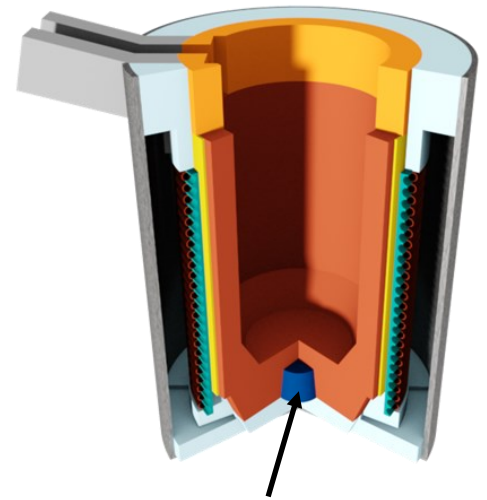


MINRO STIR PRO NOZZLES are used to diffuse inert gas into the molten metal bath of a coreless furnace. This purging process promotes chemistry homogenization and cleanliness of the metal by aiding in floating non-metallics to the slag layer of the bath. Allied's DRI-VIBE® refractory technology allows the inert gas to permeate through the floor refractory from the nozzle embedded into the DRI-VIBE®.

## Purging Process

- Install nozzle in furnace subfloor as close to the center as possible. Ram 3 to 5 inches of DRI-VIBE® above the nozzle in the floor, bringing the floor level to the standard height.
- To ensure adequate strength development of the DRI-VIBE®, purging is not recommended during the first 2-3 heats after sintering the lining.
- Inert gas is purged through the molten metal bath beginning 15-20 minutes before tapping. Timing may be adjusted for optimal results.
- The furnace may need to be de-slugged more often during purge time if there is additional slag floating to the top of the molten metal bath.
- Inert gas pressure is typically 5-35 psi with 1-3 L/min of gas flow. This will depend on desired metal chemistry and temperature at the time of purging. A more fluid metal at a high temperature will require less pressure and flow to purge.



MINRO STIR PRO NOZZLE location

## Field Experience

- Decreased dissolved gases in the metal
- Increased cleanliness and fluidity
- Improved metal density and alloy recovery
- Decreased scrap castings
- Less grinding required during finishing process
- Reduced oxidation of molten metal bath in an air-melt application by providing a "blanket" of inert gas on top during bubbling
- Multiple campaign use per nozzle
- Suited for both ferrous and non-ferrous foundries



Allied's **MINRO STIR PRO NOZZLES** are available in various types and sizes to fit a range of coreless furnaces, and are designed for multiple campaign use.

## Nozzle types

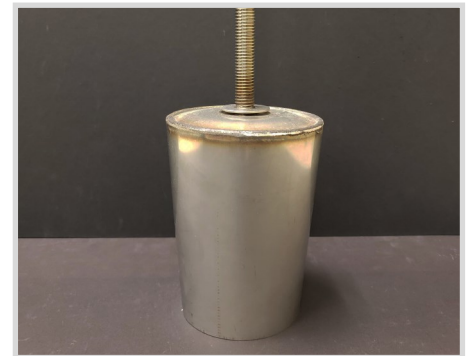
*Shrouded Standard* - durable stainless steel retainment can design

*Shrouded Mini* - durable stainless steel retainment can, features small cross section, for 500 lb or smaller furnace

*Cast* - a fully ceramic design for high temperature applications or where magnetic coupling may be present

### Shrouded Standard Nozzle Sizes

Nozzle Height	10" Pipe	13" Pipe	16" Pipe	24" Pipe
1.5"		✓	✓	✓
2.0"		✓	✓	
2.5"	✓	✓	✓	
3.0"	✓	✓	✓	✓
4.0"	✓	✓	✓	
5.0"			✓	
6.0"			✓	



Shrouded Standard Nozzle

### Shrouded Mini Nozzle Sizes

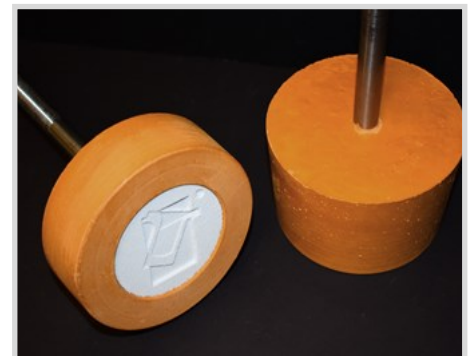
Nozzle Height	8" Pipe	13" Pipe	16" Pipe
1.5"	✓	✓	✓



Shrouded Mini Nozzle

### Cast Nozzle Sizes

Nozzle Height	16" Pipe	24" Pipe
1.5"	✓	✓
2.0"	✓	✓
2.5"	✓	✓
3.0"	✓	✓
4.0"	✓	✓
6.0"	✓	✓



Cast Nozzle

