



TQ 422/432

Proximity Transducer Type TQ 422/432

CHARACTERISTICS

- Non-contacting measurement
- Eddy current principle
- Conforms to API 670 recommendations
- Certified to CENELEC standards
- 5 m and 10 m systems
- Pressure proof 10 bar (tip: 100 bar)

FEATURES

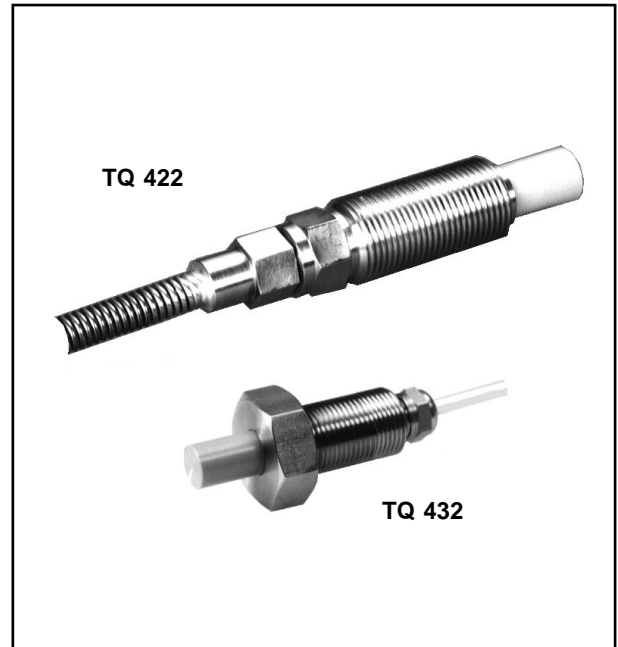
- **Measuring range:**
4 mm
- **Temperature range:**
-25°C to +140°C
- **Sensitivity:**
4 mV/μm
- **Frequency response:**
DC to 20 kHz

DESCRIPTION

These transducers are used for the contactless measurement of the relative displacement of moving machine elements. They are particularly adapted for measuring the relative vibration and axial position of rotating machine shafts such as those found in steam turbines, gas turbines, hydraulic turbines, alternators, turbo-compressors, pumps, etc.

The TQ 422/432 non-contacting transducer and the matching IQS 452 signal conditioner combine to form a calibrated proximity system in which each component is interchangeable. The system outputs a voltage proportional to the distance between the transducer tip and the target (e.g. machine shaft).

The active part of the proximity probe is a coil of wire that is moulded inside the tip of the transducer, which is made of Torlon (Polyamide-imide). The transducer body is made



of stainless steel. The target material must, in all cases, be metallic.

The transducer body is available with metric or English thread. The TQ 432 body is intended for reverse-mount applications. The transducer has an integral coaxial cable, terminated with an AMP-type connector. Various cable lengths (integral and extension) may be ordered.

Due to the characteristics of the coaxial cable, an "electrical trimming" of the nominal length of the integral and extension cables is necessary to optimize the system performance and the transducer interchangeability.

The TQ 422/432 proximity transducer can be matched with the EA 402 extension cable. Optional junction boxes and housings offer mechanical protection of the integral and extension cable connectors.

SPECIFICATIONS

TQ 422/432

GENERAL

Transducer input requirements:

High-frequency power source via matching conditioner, type IQS 452

OPERATION

(at 23°C ±5% in target material VCL 140, 1.7225)

Sensitivity:

4 mV/μm (100 mV/mil)

Linear measuring range:

0 - 4 mm

Linearity:

See system performance curves

Frequency response:

DC to 20 kHz (-3dB)

Interchangeability of elements:

≤5%

ENVIRONMENTAL

Temperature ranges

Transducer:

-25°C to +140°C with drift < 5%

Cable:

-100°C to +200°C

Connector:

-65°C to +85°C

Protection class:

IP 68 according to IEC 529 and DIN 40050

Tip of transducer:

Pressure proof 100 bar

Rear of transducer:

- With BOA armoured cable : Pressure proof 10 bar
- With stuffing gland & FEP cable : Pressure proof 1 bar

Explosive atmosphere:

CENELEC certificate LCIE SYST 93.C6081X EEx ib IIC T6

Probe construction:

Wire coil, Ø 8 mm, Peek tip, encapsulated in 1.4435 stainless steel body with high-temperature epoxy glue

Integral cable:

FEP covered 70 Ω coaxial cable, Ø 3.6 mm

Option : BOA stainless steel armour sheathing and heat shrinkable insulating sleeve

Connector:

Miniature coaxial male connector type AMP 1-330 723-0

Accessories :

EA 402	Extension cable
IQS 452	Signal conditioner

Ordering Information for TQ 422/432 proximity probe :

- Designation : TQ 422/432 proximity probe
- Ordering number : 111-422-000-01 / X1 / X2 / X3 / X4
111-432-000-01 / X1 / X2 / X3 / X4

X1	Environment
01	Standard
02	Explosive

X2	TQ 422 body
02	M20 x 1.5 x 42 mm
03	M20 x 1.5 x 72 mm
04	M20 x 1.5 x 92 mm
05	M20 x 1.5 x 120 mm
06	M20 x 1.5 x 150 mm
07	M20 x 1.5 x 180 mm
99	M20 x 1.5 / XX mm

X3	Integral cable
01	1 m length ³⁾
02	5 m length ± 15%
03	10 m length ± 15%
04	1 m length + BOA ²⁾⁺³⁾
05	5 m length + BOA ²⁾
06	10 m length + BOA ²⁾

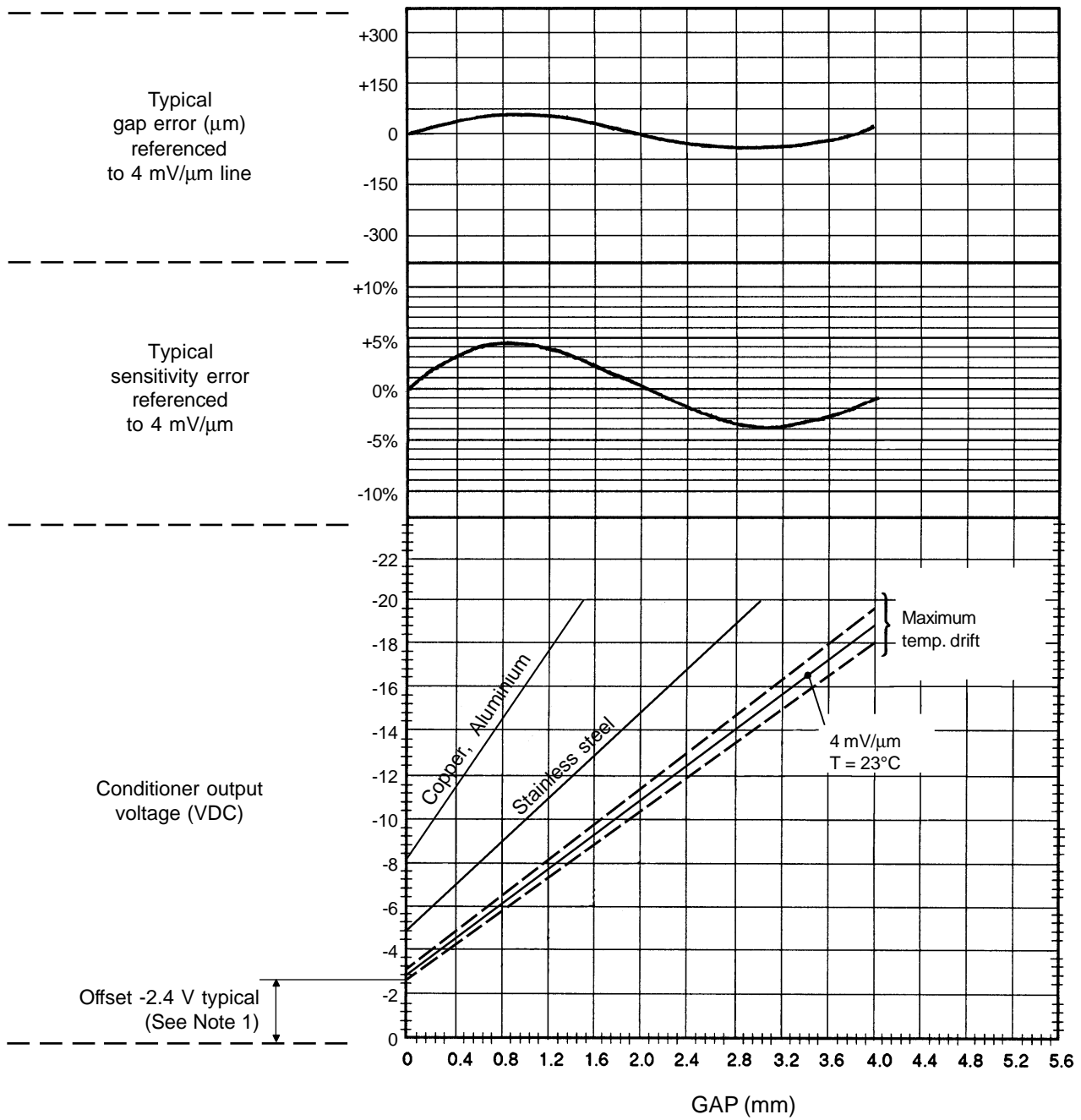
X4	Total length
01	5 m ± 15%
02	10 m ± 15%

X2	TQ 432 body
02	M20 x 1.5 x 42 mm

Notes :

- 1) For special requests, replace the option code XX with 99 and specify the exact requirements.
- 2) BOA options are not available for TQ 432.
- 3) 1 m length is not available for TQ 422.

Curves for TQ 402/412 probe with IQS 452 M0XX or IQS 452 M1XX conditioner



Note :

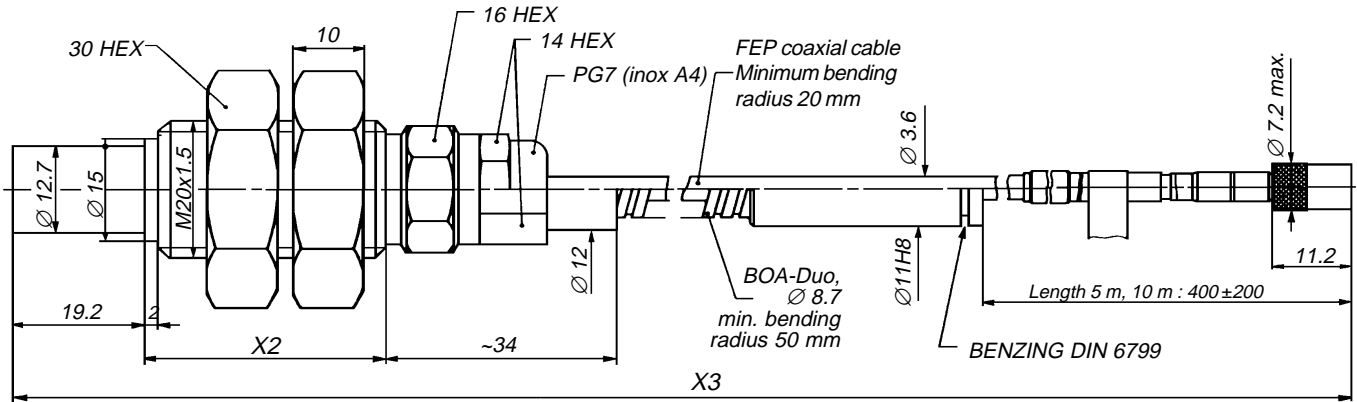
1) The offset is due to the protection cap (thickness 0.6 mm) that covers the coil located in the tip of the transducer.

- Probe : TQ 422 / 5 m
- Conditioner : IQS 452 M0XX or IQS 452 M1XX
- Target : VCL 140 (1.7225)
- Equivalent materials : A 37.11 (1.0065), AFNOR 40 CD4, AISI 4137

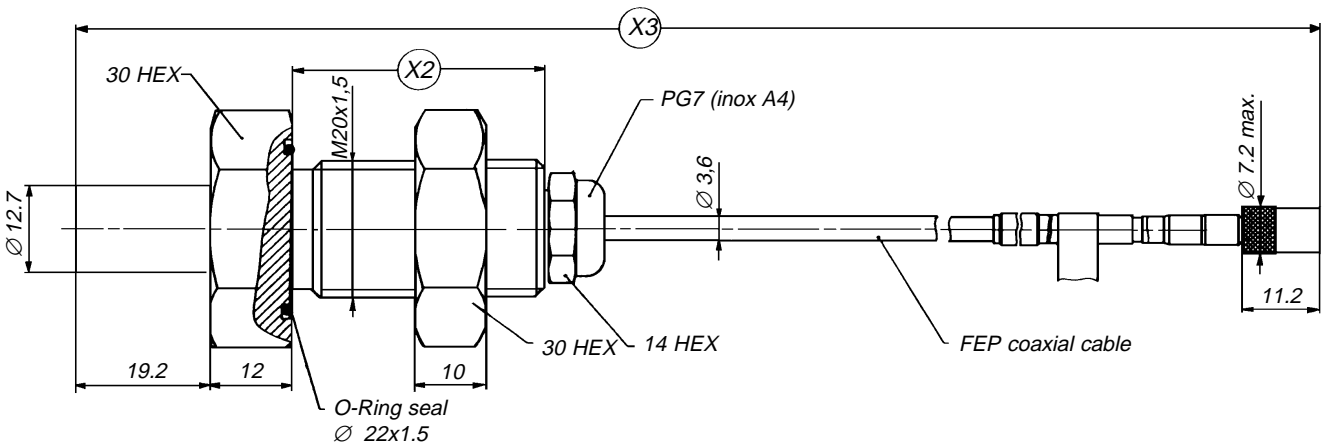
System calibration

The TQ + IQS system is designed for use with VCL 140 steel as a target. If special calibration is required, please define the alloy precisely or supply a sample of alloy (min. Ø 50 mm / 1 cm thick).


TQ 422 :

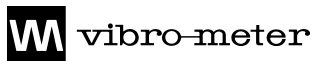


TQ 432 :



Notes:
Dimensions in mm if not otherwise specified

 Due to the continual development of our products we reserve the right to modify the specifications without forewarning.



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