



ANTO Mining Equipment Co.,LTD.

ANTO Group is located at the foot of Mount Tai, in the vast Qilu Plain, facing the sea in the east and Yellow River in the west. In the North China Heavy Industry Development Zone, there are many ports and expressways here, Sea and land transportation is very convenient.

ANTO Group has ANTO Mining Equipment Co., Ltd. and ANSHUN Mining Equipment Co., Ltd. ANTO is a modern comprehensive company integrating the production, sales and logistics of split sets bolt, expandable friction bolt, welded mesh, rebar rock bolt, cable bolt, mining plate, W steel band, damping nuts and other mining products. In recent years, ANTO has been grasping the opportunity closely, with the firm belief of being based in China and going to the word, constantly innovating and developing.

PRODUCTION CREATES QUALITY

ANTO has four automatic production lines for split sets bolt, with a monthly output of 400,000 sets. The automatic production line is formed by a combination of electric, hydraulic, gas welding and automatic control systems. The raw material of the production line is automatically feeding, cut to length, automatically welded, and automatically necked down, which not only improves the production efficiency, but also ensure the straightness, length accuracy, welding stability, and also prevent welding over-burning and missing welding problems. The pull-out force of ring is bigger than the breaking force of the raw material, which guarantees very high quality. ANTO's split sets bolt production line can produce bolt with diameter 33mm-47mm, length 0.6-3m, and yield strength 235-355Mpa.

ANTO has two automatic welded mesh production lines, with a monthly output of 24,000 pieces. The production line uses well-known brand cylinders as the welding power,



high-power servo motor and precision reducer as the net-drawing and feeding power, and high-precision linear guides ensure the smoothness and accuracy of operation. The PLC intelligent control system centrally controls all the actions of the machine, such as wire feeding, automatic wire dropping, and automatic welding. This equipment has strong welding power and a large range of welding points, thus ensuring the firmness of the welded mesh and eliminating the shortcomings of common welded mesh that are easy to crack. ANTO welded mesh production line can produce mesh with wire diameter 3-8mm, aperture 50-200mm, width 0.6-3 meters, and length 1-12 meters.

ANTO has two automatic production lines for threaded bar bolts, with a monthly output of 150,000 sets. The production line is formed by the combination of electric, hydraulic, pneumatic and automatic control systems. From automatic material feeding, automatic sorting of aggregates, fixed-length cutting, bevel cutting, necking down, hydraulic thread rolling, anti-counterfeiting marking, automatic installing nut, intelligent sorting, drilling and pinning, counting and bundling, Palletizing to finished products, which realizes the fully automated production rock bolt. This production line makes up for the shortcomings of the separation of various links in traditional bolt production, not only reduces labor intensity, improves production efficiency, and realizes the safe production of bolt, but also ensuring the straightness, length accuracy, and fineness of rolling thread. ANTO threaded bar bolt production line can produce bolts with diameters 16-25mm, lengths 1-6m, and yield strengths 235-600Mpa.

ANTO has one production lines for expandable friction bolt, with a monthly output of 100,000 sets. The production line includes a pipe-out machine, two locking machines, and three high-frequency welding machines. . ANTO's expandable friction bolt production line can produce three specifications of 120KN, 160KN and 240KN, and the length is 1-8m.

ANTO BOLT, MINING SAFETY!

SPLIT SETS BOLT:



Split sets are mainly used in hard rock mines such as copper and gold mines. Bolts are installed in the rock strata by extrusion, which can generate axial and radial frictional expansion force with the rock strata, thereby generating huge supporting force and protecting the safety of the roadway.

Split sets produced by ANTO Company is made of high-yield and high-strength steel; the welding ring has good welding power. In the mine support, even if the rod body is broken, the welding ring is not easy to fall off.

Advantages of Split sets:

- 1.Simple installation, saving labor cost.
- 2.Has good yield strength and breaking strength.
- 3.Has good welding ring pull-out force.
- 4.Black or hot dipped galvanized available.

SPECIFICATION:

Item No.	Diameter	Steel thickness	Min Yield Strength	Min Breaking Strength	Elongation	Anchoring Load	Domed Plate Size
ATSS33	33mm	2.3mm	78KN	100KN	18%	4-7tons	150*150*4.0mm
ATSS39	39mm	2.3mm	88KN	115KN	18%	5-8tons	150*150*4.0mm
ATSS42	42mm	2.3mm	95KN	120KN	18%	5-8tons	150*150*4.0mm
ATSS47	47mm	3.0mm	125KN	160KN	18%	6-12tons	150*150*5.0mm

PRODUCTION LINE:



PACKAGE AND LOADING:



EXPANDABLE FRICTION BOLT:



Expandable Friction Bolt is made by high strength welded tube folded itself and welded to seal at both end of bolt.

How To Work:

When the bolt is used in the hole, the bush with a hole is connected with a chuck of a high-pressure water pump. Start the pump and inject the water into tube, the folded wall of bolt is forced to expand. When the pump reaches a standard pressure, the wall of bolt holds onto the strata and creates a big friction strength to support.

Thus, a safety and stable support system is formed.

Advantages of Expandable Friction Bolt:

- 1.Simple installation, saving labor cost.
- 2.Be used in wide variety of ground conditions with high supporting strength.

SPECIFICATION:

Item No.	Bolt Diameter	Steel thickness	Original Tube Diameter	Bushing Head Diameter	Upper Bushing Diameter	Min Breaking Load	Expansion Pressure	Minimum Elongation
ATEF120	28mm	2mm	41mm	30/36mm	28mm	110KN	300bar	10%
ATEF160	38mm	2mm	54mm	41/48mm	38mm	150KN	240bar	10%
ATEF240	38mm	3mm	54mm	41/48mm	38mm	230KN	300bar	10%

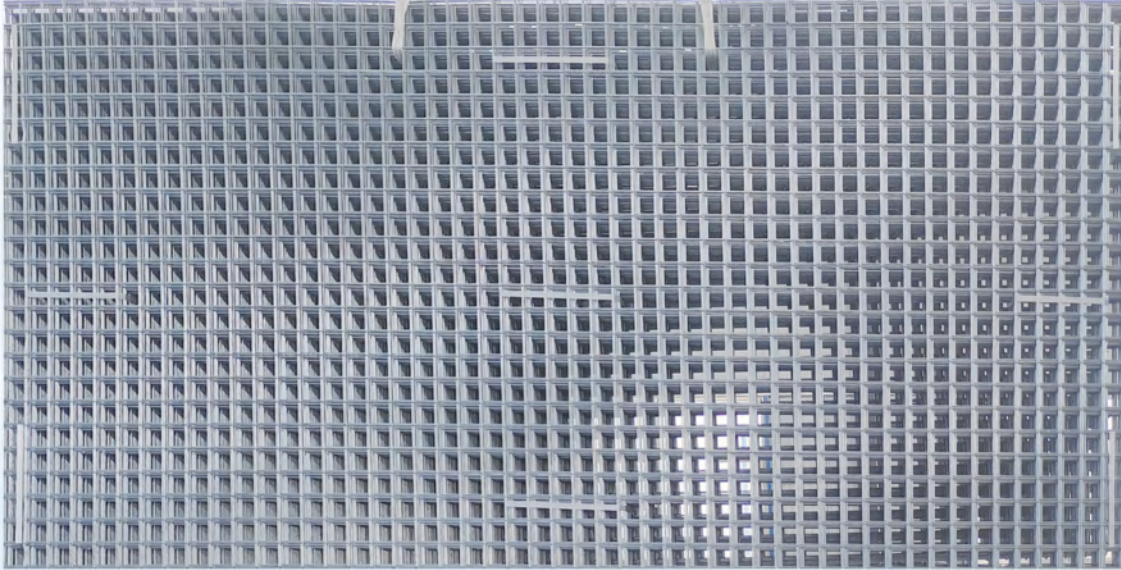
PRODUCTION LINE:



PACKAGE AND LOADING:



WELDED MESH:



Welded mesh is mainly used on the surface of the rock layer to prevent the rock from falling after being broken. The welded mesh is linked with a large number of bolts to form an integrated support system, which greatly improves the safety of the mine.

ANTO welded wire mesh is made of high-strength steel wire, welded by high-frequency welding machines. the welding are not easy to crack.

Advantages of welded mesh:

1. Made of high-strength steel wire
2. High frequency welded, not easy to crack
3. Black or hot-dip galvanized

SPECIFICATION:

Welded Mesh	Wire Diameter	Aperture	Mesh width	Mesh length
SIZE	3mm,4mm, 5.6mm,6mm 7.8mm,8mm	75*75mm, 100*100mm, 150*150mm, 200*200mm	600mm-3000mm	1-12meter

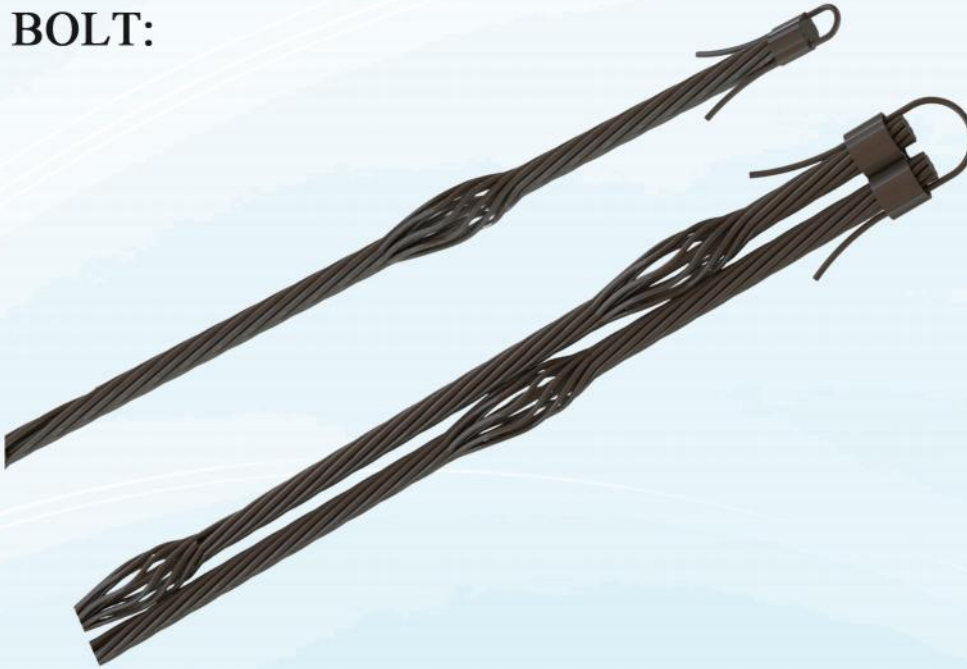
PRODUCTION LINE:



PACKAGE AND LOADING:



CABLE BOLT:



Cable bolt is composed of high-strength steel wire, barrel & wedge and plate.

The cable bolt support force is relatively large, and it is anchored by grouting, which is suitable for reinforcement of large-section chambers and roadways in underground coal mines.

Usually, cable bolt needs to be prestressed, it is an active force supporting, and can be used as a permanent anchoring project.

The advantages of cable bolt:

1. Cable bolt is made of high-strength steel strands, and its bearing capacity is better than ordinary rock bolt.
2. It can be pre-stressed and actively supported.
3. The anchorage length is better than ordinary rock bolt.
4. Plain or bulbs available.

SPECIFICATION:

Item No.	Diameter	Strand of Wire	Weight Kg/m	Max Breaking Load KN	Elongation
ATCB15	15.2mm	7	1.1	250	3.5%
ATCB18	17.8mm	7	1.5	340	3.5%
ATCB19	18.9mm	7	1.7	380	3.5%
ATCB216	21.6mm	7	2.2	500	3.5%
ATCB218	21.8mm	19	2.4	580	3.5%

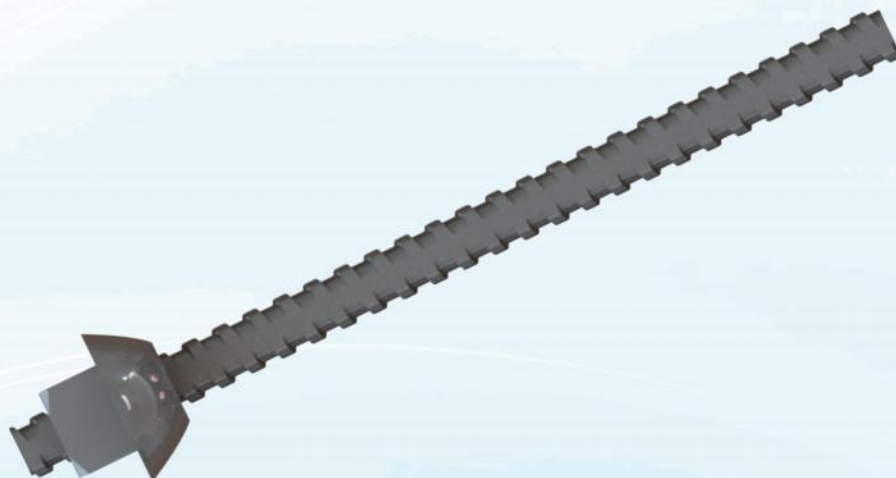
PRODUCTION LINE:



PACKAGE AND LOADING:



ALL THREAD BAR BOLT:



All thread bar bolt is mainly used in mines where rock formations such as coal mines are not hard enough. bolts are generally used together with anchoring agents to achieve end anchoring or full anchoring in mines.

All thread bar bolt is made of high-strength HRB500 or HRB600, which can provide high load-bearing capacity to protect mine safety.

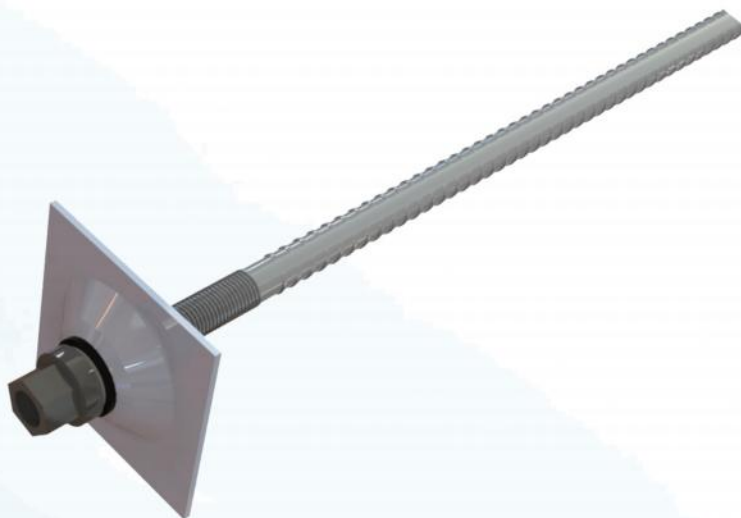
Advantages of All thread bar bolt:

1. Made of high-strength material, high supporting force.
2. The threads are distributed throughout the rod, increasing the movable length of the nut.
3. Used together with anchoring agent to achieve end anchoring or full anchoring.
4. Black or hot-dip galvanized.

SPECIFICATION:

Item No.	Diameter	Material 335Mpa			Material 500Mpa			Length
		Min Yield	Max Breaking	Elongation	Min Yield	Max Breaking	Elongation	
ATAT16	16mm	67	100	≥18%	98	140	≥15%	1-6meters
ATAT18	18mm	85	127	≥18%	125	178	≥15%	1-6meters
ATAT20	20mm	105	157	≥18%	157	220	≥15%	1-6meters
ATAT22	22mm	127	190	≥18%	190	265	≥15%	1-6meters
ATAT25	25mm	164	245	≥18%	245	340	≥15%	1-6meters

THREADED BAR BOLT:



Threaded bar bolt is composed of screw thread steel bar, high strength plate, nut, washer, and other accessories.

Bolts are usually used in harsh environments such as thick coal seams, high stress, large deformation, and difficult to support.

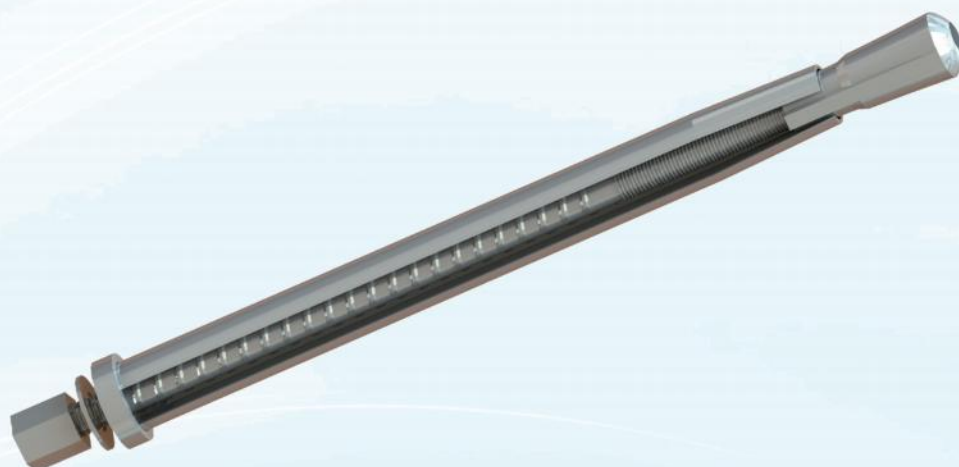
Feature:

- (1) Bolts have high-strength stress and good supporting ability.
- (2) Installation is quick and easy.
- (3) Use with resin agent to obtain permanent support.
- (4) Used in areas with high stress and large deformation.

SPECIFICATION:

Item No.	Diameter	Material 500Mpa			Length
		Min Yield	Max Breaking	Elongation	
ATTB16	16mm	98	140	≥15%	1-6meters
ATTB18	18mm	125	178	≥15%	1-6meters
ATTB20	20mm	157	220	≥15%	1-6meters
ATTB22	22mm	190	265	≥15%	1-6meters
ATTB25	25mm	245	340	≥15%	1-6meters

COMBI SPLIT SETS——ET TYPE :



Combi Split sets is composed of a split sets with a diameter of 47mm and a threaded bar with a diameter of 20mm. The combination of the two bolts greatly enhances the strength and shearing force of mining supporting, and make the installation easier and more efficient.

Features:

1. Easy and efficient installation, no anchoring agent required.
2. High tensile strength and shear strength.
3. Hot-dip galvanized for anti-corrosion.
4. Applicable to all mining conditions.

SPECIFICATION:

Item No.	Size	Tensile Strength	Shear Strength
ATCSS47	47*3.0mm+20mm	≥280KN	≥240KN

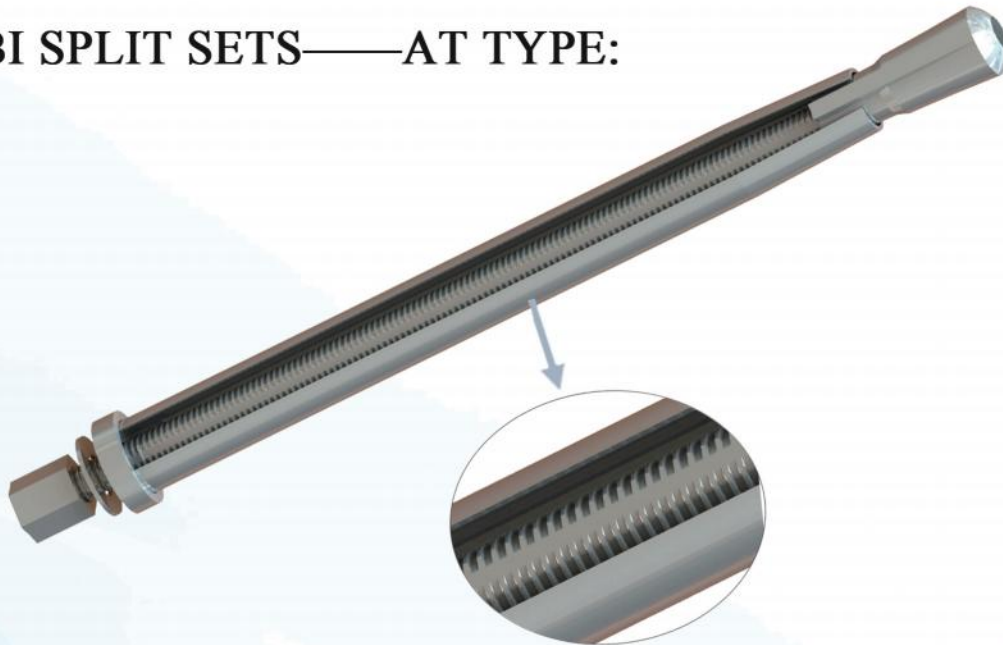
REBAR PROPERTIES:

Diameter	Elongation	Yield Strength	Max Tensile Strength
20mm	22%	180KN	225KN

SPLIT SETS PROPERTIES:

Diameter	Thickness	Yield Strength	Max Tensile Strength
47mm	3mm	134KN	190KN

COMBI SPLIT SETS——AT TYPE:



Combi Split sets is composed of a split sets with a diameter of 47mm and **an all threaded bar** with a diameter of 20mm. The combination of the two bolts greatly enhances the strength and shearing force of mining supporting, and make the installation easier and more efficient.

Features:

1. Easy and efficient installation, no anchoring agent required.
2. High tensile strength and shear strength.
3. Hot-dip galvanized for anti-corrosion.
4. Applicable to all mining conditions.

SPECIFICATION:

Item No.	Size	Tensile Strength	Shear Strength
ATCSS47	47*3.0mm+20mm	≥280KN	≥240KN

REBAR PROPERTIES:

Diameter	Elongation	Yield Strength	Max Tensile Strength
20mm	22%	180KN	225KN

SPLIT SETS PROPERTIES:

Diameter	Thickness	Yield Strength	Max Tensile Strength
47mm	3mm	134KN	190KN

COMBI CABLE BOLT:



Combi cable bolt composed of 15mm cable bolt and a threaded round steel with a nut. This combination makes installation easier and more efficient.

The advantages of cable bolt:

1. Cable bolt is made of high-strength steel strands, and its bearing capacity is better than ordinary rock bolt.
2. It can be pre-stressed and actively supported.
3. The anchorage length is better than ordinary rock bolt.
4. Plain or bulbs available.

SPECIFICATION:

Item No.	Size	Tensile Strength	Elongation
ATCCB15	15.2mm	$\geq 250\text{KN}$	3.5%

SPECIFICATION:

Diameter	Max Tensile Strength	Elongation
27mm	$\geq 250\text{KN}$	13%

CERTIFICATE


SGS
TEST REPORT

No. : QGR0230300059TML01_EN
Date : 2023-04-04
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1. Tensile Test

Test Method: GB/T 228.1-2021

Specimen	Product specification (mm)	Maximum force (kN)	Fracture location
001-2	5.8	15.40	Parent metal



Fig.1 The specimen after test

SGS
TEST REPORT

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1. Tensile Test

Test Method: GB/T 228.1-2021

Specimen	Product specification (mm)	Maximum force (kN)	Fracture location
001-1	33	109.32	Parent metal



Fig.1 The specimen after test

SGS
TEST REPORT

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Date : 2023-04-04
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1. Tensile Test

Test Method: GB/T 228.1-2021

Specimen	Product specification (mm)	Maximum force (kN)	Fracture location
001	39	134.78	Parent metal



Fig.1 The specimen during test

Fig.2 The specimen after test

SGS
TEST REPORT

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1. Tensile Test

Test Method: GB/T 228.1-2021

Specimen	Product specification (mm)	Maximum force (kN)	Fracture location
001-3	47	202.55	Parent metal



Fig.1 The specimen after test

SGS
TEST REPORT

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1. Tensile Test

Test Method: GB/T 228.1-2021

Specimen	Product specification (mm)	Maximum force (kN)	Fracture location
001-2	PM240	254.13	Yield



Fig.1 The specimen after test

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TEST REPORT

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1. Tensile Test

Test Method: GB/T 228.1-2021

Specimen	Product specification (mm)	Maximum force (kN)	Fracture location
001-1	PM120	124.84	Parent metal



Fig.1 The specimen after test

SGS
TEST REPORT

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1. Compression test

Test Method: MT11-2021

Sample	Sample specification (mm)	Compression distance (mm)	Maximum force (kN)
001-1	150x4x27 041	18	138.73
001-2	150x5x35 040	18.6	179.81
001-3	150x8x30 040	20	244.87



Fig.1 The specimen after test

PADDLE BOLT:



Paddle Bolt is made by high tensile steel bar with one end threaded , and the other end with “paddle” shape.

This paddle system improves resin mixing, resin film shredding and provides consistent and efficient mixing of resin capsule components.

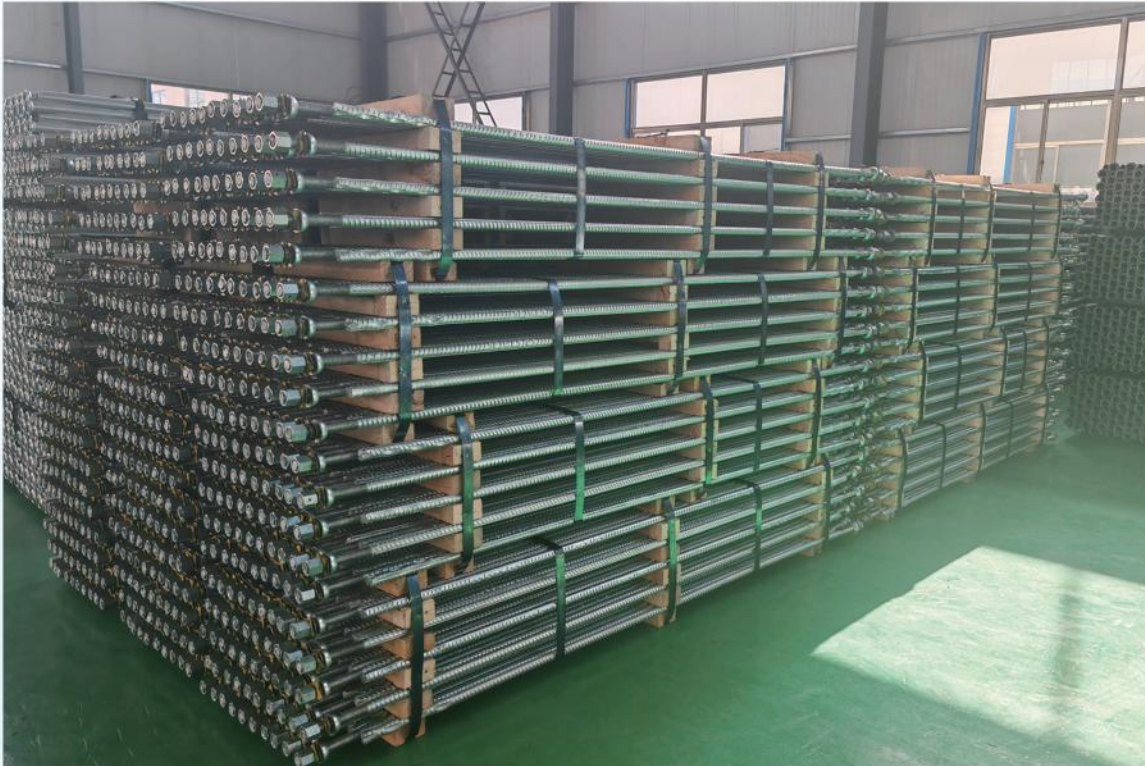
Feature:

- (1)With paddle shape on one end to improve resin mixing.
- (2) Permanent primary support.
- (3) With pin nut torque drive system.
- (4) improve resin mixing performance.
- (5) It is widely used in various mining.

SPECIFICATION:

Item No.	Diameter	Material 500Mpa			Length
		Min Yield	Max Breaking	Elongation	
ATPB18	18mm	125	178	≥ 15%	1-6meters
ATPB20	20mm	157	220	≥ 15%	1-6meters
ATPB22	22mm	190	265	≥ 15%	1-6meters
ATPB25	25mm	245	340	≥ 15%	1-6meters

PRODUCTION LINE:



PACKAGE AND LOADING:

