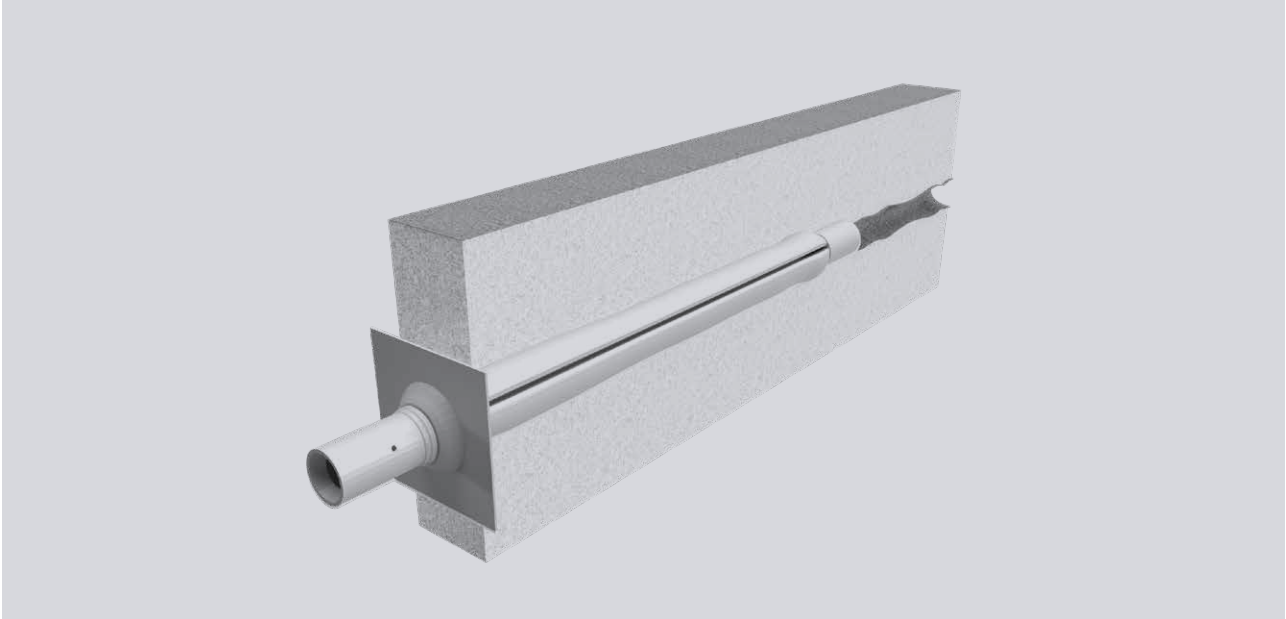


DYWIDAG Expandable Rock Bolt



KEY FEATURES

- Immediate ground support for anchorage - through direct load transfer from ground strata to water expandable bolt.
- Does not depend upon grout strength, provides immediate full length strength which helps in faster and safer excavation.
- Use of DYWIDAG Expandable Rock Bolts results in faster advance rate during excavation.
- High capacity to adjust to deformities in case of ground movement.

MAIN BENEFITS

- Easy and quick installation.
- Save the construction cost and time with optimization of drillhole
- Angle compensation at anchor head by using a domed plate.
- Safe and reliable system with more ductile steel tube.
- Favourable for upward installation as no grouting is required.
- High shear performance.

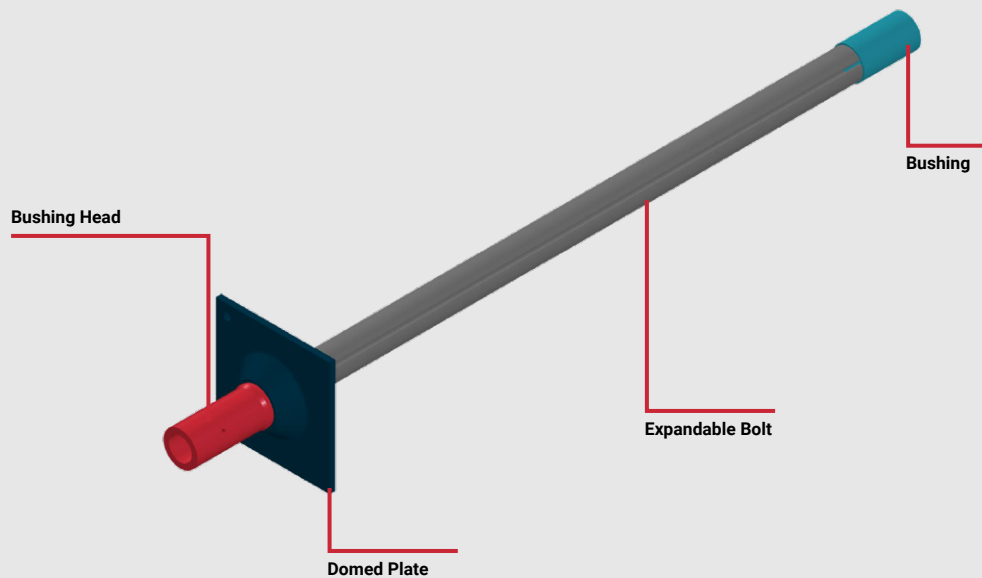
DYWIDAG Expandable Rock Bolt is a non-grout fastening system for stabilization of challenging condition of rock and soil mass during the excavation of tunnels, mines and caverns.

The DYWIDAG Expandable Rock Bolting system consists of specific rock bolts made from special steel tubes that have been folded to create a special profile with a domed plate and high pressure, installation pumps.

These rock bolts are placed in drilled holes and expanded using water from the installation water pump. The high pressure of water causes the bolts to expand, filling the drill hole taking an uneven profile to create friction between strata and bolt. This consolidates any remaining cuttings after drilling and takes shape of the irregularities of the hole.

A combination of friction and mechanical interlocking is achieved throughout the entire bolt length.

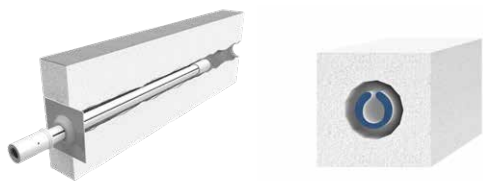
Expandable Bolt components



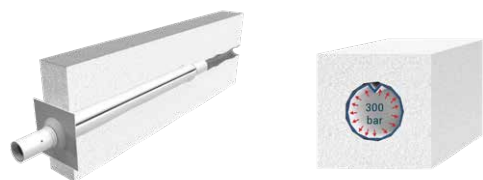
Nr.	Characteristic Value / Type ¹⁾	Unit	ERB-120	ERB-160	ERB-200	ERB-240
1	Yield load ²⁾	[kN]	100	130	180	200
2	Characteristic ultimate load ²⁾	[kN]	130	170	200	250
3	Nominal ultimate load ²⁾	[kN]	120	160	200	240
4	Characteristic ultimate strain ²⁾	[%]	15	15	15	15
5	Nominal ultimate strain ²⁾	[%]	10	10	10	10
6	External diameter omega-profile	[mm]	27,5	36	36	36
7	External diameter original tube	[mm]	41	54	54	54
8	Wall thickness	[mm]	2	2	2,5	3
9	Diameter bushing head	[mm]	30 / 36	41 / 48	41 / 48	41 / 48
10	Diameter upper bushing	[mm]	28	38	38	38
11	Required borehole diameter	[mm]	32 - 39	43 - 52	43 - 52	43 - 52
12	Optimum borehole diameter	[mm]	36 - 38	45 - 51	45 - 51	45 - 51
13	Inflation pressure	[bar]	300	250	300	300

¹⁾ Status: 2021-05;

²⁾ Off-size lengths are available on request



Before Inflation



After Inflation

Working Principles

► Borehole drilling

- Drilling of a borehole as per DYWIDAG's recommendation.
- Recommended borehole diameter should be strictly adhered to, otherwise the rock bolt will not be able to transfer the load as desired due to loss of friction.

► Bolt installation

- Insertion of the assembled DYWIDAG Expandable Rock Bolt into the pre-drilled borehole.
- Activation of the expansion by connecting injection arm of the water pump until the desired pressure is reached for immediate point anchorage.

For the installation of DYWIDAG Expandable Rock Bolt a high-pressure pump is necessary. The pump is working semi-automatically: as soon as the pump is switched on, water will activate the valve lever. After reaching the maximum setting pressure, the pump will switch off automatically.

Pump



Contact your local office for technical specifications

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