

The Toolpost Grinder

Technical Data

Spindle speeds: 13.000 rpm.
10.000 rpm.
7.000 rpm.

Distance between mounting base and grinding base 23 mm (0,9")

Motor: IEC-standardized motor

Motor capacity: 185 Watt

Intermittant Duty: 60 %

Dust- and splashproof acc. to IP 54

Grinding wheels - Speeds

Straight grinding wheel for outside grinding: dia. 80 x 10 x 20 mm

Corresponding speed: 7.000 rpm.

Straight grinding wheel for internal grinding: dia. 20 x 10 x 6 mm

Corresponding speed: 13.000 rpm.

Cup grinding wheel for face grinding: dia. 45 x 30 x 20 mm

Corresponding speed: 10.000 rpm.

Equipment

Toolpost complete with drive motor power supply cable, grinding arbors, service tools and a set of 3 grinding wheels, grit 80.

Electrical connection

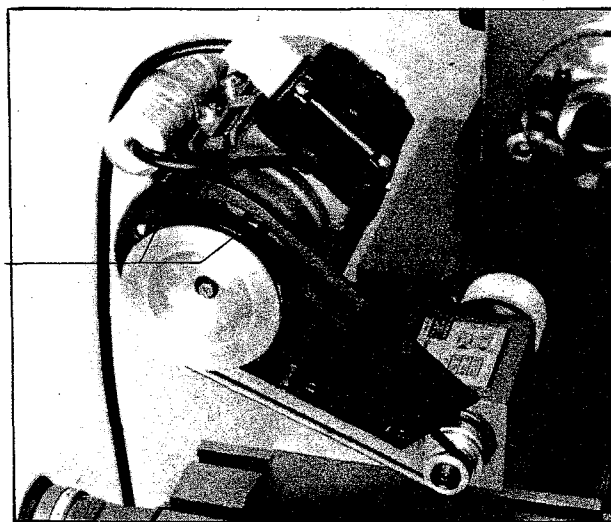
There is no connection strip for the toolpost grinder in the electrical housing of the lathe. Connect it to a separate plug (single-phase). The plugs must be provided with a grounding contact.

Mounting the toolpost grinder

Dismount the toolholder and fix the toolpost grinder on the top slide with the hexagon nut. Axis of grinding spindle and lathe must be parallel.

Adjustment of spindle speeds

There is a speed plate mounted on the main base which shows the belt positions with the corresponding speeds.



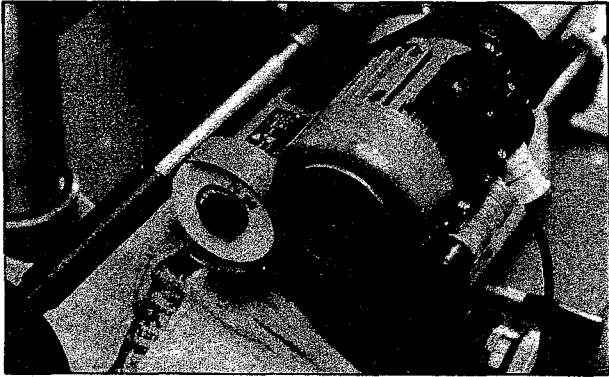
1. Dismount the belt guard and loosen the two hexagon bolts (1).
2. Swivel motor towards the front and shift belt to the position for the required speed.
3. Swivel motor towards the back and clamp the motor so that the belts are tensioned correctly and tighten the two hexagon bolts. Remount belt guard.

Mounting the grinding wheels:

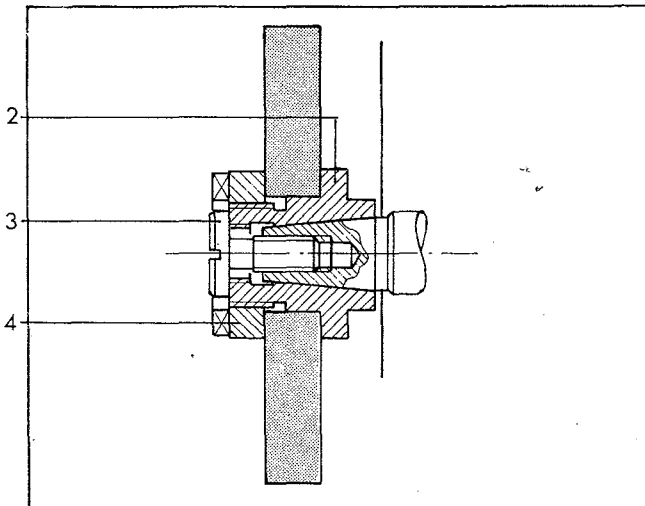
Straight grinding wheel: dia.

80 x 10 x 20 mm (3.15" x 0.4" x 0.8")

Cup grinding wheel: dia. 45 x 30 x 20 mm
(1.8" x 1.2" x 0.8")

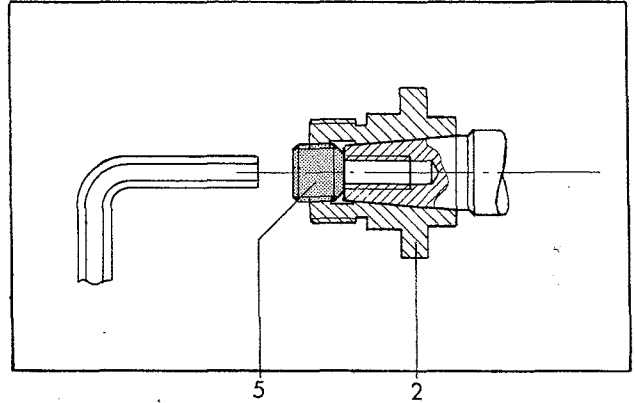


1. Mount wheel guard.
2. Fix the wheel arbor (2) with the tensioning screw (3). The key face on the belt pulley serves for counterholding.
3. Mount the grinding wheel onto the arbor and tighten it with the nut (4). The key face on the arbor serves for counterholding.



Dismounting the arbor (2) from the grinding spindle

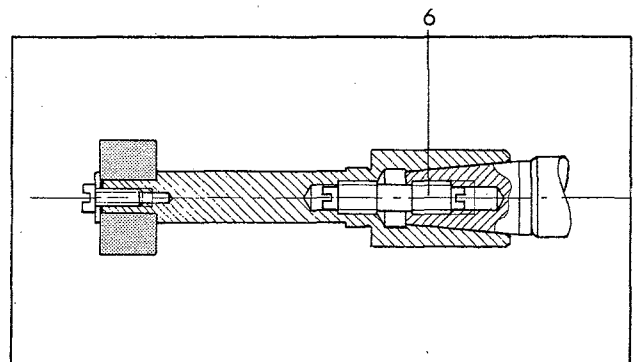
Turn the pressure screw (5) into the inside thread of the arbor; this causes the arbor to be ejected. The key flats on the belt pulley serve for counterholding.



Mounting the internal grinding arbor and grinding wheel dia. 20 x 10 x 6 mm (0.8" x 0.4" x 0.24")

1. Turn the stud (6) into the grinding spindle.
2. Screw the arbor onto the extending end of the stud so that it fits tightly on cone of the grinding spindle. The key flats on the arbor and on the belt pulley serve for tightening.

The grinding wheel is mounted as illustrated.



Important Tips

Speed of the workpiece: max. 110 rpm.

Feed of the toolpost grinder should be approximately 2 mm (0,1") per revolution of the workpiece clamped in the lathe.

Dress grinding wheels.

The guideways of the lathe must be carefully covered before grinding. The grinding dust would damage the precision guideways.

Accident Prevention

Always wear eye protection during grinding.

Never work without pulley and disc guards.

Read instructions carefully before mounting discs.

Grinding discs must be stored so that they are protected from any possible impact.

The bore of the grinding wheel may not be further enlarged, as this would cause breakage.

A resonance test should be carried out before mounting the grinding wheel.

Before using a new grinding disc, a test run should be carried out.

Dress discs which run out of balance.

Follow general rules for accident prevention.

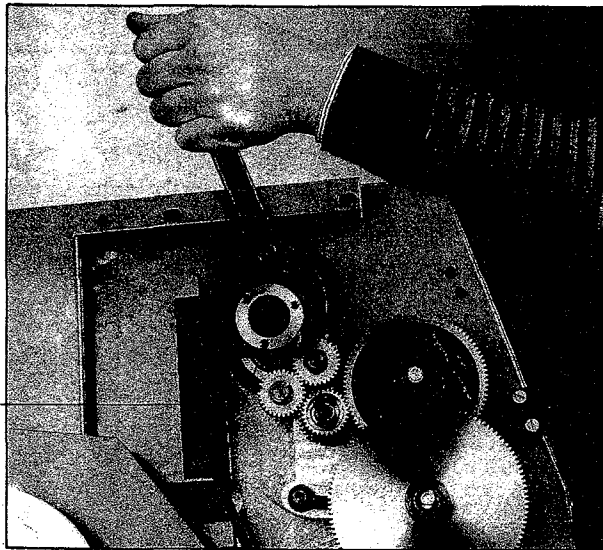
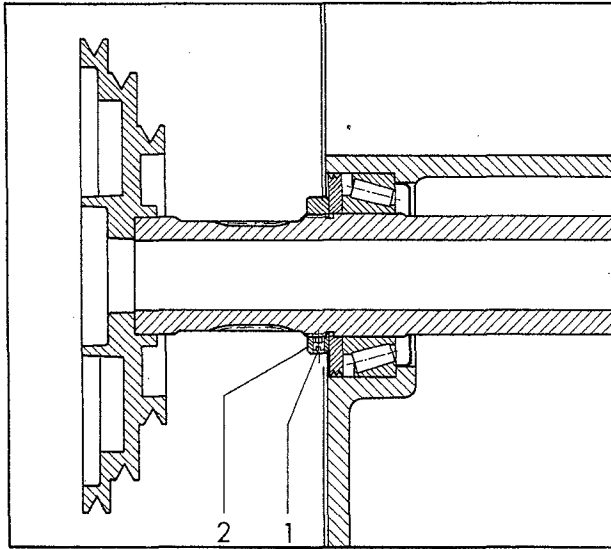
Adjustments

1. Adjustment of the main spindle bearings

The precision main spindle bearings are correctly adjusted and preloaded at the factory, so that the main spindle runs without play. If play becomes evident after considerable use, the bearing must be adjusted.

Adjustment of the bearings:

Loosen set screw (1), tighten clamping nut (2) clockwise with a pin spanner. Then re-tighten the set screw again to secure nut.



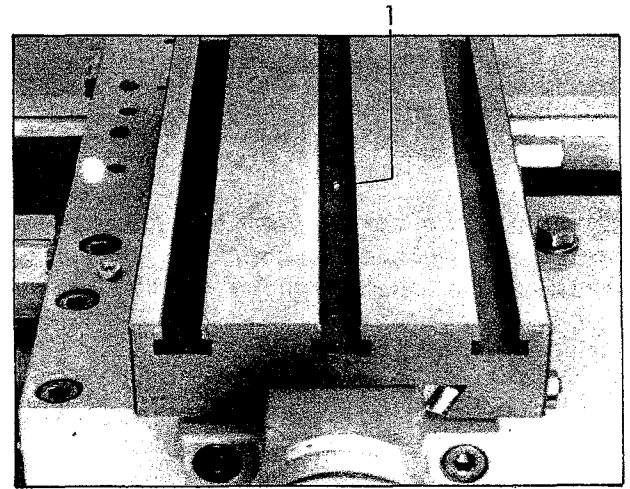
Control:

Disengage sliding gears in the headstock. Set reversing gear into neutral position. If the chuck is turned strongly by hand, then the spindle should make one more free revolution.

Note: Excessive preloading of the bearings will cause unnecessary heating-up and wear of the bearings.

2. Compensating play of the cross slide spindle in the cross slide nut

Necessary when cross slide does not move when the handwheel is turned a certain angle.



Adjustment:

Dismount the top slide and adjust set screw until backlash is compensated.

Checking:

The cross slide should run smoothly. Excessive adjustment causes unnecessary wear of the cross slide nut.

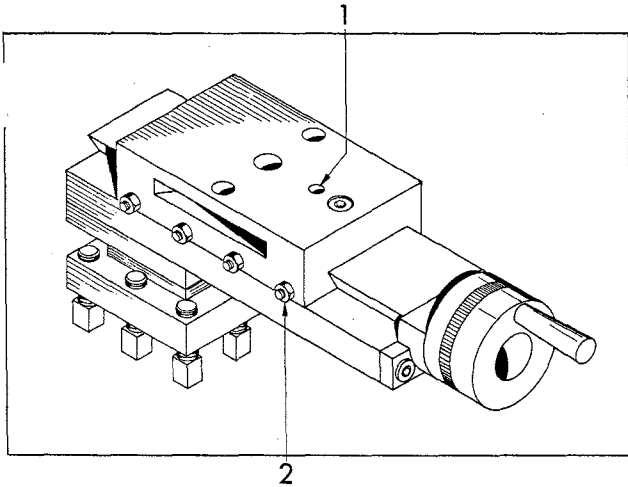


3. Compensating play of the top slide spindle in the top slide nut

Necessary when top slide does not move when the handwheel is turned a certain angle. - Cross and top slides are equipped with gibs. Adjustment of play-free guidance is done with the set screws (1), which press onto the gib via the pressure pins.

Adjustment:

Dismount the top slide and adjust set screw (1) on the bottom side of the top slide, until backlash is eliminated.



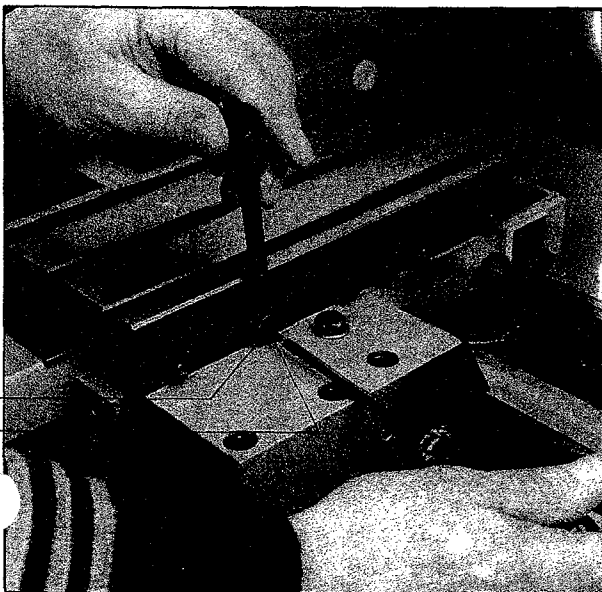
Checking:

Dismount the top slide and adjust set screw (1) on the bottom side of the top slide, until backlash is eliminated.



.. Adjustment of the dovetail guideways of cross and top slide

Cross and top slides are equipped with gibs. Adjustment of play-free guidance is done with the set screws (1), which press onto the gib via the pressure pins. The hexagon nuts (2) are for securing the set screws (countering).

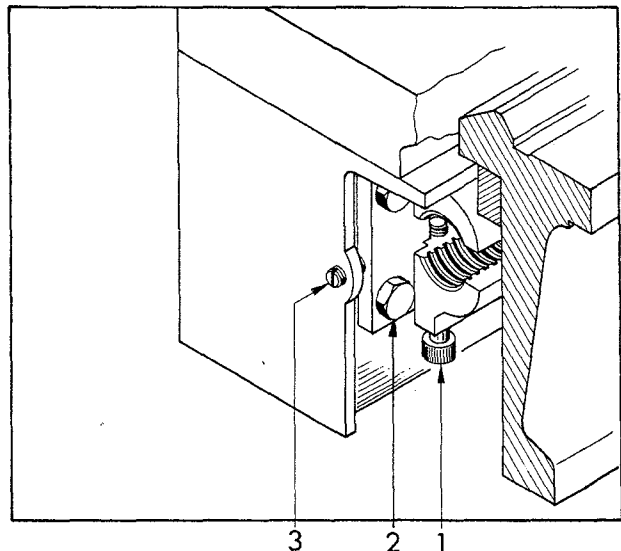


Adjustment:

Loosen hexagon nuts and adjust set screws until slides run without play, but smoothly. When countering hexagon nuts, hold the set screw with a screwdriver in the adjusted position, to prevent further turning of the set screw. Further turning would clamp the slides.



5. Compensating of too much play between half-nuts and leadscrew



Unscrew the socket head screw (1) 2 or 3 turns. Engage the half-nut completely with leadscrew by means of half-nut lever.

Now turn in the socket head screw until the other part of the half-nut is touched, but not moved.

Now make a further half turn of the socket head screw and the correct play will exist between half-nut and lead-screw.

Note: This correct play does not influence the precision of cut threads. Without this play, there is the danger of rubbing and unnecessary wear.

6. Adjustment of half-nut guidance

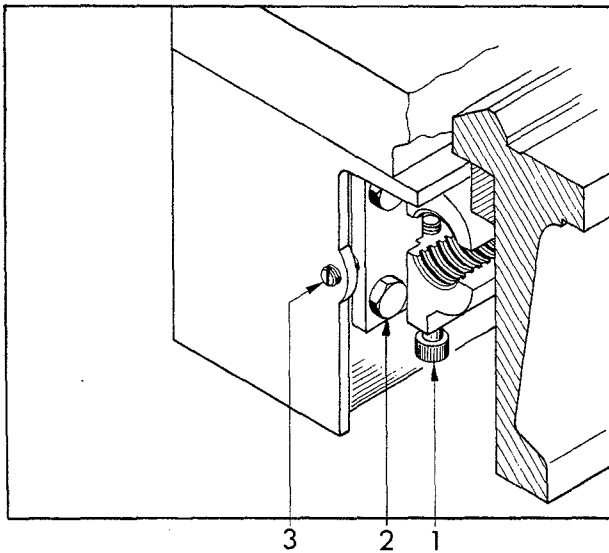
If the half-nut lever turns downwards by itself during thread-cutting, the guidance must be adjusted.

Adjustment:

Loosen hexagon head screws (2), adjust set screw (3). Re-tighten hexagon head screws again.

Checking:

The operation of the half-nut lever must be smooth.

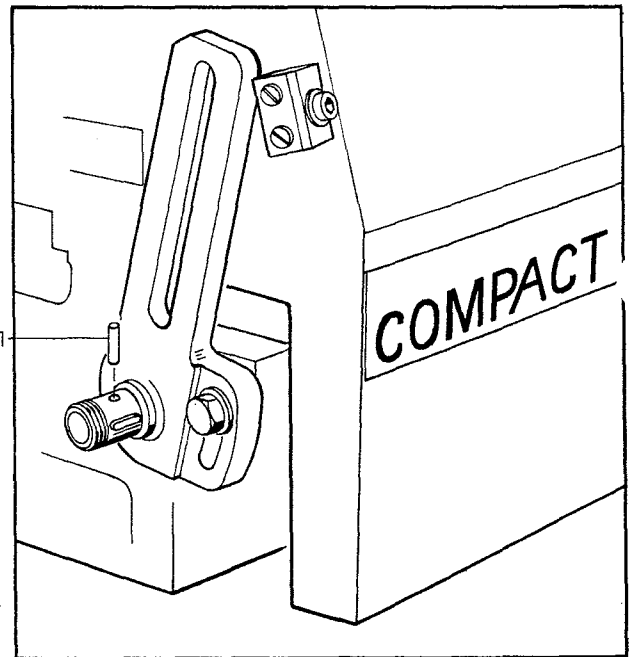


7. Replacing the shearing-pin (1) on the leadscrew

If the shearing pin breaks through overloading or incorrect handling of the machine, replace it only with an original shearing pin.

Procedure:

- Dismount change gear and spacer bush.
- Remove bearing bush (1) and rest of the shearing pin on the leadscrew with a punch.
- Remount bearing bush and insert original shearing pin.



Recommendations for Lubrication

The machine should be serviced according to the lubrication plan. The temperature referred to with the viscosity data is 40°C (100°F - ISO STANDARD).

1. Gearing, Vertical unit

Resistant to aging, non-foaming, corrosion preventive, with good viscosity temperature coefficient.

With normal temperature conditions:
Oil with viscosity 46 mm²/sec. (cSt) at 40°C (100°F).

For ex. CASTROL HYSPIIN AWS 46.

For extreme temperatures:

a) under 0°C, viscosity 34 mm²/sec. (cSt) at 40°C (100°F).

For ex. CASTROL HYSPIIN AWS 32

b) over 0°C, oil with viscosity 68 mm²/sec. (cSt) at 40°C (100°F).

For ex. CASTROL HYSPIIN AWS 68

2. Guideways

Pressure absorbing, corrosion-protective oil with stick-slip reducing qualities.

73 mm²/sec. (cSt) at 40°C (100°F).

For ex. CASTROL MAGNA BD 68

This oil corresponds with the Cincinnati-Milling Specifications P47.

3. Greasing points

Lithium-reinforced multi-purpose grease with high dropping point. Penetration approx. 285 (consistency No.2).

For ex. CASTROL SPHEEROL EPL 2

This grease has an operating temperature from -30°C to +110°C.

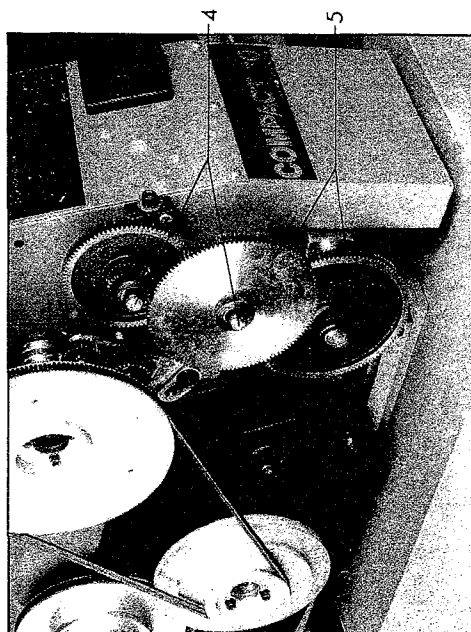
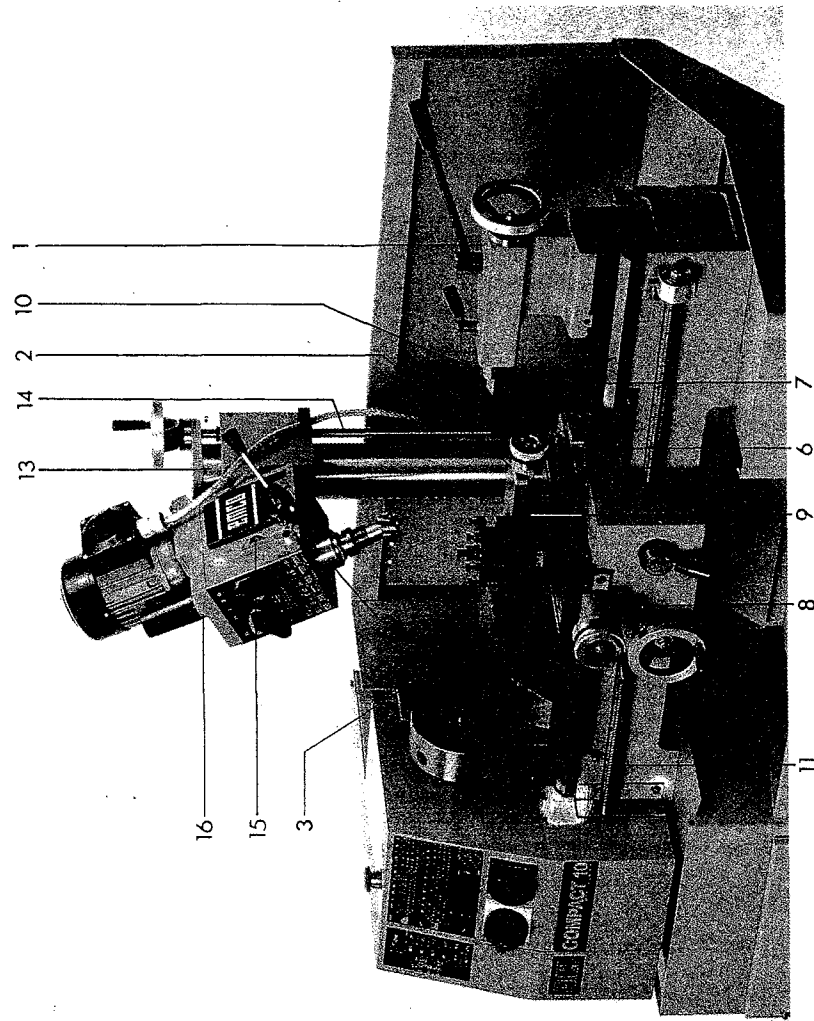
4. Coolant

For close tolerance work with high surface quality, combined with long tool use, we recommend emulsions such as

CASTROL CLEAREEDGE EP

Recommended mixing ratio 1:30. The transparent microemulsion with EP-additives is extremely resistant to attack by microorganisms. It offers good corrosion resistance, does not stick, does not offend the skin. The smell of this coolant is pleasant.

Lubrication Plan



Greasing Points (With Grease Gun)

Pos.	Lubrication position	Frequency
1	Tailstock	ap. 24 hours
2	Top slide	ap. 24 hours
3	Longitudinal slide	ap. 24 hours
4	Change gear bolts	ap. 24 hours

Greasing Points (Apply With Brush)

Pos.	Lubrication points	Frequency
5	Change gears	ap. 24 hours
6	Toothed rack	ap. 24 hours

Oil (With Oil Can or Brush)

Pos.	Lubrication points	Frequency
7	Bed guideways	daily
8	Cross slide guidance	daily
9	Top slide guidance	daily
10	Tailstock ram	daily
11	Leadscrew	daily
12	Pinion	weekly
13	Vertical column	weekly
14	Adjusting spindle	weekly

Oil Bath: Vertical Unit

Gears are running in oil bath
Oil quantity: approx. 0,4 litres

Note:

Correct oil level is in the middle of the oil level gauge at the vertical position of the gearing head.

15 Oil level gauge

16 Oil filling and drain screw

Frequency of oil change: ap. 300 hours

Tips

- The bearings of the main spindle are greased for life time.
- After working with coolant clean and lubricate all machined parts immediately to prevent rust.
- If the oil on the guideways is resined, remove it with petroleum.
- Keep lathe clean and lubricate it to ensure accuracy for long time.