

BRIDON ROPES

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RAB/SB
8th January, 1992

Masto Wire Service A/S
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For the attention of T. Krageboen M.D.

Dear Sir,

MASTO HIGH PRESSURE ROPE LUBRICATORS

I would like to take this opportunity to advise you of Bridon Ropes' experience with the use of your Masto high pressure wire rope lubrication system.

Bridon Ropes has used Masto machines in its factories for over 10 years, in cases where a special lubricant coating is required on particular wire ropes. The equipment is sometimes used in preference to re-setting the rope closing machine lubricant feed for short length production. Over the years the machines have given dependable service over a wide range of rope sizes and constructions, and have given satisfactory seal lives. The machines are also used for pre-delivery lubrication in Bridon Service Centres.

For the last three years Bridon Ropes has used the machines on site for maintenance of customer ropes, and has distributed them worldwide along with the Bridon Ropes range of rope lubricants.

The Masto machine was selected for distribution by Bridon Ropes, after investigation of several alternative machines, for the following reasons:-

- i. It can be used on a wide variety of rope sizes and constructions including 6 strand ropes and dyform multistrands.
- ii. It is easy to fit and straight forward in use.
- iii. Seals are economical in cost and consistently give long service lives.

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- iv. The machine is capable of generating a high pressure within the chamber, which gives lubricant penetration beyond that of any competitor machine so far tested.
- v. Learning time is minimal, for customer operatives and there are few parts involved in assembly of the system.

Bridon Ropes has developed an internal standard for use of the Masto machine, which defines the necessary steps to take to ensure correct performance, and the conditions necessary for effective use.

A copy of this standard is enclosed.

Whilst the Masto unit itself, and the seals are effective in achieving good high pressure lubrication, with penetration and cleaning of detritus from even large diameter 6 stranded ropes there are 3 major factors which effect performance of the machine.

These are as follows:-

1. A pump must be used which is capable of supplying lubricant to the Masto unit in volumes necessary for thorough application at a particular rope speed.

e.g. A large 6 strand rope will take 1.5% of its weight in grease and at 40 metres per minute on a 48mm rope, for example, the grease demanded by the Masto unit is 5.5kg per minute at 20-25 Bar. Many pumps are not capable of such output.
2. The lubricant used must be a free flowing type, and thixotropic gel type products such as Brilubes 60 & 70 have been found to be the most effective. These lubricants are equivalent to an N.L.G.I. No 2 grease in consistency but their thixotropic nature ensures good flow under pressure.
3. Seal size is also important. This should always be 1-2mm less than the rope diameter, so that when the machine is fitted to the rope it is not free to move except with some effort.

This is most important for pressure generation, which is the fundamental key to the Masto's performance.

Under these conditions the Masto unit will pump grease into the rope at up to 25 Bar, with very little leakage of lubricant, even on 6 stranded ropes.

It should be noted that the seals depend on internal pressure in order to perform correctly. If the seals are slack, pressurisation will not occur. If pressurisation does not occur the bell shaped internal profile of the seals will not bed down into the gussets of the rope strands and ineffective lubrication and leakage will occur.

The outside of the rope will not be heavily loaded with grease under correct conditions, but this is not important in a working rope.

After lubrication excess grease will exude from the rope as the internal pressure declines and this will provide good surface lubrication.

Please note it is not possible to achieve good high pressure internal lubrication and thick external coating, on one pass. This can be achieved however by running the rope a second time with loose seals.

Other problems which effect the performance of the Masto Unit are as follows:-

- i. Inadequate air volume and pressure.
- ii. Excessive rope speed - this should always be balanced against demand for grease and pump capability.
- iii. The omission of a follower plate in the grease pail can lead to grease cavitation and intermittent lubricant application.

It should also be noted that, whilst the machine will clean off existing lubricant, mud etc., it will not remove hard dry rust and solid bitumastic lubricant completely. This problem can be largely overcome by pre-soaking the rope in a solvent such as white spirit, or sometimes by lubricating the rope twice.

However Bridon Ropes' view is that ropes allowed to deteriorate to such a condition are often beyond the point where service lubrication will benefit performance.

It should be noted that lubricant penetration depends upon strand gap in the rope. If the rope is so worn that there are no strand gaps left, penetration will be limited. Again, the rope is likely to be beyond recovery.

Pressure lubrication is most effective when used on ropes in good condition as a preventative maintenance operation and tests at Bridon Ropes have demonstrated that well lubricated ropes will have a fatigue life up to 300% longer than dry ropes.

Yours faithfully,



R. A. Britton
Product Manager