

GP 03-04-01	Piping for Fired Equipment	July 2001
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Piping for Fired Equipment

GP 03-04-01

Scope

[I] This Global Practice (GP) covers the arrangement of various piping around fired process heaters (hereinafter referred to as heaters), and boilers, except where it conflicts with local rules and regulations. The fuel system requirements are also applicable to incinerators, flue gas generators and similar combustion equipment.

[I] An asterisk (*) indicates that a decision by the Purchaser is required, or that additional information is furnished by the Purchaser.

[I] The following references are synonymous: BP and GP.

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1. Fuel System Piping

- 1) [R], [M] Piping for individual burners shall be taken from the top of headers.
- 2) [M] Piping for individual burners shall have breakaway connections (flanges or unions) located at the minimum practicable distance from the burner to allow removal of complete burner assembly.
- 3) [R], [M] All fuel headers shall have connections to facilitate cleaning before startup or during downtime. All dead ends shall have blind flanges. The length of such dead ends shall be minimized.
- 4) * [O] Fuel oil system shall be designed so that during startup and shutdown operations fuel oil can be provided at the burner with a viscosity no less than the maximum permissible value for burner light-off.
- 5) [R], [M] Fuel oil (heavier than 30° API or 0.876 relative density) piping shall be insulated to the burner and heat traced to the last breakaway connection. Arrangement and insulation system shall be designed for maximum of 5°F (3°C) fuel oil temperature difference between the first and last burners served by a common control valve under the following conditions:
 - a) Design flow rate
 - b) * Specified winter ambient conditions
 - c) Assuming non-operation of the heat tracing
- 6) [R] Fuel oil header shall be located as closely as practicable to the fuel valves for individual burners
- 7) * [R], [M] Unless otherwise specified, all fuel lines (including the pilot gas and atomizing steam lines) shall have filters to remove scale and other materials larger than 25% of the diameter of the smallest burner orifice or burner tip holes. Filters must be cleanable without interruption of fuel flow.
- 8) * [R], [S] Knockout drums shall be installed in the main fuel gas supply line and pilot gas line (if separate supply other than natural gas) to prevent condensate entry. A single drum for multiple heater or boiler installations requires Owner approval.
 - a) The drums shall be fitted with a gauge glass and a high level alarm.
 - b) A dump line to the flare system is required.
 - c) Drums shall not be insulated or heat traced, unless specified by Owner.
 - d) Drums shall be located no closer than 50 ft (15 m) from the fired equipment.
- 9) * [S] Main fuel gas and pilot gas piping downstream of the knockout drum shall be heat traced and insulated to the breakaway connection nearest the burner. This procedure shall be followed unless ambient conditions and fuel sources ensure no condensation under all operating and weather conditions.
- 10) [O] Piping to individual burners of fired heaters shall be arranged as shown in Figure 1, unless otherwise specified. Locate burner valves adjacent to observation doors to permit burner adjustments while observing the flame.

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