## PIPING SYMBOLS

- MAIN PROCESS LINE
- OTHER PROCESS & UTILITY LINES
- INSTRUMENT AIR LINES
- INSTRUMENT CAPILLARY TUBING
- INSTRUMENT ELECTRICAL SIGNAL
- LINE SIZE
- SERVICE SYMBOL
- LINE NUMBER
- DIRECTION OF FLOW
- MATERIAL CLASS SPEC.

3"-CS-06-PI

4"-SL-012-TE

- DESIGNATES ELECTRICAL TRACING
- DESIGNATES CLASS CHANGE (CS / 316 SS)
- VALVE NORMALLY OPEN (TYP)
- VALVE NORMALLY CLOSED (TYP)
- VALVE SIZE INDICATED IF NOT LINE SIZE (TYP)
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- PLUG VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- BUTTERFLY VALVE
- THREE WAY VALVE
- FOUR WAY VALVE
- PRESSURE RELIEF VALVE
- PRESSURE VACUUM RELIEF VALVE
- PRESSURE RELIEF RUPTURE DISC
- FC = FAIL CLOSED
- CONTROL VALVE (DIAPHRAGM OPERATED)
- HAND WHEEL INDICATED THUS WHEN REQ'D.
- FO = FAIL OPEN
- BUTTERFLY VALVE (DIAPHRAGM OPERATED)
- VALVE SOLENOID OPERATED
- MANUAL RESET
- VALVE PISTON OPERATED
- CONTROL OR BLOCK VALVE MOTOR OPERATED

- CONTROL VALVE REDUCING-SELF CONTAINED
- THROTTLING VALVE HAND OPERATED (HCV)
- NEEDLE VALVE
- PINCH VALVE
- KNIFE GATE / ALSO BLAST GATE
- ROTARY AIR LOCK . VALVE
- LINE SIZE REDUCTION
- FLANGE JOINT
- UNION JOINT
- SINGLE BLIND
- SPECTACLE FLANGE
- BLIND FLANGE
- PIPE CAP
- EXPANSION JOINT
- PLUGGED CONNECTION-TOP OR BOTTOM OF LINE
- HOSE CONNECTION
- TRAP
- LINE FILTER
- LINE STRAINER
- FLANGED BRANCH CONN.
- COUPLING BRANCH CONN.
- STRAINER Y-TYPE
- TEMPORARY STRAINER
- STEAM EJECTOR
- EYE WASH FOUNTAIN (EW)
- SAFETY SHOWER (SH)
- INDICATES PACKAGE EQUIPMENT OR INTEGRAL UNITS
- FLEXIBLE CONNECTION
- TIE-IN
- WATER PURGE (P W)
- INSTRUMENT AIR PURGE (P IA)
- STEAM PURGE (P ST)
- PUMP DESCRIPTION BLOCK (SIZE, HP, GPM, RPM)
- UTILITY CONTINUATION (CC)
- INSULATION SYMBOL (HC, PP OR CC — SHOWS TE)
- DRAIN OR SEWER CONN.
- SYSTEM COMMUNICATION LINK
- EDUCTOR

## SERVICE SYMBOLS

| SERVICE | SYMBOL | MAT. CLASS | MAT. |
|---|---|---|---|
| FRESH WATER | FRW | L1 | CS. |
| GLAND SEAL WATER | GSW | L1 | C.S. |
| PROCESS WATER | PRW | L1 | C.S. |
| HOT WATER SUP. | HWS | A1 | C.S. |
| PROPANE GAS | PG | L3 | C.S. |
| CARBON SLURRY | CS | P1 | HDPE |
| CARBON ACID WASH | AH | P2 | CPVC |
| PREGNANT SOL'N | PS | L11 | C.S. |
| STRIP SOLUTION | SSL | L11 | C.S. |
| BARREN SOLUTION | BS | L11 | C.S. |
| SODIUM HYDROXIDE | SH | L10 | C.S. |
| SODIUM CYANIDE | SCN | L10 | C.S. |
| HYDROCHLORIC ACID | AH | P2 | CPVC |

## VALVE DESIGNATION

| | |
|---|---|
| BALL VALVE | A |
| BUTTERFLY VALVE | B |
| CHECK VALVE | C |
| DIAPHRAGM VALVE | D |
| GLOBE VALVE | E |
| GATE VALVE | G |
| HYDRANT | H |
| KNIFE GATE VALVE | K |
| PINCH VALVE | P |
| PLUG VALVE | U |

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| ADJ. | - Adjustable | L.C. | - Level Control |
| ALT. | - Alternate | L.S.H. | - Level Switch High |
| B.W. | - Butt Weld | L.S.L. | - Level Switch Low |
| CONC. | - Concentric | L.T. | - Level Transmitter |
| C.S. | - Carbon Steel | LF | - Linear Feet |
| DISCH. | - Discharge | MPT | - Male Pipe Thread |
| -do- | - Ditto | NPT | - Nominal Pipe Thread |
| D.L. | - Dummy Leg | N.T.S. | - Not to Scale |
| ECC. | - Eccentric | PVC | - Polyvinylchloride |
| E.R.W. | - Electric Resistance Weld | RED. | - Reducing or Reducer |
| F.C.V. | - Flow Control Valve | REINF. | - Reinforcing or Reinforced |
| F.E. | - Flow Element | R.F. | - Raised Face |
| F/F | - Face of Flange | SCH. | - Schedule |
| F.F. | - Flat Face | SCRD. | - Screwed |
| FLG. | - Flange | SMLS. | - Seamless |
| F.P.T. | - Female Pipe Thread | STD. | - Standard |
| F.O.I.C. | - Flow indicator and control | STL. | - Steel |
| F.S. | - Forged Steel | S.O. | - Slip-On |
| F.T. | - Flow Transmitter | S.S. | - Stainless Steel |
| F.W. | - Field Weld | THK. | - Thick |
| GSKT. | - Gasket | THD. | - Threaded |
| HD. | - Head | T.B.E. | - Threaded Both Ends |
| HEX | - Hexagon | T & C | - Threaded and Chamfered |
| H. | - Horizontal | VA | - Valve |
| HVY. | - Heavy | V. | - Vertical |
| I.D. | - Inside Diameter | W.N. | - Weld Neck |
| I/P. | - Transducer | W/ | - With |

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| | BY | DATE |
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| DESIGN | SSI | |
| DRAWN | | |
| CHKD | | |
| APPVD | | |
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| APPVD | | |
| DATE PRINTED | | |

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PIPING LEGEND

SCALE NONE

DRAWING NUMBER 89-0635-700

| NO | DATE | BY | CHK | DESCRIPTION |
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REVISIONS