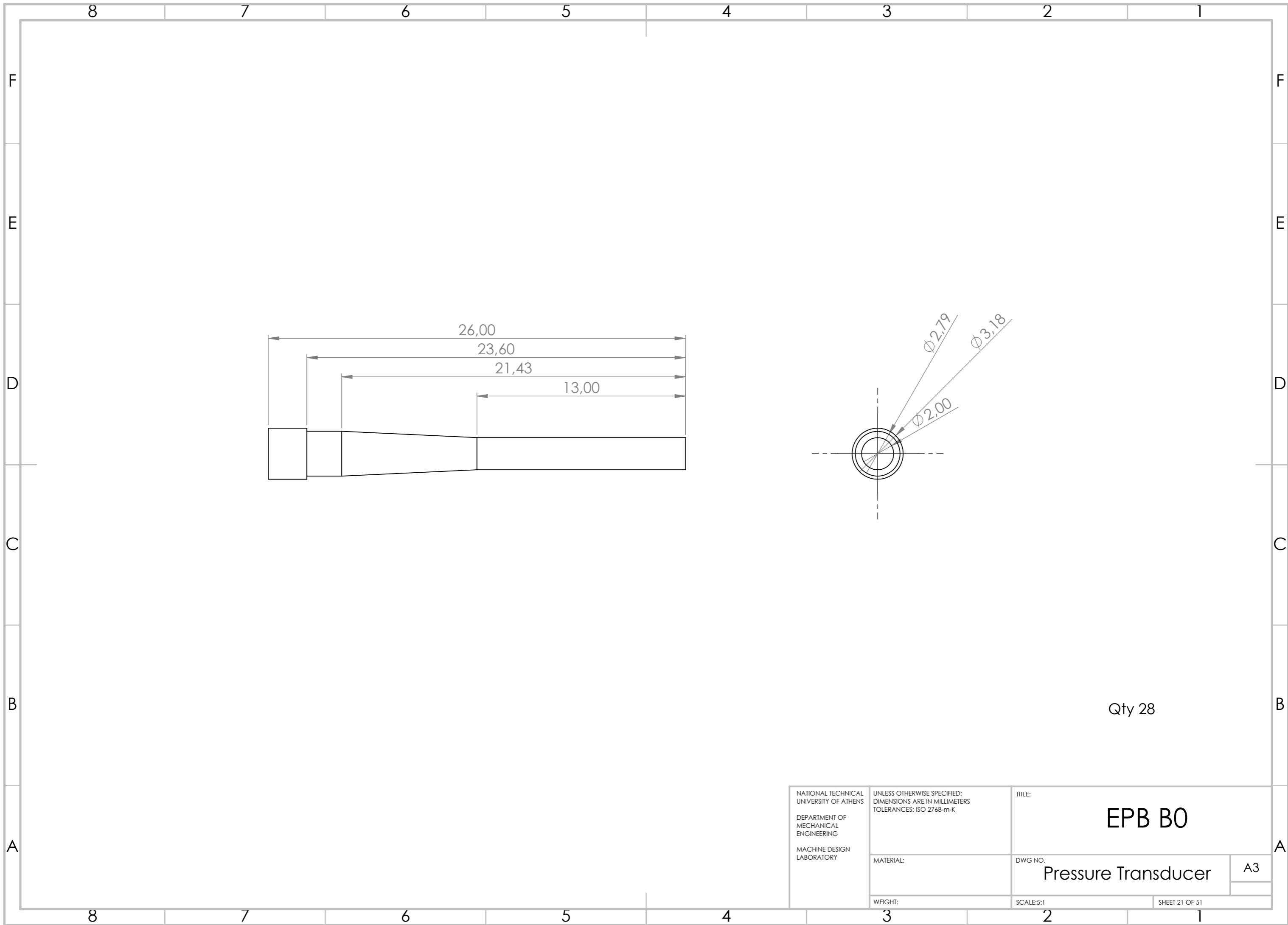
| | | | |
|--|--|---------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO.: Valve Cap | A3 |
| | WEIGHT: | SCALE:10:1 | SHEET 18 OF 51 |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Pulley Fixture | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 19 OF 51 |

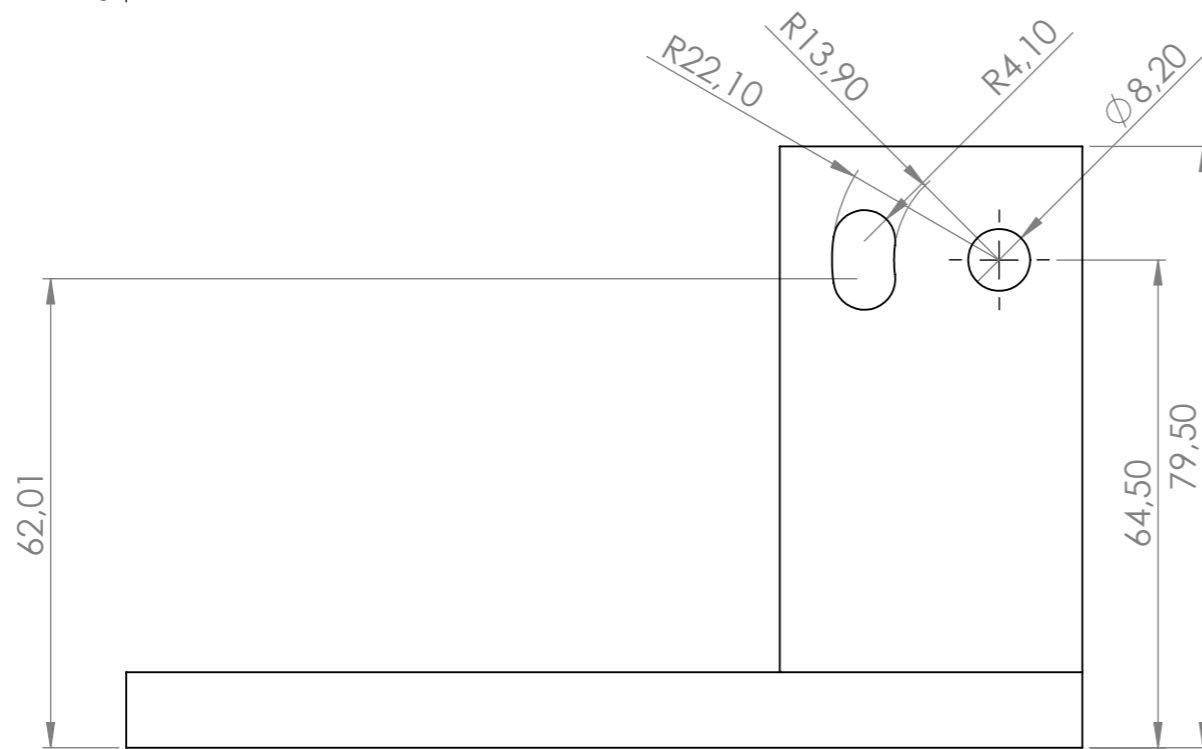
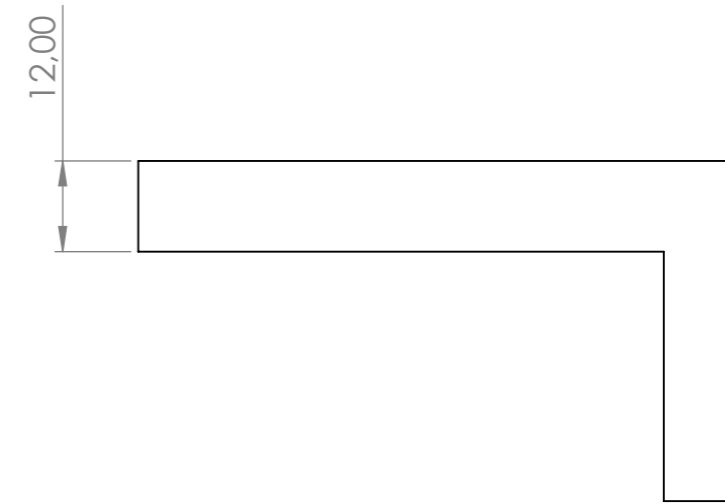
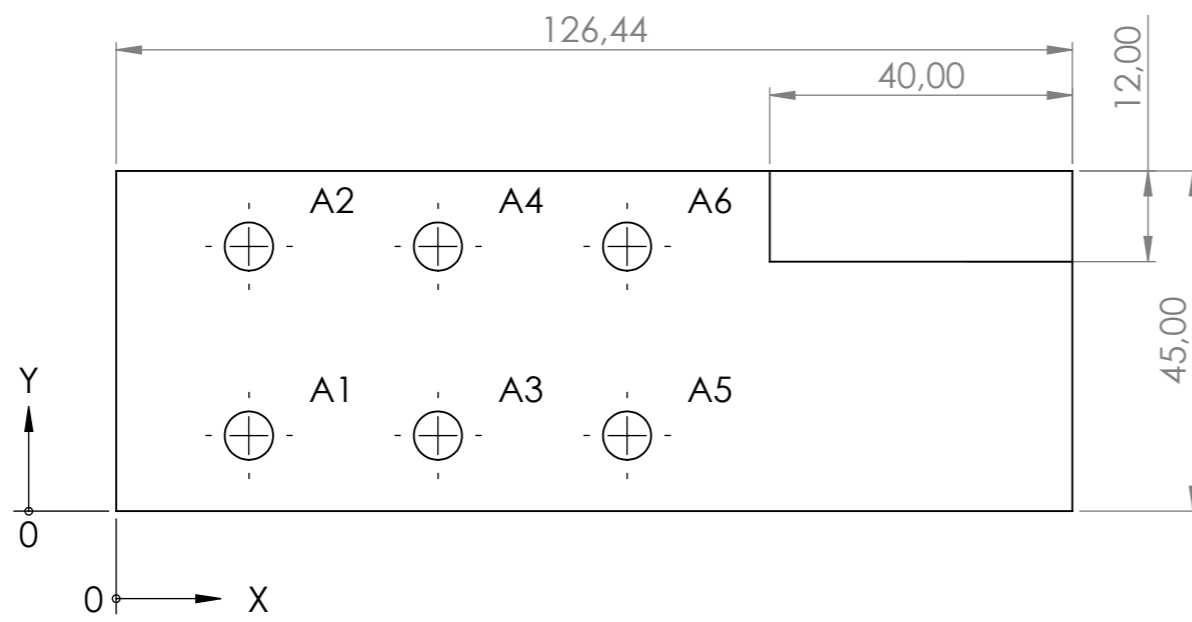


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|--|--|--------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Bearing Spacer` | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 20 OF 51 |



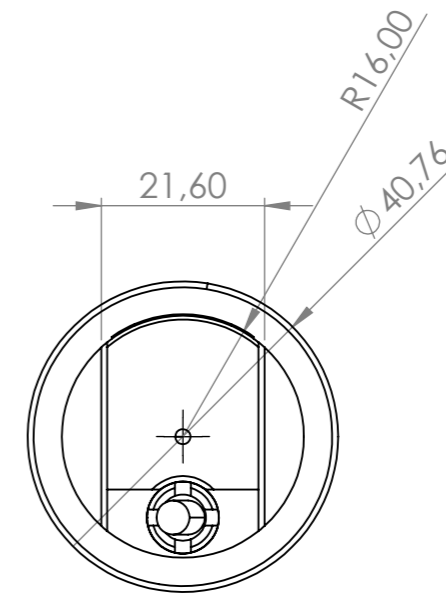
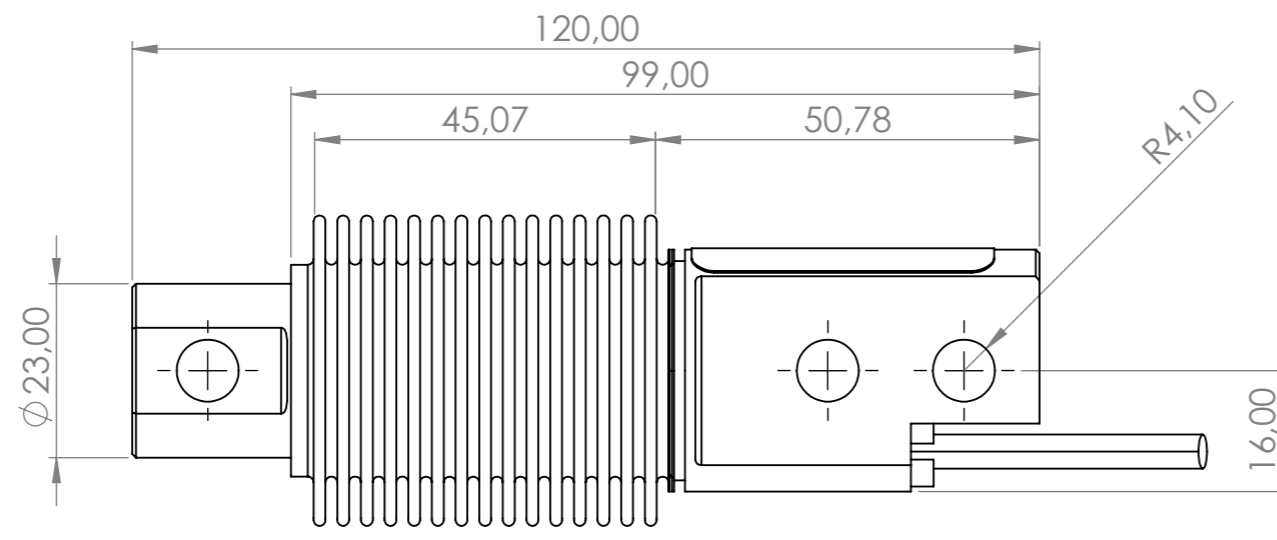
Qty 28

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">EPB B0</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Pressure Transducer</h2> | A3 |
| | WEIGHT: | SCALE:5:1 | SHEET 21 OF 51 |

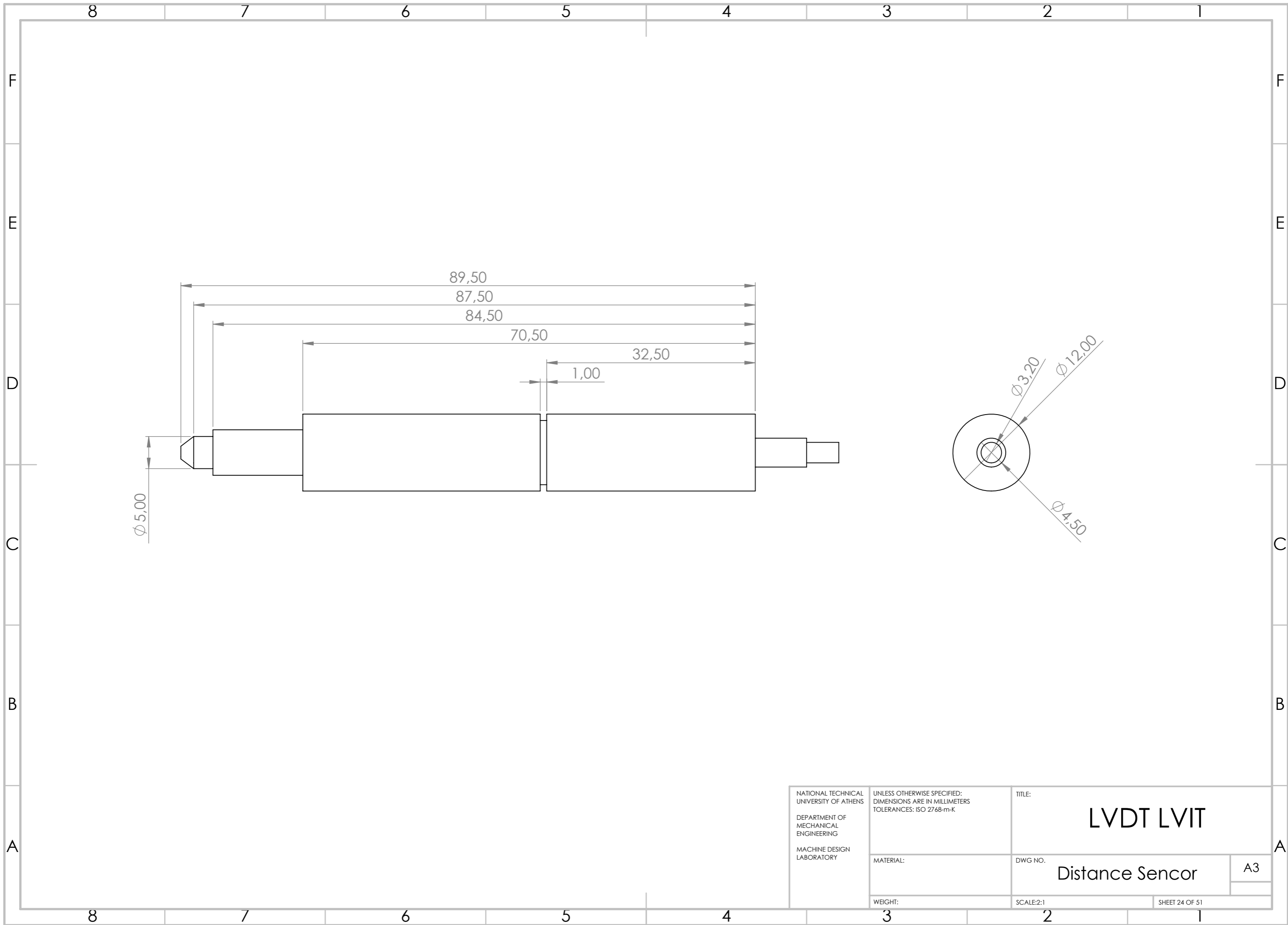


| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|--------------------------|
| A1 | 17,55 | 10 | $\phi 6,40 \nabla 15,00$ |
| A2 | 17,55 | 35 | $\phi 6,40 \nabla 15,00$ |
| A3 | 42,55 | 10 | $\phi 6,40 \nabla 15,00$ |
| A4 | 42,55 | 35 | $\phi 6,40 \nabla 15,00$ |
| A5 | 67,55 | 10 | $\phi 6,40 \nabla 15,00$ |
| A6 | 67,55 | 35 | $\phi 6,40 \nabla 15,00$ |

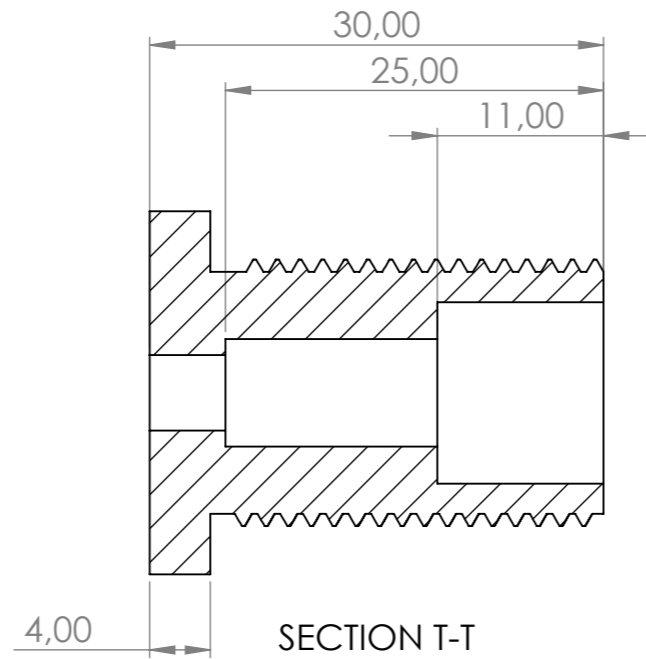
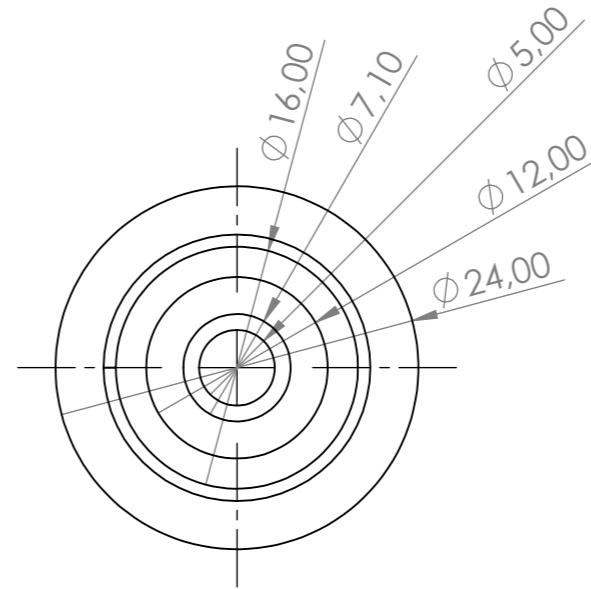
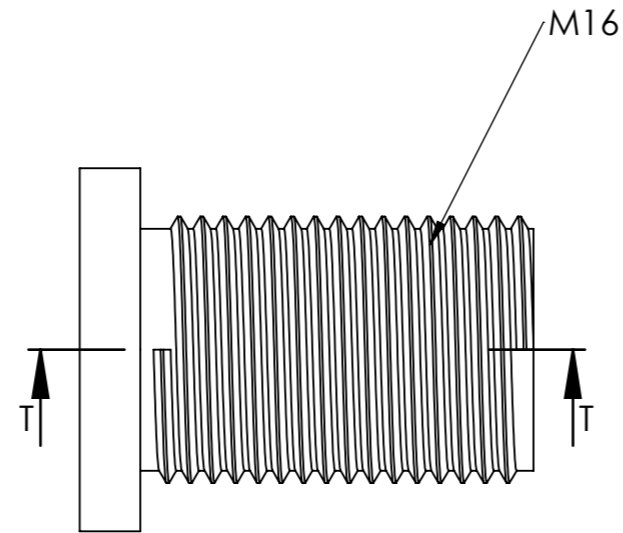
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | | TITLE: |
| | MATERIAL: | AISI 304 | DWG NO. Force transducer Base A3 |
| | WEIGHT: | | SCALE:1:1 SHEET 22 OF 51 |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">OBBS 10 250</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Force transducer</h2> | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 23 OF 51 |

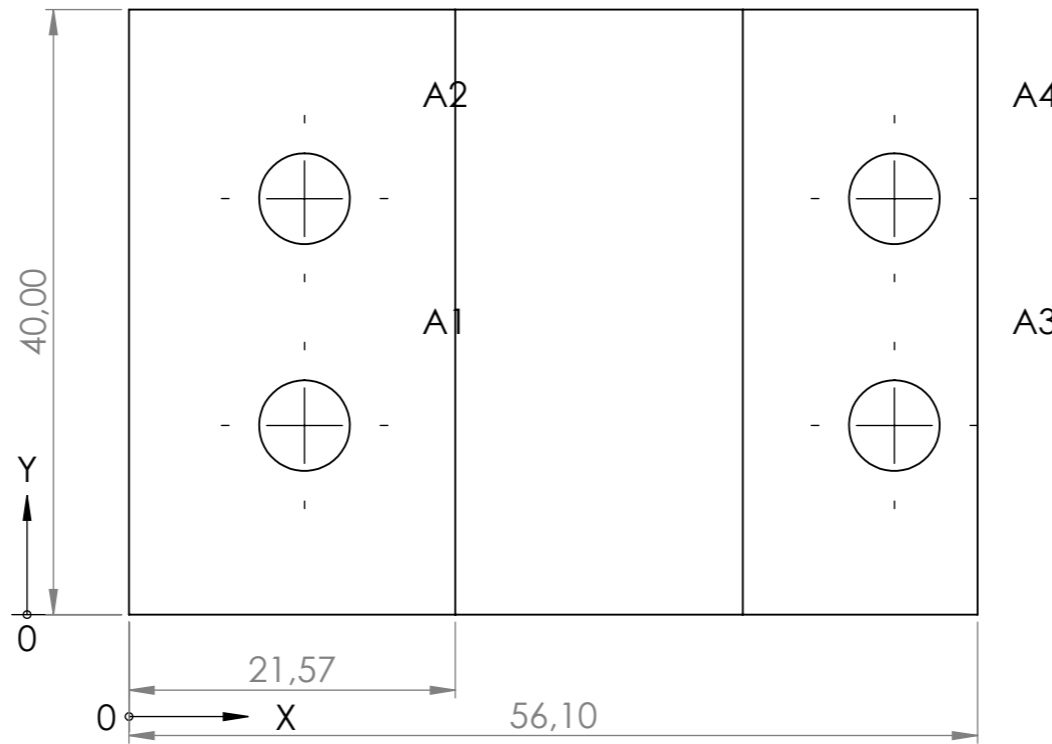
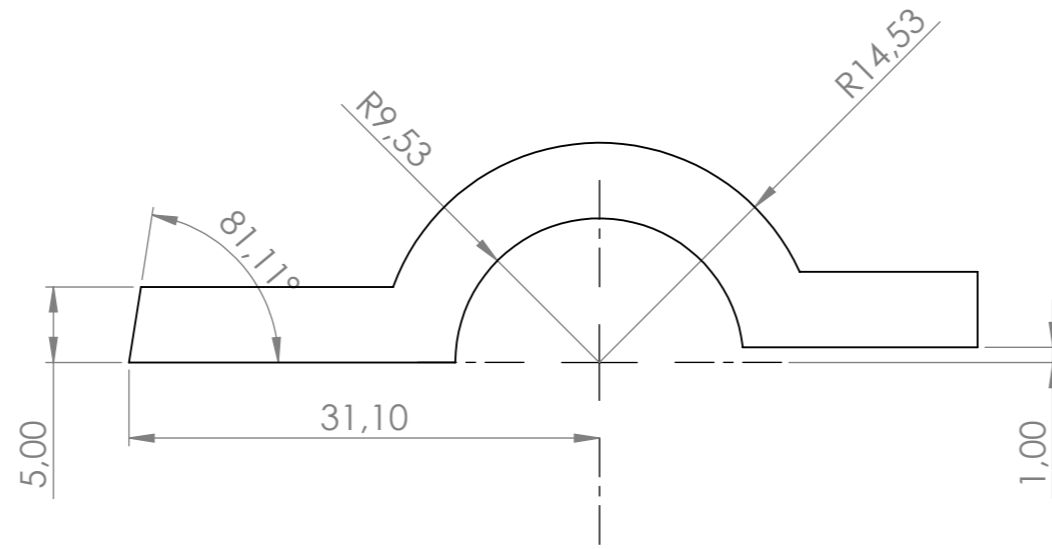


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">LVDT LVIT</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Distance Sencor</h2> | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 24 OF 51 |



Qty 2

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|--|--|-------------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Tank Connector | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 25 OF 51 |

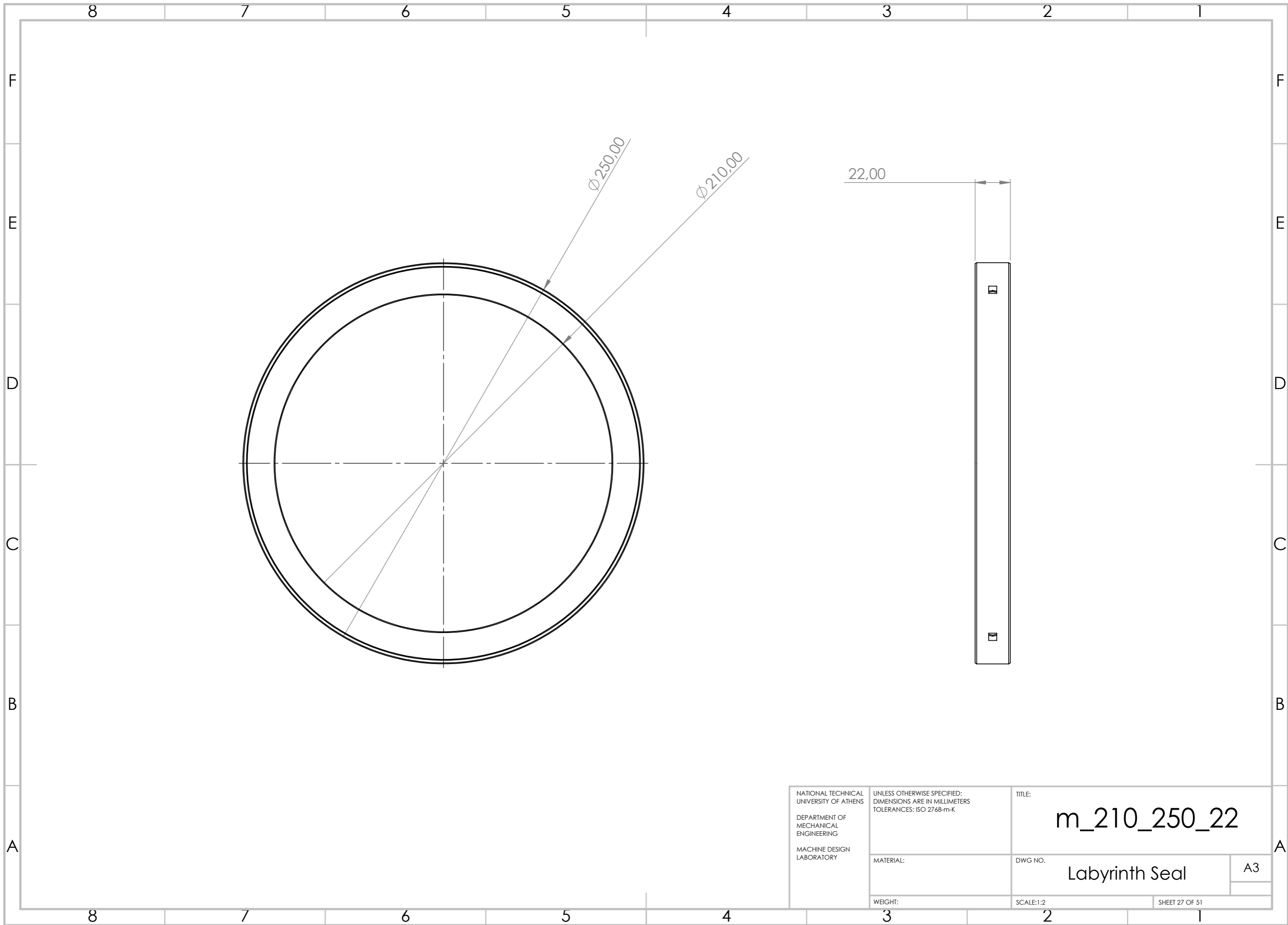


Qty 4

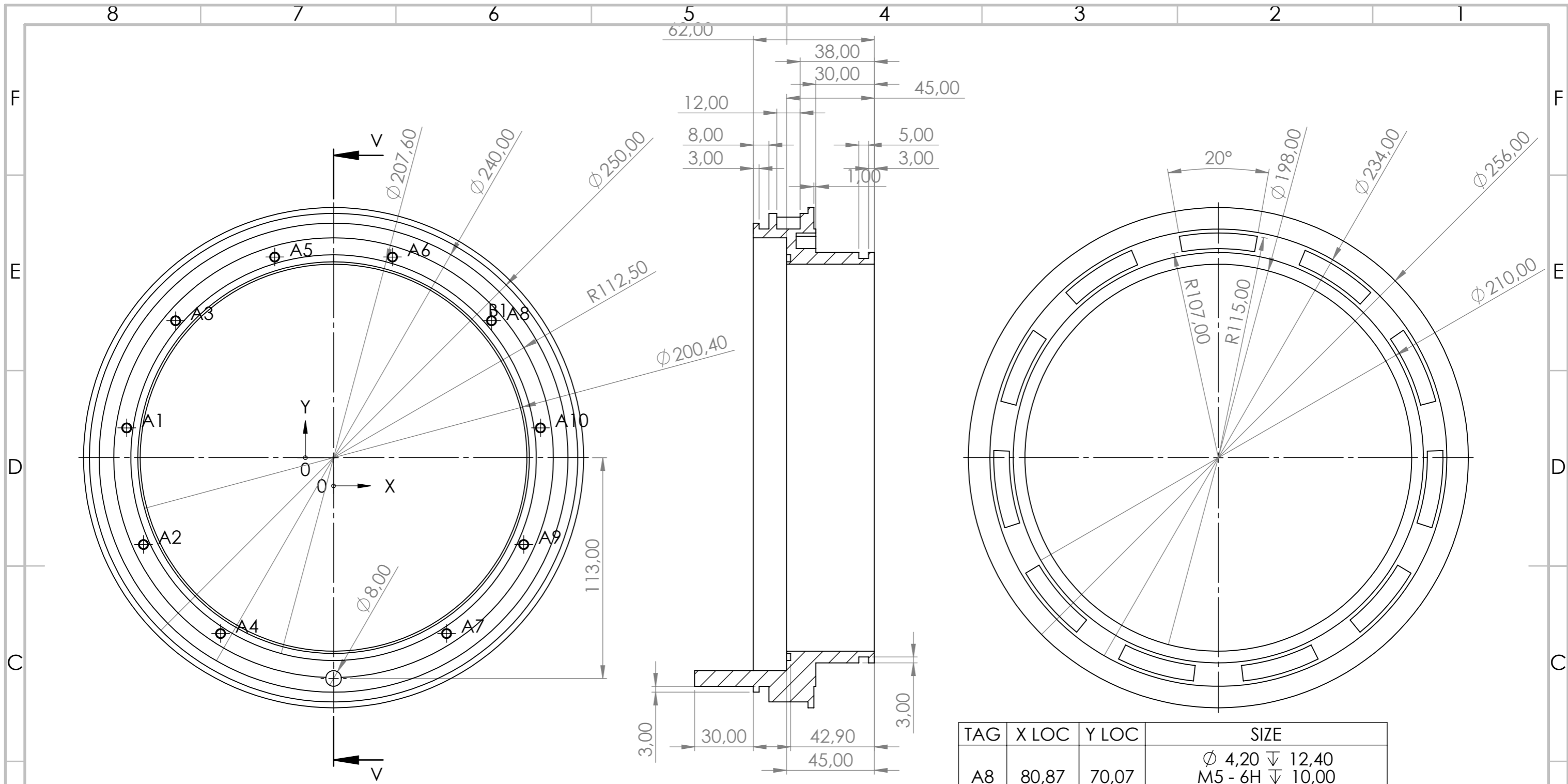
| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|-------------|
| A1 | 11,60 | 12,50 | Ø 6,00 THRU |
| A2 | 11,60 | 27,50 | Ø 6,00 THRU |
| A3 | 50,60 | 12,50 | Ø 6,00 THRU |
| A4 | 50,60 | 27,50 | Ø 6,00 THRU |

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | | TITLE: | |
| | MATERIAL: AISI 304 | | DWG NO. Shaft Collar | |
| | WEIGHT: | | SCALE:2:1 | |

A3



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|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">m_210_250_22</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Labyrinth Seal</h2> | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 27 OF 51 |



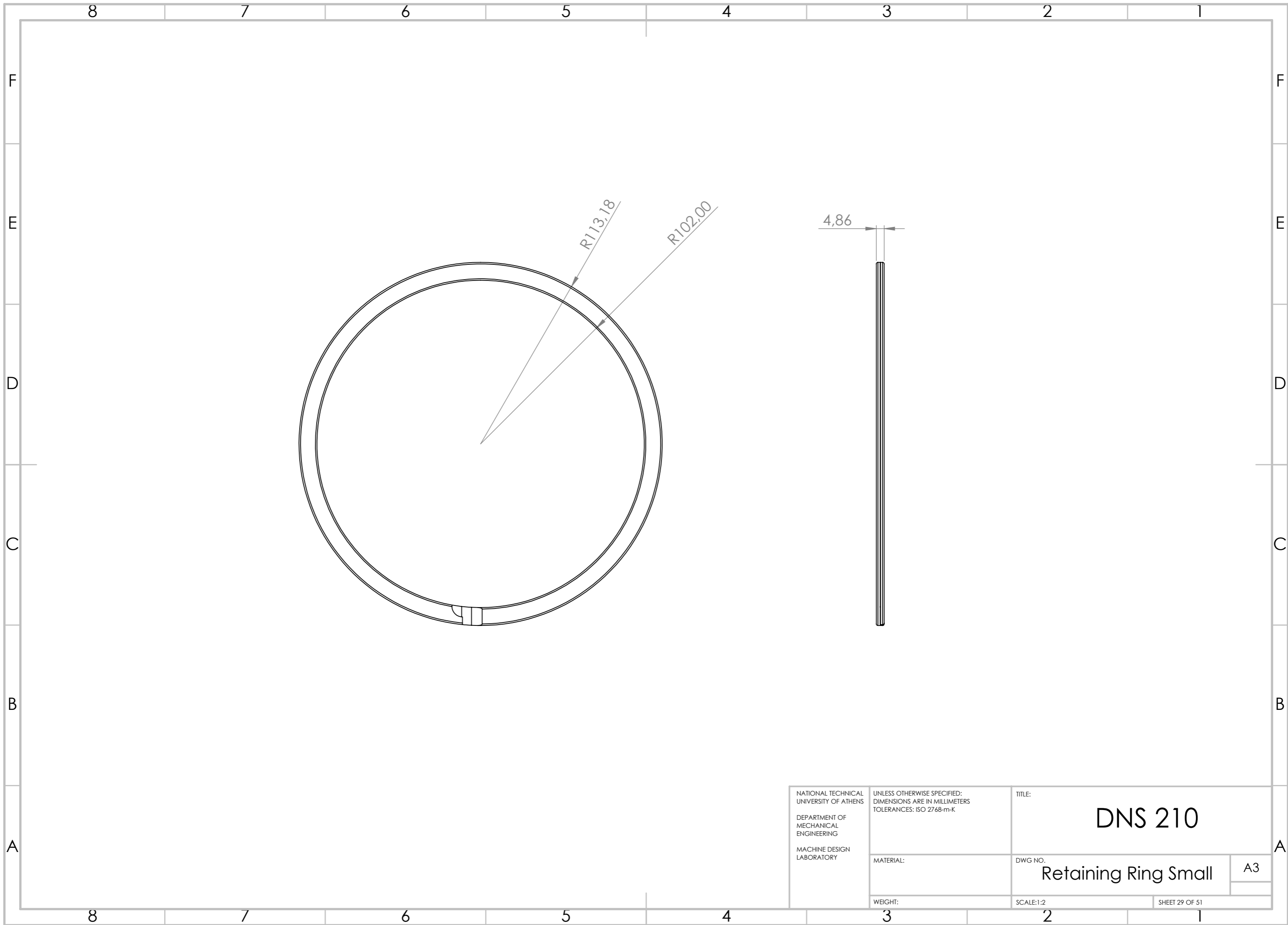
SECTION V-V

| TAG | X LOC | Y LOC | SIZE |
|-----|---------|--------|---|
| A1 | -105,91 | 15,23 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A2 | -97,33 | -44,45 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A3 | -80,87 | 70,07 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A4 | -57,85 | -90,01 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |

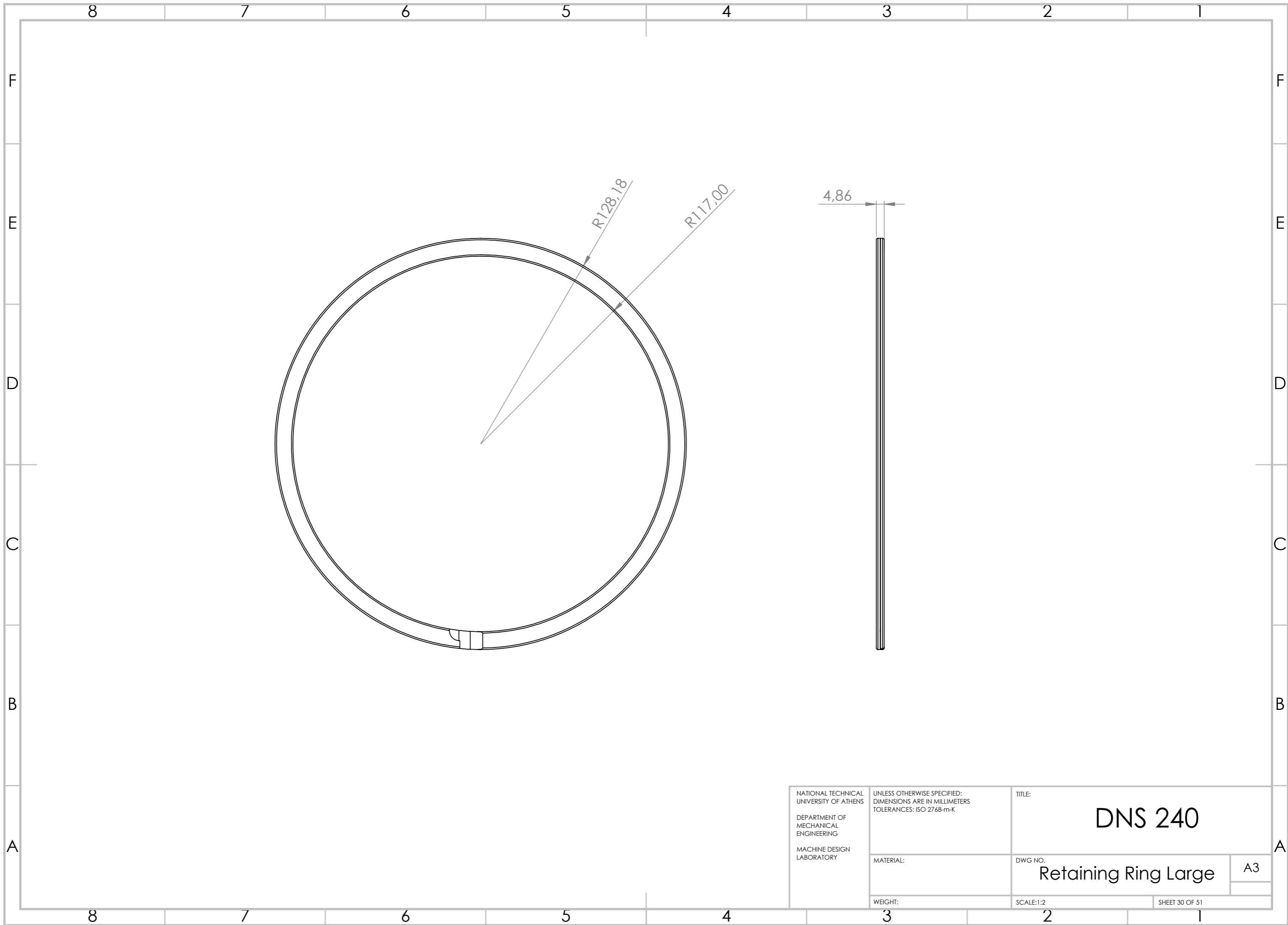
| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|---|
| A5 | -30,15 | 102,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A6 | 30,15 | 102,67 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A7 | 57,85 | -90,01 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |

| TAG | X LOC | Y LOC | SIZE |
|-----|--------|--------|---|
| A8 | 80,87 | 70,07 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A9 | 97,33 | -44,45 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| A10 | 105,91 | 15,23 | ϕ 4,20 ∇ 12,40 M5 - 6H ∇ 10,00 \checkmark ϕ 5,05 X 90°, Near Side |
| B1 | 0 | 0 | ϕ 207,60 ∇ 2,10 |

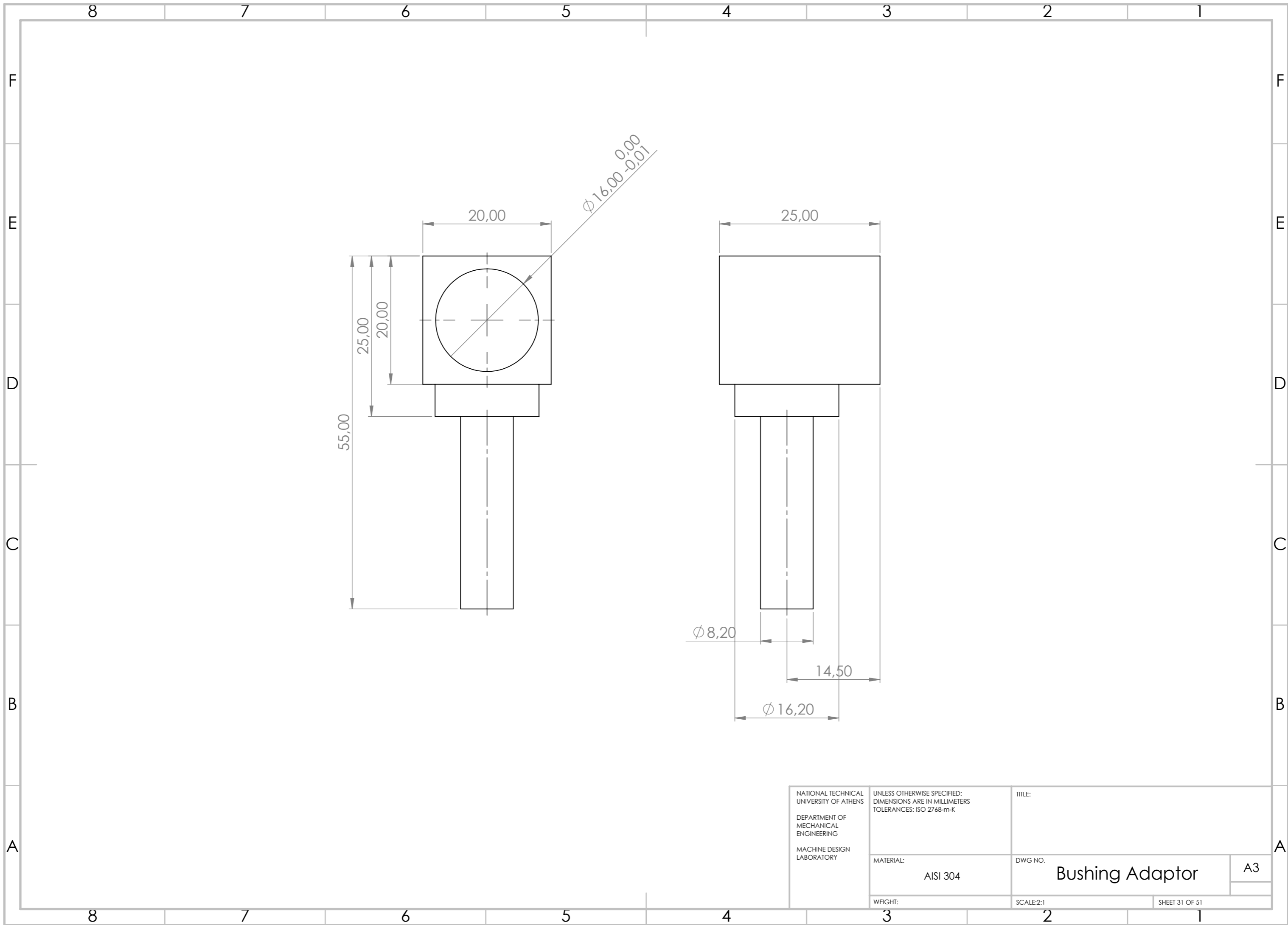
| | | | | |
|--|--|--|--------------------------------------|--|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | | TITLE: | |
| | MATERIAL: AISI 304 | | DWG NO. Metal Support Ring | |
| | WEIGHT: | | SCALE:1:2 | |
| | | | SHEET 28 OF 51 | |



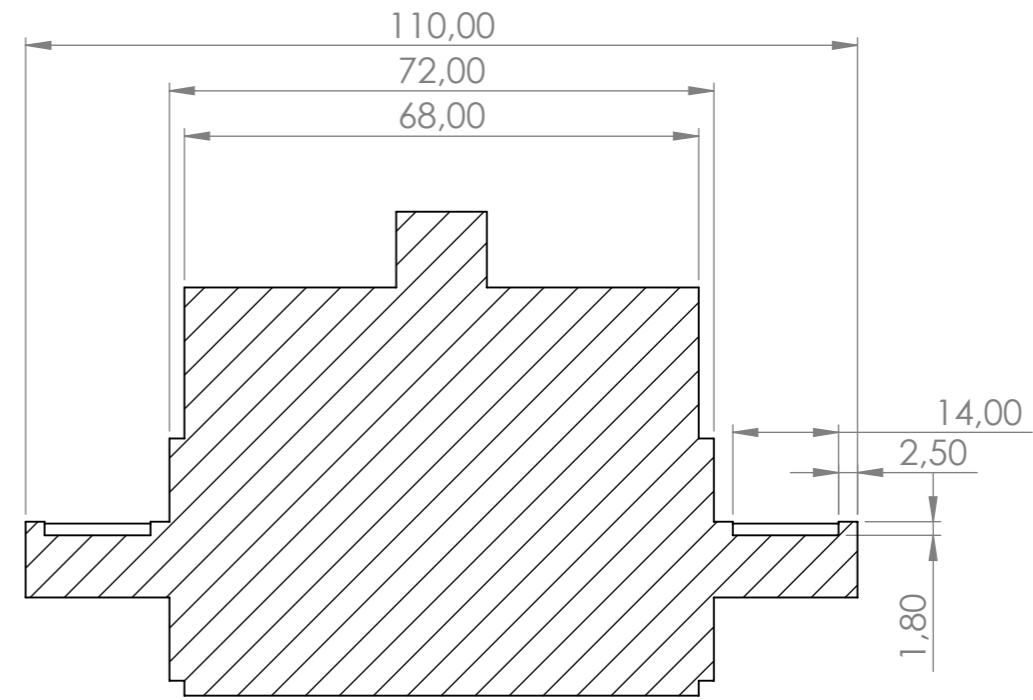
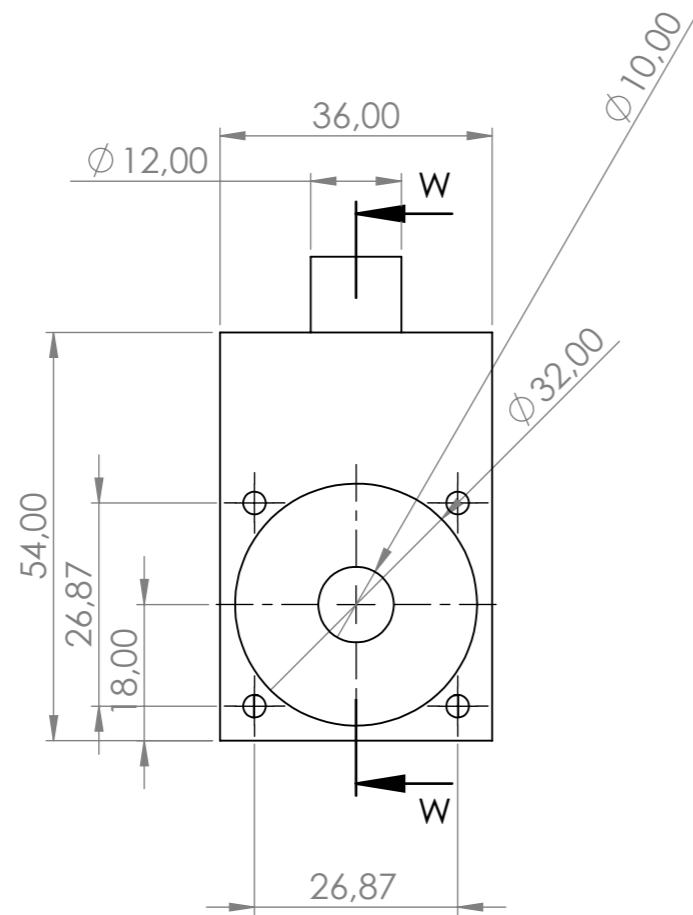
| | | | |
|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">DNS 210</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Retaining Ring Small</h2> | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 29 OF 51 |



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|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">DNS 240</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Retaining Ring Large</h2> | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 30 OF 51 |

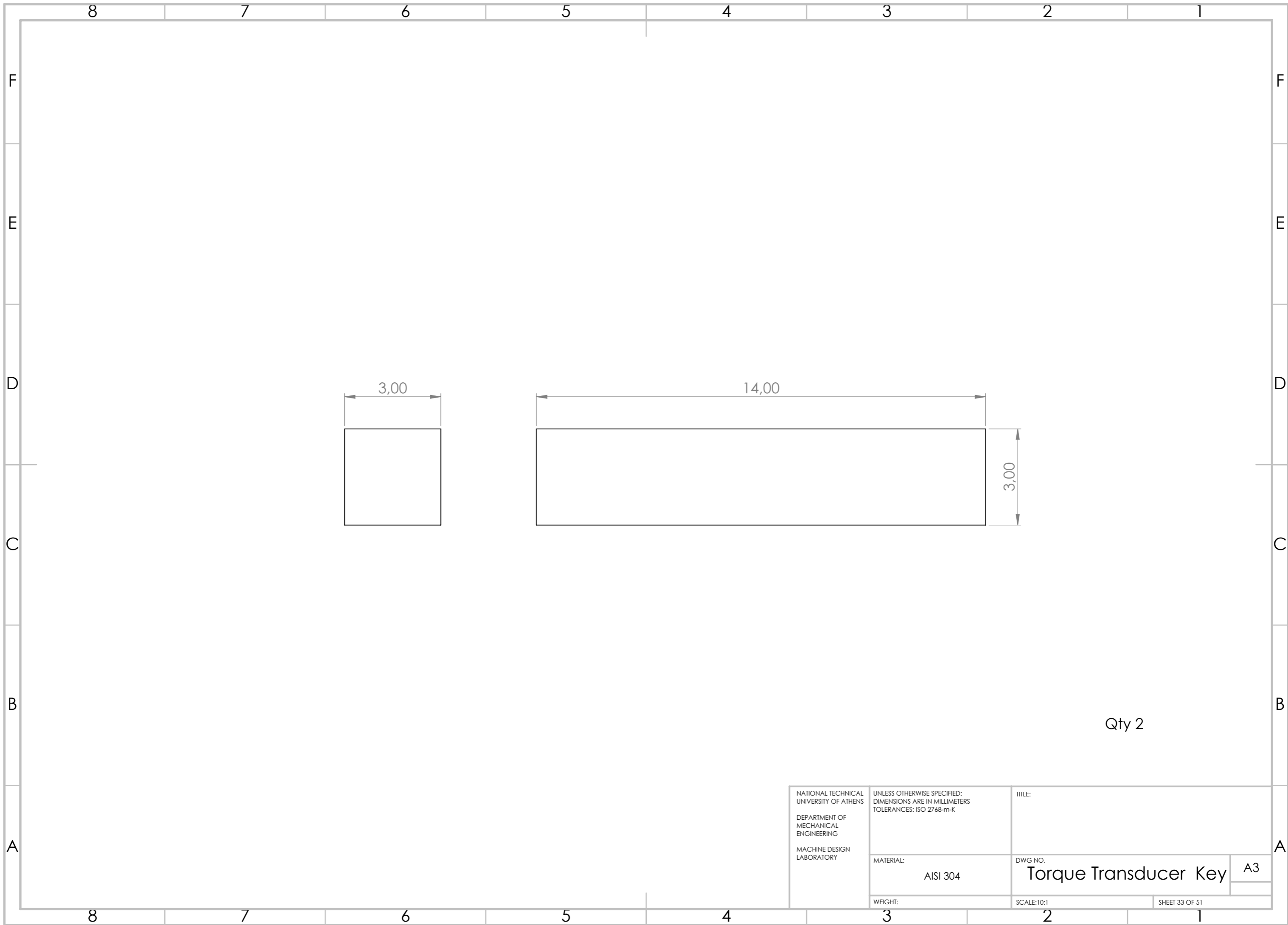


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Bushing Adaptor | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 31 OF 51 |



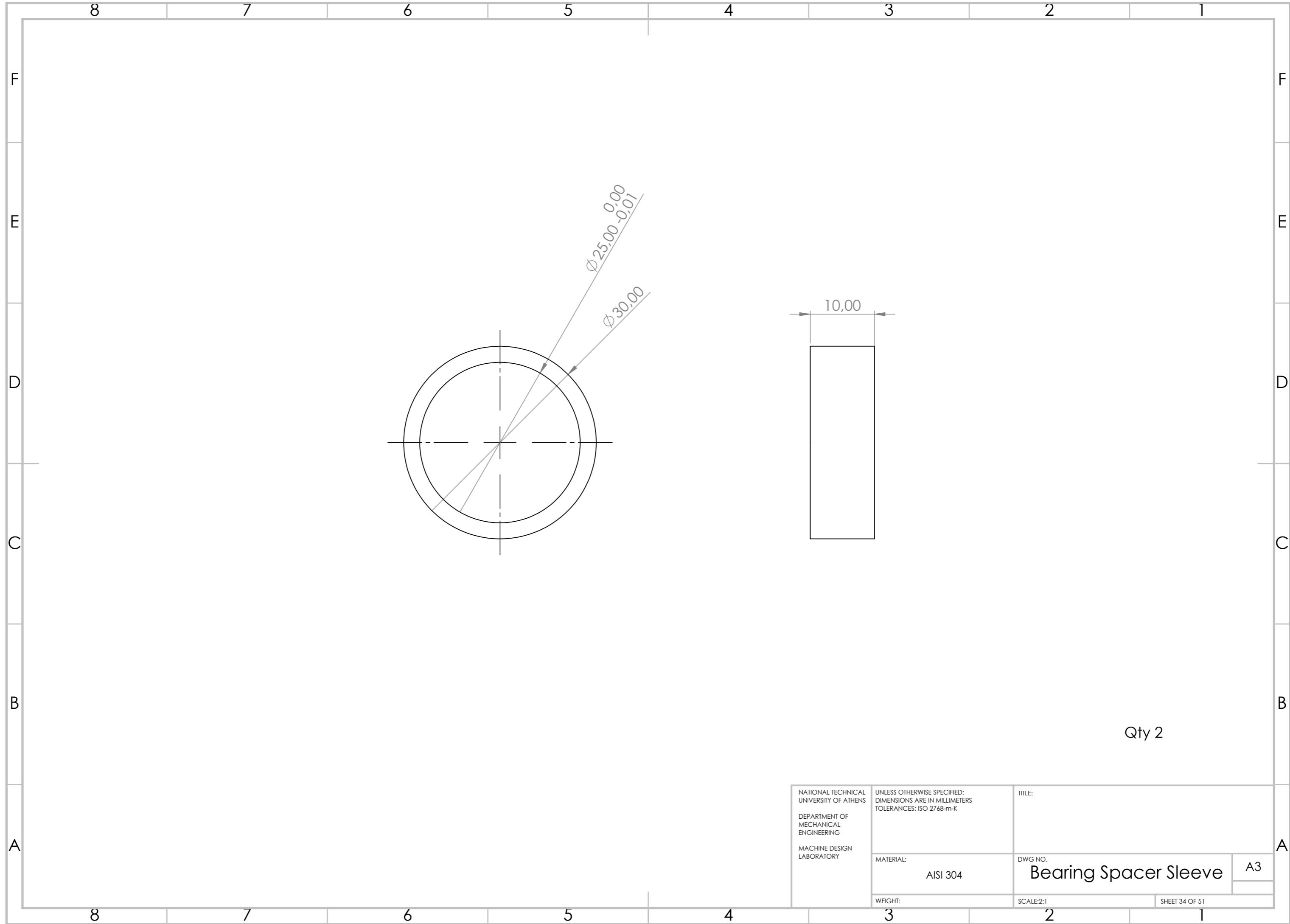
SECTION W-W

| | | | |
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: | DWG NO. Torque Transducer | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 32 OF 51 |



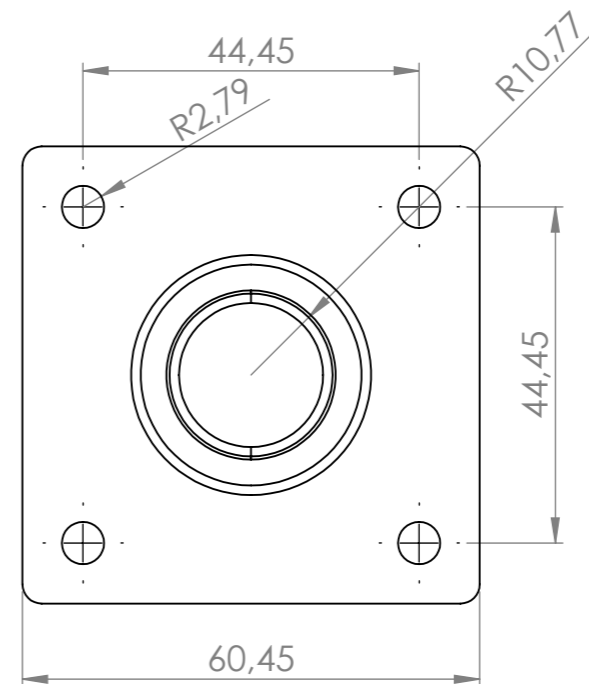
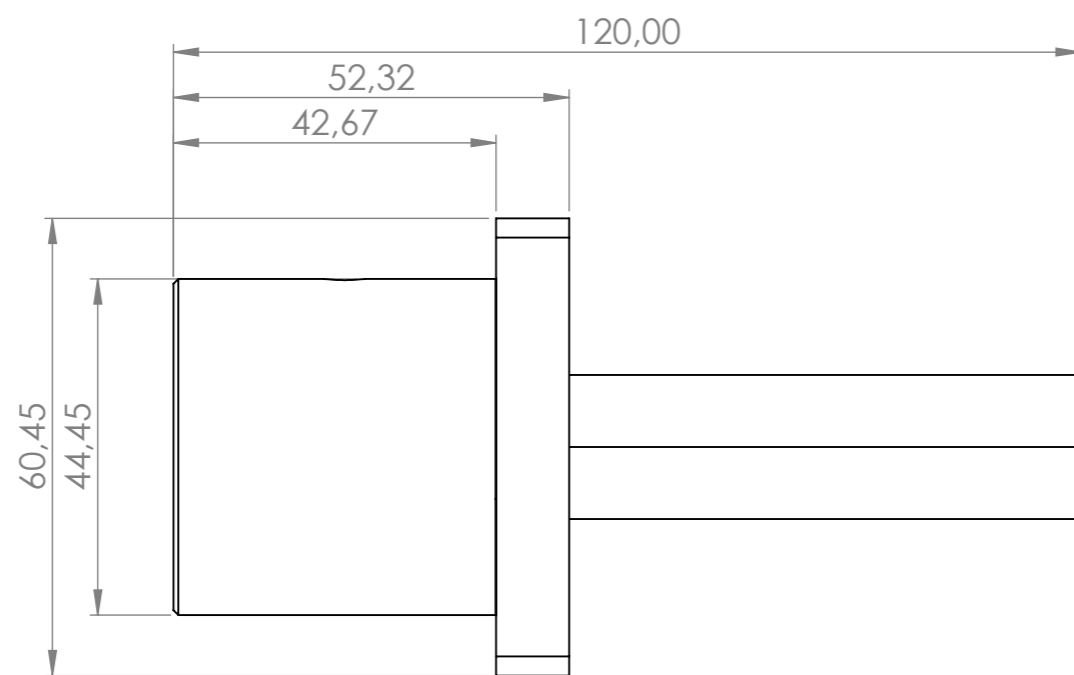
Qty 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Torque Transducer Key | A3 |
| | WEIGHT: | SCALE:10:1 | SHEET 33 OF 51 |



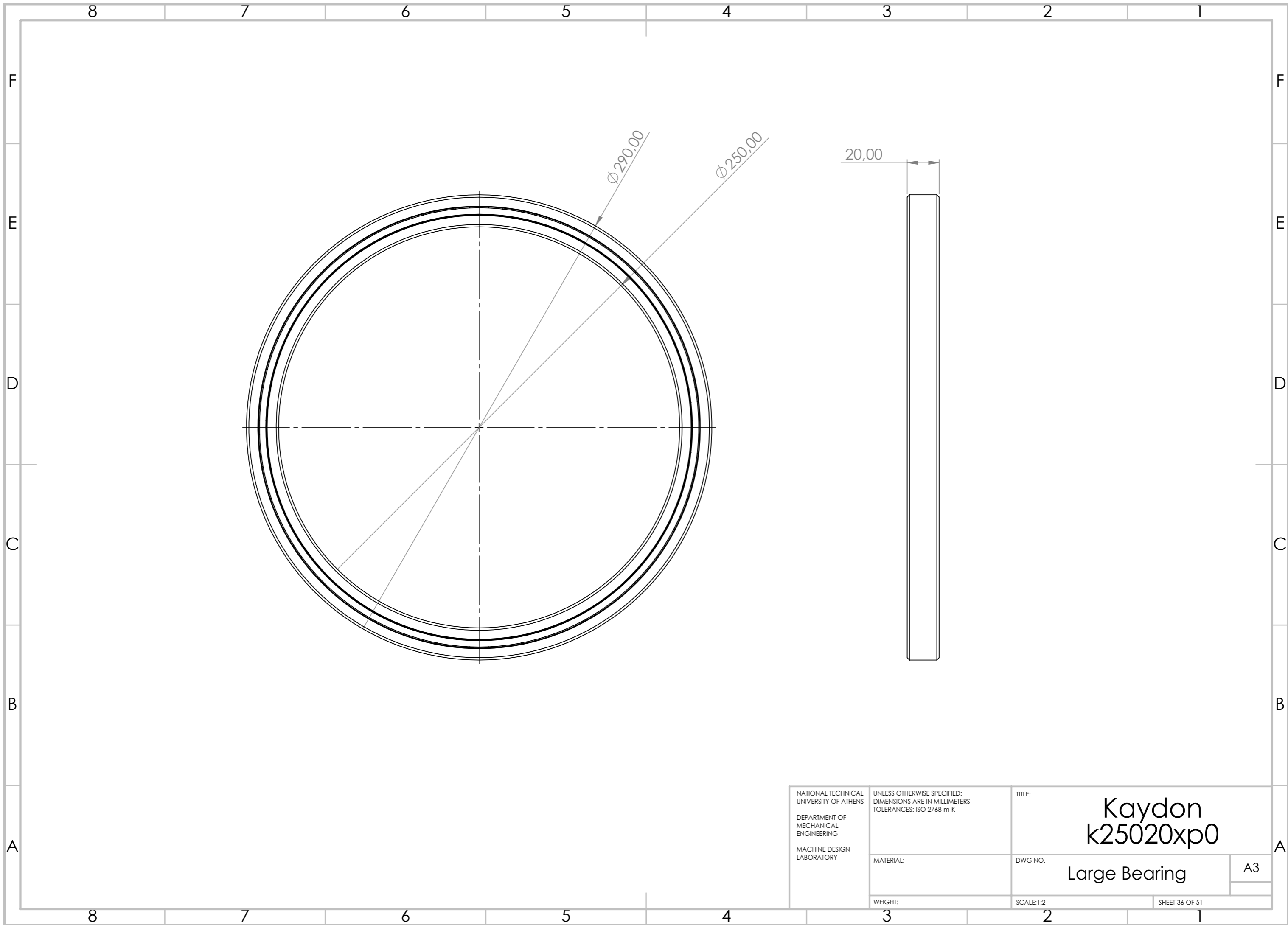
Qty 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG. NO. Bearing Spacer Sleeve | A3 |
| | WEIGHT: | SCALE: 2:1 | SHEET 34 OF 51 |

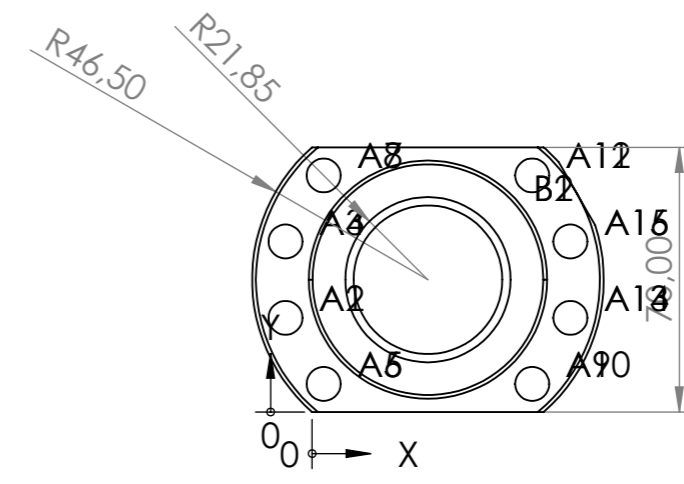
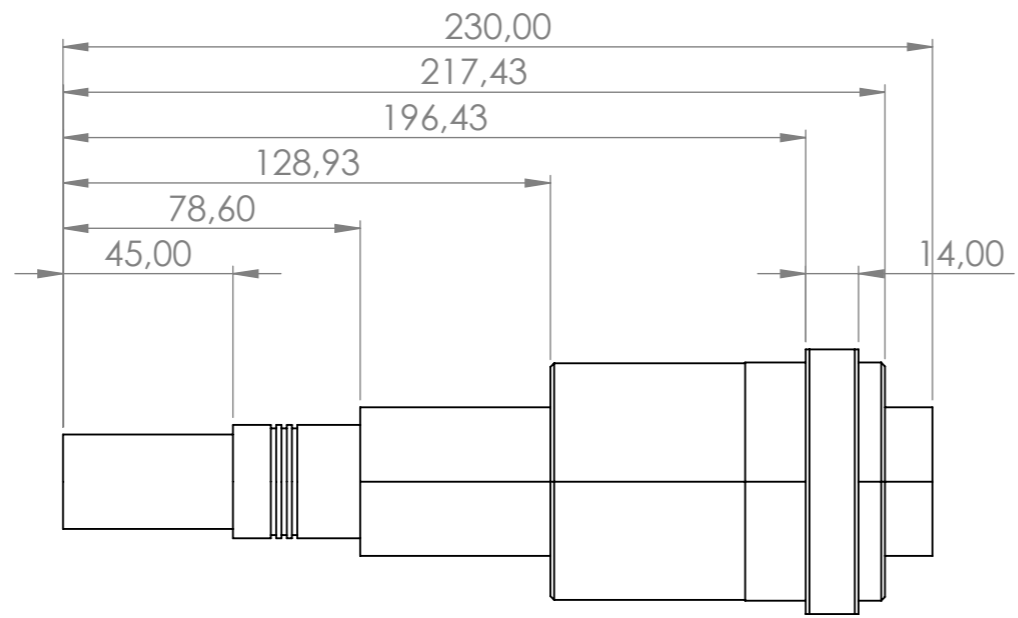


Qty 4

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|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1>SSUFB12</h1> | |
| | MATERIAL: | DWG NO. <h2>Linear ROUNG Rail Guide</h2> | A3 |
| | WEIGHT: | SCALE:1:1 | SHEET 35 OF 51 |

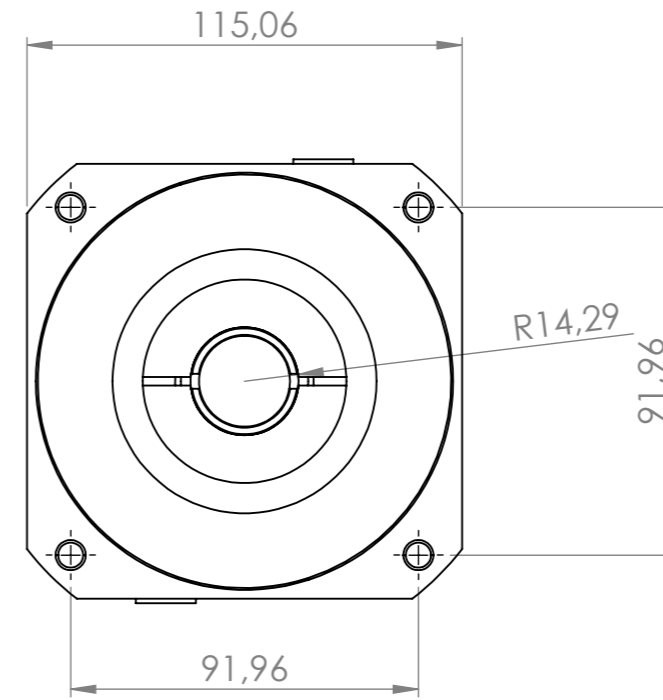
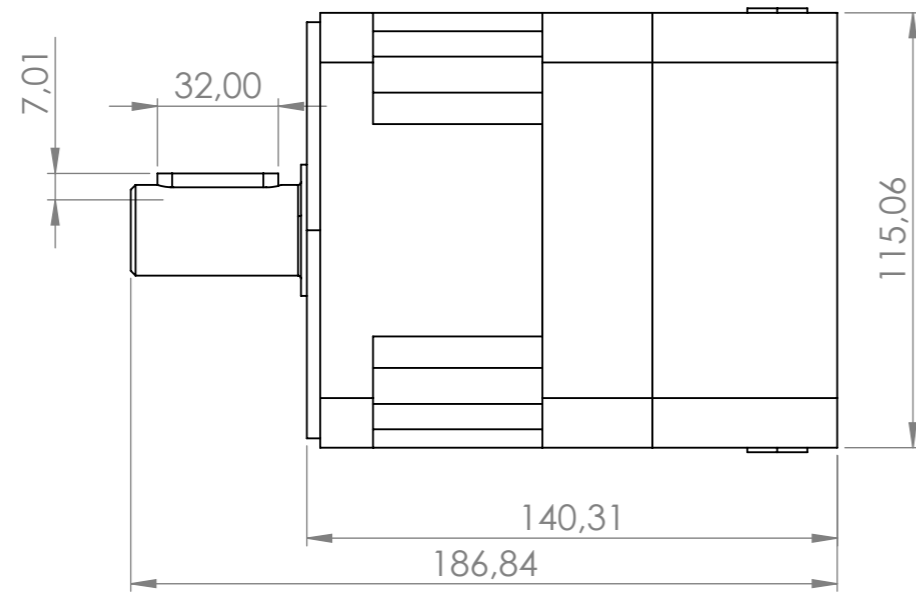


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">Kaydon k25020xp0</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Large Bearing</h2> | A3 |
| | WEIGHT: | SCALE: 1:2 | SHEET 36 OF 51 |

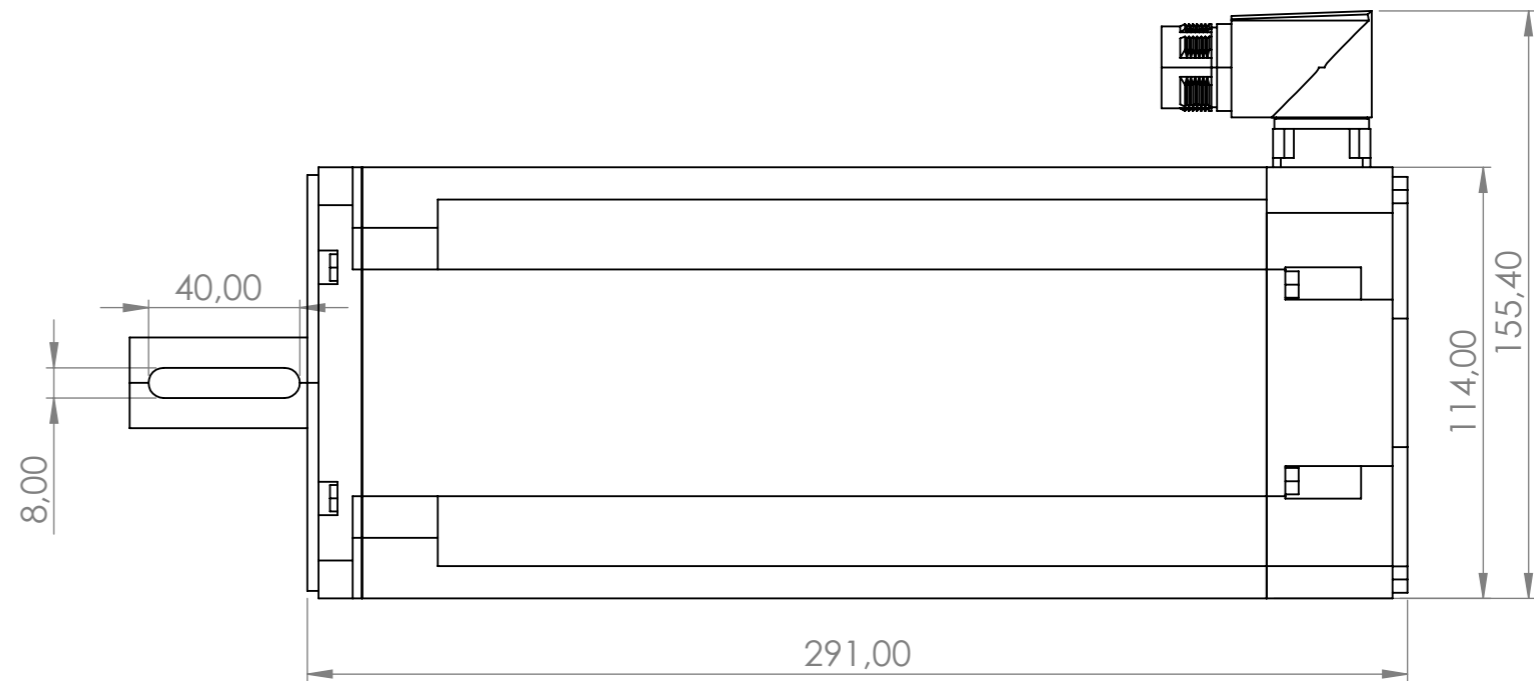
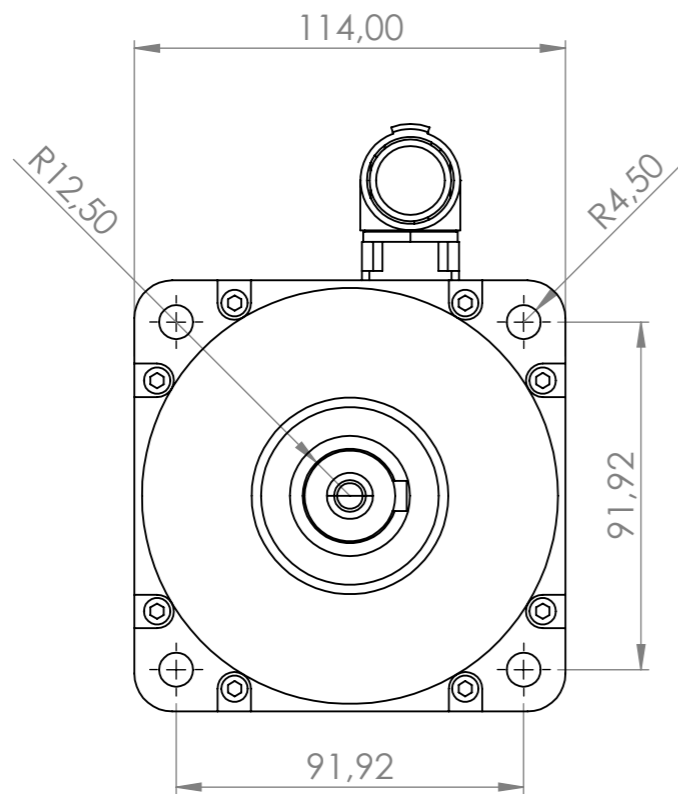


| TAG | X LOC | Y LOC | SIZE |
|-----|-------|-------|-------------|
| A1 | -7,06 | 24,91 | Ø 9,00 THRU |
| A2 | -7,06 | 24,91 | Ø 9,00 THRU |
| A3 | -7,06 | 45,09 | Ø 9,00 THRU |
| A4 | -7,06 | 45,09 | Ø 9,00 THRU |
| A5 | 3,04 | 7,42 | Ø 9,00 THRU |
| A6 | 3,04 | 7,42 | Ø 9,00 THRU |
| A7 | 3,04 | 62,58 | Ø 9,00 THRU |
| A8 | 3,04 | 62,58 | Ø 9,00 THRU |
| A9 | 58,19 | 7,42 | Ø 9,00 THRU |
| A10 | 58,19 | 7,42 | Ø 9,00 THRU |
| A11 | 58,19 | 62,58 | Ø 9,00 THRU |
| A12 | 58,19 | 62,58 | Ø 9,00 THRU |
| A13 | 68,29 | 24,91 | Ø 9,00 THRU |
| A14 | 68,29 | 24,91 | Ø 9,00 THRU |
| A15 | 68,29 | 45,09 | Ø 9,00 THRU |
| A16 | 68,29 | 45,09 | Ø 9,00 THRU |
| B1 | 30,61 | 35 | Ø 63,00 |
| B2 | 30,61 | 35 | Ø 63,00 |

| | | | |
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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: KGT D 4010 P3 RH | |
| | MATERIAL: | DWG NO. | Lead Screw |
| | WEIGHT: | SCALE:1:2 | SHEET 37 OF 51 |

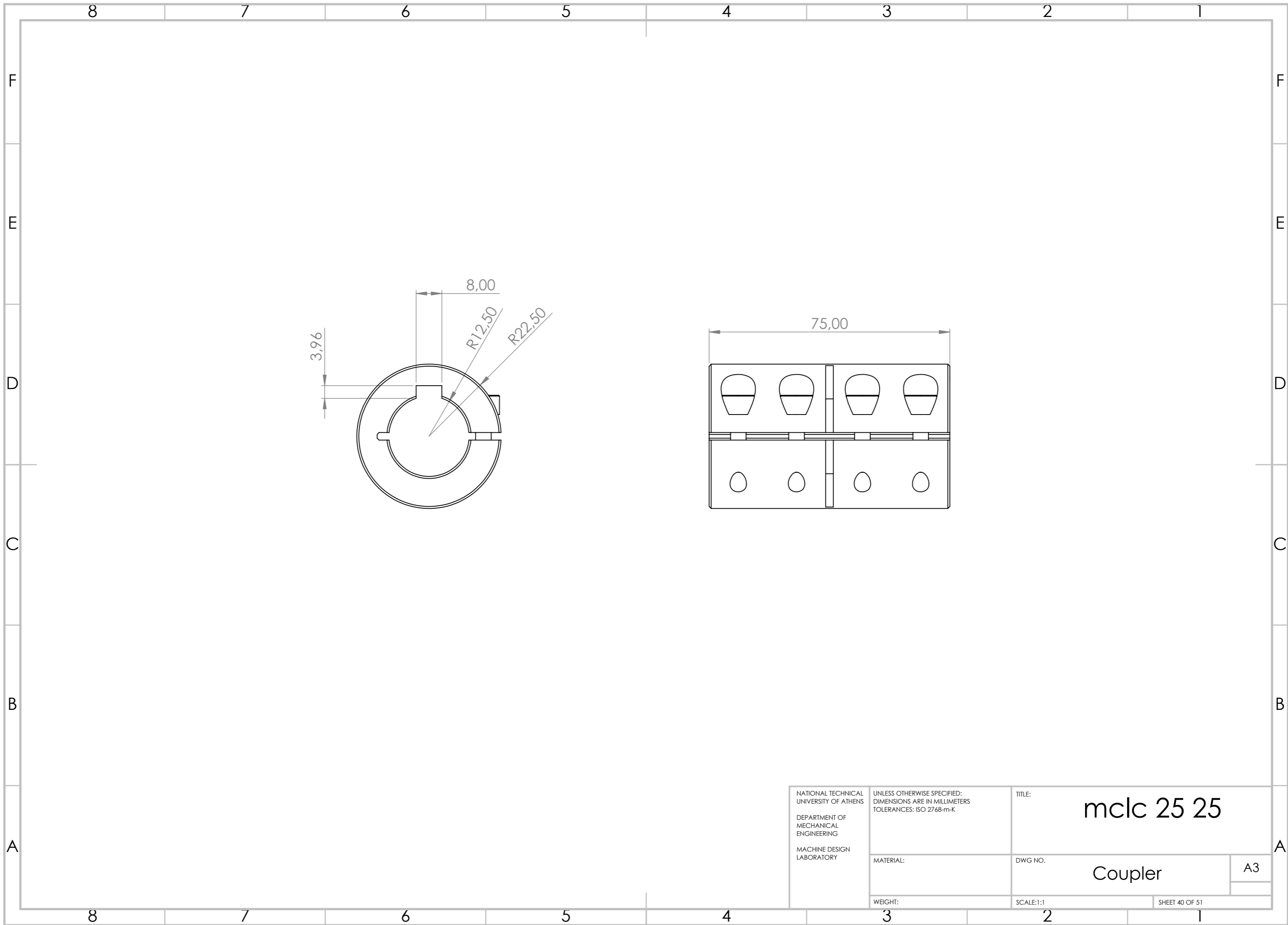


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: DT115 004 0 RM115 | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:1:2 | SHEET 38 OF 51 |
| | | Gearbox | |

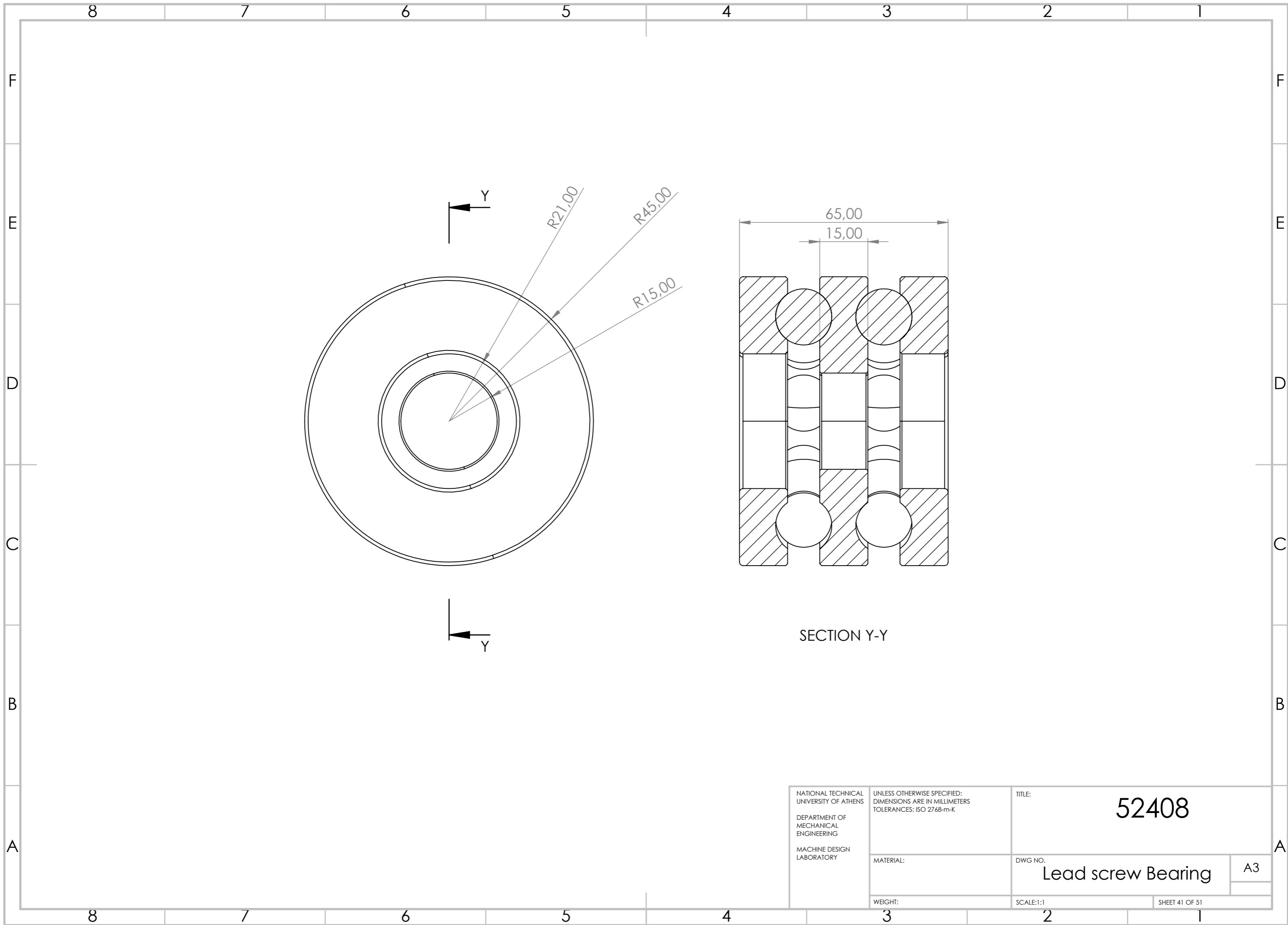


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|--|--|---|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: AKM2G 54X ACD2CA00 | |
| | MATERIAL: | DWG NO. | Motor |
| | WEIGHT: | SCALE: 1:2 | SHEET 39 OF 51 |

A3

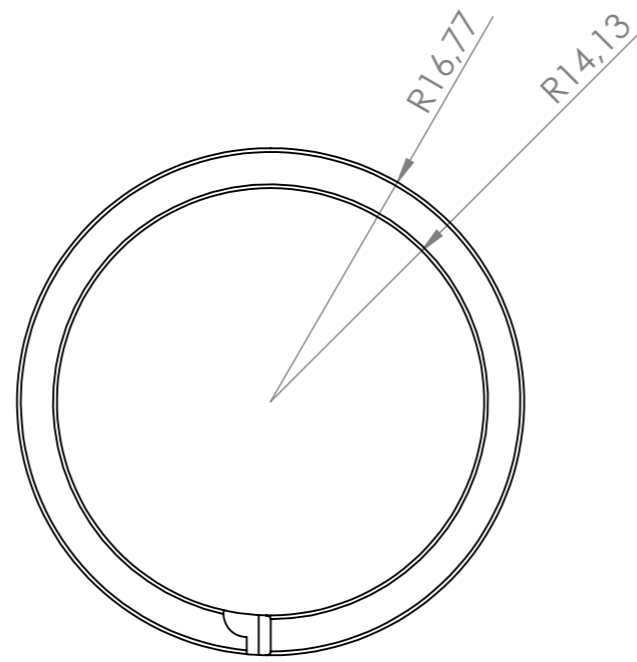


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|--|--|--------------------------|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: mclc 25 25 | |
| | MATERIAL: | DWG NO. | Coupler |
| | WEIGHT: | SCALE: 1:1 | SHEET 40 OF 51 |
| | | A3 | |



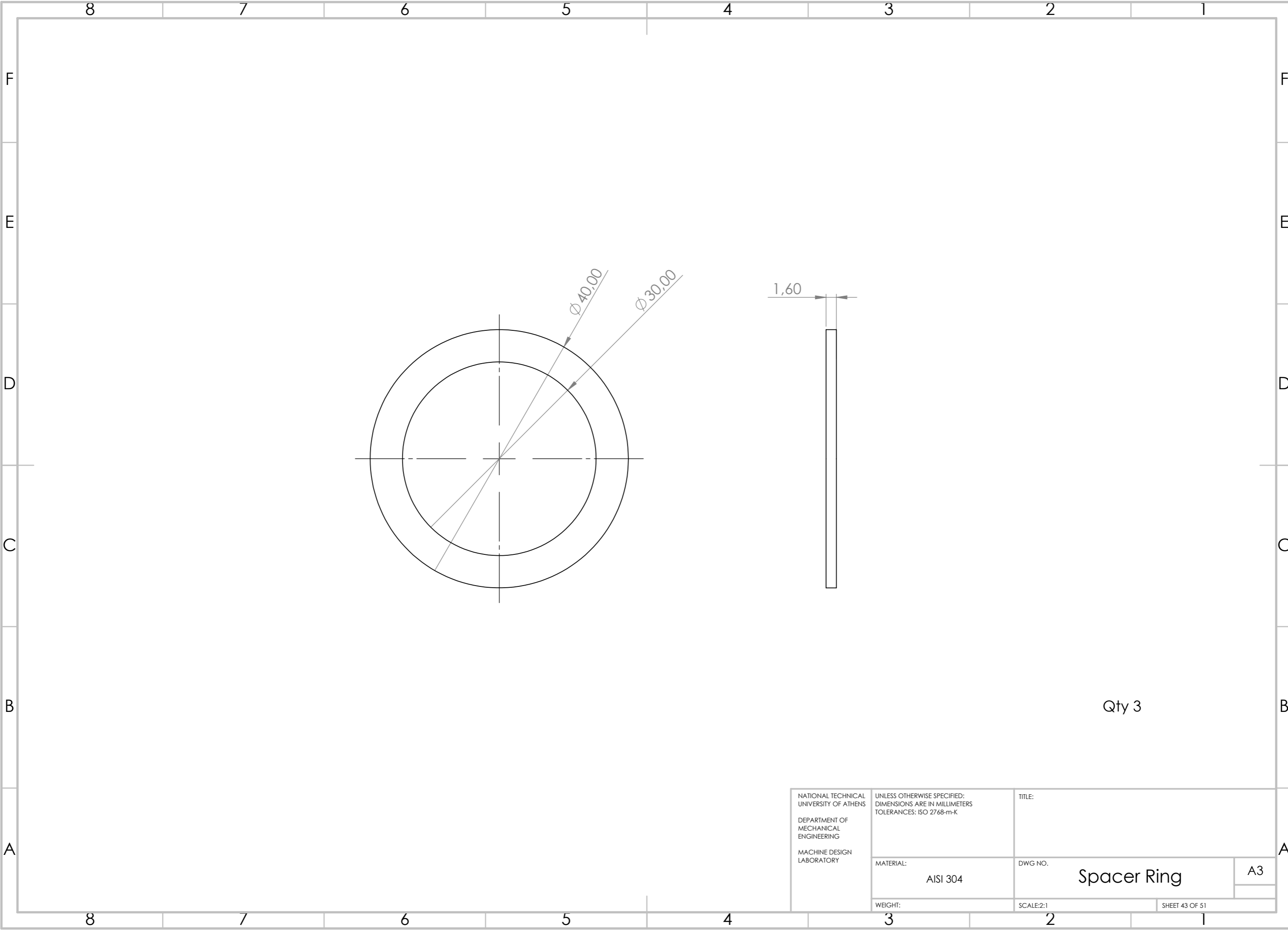
SECTION Y-Y

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|--|--|--|----------------|
| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">52408</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Lead screw Bearing</h2> | A3 |
| | WEIGHT: | SCALE: 1:1 | SHEET 41 OF 51 |



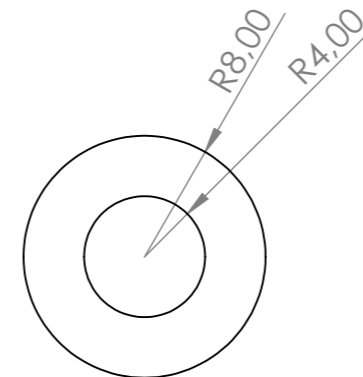
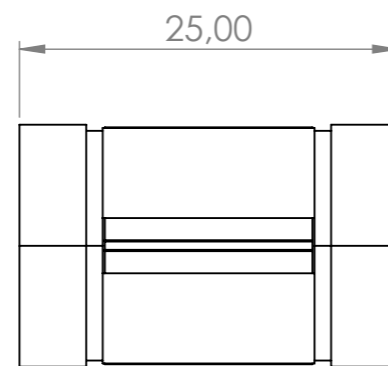
Qty 3

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <h1 style="text-align: center;">ES30</h1> | |
| | MATERIAL: | DWG NO. <h2 style="text-align: center;">Lead screw Retaining Ring ^{A3}</h2> | |
| | WEIGHT: | SCALE:2:1 | SHEET 42 OF 51 |

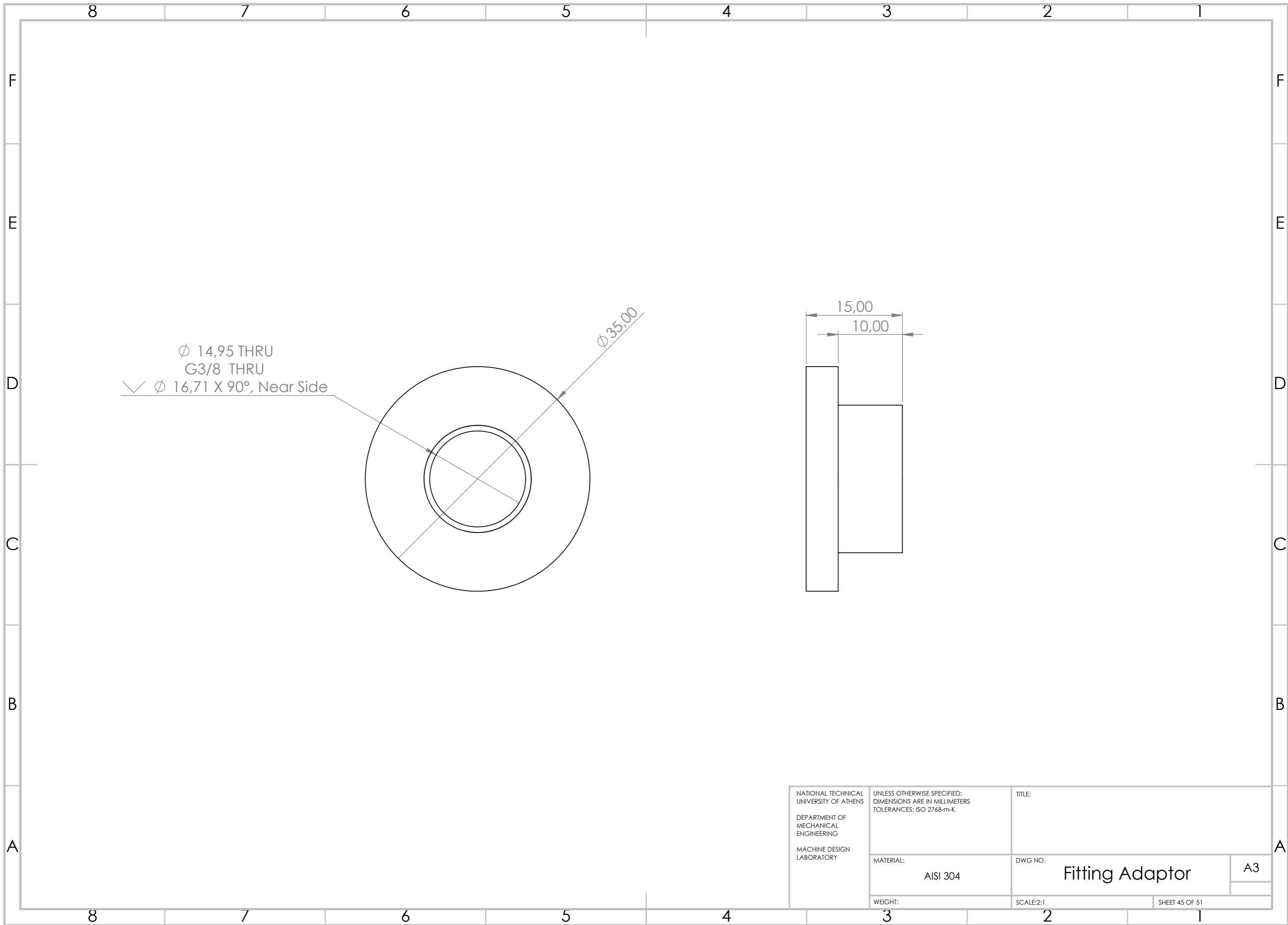


Qty 3

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 43 OF 51 |
| | | Spacer Ring | |



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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: SPM 08 | |
| | MATERIAL: | DWG NO. Load cell Bushing | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 44 OF 51 |

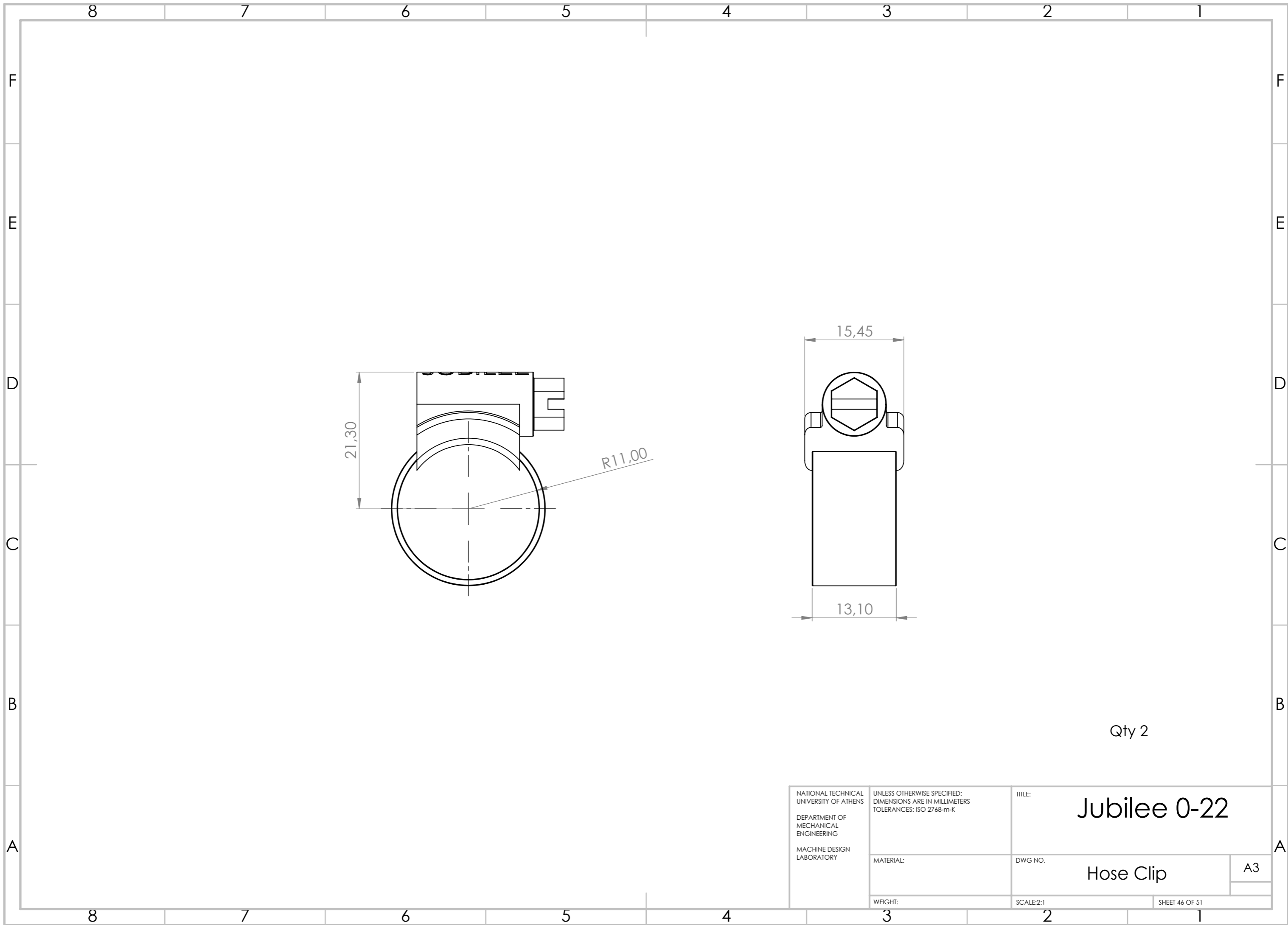


ϕ 14,95 THRU
 G3/8 THRU
 \surd ϕ 16,71 X 90°, Near Side

ϕ 35,00

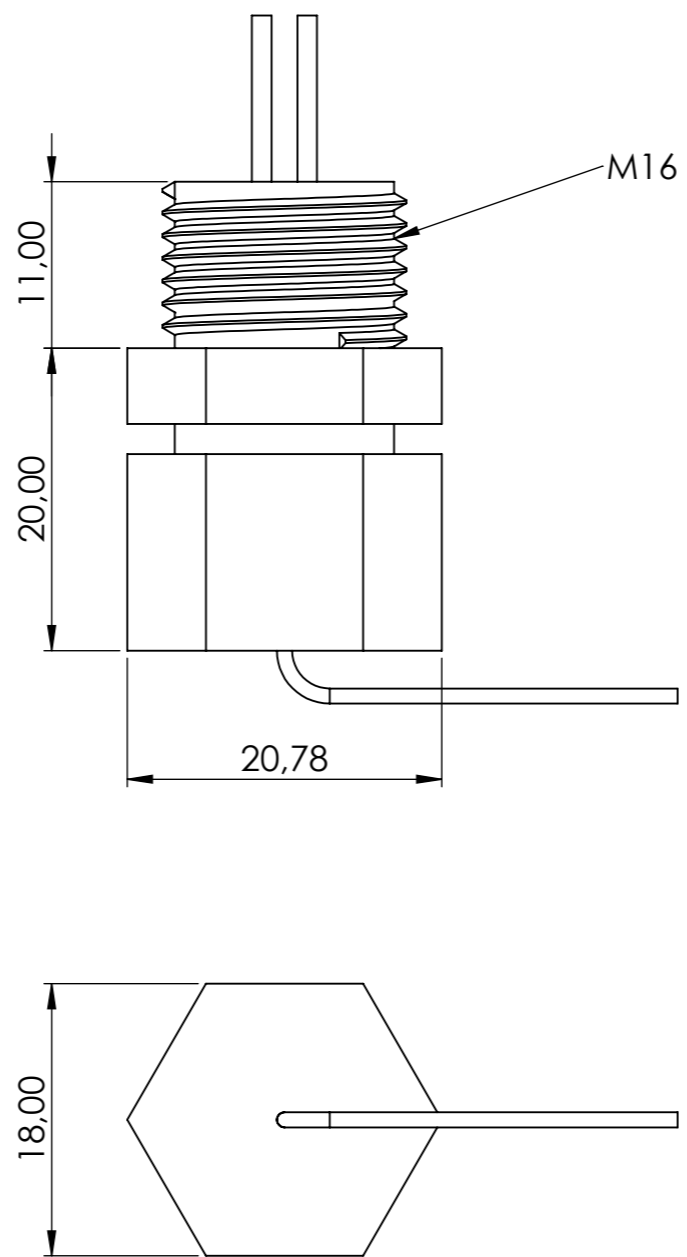
15,00
10,00

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: | |
| | MATERIAL: AISI 304 | DWG NO. Fitting Adaptor | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 45 OF 51 |

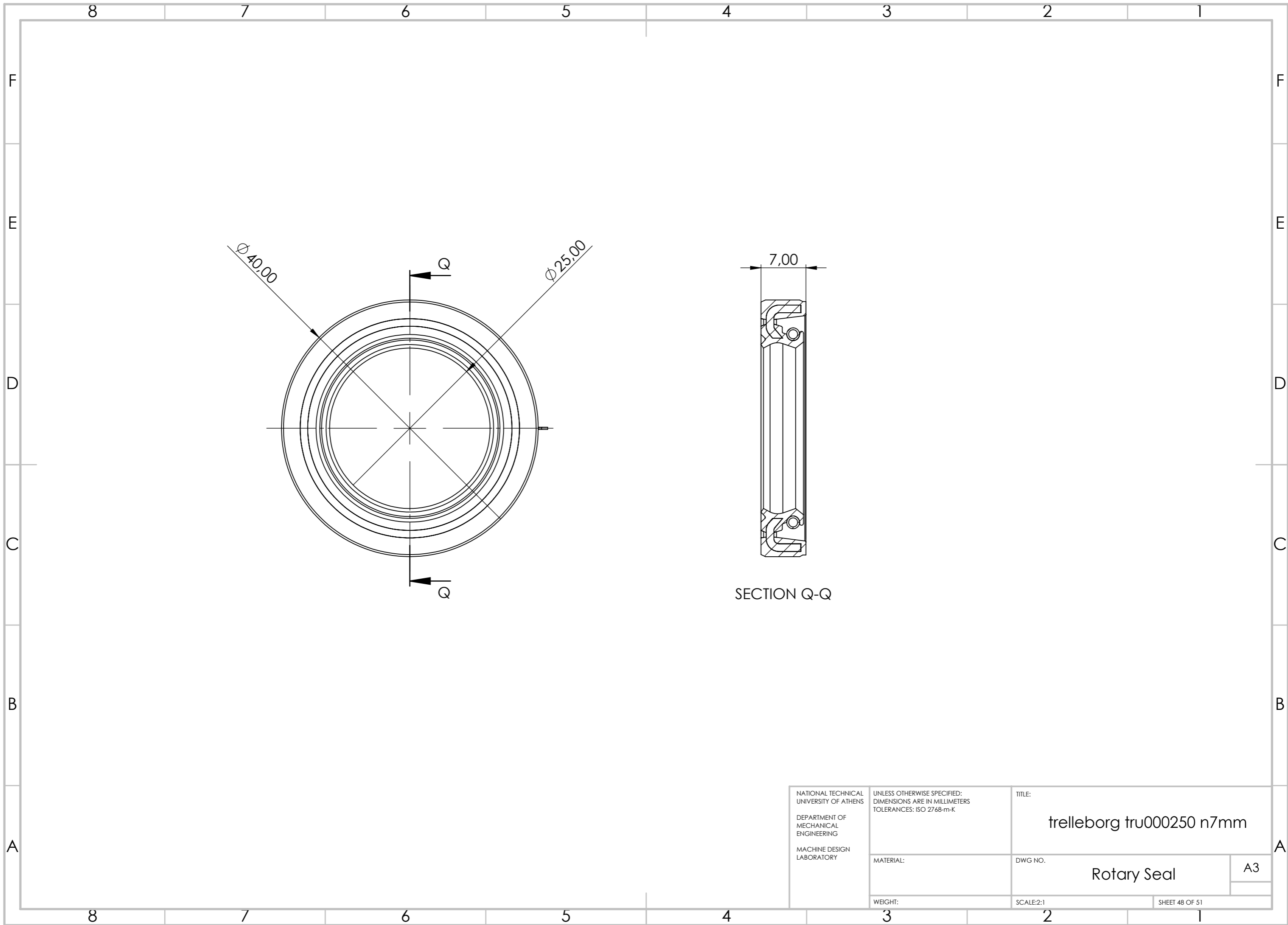


Qty 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: Jubilee 0-22 | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE: 2:1 | SHEET 46 OF 51 |

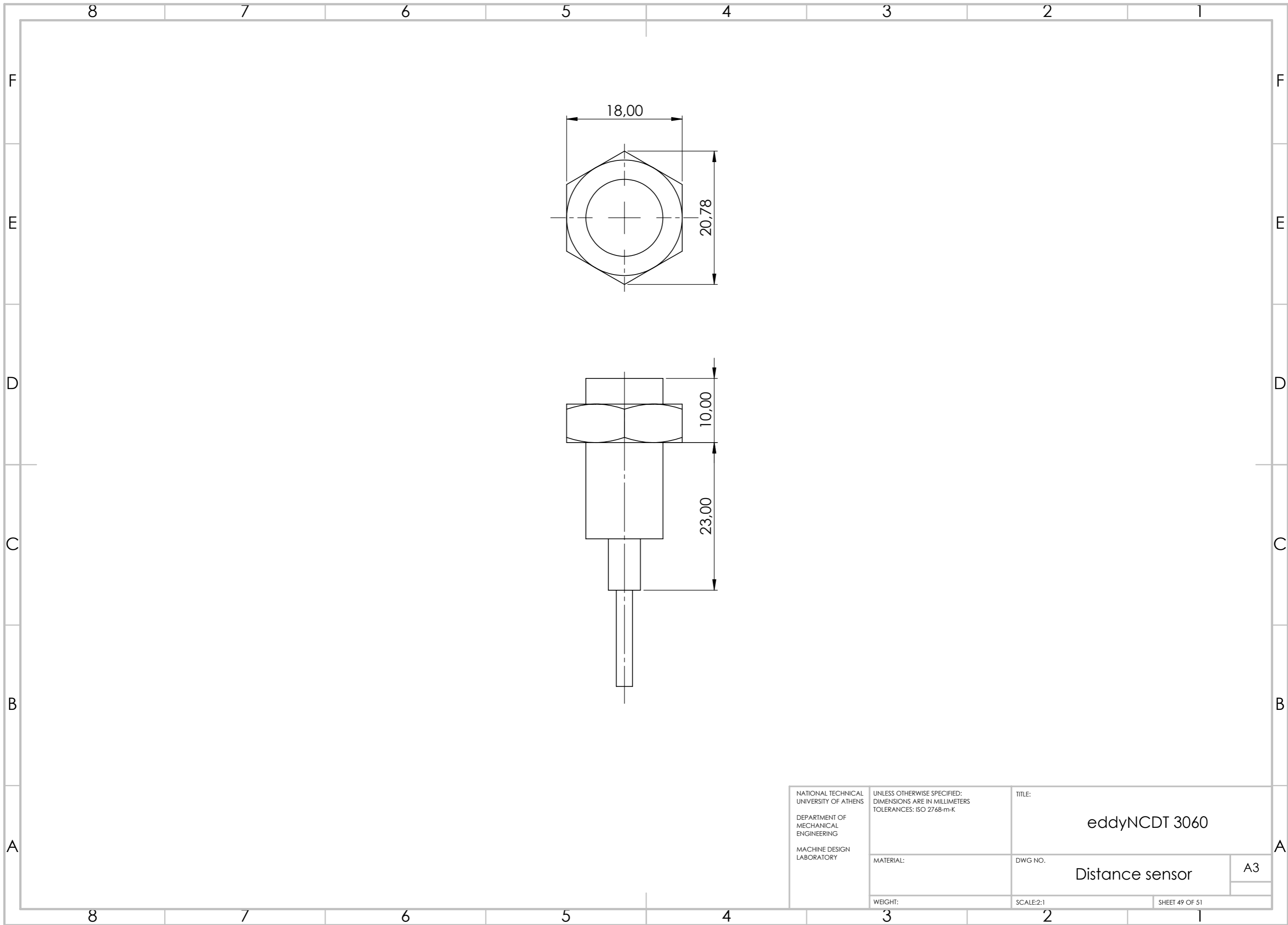


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 12-K-450-321-1.0-2I-3P5A-A30 | |
| | MATERIAL: | DWG NO. Temperature Sensor | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 47 OF 51 |

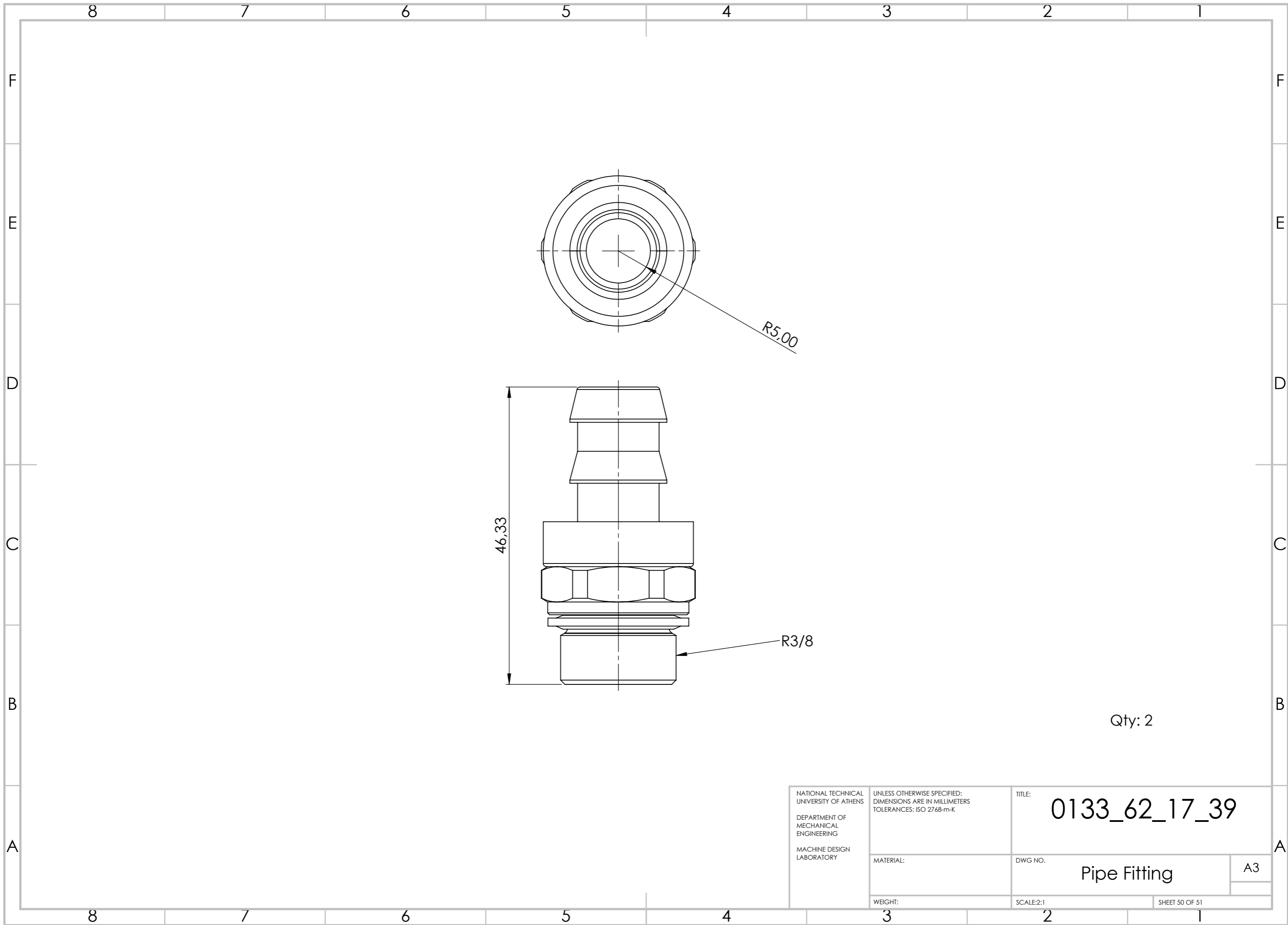


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: trelleborg tru000250 n7mm | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 48 OF 51 |

Rotary Seal

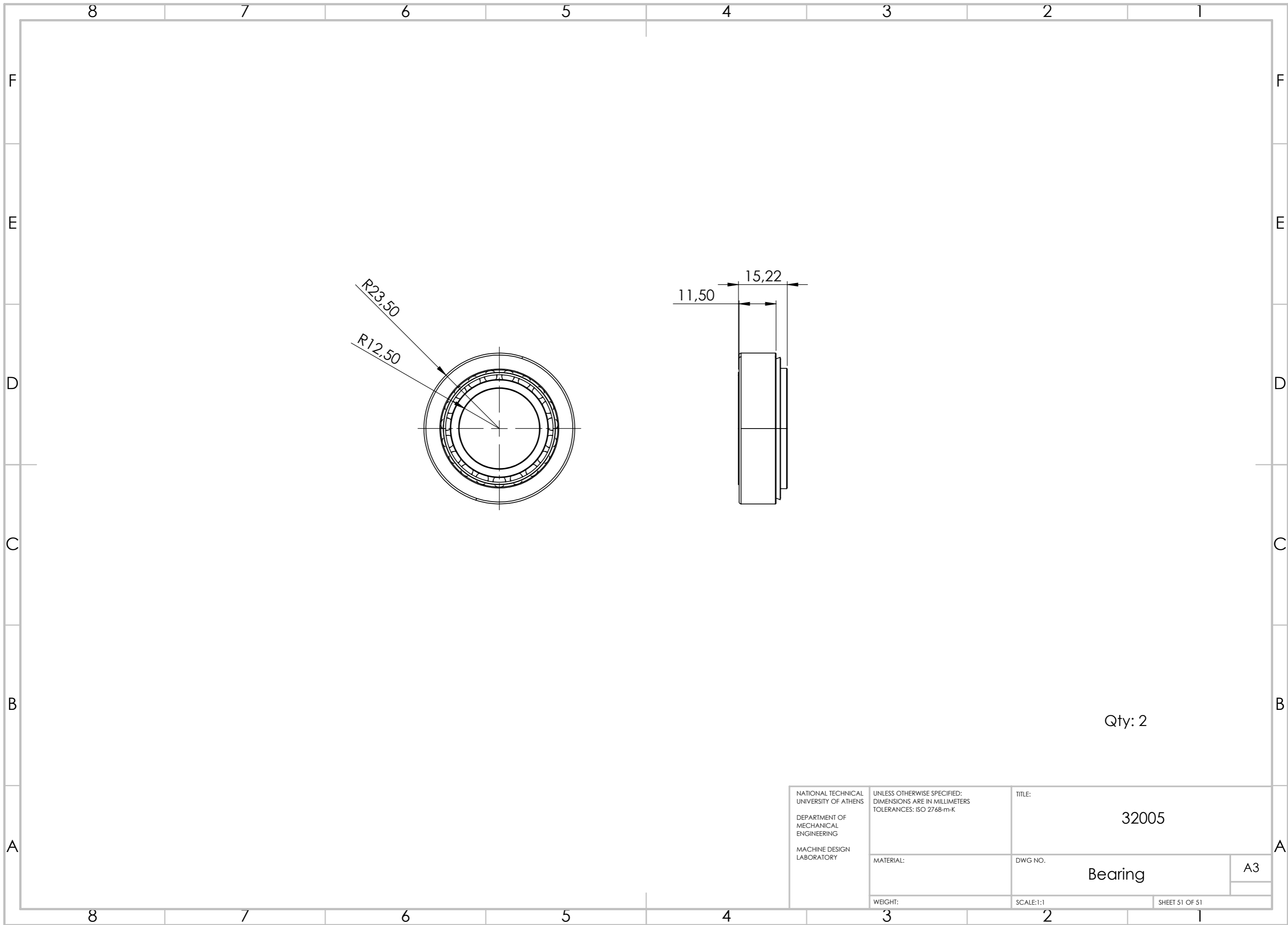


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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: eddyNCDT 3060 | |
| | MATERIAL: | DWG NO. Distance sensor | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 49 OF 51 |



Qty: 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: 0133_62_17_39 | |
| | MATERIAL: | DWG NO. | A3 |
| | WEIGHT: | SCALE:2:1 | SHEET 50 OF 51 |
| | | Pipe Fitting | |



Qty: 2

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| NATIONAL TECHNICAL UNIVERSITY OF ATHENS DEPARTMENT OF MECHANICAL ENGINEERING MACHINE DESIGN LABORATORY | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: ISO 2768-m-K | TITLE: <p style="text-align: center;">32005</p> | |
| | MATERIAL: | DWG NO. <p style="text-align: center;">Bearing</p> | <p style="text-align: center;">A3</p> |
| | WEIGHT: | SCALE: 1:1 | SHEET 51 OF 51 |