	
DOC NUMBER: 569-DB7A-AIC-700-001		CLIENT NUMBER: PRD-AIC-DSH-004	
CLIENT: TAKEDA/BAXALTA			
PROJECT: BURITI EPCVM PROJECT			

DRUG PRODUCT - BMS - DATA SHEET

MAGNETIC FLOW TRANSMITTER

1	20APR2022	ISSUE FOR CONSTRUCTION AS PER NOTE	ACC	MAF	RSP
0	30JUL2021	ISSUE FOR CONSTRUCTION	JHA	MAF	RSP
A	24MAR2021	60% DD ISSUE	JHA	MAF	RSP
REV	DATE	DESCRIPTION	EXEC	CHECK	APPROV

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:
2 de 24

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		X	X			32							57						
8	X		X	X			33							58						
9	X		X	X			34							59						
10	X		X	X			35							60						
11	X		X	X			36							61						
12	X		X	X			37							62						
13	X		X	X			38							63						
14	X		X	X			39							64						
15	X		X	X			40							65						
16	X		X	X			41							66						
17	X		X	X			42							67						
18	X		X	X			43							68						
19	X		X	X			44							69						
20	X		X	X			45							70						
21	X		X	X			46							71						
22	X		X	X			47							72						
23	/		X	X			48							73						
24	/		X	X			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 AS PER N+1 UPDATE:

- 1- INDICATED FUTURE INSTRUMENTS: FIT-960066, FIT-960077, FIT-980057, FIT-980077

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NUMBER: 569-DB7A-AIC-700-001	CLIENT NR: PRD-AIC-DSH-004
TITLE	
MAGNETIC FLOW TRANSMITTER	
<div style="float: right; text-align: right;"> SHEET: 3 de 24 REV.: 1 </div>	
REFERENCE DOCUMENTS	

7A-M-0-5-41	P&I DIAGRAM - DRUG PRODUCT - INDUSTRIAL WATER DISTRIBUTION SYSTEM
7A-M-0-5-42	P&I DIAGRAM - DRUG PRODUCT - COOLING WATER SYSTEM
7A-M-0-5-43	P&I DIAGRAM - DRUG PRODUCT - CHILLED WATER GENERATION SYSTEM (HVAC)
7A-M-0-5-45	P&I DIAGRAM - DRUG PRODUCT - CHILLED GLYCOL GENERATION SYSTEM
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.

- 7- Grounding rings in material compatible with the process fluid must be provided, being at least AISI 316.

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TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

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REV.:

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GENERAL	1	INSTRUMENT TAG NUMBER		FIT-610001			
	2	SERVICE		INDUSTRIAL WATER - DISTRIBUTION SYSTEM			
	3	P&ID		7A-M-0-5-41			
	4	PIPE LINE	EQUIPMENT NUMBER	7A-4"-DW-610001-PP1-NI	-		
	5	EQUIPMENT MATERIAL / PIPE		PP-H			
	6	AREA CLASSIFICATION		NOT CLASSIFIED			
	7	ENCLOSURE CLASSIFICATION		IP 65 (MÍN.) CONF. NBR IEC 60529			
	8	CERTIFICATES		(SEE GENERAL NOTES 6)			
	9						
METER	9	DIAMETER OF SENSOR TUBE		4" (NOTE 4)			
	10	TUBE MATERIAL		STAINLESS STEEL			
	11	COATING MATERIAL		PFA			
	12	ELECTRODE MATERIAL		316SS			
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)			
	14	CONNECTIONS		FLANGED			
	15	CLASS AND FACE		150# ASME B16.5 / ISO15494			
	16	FLANGE FACE FINISH		MSS SP-6			
	17	ELECTRICAL CONNECTION					
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR			
	19	POWER SUPPLY		24 Vcc - 2 FIOS			
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)			
	21	COMMUNICATION PROTOCOL		HART			
	22	PRECISION		± 0.15% F.E.			
	23	REPEATABILITY		BY MANUFACTURER			
	24	ELECTRICAL CONNECTION		1/2" NPT (F)			
	25	LOCAL INDICATION		SIM, TIPO LCD (VER NOTAS GERAIS 11)			
	26	CALIBRATION RANGE		BY MANUFACTURER			
	27	CALIBRATED RANGE		0 @ 50 m³/h			
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES			
	29	METER CASING		ALUMINIO (COPPER FREE)			
30	PULSE OUTPUT		YES				
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR		YES			
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE	INDUSTRIAL WATER		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	1.8	-	50 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		4	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	25	- °C
	40	DESIGN FLOWRATE		50 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.5 bar-g		55 °C
	42	DENSITY @ OPERATING CONDITION		997.2 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION		0.9 cP			
	44	FLUID CONDUCTIVITY		200 ~ 800 µS/cm (estimated)			
	45	SCALING		NO			
	46	SUSPENDED SOLIDS (%)		NO			
	47	AVAILABLE PRESSURE DROP		- bar			
	48						
		49	MANUFACTURER		Endress + Hauser (E+H) or Similar		
50		MODEL		Proline Promag (E+H)			

NOTES:

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

NUMBER: **569-DB7A-AIC-700-001**

CLIENT NR: **PRD-AIC-DSH-004**

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

5 de 24




REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-940053				
	2	SERVICE		COOLING WATER - CHILLED WATER GEN. (HVAC)				
	3	P&ID		7A-M-0-5-42				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-14"-TWS-940053-CS1-NI	-			
	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	9	DIAMETER OF SENSOR TUBE		14" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5				
	16	FLANGE FACE FINISH		MSS SP-6				
17	ELECTRICAL CONNECTION		NOT APPLICABLE					
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 FIOS				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		SIM, TIPO LCD (VER NOTAS GERAIS 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 750 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
30	PULSE OUTPUT		YES					
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
	35							
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		COOLING WATER SUPPLY		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	730	730	730	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	2.009	2.044	2.048	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	31.5	31.5	31.5	°C
	40	DESIGN FLOWRATE			730 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67 °C	
	42	DENSITY @ OPERATING CONDITION			995.3 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			0.766 Cp			
	44	FLUID CONDUCTIVITY			µS/cm²			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
		49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
50		MODEL		Proline Promag (E+H)				





NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 6 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-940054		
	2	SERVICE			COOLING WATER - CHILLED WATER GEN. (PROC)		
	3	P&ID			7A-M-0-5-42		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-6"-TWS-940054-CS1-NI	-	
	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	9	DIAMETER OF SENSOR TUBE			6" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669		
	16	FLANGE FACE FINISH			MSS SP-6		
	17	ELECTRICAL CONNECTION			NOT APPLICABLE		
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 WIRES		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ 110 m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		COOLING WATER SUPPLY		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM	104	104	104 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.96	1.999	1.994 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	31.5	31.5	31.5 °C
	40	DESIGN FLOWRATE			104 m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67 °C
	42	DENSITY @ OPERATING CONDITION			995.3 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			0.766 Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
		49	MANUFACTURER			Endress + Hauser (E+H) or Similar	
50		MODEL			Proline Promag (E+H)		

NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 7 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-940075		
	2	SERVICE			INDUSTRIAL WATER - MAKE UP		
	3	P&ID			7A-M-0-5-42		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-21/2"-DW-940075-PP1-N	-	
	5	EQUIPMENT MATERIAL / PIPE			POLIPROPILENO HOMOPOLÍMERO CONF. NBR EN 15494		
	6	AREA CLASSIFICATION			NOT CLASSIFIED		
	7	ENCLOSURE CLASSIFICATION			IP 65 (MÍN.) CONF. NBR IEC 60529		
	8	CERTIFICATES			(SEE GENERAL NOTES 6)		
	9						
METER	9	DIAMETER OF SENSOR TUBE			21/2" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# ASME B16.5 / ISO15494		
	16	FLANGE FACE FINISH			MSS SP-6		
	17	ELECTRICAL CONNECTION					
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 FIOS		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			SIM, TIPO LCD (VER NOTAS GERAIS 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		INDUSTRIAL WATER		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM			m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2.8	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM		25	°C
	40	DESIGN FLOWRATE			m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.5 bar-g		55 °C
	42	DENSITY @ OPERATING CONDITION			997.2 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
		49	MANUFACTURER			Endress + Hauser (E+H) or Similar	
50		MODEL			Proline Promag (E+H)		



NOTES:

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

 				 				
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004				
TITLE						SHEET: 8 de 24		
MAGNETIC FLOW TRANSMITTER						REV.: 1		
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-940090			
	2	SERVICE			COOLING WATER -PROC. WASTE - LIFT STATION			
	3	P&ID			7A-M-0-5-42			
	4	PIPE LINE	EQUIPMENT NUMBER		7A-6"-TWS-940090-CS1-NI	-		
	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	9	DIAMETER OF SENSOR TUBE			6" (NOTE 4)			
	10	TUBE MATERIAL			STAINLESS STEEL			
	11	COATING MATERIAL			PFA			
	12	ELECTRODE MATERIAL			316SS			
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)			
	14	CONNECTIONS			FLANGED			
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669			
	16	FLANGE FACE FINISH			MSS SP-6			
	17	ELECTRICAL CONNECTION			NOT APPLICABLE			
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR			
	19	POWER SUPPLY			24 Vcc - 2 WIRES			
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)			
	21	COMMUNICATION PROTOCOL			HART			
	22	PRECISION			± 0.15% F.E.			
	23	REPEATABILITY			BY MANUFACTURER			
	24	ELECTRICAL CONNECTION			1/2" NPT (F)			
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)			
	26	CALIBRATION RANGE			BY MANUFACTURER			
	27	CALIBRATED RANGE			0 @ 120 m³/h			
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES			
	29	METER CASING			ALUMINIO (COPPER FREE)			
ACCESSORIES	30	PULSE OUTPUT			YES			
	31	TAGGING			YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR			YES			
	33							
	34							
OPERATING CONDITIONS	35							
	36	FLUID	PHYSICAL STATE		COOLING WATER SUPPLY		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	114.6	114.6	114.6	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	3.138	3.173	3.177	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	31.5	31.5	31.5	°C
	40	DESIGN FLOWRATE			114.6 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67 °C	
	42	DENSITY @ OPERATING CONDITION			995.3 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			0.766 Cp			
	44	FLUID CONDUCTIVITY			µS/cm²			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar			
	50	MODEL			Proline Promag (E+H)			





NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 9 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-940092		
	2	SERVICE			COOLING WATER - COMPRESSED AIR GENERATION		
	3	P&ID			7A-M-0-5-42		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-2"-TWS-940092-CS1-NI	-	
	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	9	DIAMETER OF SENSOR TUBE			2" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669		
	16	FLANGE FACE FINISH			MSS SP-6		
	17	ELECTRICAL CONNECTION			NOT APPLICABLE		
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 WIRES		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ 12 m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		COOLING WATER SUPPLY		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM	10.8	10.8	10.8 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	3.127	3.162	3.166 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	31.5	31.5	31.5 °C
	40	DESIGN FLOWRATE			10.8 m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67 °C
	42	DENSITY @ OPERATING CONDITION			995.3 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			0.766 Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
		49	MANUFACTURER			Endress + Hauser (E+H) or Similar	
50		MODEL			Proline Promag (E+H)		



NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 10 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-960001		
	2	SERVICE			CHILLED WATER - SUPPLY BUILDING 7A		
	3	P&ID			7A-M-0-5-43		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-10"-CW1R-960001-CS1-CC	-	
	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	9	DIAMETER OF SENSOR TUBE			10" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669		
	16	FLANGE FACE FINISH			MSS SP-6		
17	ELECTRICAL CONNECTION			NOT APPLICABLE			
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 WIRES		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ 250 m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		CHILLED WATER RETURN		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM	146.0	203.0	224.0 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0.45	0.41	0.4 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	5.5	5.5	5.5 °C
	40	DESIGN FLOWRATE			203.0 m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		2.7 bar-g		42.5 °C
	42	DENSITY @ OPERATING CONDITION			999.99 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			1.497 Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar		
	50	MODEL			Proline Promag (E+H)		





NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 11 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-960006		
	2	SERVICE			CHILLED WATER - SUPPLY BUILDING 7B		
	3	P&ID			7A-M-0-5-43		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-10"-CW1R-960006-CS1-CC	-	
	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	9	DIAMETER OF SENSOR TUBE			10" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669		
	16	FLANGE FACE FINISH			MSS SP-6		
	17	ELECTRICAL CONNECTION			NOT APPLICABLE		
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 WIRES		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ 40 m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		CHILLED WATER RETURN		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM	171.0	234.0	257.0 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0.44	0.4	0.38 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	5.5	5.5	5.5 °C
	40	DESIGN FLOWRATE			234.0 m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		2.7 bar-g		42.5 °C
	42	DENSITY @ OPERATING CONDITION			999.99 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			1.497 Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar		
	50	MODEL			Proline Promag (E+H)		

NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 12 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-960062		
	2	SERVICE			COOLING WATER - COOLING TOWERS - CH-7A-1		
	3	P&ID			7A-M-0-5-43		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-12"-TWR-960062-CS1-NI	-	
	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	9	DIAMETER OF SENSOR TUBE			12" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669		
	16	FLANGE FACE FINISH			MSS SP-6		
	17	ELECTRICAL CONNECTION			NOT APPLICABLE		
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 WIRES		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ 400 m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		COOLING WATER RETURN		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM	365.0	365.0	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.125	1.164	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	37.0	37.0	°C
	40	DESIGN FLOWRATE			365.0 m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67.0 °C
	42	DENSITY @ OPERATING CONDITION			993 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			0.691 Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
		49	MANUFACTURER			Endress + Hauser (E+H) or Similar	
50		MODEL			Proline Promag (E+H)		

NOTES:

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

NUMBER: **569-DB7A-AIC-700-001**

CLIENT NR: **PRD-AIC-DSH-004**

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

13 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-960064			
	2	SERVICE		COOLING WATER - COOLING TOWERS - CH-7A-2			
	3	P&ID		7A-M-0-5-43			
	4	PIPE LINE	EQUIPMENT NUMBER	7A-12"-TWR-960064-CS1-N	-		
	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	9	DIAMETER OF SENSOR TUBE		12" (NOTE 4)			
	10	TUBE MATERIAL		STAINLESS STEEL			
	11	COATING MATERIAL		PFA			
	12	ELECTRODE MATERIAL		316SS			
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)			
	14	CONNECTIONS		FLANGED			
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669			
	16	FLANGE FACE FINISH		MSS SP-6			
	17	ELECTRICAL CONNECTION		NOT APPLICABLE			
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR			
	19	POWER SUPPLY		24 Vcc - 2 WIRES			
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)			
	21	COMMUNICATION PROTOCOL		HART			
	22	PRECISION		± 0.15% F.E.			
	23	REPEATABILITY		BY MANUFACTURER			
	24	ELECTRICAL CONNECTION		1/2" NPT (F)			
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)			
	26	CALIBRATION RANGE		BY MANUFACTURER			
	27	CALIBRATED RANGE		0 @ 40 m³/h			
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES			
	29	METER CASING		ALUMINIO (COPPER FREE)			
	30	PULSE OUTPUT		YES			
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR		YES			
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE	COOLING WATER RETURN		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	365.0	365.0	365.0 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.125	1.164	1.16 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	37.0	37.0	37.0 °C
	40	DESIGN FLOWRATE		365.0 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67.0 °C
	42	DENSITY @ OPERATING CONDITION		993 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION		0.691 Cp			
	44	FLUID CONDUCTIVITY		µS/cm²			
	45	SCALING		NO			
	46	SUSPENDED SOLIDS (%)		NO			
	47	AVAILABLE PRESSURE DROP		- bar			
	48						
	49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
	50	MODEL		Proline Promag (E+H)			

NOTES:

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

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

14 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-960066			
	2	SERVICE		COOLING WATER - COOLING TOWERS - CH-7A-3			
	3	P&ID		7A-M-0-5-43			
	4	PIPE LINE	EQUIPMENT NUMBER	7A-12"-TWR-960066-CS1-NI			
	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	9	DIAMETER OF SENSOR TUBE		12" (NOTE 4)			
	10	TUBE MATERIAL		STAINLESS STEEL			
	11	COATING MATERIAL		PFA			
	12	ELECTRODE MATERIAL		316SS			
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)			
	14	CONNECTIONS		FLANGED			
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669			
	16	FLANGE FACE FINISH		MSS SP-6			
17	ELECTRICAL CONNECTION		NOT APPLICABLE				
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR			
	19	POWER SUPPLY		24 Vcc - 2 WIRES			
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)			
	21	COMMUNICATION PROTOCOL		HART			
	22	PRECISION		± 0.15% F.E.			
	23	REPEATABILITY		BY MANUFACTURER			
	24	ELECTRICAL CONNECTION		1/2" NPT (F)			
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)			
	26	CALIBRATION RANGE		BY MANUFACTURER			
	27	CALIBRATED RANGE		0 @ 400 m³/h			
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES			
	29	METER CASING		ALUMINIO (COPPER FREE)			
30	PULSE OUTPUT		YES				
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR		YES			
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE	COOLING WATER RETURN		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	365.0	365.0	365.0 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.096	1.135	1.131 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	37.0	37.0	37.0 °C
	40	DESIGN FLOWRATE		365.0 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67.0 °C
	42	DENSITY @ OPERATING CONDITION		993 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION		0.691 Cp			
	44	FLUID CONDUCTIVITY		µS/cm²			
	45	SCALING		NO			
	46	SUSPENDED SOLIDS (%)		NO			
	47	AVAILABLE PRESSURE DROP		- bar			
	48						
	49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
	50	MODEL		Proline Promag (E+H)			

NOTES:

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

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

15 de 24





REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-960075				
	2	SERVICE		COOLING WATER - COOLING TOWERS - CH-7A-1				
	3	P&ID		7A-M-0-5-43				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-10"-CW1R-960075-CS1-CC	-			
	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	9	DIAMETER OF SENSOR TUBE		10" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
	17	ELECTRICAL CONNECTION		NOT APPLICABLE				
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 40 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
ACCESSORIES	30	PULSE OUTPUT		YES				
	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
OPERATING CONDITIONS	35							
	36	FLUID	PHYSICAL STATE	CHILLED WATER RETURN		LIQUID		
	37	MINIMUM FLOW	NORMAL	MAXIMUM	242.0	242.0	242.0	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.9	1.9	1.9	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	12.5	12.5	12.5	°C
	40	DESIGN FLOWRATE		242.0 m³/h				
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		2.7 bar-g		42.5 °C	
	42	DENSITY @ OPERATING CONDITION		999.99 kg/m³				
	43	VISCOSITY @ OPERATING CONDITION		0.009 Cp				
	44	FLUID CONDUCTIVITY		µS/cm²				
	45	SCALING		NO				
	46	SUSPENDED SOLIDS (%)		NO				
	47	AVAILABLE PRESSURE DROP		- bar				
	48							
	49	MANUFACTURER		Endress + Hauser (E+H) or Similar				
	50	MODEL		Proline Promag (E+H)				

NOTES:

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

 				 			
NUMBER: 569-DB7A-AIC-700-001				CLIENT NR: PRD-AIC-DSH-004			
TITLE						SHEET: 16 de 24	
MAGNETIC FLOW TRANSMITTER						REV.: 1	
GENERAL	1	INSTRUMENT TAG NUMBER			FIT-960076		
	2	SERVICE			COOLING WATER - COOLING TOWERS - CH-7A-2		
	3	P&ID			7A-M-0-5-43		
	4	PIPE LINE	EQUIPMENT NUMBER		7A-10"-CW1R-960076-CS1-CC	-	
	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	9	DIAMETER OF SENSOR TUBE			10" (NOTE 4)		
	10	TUBE MATERIAL			STAINLESS STEEL		
	11	COATING MATERIAL			PFA		
	12	ELECTRODE MATERIAL			316SS		
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)		
	14	CONNECTIONS			FLANGED		
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669		
	16	FLANGE FACE FINISH			MSS SP-6		
	17	ELECTRICAL CONNECTION			NOT APPLICABLE		
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR		
	19	POWER SUPPLY			24 Vcc - 2 WIRES		
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)		
	21	COMMUNICATION PROTOCOL			HART		
	22	PRECISION			± 0.15% F.E.		
	23	REPEATABILITY			BY MANUFACTURER		
	24	ELECTRICAL CONNECTION			1/2" NPT (F)		
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)		
	26	CALIBRATION RANGE			BY MANUFACTURER		
	27	CALIBRATED RANGE			0 @ 250 m³/h		
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES		
	29	METER CASING			ALUMINIO (COPPER FREE)		
30	PULSE OUTPUT			YES			
ACCESSORIES	31	TAGGING			YES (SEE GENERAL NOTES 3)		
	32	SURGE PROTECTOR			YES		
	33						
	34						
	35						
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		CHILLED WATER RETURN		LIQUID
	37	MINIMUM FLOW	NORMAL	MAXIMUM	242.0	242.0	242.0 m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.9	1.9	1.9 bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	12.5	12.5	12.5 °C
	40	DESIGN FLOWRATE			242.0 m³/h		
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		2.7 bar-g		42.5 °C
	42	DENSITY @ OPERATING CONDITION			999.99 kg/m³		
	43	VISCOSITY @ OPERATING CONDITION			0.009 Cp		
	44	FLUID CONDUCTIVITY			µS/cm²		
	45	SCALING			NO		
	46	SUSPENDED SOLIDS (%)			NO		
	47	AVAILABLE PRESSURE DROP			- bar		
	48						
		49	MANUFACTURER			Endress + Hauser (E+H) or Similar	
50		MODEL			Proline Promag (E+H)		

NOTES:

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

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

17 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-960077				
	2	SERVICE		COOLING WATER - COOLING TOWERS - CH-7A-3				
	3	P&ID		7A-M-0-5-43				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-10"-CW1R-960077-CS1-CC	-			
	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	9	DIAMETER OF SENSOR TUBE		10" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
17	ELECTRICAL CONNECTION		NOT APPLICABLE					
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 250 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
30	PULSE OUTPUT		YES					
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
	35							
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE	CHILLED WATER RETURN		LIQUID		
	37	MINIMUM FLOW	NORMAL	MAXIMUM	242.0	242.0	242.0	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.9	1.9	1.9	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	12.5	12.5	12.5	°C
	40	DESIGN FLOWRATE			242.0 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		2.7 bar-g		42.5 °C	
	42	DENSITY @ OPERATING CONDITION			999.99 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			0.009 Cp			
	44	FLUID CONDUCTIVITY			µS/cm²			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
		49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
50		MODEL		Proline Promag (E+H)				

NOTES:

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

NUMBER: **569-DB7A-AIC-700-001**

CLIENT NR: **PRD-AIC-DSH-004**

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

18 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER			FIT-960085			
	2	SERVICE			CHILLED WATER - RETURN BUILDING 7A			
	3	P&ID			7A-M-0-5-43			
	4	PIPE LINE	EQUIPMENT NUMBER		7A-8"-CW1R-960005-CS1-CC		-	
	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	9	DIAMETER OF SENSOR TUBE			8" (NOTE 4)			
	10	TUBE MATERIAL			STAINLESS STEEL			
	11	COATING MATERIAL			PFA			
	12	ELECTRODE MATERIAL			316SS			
	13	GROUNDING RING MATERIAL			YES (SEE GENERAL NOTES 7)			
	14	CONNECTIONS			FLANGED			
	15	CLASS AND FACE			150# FR, ASME B16.5 / NBR 7669			
	16	FLANGE FACE FINISH			MSS SP-6			
	17	ELECTRICAL CONNECTION			NOT APPLICABLE			
CONVERTER / TRANSMITTER	18	MOUNTING			INTEGRAL TO SENSOR			
	19	POWER SUPPLY			24 Vcc - 2 WIRES			
	20	OUTPUT SIGNAL			4 - 20 mA (500 ohms @ 24 Vcc)			
	21	COMMUNICATION PROTOCOL			HART			
	22	PRECISION			± 0.15% F.E.			
	23	REPEATABILITY			BY MANUFACTURER			
	24	ELECTRICAL CONNECTION			1/2" NPT (F)			
	25	LOCAL INDICATION			YES, LCD TYPE (SEE GENERAL NOTES 11)			
	26	CALIBRATION RANGE			BY MANUFACTURER			
	27	CALIBRATED RANGE			0 @ 230 m³/h			
	28	KEYBOARD FOR LOCAL CONFIGURATION			YES			
	29	METER CASING			ALUMINIO (COPPER FREE)			
ACCESSORIES	30	PULSE OUTPUT			YES			
	31	TAGGING			YES (SEE GENERAL NOTES 3)			
	32	SURGE PROTECTOR			YES			
	33							
	34							
OPERATING CONDITIONS	35							
	36	FLUID	PHYSICAL STATE		CHILLED WATER RETURN		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	146.0	203	224	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0.26	0.28	0.28	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	12.5	12.5	12.5	°C
	40	DESIGN FLOWRATE			203.0 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		3.9 bar-g		42.5 °C	
	42	DENSITY @ OPERATING CONDITION			999.99 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			0.009 Cp			
	44	FLUID CONDUCTIVITY			µS/cm²			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
	49	MANUFACTURER			Endress + Hauser (E+H) or Similar			
	50	MODEL			Proline Promag (E+H)			

NOTES:

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

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

19 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-960088				
	2	SERVICE		CHILLED WATER - RETURN BUILDING 7B				
	3	P&ID		7A-M-0-5-43				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-10"-CW1R-960008-CS1-CC	-			
	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	9	DIAMETER OF SENSOR TUBE		10" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
17	ELECTRICAL CONNECTION		NOT APPLICABLE					
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 260 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
30	PULSE OUTPUT		YES					
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
	35							
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		CHILLED WATER RETURN		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	172.0	234.0	257.0	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0.25	0.26	0.26	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	12.5	12.5	12.5	°C
	40	DESIGN FLOWRATE			234 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.3 bar-g		42.5 °C	
	42	DENSITY @ OPERATING CONDITION			999.99 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			0.009 Cp			
	44	FLUID CONDUCTIVITY			µS/cm²			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
		49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
50		MODEL		Proline Promag (E+H)				

NOTES:

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

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

20 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-980056				
	2	SERVICE		COOLING WATER - COOLING TOWERS PCH-7A-1				
	3	P&ID		7A-M-0-5-45				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-6"-TWR-980056-CS1-NI	-			
	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	9	DIAMETER OF SENSOR TUBE		6" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
	17	ELECTRICAL CONNECTION		NOT APPLICABLE				
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 120 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
ACCESSORIES	30	PULSE OUTPUT		YES				
	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
OPERATING CONDITIONS	35							
	36	FLUID	PHYSICAL STATE	COOLING WATER RETURN		LIQUID		
	37	MINIMUM FLOW	NORMAL	MAXIMUM	104.0	104.0	104.0	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.07	1.109	1.104	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	37.0	37.0	37.0	°C
	40	DESIGN FLOWRATE		104.0 m³/h				
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67.0 °C	
	42	DENSITY @ OPERATING CONDITION		993 kg/m³				
	43	VISCOSITY @ OPERATING CONDITION		0.691 Cp				
	44	FLUID CONDUCTIVITY		µS/cm²				
	45	SCALING		NO				
	46	SUSPENDED SOLIDS (%)		NO				
	47	AVAILABLE PRESSURE DROP		- bar				
	48							
	49	MANUFACTURER		Endress + Hauser (E+H) or Similar				
	50	MODEL		Proline Promag (E+H)				

NOTES:

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

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

21 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-980057				
	2	SERVICE		COOLING WATER - COOLING TOWERS PCH-7A-2				
	3	P&ID		7A-M-0-5-45				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-6"-TWR-980057-CS1-NI				
	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	9	DIAMETER OF SENSOR TUBE		6" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
17	ELECTRICAL CONNECTION		NOT APPLICABLE					
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 40 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
ACCESSORIES	29	METER CASING		ALUMINIO (COPPER FREE)				
	30	PULSE OUTPUT		YES				
	31	TAGGING		YES (SEE GENERAL NOTES 3)				
OPERATING CONDITIONS	32	SURGE PROTECTOR		YES				
	33							
	34							
	35							
	36	FLUID	PHYSICAL STATE	COOLING WATER RETURN		LIQUID		
OPERATING CONDITIONS	37	MINIMUM FLOW	NORMAL	MAXIMUM	104.0	104.0	104.0	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	1.07	1.109	1.104	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	37.0	37.0	37.0	°C
	40	DESIGN FLOWRATE		104.0 m³/h				
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.6 bar-g		67.0 °C	
	42	DENSITY @ OPERATING CONDITION		993 kg/m³				
	43	VISCOSITY @ OPERATING CONDITION		0.691 Cp				
	44	FLUID CONDUCTIVITY		µS/cm²				
	45	SCALING		NO				
	46	SUSPENDED SOLIDS (%)		NO				
	47	AVAILABLE PRESSURE DROP		- bar				
	48							
		49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
		50	MODEL		Proline Promag (E+H)			

NOTES:

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

NUMBER: **569-DB7A-AIC-700-001**

CLIENT NR: **PRD-AIC-DSH-004**

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

22 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-980060				
	2	SERVICE		RETURN CHILLED WATER SYSTEM -HOT SIDE				
	3	P&ID		7A-M-0-5-45				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-6"-GW0R-980060-CS1-CC		BT-7A-1		
	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	9	DIAMETER OF SENSOR TUBE		6" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
	17	ELECTRICAL CONNECTION		NOT APPLICABLE				
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 80 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
ACCESSORIES	30	PULSE OUTPUT		YES				
	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
OPERATING CONDITIONS	35							
	36	FLUID	PHYSICAL STATE	PROPYLENE GLYCOL RETORN		LIQUID		
	37	MINIMUM FLOW	NORMAL	MAXIMUM	19	66	76	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	-	0.6	-	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-	11	-	°C
	40	DESIGN FLOWRATE		76 m³/h				
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.5 bar-g		41 °C	
	42	DENSITY @ OPERATING CONDITION		999.64 kg/m³				
	43	VISCOSITY @ OPERATING CONDITION		1.3 cP				
	44	FLUID CONDUCTIVITY		200 ~ 800 µS/cm (estimated)				
	45	SCALING		NO				
	46	SUSPENDED SOLIDS (%)		NO				
	47	AVAILABLE PRESSURE DROP		- bar				
	48							
	49	MANUFACTURER		Endress + Hauser (E+H) or Similar				
	50	MODEL		Proline Promag (E+H)				

NOTES:

- 1- THE MANUFACTURER MUST CONFIRM THE NOMINAL DIAMETER OF THE METER.
- 2- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.

NUMBER: **569-DB7A-AIC-700-001**

CLIENT NR: **PRD-AIC-DSH-004**

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

23 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-980075				
	2	SERVICE		GLYCOL FOR PCH-7A-1				
	3	P&ID		7A-M-0-5-45				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-4"-GW0R-980075-CS1-CC	-			
	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	9	DIAMETER OF SENSOR TUBE		4" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
	17	ELECTRICAL CONNECTION		NOT APPLICABLE				
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 80 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
	30	PULSE OUTPUT		YES				
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
	35							
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		PROPYLENE GLYCOL RETORN		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	0	66	76	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	-	1.1	-	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	5	-	11	°C
	40	DESIGN FLOWRATE			76 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.5 bar-g		41 °C	
	42	DENSITY @ OPERATING CONDITION			999.64 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			1.3 cP			
	44	FLUID CONDUCTIVITY			200 ~ 800 µS/cm (estimated)			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
		49	MANUFACTURER		Endress + Hauser (E+H) or Similar			
50		MODEL		Proline Promag (E+H)				

NOTES:

- 1- THE MANUFACTURER MUST CONFIRM THE NOMINAL DIAMETER OF THE METER.
- 2- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.

NUMBER: 569-DB7A-AIC-700-001

CLIENT NR: PRD-AIC-DSH-004

TITLE

MAGNETIC FLOW TRANSMITTER

SHEET:

24 de 24

REV.:

1

GENERAL	1	INSTRUMENT TAG NUMBER		FIT-980077				
	2	SERVICE		CHILLER INLET				
	3	P&ID		7A-M-0-5-45				
	4	PIPE LINE	EQUIPMENT NUMBER	7A-6"-GW0R-980077-CS1-CC		PCH-7A-2		
	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	9	DIAMETER OF SENSOR TUBE		4" (NOTE 4)				
	10	TUBE MATERIAL		STAINLESS STEEL				
	11	COATING MATERIAL		PFA				
	12	ELECTRODE MATERIAL		316SS				
	13	GROUNDING RING MATERIAL		YES (SEE GENERAL NOTES 7)				
	14	CONNECTIONS		FLANGED				
	15	CLASS AND FACE		150# FR, ASME B16.5 / NBR 7669				
	16	FLANGE FACE FINISH		MSS SP-6				
17	ELECTRICAL CONNECTION		NOT APPLICABLE					
CONVERTER / TRANSMITTER	18	MOUNTING		INTEGRAL TO SENSOR				
	19	POWER SUPPLY		24 Vcc - 2 WIRES				
	20	OUTPUT SIGNAL		4 - 20 mA (500 ohms @ 24 Vcc)				
	21	COMMUNICATION PROTOCOL		HART				
	22	PRECISION		± 0.15% F.E.				
	23	REPEATABILITY		BY MANUFACTURER				
	24	ELECTRICAL CONNECTION		1/2" NPT (F)				
	25	LOCAL INDICATION		YES, LCD TYPE (SEE GENERAL NOTES 11)				
	26	CALIBRATION RANGE		BY MANUFACTURER				
	27	CALIBRATED RANGE		0 @ 80 m³/h				
	28	KEYBOARD FOR LOCAL CONFIGURATION		YES				
	29	METER CASING		ALUMINIO (COPPER FREE)				
30	PULSE OUTPUT		YES					
ACCESSORIES	31	TAGGING		YES (SEE GENERAL NOTES 3)				
	32	SURGE PROTECTOR		YES				
	33							
	34							
	35							
OPERATING CONDITIONS	36	FLUID	PHYSICAL STATE		PROPYLENE GLYCOL RETORN		LIQUID	
	37	MINIMUM FLOW	NORMAL	MAXIMUM	0	66	76	m³/h
	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	-	1.1	-	bar-g
	39	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	5	-	11	°C
	40	DESIGN FLOWRATE			76 m³/h			
	41	DESIGN PRESSURE	DESIGN TEMPERATURE		4.5 bar-g		41 °C	
	42	DENSITY @ OPERATING CONDITION			999.64 kg/m³			
	43	VISCOSITY @ OPERATING CONDITION			1.3 cP			
	44	FLUID CONDUCTIVITY			200 ~ 800 µS/cm (estimated)			
	45	SCALING			NO			
	46	SUSPENDED SOLIDS (%)			NO			
	47	AVAILABLE PRESSURE DROP			- bar			
	48							
	49	MANUFACTURER		Endress + Hauser (E+H) or Similar				
	50	MODEL		Proline Promag (E+H)				

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