







































































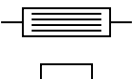













Standard P&ID Symbols Legend | Industry Standardized P&ID Symbols

Piping and Instrument Diagram Standard Symbols Detailed Documentation provides a standard set of shapes & symbols for documenting P&ID and PFD, including standard shapes of instrument, valves, pump, heating exchanges, mixers, crushers, vessels, compressors, filters, motors and connecting shapes.

Instruments									
	Indicator		Computer Indicator		Level Controller		Magnetic		Or Gate
	Behind Control		Programmable Indicator		Pressure Transmitter		Pitot Tube Type Flow		Not Gate
	On Central Control		Displayed Programmable Device		Pressure Recorder		Pitot Tube		Correcting Element
	On Local Control Pane		Computer		Pressure Controller		Wedge Meter		Diamond
	Behind a Local Control		Unit Control Panel		Pressure Indicating		Target Meter		Pressure Gauges
	Indicator 2		Temp Indicator		Pressure Recording		Weir Meter		Thermometers
	Indicator 3		Temp Transmitter		Level Alarm		Ultrasonic Meter		Averaging Pitot Tube
	Indicator 4		Temp Recorder		Flow Element		V-cone Meter		Level Meter
	Indicator 5		Temp Controller		Temperature Element		Venturi Meter		Coriolis Flow Sensor
	Odometer		Flow Indicator		Level Gauge		Quick Change		Flow Nozzle Meter
	Pressure Gauge		Flow Transmitter		Analyzer Transmitter		Turbine Meter		Flume Meter
	Flowmeter		Flow Recorder		Transducer		Rotometer		Manhole
	Thermometer		Flow Controller		Specialty Item		Double		Socket Connection
	Shared Indicator		Level Indicator		Sampler		Steam Traced		Support Bracket
	Displayed Configurable		Pressure Indicator		Straightening Vanes		Venturi		Support Leg
	Shared Indicator		Level Transmitter		Diaphragm Meter		Flowmeter		Support Ring
			Level Recorder		Rotary Meter		And Gate		Support Skirt

The first three columns are combined such that the resulting instrument identifier indicates its sensed parameter, the function of the instrument, and the type of instrument. The fourth column is used only in the case of an instrument modifier and is used to indicate the types of signals being modified. The following is a list of example instrument identifiers constructed from Table 1.















TABLE 1 Instrument Identifiers			
Sensed Parameter	Type of Indicator or Controller	Type of Component	Type of signal
F = flow T = temperature P = pressure I = current L = level V = voltage Z = position	R = recorder I = indicator C = controller	T = transmitter M = modifier E = element	I = current V = voltage P = pneumatic










FIC = flow indicating controller
FM = flow modifier
PM = pressure modifier
TE = temperature element
TR = temperature recorder LIC
= level indicating controller

TT = temperature transmitter
PT = pressure transmitter
FE = flow element
FI = flow indicator
TI = temperature indicator
FC = flow controller































































PROPORTIONAL	(P)
PROPORTIONAL–INTEGRAL	(PI)
PROPORTIONAL–INTEGRAL–DIFFERENTIAL	(PID)
CURRENT TO PNEUMATIC	(I/P)





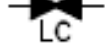





FLOW CONTROLLER	(FC)
TEMPERATURE CONTROLLER	(TC)
PRESSURE CONTROLLER	(PC)
LEVEL CONTROLLER	(LC)




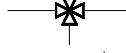



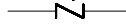















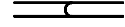










BASIC SYMBOL USED FOR:	
LOCALLY MOUNTED INSTRUMENT:	
BOARD MOUNTED INSTRUMENT:	
INSTRUMENT BEHIND BOARD:	
EXAMPLES OF MODIFIERS	
LOCALLY MOUNTED VOLTAGE TO CURRENT FLOW MODIFIER:	 OR  OR 
LOCALLY MOUNTED PNEUMATIC TO CURRENT PRESSURE MODIFIER:	 OR  OR 
LOCALLY MOUNTED SQUARE ROOT EXTRACTOR:	 OR 
EXAMPLES OF TRANSMITTERS	
FLOW TRANSMITTER:	 OR 
PRESSURE TRANSMITTER:	


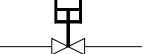
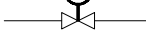
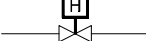
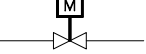
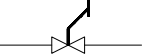
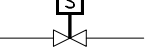
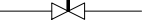
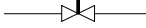
LOCALLY MOUNTED FLOW INDICATOR:	 OR 
LOCALLY MOUNTED TEMPERATURE OR PRESSURE INDICATORS:	 OR 
BOARD MOUNTED FLOW INDICATORS:	
BOARD MOUNTED PRESSURE INDICATOR:	
FLOW RECORDER MOUNTED BEHIND BOARD:	
LOCALLY MOUNTED TEMPERATURE RECORDER:	
LOCALLY MOUNTED PRESSURE RECORDER:	

Valves

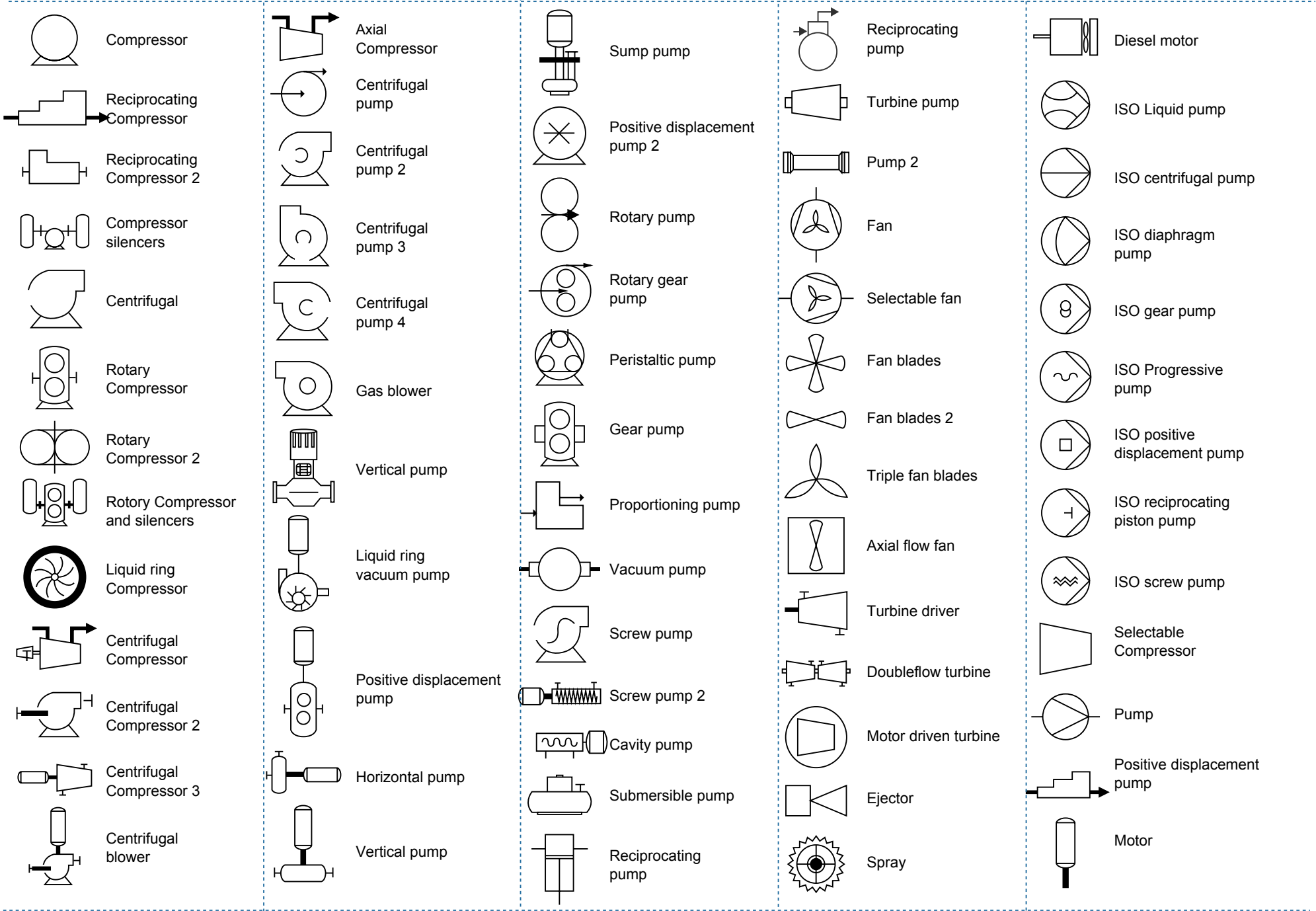
	Hand-Operated Gate Valve		Check Valve 2		Solenoid Valve		4-way Plug Valve		Pinch Valve
	Gate Valve		Butterfly Valve		Hydraulic Valve		4-way Valve		Minimum Flow Valve
	Closed Gate Valve		Flanged Valve		Motor-Operated Valve		Electro-Hydraulic Valve		Auto Recirculation
	Hand-Operated Globe Valve		Flanged Valve 2		Pilot Gate Valve		Balanced Diaphragm Gate Valve		Gauge
	Globe Valve		Angle Valve Hand-Operated		Weight Gate Valve		Spring Gate Valve		Bleeder Valve
	Rotary Valve		Angle Globe Valve		Powered Valve		Ram Valve		Integrated Block Valve
	Needel Valve		Relief Valve		Float-Operated Valve		Slide Valve		Maual Integrated Valve
	Control Valve		Angle Valve		Needle Valve		Metering Coke		Orifice
	Piston-Operated Valve		Angle Blowdown Valve		3-Way Valve		Knife Valve		Rotameter
	Back Pressure Regulator		Ball		3-Way Valve 2		Excess Flow Valve		Quarter Turn Valve Double Acting
	Plug or Cock Valve		Normally Closed Ball		3-Way Plug Valve		Post Indicator		Quarter Turn Valve Spring Acting
	Check Valve		Diaghram				Self Draining Valve		Water Flow Meter
			Plug Valve				Diaphragm Valve		Self-Operating Release Valve

CLOSED VALVE:	
OPEN VALVE:	
THROTTLED VALVE:	
LOCKED OPEN VALVE:	
LOCKED CLOSED VALVE:	
VALVE FAILS OPEN:	
VALVE FAILS CLOSED:	
VALVE FAILS AS IS:	
THREE-WAY VALVE WITH ONE PORT OPEN, ONE CLOSED:	 OR 

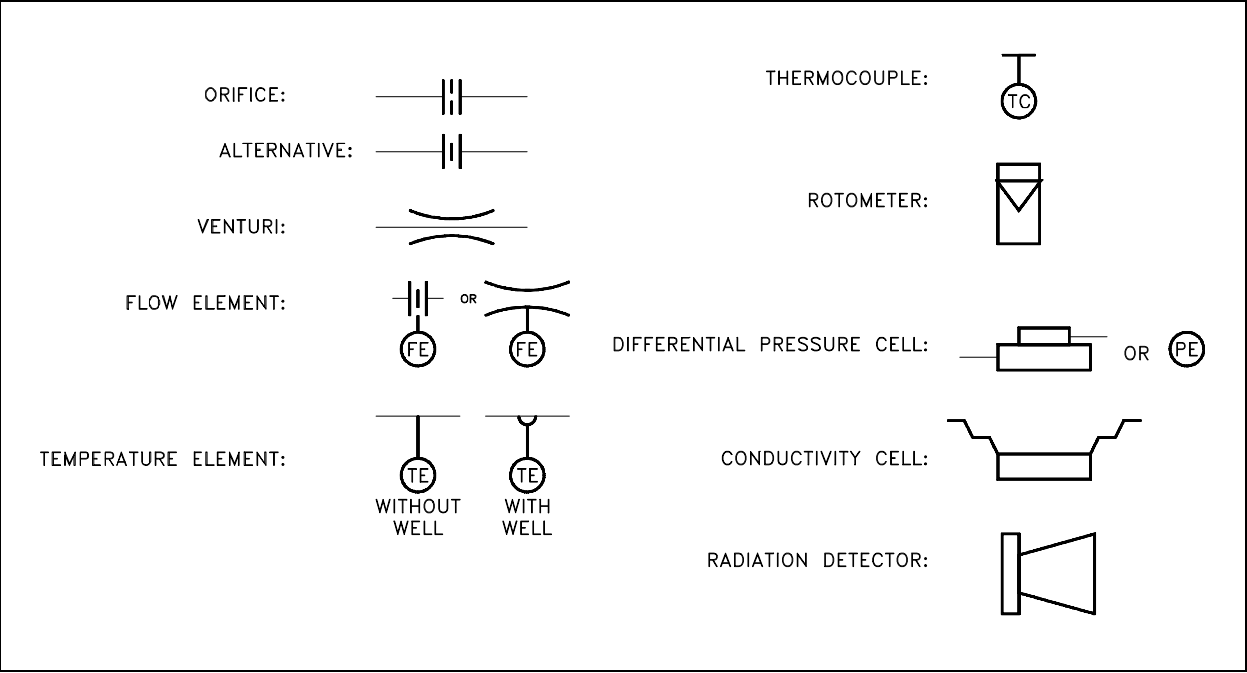
GLOBE:		THREE-WAY:	
ALTERNATIVE:		FOUR-WAY:	
GATE:		ALTERNATIVE:	
ALTERNATIVE:		CHECK:	
BALL:		ALTERNATIVES:	 
ALTERNATIVE:		STOP CHECK:	
NEEDLE:		ALTERNATIVES:	 
ALTERNATIVES:	 	ANGLE:	
BUTTERFLY:		RUPTURE DISC:	
ALTERNATIVES:	 	ALTERNATIVES:	 
PLUG:		PRESSURE REGULATOR:	
DIAPHRAGM			
ALTERNATIVE:			
PIPE REDUCER:			
RELIEF:			
ALTERNATIVES:	  		

DIAPHRAGM:		PISTON:	
ALTERNATIVE:		ALTERNATIVE:	
ELECTRIC MOTOR:		REACHROD:	
SOLENOID:		MANUAL:	
ALTERNATIVE:			


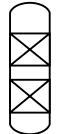


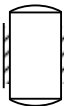
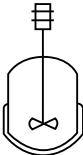
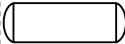


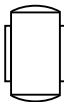

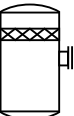


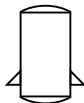




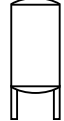





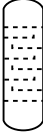






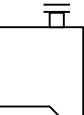

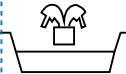


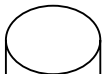

Pumps





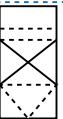




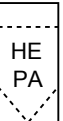




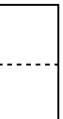








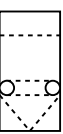
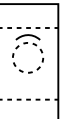






Sensing Devices










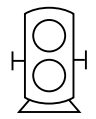

















Vessels

	Vertical Vessel		Packing column		Boiler		Covered Tank		Thermal Insulation Vessel
	Mixing Vessel		Drum		Dome Boiler		Floating Roof Tank		Heating-cooling Jacket Vessel
	Column		Knock-out drum		Hot Liquid Boiler		Open Bulk Storage		Brackets Vessel
	Tray Column		Bag		Tank		Dome Roof Tank		Dished Ends Vessel
	Fluidized Bed Column		Bag (ISO)		Tank 2		Cone Roof Tank		Pit Vessel
	Staggered Baffle Trays Column		Barrel		Tank 3		Internal Floating Roof Tank		Electrical Heating Vessel
	Packing Column		Barrel (ISO)		Tank 4		Double Wall Tank		Wastewater Treatment
			Gas bottle		Open tank		Onion Tank		Bin

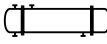


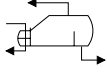

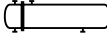

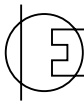
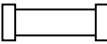

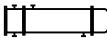


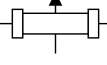
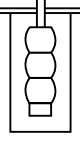
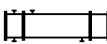


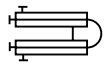

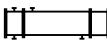

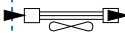
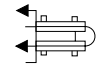

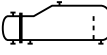




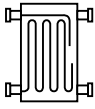


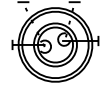
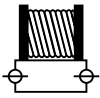



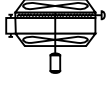


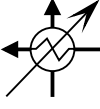

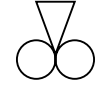


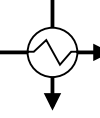

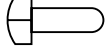


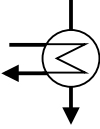

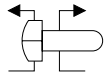



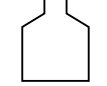

Filters

	Mode Filter		Filter		Fixed bed air Filter		Biological Filter		High efficiency Filter
	Mode Filter indication		Filter 2		HEPA gas Filter		Ionexchanger Filter		Primary Filter Mid-effect Filter
	Filter		Gas Filter		Liquid Filter		Press Filter		Oxygen-enriched Filter
	Highpass Filter		Cartridge gas Filter		Fixed bed liquid Filter		Air Filter		Filter
	Lowpass Filter		Roll air Filter		Rotary liquid Filter		Air Filter 2		Filter 2
	Bandpass Filter						The Filter		Rotary Filter
									Suction Filter









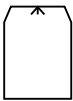
Compressors

	Compressor		Ejector Compressor		Compressor silencers		Liquid ring Compressor		Axial Compressor
	Compressor 2		Piston Compressor		Rotary Compressor		Centrifugal Compressor		Air Compressor
	Compressor, Vacuum pump		Ring Compressor		Rotary Compressor 2		Centrifugal Compressor 2		AC air Compressor
	Centrifugal Compressor		Roller vane Compressor		Rotory Compressor 3		Centrifugal Compressor 3		Screw Compressor
	Diaphragm Compressor		Reciprocating Compressor 3		Rotary Compressor and silencers		Selectable Compressor		Turbo Compressor


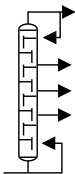




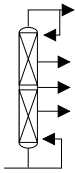

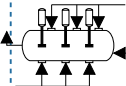


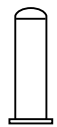
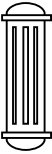

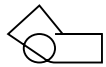


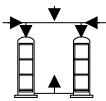


Heat Exchanges

	TEMA TYPE BEM		Spray Cooler		Shell and Tube Heat 3		Reboiler		Oil Burner
	TEMA TYPE BEU		Forced-draft Cooling Tower		Cooler		Single Pass Heat Exchanger		Fired Heater
	TEMA TYPE AEM		Induced-draft Cooling Tower		Air-blown Cooler		Single Pass Heat Exchanger		Vertical Turbine
	TEMA TYPE AEL		Heat Exchanger		Induced Flow Air Cooler		Double Pipe Heat Exchanger		Condenser
	TEMA TYPE NEN		Heat Exchanger 2		Fin-fan Cooler		Hairpin Exchanger		Extractor Hood
	TEMA TYPE BKU		Heat Exchanger 3		Electric Heater		Spiral Heat Exchanger		Hose reel
	Plate Exchanger		Heater		Straight Tubes Heat Exchanger		Spiral Heat Exchanger 2		Light Water Station
	Plate and Frame Heat Exchanger		Exchanger		Coil Tubes Heat Exchanger		Air Cooled Exchanger		Combustion Chamber
	Dryer		Condenser		Finned Tubes Heat Exchanger		Briquetting Machine		Silencer
	Cooling Tower		Shell and Tube Heat		Floating Head Heat Exchanger		U-Tube Heat Exchanger		Thin-Film Evaporator
	Cooling Tower 2		Shell and Tube Heat 2		Plate Heat Exchanger		U-tube Heat Exchanger		Vent
	Cooling Tower 3				Kettle Heat Exchanger		Boiler		
					Reboiler Heat Exchanger				




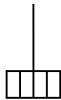
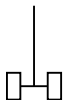
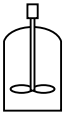








Dryers

	Dryer		Roller Conveyor Belt Dryer		Generator		Heat Consumer		Moving Shelf Dryer
	Fluidized Bed Dryer		Motor Generator		Drying Oven		Spray Dryer		



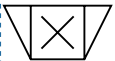
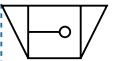
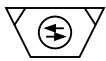
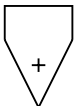


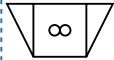

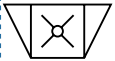

General

	Crossflow Inducted Draft		Plate Tower		Fluid Catalytic Cracking		Fluidized Reactor		Screen
	Counterflow Forced Draft		Packed Tower		Fluid Coking		Alkylation		Boom Loader
	Chimney Tower Hyperbolic		Hydrocracking		Tubular		Furnace		Automatic Stoker
	Furnace		Hydrodesulfurization				Hydrocracking		Electric Motor
									Transport




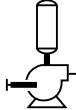

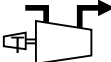




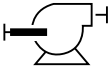




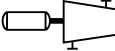




Mixers

	In-line Mixer		Various Mixers		Agitator, Propeller		Agitator, Turbine		Agitator, Disc
	Mixer		Various Mixers 2		Agitator, Anchor		Agitator, Helical		Agitator, Cross-beam
	Various Mixers		Agitator, Stirrer		Agitator, Impeller		Agitator, Gat Paddle		





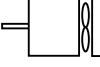










Crushers

	Crusher		Medium Crushers		Various Crushers		Jaw Crusher		Vibration Crusher
	Coarse Crusher		Fine Crushers		Hammer Crusher		Roller Crusher		Hammer Crusher
					Impact Crusher		Cone Crusher		


















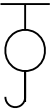














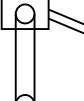




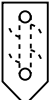




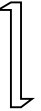






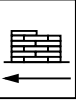









Centrifuges

	Centrifugal Pump		Centrifuge Screw		Centrifuge, Pusher		Centrifugal Blower		Centrifugal Pump 3
	Centrifugal Compressor		Centrifuge, Solid Shell		Centrifuge Screw, Perforated Shell		Centrifugal Pump		Centrifugal Pump 4
	Centrifugal Compressor 2		Centrifuge, High Speed		Centrifuge, Separator disc		Centrifugal Pump 2		Centrifugal Fan
	Centrifugal Compressor 3		Centrifuge, Perforated Shell		Centrifuge, Skimmer		Centrifuge		Centrifugal Pump 5

Motors

	Motor		AC Motor		Generator		Motor-operated Valve		Diesel Motor
	Step Motor		Motor Generator		AC Generator		Motor-driven Turbine		Electric Motor
	DC Motor		Gear		DC Generator		Motor		Turbine

Peripheral

	Impact Separator		Injector		Elevator		Elevator 2		Vertical Shaping Machines
	Gravity Separator		Reducer		Z-form Elevator		Skip Hoist		Pelletizing Disc
	Cyclone Separator		Rupture Disc		Lift		Conveyor		Piston Press
	Electromagnetic Separator		Viewing Glass		Hoists		Conveyor, Chain, Closed		Roller Press
	Electrostatic Precipitator Separator		Viewing Glass with Lighting		Aerator with Sparger		Conveyor, Screw, Closed		Crane
	Solidifier		Back Draft Damper		Bag Filling Machine		Roller Conveyor		Cyclone
	Permanent Magnet		Box Truck		Belt Skimmer		Conveyor		Curved Gas Vent
	Spray Nozzle		Manual Forklift		Screening		Overhead Conveyor		Firing System
	Rotary Table Feeder		Truck Forklift		Bucket Elevator		Screw Conveyor		Flame Arrestor
	Proportional Feeder		Industrial Truck		Elevator 1		Piston Extruder Shaping Machines		Palletizer
	Rotary Valve Feeder		Rolling Bin Truck		Gas Flare		Screw Extruder Shaping Machines		Chimney
	Metering Proportional Feeder		Ship				Horizontal Shaping Machines		Conveyor, Vibrating, Closed

Piping and Connecting Shapes

	Major Pipeline		Top to Top		Double Containment		Electrically Insulated		Expansion Joint
	Connect Pipeline		Sonic Signal		Flange		In-line Mixer		Hose
	Major Straight Line Pipe		Nuclear		End Caps		Separator		Flexible Hose
	Straight Line Pipe		Pneumatic Control		End Cap 2		Bursting Disc		Flow Indicator
	Battery Limit Line		Pneumatic Binary Signal Line		Breather		Flame Arrester		Bell Mouth
	Electronic Serial		Electric Signal Line		Drip Pan Elbow		Drain Silencer		Removable Spool
	Heat Trace		Electric Binary Signal Line		Flange		Exhaust Silencer		Basket Strainer
	Side by Side		Electric Binary Signal Line		Union		Strainer		Breather
	Top-Bottom		Electric Binary Signal Line		Socket Weld		Exhaust Head		Damper
	One-to-Many		Sleeve Joint		Screwed Connection		Triangle Separator		Breakthrough
	Traced Line		General Joint		Orifice Plate		Triangle Separator 2		Orifice
	Multi-Lines		Butt Weld		Flanged Dummy Cover		Tundish		Clamped Flange Coupling
	Mid Arrow		Welded Connection		Electrical Bounded		Open Vent		Compensate
	Multi-Lines Elbow		Mechanical Link		Slope Requirements Line		Syphon Drain		Coupling
	Y-strainer		Soldered/Solvent		Reducer		Hydrant		Electrically Insulated
	Diverter Valve		Blind Disc		Pulsation Dampener		Swivel Joint		Flame Arrestor
	Y-type Strainer		Spectacle Blind		Duplex Strainer		Detonation Arrestor		Explosion-Proof Flame Arrestor
	Rotary Valve		Interchangeable Blind		Vent Silencer		In-line Silencer		Detonation-Proof Flame Arrestor
	Expansion Joint 2		Open Disc		Basket Strainer		Steam Trap		Fire-Resistant Flame Arrestor
	Bursting Disc		Orifice Plate		Cone Strainer		Desuperheater		Fire-Resistant, Explosion-Proof Flame Arrestor
					Pilot Operated Relief Valve with Remote Sensor		Ejector or Educator		Valve Manifold