

3. Pressure supply for hydrostatic tools ballpoint

The pressure liquid is chosen in a way that it is compatible with the coolant existing in the machine. It is normally identical with the coolant. For CNC-lathes with tool drive in the turret and for CNC milling centers external or internal coolant supply, tools with integrated hydraulics pump as well as integrated pressure relief valve are available. (Fig. 3-1).



Fig. 3-1: driven tool HG6-5E30°-VDI40

Other machines have to be equipped with external hydraulic units according to Fig. 3-2. They are switched on and off over M-functions of the CNC-control at programmed places. The regime of the pressure described in chapter 2 can take place CNC-controlled. The exact position of the deep rolled areas is guaranteed. The hydraulic units feature means for delayed pressure buildup and release. This measure guarantees a consistent quality in the series production.

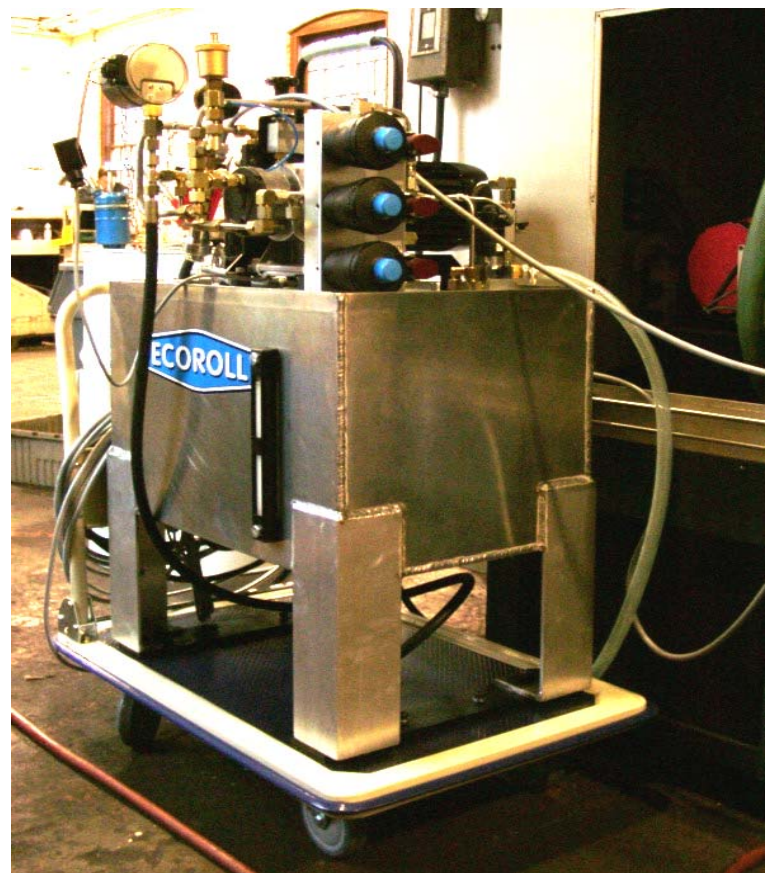


Fig. 3-2 Hydraulic unit HGP 4.5

The connection between controls of the hydraulic unit and the CNC-control of the machine tool is shown in Fig. 3 -3. The CNC program controls start of pressure ramp up, ramp down and pressure ranges (pump unit is provided with different pressure range circuits).

With lathes without tool drive, square shank tools are put in. These are pressurized by external pumps, hoses and pipes. Rotary unions are available allowing the free motion as well as rotation of the turret disk.

Tools and rotatory union become installed according to Fig. 3-3. Firm tubes lead from the rotor of the rotatory union to the tools. The stator is secured against twisting with the supply

line. In addition, the customer has to provide the bracket holding the supply line in position. Further connection takes place over pressure hoses.

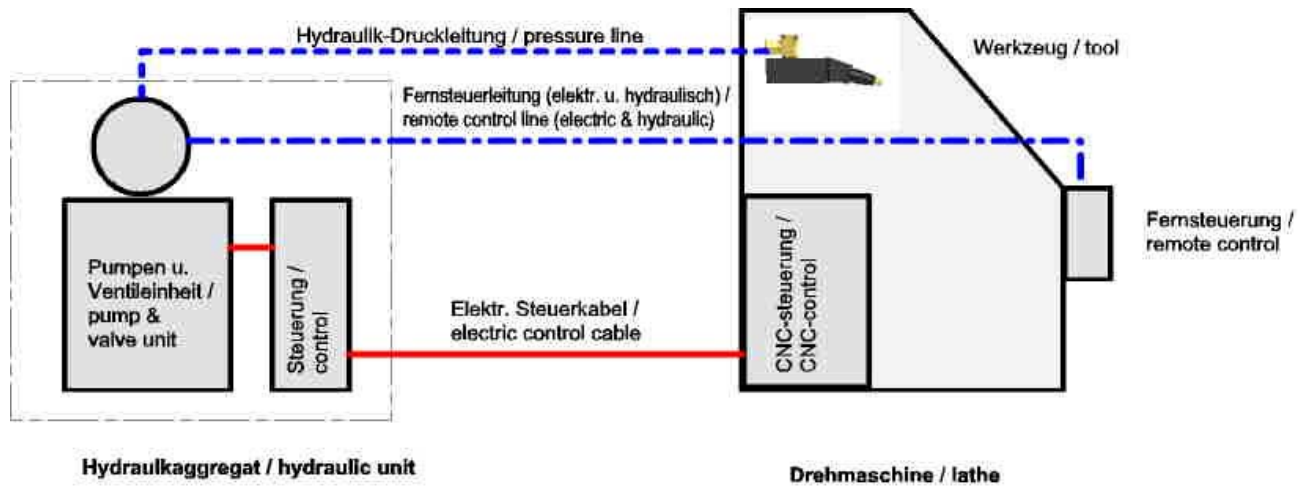


Fig. 3-3: Connection with CNC-control

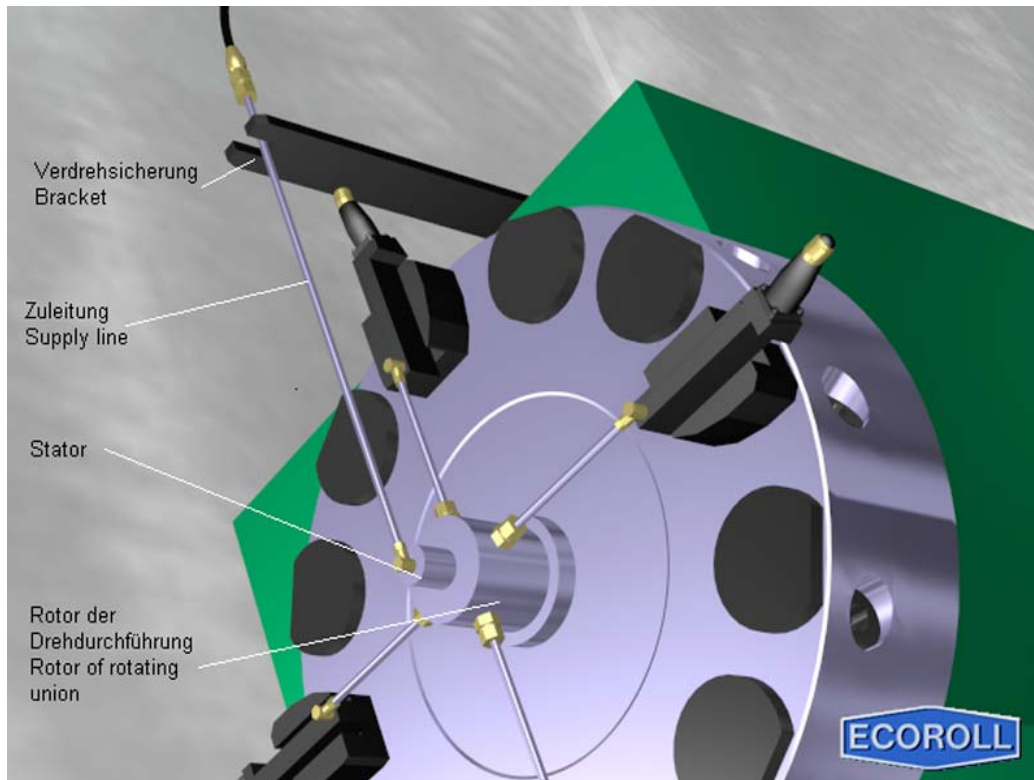


Fig. 3-4: selective rotatory union for 2 to 4 tools

These conditions described in sections 0 are generally applied in whole application examples described in the following chapters.