ENGINEERING TOMORROW

Introduction of **DST P650** Pressure Transmitter

Presenter

Component Overview Mobile Hydraulics

Pressure transmitters & Electric pressure switches

MBS 1250

MBS 1350

DST P650

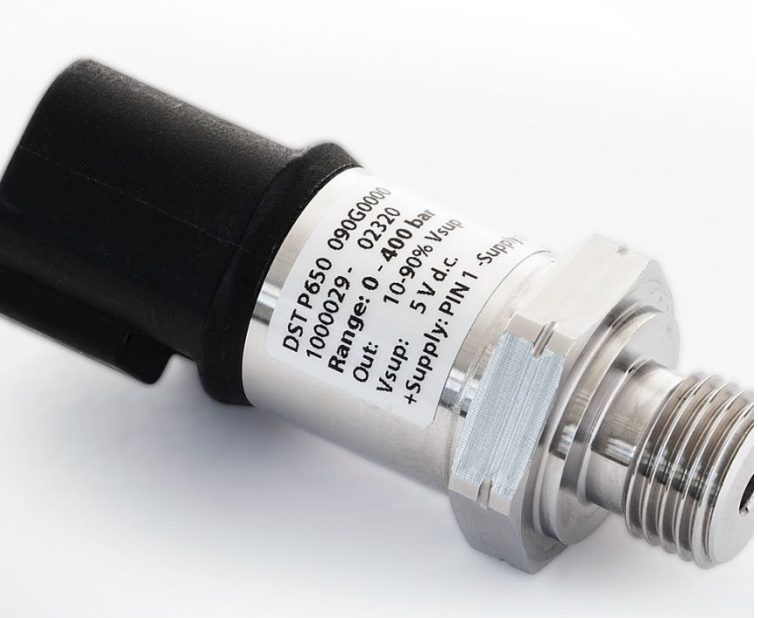
DST P92S SIL2

MEP 2250/ MEP 2650

Temperature sensors

MBT 3270

MBT 3560



Optimized product packaging of the thin-film sensor and the signal-conditioning electronics deliver excellent vibration resistance, thermal management properties, and protection against moisture ingress.

DST P650 Pressure Transmitter

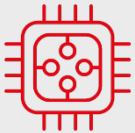
Technical Features

- Pressure range: 0-40 bar to 0-600 bar
- Operating temperatures up to 125°C
- Output signal: 10-90% ratiometric voltage
- EMC immunity ensuring a failsafe measuring signal
- Integrated pulse-snubber
- Compact design
- Fully-welded design
- Functional safety applications up to PLc
- MTTFd > 100 years (ISO13849-1)
- Scalable customized clipping level
- Harness fault detection *(under preparation)*
- Diagnostic features *(under preparation)*

Pressure Sensors

A pressure transmitter has three general functional elements:

All Danfoss pressure transmitters are produced **according to IATF16949**



1. Electronics

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

- Accuracy
- Temperature range coverage
- EMI/RFI protection

2. Packaging

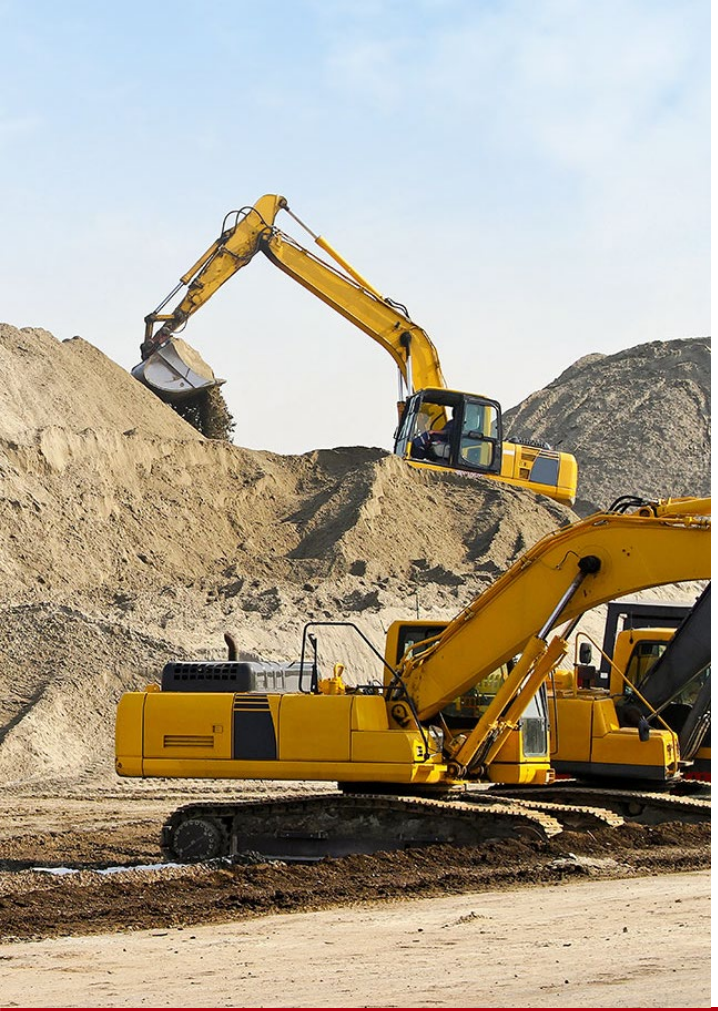
The transmitter design offers long-life stability through:

- High shock and vibration stability
- High IP enclosure grade
- Pulse restriction solution which prevents liquid hammering and cavitation (pulse-snubber)
- Wetted parts that are all made from stainless steel (17-4PH /AISI 304)

3. Sensing element

Thin film technology covering pressure ranges from 7 – 2200 bar UK facility / 40 – 600 bar German facility

It is the solution of each of these elements and the combination that determines the performance of the products.



Construction Applications

Wheel Loader

- Pump pressure
- Transmission pressure

Excavator

- Pump pressure
- Control valve

Backhoe Loader

- Pump pressure
- Control valve
- Stabilizer pressure

Concrete Pump

- Pump pressure
- Pressure concrete pump

Surface Rock Drill

- Pump pressure
- Pressure drill

Agriculture Applications

Tractor

- Pump pressure
- Hydraulic suspension pressure
- Transmission pressure

Bale Wrapper

- Pressure control wrapping of bales

Sprayers

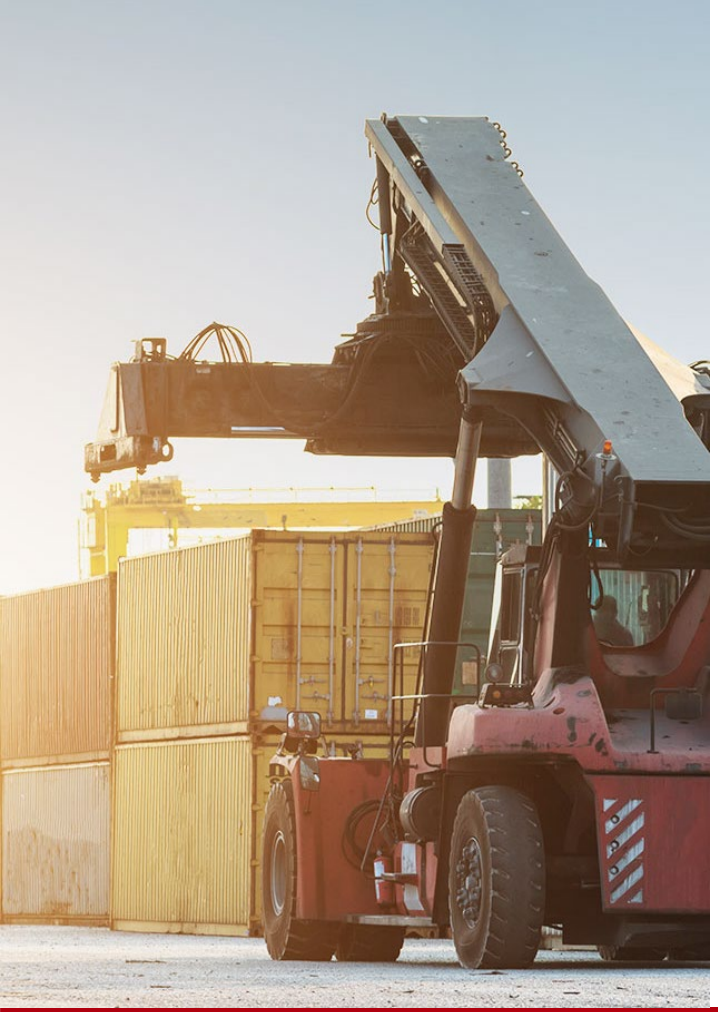
- Pump pressure
- System pressure pulverizor

Combine

- Pump pressure
- Belt tension
- Leveling cutting board
- Transmission pressure

Windrower

- Pump pressure
- Belt tension
- Levelling cutting board
- Transmission pressure



Material-handling Applications

Forklift

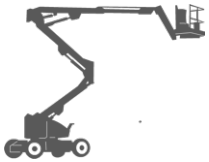
- Pump pressure
- Pressure overload
- Tilt control
- Weighing

Truck-mounted Crane

- Pressure overload
- Tilt control
- Weighing
- Stabilizers

Tele-handler

- Pump pressure
- Lift pressure
- Pressure overload
- Stabilizers
- Weighing

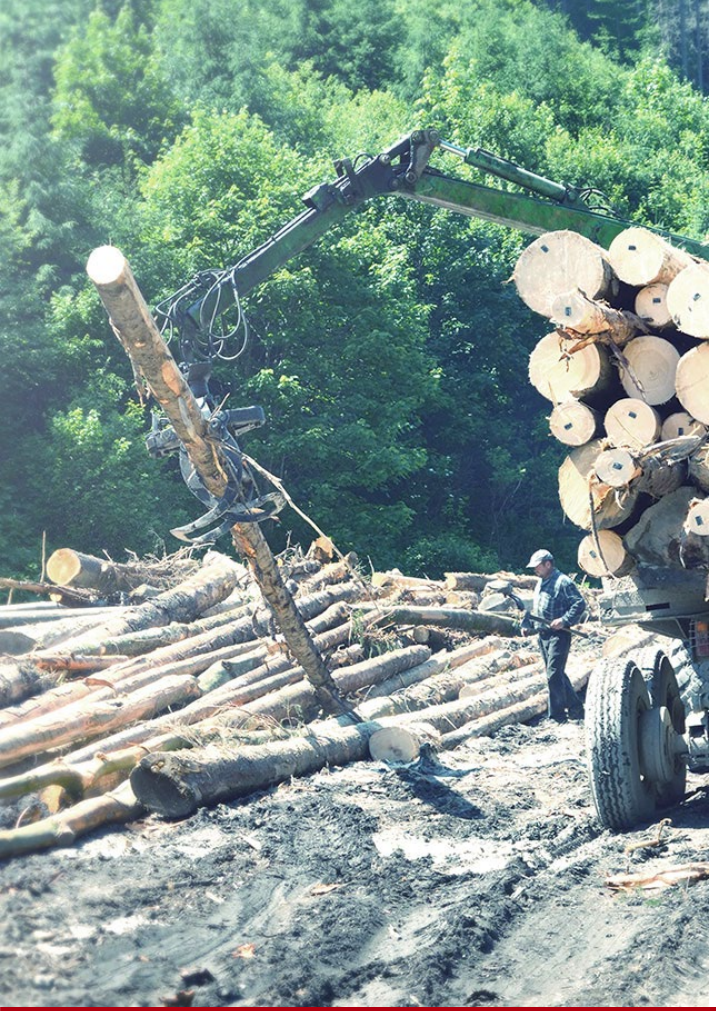


Aerial Work Platform

- Pressure overload
- Tilt control
- Stabilizers

Garbage Truck

- Pressure control garbage compression



Forestry Applications

Forestry Harvester

- Pump pressure
- Control valve
- Hydraulic oil temperature

Forestry Forwarder

- Pump pressure
- Hydraulic oil temperature

Log Skidder

- Pump pressure
- Hydraulic oil temperature

Forest Crane

- Pump pressure
- Control valve
- Hydraulic oil temperature

Woodchipper

- Pump pressure
- Hydraulic oil temperature

Long-term Stability
— Features & Benefits

- High burst and over pressure capabilities due to fully-welded design. Plus, safe ingress protection even in the harshest environment.
- Excellent EMC immunity ensuring a failsafe measuring signal—and zero drift due to excellent long-term stability ensures safety of the machine.
- A powerful ARM-based micro-controller offers diagnostic functions and intelligent performance features.
- High tolerance to mechanical shock and vibrations.
- For use in functional safety applications up to PLc. With a MTTFd > 100 years in accordance with ISO13849-1
- The DST P650 provides a +/-2% Total Error Band across the application-focused temperature range.

Diagnostics
- Features & Benefits
Release pending!

- Sensor self-monitors for internal fault conditions, sending an error signal to the controller for fast remote troubleshooting.
- Improves machine up-time and decreases field failures.
- Reduced number of “failure not found” messages — allowing users to fix the specific malfunction without replacing the entire subsystem.
- Fast complaint handling and root cause analysis ensures lower warranty costs

Power-up diagnostics | **Run-time diagnostics** | **Software defined features** | **Harness fault detection**

Danfoss Sensing Solutions factory
Minden, Germany

Our increased production capacity supports our ambitious growth plans for the mobile hydraulics pressure sensor portfolio. We now have a full understanding of the market's needs, and that's why ensuring free capacity is one of my primary must-win battles—alongside safety and quality—for 2022."

Kasper Kristiansen, Plant Manager, Danfoss Sensing Solutions Gmbh.

- In 2017, Danfoss acquired Kavlico thin-film sensor technology assets from US company Sensata Technologies as a response to increasing customer demand for heavy duty pressure sensors
- The 6,000m2 building houses a cutting-edge production facility, including a 700m2 clean room
- The expansion includes additional production equipment, a 25% increase in employees, and three working shifts
- Thin-film technology is increasingly used in mobile hydraulic applications as it enables the development of robust sensors that withstand higher application temperature and pressure

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