

PROCESS FLOW DIAGRAMS AND P&ID SYMBOLS (GENERAL INSTRUMENT OR FUNCTION SYMBOLS)

REVISION 1, DATE 9-16-2004

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ANGLE VALVE		RUPTURE DISK OR SAFETY HEAD FOR PRESSURE RELIEF		IN-LINE FILTER		AXIAL FAN		SINGLE DUCT VARIABLE VOLUME BOX
	BUTTERFLY VALVE		PILOT LIGHT X=COLOR R=RED G=GREEN		ATMOSPHERIC FILTER		AXIAL FAN WITH VARIABLE INLET VANES		WING TYPE FACE AND BYPASS DAMPER (A)
	ROTARY VALVE		FLEX CONNECTION (RUBBER)		DOUBLE BASKET STRAINER		2-STAGE RECIPROCATING AIR COMPRESSOR		HW HEATING WATER DX DIRECT EXPANSION CH CHILLED WATER STM STEAM (B)
	3-WAY VALVE		FLEX CONNECTION (STEEL BRAIDED)		HOSE REEL		SINGLE STAGE RECIPROCATING AIR COMPRESSOR		HCL HEATING COIL CCL COOLING COIL
	4-WAY VALVE		SINGLE PITOT TUBE OR PITOT VENTURI TUBE		OPEN DRAIN (SHOWN)		COLLECTION BIN		CYCLONE SEPARATOR
	OS & Y VALVE		FLOW METER		XX- DRAIN SYSTEM ANNOTATIONS DRAIN (PLAN VIEW)		FLUID RECOVERY PUMP		DUAL SERVICE HEAT EXCHANGER
	DIAPHRAM VALVE		FLOW NOZZLE OR VENTURI		CLEANOUT (PLAN VIEW)		MULTI BLADE DAMPER		SINGLE BLADE DAMPER
	PRESSURE RELIEF		REDUCER		SANITARY VENT		TEST PORT		PILOT LIGHT
	DIAPHRAM ACTUATOR		SCREWED CAP		SILENCER/MUFFLER		SEPARATOR		MIST ELIMINATOR
	TWO-WAY VALVE, FAIL CLOSED		PIPE CAP		SPACE PENETRATIONS		HEPA FILTER		CARBON ABSORBER FILTER
	TWO-WAY VALVE, FAIL OPEN		HOSE CONNECTION		FIXED LOUVERS		FILTER		SUCTION DIFFUSER
	3-WAY VALVE W/DIAPHRAM ACTUATOR		FLANGED CONNECTION (PIPING OR EQUIP)		TRAP XX ANNOTATES FUNCTION		BACKDRAFT DAMPER		
	4-WAY VALVE W/DIAPHRAM ACTUATOR		FLOW ORIFICE FIXED		LUBRICATOR				
	SPRING-OPERATED SINGLE-ACTING ACTUATOR		STRAINER WITH VALVE		55 GALLON DRUM		TANK		
	SPRING-OPERATED DOUBLE-ACTING ACTUATOR		Y-STRAINER		THERMOSTATIC VENT		HVAC COIL (A)		
	ELECTROHYDRAULIC ACTUATOR		COMPRESSED AIR		SPRINKLER ALARM (WATER MOTOR GONG)		HW HEATING WATER DX DIRECT EXPANSION CH CHILLED WATER STM STEAM (B)		
	HAND ACTUATOR OR HANDWHEEL		DUCTED AIR FLOW FROM SPACE		FLOW ALARM VALVE		HCL HEATING COIL CCL COOLING COIL		
	RESTRICTION ORIFICE IN PROCESS LINE		CAPPED AIR DUCT		COOLING TOWER		UNIT HEATER (A)		
	RESTRICTION ORIFICE DRILLED IN VALVE		GATE VALVE (OPEN)		CHILLER		HW HEATING WATER DX DIRECT EXPANSION CH CHILLED WATER STM STEAM (B)		
	FLOW STRAIGHTENING VANE		GATE VALVE (CLOSED)		HORIZONTAL CENTRIFUGAL PUMP		HCL HEATING COIL		
	DIAPHRAM PRESSURE-BALANCED		GLOBE VALVE (OPEN)		CENTRIFUGAL FAN WITH VARIABLE INLET VANES		PRESSURIZED GAS BOTTLE		
	PRESSURE-REDUCING REGULATOR, SELF-CONTAINED, WITH HANDWHEEL ADJUSTABLE SET POINT		GLOBE VALVE (CLOSED)		BLOWER/CENTRIFUGAL FAN		DOUBLE CONTAINMENT TANK		
	PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP		NEEDLE VALVE (OPEN)		ROTARY PUMP		HUMIDIFIER		
	DIFFERENTIAL-PRESSURE-REDUCING REGULATOR WITH INTERNAL AND EXTERNAL TAPS		NEEDLE VALVE (CLOSED)		VERTICAL WET PIT PUMP		MANUAL BALANCE DAMPER		
	BACKPRESSURE REGULATOR, SELF-CONTAINED		PLUG VALVE (OPEN)		PROGRESSIVE CAVITY PUMP		MULTI POINT PITOT TUBE ARRAY		
	BACKPRESSURE REGULATOR WITH EXTERNAL PRESSURE TAP		PLUG VALVE (CLOSED)		VERTICAL SUMP PUMP		DAMPER (NORMALLY OPEN) OR NORMALLY CLOSED		
	PRESSURE-REDUCING REGULATOR WITH INTEGRAL OUTLET PRESSURE RELIEF VALVE, AND OPTIONAL PRESSURE INDICATOR		BALL VALVE (OPEN)		HEATER		EVAPORATIVE AIR COOLER		
	PRESSURE INDICATOR		BALL VALVE (CLOSED)		HEAT EXCHANGER				
	FLOW DIRECTION		CHECK VALVE						
	PRESSURE RELIEF OR SAFETY VALVE		SPRING CHECK VALVE						
	VACUUM RELIEF VALVE		ANGLE VALVE (OPEN)						
	PRESSURE RELIEF OR SAFETY VALVE, STRAIGHT-THROUGH PATTERN, SPRING- OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT		ANGLE VALVE (CLOSED)						
	RUPTURE DISK OR SAFETY HEAD FOR VACUUM RELIEF		SAFETY OR RELIEF VALVE (INLET PORT SHOWN CLOSED)						
			THREE-WAY VALVE (CLOSED PORT DARKENED)						
			FOUR-WAY VALVE (ARROWS INDICATE FLOW DIRECTION)						
			BALL-CHECK VALVE						
			DUAL PURGE VALVE						
			ALARM VALVE						
			AIR INTAKE FILTER						
			ALARM						
			BUBBLE GAUGE						

GENERAL NOTES

- M-0001 IS A STANDARD PIPING AND INSTRUMENTATION DIAGRAM LEGEND SHEET.
- FOR DRAWING TITLE BLOCK CONTENTS REFER TO THE DRAFTING MANUAL SECTION 202.10.
- THE SHEET NUMBER IN THE TITLE BLOCK IS A REFERENCE NUMBER FOR THIS MANUAL.

NO	DATE	CLASS	REV	ADD	DESCRIPTION	OWN	DSGN	CHKD	SUB	APP
<p><b>FACILITY &amp; WASTE OPERATIONS DESIGN ENGINEERING SERVICES</b></p>										
<p><b>PROCESS FLOW DIAGRAMS AND P&amp;ID SYMBOLS</b></p>								<p>DRAWN: DRAFTER</p> <p>DESIGN: DESIGNER(s)</p> <p>CHECKED: CHECKER</p>		
<p>PROCESS FLOW AND P&amp;ID AND INSTRUMENTATION DIAGRAM LEGEND</p>										
BLDG XX										TA-XX
SUBMITTED					APPROVED FOR RELEASE					
PROJECT ENGINEER					PROJECT TEAM LEADER					
SHEET										
										M-0003
										X OF X
CLASSIFICATION: UNC										
REVIEWER: LARRY BAYS										
DATE										
PROJECT ID										
DRAWING NO										
ST6999										
REV 1										