In this video, you will learn

- Symbols used in
  - Process Flow Diagram (PFD) or Process Flow Scheme (PFS)
  - Piping & Instrument Diagram (P&ID) or Process Flow Engineering Scheme (PEFS)
- Process & Instrument Diagram
PFD symbols

- May change from company to company
- BS 5070, ISO 10628 and ISA S5.1
Symbols for Pumps and Turbine

Centrifugal Pumps

Vacuum Pump

Vertical

Gear Pump

Screw Pump

Turbine
Symbols for Compressor

- Reciprocating Compressor
- Compressor & Silencers
- Centrifugal Compressor
- Rotary Compressor
- Liquid Ring Compressor
- Centrifugal Compressor (Turbine Driven)
Symbols for Heat Exchanger

- Hairpin Exchanger
- U-Tube Heat Exchanger
- Shell & Tube Heat Exchanger
- Single Pass Heat Exchanger
- Reboiler
- Heater
- Condenser
Symbols for Static Equipment

- Drum
- Dome Roof Tank
- Cone Roof Tank
- Sphere
- Internal Floating Roof Tank
- Tower
- Tower with Packing
- Furnace
Tower Internal

INTERNALS (OTHER THAN TRAYS)
(TYPICAL)

SWIRL DECK
MIST MAT
VANE PACK
SCHOEPENTOETER (VANE TYPE)
LIQUID SPRAY, PERFORATED PIPE
LIQUID SPRAY, NOZZLE SPRAY
TOTAL DRAW - OFF TRAY
PARTIAL DRAW - OFF TRAY
CHIMNEY
Tower Internal

INLET HORN, DIFFUSOR TYPE

CYCLONE

HALF-OPEN PIPE (INLET DEVICE)

DOLLAR PLATE

PACKED SECTION

REDISTRIBUTION, LIQUID / LIQUID

REDISTRIBUTION, GAS / LIQUID INJECTION

BAFFLE WITH PARTITION PLATE

VOXTEX BREAKER
Symbols for Lines

- Future Equipment
- Major Process
- Minor Process
- Pneumatic
- Hydraulic
- Capillary Tubing
- Electromagnetic Signal
- Electric
Symbols for Valve
Symbols for Valve - Shell DEP

- Sealing Direction: Shaded area = Pressure End
- Gate
- Ball
- Globe
- Needle
- Butterfly
- Plug
- Normally Closed
- Diaphragm
- Y-Type Valve, Oblique
- Piston Valve
- Knife Valve

- Valve
- 3 Way Valve
- 4 Way Valve
- Check Valve
- Stop Check Valve (Non Return)
- Excess Flow Valve
- Automatic Recirculation Valve
- Angle Valve
- Relief Valve
- Breather Valve
- Vacuum Valve
- Pilot Operated Relief Valve
How to be an Expert in Valve

18 types of valve and their sub-types

Link is given in the description

Just $15
Instrument Symbols

Measured Variable
P - Pressure
T - Temperature
F - Flow
L - Level

Measured Function
I - Indicator
R - Recorder
C - Controller
T - Transmitter
## Instrument Identification ISA S5.1

<table>
<thead>
<tr>
<th>Letter</th>
<th>First-letter</th>
<th>Second-letters</th>
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<tbody>
<tr>
<td></td>
<td>Measured or Initiating variable</td>
<td>Modifier</td>
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<tr>
<td>A</td>
<td>Analysis</td>
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<td>D</td>
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<td>Differential</td>
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<td>F</td>
<td>Flow Rate</td>
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<td>L</td>
<td>Level</td>
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<tr>
<td>P</td>
<td>Pressure, vacuum</td>
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<tr>
<td>Q</td>
<td>Quantity</td>
<td>Totalizer</td>
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<td>Vibration</td>
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<tr>
<td>Z</td>
<td>Position</td>
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</tbody>
</table>
Instrument Symbols

Variable Being Measured

What It Does

Instrument

Control Loop

Remote Location (board mounted)

Remote Location (behind control panel)

Mounted on Local Control Panel

Field Mounted

FIC

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