



+50%
Performance



**SHOT CRETING:
UP WITH PERFORMANCE
DOWN WITH COSTS**



-30%
Cost

SHOT CRETING: THE REVOLUTION FOR STEEL LADLES

Shot creting for steel ladles is Seven's concept to combine the benefits of monolithic lining with those of the original brick working lining.

The repetitive application of repair layers of monolithic castable onto existing brick layers leads to unique advantages for steel makers.

With shot creting solutions by Seven Refractories, steel manufacturers benefit from increased performance and flexibility, while at the same time reducing cost.

Due to the superior physical and chemical properties of this highly developed dense castable, steel ladle management has never been as easy.



Up with
Performance
Down with costs



THE PROCESS

Shot creting is an installation technology combining the physical properties of high density casting materials of low, ultra-low or no cement content with pneumatic spray techniques.

Seven Refractories guides steel manufacturers through all necessary phases:

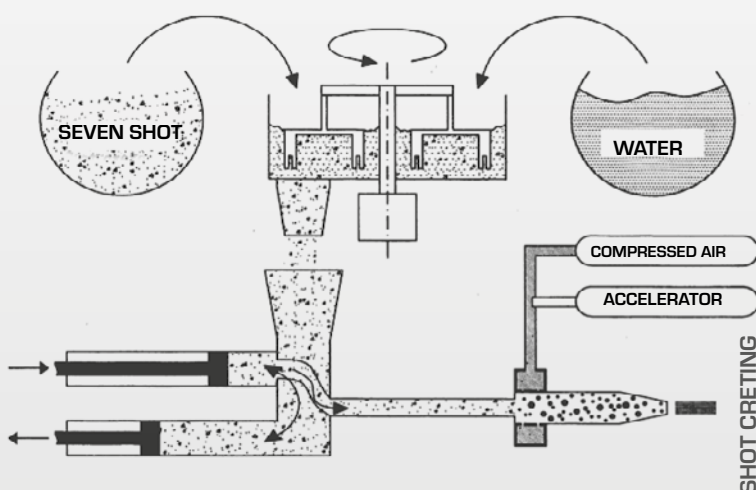
- Product selection and preparation
- Definition of the suitable installation method
- Technology choice



SEVEN REFRACTORIES SYSTEM

- **PROJECT DEFINITION** with specific hands-on knowledge by Seven Refractories for material specification.
- **PREPARATION** of dry material mix with defined amount of water for a specified time in a mixer
- **APPLICATION** of the wet mix via a hopper with a swinging tube pump and a pipe, resulting in a highly uniform protective refractory layer
- **HIGHLY DEVELOPED EQUIPMENT FOR MIXING** and pumping ensures consistently high quality.
- **A SKILLED TEAM** of installers and supervisors delivers turn-key projects.

THE SYSTEM



- Highly developed equipment for mixing and pumping ensures consistently high quality. With a skilled team of installers and supervisors, Seven Refractories is able to deliver turn-key projects.



SHOT CRETING FOR STEEL LADLES

The Product

Refractories specially developed for the shot creting technique show similar characteristics to more traditional casting mixes. However, the specific technology involved makes shot creting outstanding in terms of time and cost reduction compared to other methods..

The Technology

By minimizing the amount of water needed, even the application onto MgO-C bricks is possible. The original brick layer is maintained and works as a “safety layer”.

Shot creting enables steel ladle management without any need for molds and additional engineering, consequently resulting in cost reduction and time saving.

Wear speed 0,8 to 1,0 mm per heat and potentially „endless“ lining, shot creting has quickly established itself as the preferred method, resulting in up to 30% cost reduction for the steel ladle lining, while increasing performance up to 50%.

THE SEVEN ADVANTAGES AT A GLANCE:

1. Usage of advanced refractory materials with low, ultra-low and no cement content
2. No need for developing and using molds
3. Increased productivity by high-performance physical properties
4. Potentially “endless” lining
5. Minimization of dust, waste, and complications
6. Shot creting repair allows quick regeneration of the lining without its full substitution and faster return of the ladle to the operations

7. Most importantly:
Up to 30% less COST,
up to 50% more PERFORMANCE

Brand name	Type of product	Al ₂ O ₃	MgO	Fe ₂ O ₃	CaO	110°C		1600°C	
						ccs	bd	ccs	bd
Seven Shot 92 NR 08 Z	spinel containig shot crete cast.	91,7%	5,2%	0,1%	2,0%	80	2,98	150	2,92
Seven Shot 87 NR 83 H	spinel containig shot crete cast.	87,2%	4,8%	0,1%	1,9%	45	3,06	125	3,10
Seven Shot 88 NR 08 Z	spinel containig shot crete cast.	86,9%	5,2%	0,1%	1,9%	90	2,98	150	2,92



COMPLETE CUSTOMER SERVICE

- Preliminary study and investigation for the entire project
- Design and architecture including bill of materials and thermal calculation
- Full range of products for lining and maintenance
- Supply of mixers, gunning machines, pumps, etc.
- Training on mixing, gunning and maintenance techniques
- Training on equipment usage
- Supervision and monitoring by experienced technicians
- Global research & development
- Technical advice by experts
- Monitoring and targeting of results