







DOC NUMBER:

569-DB7A-AIC-713-006

CLIENT NUMBER:

PRD-AIC-DSH-073

CLIENT:

TAKEDA/BAXALTA

PROJECT:

BURITI EPCVM PROJECT

DRUG PRODUCT - BMS - DATA SHEET VORTEX TYPE FLOW TRANSMITTER

\vdash					
1	29OCT2021	ISSUE FOR CONSTRUCTION CONSIDERING COMMENTS	MAV	MAF	RSP
0	29JUL2021	ISSUE FOR CONSTRUCTION	JHA	MAF	RSP
Α	24MAR2021	60% DD ISSUE	JHA	MAF	RSP
REV	DATE	DESCRIPTION	EXEC	CHECK	APPROV









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TITLE

VORTEX FLOW TRANSMITTER

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DOCUMENT REVIEW CONTROL																				
Revision	Α	В	0	1	2	3	Revision	Α	В	0	1	2	3	Revision	Α	В	0	1	2	3
Page							Page							Page						
1	Χ		Χ	Χ			26							51						
2	Х		Χ	Χ			27							52						
3	Х		Χ	Χ			28							53						
4	Х		Χ	Χ			29							54						
5	Х		Χ	Χ			30							55						
6	Х		Χ	Χ			31							56						
7	7		Χ	/			32							57						
8	/		/	/			33							58						
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REVISION 0 NOTES:

- 1- UPDATE ACCORDING TO P&ID (HVAC AND PROCESS).
- 2- INSERTION OF PROCESS DATA.

3- INSERTION OF INSTRUMENT REFERENCE MODELS.

REVISION 1 NOTES:

1- CANCELLED FIT-790312

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VORTEX FLOW TRANSMITTER

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REV::

REFERENCE DOCUMENTS

7A-M-0-5-61 P&I DIAGRAM - DRUG PRODUCT - PLANT STEAM DISTRIBUTION SYSTEM (PROCESS + HVAC)
PRD-AIC-LIS-014 DRUG PRODUCT - BMS - INSTRUMENT INDEX
PRD-PIP-TSP-501 PIPE CLASS AND SPECIFICATION - TECHNICAL SPECIFICATION
PRD-AIC-LIS-046 INTEGRATED PROJECT SERVICES - INSTRUMENT SUGGESTED SUPPLIER LIST

GENERAL NOTES

- 1- The transmitters must have the following characteristics:
 - a) They must be electronic, intelligent and programmable, with the transmission of the signal in the same physical medium as the power supply;
 - b) Support the respective maximum static design pressures;
 - c) They must be capable of identifying internal failures;
 - d) Be capable of setting the value of the output signal, programmable in 0% or 100% of the range, in case of sensor element failure;
- 2- All transmitters must have enclosures, whose parts exposed to the atmosphere are resistant to environmental conditions, including those generated by the process condition.
- 3- The identification plates must be manufactured in stainless steel AISI 304, permanently attached to the instruments with tag and serial number. The serial number of the instrument, when possible, can be engraved on the body itself.
- 4- The manufacturer must confirm the nominal diameter of the meter.
- 5- The instrument display must have at least 2 lines with 16 characters on each line.
- 6- All transmitters must be provided with protection type certificates compatible with the respective area classification. If the enclosure requires certificates regarding type and degree of protection, both proofs must be explicit in the same certificate. The certificates must be issued by INMETRO or an accredited body.









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VORTEX FLOW TRANSMITTER

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12PROCESS CONNECTIONFLANGE13CLASS AND FACE300# FR, ASME B	/ CSG-6501 / ME 0-5-61 ASTM-A106 Gr.E ASSIFIED F. NBR IEC 6052 AL NOTES 6)	-					
3 P&ID 7A-M-C 4 PIPE LINE EQUIPMENT NUMBER 7A-'21/2"-IS8B-790312-CS2-HC 5 EQUIPMENT MATERIAL / PIPE CARBON STEEL / 6 AREA CLASSIFICATION NOT CLA- 7 ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF- 8 CERTIFICATES (SEE GENER/ 9 10 PRINCIPLE VOR' 11 NOMINAL DIAMETER 21/2" (SEE GENER/ 12 PROCESS CONNECTION FLANGER/ 13 CLASS AND FACE 300# FR, ASME B	O-5-61 ASTM-A106 Gr.E ISSIFIED F. NBR IEC 6052 AL NOTES 6)	-					
A	ASTM-A106 Gr.E NSSIFIED F. NBR IEC 6052 AL NOTES 6)						
S	SSIFIED F. NBR IEC 6052 AL NOTES 6) TEX						
7 ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF 8 CERTIFICATES (SEE GENERA 9 10 PRINCIPLE VOR' 11 NOMINAL DIAMETER 21/2" (SEE GENE 12 PROCESS CONNECTION FLANI 13 CLASS AND FACE 300# FR, ASME B	SSIFIED F. NBR IEC 6052 AL NOTES 6) TEX						
7 ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF 8 CERTIFICATES (SEE GENERA 9 10 PRINCIPLE VOR' 11 NOMINAL DIAMETER 21/2" (SEE GENE 12 PROCESS CONNECTION FLANI 13 CLASS AND FACE 300# FR, ASME B	F. NBR IEC 6052 AL NOTES 6)	9					
7 ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF 8 CERTIFICATES (SEE GENERA 9 10 PRINCIPLE VOR' 11 NOMINAL DIAMETER 21/2" (SEE GENE 12 PROCESS CONNECTION FLANI 13 CLASS AND FACE 300# FR, ASME B	AL NOTES 6)	9					
8 CERTIFICATES (SEE GENERAL) 9 10 PRINCIPLE VOR* 11 NOMINAL DIAMETER 21/2" (SEE GENERAL) 12 PROCESS CONNECTION FLANK 13 CLASS AND FACE 300# FR, ASME B	AL NOTES 6)						
9 VOR 10 PRINCIPLE VOR 11 NOMINAL DIAMETER 21/2" (SEE GENE 12 PROCESS CONNECTION FLANG 13 CLASS AND FACE 300# FR, ASME B	PTEX						
10 PRINCIPLE VOR* 11 NOMINAL DIAMETER 21/2" (SEE GENE 12 PROCESS CONNECTION FLANG 13 CLASS AND FACE 300# FR, ASME B							
11 NOMINAL DIAMETER 21/2" (SEE GENE 12 PROCESS CONNECTION FLAN 13 CLASS AND FACE 300# FR, ASME B							
12PROCESS CONNECTIONFLANGE13CLASS AND FACE300# FR, ASME B	ERAL NOTES 4)						
13 CLASS AND FACE 300# FR, ASME B	21/2" (SEE GENERAL NOTES 4)						
i i i i i i i i i i i i i i i i i i i	FLANGED						
		<u>'</u>					
14 FLANGE FACE FINISH MSS 3							
15 INTERNAL ELEMENTS MATERIAL 16 CASING MATERIAL STAINLES							
10 OAGING WATERIAL STAINLES							
17 LOAD LOSS SEE LII							
18 ELECTRICAL CONNECTION NOT APPL							
19 COMPENSATION TEMP./PRES. YE	ES						
20							
	INTEGRAL TO SENSOR						
	24 Vcc - 2 WIRES						
23 OUTPUT SIGNAL 4 - 20 mA (500 o	4 - 20 mA (500 ohms @ 24 Vcc)						
24 COMMUNICATION PROTOCOL HAP	HART						
	± 0.15% F.E.						
26 REPEATABILITY ± 0.1%							
27 ELECTRICAL CONNECTION 1/2" NF							
28 LOCAL INDICATION YES, LCD TYPE (SEE C		ES 11)					
29 CALIBRATION RANGE BY MANUF.	ACTURER						
30 CALIBRATED RANGE 0 @ 140							
31 KETBOARD FOR EGGAL GOIN IGORATION							
32 METER CASING ALUMINIO (CC							
0.0	NOT						
γ 31 TAGGING YES (SEE GENE	YES (SEE GENERAL NOTES 3)						
9 31 AGGING YES (SEE GENE 32 SURGE PROTECTOR YE 35	YES						
₹ 35							
36 FLUID PHYSICAL STATE HIGH PRESSURE STEAM	STI	EAM					
37 MINIMUM FLOW NORMAL MAXIMUM 0 -	1373	Kg/h					
38 MINIMUM PRESSURE NORMAL MAXIMUM 9.4 -	9.3	bar-g					
39 MINIMUM TEMPERATURE NORMAL MAXIMUM 182 -	181	°C					
E 40 DESIGN FLOW 1373 Kg/	√h						
2 41 DESIGN PRESSURE DESIGN TEMPERATURE 11.7 bar-g	11.7 bar-g 200 ℃						
O 42 DENSITY @ OPERATING CONDITION 5.1 kg/	5.1 kg/m³						
39 MINIMUM TEMPERATURE NORMAL MAXIMUM 182 -	0.015 cP						
ξ 44 FLUID CONDUCTIVITY μS/c	μS/cm²						
45 INCRUSTATION NO	0						
46 SUSPENDED SOLIDS (%)	0						
47 MAXIMUM LOSS OF LOAD ALLOWED 0.3 bar							
48							
49 MANUFACTURER Endress + Hauser	Endress + Hauser (E+H) or Similar						
50 MODEL Proline Pro	Proline Prowirl (E+H)						

NOTES:

¹⁻ THE MANUFACTURER MUST CONFIRM THE NOMINAL DIAMETER OF THE METER.









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VORTEX FLOW TRANSMITTER

REV.:

	1 \ 1	EX FLOW TRAINS	WILL I LIX					1				
	1	INSTRUMENT TAG NUMB	ER		FIT-790315							
	2	SERVIÇE			PLAN	PLANT STEAM RE-HEATED WATER FOR SKID						
ı	3	P&ID				7A-M-0-5-61						
∀	4	PIPE LINE	EQUIPMENT N	NUMBER	7A-11/2"-IS8B-790315-CS2-HC -							
GENERAL	5	EQUIPMENT MATERIAL /	PIPE			CARBON STEEL ASTM-A106 Gr.B						
3EV	6	AREA CLASSIFICATION				NOT CL	ASSIFIED					
Ĭ	7	ENCLOSURE CLASSIFICA	ATION			IP 65 (MÍN.) COI	NF. NBR IEC 6052	9				
ı	8	CERTIFICATES					RAL NOTES 6)					
ı	9				,							
	10	PRINCIPLE			VORTEX							
	11	NOMINAL DIAMETER			11/2" (SEE GENERAL NOTES 4)							
ı	12	PROCESS CONNECTION			FLANGED							
ı	13	CLASS AND FACE				300# FR, ASME B16.5 / NBR 7669						
ا ہ	14	FLANGE FACE FINISH				MS	S SP-6					
MEIER		INTERNAL ELEMENTS MA	ATERIAL			3	16SS					
MH		CASING MATERIAL				STAINLE	SS STEEL					
ı	_	LOAD LOSS				SEE	LINE 47					
ı	18	ELECTRICAL CONNECTION	ON			NOT AF	PLICABLE					
ı	19	COMPENSATION TEMP./F				,	/ES					
ı	20											
7	21	MOUNTING				INTEGRAL	TO SENSOR					
ı	22	POWER SUPPLY				24 Vcc - 2 WIRES						
_		OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)							
į		COMMUNICATION PROTO	OCOL		HART							
		PRECISION			± 0.15% F.E.							
2		REPEATABILITY					1% F.E.					
<u> </u>		ELECTRICAL CONNECTION	ON			1/2" NPT (F)						
CONVERIER/IRANSMITIER	_	LOCAL INDICATION	-		YES		E GENERAL NOTE	ES 11)				
צ		CALIBRATION RANGE				BY MANUFACTURER						
× ×	_	CALIBRATED RANGE				0 @ 300 Kg/h						
3		KEYBOARD FOR LOCAL (CONFIGURATION				/ES					
ŀ		METER CASING					OPPER FREE)					
ŀ		PULSE OUTPUT				NOT						
╗		TAGGING			YES (SEE GENERAL NOTES 3)							
CCES.		SURGE PROTECTOR				YES						
Š	35					<u> </u>						
1	_	FLUID	PHYSICAL STATE		HIGH PRESSURE STEAM STEAM							
ŀ		MINIMUM FLOW	NORMAL	MAXIMUM	0	- 1	288	Kg/h				
ŀ	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	9.4	1 - 1	9.3	bar-g				
2	39	MINIMUM TEMPERATURE		MAXIMUM	182	1 - 1	182	°C				
2	40	DESIGN FLOW	1			288 F						
2	41	DESIGN PRESSURE	DESIGN TEMP	PERATURE	11.7 bar-g 200 °C							
3	42	DENSITY @ OPERATING			5.2 kg/m³							
	43	VISCOSITY @ OPERATIN				0.015 cP						
3	44	FLUID CONDUCTIVITY				υ.υ13 CP μS/cm²						
		INCRUSTATION					NO					
OPERATING CONDITIONS		SUSPENDED SOLIDS (%)					NO .					
		MAXIMUM LOSS OF LOAD			0.3							
ŀ	4/				0.3 bar							
4	48	MANUFACTURER				Fndress + Haus	er (E+H) or Similai	•				

NOTES:









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VORTEX FLOW TRANSMITTER

REV.:

								1				
	1	INSTRUMENT TAG NUMBE	R			FIT-790317						
	2	SERVIÇE			PLA	PLANT STEAM RE-HEATED WATER-HX-7A-1						
	3	P&ID				7A-I	M-0-5-61					
GENERAL	4	PIPE LINE	EQUIPMENT NUM	<i>IBER</i>	7A-2"-IS8B-	790317-CS2-HC		-				
7	5	EQUIPMENT MATERIAL / P.	IPE			CARBON STEE	L ASTM-A106 Gr.B					
j	6	AREA CLASSIFICATION				NOT C	LASSIFIED					
ı	7	ENCLOSURE CLASSIFICAT	TION			IP 65 (MÍN.) CO	NF. NBR IEC 60529					
Ī	8	CERTIFICATES				(SEE GENE	ERAL NOTES 6)					
Ī	9											
	10	PRINCIPLE			VORTEX							
Ī	11	NOMINAL DIAMETER				2" (SEE GENERAL NOTES 4)						
Ī	12	PROCESS CONNECTION				FL	ANGED					
ı	13	CLASS AND FACE				300# FR, ASMI	E B16.5 / NBR 7669					
	14	FLANGE FACE FINISH				MS	SS SP-6					
	15	INTERNAL ELEMENTS MAT	TERIAL			3	16SS					
	16	CASING MATERIAL				STAINL	ESS STEEL					
ı	17	LOAD LOSS				SEE	LINE 47					
ı	18	ELECTRICAL CONNECTION	V			NOTA	PPLICABLE					
ı	19	COMPENSATION TEMP./PF	RES.				YES					
ı	20											
	21	MOUNTING				INTEGRA	L TO SENSOR					
ı	22	POWER SUPPLY			24 Vcc - 2 WIRES							
ı	23	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)							
ı	24	COMMUNICATION PROTOC	COL			F	HART					
	25	PRECISION				± 0.15% F.E.						
	26	REPEATABILITY				± 0.	1% F.E.					
	27	ELECTRICAL CONNECTION	V			1/2" NPT (F)						
	28	LOCAL INDICATION			YES	S, LCD TYPE (SE	E GENERAL NOTES	S 11)				
Ī	29	CALIBRATION RANGE				BY MANUFACTURER						
	30	CALIBRATED RANGE				0 @ 1150 Kg/h						
5	31	KEYBOARD FOR LOCAL CO	ONFIGURATION		YES							
	32	METER CASING			ALUMINIO (COPPER FREE)							
	33	PULSE OUTPUT			NOT							
	31	TAGGING			YES (SEE GENERAL NOTES 3)							
	32	SURGE PROTECTOR					YES					
:	35											
Ţ	36	FLUID	PHYSICAL STATE		HIGH PRESS	URE STEAM	STE	4M				
	37	MINIMUM FLOW	NORMAL	MAXIMUM	0	<u> </u>	1103.5	Kg/h				
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	9.4	-	9.3	bar-g				
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	182	-	181	°C				
	40	DESIGN FLOW	<u>,</u>		1103.5 Kg/h							
	41	DESIGN PRESSURE	DESIGN TEMPER	PATURE	11.7 bar-g 200 ℃							
ļ	42	DENSITY @ OPERATING C			5.1 kg/m³							
ļ	43	VISCOSITY @ OPERATING	CONDITION			0.015						
	44	FLUID CONDUCTIVITY				μ	S/cm²					
	45	INCRUSTATION			1		NO					
	46	SUSPENDED SOLIDS (%)					NO					
	47	MAXIMUM LOSS OF LOAD	ALLOWED		0	0.3 bar						
\downarrow	48											
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar							
	50	MODEL			Proline Prowirl (E+H)							

NOTES: