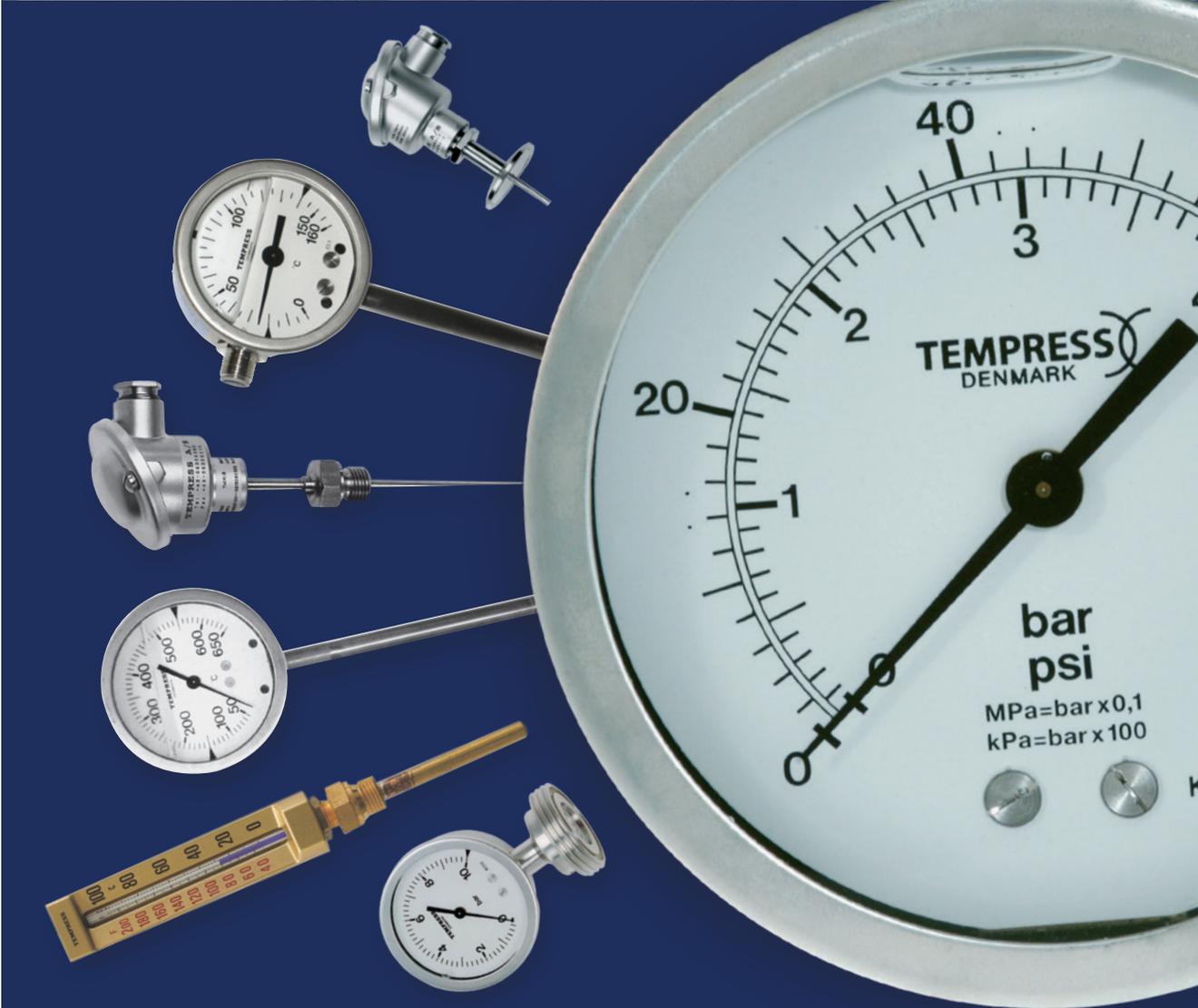


TEMPRESS INSTRUMENTATION

MARINE // REFRIGERATION SANITARY // PROCESS

H I G H Q U A L I T Y I N S T R U M E N T S



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TEMPRESS MARINE



Through the last 50 years Tempress has manufactured and supplied high quality instruments to the world's leading manufactures of main and auxiliary engines. Tempress' comprehensive product range includes pressure gauges, pressure

transmitters, pressure switches, exhaust thermometers, thermometers in general, temperature sensors, capacitative level switches etc.



Mechatronic thermometer for temperatures up to 300° C



Low pressure / pressure gauge



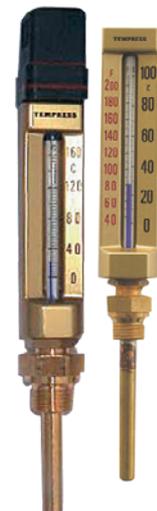
Low cost standard pressure gauge



Thermometer for exhaust gas



Mechatronic exhaust gas thermometer



Combined industrial and PT100 sensor and industrial thermometer



Pressure gauge



Differential pressure switch



INDUPEC® sensor for hydraulic cylinder



Heavy duty differential pressure transmitter



Heavy duty pressure transmitter



Temperature sensor, PT100 and thermocouples



Pressure transmitter for direct mounting



Pressure transmitter/switch for either block or direct mounting



Pressure calibration kit



Temperature calibrator

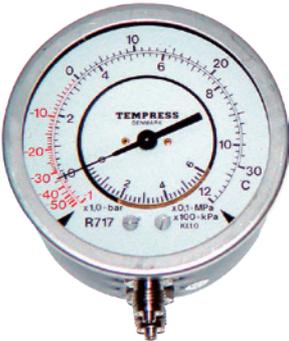


TEMPRESS REFRIGERATION

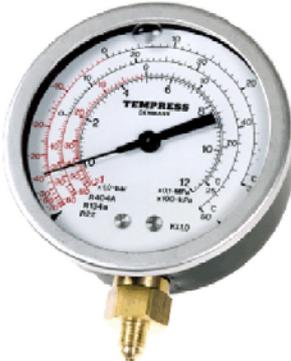


From the early start in 1956, Tempress has been a leading manufacturer of instrumentation to the refrigeration industry. To be mentioned are pressure gauges for all cooling refrigerants.

Furthermore Tempress is capable of delivering temperature sensors, transmitters, and industrial thermometers.



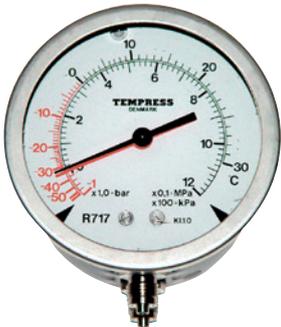
Differential pressure gauge for refrigeration



Pressure gauge for refrigeration



Resistance thermometer



Duplex pressure gauge



Pressure transmitter for direct mounting



Mechatronic thermometer for temperatures up to 300° C



Standard low cost pressure gauge



Vapour pressure thermometer



TEMPRESS SANITARY



INSTRUMENTS

Tempress A/S is one of the leading players in supplying instruments to the food processing industry and the pharmaceutical industry, where high demands for hygiene are present. Tempress A/S offers a comprehensive product range for measur-

ing pressure and temperature in all kinds of hygienic applications. Tempress' instruments are used in conjunction with pumps, filters, separators, tanks, vessels and homogenisers.

PRESSURE MEASURING INSTRUMENTS AND ACCESSORIES



Pressure gauge



Pressure gauge with OPF for 4-20mA output



Pressure gauge with alarm contacts



SwipGuard safety switch



Heavy duty differential pressure transmitter



Cooling tower



Capillary extension



Tri-clamp diaphragm seal



Fractional diaphragm seal



In-line diaphragm seal with clamp connection



In-line diaphragm seal with knuckle thread union



Diaphragm seal for homogenisers with flange



Diaphragm seal for homogenisers

DIAPHRAGM SEALS

The diaphragm seals from Tempress are characterized by very high accuracy and long life cycles. The diaphragm seals fulfil the highest hygienic standards and are made in accordance with international standards such as ISO, DIN, ASME, RJT, IDF and many others. Moreover, many of the designs are approved by 3-A, reg. No. 641.

Tempress' diaphragm seals for hygienic purposes are well documented and can be supplied with 2.2, 3.1, material, traceability and calibration certificates. Also Tempress' diaphragm seals are only filled with transmission liquids that conform to USP/FDA/BP/HP EURO/DAB/E422/FCC III and Japanese pharmacopoeia standards.



Heavy duty pressure transmitter



Pressure transmitter with plug



Pressure transmitter with cable



Diaphragm seal with flange



Diaphragm seal internal knuckle thread union



Diaphragm seal with external knuckle thread union

TEMPERATURE



Thermometer with clamp connection



Mechatronic thermometer for temperatures up to 300° C



Temperature sensors PT100



Gas pressure thermometer with thermowell

TEMPRESS PROCESS



INSTRUMENTS

Tempress A/S is one of the leading players in supplying instruments to the process industries e.g. power plants, off-shore installations, chemical works, hydraulic installations, paper mills, gas control equipment and petrochemical industry. Tempress offers a comprehensive product range for measuring

pressure, temperature, level and angle positioning in all kinds of process industries. Tempress' instruments are used in conjunction with among others pumps, vessels, pipelines, filters, actuators, switchgears, hydraulic cylinders and casting moulds.

PRESSURE



SF6 gas density monitor



Pressure gauge with 4-20 mA transmitter



Liquid filled pressure gauge



Low pressure / pressure gauge

TEMPERATURE



Mechatronic exhaust gas thermometer



Gas pressure thermometer



Resistance thermometer, PT100 or T/C



Mechatronic thermometer for temperatures up to 300° C

TRANSMITTERS



Pressure transmitter with flush diaphragm seal



Heavy duty differential pressure transmitter



Heavy duty pressure transmitter

DIAPHRAGM SEALS

Tempress' unique know-how on thin plate welding and bonding technique enables us to develop and produce a wide range of seals with extreme low diaphragm resistance and very high resistance against mechanical tear and wear. This in combina-

tion with Tempress' unique evacuation system for filling seals and instruments with transmission liquids enables Tempress to manufacture very accurate instruments with seals for all kinds of process industries.



Process flange with Kalrez diaphragm



ANSI B16.5, 150, 3" AISI316 diaphragm



DIN2501, DN80, PN40 AISI316 diaphragm



DIN2635, DN25, PN40 AISI316 diaphragm



DIN11851 In-line temperature sensor



Pancake, ANSI B16.5, 300, 2" AISI316 diaphragm



ANSI B16.5, 150, 2" Tantalum diaphragm



ISO2852, DN38 In-line diaphragm seal



Diaphragm seal for high pressure

The Tempress diaphragm seals can, apart from stainless steel as standard, be equipped with diaphragms in exotic materials like PTFE, Viton, Kalrez, Hastelloy, Tantalum and many others to suit exact needs for corrosion resistance.

Tempress instruments with diaphragms are well documented and can be supplied with calibration certificate, 3.1. certificate, material and traceability certificates and transmission liquid certificate. The seals are produced in accordance with international standards like DIN, ANSI, ISO, ASME and others.

SWITCHES AND POSITIONING



Potentiometer



Safety pressure switch



Proximity switch

THE BEST PRESSURE GAUGE IN THE WORLD - WHY?

Bourdon Tubes

1. Bourdon tube, measuring system and dial are built together (the competitors' case and system are welded together which means that they are more sensitive to strokes).
2. Bourdon tube always made of uniform materials, i.e. alloy and working-up always the same.
3. Bourdon tube is soldered or welded.
4. Bourdon tube size depends on case, i.e. as big as possible.
5. Bourdon tube can withstand full pressure continuously.
6. Bourdon tube can withstand 30% overpressure for a short time, max. 2 minutes.
7. All Bourdon tubes are slackened (they are placed in an oven for a few hours at a given temperature and therefore have no hysteresis).
8. Briefly: more robust, stronger, durable, solid.

Movement

1. Big interchange (compression of segment) i.e. possibility for a more accurate calibration and better durability.
2. Many different movements depending on range (working area), oscillating pressure, depending on application.
3. Movement: segment twice as broad as others in the market, i.e. robust and strong.

Liquid Filling of the Case

1. 100% liquid filled.
2. 100% tight all the time.
3. Ready for use immediately.
4. Temperature compensation up to 60° C due to ambient temperature.
5. By overpressure in the case (1.0 bar) the bellow springs out.
6. Different liquids depending on temperature and pressure.
7. Possibility for ventilated case by very low pressures or high ambient temperature.

Accuracy

1. Always the same over the full scale, hand work/hand calibrated.
2. Calibrated in 5 places upwards and downwards.
3. Calibration is always made manually and individually for each instrument. Therefore accuracy is never on the limit of a class specification.
4. No need for a pin in the 0-point because the instrument has accurate reading over the total scale, i.e. 0-270 angle degrees.

Options

1. Possibility of over pressure protection.
2. Possibility of contacts, angular transmitter, pressure transmitter, exchange of nipples.
3. Mounting possibilities: direct bottom or rear, front flange, rear flange, clamp etc.
4. Different ranges on the dial.
5. Damping in the nipple and in the pressure transmitter.
6. Possibility of capillary tube for remote reading.

Membrane

1. The membrane is flexible, and absorbs some of the measuring errors for temperature influence (because it bends outwards if the transmission liquid expands).
2. Thin, only 0,05 mm.
3. Possibility of mechanic over pressure protection.
4. Over pressure protection by membrane, but only by stable ambient temperatures or the temperature at which the instrument was calibrated
5. Many different pressure transmitters.
6. Surface of membrane <0,8µm or <0,5µm
7. Certificates
8. Withstands CIP and SIP.

The transmission liquid

1. Temperature stable.
2. Non-poisonous and non-compressible.
3. Low quantity of liquid in the pressure transmitters.
4. No air in the transmission liquid. This means that the membrane can withstand full vacuum pressure.
5. We use various compositions of the transmission liquids, depending on temperature and pressure range.

Pressure Gauge with Fractional Seal

1. The pointer always falls back to "0" after autoclaving.
2. The instrument is stable, i.e. after being exposed to high temperature and pressure the pointer always falls back to "0".
3. Can withstand high media temperatures up to 150° C.
4. We supply correction tables for misreading at different temperatures.
5. Membrane surface <0,5µm.
6. Can be supplied dry or liquid filled.

Tempress Product Program

All types of pressure gauges can be delivered.

THERMOMETERS FROM TEMPRESS**Spiral**

1. We use a hardened spiral and therefore the thermometer is more stable than other thermometers on the market.
2. Spiral can withstand high pressures, and therefore it is not sensitive to blows and shocks and simultaneously reading is more stable.
3. The building up of the spiral contributes to quick reading of temperature change.
4. Extremely small "dead volume" gives a very small temperature flow at very fluctuating ambient temperatures.

Accuracy

1. Accuracy and long time stability are precise due to good materials.
2. Accuracy is the same within the triangles on the dial according to the norm after which they are built.
3. All instruments are calibrated in 3 places on the scale and calibrated to optimum accuracy in the middle of the range.

Stem

1. Tolerance is always 2 mm in the length of the stem.
2. The construction means that we have less weldings and consequently lower risk of leaks.
3. The length of the stem depends on the temperature and diameter selected.

Clamp

1. Different sizes and types.

Option

1. Contacts? No.
2. OPF? No.

Case

1. Liquid filled.
2. Temperature reading without vibrations.
3. 100% tight. Checked in a heating cupboard at 55-60° C.

Surface

1. Fine surface finish <0,8my (mech. polishing) or <0,5my (electropolished).
2. Case electropolished.

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TEMPRESS (**INSTRUMENTATION**)