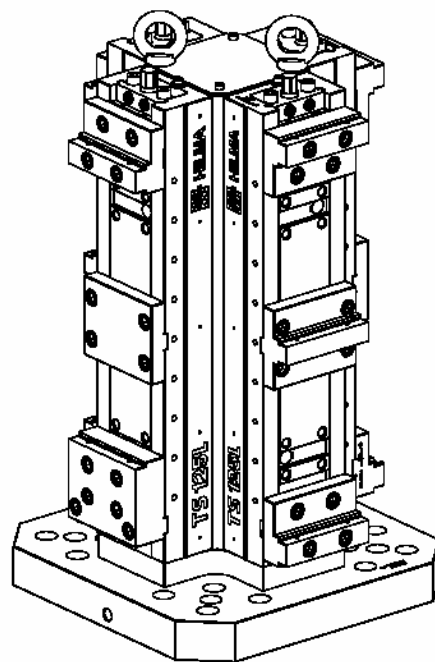
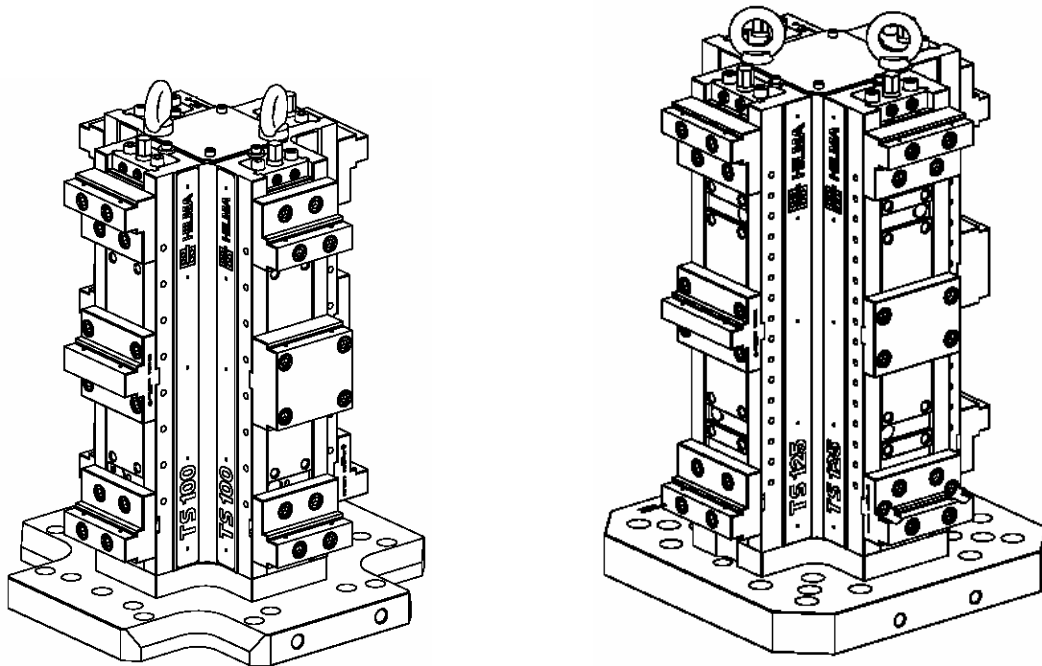


Operating Manual

Including installation and assembly instructions
For incomplete machines as per Machinery Directive 2006/42/EC

Tower clamping system, mechanical
Jaw width 100, 125
TS100 , TS125 , TS125L , TS125 Mag.

Typ 9.3365.
Typ 9.3366.



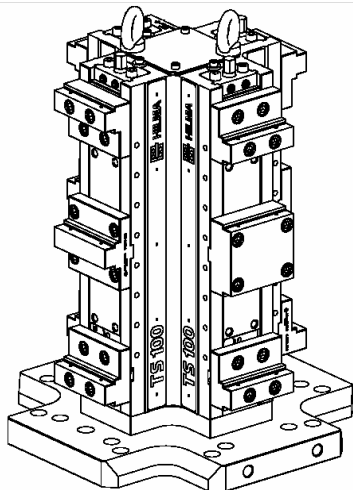
Hilma-Römheld GmbH
Schützenstraße 74
57271 Hilchenbach
Phone: +49 (0) 02733/281-0
Fax: +49 (0) 02733/281-169
E-Mail: info@hilma.de
www.hilma.de

TABLE OF CONTENTS

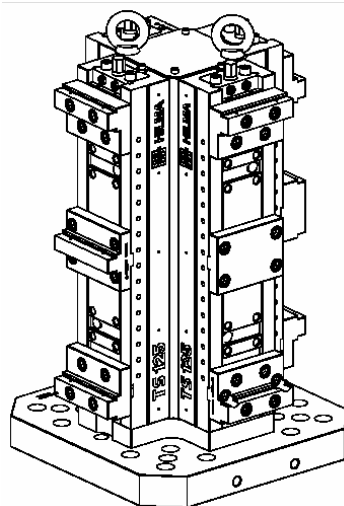
		SEITE
1. General	1.1 Product lines	2
	1.2 Description	3
	1.3 Safety information	3
	1.4 Scope of supply	4
	1.5 Technical data	4
2. Operation	2.1 Fastening to the machine bed	4
	2.2 Adjustment of the clamping range and of the 3 rd hand function	5
	2.3 Clamping and unclamping	5
	2.4 Single clamping	5
	2.5 Quadruple clamping	5
3. Appendix	3.1 Troubleshooting	6
	3.2 Maintenance and care	6
	3.3 Service / Maintenance	6
	3.4 Spare parts	7
4. Including Installation		8

**In order to ensure safe and appropriate operation, read
this operating manual thoroughly prior to installation and commissioning!**

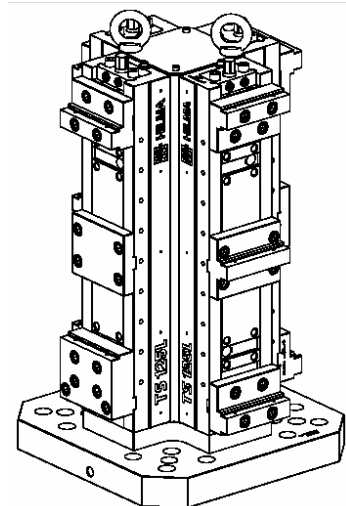
1.1 Product lines



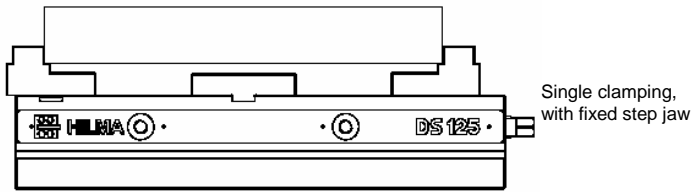
TS100 – type 3365



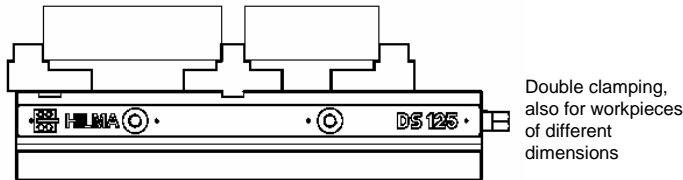
TS125 – type 3366-0201



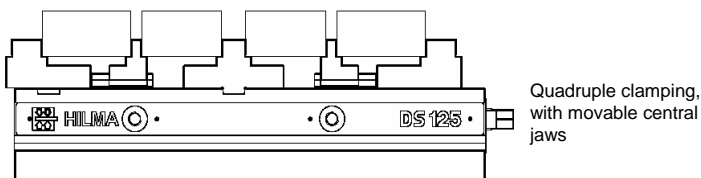
TS125L - type 3366-0301



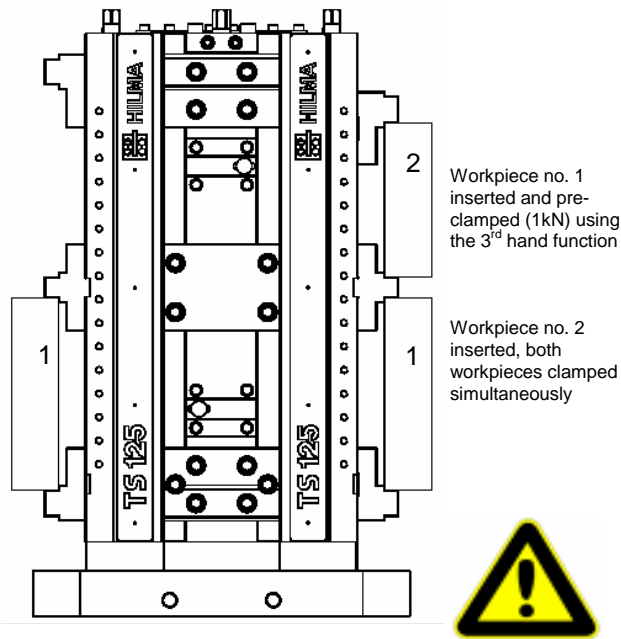
Single clamping,
with fixed step jaw



Double clamping,
also for workpieces
of different
dimensions



Quadruple clamping,
with movable central
jaws



Workpiece no. 1
inserted and pre-
clamped (1kN) using
the 3rd hand function

Workpiece no. 2
inserted, both
workpieces clamped
simultaneously

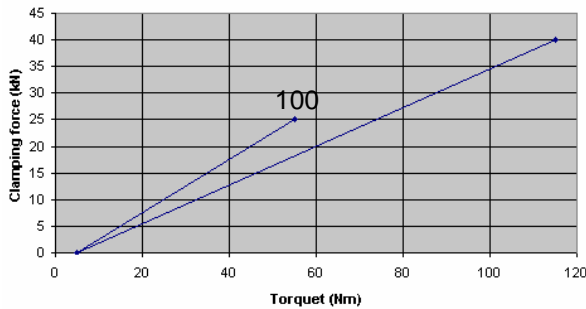
1.2 Description

- The mechanical tower clamping system is designed for universal clamping of workpieces on machine tools and is suitable for the simultaneous clamping of between one and four workpieces using a spindle drive.
- The clamping points can accommodate workpieces of various sizes.
- The 3rd hand function allows successive positioning of workpieces, which is particularly advantageous in the case of top heavy workpieces.
- When using step jaws, the slides are guided without play, and the spindle moves smoothly.
- The assembly is easy to maintain. After dismantling the step jaws and a stop screw, the slide system may be removed from the base.

1.3 Safety information

- Before commissioning the system, make sure that there is no possibility of collisions taking account of the working area of the machine.
- Fasten the tower clamping system firmly to the machine bed using screws.
- Clamp it using a torque wrench, see 2.3
- The workpiece clamping forces must be such as to ensure that there is no possibility of the workpiece being moved by the machining forces.
- Remove the torque wrench after clamping.
- When adjusting the 3rd hand function, the workpieces are not clamped (in the case of vertical positioning of the clamping system, secure the workpieces so that they cannot fall down). See also chapter 2.2 'Adjustment of the clamping range and of the 3rd hand function'.

Course of the clamping force TS



1.4 Scope of supply

- 125 • Tower clamping system, mechanical, with an operating manual / spare parts list (sets of clamping jaws are not part of the supply).

1.5 Technical data

Jaw width mm	Clamping force kN	Torque N	Clamping stroke mm
100	25	55	44
125	40	115	44

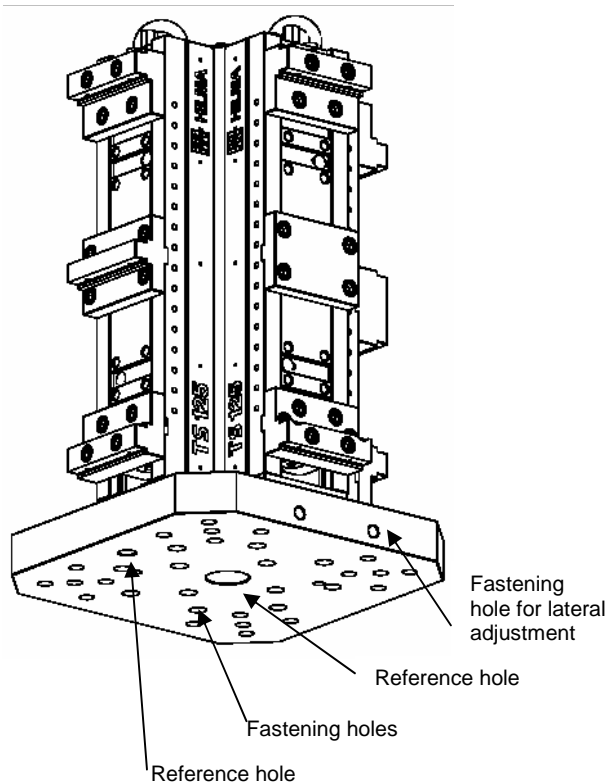
Clamping stroke for TS125L: 48 mm

2.1 Fastening onto the machine bed

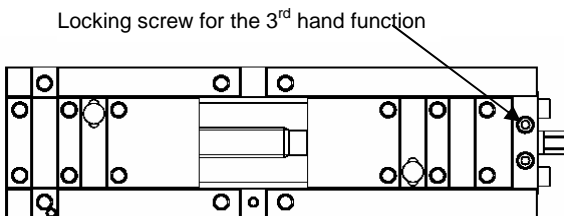
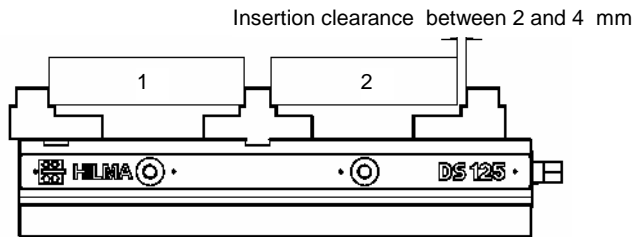
Tower clamping systems must be fastened in such a way that they will not be moved by the machining forces.

- Before commissioning the system, make sure that there is no danger of collision taking account of the working area of the machine.
- For easier handling use a ring bolt DIN 580.
- Remove any unevenness and any swarf, which may be present between the locating surface and the base.
- Aligning
 - a: by means of a dial gauge
 - b: by means of slide blocks
 - c: by means of positioning pins
- Fastening
 - d: by means of screws
 - e: by means of clamping claws

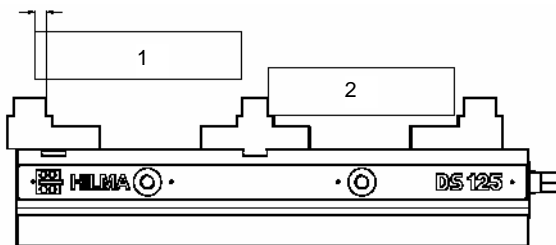
For each series, special fastening sets are available.



Fastening and reference holes only in the planned version



Clamping range overlap = insertion clearance + safety stroke



2.2 Adjustment of the clamping range and of the 3rd hand function

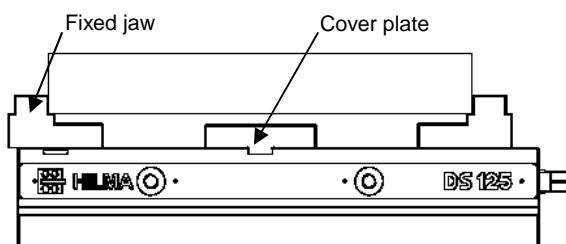
- Open the tower clamping system as far as the stop by turning the spindle counterclockwise.
- Select the jaw set suitable for the workpieces and fasten it. Make sure that there is no foreign matter between the jaws and the guide.
- Tighten the locking screws for the 3rd hand function
- Insert workpiece no. 1 and put it into contact with the fixed jaw by means of the spindle.
- Undo the locking screws for the 3rd hand function.
- Adjust the insertion clearance for workpiece 2 to between 2 and 4 mm, tighten the fastening screws of the 3rd hand function.
- Check the clamping range overlap (min. 2 mm). For this, remove workpiece no. 1 and continue to turn the spindle clockwise.
- When adjusting the 3rd hand function, the workpieces are not clamped (in the case of vertical positioning of the clamping system, secure the workpieces so that they cannot fall down).

2.3 Clamping and unclamping

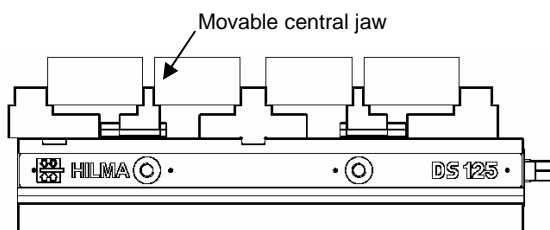
- By turning the spindle clockwise using a torque wrench, workpiece no. 1 is pre-clamped (1kN) by the 3rd hand function. Then workpiece no. 2 is inserted, and both workpieces are clamped with the same clamping force. When unclamping in a counterclockwise direction, first workpiece no. 2 and then workpiece no. 1 is unclamped.

Please note:

Turning the spindle by applying force may damage the system.



Single clamping



Quadruple clamping

2.4 Single clamping

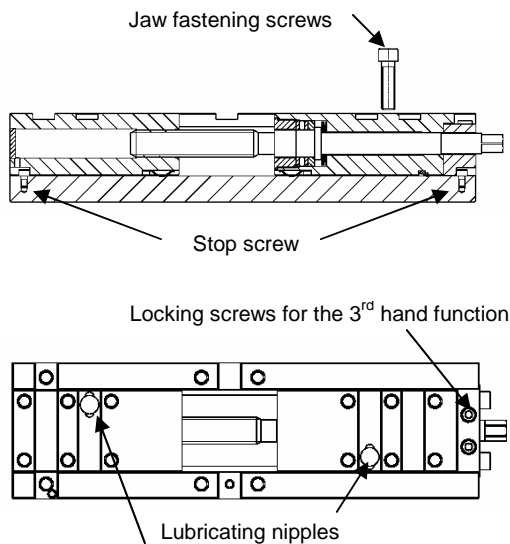
- Use a fixed jaw, which immobilises the left slide and install a cover plate.

2.5 Quadruple clamping

- Select the guide plates for the movable central jaws suitable for the workpiece size and fasten them to the slides using screws. For clamping and unclamping, see 2.3

3.1 Trouble shooting, hydraulic version

Failure	Cause	Remedial action
Max. jaw opening is not achieved	Locking screw for the 3 rd hand function is tightened	Undo locking screw for the 3 rd hand function
Angular position of the movable jaw is incorrect	Swarf between the jaws and the guide due to improper installation	Dismantle the jaws, clean them, grind them if necessary, oil them and reinstall them
The workpiece is not firmly clamped although the correct torque has been applied	The clamping range overlap is not sufficient	See 2.2 'Adjusting the clamping range and the 3 rd hand function'
The spindle is stiff	Grease has been removed by the emulsion	Grease the spindle and the bearings



3.2 Maintenance and care

- Apart from normal cleaning of the spindle and the bearings, the system should be greased at regular intervals through the lubricating nipples.
- For basic cleaning, undo the clamping jaws and remove the stop screw. Then pull the slides off the base using two screws normally used for fastening the jaws, clean and oil.

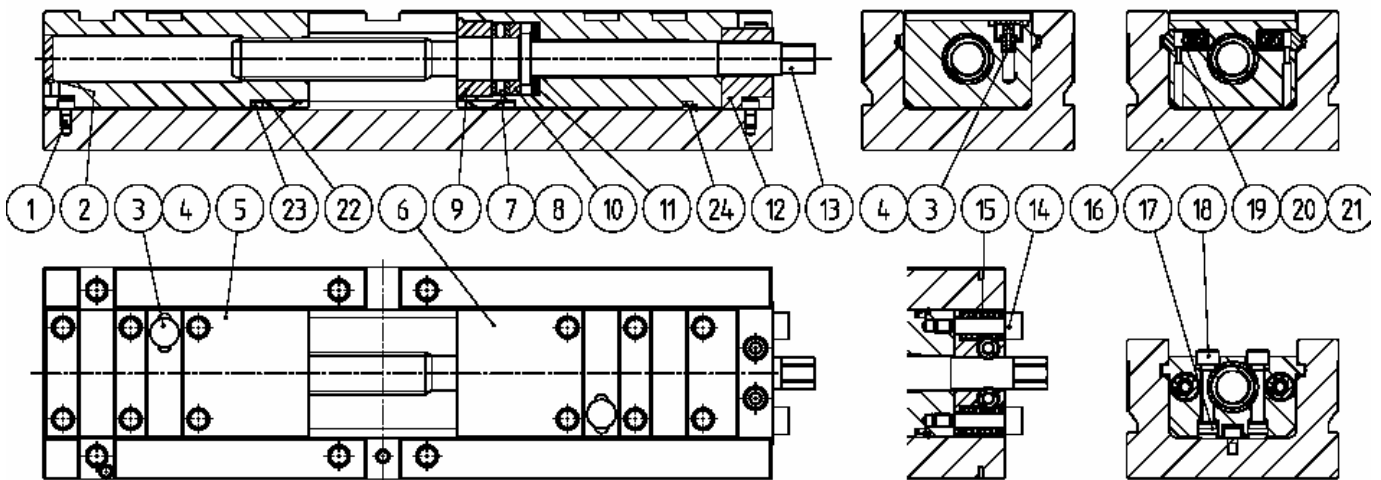
3.3 Service / Maintenance

SERVICE - HOTLINE +49 (0) 2733 - 281 150

Customers abroad

- Please contact the HILMA-RÖMHELD general importer or your local dealer

3.4 Spare parts (shown: DS)



Item	Designation	Qty.	Spare part No.		
			TS100	TS125	TS125L
1	Cheese head screw M6x10 DIN 912	8	1.0912.0057	1.0912.0057	1.0912.0057
2	Cover	4	5.1215.0823	5.1215.0823	5.1215.0823
3	Lubrication nipple AM8x1 DIN 71412	8	1.4005.0003	1.4005.0003	1.4005.0003
4	Protective plug GPN 300 V15	8	1.9606.0071	1.9606.0071	1.9606.0071
5	Slide	4	5.2040.0327	5.2040.0397	5.2040.0387
6	Slide	4	5.2040.0328	5.2040.0398	5.2040.0388
7	Thrust bearing INA K 81105 TN	4	1.2542.0020	1.2542.0026	1.2542.0026
8	Wave washer INA WS 81104	8	1.2067.0024	1.2067.0025	1.2067.0025
9	Ring nut	4	5.1210.0054	5.1210.0053	5.1210.0053
10	Washer	4		5.1022.0233	5.1022.0233
11	Belleville spring	16	1.2093.0143	1.2093.0026	1.2093.0026
12	Block	4	5.2023.0025	5.2023.0009	5.2023.0009
13	Spindle	4	5.2043.0176	5.2043.0201	5.2043.0200
14	Screw	8	5.1024.0085	5.1024.0068	5.1024.0068
15	Pressure spring	8	1.2098.0407	1.2098.0356	1.2098.0356
16	Base	1	5.2051.0692	5.2051.0437	5.2051.0602
17	Pressure pad	8	5.1408.0164	5.1408.0164	5.1408.0164
18	Screw DIN 912 8.8 (TS100 6x30) (TS125 8x35)	8	1.0912.0065	1.0912.0085	1.0912.0085
19	Pressure pad	16	5.1408.0217	5.1408.0161	5.1408.0161
20	Pressure spring	16	1.2098.0408	1.2098.0346	1.2098.0346
21	Dowel pin (TS100 3x8) – (TS125 3x10)	16	1.1481.0054	1.1481.0055	1.1481.0055
22	Leaf spring	4	5.1321.0002	5.1321.0002	5.1321.0002
23	Cheese head screw M4x6 DIN 7984	8	1.7984.0017	1.7984.0017	1.7984.0017
24	Scraper	4	1.9607.0009	1.9607.0010	1.9607.0010

Subject to modification



Declaration of incorporation

as per

**Machinery Directive EC-RL 2006/42/EC
dated June 9, 2006.**

We, **Hilma- Römheld
Schützenstrasse 74
57271 Hilchenbach,** declare, that the incomplete machine and its variants:

Tower clamping system, mechanical

type 9.3365.xxxx

type 9.3366.xxxx

as supplied by us has been specifically designed for incorporation into a machine, taking full account of DIN-EN 294. The documentation has been prepared in conformity with appendix VII B. If required, the national authority may receive the documentation as a hard copy by post or by e-mail as a PDF format file. The machine into which the parts are to be integrated must only be put into operation after the conformity of the machine with the above EC directive has been demonstrated.

The design of our products is in accordance with DIN EN 982, DIN 24346 and EN 60204-1.

Responsible for the document:
Stefan Groos
Schützenstraße 74
D-57271 Hilchenbach

Hilchenbach May 05, 2008
Hans-Joachim Molka
Managing Director