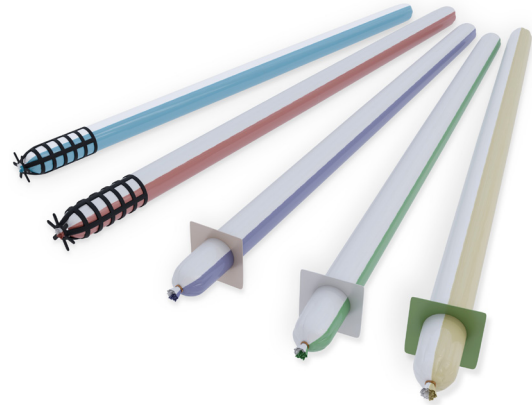


MINOVA

LOKSET® TOOSPEEDIE®

TWO SPEED RESIN, ANCHORING MEDIUM



Lokset capsule colours and retainers may differ based on specification.

DESCRIPTION

The LOKSET® TOOSPEEDIE® is a two-speed resin capsule that 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. The capsule is available in either a 30:70, 40:60, 60:40, or 50:50 ratio of fast: slow speeds.

APPLICATION AND USES

- > The Lokset Toospeedie 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

ADVANTAGES

- > High mechanical performance - adhesion, compressive and shear strength
- > Rapid & simple installation process without the use of a pump
- > Quick setting resin allows the anchorage to be loaded quickly
- > High resistance to vibrations (blasting, vibrating equipment)
- > Highly durable, reduces the risk of steel anchorage corrosion

TECHNICAL PROPERTIES

Typical insertion properties at 25°C are as follows:

SPEED RATIO	SPEED	SPIN TIME ¹	HOLD TIME ²
50:50	XFast/Medium	11	12-19
50:50	Super-Fast/Slow	11	10-60
50:50	XFast/Slow	12	12-60
50:50	Fast/Slow	14	12-60
50:50	Medium/Slow	16	19-60
40:60	XFast/Slow	12	12-60
40:60	Fast/Slow	14	15-60
40:60	Medium/Slow	16	19-60

¹ Approximate spin time in seconds

² Minimum hold time in seconds

Other ratios available on request

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 ¹BS 7861: Part 1:1996.
Tested on 40 mm cubes with slow-set resin.

¹ Strata reinforcement support system components used in coal mines: Part ¹ 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.

TOOSPEEDIE® PRODUCT CODE

TS Toospeedie	50% fast set, 50% slow set
46 Toospeedie	40% fast set, 60% slow set
Standard Code	TS120025FS
1200	Capsule length of 1200mm
25	Capsule length of 25mm

APPLICATION METHOD

It is essential that good bolting procedures are followed and the instructions on the box are observed. As a guide the following steps must be taken:

1. Drill hole to correct diameter ensuring water/air flush is used. The hole should be clean and free from dust and other loose particles. In Coal mining 27-28 mm hole diameters are normally preferred with 22 mm core diameter roof bolts or cables. Do not exceed the manufacturers recommended diameter.
2. Drill hole to correct length for bolt. The ideal hole length should be at least 100 mm shorter than the bolt, dependent on the bolt/cable being used. Do not deviate from the manufacturers recommended length of hole in relation to the bolt.
3. Select the correct resin capsule(s) that has been specified for the job
4. Check that the use by date on the box label has not expired.

5. Follow the steps below for insertion steps:

Step 1: Insert one Toospeedie capsule in the correct way:

Yellow end first: Fast

: SuperFast / Slow

: XFast / Medium

: Fast / Slow

: XFast / Slow

Red end first: Medium

: Medium / Slow

Step 2: Push the capsule until the first capsule touches the top of the hole using the bolt (or other insertion device if available).

Ensure the capsule reaches the top of the hole. Do not insert the Toospeedie capsule upside down

Should insertion problems occur, then the problem must be investigated.

6. Connect the bolt to the spinning dolly/spanner.

7. The bolt is pushed and spun at maximum rpm at a constant feed rate through the entire length of the capsule(s), when the top of the hole is reached, a further 2 - 4 seconds of spinning will suffice to ensure complete mixing.

Total spin time through the capsule and at the top of the hole should not exceed the "approximate spin time" on the box label. It is essential that the bolt is pushed and spun to the top of the hole before mixing is completed.

Note: Penetration time through the capsule to the back of the hole should be greater than 8 seconds

8. Do not overmix the resin. If mixing continues beyond the recommended spin time and into the gel time, the solidifying chemical may be ground up and destroyed.

9. The bolt is then held stationary and after the hold time has elapsed the bolt may be tensioned as required.

The hold time is the minimum time allowed after completion of the spin time before bolt tensioning can be attempted. In many cases the hold time will be greater than that listed.

10. The following items must also be checked where hand-held (air operated) equipment is utilised:

Clean and dry supply of compressed air

Air supply from roof bolter to miner should not be more than 100 metres of 2" hose

Air pressure must be between 85 - 100 psi (586 - 690 KPa) when bolter(s) are operating

Water pressure should be between 80-90 psi (550 - 620 KPa) and hoses flushed out prior to connection.

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.

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.

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.

PACKAGING AND TRANSPORTATION

Lokset Toospeedie resin capsules are available in lengths from 880 to 1,500 mm, diameters 25 mm "nominal" (actual 23.6mm, 26 mm, 30 mm, 36 mm and 38 mm. Packed in water resistant cardboard cartons labelled with colour codes and supplied on wooden pallets.

STORAGE CONDITIONS AND SHELF LIFE

Suggested shelf life for Lokset Toospeedie 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.

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



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