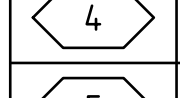
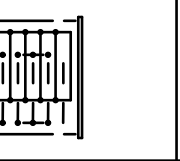
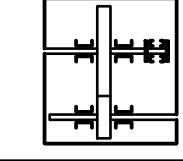
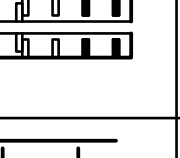
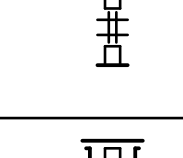
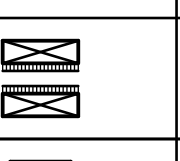
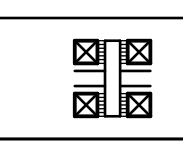
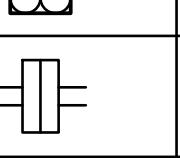
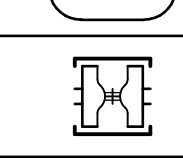
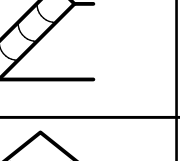
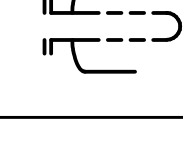
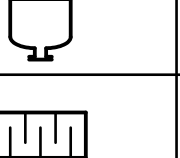
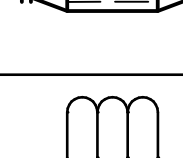
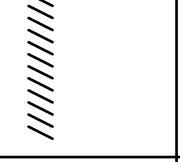
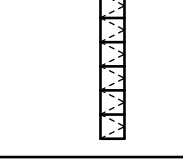
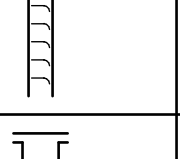
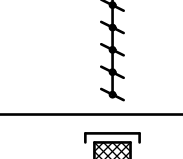
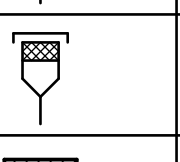
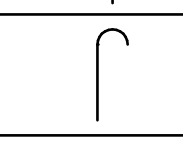
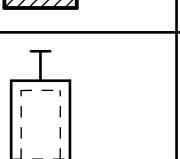
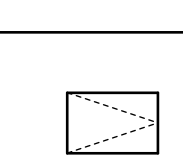
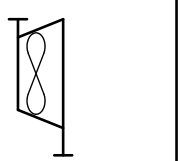
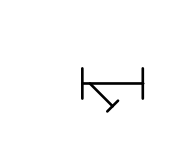
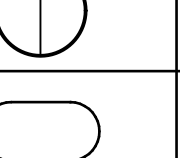
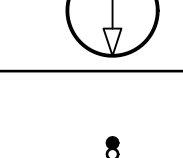
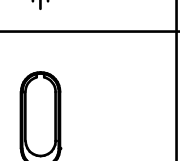
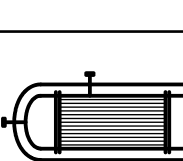
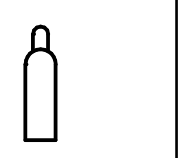
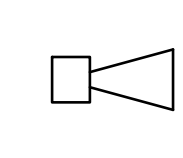
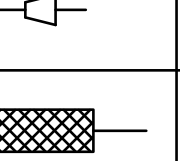
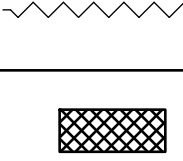
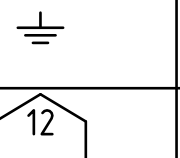

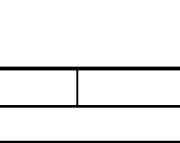
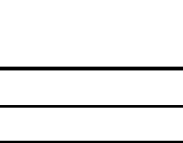


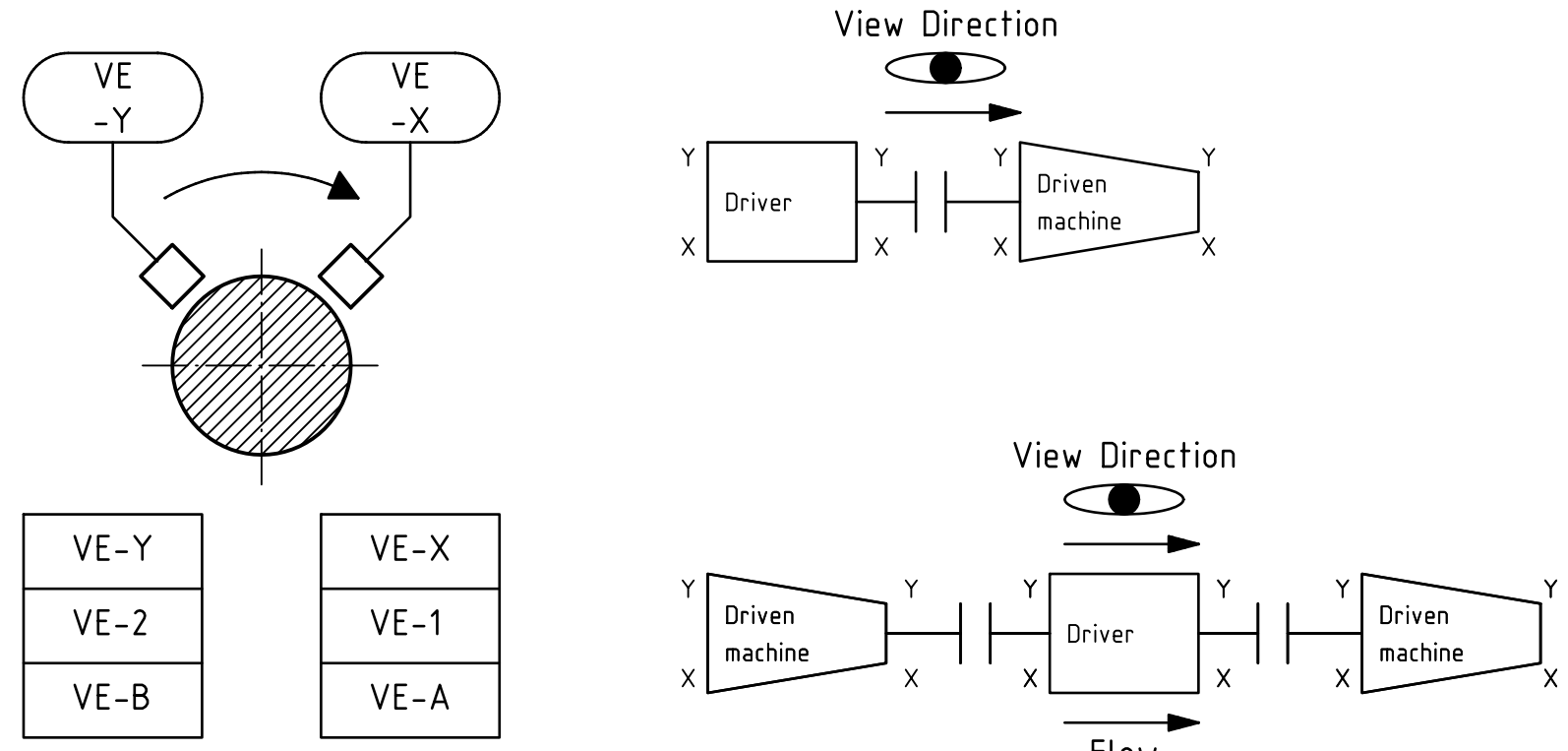
ISA-S 5.1		KENNBUCHSTABEN IDENTIFICATION LETTERS			MAN STANDARD = 
		1. BUCHSTABE FIRST-LETTER	FOLGEBUCHSTABEN SUCCEEDING-LETTERS		
		MESS- ODER EINGANGSGRÖSSE MEASURED OR INITIATIVE VARIABLE	ERGÄNZUNG MODIFIER	ABLESUNG ODER PASSIVFUNKTION READOUT OR PASSIVE FUNC.	ERGÄNZUNG MODIFIER
BEDEUTUNG DER BUCHSTABEN MEANING OF IDENTIFICATION LETTERS	A	ANALYSE ANALYSIS		ALARM ALARM	
	B	BRENNER, VERBRENNUNG BURNER, COMBUSTION			
	C	LEITFÄHIGKEIT CONDUCTIVITY			REGELUNG CONTROL
	D	DICHTE DENSITY	DIFFERENZ DIFFERENTIAL		
	E	SPANNUNG VOLTAGE		FÜHLER SENSOR	
	F	DURCHFLOßSMENGE FLOW RATE	VERHÄLTNIS RATIO		
	G			SCHAUGLASS FLOW GLAS	
	H	HANDBETAETIGT HAND OPERATED			HOCH / OFFEN HIGH / OPEN
	I	STROM CURRENT		ANZEIGE INDICATE	
	J	LEISTUNG POWER	ABFRAGE SCAN		
	K	ZEIT / ZEITPROGRAMM TIME / TIME SCHEDULE	ÄNDERUNGSGRADIENT TIME RATE OF CHANGE	LEITSTATION CONTROL STATION	
	L	NIVEAU LEVEL		LAMPE LIGHT	NIEDRIG / GESCHLOSSEN LOW / CLOSED
	M	FEUCHTIGKEIT HUMIDITY	MOMENTAN MOMENTARY		MITTEL- / ZWISCHENWERT MIDDLE / INTERMEDIATE
	N				
	O			DROSSELBLEND ORIFICE / RESTRICTION	
	P	DRUCK / VAKUUM PRESSURE / VACUUM		MESSSTELLE POINT CONNECTION	
	Q	ANZAHL QUANTITY	INTEGRAL / SUMME INTEGRATE / TOTALIZE		
	R	BEGRENZUNG RESTRICTION		SCHREIBER RECORD	
	S	DREHZAHN / FREQUENZ SPEED / FREQUENCY	SICHERHEIT SAFETY		SCHALTER SWITCH
	T	TEMPERATUR TEMPERATURE			MESSUMFORMER TRANSMITTER
	U	ZUSAMMENGESETZTE GRÖSSEN MULTIVARIABLE		MEHRFACHFUNKTION MULTIFUNCTION	MEHRFACHFUNKTION MULTIFUNCTION
	V	VIBRATION / MECH. ANALYSE VIBRATION / MECH. ANALYSIS			VENTIL / KLASPE VALVE
	W	MASSE / KRAFT WEIGHT / FORCE		SACK / TASCH WELL	
	X		X-ACHSE X-AXIS		
	Y	VORFALL / ZUSTAND EVENT / STATE	Y-ACHSE Y-AXIS	RELAIS / RECHNER RELAY / COMPUTE	
	Z	POSITION POSITION	Z-ACHSE Z-AXIS	ANTRIEB DRIVE / ACTUATOR	

STANDARD		KENNZAHLEN UND BUCHSTABEN IDENTIFICATION FIGURES AND LETTERS	
STEUERUNGEN AUTOMATIC CONTROLS		1	SCHNELLABSCHALTUNG MIT ENTSPANNUNG SHUTDOWN WITH BLOWDOWN
		2	SCHNELLOEFFNUNG AB- / UMBLASEVENTIL QUICK OPENING BLOW-OFF / RECYCLE VALVE
		3	WELLENDEHVVORRICHTUNG BARRING GEAR
		4	ÖLPUMPE OIL PUMP
		5	EINSCHALTVERRIGELUNGS-SYSTEM START-UP INTERLOCKING SYSTEM
		6	KONDENSATPUMPE CONDENSATE PUMP
		7	NOTÖEL- / KUEHLOELPUMPE EMERGENCY OIL / COOLING OIL PUMP
		8	ÖLHEIZUNG OIL HEATER
		9	LEITSCHAUFEL / VORROTATION GUIDE VANE / INLET GUIDE VANES
		10	ÖLDUNST-VENTILATOR OIL MIST FAN
		11	WELLENABHEBEPUMPE JACKING OIL PUMP
		12	ANTRIEBSMOTOR STILLSTANDSHEIZUNG DRIVING MOTOR SPACE HEATER
		13	SCHALLHAUBENLUEFTER NOISE HOOD FAN
		14	LUFTFILTER AIR FILTER
		15	ANTRIEBSMOTOR DRIVING MOTOR
		16	SPERRWASSER SEAL WATER
		17	KUEHLER-VENTILATOR COOLER FAN
		18	SPERRÖLPUMPE SEAL OIL PUMP
		19	UNDEFINIERTES / KOMPLEXES LOGIKSYSTEM UNDEFINED / COMPLEX LOGIC SYSTEM
		20	-
		21	-
		22	-
		23	-
		24	-
		25	SCHNELLABSCHALTUNG OHNE ENTSPANNUNG SHUTDOWN WITHOUT BLOWDOWN
		26	DRUCKVERSTAERKER / SPERRGASHEIZUNG PRESSURE BOOSTER / SEAL GAS HEATER
		27	SPERRGASVENTIL SEAL GAS VALVE
		28	STEUERUNG PROZESSVENTILE CONTROL PROCESS VALVES
		29	VERDICHTER-SCHNELLABSCHALTUNG & ABSCHALTUNG DES MAG- NETFELDES DER WELLENABHEBUNG BEI NIEDRIGER DREHZAHN SHUTDOWN COMPRESSOR & STOP SHAFT LEVITATION AT LOW SHAFT SPEED

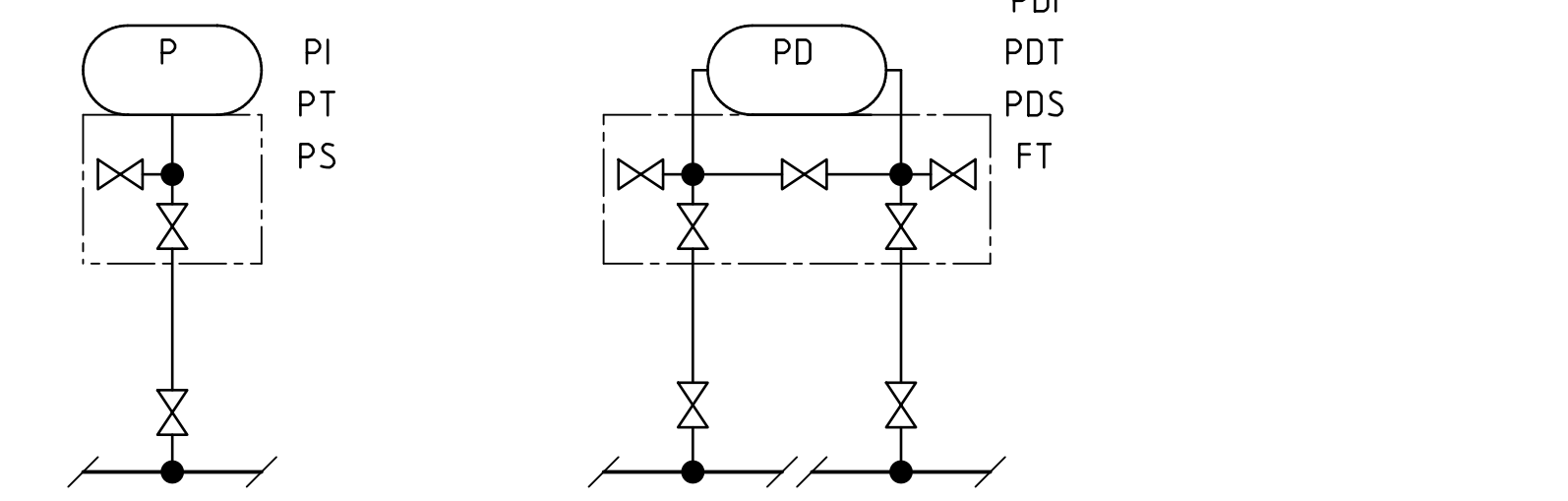
ABKÜRZUNGEN ABBREVIATIONS	A	AUSTRITT ZU ATMOSPHERE (UNVERSCHLOSSEN) OUTLET TO ATMOSPHERE (NOT CLOSED)	AS	INSTRUMENTLUFT ZUFUHR INSTRUMENT AIR SUPPLY
	C	KONDENSATAUSTRITT CONDENSATE OUTLET	FC	BEI AUSFALL SCHLIESSEN FAIL CLOSE
	CO	REGELOEL ZULAUF CONTROL OIL SUPPLY	FO	BEI AUSFALL OEFFNEN FAIL OPEN
	D	ENTLEERUNG DRAIN	LC	ZU ABGESCHLOSSEN LOCKED CLOSE
	R	RUECKLAUF ZU RESERVOIR RETURN TO RESERVOIR	LO	OFFEN ABGESCHLOSSEN LOCKED OPEN
	V	ENTLUEFTUNG VENT	DCS	LEITSYSTEM DISTRIBUTED CONTROL SYSTEM
	RTD	WIDERSTANDS-TEMPERATUR-MESSELEMENT RESISTANCE TEMPERATURE DETECTOR	MCC	NIEDERSpannungsVERTEILER MOTOR CONTROL CENTER
	TC	THERMOELEMENT THERMO COUPLE	PLC	SPEICHERPROGRAMMIERBARE STEUERUNG PROGRAMMABLE LOGIC CONTROL


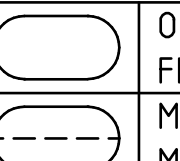


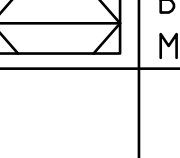
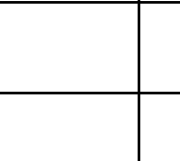
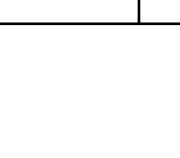
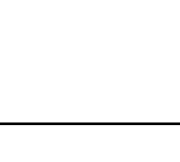

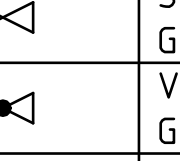
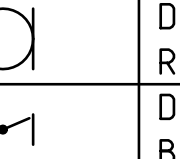
STANDARD		SYMBOLS	
	PLATTEN-WAERMETAUSCHER PLATE HEAT EXCHANGER		GETRIEBE (TYPISCH) GEAR (TYPICAL)
	TROCKENGASDICHTUNG (TYPISCH) DRY GAS SEAL (TYPICAL)		LABYRINTHDICHTUNG LABYRINTH SEAL
	TRAGLAGER JOURNAL BEARING		AXIALLAGER THRUST BEARING
	MAGNET-TRAGLAGER JOURNAL BEARING MAGNETIC		MAGNET-AXIALLAGER THRUST BEARING MAGNETIC
	NOTLAUFLAGER EMERGENCY BEARING		SCHWEBEKOEPPER DURCHFLOßMESSER (ROTAMETER) VARIABLE AREA METER (ROTAMETER)
	STARRE KUPPLUNG SOLID COUPLING		ELASTISCHE KUPPLUNG FLEXIBLE COUPLING
	ROHRKRUEMMER MIT UMLENKSCHAUPELN PIPE ELBOW WITH GUIDE VANES		DIFFUSOR VENTIL-AUSTRITTSSEITE DIFFUSOR DOWNSTREAM OF VALVE
	AUSBLASE-SCHALLDAEMPFER BLOW-OFF SILENCER		SCHALLDAEMPFER IN LEITUNG INLINE SILENCER
	FLAMMENSPERRE FLAME ARRESTER		DEHNUNGS-AUSGLEICHER BELLOWS COMPENSATOR
	WETTERSCHUTZGITTER WEATHER LOUVRE		ANSAUG-LUFTFILTER (TYPISCH) INTAKE AIR FILTER (TYPICAL)
	WASSERABSCHIEDER WATER SEPARATOR		VERSTELLBARE LEITSCHAUFELN / VORROTATION ADJUSTABLE STATOR BLADES / INLET GUIDE VANE
	EINFUELLSTUTZEN MIT FILTER FILLER WITH FILTER		EINFUELLSTUTZEN / ENTLUEFTER MIT FILTER FILLER / BREATHER WITH FILTER
	EINFUELLSTUTZEN / ENTLUEFTER FILLER / BREATHER		ENTLUEFTUNG VENT PIPE
	FILTER FILTER		ANSAUGSIEB SUCTION SCREEN
	ÖLDUNSTABSCHIEDER OIL MIST SEPARATOR		GAS FILTER, KONISCHE AUSFUEHRUNG GAS STRAINER, CONICAL DESIGN
	VENTILATOR FAN		SCHMUTZFAENGER STRAINER
	PUMPE MIT EINER DREHRICHTUNG PUMP WITH ONE SENSE OF ROTATION		PUMPE MIT ZWEI DREHRICHTUNGEN PUMP WITH TWO SENSES OF ROTATION
	MESSBLEND ORIFICE PLATE		BRILLENTECKSCHEIBE SPECTACLE BLIND
	BLASEN-DRUCKSPEICHER BLADDER TYPE PRESSURE ACCUMULATOR		MEMBRANSEPARATOR MEMBRANSEPARATOR
	GAS-DRUCKFLASCHE GAS BOTTLE		STRAHLAPPARAT EJECTOR
	NENNWEITENVERÄNDERUNG LINE SIZE CHANGE		ELEKTRISCHES HEIZELEMENT ELECTRIC HEATER
	ISOLIERTE LEITUNG INSULATED LINE		ISOLIERTE OBERFLÄCHE INSULATED SURFACE
	ERDUNG EARTHING		EINSPRITZDUESE INJECTION NOZZLE
	ROHRLEITUNGS-ANSCHLUßNUMMER PIPE CONNECTION NUMBER		LIEFERGRENZE LIMIT OF SUPPLY


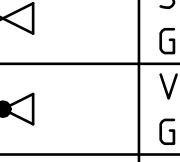
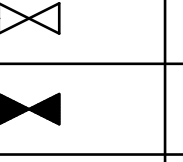
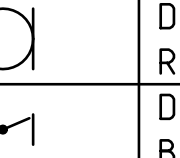
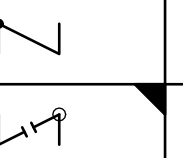
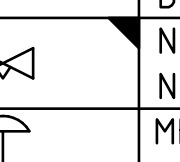
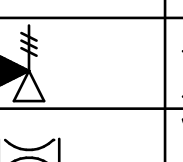

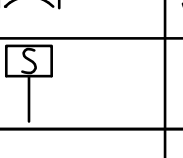
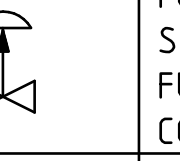
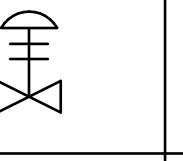

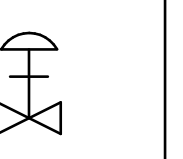
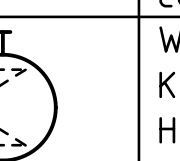
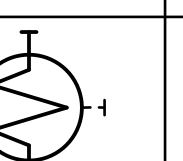
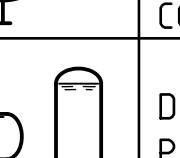
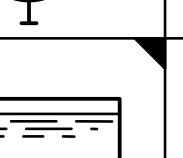

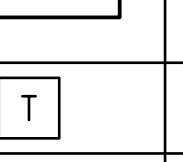
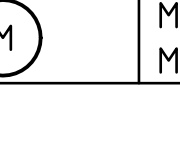
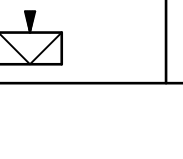


NOTES:
1) ALL VIBRATION PROBES ARE MOUNTED AS FOLLOWS:



2) ALL PRESSURE AND DIFFERENTIAL PRESSURE INSTRUMENTS WILL HAVE MANIFOLD AND ROOT VALVES AS FOLLOWS:



ISA-S 5.1		INSTRUMENTE- UND LINIENSYMBOLS INSTRUMENT AND LINE SYMBOLS		MAN STANDARD = 
EINGABORT MOUNTING LOCATION		ÖERTLICH MONTIERT FIELD MOUNTED	INSTRUMENTLEITUNGSYMBOLS INSTRUMENT LINE SYMBOLS	INSTRUMENT IMPULSLEIT. / VERBINO. ZU PROZESS INSTRUMENT SUPPLY / CONNECTION TO PROCESS
		MONTIERT AUF ÖERTLICHEM GESTELL MOUNTED ON LOCAL RACK		PNEUMATISCHES SIGNAL PNEUMATIC SIGNAL
		EINGEBAUT IM STEUERSCHRANK (SICHERER BEREICH) MOUNTED ON UNIT CONTROL PANEL (SAFE AREA)		ELEKTRISCHES SIGNAL ELECTRIC SIGNAL
		EINGEBAUT IM ÖERTLICHEN SCHRANK MOUNTED ON LOCAL PANEL		HYDRAULISCHES SIGNAL HYDRAULIC SIGNAL
		BILDSCHIRMANZEIGE IM UEBERGEORDNETEN SYSTEM MONITOR DISPLAY IN DCS		KAPILLAR LEITUNG CAPILLARY TUBE
		BILDSCHIRMANZEIGE IM STEUERSCHRANK MONITOR DISPLAY ON THE UNIT CONTROL PANEL		INTERNE SERIELLE SYSTEMVERBINDUNG INTERNAL SERIAL SYSTEM LINK
				MECHANISCHE VERBINDUNG MECHANICAL LINK
				ELEKTRISCHE ROHRBEGLEITHEIZUNG ELECTRICALLY HEAT TRACED
				ROHRLEITUNG MIT GEFAELLE PIPE WITH SLOPE
				

ISA-S 5.1 / 5.5		SYMBOLS		MAN STANDARD = 
	SCHIEBER / UNDEFINIERTER ARMATUR GATE VALVE / UNDEFINED VALVE		IM NORMALBETRIEB OFFEN DURING NORMAL OPERATION OPEN	
	VENTIL GLOBE VALVE		IM NORMALBETRIEB GESCHLOSSEN DURING NORMAL OPERATION CLOSED	
	DREHKEGEL- ODER KUGELVENTIL ROTARY PLUG OR BALL VALVE		RUECKSCHLAGKLAPPE / RUECKSCHLAGVENTIL NON-RETURN (CHECK) VALVE	
	DREHKLAPPE BUTTERFLY VALVE		RUECKSCHLAGKLAPPE / RUECKSCHLAGVENTIL MIT BOHRUNG NON-RETURN (CHECK) VALVE WITH BORE	
	NADELVENTIL NEEDLE VALVE		SICHERHEITVENTIL SAFETY RELIEF VALVE	
	MEMBRAN-ANTRIEB DIAPHRAGM ACTUATOR		VENTURIROHR ODER DUESE VENTURI TUBE OR FLOW NOZZLE	
	KOLBEN-ANTRIEB PISTON ACTUATOR		MAGNET-ANTRIEB SOLENOID ACTUATOR	
	FUNKTION BEI AUSFALL DER HILFSENERGIE: STELLGLIED OEFFNET FUNCTION ON FAILURE OF AUXILIARY ENERGY SUPPLY: CONTROL ELEMENT OPENS		FUNKTION BEI AUSFALL DER HILFSENERGIE: STELLGLIED BLEIBT IN MOMENTANSTELLUNG FUNCTION ON FAILURE OF AUXILIARY ENERGY SUPPLY: CONTROL ELEMENT RETAINS POSITION (LOCKED)	
	FUNKTION BEI AUSFALL DER HILFSENERGIE: STELLGLIED SCHLIESST FUNCTION ON FAILURE OF AUXILIARY ENERGY SUPPLY: CONTROL ELEMENT CLOSSES		FUNKTION BEI AUSFALL DER HILFSENERGIE: STELLGLIEDSTELLUNG UNBESTIMMT FUNCTION ON FAILURE OF AUXILIARY ENERGY SUPPLY: CONTROL ELEMENT POSITION INDETERMINATED	
	WÄRMETAUSCHER KUEHLMEDIUM IN DEN ROHREN HEAT EXCHANGER COOLANT IN THE TUBES		WÄRMETAUSCHER KUEHLMEDIUM UM DIE ROHRE HEAT EXCHANGER COOLANT AROUND THE TUBES	
	DRUCKBEHALTER PRESSURE VESSEL		DRUCKLOSER BEHALTER TANK WITHOUT INTERNAL PRESSURE	
	FLUEGELRAD / VENTILATOR IMPELLER / FAN		AUSSCHLEUSESTOPF DRAIN TRAP	
	MOTOR MOTOR		BERSTSCHEIBE (PFEIL IN BRECHRICHTUNG) RUPTURE DISC (ARROW IN BURSTING DIRECTION)	

REFERENCE DOCUMENTS

ENAR DOCUMENTS

P&ID LEGEND AND GENERAL NOTES: 4928-PB-2150
P&ID PERMEATE COMPRESSOR 3: 4928-PB-2151 - 4928-PB-2154
P&ID PERMEATE COMPRESSOR 4: 4928-PB-2155 - 4928-PB-2158
P&ID NITROGEN GAS GEN. PACKAGE COMPRESSOR 3: 4928-PB-2163
P&ID NITROGEN GAS GEN. PACKAGE COMPRESSOR 4: 4928-PB-2164
P&ID GAS TURBINE EXHAUST HEADER: 4928-PB-2160

MAN DOCUMENTS


COMMON FOR COMPRESSORS AND GAS TURBINE
GENERAL ARRANGEMENT: 10000457768
FOUNDATION PLAN: 10000457765
TAKE OVER POINT LIST: 10000459790
I/O - SIGNAL LIST: 10000457205

FOR COMPRESSORS ONLY
SYMBOLS AND ABBREVIATION P&ID: 837 045 339 SHEET 1
MECHANICAL MONITORING P&ID: 837 045 339 SHEET 2
MECHANICAL MONITORING P&ID: 837 045 339 SHEET 3
LUBE OIL P&ID: 837 045 339 SHEET 5
LP- DRY GAS SEAL SYSTEM P&ID: 837 045 339 SHEET 6
HP- DRY GAS SEAL SYSTEM P&ID: 837 045 339 SHEET 7
NITROGEN GENERATOR P&ID: 837 050 822
FUNCTION DIAGRAM:

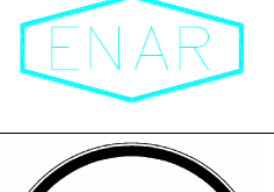
FOR GAS TURBINE ONLY
GAS TURBINE P&ID'S:
FUNCTION DIAGRAM: 10000457200
HOLD

OIL & GAS DEVELOPMENT
COMPANY LTD
QADIRPUR GAS PROCESSING
FACILITIES
PAKISTAN


PERMEATE COMPRESSORS K-2721 / K-2731



CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD**



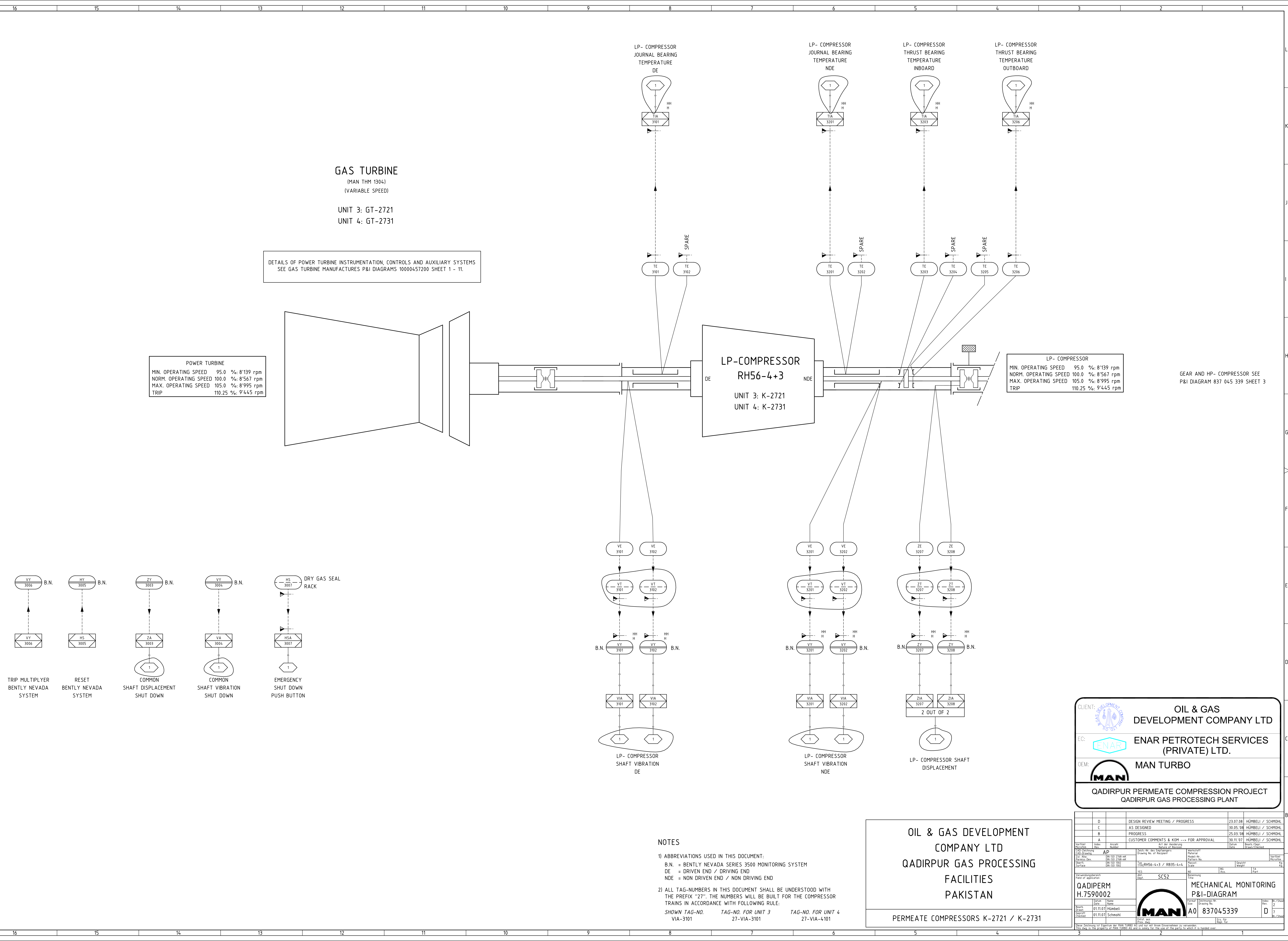
EC: **ENAR PETROTECH SERVICES (PRIVATE) LTD.**



DEM: **MAN TURBO**

QADIRPUR PERMEATE COMPRESSION PROJECT
QADIRPUR GAS PROCESSING PLANT

D	DESIGN REVIEW MEETING / PROGRESS	23.07.08	HUMBELI / SCHMIDH
C	AS DESIGNED	26.05.08	HUMBELI / SCHMIDH
B	PROGRESS	25.03.08	HUMBELI / SCHMIDH
A	APPROVED BY CLIENT	13.11.07	HUMBELI / SCHMIDH
Version	Index	Revisi	Art der Änderung
01.11.07	01	01	Initial
01.11.07	02	02	Revised
01.11.07	03	03	Revised
01.11.07	04	04	Revised



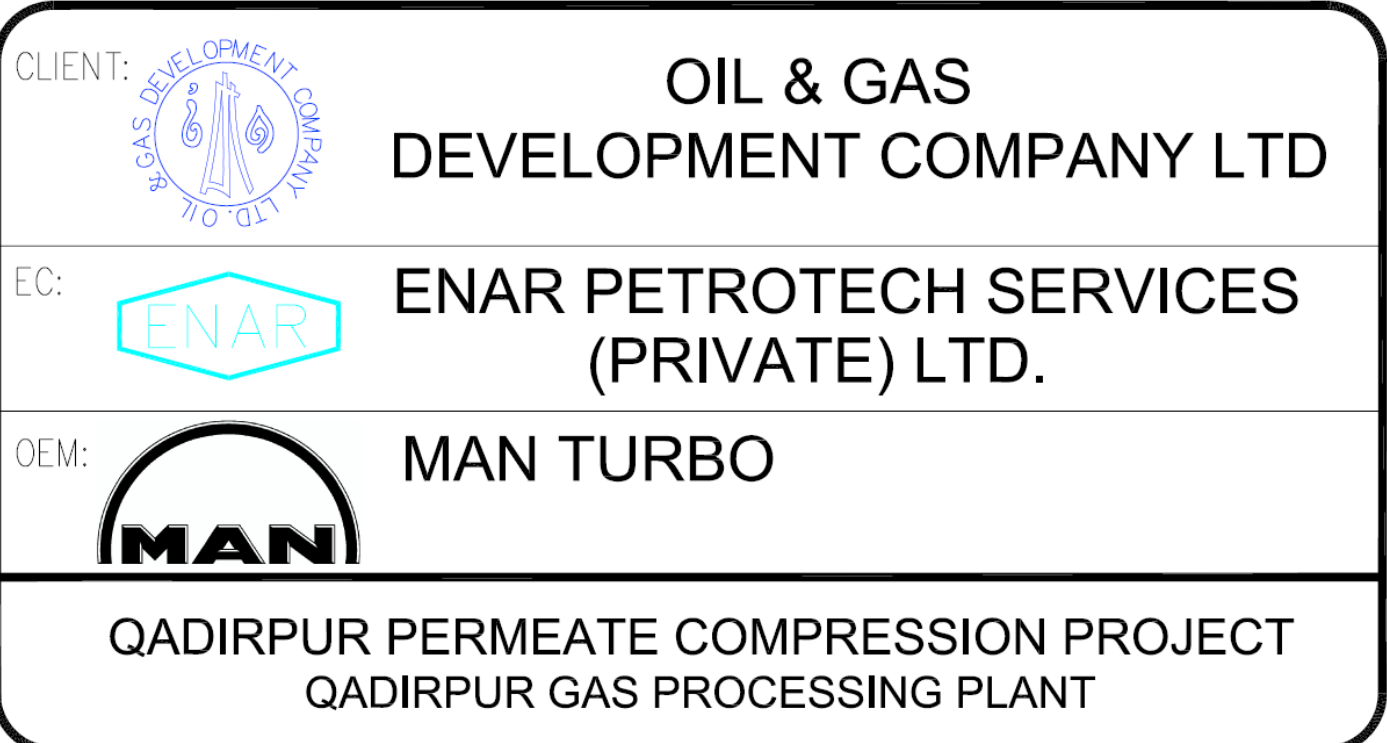
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD**

EC: **ENAR PETROTECH SERVICES (PRIVATE) LTD.**

OEM: **MAN TURBO**

QADIRPUR PERMEATE COMPRESSION PROJECT
QADIRPUR GAS PROCESSING PLANT

D	DESIGN REVIEW MEETING / PROGRESS	23.07.08	HUMBELI / SCHMOHL
C	AS DESIGNED	30.05.08	HUMBELI / SCHMOHL
B	PROGRESS	25.03.08	HUMBELI / SCHMOHL
A	CUSTOMER COMMENTS & KOM --> FOR APPROVAL	30.11.07	HUMBELI / SCHMOHL
Version	Index	Arbeits	Art der Änderung
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100.0	100	100	100

[illegible]

PROCESS

- TWO (2) ANTISURGE CONTROLLERS SUPPLIED BY MAN TURBO
- TWO (2) ANTISURGE CONTROL VALVES SUPPLIED BY MAN TURBO
- TWO (2) SETS OF FIELD INSTRUMENTS (EACH OF THEM CONSISTS OF 2 PRESSURE AND 1 TEMPERATURE TRANSMITTER) FOR ANTISURGE CONTROL SUPPLIED BY MAN TURBO.
- TWO (2) FLOW MEASURING DEVICES FOR ANTISURGE CONTROL SUPPLIED BY MAN
- SUCTION PRESSURE AND FLOW CONTROLLER AS SOFTWARE SOLUTION IN PLC
- TWO (2) DISCHARGE CHECK VALVES SUPPLIED BY OTHERS
- ONE PRESSURE TRANSMITTER AT SUCTION SIDE OF 1ST STAGE FOR LOAD CONTROL.
- ALL PROCESS EQUIPMENT, PIPING, MEASURING ELEMENTS AND TRANSMITTERS SUPPLIED BY OTHERS

FOR PROCESS DETAILS REFER TO ENAR - DOCUMENTS

PROCESS

- TWO (2) ANTISURGE CONTROLLERS SUPPLIED BY MAN TURBO
- TWO (2) ANTISURGE CONTROL VALVE SUPPLIED BY MAN TURBO
- TWO (2) SETS OF FIELD INSTRUMENTS (EACH OF THEM CONSISTS OF 2 PRESSURE AND 1 TEMPERATURE TRANSMITTER) FOR ANTISURGE CONTROL SUPPLIED BY MAN TURBO.
- TWO (2) FLOW MEASURING DEVICES FOR ANTISURGE CONTROL SUPPLIED BY MAN
- TWO (2) DISCHARGE CHECK VALVES SUPPLIED BY OTHERS
- ALL PROCESS EQUIPMENT, PIPING, MEASURING ELEMENTS AND TRANSMITTERS SUPPLIED BY OTHERS

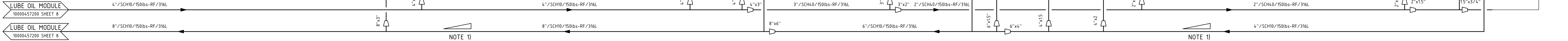
FOR PROCESS DETAILS REFER TO ENAR - DOCUMENTS

GAS TURBINE
(MAN THM 1304)
(VARIABLE SPEED)
UNIT 3: GT-2721
UNIT 4: GT-2731
MAN P&ID's 10000457200 SHEET 1 - 11

POWER TURBINE
MIN. OPERATING SPEED 95.0 %: 8'139 rpm
NORM. OPERATING SPEED 100.0 %: 8'567 rpm
MAX. OPERATING SPEED 105.0 %: 8'995 rpm
TRIP 110.25 %: 9'445 rpm

LUBE OIL
OIL TYPE: MINERAL, ISO VG46
QUALITY: DEGASED, FILTERED (10 MICRON REL.)
SUPPLY PRESSURE: 27.6 PSIG
SUPPLY TEMPERATURE: 120/131 °F
FLOW: 181 gpm [US]
DUTY: 279 kW

LUBE OIL MODULE
10000457200 SHEET 8
LUBE OIL MODULE
10000457200 SHEET 8



ELECTRICAL POWER SUPPLY
INSTRUMENTATION/SOLENOIDS/CONTROLS
VOLTAGE: 24 VDC
PHASES: 2-WIRED (LOOP POWERED)
FREQUENCY: -

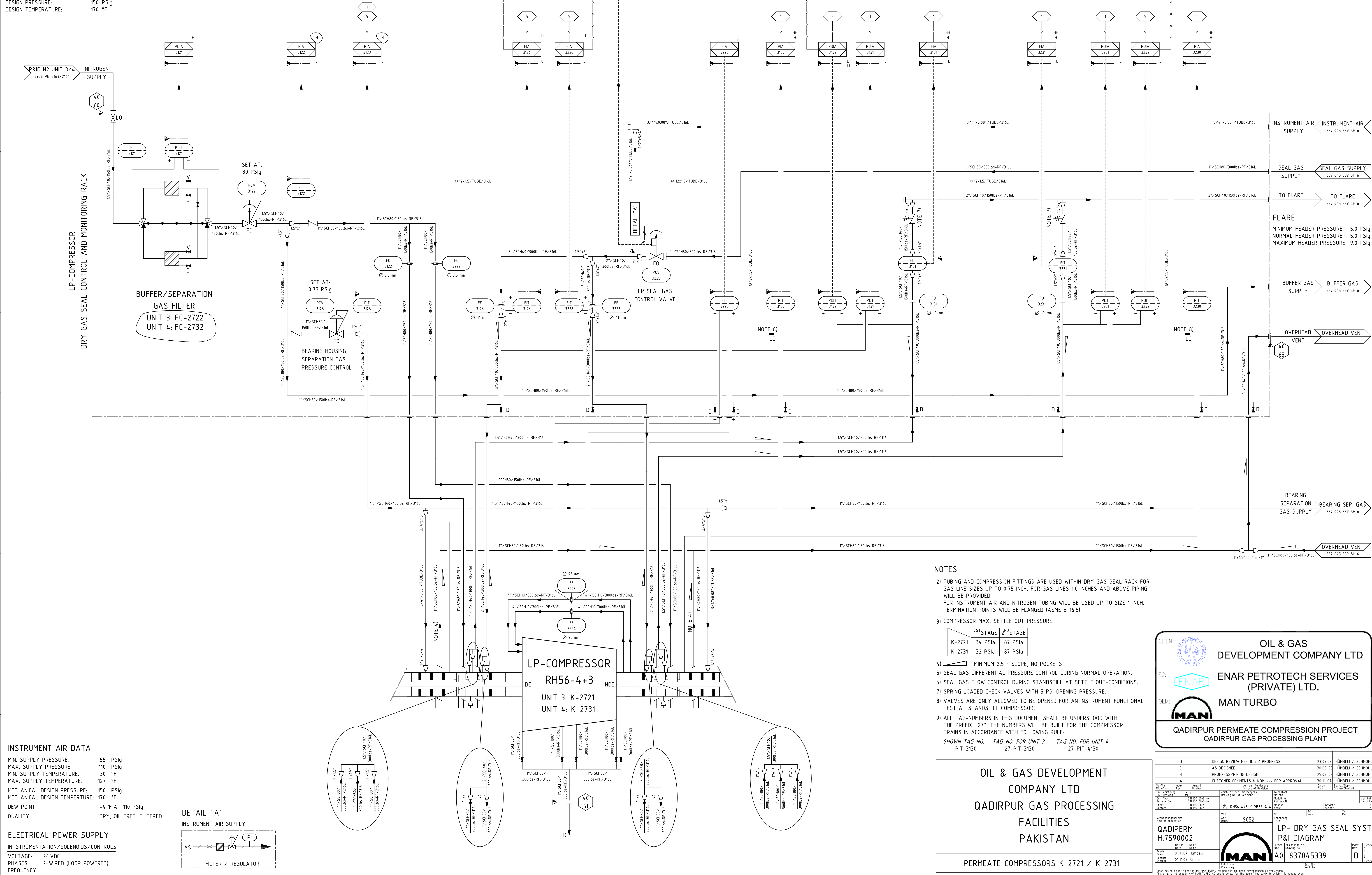
- NOTES**
- 1) MINIMUM 2.5 ° SLOPE; NO POCKETS
 - 2) NOISE / HEAT INSULATION SUPPLIED BY OTHERS
 - 3) TEMPORARY SUCTION STRAINER SUPPLIED BY OTHERS, PIPE SPOOL PIECE AND DIFFERENTIAL PRESSURE MEASUREMENT SUPPLIED BY OTHERS. STRAINER TO BE REMOVED AFTER COMMISSIONING.
 - 4) THE MAXIMUM PIPE VOLUME TRAPPED BETWEEN THE COMPRESSOR DISCHARGE FLANGE AND THE BLOW-OFF VALVE SHOULD NOT BE BIGGER THAN THE NORMAL DISCHARGE VOLUME DELIVERED WITHIN 3 SECONDS.
 - 5) TRANSMITTER MOUNTED ON HP- DRY GAS SEAL RACK
 - 6) THE SETTLE OUT PRESSURES HAS BEEN DEFINED AS:
- | | 1 ST STAGE | 2 ND STAGE | 3 RD STAGE | 4 TH STAGE |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|
| K-2721 | 34 PSia | 87 PSia | 198 PSia | 557 PSia |
| K-2731 | 32 PSia | 87 PSia | 202 PSia | 550 PSia |
- 7) ALL TAG-NUMBERS IN THIS DOCUMENT SHALL BE UNDERSTOOD WITH THE PREFIX "27". THE NUMBERS WILL BE BUILT FOR THE COMPRESSOR TRAINS IN ACCORDANCE WITH FOLLOWING RULE:
- | | | |
|--------------|--------------------|--------------------|
| SHOW TAG-NO. | TAG-NO. FOR UNIT 3 | TAG-NO. FOR UNIT 4 |
| FG-3220 | 27-FG-3220 | 27-FG-4220 |

OIL & GAS DEVELOPMENT COMPANY LTD
QADIRPUR GAS PROCESSING FACILITIES
PAKISTAN
PERMEATE COMPRESSORS K-2721 / K-2731

CLIENT: OIL & GAS DEVELOPMENT COMPANY LTD
EC: ENAR PETROTECH SERVICES (PRIVATE) LTD.
CEM: MAN TURBO
QADIRPUR PERMEATE COMPRESSION PROJECT
QADIRPUR GAS PROCESSING PLANT

D		DESIGN REVIEW MEETING / PROGRESS	23.07.08	HUMBELL / SCHMIDL
C		AS DESIGNED	30.05.08	HUMBELL / SCHMIDL
B		PROGRESS / PIPING DESIGN	25.03.08	HUMBELL / SCHMIDL
A		CUSTOMER COMMENTS & KOM -> FOR APPROVAL	30.11.07	HUMBELL / SCHMIDL
Version	Index	Revisi	Art der Änderung	Notiz / Änderungs
1.0	1.0	1.0	1.0	1.0
2.0	2.0	2.0	2.0	2.0
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99.0	99.0	99.0	99.0	99.0
100.0	100.0	100.0	100.0	100.0

QUALITY:	DRY, CLEAN, OIL FREE
PURITY:	≥95 %
MIN. SUPPLY PRESSURE:	50 PSlg
MAX. SUPPLY PRESSURE:	95 PSlg
MIN. SUPPLY TEMPERATURE:	77 °F
MAX. SUPPLY TEMPERATURE:	101 °F
DESIGN PRESSURE:	150 PSlg
DESIGN TEMPERATURE:	170 °F



2) TUBING AND COMPRESSION FITTINGS ARE USED WITHIN DRY GAS SEAL RACK FOR GAS LINE SIZES UP TO 0.75 INCH. FOR GAS LINES 1.0 INCHES AND ABOVE PIPING WILL BE PROVIDED.
FOR INSTRUMENT AIR AND NITROGEN TUBING WILL BE USED UP TO SIZE 1 INCH. TERMINATION POINTS WILL BE FLANGED (ASME B 16.5)

	1 ST STAGE	2 ND STAGE
K-2721	34 PSla	87 PSla
K-2731	32 PSla	87 PSla

- 5) SEAL GAS DIFFERENTIAL PRESSURE CONTROL DURING NORMAL OPERATION.
- 6) SEAL GAS FLOW CONTROL DURING STANDSTILL AT SETTLE OUT-CONDITIONS.
- 7) SPRING LOADED CHECK VALVES WITH 5 PSI OPENING PRESSURE.
- 8) VALVES ARE ONLY ALLOWED TO BE OPENED FOR AN INSTRUMENT FUNCTIONAL TEST AT STANDSTILL COMPRESSOR.

HOWN TAG-NO.	TAG-NO. FOR UNIT 3	TAG-NO. FOR UNIT 4
PIT-3130	27-PIT-3130	27-PIT-4130

HOWN TAG-NO.	TAG-NO. FOR UNIT 3	TAG-NO. FOR UNIT 4
PIT-3130	27-PIT-3130	27-PIT-4130

CH 3 GAS DEVELOPMENT

OIL & GAS DEVELOPMENT
COMPANY LTD.

COMPANY LTD
CARIBBEAN GAS PROCESSING

QADIRPUR GAS PROCESSING FACILITIES

FACILITIES
PAKISTAN

PAKISTAN

PERMEATE COMPRESSORS K-2721 / K-2722

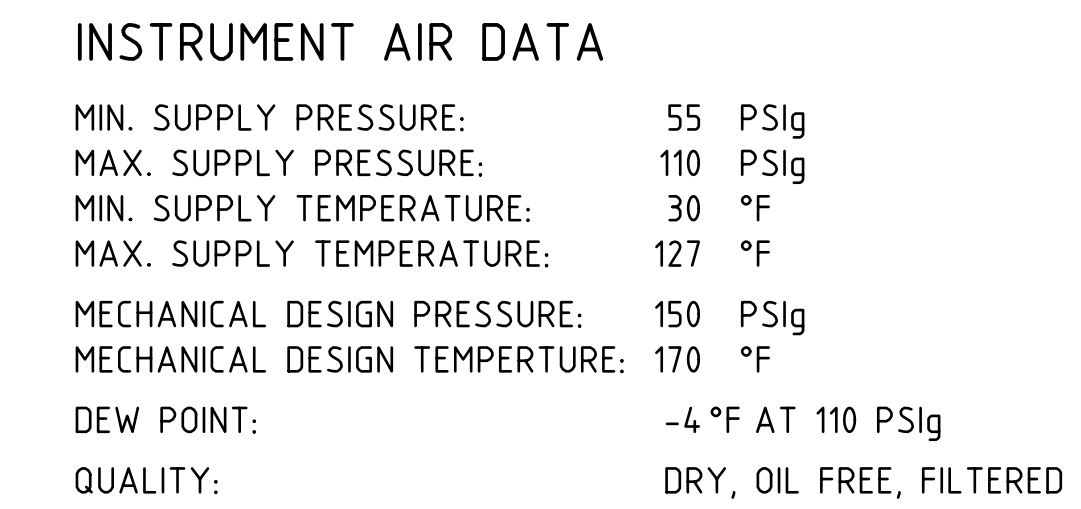
QADIRPU
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PERMEATE COMPRESSION PROJECT
GRIFFIN GAS PROCESSING PLANT

QADIRPUR PERMEATE COMPRESSION PROJECT
QADIRPUR GAS PROCESSING PLANT

[illegible]





CLIENT:		OIL & GAS DEVELOPMENT COMPANY LTD
EC:		ENAR PETROTECH SERVICES (PRIVATE) LTD.
OIEM:		MAN TURBO
QADIRPUR PERMEATE COMPRESSION PROJECT QADIRPUR GAS PROCESSING PLANT		

[illegible]

NITROGEN	
QUALITY:	DRY, CLEAN, OIL FREE
PURITY:	>95 %
MIN. SUPPLY PRESSURE:	50 PSig
MAX. SUPPLY PRESSURE:	95 PSig
MIN. SUPPLY TEMPERATURE:	77 °F
MAX. SUPPLY TEMPERATURE:	104 °F
DESIGN PRESSURE:	150 PSig
DESIGN TEMPERATURE:	170 °F

NOTES

- 1) THERMOSTATIC CONTROL IS PART OF HEATER
- 2) VALVE MUST BE LOCKABLE AT OPEN & CLOSED POSITION.
- 3) THE OPENING FOR THE CABINET VENT IS AT THE BOTTOM SITE.
A FINE MEASURED SCREEN IS PROVIDED.
- 4) ALL TAG-NUMBERS IN THIS DOCUMENT SHALL BE UNDERSTOOD WITH THE
PREFIX "27-". THE NUMBERS WILL BE BUILT FOR THE COMPRESSOR
TRAINS IN ACCORDANCE WITH FOLLOWING RULE:

SHOWN TAG-NO.	TAG-NO. FOR UNIT 3	TAG-NO. FOR UNIT 4
TI-3141	27-TI-3141	27-TI-4141
- 5) SENSOR OF OXYGEN ANALYZER SHALL BE CHANGED
EACH AFTER SIX MONTH OPERATION.

OIL & GAS DEVELOPMENT
COMPANY LTD
QADIRPUR GAS PROCESSING
FACILITIES
PAKISTAN

PERMEATE COMPRESSORS K-2721 / K-2731