

ENGINEERING
TOMORROW

Danfoss

Protect market reputation Minimise warranty costs

A pressure transmitter overview



350 US\$

saved for a single
warranty claim -
that is why customers
chose Danfoss
pressure transmitters.

We've made your challenges our business

When you choose Danfoss as your supplier of pressure transmitters, you choose a dedicated partner who truly understands the challenges in your specific applications. Years of experience allow us to provide you with advanced solutions that will meet your every requirement in terms of

both performance and life cycle cost. Choose from our wide range of standard devices or team up with our worldwide transmitter experts to design a customised solution for your equipment.

Marine and railway equipment



Marine, Mobile Hydraulics and Railways

The increasing global focus on environmental and safety legislation calls for more control and automation. Danfoss accommodate this by optimising product functions and specifications, allowing you to comply with the new demands. Our wide transmitter range comprises solutions for:

- Marine equipment (MBS 3100/5100 series)
- Mobile hydraulic equipment (MBS 1200/1300 series)
- Railway equipment (MBS 3000 series)

Machine and equipment



Industrial Hydraulics, AirCompressors, Water Pumps and Industrial Engines

Within machines and equipment the transmitter specifications depend on the specific application. Close cooperation with customers has allowed us to develop dedicated transmitter solutions for:

- Water pumps and air compressors (MBS 1900)
- Engines (MBS 2000/3000 series)
- Industrial hydraulics (MBS 8200 series)

Heating and sanitation



Sterilisers, Autoclaves, Boiler and Boiler Room Equipment

Energy efficiency and safety are frequent challenges in heating and sanitation applications. The answer is highly reliable and accurate measurement, which is achieved by unique process control. For this specific purpose, Danfoss has developed a unique solution:

- MBS 3000 series

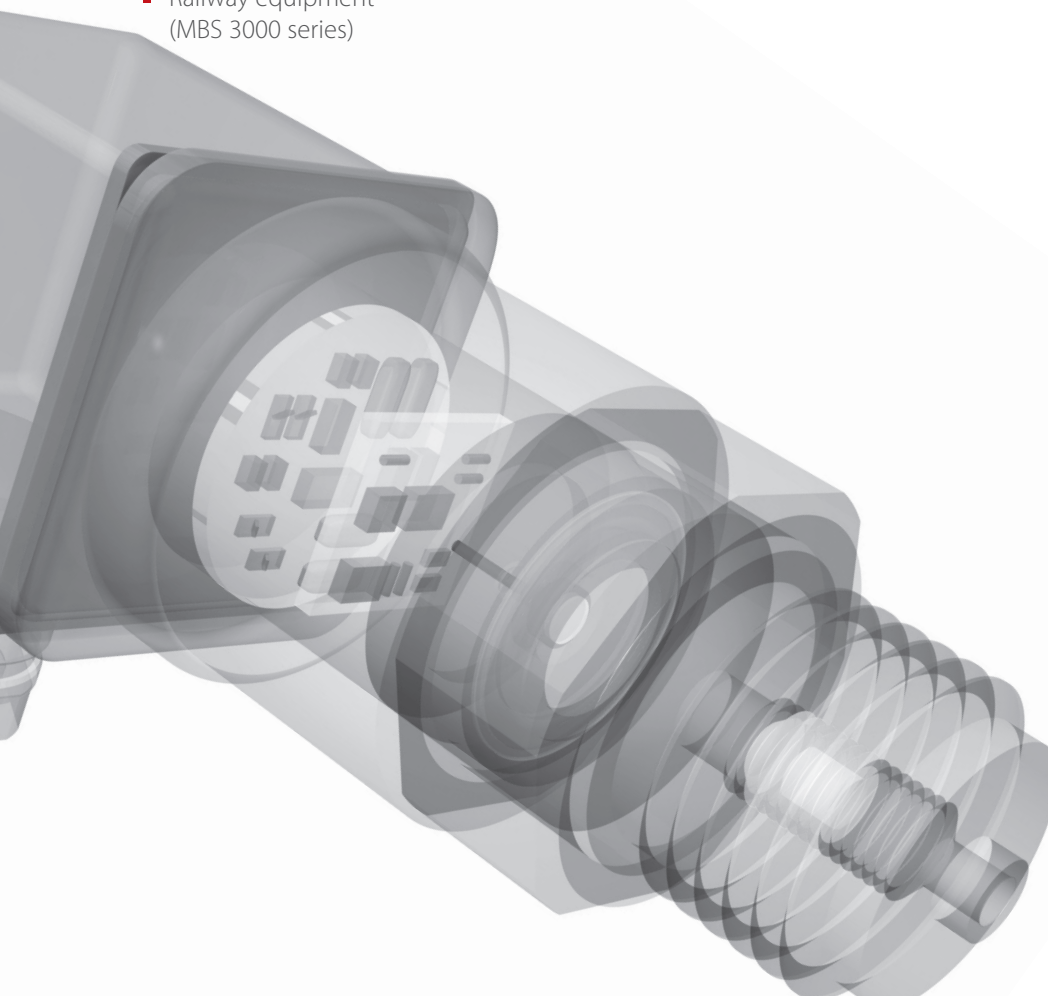
Energy



Wind Turbines and Electric Power

One of the most distinct global challenges now and in the future is how to produce energy in a both efficient and environmentally friendly way. In cooperation with some of the leading manufacturers, Danfoss has developed – and is continuously refining – solutions for:

- Wind turbines (MBS 3000/8200 series)
- Gen sets (MBS 2000/3000 series)



The perfect transmitter made from expert know-how

A typical pressure transmitter has three general functional elements:

- The electronics
- The sensing element
- The packaging

It is the solution of each of these elements and the combination that determines the performance of the products. All Danfoss pressure transmitters are certified according to ISO 9001 and ISO 14001.

1 Electronics

Danfoss pressure transmitters are available with analogue or digital electronic solutions and offer unique specifications in terms of:

- Accuracy
- Temperature range coverage
- EMI/RFI protection
- Multi-variable transmitter function
 - Pressure
 - Pressure and switch function

2 Sensing element

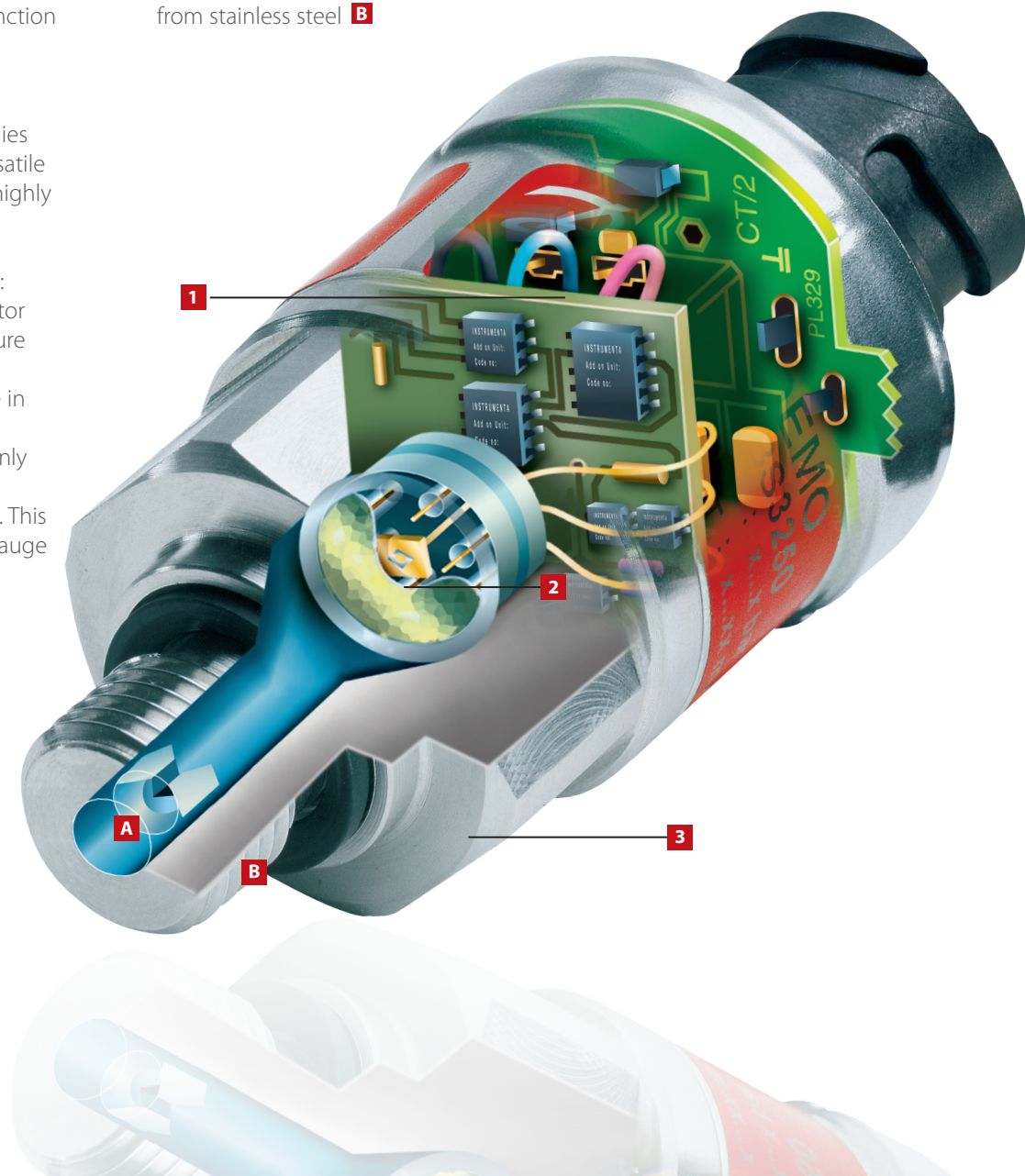
Offering two sensing technologies Danfoss is able to cover the versatile application requirements with highly competitive solutions. Both technologies are designed to operate in severe environments:

- Piezoresistive semi-conductor technology covering pressure ranges from 1 to 600 bar. This technology is available in absolute or gauge versions
- Thin-film technology is mainly used for high-pressure applications up to 2200 bar. This technology is available in gauge version

3 Packaging

The transmitter design offers long-life stability through:

- High shock and vibration stability
- High enclosure grade (special version up to IP69K)
- Pulse restriction solution which prevents liquid hammering and cavitation **A**
- Wetted parts that are all made from stainless steel **B**





TYPE	STANDARD	MBS 120	MBS 1200	MBS 1300	MBS 1900	MBS 8200			MBS 3000	MBS 3200	
	WITH PULSE-SNUBBER	MBS 125	MBS 1250	MBS 1350		MBS 8250	MBS 2050	MBS 2250	MBS 3050	MBS 3250	
SEGMENTS	Transportation										
	Heating and sanitation										
	Machine and equipment										
	Energy										
CHARACTERISTICS	Sensor technology	Thin film	Thin film	Thin film	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	
	Accuracy FS (max)	-	± 0.5%	± 0.5%	± 1%	± 0.5%	± 1%	± 1%	± 1%	± 1%	
	Max. measuring range [bar]	0 – 700	0 – 2200	0 – 2200	0 – 25	0 – 600	0 – 600	0 – 600	0 – 600	0 – 600	
	Max. measuring range [psi]	0 – 10000	0 – 31900	0 – 31900	0 – 300	0 – 9000	0 – 9000	0 – 9000	0 – 9000	0 – 9000	
	Output signal	mV/V	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA	-	-	-	4 – 20 mA	4 – 20 mA
			Absolute voltage	Absolute voltage	-	-	-	-	Absolute voltage	Absolute voltage	
			Ratiometric	Ratiometric	Ratiometric	Ratiometric	Ratiometric	Ratiometric	-	-	
	Medium temperature	°C	-40 – 125 °C	-40 – 125 °C	-40 – 125 °C	0 – 80 °C	-40 – 125 °C	-40 – 85 °C	-40 – 125 °C	-40 – 85 °C	-40 – 125 °C
		°F	-40 – 257 °F	-40 – 257 °F	-40 – 257 °F	32 – 176 °F	-40 – 257 °F	-40 – 185 °F	-40 – 257 °F	-40 – 185 °F	-40 – 257 °F
	Enclosure IP	IP00	IP67	IP67	IP65	IP67	IP65 IP67	IP65 IP67	IP65 IP67	IP65 IP67	
Wetted parts material	17 - 4 PH	17 - 4 PH	17 - 4 PH	AISI 304,	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L		
Housing material	n/a	AISI 304, PBT, GFR	AISI 304, PBT, GFR	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6		
Zero point and span adjustment											
Marine approvals											
ATEX approval							Zone 2	Zone 2	Zone 2	Zone 2	
UL Hazloc							Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2	

PRESSURE TRANSMITTERS OVERVIEW

MBS 32/33	MBS 4500	MBS 2100	MBS 3100	MBS 3300	MBS 33M	MBS 5100	EMP	MBS 4010	MBS 4510	MBS 4201	MBS 4701
MBS 4050		MBS 2150	MBS 3150	MBS 3350		MBS 5150				MBS 4251	MBS 4751
Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive	Piezo resistive
± 0.8%	± 0.5%	± 1%	± 1%	± 1%	± 1%	± 0.3%	± 0.5%	± 0.8%	± 0.5%	± 1%	± 0.5%
0 – 600	0 – 600	0 – 600	0 – 600	0 – 600	0 – 600	0 – 600	0 – 400	0 – 25	0 – 25	0 – 600	0 – 600
0 – 9000	0 – 9000	0 – 9000	0 – 9000	0 – 9000	0 – 9000	0 – 9000	0 – 6000	0 – 360	0 – 360	0 – 9000	0 – 9000
4 – 20 mA	4 – 20 mA	–	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA	4 – 20 mA
Absolute voltage	–	–	–	Absolute voltage	–	–	–	–	–	–	–
–	–	Ratiometric	–	–	–	–	–	–	–	–	–
-40 – 85 °C	-40 – 85 °C	-40 – 125 °C	-40 – 85 °C	-40 – 125 °C	-40 – 85 °C	-40 – 85 °C	-40 – 100 °C	-40 – 85 °C	-40 – 85 °C	-40 – 100 °C	-40 – 100 °C
-40 – 185 °F	-40 – 185 °F	-40 – 257 °F	-40 – 185 °F	-40 – 257 °F	-40 – 185 °F	-40 – 185 °F	-40 – 212 °F	-40 – 185 °F	-40 – 185 °F	-40 – 212 °F	-40 – 212 °F
IP65 IP67	IP65	IP65 IP67	IP65 IP67	IP65 IP67	IP65 IP67	IP65	IP67	IP65 IP67	IP65 IP67	IP65 IP67	IP65 IP67
AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L	AISI 316L
AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	Al	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6	AISI 316L, PA 6.6
	•					•	•		•		•
		•	•	•	•	•	•				
Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 0	Zone 0
Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2	Class 1, Div. 2		Class 1, Div. 2	Class 1, Div. 2		

All transmitters are available with a variety of electrical and process connections. Please contact your Danfoss dealer.

Here today. Here tomorrow.



Danfoss is a leading global player within the development and production of mechanical and electronic products and controls. Since 1933, our extensive know-how has made modern life easier and we continue to break new ground within our core business areas.

Every day, more than 250,000 items are produced at 70 factories in 25 countries. Impressive as these figures are, we are most proud of the way our dedicated employees apply the high-quality components in customer solutions, adding value to the end products. Building strong partnerships is of great importance to us, because it is purely by understanding our customers' needs that we can meet the expectations of tomorrow.

This is also true in Industrial Automation, a Danfoss entity dedicated to focusing on the industrial world of today. Through us, you gain access to the entire Danfoss pool of technologies, with special emphasis on sensors and controls.

We offer safer, more reliable and more efficient solutions in a close cooperation based on firm values.

Learn more at www.danfoss.com

Danfoss A/S, Industrial Automation

DK-6430 Nordborg · Denmark · Tlf: +45 7488 2222 · ia@danfoss.com · www.danfoss.com/ia