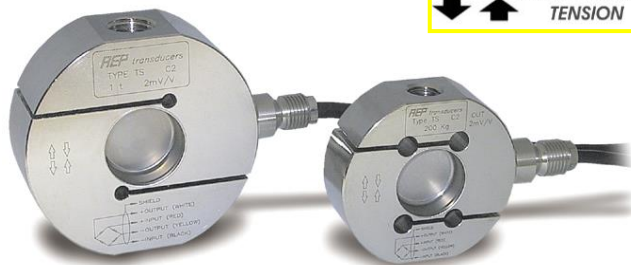


### Accessori Accessories

Teste a snodo sferico  
Knuckle joints

**A**



Download on [www.aep.it](http://www.aep.it)



OIML R60 Type: **TSA**  
Certificate: R60-2000-GB1-07.03

**IP68**

**OPZIONE**  II 2 G Ex ib IIC T6  
**OPTION** II 2 D Ex ibD 21 T70°C  
Certificate: TÜV 06 ATEX 553026 X

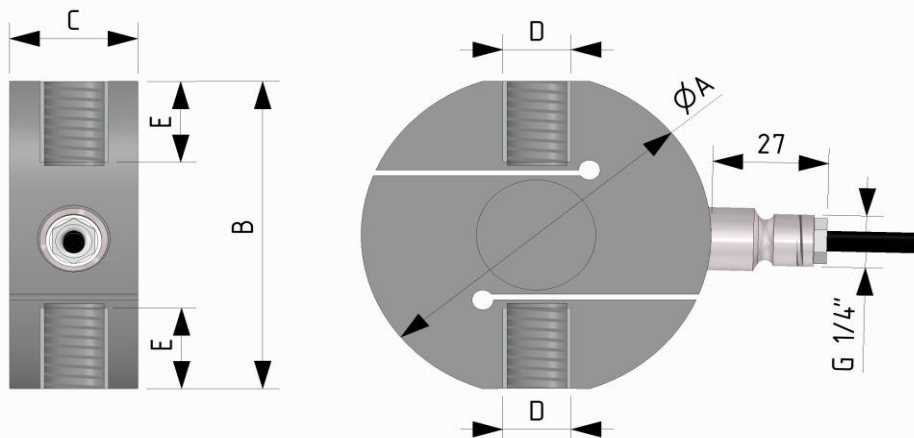
 Interamente saldata  
al LASER  
Completely LASER  
welded

 Stabilità a  
lungo termine  
Long term  
high stability

**SOLLECITAZIONI DINAMICHE**  
  
**DYNAMIC STRESSES**

### Dimensioni Dimensions

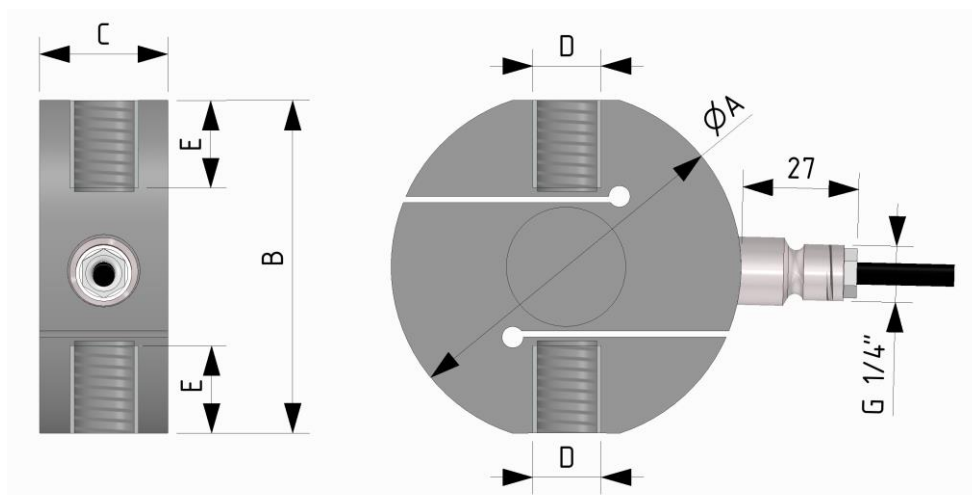
[mm]



**TS**

IN ACCORDANCE

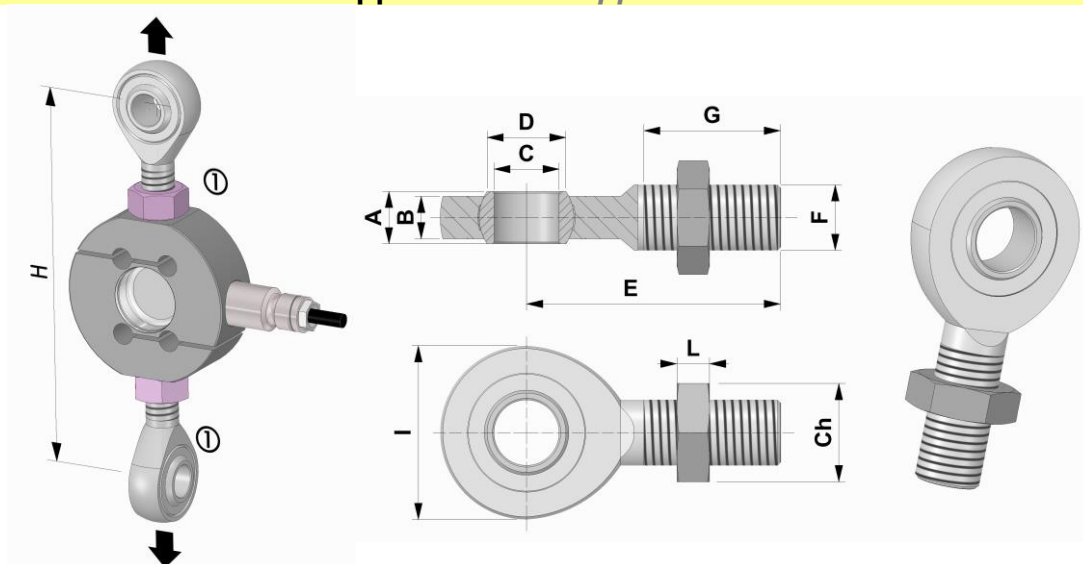
| CODE (C2)    | CODE (C3)    | LOAD   | ØA   | B    | C  | D        | E    | Frequenza naturale<br>Natural frequency |
|--------------|--------------|--------|------|------|----|----------|------|-----------------------------------------|
| CTS6310KC25  | CTS6310KC35  | 10 kg  | 63.5 | 59.5 | 22 | M12X1.75 | 12   | ~ 0.35 kHz                              |
| CTS6325KC25  | CTS6325KC35  | 25 kg  |      |      |    |          |      | ~ 0.65 kHz                              |
| CTS6350KC25  | CTS6350KC35  | 50 kg  |      |      |    |          |      | ~ 1.05 kHz                              |
| CTS63100KC25 | CTS63100KC35 | 100 kg |      |      |    |          |      | ~ 1.25 kHz                              |
| CTS63200KC25 | CTS63200KC35 | 200 kg |      |      |    |          |      | ~ 1.75 kHz                              |
| CTS63300KC25 | CTS63300KC35 | 300 kg |      |      |    |          |      | ~ 1.75 kHz                              |
| CTS63500KC25 | CTS63500KC35 | 500 kg | 82   | 78   | 30 | M16X2    | 20   | ~ 1.80 kHz                              |
| CTS82500KC25 | CTS82500KC35 | 500 kg |      |      |    |          |      | ~ 2.20 kHz                              |
| CTS821TC25   | CTS821TC35   | 1 t    |      |      |    |          |      | ~ 2.50 kHz                              |
| CTS822TC25   | CTS822TC35   | 2 t    | 82   | 78   | 30 | M20X1.5  | 20   | ~ 2.50 kHz                              |
| CTS822T5C25  | CTS822T5C35  | 2.5t   |      |      |    |          |      | ~ 3.25 kHz                              |
| CTS1025TC25  | CTS1025TC35  | 5 t    |      |      |    |          |      | ~ 3.20 kHz                              |
| CTS1027T5C25 | CTS1027T5C35 | 7.5t   | 102  | 90   | 45 | M24X2    | 21.5 | ~ 3.00 kHz                              |
| CTS12710TC25 | CTS12710TC35 | 10 t   | 127  | 120  | 50 | M30x2    | 29   | ~ 3.25 kHz                              |



| <b>TSA</b><br><b>APPROVED</b> | CODE (C2)     | CODE (C3)     | CODE (C4)     | LOAD   | ØA   | B    | C  | D        | E    |
|-------------------------------|---------------|---------------|---------------|--------|------|------|----|----------|------|
|                               | CTSA63100KC25 | CTSA63100KC35 | /             | 100 kg | 63.5 | 59.5 | 22 | M12X1.75 | 12   |
|                               | CTSA63200KC25 | CTSA63200KC35 | /             | 200 kg |      |      |    |          |      |
|                               | CTSA63300KC25 | CTSA63300KC35 | /             | 300 kg |      |      |    |          |      |
|                               | CTSA63500KC25 | CTSA63500KC35 | /             | 500 kg |      |      |    |          |      |
|                               | CTSA82500KC25 | CTSA82500KC35 | CTSA82500KC45 | 500 kg | 82   | 78   | 30 | M16X2    | 20   |
|                               | CTSA821TC25   | CTSA821TC35   | CTSA821TC45   | 1 t    |      |      |    |          |      |
|                               | CTSA822TC25   | CTSA822TC35   | CTSA822TC45   | 2 t    |      |      |    |          |      |
|                               | CTSA822T5C25  | CTSA822T5C35  | CTSA822T5C45  | 2.5t   |      |      |    |          |      |
|                               | CTSA1025TC25  | CTSA1025TC35  | /             | 5 t    | 102  | 90   | 45 | M24X2    | 21.5 |
|                               | CTSA1027T5C25 | CTSA1027T5C35 | /             | 7.5t   |      |      |    |          |      |

Versione omologata solo per applicazioni in trazione / *Approved version only for tension applications*

## Applicazioni Applications



① Teste a snodo sferico / *Knuckle joints*

| Code:    | A  | B  | C  | D    | E   | F       | G  | I  | L  | Ch | H    |
|----------|----|----|----|------|-----|---------|----|----|----|----|------|
| CACCEM12 | 10 | 8  | 12 | 14.9 | 54  | M12     | 28 | 34 | 7  | 19 | ~134 |
| CACCEM16 | 14 | 11 | 17 | 20.7 | 69  | M16     | 36 | 46 | 8  | 24 | ~170 |
| CACCEM20 | 16 | 13 | 20 | 24.1 | 78  | M20×1.5 | 43 | 53 | 9  | 30 | ~102 |
| CACCEM25 | 20 | 17 | 25 | 29.3 | 94  | M24×2   | 53 | 64 | 10 | 36 | ~235 |
| CACCEM30 | 22 | 19 | 30 | 34.5 | 110 | M30×2   | 65 | 73 | 12 | 46 | ~280 |

Dimensioni in accordo con ISO 12240-4 Serie E

*Dimensions according to ISO 12240-4 series E*

| CLASSE DI PRECISIONE: <b>OIML R60</b>                | ACCURACY CLASS: <b>OIML R60</b>                   | <b>C2</b>                                                                                                                                  | <b>C3</b>          | <b>C4</b>           |
|------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|
| DIVISIONI LEGALI                                     | LEGAL DIVISIONS                                   | 2000                                                                                                                                       | 3000               | 4000                |
| CARICO NOMINALE ( $E_{max}$ )                        | NOMINAL LOAD ( $E_{max}$ )                        | 10 <sup>(1)</sup> – 25 <sup>(1)</sup> – 50 <sup>(1)</sup> kg<br>100 - 200 - 300 - 500 kg<br>1 - 2 - 2.5 – 5 t<br>7.5 - 10 <sup>(1)</sup> t |                    | 500 kg<br>1-2-2.5 t |
| INTERVALLO MIN. DI VERIFICA ( $V_{min}$ )            | MIN. VERIFICATION INTERVAL ( $V_{min}$ )          | $E_{max} / 10000$                                                                                                                          |                    | $E_{max} / 15000$   |
| ERRORE COMBINATO                                     | COMBINED ERROR                                    | $\leq \pm 0.023\%$                                                                                                                         | $\leq \pm 0.018\%$ | $\leq \pm 0.015\%$  |
| NON RIPETIBILITA'                                    | NON-REPEATABILITY                                 | $\leq \pm 0.015\%$                                                                                                                         | $\leq \pm 0.010\%$ | $\leq \pm 0.010\%$  |
| RITORNO A ZERO dopo 30 min.                          | ZERO RETURN over 30 min.                          | $\leq \pm 0.025\%$                                                                                                                         | $\leq \pm 0.015\%$ | $\leq \pm 0.010\%$  |
| CREEP al carico nominale:                            | CREEP at nominal load:                            |                                                                                                                                            |                    |                     |
| a) dopo 30 min.                                      | a) over 30 min.                                   | $\leq \pm 0.025\%$                                                                                                                         | $\leq \pm 0.015\%$ | $\leq \pm 0.015\%$  |
| b) dopo 20 e 30 min.                                 | b) over 20 and 30 min.                            | $\leq \pm 0.005\%$                                                                                                                         | $\leq \pm 0.005\%$ | $\leq \pm 0.003\%$  |
| EFFETTO DELLA TEMP. (10 °C)                          | TEMPERATURE EFFECT (10 °C)                        |                                                                                                                                            |                    |                     |
| a) sullo zero                                        | a) on zero                                        | $\leq \pm 0.028\%$                                                                                                                         | $\leq \pm 0.010\%$ | $\leq \pm 0.008\%$  |
| b) sulla sensibilità                                 | b) on sensitivity                                 | $\leq \pm 0.012\%$                                                                                                                         | $\leq \pm 0.010\%$ | $\leq \pm 0.008\%$  |
| SENSIBILITA' NOMINALE                                | NOMINAL SENSITIVITY                               | 2 mV/V                                                                                                                                     |                    |                     |
| TOLLERANZA DI CALIBRAZIONE                           | SENSIVITY TOLERANCE                               | $\leq \pm 0.1\%$                                                                                                                           |                    |                     |
| RESISTENZA DI INGRESSO                               | INPUT RESISTANCE                                  | 420 $\pm$ 20 $\Omega$                                                                                                                      |                    |                     |
| RESISTENZA DI USCITA                                 | OUTPUT RESISTANCE                                 | 350 $\pm$ 2 $\Omega$                                                                                                                       |                    |                     |
| RESISTENZA DI ISOLAMENTO                             | INSULATION RESISTANCE                             | > 5 G $\Omega$                                                                                                                             |                    |                     |
| BILANCIAMENTO DI ZERO                                | ZERO BALANCE                                      | $\leq \pm 1\%$                                                                                                                             |                    |                     |
| ALIMENTAZIONE DI RIFERIMENTO                         | RECOMENDED SUPPLY VOLTAGE                         | 10 V                                                                                                                                       |                    |                     |
| ALIMENTAZIONE NOMINALE                               | NOMINAL SUPPLY VOLTAGE                            | 1-15 V                                                                                                                                     |                    |                     |
| ALIMENTAZIONE MAX.                                   | MAXIMUM SUPPLY VOLTAGE                            | 18 V                                                                                                                                       |                    |                     |
| VALORI MECCANICI LIMITE riferiti al carico nominale: | MECHANICAL LIMIT values referred to nominal load: |                                                                                                                                            |                    |                     |
| a) carico minimo                                     | a) minimum load                                   | 0 %                                                                                                                                        |                    |                     |
| b) carico di servizio                                | b) service load                                   | 120 %                                                                                                                                      |                    |                     |
| c) carico limite                                     | c) max permissible load                           | 150 %                                                                                                                                      |                    |                     |
| d) carico di rottura                                 | d) breaking load                                  | >300 %                                                                                                                                     |                    |                     |
| e) massimo carico trasversale                        | e) max transverse load                            | 100 %                                                                                                                                      |                    |                     |
| f) carico dinamico limite                            | f) max permissible dynamic load                   | 50 %                                                                                                                                       |                    |                     |
| FRECCIA MAX. AL CARICO NOMINALE                      | DISPLACEMENT AT NOMINAL LOAD                      | ~ 0.2 mm                                                                                                                                   |                    |                     |
| TEMPERATURA DI RIFERIMENTO                           | REFERENCE TEMPERATURE                             | +23 °C                                                                                                                                     |                    |                     |
| CAMPO NOMINALE DI TEMP.                              | TEMPERATURE NOMINAL RANGE                         | -10/+40 °C                                                                                                                                 |                    |                     |
| TEMPERATURA DI ESERCIZIO                             | SERVICE TEMPERATURE                               | -20/+70 °C                                                                                                                                 |                    |                     |
| TEMPERATURA DI STOCCAGGIO                            | STORAGE TEMPERATURE                               | -20/+80 °C                                                                                                                                 |                    |                     |
| PESO Ø63.5 mm                                        | WEIGHT Ø63.5 mm                                   | ~ 0.6 kg                                                                                                                                   |                    |                     |
| PESO Ø82 mm                                          | WEIGHT Ø82 mm                                     | ~ 1.2 kg                                                                                                                                   |                    |                     |
| PESO Ø102 mm                                         | WEIGHT Ø102 mm                                    | ~ 2.6 kg                                                                                                                                   |                    |                     |
| PESO Ø127 mm                                         | WEIGHT Ø127 mm                                    | ~ 4.4 kg                                                                                                                                   |                    |                     |
| CLASSE DI PROTEZIONE (EN 60529)                      | PROTECTION CLASS (EN 60529)                       | IP68 (100h at 1m water column)<br>IP65 (10, 25, 50 kg silicon cover)                                                                       |                    |                     |
| MATERIALE DELLA CELLA                                | EXECUTION MATERIAL                                | Acciaio Inox / Stainless Steel                                                                                                             |                    |                     |
| LUNGHEZZA CAVO                                       | CABLE LENGTH                                      | 5 m (on request 10 m)                                                                                                                      |                    |                     |

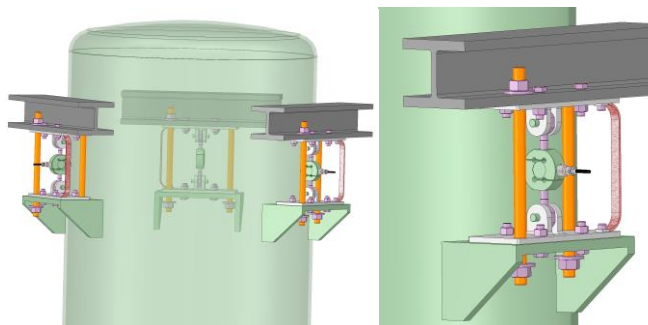
Accelerazione di gravità  $g=9.80434 \text{ m/s}^2$  / Acceleration of gravity  $g=9.80434 \text{ m/s}^2$



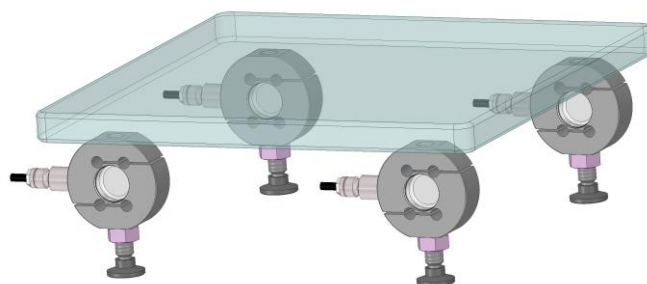
<sup>(1)</sup> Opzione ATEX **NON** disponibile / ATEX option **NOT** available.

## Esempi d'installazione

## Examples of installation



Silos a 3 punti di appoggio in TRAZIONE  
Silo with 3 *TENSION* supporting points.



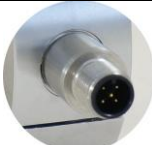
Piattaforma a 4 punti di appoggio con piedi snodati.  
Platform with 4 supporting points with jointed feet.

## OPZIONI

Da acquistare separatamente

## OPTIONS

To be purchased separately

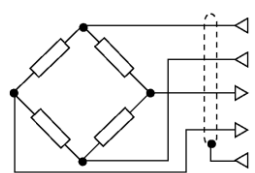
|                                                                                     | CODE             | <sup>(2)</sup> OPZIONE                                                                                        | <sup>(2)</sup> OPTION                                                                                   |
|-------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|    | <b>CONN12MF</b>  | Uscita diretta connettore <b>M12</b>                                                                          | Direct output connector <b>M12</b>                                                                      |
|   | <b>CONN12FV5</b> | CONNETTORE <b>M12x1</b> femmina 5 poli dritto completo di <b>CAVO</b> PVC costampato schermato lunghezza 3 m. | Female 5 poles straight <b>M12x1</b> CONNECTOR complete PVC molded <b>CABLE</b> , shielded, length 3 m. |
|  | <b>CRT</b>       | Rapporto di taratura.<br>Compressione o Trazione.                                                             | Calibration Report.<br>Compression or <i>TENSION</i>                                                    |



<sup>(2)</sup> Opzione **NON** disponibile nelle versioni **ATEX** e **OMOLOGATE**.  
Option **NOT** available in **ATEX** and **APPROVED** versions.

## Collegamenti Elettrici *Electrical Connections*

**USCITA STANDARD:** cavo schermato PVC 105°C, Ø 5.2 mm a 4× Ø 0.35mm<sup>2</sup> conduttori stagnati.  
**STANDARD OUTPUT:** PVC 105°C shielded cable, Ø 5.2mm with 4× Ø 0.35mm<sup>2</sup> tinned conductors.

| <i>Load cell</i>                                                                    | OUTPUT       | CABLE  | CAVO    | <b>M12 <sup>(2)</sup></b><br><i>(optional)</i> |
|-------------------------------------------------------------------------------------|--------------|--------|---------|------------------------------------------------|
|  | EXCITATION + | Red    | Rosso   | 1                                              |
|                                                                                     | EXCITATION - | Black  | Nero    | 3                                              |
|                                                                                     | OUTPUT +     | White  | Bianco  | 2                                              |
|                                                                                     | OUTPUT -     | Yellow | Giallo  | 4                                              |
|                                                                                     | -----        | Shield | Schermo | 5                                              |

Schermo collegato al corpo del trasduttore.  
Shield connected to the body of the transducer.