

**MINING / CONSTRUCTION**

**INJECTION BOLT**

**TYPE AP-KI-Ø42**

*Certificate issued by Central Mining Institute in Katowice  
Safety mark No. B/1588/IV2015*

**DESCRIPTION**

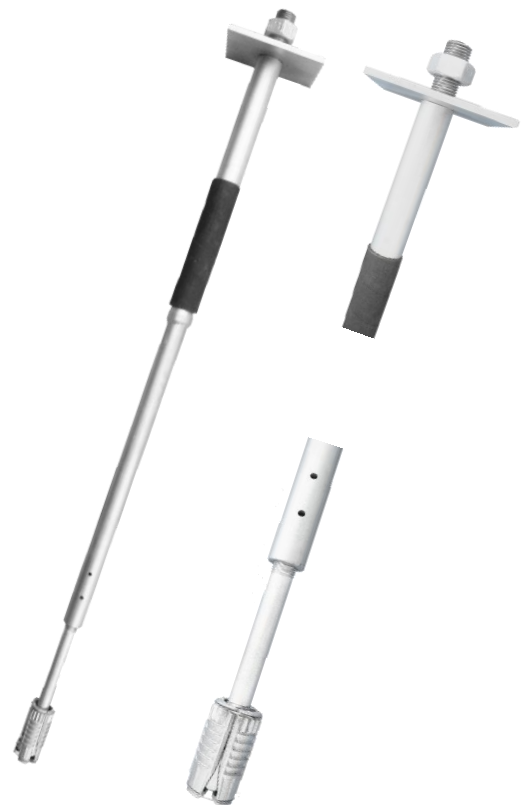
The bolt rod is made of a 18G2A or R55  $\varnothing 30 \times 6.3$  mm steel tube and plain AP 600 or 34GS steel bar of  $\varnothing 18.3$  mm. The top part of the  $\varnothing 30 \times 6.3$  mm tube has an internal M20 thread for coupling with the M20 threaded bar and 4  $\varnothing 6$  mm holes for the adhesive injection grout. The bottom part of the tube has a M30x2 thread, whilst in the mid-section there is a stopping collar to work with the seal. The seal is a rubber tube of  $\varnothing 42/\varnothing 31.5$  mm and 200 mm in length that expands after applying the tube and M30x2 nut. KE-4W/M20 shell with a diameter of  $\varnothing 42$  mm is the element which fixes the bolt in the hole during the injection. The shell consists of 4 serrated leaves and one plug. A flat square washer of  $8 \times 150 \times 150/\varnothing 31$  is used with the bolt.

**APPLICATION AND USE**

Type AP-KI- $\varnothing 42$  injection bolts are designed to support mine working areas as an independent or auxiliary roof support system. This injection bolt is used to reduce static load on the support system in a mining excavation and it can be used in poor mining and geological conditions, such as faulted zones and areas of increased pressure (tail and main gate).

Injection bolts AP-KI- $\varnothing 42$  are used:

- To stabilize floor heaves
- To reinforce rock near sealed, fire and emergency stoppings
- As forepoling
- To reinforce brick and concrete lining at shaft bottom, pump chambers, engine house, etc. in case of stability loss
- To reinforce the existing support of mine working area cross-cuts in case of their deformation
- To form a mantle to prevent water leakage from shaft and small shaft lining



**ADVANTAGES**

- Effective ceiling, floor and heading stabilisation in difficult geological and mining conditions
- Reduction of static load on supporting enclosures in mining excavations
- Simple and fast installation
- Presence of resin ensures that no internal corrosion takes place

**TECHNICAL DATA**

**BOLT SPECIFICATIONS**

Parameter	Value
Tube diameter	ø 30 x 6.3 mm
Bar diameter	ø 18.3 mm
Rod thread size	M20 internal
	M30 x 2 external
Bar thread size	M20
Bolt length	from 1300 to 5000 mm (or other as required)
KE-4W/M20 shell diameter	ø 42 mm
Head length	93 mm
Bolt capacity	Min. 120 kN
Nominal injection pressure	10 MPa

**APPLICATION METHOD**

- Drill a hole ø 44 ± 0.5mm in diameter and length equal to the length of the bolt.
- Place the expansion shell on one end of the rod and M30x2 nuts on the other.
- After inserting the bolt in the hole twist the rod for the shell to expand. Apply at least 250 Nm torque.
- After expanding, the shell of the rod should protrude from the hole for 85-95mm surface.
- After the shell has expanded, M30 x 2 nuts should be undone from the rod.
- Next, place the following elements on the rod in the right order: seal, tube, square washer, and then fix the M30x2 nut.
- Use a torque wrench to apply the initial tension of at least 30kN to cause the rubber seal to expand in the hole.
- Then connect the bolt's projecting threaded end with the injection pump and force the adhesive to the rock.

During injection thanks to the expansion shell the rod will reduce the load on the roof caused by injection pressure. After the process of adhesive polymerization is over, the injection anchor starts to play the role of a classic adhesive anchor.

Any adhesives with the required certificates and approvals can be used for injection.

Adhesives used for rock consolidation should have the following properties:

- Compression strength > 25Mpa
- Setting time 15' - 25'
- Be effective for dry and damp rock

**PACKAGING AND TRANSPORTATION**

As a standard practice, anchor poles are packed in bundles of 10-100pcs

Other packaging options available on request.

Expansion shells, plates and other accessories are placed in containers. Elements of the bolts can be transported by any means of transport in bundles or in containers.

**APPROVALS AND CERTIFICATES**

- AP-KI-ø42 injection bolts have a Certificate allowing the product to be marked with the safety mark No. B/1588/IV2015 issued by Central Mining Institute in Katowice.

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