

1. UNIT IDENTIFICATION NUMBER

PLANT NO. & ABBREVIATION	PLANT DESCRIPTION	UNIT NO.	UNIT DESCRIPTION	ABBREVIATION
130 : 3	PIPELINE	1	PROCESS	31

2. GENERAL NOTES

2.1 GENERAL NOTES

- 1- THE SIMPLIFY ROUTING OF PROCESS FLOW LINES, SOME PIECES OF EQUIPMENT MAY APPEAR IN MORE THAN ONE PLACE ON THE FLOW DIAGRAM EQUIPMENT SO DUPLICATED WILL BE INDICATED BY DASHED LINES.
- 2- INSTRUMENT IDENTIFICATION AS ILLUSTRATED ARE BASED ON IES-E-PR-230 AND THE INSTRUMENT SOCIETY OF AMERICA STANDARDS S.5.1 AND S.5.3.
- 3- WHEN NECESSARY PIPING AND / OR EQUIPMENT SYMBOLS MAY BE INCLUDED AS PART OF AN INSTRUMENT LOOP.
- 4- DIMENSION FROM CENTER OF LC BALLON TO TANGENT LINE OR BOTTOM OF HORIZONTAL VESSEL INDICATES NORMAL LEVEL.
- 5- DIMENSION UNDER LC BALLON INDICATES FLOAT RANGE.
- 6- DIMENSION UNDER LS BALLON INDICATES VISIBLE GLASS LENGTH.
- 7- DIMENSION UNDER LS BALLON INDICATES POINT OF ACTUATION OF LS UNIT ABOVE TANGENT LINE OR BOTTOM OF HORIZONTAL VESSEL.
- 8- PIPING COMPONENTS NOT IDENTIFIED BY INSTRUMENT OR MECHANICAL EQUIPMENT, ETC. AND NOT COVERED BY THE PIPING MATERIAL SPECIFICATION, ARE IDENTIFIED BY SPECIAL ITEM NUMBER.
- 9- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFICALLY NOTED.
- 10- HIGH POINT VENTS AND LOW POINT DRAINS USED FOR HYDRAULIC TEST PURPOSES ONLY SHALL BE PROVIDED BUT ARE NOT SHOWN ON THE P & ID. VENT FOR HYDRAULIC TEST PURPOSE SHALL BE PROVIDED ONLY FOR 2" AND LARGER LINE.
- 11- PROVIDE DOUBLE ISOLATION VALVES (BALL VALVES AND BLEED VALVES) FOR VENT TO ATMOSPHERE FOR HYDROCARBON SERVICES WHICH ARE ABOVE 300# RATING. FOR 300# RATING AND UNDER ONE SINGLE BALL VALVE FOR ALL GASES. FOR RELIEF VALVE BYPASS, IN CLASS OF 600# AND HIGHER, DOUBLE ISOLATION VALVE (SINGLE BALL VALVE + GLOBE VALVE) FOR 300# AND UNDER ONE SINGLE BALL VALVE.
- 12- ALL DRAINS TO ATMOSPHERE ARE BALL VALVE WITH CAP. FOR ALL CLASS RATING.
- 13- FOR PIPING CLASS 600# AND HIGHER USE DOUBLE BLOCK VALVES FOR 2" AND HIGHER.
- 14- VALVED DRAIN ON SUCTION PIPING OF PUMP EXCEPT CLEAN SERVICE SHALL BE LED TO DRIP FUNNEL WITH EXTENDED TAIL PIPE PLUGGED AT END OR FLANGED WITH SPECTACLE BLIND INSERTED AS SHOWN.
- 15- ALL CLOSED PRESSURE RELIEF VALVE DISCHARGE LEADS SHALL BE FREE DRAINING FROM PRESSURE RELIEF VALVE TO THE TOP OR SIDE OF THE DISCHARGE HEADER.
- 16- 9MM WEEP HOLES ARE PROVIDED AT LOW POINTS OF PRESSURE RELIEF VALVE AND RAPTURE DISC DISCHARGING TO ATMOSPHERE.
- 17- DEFINITIONS :

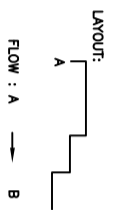
- (1) FREE DRAINING : LINE TO BE ROUTED TO A POINT DESIGNATED WITH NO LIQUID POCKET AND NO VAPOR POCKET IN THE LINE.



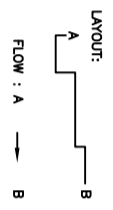
- (2) SLOPED LINE : ELEVATION CHANGES ARE CONTINUOUSLY DOWNWARD AND THE SLOPE IS INDICATED BY A SPECIFIC SLOPE REQUIRED ARE SHOWN BY SYMBOL.



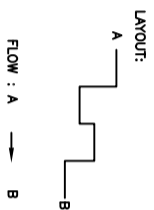
- (3) NO LIQUID POCKET : NO LIQUID POCKET IN THE LINE.



- (4) NO VAPOR POCKET : NO VAPOR POCKET IN THE LINE.



- (5) GRAVITY FLOW : ELEVATION DOWNSTREAM NEVER EXCEED INLET ELEVATIONS. LINE MAY CONTAIN LIQUID POCKETS AND VAPOR POCKETS.



2.2 ABBREVIATIONS

2.2.1 VALVE & CONTROL VALVE

- BDV : BLOWDOWN VALVE
- BV : BALL VALVE
- CAO : CLOSE-AUTOMATIC-OPEN
- OCL : CABLE CONTROL
- CHV : CHECK VALVE
- CO : CHAIN OPERATED
- CSC : CAR SEALED CLOSED
- CSD : CAR SEALED OPEN
- D : DRAIN
- ESDV : EMERGENCY SHUTDOWN VALVE
- FB : FULL BORE
- FC : FAIL CLOSED (CLOSE ON MINIMUM SIGNAL TO VALVE ACTUATOR)
- FOV : FLOW CONTROL VALVE
- FD : FLEX DISC VALVE
- FL : FAIL LOCKED
- FLC : FAIL LOCKED CLOSED, VALVE POSITION DOES NOT CHANGE ON LOSS OF ACTUATING MEDIUM SUPPLY
- FLO : FAIL LOCKED OPEN, VALVE POSITION DOES NOT CHANGE ON LOSS OF ACTUATING MEDIUM SUPPLY
- FO : FAIL OPEN (OPENS ON MINIMUM SIGNAL TO VALVE ACTUATOR)
- FP : FULL PORT
- GM : GEAR OPERATED AND MOTORIZED VALVE
- GO : GEAR OPERATED VALVE
- IW : ACUSTICAL INSULATED VALVE
- HW : HOT INSULATED VALVE
- LBV : LINE BREAK VALVE
- LC : LOCKED CLOSED
- LCV : LEVEL CONTROL VALVE
- LO : LOCKED OPEN
- MOV : MOTOR OPERATED VALVE
- NC : NORMALLY CLOSED
- NO : NORMALLY OPEN
- NV : NEEDLE VALVE
- ORB : ORBIT VALVE
- OV : OPERATING VALVE
- P : PLUGGED
- PCV : PRESSURE REGULATOR/ PRESSURE CONTROL VALVE
- PMA : POST INDICATOR VALVE
- PSE : RUPTURE DISK ASSEMBLY (PRESSURE SAFETY EQUIPMENT)
- PSV : PRESSURE SAFETY RELIEF VALVE
- PSVY : PRESSURE / VACUUM VALVE
- SR : SPLIT RANGE
- SS : SOFT SEAT VALVE
- ST : STELLITE VALVE
- T : TRAP
- TCV : TEMPERATURE CONTROL VALVE
- TSO : TIGHT SHUT-OFF VALVE
- V : VENT
- WR(U) : WACKED PLUG VALVE
- WV : WARNING VALVE
- X : TYPE 316 STAINLESS STEEL TRIM VALVE
- XV : MULTIVARIABLE FINAL ELEMENT (ON/OFF VALVE)
- XX : 18-8 STAINLESS STEEL TRIM VALVE

2.2.2 PIPING

- CS : CARBON STEEL
- DN : DIAMETER NOMINAL
- FF : FLAT FACE
- FS : FORGED STEEL
- GA : GALVANIZED
- GRP : GLASS REINFORCED PLASTIC
- HB : HAMMER BLIND
- IC : INSULATED COLD
- IH : INSULATED HOT
- IS : INSULATED FOR PERSONNEL PROTECTION
- PB : PRESSURE BLIND
- PN : PRESSURE NOMINAL
- PRV : PRESSURE REGULATOR VALVE

- RF : RAISED FACE
- RS : REMOVABLE SPOOL
- RSP : RING SPACER
- RIU : RING TYPE JOINT
- SB : SPECTACLE BLIND
- SO : SLOPE ON
- SPB : SPADE BLIND
- SS : STAINLESS STEEL
- SW : SOCKET WELD
- VB : VAPOR BLIND
- WN : WELD NECK

2.2.3 OTHERS

- A/G : ABOVE GROUND
- B.L. : BATTERY LIMIT
- COF : CENTER OF FLOAT
- DP : DESIGN PRESSURE
- ELEV : ELEVATION
- EM : EMERGENCY VENT
- F : FURNISHED
- FAP : FURNISHED & PIPED
- GH : GALVE HATCH
- HALL : HIGH HIGH LIQUID LEVEL
- HIPS : HIGH INTEGRITY PROTECTION SYSTEM
- HIL : HIGH INTERFACE LIQUID LEVEL
- HLL : HIGH LIQUID LEVEL
- HLI : HIGH LIQUID LEVEL
- I : ISOLATION JOINT
- LF : LIQUID FLOW
- LL : LOW INTERFACE LIQUID LEVEL
- LLL : LOW LIQUID LEVEL
- LLL : LOW LOW LIQUID LEVEL
- MH : MANHOLE
- NIL : NORMAL INTERFACE LIQUID LEVEL
- NIL : NORMAL LIQUID LEVEL
- NNF : NORMALLY NO FLOW
- P : PRESSURE
- P & ID : PIPING & INSTRUMENTATION DIAGRAM
- PB : PUSH BUTTON
- PFD : PROCESS FLOW DIAGRAM
- PO : PUMP OUT
- PTC : PRESSURE TEST CONNECT
- PV : PROCESS VARIABLE
- RES : RESIDUE
- RG : REFRIGERANT GAS
- RL : REFRIGERANT LIQUID
- RO : RESTRICTION ORIFICE
- RS : REMOTE SETPOINT
- RTD : RESISTANCE TEMPERATURE DETECTOR
- RVP : RED VAPOR PRESSURE
- SC : SAMPLE CONNECTION
- SC : SAMPLE COOLER
- SF : SOLUTION FLOW
- SG : SIGHT GLASS
- SP : SET POINT
- SR : RELATIVE MASS DENSITY (SPECIFIC GRAVITY)
- T/L : TANGENT TO TANGENT
- TX : THERMO-WELL
- TY : THERMO-TEMPERATURE
- TXE : SKIN T/C ELEMENT
- UC : UTILITY CONNECTION
- UPD : UTILITY FLOW DIAGRAM
- U/G : UNDER GROUND
- VB : VORTEX BREAKER
- VS : INSTRUMENT AIR SUPPLY
- CC/CP : CORROSION PROBE AND COUPON
- CT : CORROSION TRANSMITTER
- ZS : ZIG SAWLER
- ZI : ZIG INDICATOR

NOTES

REVISION	DATE	BY	CHECKED	DATE

NO.	DESCRIPTION	DATE

NO.	DESCRIPTION	DATE

NO.	DATE	BY	CHECKED	DATE

NO.	DATE	BY	CHECKED	DATE

NO.	DATE	BY	CHECKED	DATE

(ENDOR TITLE BLOCK)**

SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	DATE
AS	A3	BR-PTL-PRD00-300-PR-P1-0000	1 OF 6	003	003-076-0164

	EPD/ERC CONTRACTOR (GC): PETROBRAS DEVELOPMENT COMPANY BRASILEIRO
--	--

DRAWING TITLE: Symbol & Legend for PFD and P&ID
APPROVED FOR CONSTRUCTION BY: _____
DATE: _____

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED
APPROVED FOR CONSTRUCTION BY: _____
DATE: _____
REVISION

3. EQUIPMENT

3.1 EQUIPMENT NUMBERING

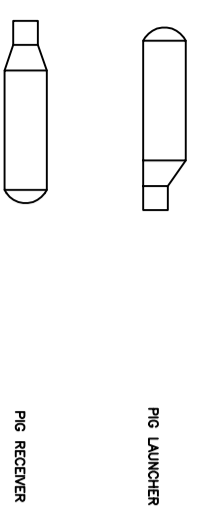
AA BDDD E

AA: EQUIPMENT CODE
EQUIPMENT

CODE

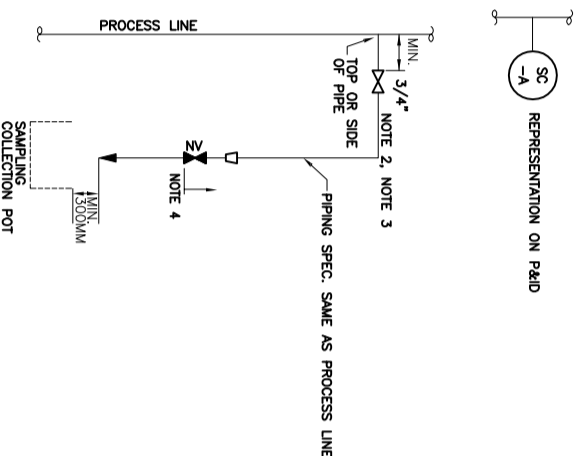
ARCOOLER	AE
COMPRESSOR	C
CONTROL PANEL	LC(OP)
DIESEL ENGINE	DL
EXCHANGER SHELL-AND-TUBE, DOUBLE PIPE,	E
FLATE COIL, AIR COOLER, REBOILER, BOX	
CONDENSER, CASCADE COOLER, SURFACE	
CONDENSER, BAROMETRIC CONDENSER,	
WASTE-HEAT BOILER	
FAN	FA
FILTER	F
FLARE STACK	FS(ST)
GAS TURBINE	GT
HEATER, FRED, FURNACE	H
HEATER, FRED, FURNACE	HI
HOIST	HO
HOSE HOUSE	HH
HOSE REEL	HR
IGNITION PACKAGE	IG
INDOOR HOSE REELS	IK(HR)
MOTOR ELECTRIC	M
OUTDOOR HOSE REELS	OK(HR)
PACKAGE UNIT	PK
PIG LAUNCHER	PL
PULSATON DAMPENER	PD
PUMP	P
SCALE, WEIGHING, MEASURING	SC
SILENCER, MUFFLER	SI
STACK, CHIMNEY	SE
STRAINER	ST(STR)
SUMP	SU
TANK, SILO, HOPPER	TK
TOWER, COLUMN	T
UNLOADER	UL
VESSEL, (SCRUBBER, AGGREGATOR, K.O.	V
DRUM, SPHERE, BULLET, SEPARATOR)	

B: PLANT NO ABBREVIATION
PRELINE : 3
C: UNIT NO
2 GAS/CONDENSATE PRELINE
D: SEQUENTIAL NO (01 TO 99) IF MORE REQUIRED IT CAN BE IDENTIFIED WITH TWO DIGIT SUCH THAT THE FIRST DIGIT COMES FROM THE LAST DIGIT UNIT NO.
E: ALPHABETICAL LETTER (FOR MULTIPLE IDENTICAL EQ. AND SPARE)

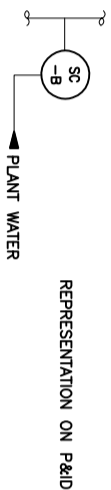


4. SAMPLE CONNECTION DETAILS

4.1 TYPE-A : FOR NON-HAZARDOUS LIQUID AND VAPOR WHOSE TEMPERATURE IS LOWER THAN 65°C. (NOTE 1)

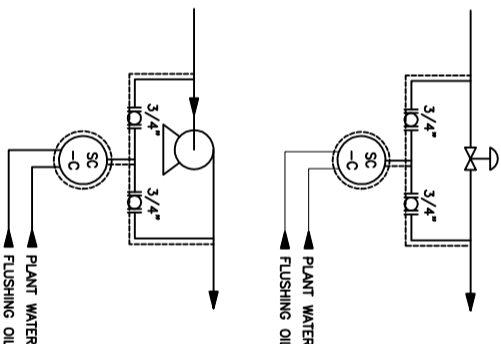


4.2 TYPE-B : FOR NON-HAZARDOUS LIQUID AND VAPOR WHOSE TEMPERATURE IS LOWER THAN 65°C. (NOTE 1)

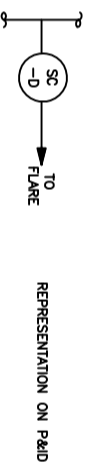
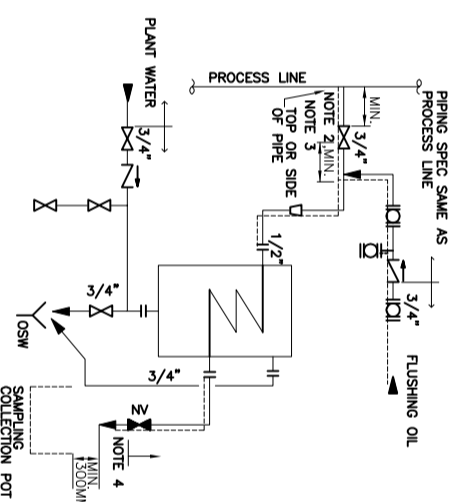


4.3 TYPE-C : FOR NON-HAZARDOUS LIQUID WITH HIGH POUR POINT (HEAVIER H.C. LIQUID THAN LIGHT DIESEL) WHOSE TEMPERATURE IS HIGHER THAN 65°C. (HEAT TRACE IS REQUIRED)

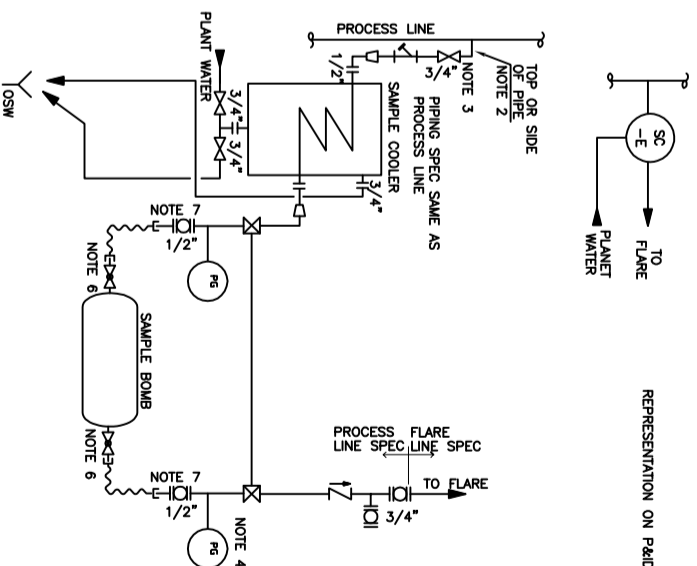
FOR TYPE-C, TO AVOID SOLIDIFICATION IN LEAD PIPING, FAST LOOP SHALL BE PROVIDED ACROSS CONTROL VALVE OR PUMP AS FOLLOWS :



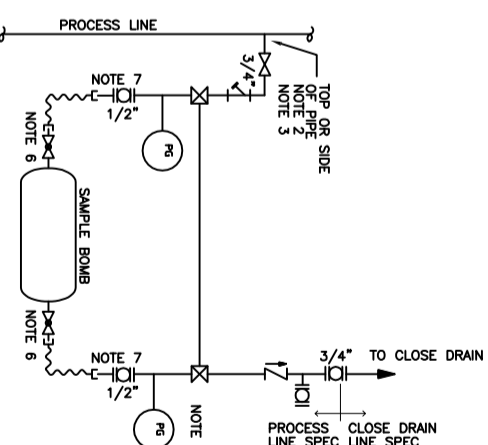
4.4 TYPE-D : CRUDE AND GAS SERVICE WHOSE TEMPERATURE IS LOWER THAN 65°C. (NOTE 1 & 5)



4.5 TYPE-E : TOXIC CRUDE AND TOXIC GAS SERVICE WHOSE TEMPERATURE IS HIGHER THAN 65°C. (NOTE 1 & 3)



4.6 TYPE-F : TOXIC GAS AND TOXIC CRUDE WHOSE TEMPERATURE IS LOWER THAN 65°C. (NOTE 3 & 4)



NOTES

- 1- IF PROCESS LINE HAS HEAT TRACE, SAMPLE CONNECTIONS SHALL BE PROVIDED WITH HEAT TRACE.
- 2- MINIMIZE DISTANCE FROM PROCESS TAKE-OFF TO SAMPLE STATION.
- 3- SAMPLE CONNECTIONS IN SERVICES WITH ANSI CLASS 900 RATINGS OR MORE SHALL BE PROVIDED WITH TWO BLOCK VALVES.
- 4- LINE CLASS SHALL BE THE SAME AS MAIN LINE.
- 5- SAMPLE CONNECTIONS SHALL BE ACCESSIBLE FROM GRADE AS MUCH AS POSSIBLE.
- 6- THREADED FEMALE CONNECTIONS TO MATE WITH MALE CONNECTION OF SAMPLE CYLINDER CONNECTIONS SHALL NOT PUT TORQUE ON TUBE OR PIPING.
- 7- BALL VALVE SHALL BE PROVIDED.

LEGEND

REFERENCE DRAWING	DRG. No.

KEY PLAN

NO	DATE	BY	CHKD	REV.	DATE	BY	CHKD
001	01/11/2022	...	...		
002	01/11/2022	...	...		
003	01/11/2022	...	...		
004	01/11/2022	...	...		
005	01/11/2022	...	...		
006	01/11/2022	...	...		
007	01/11/2022	...	...		
008	01/11/2022	...	...		
009	01/11/2022	...	...		
010	01/11/2022	...	...		

THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREON ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED	APPROVED FOR CONSTRUCTION	BY:	DATE:
APPROVED FOR CONSTRUCTION	BY:	DATE:	
APPROVED FOR CONSTRUCTION	BY:	DATE:	
APPROVED FOR CONSTRUCTION	BY:	DATE:	

NO	DATE	BY	CHKD	REV.	DATE	BY	CHKD
001	01/11/2022	...	...		
002	01/11/2022	...	...		
003	01/11/2022	...	...		
004	01/11/2022	...	...		
005	01/11/2022	...	...		
006	01/11/2022	...	...		
007	01/11/2022	...	...		
008	01/11/2022	...	...		
009	01/11/2022	...	...		
010	01/11/2022	...	...		

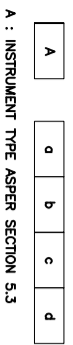
NO	DATE	BY	CHKD	REV.	DATE	BY	CHKD
001	01/11/2022	...	...		
002	01/11/2022	...	...		
003	01/11/2022	...	...		
004	01/11/2022	...	...		
005	01/11/2022	...	...		
006	01/11/2022	...	...		
007	01/11/2022	...	...		
008	01/11/2022	...	...		
009	01/11/2022	...	...		
010	01/11/2022	...	...		

NO	DATE	BY	CHKD	REV.	DATE	BY	CHKD
001	01/11/2022	...	...		
002	01/11/2022	...	...		
003	01/11/2022	...	...		
004	01/11/2022	...	...		
005	01/11/2022	...	...		
006	01/11/2022	...	...		
007	01/11/2022	...	...		
008	01/11/2022	...	...		
009	01/11/2022	...	...		
010	01/11/2022	...	...		

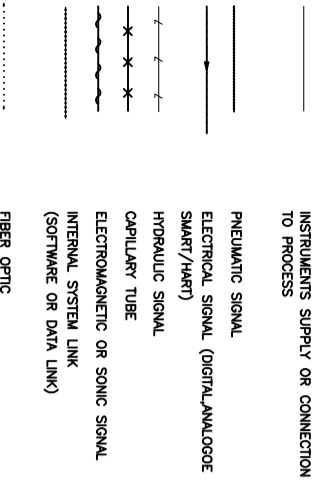
6. INSTRUMENT

NOTES

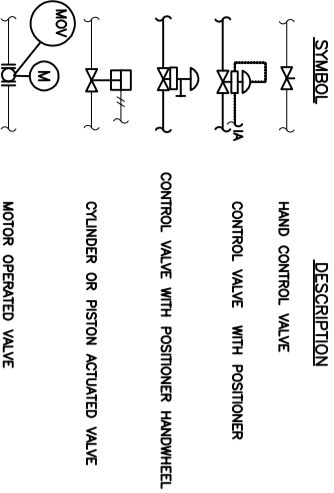
6.1 INSTRUMENT NUMBERING



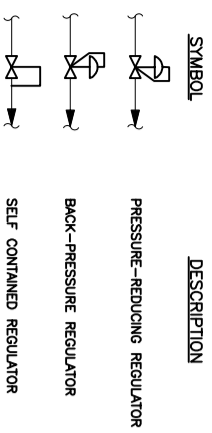
6.2.1 LINE / SIGNAL



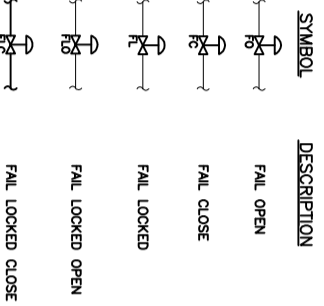
6.2.2 CONTROL VALVE & ACTUATOR



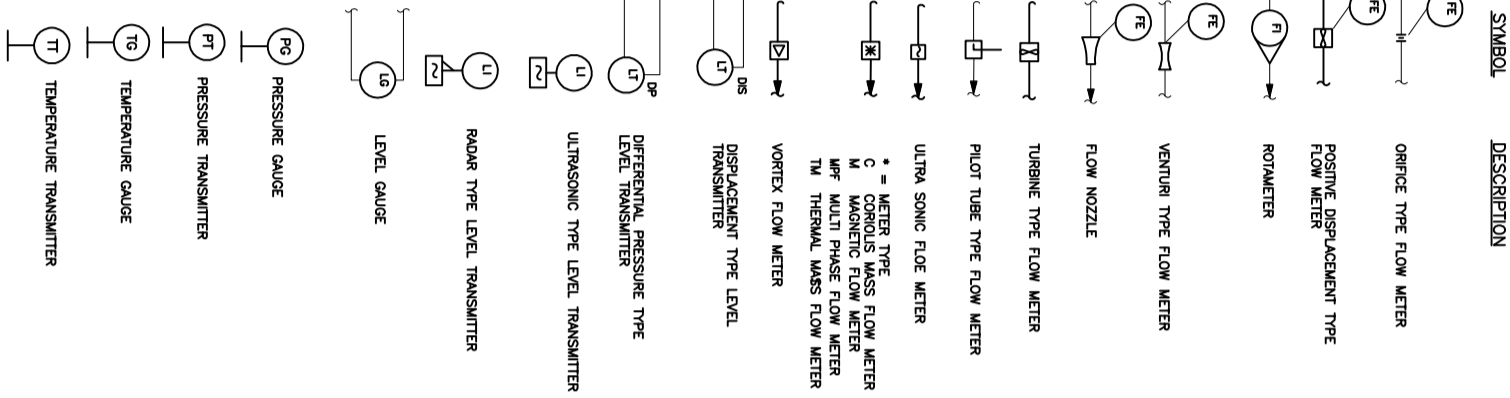
6.2.3 SELF ACTUATED REGULATOR



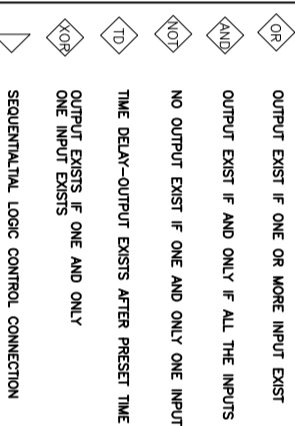
6.2.4 FAILURE ACTION OF CONTROL VALVE



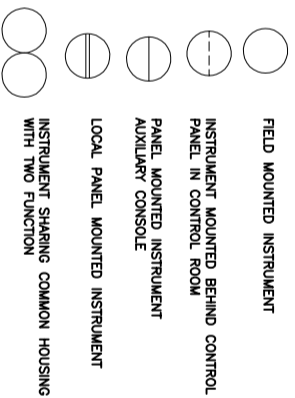
6.2.5 PRIMARY ELEMENT



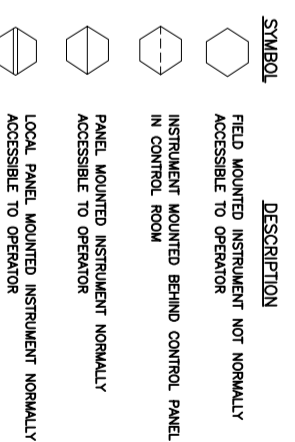
6.2.6 INTERLOCK LOGIC SYMBOL



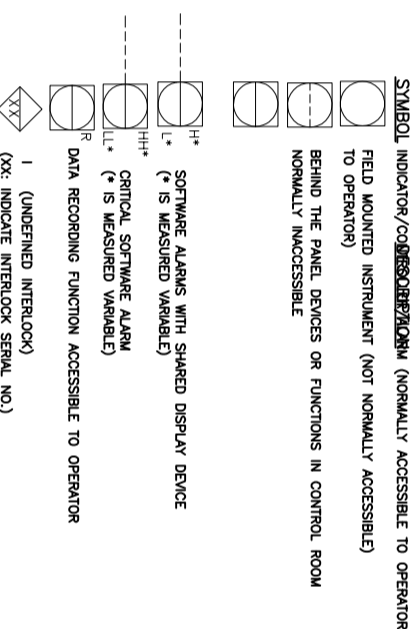
6.2.7 GENERAL INSTRUMENT SYMBOL



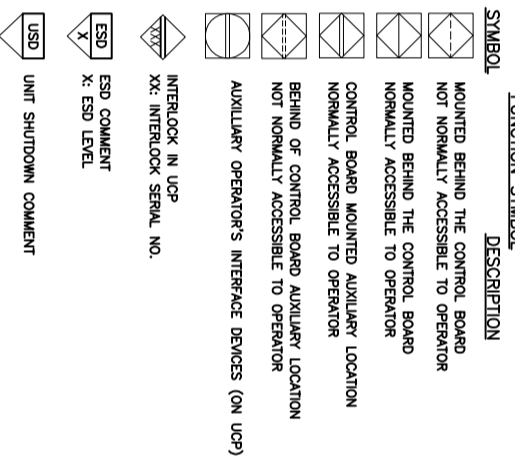
6.2.9 COMPUTER (DATA STORAGE) FUNCTION SYMBOL



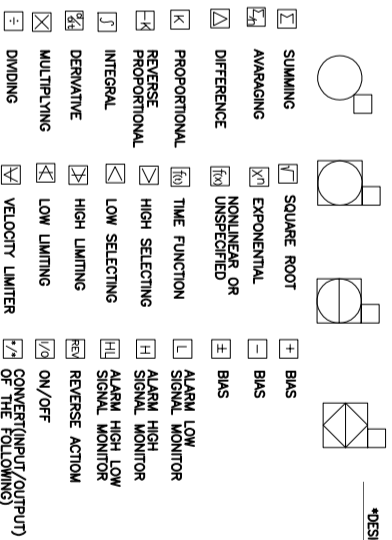
6.2.8 DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOL



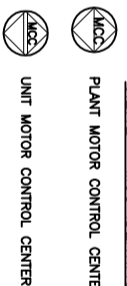
6.2.10 PROGRAMMABLE LOGIC CONTROLLER (PLC)



6.2.11 FUNCTION IDENTIFICATION



6.2.12 MCC IDENTIFICATION



1- ALL ESD VALUES ARE SPRING RETURN TYPE

LEGEND

REFERENCE DRAWING	DRG. NO.

KEY PLAN

NO.	REVISION	DATE	BY	CHECKED	DATE

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED APPROVED FOR CONSTRUCTION BY: SERIAL NO. 7 DATE: 2008-07-01

DATE SCALE DRAWING BY: PROJECT ENG. DATE: 2008-07-01

BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS & GAS-CONDENSATE PERLENES

THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREON ARE THE SOLE PROPERTY OF N.S.I.O.C./ FIELDS

DRAWING TITLE	SCALE	SIZE	NUMBER
Symbol & Legend For PFD and P&ID	AS	A3	NS

DRAWING TITLE	SCALE	SIZE	NUMBER
Symbol & Legend For PFD and P&ID	AS	A3	NS

6. INSTRUMENT (CONTINUED)

6.3 FUNCTIONAL IDENTIFICATION LETTERS

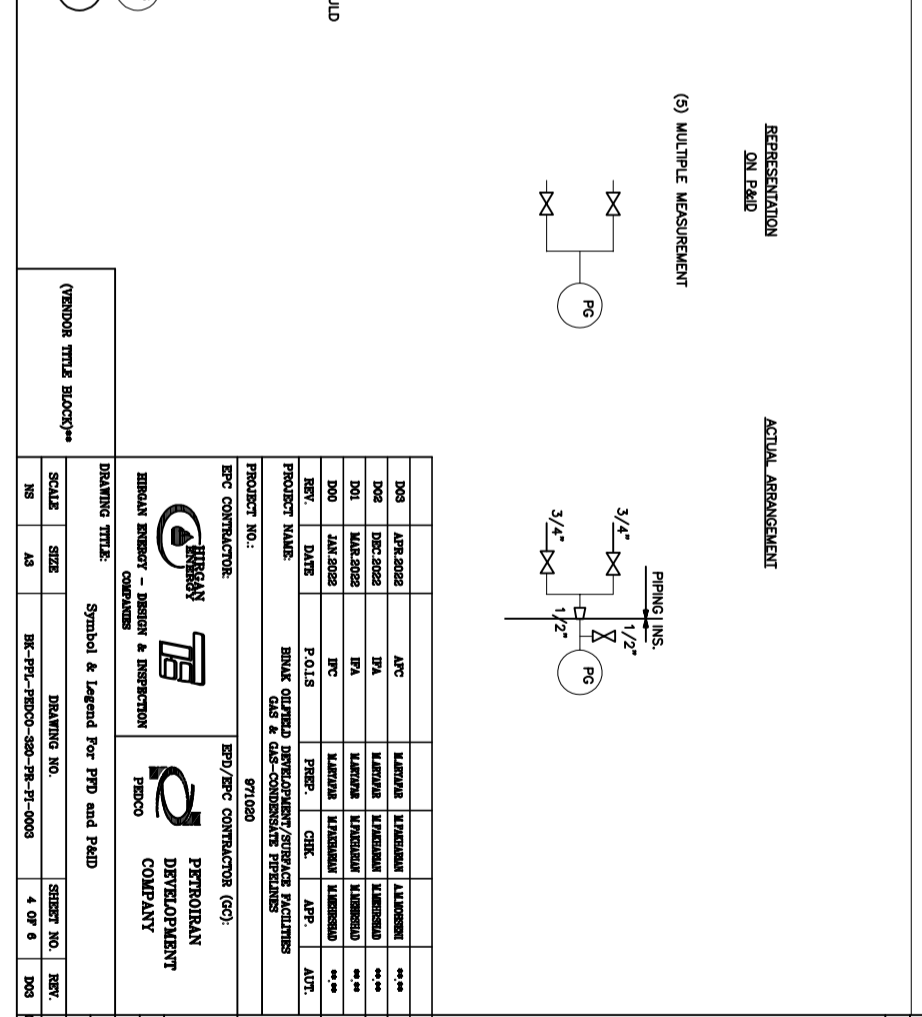
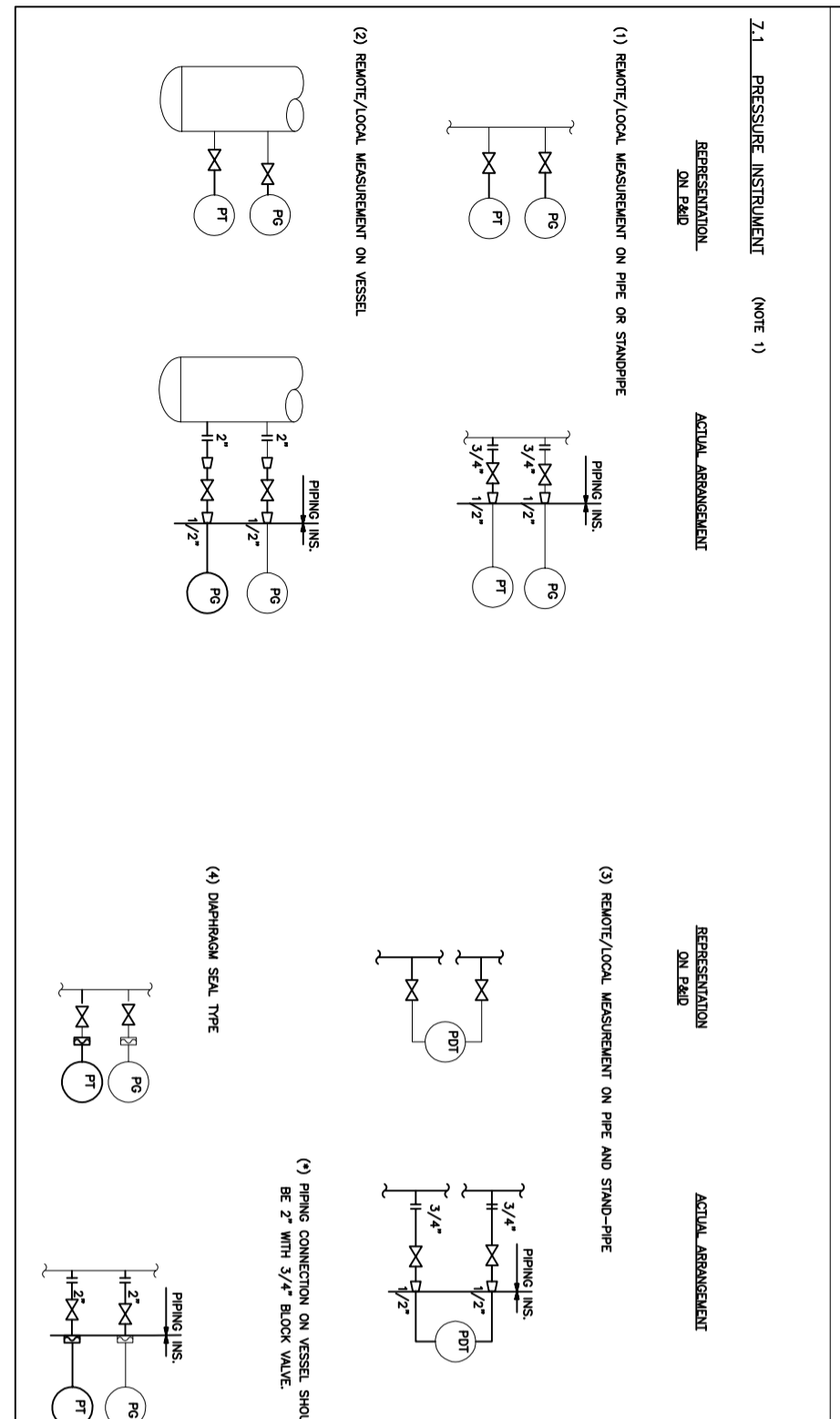
SIGNAL TYPES	FIRST-LETTER		SUCCEEDING-LETTER		MODIFIER
	MEASURED OR INITIATING VARIABLE ANALYSES	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	
BZIO BLOW DOWN VALVE OPEN FEEDBACK ON HMI	A				
EZCS EMERGENCY VALVE CLOSE FEEDBACK	B				
EZSO EMERGENCY VALVE OPEN FEEDBACK	C				
EZIC EMERGENCY VALVE CLOSE FEEDBACK ON HMI	D				
EZIO EMERGENCY VALVE OPEN FEEDBACK ON HMI	E				
HSM HAND SWITCH MANUAL/AUTO	F				
HSP HAND SWITCH STOP	G				
HSS HAND SWITCH START	H				
HSL HAND SWITCH LOCAL/REMOTE	I				
XR RUNNING FEEDBACK	J				
XL LOCAL/REMOTE FEEDBACK	K				
XF FAULT FEEDBACK	L				
HSC/O HAND SWITCH CLOSE/OPEN	M				
XZSO ON/OFF VALVE OPEN FEEDBACK	N				
XZSC ON/OFF VALVE CLOSE FEEDBACK	O				
XZIO ON/OFF VALVE OPEN FEEDBACK ON HMI	P				
XZIC ON/OFF VALVE CLOSE FEEDBACK ON HMI	Q				
ESOV EMERGENCY SOLENOID VALVE	R				
PSOV PROCESS SOLENOID VALVE	S				
XSP PERMISSSION TO START	T				
YA GENERAL ALARM	U				
HSD HAND SWITCH DUTY/STANDBY	V				
DS DOOR OPEN SWITCH (PIG TRAP DOOR)	X				
DA DOOR OPEN ALARM (PIG TRAP DOOR)	Y				
ZS PIG SIGNALER SWITCH	Z				
ZA PIG SIGNALER ALARM	Z				

TYPICAL LETTER COMBINATIONS

PROCESS VARIABLE	SWITCH												ALARM		GLASS VIEWING DEVICE	WELL(W) CONNECTION(P)	SELF-ACTUATED REGULATOR VALVE	SOLENOID VALVE RELAY, CONVERTER	FINAL ELEMENT
	PRIMARY ELEMENT	TRANSMITTER	INDICATING TRANSMITTER	SCAN	INDICATOR	RECORDER	BLIND CONTROLLER	INDICATING CONTROLLER	RECORDING CONTROLLER	ABNORMAL PROCESS FIRST STATE	ABNORMAL PROCESS SECOND STATE	ABNORMAL PROCESS FIRST STATE	ABNORMAL PROCESS SECOND STATE						
A ANALYSIS	AE	AT	AIT	AJ	AI	AR	AC	AIC	ARC	ASH	ASL	ASH	ASL	AAH	AAL	AAH	AAL	AV	AV
B BURNER	BE	BT	BIT	BJ	BI	BR	BC	BIC	BRC	BSH	BSL	BSH	BSL	BAH	BAL	BAH	BAL	BY	BZ
C																			
D																			
E VOLTAGE	EE	ET	ET	EJ	EI	ER	EC	ERIC	EROC	ESH	ESL	ESH	ESL	EAH	EAL	EAH	EAL	EY	EV
F FLOW	FE	FT	FT	FJ	FI	FR	FC	FIC	FRC	FSH	FSL	FSH	FSL	FAH	FAL	FAH	FAL	FY	FV
FF																			
G FLOW QUANTITY	GE	GT	GT	GJ	GI	GR	GC	GIC	GRC	GSH	GSL	GSH	GSL	GAH	GAL	GAH	GAL	GY	GV
G																			
H HAND																			
I CURRENT (ELEC.)	IE	IT																	
J POWER	JE	JT																	
K TIME	KE	KT																	
L LEVEL	LE	LT	LT	LJ	LI	LR	LC	LIC	LRC	LSH	LSL	LSH	LSL	LAH	LAL	LAH	LAL	LY	LV
M																			
N																			
PD DIFFERENTIAL PRESSURE/VACUUM	PDE	PDT	PDT	PDJ	PDJ	PDR	PDC	PDC	PDC	PDSH	PDSL	PDSH	PDSL	PDAN	PDAL	PDAN	PDAL	PDY	PDV
P PRESSURE/VACUUM	PE	PT	PT	PJ	PI	PR	PC	PIC	PRC	PSH	PSL	PSH	PSL	PAH	PAL	PAH	PAL	PY	PV
Q QUANTITY	QE	QT	QT	QJ	QI	QR	QC	QIC	QRC	QSH	QSL	QSH	QSL	QAH	QAL	QAH	QAL	QY	QZ
R RADIATION	RE	RT	RT	RJ	RI	RR	RC	RIC	RRC	RSH	RSL	RSH	RSL	RAH	RAL	RAH	RAL	RY	RZ
S SPEED/FREQUENCY	SE	ST	ST	SI	SI	SR	SC	SIC	SRC	SSH	SSL	SSH	SSL	SAH	SAL	SAH	SAL	SY	SV
T TEMPERATURE	TE	TT	TT	TJ	TI	TR	TC	TIC	TRC	TSH	TSL	TSH	TSL	TAH	TAL	TAH	TAL	TY	TV
U MULTIVARIABLE																			
V VIBRATION	VE	VT	VT	VJ	VI	VR	VC												
W WEIGHT	WE	WT	WT	WJ	WI	WR	WC	WIC	WRC	WSH	WSL	WSH	WSL	WAH	WAL	WAH	WAL	WY	WZ
X SPECIFIC GRAVITY	XE	XT	XT	XJ	XI														
Y STATE	YE	YT	YT	YJ	YI	YR	YC	YIC	YRC	YSH	YSL	YSH	YSL	YAH	YAL	YAH	YAL	YY	YZ
Z POSITION	ZE	ZT	ZT	ZJ	ZI	ZR	ZC	ZIC	ZRC	ZSH	ZSL	ZSH	ZSL	ZAH	ZAL	ZAH	ZAL	ZY	ZV

*RO : RESTRICTION ORIFICE **PSV : PRESSURE RELIEF OR SAFETY VALVE PSE : PRESSURE RUPTURE DISC

7. TYPICAL PIPING ARRANGEMENT



NOTES
1- FOR MORE DETAILS REFER TO INSTRUMENT HOOK UP DIAGRAM AND PIPING ASSEMBLY DRAWING FOR EACH ITEM.

LEGEND

REFERENCE DRAWING	DRG. NO.

KEY PLAN

DATE	SCALE	DRAWING BY	CHECKED BY	DATE

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED
APPROVED FOR CONSTRUCTION BY: DATE: SHEET NO. 4 OF 6

THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREON ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS

BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES
GAS & GAS-CONDENSATE PIPELINES

DATE: SCALE: DRAWING BY: CHECKED BY: PROJECT ENG.

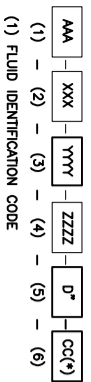
REVISIONS:

NO.	DATE	DESCRIPTION
001	01/01/2022	ISSUED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
001	01/01/2022	ISSUED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
001	01/01/2022	ISSUED FOR CONSTRUCTION

8.1. LINE NUMBERING



(1) FLUID IDENTIFICATION CODE

DESCRIPTION

A. AIR SYSTEM

ISA INSTRUMENT AIR
PLA PLANT AIR

B. BLOWDOWN & PUMP OUT SYSTEM/EFFLUENT DISPOSAL

BON BLOW DOWN
CBD CONTINUOUS BLOW DOWN
IBD INTERMITTENT BLOW DOWN

C. DRAIN (SEWER) SYSTEM

COB CONCRETE DRAIN BOX
CDB CLOSED DRAIN HEADER
CSW CHEMICAL SEWER
CY CHEMICAL DRAIN PIT
DPP DRAIN PIT
NSW NON OILY WATER SEWER
OPD OPEN DRAIN
OSW OILY WATER SEWER
SSW SANITARY WATER SEWER
Y DRAIN FUNNEL (GENERAL)

D. FLARE SYSTEM AND VENT

ATM ATMOSPHERE
FL FLARE (NORMAL)
HFL HIGH PRESSURE FLARE
LFL LOW PRESSURE FLARE

E. FUELS

FLG FUEL GAS / FURGE GAS
FLO FUEL OIL
NG NATURAL GAS
DO DIESEL OIL

F. SPECIAL GAS SYSTEM

AR AIR (ORING SERVICE)
FLG FLUE GAS
NIT NITROGEN

G. SPECIAL CHEMICAL AND SOLVENT SYSTEM

CHM CHEMICALS
MEL METHANOL

I. WATER SYSTEM

FVA FIRE WATER
OWA OILY WATER
PWW PROCESS WATER
PWV PORTABLE WATER
PVA PLANT WATER
RWA RAW WATER

K. PROCESS SERVICE

GAS GAS
GSO GAS OIL
HGB HYDROCARBON
PRO PROCESS FLUID
REG RECYCLE GAS
SLP SLOP
CRO CRUDE OIL
TRG TREATMENT GUYCOL

(2) UNIT SERIAL NUMBER

PROCESS NUMBER : 111
UTILITY NUMBER : 112
FIRE WATER : 113

(3) PIPING SERIAL NUMBER

(4) PIPING CLASS CODE

PIPING CLASS ACCORDING TO PS-E-91-221, EACH PIPING MATERIAL CLASS IS IDENTIFIED BY A FOUR-DIGIT ALPHANUMERIC CODE. THE FIRST ALPHA CHARACTER DENOTES THE PRESSURE RATING AS FOLLOWS:

A RATING CLASS 150
B RATING CLASS 300
C RATING CLASS 600
D RATING CLASS 900
E RATING CLASS 1500

THE SECOND ALPHA CHARACTER INDICATES THE MATERIAL GROUP AS FOLLOWS:

N CARBON STEEL
S STAINLESS STEEL
Z NON-METAL CARBON STEEL

THE THIRD FIGURE INDICATES THE DESIGN CODE (ASME B31 CATEGORIES) AND THE FOURTH FIGURE INDICATES CORROSION ALLOWANCE AND WELD REQUIREMENTS FOR METALLIC MATERIAL (FOR DETAIL REFER TO PIPING MATERIAL SPECIFICATION).

3 RD DIGIT FIG. (section symbol)	4 TH DIGIT FOR METAL PIPE FIG. C.A.	4 TH DIGIT FOR NON-METAL PIPE FIG. MATERIAL TYPE
Agec B 31.3 (see note 9)	0 0 mm 1 1 mm 2 1 mm 3 3 mm 4 3 mm 5 3 mm 6 6 mm 7 6 mm	1 GRE 2 PE 3 RFR/REINFORCED THERMOPLASTIC PIPE

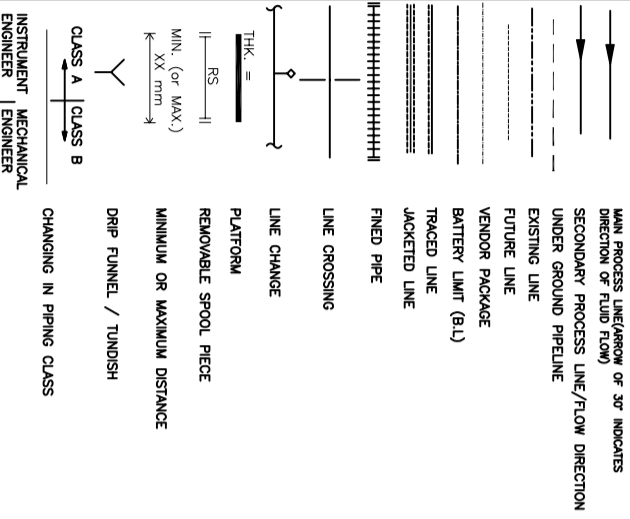
(5) NOMINAL PIPE SIZE

(6) CODE OF INSULATION OR HEATH TRACING:

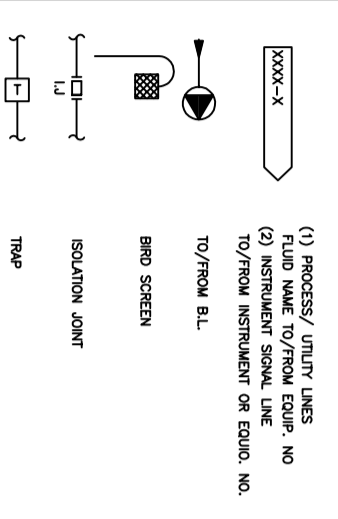
CODE	DESCRIPTION
ET (*)	ELECTRICALLY TRACED & INSULATED
ET (†)	ELECTRICALLY TRACED WITH HEAT TRANSFER CEMENT
IC	INSULATION COLO
HI	INSULATION HOT
IS	INSULATION FOR PERSONNEL PROTECTION
TB	TRACE BODY AND INSULATE
TBB	TRACE BODY AND BONNET AND INSULATE
PT	PAINTING
NP	NO PAINTING, NO INSULATION
UW	UNDERGROUND WRAPPING
* H :	HEAT CONSERVATION, W : WINTERIZATION

8.2. SYMBOLS

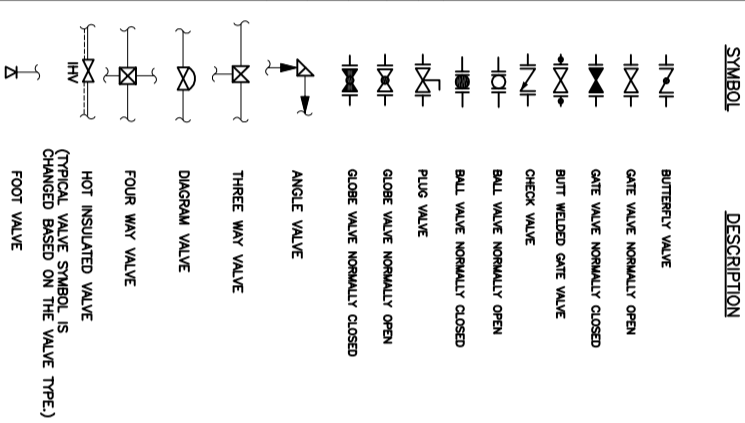
8.2.1 LINE SYMBOL



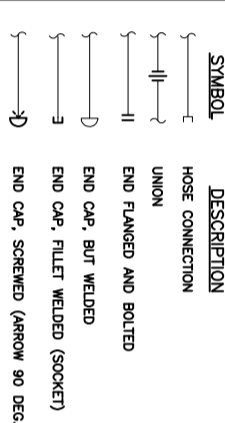
4.2.2 SHEET CONNECTION



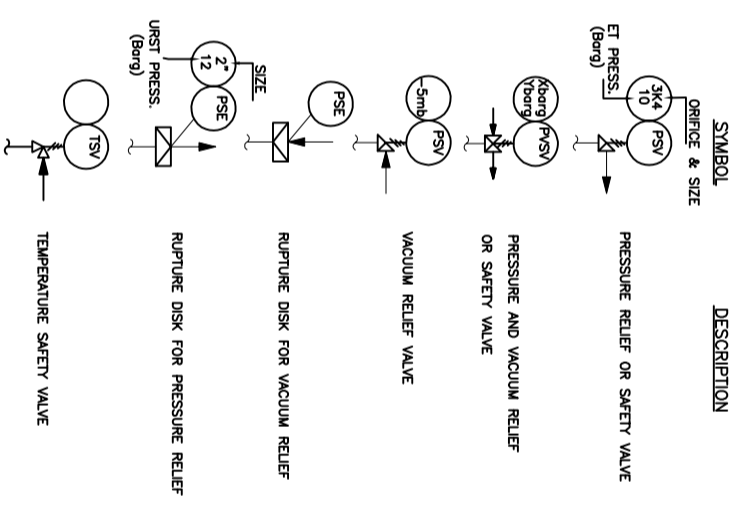
8.2.3 VALVE SYMBOL



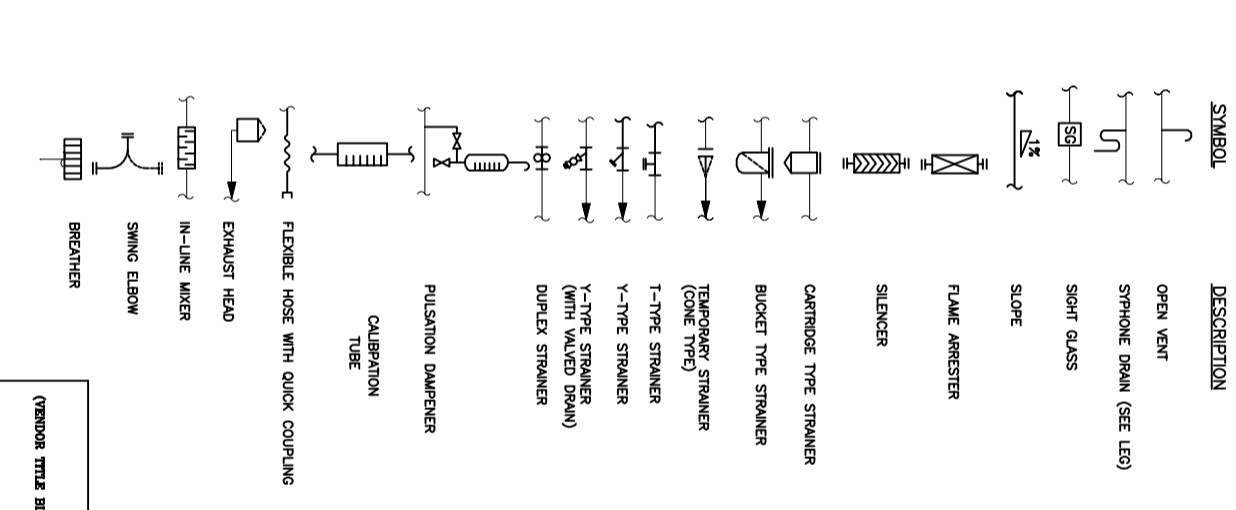
8.2.4 PIPE FITTING SYMBOL



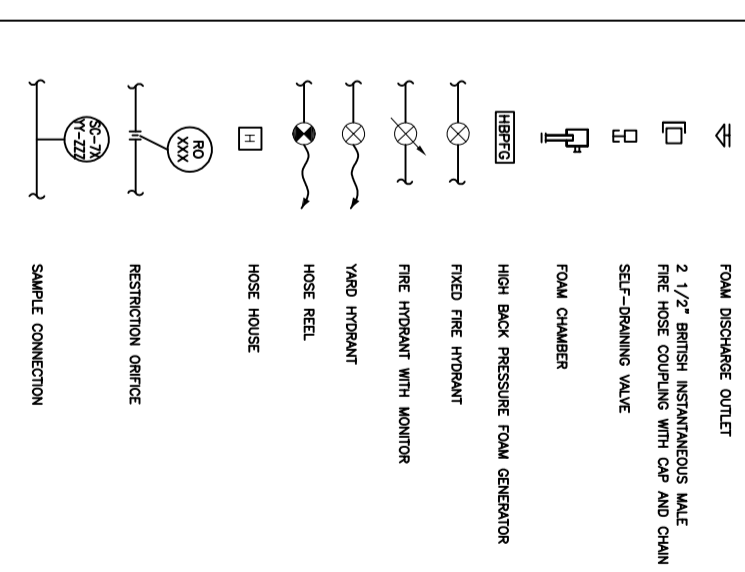
8.2.5 PRESSURE RELIEF VALVE SYMBOL



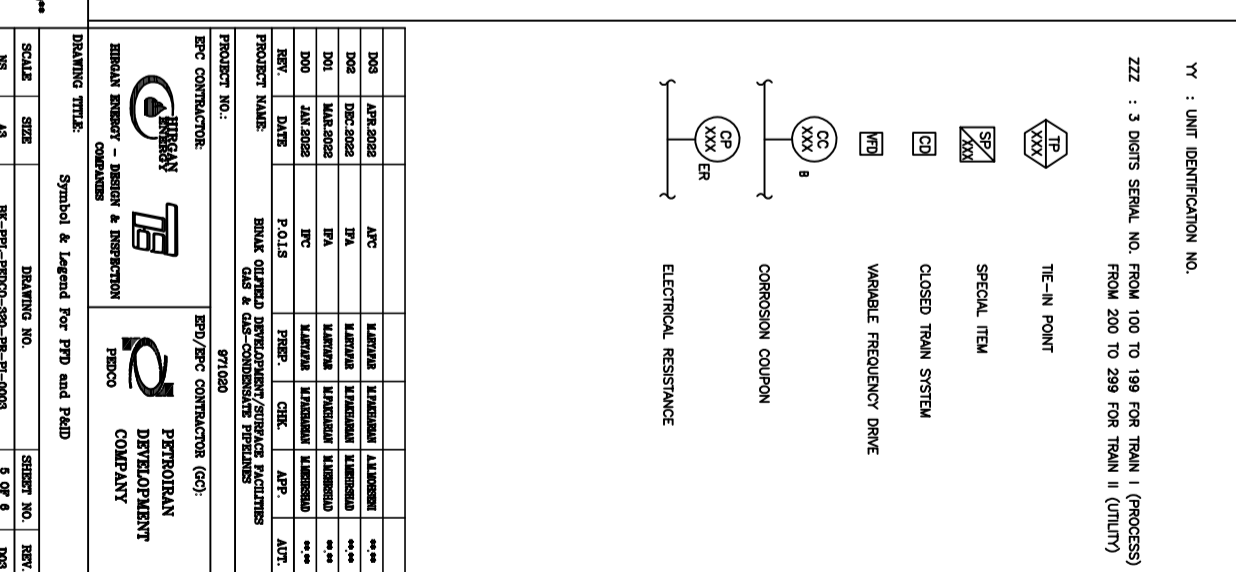
8.2.6 MISCELLANEOUS SYMBOL



NOTES



LEGEND



KEY PLAN

NO.	DESCRIPTION	BY	DATE	REV.	DATE
001	ISSUED FOR CONSTRUCTION	BY	DATE	001	DATE
002	CHECKED	BY	DATE	002	DATE

REFERENCE DRAWING

NO.	DESCRIPTION	BY	DATE	REV.	DATE
001	ISSUED FOR CONSTRUCTION	BY	DATE	001	DATE
002	CHECKED	BY	DATE	002	DATE

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

NO.	DESCRIPTION	BY	DATE	REV.	DATE
001	ISSUED FOR CONSTRUCTION	BY	DATE	001	DATE
002	CHECKED	BY	DATE	002	DATE

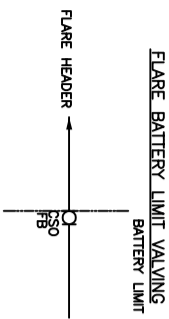
APPROVED FOR CONSTRUCTION

NO.	DESCRIPTION	BY	DATE	REV.	DATE
001	ISSUED FOR CONSTRUCTION	BY	DATE	001	DATE
002	CHECKED	BY	DATE	002	DATE

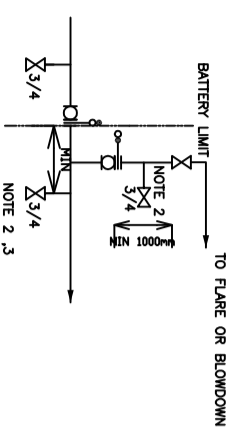
DATE

NO.	DESCRIPTION	BY	DATE	REV.	DATE
001	ISSUED FOR CONSTRUCTION	BY	DATE	001	DATE
002	CHECKED	BY	DATE	002	DATE

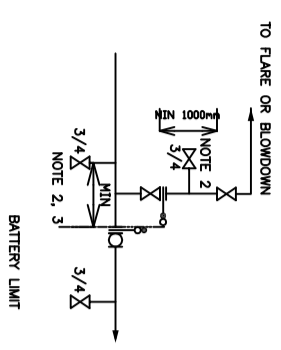
9. TYPICAL DETAIL FOR ISOLATION BATTERY LIMIT VALVING



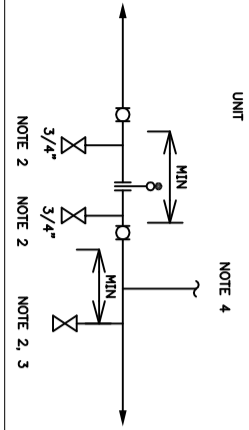
HIGH VAPOUR PRESSURE SERVICE UPSTREAM ISOLATION



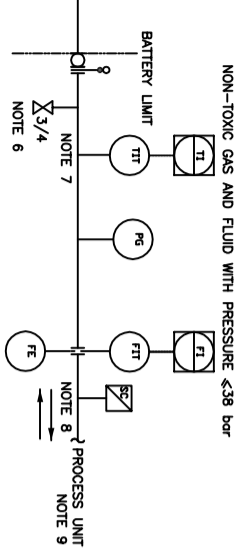
HIGH VAPOUR PRESSURE SERVICE DOWN STREAM ISOLATION



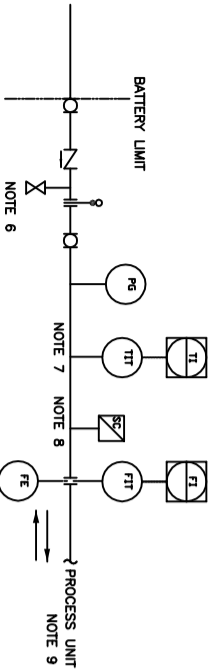
TWO WAY ISOLATION



PROCESS BATTERY LIMIT VALVING

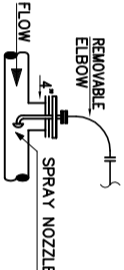


TOXIC GAS AND FLUID WITH PRESSURE > 38 bar



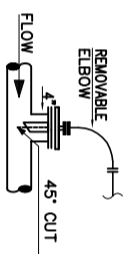
10. CONTINUOUS CHEMICAL INJECTION IN PROCESS LINE

TYPE 1



INJECTION DEVICE PERMANENTLY CONNECTED (GAS SERVICE)

TYPE 2



INJECTION DEVICE PERMANENTLY CONNECTED (OTHER SERVICE)

NOTES

- 1- A LOCAL PG ON EACH STREAM SHALL BE PROVIDED.
- 2- END CONNECTION WILL BE SPECIFIED BY PIPING MATERIAL SPECIFICATION FOR EACH PIPING CLASS.
- 3- DRAIN VALVE SIZE IS DEPENDED ON PROCESS LINE SIZE (NOMINALLY 3/4").
- 4- TO/FROM FLUSHING OIL FLARE CONNECTION, ETC., IF REQUIRED.

LEGEND

REFERENCE DRAWING	DRG. No.

KEY PLAN

NO	DATE	BY	DATE	BY	DATE

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED APPROVED FOR CONSTRUCTION BY: DATE: REVISION

<p>PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS & GAS-CONDENSATE PIPELINES</p> <p>PROJECT NO.: 071000</p>	<p>EPD/EPIC CONTRACTOR (GC):</p> <p>HIRSHAN ENGINEERING & DESIGN & INSPECTION</p>																														
<table border="1"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>DATE</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>003</td> <td>APR 2023</td> <td>ATC</td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>002</td> <td>DEC 2022</td> <td>DYA</td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>001</td> <td>MAR 2023</td> <td>EPA</td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>000</td> <td>JAN 2023</td> <td>ETC</td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO	DATE	BY	DATE	BY	DATE	003	APR 2023	ATC				002	DEC 2022	DYA				001	MAR 2023	EPA				000	JAN 2023	ETC				<p>EPD/EPIC CONTRACTOR (GC):</p> <p>PETROBRAS DEVELOPMENT COMPANY</p>
NO	DATE	BY	DATE	BY	DATE																										
003	APR 2023	ATC																													
002	DEC 2022	DYA																													
001	MAR 2023	EPA																													
000	JAN 2023	ETC																													
<p>SCALE: AS</p> <p>DRAWING NO.: BK-PTL-PRODC-380-PR-P1-0003</p> <p>SHEET NO.: 9 OF 9</p> <p>NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED APPROVED FOR CONSTRUCTION BY: DATE: REVISION</p>																															