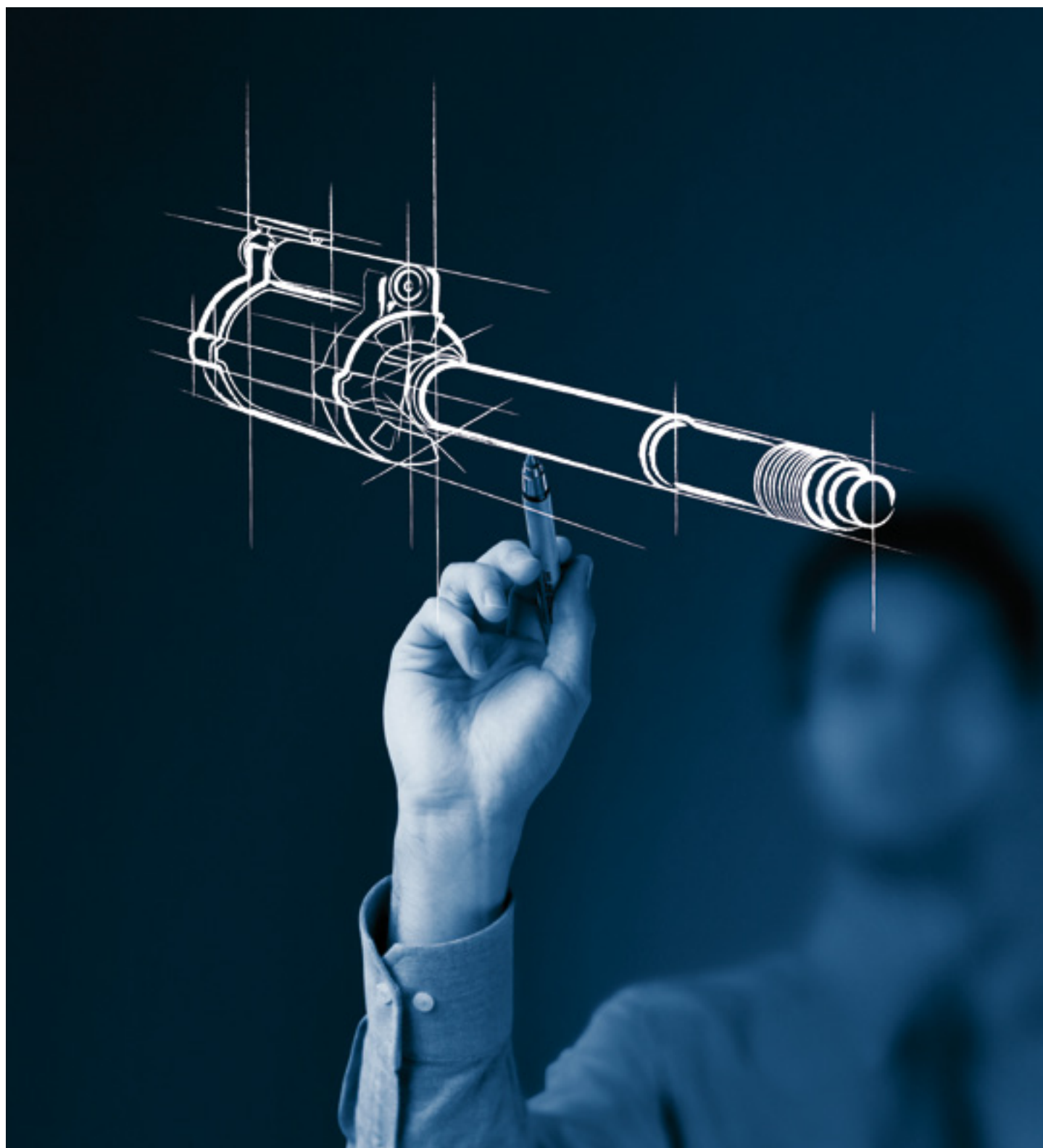


MEASUREMENT MELT PRESSURE TRANSDUCERS AND TRANSMITTERS

GEFRAN





PRESSURE MEASUREMENT AT HIGH TEMPERATURES

GEFRAN Melt sensors are pressure/temperature transducers and transmitters that **measure Melt medium pressure in high-temperature environments (up to 538°C)**. Melt pressure can be measured in four main process temperature ranges:

- > up to 315°C
- > 315°C to 350°C
- > 350°C to 400°C
- > 400°C to 538°C



EXTENSIMETRIC TECHNOLOGY
with filling fluid

The operating principle is based on hydraulic transmission of pressure by means of **filling fluids** with low coefficient of compressibility: **mercury** (M series), **FDA-approved diathermic oil** (W series), and **sodium-potassium NaK mix** (K series), defined as a substance Generally Recognized As Safe (GRAS).

Therefore, the entire structure is built to **transfer the pressure exerted by the medium** on the contact diaphragm to the transduction part, i.e., **measurement diaphragm** with the strain gauge, keeping it away from the heat source. The **strain gauge** then transduces the physical pressure quantity into an electrical signal.



PIEZORESISTIVE TECHNOLOGY
entirely fluid free

Innovative **IMPACT sensors** (I series) are pressure transmitters **without transmission fluid**: medium pressure is transferred directly to the silicon sensitive element by means of a thick diaphragm.

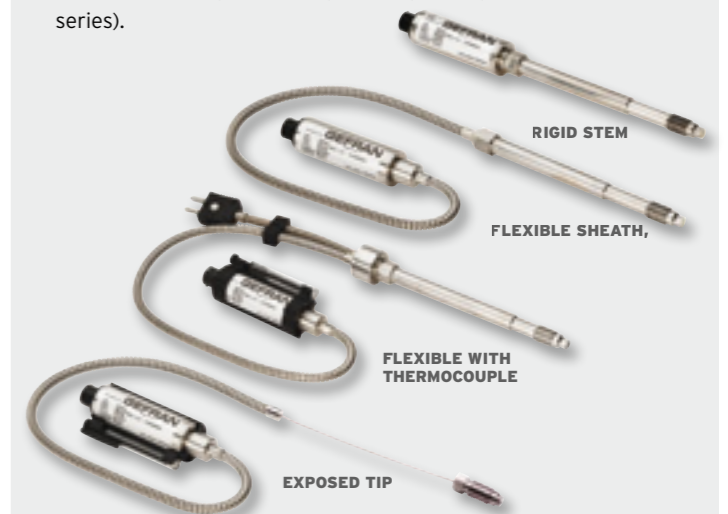
Physical stress is transduced by a Wheatstone bridge with 4 piezoresistors. GEFran's **IMPACT series**, with proprietary technology, provides:

- > High strength (up to 35 times stronger than traditional sensors)
- > High response speed
- > Extremely easy installation thanks to a modular sensor
- > High safety standards (conformity to Machinery Directives and RoHS)



4 DIFFERENT DESIGNS

Gefran high-temperature pressure transducers are generally available in four versions: **rigid stem**, **flexible sheath**, **flexible with thermocouple**, and **exposed tip** (except for the IMPACT series).



M series

M	mercury
W	FDA oil
K	Nak
I	IMPACT
IJ	injection applications, IMPACT

E series

3	3.33 mV/V non-amplified output
2	2.5 mV/V non-amplified output
E	4-20mA current output
N	0-10V voltage output
D	CAN-BUS DP404 digital output
5	output: GAUGE Analogue indication
6	output: GAUGE Digital indication
X	Atex with Intrinsic Safety
F	Factory Mutual Explosion proof

2

0	rigid stem
1	flexible sheath
2	flexible sheath with thermocouple
3	exposed tip



WHY GEFRAN?

Mercury-free SOLUTIONS

Sensitive to environmental issues, and in full harmony with the RoHS Directive (2002/95/CE), GEFTRAN offers a wide range of mercury-free Melt sensors, both with filling fluid (oil or NaK) and fluid free (IMPACT).

GTP

The new GTP coating, the result of Gefran research, guarantees longer Melt sensor life thanks to:

- > Greater hardness
- > Resistance to high temperatures
- > Low coefficient of friction

AUTOZERO FUNCTION

All Gefran amplified Melt pressure sensors (M/W/K/I series) have the Autozero functions, which eliminates signal variations linked to a thermal effect before putting the system under pressure.

AUTOCOMPENSATION

With the SP option (internal autocompensation), M/W/K series transmitters cancel the effect of variation of pressure signal caused by variation of Melt temperature.

In this way, the read error caused by heating of the filling fluid (typical in filled sensors) is reduced to a minimum.

In IMPACT technology, digital electronics automatically compensate for drift due to thermal effect.



CERTIFICATIONS

ATEX AND FACTORY MUTUAL

MX, WX or IX (Atex) and MF or WF (Factory Mutual) transmitters and transducers are certified based on their respective protection and safety requisites, and can work in potentially explosive atmospheres.

PERFORMANCE LEVEL "C"

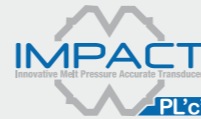
(PL" c" EN13849-1)

IMPACT is available in the IMPACT PL" c" version, conforming to the safety requisites of the recent Machinery Directive 2006/42/CE and EN1114 specific for extruders.

IMPACT PL" c" features intelligent electronics with Auto Diagnostics to detect possible faults.

An integrated relay in the electronics changes state in case of overpressure or if the setpoint is exceeded.

Increased safety on the IMPACT PL" c" is completed by full conformity to Namur NE21 and NE43 recommendations.



	GTP	Autozero	Autocompensation	ATEX	FM APPROVED	Mercury Free	Fluid Free	Performance level "c"	CANopen
M Mercury	•	•	•	•	•				•
W FDA oil	•	•	•	•	•	•			•
K NaK	•	•	•			•			•
I IMPACT	•	•	•	•		•	•	•	

GUIDE TO SELECTION

T _{max}	Filling fluid	Environment	Output	Gefran series
315°C	Diathermic oil	Safe area	mV/V	W3
			Current	WE
			Voltage	WN
		Atex area (EU)	CANopen	WD
			Local display	W6
			Current	WX
	Mercury	Safe area	Current	WF
			mV/V	M3
			Current	ME
		Atex area (EU)	Voltage	MN
			CANopen	MD
			Local display	M5
Sodium-Potassium	Safe area	Current	M6	
		Voltage	MX	
		CANopen	MX4	
	Atex area (EU)	Current	K3	
		mV/V	KE	
		Voltage	KN	
350°C	Mercury	Safe area	CANopen	KD
			mV/V	I3
			Current	IE
		Atex area (EU)	Voltage	IN
			CANopen	I7
			Current	IJ-N
	Sodium-Potassium	Safe area	Current	IJ-D
			mV/V	IX
			Current	M3
		Atex area (EU)	Voltage	ME
			CANopen	MN
			Local display	MD
Sodium-Potassium	Safe area	Current	M5	
		mV/V	M6	
		Voltage	MX	
	Atex area (EU)	CANopen	MX4	
		Current	WF	
		Current	K3	
400°C	Mercury	Safe area	Voltage	KE
			CANopen	KN
			Local display	KD
		Atex area (EU)	mV/V	I3
			Current	IE
			Voltage	IN
	Sodium-Potassium	Safe area	Current	I7
			mV/V	IJ-N
			Voltage	IJ-D
		Atex area (EU)	CANopen	IX
			Current	M3
			Current	ME
538°C	Mercury	Safe area	Voltage	MN
			CANopen	MD
			Local display	M5
		Atex area (EU)	Current	M6
			Current	MX
			Current	MX4
	Sodium-Potassium	Safe area	Voltage	WF
			mV/V	K3
			Current	KE
		Atex area (EU)	Tensione	KN
			CANopen	KD
			Current	K3
Sodium-Potassium	Safe area	Current	KE	
		Voltage	KN	
		CANopen	KD	



ACCESSORIES

RUPTURE-GRD DISCS



The rupture disc (also known as a bursting disc), is a **mechanical device** that fails at a predetermined pressure. Installed on the extruder, it **prevents dangerous and sudden pressure increases** in the machine and releases pressure by rupturing. $\pm 0.5\%$ accuracy and a wide pressure range make the GRD a valid **addition to traditional control devices**, especially in emergency conditions where immediate intervention is required.

TRANSDUCER SIMULATOR



The **TS3** simulates the output of a Gefran mV/V melt pressure transducer (M3, W3, K3 series) at various pressure levels. It also simulates any strain-gauge transducer, and is available in a 6 pin (TS36) or 8 pin (TS38) version.

EXTENSION CABLES



6 and 8-pin **extension cables** with length up to 30 metres, for non-amplified and digital output.

GENERAL ACCESSORIES



Drill kit



Cleaning kit



Brackets



Rupture discs



6-pin female connector



5-pin female connector



8-pin female connector

SPECIFIC ACCESSORIES FOR IJ



5-pin female connector (IP65)
CON031



7-pin female connector (IP40)
CON322



7-pin female connector 90°C
(IP40) CON322



6-pin female connector
CON022



8-pin female connector CON026

RELATED PRODUCTS

CONTROLLERS



2500

- universal inputs for amplified and non-amplified sensors
- very high acquisition speed
- high accuracy
- math calculations, pressure delta
- 4 configurable outputs
- Modbus and Profibus communication

PRESSURE INDICATORS



2400

- universal inputs for amplified sensors
- very high acquisition speed
- high accuracy
- math calculations, pressure delta
- 4 configurable outputs
- Modbus and Profibus communications



40B

- input for non-amplified pressure sensors
- 4 configurable outputs
- Modbus communications



40T

- input for amplified pressure sensors
- 4 configurable outputs
- Modbus communication

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