

VALVE BODY TYPES

- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- FLUID CHECK VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- HERMETICALLY SEALED VALVE
- THREE WAY VALVE
- FOOT VALVE WITH STRAINER
- STOP CHECK VALVE (NORMALLY CLOSED)
- STOP CHECK VALVE (NORMALLY OPEN)
- SAFETY & RELIEF VALVE
- QUICK DISCONNECT COUPLING
- FLOAT CHECK VALVE
- AIR RELEASE VALVE
- VACUUM BREAKER
- CHECK VALVE
- BUTTERFLY VALVE (FLANGED OR WAVER TYPE - NORMALLY CLOSED)
- BUTTERFLY VALVE (FLANGED OR WAVER TYPE - NORMALLY OPEN)
- DOUBLE DISC GATE VALVE
- VARIABLE CAPILLARY PRESSURE ELEMENT
- FOOT RETURN VALVE
- BLOW OFF VALVE
- Y PAY TERM VALVE
- FIRE PROTECTION POST INDICATOR VALVE

VALVE OPERATOR TYPES

- DIAPHRAGM
- ELECTRIC MOTOR
- SOLENOID
- PISTON
- MANUAL GEAR OPERATED
- EXTENSION STEM OPERATOR
- QUICK OPERATING
- SELF-CONTAINED PRESSURE REGULATOR
- THROTTLING
- PROCESS ACTUATED AIR DIAPHRAGM OPERATOR WITH VALVE POSITIONER
- INSTRUMENT ACTUATED AIR DIAPHRAGM OPERATOR WITH VALVE POSITIONER

VALVE ACCESSORIES, DEFINITIONS AND ABBREVIATIONS

- STEEL LEAKOFF
- BELLOWS SEAL
- CAPPED STEM
- FLANGES AT VALVES ARE NORMALLY CLOSED VALVE POSITION SHOWN IN THIS DRAWING POWER OPERATION
- EXTENSION STEM THROUGH SHIELD WALL OR FLOOR
- EXTENSION STEM NO WALL OR FLOOR PENETRATION
- F.C. FAIL CLOSED
- F.O. FAIL OPEN
- F.A.I. FAIL A F I S
- L.C. LOCKED CLOSED
- L.O. LOCKED OPEN
- L.I.P. LOCKED IN POSITION
- N.C. NORMALLY CLOSED
- N.O. NORMALLY OPEN
- T.C. TEST CONNECTION
- V. VENT
- D. DRAIN

PIPE & EQUIPMENT ACCESSORIES

- VESSEL MANWAY
- RUPTURE DISC
- FLOW RESTRICTION ORIFICE
- SIGHT FLOW INDICATION
- THERMAL SLEEVE
- BLIND FLANGE
- CAPPED STUB
- REDUCER
- EXPANSION JOINT
- SPRAY NOZZLES
- SPARGER (INSIDE VESSEL)
- EDUCTOR OR EJECTOR
- BLENDER
- LOCK SEAL TRAP
- FLEXIBLE CONN.
- HOSE CONNECTION
- FLOOR DRAIN
- BREAKDOWN ORIFICE
- TEMPORARY STRAINER
- SPECTACLE FLANGE
- WILD CAP
- THREAD OR SOCKET WELDED C/P
- OPEN FUNNEL DRAIN SYSTEM
- PENETRATION
- FLOW NOZZLE
- ANNULAR FLOW MEASUREMENT
- PRESSURE CLASS TRANSITION

EQUIPMENT

- VERT. STACK
- VERTICAL U-TUBE STEAM GENERATOR
- STRAIGHT TUBE HEAT EXCHANGER
- SHAFT SEAL PUMP
- POSITIVE DISPLACEMENT PUMP
- CENTRIFUGAL PUMP
- SMALL CANNED MOTOR PUMP
- FAN, SLOWER OR COMPRESSOR
- WATER METER
- MIXER
- ACCUMULATOR
- IMERSION HEATER (STEAM OR ELECTRICAL)
- FIRE HYDRANT
- DASKE'S STRAINER
- SEPARATOR
- DOUBLE BASKET STRAINER
- STEAM TRAP
- JOHNSON SCREEN
- Y-STRAINER
- FILTER
- FORWARD-REVERSE PITOT
- COVER
- VENT CONDENSER
- FI FLOW INDICATOR
- VERTICAL CANNED PUMP
- TEMPORARY CONE TYPE STRAINER
- ORIFICE TYPE FLOW MEASUREMENT
- U-TUBE HEAT EXCHANGER
- COIL TYPE HEAT EXCHANGER

INSTRUMENTATION & CONTROL SYMBOLS

- LOCAL MOUNTED INSTRUMENT WITH SINGLE SERVICE & FUNCTION
- BOARD REAR MOUNTED INSTRUMENT
- BOARD FRONT MOUNTED INSTRUMENT
- CONNECTIVITY
- TEMPERATURE
- PRESSURE
- LEVEL
- ANALOG
- ANALYSIS
- TRIP
- ALARM
- VALVE DAMPER OR LOUVER
- SWITCH
- TRANSMITTER
- CLASS
- POWER SUPPLY
- INDICATING
- RECORD OR PRINT
- CONTROL

TYPICAL INSTRUMENT CONNECTIONS

LEVEL

VALVE LOCATION NUMBER IDENTIFICATION SYSTEM

ITEM

LINE DESIGNATIONS

UNIT No.

REFERENCE BLOCK

LINE CODING

INSTRUMENT LINE

CLASSIFICATIONS

TYPICAL REPRESENTATION OF UNIT & EQUIPMENT

TYPICAL REPRESENTATION OF VALVED PACKAGE

LINE SYMBOLS

- MAIN PROCESS FLOW LINES (OUT OF SYSTEM OR UNIT TWO DASHED)
- SECONDARY PROCESS FLOW LINES (OUT OF SYSTEM OR UNIT TWO DASHED)
- PNEUMATIC INSTRUMENT LINES
- INSTRUMENT AIR SUPPLY FIXED PRESSURE
- AREA BOUNDARIES
- ELECTRICAL SIGNALS
- INSTRUMENT CAPILLARY TUBING
- ELECTRICAL HEAT TRACING
- TRANSITION PIECE (STAINLESS TO CARBON STEEL)
- TRANSITION PIECE (TYPICAL FOR FLANGED CONN.)
- SHIELD WALL PENETRATION
- FLANGE CONNECTION (PIPING OR EQUIPMENT)
- TEST CONNECTION LOCATION
- TEST VENT LOCATION

GENERAL NOTES

1. THESE NOTES APPLY TO ALL DRAWINGS UNLESS OTHERWISE SPECIFIED IN THE APPLICABLE SPECIFICATIONS.
2. ALL PIPING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. (AISC) SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS AND AISC 308-63 SPECIFICATIONS FOR STRUCTURAL STEEL BOLTING.
3. WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE AMERICAN WELDING SOCIETY (AWS) SPECIFICATIONS FOR STRUCTURAL STEEL WELDING.
4. ALL MATERIAL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. (AISC) SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS AND AISC 308-63 SPECIFICATIONS FOR STRUCTURAL STEEL BOLTING.
5. FOR PLUMBING NOTES SEE 8.0 & 8.000.
6. ALL PIPING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. (AISC) SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS AND AISC 308-63 SPECIFICATIONS FOR STRUCTURAL STEEL BOLTING.
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9. IN SAFETY CLASS 1 PIPING A FLOW RESTRICTION IS REQUIRED IN 3/4" PIPING TO ALLOW TRAFFIC FROM SAFETY CLASS 1 TO SAFETY CLASS 2.
10. TYPICAL FLOW RESTRICTION SHALL BE:

REFERENCES

1. EQUIPMENT LIST
2. LINE LIST
3. INSTRUMENT LIST
4. VALVE LIST
5. SPECIFICATION LIST
6. INSTRUMENT IDENTIFICATION SHEETS
7. INSTRUMENTATION AND CONTROL DRAWING

LEGEND

GENERAL

- 1. SAFETY CLASS 1
- 2. SAFETY CLASS 2
- 3. SAFETY CLASS 3
- 4. SAFETY CLASS 4
- 5. SAFETY CLASS 5
- 6. SAFETY CLASS 6
- 7. SAFETY CLASS 7
- 8. SAFETY CLASS 8
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- 49. SAFETY CLASS 49
- 50. SAFETY CLASS 50

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MECHANICAL SYMBOLS & NOTES

FOR INFORMATION ONLY

APERTURE CARD

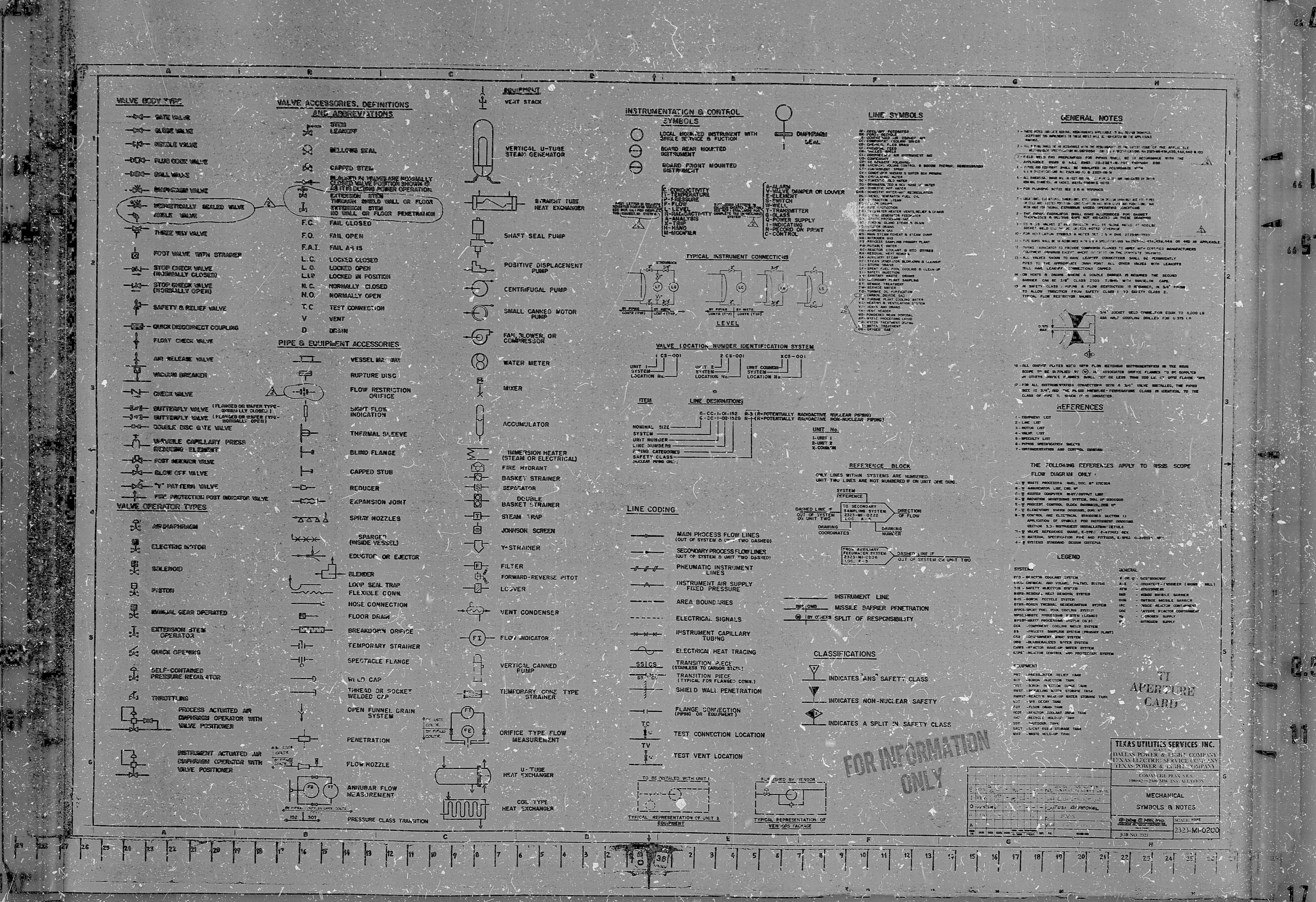
TEXAS UTILITIES SERVICES INC.
DALLAS POWER & LIGHT COMPANY
TEXAS ELECTRIC SERVICE COMPANY
TEXAS POWER & LIGHT COMPANY

MECHANICAL SYMBOLS & NOTES

SCALE: AS SHOWN

DATE: 10/1/68

PROJECT NO: 2323-MI-0200



PDR RIDS

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