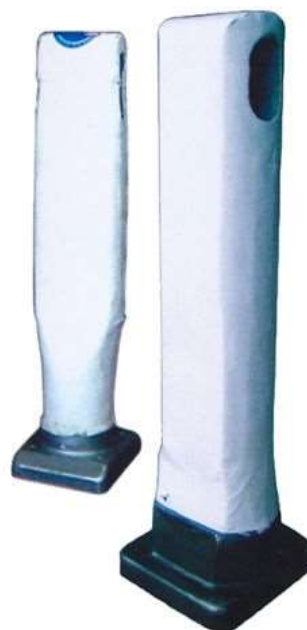


Sen Nozzle

| SEN | | |
|------------------------------------|-------|----------|
| Items | Body | Slagline |
| Al ₂ O ₃ (%) | 50-63 | - |
| SiO ₂ (%) | 8-13 | - |
| ZrO ₂ (%) | 1-6 | 79-84 |
| MgO (%) | - | - |
| C (%) | 22-27 | 10-15 |
| Bending Strength (MPa) | >8 | >7.5 |
| Density (g/cm ³) | >2.45 | >3.65 |
| Porosity (%) | >16 | >16 |
| | | |



Available for

All kinds of Slab, Bloom, Billet Castor and full protected continuous casting of Beam Blank Steel
We design our products in accordance with the individual customer demand.

Monoblock Stopper

| MONOBLOCK STOPPER | | | |
|------------------------------------|-------|--------|---------|
| Items | Body | Head-I | Head-II |
| Al ₂ O ₃ (%) | 62-67 | 75-86 | - |
| SiO ₂ (%) | 8-13 | 2-6 | 2-7 |
| ZrO ₂ (%) | 2-7 | 1-5 | - |
| MgO (%) | 2-7 | - | 80-86 |
| Free Carbon (%) | 18-23 | 10-18 | 12-20 |
| Bending Strength (Mpa) | >10 | >9 | >7 |
| Density (g/cm ³) | >2.55 | >2.65 | >2.6 |
| Porosity (%) | >16 | >16 | >16 |



Stoppers with head of Al-C, Mg-C and Spinel-C are designed together with various customers, showing excellent erosion resistance and high strength.

Ladle Shroud

| LADLE SHROUD | | |
|------------------------------------|-------|----------|
| Items | Body | Slagline |
| Al ₂ O ₃ (%) | 55-63 | 60-68 |
| SiO ₂ (%) | 8-13 | 6-11 |
| ZrO ₂ (%) | 1-6 | 3-8 |
| C (%) | 22-27 | 21-27 |
| Bending Strength (MPa) | >8 | >8 |
| Density (g/cm ³) | >2.45 | >2.5 |
| Porosity (%) | >16 | >16 |



Ladle Shrouds with Al-C and Al-Zr-C materials are designed and manufactured with the Steel Plants. They are air tight, have low carbon content, do not require pre-heating and have long service life

Taphole Block

| TAPHOLE | |
|------------------------------------|-------|
| Item | Body |
| MgO (%) | 83-90 |
| Al ₂ O ₃ (%) | 7-12 |
| SiO ₂ (%) | 0-6 |
| C (%) | 12-20 |
| Bending Strength (MPa) | >10 |
| Density (g/cm ³) | >2.95 |
| Porosity (%) | >4 |



Isostatically pressed Monoblock Converter Taphole Blocks show high erosion resistance.

Tundish Upper Nozzle

| TUNDISH UPPER NOZZLE | | |
|------------------------------------|-------|--------|
| Items | Body | Throat |
| MgO (%) | 50-65 | 55-70 |
| Al ₂ O ₃ (%) | 6-15 | 3-8 |
| SiO ₂ (%) | 1-6 | 1-3 |
| MgO (%) | - | - |
| C (%) | 20-27 | 18-24 |
| Bending Strangth (MPa) | >8 | >7.5 |
| Density (g/cm ³) | >2.45 | >2.5 |
| Porosity (%) | >16 | >18 |



With optimized porosity due to high grade Refractory Materials and with embedded Argon Channels inside, we are able to insure reliable flow control without clogging.