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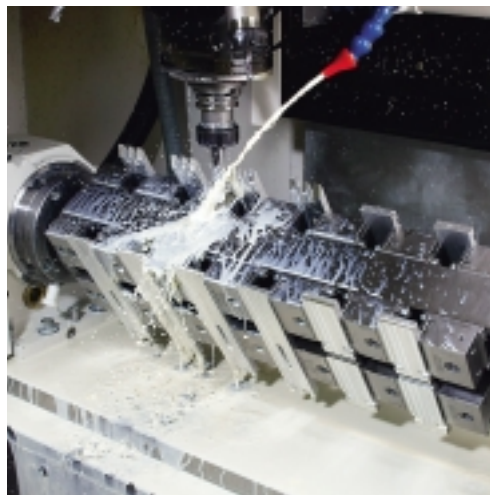
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Multiple clamping system modular





MSH – The Multiple Clamping System with trifold range of systems: Premium – EasyClamp – Goliath



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.

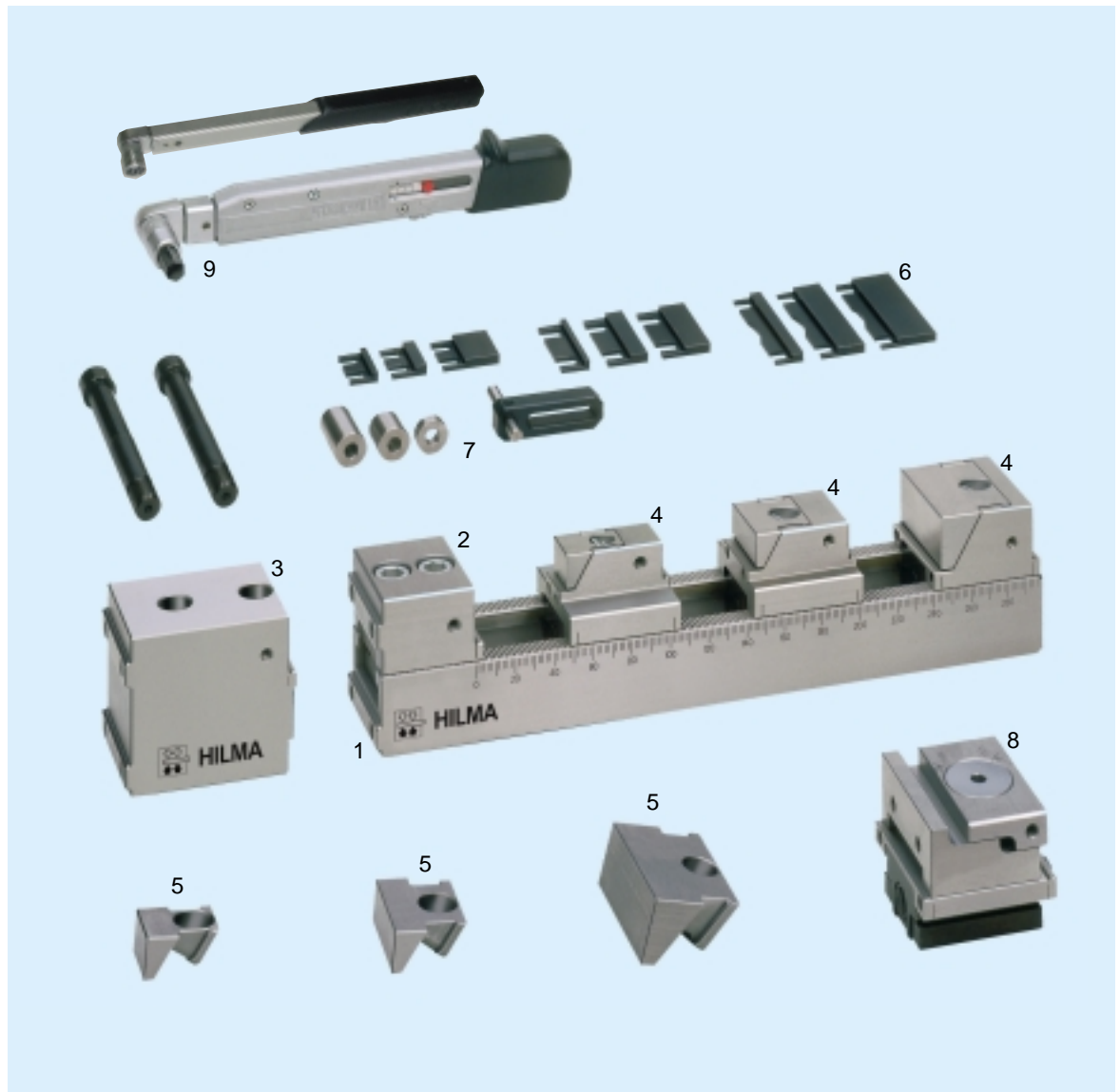
MSH may be used as an individual system or in combination with additional elements (e.g. towers, bridges, base plates) on all machine-tools, machining centres and flexible manufacturing systems.

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 workpieces 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.

- ◆ 3 designs: Premium, EasyClamp, Goliath
- ◆ Fixed and clamping module available in various widths.
- ◆ 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 basic of the multiple clamping system (example design Premium):

- | | | |
|--------------------------------|---------------------------------|-----------------------------|
| 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



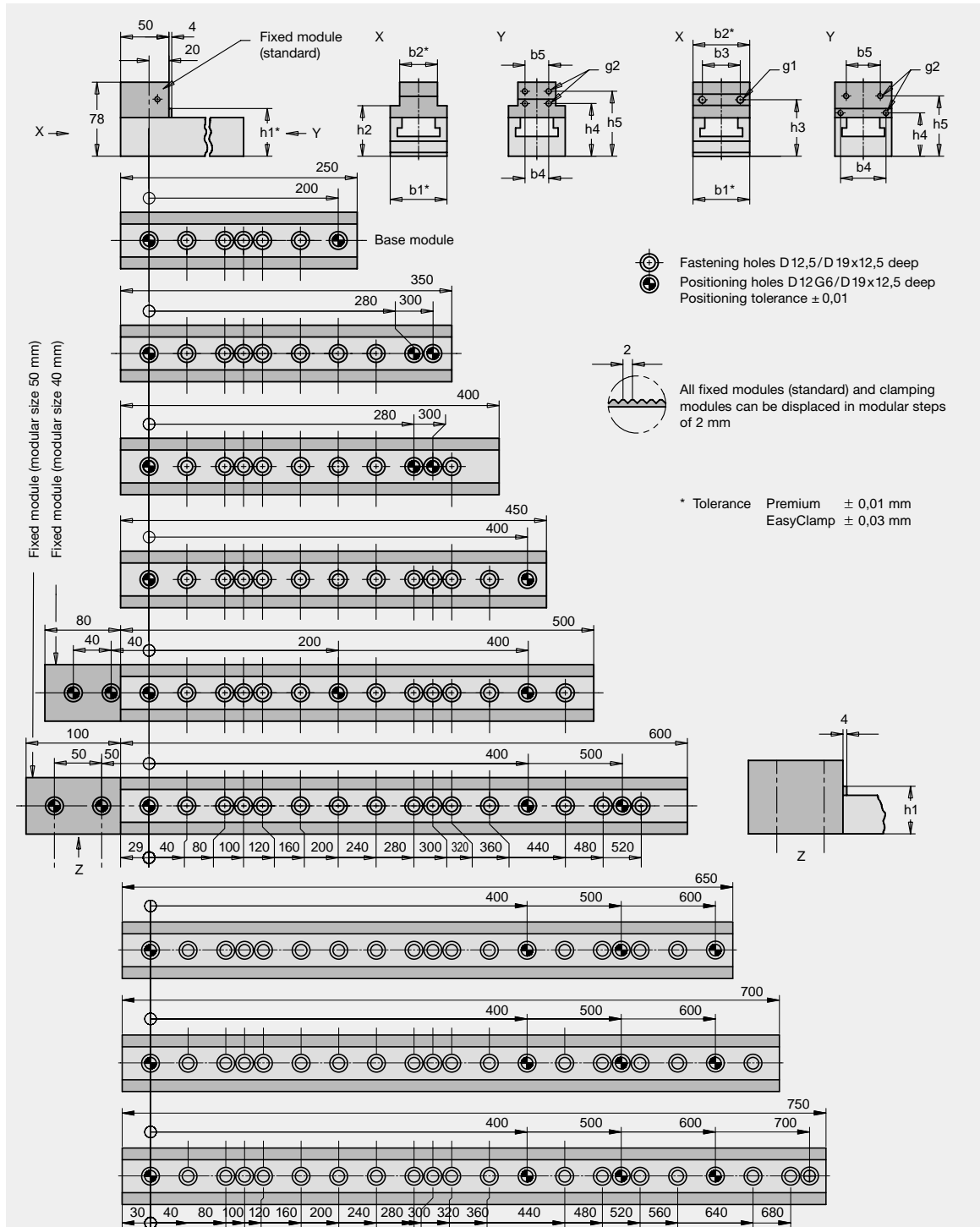
2. The clamping module is exactly positioned on the base module using the graduation marks and the scale.



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



Technical data Base modules (Premium/EasyClamp/Goliath)
Fixed modules (Premium/EasyClamp)



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 |



Make your choice:

| Premium | EasyClamp | Goliath |
|---|--|--|
| Highest precision in series: <ul style="list-style-type: none"> • tolerance ± 0.01 mm • all system parts hardened and rust-resistant • clamping modules with retaining guide • scale on both sides • all faces ground | For lower-cost introduction: <ul style="list-style-type: none"> • all surfaces fine milled and surface hardened • tolerance ± 0.03 mm • scale one-sided • eccentric spindle with hexagon socket | Clamping modules for high requirements: <ul style="list-style-type: none"> • clamping forces up to 40 kN per unit • additional power retaining with link blocks • use at heavy-duty machining |
| All clamping series are compatible and can be combined with each other! | | |

Order data

Base module

| Modular width | Jaw width | Length | Premium | EasyClamp | Goliath |
|---------------|-----------|--------|-------------|-------------|--------------------------------------|
| b1 | b2 | L | Part no. | Part no. | Part no. |
| 60 | - | 250 | 9.3481.0625 | 9.3491.0625 | ↑ Use Premium modules! ↓ |
| 100 | - | 250 | 9.3481.1025 | 9.3491.1025 | |
| 60 | - | 350 | 9.3481.0635 | 9.3491.0635 | |
| 100 | - | 350 | 9.3481.1035 | 9.3491.1035 | |
| 60 | - | 400 | 9.3481.0640 | 9.3491.0640 | |
| 100 | - | 400 | 9.3481.1040 | 9.3491.1040 | |
| 60 | - | 450 | 9.3481.0645 | 9.3491.0645 | |
| 100 | - | 450 | 9.3481.1045 | 9.3491.1045 | |
| 60 | - | 500 | 9.3481.0650 | 9.3491.0650 | |
| 100 | - | 500 | 9.3481.1050 | 9.3491.1050 | |
| 60 | - | 600 | 9.3481.0660 | 9.3491.0660 | |
| 100 | - | 600 | 9.3481.1060 | 9.3491.1060 | |
| 60 | - | 650 | 9.3481.0665 | 9.3491.0665 | |
| 100 | - | 650 | 9.3481.1065 | 9.3491.1065 | |
| 60 | - | 700 | 9.3481.0670 | 9.3491.0670 | |
| 100 | - | 700 | 9.3481.1070 | 9.3491.1070 | |
| 60 | - | 750 | 9.3481.0675 | 9.3491.0675 | |
| 100 | - | 750 | 9.3481.1075 | 9.3491.1075 | |

Special length up to 1000 mm on request

Fixed modules standard

| | | | | | |
|-----|-----|--------|-------------|-------------|-------------|
| 60 | 24 | | 9.3482.1100 | - | - |
| 60 | 40 | | 9.3482.2100 | 9.3492.2100 | - |
| 60 | 60 | | 9.3482.3100 | 9.3492.3100 | 9.3482.5200 |
| 60 | 60 | Linear | 9.3482.3300 | - | - |
| 100 | 100 | | 9.3482.4100 | 9.3492.4100 | 9.3482.6200 |
| 120 | 120 | | - | - | 9.3482.7200 |

Fixed modules (modular)

| | | | | | |
|-----|-----|----|-------------|----------------|-------------|
| 60 | 24 | 40 | 9.3482.1240 | - | - |
| 60 | 24 | 50 | 9.3482.1250 | - | - |
| 60 | 40 | 40 | 9.3482.2240 | Use | - |
| 60 | 40 | 50 | 9.3482.2250 | Premium | - |
| 60 | 60 | 40 | 9.3482.3240 | fixed modules! | - |
| 60 | 60 | 50 | 9.3482.3250 | | 9.3482.5250 |
| 100 | 100 | 40 | 9.3482.4240 | | - |
| 100 | 100 | 50 | 9.3482.4250 | | 9.3482.6250 |
| 120 | 120 | 50 | - | - | 9.3482.7250 |

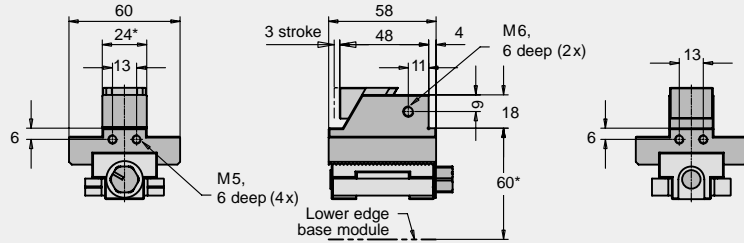
Goliath fixed modules not shown



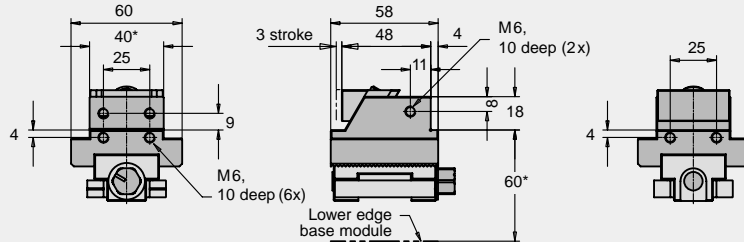
Technical data clamping modules

Downthrust clamping modules

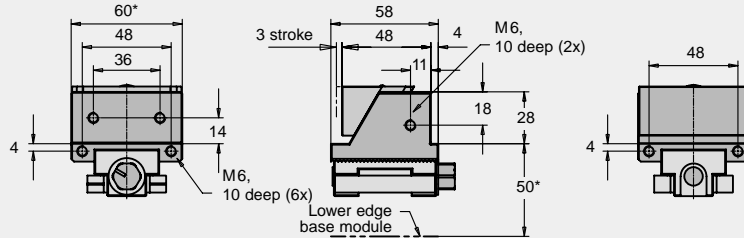
**Max. clamping force
17 kN at 17 Nm**



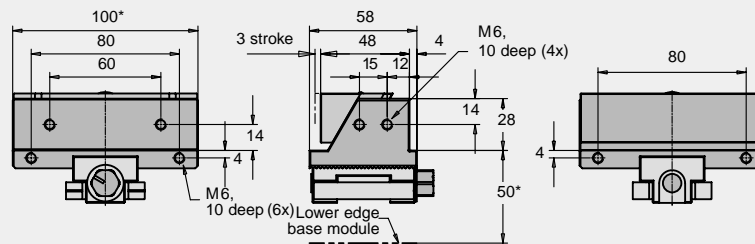
**Max. clamping force
20 kN at 20 Nm**



**Max. clamping force
25 kN at 25 Nm**



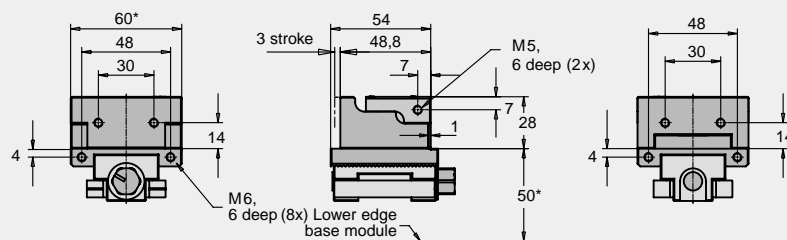
**Max. clamping force
25 kN at 25 Nm**



* tolerances Premium $\pm 0,01$ mm / EasyClamp $\pm 0,03$ mm

Linear clamping modules

**Max. clamping force
15 kN at 30 Nm**





Order data

Downthrust clamping modules incl. clamping jaw

| Modular width | Jaw width | design | Premium | EasyClamp | Goliath |
|---------------|-----------|--------------|-------------|-------------|-------------|
| b1 | b2 | clamping jaw | Part no. | Part no. | Part no. |
| 60 | 24 | plain | 9.3483.1110 | - | - |
| 60 | 24 | serrated | 9.3483.1120 | - | - |
| 60 | 40 | plain | 9.3483.2110 | 9.3493.2110 | - |
| 60 | 40 | serrated | 9.3483.2120 | 9.3493.2120 | - |
| 60 | 60 | plain | 9.3483.3110 | 9.3493.3110 | 9.3483.5110 |
| 60 | 60 | serrated | 9.3483.3120 | 9.3493.3120 | 9.3483.5120 |
| 100 | 100 | plain | 9.3483.4110 | 9.3493.4110 | 9.3483.6110 |
| 100 | 100 | serrated | 9.3483.4120 | 9.3493.4120 | 9.3483.6120 |
| 120 | 120 | plain | - | - | 9.3483.7110 |
| 120 | 120 | serrated | - | - | 9.3483.7120 |

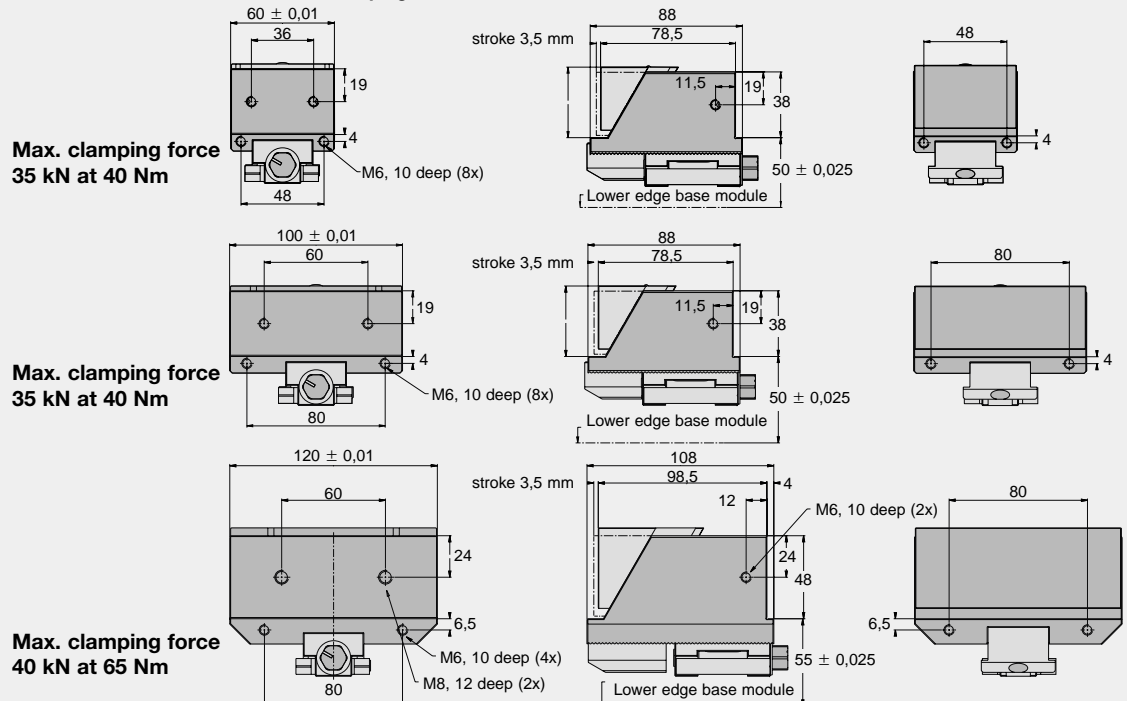
Linear clamping module

| | | | | | |
|----|----|----------|-------------|---|---|
| 60 | 60 | plain | 9.3483.3210 | - | - |
| 60 | 60 | serrated | 9.3483.3220 | - | - |

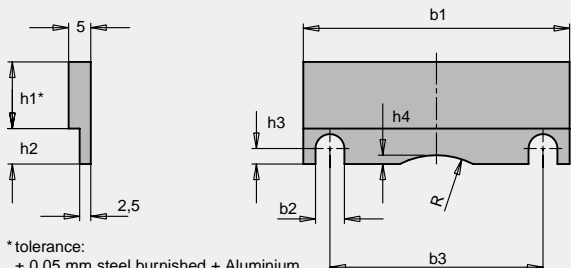
Clamping jaw singular

| | | | | | |
|--------|-----|----------|-------------|-------------|-------------|
| | 24 | plain | 9.3484.1110 | - | - |
| | 24 | serrated | 9.3484.1120 | - | - |
| | 40 | plain | 9.3484.2110 | 9.3494.2110 | - |
| | 40 | serrated | 9.3484.2120 | 9.3494.2120 | - |
| | 60 | plain | 9.3484.3110 | 9.3494.3110 | 9.3484.5110 |
| | 60 | serrated | 9.3484.3120 | 9.3494.3120 | 9.3484.5120 |
| Linear | 60 | plain | 9.3484.3210 | - | - |
| Linear | 60 | serrated | 9.3484.3220 | - | - |
| | 100 | plain | 9.3484.4110 | 9.3494.4110 | 9.3484.6110 |
| | 100 | serrated | 9.3484.4120 | 9.3494.4120 | 9.3484.6120 |
| | 120 | plain | - | - | 9.3484.7110 |
| | 120 | serrated | - | - | 9.3484.7120 |

Technical data Goliath Downthrust clamping modules



Workpiece supports

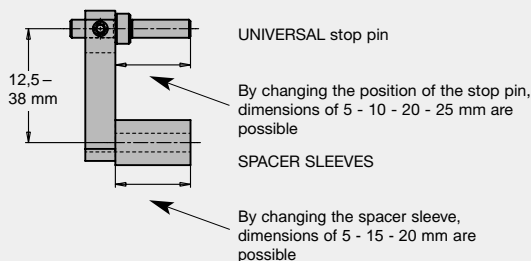


* tolerance:
 ± 0,05 mm steel burnished + Aluminium
 ± 0,01 mm steel hardened

| Part no. | Jaw width b1 | Height h1 | Design | b2 | b3 | h2 | h3 | h4 | R |
|---------------------------|--------------|--------------|------------------|-----|----|-----|------|----|----|
| xx1 9.3485.1xx2 | 24 | from 3 to 18 | steel, burnished | 5,5 | 13 | 11 | 6,75 | - | - |
| | | from 3 to 15 | steel, hardened | | | | | | |
| | | from 3 to 18 | Aluminium | | | | | | |
| xx1 9.3485.2xx2 | 40 | from 3 to 18 | steel, burnished | 6,5 | 25 | 11 | 6,75 | - | - |
| | | from 3 to 15 | steel, hardened | | | | | | |
| | | from 3 to 18 | Aluminium | | | | | | |
| xx1 9.3485.3xx2 | 60 | from 6 to 28 | steel, burnished | 6,5 | 48 | 8,5 | 5,25 | 2 | 18 |
| | | from 6 to 25 | steel, hardened | | | | | | |
| | | from 6 to 28 | Aluminium | | | | | | |
| xx1 9.3485.4xx2 | 100 | from 6 to 28 | steel, burnished | 6,5 | 80 | 8,5 | 5,25 | 2 | 18 |
| | | from 6 to 25 | steel, hardened | | | | | | |
| | | 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

Stop, complete 9.3488.0100



Torque wrench 9.3792.6650

8 - 40 Nm for clamping/unclamping



Torque wrench 9.3792.6660

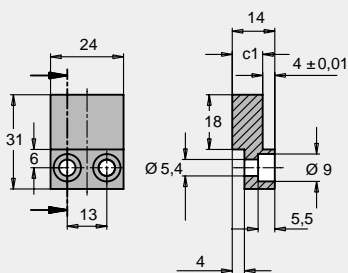
65 Nm for fixing the clamping module in its position



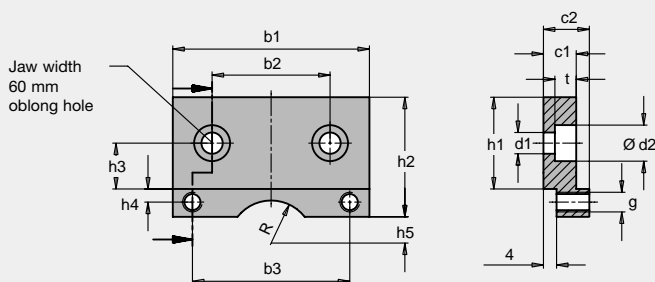
Technical data Spacer jaws

Spacer jaws are used for small clamping widths < 10mm. 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 ±0,01 | c2 | d1 | d2 | g | h1 | h2 | h3 | h4 | h5 | R | t | |
|-------------|--------------|------------------|----|----|----------|------------------------|-----|----|----|----|------|----|----|----|----|-----|-------|
| 9.3486.1110 | 24 | Steel, burnished | - | 13 | 10 | dimensions see drawing | | | | | | | | | | | |
| 9.3486.1160 | | Steel, hardened | | | | plain | | | | | | | | | | | |
| 9.3486.1170 | | serrated | | | | | | | | | | | | | | | |
| 9.3486.2110 | 40 | Steel, burnished | 25 | 25 | 10 | 14 | 6,5 | 11 | M6 | 18 | 31 | 9 | 4 | - | - | 6,5 | |
| 9.3486.2160 | | Steel, hardened | | | | | | | | | | | | | | | plain |
| 9.3486.2170 | | serrated | | | | | | | | | | | | | | | |
| 9.3486.3110 | 60 | Steel, burnished | 30 | 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 | | serrated | | | | | | | | | | | | | | | |
| 9.3486.4110 | 100 | Steel, burnished | 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 | | serrated | | | | | | | | | | | | | | | |

Formed jaws (steel burnished/aluminium) for milling workpiece contours on request!