



UNSHAPED MONOLITHIC SOLUTIONS



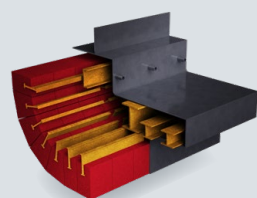
FAST HEAT UP SOLUTIONS



ANCHOR CONCEPT SEAL ANCHOR



GRATING SYSTEMS HEXMETALL for stressed areas with high mechanical wear



BULL NOSE PRESHAPED BLOCK SYSTEM for stressed areas



PRESHAPED BLOCK SYSTEM for several areas with above average mechanical wear

REFRACTORIES AND MORE

FIRST IN QUALITY!



REFKO RECOVERY GUNNING / VIMAG CASTING

MgO spinel-based dry gunning, for extending the kiln journey until the scheduled shut-down. Also available for casting.

REFKO IS AN INNOVATIVE PRODUCER ...

... of monolithic refractory products and state-of-the-art refractory solutions for the cement industry. REFKO ZSI material concept offers very high chemical resistance, high abrasion resistance and extreme thermal shock stability.

REFKO was one of the first global suppliers who established this material concept, which is based on a combination of SiC and ZrO₂ to withstand all the problems coming along with the rising usage of secondary fuels. The newest developments around this material concept focus on the reduction of installation and shutdown time.

To achieve this goal REFKO provides gunning and casting materials for fast heat up based on Sol-Gel technology, products for single layer installation (e.g. cyclone roof) and pre-shaped block solutions (e.g. cooler, inlet chamber/tire chute). With these new products and concepts the customer can reduce shutdown time and costs significantly.

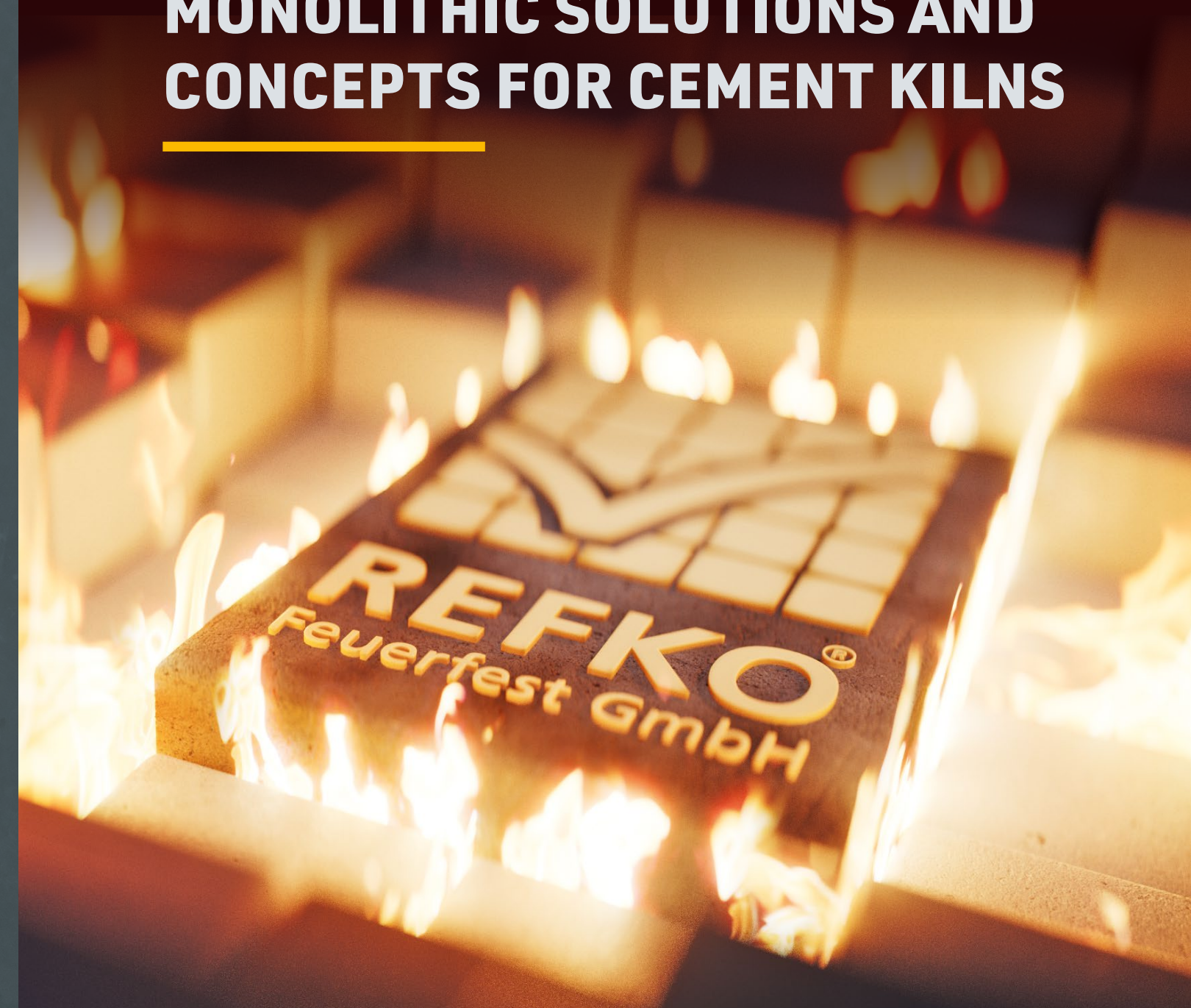
PRODUCTS AND SOLUTIONS FOR ALL KILN AREAS

<u>Insulating</u>	REFISOL 125 C/G or REFISOL 09 C/G
<u>Hot repair</u>	REFGUN 261 ZSI
<u>Single layer lining</u>	SUPERGUN 50 I <i>semi-insulating, alkali resistant</i>
<u>Pre-Fab</u>	RR-Z Block and/or Standard Block
<u>Anchor</u>	REFKO Standard Anchor <i>for normal conditions</i> REFKO SEAL Anchor <i>for severe conditions</i>
<u>Grating</u>	Honey Comb Grating <i>for Burner and walls</i>

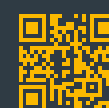


REFKO
Feuerfest GmbH

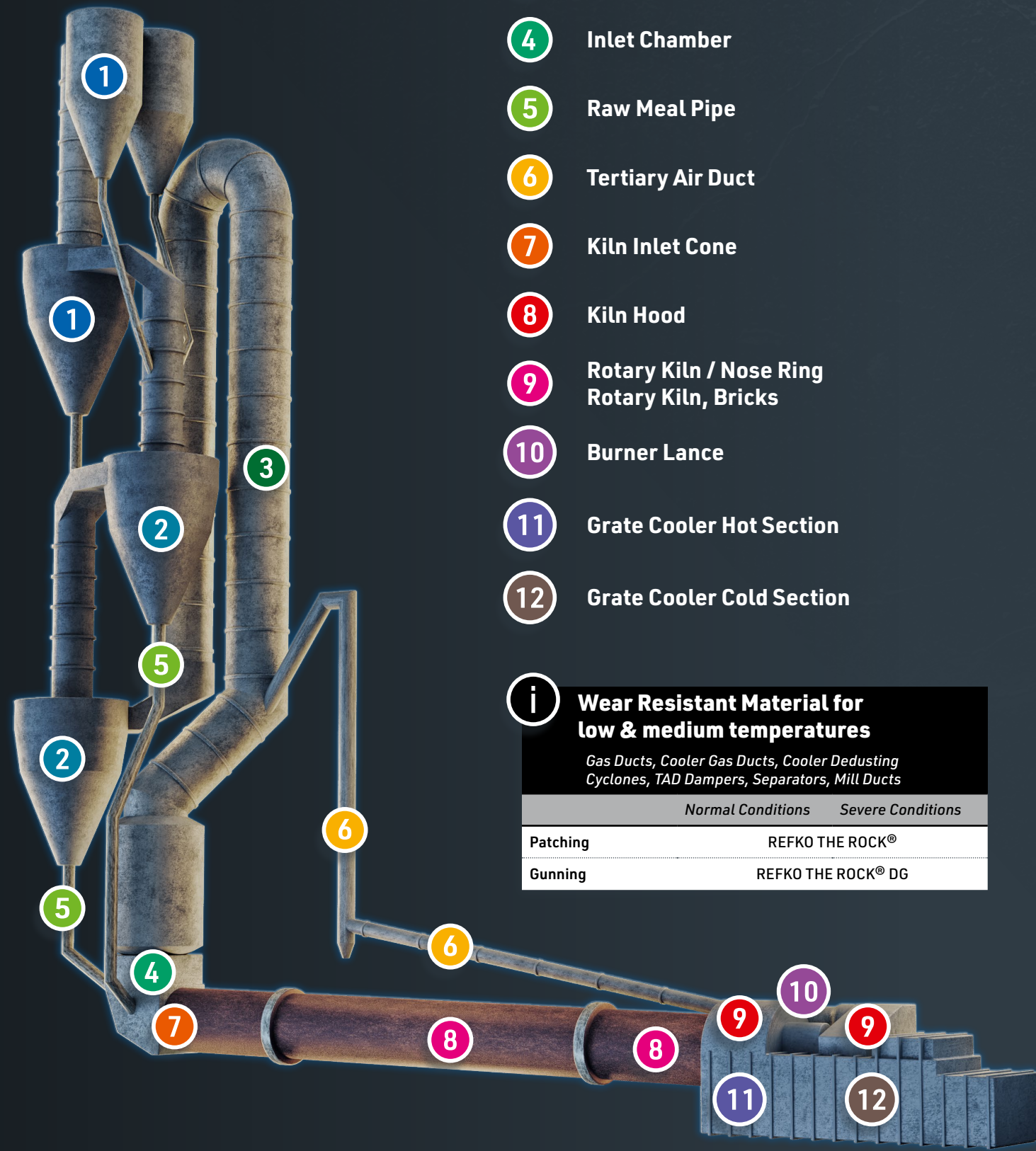
MONOLITHIC SOLUTIONS AND CONCEPTS FOR CEMENT KILNS



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1 Cyclone & Gas Ducts / Upper Stages

2 Cyclone & Gas Ducts / Lower Stages

3 Calciner & Riser Duct Calciner General

4 Inlet Chamber

5 Raw Meal Pipe

6 Tertiary Air Duct

7 Kiln Inlet Cone

8 Kiln Hood

9 Rotary Kiln / Nose Ring Rotary Kiln, Bricks

10 Burner Lance

11 Grate Cooler Hot Section

12 Grate Cooler Cold Section

i Wear Resistant Material for low & medium temperatures

Gas Ducts, Cooler Gas Ducts, Cooler Dedusting Cyclones, TAD Dampers, Separators, Mill Ducts

	Normal Conditions	Severe Conditions
Patching	REFKO THE ROCK®	
Gunning	REFKO THE ROCK® DG	

1 Cyclone & Gas Ducts / Upper Stages

	Normal Conditions	Severe Conditions
Gunning	REFGUN 156 ARS	REFGUN 152 ARS
Single Layer Lining	REFGUN 156 ARS	REFGUN 152 ARS
LC Gunning	n.r.*	SUPERGUN® 29 ARS
ShotCrete	n.r.*	CASTGUN 629 ARS
Casting	REFCAST 156 ARS	REFCAST 550 N

3 Calciner & Riser Duct **

	Normal Conditions	Severe Conditions
Gunning	REFGUN 154 C	REFGUN 152 ARS
LC Gunning	SUPERGUN® 23 ARS	SUPERGUN® 63 ZSI
ShotCrete	CASTGUN 623 ARS	CASTGUN 663 ZSI
Casting	REFCAST V 623 ARS	REFCAST V 663 ZSI
Fast heat up casting	VIBROLIT 23 ARS	VIBROLIT 63 ZSI
Fast heat up gunning	NanoG® 23 ARS	NanoG® 63 ZSI

4 Inlet Chamber

	Normal Conditions	Severe Conditions
Gunning	n.r.*	n.r.*
LC Gunning	SUPERGUN® 23 ARS	SUPERGUN® 63 ZSI
ShotCrete	CASTGUN 623 ARS	CASTGUN 663 ZSI
Casting	REFCAST V 623 ARS	REFCAST V 663 ZSI
Fast heat up casting	VIBROLIT 23 ARS	VIBROLIT 63 ZSI
Fast heat up gunning	NanoG® 23 ARS	NanoG® 63 ZSI

6 Tertiary Air Duct

	Normal Conditions	Severe Conditions
Gunning	REFGUN 154 C	REFGUN 152 ARS
LC Gunning	SUPERGUN® 55	SUPERGUN® 29 ARS
ShotCrete	CASTGUN 650	CASTGUN 629 ARS
Casting	REFCAST V 650 C	REFCAST V 629 ARS
Fast heat up casting	VIBROLIT 55	VIBROLIT 29 ARS
Fast heat up gunning	NanoG® 55	NanoG® 29 ARS

2 Cyclone & Gas Ducts / Lower Stages T > 800°C

	Normal Conditions	Severe Conditions
Gunning	REFGUN 154 C	REFGUN 152 ARS
Single Layer Lining	REFGUN 152 ARS	SUPERGUN® 50 I
LC Gunning	SUPERGUN® 29 ARS	SUPERGUN® 23 ARS
ShotCrete	CASTGUN 629 ARS	CASTGUN 623 ARS
Casting	REFCAST V 650 C	REFCAST V 623 ARS
Fast heat up casting	VIBROLIT 29 ARS	VIBROLIT 23 ARS
Fast heat up gunning	NanoG® 29 ARS	NanoG® 23 ARS

3 Calciner & Riser Duct **

	Normal Conditions	Severe Conditions
Gunning	REFGUN 154 C	REFGUN 152 ARS
LC Gunning	SUPERGUN® 29 ARS	SUPERGUN® 63 ZSI
ShotCrete	CASTGUN 629 ARS	CASTGUN 663 ZSI
Casting	REFCAST V 629 ARS	REFCAST V 663 ZSI
Fast heat up casting	VIBROLIT 29 ARS	VIBROLIT 63 ZSI
Fast heat up gunning	NanoG® 29 ARS	NanoG® 63 ZSI

5 Raw Meal Pipe

	Normal Conditions	Severe Conditions
Gunning	n.r.*	n.r.*
LC Gunning	n.r.*	n.r.*
ShotCrete	n.r.*	n.r.*
Casting	REFCAST V 650 C	REFCAST V 623 ARS
Fast heat up casting	VIBROLIT 29 ARS	VIBROLIT 23 ARS
Fast heat up gunning	n.r.*	n.r.*

7 Kiln Inlet Cone

	Normal Conditions	Severe Conditions
Gunning	n.r.*	n.r.*
LC Gunning	SUPERGUN® 23 ARS	SUPERGUN® 63 ZSI
ShotCrete	CASTGUN 623 ARS	CASTGUN 663 ZSI
Casting	REFCAST V 623 ARS	REFCAST V 663 ZSI
Fast heat up casting	VIBROLIT 23 ARS	VIBROLIT 63 ZSI
Fast heat up gunning	NanoG® 23 ARS	NanoG® 63 ZSI

8 Kiln Outlet / Nose Ring

	Normal Conditions	Severe Conditions
Gunning	n.r.*	n.r.*
LC Gunning	SUPERGUN® 80	SUPERGUN® 78 KSI
ShotCrete	CASTGUN 680	CASTGUN 678 KSI
Casting	REFCAST V 679 P	REFCAST V 678 KSI
Fast heat up casting	VIBROLIT 86	VIBROLIT 78 KSI
Fast heat up gunning	NanoG® 80	NanoG® 78 KSI

8 Rotary Kiln, Castables

	Normal Conditions	Severe Conditions
Gunning	REFKO RECOVERY® MG 78	
Casting	VIMAG 86 SP-B	

11 Grate Cooler Hot Section Bull Nose & Clinker Bed ***

	Normal Conditions	Severe Conditions
Gunning	n.r.*	n.r.*
LC Gunning	SUPERGUN® 80	SUPERGUN® 78 KSI
ShotCrete	CASTGUN 680	CASTGUN 678 KSI
Casting	REFCAST V 679 P	REFCAST V 678 KSI
Fast heat up casting	VIBROLIT 86	VIBROLIT 78 KSI
Fast heat up gunning	NanoG® 80	NanoG® 78 KSI

12 Grate Cooler Cold Section Clinker Bed

	Normal Conditions	Severe Conditions
Gunning	n.r.*	n.r.*
LC Gunning	SUPERGUN® 80	SUPERGUN® 29 ARS
ShotCrete	CASTGUN 680	CASTGUN 629 ARS
Casting	REFCAST V 679 P	REFCAST V 629 ARS
Fast heat up casting	VIBROLIT 86	VIBROLIT 29 ARS
Fast heat up gunning	NanoG® 80	NanoG® 29 ARS

9 Kiln Hood **

	Normal Conditions	Severe Conditions
Gunning	REFGUN 154 C	n.r.*
LC Gunning	SUPERGUN® 23 ARS	SUPERGUN® 63 ZSI
ShotCrete (Upper Section)	CASTGUN 623 ARS	CASTGUN 663 ZSI
ShotCrete (Lower Section)	CASTGUN 623 ARS	CASTGUN 663 ZSI
Casting	REFCAST V 623 ARS	REFCAST V 663 ZSI
Fast heat up casting	VIBROLIT 23 ARS	VIBROLIT 63 ZSI
Fast heat up gunning	NanoG® 23 ARS	NanoG® 63 ZSI

10 Burner Lance

	Normal Conditions	Severe Conditions
Grating		Honey Comb Grating
Casting	REFCAST V 679 P	REFCAST V 678 KSI
Fast heat up casting	VIBROLIT 92 K	VIBROLIT 78 KSI
Self Flowing	IPSOCAST 90	IPSOCAST 78 KSI
Gunning & Patching	SUPERGUN® 80	SUPERGUN® 78 KSI

11 Grate Cooler Hot Section Straight Walls and Roof ***

	Normal Conditions	Severe Conditions
Gunning	REFGUN 154 C	n.r.*
LC Gunning	SUPERGUN® 55	SUPERGUN® 63 ZSI
ShotCrete	CASTGUN 650	CASTGUN 633 ZSI
Casting	REFCAST V 650 C	REFCAST V 633 ZSI
Fast heat up casting	VIBROLIT 55	VIBROLIT 63 ZSI
Fast heat up gunning	NanoG® 55	NanoG® 63 ZSI

12 Grate Cooler Cold Section Straight Walls and Roof

	Normal Conditions	Severe Conditions
Gunning	REFGUN 156 ARS	REFGUN 152 ARS
LC Gunning	SUPERGUN® 29 ARS	SUPERGUN® 29 ARS
ShotCrete	CASTGUN 650	CASTGUN 629 ARS
Casting	REFCAST V 550 N	REFCAST V 629 ARS
Fast heat up casting	VIBROLIT 55	VIBROLIT 29 ARS
Fast heat up gunning	NanoG® 55	NanoG® 29 ARS

* n.r. = not recommended for this area

** For high thermal loads, products from the XO or KSI series are recommended. Please ask for further technical details.

*** Products from the XO or KSI series are recommended for high thermal loads and atmospheres containing water vapor. Please ask for further technical details.