

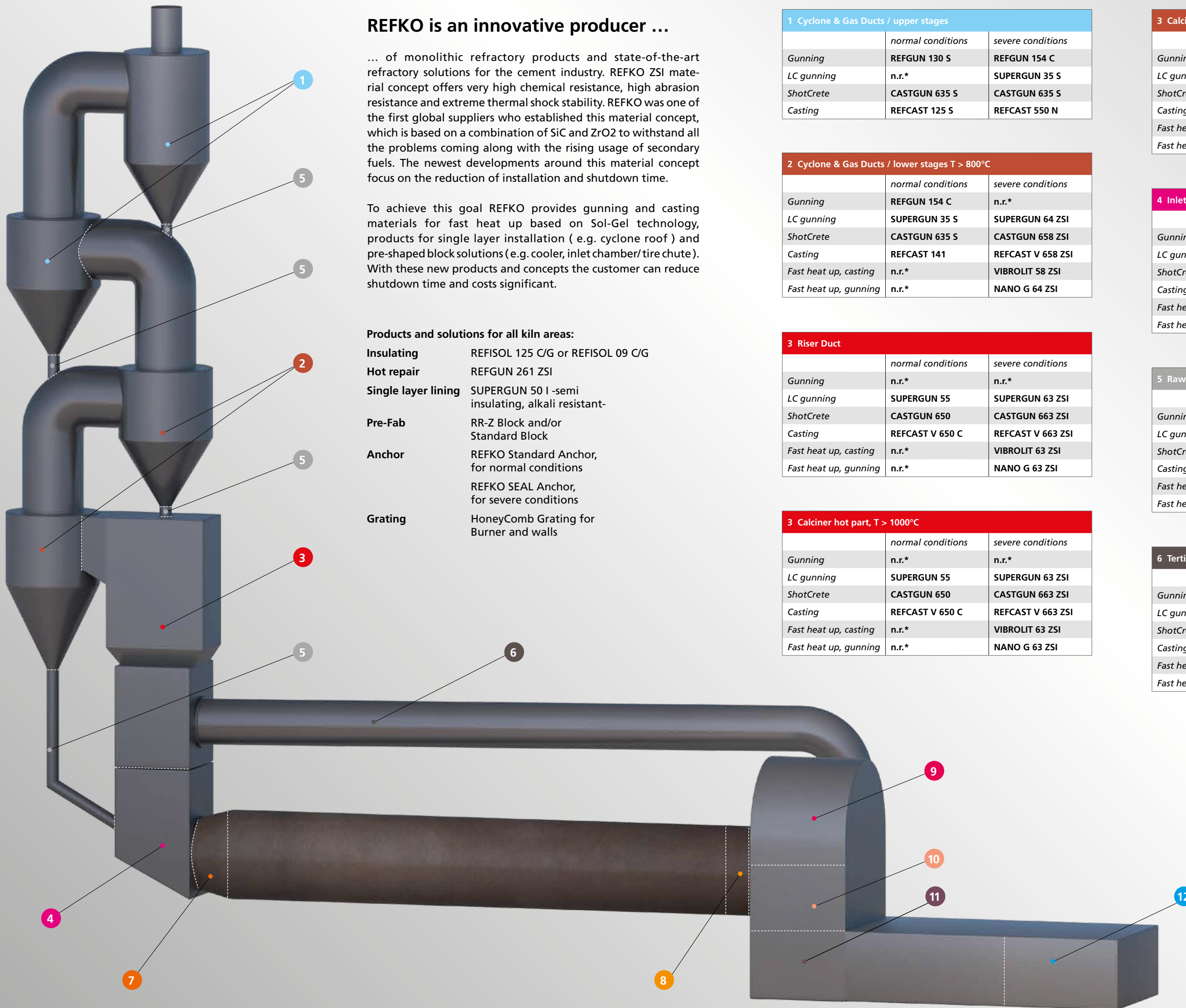
## REFKO is an innovative producer ...

... 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 ZrO<sub>2</sub> 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 significant.

### Products and solutions for all kiln areas:

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



1 Cyclone & Gas Ducts / upper stages		
	normal conditions	severe conditions
Gunning	REFGUN 130 S	REFGUN 154 C
LC gunning	n.r.*	SUPERGUN 35 S
ShotCrete	CASTGUN 635 S	CASTGUN 635 S
Casting	REFCAST 125 S	REFCAST 550 N

2 Cyclone & Gas Ducts / lower stages T > 800°C		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 35 S	SUPERGUN 64 ZSI
ShotCrete	CASTGUN 635 S	CASTGUN 658 ZSI
Casting	REFCAST 141	REFCAST V 658 ZSI
Fast heat up, casting	n.r.*	VIBROLIT 58 ZSI
Fast heat up, gunning	n.r.*	NANO G 64 ZSI

3 Riser Duct		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 650	CASTGUN 663 ZSI
Casting	REFCAST V 650 C	REFCAST V 663 ZSI
Fast heat up, casting	n.r.*	VIBROLIT 63 ZSI
Fast heat up, gunning	n.r.*	NANO G 63 ZSI

3 Calciner hot part, T > 1000°C		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 650	CASTGUN 663 ZSI
Casting	REFCAST V 650 C	REFCAST V 663 ZSI
Fast heat up, casting	n.r.*	VIBROLIT 63 ZSI
Fast heat up, gunning	n.r.*	NANO G 63 ZSI

3 Calciner, general		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 64 ZSI
ShotCrete	CASTGUN 650	CASTGUN 658 ZSI
Casting	REFCAST V 650 C	REFCAST V 658 ZSI
Fast heat up, casting	n.r.*	VIBROLIT 58 ZSI
Fast heat up, gunning	n.r.*	NANO G 64 ZSI

4 Inlet Chamber		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 650	CASTGUN 663 ZSI
Casting	REFCAST V 650 C	REFCAST V 663 ZSI
Fast heat up, casting	VIBROLIT 55	VIBROLIT 63 ZSI
Fast heat up, gunning	NANO G 55	NANO G 63 ZSI

5 Raw meal pipes		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	n.r.*	n.r.*
ShotCrete	n.r.*	n.r.*
Casting	REFCAST 550 N	REFCAST V 658 ZSI
Fast heat up, casting	n.r.*	VIBROLIT 58 ZSI
Fast heat up, gunning	n.r.*	n.r.*

6 Tertiary air duct		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 80
ShotCrete	CASTGUN 650	CASTGUN 690 RT
Casting	REFCAST 550 N	REFCAST V 679
Fast heat up, casting	n.r.*	n.r.*
Fast heat up, gunning	n.r.*	n.r.*

7 Kiln Inlet Cone		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 650	CASTGUN 663 ZSI
Casting	REFCAST V 650 C	REFCAST V 663 ZSI
Fast heat up, casting	VIBROLIT 55	VIBROLIT 63 ZSI
Fast heat up, gunning	NANO G 55	NANO G 63 ZSI

8 Kiln Nose Ring		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 80	SUPERGUN 78 KSI
ShotCrete	CASTGUN 690 RT	CASTGUN 678 KSI
Casting	REFCAST V 679	REFCAST V 678 KSI
Fast heat up, casting	VIBROLIT 80	VIBROLIT 78 KSI
Fast heat up, gunning	n.r.*	n.r.*

9 Kiln hood upper part		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 650	CASTGUN 663 ZSI
Casting	REFCAST V 650 C	REFCAST V 663 ZSI
Fast heat up, casting	VIBROLIT 55	VIBROLIT 63 ZSI
Fast heat up, gunning	NANO G 55	NANO G 63 ZSI

10 Kiln hood lower part		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 70 ZR
ShotCrete	CASTGUN 650	CASTGUN 663 ZSI
Casting	REFCAST V 650 C	REFCAST V 670 ZR
Fast heat up, casting	VIBROLIT 55	VIBROLIT 63 ZSI
Fast heat up, gunning	NANO G 55	NANO G 63 ZSI

Burner Lance		
	normal conditions	severe conditions
Grating	-	HoneyComb Grating
Casting	REFCAST V 679	VIBROLIT 78 KSI
Self flowing	IPSOCAST 90	VIBROLIT 78 KSI-SF

11 Grate Cooler, hot section - Bull Nose area & Clinker Bed area -		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 80	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 690 RT	CASTGUN 663 ZSI
Casting	REFCAST V 679	REFCAST V 663 ZSI
Fast heat up, casting	VIBROLIT 80	VIBROLIT 63 ZSI
Fast heat up, gunning	n.r.*	n.r.*

11 Grate Cooler, hot section - straight walls & roof		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 64 ZSI
ShotCrete	CASTGUN 650	CASTGUN 658 ZSI
Casting	REFCAST V 650 C	REFCAST V 658 ZSI
Fast heat up, casting	VIBROLIT 55	VIBROLIT 58 ZSI
Fast heat up, gunning	NANO G 55	NANO G 64 ZSI

12 Grate Cooler, cold section - Clinker Bed area -		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 80	SUPERGUN 64 ZSI
ShotCrete	CASTGUN 690 RT	CASTGUN 658 ZSI
Casting	REFCAST V 679	REFCAST V 658 ZSI
Fast heat up, casting	VIBROLIT 80	VIBROLIT 58 ZSI
Fast heat up, gunning	n.r.*	n.r.*

12 Grate Cooler, cold section - straight walls & roof -		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	REFGUN 130 S	REFGUN 154 C
ShotCrete	n.r.*	SUPERGUN 35 S
Casting	CASTGUN 635 S	CASTGUN 635 S
Fast heat up, casting	REFCAST 125 S	REFCAST 550 N
Fast heat up, gunning	n.r.*	n.r.*

12 Planetary Cooler - Kiln outlet / elbow -		
	normal conditions	severe conditions
Gunning	n.r.*	n.r.*
LC gunning	SUPERGUN 80	SUPERGUN 63 ZSI
ShotCrete	CASTGUN 690 RT	CASTGUN 663 ZSI
Casting	REFCAST 190 NK	REFCAST V 663 ZSI
Fast heat up, casting	VIBROLIT 80	VIBROLIT 63 ZSI
Fast heat up, gunning	n.r.*	n.r.*

12 Planetary Cooler - Cooler tube -		
	normal conditions	severe conditions
Gunning	REFGUN 154 C	n.r.*
LC gunning	SUPERGUN 55	SUPERGUN 80
ShotCrete	CASTGUN 650	CASTGUN 690 RT
Casting	REFCAST 550 N	REFCAST V 679
Fast heat up, casting	n.r.*	n.r.*
Fast heat up, gunning	n.r.*	n.r.*

\*n.r.= not recommended for this area