

VALVE SYMBOLS

GATE

KNIFE GATE

BUTTERFLY

GLOBE

BALL

VEE- BALL

PLUG

SEAT PORT ECCENTRIC PLUG

DIAPHRAGM

PINCH

NEEDLE

SWING CHECK

BALL CHECK

DOUBLE DISC CHECK

PRESSURE RELIEF

AIR AND/OR VACUUM RELEASE

REGULATED SIDE PRESSURE CONTROL

SELF CONTAINED FLOW CONTROL

MULTI-PORT VALVES (BALL VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) ARROWS INDICATE FLOW PATTERN. SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.

TELESCOPE

REDUCER

SAMPLE

MUD

GATE SYMBOLS

SLUICE

BUTTERFLY

FLAP

FABRICATED SLIDE

SHEAR

STOP LOG

ACTUATOR SYMBOLS

PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING

PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT

ELECTRIC MOTOR

SOLENOID

HYDRAULIC

MANUAL

ELECTROHYDRAULIC

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL OR HYDRAULIC)
XX: FO=FAIL OPEN
FC=FAIL CLOSED
FLP=FAIL TO LAST POSITION

PRIMARY ELEMENT SYMBOLS

PARSHALL FLUME

WEIR

ORFICE PLATE

FLOW TUBE

PITOT-STATIC

VORTEX METER

ROTAMETER

INLINE ULTRASONIC FLOWMETER

THERMAL FLOWMETER

ELECTROMAGNETIC FLOWMETER

PROPELLER OR TURBINE METER

DENSITY METER

GENERIC

LEVEL (ULTRASONIC)

LEVEL (BUBBLER TUBE)

LEVEL (FLOAT)

LEVEL (SUBMERSIBLE PRESSURE)

DOPPLER ULTRASONIC FLOWMETER

TRANSIT TIME ULTRASONIC FLOWMETER

LEVEL (RADAR)

MISCELLANEOUS SYMBOLS

SIGHT GLASS

DIAPHRAGM SEAL

BLIND FLANGE

AIR GAP

VENT TO ATMOSPHERE

AERATOR

PLUG

RECEPTACLE

SELF CONTAINED AIR SUPPLY

COMPOSITE SAMPLER (DIPPER TYPE)

COMPOSITE SAMPLER (SUCTION TYPE)

TV CAMERA

RADIO ANTENNA

"ON" TIME DELAY B "ON" X-SEC. AFTER A "ON". INSTANT "OFF".

"OFF" TIME DELAY B "OFF" X-SEC. AFTER A "OFF". INSTANT "ON".

INTERLOCK. SEE CONTROL DIAGRAMS

MEMORY ELEMENT S= SET, R= RESET

PURGE SET X: W= WATER A= AIR SEE

AIR SET XX= SUPPLY PRESSURE IN PSIG.

FILTER/REGULATOR/GAUGE SET

FLEXIBLE CONNECTOR

PULSATION DAMPENER

FILTER

120V 120 VOLT, 60 HZ POWER

480V 480 VOLT, 60 HZ POWER

ANNULAR DIAPHRAGM SEAL

RUPTURE DISK (PRESSURE)

RUPTURE DISK (VACUUM)

PIG INSERT POINT

PIG CATCH POINT

MIXER

ELECTRIC MOTOR

HEAT EXCHANGER

TONE TRANSMITTER NO. X

TONE RECEIVER NO. X

VOICE COMMUNICATION POINT

TV MONITOR

LOGIC ELEMENT: IF A AND NOT B THEN C

LOGIC ELEMENT: IF A OR B THEN C

ON/OFF RELAY. INPUT IS CONNECTED TO OUTPUT WHEN SWITCHING SIGNAL IS PRESENT.

SWITCHING RELAY. INPUT WITH DOT IS CONNECTED TO OUTPUT WHEN SWITCHING SIGNAL IS PRESENT. OTHER INPUT IS CONNECTED TO OUTPUT WHEN SWITCHING SIGNAL IS NOT PRESENT.

FLUSHING CONNECTION

HOSE ADAPTOR

SEAL WATER SET

SIGHT GLASS

CALIBRATION COLUMN

PANEL OUTLINE

PANEL NUMBER

CONTROL PANEL DATABASE SYMBOL

PANEL CONTINUED ON SAME OR OTHER DRAWING

PUMP AND COMPRESSOR SYMBOLS

NOTE: XX: AS ADJUSTABLE SPEED
CS CONSTANT SPEED (SINGLE SPEED)
CS-2 CONSTANT SPEED (TWO SPEED)
CS-R CONSTANT SPEED (REVERSING)

CENTRIFUGAL PUMP (DRY PIT)

CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP

CHEMICAL FEED PUMP

DIAPHRAGM PUMP

GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)

PISTON PUMP

VERTICAL TURBINE PUMP

SUBMERSIBLE SUMP PUMP

PROGRESSIVE CAVITY PUMP

COMPRESSOR (CENTRIFUGAL)

COMPRESSOR (PISTON)

BLOWER OR FAN (CENTRIFUGAL)

EJECTOR

PIPING IDENTIFICATION

(FOR REFERENCE ONLY. SEE SITE AND MECHANICAL DRAWINGS)

PIPING CHANGE DATABASE SYMBOL

PIPE DIAMETER IN INCHES (USED FOR DESIGN ONLY. NOT PRINTED FOR CONSTRUCTION)

FLOW STREAM IDENTIFICATION

FLOW STREAM IDENTIFICATION

MP	MEMBRANE PERMEATE
PD	PLANT DRAIN
RC	RECLAIMED WATER
W1	POTABLE WATER
W3	PLANT WATER
SA	SAMPLE
SH	SODIUM HYPOCHLORITE

APVD	BY	APVD	CHK	DATE	NO.	DSGN
J. ALLEN		R. BAKER				

CRYSTAL SPRING WATER TREATMENT PLANT

CLEARWELL REPLACEMENT

WESTERN VIRGINIA WATER AUTHORITY

CITY OF ROANOKE, VIRGINIA

INSTRUMENTATION AND CONTROL

LEGEND AND SYMBOLS

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE JUNE 2014

PROJ 475481

DWG I-0002

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CONSTRUCTION DOCUMENTS

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FILENAME: I-0002_475481.dgn PLOT DATE: 2014/07/01 PLOT TIME: 3:24:49 PM