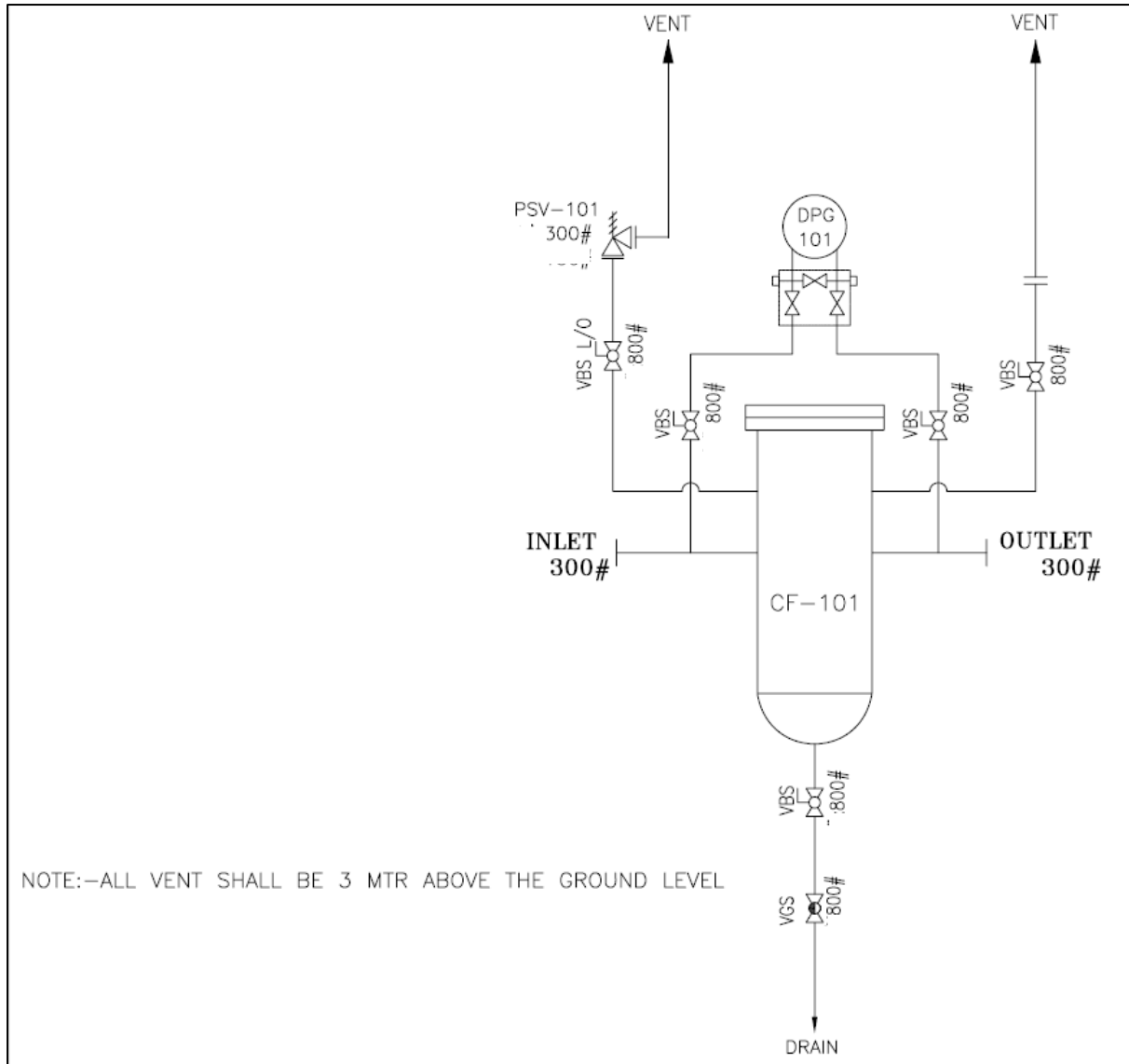


TYPICAL P&ID FOR SUPPLY OF NATURAL GAS FILTER



Other Requirements:

A. Material Design

- Above mentioned P&ID is typical and for reference only. Size, MoC and other details for manufacturing and supply of all material shall be as per GGL approved technical specifications, data sheet and approved SOR.
- Vendor to note following with reference to requirement of QOC
 - Vendor to provide QOEC with Davit arm for filter shell diameter 10" NB and above.
 - Vendor to provide Davit arm for filter shell diameter 8" NB only.
 - Vendor to provide only flange for filter shell diameter 6" NB & below.
- Vendor to consider maximum allowable gas velocity as 20 meter / second considering unfiltered gas.
- Review and approval of filter GAD and filter design calculation shall be done by approved TPIA and appointment of TPIA shall be in scope of vendor. Vendor to take prior approval from GGL for appointment of TPIA.

TYPICAL P&ID FOR SUPPLY OF NATURAL GAS FILTER

B. Scope of supply for associated material and accessories

1. Supply of following material shall be in scope of Vendor
 - Pipe for filter vent, PSV vent and filter drain. Size of the same shall be as per design calculations.
 - Valves for the filter vent, PSV vent and filter drain. Size of the same shall be as per design calculations.
 - Companion flanges, blinds, Gaskets, Stud/Bolt & nuts for all the nozzles and earthing lugs along with the supply of the material.
 - All above items shall supplied as per GGL approved technical specifications and data sheet.
 - Spares and accessories required for commissioning of the filter.
 - All vent shall be supplied with brass flapper.
 - Vendor to provide 1 set of filter cartridge/element per filter along with supply of filter.
 - Vendor to submit list of bought out items including details like MoC, GAD, P&ID, Operation and maintenance manuals etc. along with supply of each filter.
2. All threaded and flanged openings shall be protected to prevent entry of foreign material during transportation.
3. All the field mounted instruments shall be supplied loose or in such manner that to avoid any type of damage during transportation.

C. Other requirements

1. Vendor shall depute competent personal at no additional cost for commissioning assistance of filter separator assembly at GGL designated site location.
2. Vendor shall submit following in soft and hard (one set) along with the supply of material.
 - Copy of PO/WO duly accepted by vendor.
 - Copy of approved P&ID, GAD, QAP, technical specifications, design calculations etc.
 - Inspection summary report and inspection release note by TPIA along with all supporting documents, test certificates and calibration certificates
 - Detail bill of materials
 - Catalogues for all the associated materials and accessories for installation, operation and maintenance
 - O&M manual / procedure / check list for maintenance of filter separator and associated material
 - List of spares required for periodic maintenance of filter separator and associate material
 - Warranty certificate for filter separator and associated material