

MINING / CONSTRUCTION

Lokset™ Resin Capsules

POLYESTER RESIN ANCHORING SYSTEM

DESCRIPTION

Each Lokset™ resin capsule is a two-compartment package that consists of a tube of polyester film clipped at both ends. One compartment contains resin, the other contains catalyst.

The Lokset™ resin compound is thixotropic and fast setting. The thixotropy reduces viscosity during insertion of the bolts thus requiring relatively low force and torque. The uniquely size graded fillers assist with shredding of the film, mixing of the resin and, by interlocking with each other and the side walls of the hole, further increasing stiffness.

The superior quality of the Lokset™ resin bolt support system is assured through a four-part quality control program:

- Raw materials testing.
- In-process control tests.
- Finished product acceptance testing.
- Quality Systems Management to ISO 9000:2015 requirements.

Testing levels and specifications for each of the above programs have been established statistically, based on actual historical data, to ensure the customer receives a uniform quality product which will perform dependably under field conditions.

APPLICATION AND USE

Lokset™ resin capsules are for mining, construction and industrial use only and are intended for use in conjunction with tendons.

Lokset™ resin capsules are used to anchor rock bolts and long tendons for roof support in mines and tunnels. They can be used with hydraulic and pneumatic type bolters.



ADVANTAGES

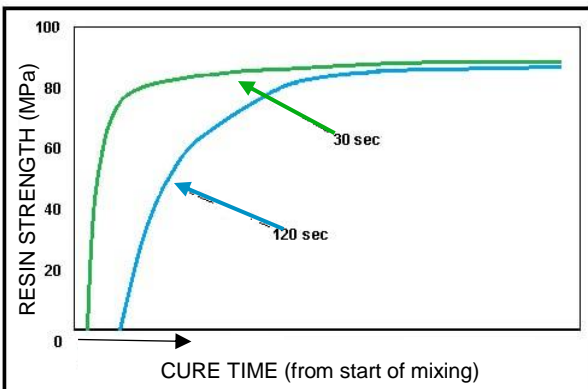
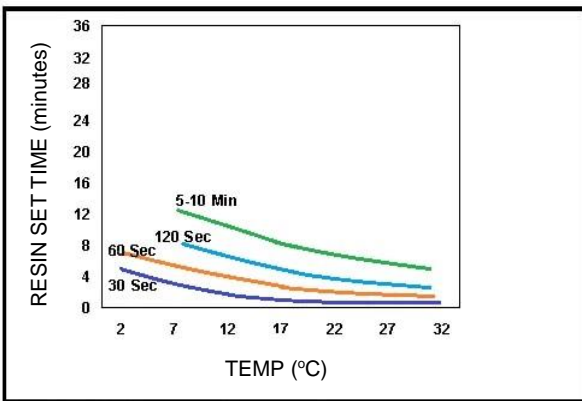
- Rapid anchoring of the bolt to the surrounding strata
- High load transfers achievable almost immediately
- Full column bonded bolts strongly resist the horizontal and lateral strata movements associated with convergence
- Provides strength and rigidity to prevent sag by acting as a reinforcement that clamps the individual strata layers into a single high strength beam

TECHNICAL DATA

SETTING TIMES

A wide range of set times is offered for varied conditions. The standard set times are as tabulated; these meet most underground mine requirements. The set times are standardized at 20°C. The effect of temperature on set times is shown below.

The variation of set times with temperature should be taken into account when specifying resin for use in hot, deep level mines, or in colder areas in shallow mines.



SETTING DATA

Colour code	Set time @ 20°C	Mixing time 15 - 21°C
Black	20 Sec	10 Sec
Purple	15 sec	10 sec
Red	30 sec	10 sec
Green	60 sec	15 sec
Blue	120 sec	20 sec
Yellow	5-10 min	20 sec

Note 1: Lokset™ 15 sec set-time capsules may be used as part of an approved “spin-to-stall” resin roof bolting system.

CAPSULE DIMENSIONS

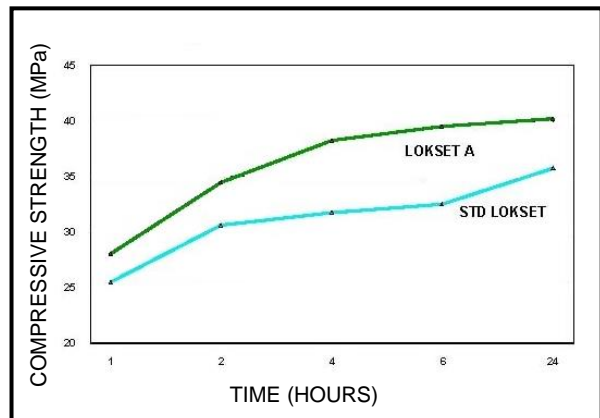
Diameters (mm)		Capsule Dia	Capsule Length	Capsule Vol	Capsules/ Box
Hole	Bolt	(mm)	(mm)	(cm³)	
25 - 28	20	23	500	208	50
27 - 32	20	25	400	196	40
28 - 32	20	25	450	221	40
29 - 32	20	25	500	245	40
30 - 36	25	28	500	308	28
34 - 37	20	30	>600		
34 - 40	25	32	400	321	25

Note: When calculating the volume of resin required to give the desired length of resin bond, increase requirements by 12% to allow for over drilling.

More product options available. For more information please contact our local representatives.

STRENGTH GRADES

For applications requiring higher than normal strength, Lokset™ A resin is available for all set times. Please consult one of our representatives when considering high strength systems, as special designs are necessary.



APPLICATION METHOD

(Please refer to one of our representatives to assist with determining the correct bolt, hole and resin capsule parameters).

1. Insert the necessary resin capsules into the hole.
2. Push the bolt up the hole to at least 300mm from the collar. (Rotation of the bolt during this step is optional)
3. Rotary drills: rotate the bolt rapidly (250-750rpm) for the specified mixing time,

while pushing the bolt home. Percussion drills: rotate the bolt 40-60 revolutions.

4. Hold for the required time (note effect of temperature on set times).
5. Do not rotate again as damage to partially gelled resin may result. The period of strength development following set will vary, depending on set time and product temperature. The bolt may be tensioned after the required hold time.
6. Resin bolts should be installed as soon as possible in a newly exposed roof.

For optimum results, it is important to ensure careful control of:

1. Hole diameter i.e. bit size.
2. Hole length, i.e. length of drill rod.
3. Use of sufficient resin to anchor the desired length of the bolt to the surrounding strata.
4. A minimum of 500mm of resin bond is recommended to ensure long-term anchor strength of end-anchored bolts.

Modern mechanized mining equipment is capable of installing resin-grouted bolts safely, reliably and efficiently. Please consult one of our Representatives to assist when considering strata-control methods to use with mechanized mining.

SAFETY INSTRUCTIONS AND LIMITATIONS

Wear suitable protective clothing, gloves and eye/face protection.

- In case of contact with skin remove contaminated clothing and wash with soap and water, seek medical attention if skin irritation persists.
- In case of contact with eyes, flush with copious amounts of water and seek medical assistance.
- If inhaled remove from exposure and seek medical advice if effects persist.
- If ingested wash out mouth with water and obtain medical attention.
- Do not use in the vicinity of open flames, electric sparks, welding, cutting or any other source of ignition. See Material Safety Data Sheet for flammability and toxicity.

PACKAGING AND TRANSPORTATION

Standard Lokset™ capsule diameters include 23mm, 25mm, 28mm, 30mm, 32mm. Stock capsule lengths vary, please consult one of our representatives for our standard length and diameter combinations.

STORAGE AND SHELF LIFE

The Lokset™ resin capsule shelf life is 4 months for capsules longer than 600mm and 6 months for capsules 600mm and shorter when stored at 20°C. Storage at lower temperatures such as cool rooms is highly recommended and will extend the shelf life when stored at 0-5°C. Stock rotation is essential. Lokset E capsules are manufactured specially for export customers and have longer shelf lives.

Store in a cool, dry place away from direct sunlight. Do not double stack pallets. When using cool room storage the resin capsules should be allowed time to attain ambient temperature before use; otherwise, Spin and Hold times will be affected.

DISPOSAL

Follow local regulations.

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ADDITIONAL DOCUMENTATION

- MSDS of Lokset™ Resin Capsules
- Lokset Resin Capsules Application Guide

LIST OF REPRESENTATIVES

- AUSTRIA: Minova MAI GmbH
- CZECH REPUBLIC: Minova Bohemia s.r.o.
- FRANCE / BELGIUM: Sales office Minova France / Belgium
- GERMANY: Minova CarboTech GmbH
- ITALY: Minova CarboTech GmbH Italy branch
- KAZAKHSTAN: Minova Kazakhstan LLP
- POLAND: Minova Ekochem S.A.; Minova Arnall Sp. z o.o.; Minova Ksante Sp. z o.o.
- RUSSIA: ZAO "Carbo-ZAKK"
- SLOVAKIA: Minova Bohemia s. r. o., organizačná zložka
- SOUTH AFRICA: Minova Africa (Pty) Ltd.
- SPAIN: Minova Codiv S.L.U.
- SWEDEN / NORWAY: Minova Nordic AB
- UNITED KINGDOM: Minova Weldgrip Ltd.; Minova International Ltd.
- APAC: Minova Australia Pty Ltd.
- AMERICAS: Minova USA Inc.

CUSTOMER SERVICE

For additional support options available at your area, contact our local offices.

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