

2712-ISO

## STANDARD REFERENCE FORCE TRANSDUCER TENSION AND COMPRESSION

Standard reference force transducer specially designed according to the norm ISO 376(1) (Class "1", "05" and "00").

- Broad range of capacities
- Tension and compression
- Compact design
- Overload protection(4)
- Complete range of load accessories
- Protection: IP65 (2712-200N: IP54)
- Material : Aluminium
- Option : Digital output RS-232C or RS-485



Model 2712 - 5 kN

### CAPACITIES :

2712 : 0,2 - 0,5 - 1 - 2 - 5 and 10 kN

| TECHNICAL DATA                                 |                          |                  |                  |                  |
|--|--------------------------|------------------|------------------|------------------|
|  | Class                    | 1                | 05               | 00               |
| Hysteresis                                     |                          | $\leq \pm 0.30$  | $\leq \pm 0.15$  | $\leq \pm 0.07$  |
| Repeatability with rotation                    |                          | $\leq \pm 0.20$  | $\leq \pm 0.10$  | $\leq \pm 0.05$  |
| Repeatability without rotation (repeatability) | % RO <sup>(2)</sup>      | $\leq \pm 0.10$  | $\leq \pm 0.05$  | $\leq \pm 0.025$ |
| Creep (over 30 minutes)                        |                          | $\leq \pm 0.10$  | $\leq \pm 0.05$  | $\leq \pm 0.025$ |
| Return to zero                                 |                          | $\leq \pm 0.05$  | $\leq \pm 0.025$ | $\leq \pm 0.012$ |
| Reference temperature                          |                          | 20               |                  |                  |
| Compensated temperature range                  | °C                       | -10 .. +45       |                  |                  |
| Service temperature range                      |                          | -30 .. +70       |                  |                  |
| Storage temperature range                      |                          | -50 .. +85       |                  |                  |
| Temperature coefficient on sensitivity         | % RO / °C                | $\leq \pm 0.035$ | $\leq \pm 0.035$ | $\leq \pm 0.015$ |
| Temperature coefficient on zero                | % FS <sup>(3)</sup> / °C | $\leq \pm 0.03$  | $\leq \pm 0.03$  | $\leq \pm 0.023$ |
| Sensitivity                                    | mV/V                     | 2                |                  |                  |
| Time of stabilization after power excitation   | mn                       | 5..10            |                  |                  |
| Input resistance                               | Ohm                      | 350 ± 3          |                  |                  |
| Output resistance                              | Ohm                      | 350 ± 2          |                  |                  |
| Insulation resistance (50V)                    | MOhm                     | > 5000           |                  |                  |
| Nominal excitation voltage                     | V                        | 10               |                  |                  |
| Maximum excitation voltage                     | V                        | 15               |                  |                  |
| Service load                                   |                          | 100              |                  |                  |
| Limit load                                     | % FS                     | 110              |                  |                  |
| Breaking load                                  |                          | > 300            |                  |                  |

<sup>(1)</sup> The class G0,5 of the norm DIN 51301 (D), the class 0 of the norm NFA 03-510 (F), the class 0 of the norm NBN X07-001 (B) and the class 0,5 of the norm EN 10002-3 are equivalent with the class 05 of the norm ISO376.

<sup>(2)</sup> RO is the rated output (i.e.: measured value). The mentioned values are only valid if RO ≥ 20% of full scale).

<sup>(3)</sup> FS is the full scale of the force transducer.

<sup>(4)</sup> Only for capacities up to 2 kN.

# LOAD CELL

model 2712      aluminium

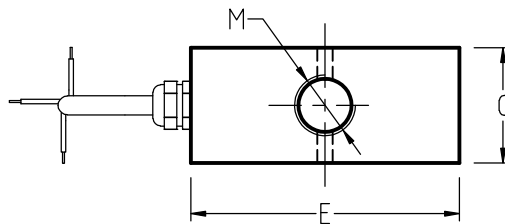
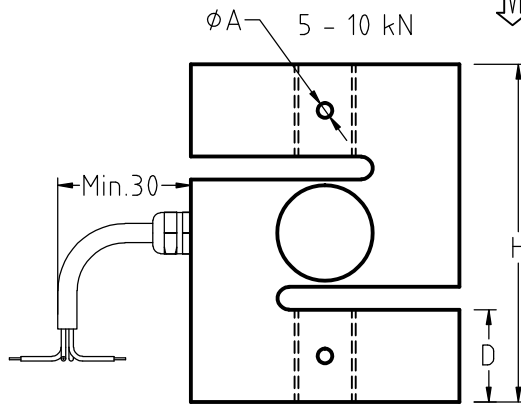
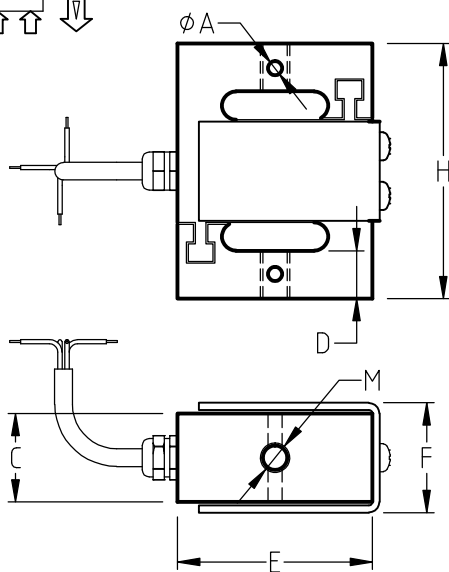
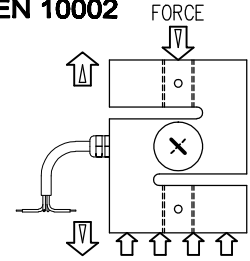
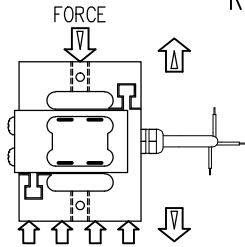
## TENSION-COMPRESSION



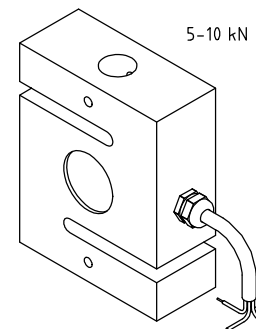
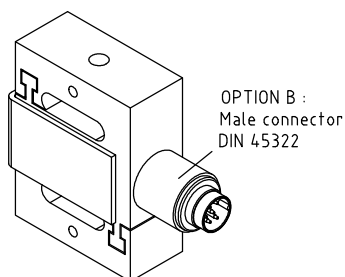
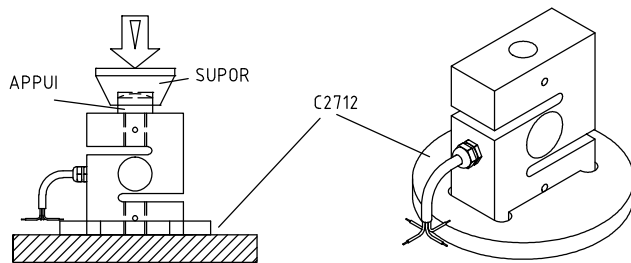
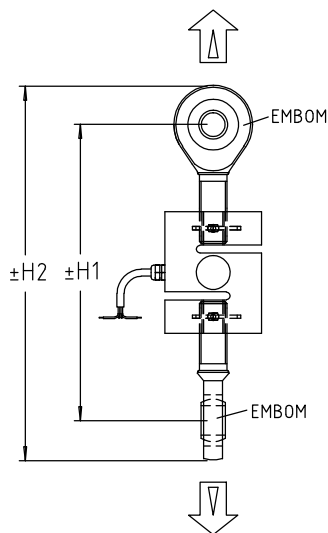
Range 200 N - 10 kN

Protection see table (IP)  
Cable length : 3 m

Integrated overload protection 200 N - 3 kN



| CAPACITIES   | φA | H  | C  | D    | E  | F   | M   | H1  | H2  | Breaking        | Max.deflexion | IP      | Weight  |
|--------------|----|----|----|------|----|-----|-----|-----|-----|-----------------|---------------|---------|---------|
| 200 - 1000 N | 4  | 72 | 25 | 13.5 | 55 | ±32 | M8  | 132 | 167 | 1000 %          | 0.40 mm       | IP 54   | 0.42 kg |
| 1.5 - 3 kN   |    |    |    |      |    |     | M12 |     |     | 600 % Max.20 kN | 0.35 mm       | IP 65   |         |
| 5 - 10 kN    |    |    |    |      |    |     | /   | M16 | 188 | 233             | -----         | 0.30 mm |         |



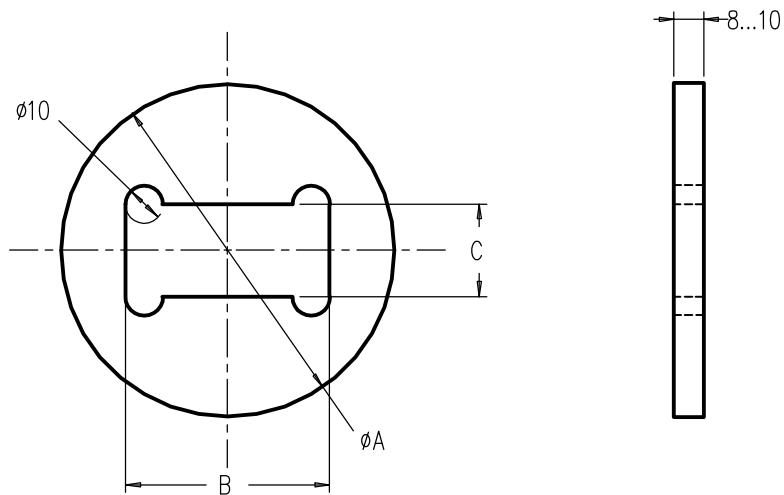
Note: Standard wiring for compression



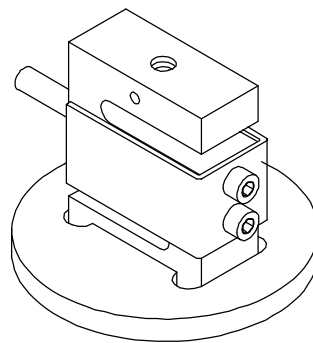
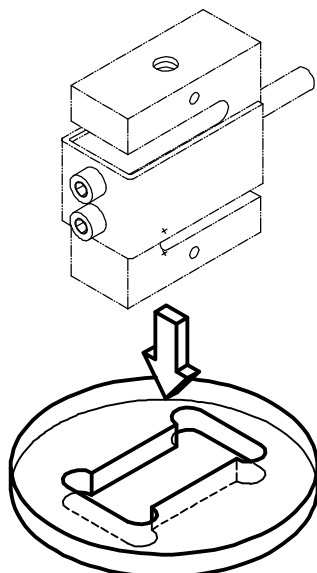
## ACCESSORIES

model C2712 aluminium

### CENTERING PIECE FOR LOAD CELLS 2712 and 2715



| CAPACITIES | $\phi A$ | B   | C  | For load cell       |
|------------|----------|-----|----|---------------------|
| 10         | 89       | 55  | 25 | 2712 10 - 500 daN   |
| 750        | 109      | 70  | 30 | 2712 750 - 1000 daN |
| 20 kN      | 139      | 98  | 38 | 2715 20 - 50 kN     |
| 75 kN      | 179      | 118 | 56 | 2715 75 -100 kN     |
| 150 kN     | 199      | 146 | 67 | 2715 150 - 200 kN   |

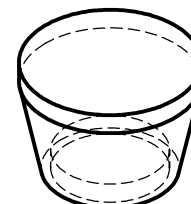
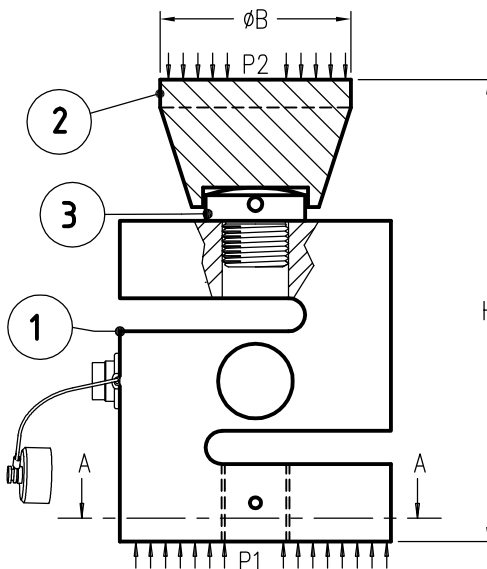
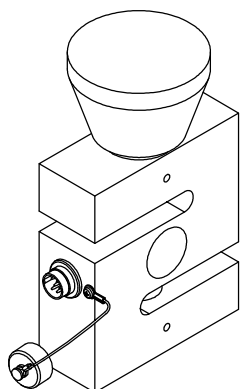


## CHOICE OF THE LOADING PADS FOR MODEL 2712(5)



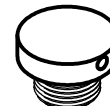
( EN 10002-3 & DIN 51301 )

Principles: according to ISO 376.  
The pressure on the compression plates of the testing machine should not be higher than 100 N/mm<sup>2</sup>.

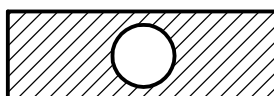


SUPOR

APPUI



SECTION A-A



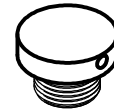
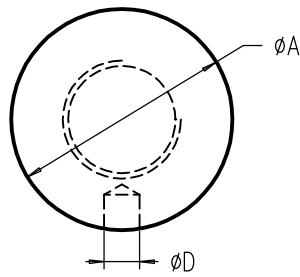
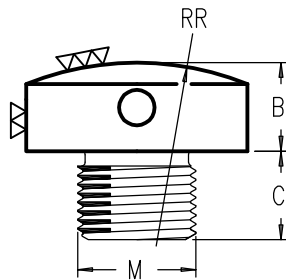
| MODEL | CAPACITY<br>① | Section<br>A-A<br>mm <sup>2</sup> | Pressure<br>P1<br>N/mm <sup>2</sup> | TYPE<br>② | φB | Section<br>φB<br>mm <sup>2</sup> | Pressure<br>P2<br>N/mm <sup>2</sup> | TYPE<br>③ | H   |
|-------|---------------|-----------------------------------|-------------------------------------|-----------|----|----------------------------------|-------------------------------------|-----------|-----|
| 2712  | 10 daN        | 1325                              | 0.1                                 | SUPOR 20  | 49 | 1886                             | 0.1                                 | APPUI 8   | 105 |
|       | 15 daN        |                                   | 0.1                                 |           |    |                                  | 0.1                                 |           |     |
|       | 20 daN        |                                   | 0.2                                 |           |    |                                  | 0.1                                 |           |     |
|       | 30 daN        |                                   | 0.2                                 |           |    |                                  | 0.2                                 |           |     |
|       | 50 daN        |                                   | 0.4                                 |           |    |                                  | 0.3                                 |           |     |
|       | 75 daN        |                                   | 0.6                                 |           |    |                                  | 0.4                                 |           |     |
|       | 100 daN       |                                   | 0.8                                 |           |    |                                  | 0.5                                 |           |     |
|       | 150 daN       |                                   | 1.1                                 |           |    |                                  | 0.8                                 |           |     |
| 2712  | 200 daN       | 1262                              | 1.6                                 | SUPOR 20  | 49 | 1886                             | 1.1                                 | APPUI 12  | 108 |
|       | 300 daN       |                                   | 2.4                                 |           |    |                                  | 1.6                                 |           |     |
|       | 500 daN       |                                   | 4                                   |           |    |                                  | 2.7                                 |           |     |
| 2712  | 750 daN       | 1703                              | 4.4                                 | SUPOR 30  | 64 | 3217                             | 2.3                                 | APPUI 16  | 135 |
|       | 1000 daN      |                                   | 5.9                                 |           |    |                                  | 3.1                                 |           |     |
| 2715  | 20 kN         | 3272                              | 6.1                                 | SUPOR 36  | 69 | 3739                             | 5.3                                 | APPUI 24  | 167 |
|       | 30 kN         |                                   | 9.2                                 |           |    |                                  | 8                                   |           |     |
|       | 50 kN         |                                   | 15.3                                |           |    |                                  | 13.4                                |           |     |
| 2715  | 75 kN         | 5590                              | 13.4                                | SUPOR 56  | 79 | 4902                             | 15.3                                | APPUI 36  | 190 |
|       | 100 kN        |                                   | 19.9                                |           |    |                                  | 20.4                                |           |     |
| 2715  | 150 kN        | 8192                              | 18.3                                | SUPOR 64  | 99 | 7698                             | 19.5                                | APPUI 45  | 222 |
|       | 200 kN        |                                   | 24.4                                |           |    |                                  | 26                                  |           |     |



# ACCESSORIES

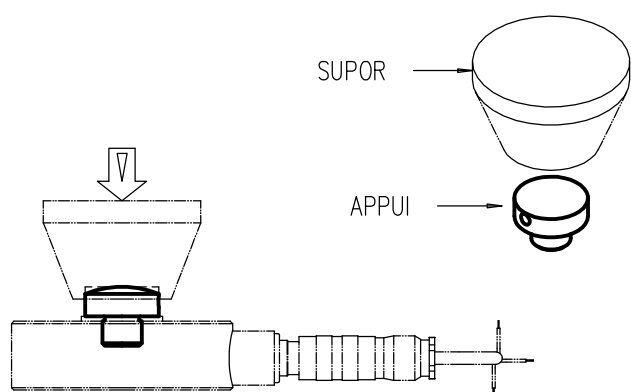
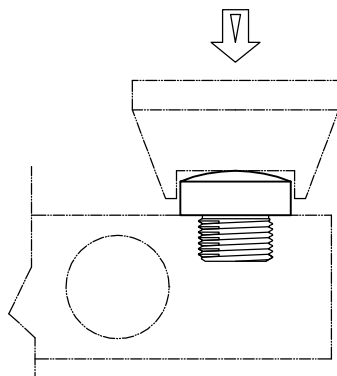
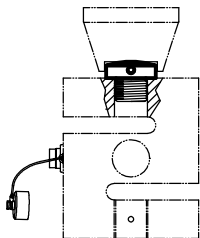
model APPUI stainless steel

## LOAD BUTTON



| MODEL    | M         | ØA                                | B  | C  | ØD  | RR  |
|----------|-----------|-----------------------------------|----|----|-----|-----|
| APPUI 6  | M 6       | 12 <sup>+0</sup> <sub>-0.03</sub> | 7  | 8  | 3   | 16  |
| APPUI 8  | M 8       | 20 <sup>+0</sup> <sub>-0.03</sub> | 7  | 8  | 3   | 25  |
| APPUI 10 | M 10      | 20 <sup>+0</sup> <sub>-0.03</sub> | 7  | 10 | 3   | 25  |
| APPUI 12 | M 12      | 20 <sup>+0</sup> <sub>-0.03</sub> | 10 | 10 | 4   | 35  |
| APPUI 16 | M 16      | 30 <sup>+0</sup> <sub>-0.05</sub> | 12 | 12 | 5   | 40  |
| APPUI 20 | M 20 x1.5 | 36 <sup>+0</sup> <sub>-0.05</sub> | 12 | 15 | 5   | 60  |
| APPUI 24 | M 24 x 2  | 36 <sup>+0</sup> <sub>-0.05</sub> | 12 | 18 | 5   | 60  |
| APPUI 30 | M 30 x 2  | 45 <sup>+0</sup> <sub>-0.05</sub> | 15 | 20 | 6   | 100 |
| APPUI 36 | M 36 x 3  | 56 <sup>+0</sup> <sub>-0.05</sub> | 20 | 24 | 6   | 150 |
| APPUI 45 | M 45 x 3  | 64 <sup>+0</sup> <sub>-0.05</sub> | 20 | 30 | 6   | 200 |
| APPUI 56 | M 56 x 4  | 90 <sup>+0</sup> <sub>-0.1</sub>  | 24 | 35 | 8*  | 300 |
| APPUI 60 | M 60 x 4  | 90 <sup>+0</sup> <sub>-0.1</sub>  | 27 | 40 | 10* | 350 |
| APPUI 64 | M 64 x 4  | 90 <sup>+0</sup> <sub>-0.1</sub>  | 27 | 40 | 10* | 350 |
| APPUI 90 | M 90 x 4  | 125 <sup>+0</sup> <sub>-0.1</sub> | 33 | 50 | 12* | 450 |

\* 2 bores at 180°





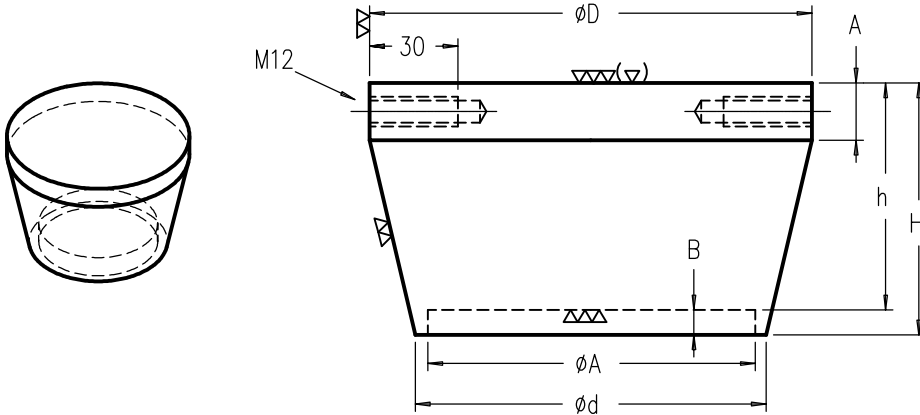
# ACCESSORIES

model SUPOR stainless steel



according to ( EN 10002-3 & DIN 51301 )

## LOADING PAD



| MODEL | TYPE | ØD                                  | ØA                                   | Ød  | A  | B   | H    | Weight (kg) | M 12 L=30 |
|-------|------|-------------------------------------|--------------------------------------|-----|----|-----|------|-------------|-----------|
| SUPOR | 12   | 34                                  | 12 <sup>+0.1</sup> <sub>+0.05</sub>  | 20  | 7  | 4   | 23   | 0.12        | NO        |
|       | 20   | 49                                  | 20 <sup>+0.15</sup> <sub>+0.07</sub> | 30  | 8  | 5   | 31   | 0.33        |           |
|       | 24   | 59                                  | 24 <sup>+0.15</sup> <sub>+0.08</sub> | 35  | 9  | 6   | 36   | 0.55        |           |
|       | 30   | 64                                  | 30 <sup>+0.15</sup> <sub>+0.1</sub>  | 40  |    | 6   | 41   | 0.74        |           |
|       | 36   | 69                                  | 36 <sup>+0.15</sup> <sub>+0.1</sub>  | 46  | 10 | 7   | 46   | 0.98        |           |
|       | 42   | 74                                  | 42 <sup>+0.2</sup> <sub>+0.1</sub>   | 56  | 11 | 6.5 | 42   | 1.12        |           |
|       | 45   | 79                                  | 45 <sup>+0.2</sup> <sub>+0.1</sub>   | 56  |    | 7   | 48   | 1.4         |           |
|       | 56   | 79                                  | 56 <sup>+0.2</sup> <sub>+0.1</sub>   | 66  | 12 | 8   | 48   | 1.5         |           |
|       | 64   | 99                                  | 64 <sup>+0.25</sup> <sub>+0.15</sub> | 75  |    |     | 59   | 2.6         |           |
|       | 64E  | 114                                 |                                      |     |    | 70  | 3.9  |             |           |
|       | 76   | 119                                 | 76 <sup>+0.25</sup> <sub>+0.15</sub> | 90  | 15 | 12  | 67   | 4.4         |           |
|       | 90   | 129                                 | 90 <sup>+0.25</sup> <sub>+0.15</sub> | 100 |    |     | 74   | 6           |           |
|       | 90B  | 164                                 |                                      |     |    |     | 104  | 11.6        |           |
|       | 110  | 195                                 | 110 <sup>+0.3</sup> <sub>+0.2</sub>  | 135 | 20 | 15  | 105  | 18          |           |
| 125A  | 158  | 125 <sup>+0.3</sup> <sub>+0.2</sub> | 90                                   |     |    |     | 11   |             |           |
| 125B  | 195  |                                     | 105                                  |     |    |     | 17.6 |             |           |
| 160   | 248  | 160 <sup>+0.3</sup> <sub>+0.2</sub> | ±170                                 | 30  | 20 | 146 | 40   |             |           |
| 165   | 195  | 165 <sup>+0.3</sup> <sub>+0.2</sub> | ±175                                 | 20  | 10 | 100 | 20   |             |           |
| 200A  | 308  | 200 <sup>+0.3</sup> <sub>+0.2</sub> | ±210                                 | 30  | 20 | 175 | 73   | 4x to 90°   |           |
| 200B  | 353  |                                     |                                      |     |    | 200 | 103  |             |           |
| 250A  | 438  | 250 <sup>+0.3</sup> <sub>+0.2</sub> | ±290                                 | 40  | 30 | 250 | 209  | 6 x to 60°  |           |
| 250B  | 503  |                                     |                                      |     |    | 285 | 294  | 6x to 60°   |           |
| 330   | 503  | 330 <sup>+0.5</sup> <sub>+0.3</sub> | ±380                                 | 40  | 30 | 275 | 326  | 6x to 60°   |           |

