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

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

NUMBER:	569-DB7A-AIC-713-0006	CLIENT NR:	PRD-AIC-DSH-0073

TITLE

VORTEX FLOW TRANSMITTER

SHEET: 2 de 6

REV.: **1**

DOCUMENT REVIEW CONTROL

Revision	A	B	0	1	2	3	Revision	A	B	0	1	2	3	Revision	A	B	0	1	2	3
Page							Page							Page						
1	X		X	X			26							51						
2	X		X	X			27							52						
3	X		X	X			28							53						
4	X		X	X			29							54						
5	X		X	X			30							55						
6	X		X	X			31							56						
7	/		X	/			32							57						
8	/		/	/			33							58						
9							34							59						
10							35							60						
11							36							61						
12							37							62						
13							38							63						
14							39							64						
15							40							65						
16							41							66						
17							42							67						
18							43							68						
19							44							69						
20							45							70						
21							46							71						
22							47							72						
23							48							73						
24							49							74						
25							50							75						

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

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.

NUMBER:	569-DB7A-AIC-713-0006	CLIENT NR:	PRD-AIC-DSH-0073

TITLE

VORTEX FLOW TRANSMITTER

SHEET: 4 de 6

REV.: 1

GENERAL	1	INSTRUMENT TAG NUMBER			FIT-790314			
	2	SERVIÇE			PLANT STEAM PC-7A-1 / CSG-6501 / MÊS-6401			
	3	P&ID			7A-M-0-5-61			
	4	PIPE LINE	EQUIPMENT NUMBER		7A-'21/2"-IS8B-790312-CS2-HC		-	
	5	EQUIPMENT MATERIAL / PIPE			CARBON STEEL ASTM-A106 Gr.B			
	6	AREA CLASSIFICATION			NOT CLASSIFIED			
	7	ENCLOSURE CLASSIFICATION			IP 65 (MÍN.) CONF. NBR IEC 60529			
	8	CERTIFICATES			(SEE GENERAL NOTES 6)			
	9							
METER	10	PRINCIPLE			VORTEX			
	11	NOMINAL DIAMETER			21/2" (SEE GENERAL NOTES 4)			
	12	PROCESS CONNECTION			FLANGED			
	13	CLASS AND FACE			300# FR, ASME B16.5 / NBR 7669			
	14	FLANGE FACE FINISH			MSS SP-6			
	15	INTERNAL ELEMENTS MATERIAL			316SS			
	16	CASING MATERIAL			STAINLESS STEEL			
	17	LOAD LOSS			SEE LINE 47			
	18	ELECTRICAL CONNECTION			NOT APPLICABLE			
	19	COMPENSATION TEMP./PRES.			YES			
	20							
CONVERTER / TRANSMITTER	21	MOUNTING			INTEGRAL TO SENSOR			
	22	POWER SUPPLY			24 Vcc - 2 WIRES			
	23	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)			
	24	COMMUNICATION PROTOCOL			HART			
	25	PRECISION			± 0.15% F.E.			
	26	REPEATABILITY			± 0.1% F.E.			
	27	ELECTRICAL CONNECTION			1/2" NPT (F)			
	28	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)			
	29	CALIBRATION RANGE			BY MANUFACTURER			
	30	CALIBRATED RANGE			0 @ 1400 Kg/h			
	31	KEYBOARD FOR LOCAL CONFIGURATION			YES			
	32	METER CASING			ALUMINIO (COPPER FREE)			
	33	PULSE OUTPUT			NOT			
ACCES.	31	TAGGING			YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR			YES			
	35							
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		HIGH PRESSURE STEAM		STEAM	
	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
	40	DESIGN FLOW			1373 Kg/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		11.7 bar-g		200 ºC	
	42	DENSITY @ OPERATING CONDITION			5.1 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			0.015 cP			
	44	FLUID CONDUCTIVITY			µS/cm²			
	45	INCRUSTATION			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	MAXIMUM LOSS OF LOAD ALLOWED			0.3 bar			
	48							
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar			
	50	MODEL			Proline Prowirl (E+H)			

NOTES:

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

NUMBER:	569-DB7A-AIC-713-0006	CLIENT NR:	PRD-AIC-DSH-0073

TITLE

VORTEX FLOW TRANSMITTER

SHEET: 5 de 6

REV.: 1

GENERAL	1	INSTRUMENT TAG NUMBER				FIT-790315			
	2	SERVIÇE				PLANT STEAM RE-HEATED WATER FOR SKID			
	3	P&ID				7A-M-0-5-61			
	4	PIPE LINE	EQUIPMENT NUMBER			7A-11/2"-IS8B-790315-CS2-HC	-		
	5	EQUIPMENT MATERIAL / PIPE				CARBON STEEL ASTM-A106 Gr.B			
	6	AREA CLASSIFICATION				NOT CLASSIFIED			
	7	ENCLOSURE CLASSIFICATION				IP 65 (MÍN.) CONF. NBR IEC 60529			
	8	CERTIFICATES				(SEE GENERAL NOTES 6)			
	9								
METER	10	PRINCIPLE				VORTEX			
	11	NOMINAL DIAMETER				11/2" (SEE GENERAL NOTES 4)			
	12	PROCESS CONNECTION				FLANGED			
	13	CLASS AND FACE				300# FR, ASME B16.5 / NBR 7669			
	14	FLANGE FACE FINISH				MSS SP-6			
	15	INTERNAL ELEMENTS MATERIAL				316SS			
	16	CASING MATERIAL				STAINLESS STEEL			
	17	LOAD LOSS				SEE LINE 47			
	18	ELECTRICAL CONNECTION				NOT APPLICABLE			
	19	COMPENSATION TEMP./PRES.				YES			
	20								
CONVERTER / TRANSMITTER	21	MOUNTING				INTEGRAL TO SENSOR			
	22	POWER SUPPLY				24 Vcc - 2 WIRES			
	23	OUTPUT SIGNAL				4 - 20 mA (500 ohms @ 24 Vcc)			
	24	COMMUNICATION PROTOCOL				HART			
	25	PRECISION				± 0.15% F.E.			
	26	REPEATABILITY				± 0.1% F.E.			
	27	ELECTRICAL CONNECTION				1/2" NPT (F)			
	28	LOCAL INDICATION				YES, LCD TYPE (SEE GENERAL NOTES 11)			
	29	CALIBRATION RANGE				BY MANUFACTURER			
	30	CALIBRATED RANGE				0 @ 300 Kg/h			
	31	KEYBOARD FOR LOCAL CONFIGURATION				YES			
	32	METER CASING				ALUMINIO (COPPER FREE)			
	33	PULSE OUTPUT				NOT			
ACCES.	31	TAGGING				YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR				YES			
	35								
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE			HIGH PRESSURE STEAM		STEAM	
	37	MINIMUM FLOW	NORMAL		MAXIMUM	0	-	288	Kg/h
	38	MINIMUM PRESSURE	NORMAL		MAXIMUM	9.4	-	9.3	bar-g
	39	MINIMUM TEMPERATURE	NORMAL		MAXIMUM	182	-	182	°C
	40	DESIGN FLOW				288 Kg/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE			11.7 bar-g		200 ºC	
	42	DENSITY @ OPERATING CONDITION				5.2 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION				0.015 cP			
	44	FLUID CONDUCTIVITY				µS/cm²			
	45	INCRUSTATION				NO			
	46	SUSPENDED SOLIDS (%)				NO			
	47	MAXIMUM LOSS OF LOAD ALLOWED				0.3 bar			
	48								
	49	MANUFACTURER				Endress + Hauser (E+H) or Similar			
	50	MODEL				Proline Prowirl (E+H)			

NOTES:

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

NUMBER:	569-DB7A-AIC-713-0006	CLIENT NR:	PRD-AIC-DSH-0073

TITLE

VORTEX FLOW TRANSMITTER

SHEET: 6 de 6

REV.: 1

GENERAL	1	INSTRUMENT TAG NUMBER				FIT-790317			
	2	SERVIÇE				PLANT STEAM RE-HEATED WATER-HX-7A-1			
	3	P&ID				7A-M-0-5-61			
	4	PIPE LINE	EQUIPMENT NUMBER			7A-2"-IS8B-790317-CS2-HC	-		
	5	EQUIPMENT MATERIAL / PIPE				CARBON STEEL ASTM-A106 Gr.B			
	6	AREA CLASSIFICATION				NOT CLASSIFIED			
	7	ENCLOSURE CLASSIFICATION				IP 65 (MÍN.) CONF. NBR IEC 60529			
	8	CERTIFICATES				(SEE GENERAL NOTES 6)			
	9								
METER	10	PRINCIPLE				VORTEX			
	11	NOMINAL DIAMETER				2" (SEE GENERAL NOTES 4)			
	12	PROCESS CONNECTION				FLANGED			
	13	CLASS AND FACE				300# FR, ASME B16.5 / NBR 7669			
	14	FLANGE FACE FINISH				MSS SP-6			
	15	INTERNAL ELEMENTS MATERIAL				316SS			
	16	CASING MATERIAL				STAINLESS STEEL			
	17	LOAD LOSS				SEE LINE 47			
	18	ELECTRICAL CONNECTION				NOT APPLICABLE			
	19	COMPENSATION TEMP./PRES.				YES			
	20								
CONVERTER / TRANSMITTER	21	MOUNTING				INTEGRAL TO SENSOR			
	22	POWER SUPPLY				24 Vcc - 2 WIRES			
	23	OUTPUT SIGNAL				4 - 20 mA (500 ohms @ 24 Vcc)			
	24	COMMUNICATION PROTOCOL				HART			
	25	PRECISION				± 0.15% F.E.			
	26	REPEATABILITY				± 0.1% F.E.			
	27	ELECTRICAL CONNECTION				1/2" NPT (F)			
	28	LOCAL INDICATION				YES, LCD TYPE (SEE GENERAL NOTES 11)			
	29	CALIBRATION RANGE				BY MANUFACTURER			
	30	CALIBRATED RANGE				0 @ 1150 Kg/h			
	31	KEYBOARD FOR LOCAL CONFIGURATION				YES			
	32	METER CASING				ALUMINIO (COPPER FREE)			
	33	PULSE OUTPUT				NOT			
ACCES.	31	TAGGING				YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR				YES			
	35								
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE			HIGH PRESSURE STEAM		STEAM	
	37	MINIMUM FLOW	NORMAL		MAXIMUM	0	-	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				1103.5 Kg/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE			11.7 bar-g		200 ºC	
	42	DENSITY @ OPERATING CONDITION				5.1 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION				0.015 cP			
	44	FLUID CONDUCTIVITY				µS/cm²			
	45	INCRUSTATION				NO			
	46	SUSPENDED SOLIDS (%)				NO			
	47	MAXIMUM LOSS OF LOAD ALLOWED				0.3 bar			
	48								
	49	MANUFACTURER				Endress + Hauser (E+H) or Similar			
	50	MODEL				Proline Prowirl (E+H)			

NOTES:

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