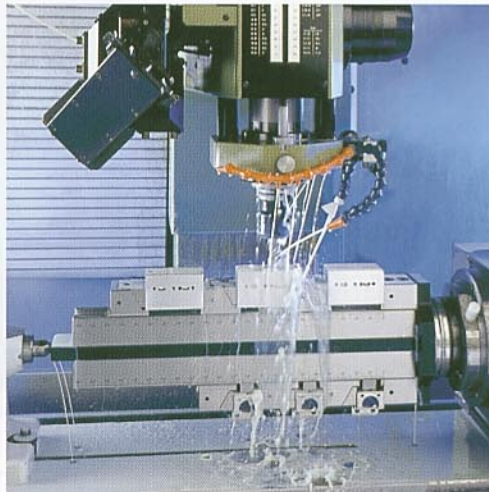


**HILMA  
RÖMHELD**

*Clamping with system*

**Multiple clamping system  
modular**



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**MSH**

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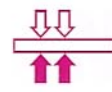
Multi Multi

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Multi Multi



## MSH Multiple clamping system



The highly precise MSH multiple clamping system is used for clamping cubed, circular and irregularly shaped workpieces of equal or different sizes in small, medium-sized and large batches.

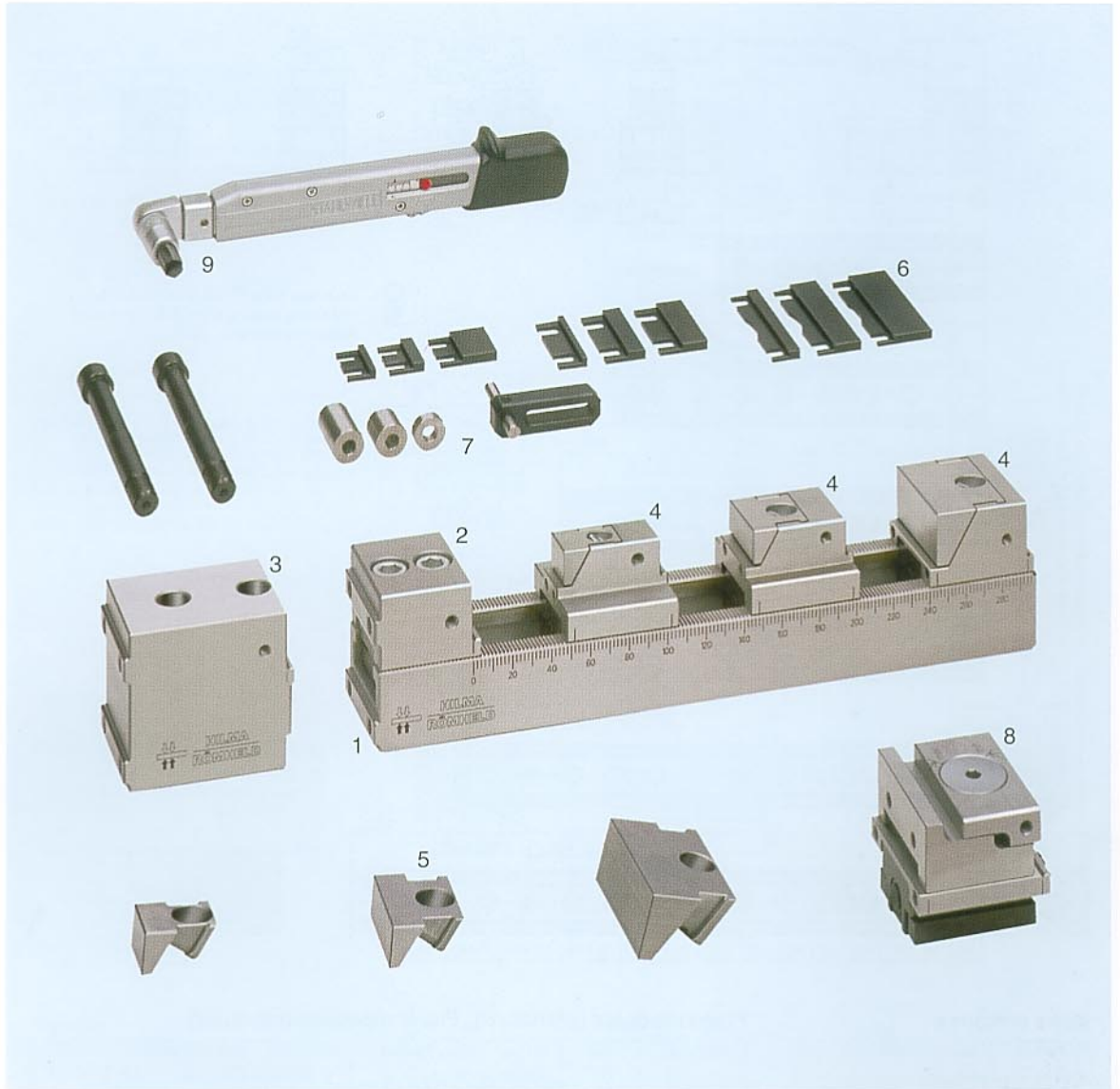
MSH may be used as an individual system or in combination with additional elements (e.g. towers, bridges, base plates) on all machine-tools, machining centres and flexible manufacturing systems.

The simple, well thought-out design guarantees safe and user-friendly handling. The modular design allows any extension to suit specific requirements.

Short set-up times, minimum machine travel achieved by high workpiece density, reduced tool changes and a high rate of amortisation, these are the economic advantages of using this system.

- ◆ Precise frictional connection between base and clamping modules achieved by fine teeth and a patented eccentric locking system using only one fixing screw
- ◆ Rapid set-up without measuring instruments using the scale on the base module and graduation marks on the fixed and clamping module.

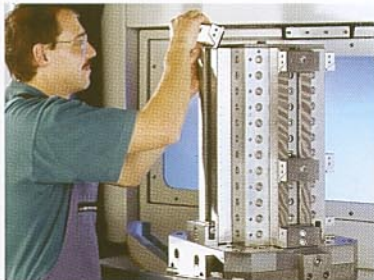
- ◆ Fixed and clamping module available in various widths (24, 40, 60 and 100 mm), thus allowing unlimited three-side machining.
- ◆ Clamping modules with a rear contact surface accurate in size. Workpieces need not be accommodated "in mirror image".
- ◆ Accommodation of a maximum number of workpieces. Any extension to the base modules is possible.
- ◆ Exact and repeatable workpiece positioning. Alignment or zero point adjustment using the machine spindle is not necessary.



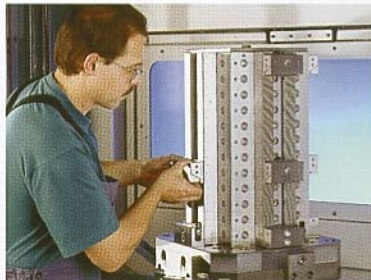
Just a few elements form the basis of the multiple clamping system

- |                                |                                 |                             |
|--------------------------------|---------------------------------|-----------------------------|
| 1. Base module                 | 4. Clamping module (downthrust) | 7. Stops                    |
| 2. Fixed module (standard)     | 5. Clamping jaws                | 8. Clamping module (linear) |
| 3. Fixed module (modular size) | 6. Workpiece supports           | 9. Torque wrench            |

A perfect fit thanks to the ingenious technique!



1. The clamping module with its eccentric lock released is inserted in the high-precision slot

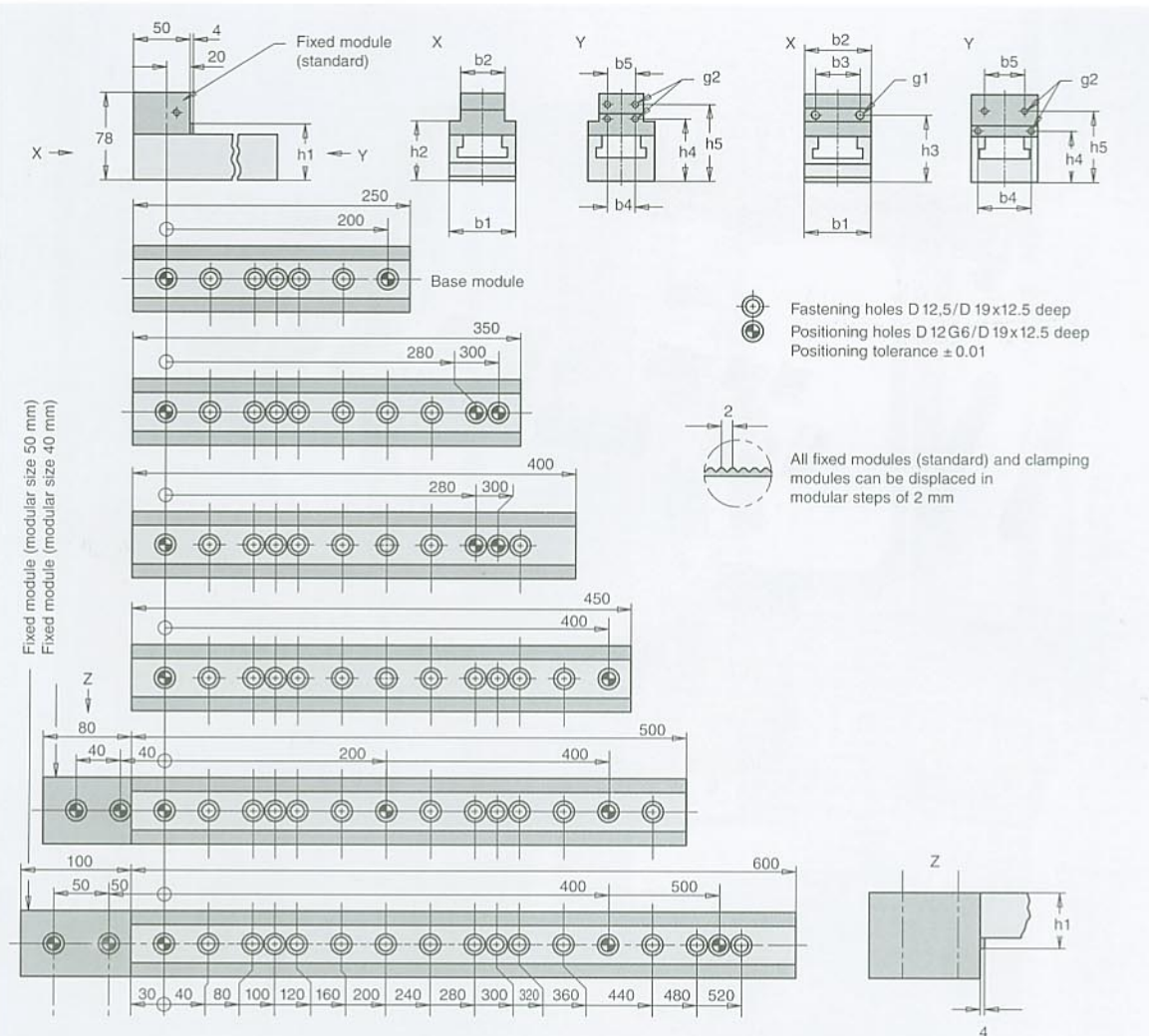


2. The clamping module is exactly positioned on the base module using the graduation marks and the scale.



3. The clamping module is fixed by means of the eccentric screw and the torque wrench 50 - 70 Nm.

## Technical data Base and fixed modules



### Base modules

Part no.	Modular width b1	Length
9.3481.0625	60	250
9.3481.1025	100	250
9.3481.0635	60	350
9.3481.1035	100	350
9.3481.0640	60	400
9.3481.1040	100	400
9.3481.0645	60	450
9.3481.1045	100	450
9.3481.0650	60	500
9.3481.1050	100	500
9.3481.0660	60	600
9.3481.1060	100	600

### Fixed modules (standard)

Part no.	Jaw width b2	Modular width b1
9.3482.1100	24	60
9.3482.2100	40	60
9.3482.3100	60	60
9.3482.3300*	60	60
9.3482.4100	100	100

### Fixed modules (modular)

Part no.	Jaw width b2	Modular width b1	Modular dimension
9.3482.1240	24	60	40
9.3482.1250	24	60	50
9.3482.2240	40	60	40
9.3482.2250	40	60	50
9.3482.3240	60	60	40
9.3482.3250	60	60	50
9.3482.4240	100	100	40
9.3482.4250	100	100	50

(\*) Use together with clamping module of linear design

### Dimensions in mm

Jaw width b2	Modular width b1	Height of supports h1	b3	b4	b5	h2	h3	h4	h5	g1	g2
24	60	60	-	13	-	55,5	-	54	-	-	M5/ 6 deep
40	60	60	-	25	25	55,5	-	56	69	-	M6/ 8 deep
60	60	50	40	48	36 (30*)	-	60	46	64	M8/12 deep	M6/10 deep
100	100	50	40	80	60	-	60	46	64	M8/12 deep	M6/10 deep

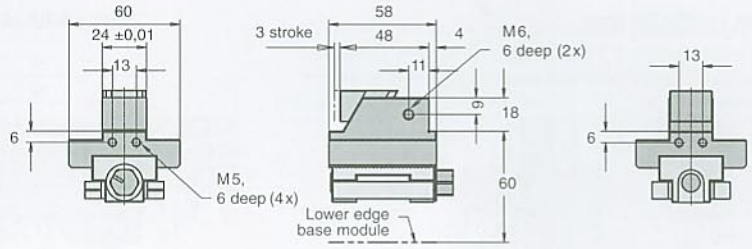


**Technical data Downthrust clamping modules**

**Part no.**

<b>9.3483.1110</b>	<b>9.3483.1120</b>
Clamping bar, plain	Clamping bar, serrated

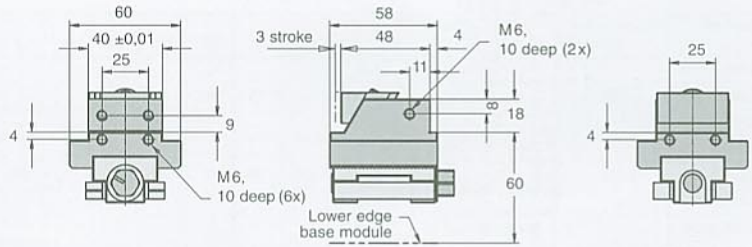
Max. clamping force 17 kN at 17 Nm



**Part no.**

<b>9.3483.2110</b>	<b>9.3483.2120</b>
Clamping bar, plain	Clamping bar, serrated

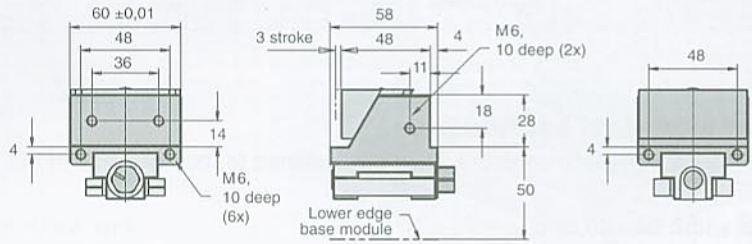
Max. clamping force 20 kN at 20 Nm



**Part no.**

<b>9.3483.3110</b>	<b>9.3483.3120</b>
Clamping bar, plain	Clamping bar, serrated

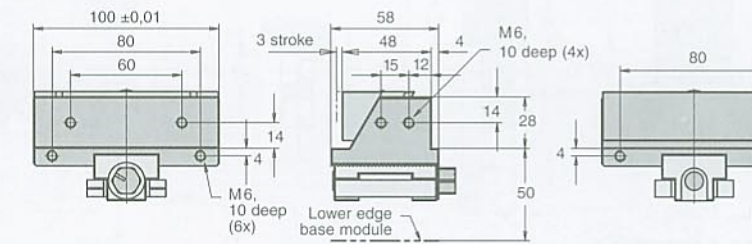
Max. clamping force 25 kN at 25 Nm



**Part no.**

<b>9.3483.4110</b>	<b>9.3483.4120</b>
Clamping bar, plain	Clamping bar, serrated

Max. clamping force 25 kN at 25 Nm

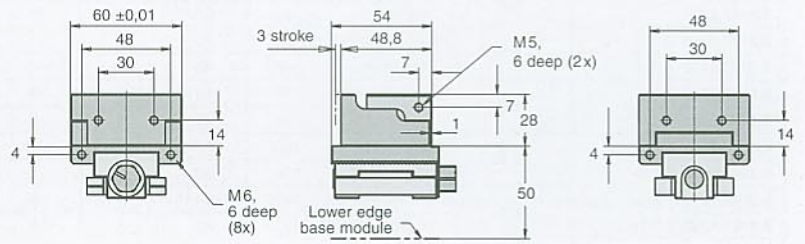


**Technical data linear clamping module**

**Part no.**

<b>9.3483.3210</b>	<b>9.3483.3220</b>
Clamping bar, plain	Clamping bar, serrated

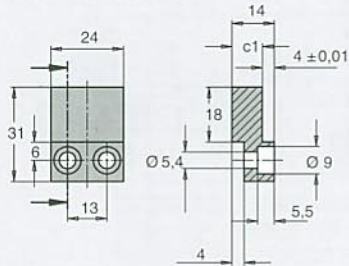
Max. clamping force 15 kN at 30 Nm



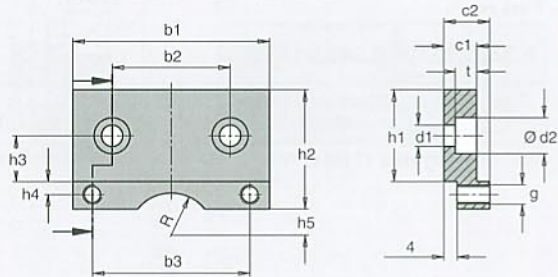
## Technical data Spacer jaws

Spacer jaws are used for small clamping widths. They are screw-fastened to the fixed side of the clamping module

Jaw width 24 mm



Jaw width 40 – 100 mm

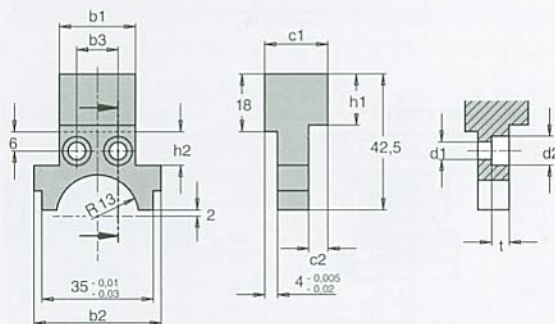


Part no.	Jaw width b1	Design		b2	b3	c1	c2	d1	d2	g	h1	h2	h3	h4	h5	R	t
		Material	Surface														
9.3486.1110	24	Steel, burnished	plain	-	13	10	see drawing										
9.3486.1160		Steel, hardened	plain														
9.3486.1170		Steel, hardened	serrated														
9.3486.2110	40	Steel, burnished	plain	25	25	10	14	6.5	11	M6	18	31	9	4	-	-	6.5
9.3486.2160		Steel, hardened	plain														
9.3486.2170		Steel, hardened	serrated														
9.3486.3110	60	Steel, burnished	plain	36	48	10	14	6.5	11	M6	28	36.5	14	4	8	13	6.5
9.3486.3160		Steel, hardened	plain														
9.3486.3170		Steel, hardened	serrated														
9.3486.4110	100	Steel, burnished	plain	60	80	10	14	6.5	11	M6	28	36.5	14	4	8	13	6.5
9.3486.4160		Steel, hardened	plain														
9.3486.4170		Steel, hardened	serrated														

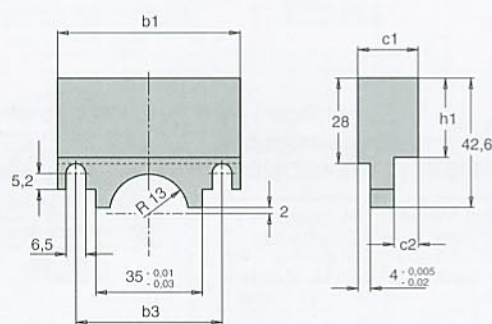
## Technical data Formed jaws

For milling workpiece contours. They are fastened to the fixed side of the clamping module.

Jaw width 24 + 40 mm

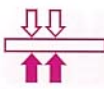


Jaw width 60 + 100 mm

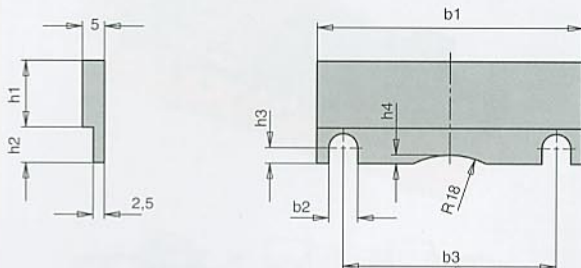


Part no.	Jaw width b1	Jaw thickness c1	Design		b2	b3	c2	h1	h2	d1	d2	t
			Material	Surface								
9.3487.1210	24	19.8	Steel, burnished	plain	40	13	6	16	10,5	5,5	9	5,5
9.3487.1230			Aluminium	plain								
9.3487.2210	40	19.8	Steel, burnished	plain	40	25	6	16	-	5,5	11	6,5
9.3487.2230			Aluminium	plain								
9.3487.3110	60	9.8	Steel, burnished	plain	60	48	-	-	-	-	-	-
9.3487.3130			Aluminium	plain								
9.3487.3210		19.8	Steel, burnished	plain								
9.3487.3230			Aluminium	plain								
9.3487.4110	100	9.8	Steel, burnished	plain	100	80	-	-	-	-	-	-
9.3487.4130			Aluminium	plain								
9.3487.4210		19.8	Steel, burnished	plain								
9.3487.4230			Aluminium	plain								

Dimensions:  
see drawing



## Workpiece supports

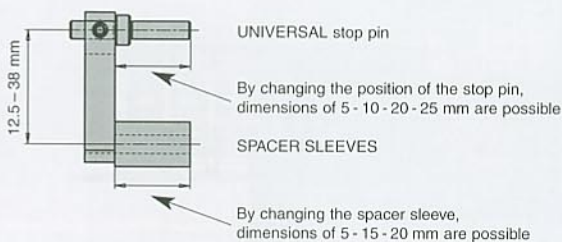


Part no.	Jaw width b1	Height		Design	b2	b3	h2	h3	h4	R
		h1								
9.3485.1xx2	xx1	from 3 to 18	Steel, burnished							
	24	from 3 to 15	Steel, hardened	5.5	13	11	6.75	-	-	
	xx3	from 3 to 18	Aluminium							
9.3485.2xx2	xx1	from 3 to 18	Steel, burnished							
	40	from 3 to 15	Steel, hardened	6.5	25	11	6.75	-	-	
	xx3	from 3 to 18	Aluminium							
9.3485.3xx2	xx1	from 6 to 28	Steel, burnished							
	60	from 6 to 25	Steel, hardened	6.5	48	8.5	5.25	2	18	
	xx3	from 6 to 28	Aluminium							
9.3485.4xx2	xx1	from 6 to 28	Steel, burnished							
	100	from 6 to 25	Steel, hardened	6.5	80	8.5	5.25	2	18	
	xx3	from 6 to 28	Aluminium							

Example:  
 Height h1 — 0 3 — for 3 mm in steps of 1 mm  
 — 2 8 — for 28 mm see table

## Accessories

Stop, complete  
9.3488.0100



Torque wrench  
9.3792.6650



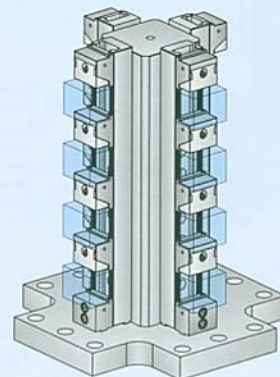
8 - 40 Nm  
for clamping/unclamping

9.3792.6660

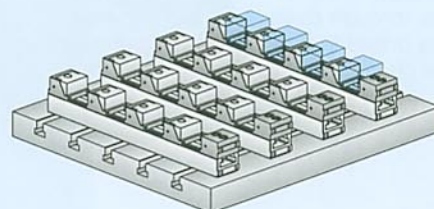


65 Nm  
for fixing the clamping module in its position

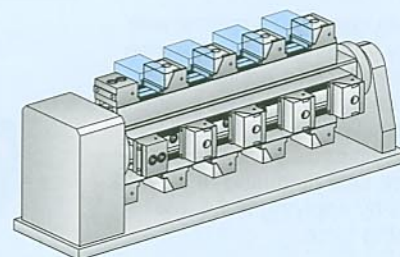
MSH multiple clamping systems in combination with additional elements (e.g. towers, bridges, base plates) may be used for a large number of machining task, e.g.



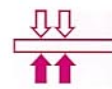
... flexible multiple side machining on horizontal machining centres equipped with clamping towers



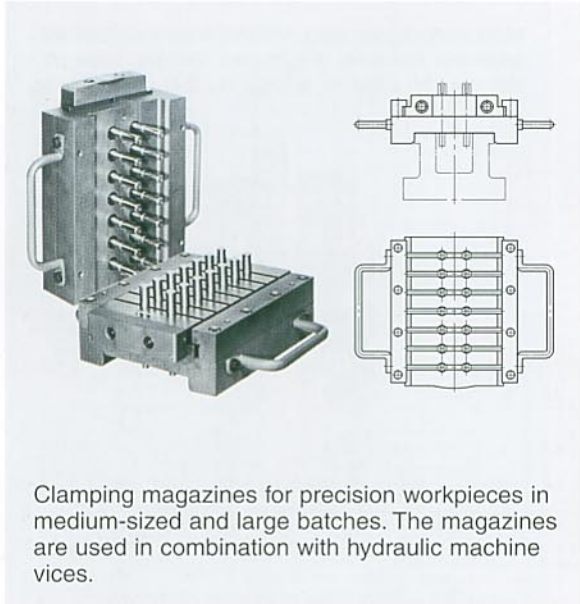
... for a maximum utilisation of the working space of vertical machining centres by multiple arrangement



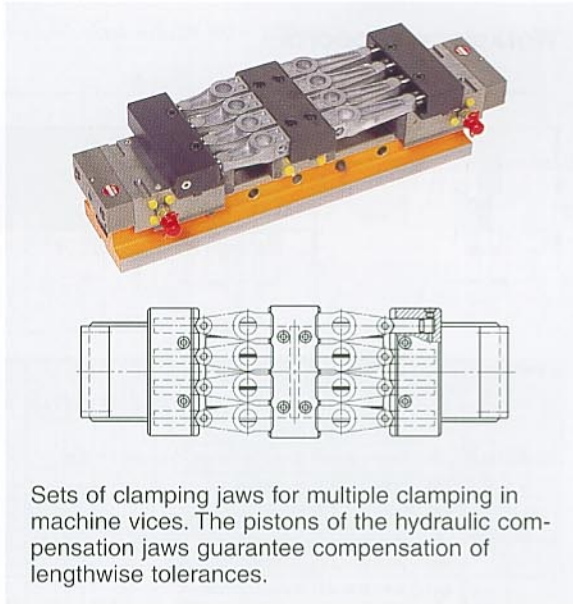
... efficient multiple side machining on vertical machining centres by creating a 4th axis.



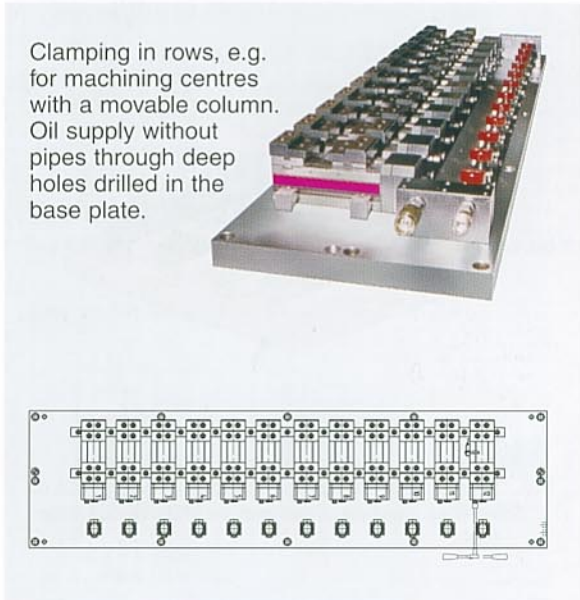
## Other multiple clamping systems



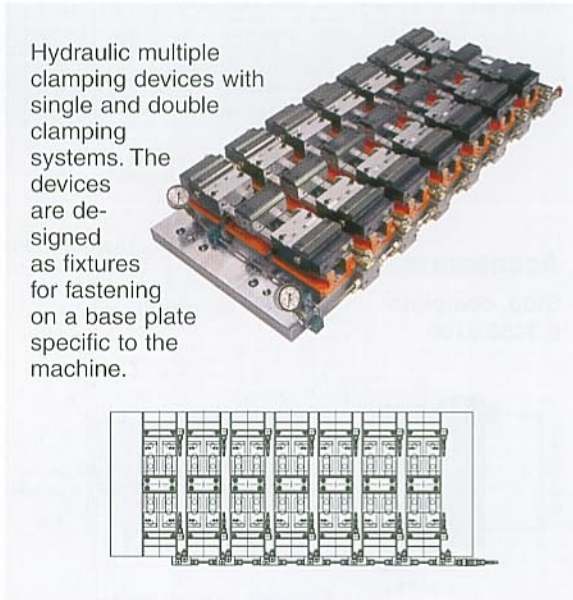
Clamping magazines for precision workpieces in medium-sized and large batches. The magazines are used in combination with hydraulic machine vices.



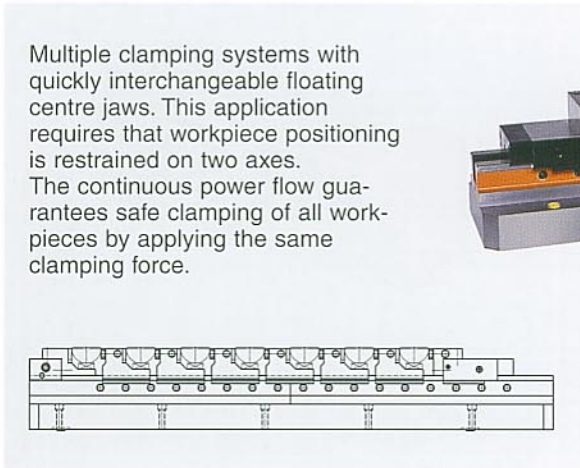
Sets of clamping jaws for multiple clamping in machine vices. The pistons of the hydraulic compensation jaws guarantee compensation of lengthwise tolerances.



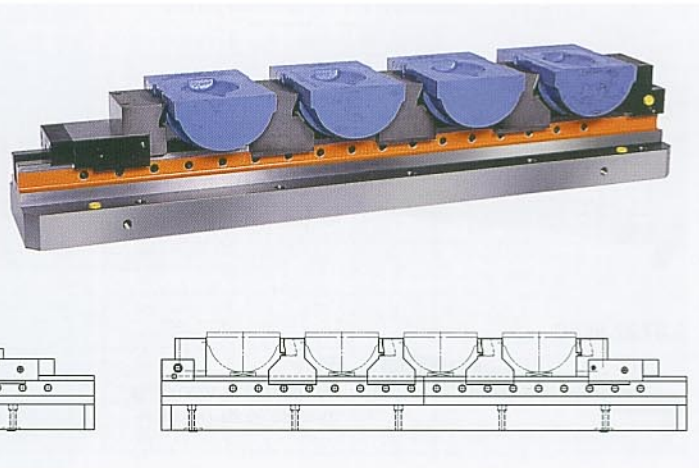
Clamping in rows, e.g. for machining centres with a movable column. Oil supply without pipes through deep holes drilled in the base plate.



Hydraulic multiple clamping devices with single and double clamping systems. The devices are designed as fixtures for fastening on a base plate specific to the machine.



Multiple clamping systems with quickly interchangeable floating centre jaws. This application requires that workpiece positioning is restrained on two axes. The continuous power flow guarantees safe clamping of all workpieces by applying the same clamping force.



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