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# 3115-ISO

# HIGH CAPACITY COMPRESSION STANDARD REFERENCE FORCE TRANSDUCER

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

Model 3115S - 5MN - V

## Features

- Broad range of capacities (up to 30 MN)
- Complete range of load accessories
- Protection: IP65
- Material: Nickel plated alloy steel
- Cable length : See drawing's table (CL)
- Options:
  - o digital output RS-232C, RS-485 or USB
  - o custom made dimensions
  - o ASTM E74 compliant

## Applications

The SENSY's load cell 3115-ISO is perfectly designed to the following applications :

- Control of testing machines according to ISO7500

Note : This standard covers the calibration of standard force measurement instruments used for the static verification of uniaxial testing machines. it describes classifying procedures for the instruments.

## Capacities

3110- 3115 : 30 - 50 - (75) - 100 - (150) - 200 - 300 - 500 kN
(0,75) - 1 - 2 - 3 - 5 - 7,5 - 10 - 15 - 20 - 30 MN

| Specifications | 1 | 05 | 00 | |
|---|---|---|---|---|
| Accuracy class | "1" | "05" | "00" | - |
| Relative reversibility error | <± 0.3 | <± 0.15 | <± 0.07 | % R.O. |
| Relative repeatability error with rotation | <± 0.2 | <± 0.1 | <± 0.05 | % R.O. |
| Relative repeatability error without rotation | <± 0.1 | <± 0.05 | <± 0.025 | % R.O. |
| Time of stabilization after power excitation suppl | 200... 600 | 200... 600 | 200... 600 | s |
| Creep error over 30 min. | <± 0.1 | <± 0.05 | <± 0.025 | % F.S. |
| Zero shift after loading | <± 0.05 | <± 0.025 | <± 0.012 | % F.S. |
| Reference temperature | 20 | 20 | 20 | C |
| Nominal temperature range | -10...+45 | -10...+45 | -10...+45 | C |
| Service temperature range | -30...+70 | -30...+70 | -30...+70 | C |
| Storage temperature range | -50...+85 | -50...+85 | -50...+85 | C |
| Temperature coefficient of the sensitivity | < ± 0.035 | < ± 0.035 | < ± 0.015 | % F.S./10 C |
| Temperature coefficient of zero signal | < ± 0.03 | < ± 0.03 | < ± 0.023 | % F.S./10 C |
| Zero balance | ± 0.02 | ± 0.02 | ± 0.02 | mV/V |
| Insulation resistance (50V) | > 5000 | > 5000 | > 5000 | Megaohm |
| Reference excitation voltage | 10 | 10 | 10 | VDC |
| Nominal range of excitation voltage | 3..12 | 3..12 | 3..12 | VDC |
| Nominal sensitivity | 1.5 | 1.5 | 1.5 | mV/V |
| Safe load limit | 110 | 110 | 110 | % F.S. |
| Breaking load | >300 | >300 | >300 | % F.S. |
| Input resistance | 350..702 ± 2 | 350..702 ± 2 | 350..702 ± 2 | Ohm |
| Output resistance | 350..702 ± 2 | 350..702 ± 2 | 350..702 ± 2 | Ohm |

- RO is the rated output (i.e.: measured value). The mentioned values are only valid if RO >= 20% of full scale).
- FS is the full scale of the force transducer.
- Specifications subject to change without notice.

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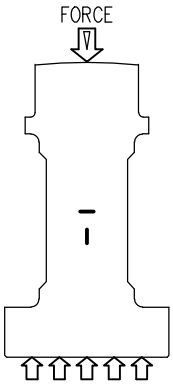
# LOAD CELLS




## model 3115 alloy steel

CE

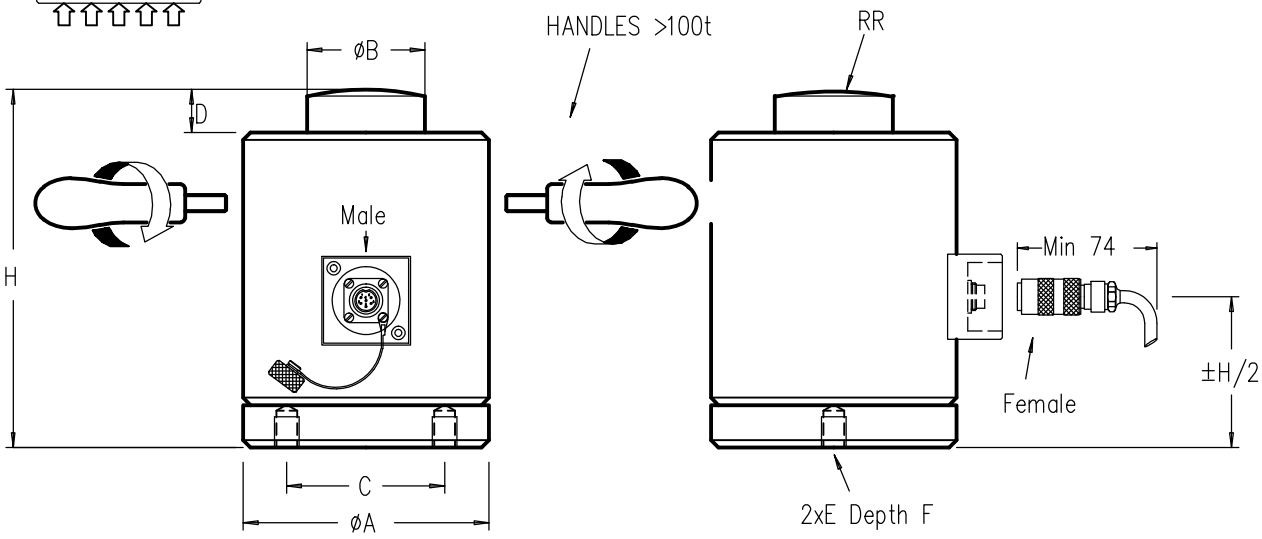
ISO 376

EN 10002

## COMPRESSION

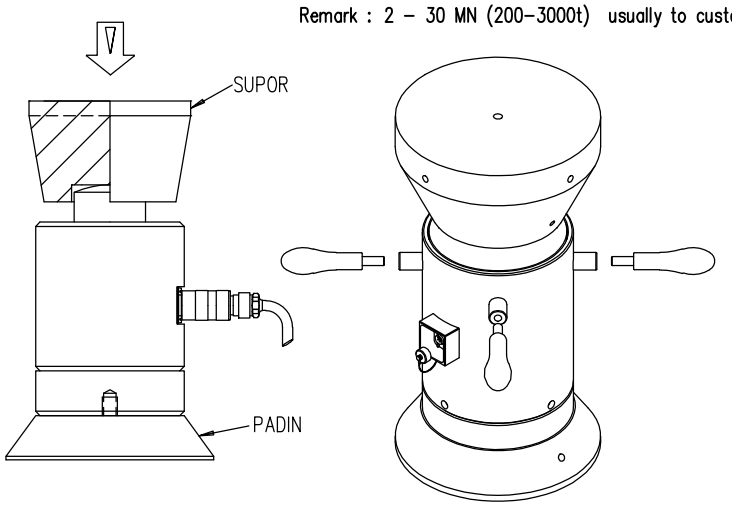
Range 30kN–30MN ( 3 –3000 t.) IP65

Cable length : see table (CL)

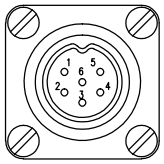



| CAPACITIES | øA | øB $^{-0.05}_{-0.15}$ | C | D | E | F | H | RR | CL | Max.Deflexion | R Input(ohms) | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 – 50 kN | 64 | 36 | 45 | 20 | M10 | 12 | 135 | 250 | 6 m | 0.12 mm | ±350 Ω | 2kg |
| 75 –200 kN | | | | | | | | | | 0.16–0.18 mm | ±350 Ω (0.25,0.1%) ±700 Ω (0.05%,0.03% or cl 1,cl 0.5,cl 00 to ISO 376 | 2.2kg |
| 300–500 kN | 89 | 56 | 60 | 30 | M12 | 15 | 160 | 300 | | 0.18–0.20 mm | | 4.5kg |
| 0.75 –1 MN | 99 | 64 | 65 | | M16 | 16 | 190 | 400 | | 0.33–0.34 mm | | 6 kg |
| 1.5 – 2 MN | 119 | 90 | 90 | | | | 225 | | | 0.29–0.35 mm | | 20kg |
| 3 MN | 159 | 125 | 100 | 40 | M20 | 20 | 270 | 450 | 12 m | ±0.4 mm | | 42kg |
| 5 MN | 205 | 160 | 125 | 50 | | 35 | 350 | 500 | | ±0.5 mm | | 90kg |
| 7.5–10 MN | 294 | 200 | 200 | 60 | M30 | 40 | 460 | 600 | | ±0.7 mm | | 243kg |
| 15 – 20 MN | 364 | 250 | 270 | 75 | M36 | 50 | 550 | 800 | | ±0.8 mm | | 446kg |
| 30 MN | 445 | 300 | 300 | | | | 600 | 1000 | | ±0.85 mm | | 700kg |

Remark : 2 – 30 MN (200–3000t) usually to customer design specification




FEMALE–MALE CONNECTOR DIN 45322



| CONTACT N° | | |
|---|---|---|
| 1 | Excitation | – Yellow |
| 2 | Signal | + Green |
| 3 | Signal | – White |
| 4 | Excitation | + Brown |
| 5 | Sense | – Grey |
| 6 | Sense | + Pink |

Cable screen not connected to transducer

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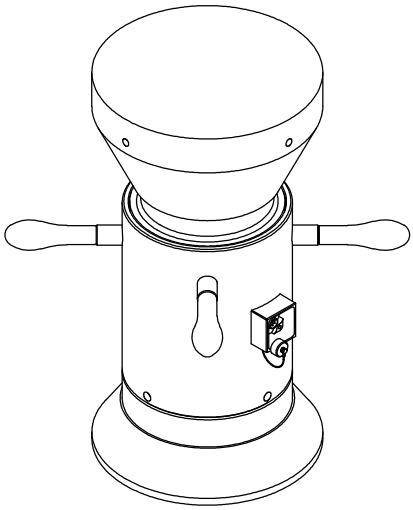
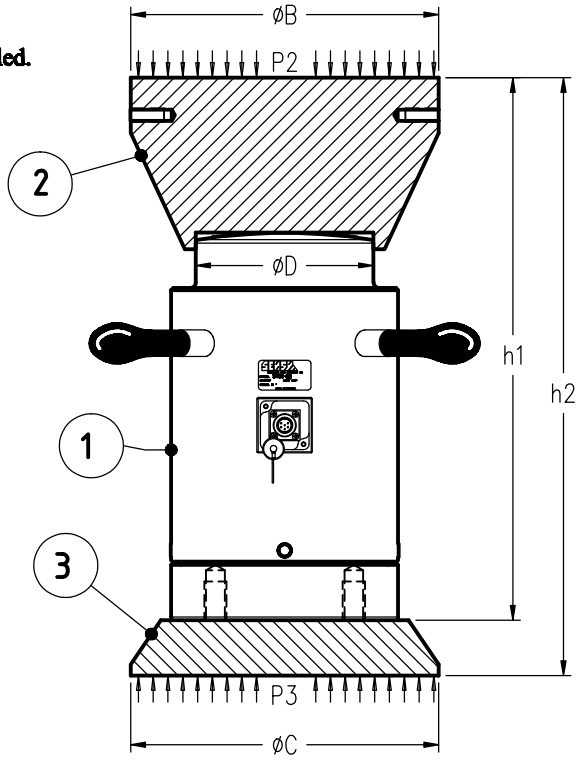
# CHOICE OF THE LOADING PADS FOR MODEL 3115

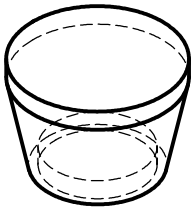
ISO 376

( 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/mm² .**
**If necessary intermediate plates "PADIN"(3) should be choosen and installed.**

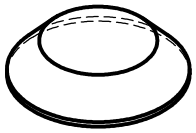


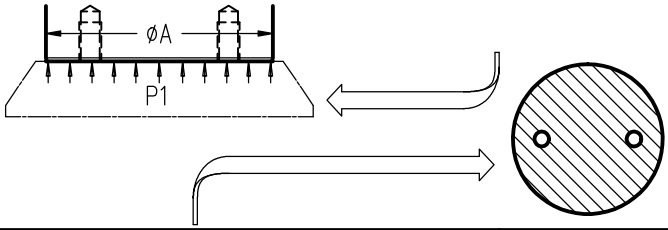


SUPOR

PADIN






| CAPACITY ① | øD | øA | Section øA mm² | Pressure P1 N/mm² | TYPE ② | øB | Section øB mm² | Pressure P2 N/mm² | TYPE ③ | øC | Section øC mm² | Pressure P3 N/mm² | h1 | h2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 kN | 36 | 64 | 2670 | 11 | SUPOR 36 | 69 | 3739 | 8 | NOT NECESSARY | | | | 174 | |
| 50 kN | | | | 19 | | | | 13 | | | | | | |
| 75 kN | | | | 28 | | | | 20 | | | | | | |
| 100 kN | | | | 37 | | | | 27 | | | | | | |
| 150 kN | | | | 56 | | | | 40 | | | | | | |
| 200 kN | | | | 75 | | | | 53 | | | | | | |
| 300 kN | 56 | 89 | 5449 | 55 | SUPOR 56 | 79 | 4902 | 61 | | | | | 200 | |
| 500 kN | | | | 92 | | | | 102 | | | | | | |
| 0.75 MN | 64 | 99 | 6686 | 112 | SUPOR 64 | 99 | 7698 | 97 | PADIN 100 | 129 | 13070 | 57 | 237 | 262 |
| 1 MN | | | | 150 | SUPOR 64E | 114 | 10207 | 98 | | | | 77 | 248 | 273 |
| 1.5 MN | 90 | 119 | 9985 | 150 | SUPOR 90B | 164 | 21124 | 71 | PADIN 125A | 158 | 19607 | 77 | 317 | 342 |
| 2 MN | | | | 200 | | | | 95 | | | | 102 | | |
| 3 MN | 125 | 159 | 18241 | 164 | SUPOR 125B | 195 | 29865 | 100 | PADIN 160 | 248 | 48305 | 62 | 360 | 420 |
| 5 MN | 160 | 205 | 31103 | 161 | SUPOR 160 | 248 | 48305 | 104 | PADIN 210 | 248 | 48305 | 104 | 476 | 506 |
| 7.5 MN | 200 | 294 | 64638 | 116 | SUPOR 200A | 308 | 74506 | 101 | PADIN 300 | 353 | 97868 | 77 | 615 | 650 |
| 10 MN | | | | 155 | SUPOR 200B | 353 | 97868 | 102 | | | | 102 | 640 | 675 |
| 15 MN | 250 | 364 | 99752 | 150 | SUPOR 250A | 438 | 150674 | 100 | PADIN 365 | 503 | 198713 | 75 | 770 | 850 |
| 20 MN | | | | 200 | SUPOR 250B | 503 | 198713 | 101 | | | | 101 | 805 | 885 |

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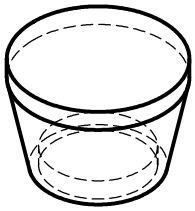
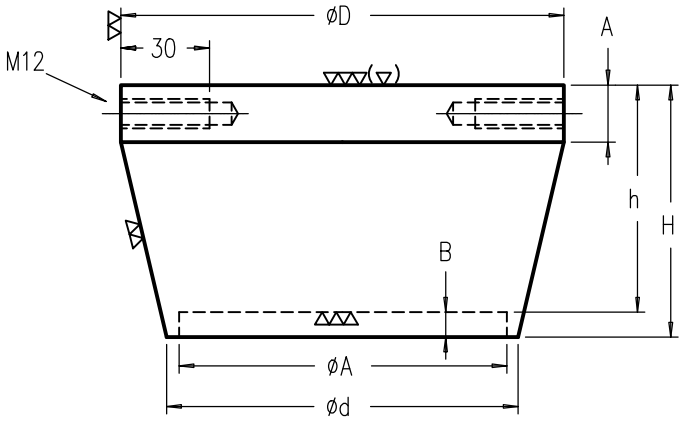
# ACCESSORIES

## model SUPOR stainless steel

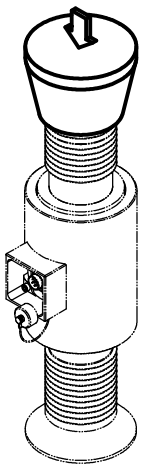
according to ISO 376
( EN 10002-3 & DIN 51301 )

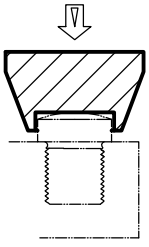
## LOADING PAD

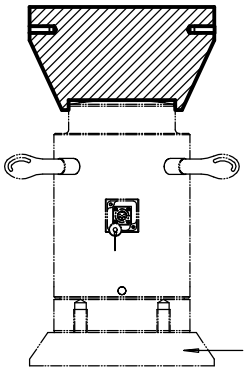


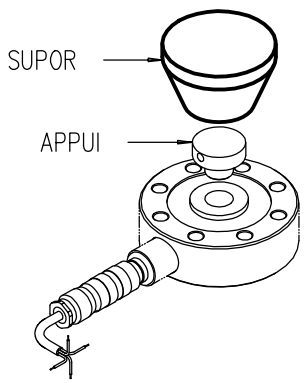



| TYPE | øD | øA | ød | A | B | H | Weigth (kg) | M 12 L=30 |
|---|---|---|---|---|---|---|---|---|
| 12 | 34 | 12 $^{+0.1}_{+0.05}$ | 20 | 7 | 4 | 23 | 0.12 | NO |
| 20 | 49 | 20 $^{+0.15}_{+0.07}$ | 30 | 8 | 5 | 31 | 0.33 | |
| 24 | 59 | 24 $^{+0.15}_{+0.08}$ | 35 | 9 | 6 | 36 | 0.55 | |
| 30 | 64 | 30 $^{+0.15}_{+0.1}$ | 40 | | 6 | 41 | 0.74 | |
| 36 | 69 | 36 $^{+0.15}_{+0.1}$ | 46 | 10 | 7 | 46 | 0.98 | |
| 42 | 74 | 42 $^{+0.2}_{+0.1}$ | 56 | 11 | 11.5 | 47 | 1.22 | |
| 45 | 79 | 45 $^{+0.2}_{+0.1}$ | 56 | | 12 | 53 | 1.5 | |
| 56 | | 56 $^{+0.2}_{+0.1}$ | 66 | 12 | 8 | 48 | 1.5 | |
| 64 | 99 | 64 $^{+0.25}_{+0.15}$ | 75 | | 17 | 64 | 2.8 | |
| 64E | 114 | | | | | 75 | 4.14 | |
| 76 | 119 | 76 $^{+0.25}_{+0.15}$ | 90 | 15 | 12 | 67 | 4.4 | |
| 90 | 129 | 90 $^{+0.25}_{+0.15}$ | 100 | | 17 | 79 | 6 | |
| 90B | 164 | | | | | 109 | 12.2 | |
| 110 | 195 | 110 $^{+0.3}_{+0.2}$ | 135 | 20 | 19 | 109 | 18.7 | 2x to 180° |
| 125A | 158 | 125 $^{+0.3}_{+0.2}$ | | | | 94 | 11.3 | |
| 125B | 195 | | | | | 109 | 18.3 | |
| 160 | 248 | 160 $^{+0.3}_{+0.2}$ | ±170 | 30 | 20 | 146 | 40 | |
| 165 | 195 | 165 $^{+0.3}_{+0.2}$ | ±175 | 20 | 10 | 100 | 20 | |
| 200A | 308 | 200 $^{+0.3}_{+0.2}$ | ±210 | 30 | 20 | 175 | 73 | |
| 200B | 353 | | | | | 200 | 103 | 4x to 90° |
| 250A | 438 | 250 $^{+0.3}_{+0.2}$ | ±290 | 40 | 30 | 250 | 209 | 6 x to 60° |
| 250B | 503 | | | | | 285 | 294 | 6x to 60 ° |
| 330 | 503 | 330 $^{+0.5}_{+0.3}$ | ±380 | 40 | 30 | 275 | 326 | 6x to 60 ° |





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