

SERIES MFM

MUD FLOW METER
(PATENTED)



VENTURI MUD
FLOW IN



VENTURI MUD
FLOW OUT



DYNAMIC DENSITY
COLUMN

DESCRIPTION

The **MUD-FLOW-METER - MFM SERIES** is an innovative mud fluid metering system to be installed on oil / gas production wells. The goal of this system is to manage under increased safety the mud flow on wellheads in order to reveal:

- ✓ Flow / QMUD / QWATER / QGAS

Sensors are installed using Hammer Wing Union in order to have a simpler installation, while Venturi tube and Dynamic Density Column are supplied with IHC or flanged connections according to pressure class.

MFM is consisting of:

- ✓ MFM_{IN} mud flow meter complete with multiparametric sensors
- ✓ T7S_{IN} specific gravity transmitter on inlet mud tank
- ✓ KRG_{IN} radar level transmitter on inlet mud tank
- ✓ UNIT_{IN} electronic flow computing unit for mud inlet

- ✓ MFM_{OUT} mud flow meter complete with multiparametric sensors
- ✓ DDM Dynamic Density Meter complete with multiparametric sensors
- ✓ T7S_{OUT} specific gravity transmitter on outlet mud tank
- ✓ KRG_{OUT} radar level transmitter on outlet mud tank
- ✓ UNIT_{OUT} electronic flow computing unit for mud outlet

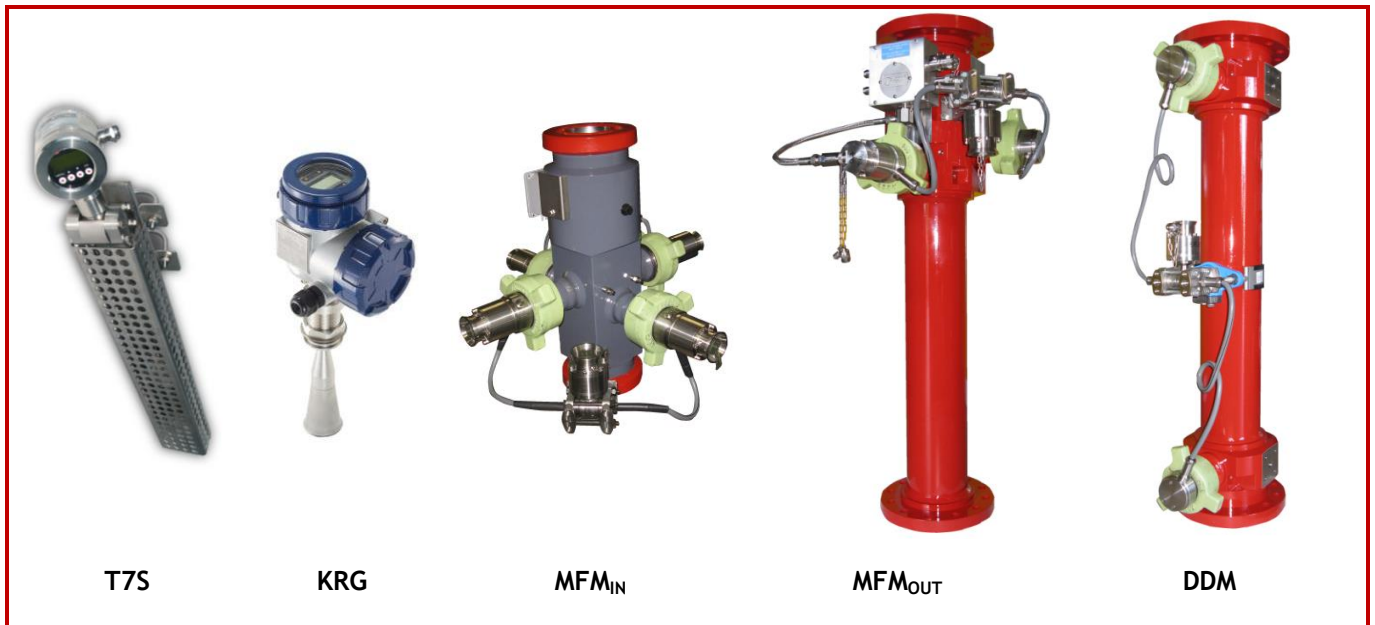
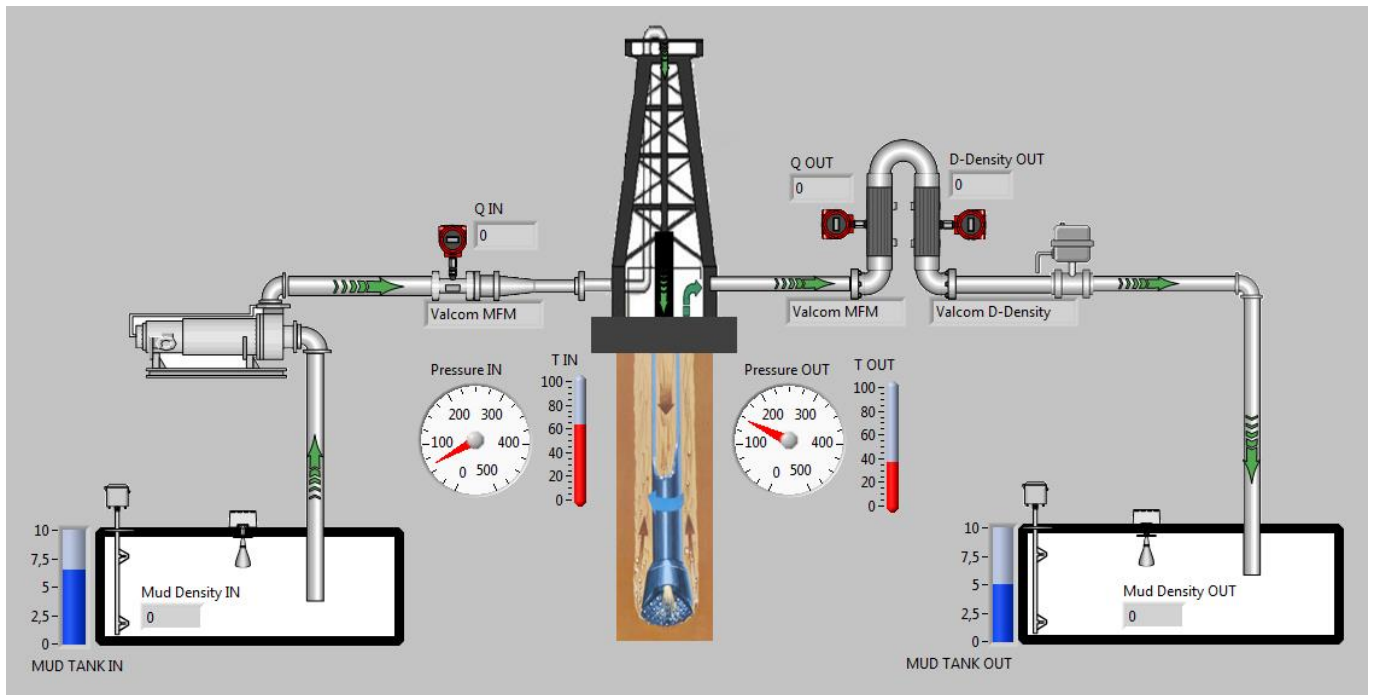
MAIN SYSTEM FEATURES

- ✓ Real time flow measurement
- ✓ Accurate real time measurement of Oil Water and Gas without separation of the phases

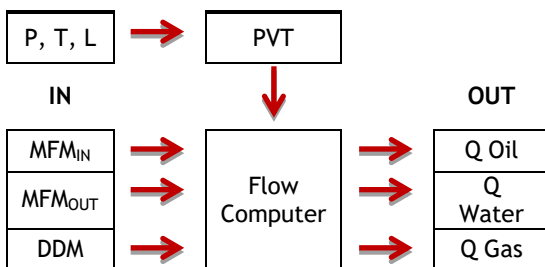
TRANSMITTERS PHYSICAL CHARACTERISTICS

- ✓ Power supply: 12.5 - 30 Vdc
- ✓ Output signal: Analog 4-20mA, 2 wires / Digital HART® / MODBUS RS485
- ✓ Electrical connections: intrinsically safe plug connectors

SCREEN SHOT OF INSTALLATION

















DATA PATH



DIMENSIONS

The Mud Flow Meter MFM series can be supplied with different nominal diameters:
 ✓ 2", 3", 4", 6", 8"
 And with different ratings as:
 ✓ ANSI 300, 600, 900 or API 3000, 5000, 10000.
 Thus, the dimensions are depending on selected size and rating (please refer to our sales department).

EUROPEAN LEGISLATION APPROVALS

| | | | | | |
|-----------------------|------------------------------------|---|---|---|---|
| T7S _{IN/OUT} | Smart specific gravity transmitter |  |  |  |  |
| KRG _{IN/OUT} | Smart radar level transmitter |  |  | | |
| MFM _{IN} | Venturi Inlet Mud Flow Meter |  | | | |
| MFM _{OUT} | Venturi Outlet Mud Flow Meter |  |  |  |  |
| DDM | Dynamic Density Meter |  | | | |
| FLOW COMPUTER | - |  |  | | |

Compliant with Directive 2004/108/EC (EMC).

AMBIENT CONDITIONS

- ✓ Temperature:
 - Process fluid (Std): -40 ÷ +80 °C (Std), up to 283 °C (On request)
 - Transmitters: -40 ÷ +80 °C
 - Handling and storage: -40 ÷ +90 °C
- ✓ Relative Humidity: from 0 to 100% R.H.

MFM PERFORMANCES

- ✓ MUD_{IN} and MUD_{OUT} better than $\pm 5\%$
- ✓ GAS_{OUT} better than $\pm 3\%$

TRANSMITTERS PHYSICAL SPECIFICATIONS

- ✓ Housing: SS AISI316 IP67, Dust and sand tight, protected against sea wave effects as defined by IEC IP67. Suitable for tropical climate operation as defined by DIN 50015.
- ✓ Covers O-ring: EPDM.
- ✓ Filling fluid: silicon oil.
- ✓ Nameplate: stainless steel, fixed on housing.

WETTED PARTS (TRANSMITTERS)

- ✓ AISI 316L Nace MR0175 compliance.
- ✓ Inconel.
- ✓ Tantalum and others on request.

OPTIONS

- ✓ Wetted parts: AISI 4130, Duplex, Hard insert, etc..

ORDERING CODE

| | |
|--|--|
| MFM | Mud Flow Meter |
| 01 Configuration Type | |
| <input type="checkbox"/> | A MFM _{IN} + Flow Computer |
| <input type="checkbox"/> | B MFM _{OUT} + DDM + Flow Computer |
| 02 Pipe Nominal diameter | |
| <input type="checkbox"/> | 1 2" |
| <input type="checkbox"/> | 2 3" |
| <input type="checkbox"/> | 3 4" |
| <input type="checkbox"/> | 4 6" |
| <input type="checkbox"/> | 5 8" |
| <input type="checkbox"/> | 9 Others |
| 03 Pipe Rating | |
| <input type="checkbox"/> | A ANSI 300 |
| <input type="checkbox"/> | B ANSI 600 |
| <input type="checkbox"/> | C ANSI 900 |
| <input type="checkbox"/> | D API 3000 |
| <input type="checkbox"/> | E API 5000 |
| <input type="checkbox"/> | F API 10000 |
| <input type="checkbox"/> | Z Special |
| 04 Body Material | |
| <input type="checkbox"/> | A AISI 4130 |
| <input type="checkbox"/> | B Duplex |
| <input type="checkbox"/> | Z Other |
| 05 Housing material (sensors) | |
| <input type="checkbox"/> | 1 SS AISI 316 |
| 06 Explosion protection (sensors) | |
| <input type="checkbox"/> | 0 Ex ia Intrinsic Safety |
| <input type="checkbox"/> | 1 Ex d Explosion Proof |