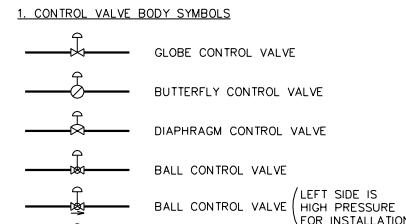
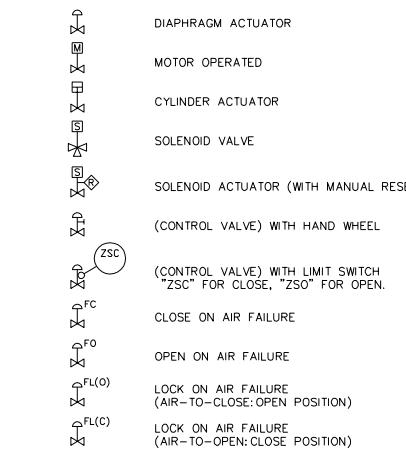


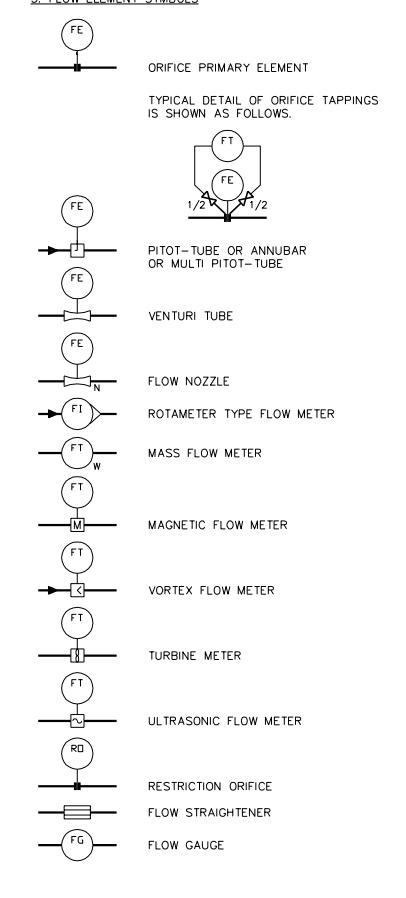
IN-LINE INSTRUMENT ELEMENTS



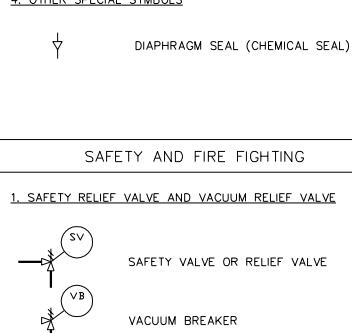
2. CONTROL VALVE ACTUATOR AND ADDITIONAL SYMBOLS



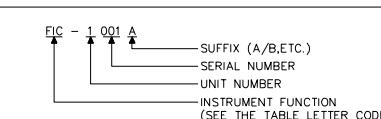
3. FLOW ELEMENT SYMBOLS



4. OTHER SPECIAL SYMBOLS



LEGEND OF INSTRUMENT TAG NUMBERS



INSTRUMENT FUNCTIONAL SYMBOLS

1. BASIC IDENTIFICATION LETTERS

FIRST LETTER	SUCCEEDING LETTERS		
MEASURED OR VARIABLE	MODIFIER	FUNCTION	MODIFIER
A ANALYSIS	—	ALARM	—
B BURNER FLAME	—	—	—
C —	—	CONTROL	CLOSE
D DENSITY OR SPECIFIC GRAVITY	DIFFERENTIAL	—	—
E VOLUME, CURRENT, ELECTRIC POWER	—	PRIMARY ELEMENT	—
F FLOW RATE	RATIO	—	—
G —	—	GAUGE	—
H MANUALLY INITIATED	—	—	HIGH
I —	—	INDICATE	—
J SEQUENCE	—	—	—
K TIMER OR THE SCHEDULE	—	—	—
L LEVEL	LIGHT	LOW	—
M MOISTURE	—	—	—
N —	—	—	OPEN
O —	—	—	OPEN
P PRESSURE	—	—	—
Q —	INTEGRATE	INTEGRATE RECORD (SEE NOTE)	RUN
R —	—	RECORD (SEE NOTE)	RUN
S SPEED OR SAFETY	—	SWITCH	—
T TEMPERATURE	—	TRANSMIT	—
U MULTI-VARIABLE	—	—	—
V VIBRATION	—	VALVE DAMPER	—
W WEIGHT	—	WELL	—
X UNCLASSIFIED	—	UNCLASSIFIED	—
Y —	—	CONVERTOR COMPUTING	—
Z POSITION	—	—	—

NOTE: "RECORD" MEANS THAT TREND AND HISTORICAL RECORDING IN DCS IS POSSIBLE AND RECORDING ON THE RECORDERS MOUNTED ON AUXILIARY CONSOLE IS SOFTWARE ASSIGNABLE.

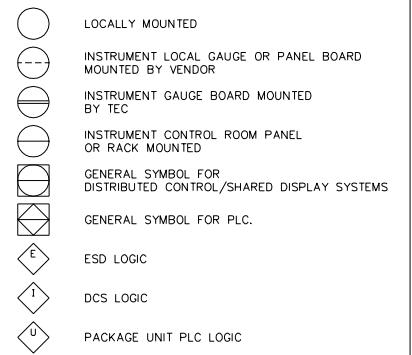
ADDITIONAL LETTERS

HV HAND OPERATED CONTROL VALVE
MOV MOTOR OPERATED VALVE
XV AIR OPERATED ON-OFF VALVE
HH HIGH HIGH
LL LOW LOW
LLL LOW LOW LOW
SS SLIP DETECTOR
UA COMMON ALARM GROUP
COS CHANGE OVER SWITCH
PB PUSH BUTTON

2. INSTRUMENT LINE SYMBOLS

- CONNECTION TO PROCESS
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL (ANALOG,DISCRETE,POWER)
- CAPILLARY TUBING
- HYDRAULIC SIGNAL
- SOFTWARE AND DATA SIGNAL
- ELECTRO-MAGNETIC OR SONIC SIGNAL

3. INSTRUMENT SYMBOLS

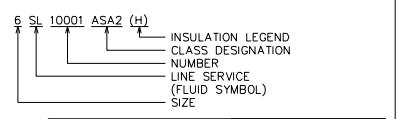


CHANGE OVER SWITCH BY MECHANICALLY INDICATES A PROVISION TO RESTRICT THE RELEASE OF FLAMMABLE LIQUIDS IS REQUIRED, SEE CSE STANDARDS GUIDE, SECTION 18 FOR DETAILS

4. INSTRUMENT FUNCTION

- * IDENTIFIES FUNCTION AS BELOW
- Σ SUMMING
- Δ DIFFERENCE
- × MULTIPLYING
- > HIGH SELECTING
- > HIGH LIMITING
- ± BIAS
- Σ/n AVERAGING
- K PROPORTIONAL
- ÷ DIVIDING
- < LOW SELECTING
- < LOW LIMITING
- ▼ VELOCITY LIMITER
- i(x) UNSPECIFIED FUNCTION
- I/P ELECTRO-PNEUMATIC CONVERTER

1. LINE NUMBERS ARE DESIGNATED AS FOLLOWING MANNER.

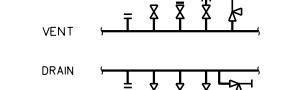


CLASS	RATING	MATERIAL
A1A2	150#	C.S
A1AV	150#	C.S
A1A4	150#	C.S
A1AUX	150#	C.S(EC)
A1AX	150#	C.S
A1KO	150#	304S
A1KJ	150#	304S
A1KW	150#	304S
A1KI	150#	304S
A1KU	150#	304S
A1L1	150#	316S
A1Q2	150#	K.C.S
A1Z0	150#	FRP
A1ZU	150#	HDPE
A2K0	150#	304S
AAA21	150#	C.S
AAA21	150#	C.S
AAX2	150#	C.S(GALV)
ABA2	150#	C.S
ABK0	150#	304S
ADA2	150#	C.S
AFZ0	150#	FRP
AFZOU	150#	HDPE
ALK0	150#	304S
ANA2	150#	C.S
ASA2	150#	C.S
ASA2J	150#	C.S
ASD2	150#	1.1/4Cr-1/2Mo
AUA2P	150#	C.S
B1A2	300#	C.S
B1A4X	300#	C.S
B1J1	300#	316L S.S
B1K0	300#	304S
B1KJ	300#	304S
B1KW	300#	304S
B1K1	300#	304S
B1L1	300#	316S
BNA2	300#	C.S
BSA2	300#	C.S
BSG2	300#	9Cr-1Mo-V
D1A2	600#	C.S
D1A4	600#	C.S
D1D2	600#	1.1/4Cr-1/2Mo
D1D4	600#	1.1/4Cr-1/2Mo-V
D1K0	600#	304S
D1KOW	600#	304S
D4K0	600#	304H
DSA2	600#	C.S
ESG2	900#	9Cr-1Mo-V
E1D4	900#	1.1/4Cr-1/2Mo
E1K0W	900#	304S
F1A2	1500#	C.S
F1K0	1500#	304S
F1KOW	1500#	304S
F1D4	1500#	1.1/4Cr-1/2Mo
FSA2	1500#	C.S
FSA2B	1500#	C.S
G1A2	2500#	C.S
G1K0	2500#	304S
G1K3	2500#	304S
GSG2B	2500#	9Cr-1Mo-V

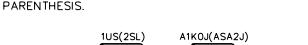
2. HIGH POINT VENT AND LOW POINT DRAINS ON PIPING TO BE PROVIDED SIZE AND LOCATION OF VENT/DRAIN TO BE DECIDED AT AFC-1 STAGE.

SIZE OF VENT AND DRAIN VALVE ARE 3/4", IF NOT INDICATED.

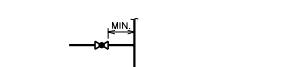
TYPICAL TYPE OF VENT AND DRAIN ARE AS FOLLOWS.



3. JACKET PIPE SIZE AND SPECIFICATION ARE DESIGNATED IN PARENTHESIS.



4. MINIMUM LENGTH IS DESIGNATED AS FOLLOWING MANNER.



5. DELETED.

6. DELETED.

7. DELETED.

8. BLOCK VALVES FOR ALL INSTRUMENTS SUCH AS PG, PT, LG, LT ETC. ARE 3/4", IF NOT INDICATED.

9. LOCAL START-STOP SWITCHES AND AMMETER AT THE MOTOR ARE NOT SHOWN ON P&ID. DCS FUNCTION ARE SHOWN IF REQUIRED.

10. IN CASE THAT THE SAMPLING VALVE IS CONNECTED TO THE HORIZONTAL PIPING, THE SAMPLING CONNECTION TO BE AS FOLLOWS :

- A) FOR LIQUID SAMPLING (FLUID IN THE PROCESS PIPING IS LIQUID), THE SAMPLING CONNECTION TO BE CONNECTED TO THE SIDE OF THE PROCESS PIPING NOT TO SAMPLE THE CONDENSATE ACCUMULATING IN THE TOP OF THE PROCESS PIPING.
- B) FOR GAS SAMPLING (FLUID IN THE PROCESS PIPING IS GAS), THE SAMPLING CONNECTION TO BE CONNECTED TO THE TOP OR SIDE OF THE PROCESS PIPING NOT TO SAMPLE THE CONDENSATE ACCUMULATING IN THE BOTTOM OF THE PROCESS PIPING.

11. ALL SAFETY VALVE DISCHARGE LINES SHALL BE FREE DRAINING FROM THE SAFETY RELIEF VALVE TO THE DISCHARGE HEADER.

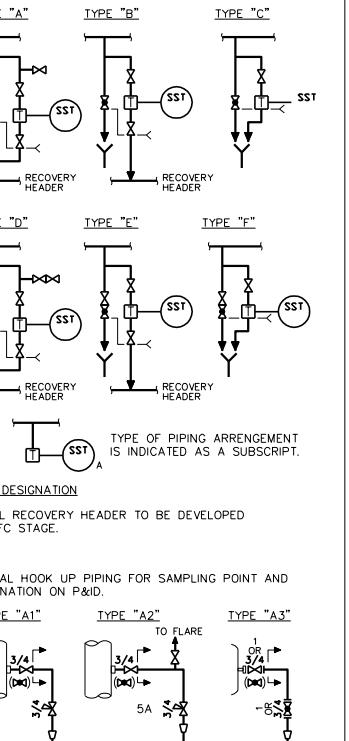
12. WEEP HOLES ARE PROVIDED IN CASE THAT LOCATION OF SAFETY VALVE IS LOWEST AGAINST DISCHARGE PIPING TO ATMOSPHERE.

13. DELETED.

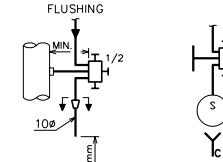
14. DELETED.

15. DELETED.

16. TYPICAL HOOK UP PIPING FOR STEAM TRAP AND DESIGNATION ON P&ID ARE AS FOLLOWS.

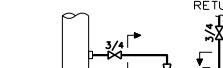


GENERAL NOTES

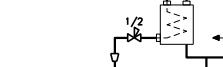


ON P&ID

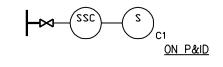
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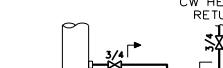
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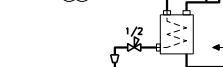
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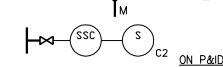
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ON P&ID



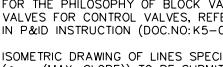
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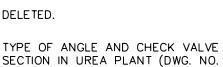
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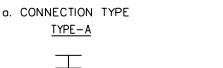
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