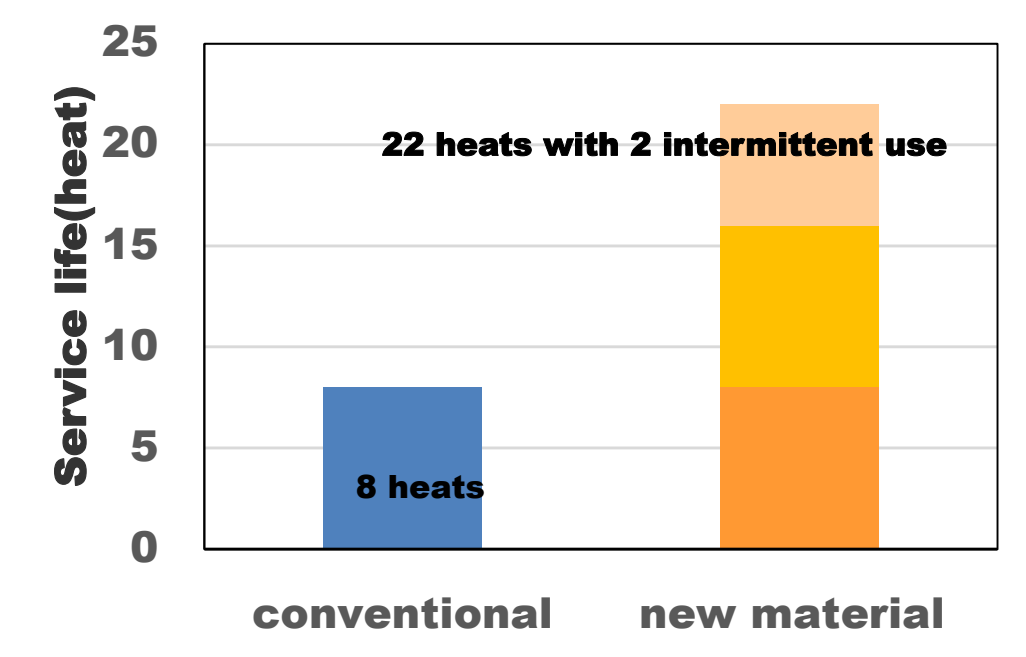
Long Service-life Ladle shroud

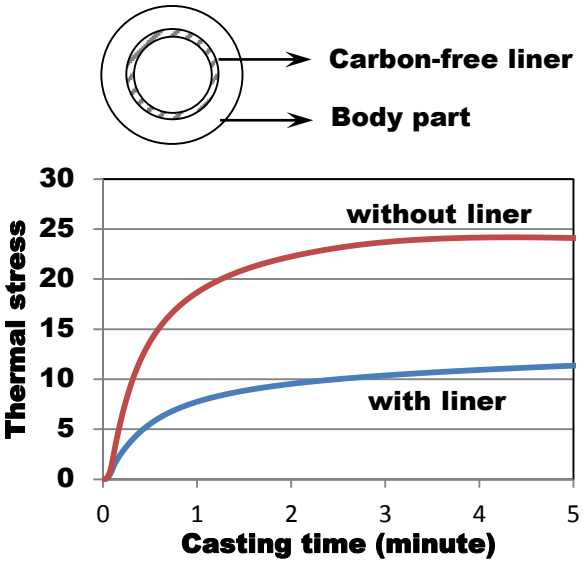
for cold start and intermittent use



SHINAGAWA have developed long service-life ladle shroud. It is consisted of silica-free body material outside with superior erosion resistance and carbon-free liner inside with good spalling resistance. You can use them for cold start and hot start, and also continuous and intermittent use. They have performed very well and reached to over twenty heats with two-times intermittent use, which covers three tundishes.

Concept of Ladle Shroud Lining

Body material	New	Conven -tional
Mark	G34H10	G32D25
System	Al_2O_3-C	Al_2O_3-C
Apparent porosity(%)	14.5	15.0
Bulk density (g/cm^3)	2.60	2.25
Bending strength (MPa)	8.5	7.0
Thermal expansion % at 1000℃	0.40	0.24
Chemical composition SiO_2 Al_2O_3 SiC C	 - 61 2 35	 28 39 - 32



Generally silica-free alumina-carbon materials for ladle shroud give superior erosion resistance, however poor thermal shock resistance for startup and intermittent use.

Our new alumina-carbon material has excellent stability of physical properties against thermal change. Carbon-free liner inside has very low thermal conductivity characteristics. Those help the ladle shroud to reduce thermal stress at the start of casting and intermittent use. We combined these two new technologies to have developed long service-life ladle shroud to be used at various casting conditions.

Results at Actual Casters

Casting heats and conditions

Caster	Heat	Bore (mm)	Thickness (mm)	Use
A	20~25	Φ56	32	Intermittent
B	11~21	Φ58	36	Intermittent
C	7~12	Φ55	31	Intermittent
D	12~22	Φ75	33	Continuous

All the information in above table are cast without preheating at electronic mills. The cold start ladle shroud in left picture performed twenty heats with one intermittent use.