

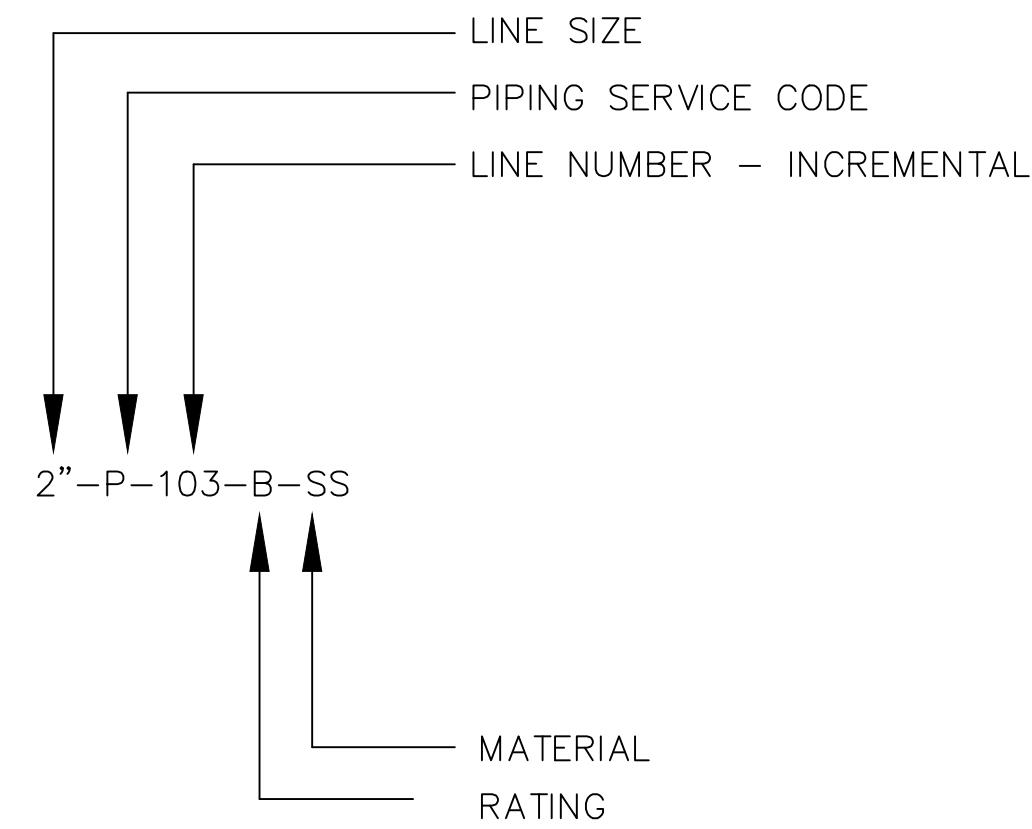


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LINE TYPE IDENTIFICATION

	PROCESS PIPING
	SECONDARY FLOW
	PNEUMATIC SIGNAL
	ELECTRIC SIGNAL
	HYDRAULIC SIGNAL
	PIPING BY OTHERS
	EQUIPMENT BOUNDARY
	GAS (INDICATE TYPE OF GAS)

LINE DESCRIPTION



PIPING SERVICE CODES

CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
IA	INSTRUMENT AIR
DR	DRAIN
N	NITROGEN
PV	PROCESS VACUUM
PA	PLANT AIR
PL	PROCESS LIQUID
RL	RING LIQUID
SW	SERVICE WATER
V	VENT
XX	NON-STANDARD

PIPING RATING

A	CLASS 150
B	CLASS 300
C	CLASS 600
V	VACUUM FLANGES

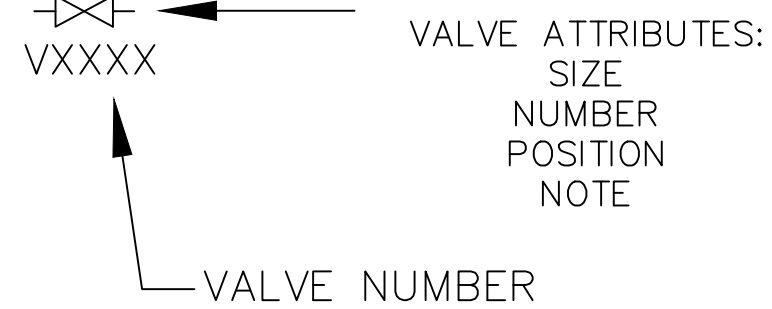
PIPING MATERIAL

CS	CARBON STEEL
SS	STAINLESS STEEL
P	PLASTIC
LP	LINED PIPING
F	ALLOY 20
H	HASTELLOY C
R	RUBBER
GALV	GALVANIZED
BR	BRASS

VALVE SYMBOLS
DYNAMIC

	GATE VALVE
	BALL VALVE
	V-BALL VALVE
	SWING CHECK VALVE
	PISTON CHECK VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	NEEDLE VALVE
	ANGLE VALVE
	RELIEF VALVE
	VACUUM RELIEF VALVE
	RELIEF VALVE, PILOT OPERATED
	RUPTURE DISC PRESSURE
	RUPTURE DISC VACUUM
	SOLENOID VALVE
	SELF CONTAINED REGULATOR
	SELF CONTAINED REGULATOR W/EXTERNAL TAP

VALVE IDENTIFICATION



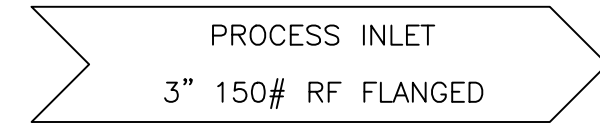
VALVE CONNECTIONS
(COMBINATIONS MAY BE USED)

	THREADED OR WELDED
	FLANGED

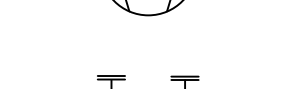
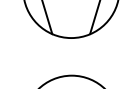
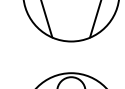
PIPING SPECIFICATIONS

	Y STRAINER
	CONE STRAINER
	BASKET STRAINER
	EXPANSION JOINT
	CHEMICAL SEAL
	SPECTACLE BLIND NORMALLY OPEN
	SPECTACLE BLIND NORMALLY CLOSED
	EJECTOR
	INLINE MIXER
	FLAME ARRESTOR
	FLEXHOSE
	INLINE FILTER, REGULATOR LUBRICATOR
	SIGHTGLASS
	QUICK DISCONNECT
	SUPPLIED LOOSE BY EQUIPMENT VENDOR

MISCELLANEOUS



VP-

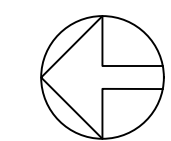


EQUIPMENT

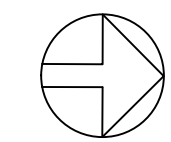
PISTON VACUUM PUMP
DIAPHRAGM VACUUM PUMP
TURBOMOLECULAR VACUUM PUMP
DIFFUSION VACUUM PUMP
ROTARY PISTON VACUUM PUMP
ROOTS VACUUM PUMP
DRY COMPRESSING VACUUM PUMP
CENTRIFUGAL PUMP OR FAN
VACUUM PUMP GENERAL
SLIDING VANE ROTARY VACUUM PUMP
LIQUID RING VACUUM PUMP
REVERSE CLAW VACUUM PUMP
VERTICAL DRUM
GENERIC HEAT EXCHANGER
SHELL & TUBE FIXED TUBE EXCHANGER
HEAT EXCHANGER U-TUBE
PLATE & FRAME EXCHANGER
MOTOR

FITTINGS

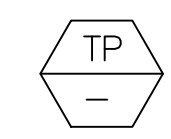
	THREADED UNION
	FLANGED CONNECTION
	BLIND FLANGE
	WELDED PIPE CAP
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER (FLAT ON TOP)
	ECCENTRIC REDUCER (FLAT ON BOTTOM)
	BLIND FLANGE ON VALVE
	THREADED PLUG ON VALVE



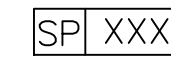
OFF UTILITY



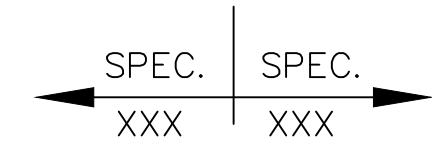
ON UTILITY



TIE IN POINT

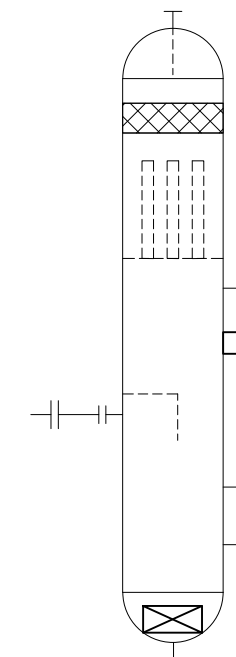


SPECIALITY ITEM NUMBER



PIPE SPEC MATERIAL CHANGE

VESSEL INTERNALS



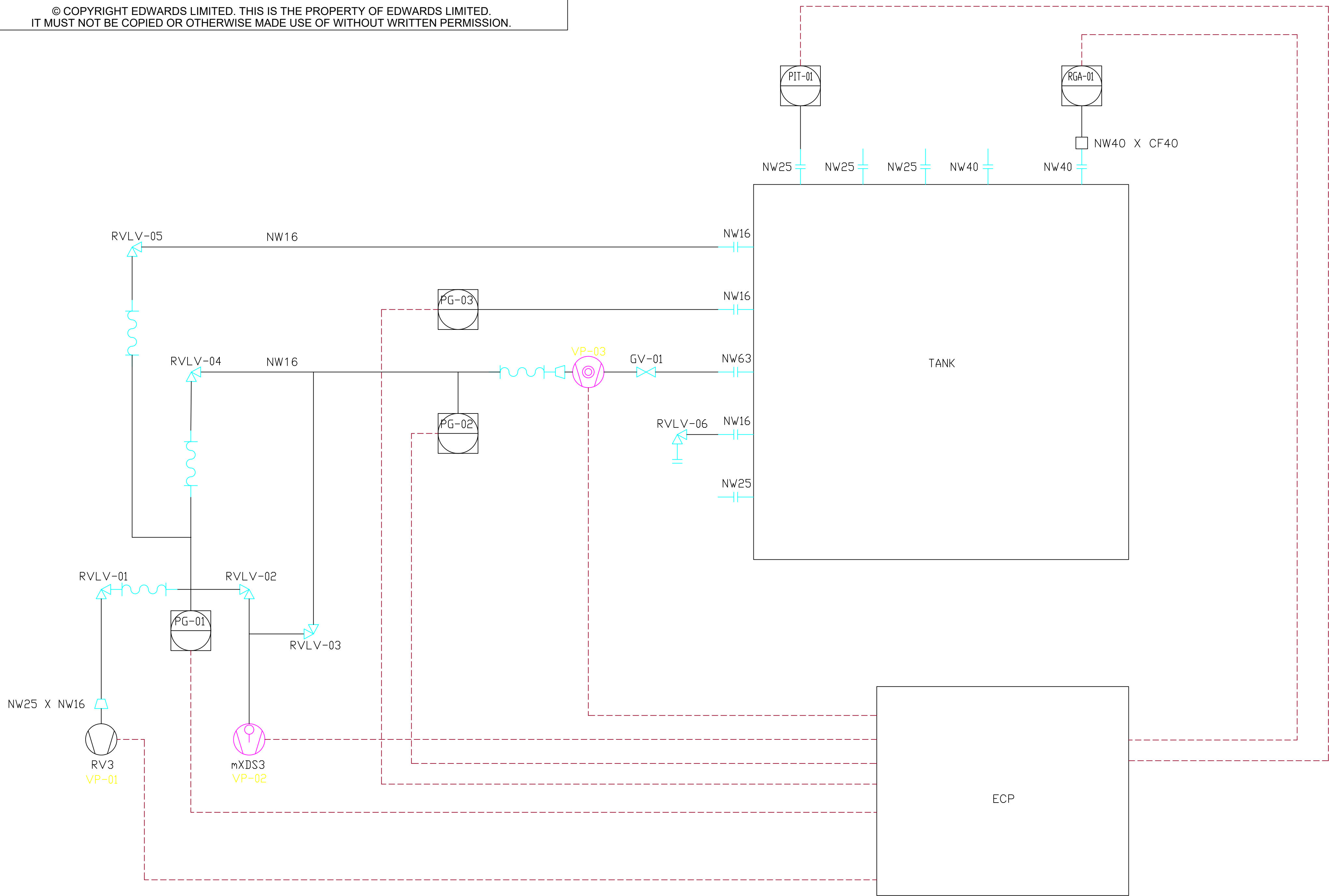
OUTLET W/ INTERNAL PIPE EXTENSION
DEMISTER PAD
FILTER ELEMENTS
FLANGED NOZZLE
THREADED CONNECTION
DEFLECTOR PLATE
MANWAY / HAND HOLE
VORTEX BREAKER

ORIGINAL SCALE: X		TOLERANCES		DOCUMENT NUMBER	
DRAWN BY: MARTORELL		ALL DIMS IN inches		850065191	
DATE: 2024-08-29		X ± 0.05		COMPONENT	
TECHNICAL: GRAMBUSCH		XX ± 0.02		COSMOS 12 P&ID	
APPROVED DATE: YYYY-MM-DD		XXX ± 0.005		MATERIAL	
		ANGLES ± 0°-30' UNLESS OTHERWISE STATED		FINISH	
		MACHINED COMPONENTS		SIZE	
		SURFACE FINISH TO BE 125 MAX UNLESS OTHERWISE STATED.		DRAWING NUMBER	
		AUTOCAD DRAWING		SHEET No.	
				1 of 3	
				ISSUE	
				AO	

REVISED BY: x x x
EC No.:
DATE:



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DESIGNATION CHART

TAG #	EQUIPMENT	DESCRIPTION	CONNECTION INLET/EXHAUST
VP-01	RV3	ROTARY VANE PUMP	NW25/NW25
VP-02	mXD3	SCROLL PUMP	NW16/1/8"BSP
VP-03	nEXT55D	TURBO PUMP	NW63/NW16
GV-01	GATE VALVE		NW63
RVLV-01	RT ANGLE VALVE		NW16
RVLV-02	RT ANGLE VALVE		NW16
RVLV-03	RT ANGLE VALVE		NW16
RVLV-04	RT ANGLE VALVE		NW16
RVLV-05	RT ANGLE VALVE		NW16
RVLV-06	RT ANGLE VALVE		NW16
PG-01	APG200	PIRANI PRESSURE GAUGE	NW16
PG-02	APG200	PIRANI PRESSURE GAUGE	NW16
PG-03	APG200	PIRANI PRESSURE GAUGE	NW16
RGA-01	RGA	RESIDUAL GAS ANALYZER	CF40
PIT-01	AIM	ACTIVE INVERTED MAGNETRON GAUGE	NW25

ORIGINAL SCALE: X		DOCUMENT NUMBER 850065191	
DRAWN BY: MARTORELL		COMPONENT COSMOS 12 P&ID	
DATE: 2024-08-29		MATERIAL ----	
TECHNICAL: GRAMBUSCH		FINISH ----	
APPROVED DATE: YYYY-MM-DD		SIZE D	DRAWING NUMBER NRYBTQ001
			SHEET No. 2 of 3
			ISSUE A0

REVISED BY: X X X
ECONOMY:
DATE:

ISSUE	ECO #	REASON FOR MOD	DATE	INSTGATOR
A0	138706	INITIAL ISSUE	2024-08-29	T.GRAMBUSCH
N-CODE HISTORY SHEET				