



Lathe - Chuck and Tailstock Information

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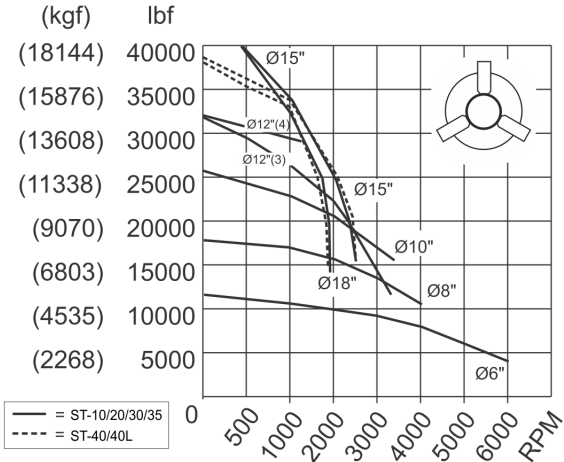
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This document shows you information for the chuck and tailstock. This document is from decal 29-0864 Rev E.

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Total Grip Force of the Three Jaws at Maximum Pressure



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Maximum Chuck RPM

Lathe chucks can be rated higher than the maximum RPM of the machine. Some chucks have the maximum RPM marked on the face of the chuck. Contact the chuck manufacturer for the maximum RPM rating. Most manufacturers have the chuck specifications on their website. To ensure the safety of the operator and the machine, you must follow the chuck manufacturer's suggestions.

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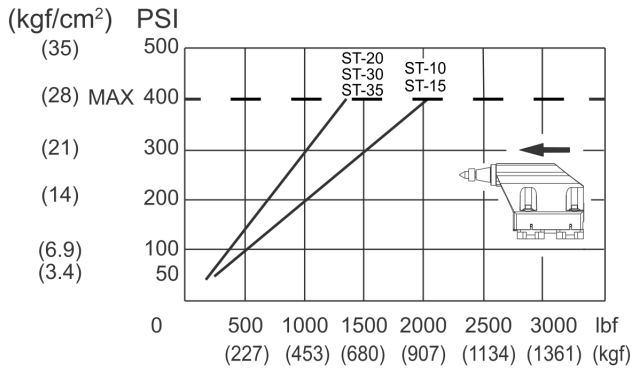
Maximum Chuck Operating Pressures

Type	psi	Bar
5" Chuck	330	23
6" Chuck	330	23
8" Chuck, 2" Bore	330	23
8" Chuck, 2.5" Bore	260	18
10" Chuck	330	23
12" Chuck, 3" Bore	400	28
12" Chuck, 4" Bore	250	17
15" Chuck	340	23
18" Chuck	300	21

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Hydraulic Tailstock Force

Recommended minimum hydraulic tailstock operating pressure is 120 psi. If hydraulic pressure is set lower than 120 psi, the tailstock may not function reliably.




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Maximum Tailstock Operating Setting

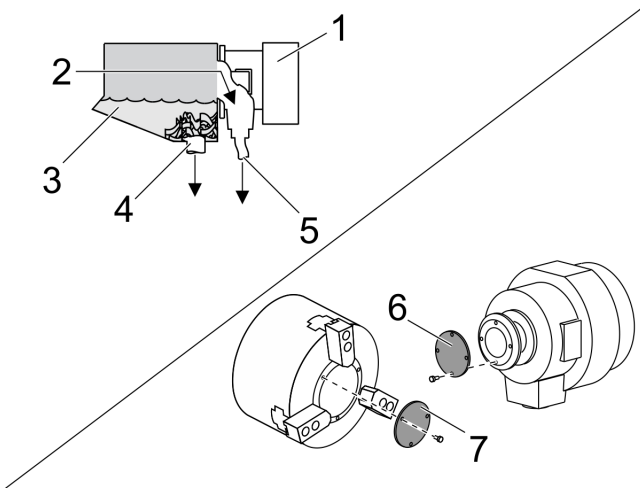
Hydraulic tailstock max clamp force = 400 PSI (28 kgf/cm²)

ST-40/40L/45/45L/50/55 servo tailstock max clamp force = 4500 lbf (20,000N)

 **Note:** Use Setting 241 to adjust the tailstock hold force.

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Hydraulic System Contamination



1. Hydraulic union
2. Coolant overflow
3. Coolant level
4. Coolant drain
5. Hydraulic-oil drain
6. Rear-chuck cover
7. Front-chuck cover

The chips in the coolant collector can block the coolant drain. If this occurs, coolant spills into the hydraulic system. This damages the hydraulic pump, the hydraulic union, and the valves.

Examine the coolant collector everyday.

Remove chips from the coolant drain in the back of the spindle.

Replace the rear-chuck cover [6] and the front-chuck cover [7] when you do not have a bar feeder attached. This prevents contamination.

! **Caution:** Do not attach dead-length stops to the hydraulic union or inside the draw tube. This damages the union.

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Loss of Electrical Power Affects Workpiece Holding

! **Caution:** Chuck pressure at high spindle speeds overheats the fluid and decreases hydraulic pressure. Increased temperature causes less back pressure and decreases the clamp force.

These cause the workpiece to move:

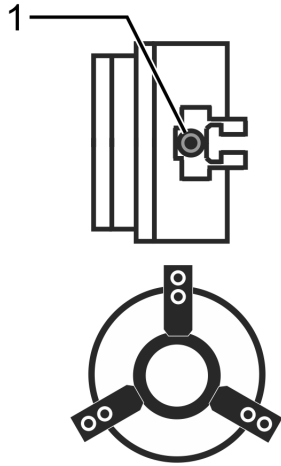
1. If you press **[POWER OFF]**.
2. If you press **[EMERGENCY STOP]**.
3. If you get an electronic malfunction.

If one of these occurs, you must do these steps:

1. Remove the hydraulic pressure from the rotating union and tailstock.
2. Decrease the tailstock clamping force allowing the tailstock to move or drift.
3. Decrease the chuck clamp force.
4. Decrease the servo tailstock clamp force.
5. Examine the workpiece.

- High chuck pressure at high spindle speeds makes the fluid too hot. This decreases hydraulic pressure.
- It is possible that the tailstock does not move at low pressure/force settings.
- Normal operating temperature of the hydraulic system is 40°F to 140°F (4°C to 60°C).

Chuck Maintenance and Lubrication



1. Chuck-Jaw Grease Fitting

Lack of grease reduces the clamp force. This causes chatter or a clamp malfunction.

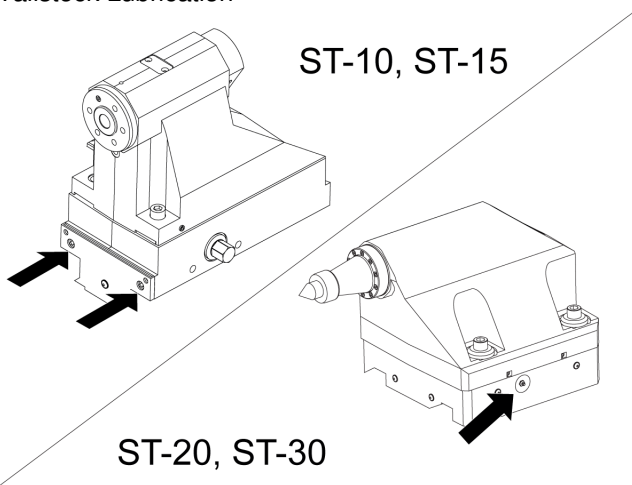
Lubrication Requirements:

- Molybdenum disulfide grease (20% to 25% moly content).
- Lubricate the jaws every 1000 clamp/unclamp cycles (or lubricate the jaws one time per week).


Maintenance Requirements:

- Examine the chuck once a year for damage. If you must disassemble the chuck for repair, see the chuck manual.
- Repair or replace the chuck if you have galling, burnishing, cracking, or excessive wear.
- Clean the chuck guide ways of contamination, chips, and coolant.
- Lubricate the chuck before you assemble it.

Tailstock Lubrication



- Manually grease the tailstock trucks.
- Use Mobilith SHC 460 synthetic grease.

 **Note:** For the ST-40/40L/50/55, do not manually apply the grease to the tailstock. The machine applies the grease automatically.