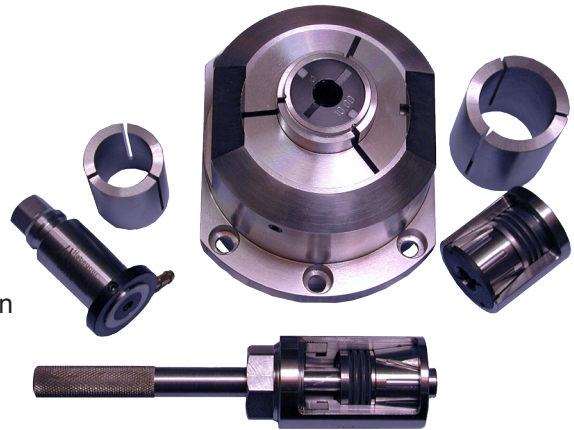


HABEGGER GUIDE BUSH SERVICE INFORMATION

40. Types Of Guide Bushes

Our manufacturing program includes several types of guide bush with the aim to adapt them to different makes of cam and CNC sliding head machines. The basic principle is, however, identical for each of these types.

- Type C (see special documentation)
- Type oscillating / 3 positions (see special documentation)
- Type D
- Type LD
- Type EXT
- Type CNC
- Type EN



21. Main Advantages

- High rotation speed (no limited by the bush): more production
- Minimum play: higher precision
- No risk of seizing up: continued production
- Maximum turning length: no restriction

21.1 It is particularly recommended for tough materials, which would easily seize-up, like stainless steel, nickel, etc., or when knurling or any other operations causing a high radial effort on the bar are effected.

21.2 The new regulations with respect to the environment require the turning shops to use cutting oils without chlorine. This may cause frequent seizing up when using conventional guide bushes especially when machining stainless steel. In such a case Habegger guide bushes are the solution.

22. The Choice of a Guide Bush

22.1 Type D:
- for all conventional cam operated machines

22.2 Type LD:
- for most STAR turning automatics
- for MANURHIN turning automatics, type K'MX

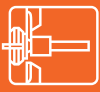
22.3 Type EXT:
- for TORNOS turning automatics, types TOP-100, ENC-16, ENC-162, ENC-164
- for STAR, types RNC-16, SST-16

22.4 Type CNC:
- for HABEGGER CNC-25 turning machines, Evolution 2
- for TORNOS automatics, types ENC-74, ENC-167, DECO 2000/20
- for TRAUB automatics, type TNL-16
- for TSUGAMI automatics, types NP-17, NP-4
- for MANURHIN automatics, types TWIN, SWING

22.4 Type EN:
- for TORNOS automatics, types TOP-200, ENC-262, ENC-264, DECO 2000/7



Guide bushes of the types CNC and EN are lubricated through their center. For this reason, guide bush holders of our own make must be used. They assure a perfect lubrication. Our technical service is at your disposal to help you by the selection of a specific guide bush for your machines.



HABEGGER GUIDE BUSH SERVICE INFORMATION

23. Assembly

- 23.1 23.1 The guide bush can only be used for bars of the diameter which corresponds to the size indicated on the cap No 21.
- 23.2 Assembly on the machine is the same as for a conventional guide bush. We offer a great choice of bush-holders and reduction sleeves.
- 23.3 The Habegger guide bushes may be used on machines with clockwise or anti-clockwise rotation.

24. Adjustments and Use

- 24.1 The adjustment of the bar clearance is effected as for a conventional guide bush, i. e. by acting on the nut no 29 at the back of the bush.
- 24.2 The material bar is guided by tungsten carbide rollers driven by the bar's rotation. The material bar is guided by tungsten carbide rollers driven by the bar's rotation. This is like the function principle of a needle bearing, where the inside casing would be the material bar (direct contact).
- 24.3 The guide bushes' accuracy will be at the maximum after a few days run, once the rolling path gets stabilized. If some variations occur in the diameter of the workpieces, after a certain time, reverse the rollers.

25. Lubrication

- 25.1 The lubrication system with filter prevents swarf from entering into the interior of the guide bush causing premature wear of the carbide rollers.
- 25.2 Habegger guide bushes which are used without filtered lubrication will not be subject to the manufacturer's guarantee.

26. Exchange Kits

The Habegger guide bushes are divided in 8 different families which can be identified according to the outside diameter of the sleeve No 25. For each of these families, it is possible to suit a maximum of diameter ranges, by exchanging the inside parts. Kits are available for this purpose.

27. Table of Measurements

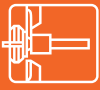
TYPE D	TYPE LD
TYPE EXT	TYPE CNC / EN

HABEGGER GUIDE BUSH SERVICE INFORMATION

All the following dimensions are given in millimetres.

TYPES		ØA	ØD	L1	L2	L3
D15	1.59 - 3.37	15	35	59	71	10
LD15				--	59	
EXT15			81	93		
CNC/EN15				59	71	
D18	3.38 - 4.76	18	35	59	71	12
LD18				--	59	
EXT18			80	92		
CNC/EN18				59	71	
D22	4.77 - 5.67	22	40	59	72.5	14
LD22				--	59	
EXT22			81	93	8	
CNC/EN22				59	72.5	
D25	5.68 - 7.36	25	45	59	72.5	17
LD25				--	59	
EXT25			84	93		
CNC/EN25				59	72.5	
D30	7.37 - 10.45	30	50	62	75.5	22
LD30				--	62	
EXT30			82	95.5		
CNC/EN30				62	75.6	
D35	10.46 - 18.10	35	55	67	80.5	25
LD35				--	67	
EXT35			83	96.5		
CNC/EN35				67	80.5	
D40	18.11 - 22.00	40	60	72	85.5	30
LD40				--	72	
CNC/EN40				72	85.5	
D50	22.01 - 26.00	50	65	79	92.5	36
LD50				--	79	
CNC/EN50				79	92.5	

»»» Ø 26.01 - 32.00 on request



HABEGGER GUIDE BUSH SERVICE INFORMATION

28. Guide Bush Filtered Oil Feed Configuration

