



GENERAL INFORMATION :

HABEGGER GUIDE BUSHES

WITH 3 POSITIONS

20 GENERAL REMARKS

- 20.1** The Habegger guide bush with three positions called hereafter TP bush is a non-revolving bush fitted with tungsten carbide rollers the adjustment of which is done by a pneumatic cylinder.
- 20.2** Its principle is relatively simple: The conventional guiding elements of Habegger bushes with rollers do not change. The inside components are identical with those of our present guide bushes, excepted the nut at the back. That nut, used for manual adjustment, has been replaced by a pneumatic cylinder permitting to adjust the bush at any time.
- 20.2** The material bar is guided by tungsten carbide rollers, driven by the rotation of the bar. That is the principle of a needle bearing, the inside cage of which would be the material bar (direct contact) and it results in an optimal material guiding.

21 FUNCTION

The target of the TP bush is to adapt itself to the material tolerances. It permits to increase the guiding rigidity by its clamping function for some particular machining jobs. Thus, the vibrations of the material bar can be avoided in comparison to what happens with the conventional guide bush, where a certain clearance between the bar and the bush is necessary for a good run.

The TP bush runs in three positions, according to the wanted function:

- working position
- clamping position
- open position

The working and clamping positions are obtained by two different pressure levels. The first one corresponds to the guiding position of the material bar (working position). The second one corresponds to the closing position of the bush (clamping position). A reversed pressure will command the forced opening of the guide bush. The pneumatic device includes a box of the FESTO type, which permits to command the two pressure levels. The pneumatic connection is directly on the machine, with lubricated air at the pressure of 5 to 6 bars. The control of the TP bush by the pneumatic box is obtained by two programmable outlets 24 VDC available on the machine.

22 **MAIN ADVANTAGES**

- 22.1** A minimum of clearance when guiding the material bar gives a better turning accuracy.
- 22.2** No risk of seizing-up. This permits a constant run of the machine.
- 22.3** High rotation speed (the speed is not limited by the bush) allowing a higher production rate.
- 22.4** Before machining each workpiece, the guiding bush gets adjusted to the exact tolerance of the material bar, there where the workpiece will be clamped.
- 22.5** At a micro-milling operation or at any other radial machining operation, the clamping function of the TP bush permits to maintain the bar in a rigid manner, avoiding a rapid wear of the tools used.
- 22.6** The same clamping function can be asked for when feeding a long workpiece requesting the clamping collet to open. The bush replaces then the conventional "thread clamping device".
- 22.7** On the other side, the open position of the TP bush permits fast feeds by the headstock, avoiding eventual marks made by the bush on the raw material bar.
- 22.8** When changing the bar, the open position makes easy to extract the useless end-piece of the bar. The new bar can easily be introduced.
- 22.9** The setting range of the TP bush allows perfect guiding of material bars, up to a tolerance of h11.

23 **ASSEMBLY**

- 23.1** **The TP bush can only be used for material bars the diameters of which correspond to the dimensions marked on the bush cover.**
- 23.2** The TP bushes can be used on machines with r.h. or l.h. rotation (CW or CCW).
- 23.3** Assembly on the machine is done as for a conventional bush, using Habegger bush holders for a perfect lubrication of the TP bush.
- 23.4** The TP bushes will be installed on the machine with the bush holders that we propose for standard bushes. We want to avoid more costs for customers who have already our equipment.
Lubrication is always done through the bush-holder, as for the bushes of the types CNC or EN.
- 23.5** Our bush holders are available for the following machine types: TORNOS, STAR, CIZEN, TSUGAMI, MANURHIN, HANWHA, TRAUB, MICROSWISS.
Our technical staff is ready to advise you concerning the adaptation possibilities on other types of CNC machines.
- 23.6** The pneumatic box FESTO is not required if the machine has already two pneumatic pressure levels that can be adjusted separately and that can be controlled by M code.

24 **ADJUSTMENT**

Unlike the standard bushes, the adjustment of bar clearance is no more done manually by actuating a nut. Adjustment is done by adjusting the level of working pressure.

25 **LUBRICATION**

The lubrication system with filter prevents dirt to get into the TP bush. It avoids faster wear of the bush. No warranty will be given for the Habegger TP bushes which are not used together with the filter lubrication system.

26 EXCHANGE KITS

As for the standard guiding bushes Habegger of the types D/LD/EXT/CNC, the TP bushes are divided in different families that can be identified according to the external diameter of the bush sleeve. For each of the families it is possible to cover a maximum diameter range by exchanging the inside parts. Kits have been foreseen for this purpose.

27 DIMENSIONS

TYPES	ØA	ØB	ØD	L1	L3	L4
TP 18	3.38 – 4.76	36	18	35	25	37
TP 22	4.77 – 5.67	38	22	40	25	37
TP 25	5.68 – 7.36	41	25	45	26	37
TP 30	7.37 – 10.45	48	30	50	27	38
TP 35	10.46 – 18.10	55	35	55	28	38
TP 40	18.11 – 22.00	66	40	60	29	41

