

FRICTION ANCHOR BOLT

Product catalogue



 **JIUFU**[®]

河北玖富工矿配件有限公司
HEBEI JIUFU INDUSTRIAL AND MINING PARTS CO., LTD

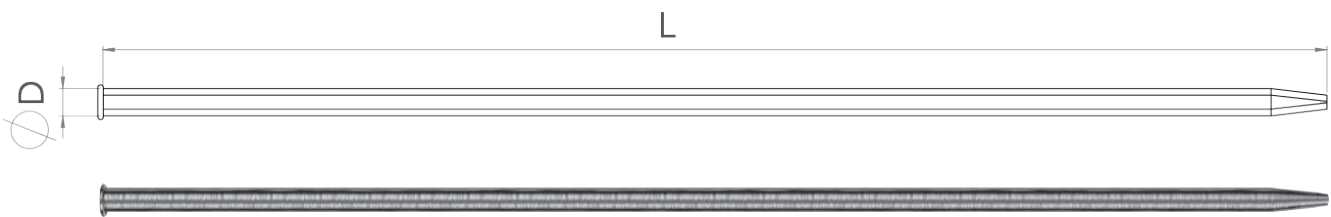
JIU FU Friction Anchor Bolt

• Description

Split Set Bolt, also called Split Set Stabilizer or Friction Bolt, is an indispensable advanced material for underground mining support. Split set bolt is a very specific support product, and it is an advanced material used for the support of the roof of the underground copper or gold mining and other projects.

Friction bolts have been used internationally in mining for decades and are considered the simplest form of ground support available in metal mining. Compression of the high tensile steel "C" shape into a hole diameter smaller than the tube generates a load transfer from the steel to the rock. A steel ring is fixed to the collar end of the tube that will retain a plate on the installed tube to establish compressive force against rock.

Available in either black or hot dip galvanized. Variety of diameters (34 mm, 40 mm and 47 mm) and various lengths from 600 mm to 3,000 mm. Used in the development and production headings for immediate support with quick and easy installation.



• Features

- Increased contact surface providing higher pull out loads.
- Immediate frictional support at the face.
- Install with hand-held or mechanized equipment.
- Quick and easy installation.
- It has high shear and tensile strength.
- Various diameters and lengths.
- Equipped with a high-strength plate.

• Advantages of Split set bolt

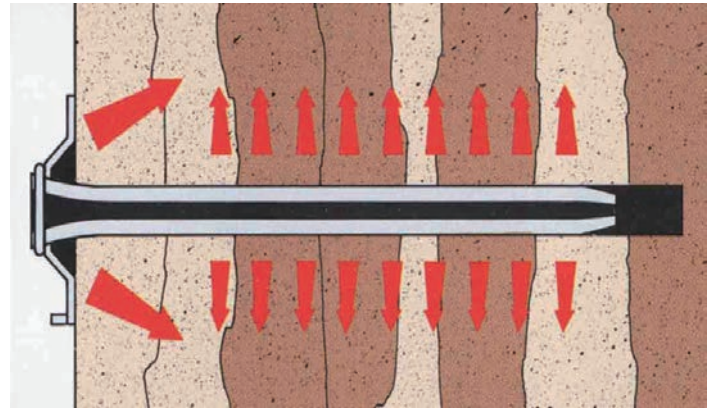
- Split set bolt has simple operation and convenient use. It has anchorage in the underground anchor and shotcrete support.
- It has strong strength, high tensile strength and strong expansion force, which makes the whole roof become one body.



• Working Principle

Split set bolt is a new type of anchor rod for full-length anchoring, which main part is a high-strength steel pipe with longitudinal slits.

When installed in a borehole slightly smaller than the pipe diameter, The radial pressure is applied to the hole wall and the friction to prevent the sliding of the surrounding rock within the full length, plus the supporting force of the Mining Plate, So that the surrounding rock is subjected to forces in three directions to ensure the stability and safety of the surrounding rock.



Tubes and plates are available standard or galvanized, when the surrounding rock is significantly displaced, the anchor rod does not lose its supporting resistance, and it has better characteristics than the expansion shell Rock Bolt.



1. WHAT IS COMBI PLATE AND HOW DOES IT MAKE ?

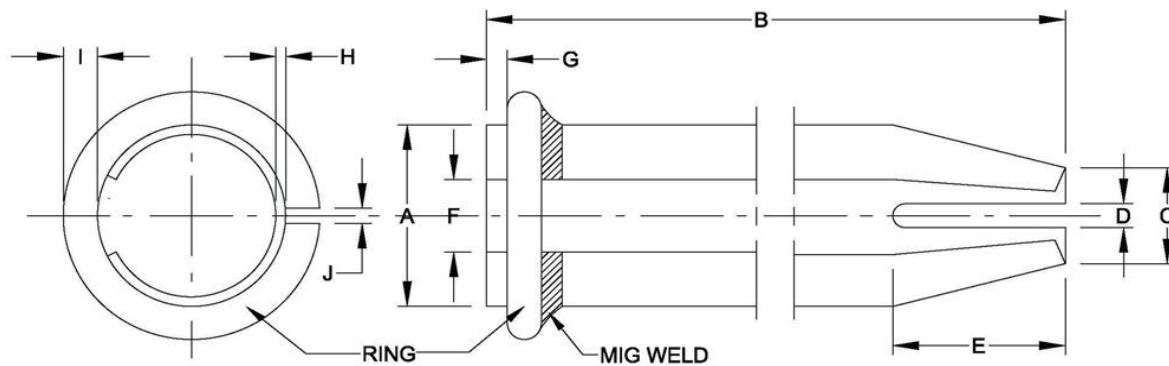
The tubular C shape of the bolt generates a load transfer from the steel to the rock when installed into a slightly smaller diameter hole, and results in a frictional resistance pull-out load of the tube from the hole, and creating a full length radial pressure to the hole by increasing the contact surface of the steel to the rock due to its tubular shape, and when install onto the plate, it establishes a compressive force against the rock. When additional load bearing capacity is required, friction bolt can be grouted by cement grouts.

2. HOW TO USE AND ASSEMBLE ?

A pull collar fixing at the ring end enables load testing during the bolt installation. The tapered end of friction bolt can be easily inserted into the drilled holes. Friction bolt can be installed with either hand held or mechanized equipment, such as a jackdrill, a stopper, a roof bolting jumbo, or any other type of drill.



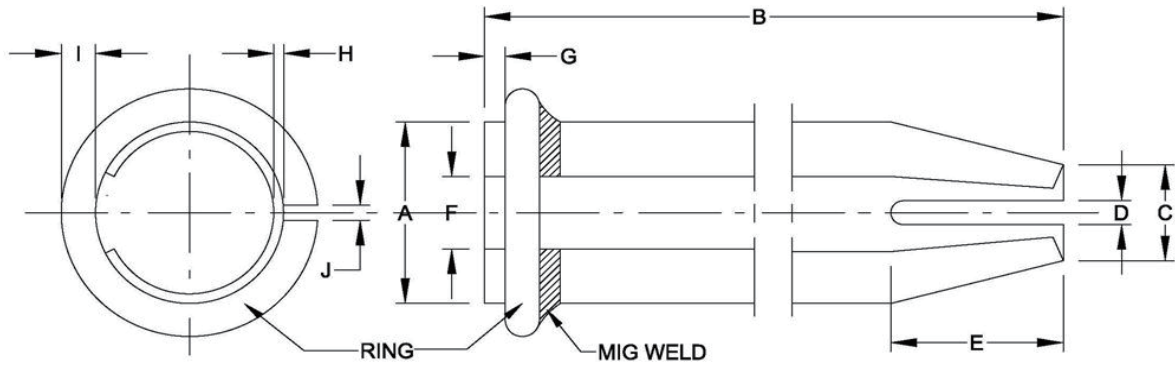
• Product Parameters- 33



Dimensions			Physical Properties		Technical Data	
Bolt Diameter	A	33mm	Yield Strength	Min. 345 Mpa (70KN)	Recommended Normal Bit Size	31-33mm
Bolt Length	B	0.6-1.8m		Typical 445Mpa(95KN)		
Taper End Diameter	C	28mm	Tube Ultimate Tensile Strength	Min. 470 Mpa (100KN)	Typical Breaking Capacity	107KN
Taper Slot Wide	D	2mm		Typical 530Mpa(115KN)		
Taper Length	E	65mm	Mass per Meter	1.67 Kgs	Min. Breaking Capacity	71KN
Bolt Slot Wide	F	12mm				
Ring Location	G	3mm	Cross Section Area	212 mm ²	Recommended Initial Anchorage	3-6 Tons (27-53 KN)
Material Gauge	H	2/2.5mm				
Ring Wire Gauge	I	6mm	Hole Diameter Range	30-32mm	Ultimate Axial Strain	Typical 21% (Thk<16mm)
Ring Open Gap	J	5-6mm				

Bolt Description	Diameter	Length	Surface Finish	Weight
Split Set Bolt 33-600	33mm	600mm	Untreated	1.00Kgs
Split Set Bolt 33-900	33mm	900mm	Untreated	1.50Kgs
Split Set Bolt 33-1200	33mm	1200mm	Untreated	2.00Kgs
Split Set Bolt 33-1500	33mm	1500mm	Untreated	2.50Kgs
Split Set Bolt 33-1800	33mm	1800mm	Untreated	3.00Kgs
Split Set Bolt 33-600 HDG	33mm	600mm	Hot Dip Galvanized	1.05Kgs
Split Set Bolt 33-900 HDG	33mm	900mm	Hot Dip Galvanized	1.58Kgs
Split Set Bolt 33-1200 HDG	33mm	1200mm	Hot Dip Galvanized	2.10Kgs
Split Set Bolt 33-1500 HDG	33mm	1500mm	Hot Dip Galvanized	2.63Kgs
Split Set Bolt 33-1800 HDG	33mm	1800mm	Hot Dip Galvanized	3.15Kgs

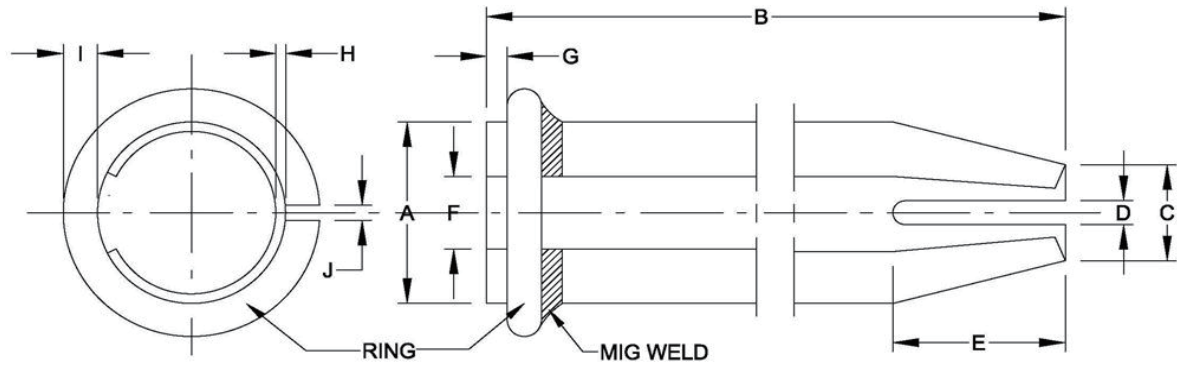
• Product Parameters- 39



Dimensions			Physical Properties		Technical Data	
Bolt Diameter	A	39mm	Yield Strength	Min. 345 Mpa (85KN)	Recommended Normal Bit Size	35-38mm
Bolt Length	B	0.6-2.4m		Typical 445Mpa(110KN)		
Taper End Diameter	C	30mm	Tube Ultimate Tensile Strength	Min. 470 Mpa (115KN)	Typical Breaking Capacity	124KN
Taper Slot Wide	D	2mm		Typical 530Mpa(130KN)		
Taper Length	E	65mm	Mass per Meter	1.92 Kgs	Min. Breaking Capacity	89KN
Bolt Slot Wide	F	17mm				
Ring Location	G	3mm	Cross Section Area	245 mm ²	Recommended Initial Anchorage	3-6 Tons (27-53 KN)
Material Gauge	H	2/2.5mm				
Ring Wire Gauge	I	6mm	Hole Diameter Range	35-38mm	Ultimate Axial Strain	Typical 21% (Thk<16mm)
Ring Open Gap	J	5-6mm				

Bolt Description	Diameter	Length	Surface Finish	Weight
Split Set Bolt 39-600	39mm	600mm	Untreated	1.20Kgs
Split Set Bolt 39-900	39mm	900mm	Untreated	1.70Kgs
Split Set Bolt 39-1200	39mm	1200mm	Untreated	2.40Kgs
Split Set Bolt 39-1800	39mm	1800mm	Untreated	3.23Kgs
Split Set Bolt 39-2400	39mm	2400mm	Untreated	4.30Kgs
Split Set Bolt 39-600 HDG	39mm	600mm	Hot Dip Galvanized	1.26Kgs
Split Set Bolt 39-900 HDG	39mm	900mm	Hot Dip Galvanized	1.80Kgs
Split Set Bolt 39-1200 HDG	39mm	1200mm	Hot Dip Galvanized	2.50Kgs
Split Set Bolt 39-1800 HDG	39mm	1800mm	Hot Dip Galvanized	3.38Kgs
Split Set Bolt 39-2400 HDG	39mm	2400mm	Hot Dip Galvanized	4.50Kgs

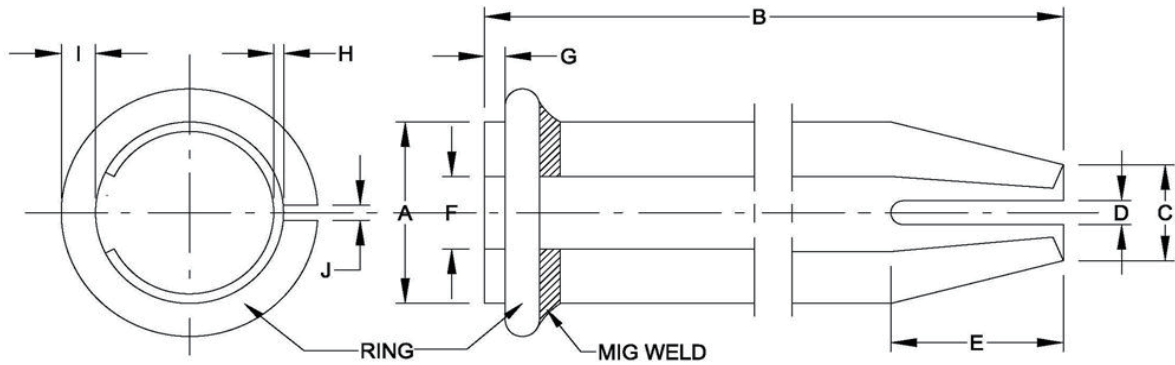
• Product Parameters- 42



Dimensions			Physical Properties		Technical Data	
Bolt Diameter	A	42mm	Yield Strength	Min. 345 Mpa (85KN)	Recommended Normal Bit Size	38-41mm
Bolt Length	B	0.9-3.0m		Typical 445Mpa(110KN)		
Taper End Diameter	C	35mm	Tube Ultimate Tensile Strength	Min. 470 Mpa (115KN)	Typical Breaking Capacity	124KN
Taper Slot Wide	D	2mm		Typical 530Mpa(130KN)		
Taper Length	E	65mm	Mass per Meter	1.92 Kgs	Min. Breaking Capacity	89KN
Bolt Slot Wide	F	20mm				
Ring Location	G	3mm	Cross Section Area	245 mm ²	Recommended Initial Anchorage	3-6 Tons (27-53 KN)
Material Guage	H	2/2.5mm				
Ring Wire Guage	I	6mm	Hole Diameter Range	38-41mm	Ultimate Axial Strain	Typical 21% (Thk<16mm)
Ring Open Gap	J	6-7mm				

Bolt Description	Diameter	Length	Surface Finish	Weight
Split Set Bolt 42-900	42mm	900mm	Untreated	1.70Kgs
Split Set Bolt 42-1800	42mm	1800mm	Untreated	3.23Kgs
Split Set Bolt 42-2100	42mm	2100mm	Untreated	3.76Kgs
Split Set Bolt 42-2400	42mm	2400mm	Untreated	4.30Kgs
Split Set Bolt 42-3000	42mm	3000mm	Untreated	5.37Kgs
Split Set Bolt 42-900 HDG	42mm	900mm	Hot Dip Galvanized	1.80Kgs
Split Set Bolt 42-1800 HDG	42mm	1800mm	Hot Dip Galvanized	3.38Kgs
Split Set Bolt 42-2100 HDG	42mm	2100mm	Hot Dip Galvanized	3.94Kgs
Split Set Bolt 42-2400 HDG	42mm	2400mm	Hot Dip Galvanized	4.50Kgs
Split Set Bolt 42-3000 HDG	42mm	3000mm	Hot Dip Galvanized	5.63Kgs

• Product Parameters- 47



Dimensions			Physical Properties		Technical Data	
Bolt Diameter	A	47mm	Yield Strength	Min. 345 Mpa (120KN)	Recommended Normal Bit Size	41-45mm
Bolt Length	B	0.9-3.0m		Typical 445Mpa(150KN)		
Taper End Diameter	C	38mm	Tube Ultimate Tensile Strength	Min. 470 Mpa (160KN)	Typical Breaking Capacity	178KN
Taper Slot Wide	D	2mm		Typical 530Mpa(180KN)		
Taper Length	E	100mm	Mass per Meter	2.71 Kgs	Min. Breaking Capacity	133KN
Bolt Slot Wide	F	25mm				
Ring Location	G	8mm	Cross Section Area	345 mm ²	Recommended Initial Anchorage	6-10 Tons (53-89 KN)
Material Gauge	H	3/3.2mm				
Ring Wire Gauge	I	8mm	Hole Diameter Range	43-45.5mm	Ultimate Axial Strain	Typical 21% (Thk<16mm)
Ring Open Gap	J	6-7mm				

Bolt Description	Diameter	Length	Surface Finish	Weight
Split Set Bolt 47-900	47mm	900mm	Untreated	2.50Kgs
Split Set Bolt 47-1800	47mm	1800mm	Untreated	5.10Kgs
Split Set Bolt 47-2100	47mm	2100mm	Untreated	6.10Kgs
Split Set Bolt 47-2400	47mm	2400mm	Untreated	6.70Kgs
Split Set Bolt 47-3000	47mm	3000mm	Untreated	8.60Kgs
Split Set Bolt 47-900 HDG	47mm	900mm	Hot Dip Galvanized	2.60Kgs
Split Set Bolt 47-1800 HDG	47mm	1800mm	Hot Dip Galvanized	5.50Kgs
Split Set Bolt 47-2100 HDG	47mm	2100mm	Hot Dip Galvanized	6.40Kgs
Split Set Bolt 47-2400 HDG	47mm	2400mm	Hot Dip Galvanized	7.05Kgs
Split Set Bolt 47-3000 HDG	47mm	3000mm	Hot Dip Galvanized	9.00Kgs