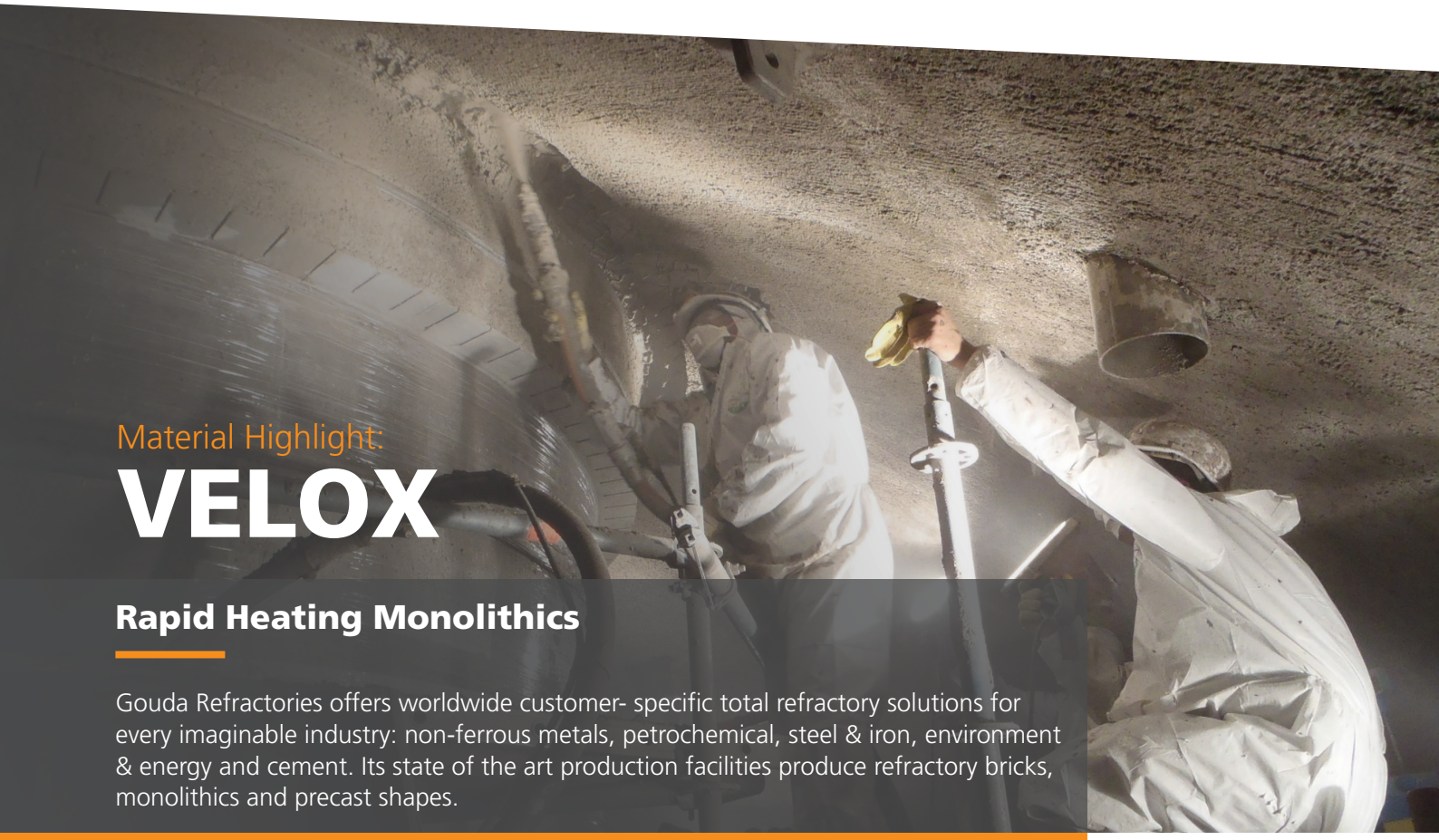
GOUDA *refractories*



Material Highlight:

VELOX

Rapid Heating Monolithics

Gouda Refractories offers worldwide customer- specific total refractory solutions for every imaginable industry: non-ferrous metals, petrochemical, steel & iron, environment & energy and cement. Its state of the art production facilities produce refractory bricks, monolithics and precast shapes.

Special range of Velox monolithics for repair and maintenance purpose. Velox monolithics don't require a long curing and dry-out curve and are therefore excellent materials for short shut-downs were the dry-out cannot be performed within a standard heating time frame.

LRQA CERTIFIED ISO 9001

Curing **5-6 hr**

Dry-out **100°C/h**

Short Shut-down **time**

- Short shut-down time.
- Shorter heating up schedule than with Low Cement Castables.
- No expensive drying equipment required.
- Increase productivity resulting in increased client profit.

Velox materials have a special composition of the bonding system that allows for shorter hardening times because the "free" water can more easily released. After a fast curing of only 5 to 6 hours, the lining can be heated up. The rapid heating rate of 100°C per hour allows for significantly shorter down-time of the equipment, without having the risk on explosions compared to regular low cement castables. This down-time reduction is estimated to be 48 hours for a 125 mm lining thickness. The good thermal shock resistance makes Velox a material that is suitable for severe applications like door-openings in furnaces, burner quarls and industrial incinerators.

Velox MD is a special range for repair work. Due to its excellence adherence, Velox MD is well suited for filling cracks, joints and holes as well as installation in a thin layer on existing refractory. Mechanical strength is achieved after heating above 150°C.

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GOUDA refractories

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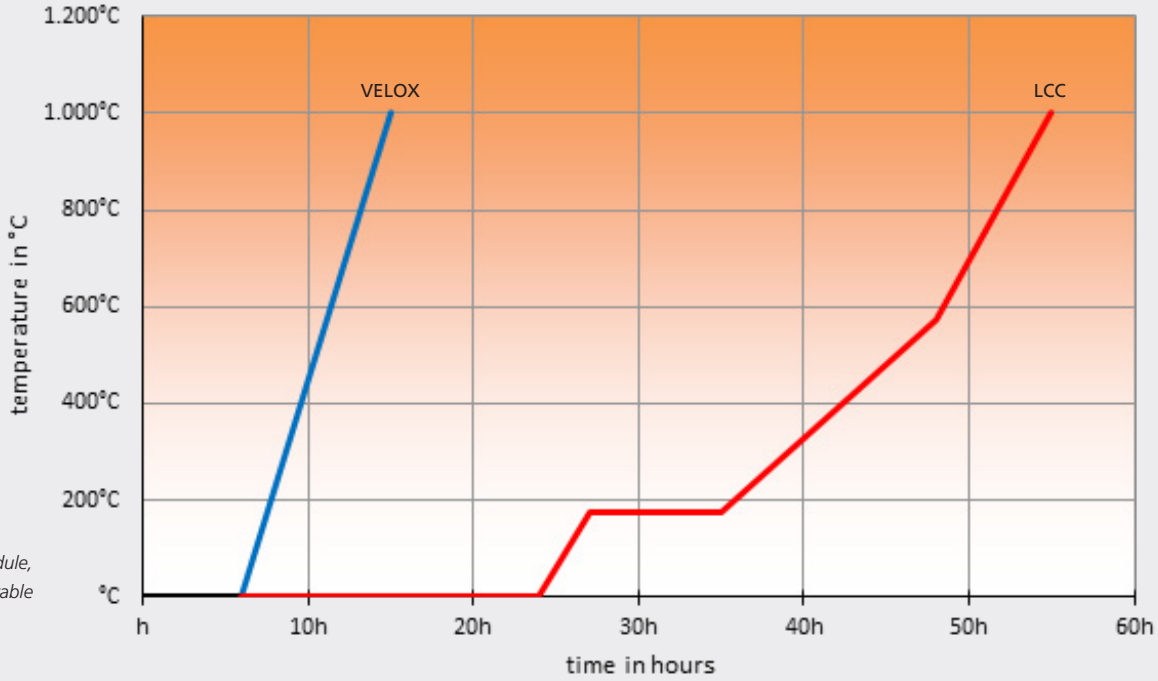
Heating Schedule



Curing and heating schedule, VELOX versus Low Cement Castable

Material Properties

Product	Description	Material Properties			Chemical Analysis			
		Max. Service Temp.	Density (kg/m³)	CCS (N/mm²)	Al_2O_3	SiO_2	Fe_2O_3	SiC
		°C	110 °C	815 °C	%	%	%	%
VELOX 150	Rapid heating refractory castable	1.600	2.750	50	84	10	1.7	-
VELOX 150 GM	Rapid heating refractory gunning mix	1.600	2.600	30	78	15	1.5	-
VELOX 160 H	Rapid heating refractory castable	1.600	2.450	40	63	31	1.5	-
VELOX 160 H GM	Rapid heating refractory gunning mix	1.600	2.350	25	62	33	1	-
VELOX 160 K30	Rapid heating refractory castable	1.600	2.300	50	45	20	0.8	30
VELOX 160 K30 GM	Rapid heating refractory gunning mix	1.600	2.250	25	40	25	1	30
VELOX 160 K60	Rapid heating refractory castable	1.600	2.600	40	30	5	0.2	60
VELOX 160 K60 GM	Rapid heating refractory gunning mix	1.600	2.400	25	24	14	0.2	60
Velox Maintenance Delay Mixes								
VELOX MD 135 XLW GM	Rapid heating insulating gunning mix	1.350	1.050	1	70	16	-	P_2O_5: 3
VELOX MD 145	Rapid heating refractory castable	1.450	1.850	8	53	41	-	-
VELOX MD 150 P	Rapid heating refractory castable	1.600	2.650	70	82	9	6	P_2O_5: 6
VELOX MD 160 H GM	Rapid heating refractory gunning mix	1.250	2.150	50	55	32	-	-
VELOX MD 160 H Ti GM	Rapid heating refractory gunning mix	1.250	2.150	35	55	31	TiO_2: 4	P_2O_5: 3
VELOX MD 160 K60 GM	Rapid heating refractory gunning mix	1.250	2.450	60	20	14	3	60
VELOX MD 180	Rapid heating refractory mix	1.800	2.350	25	>95	-	-	-

Values are typical. Datasheets are available upon request.

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