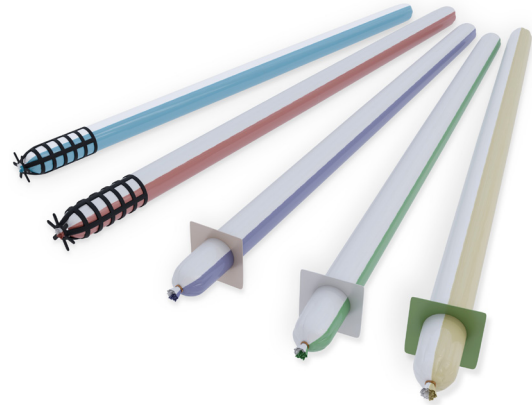


MINOVA

# LOKSET® CLASSIC

SINGLE SPEED RESIN, ANCHORING  
MEDIUM



Lokset capsule colours and retainers may differ based on specification.

## DESCRIPTION

The Lokset® resin capsule consists of a reinforced, thixotropic polyester resin mastic in one compartment and an organic peroxide catalyst separated by a physical barrier in the other. The rotation of the bolt during installation ruptures the capsule, shreds the skin and mixes the two components causing a chemical reaction and transforming the resin mastic into a solid anchor.

## ADVANTAGES

Selection of appropriate capsule enables a wide variety of applications:

- > Rapid insertion, easy and quick to use
- > Higher compressive strength, strong, rapid and consistent anchorage
- > Higher modulus
- > Protects bolt from corrosion, can be used in wet or underwater conditions
- > Unaffected by vibration
- > No expansion stresses and can be used in weak strata
- > Full encapsulation without pre-tensioning using slow set single speed capsules
- > Point anchor installation with fast set single speed capsule
- > A unique design of capsule configuration enabling extremely effective mixing of resin mastic and catalyst compartments
- > Manufactured in Australia

## APPLICATION AND USES

The Lokset resin capsule is used primarily as an anchoring medium for rockbolts and long tendons. They provide roof and sidewall support in mines and tunnels. Can be used with both hydraulic and pneumatic roof bolters.

Other uses include:

- > Marine fixings above or below water
- > Ground anchors in rock
- > Fixtures to building structures
- > Pipe and cable support fixings
- > Crane and rail track fixing
- > Anchoring bolts for machinery

## TECHNICAL PROPERTIES

Typical insertion properties at 25°C are as follows:

SPEED	SPIN TIME <sup>1</sup>	HOLD TIME <sup>2</sup>	CAPSULE COLOUR	LABEL COLOUR
Super Fast	8 sec	>4 sec	Yellow	White
Extra Fast	8 sec	>4 sec	Yellow	Orange
Fast	10 sec	>4 sec	Yellow	Yellow
Medium	15 sec	>4 sec	Red	Red
Slow	20 sec	>70 sec	Blue	Blue

<sup>1</sup> Approximate spin time in seconds

<sup>2</sup> Minimum hold time in seconds

The data is based on laboratory testing. Hold times and installation parameters may vary in the field depending on ambient temperature, mining conditions, equipment, hole-to-bolt annulus, and resin age or storage conditions. Each mine site should be evaluated to determine optimal performance.

## MECHANICAL DATA

PARAMETER	UNIT	LOKSET TOOSPEEDIE
Compressive Strength	(MPa)	≥60 (age 24 hrs)
Punch shear strength	(MPa)	≥30 (age 24 hrs)
Modulus of elasticity	(GPa)	>6.5 (age 24 hrs)
Push out Force	(kN)	≥72 (age 24 hrs)

## COMPRESSIVE STRENGTH

Tested in accordance with <sup>1</sup>BS 7861: Part 1:1996.  
Tested on 40 mm cubes with slow-set resin.

<sup>1</sup> Strata reinforcement support system components used in coal mines: Part <sup>1</sup> specification for rock bolting

## YOUNGS MODULUS

Tested on 2:1 aspect ratio cylinder with slow-set resin by BHP Engineering.

## PUSH OUT TEST

Measured on 22 mm bolt, 50 mm encapsulation in 28 mm I.D. threaded cylinder, with slow set resin.

## PUNCHED SHEAR STRENGTH

This test provides excellent correlation with mine pull out tests (without the variances) and is directly related to the strength of the resin. With fast setting resins the test can be performed in a very short time after the resin mixture has gelled (15 seconds).

Measured according to BS 2782 (part 3).

- > The appropriate quantities of resin mastic and catalyst are mixed for six (6) seconds.
- > The resultant mixture is squashed between two uniform flat steel plates and allowed to gel.
- > The plates are taken apart and the cured slice of resin is placed between two steel templates.
- > The device is placed in a tensiometer, and a plunger is forced into a hole in the plates at a predetermined rate, thus pushing a flat circular disc out of the resin slice (i.e. shearing the resin).
- > The force applied to shear the resin is recorded electronically by the tensiometer and converted to shear stress in MPa using the thickness of the disc in mm.

## SAFETY INSTRUCTIONS AND LIMITATIONS

Observe the usual precautionary measures for handling chemicals and refer to the Lokset SDS. In case of incorrect anchor selection, wrong hole dimensions or the incorrect anchoring method, i.e., lack of anchor rotation or low rotation speed, the capsule components might be insufficiently mixed. In such cases, the bond strength may be less than the theoretical strength. The capsules should not be used in weak, loose, incoherent or highly porous soil, such as sands and clays. Capsules should not be used in holes with flowing water, with a strong presence of water and near groundwater sources. When working with resin capsules wear, safety gloves, goggles and protective clothing. Do not open or puncture capsules prior to use. If clothes become saturated with any of the capsule's components it is recommended to change into a set of clean clothing. For skin contact, wash thoroughly with soap and water. For detailed safety information, please refer to the corresponding Safety Data Sheet.

## PACKAGING AND TRANSPORTATION

Lokset Resin Capsules are available in standard diameters of 20 mm, nominal 25 mm (actual 23.6 mm), 26 mm, 30 mm, 36 mm and 38 mm. Lengths range from 300 mm to 1700 mm. They are packaged in water resistance cardboard cartons labelled with colour codes and supplied on wooden pallets.

## STORAGE CONDITIONS AND SHELF LIFE

Suggested shelf life for Lokset Classic resin capsule is 4 months when stored between 20- 25°C. Extended shelf life can be expected when stored at lower temperatures of 0-5°C in cool rooms and is highly recommended. Stock rotation is strongly recommended. Storage at higher temperatures will severely reduce shelf life.

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 extended.

## VOLUME

It is essential the correct length of capsule is selected to fill the volume left in the hole after allowing for the volume of the bolt.

It is good practice to use a capsule size which exceeds this volume by around 10% to allow for variations in hole diameter and length, bolt size and strata conditions.

## QUALITY

The superior quality of the Lokset resin capsule is assured through a four-part quality control program:

1. Raw Material Testing
2. In-process quality control testing
3. Finished product acceptance testing
4. Quality system management to ISO 9001

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.

## TECHNICAL SUPPORT

We provide technical advisory service by a team of specialists in the field. The service includes on-site assistance and advice on evaluation trials and laboratory work.

## DISPOSAL

Follow local regulations.

## MANUFACTURER

**Minova Australia Inc**

An ISO 9001:2015

Quality Management Certified Company

Certificate No. FM 689118



## CUSTOMER SERVICE

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