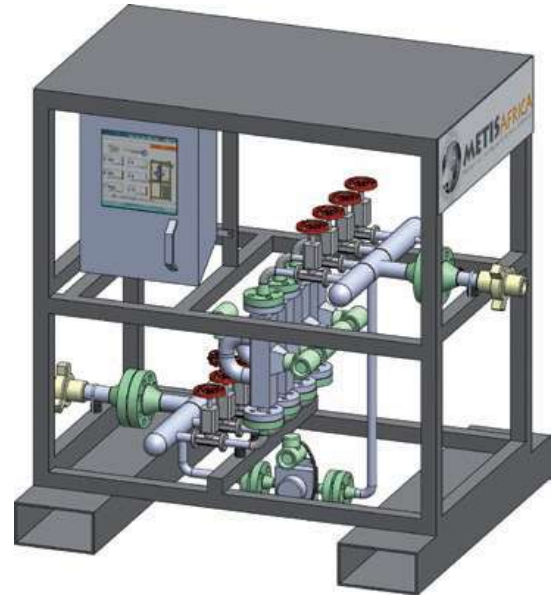


General Specifications

SKID M

Multiphase Skid for fluid measurement

GS 0119-00EN-R 001



Scope of application

- The SKIDM developed by METIS Africa, is a multiphase skid designed for measuring fluids which come out from oil wells. In those drillings, there are water, oil, and gas. Today, it is difficult to measure those 3 components in the same time without dissociating them. The SKIDM is the sole system able to measure and calculate the water, the oil and the gas flows, instantly, without phase separation (method commonly used on platforms where the 3 phases are separated in tank separators in order to count quantity of each phase individually), and without radioactive source (other method much more expensive, binding and which does not work on smallest flows that represent 80% of existing applications).
- Instantaneous flow measurement of OIL + WATER + GAS GVF, GOR, BSW calculations
- All units are available (metric or SI system)

Advantages and benefits

- The application is a 3 phases flow metering skid
- The fluid coming from wells is a mixture of crude oil, water and gas, it is very hard to measure such kind of fluid and mostly difficult to dissociate each flow of each phase
- METIS Multiphase Rotamass System (MMRS) can instantly achieve to measure and calculate the Oil flow, the Water flow and the Gas flow
 - without proceeding with a separation in a big capacity
 - without radioactive source
- The Oil Producer tests the wells frequently to know:
 - Quantity of Produced Oil, Produced Water and Gas
 - Detect any problem with pump wells
 - Determine the eruptivity with gas and/or liquid
- Without phase separation
- Without radioactive source
- Without maintenance
- Ideal system for wells between 1" and 4"
- Water Cut from 0 to 100% / GVF from 0 to 100%

□ FUNCTIONAL SPECIFICATIONS

Performance Specifications

Fluid to be measured

Multiphase mixture of crude oil, water and gas. All densities can be measured

Mesuring Flow Rates

Please Refer to the codification table and curves pages 9/10/11 and/or contact METIS Africa ventes@metisafrica.com

Equipment on the SKIDM

- Flowmeters : Coriolis Rotamass TI Supreme/Intense RCx34 or RCx36 or RCx38, depending on application
- BSW: Coriolis Rotamass TI Nano
- Pressure: EJX530A
- Temperature: from Coriolis
- Calculation and record: GX20-2 extended memory / MT/CS
- Sample point

Accuracy

+/- 5 % FS (Oil and Water reading)

+/- 10% FS (Gas reading)

Suggested accuracy depends on process conditions, contact METIS Africa for more details

Repeatability

2% of reading (Oil, Water and Gas)

Calibration

The SKIDM is factory calibrated on a multiphase flow rig. Lab conditions to be as close as possible to process conditions in term of pressure, flow, BSW, GVF, temperature, viscosity

Power Supply Voltage

24VDC or 230VAC, specified at order registration

Output “◇”

MODBUS

4 analog outputs 4-20mA

Options : pulses outputs, additionnal outputs, FTP server, wifi integrated modem for ATEX tablet

Communication

Modbus as standard with the GX20

Hart protocol as standard for all instruments inside the SKIDM

□ NORMAL OPERATING CONDITION (Optional features or approval codes may affect limits.)

Ambient Temperature Limits

-40 to 85°C (-40 to 185°F)

-30 to 80°C (-22 to 176°F) with LCD display

Process Temperature Limits

-40 to 120°C (-40 to 248°F)

Ambient Humidity Limits

0 to 100% RH

□ PHYSICAL SPECIFICATIONS

Non-wetted Parts Materials

Housing

(ATEX box, pressure transmitter housing, Coriolis transmitter housing): Aluminium Alloy with polyurethane corrosion-resistant coating. Options available to get SS housing

Structure body :

SS 304L

Wetted parts

SS 316L (pipe, flanges, valves, flowmeters, watercut meter, pressure transmitter, manifolds)

Electrical connection

ANSI ½ NPT F

ISO M20 x 1.5 F

Weight and dimensions

Depending on the application, contact ventes@metisafrica.com

Signal cables

- Between ATEX box and Coriolis flowmeters : 03IP09EGFA
- Between Watercut meter and pression transmitter : 01IP09EGFA

Hazardeous area

IECEX, ATEX, FM (USA/Canada), NEPSI, INMETRO, PESO, Taiwan Safety Label

Pressure limits

Up to 250 bar, depending on flange rating and application.

Contact ventes@metisafrica.com



■ MODEL AND SUFFIX CODES

Model	Suffix codes	Description
SkidM	Multiphase Skid for fluid measurement
Number of lines	-1..... -2..... -3..... -4..... -5..... -6..... -7..... -8..... -10.....	1 line 2 lines 3 lines 4 lines 5 lines 6 lines 7 lines 8 lines 10 lines
Model of Coriolis Flowmeters (x="Supreme" or "Intense")	-RCx34..... -RCx36..... -RCx38.....	Coriolis Rotamass TI RCx34 (Qnom 3 t/h / Qmax 5 t/h / GVfmax 100%) Coriolis Rotamass TI RCx36 (Qnom 10 t/h / Qmax 17 t/h / GVfmax 85%) Coriolis Rotamass TI RCx38 (Qnom 32 t/h / Qmax 50 t/h / GVfmax 50%)
Inlet / Outlet Flange Size and rating	-02A1..... -02A2..... -02A4..... -02A6..... -04A1..... -04A2..... -04A4..... -04A6..... -05A1..... -05A2..... -05A4..... -05A6..... -08A1..... -08A2..... -08A4..... -08A5..... -08A6..... -10A1..... -10A2..... -10A4..... -10A6..... -12A1..... -12A2..... -12A4..... -12A6..... -14A1..... -14A2..... -14A4..... -14A6..... -02D4..... -02D5..... -02D6..... -04D4..... -05D4..... -05D5..... -08D4..... -10D2..... -10D4..... -O.....	1" cl. 150 1" cl. 300 1" cl. 600 1" cl. 1500 1,5" cl. 150 1,5" cl. 300 1,5" cl. 600 1,5" cl. 1500 2" cl. 150 2" cl. 300 2" cl. 600 2" cl. 1500 3" cl. 150 3" cl. 300 3" cl. 600 3" cl. 900 3" cl. 1500 4" cl. 150 4" cl. 300 4" cl. 600 4" cl. 1500 5" cl. 150 5" cl. 300 5" cl. 600 5" cl. 1500 6" cl. 150 6" cl. 300 6" cl. 600 6" cl. 1500 DN25 PN10-40 DN25 PN63 DN25 PN100 DN40 PN10-40 DN50 PN10-40 DN50 PN63 DN80 PN10-40 DN100 PN10-16 DN100 PN25-40 Other
Inlet / Outlet Flange Face	RF..... RTJ.....	Raised face Ring Tongue Joint
Flange Material	-SS..... -O.....	SS 316L Other
Installation Type	-F..... -M.....	Fixed installation Mobile installation



■ MODEL AND SUFFIX CODES

Model	Suffix codes	Description
Always	-EJX530A.....	Always EJX530A-JCS7N-019EN/KU22
Always	-GX20.....	Always GX20-2E/MT/P1/UH/C3/CG
Option	/BSW.....	1 Bypass line for BSW measurement with 1 Coriolis Flowmeter ROTAMASS TI Nano RCUN15K
	/SG.....	Sight Flow Indicator
	/TST.....	Touch Screen Tablet
	/FAT.....	Factory Acceptance Test
	/CST.....	SKIDM with castors
	/RT.....	Retention tray
	/BPG.....	Bypass line for gas, high GVF application combined with high flow. EJX910 with compact orifice included on bypass line



■ OPTIONS DETAILS

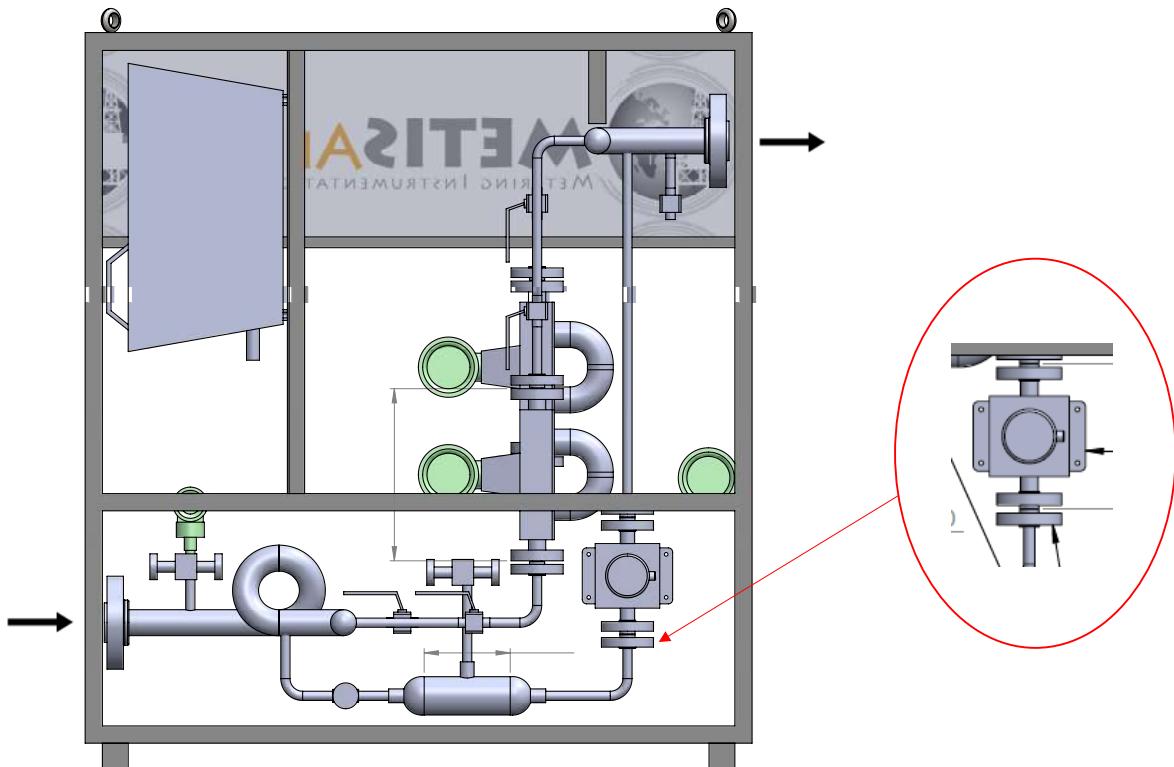
/BSW

A small cyclonic separation is performed at the inlet of the SKIDM to help the sampling of a small quantity of liquid through a 1/2" line.

Continuous sample (between 5 and 100kg/h) flows in a small bypass of the main metering lines, and it flows with the pressure drop generated in the main lines, no pump required.

This 1/2" line is equipped with a Coriolis Nano, a densitometer that will measure the density of the liquid phase sampled and calculate the water cut.

The Nano communicates with the GX20 in modbus, the densities configured in the GX20 are used to calculate the water cut



/SG

Sight Glass Indicator DAR 1205H R25 B R M – Y

Housing: Stainless Steel

Cover plates: Stainless Steel

Glaces: Borosilicate glass DIN 7080

Rotor: PTFE

Connection: G 1" female in Stainless Steel

Max Pressure: 160 bar

Max Temperature: 260°C

Screws: Stainless Steel

-->Other connections on demand and higher pressure on demand

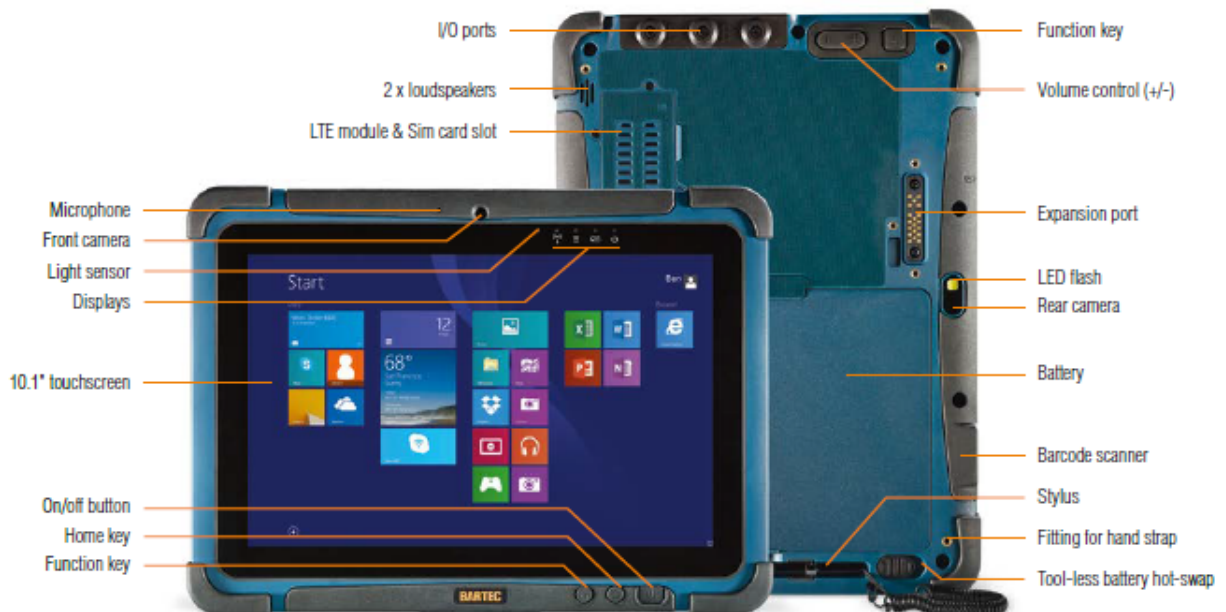


■ OPTIONS DETAILS

/TST

Tablet X-H/S/DDS Zone 2 + Wifi router + GA10-01/CG + Factory Configuration
ATEX Zone 2 Tablet including carrying strap, stylus + carrying bag

- + Wifi router for communication between Touch Screen Video Recorder GX20 and Ex Tablet
- + Software and Data Logging license GA10-01/CG
- + Factory Configuration for reports edition including:
 - Dream License report DR50 (license for 50 tags) with report edition option on PDF format as per example hereafter
 - GA10 Development: creation of synoptic views on Ex Tablet identical to the ones on Touch Screen Video Recorder GX20
 - Report Development



■ OPTIONS DETAILS

/FAT

FINAL INSPECTION AND DYNAMIC TESTS

Type of service: Final inspection and dynamic test

Details of the service:

- SkidM transportation from factory to workshops for assembly / programming and pre testing
- Preparation time before FAT including the implementation of specific tools in order to be able to carry out the dynamic tests with water * only, oil ** only, gas *** only and the 3 in the same time (triphasic tests),
- Workshops mobilization during the agreed duration of the service,
- Staff mobilization (METIS Africa 2 people) during the agreed duration of the service,
- Establishment of an adapted logistics for the good execution of the dynamic tests,
- Delivery of a FAT report.

Duration: 1 day

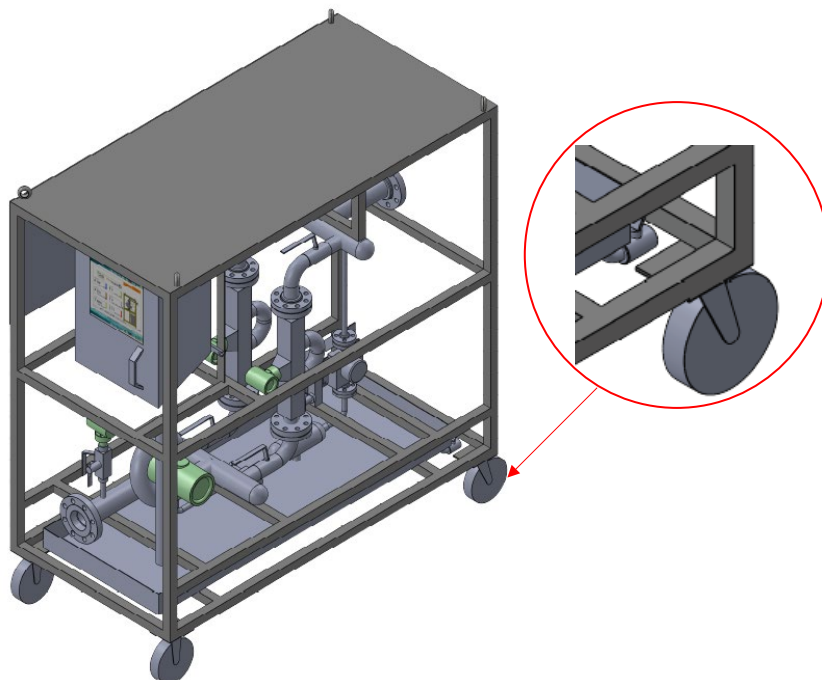
* Water : 999 kg/m³ et 1 cPo @ 20°C (salty water on demand)

** Oil : ≈ 860 kg/m³ and 100 cPo @ 20°C (Thermelf ETA100, Misola SF220, Carter ETA100)

*** Gas : instrument air @ 7 barg / 20°C

/CST

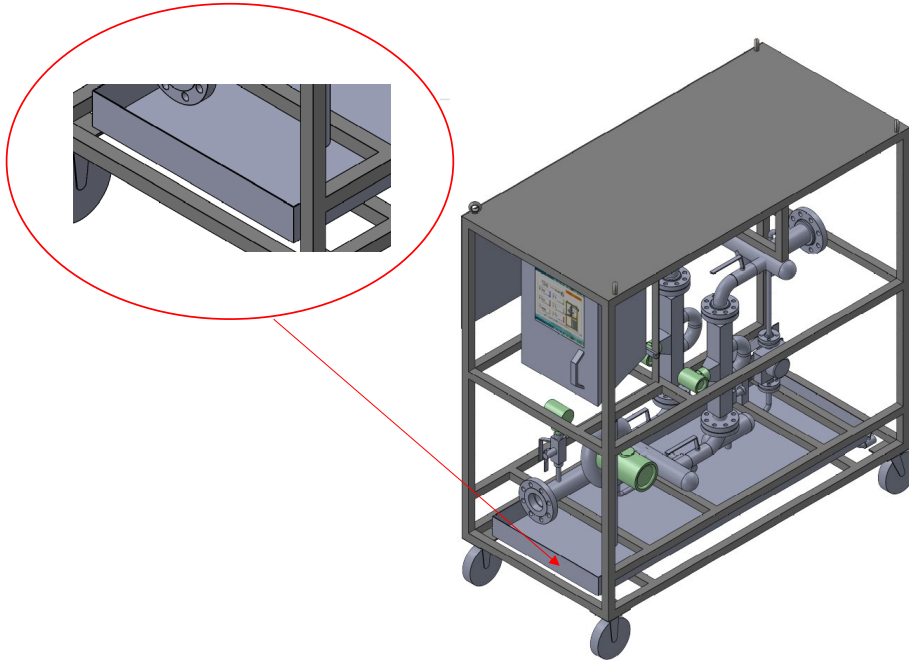
Our range of industrial medium duty caster wheels provide strength , durability and manoeuvrability. With individual load capabilities per castor from 50kg up to 400kg each, these castors are specifically designed for industrial medium duty applications (for heavy duty castors on demand up to 800kg each). These industrial medium duty top plate castors can be supplied in combinations of swivel castors, fixed or braked. The braked castors have a foot brake that is easily operated and simultaneously brakes both the swivel castor head and the wheel.



■ OPTIONS DETAILS

/RT

Retention tray in Inox 304L, SkidM sizes with a purge valve

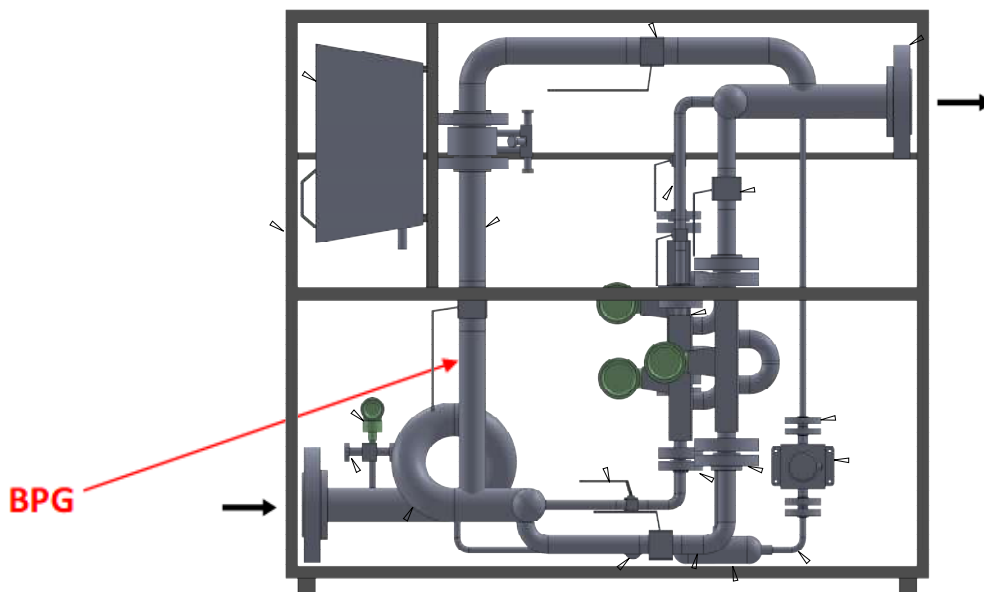


/BPG

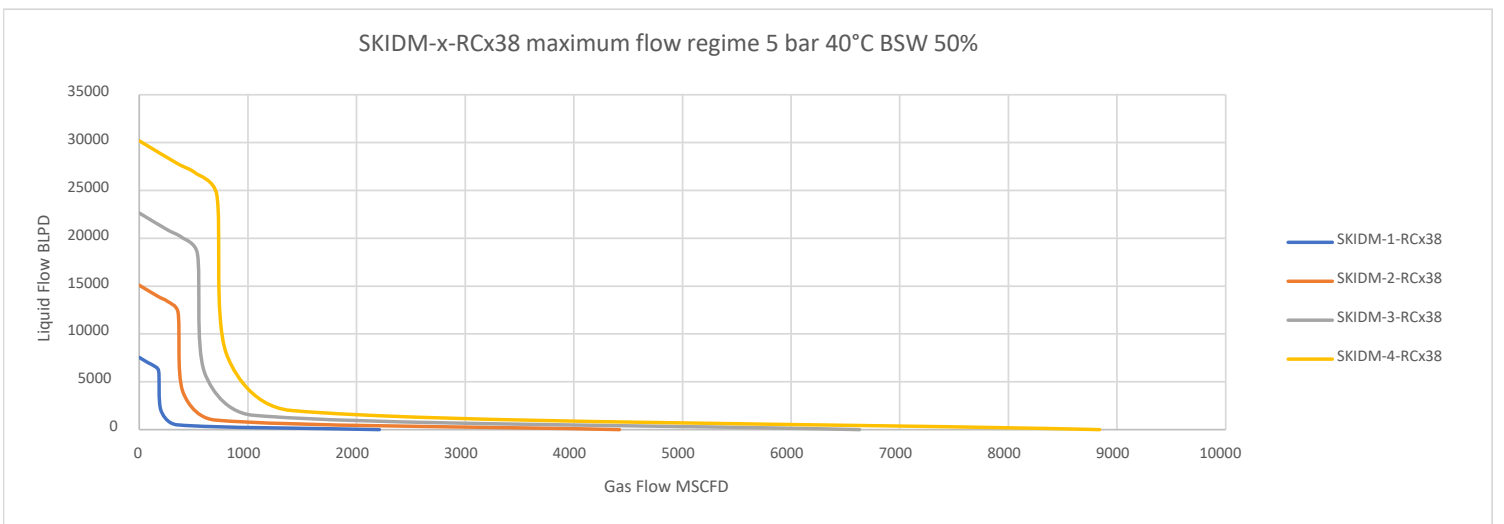
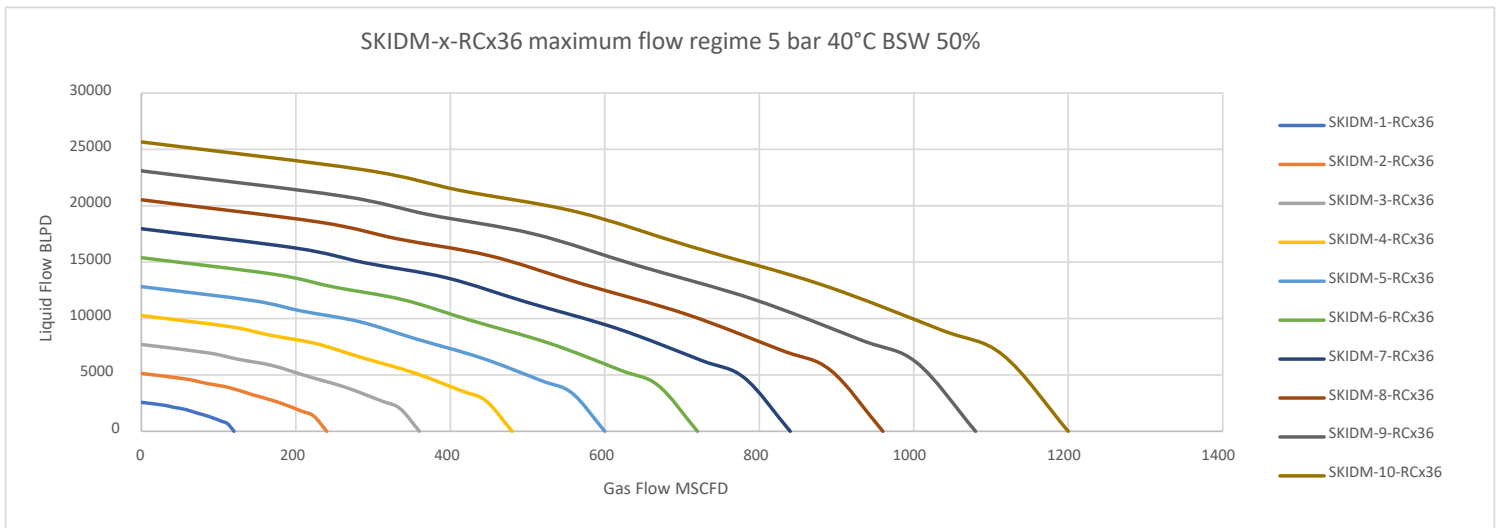
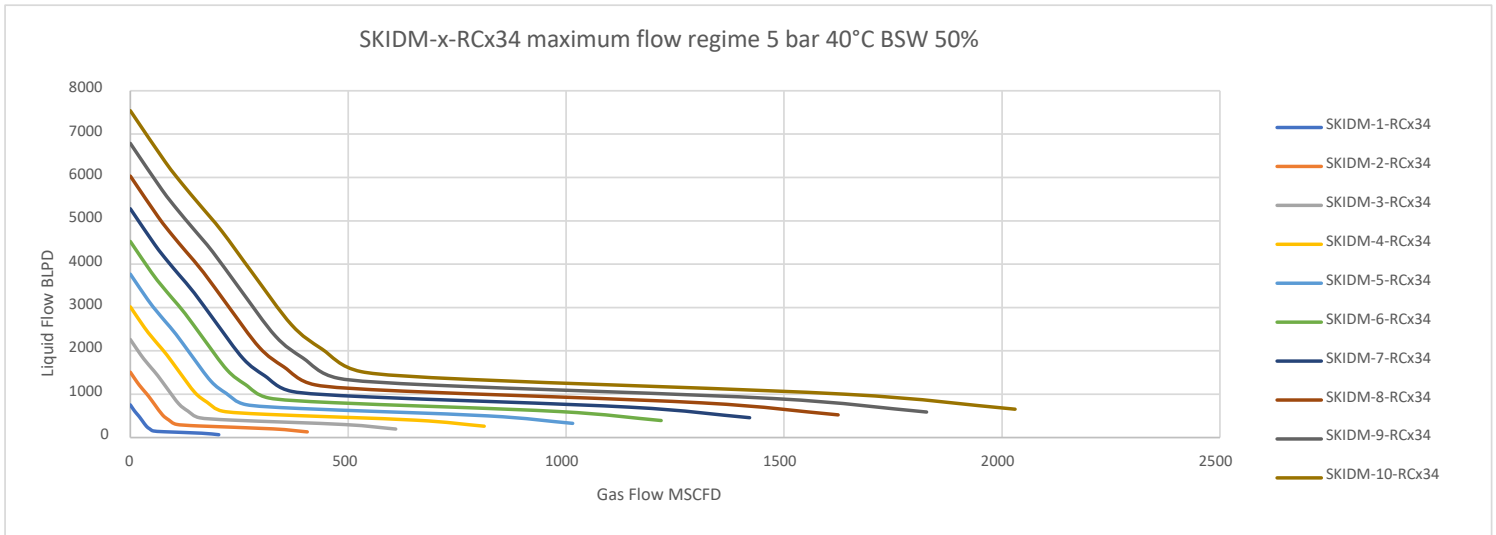
For high GVF combined with high flow, we recommend to use /BPG option.

At the cyclonic inlet of the SKIDM, a 3" pipe is connected vertically to remove gas from the 3 phases mixture. This gas flow is measured by an orifice plate and an EJX910 multivariable transmitter with respect to ISO 5167. The gas measurement of this bypass line is added to the gas measurement of the main lines of the SKIDM. The gas is then reinjected at the outlet of the SKIDM.

This /BPG option helps to reduce the GVF of the mixture flowing in the main lines, and so increase the gas volume flow of the SKIDM.



■ PERFORMANCE 5 BARG



**Example of SKIDM performance based on following process conditions: Water density: 1180 kg/m³
Oil density: 864 kg/m³ / Gas density: 0.9 kg/Sm³ / BSW: 50% / Pressure: 5 bar g / Temperature: 40°C**

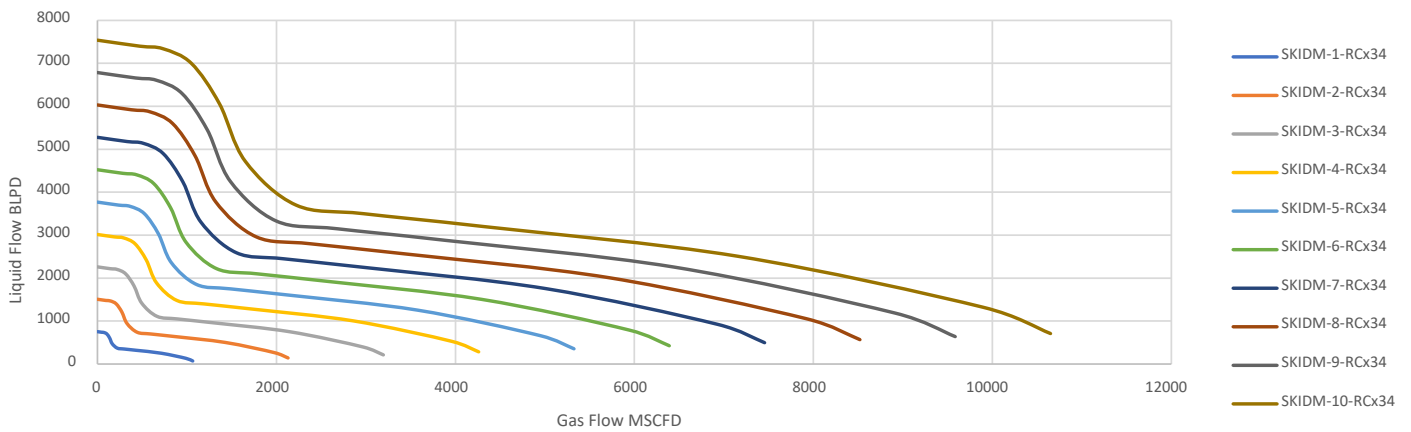
* values without /BPG option. In case of /BPG option, the gas flow must be multiplied par 2

* values given for information only, for an accurate and dedicated study of an application, please contact ventes@metisafrica.com

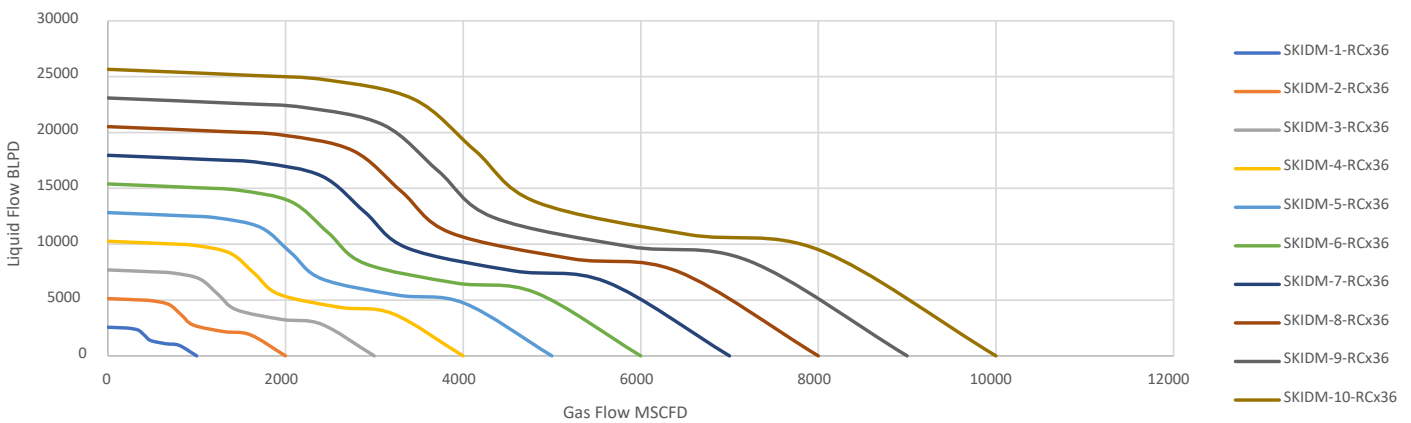


■ PERFORMANCE 30 BARG

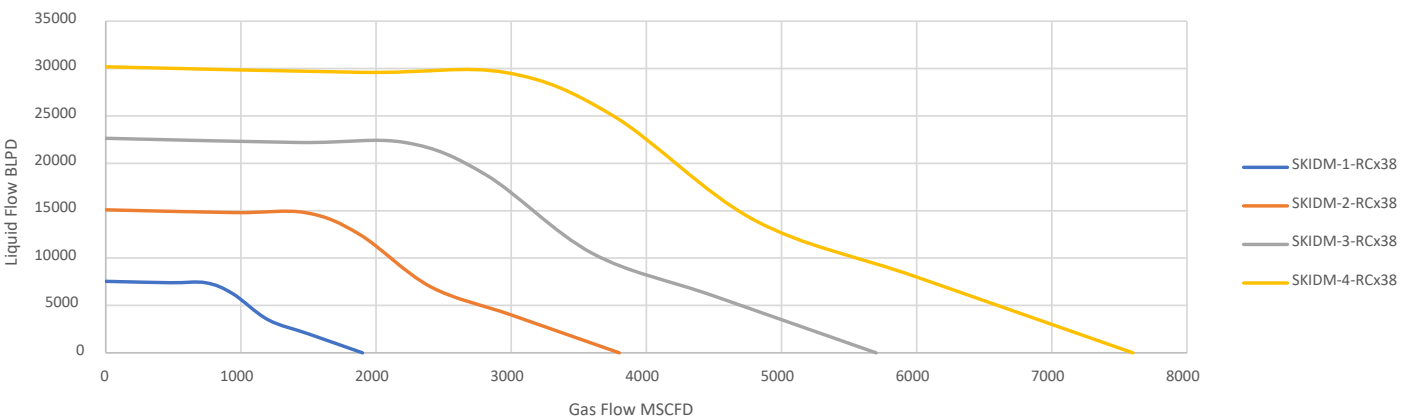
SKIDM-x-RCx34 maximum flow regime 30 bar 40°C BSW 50%



SKIDM-x-RCx36 maximum flow regime 30 bar 40°C BSW 50%



SKIDM-x-RCx38 maximum flow regime 30 bar 40°C BSW 50%



**Example of SKIDM performance based on following process conditions: Water density: 1180 kg/m³
Oil density: 864 kg/m³ / Gas density: 0.9 kg/Sm³ / BSW: 50% / Pressure: 30 bar g / Temperature: 40°C**

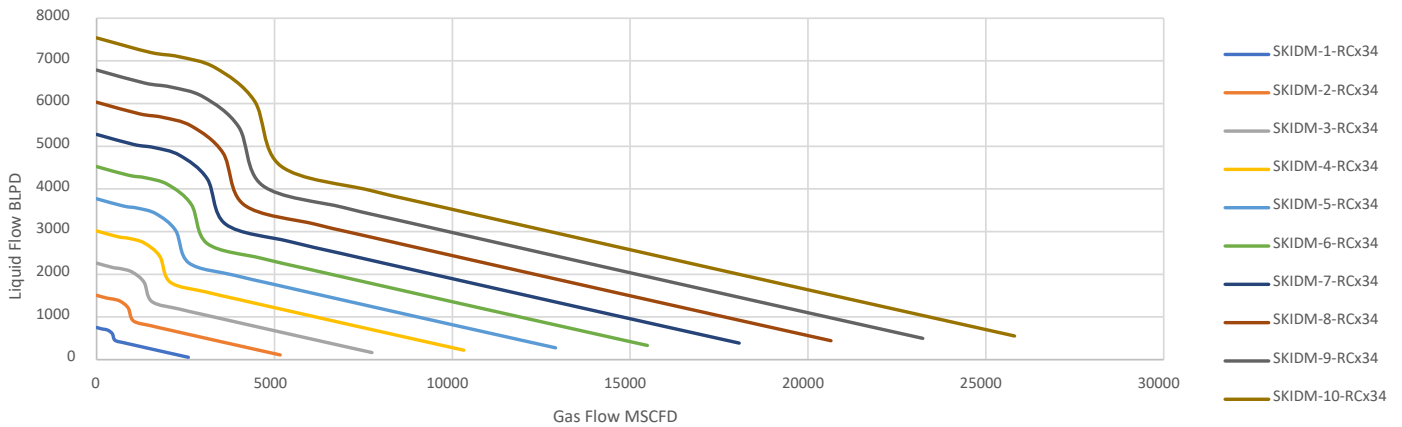
* values without /BPG option. In case of /BPG option, the gas flow must be multiplied par 2

* values given for information only, for an accurate and dedicated study of an application, please contact ventes@metisafrica.com

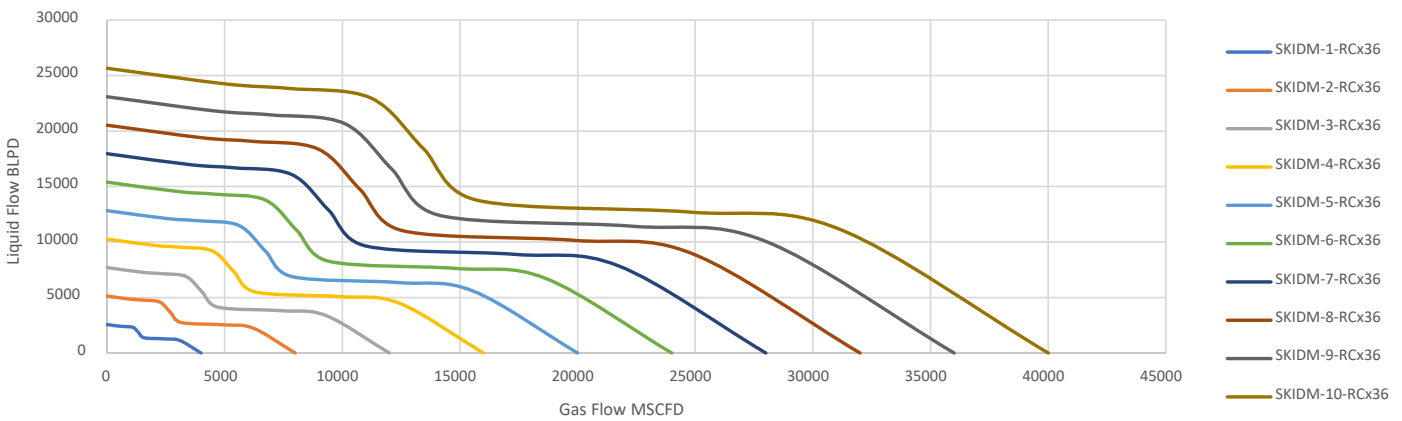


■ PERFORMANCE 100 BARG

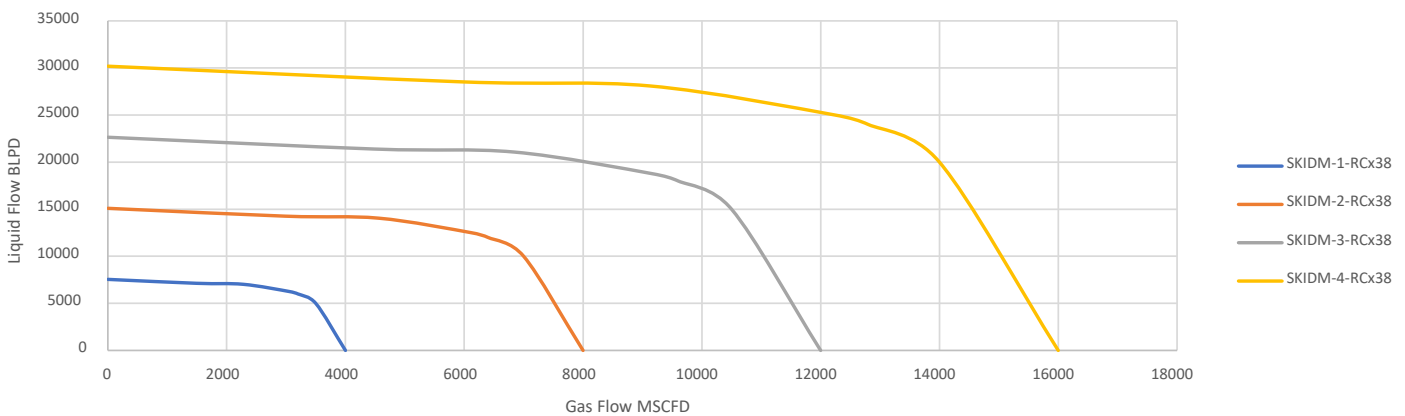
SKIDM-x-RCx34 maximum flow regime 100 bar 40°C BSW 50%



SKIDM-x-RCx36 maximum flow regime 100 bar 40°C BSW 50%



SKIDM-x-RCx38 maximum flow regime 100 bar 40°C BSW 50%



Example of SKIDM performance based on following process conditions: Water density: 1180 kg/m³ Oil density: 864 kg/m³ / Gas density: 0.9 kg/Sm³ / BSW: 50% / Pressure: 100 bar g / Temperature: 40°C

* values without /BPG option. In case of /BPG option, the gas flow must be multiplied par 2

* values given for information only, for an accurate and dedicated study of an application, please contact ventes@metisafrica.com



■ APPROVALS AND DECLARATIONS OF CONFORMITY

CE marking	The Rotamass Total Insight meets the statutory requirements of the applicable EU Directives. By attaching the CE mark, Rota Yokogawa confirms conformity of the field instrument with the requirements of the applicable EU Directives. The EU Declaration of Conformity is enclosed with the product on a data carrier.
RCM	Rotamass Total Insight meets the EMC requirements of the Australian Communications and Media Authority (ACMA).
Ex approvals	All data relevant for explosion protection are included in separate Explosion Proof Type Manuals.
NACE	<p>Chemical composition of wetted materials 316L/316/1.4404/1.4401/1.4435 and Ni-Alloy C-22/2.4602 are conform to:</p> <ul style="list-style-type: none">▪ ANSI / NACE-MR0175 / ISO15156-2▪ ANSI / NACE-MR0175 / ISO15156-3▪ NACE MR0103 <p>For details please see Rota Yokogawa declaration about NACE conformity 8660001.</p>
Pressure equipment approvals	<p>The Rotamass Total Insight is in compliance with the statutory requirements of the applicable EU Pressure Equipment Directive (PED).</p> <p>The customer is fully responsible of selecting proper materials which withstand corrosive or erosive conditions. In case of heavy corrosion and/or erosion the instrument may not withstand the pressure and an incident may happen with human and/or environmental harm. Yokogawa will not take any liability regarding damage caused by corrosion or erosion. If corrosion or erosion may happen, the user has to check periodically if the necessary wall thickness is still in place.</p>
Functional safety	<p>The Rotamass Total Insight with HART communication type complies with the relevant safety management requirements of IEC 61508:2010 SIL3. The Rotamass Total Insight product families can be used to implement a SIL 2 safety function (with HFT = 0) or a SIL 3 safety function (with HFT = 1) with all its 4 – 20 mA outputs. The available number of outputs depends on the model code. For further information please contact Yokogawa sales department or look here http://www.exida.com/SAEL-Safety/yokogawa-electric-corporation-rotamass-ti-series</p>



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
ATEX	<p>EU Directive 2014/34/EU</p> <p>ATEX approval:</p> <p>DEKRA 15ATEX0023 X</p> <p>CE₀₃₄₄ II2G or II2(1)G or II2D or II2(1)D</p> <p>Applied standards:</p> <ul style="list-style-type: none"> ▪ EN 60079-0 +A11 ▪ EN 60079-1 ▪ EN 60079-7 ▪ EN 60079-11 ▪ EN 60079-31
	<p>Remote transmitter (depending on the model code):</p> <p>Ex db [ja Ga] IIC T6 Gb or</p> <p>Ex db e [ja Ga] IIC T6 Gb or</p> <p>Ex db [ja Ga] IIB T6 Gb or</p> <p>Ex db e [ja Ga] IIB T6 Gb</p> <p>Ex db [ja Ga] [ja IIC Ga] IIB T6 Gb or</p> <p>Ex db e [ja Ga] [ja IIC Ga] IIB T6 Gb or</p> <p>Ex tb [ja Da] IIIC T75 °C Db</p> <p>Note: The marking on the product may be changed from Ex e to Ex eb based on statutory requirements.</p>
	<p>Remote sensor (depending on the model code):</p> <p>Ex ib IIC T6...T1 Gb or</p> <p>Ex ib IIB T6...T1 Gb</p> <p>Ex ib IIIC T150 °C Db or</p> <p>Ex ib IIIC T220 °C Db or</p> <p>Ex ib IIIC T350 °C Db</p>
	<p>Integral type (depending on the model code):</p> <p>Ex db ib IIC T6...T1 Gb or</p> <p>Ex db e ib IIC T6...T1 Gb or</p> <p>Ex db ib IIB T6...T1 Gb or</p> <p>Ex db e ib IIB T6...T1 Gb or</p> <p>Ex db ib [ja Ga] IIC T6...T1 Gb or</p> <p>Ex db e ib [ja Ga] IIC T6...T1 Gb or</p> <p>Ex db ib [ja IIC Ga] IIB T6...T1 Gb or</p> <p>Ex db e ib [ja IIC Ga] IIB T6...T1 Gb</p> <p>Ex ib tb IIIC T150 °C Db or</p> <p>Ex ib tb [ja Da] IIIC T150 °C Db</p> <p>Note: The marking on the product may be changed from Ex e to Ex eb based on statutory requirements.</p>



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
IECEX	<p>IECEX approval: IECEX DEK 15.0016X</p> <p>Applied standards:</p> <ul style="list-style-type: none"> ▪ IEC 60079-0 ▪ IEC 60079-1 ▪ IEC 60079-7 ▪ IEC 60079-11 ▪ IEC 60079-31
	<p>Remote transmitter (depending on the model code): Ex db [ja Ga] IIC T6 Gb or Ex db e [ja Ga] IIC T6 Gb or Ex db [ja Ga] IIB T6 Gb or Ex db e [ja Ga] IIB T6 Gb Ex db [ja Ga] [ja IIC Ga] IIB T6 Gb or Ex db e [ja Ga] [ja IIC Ga] IIB T6 Gb or Ex tb [ja Da] IIIC T75 °C Db</p> <p>Note: The marking on the product may be changed from Ex e to Ex eb based on statutory requirements.</p>
	<p>Remote sensor (depending on the model code): Ex ib IIC T6...T1 Gb or Ex ib IIB T6...T1 Gb Ex ib IIIC T150 °C Db or Ex ib IIIC T220 °C Db or Ex ib IIIC T350 °C Db</p>
	<p>Integral type (depending on the model code): Ex db ib IIC T6...T1 Gb or Ex db e ib IIC T6...T1 Gb or Ex db ib IIB T6...T1 Gb or Ex db e ib IIB T6...T1 Gb or Ex db ib [ja Ga] IIC T6...T1 Gb or Ex db e ib [ja Ga] IIC T6...T1 Gb or Ex db ib [ja IIC Ga] IIB T6...T1 Gb or Ex db e ib [ja IIC Ga] IIB T6...T1 Gb Ex ib tb IIIC T150 °C Db or Ex ib tb [ja Da] IIIC T150 °C Db</p> <p>Note: The marking on the product may be changed from Ex e to Ex eb based on statutory requirements.</p>



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
FM (CA/US)	FM approvals: <ul style="list-style-type: none"> ▪ US Cert No. FM16US0095X ▪ CA Cert No. FM16CA0031X
	Applied standards: <ul style="list-style-type: none"> ▪ Class 3600 ▪ Class 3610 ▪ Class 3615 ▪ Class 3810 ▪ Class 3616 ▪ NEMA 250 ▪ ANSI/IEC 60529 ▪ CSA-C22.2 No. 0-10 ▪ CSA-C22.2 No. 0.4-04 ▪ CSA-C22.2 No. 0.5-1982 ▪ CSA-C22.2 No. 94.1-07 ▪ CSA-C22.2 No. 94.2-07 ▪ CAN/CSA-C22.2 No. 60079-0 ▪ CAN/CSA-C22.2 No. 60079-11 ▪ CAN/CSA-C22.2 No. 61010-1-04 ▪ CSA-C22.2 No. 25-1966 ▪ CSA-C22.2 No. 30-M1986 ▪ CSA-C22.2 No. 60529
	Remote transmitter (depending on the model code): CL I, DIV 1, GP ABCD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIC; Associated Apparatus CL I/II/III DIV 1, GP ABCDEFG; CL I ZN 0 GP IIC Entity Temperature class T6 or CL I, DIV 1, GP ABCD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIC; Associated Apparatus CL I/II/III DIV 1, GP ABCDEFG; CL I ZN 0 GP IIC Temperature class T6; Associated Apparatus CL I/II/III DIV 1, GP ABCDEFG; CL I ZN 0 GP IIC Entity Temperature class T6 or CL I, DIV 1, GP CD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIB; Associated Apparatus CL I/II/III DIV 1, GP CDEFG; CL I ZN 0 GP IIB Entity Temperature class T6 or CL I, DIV 1, GP CD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIB; Associated Apparatus CL I/II/III DIV 1, GP CDEFG; CL I ZN 0 GP IIB Temperature class T6; Associated Apparatus CL I/II/III DIV 1, GP ABCDEFG; CL I ZN 0 GP IIB Entity Temperature class T6
	Remote sensor (depending on the model code): IS CL I/II/III, DIV 1, GP ABCDEFG; CL I, ZN 0, GP IIC Temperature class T* or IS CL I/II/III, DIV 1, GP ABCDEFG; CL I, ZN 0, GP IIB Temperature class T*



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
FM (CA/US)	<p>Integral type (depending on the model code): CL I, DIV 1, GP ABCD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIC Temperature class T*</p> <p>or</p> <p>CL I, DIV 1, GP ABCD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIC Associated Apparatus CL I/II/III DIV 1 GP ABCDEFG; CL I ZN 0 GP IIC Entity Temperature class T*</p> <p>or</p> <p>CL I, DIV 1, GP CD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIB Temperature class T*</p> <p>or</p> <p>CL I, DIV 1, GP CD, CL II/III, DIV 1, GP EFG; CL I ZN 1 GP IIB Associated Apparatus CL I/II/III DIV 1 GP ABCDEFG; CL I ZN 0 GP IIC Entity Temperature class T*</p>
INMETRO (BR)	<p>INMETRO approval: DEKRA 16.0012X</p> <p>Applied standards:</p> <ul style="list-style-type: none"> ▪ ABNT NBR IEC 60079-0 ▪ ABNT NBR IEC 60079-1 ▪ ABNT NBR IEC 60079-7 ▪ ABNT NBR IEC 60079-11 ▪ ABNT NBR IEC 60079-31
	<p>Remote transmitter (depending on the model code): Ex db [ia Ga] IIC T6 Gb or Ex db e [ia Ga] IIC T6 Gb or Ex db [ia Ga] IIB T6 Gb or Ex db e [ia Ga] IIB T6 Gb Ex db [ia Ga] [ia IIC Ga] IIB T6 Gb or Ex db e [ia Ga] [ia IIC Ga] IIB T6 Gb or Ex tb [ia Da] IIIC T75 °C Db</p>
	<p>Remote sensor (depending on the model code): Ex ib IIC T6...T1 Gb or Ex ib IIB T6...T1 Gb Ex ib IIIC T150 °C Db or Ex ib IIIC T220 °C Db or Ex ib IIIC T350 °C Db</p>
	<p>Integral type (depending on the model code): Ex db ib IIC T6...T1 Gb or Ex db e ib IIC T6...T1 Gb or Ex db ib IIB T6...T1 Gb or Ex db e ib IIB T6...T1 Gb or Ex db ib [ia Ga] IIC T6...T1 Gb or Ex db e ib [ia Ga] IIC T6...T1 Gb or Ex db ib [ia IIC Ga] IIB T6...T1 Gb or Ex db e ib [ia IIC Ga] IIB T6...T1 Gb Ex ib tb IIIC T150 °C Db or Ex ib tb [ia Da] IIIC T150 °C Db</p>



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
NEPSI (CN)	<p>Applied standards:</p> <ul style="list-style-type: none"> ▪ GB3836.1 ▪ GB3836.2 ▪ GB3836.3 ▪ GB3836.4 ▪ GB3836.19 ▪ GB3836.20
	<p>Remote transmitter (depending on the model code):</p> <p>Ex db [ja Ga] IIC T6 Gb or Ex db e [ja Ga] IIC T6 Gb or Ex db [ja Ga] IIB T6 Gb or Ex db e [ja Ga] IIB T6 Gb Ex db [ja Ga] [ja IIC Ga] IIB T6 Gb or Ex db e [ja Ga] [ja IIC Ga] IIB T6 Gb or Ex [jaD 20] tD A21 IP6X T75°C</p> <p>Note: The marking on the product may be changed from Ex e to Ex eb based on statutory requirements.</p>
	<p>Remote sensor (depending on the model code):</p> <p>Ex ib IIC T6...T1 Gb or Ex ib IIB T6...T1 Gb Ex ibD 21 IP6X T150°C or Ex ibD 21 IP6X T220°C or Ex ibD 21 IP6X T350°C</p>
	<p>Integral type (depending on the model code):</p> <p>Ex db ib IIC T6...T1 Gb or Ex db e ib IIC T6...T1 Gb or Ex db ib IIB T6...T1 Gb or Ex db e ib IIB T6...T1 Gb or Ex db ib [ja Ga] IIC T6...T1 Gb or Ex db e ib [ja Ga] IIC T6...T1 Gb or Ex db ib [ja IIC Ga] IIB T6...T1 Gb or Ex db e ib [ja IIC Ga] IIB T6...T1 Gb Ex ibD 21 tD A21 IP6X T150°C or Ex [jaD 20] ibD 21 tD A21 IP6X T150°C</p> <p>Note: The marking on the product may be changed from Ex e to Ex eb based on statutory requirements.</p>



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
PESO (IN)	<p>PESO approval: PESO approval is based on ATEX certification by DEKRA Certificate Number: DEKRA 15ATEX0023 X</p> <p>PESO approval is only valid for type of protection “d” flameproof enclosure. Option Q11 must be ordered for conformity of device with PESO requirements.</p> <p>PESO Equip. Ref. No. P4...: P400958/_ P400964/_ P400966/_ P400967/_ P400969/_ P400970/_ P400971/_ P400972/_ P400973/_</p> <p>Applied standards:</p> <ul style="list-style-type: none"> ▪ EN 60079-0 +A11 ▪ IS/IEC 60079-1 ▪ EN 60079-11
	<p>Remote transmitter (depending on the model code): Ex db [ia Ga] IIC T6 Gb or Ex db [ia Ga] IIB T6 Gb or Ex db [ia Ga] [ia IIC Ga] IIB T6 Gb</p>
	<p>Remote sensor (depending on the model code): Ex ib IIC T6...T1 Gb or Ex ib IIB T6...T1 Gb</p>
	<p>Integral type (depending on the model code): Ex db ib IIC T6...T1 Gb or Ex db ib IIB T6...T1 Gb or Ex db ib [ia Ga] IIC T6...T1 Gb or Ex db ib [ia IIC Ga] IIB T6...T1 Gb</p>



■ APPROVALS AND DECLARATIONS OF CONFORMITY

Type	Approval or certification
Safety Label (TW)	Please refer to IECEx approval for specifications. A device with IECEx approval (model code position 11, value: SF2_) must be ordered to comply with Safety Label requirements. For export to Taiwan and to get the Safety Label the Yokogawa representative in Taiwan must be contacted in advance.
Ingress protection	IP66/67 and NEMA 4X
EMC	EU directive 2014/30/EU per EN 61326-1 Class A Table 2 and EN 61326-2-3
	NAMUR NE21
	RCM in Australia/New Zealand
	KC mark in Korea
	TR CU 020 in EAC area
Korea Ex EAC Ex	For further information please contact your Yokogawa representative
LVD	EU directive 2014/35/EU per EN 61010-1 and EN 61010-2-030
	TR CU 004 in EAC area
PED	EU directive 2014/68/EU per AD 2000 Code
	TR CU 032 in EAC area
Marine	DNV GL Type approval according to DNVGL-CP-0338 for options MC2 and MC3
RoHS	EU directive 2011/65/EU per EN 50581
WEEE	EU directive 2012/19/EU (Waste Electrical and Electronic Equipment) is only valid in the European Economic Area.
	This instrument is intended to be sold and used only as a part of equipment which is excluded from the WEEE directive, such as large-scale stationary industrial tools, a large-scale fixed installation etc., and therefore it is in principle fully compliant with WEEE directive. The instrument should be disposed of in accordance with applicable national legislations or regulations, respectively.
SIL	Exida Certificate per IEC61508:2010 Parts 1-7 SIL 2 @ HFT=0; SIL 3 @ HFT =1
NAMUR	NAMUR NE95 compliant
Metrological Regulations	Rotamass Total Insight is registered as a measuring instrument in the following countries: <ul style="list-style-type: none"> ▪ China ▪ Russia
	Please contact your Yokogawa representative regarding respective "Pattern Approval Certificate of Measuring Instruments" and export to these countries.
ASME	ASME B31.3 compliance
Sanitary Approvals	3-A Sanitary standards in combination with process connection types HS4, HS8 and HS9
	EHEDG in combination with process connection type HS4, HS8 and HS9



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