

W25 HEADSTOCK WITH ANTIFRICTION BEARINGS AND REDUCTION GEAR 5 : 1

CHARACTERISTICS

Thread on spindle nose	M47,6 x 3	mm
Cylindrical location on spindle nose	∅ 48 x 10	mm
Spindle bore	∅ 25	mm
Maximum through-bore in standard collet	∅ 19	mm
Internal taper of spindle	15°	
Width of pulley steps	32	mm
Diameter of pulley steps	75/100/125	mm
Type	102-32, 32L	102-33/33L
Weight	24,55/28,20 kg	29,25/32,90 kg

- Type 102-32 Open type with closing by hand-operated drawbar
- Type 102-33 Closed type with closing by hand-operated drawbar
- Type 102-32L Open type with quick closing by hand-operated lever
- Type 102-33L Closed type with quick closing by hand-operated lever

Lubrication by oil gun or oil mist.

Ranges of speeds : Normal, Special I and Special II.

MAINTENANCE

A. Cleaning on receipt

Prior to despatch all external and internal parts are given a coat of special anti-rust grease.

This grease has no lubricating property; its presence may cause serious seizure, even several weeks after starting up. Clean the entire headstock with a chemically neutral white rag (free of chlorine or acid) soaked in paraffin.

Avoid using alcohol, car petrol (which often contains alcohol), or any other organic product that would dissolve the cellulose paint.

B. Lubrication of bearings

Use a good mineral oil with a viscosity of approximately 2,5⁰E at 50⁰C. (See lubrication chart ING 57-1).

The front and rear bearings are lubricated under pressure by means of a gun supplied with the machine. The lubricant and the method of lubrication have an influence on the friction and the temperature of the bearings. Any large accumulation of lubricant can produce overheating.

Oil frequently, but sparingly (at the most once a day).

Never use grease ! Any abundance of grease can brake the rolling elements to such an extent that they will only skid on the tracks.

Note : Headstocks equipped with the oil-mist lubrication unit require no additional lubrication.

C. Lever-operated quick-closing mechanism

The pivot of the lever (102-34.020) carries a nipple K7 for injection of oil by gun.

Once a week inject one or two shots of oil through this nipple. Lubricate also the dogs (120VM-316). The bearing (RIV 16011) is lubricated either by oil mist or by injecting oil through the nipple K7 by means of the gun. In the latter case lubricate once a day during normal operation.

D. Oil bath of reduction gear

Use the same oil as for the bearings, that is a mineral oil with a viscosity of approximately 2,5^oE at 50^oC.

Remove the plug (102-26.031) pour oil out to half of the level gauge.

Once a year, drain oil, rinse the box with petrol and pour fresh oil.

ADJUSTMENT OF SPINDLE BEARINGS

The play in the two spindle bearings is adjusted very carefully at the time of assembly of each headstock. No subsequent adjustment is necessary until after a relative long period of running.

Only an experienced person should be allowed to make the following adjustments, which require the greatest care :

Taking up radial play in front bearing

1. Determine the exact amount of radial play with a comparator reading to within 1/1000 mm. To obtain perfect running conditions, the radial play must be :
 - 0,002 to 0,003 mm for the NORMAL range of speeds up to 3000 rpm.
 - 0,003 to 0,004 mm for the SPECIAL I range of speeds up to 4500 rpm.
 - 0,004 to 0,005 mm for the SPECIAL II range of speeds up to 6000 rpm.
2. Remove the spindle (102-32.002) by following the instructions given below :
 - a) Remove the quick-closing mechanism, which is fixed to the headstock frame by two screws (CCM M8x30) and held axially by the split ring (102-30.622).

- b) Unscrew the three screws (CCM M5x15) of the cover (102-23.016).
 - c) Remove the key (4x4x18).
 - d) Remove the cover (102-23.017), which is held by four screws (CCM M5x15).
 - e) Unscrew the screw (102-26.014).
 - f) Unlock the screw of the nut (102-23.008) and unscrew the nut.
 - g) Carefully drive out the spindle with a lead or fibre hammer, striking the rear end.
3. Unlock the screw of the nut (102-23.009) and screw the nut down according to the amount of play to be taken up.

The slight taper on the inner race of the bearing (NN 3009-K-SP) resists any normal advance of the nut (102-23.009). Strike the nut concentrically by means of a tube placed on the spindle in order to displace the inner race of the bearing slightly on the taper of the spindle (102-32.002). Then retighten the nut.

By repeating this operation a certain number of times it is possible to turn the nut through the desired angle. Carefully check the advance of the nut (102-23.009), as it is difficult to move the inner race of the bearing back once it has been pushed too far forward on the taper.

Advance of nut (102-23.009) play to be taken up in mm x 14
Pitch of nut (102-23.009) = 1 mm

EXAMPLE : Let us assume that 0,01 mm radial play is to be taken up.

Advance of nut : 0,01 x 14 = 0,14 mm

equivalent to a rotation of : $0,14 \times 360^{\circ} = 50^{\circ}24'$

corresponding to a length of : $\frac{60 \cdot \pi \cdot 50,4}{360} = 26,4$ mm

measured on the 60 mm outside diameter of the nut.

- 4. Tighten the nut (102-23.009) against the inner race of the bearing and lock it with the screw (DCMB M6x6).
- 5. Refit the spindle (102-32.002) and check the radial play.
- 6. Refit the quick-closing mechanism.

Note : The play must be checked with the bearings (7208 C 15) in position and with the bearing (NN 3009-K-SP) perfectly clean and lightly oiled.

Taking up end play in rear bearing

- 1. Determine the amount of end play with the aid of a comparator reading to within 1/1000 mm.

To obtain perfect running conditions, the end play in the rear bearing must be :

0,002 to 0,003 mm for the NORMAL range of speeds,

0,003 to 0,004 mm for the SPECIAL I and SPECIAL II ranges of speeds.

2. Remove the quick-closing mechanism, which is fixed to the headstock frame by two screws (CCM M8x30, 20).
3. Remove the key (4x4x18).
4. Remove the cover (102-23.017), which is held by four screws (CCM M5x15).
5. Remachine that face of the cover (102-23.017) marked * according to the amount of play to be taken up. This work must be done very carefully.

Note : The face of the cover marked * must be perfectly parallel with the supporting face on the bearing.

6. Refit the cover (102-23.017) and check the end play in the spindle.

This check must be made with the bearing (7208 C 15) perfectly clean and lightly oiled.

SPINDLE LOCKING DEVICE

The plunger (102-21.008) can be inserted into any of the holes in the side of the pulley (102-23.003) by means of the knurled knob (102-22.022) in the case of the closed headstock or (102-21.022) in the case of the open headstock, thus allowing the spindle to be locked in any position.

USE OF THE HOLE DIVISIONS

The pulley (102-26.003) is fixed to the sleeve (102-26.019) by the screw (102-26.014); the screw (102-26.014) is not fastened. When using the divisions 12, 48, 60 and 100 on the pulley shoulder, and in order to eliminate the play in the reduction gear toothing, lock the pulley by means of the screw (102-26.014).

Unfasten the screw (102-26.014) before reverting to normal running conditions with or without reduction gear.

REDUCTION GEAR

The change-over from direct drive to reduction gear drive is controlled by a lever. Never engage or disengage the reduction gear while the spindle is running. The reduction ratio is 4,95 : 1.

In order to facilitate the lubrication of the sleeve (102-26.019) and ball bearing (6008 x C 152), periodically engage gears even if the reduction gear is not used for the work being carried out.

FITTING AND DISMANTLING OF GUIDE RING (102-30.005)

The proper fitting or the dismantling of this ring require the use of a special tooling.

This tooling can be obtained either from our agents or directly from us.

2) 120 VM - 316

120 VM - 325

102 - 30 610

102 - 30 604

2) DO 57-305

120 VM - 314

Bague
Seeger 45a

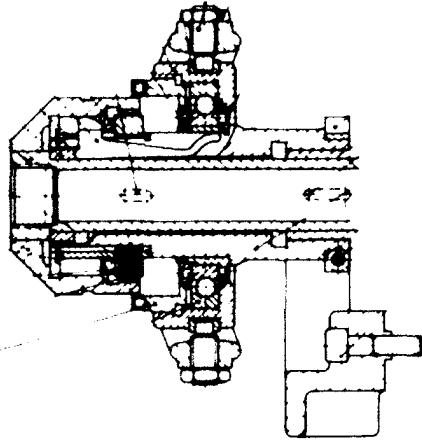
102 - 30 627

2) 102 VM - 264

102 - 30 626

Rtt 16 011

120 VM - 324
Clav pl 4x4x12
102 - 30 628
102 - 21 664
2) 102 - 36 022
2) 102 - 21 615
2) Ec 0,5 d M10
102 - 30 613



102 - 30 622

Clav. pl. 4x4x18

102 - 30 624

Vis CCM M5 x 15

2) Vis CCM
M8 x 30/20



Huileur K7

102 - 34 020

Vis
DCMB M6x8

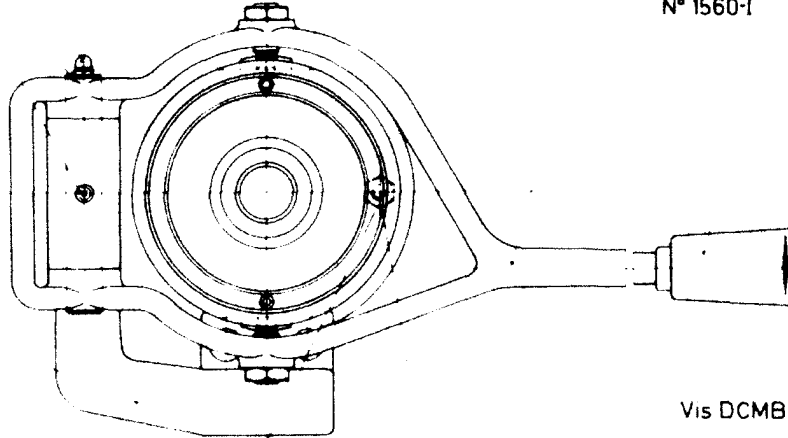
102 - 36 004

Poignée

Garvin

N° 1560-1

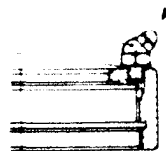
102 - 32 005
102 - 32 006
102 - 32 007



102 - 21 623

Huileur K2

67 - 8005



Pompe à main
Handpumpe
Oil gun



Brouillard d'huile
Öelnebel
Oil mist

Vis DCMB M5 x 12

Ecrou M5 0,5 d

102 - 27010

102 - 21 649

102 - 27009

2) 67 - 8005

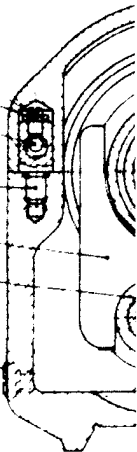
102 - 27008

67 - 8015

102 - 26021

102 - 26025

Vis CM M8 x 5



Coup

