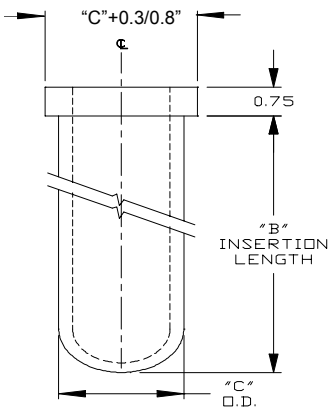
MODEL HRW REFRACTORY PROTECTIVE WELL

USE WITH HTP THERMOCOUPLES INSTALLED IN A THERMAL REACTOR

BENEFITS

- Protects HTP thermocouple in Claus thermal reactors, sulfur burners, pox units, and process incinerators.
- Keeps high temperature reaction gases away from the nozzle/shell
- Prevents refractory shifting, spalling, and expansion from damaging the HTP element protective well
- Selected fabrication methods improve performance and extend life of the HRW well and HTP Thermocouple
- Will withstand thermal shock
- Formulated material blends provide enhanced resistance to corrosion, temperature, and thermal shock
- Provides refractory to nozzle/shell decoupling and allows non-damaging movement between the two



APPLICATIONS

The Model HRW protective well is placed in a hole through the refractory lining of a Claus Thermal Reactor or other reaction vessel. Its main function is to allow the measuring junction of the HTP thermocouple to be inserted so that it's measuring junction is at and senses the temperature of the refractory hot face. The HRW acts to prevent damage to the thermocouple element protective well. This is accomplished by preventing the refractory from encountering and breaking off the element protective well as the refractory shifts relative to the shell/mounting nozzle. The HRW also acts to prevent thermal shock damage to the element protective well by shielding it from relatively cold gases, such as are produced by steam quenching. However, the crystalline high-density element protective well cannot withstand rapid temperature changes. Cracks due to thermal shock can occur which may result in early HTP failure.

Several material formulations are offered. Each one enhances various physical characteristics of the well. This provides long life and optimal performance in specific reactors. The various blends are formulated for characteristics of mechanical strength, resistance to thermal shock, and the ability to withstand very high temperatures.

SPECIFICATIONS

Model HRW1 & 4

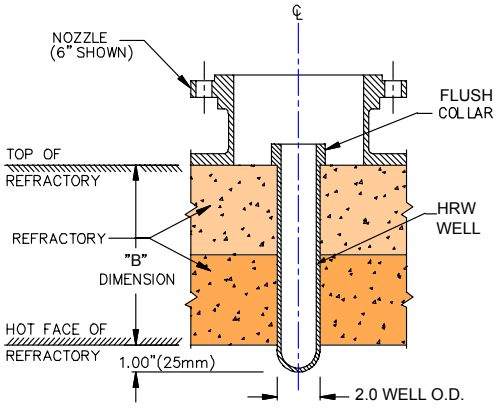
Service:	For general-purpose refractory protection
Attributes:	Good mechanical strength, very good for thermal shock, good at high temperature
Temperature:	2800ºF (1550ºC) continuous 2900ºF (1600ºC) intermittent
Material:	Alumina blended with shock resisting agents
Insertion "B":	100 inches (2500mm) maximum
Well O.D.:	2.0" (51mm) = #1; 1.50" (38mm) =#4

Model HRW2 & 5

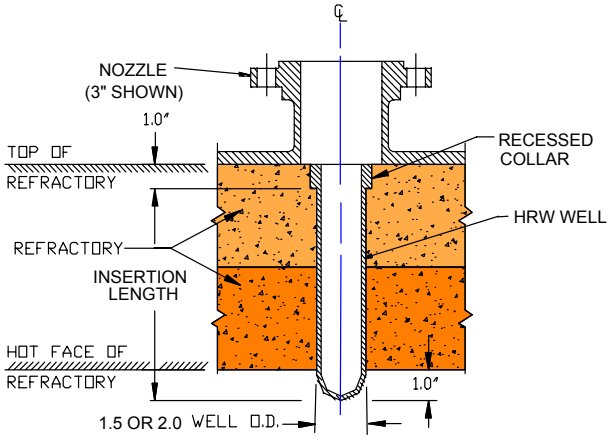
Service:	For very high temp. refractory protection
Attributes:	Excellent mechanical strength, fair for thermal shock, excellent at high temp
Temperature:	3000ºF (1650ºC) continuous 3200ºF (1750ºC) intermittent
Material:	Alumina blend; re-crystalized
Insertion "B":	70 inches (1770mm) maximum
Well O.D.:	2.0" (51mm) = #2; 1.50" (38mm) = #5

Model HRWZ

Service:	Difficult and unusual applications
Temperature:	To 4000ºF (2200ºC) maximum



CUTAWAY VIEW OF MODEL HRW 1&2 BASIC SIZE FLUSH COLLAR WELL INSTALLED IN A CLAUS THERMAL REACTOR; ANSI 4" AND LARGER FLANGE SIZES OR mm QUIVALENT



CUTAWAY VIEW OF MODEL HRW 4&5 BASIC SIZE FLUSH COLLAR WELL INSTALLED IN A CLAUS THERMAL REACTOR; ANSI 3" AND SMALLER FLANGE SIZES OR mm QUIVALENT

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