

VIDEX MINE ROOF BOLTS MACHINERY

There are 2 types of Chemical (Resin) Mine Roof Support Bolts:

1. Tension Rebars which are long Bolts, ribbed all along except the end, which is threaded. The ribs are used for mixing the resins, and the thread is used for supporting the mine roof by tensioning a nut after the resin has cured.
2. Non-Tension Bolts, which are long rods that are ribbed all along and have a forged square head. The ribs are used to mix the resin. The head with a plate washer underneath are supporting the mine roof, without tensioning it.

Vide is manufacturing machinery for both types of rebars and is offering different solutions for both.

Tension rebars are typically supplied to the machine in bundles. The bars are coming in length of 12-15meters and are cropped by the machine to 600-3,000mm. The machine first separates the bars and then feeds the bars one by one into the Impact cutter. The bars are cut to length by the Impact Cutter and the tails are separated into the waste bin.

The cut to length bars are sent to the peeling area where the ends are peeled along 150-370mm.

The peeling head is rotating around the bars which are supported in front and at the back of the peeling head, resulting in better surface and longer life of the peeling inserts.

The peeled bars are transferred to the 2-roll thread roller, where they are threaded along the 150-370mm and then ejected out of the machine.



In addition to the peeling and threading line, Videx is also offering a patented process, using pitch diameter bars, which save at least 4% in material cost

The bars processed by the patented process are ribbed by cold rolling, to achieve higher strength and better adhesion to the resins. The ribbing process is extending the bars by an average of 9%.

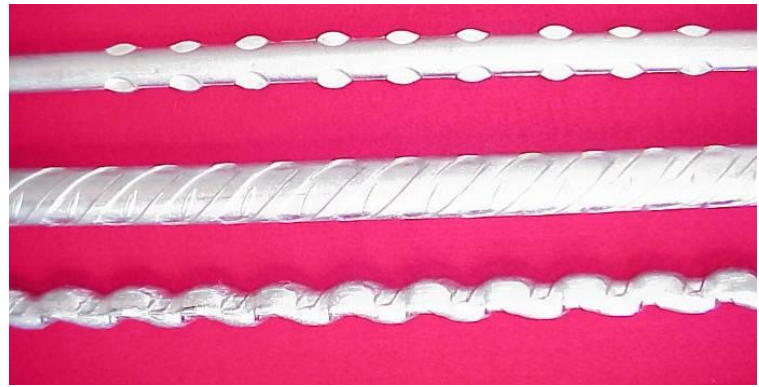
The Videx line is comprised of the following equipment:

1. Bar feeder with a 5 ton cradle capacity, that can handle big bundles.
2. Automatic ribbing machine, which is receiving the bars one at a time, and is ribbing the requested length, leaving the bar with no ribs at the end where the thread will be rolled.
3. Transfer system, receiving the ribbed bars from the ribbing machine, and feeding them into a horizontal planetary thread roller or a 2-roll threader.



Main features of Videx patented process:

- The rod diameter is the pitch diameter of the thread that will be rolled on it.
- The cut-to-length blanks are automatically fed to the dimpling machine which indents dimples or ribs over its entire length except the end of the bars, which will then be threaded.
- The dimpled bare go through a straightening process after ribbing by a dual-plain roller straightener and are automatically transferred to the thread rolling machine, which rolls the thread at the end of the bars.



The following bolts can be made by the Videx process

1. Dimpled bar

These bars have dimples on the sides, which is good in mixing the resin. It is most suitable for medium carbon steels like 1040-1045 and for smaller diameters like M16 (5/8") to M20 (3/4").



2. "Standard" Rebar

Modified auxiliary indented for better load transfer. It is very good in mixing the resin and is suitable for high tensile materials and for bigger diameters; M-20 & M-24.

3. Wavy Bar

This combined form has impressions that yield increased effective external diameter. The increased diameter results in a better load transfer capability.

Advantages of the Videx process in manufacturing mine roof supporting bolts :

- Thread rolling is performed directly on the hot rolled material without having to peel the ribs. The process is faster and cleaner
- The whole process is fully automatic, supervised by one operator. The wire speed is 25 meter/minute.
- Less steel required because the bar is stretched in the process of indenting the ribs.
- The ribbing process is not influencing the yield and ultimate strength of the material.

Production

- The peeling process required bars with larger effective diameter than the pitch diameter. The saving in material using pitch diameter is at least 4%.
- The ribbing process is extending the bars by 9%. This is a pure saving of 9% in material cost.
- The total saving in material cost is at least 13%, without affecting the yield and ultimate loads required.
- The Videx line is fast and will roll the ribs at a rate of 25 meter/minute. In 10 hours, the theoretic production is 15,000 meters .
- Assuming that the average daily production is 5,000 bars, the line is making each day 9,000 kg. The daily saving in material cost is 13% of 9,000 kg, which is 1,170 kg, yielding a monthly saving of over 25 tons.
- The production is fully automatic, requiring less labor. The efficiency of the process is determined mostly by the material buying price, and the ability to sell as many rebar as the machine can make.