







DOC NUMBER:

569-DB7A-AIC-712-006

CLIENT NUMBER:

PRD-AIC-DSH-0052

CLIENT:

TAKEDA/BAXALTA

PROJECT:

BURITI EPCVM PROJECT

# DRUG PRODUCT - BMS - DATA SHEET PRESSURE GAUGE

2	28APR2022	ISSUE FOR CONSTRUCTION AS PER NOTE	ACC	MAF	RSP
1	26JAN2022	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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### **MANOMETER**

SHFFT:

2 de 30 REV.:

# **DOCUMENT REVIEW CONTROL**

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

### **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 PDI-AHU-7A-1-001-HVAC, PDI-AHU-7A-2-001-HVAC, PDI-AHU-7A-3-001-HVAC, PDI-AHU-7A-4-001-HVAC, PDI-AHU-7A-4-002-HVAC, PDI-AHU-7A-5-001-HVAC, PDI-AHU-7A-6-001-HVAC, PDI-DOAS-7A-1-001-HVAC.

# **REVISION 2 NOTES AS PER N+1 UPDATE:**

1- INDICATED FUTURE INSTRUMENTS: PI-960001, PI-960002, PI-960006, PI-960007, PI-980064, PI-980071, PI-940049, PI-960007, 960058, PI-960052, PI-9800161, PI-9800162

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NUMBER: 569-DB7A-AIC-712-006 CLIENT NR: PRD-AIC-DSH-0052

TITLE SHEET:

MANOMETER

3 de 30

REV.:

# 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-0-5-44	P&I DIAGRAM - DRUG PRODUCT - CHILLED WATER DISTRIBUTION SYSTEM
7A-M-0-5-45	P&I DIAGRAM - DRUG PRODUCT - CHILLED GLYCOL GENERATION SYSTEM
7A-M-0-5-46	P&I DIAGRAM - DRUG PRODUCT - CHILLED GLYCOL DISTRIBUTION SYSTEM
7A-M-0-5-47	P&I DIAGRAM - DRUG PRODUCT - HEATING HOT WATER SYSTEM (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- Provide calibration certificate issued by INMETRO or by organ accredited by it.
- 2- The identification plates must be made of AISI 304 stainless steel permanently attached to the instruments with a tag and serial number. The serial number of the instrument, when possible, can be recorded on the body itself.
- 3- The manufacturer must provide rear protection disc.
- 4- HVAC Reported that the HVAC'S deferences will be provided by the HVAC package manufacturer. (CANCELLED)









NUMBER: 569-DB7A-AIC-712-006 CLIENT NR: PRD-AIC-DSH-0052

TITLE

SHEET:

# MANOMETER

4 de 30 REV.: **2** 

									2	
	1	INSTRUMENT TAG NUMBER					P	I-610001		
	2	SERVICE			IN	IDUSTR	IAL WATER	R - DISTRIBUTION SY	STEM	
	3	P&ID					7A	-M-0-5-41		
3AL	4	PIPE LINE	EQUIPMENT NUN	MBER .	7A-4"-DW	/-61000	1-PP1-N	-		
GENERAL	5	EQUIPMENT MATERIAL / PIPE						PP-H		
GE	6	AREA CLASSIFICATION			NOT CLASSIFIED					
	7	ENCLOSURE CLASSIFICATION				ΙP	65 (MÍN.) C	ONF. NBR IEC 60529		
	8	CERTIFICATES					(SEE GEN	IERAL NOTES 6)		
	9									
	10	TYPE OF MEASUREMENT					L	DIRECT		
	11	MOUNTING					į	LOCAL		
	12	DIAL DIAMETER						114 mm		
	13	SCALE COLOR	BACKGROUND C	OLOR	E	BLACK		WHI	ΓΕ	
	14	PRECISION	•			1%	OF THE FII	NAL VALUE "RANGE"		
_	15	MATERIAL CASE					304\$3	S POLISHED		
1EN	16	RANGE	RESOLUTION		0 @	@ 6 bar-	g	0.1		
<u>₹</u>	17	RING TYPE	RING MATERIAL		BA	AYONET	Γ	3048	SS	
INSTRUMENT	18	CONEX. PROCES. / ACESS.	CONNECTION PC	SITION	1/2	" NPT (N	Л)	BOTT	ОМ	
≤	19	SENSOR TYPE	MATERIAL SENS	OR	BC	OURDOI	V	3165	SS	
	20	MATERIAL SOQUETE	MECHANISM MAT	TERIAL	;	316SS		3165	SS	
	21	BALANCED POINTER						YES		
	22	MICROMETRIC ADJUSTMENT C	F ZERO					YES		
	23	FRONT TYPE	WINDOWS		;	SOLID		GLASS SEG. TRA	NSP. MIN. 75%	
	24	FILLING	FLUID			YES		GLYCE	RIN	
	25	SEAL DIAPHRAGM					NOT	REQUIRED		
	26	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT	REQUIF	RED	NOT REQ	UIRED	
	27	SEAL FILLING FLUID					NOT	REQUIRED		
	28	WET PART MATERIAL					NOT	REQUIRED		
	29	CAPILLARY LENGTH					NOT	REQUIRED		
	30	CAPILLARY MATERIAL					NOT	REQUIRED		
ပ္သ	31	PULSATION DAMPER					NOT	T REQUIRED		
ACCESSORIES		MATERIAL					NOT	REQUIRED		
SS:	33	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT	REQUIF	RED	NOT REQ	UIRED	
SCE	_	SIPHON TUBE					NOT	REQUIRED		
Ā		MATERIAL	•					REQUIRED		
	36	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT	REQUIF	RED	NOT REQ	UIRED	
	37	OVERPRESSURE PROTECTOR					NOT	REQUIRED		
	38	MATERIAL	•					REQUIRED		
	39	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT	REQUIF		NOT REQ	UIRED	
	46	TAGGING				}	ES (SEE G	ENERAL NOTES 2)		
	40		1		ļ			1		
ω.		FLUID	PHYSICAL STATE	1	INDUST	TRIAL W		LIQU		
NO	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-		25	-	℃	
OPERATING CONDITIONS	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0		4		bar-g	
NO	39	DESIGN PRESSURE	DESIGN TEMPER	ATURE		4.5 ba		55	°C	
) <i>9</i> /	40	VISCOSITY @ OPERATING CON					0.89			
471/	41	DENSITY @ OPERATING COND	IIION				997.2	kg/m³		
'ER,	42	SUSPENDED SOLIDS (%)	4.T.1.D.E		NOT					
90	43	SOLIDIFIES AT ROOM TEMPERA	ATURE		NOT					
$\vdash$		M.M. / Z / Cp/Cv			/					
	49	MANUFACTURER					=	WIKA		
	50	MODEL			ļ		232	2.5 (WIKA)		

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

5 de 30 REV.:

# MANOMETER

								2		
	1	INSTRUMENT TAG NUMBER				F	PI-610002			
	2	SERVICE			INDUSTRIAL WAT	TER - DISTRIBUT	TION SYSTEM DOWNS	TREAM PCV-610001		
	3	P&ID				7,	N-M-0-5-41			
ΑL	4	PIPE LINE	EQUIPMENT NUM	1BER	7A-4"-DW-61	0001-PP1-N	-			
GENERAL	5	EQUIPMENT MATERIAL / PIPE	•				PP-H			
GE	6	AREA CLASSIFICATION				NOT CLASSIFIED				
	7	ENCLOSURE CLASSIFICATION				IP 65 (MÍN.) C	ONF. NBR IEC 60529	)		
	8	CERTIFICATES				(SEE GE	NERAL NOTES 6)			
	9									
	10	TYPE OF MEASUREMENT					DIRECT			
	11	MOUNTING					LOCAL			
	12	DIAL DIAMETER					114 mm			
	13	SCALE COLOR	BACKGROUND C	OLOR	BLA	CK	WH	ITE		
	14	PRECISION	<u> </u>			1% OF THE F	NAL VALUE "RANGE	""		
Ι. Ι	15	MATERIAL CASE				304S	S POLISHED			
ENJ	16	RANGE	RESOLUTION		0 @ 6	bar-g	0.	1		
S	_	RING TYPE	RING MATERIAL		BAYC	NET	304	SS		
INSTRUMENT	18	CONEX. PROCES. / ACESS.	CONNECTION PC	SITION	1/2" NF	PT (M)	BOT	ГОМ		
Š	19	SENSOR TYPE	MATERIAL SENS	 OR	BOUR	DON	316	SS		
	20	MATERIAL SOQUETE	MECHANISM MAT	TERIAL	316	SS	316	SS		
	21	BALANCED POINTER					YES			
	22	MICROMETRIC ADJUSTMENT C	F ZERO				YES			
	23	FRONT TYPE	WINDOWS		SOL	_ID	GLASS SEG. TRA	ANSP. MIN. 75%		
	24	FILLING	FLUID		YE	S	GLYC	ERIN		
	25	SEAL DIAPHRAGM				NO1	REQUIRED			
	26	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REC	QUIRED	NOT RE	QUIRED		
	27	SEAL FILLING FLUID				NO7	REQUIRED			
	28	WET PART MATERIAL				NO7	REQUIRED			
	29	CAPILLARY LENGTH				NO7	REQUIRED			
	30	CAPILLARY MATERIAL				NO7	REQUIRED			
ပ္ပ	31	PULSATION DAMPER			NOT REQUIRED					
RIE	32	MATERIAL				NOT	REQUIRED			
SSC	33	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REC	QUIRED	NOT RE	QUIRED		
ACCESSORIES	34	SIPHON TUBE	•			NOT	REQUIRED			
AC	35	MATERIAL				NOT	REQUIRED			
	36	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REC	QUIRED	NOT RE	QUIRED		
	37	OVERPRESSURE PROTECTOR					YES			
	38	MATERIAL					316SS			
	39	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	1/2" NF	PT (F)	1/2" NF	PT (M)		
	46	TAGGING				YES (SEE G	GENERAL NOTES 2)			
	40									
[	36	FLUID	PHYSICAL STATE		INDUSTRIA	IL WATER	LIQ	JID		
SNC	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-	25	-	°C		
JITIC	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0	2.8	-	bar-g		
ONE	39	DESIGN PRESSURE	DESIGN TEMPER	ATURE	4.	5 bar-g	55	℃		
G C	40	VISCOSITY @ OPERATING COM				0.89	) cP			
NL	41	DENSITY @ OPERATING COND	ITION			997.17	7 kg/m³			
OPERATING CONDITIONS	42	SUSPENDED SOLIDS (%)					NOT			
OPi	43	SOLIDIFIES AT ROOM TEMPERA	ATURE		NOT					
	44	M.M. / Z / Cp/Cv			/					
	49	MANUFACTURER					WIKA			
	50	MODEL				23	2.5 (WIKA)			

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









NUMBER: 569-DB7A-AIC-712-006 CLIENT NR: PRD-AIC-DSH-0052

TITLE

# MANOMETER

6 de 30

MA	NC	DMETER						REV.: <b>2</b>	
	1	INSTRUMENT TAG NUMBER				PI	-940049		
ŀ	2	SERVICE					OOLING WATER		
ŀ		P&ID					-M-0-5-42		
٦ŀ		PIPE LINE	EQUIPMENT NUM	/RFR	7A-12"-TWS-9400		-		
¥	-	EQUIPMENT MATERIAL / PIPE	Lacii WENT NON	MBET C	CARBON STEEL ASTM-A106 Gr.B				
GENERAL		AREA CLASSIFICATION			NOT CLASSIFIED				
ا د	_	ENCLOSURE CLASSIFICATION			1		ONF. NBR IEC 60529		
ŀ	8	CERTIFICATES			"	. ,	ERAL NOTES 6)		
ŀ	9	OLK III IOATES				(SLL GLIV	LIVAL NOTES 0)		
+		TYPE OF MEASUREMENT					DIRECT		
ŀ	_	MOUNTING					LOCAL		
ŀ		DIAL DIAMETER					114 mm		
ŀ		SCALE COLOR	BACKGROUND C	OLOB	BLACK		WHI	TE	
ŀ		PRECISION	BACKGROUNDC	OLOK			VAL VALUE "RANGE"		
ŀ					1				
≥  -		MATERIAL CASE RANGE	DESOLUTION		0.000		S POLISHED		
			RESOLUTION		0 @ 6 ba	•	0.1		
INSTRUMENT		RING TYPE	RING MATERIAL	DOLTION	BAYON!		3048		
ያ  -		CONEX. PROCES. / ACESS.	CONNECTION PO		1/2" NPT		BOTT		
ŀ	-	SENSOR TYPE  MATERIAL SOQUETE	MATERIAL SENS		BOURDO		3168		
ŀ			MECHANISM MA	IERIAL	316SS	1	3165	55	
ŀ		BALANCED POINTER	NE 7500			YES			
ŀ		MICROMETRIC ADJUSTMENT C			001/15		YES  GLASS SEG. TRANSP. MIN. 75		
ŀ	_	FRONT TYPE	WINDOWS		SOLIC	)			
4		FILLING	FLUID		YES	NOT	GLYCE	=RIN	
ŀ		SEAL DIAPHRAGM	Innanta anu				REQUIRED		
ŀ		CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REG	(UIRED	
ŀ		SEAL FILLING FLUID				-	REQUIRED		
ŀ		WET PART MATERIAL		JTU	RE		NOT REQUIRED  NOT REQUIRED		
┞	-	CAPILLARY LENGTH							
ŀ		CAPILLARY MATERIAL			l		REQUIRED		
Š -		PULSATION DAMPER					REQUIRED		
5		MATERIAL	IDD00500 00444	TOTION.	NOT DECL		REQUIRED	N. 11050	
ACCESSORIES		CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REG	RUIRED	
3	_	SIPHON TUBE					REQUIRED		
<b>`</b>		MATERIAL	Innocess co				REQUIRED		
ŀ		CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REG	(UIRED	
ŀ		OVERPRESSURE PROTECTOR					REQUIRED		
ŀ		MATERIAL	Innoces	TOTION.	NOT 555		REQUIRED		
ŀ	_	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REG	(UIRED	
ŀ	46	TAGGING				YES (SEE GI	ENERAL NOTES 2)		
4	40	E1.110	DUNGO 11 07:-		INIE COTEC	IA/ATES	,	""	
		FLUID	PHYSICAL STATE	1	INDUSTRIAL		LIQU		
<u> </u>	-	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	31.5		°C	
<u> </u>		MINIMUM PRESSURE	NORMAL	MAXIMUM		2.5		bar-g	
ξ		DESIGN PRESSURE	DESIGN TEMPER	KATURE	4.6	bar-g	67	~C	
ğ L	40	VISCOSITY @ OPERATING CON					cP		
<u> </u>		DENSITY @ OPERATING COND	ITION			995.3	kg/m³		
OPERATING CONDITIONS		SUSPENDED SOLIDS (%)			NOT				
5	43	SOLIDIFIES AT ROOM TEMPER	ATURE		NOT				
4	44	M.M. /Z/Cp/Cv				/	/ /		
ŀ		MANUFACTURER					WIKA		
	50	MODEL				232	.5 (WIKA)		

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

7 de 30 REV.:

1	MA	ANC	OMETER						7 de 30 REV.: <b>2</b>	
PARID   TA-M-0-6-42		1	INSTRUMENT TAG NUMBER				Pi	I-940050		
Pipe Line			SERVICE				P-C-7A-2 C	OOLING WATER		
		3	P&ID				7A-	-M-0-5-42		
PROCESSIFICATION   PROCESS   PROVIDED	47	4	PIPE LINE	EQUIPMENT NUI	MBER	7A-12"-TWS-940	0050-CS1-NI	-		
PROCESSIFICATION   PROCESS   PROVIDED	IER,	5	EQUIPMENT MATERIAL / PIPE				CARBON STE	EL ASTM-A106 Gr.B		
PROCESSIFICATION   PROCESS   PROVIDED	3EN	6	AREA CLASSIFICATION				NOT	CLASSIFIED		
10   TYPE OF MEASUREMENT		7	ENCLOSURE CLASSIFICATION				IP 65 (MÍN.) C	ONF. NBR IEC 60529		
10   TYPE OF MEASUREMENT		8	CERTIFICATES				(SEE GEN	IERAL NOTES 6)		
MOUNTING		9						,		
13   SCALE COLOR		10	TYPE OF MEASUREMENT				Ε	DIRECT		
13   SCALE COLOR   BACKGROUND COLOR   BLACK   WHITE		11	MOUNTING				I	LOCAL		
MATERIAL CASE		12	DIAL DIAMETER					114 mm		
MATERIAL CASE   304SS POLISHED   0.1		$\vdash$		BACKGROUND (	COLOR	BLAC		r	TE	
Table		14	PRECISION	1			1% OF THE FII	I VAL VALUE "RANGE'	,	
16   RANGE	١. ا	15	MATERIAL CASE				304\$\$	S POLISHED		
19   SENSIN TYPE	EN1	16	RANGE	RESOLUTION		0 @ 6 b	ar-q	0.1		
19   SENSIN TYPE	S	17	RING TYPE	RING MATERIAL		BAYON	IET	3045	SS	
19   SENSIN TYPE	STR	18	CONEX. PROCES. / ACESS.	CONNECTION P	OSITION	1/2" NP7	Г (M)	ВОТТ	ОМ	
21   BALANCED POINTER   YES   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN   TYPE   WINDOWS   SOLID   GLASS SEG. TRANSP. MIN. 75%   24   FILLING   FILLID   YES   GLYCERIN   NOT REQUIRED   NOT REQU	×	19	SENSOR TYPE	MATERIAL SENS	SOR	BOURD	OON	3165	SS	
21   BALANCED POINTER   YES   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN   TYPE   WINDOWS   SOLID   GLASS SEG. TRANSP. MIN. 75%   24   FILLING   FILLID   YES   GLYCERIN   NOT REQUIRED   NOT REQU		20	MATERIAL SOQUETE	MECHANISM MA	TERIAL	316S	S	3165	SS	
22   MICROMETRIC ADJUSTMENT OF ZERO   YES   3   FRONT TYPE   WINDOWS   SOLID   GLASS SEG. TRANSP. MIN. 75%     24   FILLING   FLUID   YES   GLYCERIN     25   SEAL DIAPHRAGM   NOT REQUIRED   NOT REQUIRED     26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED     27   SEAL FILLING FLUID   NOT REQUIRED   NOT REQUIRED     28   WET PART MATERIAL   NOT REQUIRED     30   CAPILLARY LENGTH   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   MATERIAL   NOT REQUIRED     33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   MATERIAL   NOT REQUIRED     36   MATERIAL   NOT REQUIRED   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     40   NOT REQUIRED   NOT REQUIRED     50   MATERIAL   NOT REQUIRED   NOT REQUIRED     5								YES		
			MICROMETRIC ADJUSTMENT (	OF ZERO				YES		
24   FILLING				1		SOLI	D	GLASS SEG. TRA	NSP. MIN. 75%	
25   SEAL DIAPHRAGM		_		FLUID						
26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED     27   SEAL FILLING FLUID   NOT REQUIRED   NOT REQUIRED     28   WET PART MATERIAL   NOT REQUIRED     30   CAPILLARY LENGTH   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   MATERIAL   NOT REQUIRED     33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   MATERIAL   NOT REQUIRED     30   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   MATERIAL   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   MATERIAL   NOT REQUIRED     36   AMATERIAL   NOT REQUIRED     37   MINIMUM INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED     40   AMATERIAL   NOT REQUIRED   NOT REQUIRED     40   AMAILY AND			SEAL DIAPHRAGM				NOT	REQUIRED		
27   SEAL FILLING FLUID		_		PROCESS CONN	IECTION	NOT REQ	UIRED	NOT REG	QUIRED	
28   WET PART MATERIAL		_	SEAL FILLING FLUID				NOT	REQUIRED		
30   CAPILLARY MATERIAL   NOT REQUIRED		28					NOT	REQUIRED		
1		29	CAPILLARY LENGTH		NOT	REQUIRED				
32   MATERIAL   NOT REQUIRED   NOT REQUIRED		30	CAPILLARY MATERIAL			NOT REQUIRED				
32   MATERIAL   NOT REQUIRED   NOT REQUIRED	S	31	PULSATION DAMPER			NOT REQUIRED				
35   MATERIAL   NOT REQUIRED   NOT REQUIRED	RIE	32	MATERIAL			NOT REQUIRED				
35   MATERIAL   NOT REQUIRED   NOT REQUIRED	SSO	33	CONNECTION INSTRUMENT	PROCESS CONN	IECTION	NOT REQ	UIRED	NOT REG	QUIRED	
35   MATERIAL   NOT REQUIRED   NOT REQUIRED	CES	34	SIPHON TUBE				NOT	REQUIRED		
36   CONNECTION INSTRUMENT		35	MATERIAL				NOT	REQUIRED		
38   MATERIAL   NOT REQUIRED   NOT REQUIRED		36	CONNECTION INSTRUMENT	PROCESS CONN	IECTION	NOT REQ		1	QUIRED	
39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED		37	OVERPRESSURE PROTECTOR	?			NOT	REQUIRED		
TAGGING   YES (SEE GENERAL NOTES 2)   40		38	MATERIAL				NOT	REQUIRED		
40   36   FLUID   PHYSICAL STATE   INDUSTRIAL WATER   LIQUID		39	CONNECTION INSTRUMENT	PROCESS CONN	IECTION	NOT REQ	UIRED	NOT REG	QUIRED	
36   FLUID   PHYSICAL STATE   INDUSTRIAL WATER   LIQUID		46	TAGGING				YES (SEE G	ENERAL NOTES 2)		
37   MINIMUM TEMPERATURE   NORMAL   MAXIMUM		40								
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA		36	FLUID	PHYSICAL STAT	E	INDUSTRIAL	. WATER	LIQU	IID	
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	SNO	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	31.5		°C	
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	ITIC	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2.5		bar-g	
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	JNC	39	DESIGN PRESSURE	DESIGN TEMPER	RATURE	4.6	bar-g	67	°C	
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	30	40	VISCOSITY @ OPERATING CO	NDITION				сР		
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	MI	41	DENSITY @ OPERATING COND	DITION			995.3	kg/m³		
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	RA	42	SUSPENDED SOLIDS (%)							
44       M.M. / Z / Cp/Cv       /         49       MANUFACTURER       WIKA	OPE	43	SOLIDIFIES AT ROOM TEMPER	PATURE				NOT		
		44	M.M. /Z/Cp/Cv			/				
50 MODEL 232.5 (WIKA)		49	MANUFACTURER					WIKA		
		50	MODEL				232	7.5 (WIKA)		

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









PRD-AIC-DSH-0052 569-DB7A-AIC-712-006 CLIENT NR: NUMBER:

TITLE

SHEET:

8 de 30 REV.:

MANOMETER

,								2	
	1	INSTRUMENT TAG NUMBER				Pi	I-940051		
	2	SERVICE				P-C-7A-1 C	COOLING WATER		
	3	P&ID					-M-0-5-42		
7	4	PIPE LINE	EQUIPMENT NU	JMBER	7A-12"-TWS-940				
ER/	5	EQUIPMENT MATERIAL / PIPE			CARBON STEEL ASTM-A106 Gr.B				
GENERAL	_	AREA CLASSIFICATION			NOT CLASSIFIED				
0		ENCLOSURE CLASSIFICATION					ONF. NBR IEC 60529	)	
	8	CERTIFICATES				. , ,	IERAL NOTES 6)	<u> </u>	
	9	OLIVIII IOATEO				(OLL OLIV	ETAL NOTES Of		
	_	TYPE OF MEASUREMENT				Γ	DIRECT		
		MOUNTING					LOCAL		
		DIAL DIAMETER					114 mm		
	_	SCALE COLOR	BACKGROUND	COLOR	BLAC		WH	ITE	
	_	PRECISION	BACKGKOOND	COLOR			VAL VALUE "RANGE		
		MATERIAL CASE					S POLISHED		
N			DESOLUTION		0.00.6			4	
INSTRUMENT		RANGE	RESOLUTION	,	0 @ 6 b		0.		
TRL		RING TYPE	RING MATERIAL		BAYON		304		
INS		CONEX. PROCES. / ACESS.	CONNECTION F		1/2" NPT	* *	BOT		
	_	SENSOR TYPE	MATERIAL SEN		BOURD		316		
		MATERIAL SOQUETE	MECHANISM MA	ATERIAL	316S	S	316	SS	
		BALANCED POINTER					YES		
		MICROMETRIC ADJUSTMENT (	T			_	YES  GLASS SEG. TRANSP. MIN. 75%		
		FRONT TYPE	WINDOWS						
	_	FILLING	FLUID		YES		GLYC	ERIN	
	_	SEAL DIAPHRAGM					REQUIRED		
		CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ		NOT RE	QUIRED	
	27	SEAL FILLING FLUID		NOT	REQUIRED				
	28	WET PART MATERIAL				NOT	REQUIRED		
	29	CAPILLARY LENGTH				NOT	REQUIRED		
	30	CAPILLARY MATERIAL				NOT	REQUIRED		
S	31	PULSATION DAMPER				NOT	REQUIRED		
<b>ACCESSORIES</b>	32	MATERIAL				NOT	REQUIRED		
SS(	33	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ	JIRED	NOT RE	QUIRED	
SC	34	SIPHON TUBE				NOT	REQUIRED		
Ä		MATERIAL				NOT	REQUIRED		
	36	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ	JIRED	NOT RE	QUIRED	
	37	OVERPRESSURE PROTECTOR				NOT	REQUIRED		
	38	MATERIAL				NOT	REQUIRED		
	39	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ	JIRED	NOT RE	QUIRED	
	46	TAGGING				YES (SEE G	ENERAL NOTES 2)		
	40								
	36	FLUID	PHYSICAL STAT	TE	INDUSTRIAL	WATER	LIQ	UID	
SNC	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	31.5		°C	
OPERATING CONDITIONS	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2.5		bar-g	
JNC	39	DESIGN PRESSURE	DESIGN TEMPE	RATURE	4.6	bar-g	67	°C	
3 CC	40	VISCOSITY @ OPERATING CO	NDITION				cР		
ZIN	41	DENSITY @ OPERATING COND	DITION			995.3	kg/m³		
RA	42	SUSPENDED SOLIDS (%)					NOT		
OPE	43	SOLIDIFIES AT ROOM TEMPER	ATURE				NOT		
_	44	M.M. / Z / Cp/Cv			/				
	49	MANUFACTURER					WIKA		
	50	MODEL				232	2.5 (WIKA)		
		•			•				

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

9 de 30 REV.:

MANOMETER

IVI <i>P</i>	ANC	DMETER						2 REV.:	
	1	INSTRUMENT TAG NUMBER				PI:	-960001		
	2	SERVICE			CHILLED WATE		BUILDING 7A MAMO	OUNT P-CH-7A-4	
	3	P&ID			022232		M-0-5-44		
۲,	4	PIPE LINE	EQUIPMENT NUN	MBER	7A-10"-CW1S-9			-	
ER/	5	EQUIPMENT MATERIAL / PIPE		··	CARBON STEEL ASTM-A106 Gr.B				
GENERAL	6	AREA CLASSIFICATION			NOT CLASSIFIED				
"	7	ENCLOSURE CLASSIFICATION			,,		ONF. NBR IEC 6052	9	
	8	CERTIFICATES				, ,	ERAL NOTES 6)		
	9	02.11.11.01.11.20				(022 02/11			
	_	TYPE OF MEASUREMENT				D	IRECT		
		MOUNTING					.OCAL		
		DIAL DIAMETER					14 mm		
	$\vdash$	SCALE COLOR	BACKGROUND C	OLOR	BLACK WHITE				
	_	PRECISION	Brioriorio di	02011			IAL VALUE "RANGE		
		MATERIAL CASE			<u>'</u>		POLISHED	-	
_NΞ	_	RANGE	RESOLUTION		0 @ 1 ba		0.0	01	
INSTRUMENT		RING TYPE	RING MATERIAL		BAYONI			4SS	
TR		CONEX. PROCES. / ACESS.	CONNECTION PO	OSITION	1/2" NPT			TOM	
NS	_	SENSOR TYPE	MATERIAL SENS		BOURDO	, ,		SSS	
	_	MATERIAL SOQUETE	MECHANISM MA		316SS			SSS	
		BALANCED POINTER	M.Z.O. W. W.O.W. W.W.		YES				
		MICROMETRIC ADJUSTMENT C	YES						
		FRONT TYPE	WINDOWS		SOLID	1		ANSP. MIN. 75%	
	_	FILLING	FLUID		YES			CERIN	
		SEAL DIAPHRAGM	I LOID		720	NOT	REQUIRED	)LI (II V	
	_	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU			QUIRED	
		SEAL FILLING FLUID	I NOCESS CONN	LOTION	NOTINEQU		REQUIRED	QUINED	
		WET PART MATERIAL		10000			REQUIRED		
	29	CAPILLARY LENGTH		JRE		OT REQUIRED			
	30	CAPILLARY MATERIAL		JIO			REQUIRED		
<b> </b>		PULSATION DAMPER			l		REQUIRED		
ACCESSORIES		MATERIAL					REQUIRED		
SOF		CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU			QUIRED	
SES	34	SIPHON TUBE					REQUIRED		
ACC		MATERIAL					REQUIRED		
	$\vdash$	CONNECTION INSTRUMENT	PROCESS CONN	FCTION	NOT REQU			QUIRED	
	37	OVERPRESSURE PROTECTOR			112771240		YES	<u> </u>	
		MATERIAL MATERIAL					316SS		
	39	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	1/2"NPT			PT (M)	
	46	TAGGING	1			. ,	ENERAL NOTES 2)	. ,	
	40					1 3-	- · <del>-</del> /		
		FLUID	PHYSICAL STATE		INDUSTRIAL	WATER	LIQ	UID	
NS	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM		5.5		°C	
710	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	,	0.4		bar-g	
NDI	39	DESIGN PRESSURE	DESIGN TEMPER		2.7	bar-g	42.5		
OPERATING CONDITIONS	40	VISCOSITY @ OPERATING CON				~	cP		
ING	41	DENSITY @ OPERATING COND				999.99			
3A T	42	SUSPENDED SOLIDS (%)					NOT		
PE	43	SOLIDIFIES AT ROOM TEMPERA	ATURE				NOT		
0	44	M.M. / Z / Cp/Cv			/				
Н	49	MANUFACTURER					WIKA		
		MODEL					.5 (WIKA)		
$ldsymbol{}$		<u> </u>			I		. /		

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

10 de 30 REV.:

MA	ANC	OMETER						10 de 30 REV.:	
	1	INSTRUMENT TAG NUMBER			T	DI	I-960002	2	
	2	SERVICE			CHILLED WATER				
	3	P&ID			CHILLED WATER - SUPPLY BUILDING 7A DOWNSTREAM P-CH-7A- 7A-M-0-5-44				
	-	PIPE LINE	EQUIPMENT NUM	ADED.	74 9" 014/10 04				
GENERAL	4	EQUIPMENT MATERIAL / PIPE	EQUIPMENT NON	/IDER	7A-8"-CW1S-960004-CS1-CC - CARBON STEEL ASTM-A106 Gr.B				
ENE	5				NOT CLASSIFIED				
G	6	AREA CLASSIFICATION							
	7	ENCLOSURE CLASSIFICATION			<u>'</u>	. ,	ONF. NBR IEC 60529		
	8	CERTIFICATES				(SEE GEN	ERAL NOTES 6)		
	9	TVDE OF MEADUREMENT					VDEOT		
	10	TYPE OF MEASUREMENT					DIRECT		
		MOUNTING					LOCAL		
	$\vdash$	DIAL DIAMETER	1				114 mm		
		SCALE COLOR	BACKGROUND C	OLOR	BLACI		WHI		
		PRECISION			1		VAL VALUE "RANGE"	1	
<b>L</b>	_	MATERIAL CASE					S POLISHED		
INSTRUMENT		RANGE	RESOLUTION		0 @ 4 ba		0.0		
RU		RING TYPE	RING MATERIAL		BAYON		3048		
VS7	-	CONEX. PROCES. / ACESS.	CONNECTION PO	DSITION	1/2" NPT	(M)	ВОТТ	ОМ	
"	19	SENSOR TYPE	MATERIAL SENS	OR	BOURD	ON	3168	SS	
	20	MATERIAL SOQUETE	MECHANISM MAT	TERIAL	316SS	5	3168	SS	
	21	BALANCED POINTER					YES		
	22	MICROMETRIC ADJUSTMENT C	F ZERO				YES		
	23	FRONT TYPE	WINDOWS		SOLIE	)	GLASS SEG. TRA	NSP. MIN. 75%	
	24	FILLING	FLUID		YES		GLYCE	ERIN	
	25	SEAL DIAPHRAGM				NOT	REQUIRED		
	26	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU	IIRED	NOT REG	UIRED	
	27	SEAL FILLING FLUID			<u> </u>	NOT	REQUIRED		
	28	WET PART MATERIAL					REQUIRED		
	29	CAPILLARY LENGTH	-		RH	NOT	REQUIRED		
	30	CAPILLARY MATERIAL				NOT	REQUIRED		
S	31	PULSATION DAMPER				NOT	REQUIRED		
CCESSORIES	32	MATERIAL				NOT	REQUIRED		
SSC	33	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU	IIRED	NOT REG	UIRED	
ČE	34	SIPHON TUBE				NOT	REQUIRED		
AC	35	MATERIAL				NOT	REQUIRED		
	36	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU	IIRED	NOT REG	UIRED	
	37	OVERPRESSURE PROTECTOR				NOT	REQUIRED		
	38	MATERIAL				NOT	REQUIRED		
	39	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU	IIRED	NOT REG	UIRED	
	46	TAGGING	•			YES (SEE GI	ENERAL NOTES 2)		
	40								
	36	FLUID	PHYSICAL STATE		INDUSTRIAL	WATER	LIQU	IID	
SNO	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	5.5		°C	
)LE	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2		bar-g	
OPERATING CONDITIONS	39	DESIGN PRESSURE	DESIGN TEMPER	RATURE	2.7	bar-g	42.5	°C	
300	40	VISCOSITY @ OPERATING CON	NDITION				сР		
INC.	41	DENSITY @ OPERATING COND	ITION			999.99	kg/m³		
RA	42	SUSPENDED SOLIDS (%)					NOT		
JPE	43	SOLIDIFIES AT ROOM TEMPER.	ATURE		NOT				
	44	M.M. / Z / Cp/Cv			/				
П	49	MANUFACTURER			1		WIKA		
	50	MODEL				232	7.5 (WIKA)		
NOT									

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

SHEET:

232.5 (WIKA)

11 de 30 RFV.

### MANOMETER 2 INSTRUMENT TAG NUMBER PI-960006 SERVICE CHILLED WATER - SUPPLY BUILDING 7B MAMOUNT P-CH-7B-6 2 P&ID 7A-M-0-5-44 3 PIPE LINE FOUIPMENT NUMBER 7A-10"-CW1S-960006-CS1-CC 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm SCALE COLOR BACKGROUND COLOR WHITE 13 BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 MATERIAL CASE 304SS POLISHED 15 **NSTRUMENT** RESOLUTION 16 **RANGE** 0 @ 6 bar-g 0.1 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOCIETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID GLYCERIN 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED SEAL FILLING FLUID NOT REQUIRED 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 CAPILLARY MATERIAL NOT REQUIRED 30 NOT REQUIRED **PULSATION DAMPER** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR **NOT REQUIRED** 37 NOT REQUIRED MATERIAL 38 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 39 **TAGGING** YES (SEE GENERAL NOTES 2) 40 PHYSICAL STATE INDUSTRIAL WATER FLUID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 2.7 bar-g 42.5 °C VISCOSITY @ OPERATING CONDITION 40 сP DENSITY @ OPERATING CONDITION 41 999.99 kg/m³ 42 SUSPENDED SOLIDS (%) NOT SOLIDIFIES AT ROOM TEMPERATURE 43 NOT M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA

### NOTES

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TITLE

12 de 30 REV.:

MA	NC	OMETER						12 de 30 REV.:	
	1	INSTRUMENT TAG NUMBER			T	DI	-960007	2	
	2	SERVICE			CHILLED WATER			DEAM D CU 7D 6	
	3	P&ID			CHILLED WATER - SUPPLY BUILDING 7B DOWNSTREAM P-CH-7B- 7A-M-0-5-44				
]	_	PIPE LINE	EQUIPMENT NUM	ADED.	7A-10"-CW1S-9				
GENERAL	4	EQUIPMENT MATERIAL / PIPE	EQUIPMENT NON	IIDER				-	
ENE	5				CARBON STEEL ASTM-A106 Gr.B  NOT CLASSIFIED				
G	6	AREA CLASSIFICATION							
	7	ENCLOSURE CLASSIFICATION			'	. ,	ONF. NBR IEC 60529		
	8	CERTIFICATES				(SEE GEN	ERAL NOTES 6)		
-	9	TVDE OF MEAGUDEMENT					NDEOT.		
	٠.	TYPE OF MEASUREMENT					DIRECT		
		MOUNTING					LOCAL		
	$\vdash$	DIAL DIAMETER	DAOKODOLIND O	201.00	DLAG		14 mm	TC	
		SCALE COLOR	BACKGROUND C	OLOR	BLACI		WHI		
		PRECISION			7		NAL VALUE "RANGE"	•	
N	_	MATERIAL CASE	DESCULTION		0.00.6		S POLISHED	,	
INSTRUMENT		RANGE	RESOLUTION		0 @ 6 ba		0.1		
TRL		RING TYPE  CONEX. PROCES. / ACESS.	RING MATERIAL	NOITION	BAYON		3043		
INS	-		CONNECTION PO		1/2" NPT	1 /	BOTT		
	_	SENSOR TYPE	MATERIAL SENS		BOURD		316		
	F-	MATERIAL SOQUETE	MECHANISM MAT	IERIAL	316SS	S	3163	55	
		BALANCED POINTER	5.7500				YES		
		MICROMETRIC ADJUSTMENT C			2011		YES TO	NOD 1411 750/	
		FRONT TYPE	WINDOWS		SOLIL	)	GLASS SEG. TRA		
		FILLING	FLUID		YES	NOT	GLYCI	=RIN	
	_	SEAL DIAPHRAGM	Innocros cour	FOTION	NOTES		REQUIRED		
	_	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REC	QUIRED	
		SEAL FILLING FLUID WET PART MATERIAL					REQUIRED REQUIRED		
		CAPILLARY LENGTH	$\square$		OT REQUIRED				
	29	CAPILLARY LENGTH  CAPILLARY MATERIAL	JTU			REQUIRED			
	30	PULSATION DAMPER	NOT REQUIRED						
CCESSORIES		MATERIAL					REQUIRED		
SOF	33	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REG	UIIRED	
ES	34	SIPHON TUBE	I NOCESS CONN	LOTION	NOTINEGO		REQUIRED	ROINED	
ACC		MATERIAL MATERIAL					REQUIRED		
`	36	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU		NOT REG	UIIRED	
	37	OVERPRESSURE PROTECTOR		LOTION	NOTHERE		REQUIRED	*OINED	
		MATERIAL					REQUIRED		
	39	CONNECTION INSTRUMENT	PROCESS CONN	FCTION	NOT REQU		NOT REG	OUIRED	
	46	TAGGING	1				ENERAL NOTES 2)	(022	
	40	77.00.110				720 (022 01			
$\vdash$		FLUID	PHYSICAL STATE	=	INDUSTRIAL	WATER	LIQU	IID	
S	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM		5.5		℃	
101	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	,	2		bar-g	
ND.	39	DESIGN PRESSURE	DESIGN TEMPER	1	2.7	bar-g	42.5		
OPERATING CONDITIONS	40	VISCOSITY @ OPERATING CON			<del></del>	J	cP		
N/G	41	DENSITY @ OPERATING COND				999.99			
34 T	42	SUSPENDED SOLIDS (%)	-		<del> </del>		NOT		
PEF	43	SOLIDIFIES AT ROOM TEMPER	ATURE		NOT				
$ ^{\circ} $	-	M.M. / Z / Cp/Cv			/				
Н		MANUFACTURER			<del> </del>		WIKA		
	50	MODEL					.5 (WIKA)		
	Š	50   MODEL 232.5 (WIVA)							

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

MANOMETER

SHEET:

.... / ..... / ......

WIKA

232.5 (WIKA)

13 de 30 RFV·

2

### INSTRUMENT TAG NUMBER PI-960030 SERVICE CHILLED WATER - RETURN BUILDING 7A/B MAMOUNT P-CH-7A-1 2 P&ID 7A-M-0-5-43 3 PIPE LINE **EQUIPMENT NUMBER** 7A-10"-CW1R-960030-CS1-CC 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm SCALE COLOR BACKGROUND COLOR WHITE 13 BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 MATERIAL CASE 304SS POLISHED 15 **NSTRUMENT** RESOLUTION 16 **RANGE** 0 @ 1 bar-g 0.01 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOCIETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID GLYCERIN 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED SEAL FILLING FLUID NOT REQUIRED 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 30 CAPILLARY MATERIAL NOT REQUIRED **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR YES 37 MATERIAL 316SS 38 CONNECTION INSTRUMENT PROCESS CONNECTION 1/2"NPT (F) 1/2"NPT (M) 39 **TAGGING** YES (SEE GENERAL NOTES 2) 46 40 PHYSICAL STATE INDUSTRIAL WATER FLUID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.4 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 4.2 bar-g 42.5 °C VISCOSITY @ OPERATING CONDITION 40 сP 999.99 kg/m³ DENSITY @ OPERATING CONDITION 41 42 SUSPENDED SOLIDS (%) NOT SOLIDIFIES AT ROOM TEMPERATURE 43 NOT

NOTES

44

50

M.M. /Z/Cp/Cv

MODEL

MANUFACTURER

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

14 de 30 REV.:

Told   STRUMENT TAG NUMBER   COMMENT NUMBER   COMMENT NUMBER   COMMENT NUMBER   COMMENT NUMBER   TA-10°-CWR-960694-CS1+CC   C-	MA	NC	OMETER						14 de 30 REV.: <b>2</b>		
SERVICE   CHILLED WATER - RETURN BUILDING 7AB MANGUNT P-CH-7A-2		1	INSTRUMENT TAG NUMBER			1	Pi	I-960040			
Page						CHILLED WATE			OLINT P-CH-7A-2		
4   PIPE LINE											
CARBON STEEL ASTM-A106 Gr. B	7			FQUIPMENT NUM	//BFR						
Post   Sulfu   Course   Consideration   Post   Sulfu   Course   Consideration   Post   Sulfu   Course   Consideration   Post   Sulfu   Course   Course   Post   P	ER/										
Post   Sulfu   Course   Consideration   Post   Sulfu   Course   Consideration   Post   Sulfu   Course   Consideration   Post   Sulfu   Course   Course   Post   P	EN										
SEE GENERAL NOTES 6	٥								)		
9   10   TYPE OF MEASUREMENT		-					· , ,		,		
10   TYPE OF MEASUREMENT			OLIVIII IOATES				(OLL OLIV	LIVAL NOTES 0)			
11   MOUNTING	H		TYPE OF MEASUREMENT				Γ	DIRECT			
12 DIAL DIAMETER											
13   SCALE COLOR   BACKGROUND COLOR   BLACK   WHITE											
A   PRECISION				BACKGROUND C	COLOR	BI AC		r	ITF		
15   MATERIAL CASE				BACKGROOND C	702071						
Table											
19   SENSON I YPE	IN7			RESOLUTION		0 @ 1 h		ı	)1		
19   SENSON I YPE	JME										
19   SENSON I YPE	TR				OSITION						
20   MATERIAL SOQUETE   MECHANISM MATERIAL   316SS   316SS   316SS   21   34LANCED POINTER   YES   22   MICROMETRIC ADJUSTMENT OF ZERO   YES   32   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN   YES   GLYCERIN   MINDOWS   SOLID   GLASS SEG. TRANSP. MINI. 75%   FILLING   FILLID   YES   GLYCERIN   MOT REQUIRED   NOT	INS	_		<b>_</b>			• •				
27   BALANCED POINTER   YES     28   MICROMETRIC ADJUSTMENT OF ZERO											
22   MICROMETRIC ADJUSTMENT OF ZERO				INLOTATION WA	TENAL	3100		<u> </u>			
23   FRONT TYPE				DE ZERO							
24   FILLING						SOLI	n	1	ANSP MINI 75%		
25   SEAL DIAPHRAGM											
26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED				I LOID		720			LIMIV		
27   SEAL FILLING FLUID   NOT REQUIRED				PROCESS COMM	IECTION	NOT REO			OURED		
28   WET PART MATERIAL   NOT REQUIRED				I KOOLOO OOM	2011014	NOTILE		<u> </u>	QUINED.		
29   CAPILLARY LENGTH											
30   CAPILLARY MATERIAL   NOT REQUIRED											
31   PULSATION DAMPER   NOT REQUIRED											
WATERIAL   NOT REQUIRED   NOT REQUIRED	,										
35   MATERIAL   NOT REQUIRED   NOT REQUIRED	SIES										
35   MATERIAL   NOT REQUIRED   NOT REQUIRED	SOF	_		PROCESS CONN	IECTION	NOT REQ		r	QUIRED		
35   MATERIAL   NOT REQUIRED   NOT REQUIRED	SES			1							
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED											
37   OVERPRESSURE PROTECTOR   YES   38   MATERIAL   316SS   39   CONNECTION   INSTRUMENT   PROCESS CONNECTION   1/2"NPT (F)   1/2"NPT (M)   46   TAGGING   YES (SEE GENERAL NOTES 2)   40		-		PROCESS CONN	IECTION	NOT REQ		r	QUIRED		
38   MATERIAL   316SS   39   CONNECTION INSTRUMENT   PROCESS CONNECTION   1/2"NPT (F)   1/2"NPT (M)   46   TAGGING   YES (SEE GENERAL NOTES 2)   40		37	OVERPRESSURE PROTECTOR	!				YES			
39   CONNECTION INSTRUMENT   PROCESS CONNECTION   1/2"NPT (F)   1/2"NPT (M)								316SS			
40   36   FLUID   PHYSICAL STATE   INDUSTRIAL WATER   LIQUID		39	CONNECTION INSTRUMENT	PROCESS CONN	IECTION	1/2"NP7	(F)	1/2"NF	PT (M)		
36   FLUID   PHYSICAL STATE   INDUSTRIAL WATER   LIQUID		46	TAGGING	1			YES (SEE G	ENERAL NOTES 2)			
STATE   STAT		40					· ·				
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA		36	FLUID	PHYSICAL STATE	Ξ	INDUSTRIAL	WATER	LIQ	UID		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	NS	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	12.5		°C		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	01T	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		0.4		bar-g		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	JND	39	DESIGN PRESSURE	DESIGN TEMPER	RATURE	4.2	bar-g	42.5	℃		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	CC	40	VISCOSITY @ OPERATING COI	NDITION							
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	ING	41	DENSITY @ OPERATING COND	DITION			999.99	kg/m³			
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	RA i	42	42 SUSPENDED SOLIDS (%)					NOT			
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA	3PE	43	SOLIDIFIES AT ROOM TEMPER								
	$\lceil$						/				
50 MODEL 232.5 (WIKA)		49	MANUFACTURER					WIKA			
		50	MODEL				232	.5 (WIKA)			

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

15 de 30 REV.:

1   INSTRUMENT TAG NUMBER   PI-960050     2   SERVICE   CHILLED WATER - RETURN BUILDING TAB     3   P&ID   TA-M-0-5-43     4   PIPE LINE   EQUIPMENT NUMBER   TA-10"-CW1R-960050-CS1-CC     5   EQUIPMENT MATERIAL / PIPE   CARBON STEEL ASTM-A-10     6   AREA CLASSIFICATION   NOT CLASSIFIED     7   ENCLOSURE CLASSIFICATION   IP 65 (MÍN.) CONF. NBR IE     8   CERTIFICATES   (SEE GENERAL NOTE     9	- 106 Gr.B D EC 60529			
2   SERVICE   CHILLED WATER - RETURN BUILDING 7A/B   3   P&ID   TA-M-0-5-43     4   PIPE LINE   EQUIPMENT NUMBER   TA-10"-CW1R-960050-CS1-CC     5   EQUIPMENT MATERIAL / PIPE   CARBON STEEL ASTM-A:   6   AREA CLASSIFICATION   NOT CLASSIFIED   7   ENCLOSURE CLASSIFICATION   IP 65 (MÍN.) CONF. NBR IE   8   CERTIFICATES   (SEE GENERAL NOTE   9     10   TYPE OF MEASUREMENT   DIRECT   11   MOUNTING   LOCAL   12   DIAL DIAMETER   114 mm   13   SCALE COLOR   BACKGROUND COLOR   BLACK     14   PRECISION   1% OF THE FINAL VALUE     15   MATERIAL CASE   304SS POLISHED	- 106 Gr.B D EC 60529			
3   P&ID	- 106 Gr.B D EC 60529			
4	EC 60529			
5   EQUIPMENT MATERIAL / PIPE   CARBON STEEL ASTM-A:     6   AREA CLASSIFICATION   NOT CLASSIFIED     7   ENCLOSURE CLASSIFICATION   IP 65 (MÍN.) CONF. NBR IE     8   CERTIFICATES   (SEE GENERAL NOTE     9	EC 60529			
7         ENCLOSURE CLASSIFICATION         IP 65 (MÍN.) CONF. NBR IE           8         CERTIFICATES         (SEE GENERAL NOTE           9         10         TYPE OF MEASUREMENT         DIRECT           11         MOUNTING         LOCAL           12         DIAL DIAMETER         114 mm           13         SCALE COLOR         BACKGROUND COLOR         BLACK           14         PRECISION         1% OF THE FINAL VALUE           15         MATERIAL CASE         304SS POLISHED	EC 60529			
7         ENCLOSURE CLASSIFICATION         IP 65 (MÍN.) CONF. NBR IE           8         CERTIFICATES         (SEE GENERAL NOTE           9         10         TYPE OF MEASUREMENT         DIRECT           11         MOUNTING         LOCAL           12         DIAL DIAMETER         114 mm           13         SCALE COLOR         BACKGROUND COLOR         BLACK           14         PRECISION         1% OF THE FINAL VALUE           15         MATERIAL CASE         304SS POLISHED	EC 60529			
8         CERTIFICATES         (SEE GENERAL NOTE)           9         10         TYPE OF MEASUREMENT         DIRECT           11         MOUNTING         LOCAL           12         DIAL DIAMETER         114 mm           13         SCALE COLOR         BACKGROUND COLOR         BLACK           14         PRECISION         1% OF THE FINAL VALUE           15         MATERIAL CASE         304SS POLISHED				
9	ES 6)			
10   TYPE OF MEASUREMENT				
11   MOUNTING   LOCAL     12   DIAL DIAMETER     114 mm       13   SCALE COLOR   BACKGROUND COLOR   BLACK     14   PRECISION   1% OF THE FINAL VALUE   15   MATERIAL CASE   304SS POLISHED				
12         DIAL DIAMETER         114 mm           13         SCALE COLOR         BACKGROUND COLOR         BLACK           14         PRECISION         1% OF THE FINAL VALUE           15         MATERIAL CASE         304SS POLISHED				
13         SCALE COLOR         BACKGROUND COLOR         BLACK           14         PRECISION         1% OF THE FINAL VALUE           15         MATERIAL CASE         304SS POLISHED				
14 PRECISION 1% OF THE FINAL VALUE 15 MATERIAL CASE 304SS POLISHED				
, 15 MATERIAL CASE 304SS POLISHED	WHITE			
15   MATERIAL CASE   304SS POLISHED				
16 RANGE RESOLUTION 0 @ 4 bar-g 17 RING TYPE RING MATERIAL BAYONET 18 CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M)	0.05			
TO RING TYPE RING MATERIAL BAYONET	304SS			
18 CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M)	ВОТТОМ			
19 SENSOR TYPE MATERIAL SENSOR BOURDON	316SS			
20 MATERIAL SOQUETE MECHANISM MATERIAL 316SS	316SS			
21 BALANCED POINTER YES	YES			
22 MICROMETRIC ADJUSTMENT OF ZERO YES				
	SEG. TRANSP. MIN. 75%			
24 FILLING FLUID YES	GLYCERIN			
25 SEAL DIAPHRAGM NOT REQUIRED				
26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED	NOT REQUIRED			
27 SEAL FILLING FLUID NOT REQUIRED				
28 WET PART MATERIAL NOT REQUIRED				
29 CAPILLARY LENGTH NOT REQUIRED				
30 CAPILLARY MATERIAL NOT REQUIRED				
31 PULSATION DAMPER NOT REQUIRED				
32 MATERIAL NOT REQUIRED 33 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED NOT REQUIRED NOT REQUIRED NOT REQUIRED				
33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED	NOT REQUIRED			
34 SIPHON TUBE NOT REQUIRED				
35   MATERIAL   NOT REQUIRED				
36 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED	NOT REQUIRED			
37 OVERPRESSURE PROTECTOR NOT REQUIRED				
38 MATERIAL NOT REQUIRED				
39 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED	NOT REQUIRED			
46 TAGGING YES (SEE GENERAL NO	)TES 2)			
40				
	LIQUID			
36 FLUID PHYSICAL STATE INDUSTRIAL WATER	°C			
	bar-g			
	Dai-y			
	42.5 °C			
37   MINIMUM TEMPERATURE   NORMAL   MAXIMUM				
37   MINIMUM TEMPERATURE   NORMAL   MAXIMUM				

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









PRD-AIC-DSH-0052 569-DB7A-AIC-712-006 CLIENT NR: NUMBER:

TITLE

MANOMETER

SHEET:

16 de 30 REV.:

		AI V C	DIVIE I ER						2		
SERVICE   CHILLED WATER - RETURN BUILDING TABLO DOWNSTREAM P-CH-70   3 PALD   TA-440-943     4 PPE LINE   EQUIPMENT NUMBER   TA-10'-CWIR 96008-CS+C-C   1 -		1	INSTRUMENT TAG NUMBER								
3   PAID						CHILLED WATER			TREAM P-CH-7A-2		
						OFFICED WITTER			THE THE THE		
5   EQUIPMENT MATERIAL / PIPE	7	_		7Δ-10"-CW1R-							
Foundament   Process   P	∃RA	_									
Foundament   Process   P	ENF								'		
SECRIFICATES   (SEE GENERAL NOTES 6)	O	_							<u> </u>		
9   10   TYPE OF MEASUREMENT							. ,		,		
10   TYPE OF MEASUREMENT		_	CERTIFICATES				(SEE GEINE	ERAL NOTES 6)			
11   MOUNTING		_	TVDE OF MEASUREMENT					IDECT			
12   DIAL DIAMETER   SCALE COLOR   BACKGROUND COLOR   BLACK   WHITE		_									
13   SCALE COLOR   BACKGROUND COLOR   BLACK   WHITE		<u> </u>									
14   PRECISION				In a composition of	201.00	B) 40	r		ıTC		
15   MATERIAL CASE   304SS POLISHED   0.05   Abarg   0.05		_		BACKGROUND C	COLOR						
10   RANGE   RESOLUTION   0 @ 4 bar-g   0.05											
19   SENSUT PIPE   MATERIAL SENSUR   BUUNDUN   316SS	۲>			1							
19   SENSUT PIPE   MATERIAL SENSUR   BUUNDUN   316SS	ME					0 @ 4 b	ar-g				
19   SENSUT PIPE   MATERIAL SENSUR   BUUNDUN   316SS	RUI			RING MATERIAL				304	SS		
19   SENSUT PIPE   MATERIAL SENSUR   BUUNDUN   316SS	VS7	18	CONEX. PROCES. / ACESS.	CONNECTION P	OSITION	1/2" NP1	「(M)	ВОТ	ТОМ		
21 BALANCED POINTER   YES   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN	"	19	SENSOR TYPE	MATERIAL SENS	SOR	BOURD	OON	316	SS		
22   MICROMETRIC ADJUSTMENT OF ZERO   YES   23   FRONT TYPE   WINDOWS   SOLID   GLASS SEG. TRANSP. MIN. 75%     24   FILLING		20	MATERIAL SOQUETE	MECHANISM MA	TERIAL	316S	S	316	SS		
23   FRONT TYPE		21	BALANCED POINTER		YES						
24   FILLING				YES							
25   SEAL DIAPHRAGM		23	FRONT TYPE	WINDOWS		SOLI	D	GLASS SEG. TR.	ANSP. MIN. 75%		
26   CONNECTION INSTRUMENT		24	FILLING	YES	YES GLYCERIN						
27   SEAL FILLING FLUID   NOT REQUIRED		25	SEAL DIAPHRAGM		NOT F	REQUIRED					
28   WET PART MATERIAL   NOT REQUIRED		26	CONNECTION INSTRUMENT	NOT REQ	<i>JIRED</i>	NOT RE	QUIRED				
29   CAPILLARY LENGTH   NOT REQUIRED		27	SEAL FILLING FLUID		NOT F	REQUIRED					
30   CAPILLARY MATERIAL   NOT REQUIRED		28	WET PART MATERIAL				NOT F	REQUIRED			
STATE   STAT		29	CAPILLARY LENGTH				NOT F	REQUIRED			
32   MATERIAL   NOT REQUIRED   NOT REQUIRED		30	CAPILLARY MATERIAL								
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	ည္သ	31	PULSATION DAMPER								
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	RIE	32	MATERIAL				NOT F	REQUIRED			
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	SSC	33	CONNECTION INSTRUMENT	PROCESS CONN	NECTION	NOT REQ					
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	CE	34	SIPHON TUBE	_			NOT REQUIRED				
37    OVERPRESSURE PROTECTOR   NOT REQUIRED	AC	35	MATERIAL			NOT REQUIRED					
38   MATERIAL   NOT REQUIRED   NOT REQUIRED		36	CONNECTION INSTRUMENT	PROCESS CONN	NECTION	NOT REQUIRED NOT REQUIRED			QUIRED		
39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED		37	OVERPRESSURE PROTECTOR	?		NOT REQUIRED					
A6 TAGGING   YES (SEE GENERAL NOTES 2)		38	MATERIAL			NOT REQUIRED					
40     36   FLUID   PHYSICAL STATE   INDUSTRIAL WATER   LIQUID     37   MINIMUM TEMPERATURE   NORMAL   MAXIMUM		39	CONNECTION INSTRUMENT	PROCESS CONN	NECTION	NOT REQU	NOT REQUIRED NOT REQUIRED				
36   FLUID   PHYSICAL STATE   INDUSTRIAL WATER   LIQUID		46	TAGGING				YES (SEE GE	NERAL NOTES 2)			
37   MINIMUM TEMPERATURE   NORMAL   MAXIMUM	L	40									
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)		36	FLUID	PHYSICAL STAT	E	INDUSTRIAL	WATER	LIQ	UID		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	SNC	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	12.5		℃		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	JITIC	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2.1		bar-g		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	ΔNC	39	DESIGN PRESSURE	DESIGN TEMPER	RATURE	2.7	bar-g	42.5	°C		
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	30,6	40	VISCOSITY @ OPERATING CO	NDITION			<u> </u>				
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	JING	41	DENSITY @ OPERATING COND		999.99	kg/m³					
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	.RA	42	SUSPENDED SOLIDS (%)					NOT			
44     M.M. / Z / Cp/Cv     /       49     MANUFACTURER     WIKA       50     MODEL     232.5 (WIKA)	)PE	43	SOLIDIFIES AT ROOM TEMPER	PATURE				NOT			
50 MODEL 232.5 (WIKA)	<b> </b>	44	M.M. / Z / Cp/Cv				/	/			
		49	MANUFACTURER				I	WIKA			
NOTES:		50	MODEL				232.	5 (WIKA)			
10120.	NO7	ES:	-			<del>.</del>					

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

17 de 30 REV.:

MA	NC	DMETER						17 de 30 REV.: <b>2</b>	
	1	INSTRUMENT TAG NUMBER			PI-960052				
	2	SERVICE			CHILLED WATER - RETURN BUILDING 7A/B DOWNSTREAM P-CH-7A-				
	3	P&ID				7A-	M-0-5-43		
ΑΓ	4	PIPE LINE EQUIPMENT NUMBER			7A-10"-CW1R-9	960052-CS1-CC	;	-	
GENERAL	5	EQUIPMENT MATERIAL / PIPE		CARBON STEE	EL ASTM-A106 Gr.B				
GEI	6	AREA CLASSIFICATION		NOTC	CLASSIFIED				
	7	ENCLOSURE CLASSIFICATION				IP 65 (MÍN.) CC	NF. NBR IEC 60529	)	
	8	CERTIFICATES				(SEE GENI	ERAL NOTES 6)		
	9								
	10	TYPE OF MEASUREMENT				D	IRECT		
	11	MOUNTING		L	OCAL				
	12	DIAL DIAMETER				1	14 mm		
	13	SCALE COLOR	BACKGROUND C	OLOR	BLAC	K	WH	ITE	
	14	4 PRECISION			•	1% OF THE FIN	AL VALUE "RANGE	"	
Ŀ	15	MATERIAL CASE				304SS	POLISHED		
<b></b>	16	RANGE	RESOLUTION		0 @ 4 b	ar-g	0.0	95	
RUI	17	RING TYPE	RING MATERIAL		BAYON	IET	304	SS	
INSTRUMENT	18	CONEX. PROCES. / ACESS.	CONNECTION PC	SITION	1/2" NP1	「(M)	ВОТ	ТОМ	
"	19	SENSOR TYPE	MATERIAL SENS	OR	BOURD	OON	316	SS	
		MATERIAL SOQUETE	MECHANISM MAT	TERIAL	316S		316	SS	
		BALANCED POINTER	YES						
		MICROMETRIC ADJUSTMENT C		1	YES				
		FRONT TYPE	WINDOWS		SOLI		GLASS SEG. TR		
Ш		FILLING	FLUID		YES GLYCERIN			ERIN	
		SEAL DIAPHRAGM	NOT REQUIRED						
					NOT REQ	l l	NOT RE	QUIRED	
		SEAL FILLING FLUID WET PART MATERIAL					REQUIRED REQUIRED		
	28 29	CAPILLARY LENGTH			NOT REQUIRED  NOT REQUIRED  NOT REQUIRED				
	30	CAPILLARY MATERIAL		$\mathbf{J}$					
1		PULSATION DAMPER		<u> </u>					
SIES		MATERIAL					REQUIRED		
CESSORIES	33	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQ	ŕ	NOT RE	OURED	
ES		SIPHON TUBE	77100200 0071111	2077077	770771240		REQUIRED	2011.25	
ACC		MATERIAL			NOT REQUIRED				
		CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQUIRED NOT REQUIRED			QUIRED	
		OVERPRESSURE PROTECTOR			NOT REQUIRED			-	
	38	MATERIAL				NOT F	REQUIRED		
	39	CONNECTION INSTRUMENT	PROCESS CONN	ECTION	NOT REQU	JIRED	NOT RE	QUIRED	
	46	TAGGING				YES (SEE GE	NERAL NOTES 2)		
	40								
	36	FLUID	PHYSICAL STATE		INDUSTRIAL	WATER	LIQ	UID	
SV	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	12.5		°C	
DIF	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2.1		bar-g	
JNC	39	DESIGN PRESSURE	DESIGN TEMPER	ATURE	2.7	bar-g	42.5	°C	
OPERATING CONDITIONS	40	VISCOSITY @ OPERATING CON	NDITION				cР		
MIL	41	DENSITY @ OPERATING COND	ITION			999.99	kg/m³		
ERA	42	SUSPENDED SOLIDS (%)					NOT		
7	43	SOLIDIFIES AT ROOM TEMPER.	ATURE				NOT		
Ö	. 7	M.M. /Z/Cp/Cv	/						
Ю	44	101.101. / Σ / Cβ/CV			WIKA				
<i>f</i> 0	44 49	MANUFACTURER  MODEL					WIKA		

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

SHEET:

232.5 (WIKA)

18 de 30 RFV.

### MANOMETER 2 INSTRUMENT TAG NUMBER PI-960053 SERVICE CHILLED WATER - SUPPLY BUILDING 7A MAMOUNT P-CH-7A-5 2 P&ID 7A-M-0-5-44 3 PIPE LINE **EQUIPMENT NUMBER** 7A-10"-CW1S-960053-CS1-CC 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm SCALE COLOR BACKGROUND COLOR WHITE 13 BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 MATERIAL CASE 304SS POLISHED 15 **NSTRUMENT** RESOLUTION 16 **RANGE** 0 @ 1 bar-g 0.01 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOCIETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID GLYCERIN 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED SEAL FILLING FLUID NOT REQUIRED 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 30 CAPILLARY MATERIAL NOT REQUIRED **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR YES 37 MATERIAL 316SS 38 CONNECTION INSTRUMENT PROCESS CONNECTION 1/2"NPT (F) 1/2"NPT (M) 39 **TAGGING** YES (SEE GENERAL NOTES 2) 46 40 PHYSICAL STATE INDUSTRIAL WATER FLUID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.4 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 2.7 bar-g 42.5 °C VISCOSITY @ OPERATING CONDITION 40 сP 999.99 kg/m³ DENSITY @ OPERATING CONDITION 41 42 SUSPENDED SOLIDS (%) NOT SOLIDIFIES AT ROOM TEMPERATURE 43 NOT M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA

NOTES

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<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









PRD-AIC-DSH-0052 569-DB7A-AIC-712-006 CLIENT NR: NUMBER:

TITLE

MANOMETER

19 de 30 REV.:

INSTRUMENT TAG NUMBER		AI V C	DIVIE I ER						2		
SERVICE   CHILLED WATER. SUPPLY BUILDING 7A DOWNSTREAM P-CH-7A-6   7A-40-6-44   7PE LINE   EQUIPMENT NUMBER   TA-80-CWIS-600006-CS1-CG   CRABON STEEL ASTIN-A100 GLB   NOT CLASSIFICE   CARBON STEEL ASTIN-A100 GLB   C		1	INSTRUMENT TAG NUMBER			T					
Parl						CHILLED WATER			REAM P-CH-7A-5		
POPELINE						OTTLEED WATER					
S   EQUIPMENT MATERIAL / PIPE	7	_		FOLIPMENT NILI	MRER						
Pack	∃RA	_		Legon MENT NO	WIDER			I ASTM A106 Gr B			
Pack	ENF								'		
SEE GENERAL NOTES 6	O	_							<u> </u>		
10   TYPE OF MEASUREMENT							. ,		,		
17   TYPE OF MEASUREMENT   DIRECT   13   MOUNTING   LOCAL		_	CERTIFICATES				(SEE GENE	ERAL NOTES 6)			
MOUNTING			TVDE OF MEASUREMENT					IDECT			
12   DIAL DIAMETER   114 mm		_									
13   SCALE COLOR   BACKGROUND COLOR   BLACK   WHITE		<u> </u>									
MATERIAL CASE				In a composition of	201.05	B) 40			ıTC		
15   MATERIAL CASE   304SS POLISHED   10 @ 6 barg   0.1   17   NING TYPE   RING MATERIAL   BAYONET   304SS   18   CONEX, PROCES, / ACESS.   CONNECTION POSITION   1/2" NPT (M)   BOTTOM   316SS   31		_		BACKGROUND C	COLOR						
Total											
19   Senson Free   Macterials Estadour   Bounchon   316SS     20   MATERIAL SOQUETE   MECHANISM MATERIAL   316SS   316SS     21   BALANCED POINTER   YES   YES     22   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN     23   FRUING   FLUID   YES   GLYCERIN   MOT REQUIRED     24   FLLING   FLUID   YES   GLYCERIN   MOT REQUIRED     25   SEAL DIAPHRAGM   NOT REQUIRED   NOT REQUIRED     26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     27   SEAL FILLING FLUID   NOT REQUIRED     28   WET PART MATERIAL   NOT REQUIRED     30   CAPILLARY LENGTH   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   ATTERIAL   NOT REQUIRED     33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   MATERIAL   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     31   PROCESS CONNECTION   NOT REQUIRED     32   NOT REQUIRED   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   NOT REQUIRED   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   VOERPRESSURE POTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     36   MATERIAL   NOT REQUIRED   NOT REQUIRED     37   VOERPRESSURE   NORMAL   MAXIMUM   NOT REQUIRED   NOT REQUIRED     38   MATERIAL   NOT REQUIRED   NOT REQUIRED   NOT R	۲>			1							
19   Senson Free   Macterials Estadour   Bounchon   316SS     20   MATERIAL SOQUETE   MECHANISM MATERIAL   316SS   316SS     21   BALANCED POINTER   YES   YES     22   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN     23   FRUING   FLUID   YES   GLYCERIN   MOT REQUIRED     24   FLLING   FLUID   YES   GLYCERIN   MOT REQUIRED     25   SEAL DIAPHRAGM   NOT REQUIRED   NOT REQUIRED     26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     27   SEAL FILLING FLUID   NOT REQUIRED     28   WET PART MATERIAL   NOT REQUIRED     30   CAPILLARY LENGTH   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   ATTERIAL   NOT REQUIRED     33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   MATERIAL   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     31   PROCESS CONNECTION   NOT REQUIRED     32   NOT REQUIRED   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   NOT REQUIRED   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   VOERPRESSURE POTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     36   MATERIAL   NOT REQUIRED   NOT REQUIRED     37   VOERPRESSURE   NORMAL   MAXIMUM   NOT REQUIRED   NOT REQUIRED     38   MATERIAL   NOT REQUIRED   NOT REQUIRED   NOT R	ME										
19   Senson Free   Macterials Estadour   Bounchon   316SS     20   MATERIAL SOQUETE   MECHANISM MATERIAL   316SS   316SS     21   BALANCED POINTER   YES   YES     22   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN     23   FRUING   FLUID   YES   GLYCERIN   MOT REQUIRED     24   FLLING   FLUID   YES   GLYCERIN   MOT REQUIRED     25   SEAL DIAPHRAGM   NOT REQUIRED   NOT REQUIRED     26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     27   SEAL FILLING FLUID   NOT REQUIRED     28   WET PART MATERIAL   NOT REQUIRED     30   CAPILLARY LENGTH   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   ATTERIAL   NOT REQUIRED     33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   MATERIAL   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     30   NOT REQUIRED   NOT REQUIRED     31   PROCESS CONNECTION   NOT REQUIRED     32   NOT REQUIRED   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   NOT REQUIRED   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   VOERPRESSURE POTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     36   MATERIAL   NOT REQUIRED   NOT REQUIRED     37   VOERPRESSURE   NORMAL   MAXIMUM   NOT REQUIRED   NOT REQUIRED     38   MATERIAL   NOT REQUIRED   NOT REQUIRED   NOT R	RU										
19   Senson Free   MacTerials Sensor   BOURDION   316SS     20   MATERIAL SOQUETE   MECHANISM MATERIAL   316SS   316SS     21   BALANCED POINTER   YES   YES     22   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN     23   FRUING   FLUID   YES   GLYCERIN   MOT REQUIRED     24   FLLING   FLUID   YES   GLYCERIN   MOT REQUIRED     25   SEAL DIAPHRAGM   NOT REQUIRED   NOT REQUIRED     26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     27   SEAL FILLING FLUID   NOT REQUIRED     28   WET PART MATERIAL   NOT REQUIRED     30   CAPILLARY LENGTH   NOT REQUIRED     31   PULSATION DAMPER   NOT REQUIRED     32   MATERIAL   NOT REQUIRED     33   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     35   MATERIAL   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     30   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   MATERIAL   NOT REQUIRED     31   PROCESS CONNECTION   NOT REQUIRED     32   MATERIAL   NOT REQUIRED     34   SIPHON TUBE   NOT REQUIRED     36   MATERIAL   NOT REQUIRED     37   OVERPRESSURE PROTECTOR   NOT REQUIRED     38   MATERIAL   NOT REQUIRED     39   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     30   ONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED     37   OVERPRESSURE   NORMAL   MAXIMUM   NOT REQUIRED     38   MATERIAL   NOT REQUIRED   NOT REQUIRED     40   OVERPRESSURE   NORMAL   MAXIMUM   NOT REQUIRED     41   ONT REQUIRED   NOT REQUIRED     42   OVERPRESSURE   NORMAL   MAXIMUM   NOT REQUIRED     42	VS7	_		CONNECTION P	OSITION	1/2" NP1	「(M)	ВОТ	ТОМ		
21   BALANCED POINTER   YES   MICROMETRIC ADJUSTMENT OF ZERO   YES   SCAL MICROMETRIC ADJUSTMENT OF ZERO   YES   GLYCERIN   MINDOWS   SOLID   GLASS SEG. TRANSP. MIN. 75%     24   FILLING	"	19	SENSOR TYPE	MATERIAL SENS	SOR	BOURD	OON	316	SS		
22   MICROMETRIC ADJUSTMENT OF ZERO   YES   GLASS SEG. TRANSP. MIN. 75%     24   FILLING		20	MATERIAL SOQUETE	MECHANISM MA	TERIAL	316S	S	316SS			
23   FRONT TYPE				YES							
24   FILLING   FILUID   YES   GLYCERIN				-							
25   SEAL DIAPHRAGM		23	FRONT TYPE	WINDOWS		SOLI	D	GLASS SEG. TR	ANSP. MIN. 75%		
26   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED		24	FILLING	YES		GLYC	ERIN				
27   SEAL FILLING FLUID   NOT REQUIRED		25	SEAL DIAPHRAGM		NOTR	REQUIRED					
28   WET PART MATERIAL   NOT REQUIRED		26	CONNECTION INSTRUMENT	NOT REQ	UIRED	NOT RE	QUIRED				
29   CAPILLARY LENGTH   NOT REQUIRED		27	SEAL FILLING FLUID		NOTR	REQUIRED					
30   CAPILLARY MATERIAL   NOT REQUIRED		28	WET PART MATERIAL				NOT R	REQUIRED			
1		29	CAPILLARY LENGTH				NOTR	REQUIRED			
32   MATERIAL   NOT REQUIRED   NOT REQUIRED		30	CAPILLARY MATERIAL								
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	ည္	31	PULSATION DAMPER								
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	JRIE						NOTE	REQUIRED			
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	SS	33	CONNECTION INSTRUMENT	PROCESS CONN	NECTION	NOT REQ	<i>JIRED</i>	NOT RE	QUIRED		
36   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED	CE	34	SIPHON TUBE								
37 OVERPRESSURE PROTECTOR	AC	35	MATERIAL				NOT REQUIRED				
38   MATERIAL   NOT REQUIRED   NOT REQUIRED		36	CONNECTION INSTRUMENT	PROCESS CONN	NECTION	NOT REQUIRED NOT REQUIRED			QUIRED		
39   CONNECTION INSTRUMENT   PROCESS CONNECTION   NOT REQUIRED   NOT REQUIRED		37	OVERPRESSURE PROTECTOR	?		NOT REQUIRED					
YES (SEE GENERAL NOTES 2)   40		38	MATERIAL			NOT REQUIRED					
VA		39	CONNECTION INSTRUMENT	PROCESS CONN	NECTION	NOT REQUIRED NOT REQUIRED					
SECTION   SECT		46	TAGGING				YES (SEE GE	NERAL NOTES 2)			
37   MINIMUM TEMPERATURE   NORMAL   MAXIMUM   NORMAL   MAXIMUM   NORMAL		40									
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)		36	FLUID	PHYSICAL STAT	E	INDUSTRIAL	WATER	LIQ	UID		
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	SNC	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	,	5.5		°C		
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	ΣĬ	38	MINIMUM PRESSURE	NORMAL	MAXIMUM		2.4		bar-g		
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	JNC	39	DESIGN PRESSURE	DESIGN TEMPER	RATURE	4.2	bar-g	42.5	℃		
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	ပိုင်	40	VISCOSITY @ OPERATING CO.	NDITION		сP					
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	Ň	41	DENSITY @ OPERATING COND		999.99	kg/m³					
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	RA	42	SUSPENDED SOLIDS (%)				-	NOT			
44 M.M. / Z / Cp/Cv       /         49 MANUFACTURER       WIKA         50 MODEL       232.5 (WIKA)	OPE	43	SOLIDIFIES AT ROOM TEMPER	PATURE			ı	NOT			
50 MODEL 232.5 (WIKA)	Ĺ	44	M.M. / Z / Cp/Cv				/.	/			
		49	MANUFACTURER				V	VIKA			
NOTES:	L	50	MODEL				232.5	5 (WIKA)			
	NO7	ES:									

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

MANOMETER

20 de 30 REV.:

2

SHEET:

### INSTRUMENT TAG NUMBER PI-960055 SERVICE CHILLED WATER - SUPPLY BUILDING 7B MAMOUNT P-CH-7B-7 2 P&ID 7A-M-0-5-44 3 PIPE LINE **EQUIPMENT NUMBER** 7A-10"-CW1S-960055-CS1-CC 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm SCALE COLOR BACKGROUND COLOR WHITE 13 BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 304SS POLISHED 15 MATERIAL CASE **VSTRUMENT** RESOLUTION 16 **RANGE** 0 @ 6 bar-g 0.1 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOCIETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% GLYCERIN FLUID 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED SEAL FILLING FLUID NOT REQUIRED 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 30 CAPILLARY MATERIAL NOT REQUIRED **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR **NOT REQUIRED** 37 NOT REQUIRED MATERIAL 38 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 39 **TAGGING** YES (SEE GENERAL NOTES 2) 46 40 PHYSICAL STATE INDUSTRIAL WATER FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 2.4 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 4.2 bar-g 42.5 °C VISCOSITY @ OPERATING CONDITION 40 сP 999.99 kg/m³ DENSITY @ OPERATING CONDITION 41 42 SUSPENDED SOLIDS (%) NOT SOLIDIFIES AT ROOM TEMPERATURE 43 NOT M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA MODEL 232.5 (WIKA) 50

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

SHEET:

21 de 30 RFV.

### MANOMETER 2 INSTRUMENT TAG NUMBER PI-960056 SERVICE CHILLED WATER - SUPPLY BUILDING 7B DOWNSTREAM P-CH-7B-7 2 P&ID 7A-M-0-5-44 3 PIPE LINE **EQUIPMENT NUMBER** 7A-10"-CW1S-960056-CS1-CC 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm SCALE COLOR BACKGROUND COLOR WHITE 13 BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 MATERIAL CASE 304SS POLISHED 15 **VSTRUMENT** RESOLUTION 16 **RANGE** 0 @ 6 bar-g 0.1 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOCIETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID GLYCERIN 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED SEAL FILLING FLUID NOT REQUIRED 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 CAPILLARY MATERIAL NOT REQUIRED 30 **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR **NOT REQUIRED** 37 NOT REQUIRED MATERIAL 38 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 39 **TAGGING** YES (SEE GENERAL NOTES 2) 46 40 PHYSICAL STATE INDUSTRIAL WATER FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 2.4 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 4.2 bar-g 42.5 °C VISCOSITY @ OPERATING CONDITION 40 сP DENSITY @ OPERATING CONDITION 999.99 kg/m³ 41 42 SUSPENDED SOLIDS (%) NOT SOLIDIFIES AT ROOM TEMPERATURE 43 NOT M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA MODEL 232.5 (WIKA) 50

<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









TITLE

232.5 (WIKA)

22 de 30

### MANOMETER RFV. 2 INSTRUMENT TAG NUMBER PI-960058 SERVICE CHILLED WATER - RETURN BUILDING 7A/B MAMOUNT P-CH-7A-3 2 P&ID 7A-M-0-5-43 3 PIPE LINE **EQUIPMENT NUMBER** 7A-10"-CW1R-960057-CS1-CC 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED ENCLOSURE CLASSIFICATION IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm SCALE COLOR BACKGROUND COLOR WHITE 13 BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 MATERIAL CASE 304SS POLISHED 15 **NSTRUMENT** RESOLUTION 16 **RANGE** 0 @ 1 bar-g 0.01 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOCIETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID GLYCERIN 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 26 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED SEAL FILLING FLUID NOT REQUIRED 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 CAPILLARY MATERIAL NOT REQUIRED 30 **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR YES 37 MATERIAL 316SS 38 CONNECTION INSTRUMENT PROCESS CONNECTION 1/2"NPT (F) 1/2"NPT (M) 39 **TAGGING** YES (SEE GENERAL NOTES 2) 40 PHYSICAL STATE INDUSTRIAL WATER FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0.3 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 4.2 bar-g 42.5 °C VISCOSITY @ OPERATING CONDITION 40 DENSITY @ OPERATING CONDITION 41 999.99 kg/m³ 42 SUSPENDED SOLIDS (%) NOT SOLIDIFIES AT ROOM TEMPERATURE 43 NOT M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA

NOTES

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<sup>1-</sup> PROVIDE REAR PROTECTION DISC IN NEOPRENE.









NUMBER: 569-DB7A-AIC-712-006 CLIENT NR: PRD-AIC-DSH-0052

TITLE

D-AIC-D311-0032

232.5 (WIKA)

23 de 30

### MANOMETER RFV· 2 INSTRUMENT TAG NUMBER PI-980063 PRESSURE AT PRIMARY PUMP INLET 2 SERVICE P&ID 7A-M-0-5-45 3 PIPE LINE **EQUIPMENT NUMBER** 7A-6"-GW0R-980063-CS1-CC P-PCH-7A-1 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED **ENCLOSURE CLASSIFICATION** IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm BACKGROUND COLOR WHITE 13 SCALE COLOR BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 304SS POLISHED 15 MATERIAL CASE NSTRUMENT RESOLUTION 16 **RANGE** -0,6 @ 1 bar-g 0.02 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOQUETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID **GLYCERIN** 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 26 NOT REQUIRED SEAL FILLING FLUID 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 CAPILLARY MATERIAL NOT REQUIRED 30 **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED PROCESS CONNECTION CONNECTION INSTRUMENT NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR YES 37 MATERIAL 316SS 38 39 CONNECTION INSTRUMENT PROCESS CONNECTION 1/2" NPT (F) 1/2" NPT (M) **TAGGING** YES (SEE GENERAL NOTES 2) 40 PHYSICAL STATE CHILLED WATER (NOTE 2) FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0 0.1 bar-a 39 DESIGN PRESSURE DESIGN TEMPERATURE 2.0 bar-g 39.1 °C 40 VISCOSITY @ OPERATING CONDITION сP 1000 kg/m³ DENSITY @ OPERATING CONDITION 41 SUSPENDED SOLIDS (%) 42 SOLIDIFIES AT ROOM TEMPERATURE 43 M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA

### NOTES

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- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- 2- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









TITLE

24 de 30 REV.:

# MANOMETER

/I /	NO	/WIETER						2	
T	1	INSTRUMENT TAG NUMBER			PI-980064				
F	2	SERVICE	P	RESSURE AT F	PRIMARY PUMP INL	_ET			
-		P&ID			7A-M-0-5-45				
- 1-	_	PIPE LINE	EQUIPMENT NUMBER			980064-CS1-CC	) P-P	PCH-7A-2	
	5	EQUIPMENT MATERIAL / PIPE		CARBON STE	EL ASTM-A106 Gr.E	3			
<u> </u>	6	AREA CLASSIFICATION		NOT	CLASSIFIED				
⊢	7	ENCLOSURE CLASSIFICATION	I			IP 65 (MÍN.) CO	ONF. NBR IEC 6052	9	
F	8	CERTIFICATES				(SEE GEN	ERAL NOTES 6)		
t	9								
1	10	TYPE OF MEASUREMENT				E	DIRECT		
F	11	MOUNTING				L	OCAL		
F	12	DIAL DIAMETER				1	14 mm		
r	13	SCALE COLOR	BACKGROUND (	COLOR	BLAC	CK	WH	HITE	
j.	14	PRECISION				1% OF THE FIN	I IAL VALUE "RANGE	="	
j.	15	MATERIAL CASE				304SS	POLISHED		
	16	RANGE	RESOLUTION		-0,6 @ 1	bar-g	0.0	02	
·	17	RING TYPE	RING MATERIAL		BAYO	VET	304	4SS	
;  -	18	CONEX. PROCES. / ACESS.	CONNECTION P	OSITION	1/2" NP	T (M)	ВОТ	ТОМ	
r	19	SENSOR TYPE	MATERIAL SENS	SOR	BOURI	DON	316	5SS	
2	20	MATERIAL SOQUETE	MECHANISM MA	TERIAL	316S	S	316	SSS	
2	21	BALANCED POINTER			YES				
2	22	MICROMETRIC ADJUSTMENT	YES						
2	23	FRONT TYPE	WINDOWS		SOLID		GLASS SEG. TRANSP. MIN. 75		
1	24	FILLING	FLUID		YES GLYCERIN				
1	25	SEAL DIAPHRAGM		NOT REQUIRED					
2	26	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ	UIRED	NOT RE	QUIRED	
1	27	SEAL FILLING FLUID			NOT REQUIRED				
2	28	WET PART MATERIAL		10001		NOT REQUIRED			
2	29	CAPILLARY LENGTH		FUTU		NOT	NOT REQUIRED		
-	30	CAPILLARY MATERIAL				NOT	REQUIRED		
, [	31	PULSATION DAMPER			NOT REQUIRED				
	32	MATERIAL				NOT	REQUIRED		
	33	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ	UIRED	NOT RE	QUIRED	
:	34	SIPHON TUBE				NOT	REQUIRED		
:	35	MATERIAL			NOT REQUIRED				
-	36	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT REQ	NOT REQUIRED NOT REQUIRED			
	37	OVERPRESSURE PROTECTOR	₹		YES				
-	38	MATERIAL				;	316SS		
-	39	CONNECTION INSTRUMENT	PROCESS CON	NECTION	1/2" NP	T (F)	1/2" N	PT (M)	
4	46	TAGGING	-			YES (SEE GE	ENERAL NOTES 2)		
4	40								
	36	FLUID	PHYSICAL STAT	E	CHILLED WATE	ER (NOTE 2)	LIQ	UID	
;	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-	5.1	9.1	°C	
[	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0	0.1		bar-g	
[	39	DESIGN PRESSURE	DESIGN TEMPE	RATURE	2.0	bar-g	39.1	°C	
	40	VISCOSITY @ OPERATING CO	NDITION				cР		
1	41	DENSITY @ OPERATING CONL	DITION			1000	kg/m³		
	42	SUSPENDED SOLIDS (%)					-		
	43	SOLIDIFIES AT ROOM TEMPER	RATURE				-		
	44	M.M. / Z / Cp/Cv				/	′/		
4	49	MANUFACTURER					WIKA		
- [	50	MODEL	232.5 (WIKA)						

- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- 2- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









TITLE

232.5 (WIKA)

25 de 30

SHEET:

### MANOMETER RFV· 2 INSTRUMENT TAG NUMBER PI-980068 PRESSURE AT PRIMARY PUMP DISCHARGE 2 SERVICE P&ID 7A-M-0-5-45 3 PIPE LINE **EQUIPMENT NUMBER** 7A-6"-GW0R-980068-CS1-CC P-PCH-7A-1 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED **ENCLOSURE CLASSIFICATION** IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm BACKGROUND COLOR WHITE 13 SCALE COLOR BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 304SS POLISHED 15 MATERIAL CASE NSTRUMENT 16 RANGE RESOLUTION 0 @ 4 bar-g 0.05 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOQUETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID **GLYCERIN** 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 26 NOT REQUIRED SEAL FILLING FLUID 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 CAPILLARY MATERIAL NOT REQUIRED 30 **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** MATERIAL NOT REQUIRED 32 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR **NOT REQUIRED** 37 NOT REQUIRED MATERIAL 38 NOT REQUIRED 39 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED **TAGGING** YES (SEE GENERAL NOTES 2) 40 CHILLED WATER (NOTE 2) PHYSICAL STATE FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0 1.7 bar-a 39 DESIGN PRESSURE DESIGN TEMPERATURE 2.2 bar-g 39.1 °C 40 VISCOSITY @ OPERATING CONDITION 1.3 cP DENSITY @ OPERATING CONDITION 41 1000 kg/m<sup>3</sup> SUSPENDED SOLIDS (%) 42 SOLIDIFIES AT ROOM TEMPERATURE 43 M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA

### NOTES

50

- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









TITLE

MANOMETER

26 de 30

2

### INSTRUMENT TAG NUMBER PI-980071 SERVICE PRESSURE AT PRIMARY PUMP DISCHARGE 2 P&ID 7A-M-0-5-45 3 PIPE LINE **EQUIPMENT NUMBER** 7A-6"-GW0R-980071-CS1-CC P-PCH-7A-2 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED **ENCLOSURE CLASSIFICATION** IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm BACKGROUND COLOR WHITE 13 SCALE COLOR BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 304SS POLISHED 15 MATERIAL CASE NSTRUMENT RESOLUTION 16 **RANGE** 0 @ 4 bar-g 0.05 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOQUETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID **GLYCERIN** 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 26 NOT REQUIRED SEAL FILLING FLUID 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 CAPILLARY MATERIAL NOT REQUIRED 30 NOT REQUIRED **PULSATION DAMPER** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED PROCESS CONNECTION CONNECTION INSTRUMENT NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR **NOT REQUIRED** 37 NOT REQUIRED MATERIAL 38 39 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED **TAGGING** YES (SEE GENERAL NOTES 2) 40 PHYSICAL STATE CHILLED WATER (NOTE 2) FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0 1.7 bar-a 39 DESIGN PRESSURE DESIGN TEMPERATURE 2.2 bar-g 39.1 °C VISCOSITY @ OPERATING CONDITION 40 1.3 cP DENSITY @ OPERATING CONDITION 41 1000 kg/m<sup>3</sup> 42 SUSPENDED SOLIDS (%) SOLIDIFIES AT ROOM TEMPERATURE 43 M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA MODEL 232.5 (WIKA) 50

- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









TITLE

27 de 30

# MANOMETER

									2		
	1	INSTRUMENT TAG NUMBER		PI-9800160							
	2	SERVICE		PRESSURE AT PRIMARY PUMP INLET							
	3	P&ID			7A-M-0-5-46						
ΑŁ	4	PIPE LINE	EQUIPMENT NU	IMBER	7A-6"-GW0S-980086-CS1-CC P-PCH-7A-3					H-7A-3	
GENERAL	5	EQUIPMENT MATERIAL / PIPE		CA	RBON STE	EL ASTM-A10	6 Gr.B				
GEI	6	AREA CLASSIFICATION			NOT	CLASSIFIED					
	7	ENCLOSURE CLASSIFICATION		IP 6	65 (MÍN.) C	ONF. NBR IEC	60529				
	8	CERTIFICATES				(SEE GEN	ERAL NOTES	6)			
	9										
	10	TYPE OF MEASUREMENT					E	IRECT			
	11	MOUNTING			I	OCAL					
	12	DIAL DIAMETER					1	14 mm			
	13	SCALE COLOR	BACKGROUND	COLOR	E	BLACK			WHIT	E	
	14	PRECISION			1%	OF THE FIN	IAL VALUE "R	ANGE"			
7	15	MATERIAL CASE					30488	POLISHED			
1EN	16	RANGE	RESOLUTION		0 @	2 4 bar-g	9		0.05		
RUN	17	RING TYPE	RING MATERIAL	L	BA	YONET	-		3048	S	
INSTRUMENT	18	CONEX. PROCES. / ACESS.	CONNECTION F	POSITION	1/2"	" NPT (M	1)		вотто	DM .	
"	19	SENSOR TYPE	MATERIAL SEN	SOR	ВО	URDON	I		316S	S	
		MATERIAL SOQUETE	MECHANISM M	3	316SS			316S	S		
	21	BALANCED POINTER	YES								
	22	MICROMETRIC ADJUSTMENT (		YES							
	23		WINDOWS FLUID						GLASS SEG. TRANSP. MIN. 75%		
	24	FILLING		YES GLYCERIN							
	_	SEAL DIAPHRAGM				REQUIRED					
		CONNECTION INSTRUMENT	NOT	REQUIR			OT REQU	JIRED			
	27	SEAL FILLING FLUID						REQUIRED			
	28	WET PART MATERIAL						REQUIRED			
	29	CAPILLARY LENGTH						REQUIRED			
	30	CAPILLARY MATERIAL			-			REQUIRED			
IES	_							REQUIRED			
ACCESSORIES		MATERIAL CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT	REQUIR		REQUIRED	OT REQU	IIDED	
ESS	_	SIPHON TUBE	PROCESS CON	NECTION	NOTE	KEQUIK		REQUIRED	JI KEQU	JIRED	
4CC		MATERIAL MATERIAL				NOT REQUIRED					
`			PROCESS CON	NECTION	NOT	PEOLIIR			T REOL	IIRED	
	37	OVERPRESSURE PROTECTOR			NOT REQUIRED NOT REQUIRED  NOT REQUIRED				,,,\ <u>L</u> U		
		MATERIAL	•		NOT REQUIRED						
	39	CONNECTION INSTRUMENT	PROCESS CON	NECTION	NOT F	REQUIR			OT REQU	JIRED	
	46	TAGGING	1		1			ENERAL NOT			
	40						- , 0.		- /		
	36	FLUID	PHYSICAL STA	TE	CHILLED W	VATER (	NOTE 2)		LIQUI	D	
NS	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-		1	5		℃	
0171	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0		2	-		bar-g	
OPERATING CONDITIONS	39	DESIGN PRESSURE	DESIGN TEMPE	RATURE		2.5 ba	ır-g		35 °C	2	
)   	40	VISCOSITY @ OPERATING COI	NDITION					cР			
JNC.	41	DENSITY @ OPERATING COND	DITION				1000	kg/m³			
RA	42	SUSPENDED SOLIDS (%)						-			
OPE	43	SOLIDIFIES AT ROOM TEMPER	PATURE					-			
Ĺ	44	M.M. / Z / Cp/Cv						′/			
	49	MANUFACTURER						WIKA			
	50	MODEL					232	.5 (WIKA)			

- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- 2- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









0.02

304SS

воттом

316SS

316SS

GLASS SEG. TRANSP. MIN. 75%

**GLYCERIN** 

NOT REQUIRED

PRD-AIC-DSH-0052 569-DB7A-AIC-712-006 NUMBER: CLIENT NR:

### TITLE 28 de 30 MANOMETER RFV· 2 INSTRUMENT TAG NUMBER PI-9800161 SERVICE PRESSURE AT PRIMARY PUMP INLET 2 P&ID 7A-M-0-5-46 3 PIPE LINE FOUIPMENT NUMBER 7A-6"-GW0S-980161-CS1-CC P-PCH-7A-4 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED **ENCLOSURE CLASSIFICATION** IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm BACKGROUND COLOR WHITE 13 SCALE COLOR BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 304SS POLISHED 15 MATERIAL CASE

SEAL FILLING FLUID WET PART MATERIAL CAPILLARY LENGTH CAPILLARY MATERIAL

RESOLUTION

WINDOWS

FLUID

RING MATERIAL

CONNECTION POSITION

MECHANISM MATERIAL

PROCESS CONNECTION

PROCESS CONNECTION

MATERIAL SENSOR

NOT REQUIRED NOT REQUIRED NOT REQUIRED

YES

YES

NOT REQUIRED

NOT REQUIRED

.... / ..... / ......

WIKA

232.5 (WIKA)

-0,6 @ 1 bar-g

BAYONET

1/2" NPT (M)

BOURDON

316SS

SOLID

YES

NOT REQUIRED

NOT REQUIRED

NOT REQUIRED NOT REQUIRED NOT REQUIRED

34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED PROCESS CONNECTION CONNECTION INSTRUMENT NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR YES 37 MATERIAL 316SS 38 39 CONNECTION INSTRUMENT PROCESS CONNECTION 1/2" NPT (F) 1/2" NPT (M) **TAGGING** YES (SEE GENERAL NOTES 2) 40 PHYSICAL STATE CHILLED WATER (NOTE 2) FLLIID LIQUID 36 MINIMUM TEMPERATURE NORMAL MAXIMUM 37 5 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0 0.1 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 2.0 bar-g 35 °C VISCOSITY @ OPERATING CONDITION 40 1.5 cP DENSITY @ OPERATING CONDITION 1000 kg/m<sup>3</sup> 41

### NOTES

OPERATING CONDITIONS

42

43

44

50

NSTRUMENT

16

17

18

19

20

21

22 23

24

25

26

27

28

29 30

31

32

33

**4CCESSORIES** 

**RANGE** 

RING TYPE

SENSOR TYPE

FRONT TYPE

SEAL DIAPHRAGM

**PULSATION DAMPER** 

CONNECTION INSTRUMENT

MATERIAL

CONNECTION INSTRUMENT

FILLING

MATERIAL SOQUETE

BALANCED POINTER

CONEX. PROCES. / ACESS.

MICROMETRIC ADJUSTMENT OF ZERO

1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.

SOLIDIFIES AT ROOM TEMPERATURE

SUSPENDED SOLIDS (%)

M.M. /Z/Cp/Cv

MODEL

MANUFACTURER

THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









TITLE

232.5 (WIKA)

29 de 30 RFV·

### MANOMETER 2 INSTRUMENT TAG NUMBER PI-9800162 SERVICE PRESSURE AT SECONDARY PUMP DISCHARGE 2 P&ID 7A-M-0-5-46 3 PIPE LINE **EQUIPMENT NUMBER** 7A-6"-GW0S-980162-CS1-CC P-PCH-7A-4 4 GENERAL EQUIPMENT MATERIAL / PIPE 5 CARBON STEEL ASTM-A106 Gr.B AREA CLASSIFICATION 6 NOT CLASSIFIED **ENCLOSURE CLASSIFICATION** IP 65 (MÍN.) CONF. NBR IEC 60529 CERTIFICATES (SEE GENERAL NOTES 6) 8 TYPE OF MEASUREMENT DIRECT 10 MOUNTING LOCAL 11 DIAL DIAMETER 114 mm BACKGROUND COLOR WHITE 13 SCALE COLOR BI ACK PRECISION 1% OF THE FINAL VALUE "RANGE" 14 304SS POLISHED 15 MATERIAL CASE NSTRUMENT RESOLUTION 16 **RANGE** 0 @ 6 bar-g 0.1 RING MATERIAL 17 RING TYPE BAYONET 304SS CONEX. PROCES. / ACESS. CONNECTION POSITION 1/2" NPT (M) воттом 18 SENSOR TYPE MATERIAL SENSOR BOURDON 316SS 19 MATERIAL SOQUETE MECHANISM MATERIAL 316SS 316SS 20 BALANCED POINTER YES 21 MICROMETRIC ADJUSTMENT OF ZERO YES 22 23 FRONT TYPE WINDOWS SOLID GLASS SEG. TRANSP. MIN. 75% FLUID **GLYCERIN** 24 FILLING YES SEAL DIAPHRAGM NOT REQUIRED 25 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 26 NOT REQUIRED SEAL FILLING FLUID 27 WET PART MATERIAL NOT REQUIRED 28 CAPILLARY LENGTH NOT REQUIRED 29 30 CAPILLARY MATERIAL NOT REQUIRED **PULSATION DAMPER NOT REQUIRED** 31 **4CCESSORIES** 32 MATERIAL NOT REQUIRED CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED NOT REQUIRED 33 34 SIPHON TUBE NOT REQUIRED 35 MATERIAL NOT REQUIRED PROCESS CONNECTION CONNECTION INSTRUMENT NOT REQUIRED NOT REQUIRED 36 OVERPRESSURE PROTECTOR **NOT REQUIRED** 37 NOT REQUIRED MATERIAL 38 NOT REQUIRED 39 CONNECTION INSTRUMENT PROCESS CONNECTION NOT REQUIRED **TAGGING** YES (SEE GENERAL NOTES 2) 40 PHYSICAL STATE CHILLED WATER (NOTE 2) FLLIID LIQUID 36 OPERATING CONDITIONS MINIMUM TEMPERATURE NORMAL MAXIMUM 37 5 °C 38 MINIMUM PRESSURE NORMAL MAXIMUM 0 2.2 bar-a DESIGN TEMPERATURE 39 DESIGN PRESSURE 4.1 bar-g 35 °C VISCOSITY @ OPERATING CONDITION 40 сP 1000 kg/m³ DENSITY @ OPERATING CONDITION 41 42 SUSPENDED SOLIDS (%) SOLIDIFIES AT ROOM TEMPERATURE 43 M.M. /Z/Cp/Cv 44 .... / ..... / ...... MANUFACTURER WIKA

### NOTES

50

- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.









NUMBER: 569-DB7A-AIC-712-006 CLIENT NR: PRD-AIC-DSH-0052

TITLE

# MANOMETER

30 de 30 REV.:

	AINC	DIVIETER						2		
	1	INSTRUMENT TAG NUMBER			PI-9800163					
	2	SERVICE	PRES	PRESSURE AT SECONDARY PUMP DISCHARGE						
	3	P&ID			7A-M-0-5-46					
1,7	4	PIPE LINE	IUMBER	7A-6"-GW0S	S-9800163-CS1-C		CH-7A-3			
GENERAL	5	EQUIPMENT MATERIAL / PIPE		1		EL ASTM-A106 Gr.E				
EN	6	AREA CLASSIFICATION					CLASSIFIED			
9	7	ENCLOSURE CLASSIFICATION	1				ONF. NBR IEC 6052	9		
	8	CERTIFICATES	·				IERAL NOTES 6)			
	9					(				
	10	TYPE OF MEASUREMENT				E	DIRECT			
	11	MOUNTING			1		LOCAL			
	12	DIAL DIAMETER					114 mm			
	13	SCALE COLOR	BACKGROUNE	COLOR	BL	ACK	Wh	IITE		
	14	PRECISION	1		+	1% OF THE FIN	I VAL VALUE "RANGE	"		
	15	MATERIAL CASE			+	304\$\$	S POLISHED			
INSTRUMENT	16	RANGE	RESOLUTION		0 @ 6	6 bar-g	0.	1		
MO	17	RING TYPE	RING MATERIA	AL	BAY	ONET	304	ISS		
STR	18	CONEX. PROCES. / ACESS.	POSITION	1/2" N	IPT (M)	ВОТ	ТОМ			
Š	19	SENSOR TYPE	BOU	RDON	316	SSS				
	20	MATERIAL SOQUETE	310	6SS	316	SSS				
	21	BALANCED POINTER					YES			
	22	MICROMETRIC ADJUSTMENT	YES							
	23	FRONT TYPE	SOLID GLASS SEG. TRANSP. MIN.			ANSP. MIN. 75%				
	24	FILLING	Y	YES GLYCERIN						
	25	SEAL DIAPHRAGM		NOT	REQUIRED					
	26	CONNECTION INSTRUMENT	NOT RE	QUIRED	NOT RE	QUIRED				
	27	SEAL FILLING FLUID		NOT	REQUIRED					
	28	WET PART MATERIAL		NOT	REQUIRED					
	29	CAPILLARY LENGTH		NOT	REQUIRED					
	30	CAPILLARY MATERIAL				NOT	REQUIRED			
ပ္သ	31	PULSATION DAMPER				NOT	REQUIRED			
ACCESSORIES	32	MATERIAL				NOT	REQUIRED			
SSC	33	CONNECTION INSTRUMENT	PROCESS COI	NNECTION	NOT RE	EQUIRED	NOT RE	QUIRED		
CE	34	SIPHON TUBE	•			NOT	REQUIRED			
AC	35	MATERIAL			NOT REQUIRED					
	36	CONNECTION INSTRUMENT	PROCESS COI	NNECTION	NOT REQUIRED NOT REQUIRED					
	37	OVERPRESSURE PROTECTOR	?		NOT REQUIRED					
	38	MATERIAL				NOT REQUIRED				
	39	CONNECTION INSTRUMENT	PROCESS COI	NNECTION	NOT REQUIRED NOT REQUIRED					
	46	TAGGING				YES (SEE GI	ENERAL NOTES 2)			
	40		_							
<b>(</b> 0	36	FLUID	PHYSICAL STA		CHILLED WA	TER (NOTE 2)	LIQ	UID		
οV	37	MINIMUM TEMPERATURE	NORMAL	MAXIMUM	-	1	5	℃		
TIO	38	MINIMUM PRESSURE	NORMAL	MAXIMUM	0	3		bar-g		
ΝΟί	39	DESIGN PRESSURE	DESIGN TEMP	ERATURE	4	1.1 bar-g		℃		
) <i>9</i>	40	VISCOSITY @ OPERATING CO					cP			
171V	41	DENSITY @ OPERATING COND	ΣΙΤΙΟΝ			1000	kg/m³			
OPERATING CONDITIONS		SUSPENDED SOLIDS (%)					-			
g	43		KATURE				-			
$\vdash$		M.M. /Z/Cp/Cv			-		//			
							WIKA			
	50	MODEL	10DEL				232.5 (WIKA)			

- 1- PROVIDE REAR PROTECTION DISC IN NEOPRENE.
- 2- THE INSTRUMENT SHALL BE PREPARED TO OPERATE WITH PROPYLENE GLICOL 10% IF REQUIRED.