

MINING / CONSTRUCTION

LOKSET® RESIN CARTRIDGES ECLIPSE®

REINFORCED POLYESTER RESIN ANCHOR

DESCRIPTION

The patented Lokset® Eclipse® B Series methodology employs an offset head rebar bolt and specially formulated Minova resin to improve resin mixing and minimize glove fingering. The concept is simple; by offsetting the head, the bolt acts as a mixing cam in the borehole, quickly combining the resin components and incorporating the plastic film within the cured resin. The Lokset® Resin Cartridge Eclipse® is specifically designed to be used in conjunction with a #5 (5/8 inch) rebar roof bolt in a 1-inch borehole.

One of the most critical variables affecting resin bolt performance is the size of the resin annulus, calculated as the difference between the hole and bolt diameters. The optimum annulus (proven to be 1/4 inch), provides for effective mixing of the two polyester resin components and incorporation of the plastic film within the cured resin. Glove fingering occurs when the plastic film is forced against the borehole wall, potentially interfering with the mechanical interlock of the resin and the rock mass.

Glove fingering is not a problem with the optimum 1/4-inch annulus but has been known to occur with the B Series 3/8-inch annulus. The newly formulated Lokset® Resin Cartridge Eclipse®, when combined with a 1/8-inch offset between the bolt head and shaft axes, reduces glove fingering by 70%. The Lokset® Resin Cartridge Eclipse® is 23mm or 0.9 inches in diameter. This combination has been proven to be an economical and effective roof control solution and is available in lengths ranging from one to five grouted feet. The cartridge is also available in a variety of speeds.



USES

Millions of Lokset® Resin Cartridges are used every year for permanent rock reinforcement in mines, tunnels and foundations.

ADVANTAGES

- Proven – After introducing resin anchors to the United States (1971), Lokset® Resin Cartridges have a proven track record of success
- Speed – The fast-gelling Lokset® Eclipse® Resin Cartridges enable rapid installation to be carried out, with application of load in minutes
- Viscosity – The Lokset® Eclipse® Resin Cartridge is available in High, Medium, Low and Very Low Insertion Force (VLIF) viscosities. The VLIF formulation is unique in the industry and provides optimum performance with cable and mechanical assisted resin point anchor rock bolts

APPLICATION METHOD

Contact your local Minova representative if the Eclipse® cartridge is to be used in other applications.

1. Before use, read the installation and safety information provided to include the product Safety Data Sheet (SDS).
2. To obtain a consistent set time, make sure the Lokset® Eclipse® Resin Cartridge and bolt are at mine temperature before use.
3. Drill the borehole to the correct diameter at a depth equal to the length of the bolt, plus 1-inch. Mark the drill steel to use as a guide.
4. Insert the appropriate Minova resin cartridge slowly rotating the bolt as you push through resin column.
5. Push the bolt into the hole. Slow rotation of the bolt as it passes through the cartridge is suggested but not required. Ensure each cartridge is completely punctured. For tension rebar applications, rotation is not suggested during bolt insertion.
6. Just below the roof, stop and spin the bolt a minimum of 35 revolutions to mix the cartridge. This should take 3 to 8 seconds.
7. Stop rotation and push the bolt upward with full thrust until the resin sets.

SAFETY INSTRUCTIONS AND LIMITATIONS

Do not over-spin the bolt. If bolt rotation continues through the gel time, damage to the anchor may occur.

Never re-rotate the bolt. Bolt rotation after the final spin may damage the partially set resin.

Observe the usual precautionary measures for handling chemicals, see Lokset® & Eclipse® Resin Cartridge SDS.

PACKAGING AND TRANSPORTATION

Product packaging is dependent upon cartridge length. Please contact a Minova Customer Service Representative for packaging information.

STORAGE AND SHELF LIFE

Lokset® Eclipse® Resin Cartridges can be stored for 12 months in a cool dry, ventilated place. Store away from direct sunlight or other heat sources which can reduce products usability and shelf life.

DISPOSAL

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of material in accordance with all applicable federal, state/provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

APPROVALS AND CERTIFICATES



an ISO 9001:2015
Quality Management System Certified

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ADDITIONAL DOCUMENTATION

Started more than 135 years ago, Minova is a global manufacturer and supplier of chemical and mechanical earth control products and support equipment. With manufacturing plants on five continents and operations in more than 25 countries, Minova is an industry-leading provider of ground support solutions for the underground mining, construction and energy industries.

If further information is required consult Minova Americas website: www.minovaglobal.com.

- Lokset® & Eclipse® Resin Cartridge SDS
- The Minova Guide to Resin-Grouted Rockbolts
- Lokset® Resin Cartridge Anchors for Rock and Concrete Reinforcement Brochure
- Lokset® Resin Cartridges Brochure
- Minova Lokset® Product Specification

MANUFACTURER

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Resin Usage Chart

Hole Diameters	25mm (1")	32mm (1-1/4")	35mm (1-3/8")	38mm (1-1/2")	41mm (1-5/8")	38mm (1-1/2")	41mm (1-5/8")	45mm (1-3/4")	48mm (1-7/8")	51mm (2")	57mm (2-1/4")	51mm (2")	57mm (2-1/4")	
Cartridge Diameters	23mm (7/8")	28mm (1-1/8")	32mm (1-1/4")		35mm (1-3/8")		40mm (1-9/16")		45mm (1-3/4")					
Bolt Size	Hole Length per Foot (12") of Resin // (Grouted Length of Bolt)													
#5 (5/8" Ø) B-Series	13.7	Not recommended												
#6 (3/4" Ø) A-Series	19.1	12.4	Not recommended											
#7 (7/8" Ø) E-Series		15.6	14.4	Not recommended										
#8 (1" Ø)			18.2	13.0		15.5	11.8	Not recommended						
#9 (1 1/8" Ø)	Not recommended			16.5	11.8	19.7	14.1	14.1	11.2	Not recommended				
#10 (1 1/4" Ø)	Not recommended				15.0		18.0	16.9	13.0	10.4		13.1		
#11 (1 3/8" Ø)	Not recommended								23.0	16.0	12.0		15.2	
#14 (1 5/8" Ø)	Not recommended											12.7		16.1

Chart indicates inches of bolt encapsulation based on a 12" length Lokset® Resin Cartridge for anchoring and grouting rock bolts. This chart is prepared as a guide based on average drilling conditions in concrete or rock. Field trials should be conducted to determine actual resin requirements. (Inches grouted data includes a calculated 15% loss, which is typical.) *Example: When a 1 1/2" hole is drilled using a 1" diameter deformed (rebar type) bolt, one 3512 (1 3/8: Ø x 12" long) cartridge will grout 15.5 linear inches of bolt. Conduct field trials to ensure correct resin requirements for both anchor and grout "zones" for individual bolt lengths and diameters.

-Note: Blank spaces are non-recommended bolt and hole combinations