



TUYERE STOCKS

WIND-DISTRIBUTION SYSTEM FOR THE BLAST FURNACE

BENEFITS

Unlike competitors' designs which rely on two axially-opposed pivots, Tuyere Stocks ensure that the stock acts as a true spherical joint in order to allow thermal expansion whilst increasing gas tightness. The unique Primetals Technologies external tie-rod design makes it possible to set the assembled length of the downleg in the cold condition, with the voids between the spherical faces of the downleg's cast refractory lining filled with ceramic fibre. As the tuyere stock heats up, any growth in the refractory lining serves to tighten up the fibre-filled voids, thus increasing its gas tightness. This is distinctly different to competitor designs, where the opposing pivots fitted separately to each individual bellows assembly retain their cold setting as the downleg heats up to its operating temperature, thereby increasing the risk of gas leakage.

FIELD OF APPLICATION

Blast furnace - wind distribution

FUNCTION

Tuyere stocks form part of the wind-distribution system for the blast furnace. Heated air, known as 'hot blast', is delivered from the hot blast stoves along a refractory lined main towards the furnace. Once near the furnace, the main splits into a circular main which encircles the blast furnace shell itself, and this is known as the 'bustle main'.

A bustle main can have up to thirty eight smaller radial pipes that feed the hot blast to the furnace's tuyeres. Due to temperature differences between the furnace and bustle main, provision is made within these radial pipes to allow differential movement between each end of the pipes. These radial pipe assemblies are known as 'tuyere stocks'. Connection for the downleg to the elbow / blowpipe assembly is by a horizontal flange with quick-release cotter bolts for easy changing. Each elbow is fitted with a peep sight and ball valve. The blowpipe, held in position with twin spring-loaded tie rods, seats into the tuyere via its stainless steel spherical nose, which can be water-cooled if necessary. The blowpipe assembly can be designed to incorporate either one or two fuel lance ports in order to facilitate oil and/or coal injection.

PRODUCT STRUCTURE

- Downleg assembly, complete with hangar rods
- Elbow and blowpipe assembly, complete with peep-site and twin, spring-loaded tie rods



1 | Downleg handling equipment

2 | Elbow on pushcart

3 | Tuyere changing machine

Technical data

- Twin multiply, multi-corrugation stainless steel bellows units
- External tie bars held in high-temperature spherical plain bearings
- Unique spherical refractory joint, packed with ceramic fibre material
- Mechanical stops limiting articulation to a maximum of ± 5 degrees

SERVICES

- Integration engineering
- Erection advisory
- Commissioning advisory
- Logistics
- Spare parts

OTHER CUSTOMERS BOUGHT ADDITIONALLY

- Tuyere stock handling equipment
- Tuyere changing machine

Primetals Technologies
A joint venture of Mitsubishi Heavy Industries and partners

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