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Workholding Systems

HILMA EL/NC

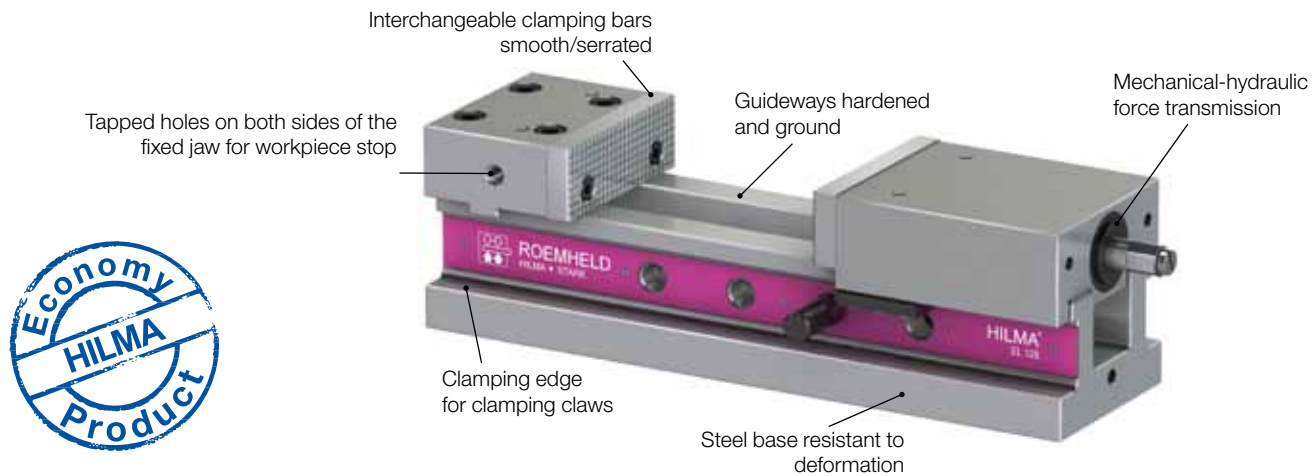
1.3020

1.3070

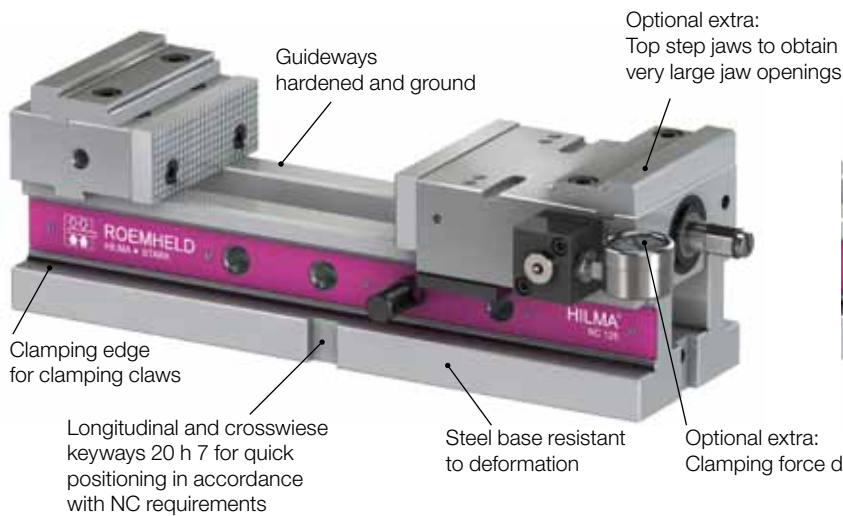
1.3080



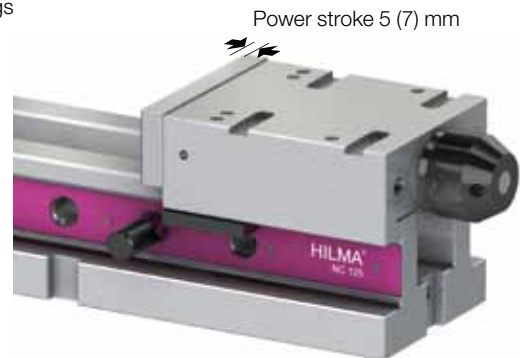
EL machine vice



NC machine vice
Version: mechanical-hydraulic



NC machine vice
Version: hydraulic



Your benefits at a glance:

- ★ High flexibility
- ★ Control of the clamping force by means of a pressure gauge for NC (optional extra)
- ★ Simple and quick cleaning
- ★ Quick retrofitting
- ★ Quick adjustment of the clamping range by socket pins



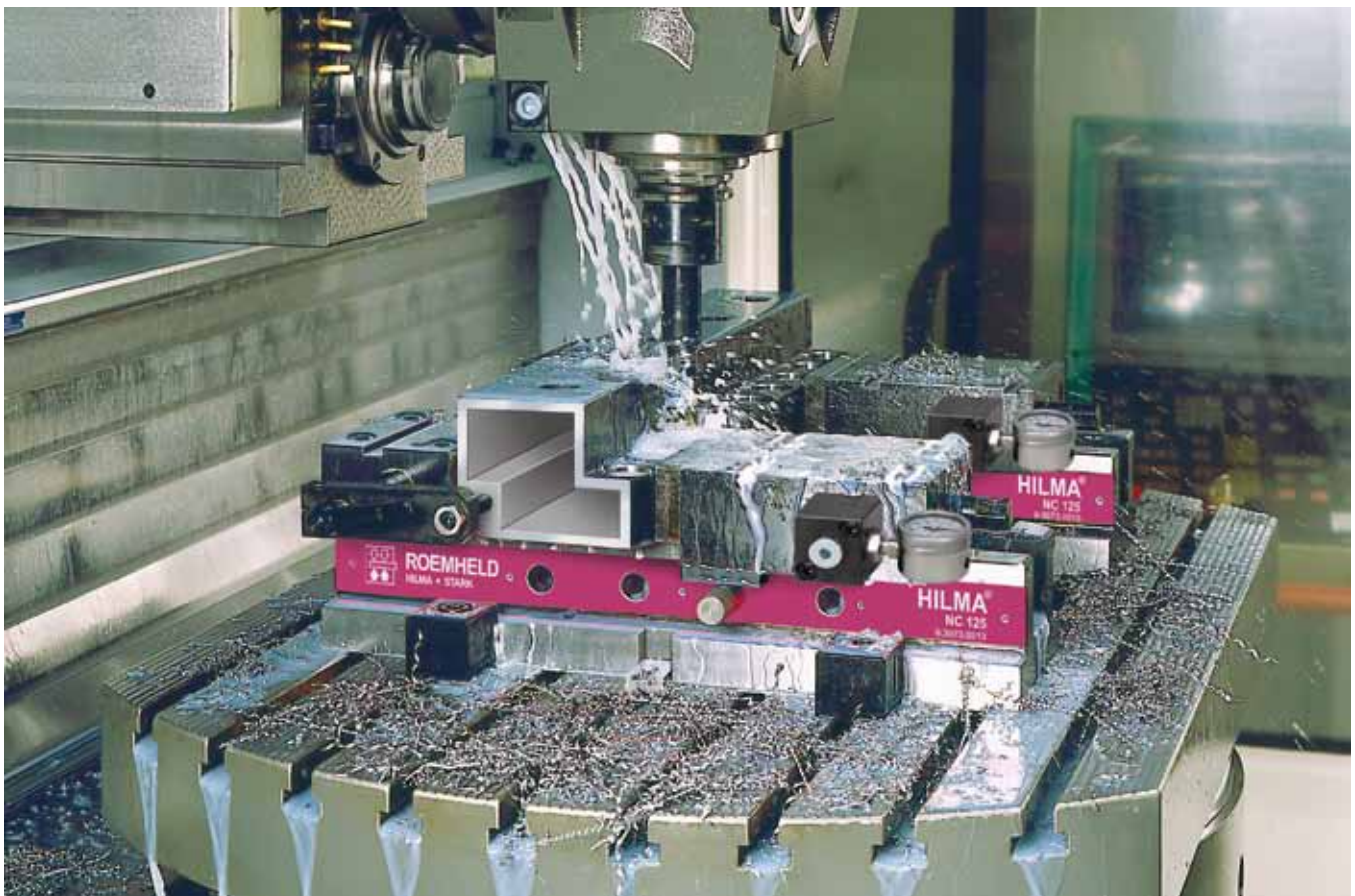
EL machine vice
mechanical-hydraulic



NC machine vice
mechanical-hydraulic
with clamping force display and top jaws



NC machine vice
hydraulic



When using for example floating central jaws or top jaws (NC), several small components as well as large-volume workpieces can be clamped.

The high-precision reproducibility of the clamping forces guarantees a maximum possible repetitive accuracy of the clamping processes and thus increases the clamping quality. The generated clamping force can be visually checked at any time.

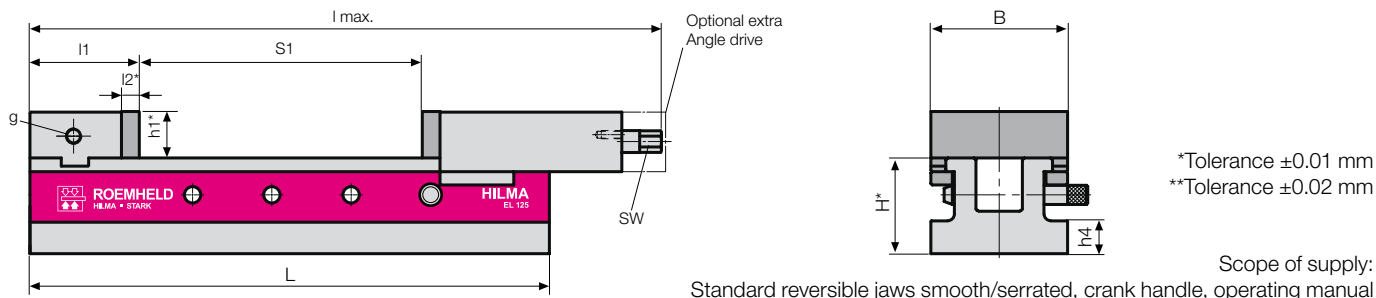
The removal of the slide facilitates a simple and quick cleaning of the clamping system. Thus cost intensive downtimes will be reduced.

Minimum set-up times ensure versatile use and thus considerable cost reduction.

Thanks to the quick adjustment by socket pins proven for decades, a quick adaptation to very different clamping ranges is possible with minimum effort on the crank handle.

**EL machine vice mechanical-hydraulic
 for tool making, mould making, construction of jigs and fixtures and production**

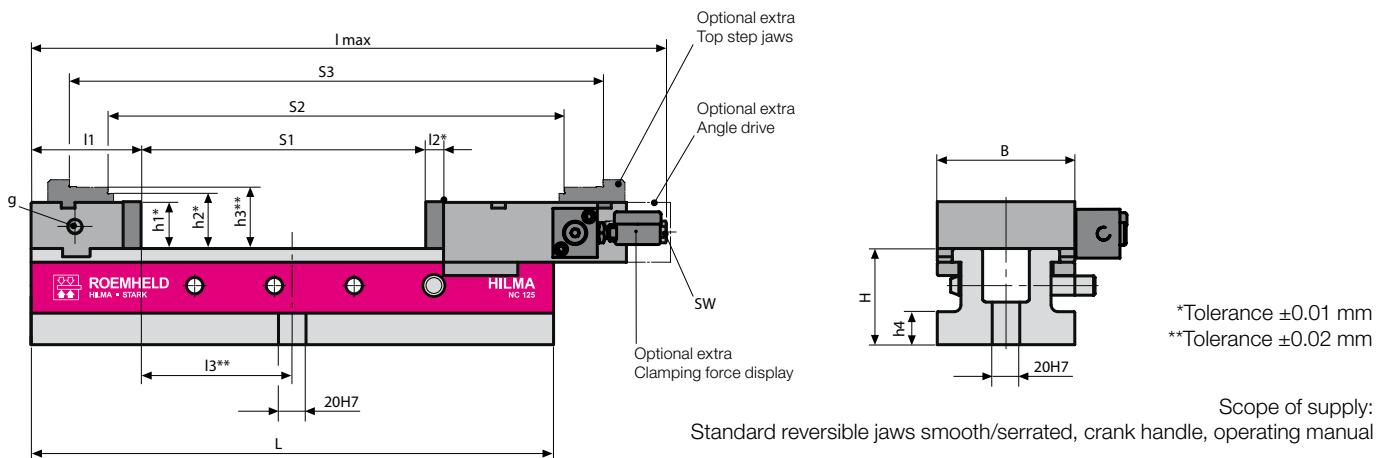
The mechanical-hydraulic force transmission requires minimum effort on the crank handle. An angle drive (optional extra), that can also be retrofitted, facilitates the operation, e.g. in the case of longitudinal clamping on the machine table. The optional clamping force preselection (retrofitable) enables the force to be applied in 6 stages up to the maximum.



| Type | Part no. | Clamping force [kN] | Weight [kg] | Dimensions mm | | | | | | | | | | |
|---------------|--|---------------------|-------------|---------------|-----|----|----------|----|----|-------|-----|----|----------------|----|
| | | | | L | B | H | g | h1 | h4 | l max | l1 | l2 | Jaw opening S1 | SW |
| EL100 | 9.3022.1113 | 25 | 18,5 | 380 | 100 | 70 | M12 x 18 | 34 | 24 | 464 | 80 | 13 | 205 | 14 |
| EL125 | 9.3023.1113 | 40 | 31,5 | 430 | 125 | 82 | M12 x 18 | 45 | 27 | 526 | 100 | 15 | 225 | 17 |
| EL160 | 9.3024.1113 | 50 | 58,5 | 550 | 160 | 95 | M20 x 27 | 54 | 27 | 684 | 120 | 18 | 309 | 19 |
| EL160L | 9.3024.1313 with angle drive | 50 | 75,0 | 750 | 160 | 95 | M20 x 27 | 54 | 27 | 884 | 120 | 18 | 509 | 19 |

**NC machine vice mechanical-hydraulic
 for tool making, mould making, construction of jigs and fixtures and production**

The mechanical-hydraulic force transmission requires minimum effort on the crank handle. An angle drive (optional extra), that can also be retrofitted, facilitates the operation, e.g. in the case of longitudinal clamping on the machine table. The version with clamping force display allows a continuous and precise clamping force transmission. This offers enormous advantages, inter alia, in roughing and finishing operations as well as for the reproducibility of clamping forces. In addition, the clamping force display ensures adequate safety by the permanent clamping and system control.



| Type | Part no. | Part no. with clamping force display | Clamp- ing force [kN] | Weight [kg] | Dimensions mm | | | | | | | | | | | | | | | |
|--------------|--------------------|--------------------------------------|-----------------------|-------------|---------------|-----|----|----------|----|----|----|----|-------|-----|----|-----|----------------|-----|-----|----|
| | | | | | L | B | H | g | h1 | h2 | h3 | h4 | l max | l1 | l2 | l3 | Jaw opening S1 | S2 | S3 | SW |
| NC100 | 9.3072.0203 | 9.3072.0213 | 25 | 18,5 | 380 | 100 | 70 | M12 x 18 | 34 | 40 | 45 | 24 | 464 | 80 | 13 | 110 | 205 | 330 | 386 | 14 |
| NC125 | 9.3073.0203 | 9.3073.0213 | 40 | 31,5 | 430 | 125 | 82 | M12 x 18 | 45 | 53 | 58 | 27 | 526 | 100 | 15 | 115 | 225 | 363 | 431 | 17 |
| NC160 | 9.3074.0203 | 9.3074.0213 | 50 | 58,5 | 550 | 160 | 95 | M20 x 27 | 54 | 65 | 70 | 27 | 684 | 120 | 18 | 155 | 309 | 503 | 573 | 19 |

Jaws and accessories see page 6 to 10

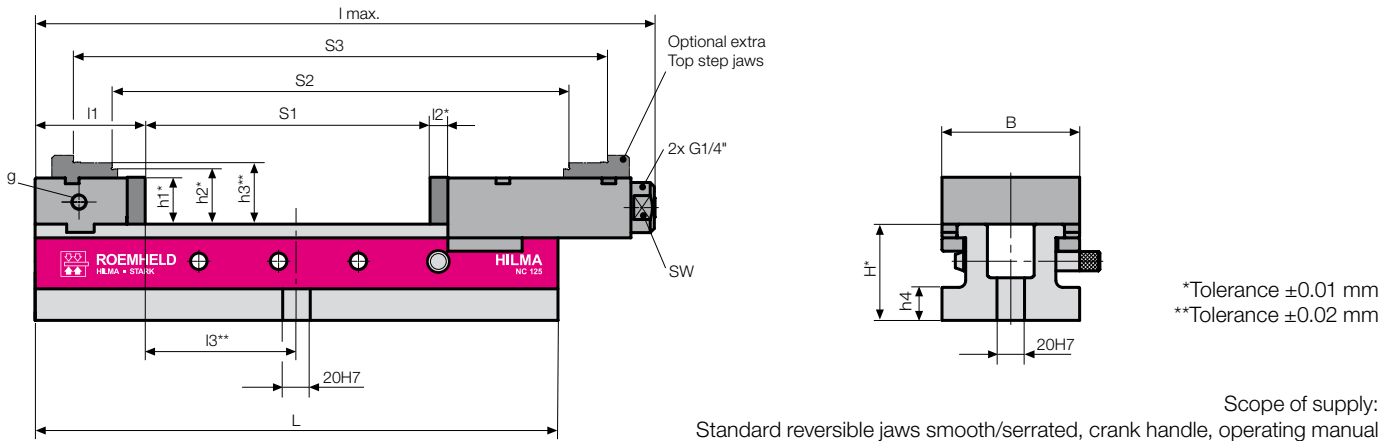
Technical Data HILMA NC hydraulic



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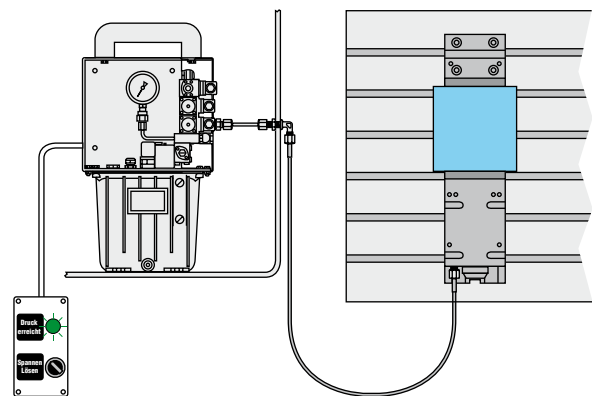
NC machine vice hydraulic for use in semi or fully-automatic operation in series production

Connection to a separate hydraulic pressure transducer, e.g. a hydraulic power unit. Coarse adjustment of the clamping range using socket pins. Precise positioning against the workpiece and adjustment of the insertion tolerance manually using a lead screw. The clamping process is triggered by a hand or foot switch or, in the case of fully automatic working cycle, by an electrical control pulse.



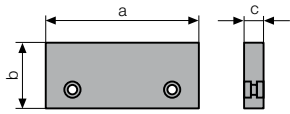
| Type | Part no. | Clamp- ing force [kN] | Operating pressure [bar] | Stroke | Weight [kg] | Dimensions mm | | | | | | | | | | | | | Clamping width | | | |
|-------|-------------|-----------------------------|--------------------------------|--------|----------------|---------------|-----|----|----------|----|----|----|----|--------|-----|----|-----|-----|----------------|-----|----|--|
| | | | | | | L | B | H | g | h1 | h2 | h3 | h4 | I max. | I1 | I2 | I3 | S1 | S2 | S3 | SW | |
| NC100 | 9.3082.0203 | 25 | 350 | 5 | 18,5 | 380 | 100 | 70 | M12 x 18 | 34 | 40 | 45 | 24 | 456 | 80 | 13 | 110 | 209 | 334 | 390 | 8 | |
| NC125 | 9.3083.0203 | 40 | 350 | 5 | 31,5 | 430 | 125 | 82 | M12 x 18 | 45 | 53 | 58 | 27 | 518 | 100 | 15 | 115 | 228 | 366 | 434 | 8 | |
| NC160 | 9.3084.0203 | 63 | 350 | 7 | 58,5 | 550 | 160 | 95 | M20 x 27 | 54 | 65 | 70 | 27 | 675 | 120 | 18 | 155 | 314 | 508 | 578 | 10 | |

Jaws and accessories see page 6 to 10



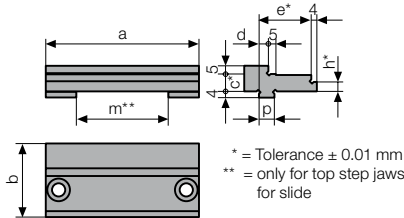
Examples for hydraulic power units

| Part no. | Flow rate [l/min] | Operating pressure [bar] | Number of valves (clamping circuits) | Pressure monitoring | Remote control (manual switch) | Variants of application |
|----------|----------------------|-----------------------------|---|------------------------|-----------------------------------|--|
| 6810-565 | 0.82 | 350 | – | yes | – | without valves, operation by valve(s) with turning knob |
| 6810-566 | 0.82 | 350 | 1 | yes | 1 | 1-circuit version (standard) |
| 6810-567 | 0.82 | 350 | 2 | yes | 2 | 2-circuit version (alternating operation) |



Standard jaw smooth/serrated

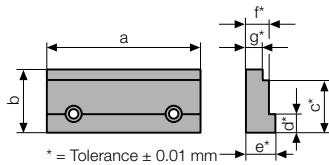
| Part no. | a | b | c |
|-------------|-----|----|----|
| 5.2058.1003 | 100 | 34 | 13 |
| 5.2058.1004 | 125 | 45 | 15 |
| 5.2058.1005 | 160 | 54 | 18 |



Top step jaw

| for fixed jaw Part no. | for slide Part no. | a | c | d | e | h | l | m | p |
|---------------------------|-----------------------|-----|------|---|----|------|----|----|------|
| 9.3284.0201 | 9.3284.1201 | 100 | 11,5 | 6 | 34 | 6,5 | 48 | 60 | 10h6 |
| 9.3284.0301 | 9.3284.1301 | 125 | 14,0 | 6 | 40 | 9,0 | 58 | 65 | 12h6 |
| 9.3284.0401 | 9.3284.1401 | 160 | 17,0 | 8 | 43 | 12,0 | 64 | 88 | 18h6 |

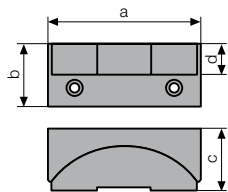
* = Tolerance ± 0.01 mm
** = only for top step jaws for slide



Precision step jaw

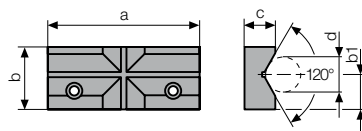
| Part no. | a | b | c | d | e | f | g |
|-------------|-----|----|----|----|----|----|----|
| 5.2082.0001 | 100 | 34 | 29 | 10 | 19 | 15 | 11 |
| 5.2082.0002 | 125 | 45 | 39 | 13 | 25 | 20 | 16 |
| 5.2082.0003 | 160 | 54 | 45 | 15 | 25 | 20 | 16 |

* = Tolerance ± 0.01 mm



Pendulum jaw

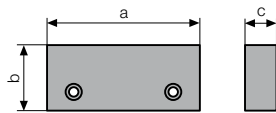
| Part no. | a | b | c | d |
|-------------|-----|----|----|----|
| 8.3711.0208 | 100 | 34 | 35 | 16 |
| 8.3711.0308 | 125 | 45 | 50 | 22 |
| 8.3711.0408 | 160 | 54 | 55 | 26 |



Vee jaw

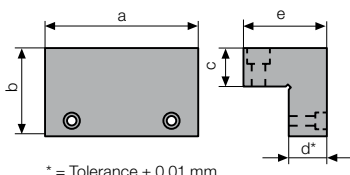
| Part no. | a | b | b1 | c | d |
|-------------|-----|----|----|----|---------|
| 5.3030.0002 | 100 | 34 | 19 | 17 | 8 – 35 |
| 5.3030.0003 | 125 | 45 | 27 | 19 | 10 – 50 |
| 5.3030.0004 | 160 | 54 | 32 | 21 | 12 – 60 |

Vee tolerance ± 0.01 mm



Clamping jaw, soft

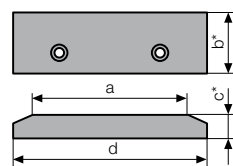
| Part no. | a | b | c |
|-------------|-----|----|----|
| 5.2055.0097 | 100 | 36 | 20 |
| 5.2055.0098 | 125 | 47 | 25 |
| 5.2055.0099 | 160 | 56 | 30 |



Clamping jaw, extra high

| Part no. | a | b | c | d | e |
|-------------|-----|------|----|----|-----|
| 9.3283.0201 | 100 | 58,0 | 25 | 25 | 60 |
| 9.3283.0301 | 125 | 75,5 | 32 | 32 | 74 |
| 9.3283.0401 | 160 | 92,5 | 40 | 40 | 100 |

* = Tolerance ± 0.01 mm

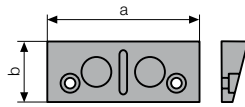


Clamping jaw extra large

| Part no. | a | b | c | d |
|-------------|-----|----|----|-----|
| 5.2058.1025 | 100 | 34 | 13 | 125 |
| 5.2058.1026 | 125 | 45 | 15 | 160 |
| 5.2058.1027 | 160 | 54 | 20 | 200 |

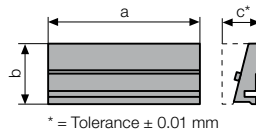
* = Tolerance ± 0.01 mm

all dimensions in mm



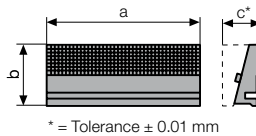
QIS base jaw with permanent magnets

| Part no. | a | b |
|-------------|-----|----|
| 9.3771.0201 | 100 | 34 |
| 9.3771.0301 | 125 | 45 |
| 9.3771.0401 | 160 | 54 |



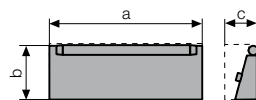
QIS interchangeable jaw, smooth

| Part no. | a | b | c |
|-------------|-----|----|----|
| 8.3771.1201 | 100 | 34 | 21 |
| 8.3771.1301 | 125 | 45 | 26 |
| 8.3771.1401 | 160 | 54 | 31 |



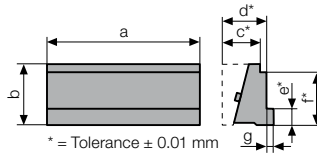
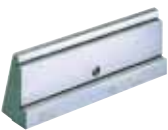
QIS interchangeable jaw, serrated

| Part no. | a | b | c |
|-------------|-----|----|----|
| 8.3771.2201 | 100 | 34 | 21 |
| 8.3771.2301 | 125 | 45 | 26 |
| 8.3771.2401 | 160 | 54 | 31 |



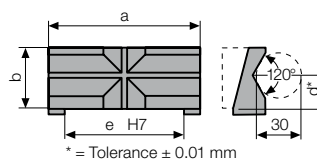
QIS interchangeable jaw, crowned

| Part no. | a | b | c |
|-------------|-----|------|------|
| 8.3771.3211 | 100 | 32,5 | 23,0 |
| 8.3771.3311 | 125 | 43,0 | 27,3 |
| 8.3771.3411 | 160 | 51,0 | 31,9 |



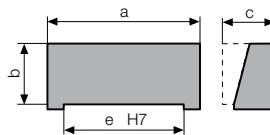
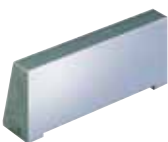
QIS interchangeable jaw, stepped

| Part no. | a | b | c | d | e | f | g |
|-------------|-----|----|----|----|----|----|---|
| 8.3771.4201 | 100 | 34 | 21 | 25 | 10 | 29 | 4 |
| 8.3771.4301 | 125 | 45 | 26 | 30 | 13 | 39 | 5 |
| 8.3771.4401 | 160 | 54 | 31 | 35 | 15 | 45 | 5 |



QIS interchangeable jaw, prismatic

| Part no. | Ø up to | a | b | c | d | e | f |
|-------------|---------|-----|----|----|----|-----|------|
| 8.3771.5201 | 8 – 35 | 100 | 34 | 53 | 19 | 78 | 28,0 |
| 8.3771.5301 | 10 – 50 | 125 | 45 | 58 | 27 | 98 | 34,2 |
| 8.3771.5401 | 12 – 60 | 160 | 54 | 60 | 32 | 125 | 37,0 |



QIS interchangeable jaw, soft

| Part no. | a | b | c | e |
|-------------|-----|----|------|-----|
| 8.3771.7201 | 100 | 34 | 30,0 | 78 |
| 8.3771.7301 | 125 | 45 | 36,5 | 98 |
| 8.3771.7401 | 160 | 54 | 47,0 | 125 |

all dimensions in mm

Mount magnetic base jaw

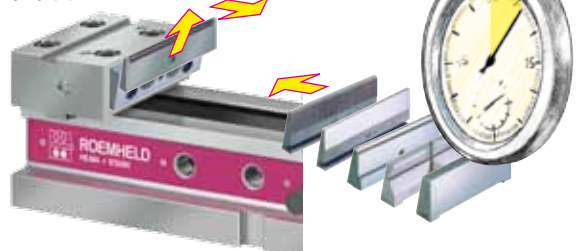


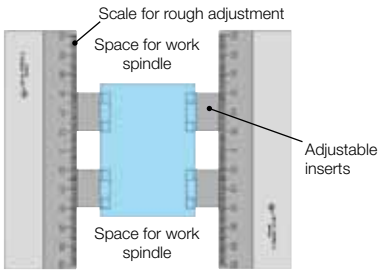
Parallel approach of the QIS jaw and insertion guided by a locating pin



Jaw change in a few seconds:

Push up the QIS jaw to the end of the slot and tilt

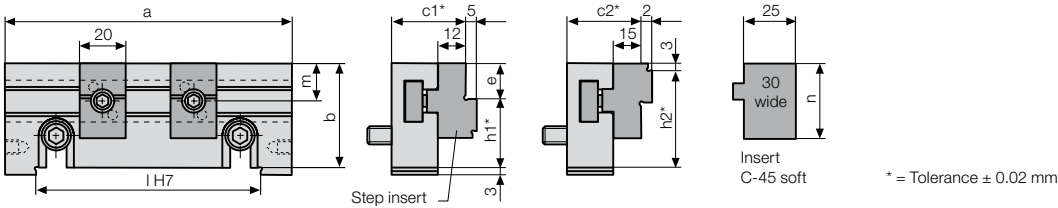




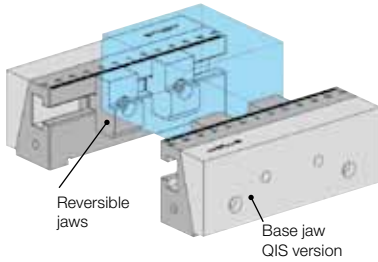
SlimFlex jaw system, standard version

| Jaw width | Part no. Interchangeable jaw without step inserts | Part no. Interchangeable jaw with step inserts | Part no. Insert C45 soft |
|-----------|---|--|--------------------------|
| 100 | 9.3714.0202 | 9.3714.0212 | 5.5050.0123 |
| 125 | 9.3714.0302 | 9.3714.0312 | 5.5050.0099 |
| 160 | 9.3714.0402 | 9.3714.0412 | 5.5050.0099 |

| Jaw width | Dimensions in mm | | | | | | | | |
|-----------|------------------|----|----|----|----|----|-----|----|----|
| | b | c1 | c2 | e | h1 | h2 | l | m | n |
| 100 | 34 | 30 | 33 | 10 | 24 | 31 | 78 | 11 | 30 |
| 125 | 45 | 32 | 35 | 15 | 30 | 42 | 98 | 16 | 40 |
| 160 | 54 | 34 | 37 | 15 | 39 | 51 | 125 | 16 | 40 |

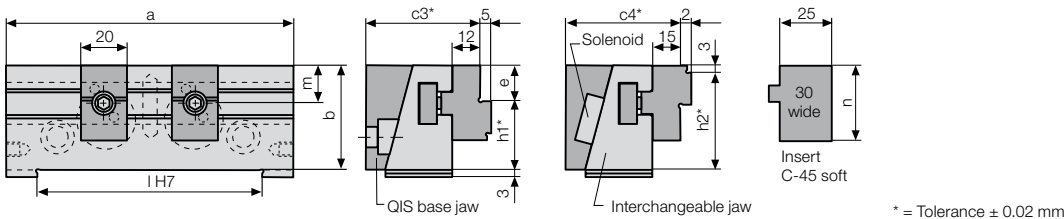


Slim Flex jaw system, QIS version



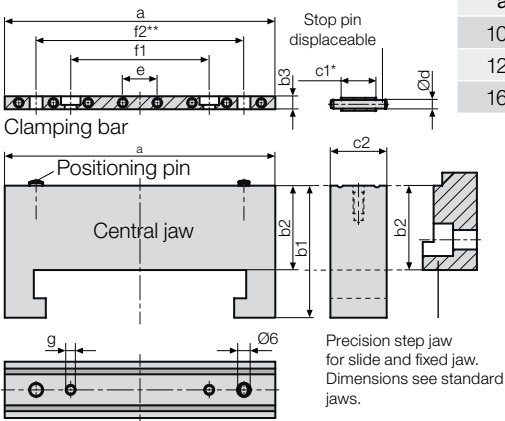
| Jaw width | Part no. Interchangeable jaw without step inserts | Part no. Interchangeable jaw with step inserts | Part no. Insert C45 soft | Part no. QIS base jaw |
|-----------|---|--|--------------------------|-----------------------|
| 100 | 9.3771.9201 | 9.3771.9211 | 5.5050.0123 | 9.3771.0201 |
| 125 | 9.3771.9301 | 9.3771.9311 | 5.5050.0099 | 9.3771.0301 |
| 160 | 9.3771.9401 | 9.3771.9411 | 5.5050.0099 | 9.3771.0401 |

| Jaw width | Dimensions in mm | | | | | | | | |
|-----------|------------------|----|----|----|----|----|-----|----|----|
| | a | b | c3 | c4 | e | h1 | h2 | l | m |
| 100 | 34 | 45 | 48 | 10 | 24 | 31 | 78 | 11 | 30 |
| 125 | 45 | 50 | 53 | 15 | 30 | 42 | 98 | 16 | 40 |
| 160 | 54 | 55 | 58 | 15 | 39 | 51 | 125 | 16 | 40 |



Floating central jaw, standard version

| Jaw width | Part no. Central jaw with clamping bar | Part no. Clamping bar | Part no. Precision step bar | Dimensions in mm | | | | | | | | | |
|-----------|--|-----------------------|-----------------------------|------------------|----|----|----|----|----|----|----|-----|----|
| | | | | b1 | b2 | b3 | c1 | c2 | Ød | e | f1 | f2 | g |
| 100 | 9.3715.0211 | 9.3715.1201 | 5.2082.0001 | 48 | 29 | 5 | 12 | 20 | 3 | 13 | 52 | 78 | M5 |
| 125 | 9.3715.0311 | 9.3715.1301 | 5.2082.0002 | 61 | 39 | 6 | 16 | 26 | 4 | 16 | 64 | 96 | M5 |
| 160 | 9.3715.0411 | 9.3715.1401 | 5.2082.0003 | 70 | 45 | 9 | 20 | 30 | 5 | 20 | 80 | 120 | M6 |



* = Tolerance - 0.01 mm
** = Tolerance ± 0.02 mm

Efficient and economic:
Existing or new HILMA machine vices can be retrofitted from single to multiple clamping systems at low costs and with minimum retrofitting work.

HILMA clamping jaws and jaw inserts with grip

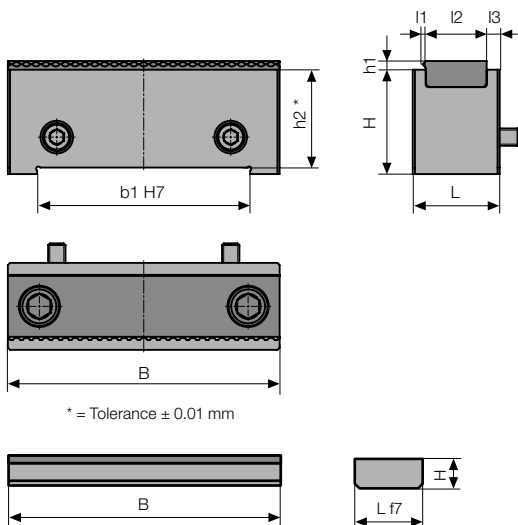
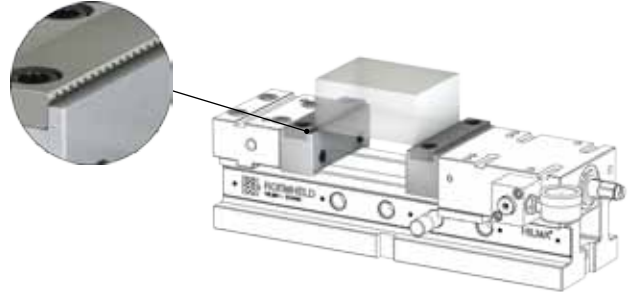
to increase the retention force

for NC machine vices **with clamping pressure display**



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Using clamping jaws or jaw inserts with coating or grip toothing, the retention forces for safe clamping of workpieces can be considerably increased. Only machine vices with clamping force display allow the controlled use of these clamping jaws/inserts.

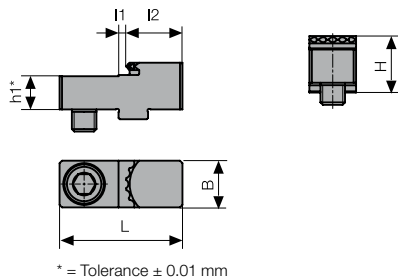
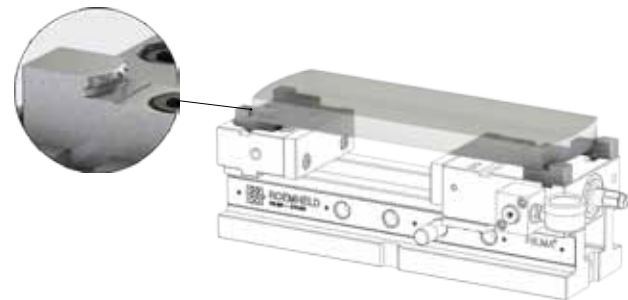


Clamping bar with jaw insert, grip

| Part no. | L | B | H | l1 | l2 | l3 | b1 | h1 | h2 |
|--------------------|----|-----|----|-----|----|----|-----|----|----|
| 9.3286.0201 | 34 | 100 | 37 | 1,5 | 22 | 6 | 78 | 4 | 34 |
| 9.3286.0301 | 40 | 125 | 48 | 1,5 | 28 | 6 | 98 | 4 | 45 |
| 9.3286.0401 | 46 | 160 | 57 | 1,5 | 34 | 6 | 125 | 6 | 54 |

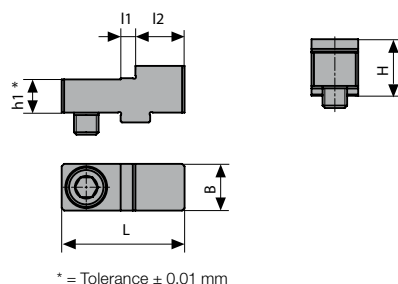
Jaw insert for clamping bar, HM coated

| Part no. | L | B | H | | | | | | |
|--------------------|----|-----|----|--|--|--|--|--|--|
| 5.5050.0692 | 22 | 100 | 10 | | | | | | |
| 5.5050.0694 | 28 | 125 | 12 | | | | | | |
| 5.5050.0696 | 34 | 160 | 16 | | | | | | |



Jaw insert for fixed jaw and slide, grip

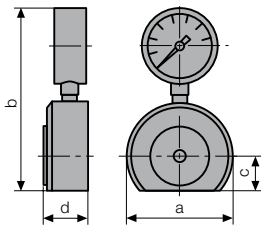
| Part no. | L | B | H | l1 | l2 | h1 | for VL/NC Jaw width |
|--------------------|----|----|------|----|----|------|------------------------|
| 9.3285.6006 | 40 | 15 | 16,5 | 3 | 18 | 11,5 | 100 |
| 9.3285.6008 | 50 | 19 | 19 | 3 | 23 | 14 | 125 |
| 9.3285.6010 | 60 | 28 | 22 | 6 | 22 | 17 | 160 |



Jaw insert for fixed jaw and slide, HM coated

| Part no. | L | B | H | l1 | l2 | h1 | for VL/NC Jaw width |
|--------------------|----|----|------|----|----|------|------------------------|
| 9.3285.6007 | 40 | 15 | 16,5 | 5 | 15 | 11,5 | 100 |
| 9.3285.6009 | 50 | 19 | 19 | 6 | 20 | 14 | 125 |
| 9.3285.6011 | 60 | 28 | 22 | 7 | 24 | 17 | 160 |

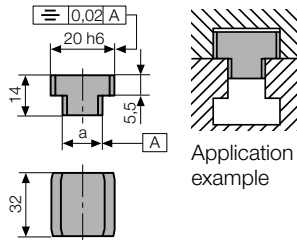
all dimensions in mm



Load cell

for regular checks of the clamping force of hydraulic and mechanical clamping systems.

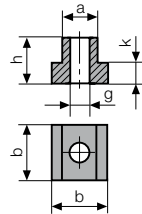
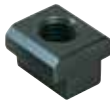
| Part no. | Display range kN | a | b | c | d | For jaw width |
|--------------------|------------------|----|-----|----|----|---------------|
| 2.9501.0001 | 0 – 60 | 88 | 150 | 29 | 37 | 100/125/160 |



Set of key blocks DIN 6323

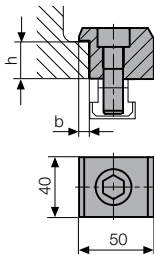
For precise alignment of the clamping device on the machine table the key blocks are inserted laterally.

| Part number for 2 off = 1 set | Table slot a |
|-------------------------------|--------------|
| 9.3917.4121 | 14 h6 |
| 9.3917.4141 | 18 h6 |



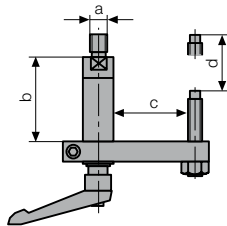
Set of T-nuts DIN 508

| Part number for 4 off = 1 set | a | b | g | h | k |
|-------------------------------|----|----|------|----|----|
| 9.3777.3211 | 14 | 22 | M 12 | 16 | 8 |
| 9.3777.3231 | 18 | 28 | M 12 | 20 | 10 |
| 9.3777.3311 | 18 | 28 | M 16 | 20 | 10 |



Set of clamping claws with screws

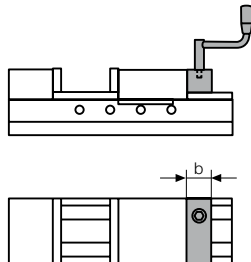
| Part number for 4 off = 1 set | h | Socket head cap screw DIN 912 |
|-------------------------------|----|-------------------------------|
| 9.3777.2011 | 24 | M 12 x 45 8.8 |
| 9.3777.3011 | 27 | M 12 x 45 8.8 |
| 9.3777.3021 | 27 | M 16 x 50 8.8 |



Precision workpiece stop

pivoting, rapid fixation, adjustment in 2 levels.

| Part no. | For jaw width | a | b | c | d |
|--------------------|---------------|------|----|-----|----|
| 9.3291.0201 | 100 / 125 | M 12 | 61 | 95 | 46 |
| 9.3291.0401 | 160 | M 20 | 81 | 124 | 66 |



Angle drive

for machine vices and clamping systems of the type mechanic-hydraulic. May be used when normal operation is difficult or even impossible. Ideal for retrofitting.

| Part no. | For jaw width | SW | b | Crank radius |
|--------------------|---------------|----|----|--------------|
| 9.3294.0505 | 100 | 10 | 39 | 125 |
| 9.3294.0605 | 125 | 10 | 43 | 125 |
| 9.3294.0705 | 160 | 10 | 46 | 125 |



6-stage clamping force preselection

retrofitable for hydro-mechanical vices

| Part no. | For jaw width |
|--------------------|---------------|
| 9.3762.0100 | 100 |
| 9.3762.0125 | 125 |
| 9.3762.0160 | 160 |

all dimensions in mm



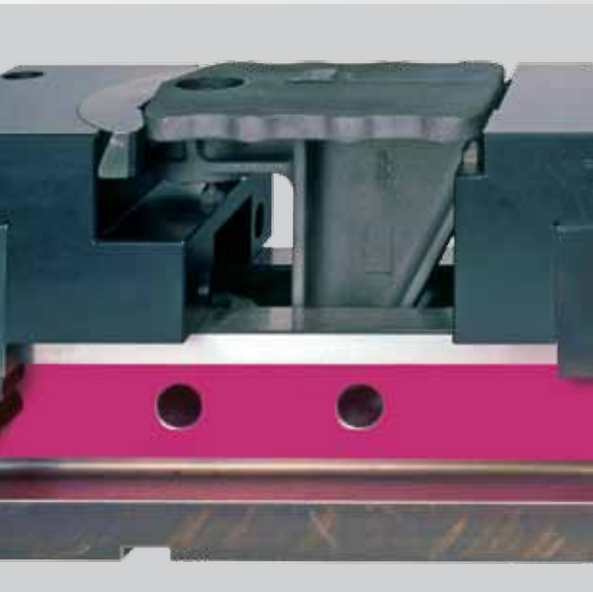


ROEMHELD
HILMA ■ STARK

KNC back to back



DS hydraulic with floating jaws



NC with special clamping jaws



MC for 5-sided machining

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