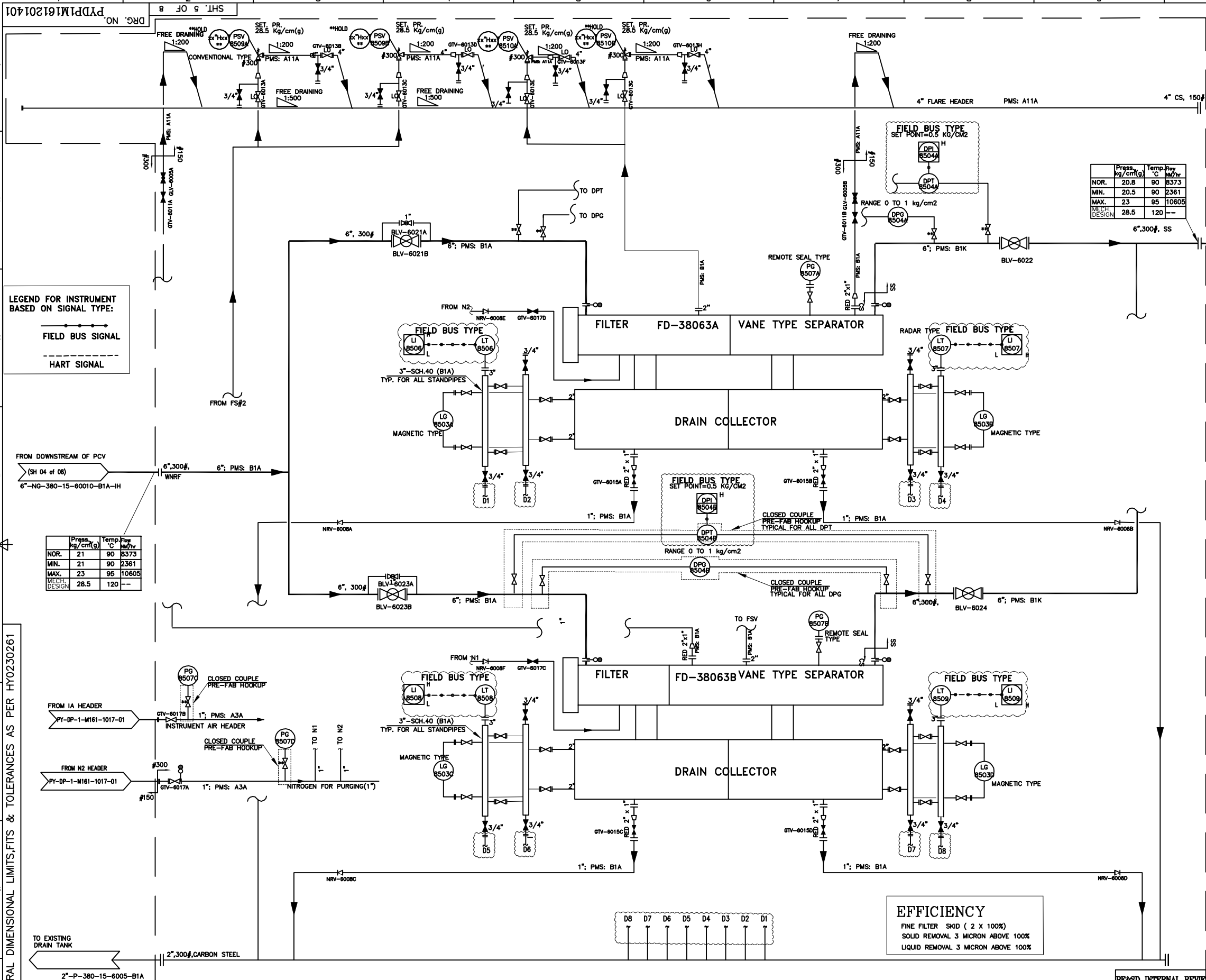


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INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)



NOTES:- MECHANICAL

- VENTS/DRAINS ARE SHOWN ONLY TO MEET SYSTEM REQUIREMENTS. ADDITIONAL HIGH POINT VENT AND LOW POINT DRAINS SHALL BE PROVIDED ACCORDING TO FINAL LAYOUT. ALL INSTRUMENT ISOLATION VALVES, VENT & DRAIN VALVES ARE OF GATE TYPE AS PER BHEL PIPING MATERIAL SPECIFICATION.
- FOR MATERIAL SPECIFICATION OF PIPES, FITTINGS ETC., REFER APPLICABLE PIPING MATERIAL SPECIFICATION.
- VESSEL SHALL BE DESIGNED AS ASME SEC. VIII, DIV. 1
- VALVES IN ALL FLARE/VENT LINES SHALL BE INSTALLED IN HORIZONTAL DIRECTION WITH STEM DOWNWARDS TO AVOID BLOCKAGE OF GATE VALVE.
- ALL PSVs ARE OF FIRE SAFE CONDITION VALVES AS PER API-520.
- ALL BALL VALVES IN FUEL GAS SYSTEM ARE OF FULL BORE FIRE SAFE DESIGN ONLY.
- ALL VENTS & DRAINS SHALL BE MINIMUM 3/4" SIZE.
- END CONNECTIONS OF VALVES SHALL BE AS PER PMS. END CONNECTIONS OF CONTROL VALVES SHALL BE AS PER MANUFACTURER'S STANDARD.
- COPPER JUMPERS SHALL BE PROVIDED ACROSS ALL THE FLANGES FOR ELECTRICAL CONDUCTIVITY.
- ALL THE CONTROL SHALL BE MINIMUM OF 300# RATING.

NOTES:- ELECTRICAL AND C&I

- ALL ELECTRICAL EQUIPMENT AND RELEVANT INSTRUMENTS IN FUEL GAS SYSTEM ARE DESIGNED TO EXPLOSION PROOF TO ZONE-1 + 2 & GAS GROUP IIA/IB TEMPERATURE CLASS T3 MINIMUM. FURTHER, HAZARDOUS AREA CLASSIFICATION TO BE CARRIED OUT FOR GAS GROUPING IIA/IB AS PER IS 5572.
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LAL = 125 MM, (B) LIC = 175 MM, (C) LAH = 225 MM, (D) RANGE = 350 MM
- EACH SOV/CONTROL VALVE SHALL HAVE INDEPENDENT ISOLATION FOR INSTRUMENT AIR CONNECTION.
- SOV TYPE SHALL BE AUTO RESET
- MINIMUM CLASS RATING OF FLOW INSTRUMENTS, PRESSURE & TEMPERATURE FLANGES SHALL BE #300 OR APPLICABLE LINE RATING WHICHEVER IS HIGHER.
- \*\* PREFABRICATED HOOK UP IS APPLICABLE FOR LINE MOUNTED FOR PG, PT AND DPT INSTRUMENTS. MARKED ROOT VALVES FOR THESE INSTRUMENTS ARE PART OF PRE FABRICATED HOOK-UP.

SCOPE OF SUPPLY FOR FINE FILTER SKID VENDOR

DESCRIPTION	LEGEND
LEVEL GAUGE	LG
LEVEL TRANSMITTER	LT
DIFFERENTIAL PRESS TRANSMITTER	DPT
DIFFERENTIAL PRESS GAUGE	DPG
PRESSURE GAUGE	PG

BALL VALVE NORMALLY CLOSED	—●—
BALL VALVE NORMALLY OPEN	—○—
GATE VALVE - NORMALLY OPEN	—X—
GATE VALVE - NORMALLY CLOSED	—/—
CHECK VALVE (SWING CHECK)	— —
CHECK VALVE (PISTON LIFT)	— —
GLOBE VALVE - NORMALLY OPEN	—○—
GLOBE VALVE - NORMALLY CLOSED	—●—
SOLENOID VALVE (3-WAY)	—X—
SAFETY VALVE (SPRING LOADED)	— —
MODULATING CONTROL VALVE WITH PNEUMATIC ACTUATOR WITH SMART POSITIONER	— —
FF TYPE SIGNAL	— —

INTERFACE with PIPING

S.No	Type of Instrument	Process connection	Rating
[B] Pressure Instruments			
1	Pressure Gauge / Pressure Transmitter	Pipe line mounted	3/4" SW / BW #
2	Pressure Gauge / Pressure Transmitter	Vessel mounted	1.5" flanged
3	Differential Pressure Transmitter / Gauge	Pipe line mounted	3/4" SW / BW #
[D] Level Instruments			
1	Level gauge (Side mounted)	1" flanged	Rating as per piping class
2	Level Transmitters (Guided wave Radar type) (Top mounted type)	3" flanged	300 # RF;

CUSTOMER: MANGALORE REFINERY & PETROCHEMICALS LTD MANGALORE

CONSULTANT: M/s L&T - SARGENT & LUNDY (L&T-S&L)

NAME OF PROJECT: NATURAL GAS FIRING PROVISION IN GTG 1 & GTG 2 OF MRPL CPP3 UNIT

NAME	SIGN.	DATE	NO. OF VAR.
DRN. MURALIDHAR		29.05.20	
CHD. IFTEKHARUL	sd/-	29.05.20	N.A.
APPD. MSSN	sd/-	29.05.20	
DEPT. PED.	UNTO. DIMS.	SCALE	WEIGHT (KG)
450	GR. 9/4/7	N.T.S	N.A.
TITLE: P&ID FOR NATURAL GAS CONDITIONING SYSTEM FOR GT#1, GT#2			
SHEET No 01 NO. OF SHEET. 02			

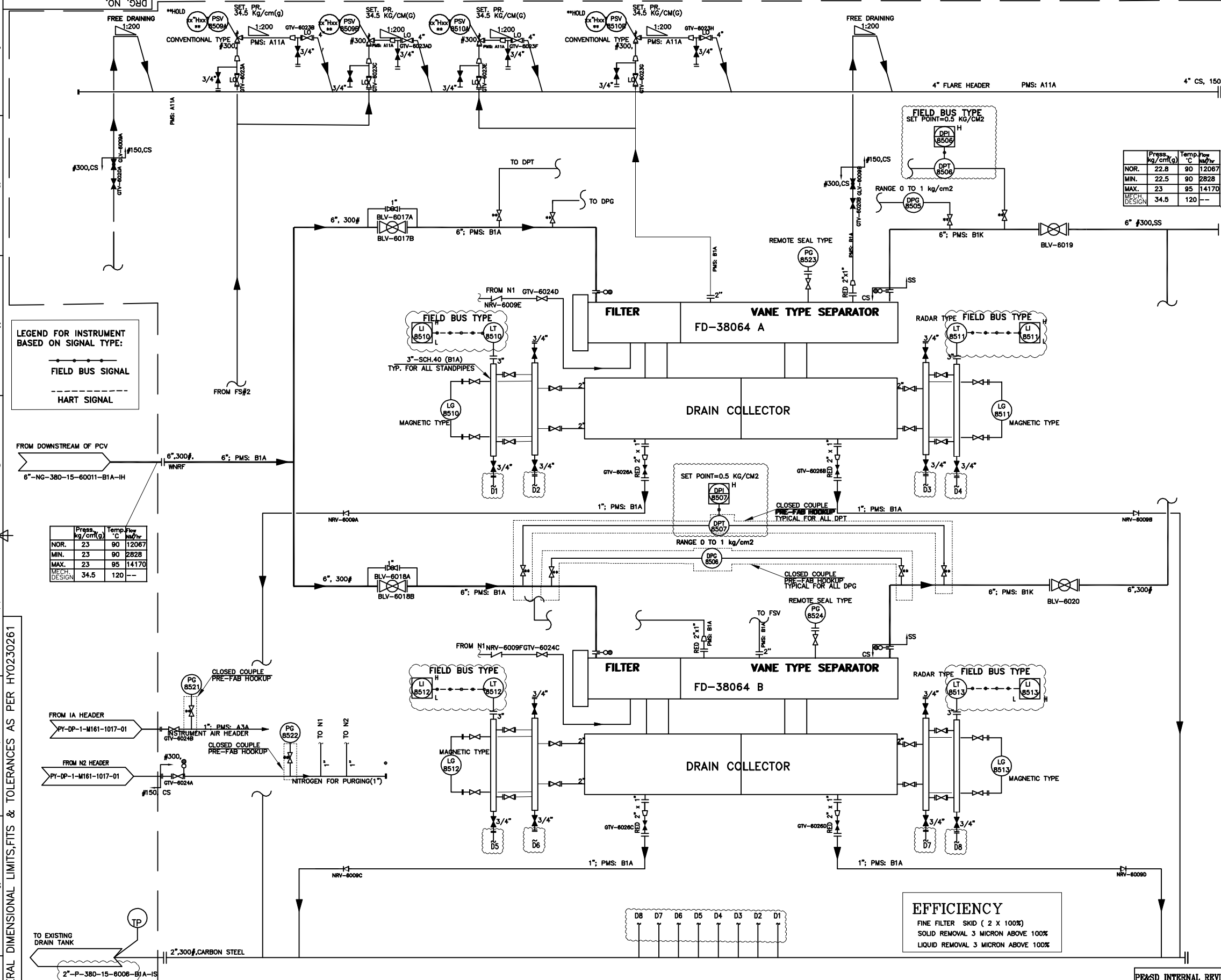
2X100% FINE FILTER SKID FOR GAS TURBINE # 1 (BY SKID VENDOR)

EFFICIENCY  
FINE FILTER SKID ( 2 X 100% )  
SOLID REMOVAL 3 MICRON ABOVE 100%  
LIQUID REMOVAL 3 MICRON ABOVE 100%

PEASD INTERNAL REVIEW  
C&I SIGN

REV.	DATE	ALTERED	CHD/APPD	REV.	DATE	ALTERED	CHD/APPD	REV.	DATE	ALTERED	CHD/APPD	REV.	DATE	ALTERED	CHD/APPD	REV.	DATE	ALTERED	CHD/APPD
01	13.07.20			02				03				04				05			

DRG. NO. PYDP1M161201401



LEGEND FOR INSTRUMENT  
BASED ON SIGNAL TYPE:

FIELD BUS SIGNAL

HART SIGNAL

	Press. kg/cm <sup>2</sup> (g)	Temp. °C	Flow m <sup>3</sup> /hr
NOR.	23	90	12067
MIN.	23	90	2828
MAX.	23	95	14170
MECH. DESIGN	34.5	120	---

	Press. kg/cm <sup>2</sup> (g)	Temp. °C	Flow m <sup>3</sup> /hr
NOR.	22.8	90	12067
MIN.	22.5	90	2828
MAX.	23	95	14170
MECH. DESIGN	34.5	120	---

## NOTES:- MECHANICAL

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SCOPE OF SUPPLY  
FOR FINE FILTER SKID VENDOR

DESCRIPTION	LEGEND
LEVEL GAUGE	LG
LEVEL TRANSMITTER	LT
DIFFERENTIAL PRESS TRANSMITTER	DPT
DIFFERENTIAL PRESS GAUGE	DPG
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BALL VALVE NORMALLY CLOSED	—
BALL VALVE NORMALLY OPEN	—
GATE VALVE - NORMALLY OPEN	—
GATE VALVE - NORMALLY CLOSED	—
CHECK VALVE (SWING CHECK)	—
CHECK VALVE (PISTON LIFT)	—
GLOBE VALVE - NORMALLY OPEN	—
GLOBE VALVE - NORMALLY CLOSED	—
SOLENOID VALVE (3-WAY)	—
SAFETY VALVE (SPRING LOADED)	—
MODULATING CONTROL VALVE WITH PNEUMATIC ACTUATOR WITH SMART POSITIONER	—
FF TYPE SIGNAL	—

## INTERFACE with PIPING

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[D] Level Instruments			
1	Level gauge (Side mounted)	1" flanged	Rating as per piping class
2	Level Transmitters (Guided wave Radar type) (Top mounted type)	3" flanged	300 # RF;

## EFFICIENCY

FINE FILTER SKID ( 2 X 100%)  
SOLID REMOVAL 3 MICRON ABOVE 100%  
LIQUID REMOVAL 3 MICRON ABOVE 100%

## 2X100% FINE FILTER SKID FOR GAS TURBINE#2 (BY SKID VENDOR)

## PE&amp;SD INTERNAL REVIEW

REV.	C&I	SIGN
REV.		

NAME	SIGN.	DATE	NO. OF
DRN. MURALIDHAR		29.05.20	VAR.
CHD. IFTEKHARUL	sd/-	29.05.20	N.A.
APPD. MSSN	sd/-	29.05.20	N.A.

DEPT.	UNTOL.	DIMS.	SCALE	WEIGHT	REF.	TO ASSY.	DRG.	ITEM NO.	NO. OF
450	GR	9/4/1	N.T.S	N.A.	N.A.	N.A.	N.A.	N.A.	02
TITLE P&ID FOR NATURAL GAS CONDITIONING SYSTEM FOR GT#1, GT#2									
BY DP-1-M161-2014-01									
NA MF101-380-05-1501									
SHT. No 02 NO. OF SHT. 02									

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GENERAL DIMENSIONAL LIMITS, FITS &amp; TOLERANCES AS PER HY0230261

INVENTORY NO.

SIGN. AND DATE

REF. DRG. NO.

COMPUTER FILE NAME