

Versabolt™





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Putting your safety first

The mining industry continues to demand even higher levels of safety and productivity. In order to meet these requirements, we work continuously to develop safer products, and to produce comprehensive manuals on the safe and effective use of our products.

It's all about everyone's health

Helping you to ensure a safer workplace and healthier workforce is of the utmost importance to us. The wellbeing of any person coming into contact with our equipment is paramount. Therefore, we strive to identify and assess potential risk factors that could threaten the health of you and your employees. All products in this catalogue are designed to meet safety requirements.

Be aware of all safety procedures

We ask that you start by obeying all instructions given. Never work under an unsupported ground or close to potential pinch point locations. Beware of the potential hazards of unsupported ground. Beware of possible rock burst. The use of temporary roof support is recommended. Scale down working heading prior to bolting. It is important to bolt early in the mining process – as soon as it is safely and practically possible. Safe work procedures should incorporate inspection – before the machine operates, and also through regular monitoring based upon mining conditions, safety and hazard management systems. Workers should be provided with safety information, instruction and training on transportation, installation, operational care and disposal of drilling tools.

Dress right from head to toe

You must wear appropriate personal protective equipment (PPE) at all times. This is what we strongly recommend to help avoid injury:

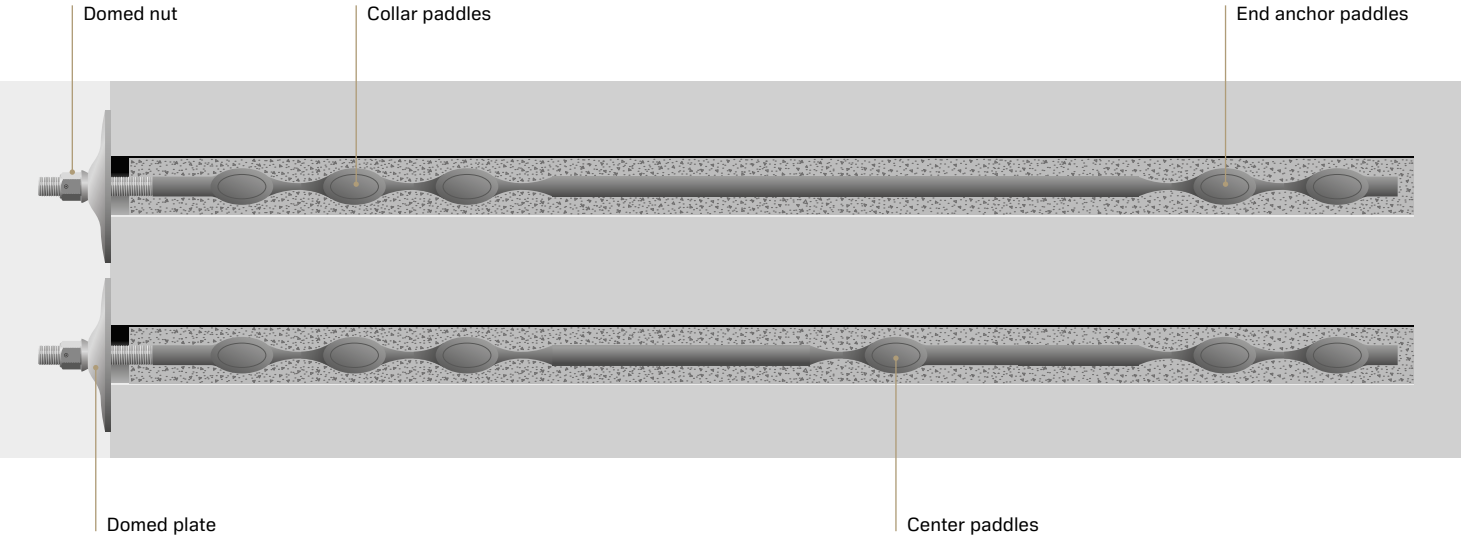
- Safety helmet
- Hearing protection
- Safety glasses
- Protective, high visibility clothing
- Respiratory protection
- Safety boots
- Any site-specific PPE as required

Make a risk analysis before you start

Pay attention to safety when planning all of your work. Before you start, always take the time to go through all operations. Identify any potential risks and take appropriate measures to avoid them. If necessary, seek expert advice on how to help minimize risks. Finally, make sure that you have the right resources to perform all tasks in the safest manner possible.



Versabolt™



The Versabolt™ is designed for ground support conditions that are subject to static or dynamic stresses where conventional bolting techniques are too rigid. It is a high energy absorbing dynamic bolt, with a two or three anchor bolt design and a longer centre smooth bar section, which will allow much more displacement in squeezing ground conditions, and when subjected to a seismic event, the longer smooth bar section in the centre will also reduce the dynamic stiffness of the bolt.

Features

- Designed for ground support conditions that are subject to static or dynamic stresses
- Available in two different bolt diameters, 20 mm and 22 mm
- Made from a smooth steel bar with two or three sets of anchors positioned along its length. The end anchor has 4 deformations, and the collar anchor has 6 deformations
- The number and location of the anchors can be configured depending on the specific needs of the client
- Specialized steel has high tensile strength and elongation properties
- Resin or cementitious grouts can be used
- End anchors are fixed and do not move within the grout column. In the event of a rockburst or rock dilation due to squeezing ground, the smooth bar sections between the anchors will elongate

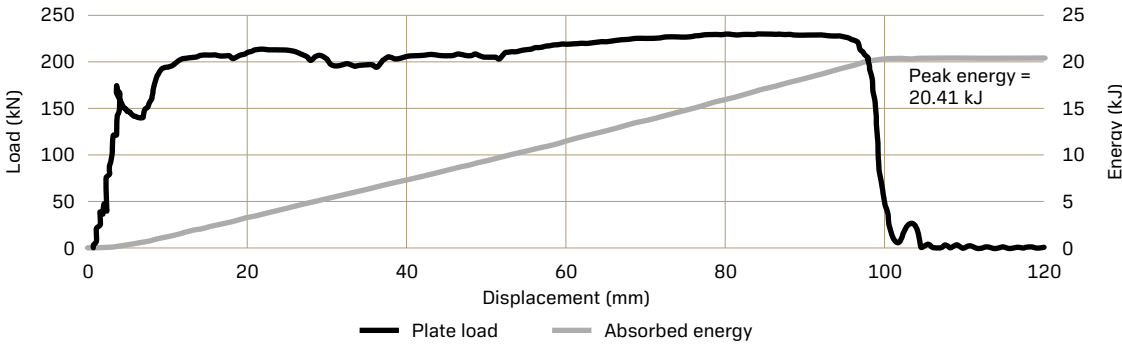
Component properties		
Property	20 mm Versabolt™	22 mm Versabolt™
Bar diameter	0.798 in (20.3 mm)	0.860 in (21.8 mm)
Mass per meter	2.62 kg/m	3.03 kg/m
Threads	7/8 UNC x 5.5 in (140 mm)	M24 x 5.5 in (140 mm)
Length	From 72" to 138" (1.8 m to 3.5 m)	

Bolt technical specifications 20 mm Versabolt™		
Property smooth bar steel	Minimum	Typical
Yield strength	151 kN	165 kN
Ultimate tesile strength	201 kN	237 kN
Elongation	17 %	24 %
Property threaded steel section		
Yield strength	133 kN	160 kN
Ultimate tesile strength	185 kN	213 kN

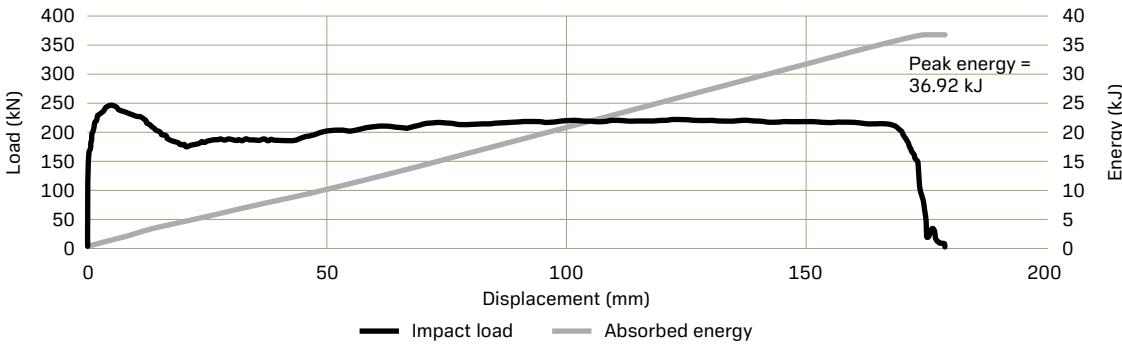
Bolt technical specifications 22 mm Versabolt™		
Property smooth bar steel	Minimum	Typical
Yield strength	174 kN	193 kN
Ultimate tesile strength	233 kN	259 kN
Elongation	17 %	24 %
Property threaded steel section		
Yield strength	154 kN	193 kN
Ultimate tesile strength	214 kN	259 kN

Test results

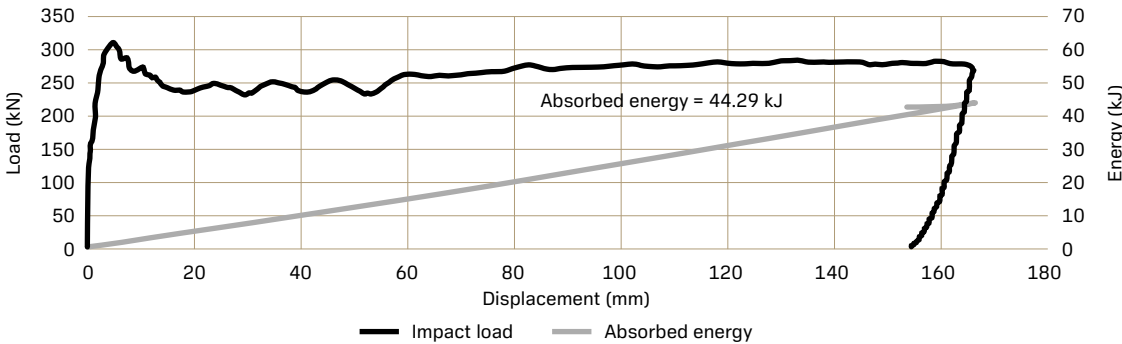
20 mm Versabolt™ 20 kJ, Dynamic Drop Test
Specimen Versabolt™-33 grade 65 drop 1: mass = 1560.85 kg, height = 1.5 m, energy = 22.97 kJ, velocity = 5.42 m/s



20 mm Versabolt™ 40 kJ, Dynamic Drop Test
Specimen Versabolt™-32 grade 65 drop 1: mass = 2674.6 kg, height = 1.5 m, energy = 39.36 kJ, velocity = 5.42 m/s



22 mm Versabolt™ 42 kJ, Split Tube Drop Test, 1.5 m anchor spacing
Specimen Versa-2 drop 1: mass = 2897 kg, height = 1.5 m, energy = 42 kJ, velocity = 5.42 m/s



22 mm Versabolt™ 50 kJ, Split Tube Drop Test, 1.6 m anchor spacing
Specimen Versa-3 drop 1: mass = 2897 kg, height = 1.76 m, energy = 50 kJ, velocity = 5.88 m/s

