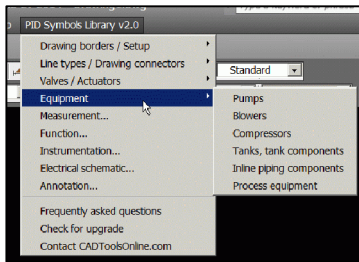


P&ID Symbols Library v2.0

Compatible with AutoCAD and AutoCAD LT 2006 and newer



Highlights:

- > Contains 335 symbols and 78 custom line types
- > Symbols conform to ANSI/ISA Standard 5.1 – 2009
- > All symbols are set up to be used with a 1/16" grid & snap
- > ANSI drawing borders included (sizes A through F)
- > Set up your grid and snap spacing with a click of the mouse
- > Most symbols are dynamic blocks and can be modified after insertion

Table of contents:

- Page 2.....Line types
- Page 3.....Valves & Valve actuators
- Page 4.....Control valves & Measurement symbols
- Page 5.....Pumps, blowers & Compressors
- Page 6.....Tanks & tank components
- Page 7.....Tanks & tank components (cont.)
- Page 8.....Inline piping components & Process equipment
- Page 9.....Process equipment (cont.)
- Page 10.....Process equipment (cont.)
- Page 11.....Process equipment (cont.)
- Page 12.....Process equipment (cont.)
- Page 13.....Function & Instrumentation symbols
- Page 14.....Electrical schematic symbols
- Page 15.....Annotation symbols

PROCESS LINES

	PROCESS SUPPLY
	SECONDARY SUPPLY
	FUTURE PROCESS SUPPLY
	FUTURE SECONDARY SUPPLY
	EXISTING PROCESS SUPPLY
	EXISTING SECONDARY SUPPLY
	FLEXIBLE HOSE
	CW — CHILLED WATER TRACE
	E — ELECTRIC TRACE
	S — STEAM TRACE





















INSTRUMENT SIGNAL LINES

	ELECTRICAL
	ELECTRICAL
	ELECTRICAL BINARY
	ELECTRICAL BINARY
	CAPILLARY
	HYDRAULIC
	MECHANICAL
	PNEUMATIC
	PNEUMATIC BINARY
	SOFTWARE
	SONIC — GUIDED
	SONIC — UNGUIDED
	UNDEFINED



















PROCESS SERVICE LINES

	GAS	ANY GAS
	ALM	ALUMINUM SULFATE
	AMN	AMMONIUM NITRATE
	AMH	AMMONIUM HYDROXIDE
	ABF	AMMONIUM BIFLUORIDE
	AMS	AMMONIUM SULFATE
	ASO	ACID SOLUBLE ORGANICS
	BAR	BACKWASH AIR
	CAF	CALCIUM FLUORIDE
	CAR	COMPRESSED AIR
	CBW	CLEAN BACKWASH WATER
	CFD	CAUSTIC RAW FEED
	CO2	CARBON DIOXIDE
	CHC	CALCIUM HYPOCHLORITE
	CL2	CHLORINE
	DBW	DIRTY BACKWASH WATER
	DSL	DIESEL FUEL
	EFF	EFFLUENT (GENERAL USE)
	FEC	FERRIC CHLORIDE
	FEW	FILTER EFFLUENT WATER
	FIW	FILTER INFLUENT WATER
	FOL	FUEL OIL
	HCL	HYDROCHLORIC ACID
	HF	HYDROFLUORIC ACID
	HPX	HYDROGEN PEROXIDE
	IFD	INDUSTRIAL RAW FEED
	LSY	LIME SLURRY
	MEL	METHANOL
	NAG	NATURAL GAS
	NIA	NITRIC ACID
	N2	NITROGEN
	OIL	OIL
	PA	PLANT AIR
	PFD	POLYMER FEED
	PHA	PHOSPHORIC ACID
	KF	POTASSIUM FLUORIDE
	KOH	POTASSIUM HYDROXIDE
	DRN	PROCESS DRAIN
	PSL	PROCESS SLUDGE
	PVP	PROCESS VAPOR
	PWR	POTABLE WATER
	SAH	SULFURIC ACID >75%
	SAL	SULFURIC ACID <75%
	SHC	SODIUM HYPERCHLORITE
	SOC	SODIUM CARBONATE
	SOH	SODIUM HYDROXIDE
	STM	STEAM
	SNY	SANITARY SEWER
	STO	STORM DRAIN
	SWR	SERVICE WATER
	TFL	THERMAL FLUID
	UWR	UTILITY WATER
	VNT	VENT
	WOL	WASTE OIL
	WWR	WASTEWATER

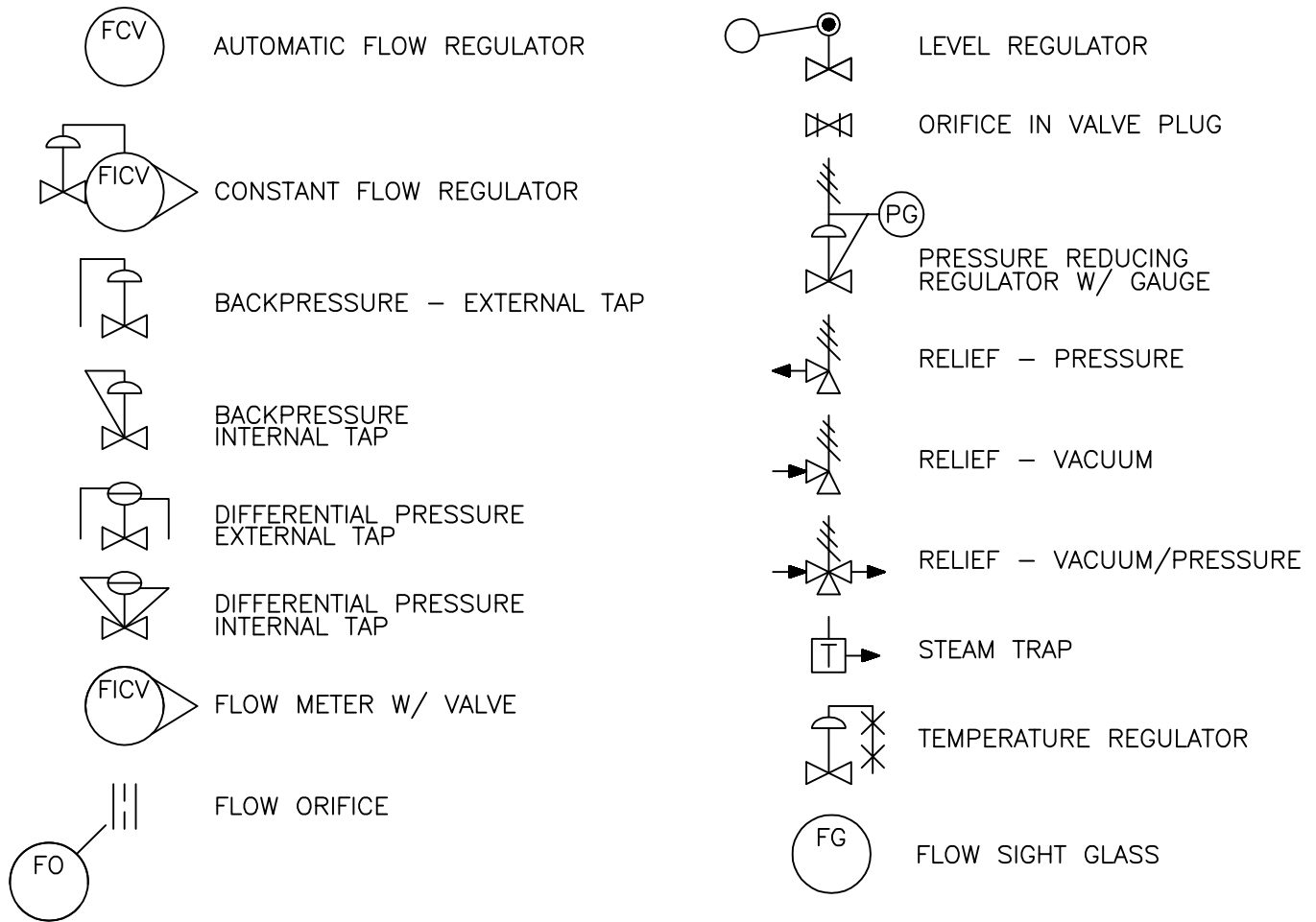
VALVES

 3 WAY  4 WAY  ANGLE  BACKFLOW PREVENTER  BALL  BELLOWS SEALED  BUTTERFLY  CHECK  DAMPER  DAMPER (OPPOSED BLADE)	 DAMPER (PARALLEL BLADE)  DIAPHRAGM  ECCENTRIC ROTARY DISC  GATE  GLOBE  KNIFE GATE  NEEDLE  PINCH  PLUG  ROTARY
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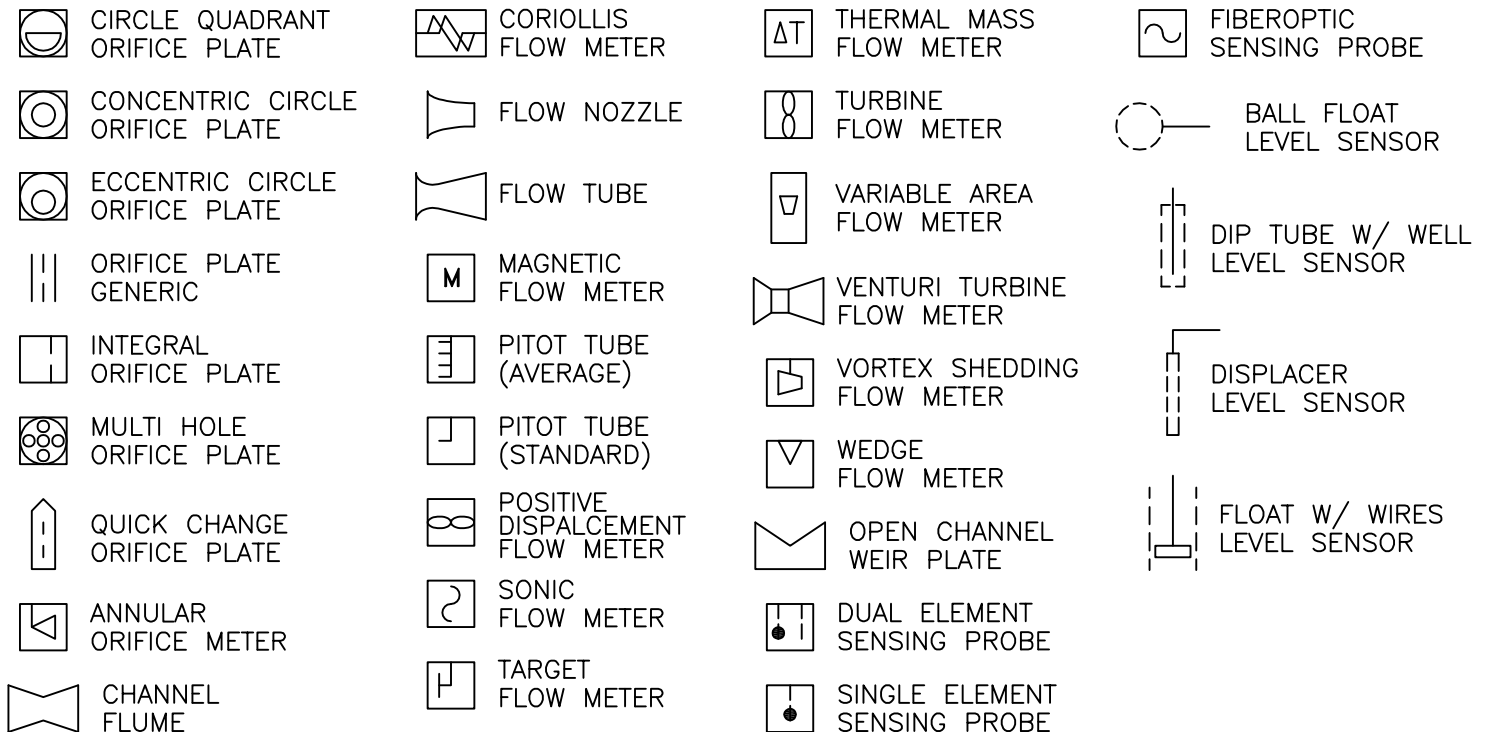
VALVE ACTUATORS

 SPRING OPPOSED BELLOWS  ELECTROHYDRAULIC  HANDLE  MOTOR  LINEAR PISTON  LINEAR PISTON W/ POSITIONER  ROTARY  ROTARY W/ POSITIONER  PRESSURE BALANCED DIAPHRAGM  SPRING DIAPHRAGM	 SPRING DIAPHRAGM W/ POSITIONER  PARTIAL STROKE TEST MANUAL ACTUATED DEVICE  PARTIAL STROKE TEST REMOTE ACTUATED DEVICE  SPRING ACTUATED RELIEF  PILOT ACTUATED RELIEF  SOLENOID (MODULATING)  SOLENOID (MANUAL OR REMOTE RESET ON/OFF)  SOLENOID (MANUAL AND REMOTE RESET ON/OFF)
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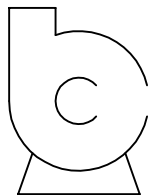
CONTROL VALVES & REGULATORS



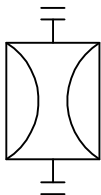
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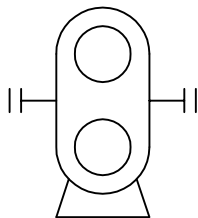
PUMPS



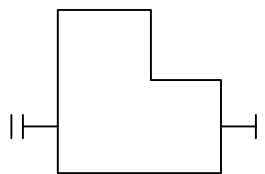
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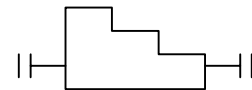
DIAPHRAGM



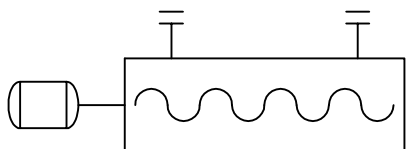
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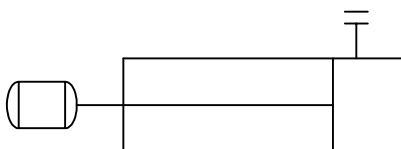
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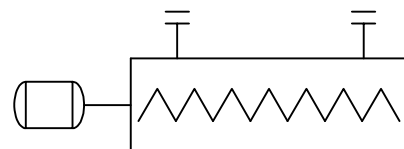
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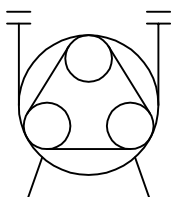
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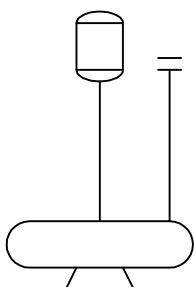
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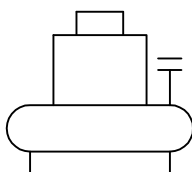
SCREW



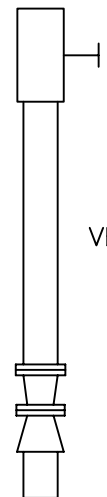
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SUMP

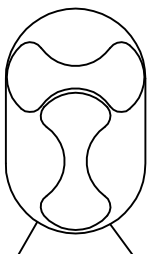


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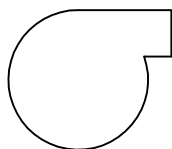


VERTICAL TURBINE

BLOWERS

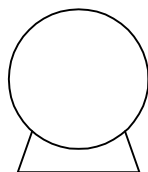


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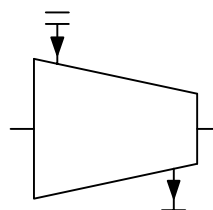


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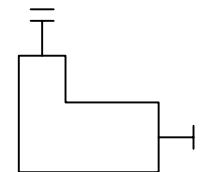
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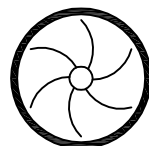
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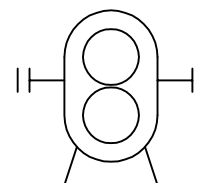
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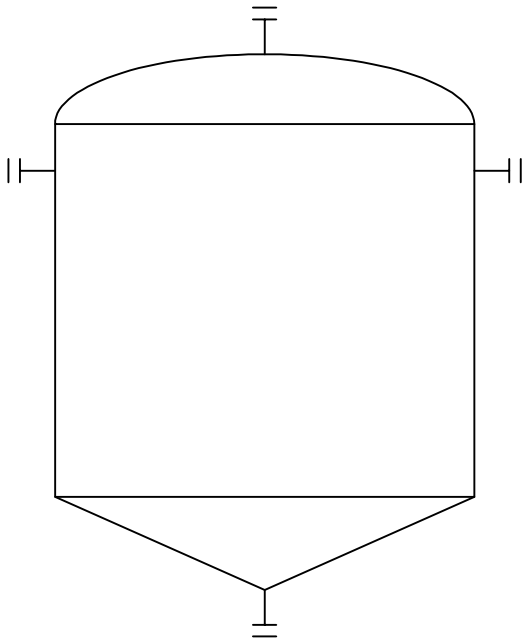


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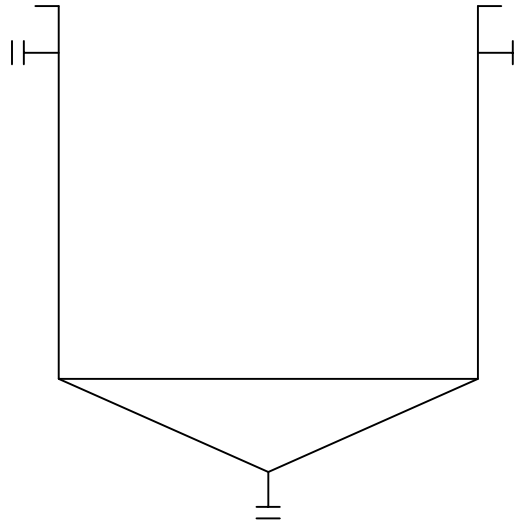


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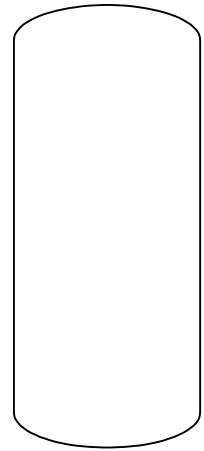
TANKS & COMPONENTS



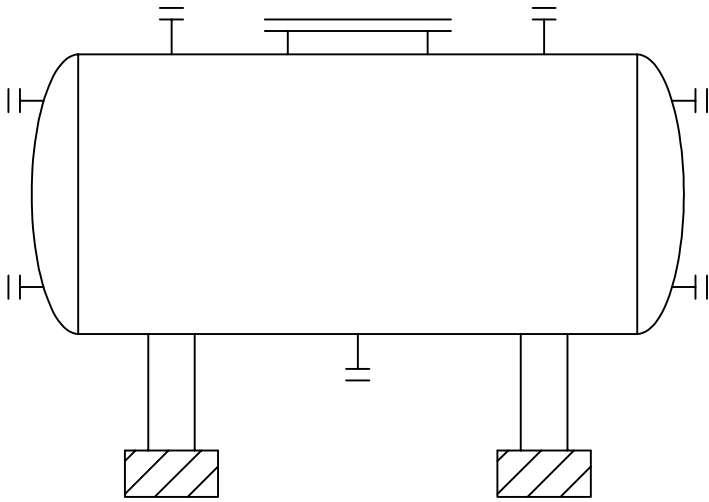
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CLOSED



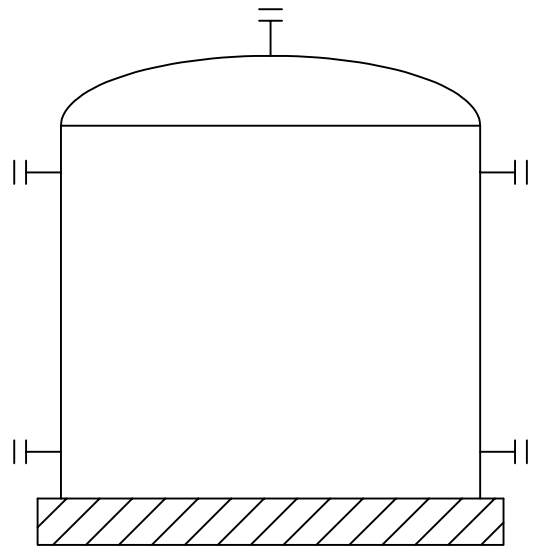
CONE BOTTOM
OPEN



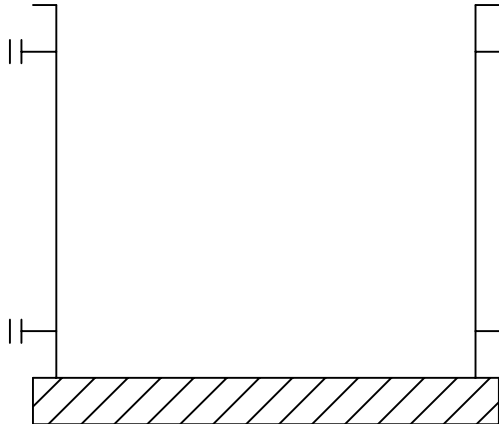
VESSEL



HORIZONTAL



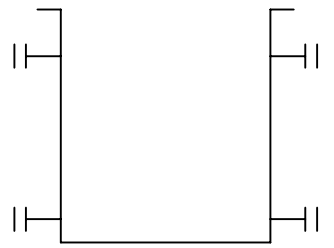
VERTICAL DOME



VERTICAL
OPEN

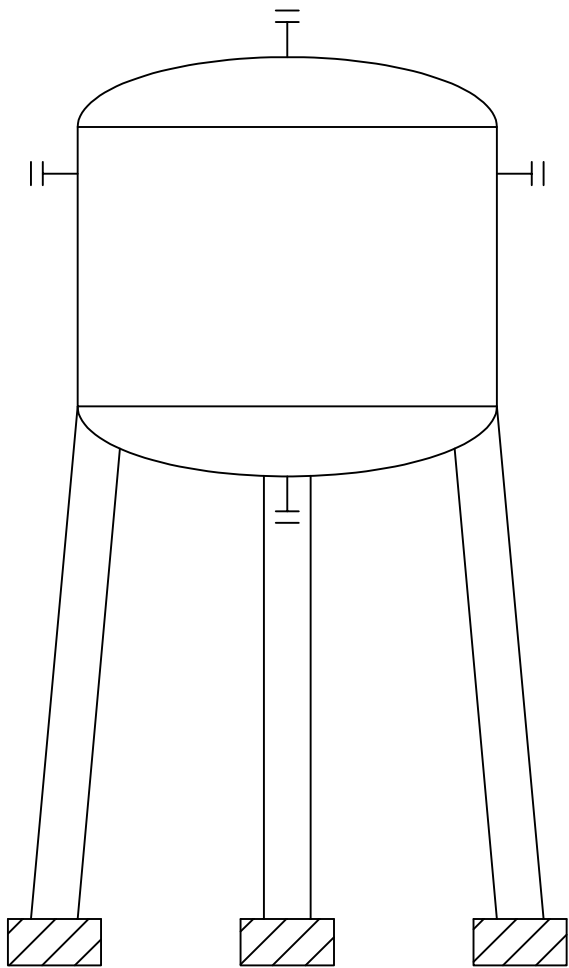


VERTICAL OPEN
LARGE

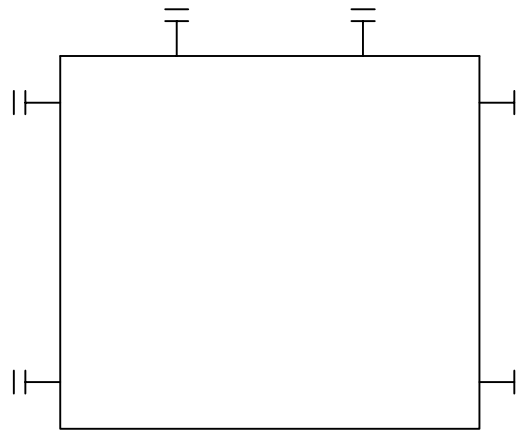


VERTICAL OPEN
SMALL

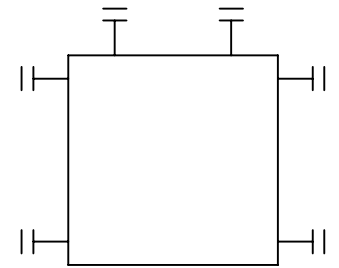
TANKS & COMPONENTS



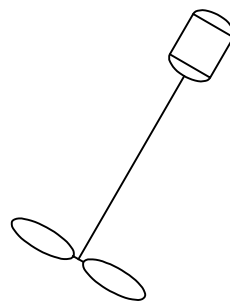
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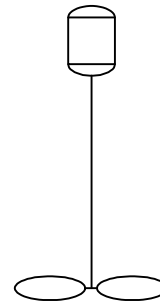
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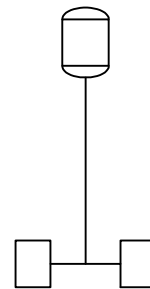
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SMALL



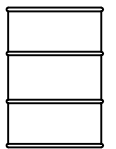
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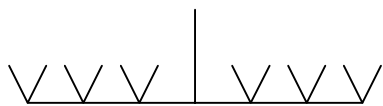
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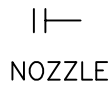
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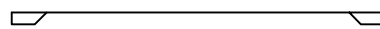
55 GALLON
DRUM



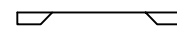
DIFFUSER



NOZZLE



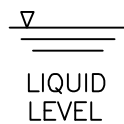
FLOATING LID
LARGE



FLOATING LID
SMALL



TANK WALL
INSULATION

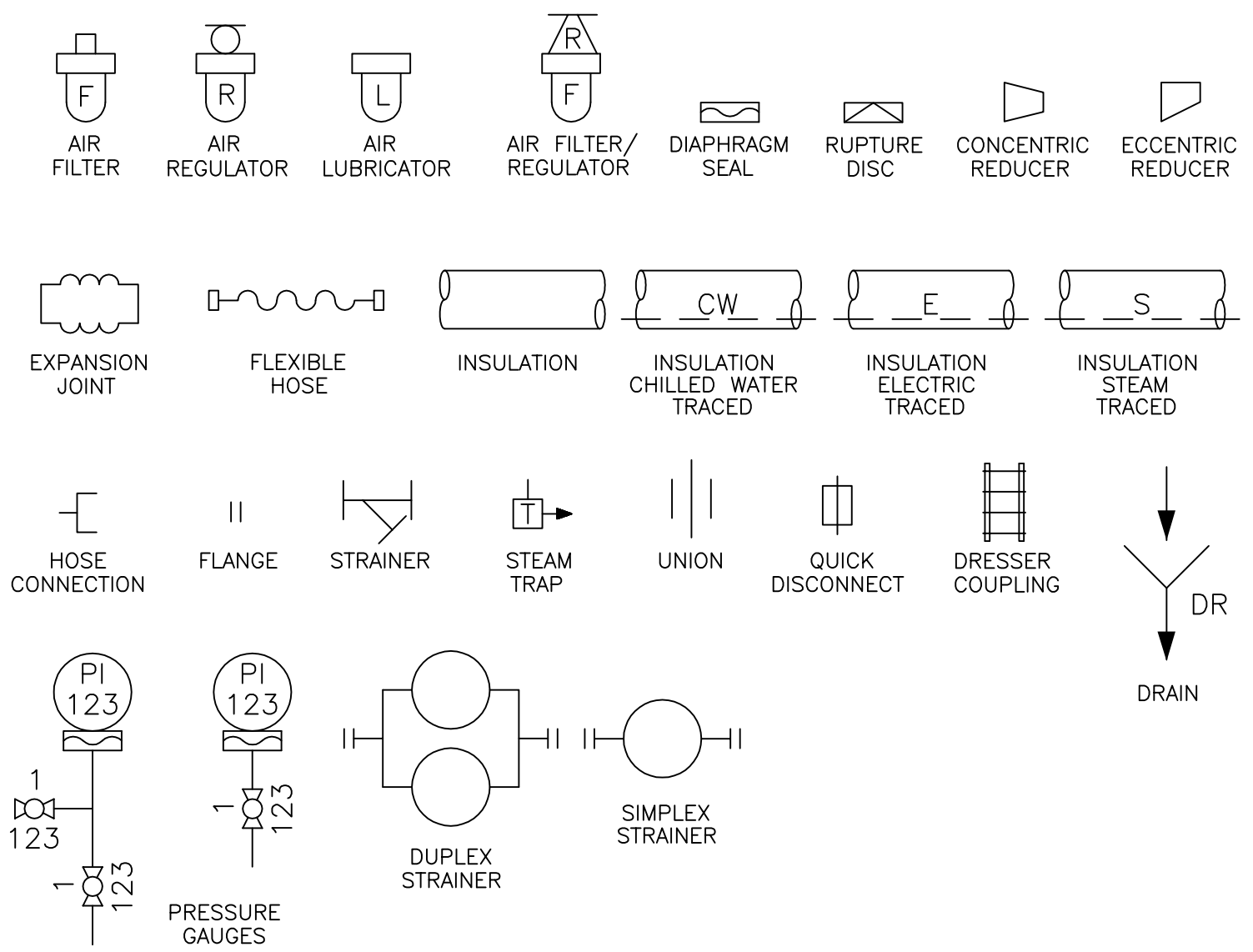


LIQUID
LEVEL

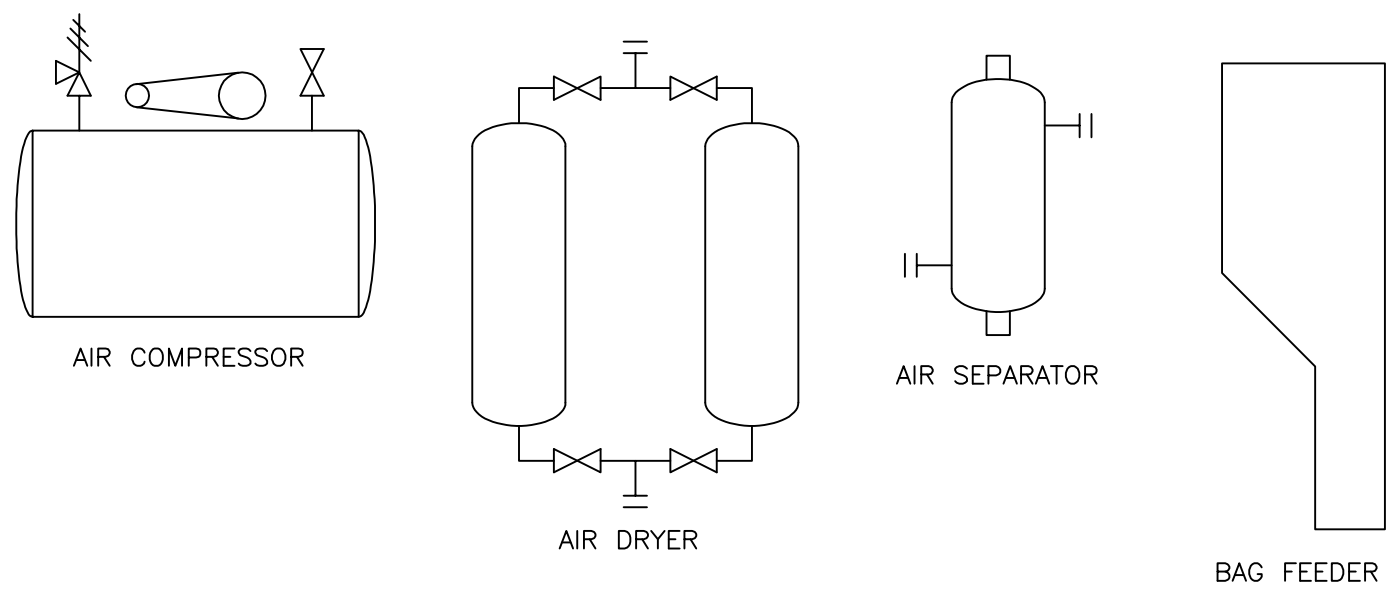


VENTS

INLINE PIPING COMPONENTS

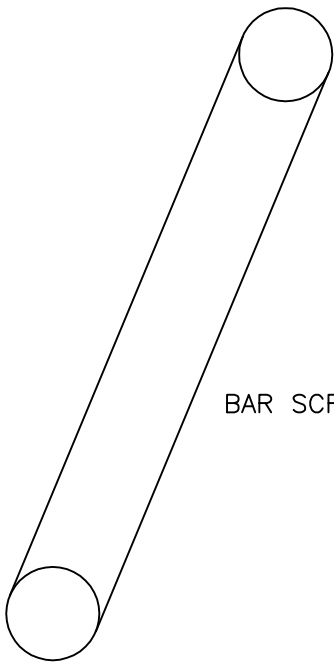


PROCESS EQUIPMENT

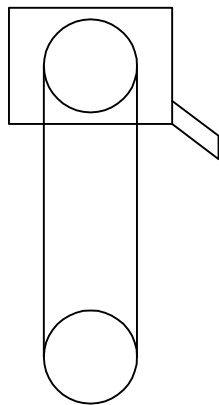


PROCESS EQUIPMENT

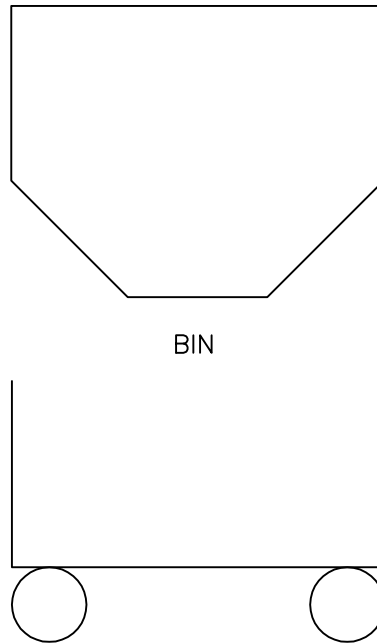
CONTINUED



BAR SCREEN

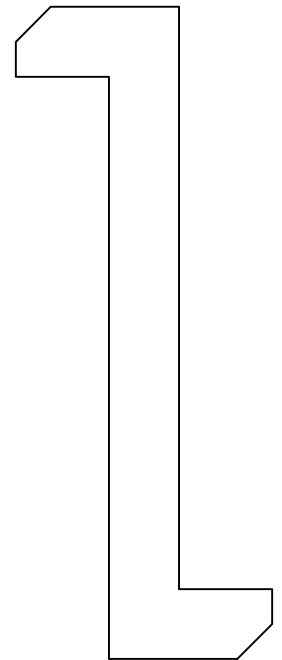


BELT SKIMMER

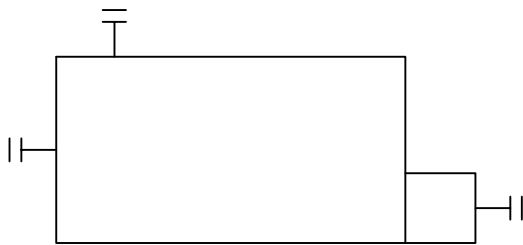


BIN

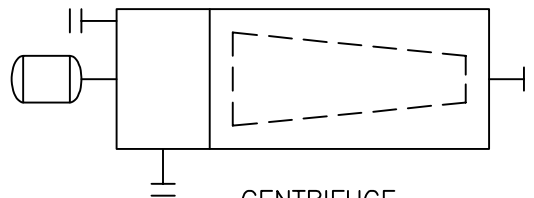
ROLLING BIN



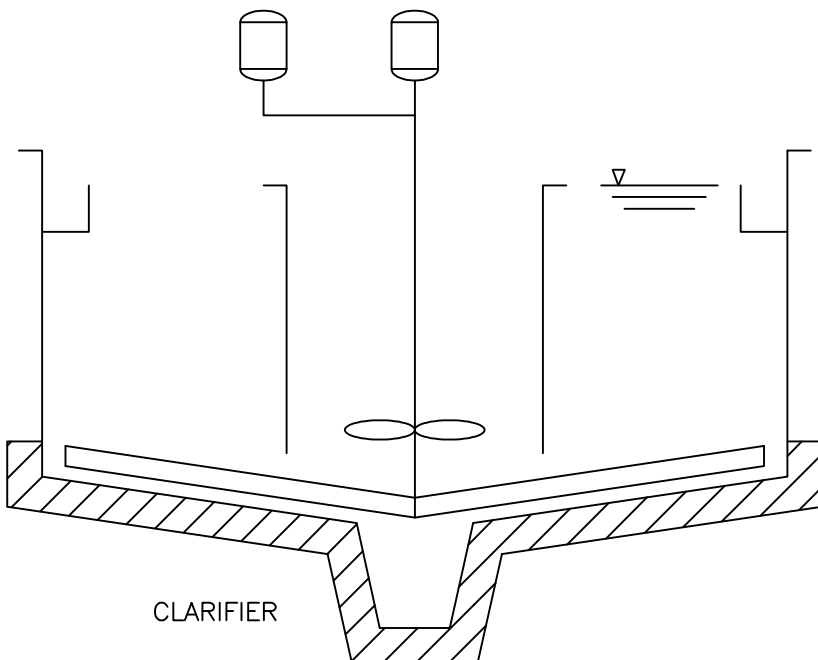
BUCKET ELEVATOR



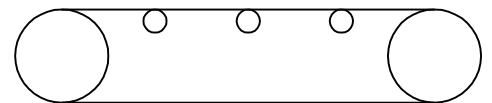
BOILER



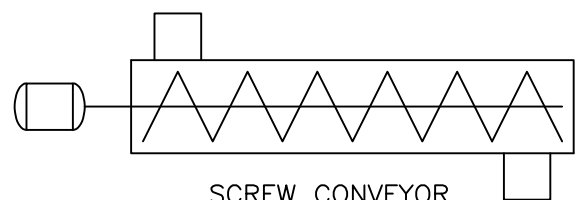
CENTRIFUGE



CLARIFIER



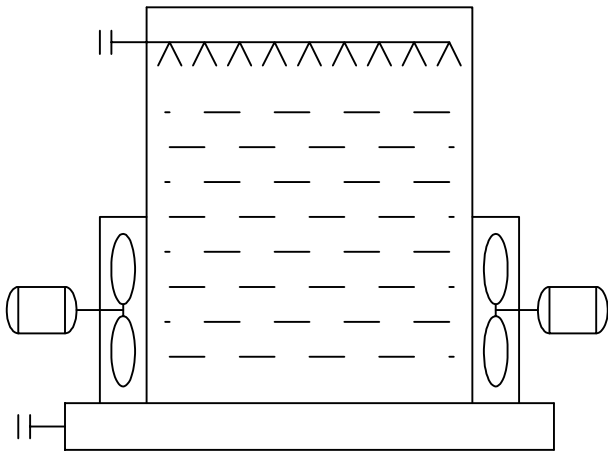
BELT CONVEYOR



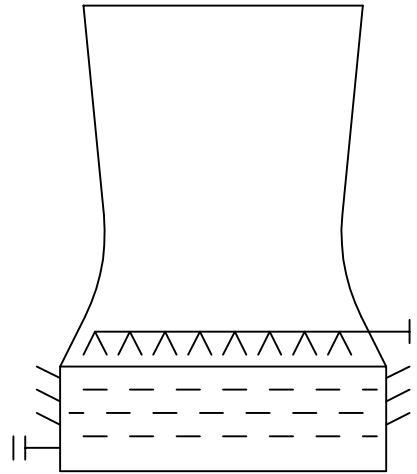
SCREW CONVEYOR

PROCESS EQUIPMENT

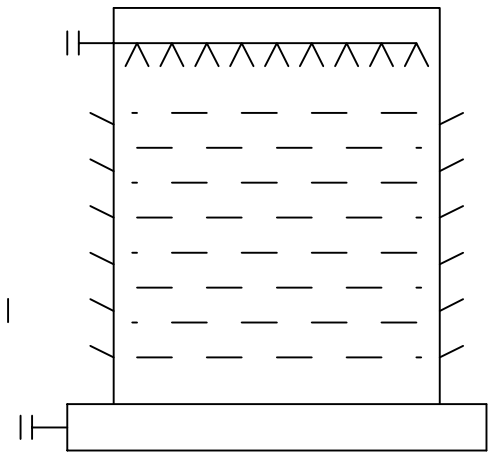
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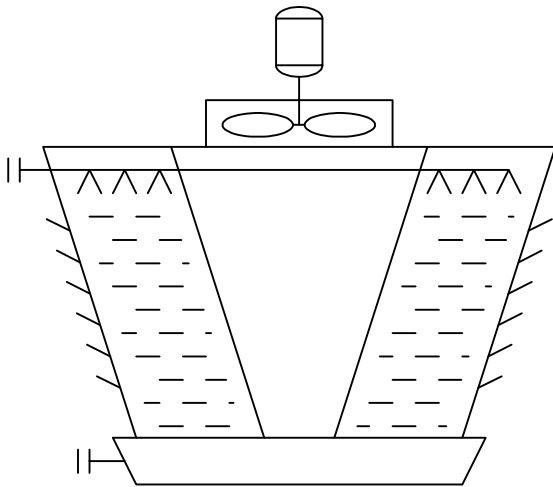
COOLING TOWER
FORCED DRAFT



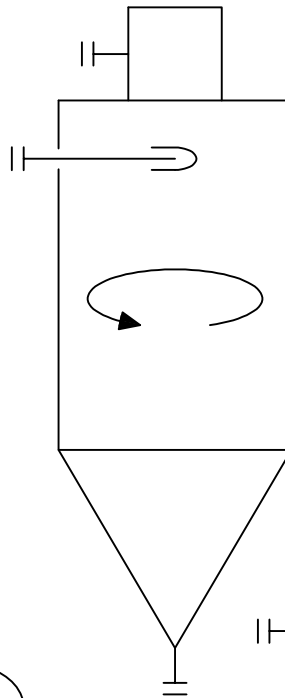
COOLING TOWER
HYPERBOLIC



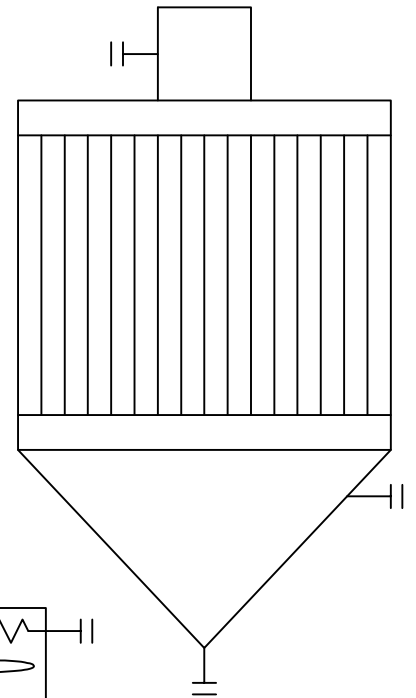
COOLING TOWER
NATURAL DRAFT



COOLING TOWER
INDUCED DRAFT



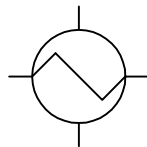
CYCLONE
SEPARATOR



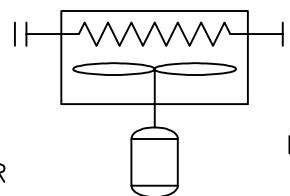
DUST COLLECTOR



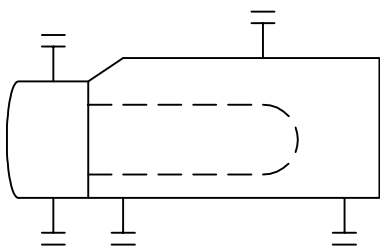
HEAT EXCHANGER
U-TUBE



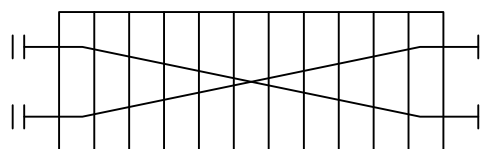
HEAT EXCHANGER
GENERIC



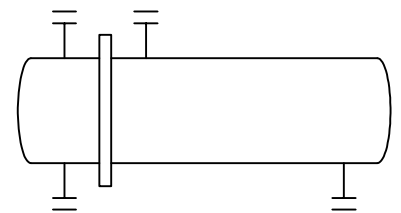
AIR COOLER



HEAT EXCHANGER
KETTLE



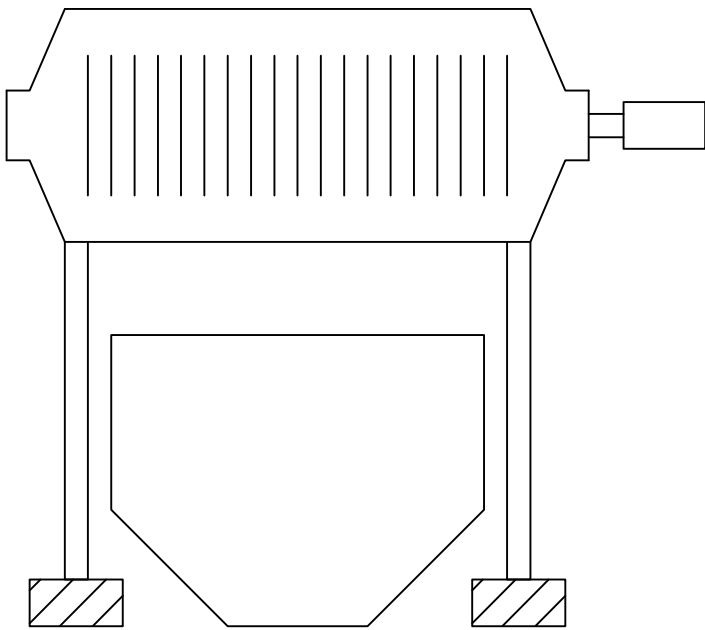
HEAT EXCHANGER
PLATE & FRAME



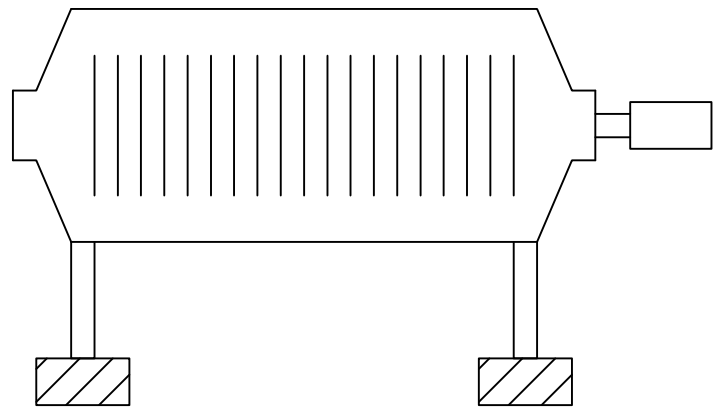
HEAT EXCHANGER
SHELL & TUBE

PROCESS EQUIPMENT

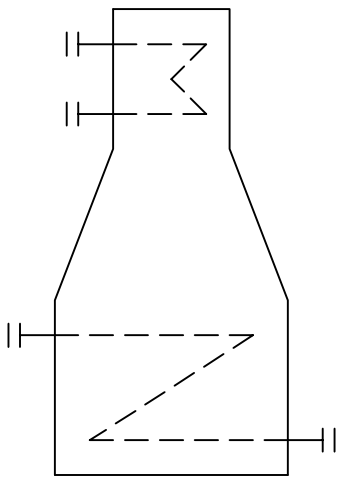
CONTINUED



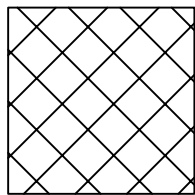
FILTER PRESS
W/
BIN



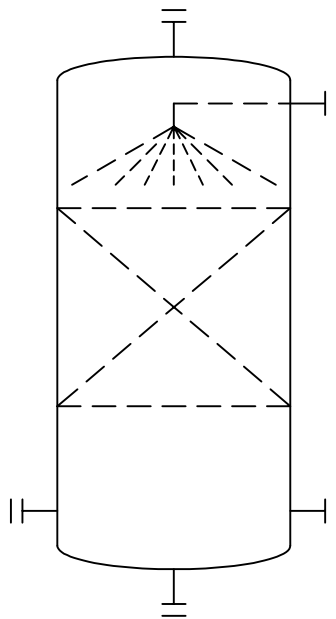
FILTER PRESS
W/OUT BIN



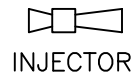
FURNACE



FILTER
GENERIC



FUME/GAS
SCRUBBER



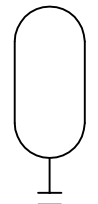
INJECTOR



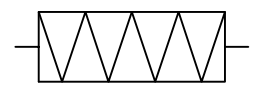
FLAME
ARRESTER



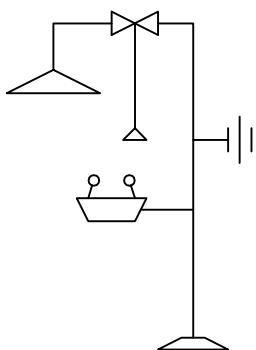
SILENCER



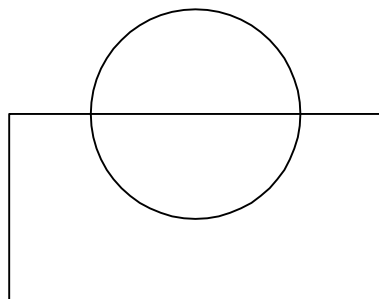
PULSE
DAMPER



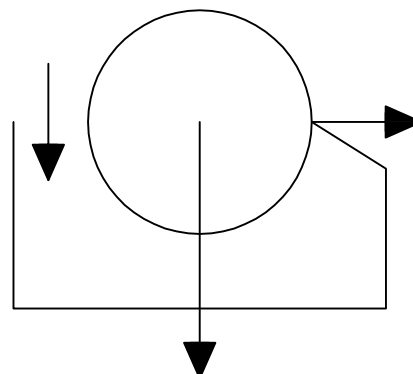
INLINE MIXER



SAFETY
SHOWER



ROTARY SCREEN



ROTARY SEPARATOR

PROCESS EQUIPMENT

CONTINUED

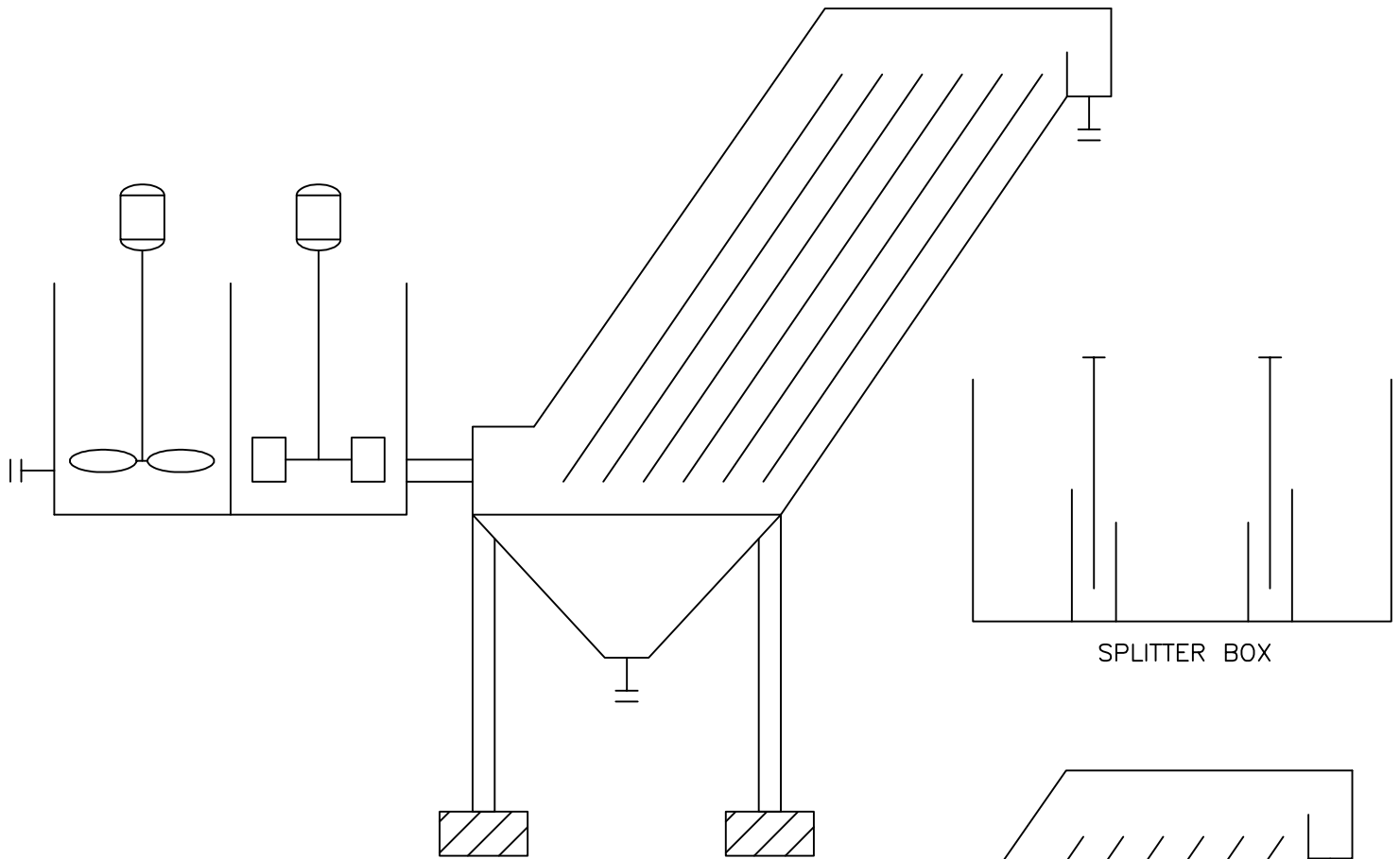
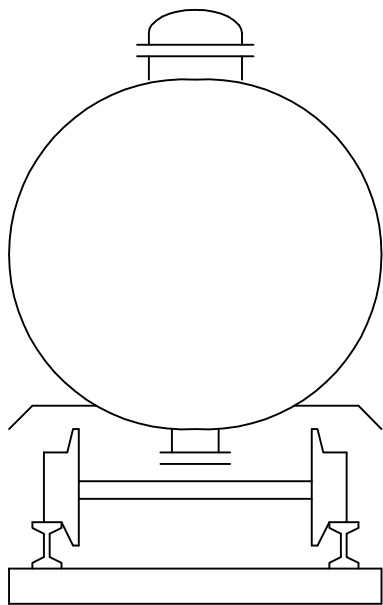


PLATE SEPARATOR
W/ FLUSH & FLOCC TANK



RAIL CAR

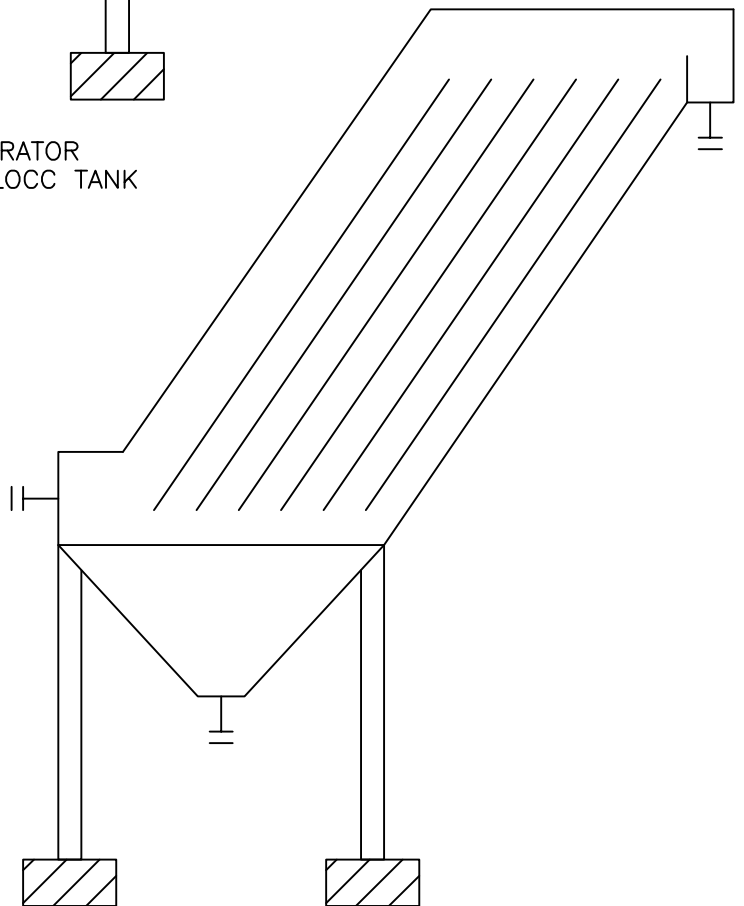








PLATE SEPARATOR





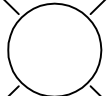
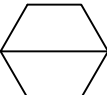



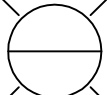
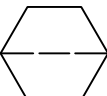



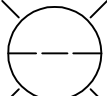
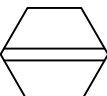




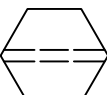



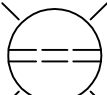
FUNCTION SYMBOLS

<p>Σ_h AVERAGE</p> <p>I/P CONVERSION</p> <p>d/dt DERIVATIVE TYPE 1</p> <p>D DERIVATIVE TYPE 2</p> <p>Δ DIFFERENCE</p> <p>\div DIVISION</p> <p>X^n EXPONENTIAL</p> <p>\int INTEGRAL TYPE</p>	<p>I INTEGRAL TYPE 2</p> <p>X MULTIPLICATION</p> <p>K PROPORTION K</p> <p>P PROPORTION P</p> <p>$-K$ REVERSE PROPORTION $-K$</p> <p>$-P$ REVERSE PROPORTION $-P$</p> <p>$\sqrt[n]{V}$ ROOT EXTRACTION</p> <p>Σ SUMMATION</p>	<p>$f(t)$ TIME</p> <p>$f(x)$ UNSPECIFIED</p> <p>A ANALOG SIGNAL GENERATOR</p> <p>B BINARY SIGNAL GENERATOR</p> <p>H HIGH SIGNAL MONITOR</p> <p>L LOW SIGNAL MONITOR</p> <p>HL HIGH/LOW SIGNAL MONITOR</p> <p>$>$ HIGH SIGNAL SELECT</p>	<p>M MIDDLE SIGNAL SELECT</p> <p>$<$ LOW SIGNAL SELECT</p> <p>\triangleright HIGH LIMIT</p> <p>\triangleleft LOW LIMIT</p> <p>$-$ NEGATIVE BIAS</p> <p>$+$ POSITIVE BIAS</p> <p>T SIGNAL TRANSFER</p> <p>∇ VELOCITY LIMITER TYPE 1</p> <p>$\nabla\triangleright$ VELOCITY LIMITER TYPE 2</p>
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INSTRUMENTATION


INSTRUMENT CONNECTION POINTS TO PIPE OR EQUIPMENT

					
FLANGED	SOCKETWELD	THREADED	WELDED	PATCHBOARD	INTERLOCK

COMPUTER/ SOFTWARE	DISCRETE	PLC	SHARED	PILOT LIGHT	
					FIELD ACCESSIBLE
					FRONT MAIN ACCESSIBLE
					REAR MAIN INACCESSIBLE
					FRONT SECONDARY ACCESSIBLE
					REAR SECONDARY INACCESSIBLE

SYMBOLS CONTAIN EDITABLE ATTRIBUTES FOR INSTRUMENT NUMBER, LOOP NUMBER, ETC.

ELECTRICAL SCHEMATIC

 <p>PUSHBUTTON SWITCH NORMALLY OPEN</p>	 <p>RELAY OPERATING COIL</p>	 <p>INTERLOCK</p>
 <p>PUSHBUTTON SWITCH NORMALLY CLOSED</p>	 <p>RELAY NORMALLY OPEN</p>	 <p>PILOT LIGHT</p>
 <p>PUSHBUTTON SWITCH NORMALLY OPEN/CLOSED</p>	 <p>RELAY NORMALLY CLOSED</p>	 <p>SOLENOID COIL</p>
 <p>TOGGLE SWITCH NORMALLY OPEN</p>	 <p>RELAY NORMALLY OPEN/CLOSED</p>	 <p>THERMAL OVERLOAD</p>
 <p>TOGGLE SWITCH NORMALLY CLOSED</p>	 <p>COIL RELAY ENERGIZED SET TIME</p>	 <p>TRANSFORMER</p>
 <p>TOGGLE SWITCH NORMALLY OPEN/CLOSED</p>	 <p>COIL RELAY DEENERGIZED SET TIME</p>	 <p>VARIABLE FREQUENCY DRIVE</p>
 <p>ROTARY SWITCH</p>	 <p>CIRCUIT INTERRUPTER SINGLE POLE MANUAL RESET</p>	 <p>WIRING POINT/ TERMINAL</p>
 <p>SWITCH ACTUATOR 2 POSITION TOGGLE/ROTARY</p>	 <p>CIRCUIT INTERRUPTER THREE POLE MANUAL RESET</p>	
 <p>SWITCH ACTUATOR 3 POSITION TOGGLE/ROTARY</p>	 <p>BREAKER SINGLE POLE MANUAL RESET</p>	
 <p>SWITCH ACTUATOR PRESSURE</p>	 <p>BREAKER THREE POLE MANUAL RESET</p>	
 <p>SWITCH ACTUATOR DIFFERENTIAL PRESSURE</p>	 <p>BATTERY</p>	
 <p>SWITCH ACTUATOR FLOAT</p>	 <p>BELL</p>	
 <p>SWITCH ACTUATOR FLOW</p>	 <p>BUZZER</p>	
 <p>SWITCH ACTUATOR FOOT</p>	 <p>FUSE TYPE 1</p>	
 <p>SWITCH ACTUATOR TEMPERATURE</p>	 <p>FUSE TYPE 2</p>	
	 <p>GROUND</p>	
	 <p>HORN</p>	

ANNOTATION

EQUIPMENT NAME

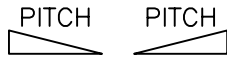
EQUIPMENT NUMBER

- SPECS LINE 1
- SPECS LINE 2
- SPECS LINE 3
- SPECS LINE 4
- SPECS LINE 5

EQUIPMENT DESCRIPTION

EQUIP NO

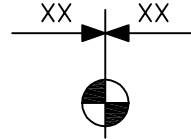
EQUIPMENT
NUMBER TAG



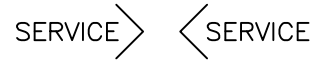
LINE SLOPE
INDICATORS

PIPE DESIGNATION

PIPE/LINE TAG
(BALLOON OPTIONAL)



PIPE SPECIFICATION
BREAK



UTILITY DESIGNATORS
(LEFT & RIGHT)



REVISION
TRIANGLE



FLOW
ARROW