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ASSIGNMENT SUBMITTED FOR PROCESS INSTRUMENTAION

1. A **process flow diagram** (**PFD**) is a diagram commonly used in [chemical](https://en.wikipedia.org/wiki/Chemical_engineering) and [process engineering](https://en.wikipedia.org/wiki/Process_engineering) to indicate the general flow of plant processes and equipment. The PFD displays the relationship between major equipment of a plant facility and does not show minor details such as piping details and designations.[[1]](https://en.wikipedia.org/wiki/Process_flow_diagram#cite_note-1) Another commonly used term for a PFD is a flowsheet. Process flow diagrams of multiple process units within a large industrial plant will usually contain less detail and may be called block flow diagrams or schematic flow diagrams Typically, process flow diagrams of a single [unit process](https://en.wikipedia.org/wiki/Unit_process) will include the following; Process [piping](https://en.wikipedia.org/wiki/Piping), major equipment items, connection with other systems, major bypass and recirculation (recycle) streams, operational data ([temperature](https://en.wikipedia.org/wiki/Temperature), [pressure](https://en.wikipedia.org/wiki/Pressure), [mass flow rate](https://en.wikipedia.org/wiki/Mass_flow_rate), [density](https://en.wikipedia.org/wiki/Density), etc.), often by stream references to a [mass balance](https://en.wikipedia.org/wiki/Mass_balance), process stream name. Process flow diagrams generally do not include: [Pipe classes](https://en.wikipedia.org/w/index.php?title=Pipe_class&action=edit&redlink=1) or piping line numbers, instrumentation details. minor bypass lines, instrumentation, controllers like Level Control or Flow Control, isolation and shutoff [valves](https://en.wikipedia.org/wiki/Valve), maintenance vents and drains, relief and [safety valves](https://en.wikipedia.org/wiki/Safety_valve) and [flanges](https://en.wikipedia.org/wiki/Flange)

An example of a chemical process flow diagram is shown below



Fig 1; Amine treating plant

2. The purpose of P&ID is it shows all piping, including the physical sequence of branches, reducers, valves, equipment, instrumentation and control interlocks. A P&ID is used to operate the **process** system, since it shows the piping of the **process** flow along with the installed equipment and instrumentation

The division of P&ID include;

1. Line P&ID symbols
2. Piping P&ID symbols
3. Valve P&ID symbols
4. Instrument P&ID symbols

3 some common examples of P&ID symbols are

1.process flow line

2. Flange 

3. Reducer 

1. Gate valve symbol 
2. Flow meter symbol 