Quicker tool changes
By pre-assembling HYDRO-GRIP and the tool in the toolroom you minimize the adjustment time at the processing machine.

Advice for tool assembly
It is vital that HYDRO-GRIP is never pressurized without being assembled with a tool on a machine spindle.

NB! Both the tool and the machine spindle must cover the length of the sleeve. To achieve optimal stability you must ensure an even contact surface throughout the entire sleeve. More detailed instructions for HYDRO-GRIP are included in the assembly instructions which are included with every product.

Temperature
Thanks to the small volume of pressurizing medium used, HYDRO-GRIP is only minimally sensitive to temperature changes. Only if the temperature varies by as much as +/- 30°C do you need to adjust the pressure of the sleeve.

Repeatability
The incredible repeatability that HYDRO-GRIP gives you, within 0.002 mm, allows you to achieve the same precision even on your production machine as you achieve on your grinding machine. The same repeatability is attained when using a G2, G3 or GE type hydraulic chuck/arbor.

Pressurizing medium
HYDRO-GRIP works at a relatively high pressure of (approx. 450 bar) and is pressurized with a small amount of grease. It is therefore very important that the correct type of pressurizing grease is used. **We strongly recommend Blasolube 301.** Tests have shown that use of other types of non-recommended soap based grease can cause deformation of the sleeve (similar to a permanent plastic deformation) when the pressure is reduced.

Power transfer
The tables indicate the guidelines for the power in Kw (hp) that can be transferred.

When using type A and AI sleeves the tool should always be bolted to the flange. The bolts have the same function as the ring nut on the B and BI type sleeves.

Referring to the table below we get the multiplication factor of 2.3. Multiplying the tool width 22 by 2.3 gives us the transferable power of approximately 50 kW.

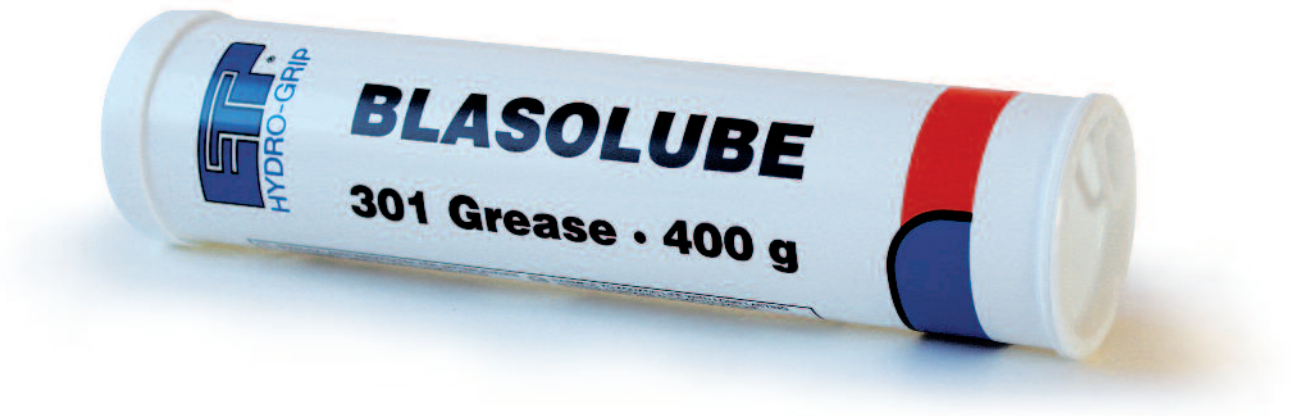
Example	
Tool width	22 (7/8")
Tool internal diameter	60 H7
ETP HYDRO-GRIP	B-50/60-75
RPM	4500 rpm

ETP HYDRO-GRIP type C, CI, BI and B
Maximum transferable power (kW) per mm of contact surface length between HYDRO-GRIP and tool

Tool hole diameter tolerance H7	**kW per mm**	
	4500 rpm	**6000 rpm**
50	0.9	1.2
60	2.3	3.2
65	3.3	4.9

ETP HYDRO-GRIP type A and type AI
Maximum transferable power (kW)

Spindle mm	**Speed (rpm)**	
	4500	**6000**
1 1/4"	35	50
40 and 1 1/2"	58	75
1 13/16"	85	115
50 and 2 1/8"	122	165



Use of screws in the ring nut

(Type B, BI and BL). The knurled ring nut only needs to be lightly tightened so the tools are in contact with each other. Tightening the three screws in the ring nut ensures that the tools are safely and accurately fixed into position. This allows you to maintain the accuracy achieved on the grinding machine when you move the sleeve and tool assembly to the spindle on your production machine.

Tolerances

ETP HYDRO-GRIP is intended for machine spindle tolerance **g6** and tool tolerance **H7.** (See tables to right).

Permanent assembly
A tool with a hole tolerance of **H7** gives a light press fit on the sleeves meant for permanent assembly, type A and AI. When pressurized the sleeve expands against the spindle, thus eliminating any play between the sleeve and spindle.

Interchangeable assembly
A tool with a hole tolerance of **H7** gives a an easy slip fit on sleeves meant for interchangeable tool assembly, type CIR, CI, C, BI and B. When pressurized the sleeve expands against the spindle, thus eliminating any play between the tool and spindle.

	Spindle, g6
Ø 30	-0.007 to -0.020 mm
Ø 1 1/4"	-0.009 to -0.025 mm
Ø 1 1/2"	
Ø 40	
Ø 45	
Ø 50	
Ø 1 3/4"	
Ø 1 13/16"	
Ø 2 1/8"	-0.010 to -0.029 mm
Ø 2 3/16"	

	Tool fastening hole, H7
Ø 20	0 to +0.021 mm
Ø 25	
Ø 30	
Ø 3/4"	
Ø 1"	
Ø 1 1/4"	0 to +0.025 mm
Ø 38	
Ø 40	
Ø 50	
Ø 60	0 to +0.030 mm
Ø 65	
Ø 80	
Ø 100	0 to +0.035 mm

	Router bit shank g6 (h7)
Ø 12	0 to -0.018 mm
Ø 16	
Ø 1/2"	
Ø 5/8"	
Ø 20	0 to -0.021 mm
Ø 25	
Ø 3/4"	
Ø 1"	

The Ø45 and Ø50 sleeves

The Ø45 and Ø50 have two, threaded M8-holes for carrier pegs on a 70 mm pitch diameter. Carrier pegs, 2 pcs, 8 x 5 mm are incl.