

BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPALLI – 620 014

CONTROLS & INSTRUMENTATION / FB



TECHNICAL SPECIFICATION FOR

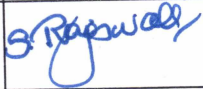
MASS FLOW METER

CUST No: 1430 & 1431

PROJECT: TATA STEEL LIMITED KALINGANAGAR (2X250 TPH CPP)

SPEC. REF: TCI:206/1430/MFM

REVISION HISTORY

REV. No.	DATE	DESCRIPTION	PREPARED S. RAJESWARI	CHECKED T.KEERTHI	APPROVED ASWINI KUMAR PANDA
00	21.12.2018	INITIAL RELEASE			



TECHNICAL SPECIFICATION

1.1	Flow meter type	Direct mass flow measurement
1.2	Measuring Principle	Coriolis Mass Flow (Dual Tube)
1.3	Wetted parts	SS316
1.4	Sensor housing	Weather Proof with SS304 Housing (Minimum)
1.5	Mounting Orientation	Horizontal
1.6	Flanges a) Flanges, to be matched with purchaser's line size & mating flanges with reducer and expander if required (forged type) shall also be supplied along with mounting hardware. b) Flange rating as per ANSI 300RF c) Flange Material- Carbon Steel.	
2.0	Permissible sediment size	300 Microns (maximum).
3.0	Pressure drop	<0.5 bar across the meter
4.0	Terminal block	Suitable for 1.5 sq.mm cable
5.0	Turn Down	20 : 1 (Minimum)
6.0	Hazardous duty version	Zone 2 classification
7.0	Cables	Special Cables required between flow sensor and electronic transmitter up to 15mtr shall be offered
8.0	Process Connection	ANSI 300RF
9.0	Electrical connection	½ " NPT (F)
10.0	Enclosure	IP 65
11.0	Process condition	Refer datasheet CI/1430/MFM/DS
12.0	Field Mounted Transmitter	Remote Type
12.1	Enclosure Protection	IP 65 or better suitable for zone 2 IIA group, Temperature class T3
12.2	Power Supply	240V AC, 1 PH, 50 Hz UPS power supply will be provided at one point. Distribution to the sensor electronics, derivation of any other supply for the electronics by the Vendor.
12.3	Local Display	Local LCD display required to read the process variables, to get communication parameters, reset flow totalizers and to view diagnostic messages
12.4	Input Signal	From the mass flow meter (sensor)
12.5	Outputs	a) Two nos. 4-20 mA DC, galvanically isolated signal one for mass flow rate or volume flow rate and the other one selectable from the following - Density - Temperature



		Suitable for Max. load of 850 Ohm. b) 0 to 10 KHz pulse signal for integration.
12.6	Flow Accuracy	± 0.200 % or better
12.7	Flow Repeatability	± 0.100 % or better
12.8	Density Accuracy	± 0.004 gm/cc or better
12.9	Density Repeatability	± 0.002 gm/cc or better
12.10	Temperature Accuracy	± 1°C
12.11	Temperature Repeatability	± 0.05°C
12.12	Terminal Blocks	Suitable for 1.5 Sq. mm size cable
12.13	Electrical connection	2 Nos. of ½ "size (min.). Double compression flame proof cable glands for the cable entries to be provided.
13.0	Special Tests	As per quality plan QA:CI:STD:QP:72 Rev 01
14.0	Inspection & Testing	Inspection and testing shall be as per quality plan QA:CI:STD:QP:72 Rev 01
15.0	Documents a) BHEL Sub Delivery Enquiry Deviation format along with offer. Note: Vendor to provide the flow accuracy, pressure drop and other details in a tabular/Graphical form for the whole range of flow (e.g 10%,20%,30% ...100% of max. flow) c) 3 set of following document along with the equipment - T.C for type test - O & M Manual (only 2 CDs) - Calibration Certificate - Material Certificate	
16.0	Packing	As per packing procedure QA:CI:STD:PR:04 REV 03
17.0	Quality Plan	As per QA:CI:STD:QP:72 REV 01
18.0	The entire Mass Flow meter should not contain any asbestos material.	

Note: 1. Refer current valid list for revision status for Quality plan, Drawing No. & Packing procedure.
2. Any deviations in the spec to be clearly brought in 'Sub Delivery Enquiry Deviation format only'.

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DATASHEET FOR CORIOLIS TYPE MASS FLOW METER

PROJECT: TATA STEEL LIMITED KALINGANAGAR (2X250 TPH CPP)

REF: CI/1430/MFM/DS REV 00

SL. NO	DESCRIPTION	TECHNICAL PARAMETER
1.1	Service	Light Diesel Oil (LDO)
1.2	Tag No	01 HJF30 CF001 for unit #1 02 HJF30 CF001 for unit #2
1.3	Operating Pressure	15 kg/cm ² (g)
1.4	Operating Temp.	27 °C
1.5	Maximum operating Flow	5800 Kg/Hr
1.6	Minimum Flow	1672 Kg/Hr 836
1.7	Meter Max/ Calibration Range (4-20mA)	0-7000 Kg/Hr
1.8	Line size (OD x T-mm)	NB40 (48.26X3.68)
1.10	Viscosity	2-20 CST
1.11	Density	0.80 - 0.85 kg/lit
1.12	Sediment	0.05 % wt (max)
1.13	Pipe material	SA 106 Gr B
1.14	Sulphur content	0.05 % wt (max)
1.15	Ash content	0.01 % wt (max)
1.16	Reducer Expander (Yes/No)	Vendor to specify in their offer.

REVISION HISTORY

REV. No.	DATE	DESCRIPTION	PREPARED S. RAJESWARI	CHECKED T. KEERTHI	APPROVED ASWINI KUMAR PANDA
00	21/12/2018	Flow meter datasheet			

Ref: 0-00-056-11206 /Rev 02 & 0-00-056-11202/Rev 02 (BHEL's Internal Use)