

# DATASHEET

## Flare Tips

External Steam, Nozzle Smokeless  
Low Noise FUS Series



The FUS Series flare tip is an efficient flare tip for smokeless combustion which utilizes steam nozzles for smoke suppression. It is suitable for sites where a low noise flare tip is required.

The FUS Series tip externally mixes the steam and air with the gas at the point of exit, utilizing steam injection nozzles. A ring of FUS nozzles is located at the top leading edge of the flare tip.

The steam is discharged from the FUS nozzles entraining large quantities of air into the heart of the gas stream. The gas/air/steam mixture is swirled to entrain large volumes of secondary air resulting in stable combustion conditions. This prevents smoke formation from thermal cracking. The "FUS" nozzles produce very low noise compared with conventional external steam nozzle design. The swirling non-converging action of the steam from the "FUS" gives maximum air entrainment and shapes the flame to avoid overheating of the tip. This also helps in preventing flame-lick under low gas flow and high wind conditions. "FUS" nozzles are self cleaning by virtue of the steam flow carrying foreign matter through the centre orifice.

### DESIGN ADVANTAGES

- Efficient steam injection into flame envelope
- Steam economy
- Stable construction
- Good flame retention
- Burn-back minimized
- Low gas consumption pilots
- Wind shield supplied as standard



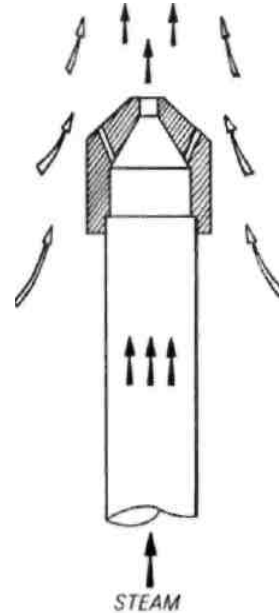
### FLAME STABILITY

The inclined and swirl angles of the Flare stream nozzle ring are critical for the prevention of burn-back. Extensive testing has produced a "Flare stream" nozzle configuration to provide a positive pressure beneath the flame envelope, thus minimizing burn-back.

In order to prevent flame lift off from the top, the FHP series have bluff bodies positioned above the refractory lined upper section of the flare tip.

## REFRACTORY SYSTEM

Heat and chemical resistant steels are used extensively in the FHP series of flare tips which, together with low alumina castable refractory, gives a prolonged tip life. The unique refractory lining system is secured to the tip by heat resistant steel bull horn sprags. Many thousands of fine stainless steel needles are mixed thoroughly with the refractory to reinforce the material evenly over its full depth without producing expansion/contraction shear planes. This refractory installation procedure has been developed and proven over many years to give the longest possible operating life, even in the most arduous conditions



FUS STEAM INJECTION NOZZLE

### SPECIFICATION

<b>Tip size:</b>	6 in dia. To 60 in dia.
<b>Tip connection:</b>	6 in dia. To 60 in dia. Flanged.
<b>No. of flare stream nozzles:</b>	6 to 72 ( dependent on smokeless capacity and tip dia. Required)
<b>Steam pressure:</b>	low 35 psig 2.40 bar g. High 100 psig 6.90 bar g.
<b>Main steam connection:</b>	3 in dia. to 18 in dia. Flanged dependent on size
<b>Centre steam connection :</b>	1 in to 4 in flanged dependent on size
<b>No. of pilots:</b>	6 in. to 10 in. dia. : 2 pilot. 10 in. to 46 in. dia. : 3 pilot 48 in. to 46 in. dia. : 4 pilot
<b>Pilot gas connection:</b>	1 in. dia. flanged
<b>Flame front connection:</b>	1 in. dia. 3.000 union or 1 in. dia. flanged as required.
<b>Pilot thermocouples:</b>	Cromel/Alumel. If required terminated in a junction box
<b>Lifting lugs:</b>	Provided as standard.

The FUS flare tip is individually sized for each installation.

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Incorporating:  
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Flares/FUS Flare Tips/September 2008/Rev. 3

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