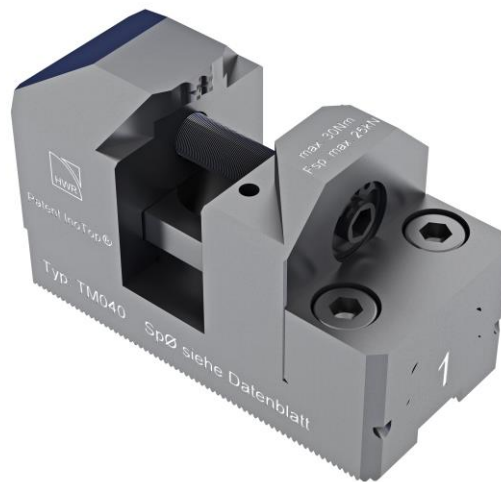




Installation Instructions

InoTop® Hybrid Clamping Jaws



Original installation instructions in German!
Keep for future use!

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 **HWR SPANNTÉCHNIK**
PRÄZISION IN VOLLENDUNG.

Contents	Page
1 Safety	1-1
1.1 Warranty and liability.....	1-1
1.2 Proper use	1-1
1.3 Obligations	1-1
2 Technical description	2-1
2.1 General	2-1
2.2 Overview of the InoTop® hybrid clamping jaws	2-1
2.2.1 Structure.....	2-1
2.2.2 Description of functions	2-2
3 Installation	3-1
3.1 Installation of the InoTop® hybrid clamping jaws	3-1
3.1.1 Fitting to large chuck	3-2
3.1.2 Fitting to small chuck.....	3-3
3.2 Function test	3-3
4 Operation	4-1
4.1 Clamping the workpiece.....	4-1
4.2 Releasing the workpiece.....	4-2
4.3 Regular work during operation	4-2
5 Maintenance	5-1
5.1 Maintenance plan.....	5-1
5.2 Dismantling/cleaning/fitting the hybrid clamping jaws	5-1
5.3 Disposal	5-1
6 Technical details	6-1
7 Spare parts	7-1

1 SAFETY

1.1 WARRANTY AND LIABILITY

As a basic principle, our "General Terms and Conditions of Sale and Delivery" apply. They are made available to the operator at the latest on concluding the contract.



CAUTION

You are not allowed to make any changes, additions or modifications to the InoTop® hybrid clamping jaws without obtaining the manufacturer's permission. Written confirmation from the manufacturer is required for all modification work.



CAUTION

Only use original spare and wear parts. Where externally procured parts are concerned, there is no warranty that these are designed and made in accordance with the loads and safety aspects.

NOTICE

The manufacturer assumes the full guarantee only and exclusively for spare parts ordered from him.

1.2 PROPER USE

The InoTop® hybrid clamping jaws are intended only for clamping parts for mechanical machining in lathes (see also chapter 6 Technical Details).

Any other use is deemed to be improper. The manufacturer is not liable for any resulting damage.

Proper use also includes complying with all instructions in the documentation.

1.3 OBLIGATIONS

The operator undertakes

- only to let trained skilled workers (trained metal workers) or CNC lathe operators work with the InoTop® hybrid clamping jaws who are familiar with the function of the hybrid clamping jaws and with the function of the machine tool and its safety and emergency devices and know how to use them safely.
- to heed the basic regulations regarding occupational safety and accident prevention.



DANGER

The operator bears final responsibility for safety. This responsibility cannot be delegated.

2 TECHNICAL DESCRIPTION

2.1 GENERAL

The InoTop® hybrid clamping jaws are intended only for clamping parts for mechanical machining in lathes (see also chapter 6 Technical Details).

They are ideal particularly for clamping deformation-sensitive individual parts (e.g. raw parts) and small series.

The hybrid clamping jaws can be fitted on all usual chucks.

2.2 OVERVIEW OF THE INOTOP® HYBRID CLAMPING JAWS

2.2.1 STRUCTURE

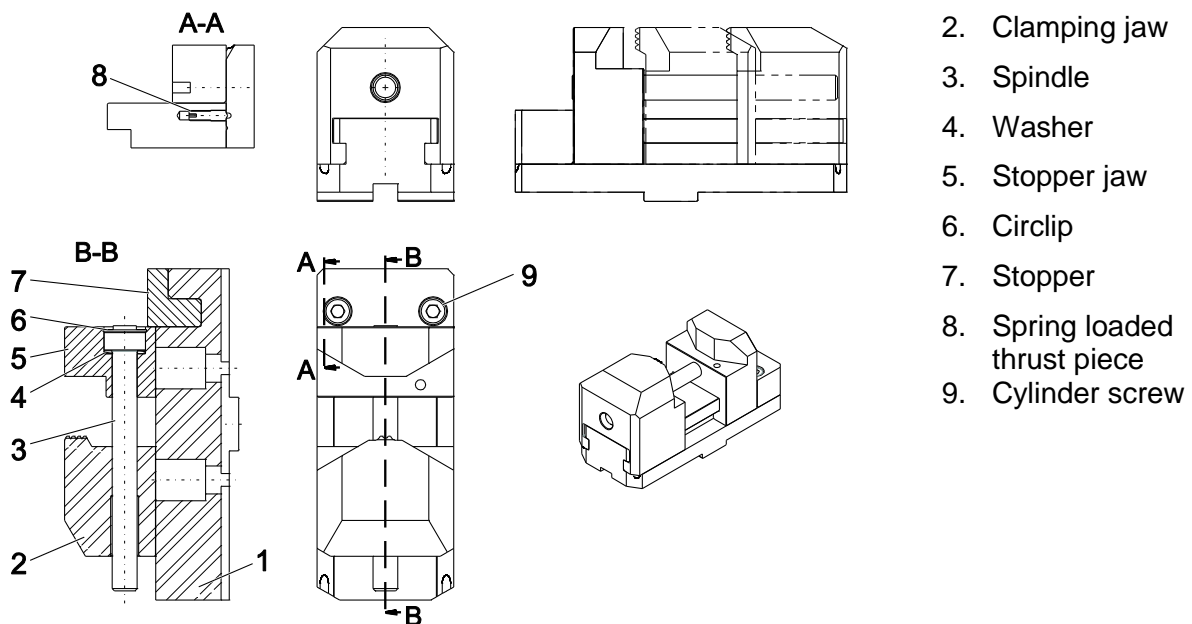


Fig. 2-1: Structure of the InoTop® hybrid clamping jaws

The InoTop® hybrid clamping jaws are available in the "gearing" (metric or inches) and "cross offset" versions.

2.2.2 DESCRIPTION OF FUNCTIONS

Centring the workpiece on the outside

The part is centred by the chuck by manual clamping or power clamping (cylinder).

CAUTION For power clamping, always work with the lowest possible hydraulic pressure to avoid deforming the part.

Uniform clamping of the workpiece on the inside

Tighten the spindles (1) with a torque wrench to warrant safe clamping of the part.

CAUTION Note the spindle torques on the stopper jaw.

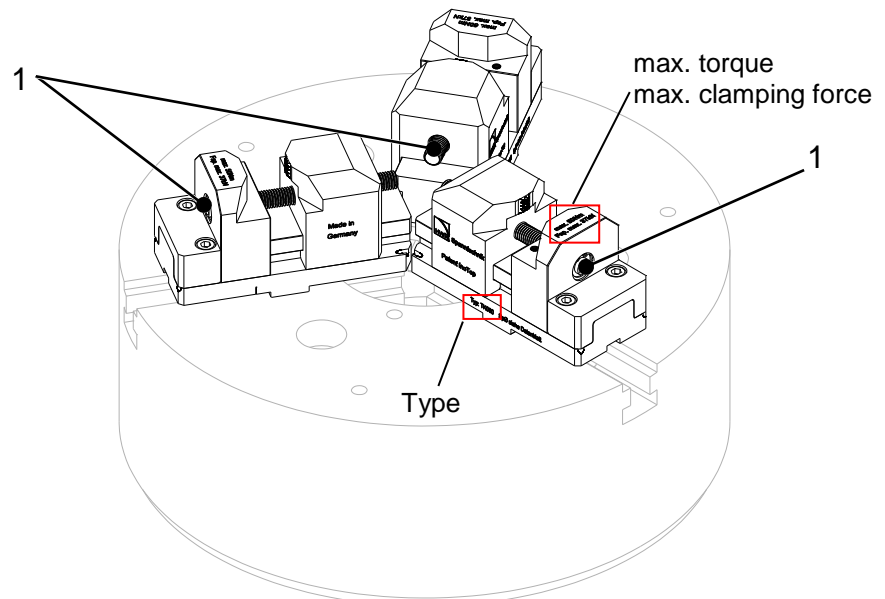


Fig. 2-2: Functioning of the InoTop® hybrid clamping jaws

3 INSTALLATION



CAUTION

The InoTop® hybrid clamping jaws may only be installed by trained and instructed staff who have also been trained and instructed in operating the machine tool.

3.1 MOUNTING THE INOTOP® HYBRID CLAMPING JAWS

Depending on the size of the chuck and the clamping diameter, fit the InoTop® hybrid clamping jaws on the base carrier (1) as follows, after fitting the base carrier to the chuck:

- Chuck $\varnothing > 315$ mm:
fitting from the front or inside (see chapter 3.1.1)
- Chuck $\varnothing < 315$ mm:
fitting from the back or outside (see chapter 3.1.2)

NOTICE

The jaw changing systems and flat spiral chucks are an exception to this rule: here the basic jaws can be taken out.



CAUTION

*Pay attention to identical spacing for the base carrier (1) to the middle of the chuck.
Pay attention to adequate thread engagement (min 1.25 x thread diameter)*

NOTICE

Heed the maximum torques for fastening screws (see table 6-1).



CAUTION

*The spring mounted thrust pieces (2) must slot into the base carrier (1).
They also provide support when clamping the part.*

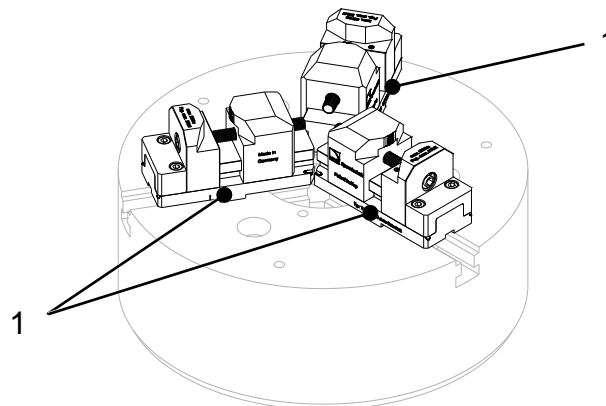


Fig. 3-1: Fitting the InoTop® hybrid clamping jaws

- Step 1** Before fitting the InoTop® hybrid clamping jaws, check them visually to ensure they are in perfect condition.
- Step 2** Clean the contact surfaces, the sliding blocks and the T-grooves of the chuck and the contact surfaces of the clamping jaws. There must not be any dirt or chippings on the corresponding surfaces.

3.1.1 FITTING TO LARGE CHUCK

- Step 1** Position the base carrier (1) with the ready mounted stopper (7) onto the chuck of the lathe and screw in with two cylinder screws (6) in each case, strength class 12.9.
- Step 2** Tighten the screws (6) with a torque wrench.
- Step 3** Bring the stopper jaw (3) and the clamping jaw (4) together using the spindle (5) to make it easier to push the clamping unit onto the base jaw.
Push the clamping unit, consisting of stopper jaw (3), clamping jaw (4), spindle (5) and the two spring mounted thrust pieces (2), from the middle of the chuck up to the stopper (7).

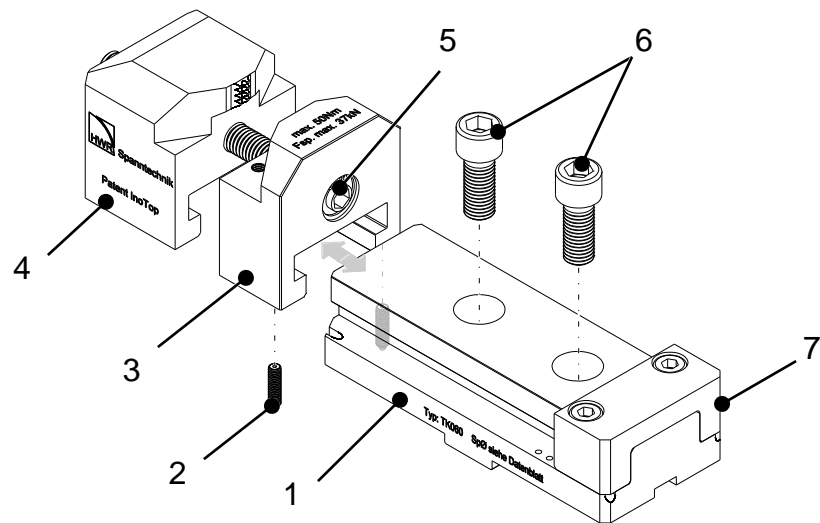


Fig. 3-2: Fitting clamping jaws: large chuck

NOTICE

Dismantling is carried out by reversing steps 1-3.

3.1.2 FITTING TO SMALL CHUCK

- Step 1** Dismantle the stopper (7) from the base carrier (4).
- Step 2** Position the base carrier (4) on the chuck of the lathe and screw in with two cylinder screws (5) strength class 12.9.
- Step 3** Tighten the screws (5) with a torque wrench.
- Step 4** Bring the stopper jaw (2) and the clamping jaw (3) together using the spindle (8) to make it easier to push the clamping unit onto the base jaw.
Push the clamping unit, consisting of clamping jaw (3), stopper jaw (2), spindle (8) and the two spring mounted thrust pieces (1), from the outside onto the base carrier (4).
- Step 5** Position the stopper (7) on the base carrier (4), screw the cylinder screws in (6, strength class 12.9) and tighten the screws with a torque wrench.

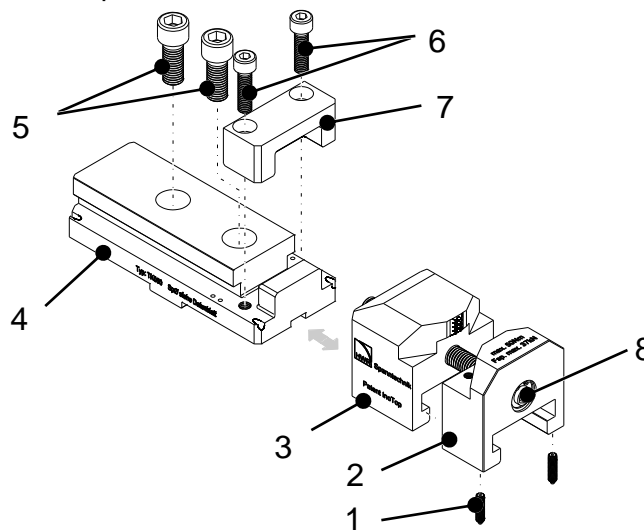


Fig. 3-3: Fitting clamping jaws: small chuck

NOTICE

Dismantling is carried out by reversing steps 1-5.

3.2 FUNCTION TEST

After fitting the hybrid clamping jaws, their function must be checked prior to initial commissioning. It must be easy to adjust the moving clamping jaws with the spindle.

4 OPERATION

4.1 CLAMPING THE WORKPIECE

 **DANGER**

Under all circumstances, precautions must be taken to rule out the risk of operating the hybrid clamping jaws with too many revolutions which would result in too much centrifugal force. Otherwise there is a risk that the workpiece is not adequately clamped.

 **CAUTION**

For every clamping task, the necessary clamping force must be calculated according to VDI 3106.

- Step 1** Open the clamping unit by turning the spindles (1, see Fig. 4-1).
- Step 2** Place the workpiece in the InoTop® clamping unit.
- Step 3** Centre the workpiece using the chuck of the machine tool by manual clamping or power clamping (cylinder).

 **CAUTION**

For power clamping, always work with the lowest possible hydraulic pressure to avoid deforming the part.

- Step 4** Clamp the workpiece using a torque wrench by uniform tightening of the spindles (1, see Fig. 4-1).

 **CAUTION**

Note the spindle torques on the stopper jaw.

- Step 5** Remove the torque wrench after clamping the workpiece.

 **DANGER**

In accordance with DIN EN 1550, the machine tool spindles must not start up as long as the torque wrench is in the chuck.

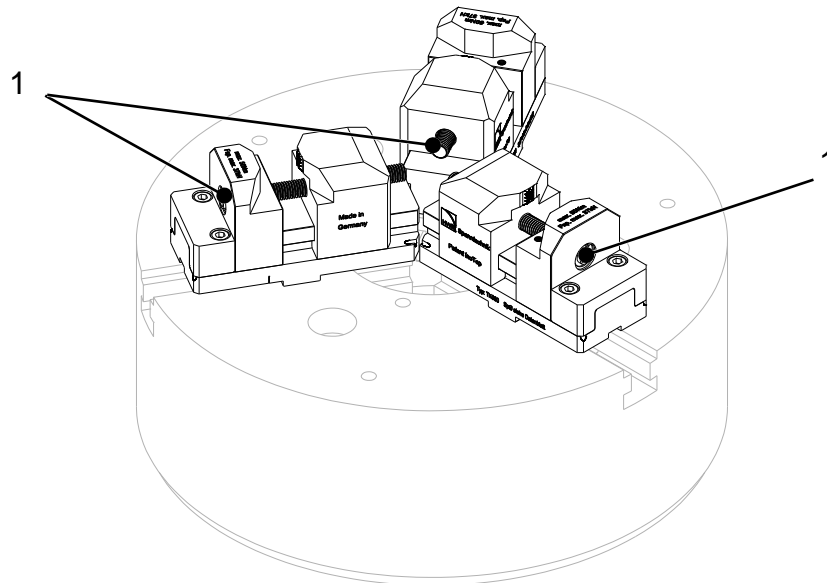


Fig. 4-1: Clamping the workpiece

Step 6 After clamping the workpiece correctly, set the machine running according to the operating instructions for the machine tool. Do not exceed the permitted number of revolutions.

4.2 RELEASING THE WORKPIECE

Step 1 Release the part by turning all hybrid clamping jaw spindles.



At this point in time, the tool machine chuck must still be closed.

Step 2 Now open the chuck by turning the spindles on the machine tool chuck.

Step 3 Remove the part.

4.3 REGULAR WORK DURING OPERATION

- Perform regular visual inspections for any dirt or soiling. If necessary, interrupt operations and clean the hybrid clamping jaws or the machine (see chapter 5 Maintenance).
- Also comply with the operating instructions for the machine tool.

5 MAINTENANCE

To warrant troublefree operation, the InoTop® hybrid clamping jaws and the machine tool must undergo regular maintenance and care.

Before starting maintenance and care work, switch the machine tool off and secure it to prevent it from starting up again (see operating instructions for the machine tool).



CAUTION

The InoTop® hybrid clamping jaws may only be repaired or parts replaced by trained and instructed staff who have also been trained and instructed in operating the machine tool.

5.1 MAINTENANCE PLAN

every time before use:	visual inspection for condition and function
during operation:	regular visual inspection for soiling and condition
every time after use:	manual cleaning
Table 5-1: Maintenance work	

5.2 DISMANTLING / CLEANING / FITTING THE HYBRID CLAMPING JAWS

NOTICE

Dismantling/fitting see chapter 3.1

Clean all components of the hybrid clamping jaws. Use a cold cleaner if necessary.

Check all components. Any damaged parts must be replaced. Contact the manufacturer if anything is not clear.

5.3 DISPOSAL

Have the hybrid clamping jaws removed correctly by a trained skilled worker and dismantled into its individual component parts.

Handle and dispose of used substances and materials correctly, particularly grease and solvents, in compliance with the national regulations.

6 TECHNICAL DATA

Strength class	Standard	Thread								
		M5	M6	M8	M10	M12	M14	M16	M20	M24
		max. torque [Nm]								
12.9	ISO 4762 (DIN 912)	10	16	30	50	70	105	150	220	450
10.9	ISO 4762 (DIN 912)	8	12	25	42	58	88	125	180	350

Table 6-1: Maximum torques for fastening screws

7 SPARE PARTS

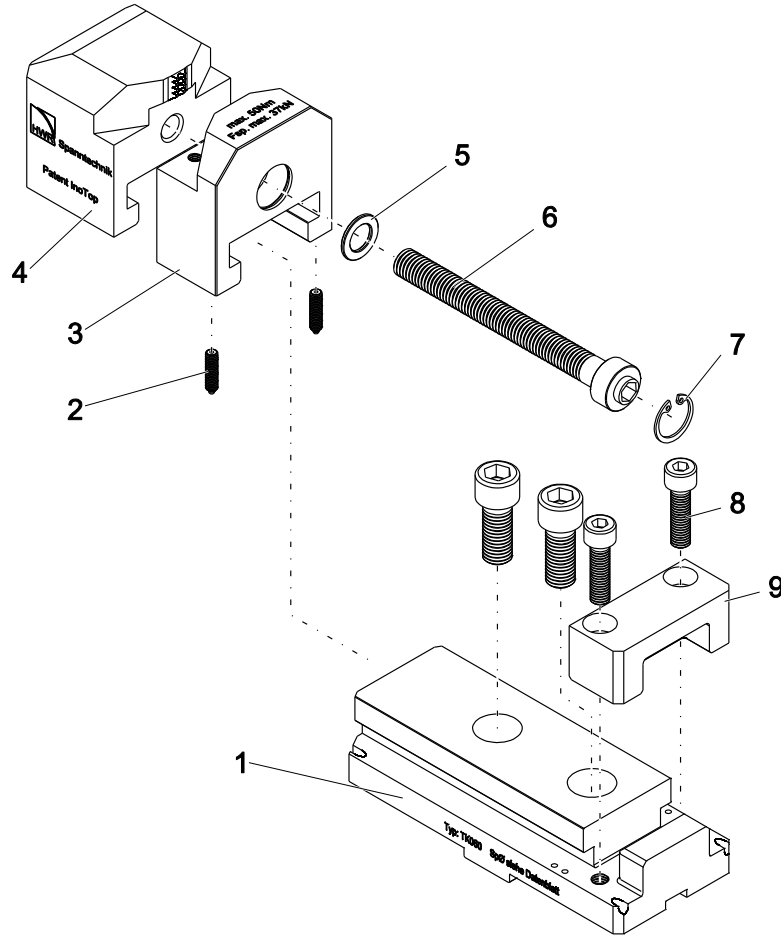


Fig. 7-1: Spare parts

No.	Designation	Qty
1	Base carrier	1
2	Spring loaded thrust piece	2
3	Stopper jaw	1
4	Clamping jaw	1
5	Washer	1
6	Spindle	1
7	Circlip	1
8	Cylinder screw	1
9	Stopper	1

Table 7-1: Spare parts list