

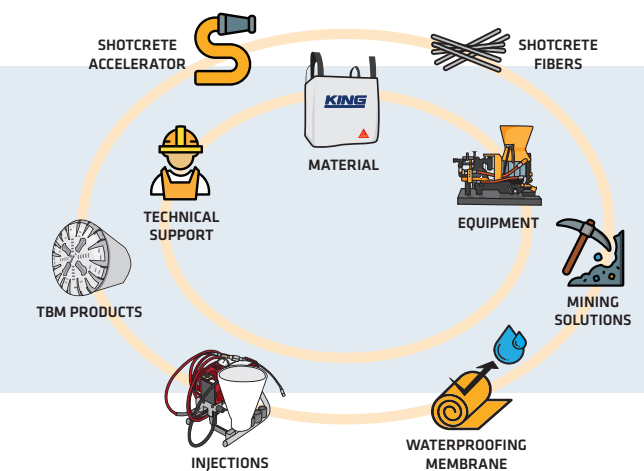
## OUR PHILOSOPHY

Since 1985, KING, a brand of Sika®, has been a trusted industry resource for both dry-mix and wet-mix processes. The strength of the KING Shotcrete Solutions brand lies in its ability to provide high-quality shotcrete material, combined with the industry's best technical support team.

Sika's STM (shotcrete, tunneling & mining) team of experienced engineers can assist your shotcrete team with equipment operation and training, shotcrete placement, material design, and specifications.

We are not just a material supplier, but a total shotcrete resource.

**SEE PRODUCT SELECTION CHART ON REVERSE TO CHOOSE FROM OUR FULL LINE OF PRE-PACKAGED SHOTCRETE PRODUCTS.**



## SUPERIOR PRE-PACKAGED SHOTCRETE MATERIAL

Sika's KING brand of shotcrete materials are produced from three ISO 9001 registered, shotcrete production facilities.

Sika has the flexibility to design a mixture that meets specific project requirements:

- Air-entrainment for improved freeze-thaw and salt-scaling resistance
- Synthetic or steel fiber reinforcement for increased load-carrying and energy-absorbing capacities
- Set-time accelerator for early-age strength gain and rapid re-entry
- Specialty mixes that perform exceptionally well in cold temperatures and other demanding conditions

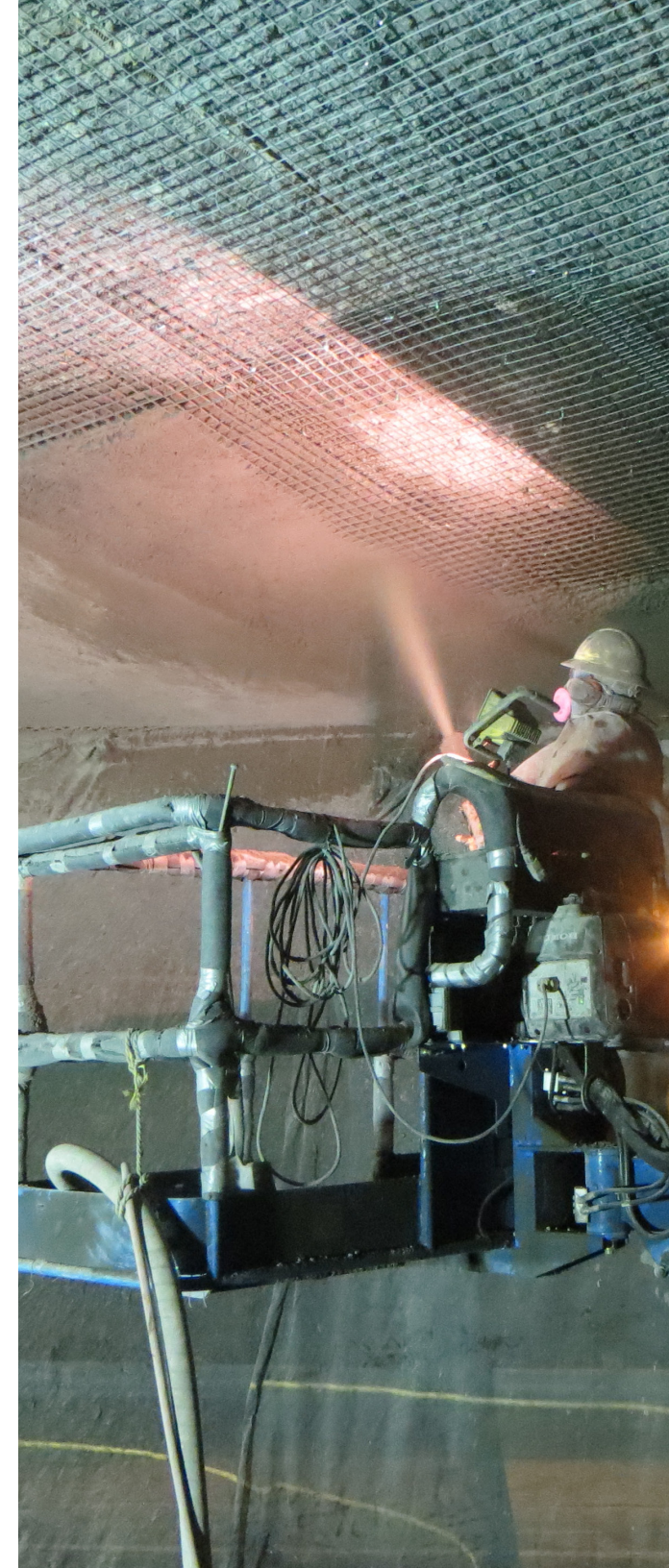
Several packaging options are offered from small 66 lb. (30 kg) bags to large 3,300 lb. (1,500 kg) bulk bags, designed to withstand exposure to the harshest climatic conditions.

All of our shotcrete materials are backed by a team of industry-leading experts who understand all aspects of the shotcrete process.

Sika's extensive Research & Development team is committed to the continuous improvement of existing product mix designs and to the development of new, high-performance shotcrete products.

## LEGEND

<b>X, X2, X3</b>	Accelerated, Accelerated at Dosage 2, Accelerated at Dosage 3
<b>MF</b>	Macro-Synthetic Fiber
<b>PW</b>	NSF/ANSI 61 Approved Mix
<b>ST</b>	Steel Fiber
<b>SY</b>	Micro-Synthetic Fiber
<b>UG, UG2, UG3</b>	Underground Accelerated; at Dosage 2, Dosage 3
<b>CI</b>	Corrosion Inhibitor



## FOR MORE INFORMATION:

The sale of all Sika products are subject to the following Limited Warranty:

### LIMITED MATERIAL WARRANTY

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks.

Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

**NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Our most current General Sales Conditions shall apply. Please consult the most current Product Data Sheet prior to any use.

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## PRODUCT SELECTION CHART

### Supporting Your Complete Shotcrete Operation





	MS-D1	MS-D3	MS-W1	HC-D1	LR-D1	MS-D1 ST	MS-D3 ST	MS-D3 UG	ArmourGuard	RS-D1	RS-D2	RS-D2 ST	
TARGETED APPLICATION	Civil Construction/Repair or Tunneling			Civil Repair	Civil Construction/Repair	Civil Construction/Repair or Tunneling			Mining	Civil Construction/Repair or Tunneling	Mining or Tunneling		
OPTIONAL FEATURE(S)	MS-D1 X, MS-D1 SY MS-D1 PW, MS-D1 CI	MS-D3 X, MS-D3 SY MS-D3 CI	MS-W1 SY, MS-W1 UG MS-W1 CI		LR-D1 X LR-D1 SY	MS-D1 X ST, MS-D1 MF MS-D1 X MF	MS-D3 X ST, MS-D3 MF MS-D3 X MF	MS-D3 UG2 MS-D3 UG3	RS ArmourGuard	RS-D1 SY RS-D1 CI	N/A	RS-D2 MF	
KEY FEATURE(S)	NSF/ANSI 61 Approved (MS-D1 NSF/ANSI 61)	High Early Strength	On-Demand Wet-Mix Shotcrete	Low Cracking Potential and Very Low Shrinkage	Low Electrical Resistivity	Steel Fiber Reinforcement/Enhanced Post-Crack Capacity	Steel Fiber Reinforcement/Enhanced Post-Crack Capacity	High Early Strength	Steel Fiber Reinforcement/ Superior Impact & Abrasion Resistance	Rapid Early-Age Strength Development	Rapid Early-Age Strength Development	Steel Fiber Reinforcement/Enhanced Post-Crack Capacity & Rapid Early-Age Strength Development	
ADDITIONAL FEATURE(S)	<ul style="list-style-type: none"> <li>Air-entrainment</li> <li>Reduced set-time (MS-D1 X)</li> <li>Synthetic fiber (MS-D1 SY)</li> <li>Potable water approval (MS-D1 PW)</li> <li>Corrosion inhibitor (MS-D1 CI)</li> </ul>	<ul style="list-style-type: none"> <li>Air-entrainment</li> <li>Reduced set-time (MS-D3 X)</li> <li>Cold temperature applications (MS-D3 X)</li> <li>Synthetic fiber (MS-D3 SY)</li> <li>Corrosion inhibitor (MS-D3 CI)</li> </ul>	<ul style="list-style-type: none"> <li>Air-entrainment</li> <li>Improved pumpability</li> <li>Synthetic fiber (MS-W1 SY)</li> <li>Liquid accelerator can be added at the nozzle</li> <li>Corrosion inhibitor (MS-W1 CI)</li> </ul>	<ul style="list-style-type: none"> <li>Air-entrainment</li> <li>Simplified curing method</li> </ul>	<ul style="list-style-type: none"> <li>Air-entrainment</li> <li>Reduced set-time (LR-D1 X)</li> <li>Synthetic fiber (LR-D1 SY)</li> </ul>	<ul style="list-style-type: none"> <li>Increased energy-absorbing capacity</li> <li>Increased impact resistance</li> <li>Macro-synthetic fiber (MS-D1 MF)</li> </ul>	<ul style="list-style-type: none"> <li>Increased energy-absorbing capacity</li> <li>Increased impact resistance</li> <li>Macro-synthetic fiber (MS-D3 MF)</li> </ul>	<ul style="list-style-type: none"> <li>Reduced set-time</li> </ul>	<ul style="list-style-type: none"> <li>Increased energy-absorbing capacity</li> <li>High early strength</li> <li>Reduced set-time</li> </ul>	<ul style="list-style-type: none"> <li>Air-entrainment</li> <li>Simplified curing method</li> <li>Improved performance in running water</li> <li>Synthetic fiber (RS-D1 SY)</li> <li>Corrosion inhibitor (RS-D1 CI)</li> </ul>	<ul style="list-style-type: none"> <li>Reduced set-time</li> </ul>	<ul style="list-style-type: none"> <li>Increased energy-absorbing capacity</li> <li>Increased impact resistance</li> <li>Reduced set-time</li> <li>Macro-synthetic fiber (RS-D2 MF)</li> </ul>	
USES	New construction or rehabilitation of concrete structures; lining of sewers, water mains and concrete structures containing drinking water.	Rehabilitation of concrete structures or new construction.	Rehabilitation of concrete structures or new construction.	Rehabilitation of concrete bridges, dams, reservoirs, subway, tunnels, marine structures, parking ramps and other concrete structures.	Rehabilitation of concrete structures or new construction with induced current or galvanic anodes for corrosion protection applications.	Ground support for underground applications; slope stabilization; rehabilitation of marine structures.	Ground support for underground applications; slope stabilization; rehabilitation of marine structures.	Construction and ground support for underground applications.	Ore pass linings and brows, truck dumps, ore and rock chutes.	Rehabilitation of concrete structures requiring return-to-service after 3 hours; lining and rehabilitation of sewers and water pipes; new construction including slope stabilization, soil-nailing, and shaft and tunnel lining.	Ground support and construction of concrete structures for underground applications requiring return to-service after 2 hours.	Ground support for mining, tunneling and other underground applications requiring return-to-service after 2 hours.	
INITIAL SET*	MS-D1: 4 hours MS-D1 X: 60 minutes MS-D1 X2: 20 minutes MS-D1 X3: 5 minutes	MS-D3: 3 hours MS-D3 X: 45 minutes MS-D3 X2: 15 minutes MS-D3 X3: 3 minutes	4 hours	6 hours	LR-D1: 4 hours LR-D1 X: 60 minutes LR-D1 X2: 20 minutes LR-D1 X3: 5 minutes	MS-D1 ST: 4 hours MS-D1 X ST: 60 minutes MS-D1 X2 ST: 20 minutes MS-D1 X3 ST: 5 minutes	MS-D3 ST: 3 hours MS-D3 X ST: 45 minutes MS-D3 X2 ST: 15 minutes MS-D3 X3 ST: 3 minutes	MS-D3 UG: 10 minutes MS-D3 UG2: 5 minutes MS-D3 UG3: 3 minutes	5 minutes	5-10 minutes	5 minutes	5 minutes	
FINAL SET*	MS-D1: 6 hours MS-D1 X: 70 minutes MS-D1 X2: 30 minutes MS-D1 X3: 10 minutes	MS-D3: 5 hours MS-D3 X: 60 minutes MS-D3 X2: 25 minutes MS-D3 X3: 5 minutes	6 hours	8 hours	LR-D1: 6 hours LR-D1 X: 70 minutes LR-D1 X2: 30 minutes LR-D1 X3: 10 minutes	MS-D1 ST: 6 hours MS-D1 X ST: 70 minutes MS-D1 X2 ST: 30 minutes MS-D1 X3 ST: 10 minutes	MS-D3 ST: 5 hours MS-D3 X ST: 60 minutes MS-D3 X2 ST: 25 minutes MS-D3 X3 ST: 5 minutes	MS-D3 UG: 45 minutes MS-D3 UG2: 20 minutes MS-D3 UG3: 10 minutes	10 minutes	10-20 minutes	10 minutes	10 minutes	
COMPRESSIVE STRENGTH*	1 HOUR									1500 psi (10 MPa)			
	2 HOUR								RS: 3000 psi (21 MPa)	2175 psi (15 MPa)	3000 psi (21 MPa)	3000 psi (21 MPa)	
	3 HOUR									3000 psi (21 MPa)			
	4 HOUR	MS-D1 X2: 150 psi (1 MPa) MS-D1 X3: 725 psi (5 MPa)	MS-D3 X2: 290 psi (2 MPa) MS-D3 X3: 1015 psi (7 MPa)			LR-D1 X2: 150 psi (1 MPa) LR-D1 X3: 725 psi (5 MPa)	MS-D1 X2 ST: 150 psi (1 MPa) MS-D1 X3 ST: 725 psi (5 MPa)	MS-D3 X2 ST: 290 psi (2 MPa) MS-D3 X3 ST: 1015 psi (7 MPa)	MS-D3 UG2: 290 psi (2 MPa) MS-D3 UG3: 1015 psi (7 MPa)	290 psi (2 MPa)		4350 psi (30 MPa)	
	6 HOUR												
	8 HOUR	MS-D1 X: 725 psi (5 MPa) MS-D1 X2: 870 psi (6 MPa) MS-D1 X3: 1150 psi (8 MPa)	MS-D3 X: 1015 psi (7 MPa) MS-D3 X2: 1150 psi (8 MPa) MS-D3 X3: 1500 psi (10 MPa)			LR-D1 X: 725 psi (5 MPa) LR-D1 X2: 870 psi (6 MPa) LR-D1 X3: 1150 psi (8 MPa)	MS-D1 X ST: 725 psi (5 MPa) MS-D1 X2 ST: 870 psi (6 MPa) MS-D1 X3 ST: 1150 psi (8 MPa)	MS-D3 X ST: 1015 psi (7 MPa) MS-D3 X2 ST: 1150 psi (8 MPa) MS-D3 X3 ST: 1500 psi (10 MPa)	MS-D3 UG: 1015 psi (7 MPa) MS-D3 UG2: 1150 psi (8 MPa) MS-D3 UG3: 1500 psi (10 MPa)	1150 psi (8 MPa)			
	12 HOUR	MS-D1 X: 1015 psi (7 MPa) MS-D1 X2: 1150 psi (8 MPa) MS-D1 X3: 1500 psi (10 MPa)	MS-D3 X: 1500 psi (10 MPa) MS-D3 X2: 1750 psi (12 MPa) MS-D3 X3: 2030 psi (14 MPa)			LR-D1 X: 1015 psi (7 MPa) LR-D1 X2: 1150 psi (8 MPa) LR-D1 X3: 1500 psi (10 MPa)	MS-D1 X ST: 1015 psi (7 MPa) MS-D1 X2 ST: 1150 psi (8 MPa) MS-D1 X3 ST: 1500 psi (10 MPa)	MS-D3 X ST: 1500 psi (10 MPa) MS-D3 X2 ST: 1750 psi (12 MPa) MS-D3 X3 ST: 2030 psi (14 MPa)	MS-D3 UG: 1500 psi (10 MPa) MS-D3 UG2: 1750 psi (12 MPa) MS-D3 UG3: 2030 psi (14 MPa)	1750 psi (12 MPa)			
	1 DAY	MS-D1: 2175 psi (15 MPa) MS-D1 X to MS-D1 X3: 3000 psi (21 MPa)	MS-D3: 3000 psi (21 MPa) MS-D3 X to MS-D3 X3: 3625 psi (25 MPa)	2175 psi (15 MPa)	2175 psi (15 MPa)	LR-D1: 2175 psi (15 MPa) LR-D1 X to LR-D1 X3: 3000 psi (21 MPa)	MS-D1 ST: 2175 psi (15 MPa) MS-D1 X ST to MS-D1 X3 ST: 3000 psi (21 MPa)	MS-D3 ST: 3000 psi (21 MPa) MS-D3 X ST to MS-D3 X3 ST: 3625 psi (25 MPa)	MS-D3 UG: 3000 psi (21 MPa) MS-D3 UG2: 3625 psi (25 MPa) MS-D3 UG3: 3625 psi (25 MPa)	3625 psi (25 MPa) RS: 6500 psi (45 MPa)	3625 psi (25 MPa)	4350 psi (30 MPa)	6500 psi (45 MPa)
	3 DAY	4060 psi (28 MPa)	4350 psi (30 MPa)	4060 psi (28 MPa)	3000 psi (21 MPa)	4060 psi (28 MPa)	4060 psi (28 MPa)	4350 psi (30 MPa)	4350 psi (30 MPa)				
	7 DAY	4640 psi (32 MPa)	5075 psi (35 MPa)	4640 psi (32 MPa)	3625 psi (25 MPa)	4640 psi (32 MPa)	4640 psi (32 MPa)	5075 psi (35 MPa)	5075 psi (35 MPa)	5800 psi (40 MPa) RS: 7250 psi (50 MPa)	4640 psi (32 MPa)	5800 psi (40 MPa)	7250 psi (50 MPa)
28 DAY	6000 psi (42 MPa)	6000 psi (42 MPa)	6000 psi (42 MPa)	5075 psi (35 MPa)	6000 psi (42 MPa)	6000 psi (42 MPa)	6000 psi (42 MPa)	6000 psi (42 MPa)	8700 psi (60 MPa) RS: 8000 psi (55 MPa)	5500 psi (38 MPa)	7250 psi (50 MPa)	8000 psi (55 MPa)	

\*The following data is representative of typical values achievable using proper application techniques as outlined in the ACI 506 "Guide to Shotcrete" publication, with material and ambient temperatures of 70 °F (21 °C). Higher or lower temperatures can respectively accelerate or delay set-time and early-age compressive strength gain.