

SERIES MFM

MUD FLOW METER
(PATENT PENDING)



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 drilling wells. The goal of this system is to manage under increased safety the mud flow on wellheads in order to reveal:

- ✓ Flow / QMUD / QGAS / Dinamic Density

Sensors are installed using Hammer Wing Union in order to have a simpler installation.

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 on 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 on outlet

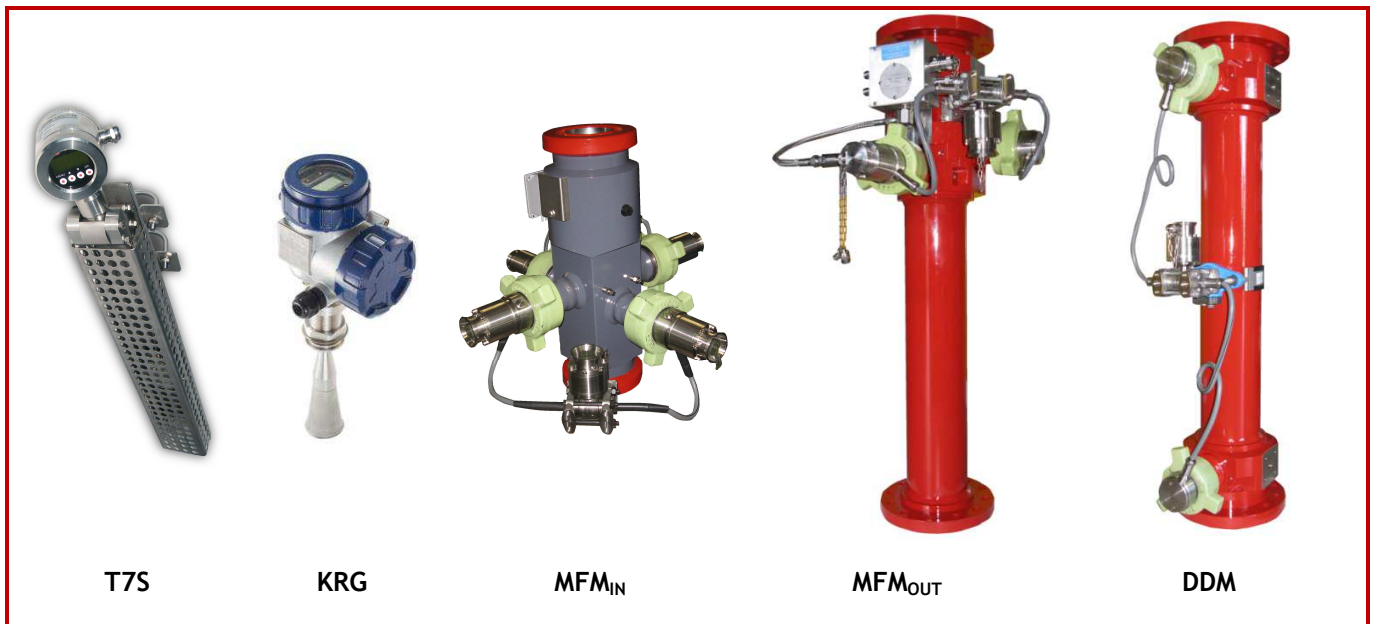
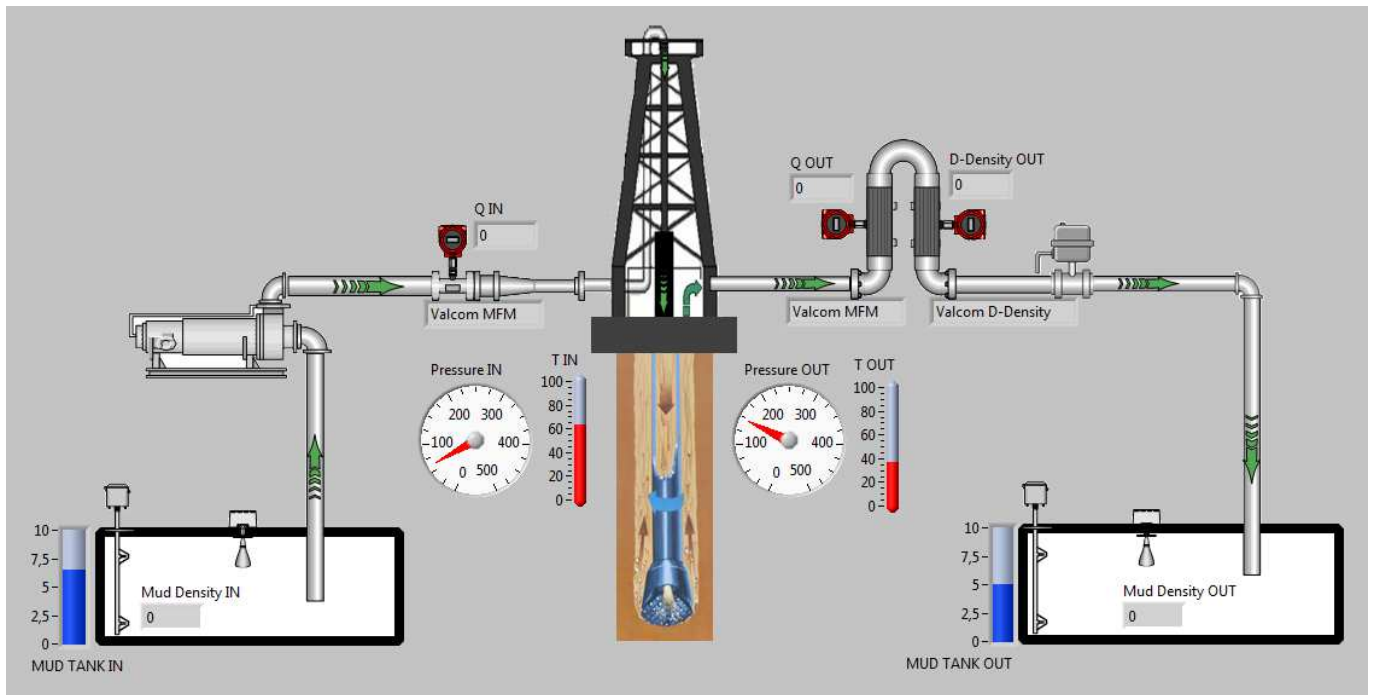
MAIN SYSTEM FEATURES

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

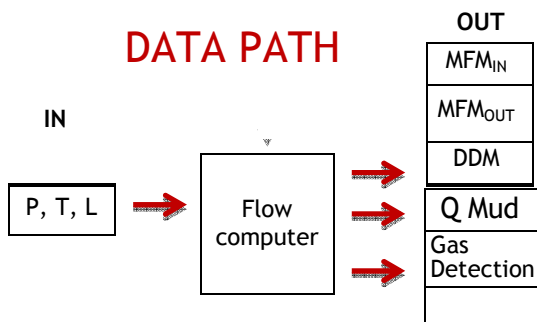
TRANSMITTERS PHYSICAL CHARACTERISTICS

- ✓ Power supply: 12.5 - 30 Vdc
- ✓ Output signal: Analog 4-20mA, 2 wires / Digital HART® / MODBUS RS485 or Fieldbus
- ✓ 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:















- ✓ 4", 5", 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.

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 ±5%
- ✓ GAS_{OUT} better than ±3%

TRANSMITTERS PHYSICAL SPECIFICATIONS

- ✓ Housing: SS AISI316 IP67. It is dust and sand tight and 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.
- ✓ Calibration as calculated.

WETTED PARTS

- ✓ AISI 316L Nace MR0175 compliance.

OPTIONS

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

ORDERING CODE MFM

01 Configuration Type	
A	MFM _{IN} + Flow Computer
B	MFM _{OUT} + Flow Computer
C	MFM _{OUT} + DDM + Flow Computer
02 Pipe Nominal diameters	
1	4"
2	5"
3	6"
4	8"
5	Other
9	
03 Pipe Rating	
A	ANSI 300
B	ANSI 600
C	ANSI 900
D	ANSI 1500
E	API 3000
F	API 5000
G	API 10000
Z	Special
04 Body Materials	
A	AISI 4130
B	Duplex
Z	Other
05 Housings material	
1	Aluminum
2	SS 316
06 Explosion protection	
0	Ex ia intrinsic safety
1	Ex d explosion proof