

AMPLIFIED TENSION AND COMPRESSION TRANSDUCER



Type: **TCE-AMP**

- 350 kg TO 20 t
- 4 ... 20 mA · ± 5 V · ± 10 V
- STAINLESS STEEL · IP67
- ACCURACY 0.03 %



IP67



Stainless
Steel



Analogsignal

ORDERING

Ø 57 mm	CTCE57350K5 (350 kg) · CTCE57500K5 (500 kg) · CTCE571TK5 (1 t) · CTCE572T55 (2.5 t) · CTCE575T5 (5 t, in tension up to 2.5 t)
Ø 82 mm	CTCE825T5 (5 t) · CTCE827T55 (7.5 t) · CTCE8210T5 (10 t)
Ø 82 mm, long	CTCE8220T5 (20 t)
Output	4 ... 20 mA in three wires, ± 5 V or ± 10 V — please state
Connector	MIL-C-26482 with 6 poles or M12 with 4 poles

An octogon order code has not yet been defined; please state nominal load, size, output signal and connector. The codes are those of the TCE body — the amplifier is stated with the output.



OVERVIEW

The TCE-AMP is the TCE with the amplifier built in: the same cylindrical body of stainless steel with a female thread at each end, for nominal loads from 350 kg to 20 t in tension and compression — but it answers with 4 ... 20 mA, ± 5 V or ± 10 V instead of millivolts. A measuring amplifier is therefore not needed, and an ordinary analogue input of a PLC reads the force directly. Accuracy is stated as 0.03 %, non linearity and non repeatability likewise. There are three sizes: Ø 57 mm with M20 × 1.5, Ø 82 mm with M30 × 2 and a longer Ø 82 mm with M42 × 3 — and as with the TCE, the 5 t cell of Ø 57 mm is guaranteed in tension only up to 2.5 t. The body is sealed to IP67; the output is a MIL connector with six poles or an M12 with four.

MEASUREMENT AND OUTPUT

- Nominal load 350 kg ... 20 t
- Tension and compression in one body
- Output 4 ... 20 mA, ± 5 V or ± 10 V
- Accuracy 0.03 %
- Non linearity and non repeatability ≤ 0.03 %
- Calibration tolerance $< \pm 0.1$ %
- Supply 12 ... 24 V DC or 18 ... 24 V DC
- Service temperature $-20 \dots +70$ °C

MECHANICS, SEALING AND MOUNTING

- Stainless steel body, IP67 to EN 60529
- Service load 120 %, breaking load > 300 %
- Max. transverse load 100 % of nominal load
- Displacement ≤ 0.3 mm at nominal load
- Ø 57 mm or Ø 82 mm, M20, M30 or M42
- Weight about 1.5, 4.2 or 5 kg
- 5 m cable · MIL or M12 connector
- Knuckle joints DURBAL EM 20, EM 30, EM 42



TECHNICAL DATA

MEASUREMENT

Nominal load	350, 500 kg · 1, 2.5, 5 t in Ø 57 · 5, 7.5, 10, 20 t in Ø 82
Accuracy	0.03 %
Non linearity	≤ 0.03 %
Non repeatability	≤ 0.03 %
Calibration tolerance	< ± 0.1 %
Temperature effect per 10 °C	on zero ± 0.030 % · on sensitivity ± 0.011 %
Note on the 5 t cell	the 5 t cell of Ø 57 mm is guaranteed in tension only up to 2.5 t — in Ø 82 mm the full 5 t hold

MECHANICAL LIMITS

Minimum load	0 % of the nominal load
Service load	120 %
Maximum permissible load	150 %
Breaking load	> 300 %
Maximum transverse load	100 %
Maximum dynamic load	50 %
Displacement at nominal load	≤ 0.3 mm

OUTPUT AND SUPPLY

Nominal sensitivity	4 ... 20 mA in three wires · ± 5 V · ± 10 V
Nominal power supply	12 ... 24 V DC for ± 5 V · 18 ... 24 V DC for 4 ... 20 mA and ± 10 V
Maximum power supply	28 V DC
Maximum absorption	30 mA without load applied
Loading resistance	voltage output from 3 kΩ · current output 0 ... 470 Ω
Insulation resistance	> 2 GΩ
Zero balance	≤ 1 %

TEMPERATURE AND SEALING

Reference temperature	+23 °C
Nominal temperature range	-10 ... +40 °C
Service temperature	-20 ... +70 °C
Storage temperature	-20 ... +80 °C
Protection class	IP67 to EN 60529
Material	stainless steel
Weight	1.5 kg in Ø 57 · 4.2 kg in Ø 82 · about 5 kg at 20 t

SIZE, INSTALLATION AND CONNECTORS

Size Ø 57 mm	350 kg ... 5 t · thread M20 × 1.5 · length 80 mm
Size Ø 82 mm	5 ... 10 t · thread M30 × 2 · length 110 mm
Size Ø 82 mm, long	20 t · thread M42 × 3 · length 150 mm
Installed length A	117 mm for 350 kg ... 5 t · 149 mm for 5 ... 10 t · 198 mm for 20 t
Installed length B	200 mm for 350 kg ... 2.5 t · 300 mm for 5 ... 10 t · about 420 mm for 20 t
Connectors	MIL-C-26482, 6 poles, male · M12, 4 poles, male · with M12 a female M12 × 1 connector with 3 m moulded shielded cable
Cable routing	the weight of the cable can influence the measurement — lay it on the fixed side, opposite the load



ELECTRICAL CONNECTION

Transducer	MIL6M
Power +	A
0 V · signal –	B
Output +	D
Earth	F
Not connected	C and E
Yellow wire	not connected

The table gives the pins of the MIL connector with six poles as the document names them; the yellow wire of the cable is not connected. With the M12 connector a female M12 × 1 with three metres of moulded shielded cable is supplied.

ACCESSORIES

For Ø 57 mm, M20	loading head CTIC22 · spherical loading head CTS25M20 · knuckle joints CACCEM20
For Ø 82 mm, M30	loading head CTIC28 · spherical loading head CTS45M30 · knuckle joints CACCEM30
For Ø 82 mm, M42	loading head CTIC35 · spherical loading head CTS62M42 · knuckle joints CACCEM42
Recommended knuckle joints	DURBAL EM 20, EM 30 and EM 42
Cable for M12	female M12 × 1, 4 poles, straight, with 3 m moulded shielded cable

Knuckle joints let the force enter on the axis when the structure is not perfectly aligned; the manufacturer names the DURBAL types by size.

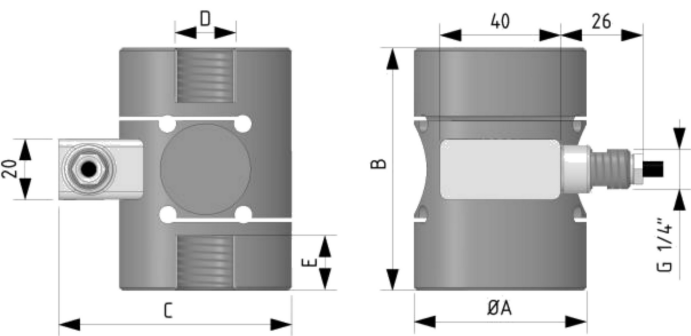
COMPLIANCE

 IP67	Sealing	IP67 to EN 60529
 Stainless Steel	Material	stainless steel body
 Analog signal	Output	4 ... 20 mA, ± 5 V or ± 10 V · supply 12 ... 24 V DC, maximum 28 V DC

The manufacturer states no OIML class for this transducer; accuracy, non linearity and non repeatability stand in their place. An EAC certificate and a CE certificate lie in the product folder; please ask octogon before relying on a marking for a particular application.



DIMENSIONS (mm)



LOAD	ØA	B	C	D	E
350 kg ... 5 t	57	80	74,5	M20 × 1,5	17
5 ... 10 t	82	110	102	M30 × 2	20
20 t	82	150	102	M42 × 3	30

The drawing is the one of the manufacturer document; its letters are read in the table beside it, one row per size. D is the thread at both ends, E its depth. The body is that of the TCE — the amplifier sits inside it.

