# DPRn 4122 ($I_{ATEX}$) Density Transducer


## Measuring principle

The DPRn 4122 Density Transducer determines the frequency of oscillation of a U-shaped tube through which the liquid is passed. The temperature is also measured. Both the temperature and frequency values are transmitted via a twin core (shielded) cable to the evaluation unit mPDS 1000 or mPDS 2000. The evaluation unit determines the density or related values such as density at reference temperature or concentration for display or output and control purposes.

## Features and benefits

- High resolution and repeatability up to $1x10^{-5}$ g/cm$^3$, short response time
- High resolution temperature measurement and low thermal inertia
- Virtually no influence of pressure, flow rate and viscosity with appropriate installation
- Pressure drop equivalent to a 1000 mm long tube with 22 mm internal diameter
- Rugged varnished, cast aluminium housing for operation in hostile environments
- Water proof to IP 65 with appropriate cable connection
- Minimized influence of external vibrations
- Sensors with smooth inner surfaces with possibility of sterilization
- Wetted parts of the instrument made of stainless steel 316 Ti. The material used is from a certified source and can be traced to the certification
- Silicagel cartridge with color indicator (blue = active, pink = to replace) avoids the danger of condensation on the oscillator tube, minimizing the influence of external conditions, thereby facilitating operation at low temperatures
- Maintenance-free, long operating lifetime with correct usage

## Intrinsic Safety (ATEX)

The intrinsically safe type DPRn 4122 I Density Transducer has EC-Type-Examination Certificates according to 94/9/EC (ATEX) for **<Ex> II 1/2 G EEx ia IIC T6**, consisting of a certificate for the sensor and for the electronics. It is to be connected to a safety transformer type IPS 501, which is to be installed outside the hazardous area, or directly to the certified intrinsically safe output of the evaluation unit type mPDS 1000.

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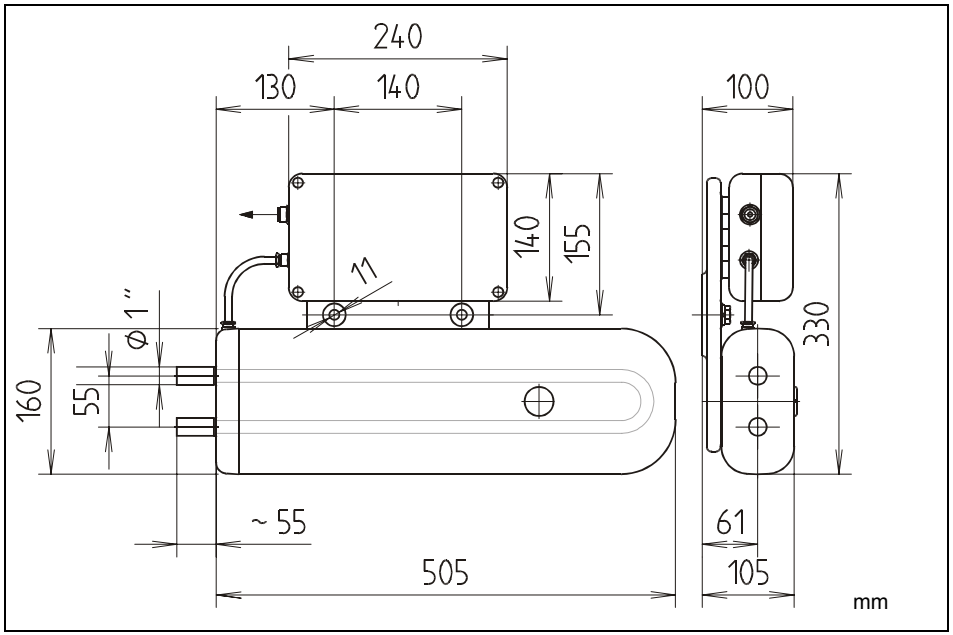



## Installation

The transducer is to be connected to a vibration-free base using two M10 screws.
A twin core twisted (shielded) cable is utilized to connect the transducer with the evaluation unit. The line resistance must not exceed 100 Ohms.

The connection to the sample loop is effected through a tube end with an external diameter of 1" and an inner diameter of 22 mm. Flange connections are possible on request. It is recommended to use a non rigid connection to the pipework in order to avoid the transmission of vibration from the system to the transducer. There are no restrictions concerning the direction of flow through the transducer or the orientation of the transducer. However the risk of gas bubbles and deposition of solids must be taken into account, when deciding on the location for installation.

## Technical specifications

| | |
|---|---|
| **Sensor** | |
| Material | stainless steel 316 Ti and 316 series |
| Internal diameter | 22 mm |
| Pipe length | ~ 1000 mm |
| Connection to the pipework | Tube end OD 1" (flanges and special connections on request) |
| **Density** | |
| Measuring range | 0 to 3 g/cm$^3$ |
| Repeatability | 1x10$^{-6}$ g/cm$^3$ |
| Accuracy in the adjusted range | 1x10$^{-4}$ g/cm$^3$ at best measuring conditions |
| **Temperature** | |
| Temperature range sample | -25 to +125 °C (EX: max. +80°C) |
| Temperature range ambient | -25 to + 70 °C (EX: max. +40°C) |
| Accuracy in the adjusted range | better than 0.1 K |
| **Pressure** | 0 to 50 bar |
| **Flow rate** | 350 to 6000 l/h / 10000 l/h max. |
| **Dimensions** | |
| External dimensions | 560 x 330 x 105 mm (L x W x H) |
| Mounting dimensions | 140 mm |
| **Weight** | approx. 17 kg |

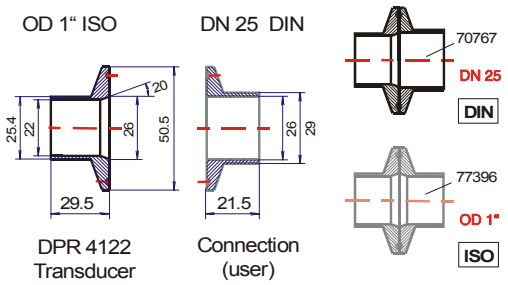
All specifications are valid for constant measuring conditions and correct installation. Deviations from the specifications are to be expected for temperature changes of more than 1 K/min.

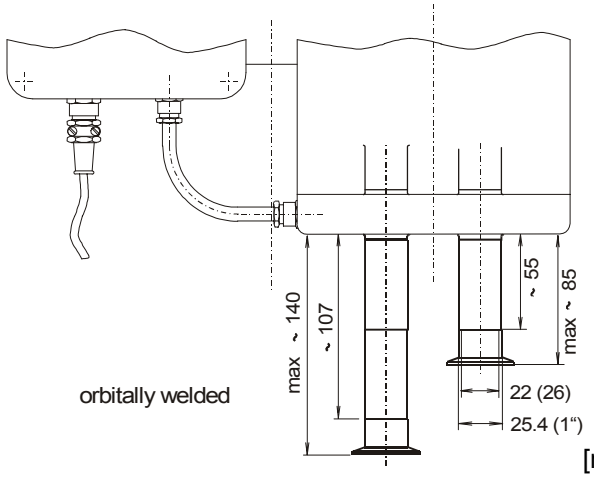
Specifications subject to change without notice.

## Possibilities and types of orbitally welded connections

Cone flange (clamp) OD 1“ ISO adapted for

DN 25 (DIN) or
OD 1“ ISO

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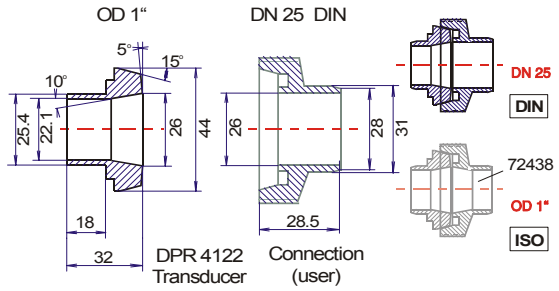
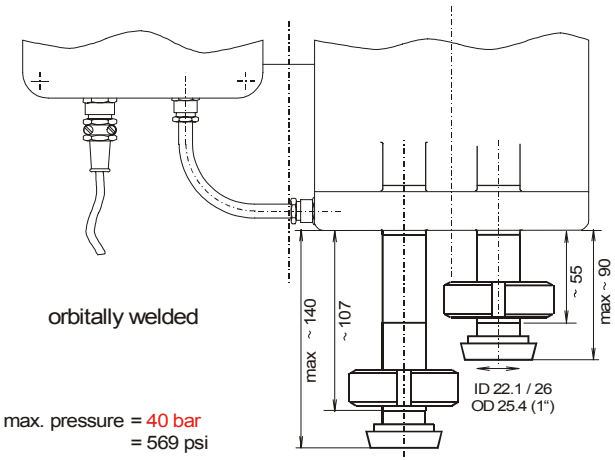
Screwed pipe connection 1“ adapted for

DN 25 DIN 11851 or
OD 1“ ISO




max. pressure = 40 bar
= 569 psi

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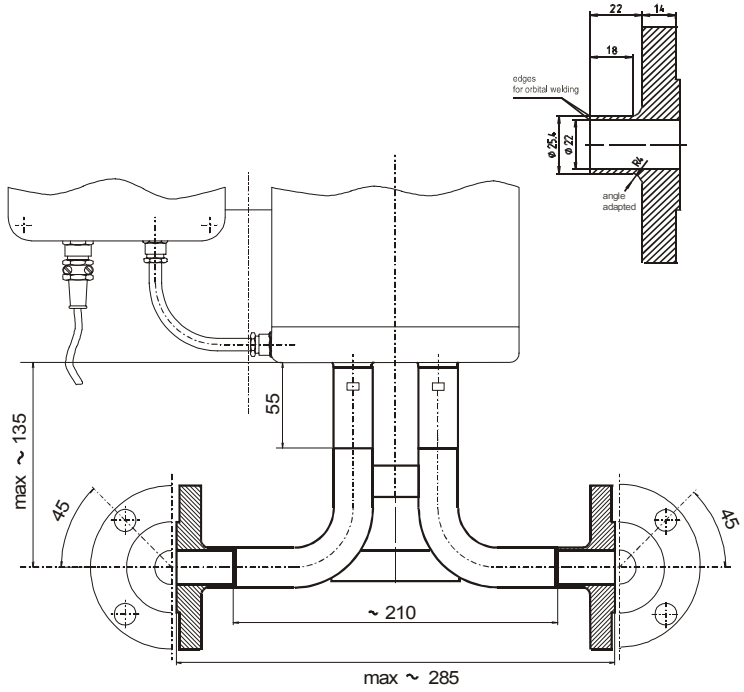
## Possibilities and types of orbitally welded flanges

Flange DIN 2633 DN 20 PN 16 adapted for tube

OD = 25,4 mm (1“) ID = 22 mm




orbitally welded

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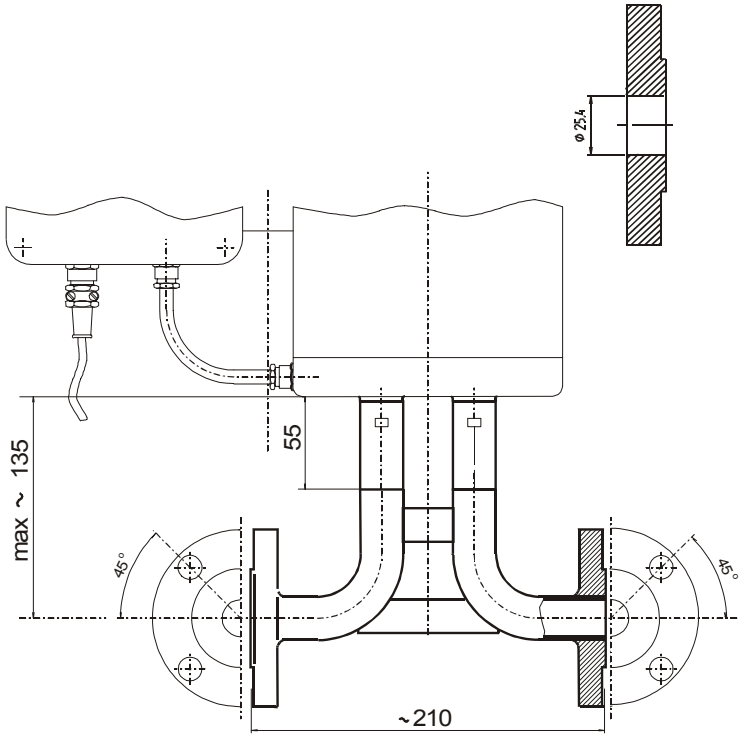
Supplied flange adapted for tube

ID = 22 mm

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