

vib 7.52

vib SWISS **Dock**[®] **Lock** **SAFE**
patented collet lock

**Zero-point workholding system
for setup and changeover within seconds!** 2008



**Increase in productivity
Increase in return
with the existing machine outfit**

**The *vb* Lock[®]
zero point quick-change system
turns set-up time into production**

Comparison of average loss on set-up changes

a) Conventional

b) with *vb* Lock[®]

Vise

Fixture

Vise

Fixture



**20 min.
€ 30.-**

**40 min.
€ 60.-**

**2 min.
€ 3.-**

**2 min.
€ 3.-**

(assumed machining hour € 90.-)

**Increased efficiency per year with *vb* Lock[®] zero-point quick-change system
(assumed 200 working days). Based on published averages.**

with vise

**savings € 27.-
with every change**

| | 1 machine 1 shift | 5 machines 1 shift | 5 machines 3 shifts |
|----------------------------|----------------------|-----------------------|------------------------|
| 1 set-up change per shift | € 5'400 | € 27'000 | € 81'000 |
| 2 set-up changes per shift | € 10'800 | € 54'000 | € 162'000 |
| 4 set-up changes per shift | € 21'600 | € 108'000 | € 324'000 |

with fixture

**savings € 57.-
with every change**

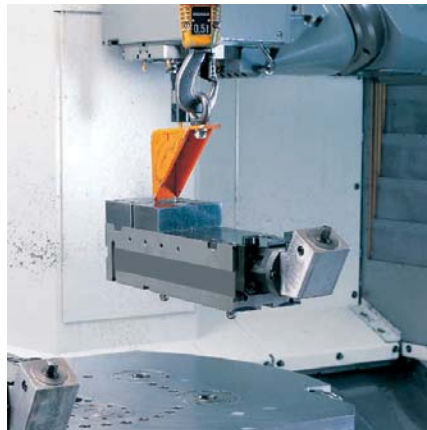
| | 1 machine 1 shift | 5 machines 1 shift | 5 machines 3 shifts |
|----------------------------|----------------------|-----------------------|------------------------|
| 1 set-up change per shift | € 11'400 | € 57'000 | € 171'000 |
| 2 set-up changes per shift | € 22'800 | € 114'000 | € 342'000 |
| 4 set-up changes per shift | € 45'600 | € 228'000 | € 684'000 |

The smart move from set-up time to productivity

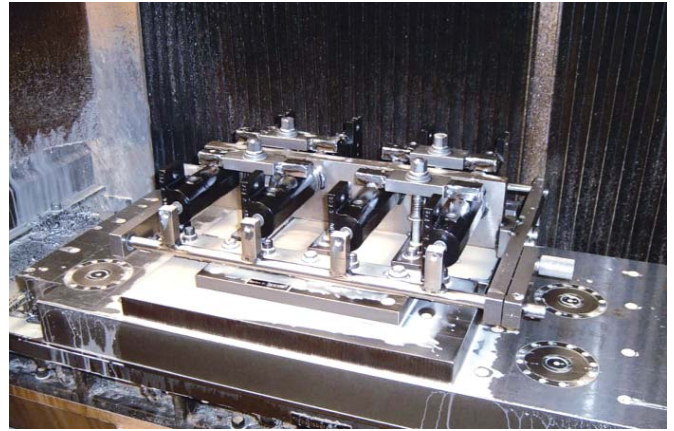
equip your machines **vbDock®** (machine tables or pallets)!



mount fixtures with plugs

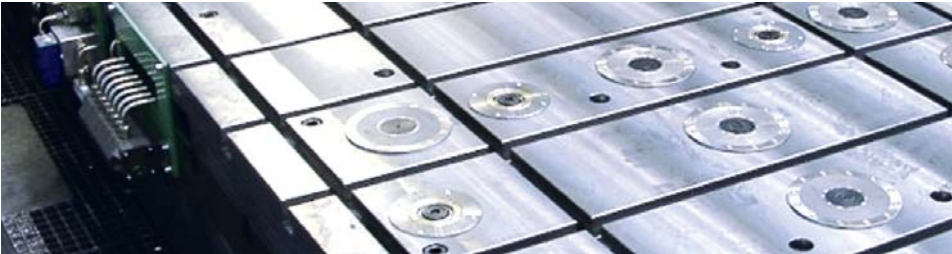


engage and start machining



Flanged cylinders...

... avoid stress in machine tables and pallets
allow any configuration



Built-in cylinders...

... allow any configuration of base-plates, set-up stations,
and measuring machines



Built-up cylinders ...

... for flexible array on machine tables, set-up stations
and measuring machines



Index

Information

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vb Dock[®] Lock[®] SAFE
the zero-point quick-change workholding system

vb Dock[®] Lock[®] SAFE 20

Pull-in force per unit 12'500N
Retention force per unit 40'000N

vb Dock[®] Lock[®] SAFE 30

Pull-in force per unit 20'000N
Retention force per unit 60'000N

SAFE 30 Slim Line

Pull-in force per unit 16'000N
Retention force per unit 50'000N

vb Dock[®] Lock[®] SAFE 50

Pull-in force per unit 30'000N
Retention force per unit 90'000N

vb Dock[®] Lock[®] Auto SAFE 30

Pull-in force per unit 20'000N
Retention force per unit 60'000N

Flanged cylinders



D 120 mm

Built-in cylinders



D 112 mm

Built-up cylinders



D 112 mm

Flanged cylinders



D 160 mm

Built-up cylinders



D 160 mm

9-30

31-38



D 160 mm

Flanged cylinders



D 190 mm

Built-up cylinders



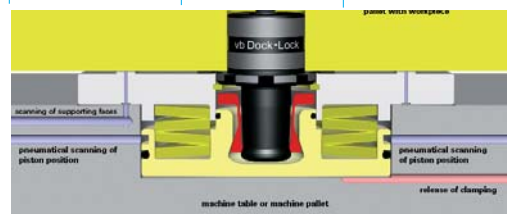
D 190 mm

39-46

47-50

Sensor technology
Automation
Media connections

Hydraulic pumps
Accessories



51



52-54

The leading zero-point workholding system on machining centers, proven in thousands of applications

with the patented collet locking system

Advantages:

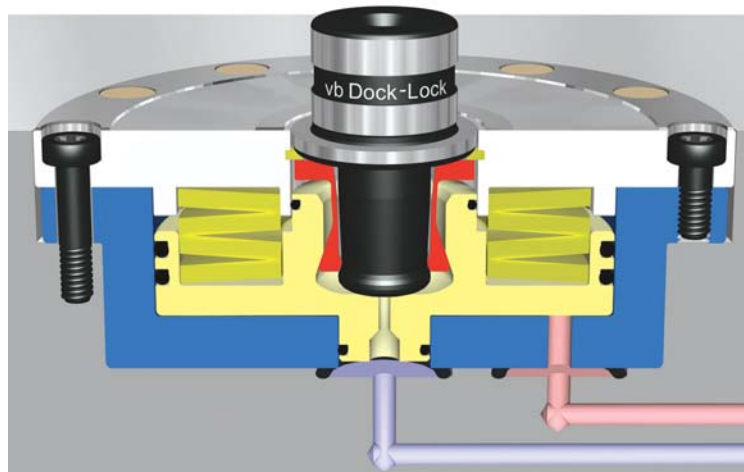
- Set-up changes parallel to machining
- Work interruption possible at any time without losing "zero point"
- Zero-point repeat accuracy < 5µm
- 5 face processing without unclamping
- further usage of existing fixtures
- Inexpensive plug for clamping and centering small assembly dimension
- Dynamical, form-fit clamping
- flanged cylinders for easy integration into machinetables and pallets
- built-in cylinders
- built-up cylinders
- **continuous application on either variety assured.**

Benefits:

- lowers machine down-times by 90% and increases productivity
- flexibility for urgent orders
- interruption anytime without losing the zero-point
- obstruction free machining
- huge time and cost savings
- simple mounting to fixtures, pallets or workpieces
- improved surfaces, increased tool life and high security
- no distortion forces in the machining table
- allow any configuration in spacing on plates, set-up tables and CMM's
- for a flexible arrangement on every machine

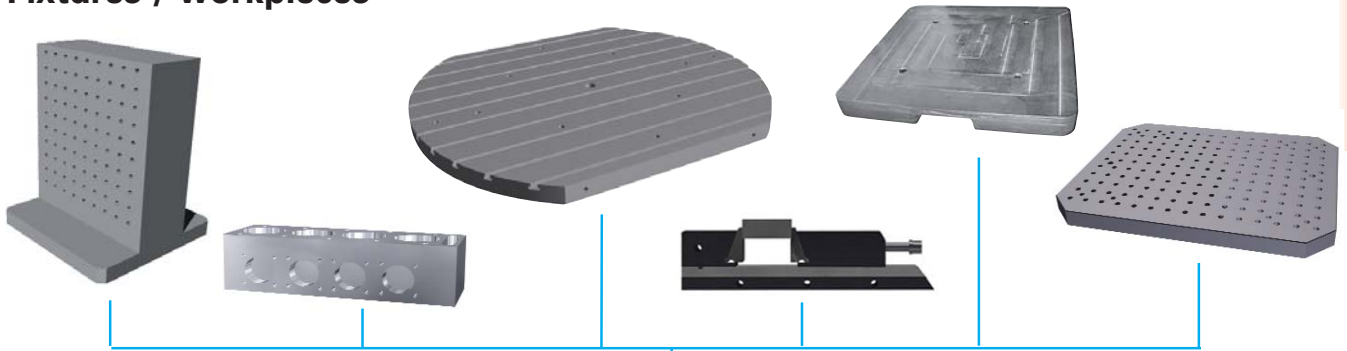
High pull-in and retention forces with the patented collet locking system

| | pull-in force per unit | retention force per unit |
|---|-------------------------------|---------------------------------|
| vb Dock[®] Lock[®] SAFE 20 | 12'500 N | 40'000 N |
| vb Dock[®] Lock[®] SAFE 30 | 20'000 N | 60'000 N |
| vb Dock[®] Lock[®] SAFE 50 | 30'000 N | 90'000 N |

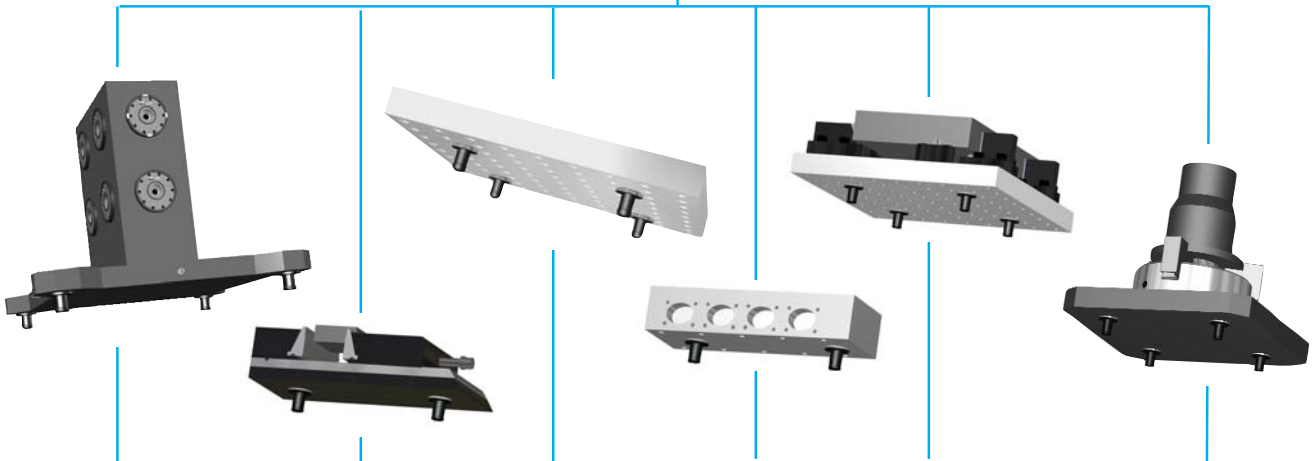
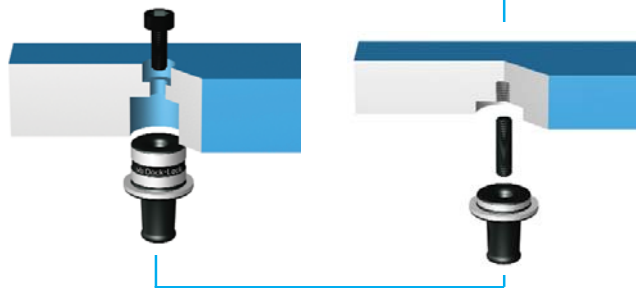


Overview zero-point clamping systems

Fixtures / workpieces



Plug mounting



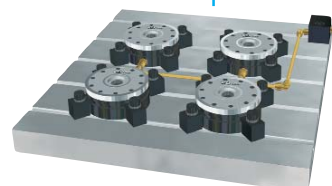
Integrated cylinders



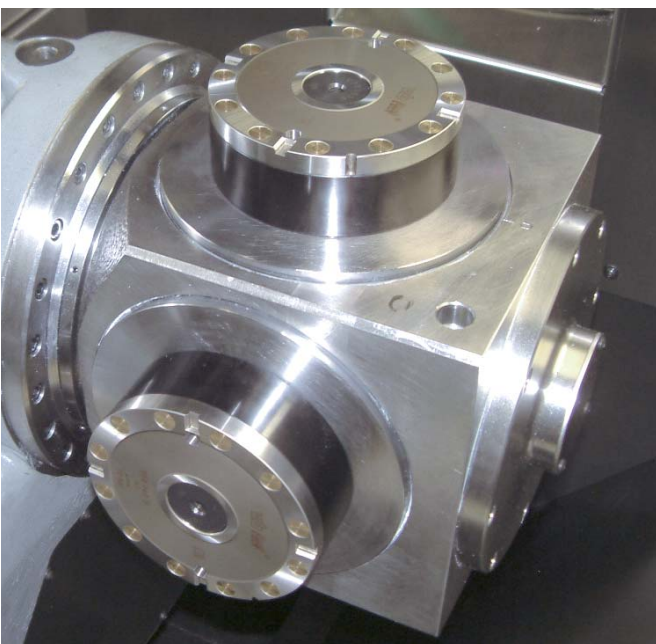
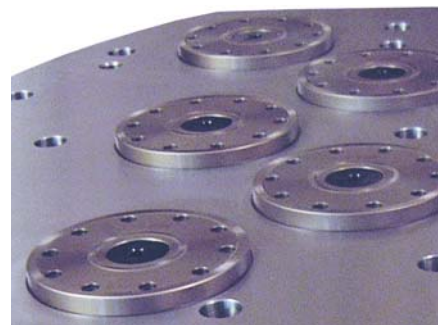
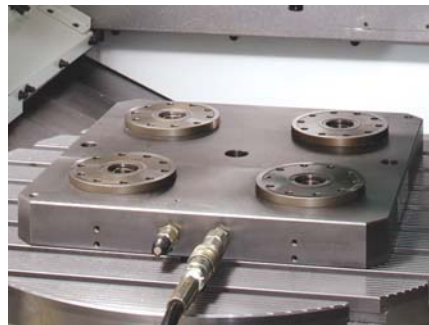
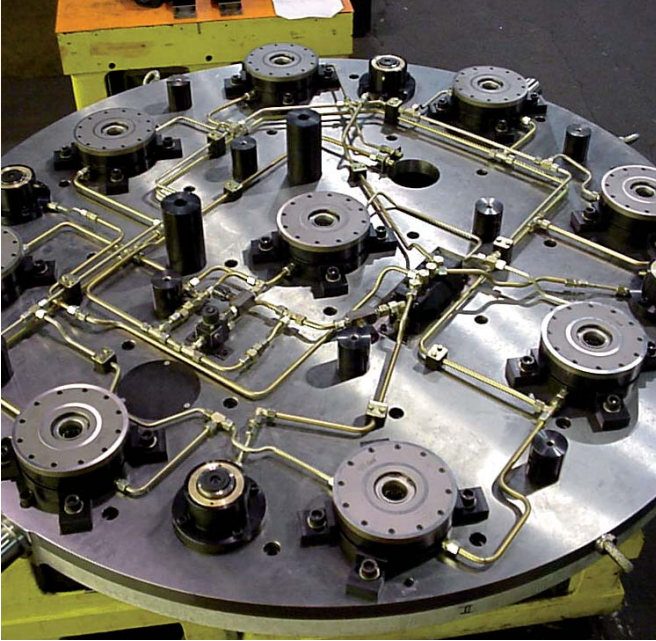
Base plate with built-in cylinders





Built-up cylinders



Machine level



pull-in force per unit: 12'500 N
 retention force per unit: 40'000 N

| | | | |
|--|------|--------------|---|
| Flanged cylinders | page | 10 |  |
| Built-in cylinders | page | 12 |  |
| Built-up cylinders | page | 13 |  |
| Pneumatically activated units | page | 14 |  |
| Recommended plug arrangement Plugs | page | 15-18 |  |
| Accessories | page | 19 |  |
| Standard Base Plate Sets Standard Angle Plates Standard Cubes 5-Side Adaptors | page | 26 |  |
| Standard Pallets and Grid Plates | page | 27-30 |  |

**Flanged cylinders
for direct integration into machine tables,
pallets and fixtures**

**pull-in force: 12'500 N
retention force: 40'000 N**



752 160 Standard
752 160 L with air-blast cleaning
752 160 LU with air-blast cleaning and rear side media connection

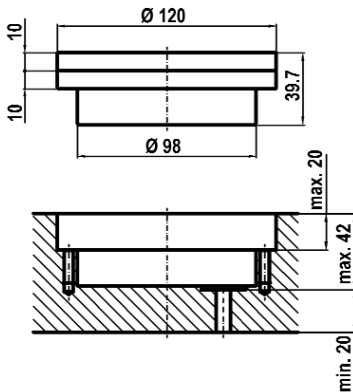
752 160 I with indexing grooves
752 160 LI with air-blast cleaning and indexing grooves
752 160 LIU with air-blast cleaning, indexing grooves and rear side media connection



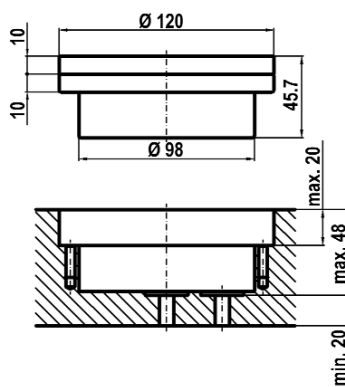
Indexing grooves

Pallets and indexing
set screws
see page 28

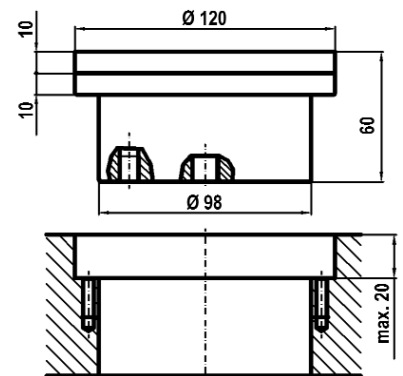
**752 160
752 160 I**



**752 160 L
752 160 LI**



**752 160 LU
752 160 LIU**



For in-house mounting please ask for instructions!



**Flanged cylinders
for direct integration into machining tables,
pallets and fixtures**

**pull-in force: 12'500 N
retention force: 40'000 N**

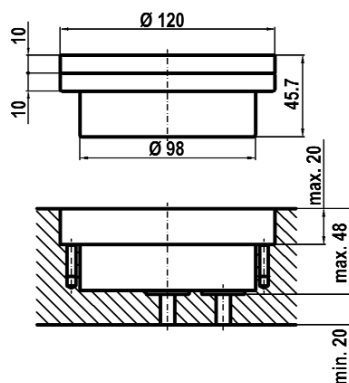


- 752 160 LA**
- 752 160 LAU**
- 752 160 LAK**

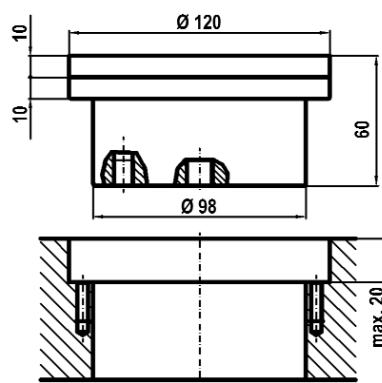
with air-blast cleaning through center and support isles
with air-blast cleaning through center and support isles
and rear side connection for oil and air
with air-blast cleaning through center, support isles and
and scanning of piston position



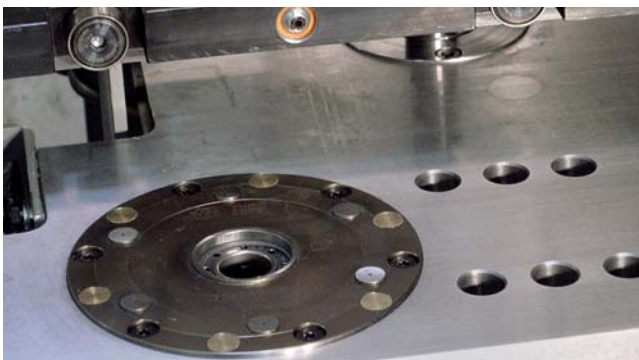
752 160 LA



752 160 LAU



For in-house mounting please ask for instructions!



**Built-in cylinders
for base-plates, set-up stations,
measuring machines**

pull-in force: 12'500 N
retention force: 40'000 N



**752 150
752 150 L**

Standard
with air-blast cleaning

**752 150 I
752 150 LI**

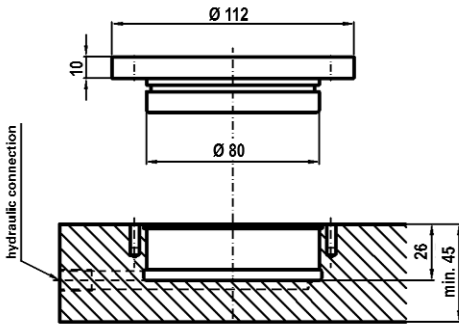
with indexing grooves
with air-blast cleaning and indexing grooves



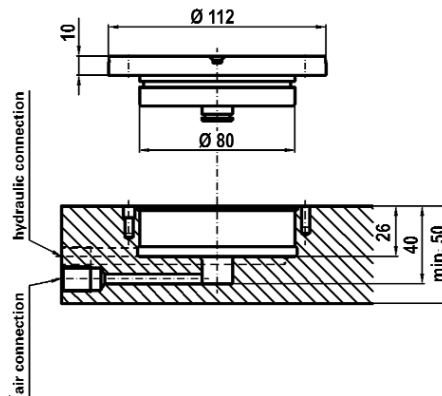
Indexing grooves

Pallets and
indexing set screws
see page 28

**752 150
752 150 I**



**752 150 L
752 150 LI**



For in-house mounting please ask for instructions!



**Built-up cylinders
for flexible configurations on machine tables,
set-up stations, measuring machines**

pull-in force: 12'500 N
retention force: 40'000 N



752 110
752 110 L

Standard
with air-blast cleaning

752 110 I
752 110 LI

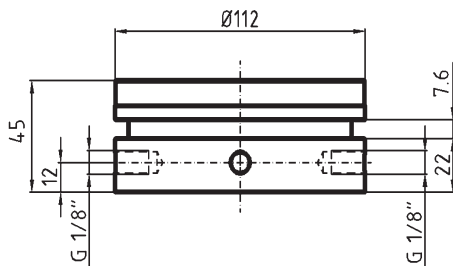
with indexing grooves
with air-blast cleaning and indexing grooves



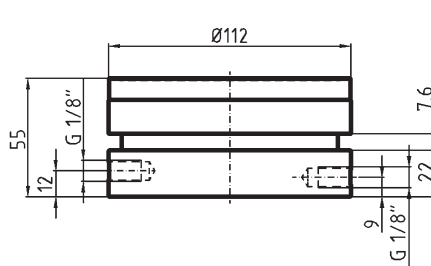
Indexing grooves

Pallets and
indexing set-screws
see page 28

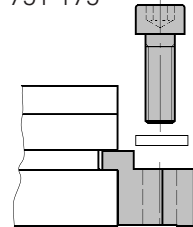
752 110
752 110 I



752 110 L
752 110 LI



Socket head screw M12x35
751 175



Bracket
751 172

T-slot nuts and brackets see page 19





752 ... p All units of **vb Lock[®] SAFE 20** the new patented collet locking system are also available with air pressure activation

pull-in force and retaining force according to working air pressure

752 160p



752 150Lp



752 110lp





1



Centering plug
- ground $\varnothing 32 \pm 0,01$ mm

The centering plug defines the zero-point.
It centers with a diameter of 32 mm. (1.2598")

2



Compensation plug
- two ground raised cams
 $\varnothing 32 \pm 0,01$ mm

The compensation plug defines the X- or Y-axis.
The came line must be set 90° to the line connecting with
the centering plug. Compensates for variations in temperature.

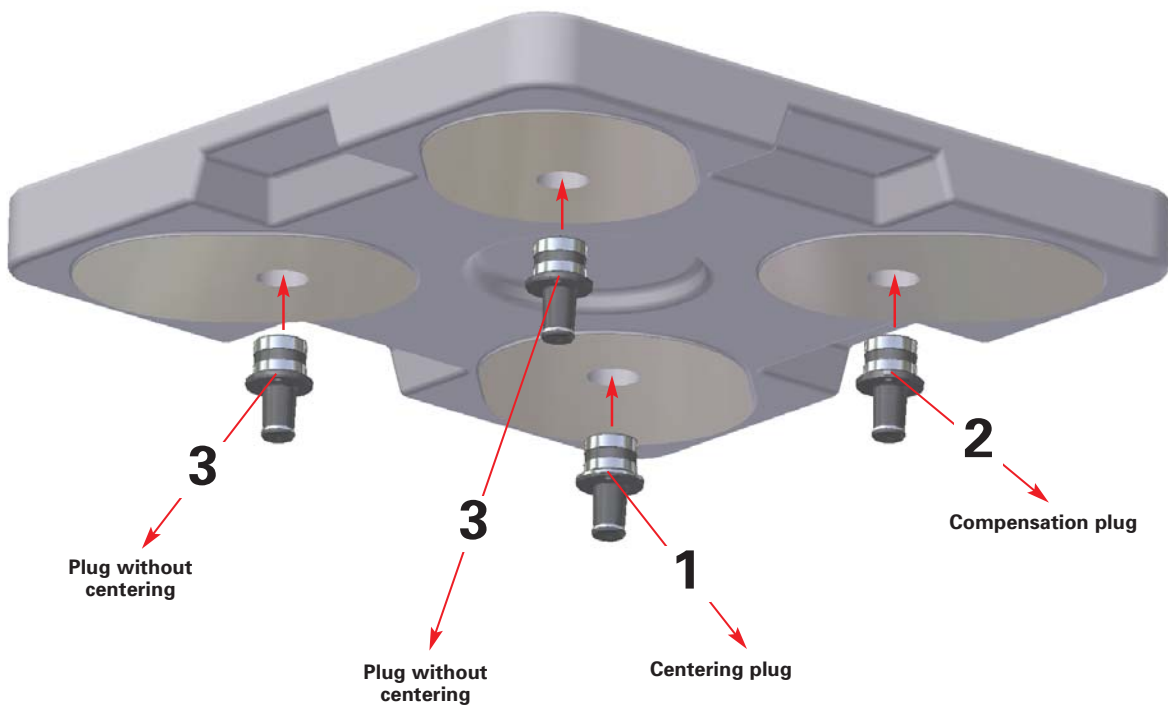


3



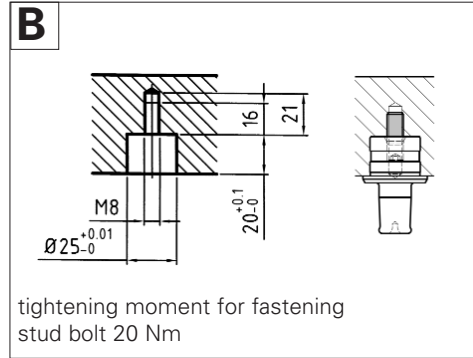
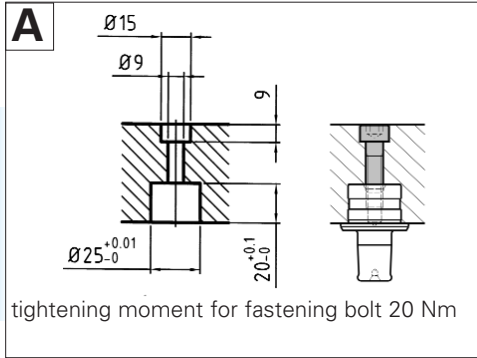
Plug without centering
- $\varnothing 30,0 \pm 0,1$ mm

Plugs without centering only serve for clamping





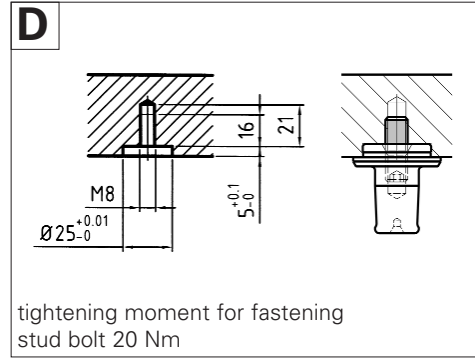
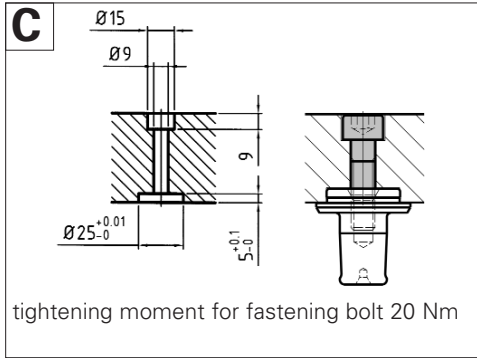
Plug fitting versions (preferably version **A**)



| | | | without air-blast | with air-blast | fitting version A | fitting version B |
|--|--|--|----------------------|-------------------|--------------------------------|--------------------------------|
| 752 500 Centering plug | | | x | | x | x |
| 752 504 Centering plug | | | | x | x | x |
| 752 510 Plug without centering | | | x | x | x | x |
| 752 520 Compensation plug | | | x | x | x | x |



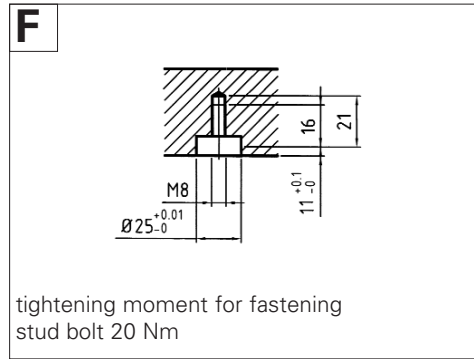
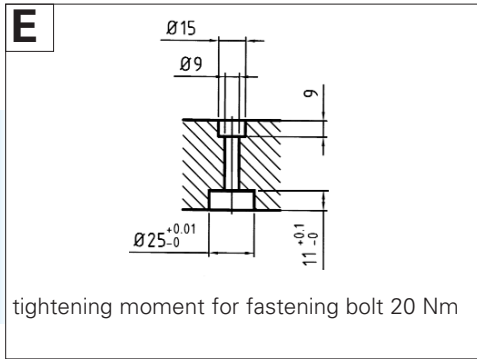
Plug fitting versions (preferably version C)



| | | | without air-blast | with air-blast | fitting version C | fitting version D |
|--|--|--|----------------------|-------------------|--------------------------------|--------------------------------|
| 752 502 Centering plug | | | x | | x | x |
| 752 505 Centering plug | | | | x | x | x |
| 752 512 Plug without centering | | | x | x | x | x |
| 752 522 Compensation plug | | | x | x | x | x |
| 752 523 Two-piece compensation plug | | | x | x | | x |



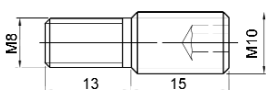
Plug fitting versions (preferably version **E**)



| | | | without air-blast | with air-blast | fitting version A/B | fitting version C/D | fitting version E/F |
|--|--|--|----------------------|-------------------|----------------------------------|----------------------------------|----------------------------------|
| 752 515 Centering plug for vises | | | x | x | | x | x |
| 752 516 Compensation plug for vises | | | x | x | | | x |
| 752 501 Oversize Centering plug long | | | | x | | | |
| 752 503 Oversize Centering plug short | | | | x | | | |

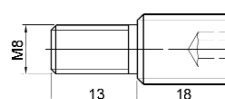
Special fitting of plugs

752 552







Stud screw to clamp DockLock plug into M10 blind hole


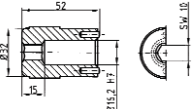

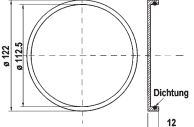

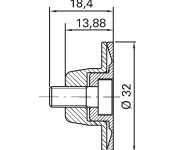
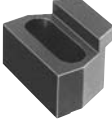
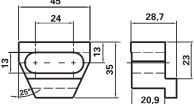


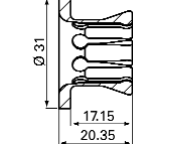


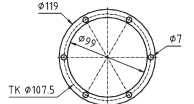

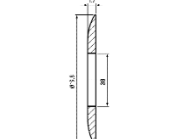
751 548

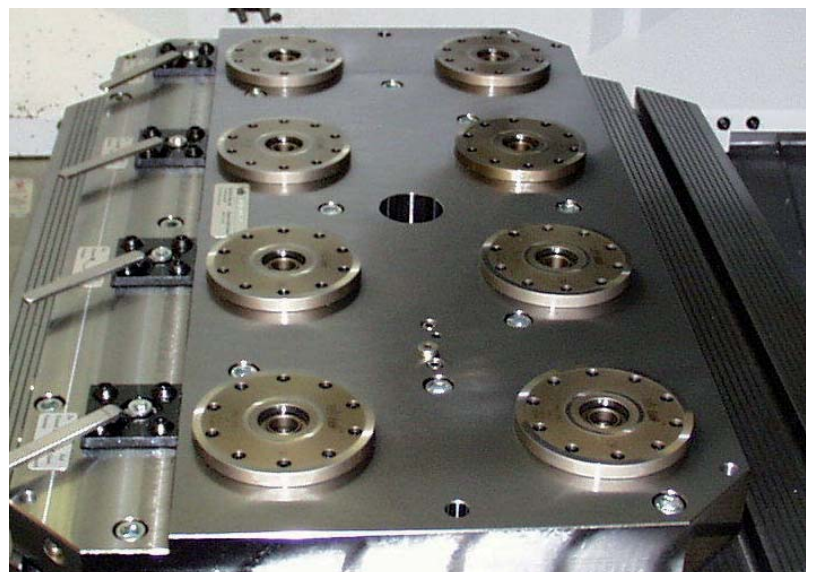
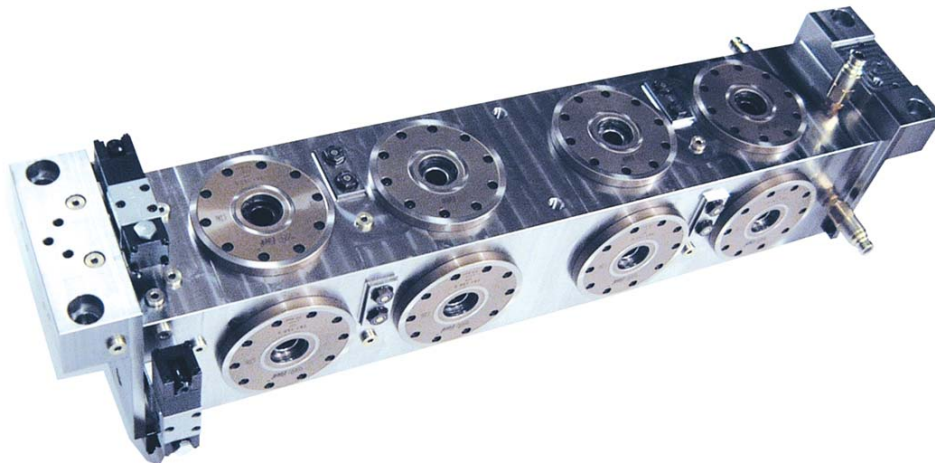
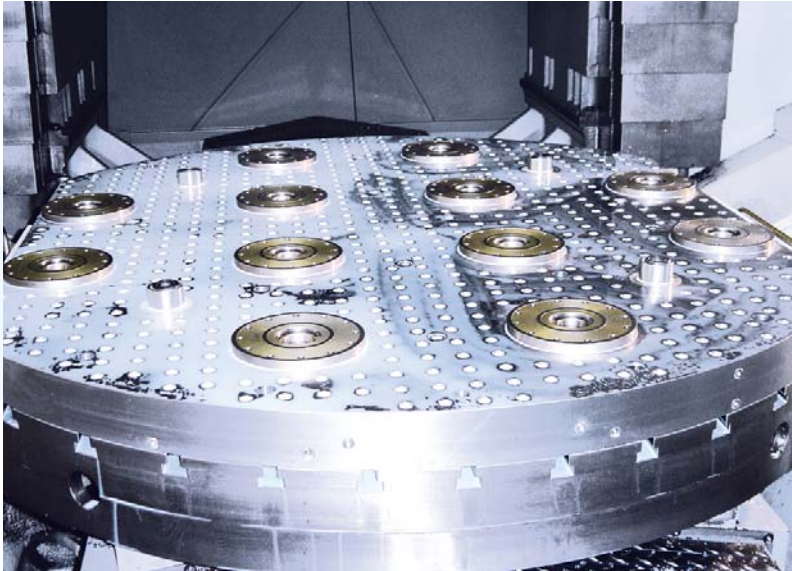


Stud screw to clamp DockLock plug into M12 blind hole



| | | |
|--|---|---|
| <p>751 590 Setup plug for built-up cylinder</p> |  |  |
| <p>751 550 stud bolt M8 x 25 (12.9) for blind hole mounting of plugs</p> |  | |
| <p>751 580 Indexing set-screw M8 (12.9) hardened, for Mini basic pallet 751 601</p> |  |  |
| <p>751 551 Socket head screw M8 x 25 (12.9) for through hole plug mounting</p> |  | |
| <p>751 99. Brass coverdisc for SAFE 20</p> |  |  |
| <p>751 998 $\varnothing 10,5^{+0,05}$ mm 1 mm Dicke</p> | | |
| <p>751 999 $\varnothing 8,55^{+0,10}$ mm 1 mm Dicke</p> | | |
| <p>Swarf protection of counterbores on vb Dock units</p> | | |
| <p>Attention: most important for automated applications</p> | | |
| <p>Fitting: fit flush by using a plastic faced hammer</p> | | |
| <p>Removal: Strike the center with a small punch and pull out with a scriber or similar tool.</p> | | |
| <p>751 ... T-Slot Nuts</p> |  |  |
| <p>775 PT06 1412</p> | <p>A B C D E F kg</p> | |
| <p>775 PT06 1816</p> | <p>22,0 16,0 13,8 8,0 M12 28 0,048</p> | |
| <p>Other sizes see catalogue 7 page 85</p> | | |

| | | |
|---|---|---|
| <p>751 570 Mounting adapter for plugs</p> |  |  |
| <p>751 159 Aluminium cover</p> |  |  |
| <p>752 534 Cover plug</p> |  |  |
| <p>751 172 Bracket</p> |  |  |
| <p>751 175 Socket head screw M12 x 35 to bracket 751 172</p> |  | |
| <p>752 00090 Collet assembly including circular spring 751 00094</p> |  |  |
| <p>751 00091 Circlip</p> |  | |
| <p>752 165K Spacers used to compensate height variations on flanged cylinder cavities SAFE 20. Thickness 2 mm</p> |  |  |
| <p>752 004-1 Washer for inclined lifting</p> |  |  |



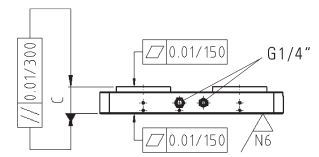
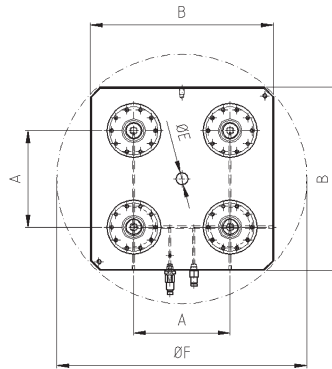
pull-in force: 50'000 N
retention force: 160'000 N



4 unit plate with alignment face

752 200
752 250

with air-blast cleaning, spacing 200 x 200 mm
 with air-blast cleaning, spacing 250 x 250 mm



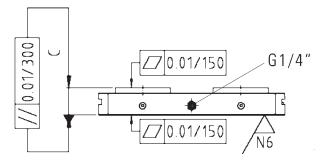
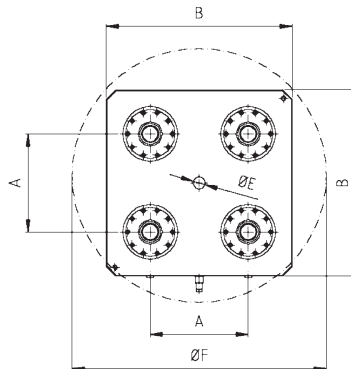
order coupling collar for air
 758 816, separately
 see page 54

| | A mm (Spacing) | B mm | C mm | E mm | F mm |
|---------|-----------------|-----------|----------|-------|------|
| 752 200 | 200 x 200 ±0,01 | 380 x 380 | 55 ±0,01 | 25 H6 | 518 |
| 752 250 | 250 x 250 ±0,01 | 445 x 445 | 55 ±0,01 | 25 H6 | 610 |

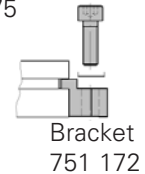
4 unit plate with lateral clamping grooves and alignment face

752 205
752 255

without air-blast cleaning, spacing 200 x 200 mm
 without air-blast cleaning, spacing 250 x 250 mm



Socket head screw M12x35
 751 175



| | A mm (Spacing) | B mm | C mm | E mm | F mm |
|---------|-----------------|-----------|----------|-------|------|
| 752 205 | 200 x 200 ±0,01 | 380 x 380 | 55 ±0,01 | 25 H6 | 518 |
| 752 255 | 250 x 250 ±0,01 | 445 x 445 | 55 ±0,01 | 25 H6 | 610 |

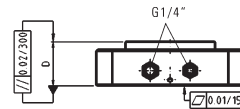
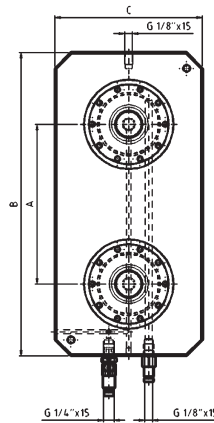
**pull-in force: 25'000 N
retaining force: 80'000 N**



2 unit plate

752 220

with air-blast cleaning, spacing 200 mm



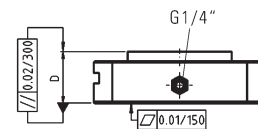
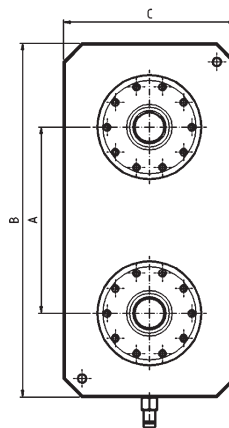
order coupling collar for air
758 816, separately
see page 54

| | A mm (Spacing) | B x C mm | D mm |
|---------|----------------|----------------|----------|
| 752 220 | 200 ±0,01 | 380 x 185 ±0,2 | 55 ±0,01 |

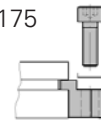
2 unit plate with lateral clamping grooves

752 225

without air-blast cleaning, spacing 200 mm



Socket head screw M12x35
751 175



Bracket
751 172

| | A mm (Spacing) | B x C mm | D mm |
|---------|----------------|----------------|----------|
| 752 225 | 200 ±0,01 | 380 x 185 ±0,2 | 55 ±0,01 |

**Standard base plates sets
with patented collet lock**

pull-in force: 50'000 N
retaining force: 160'000 N



4 unit base plate set

752 202
752 252

with air-blast cleaning, spacing 200 x 200 mm
with air-blast cleaning, spacing 250 x 250 mm

752 207
752 257

without air-blast cleaning, spacing 200 x 200 mm
without air-blast cleaning, spacing 250 x 250 mm

**containing:
1 standard base plate**



2 centering plugs



4 plugs without centering



2 compensation plugs



4 cover plugs

2 unit base plate set

752 222
752 227

with air-blast cleaning, spacing 200 mm
without air-blast cleaning, spacing 200 mm

**containing:
1 Standard base plate**



2 centering plugs



2 compensation plugs



2 cover plugs

758 800-1
pressure pump, 220 Volt or 110 Volt
please order separately



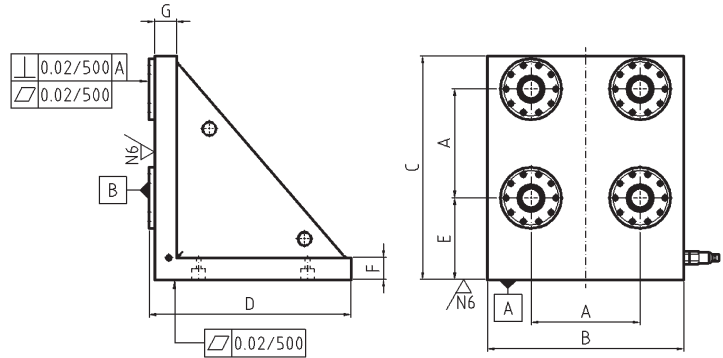
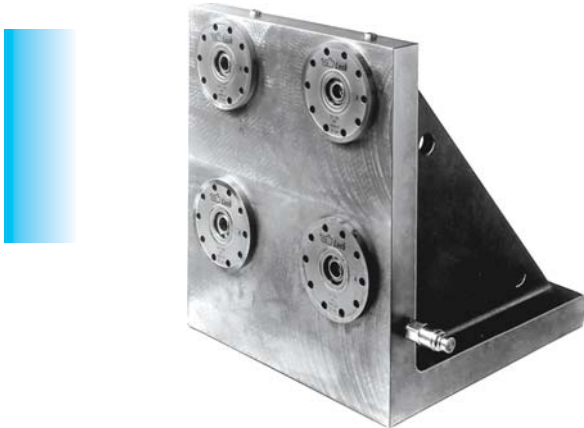
see page 53



Angle plate

752 320

with 4 units 752150, spacing 200 x 200 mm



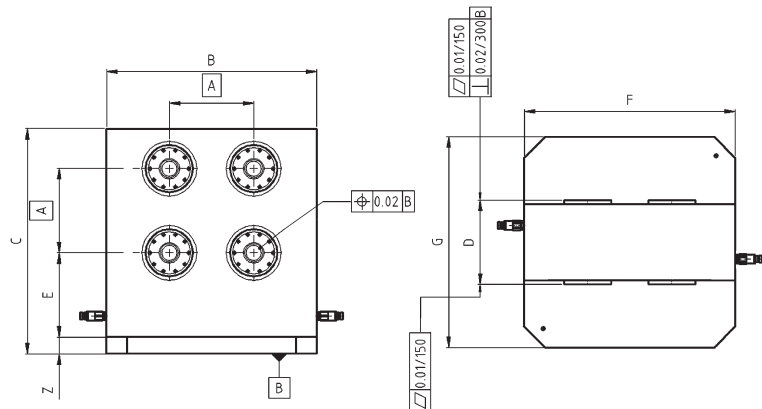
| | A mm (Spacing) | B x C x D mm | E mm | F mm | G mm |
|---------|-----------------|-----------------|----------|------|------|
| 752 320 | 200 x 200 ±0,01 | 360 x 410 x 370 | 150±0,01 | 40 | 40 |

Enquiries for other configurations and spacings invited.

Cube

752 428

with 8 units 752 150



| | A mm (Spacing) | B x C x D mm | E mm | F mm | G mm | Z mm |
|---------|-----------------|-----------------|----------|------|------|------|
| 752 428 | 200 x 200 ±0,01 | 500 x 600 x 210 | 200±0,01 | 500 | 500 | 50 |

Enquiries for other configurations and spacings invited.

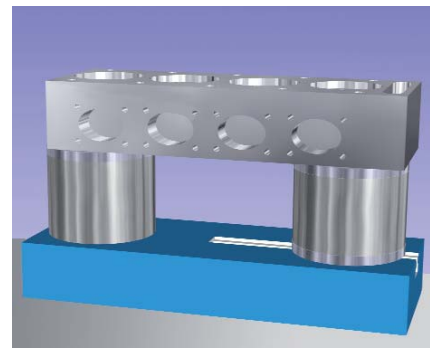
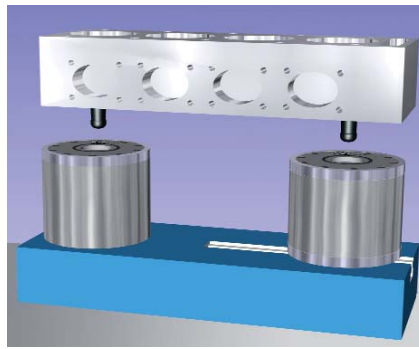
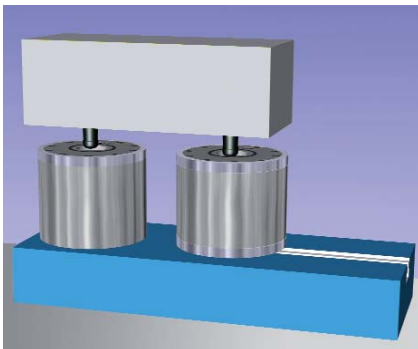
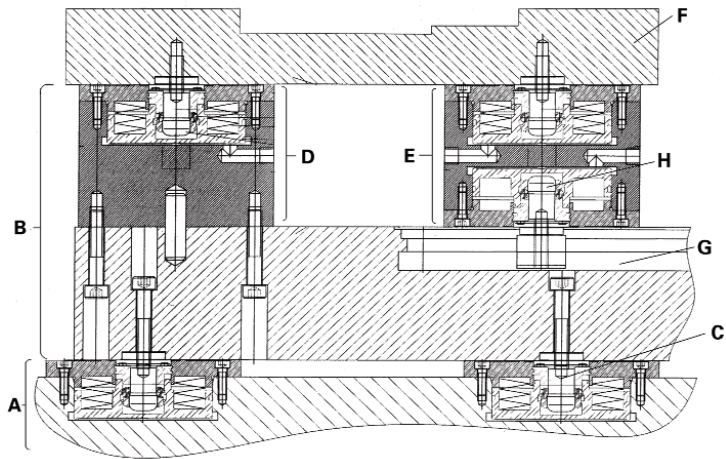
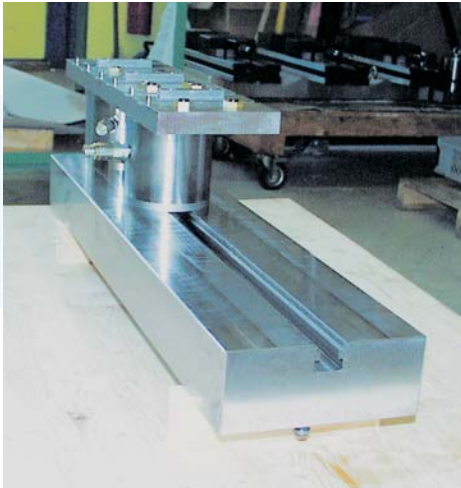


adaptors for 5 side machining





also for 5 / 6 side machining



for the transition from the fixed spacing of the vb Lock®-system on a machining table to any other variable spacings. E.g. direct clamping of a workpiece mounted with plugs on vb Lock® cylinders.

1) clamped into the existing vb Lock®-system **A** with fixed spacing is the "Unibeam" **B**. The underside is provided with plugs **C** that correspond to the spacing of the existing vb Lock® system.

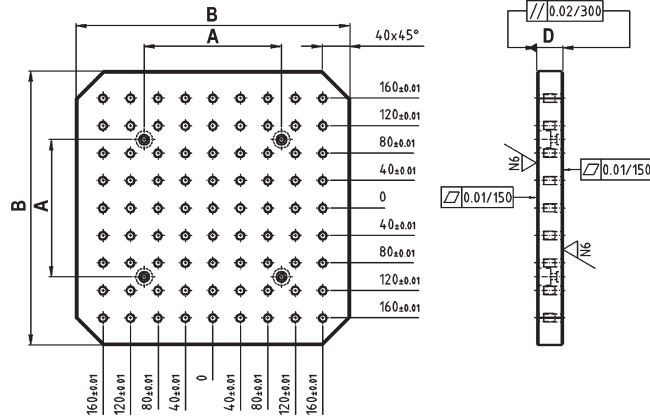
2) The top side of the Unibeam comprises one fixed vb Lock® cylinder **D** and one double-sided vb Lock® cylinder **E** movable in one axis.

3) The movable vb Lock® cylinder **E** is adapted to the spacing of the workpiece **F** and fixed via a plug **H** located in a T-slot **G**.



751 630

Grid 40 ±0.01 mm
Hardened bushes 12F7 / M12

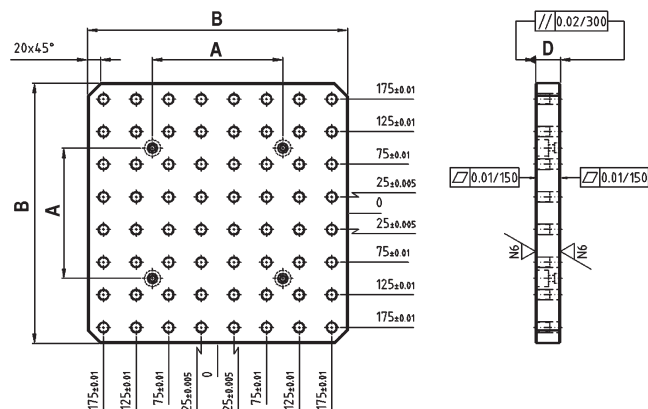


| | A mm (Spacing) | B mm | D mm | Material | Number of bores |
|---------|----------------|-----------|----------|----------|-----------------|
| 751 630 | 200x200 ±0.01 | 399 x 399 | 38 ±0.01 | CK45 | 81 |

Enquiries invited for other sizes and tolerances or see catalogue 7.

751 631

Grid 50 ±0.01 mm
Hardened bushes 16F7 / M16



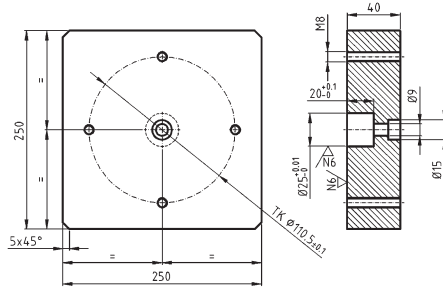
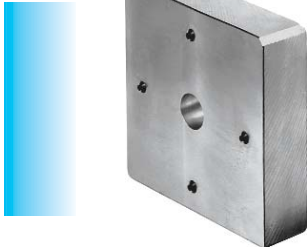
| | A mm (Spacing) | B mm | D mm | Material | Number of bores |
|---------|----------------|-----------|----------|----------|-----------------|
| 751 631 | 200x200 ±0.01 | 399 x 399 | 38 ±0.01 | CK45 | 64 |

Enquiries invited for other sizes and tolerances or see catalogue 7.



751 601

Mini-basic pallet, indexable in high-strength aluminium for cylinders with indexing with plug bore, 4 indexing set screws mounted Nr. 751 580

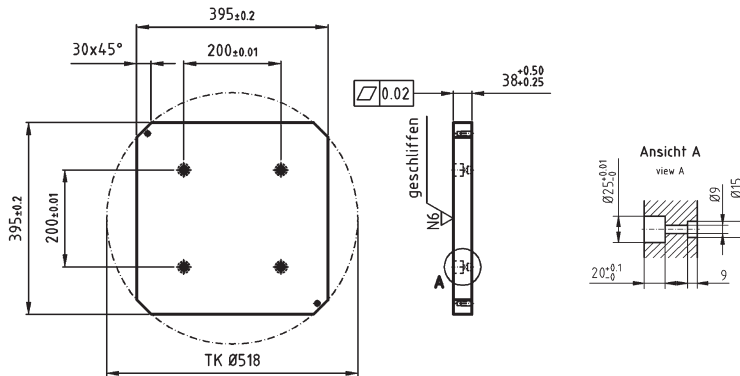


Art.Nr. 751 580
Indexing set screw
(hardened)



751 610

Basic pallet, in St. 52 steel, spacing 200 x 200 ±0,01 mm
4 plug bores, top face raw machined
plug bore face ground

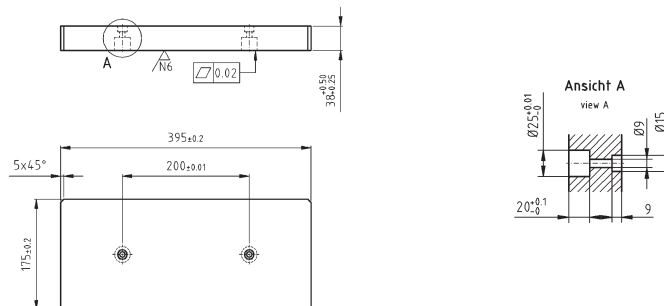


751 620

Basic pallet, in St. 52 steel, spacing 200 ±0,01 mm
half size, 2 plug bores, top face raw machined
plug bore face ground

751 621

Made of high-strength aluminium. Otherwise as above!

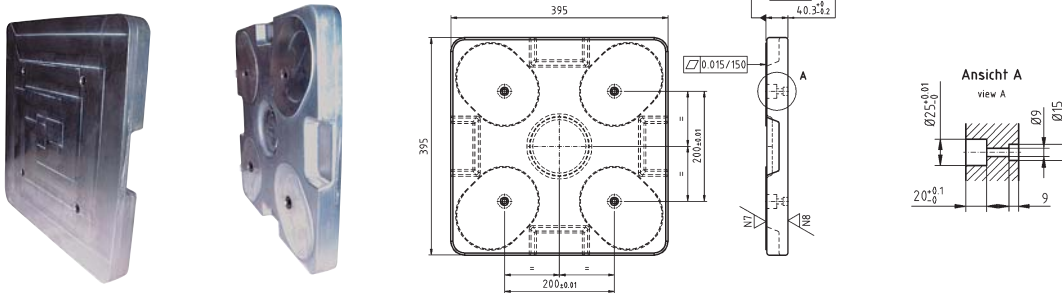




Basic pallet in high-strength aluminium cast, 4 plug bores
395x395x40mm, top face raw machined, plug bore face finished

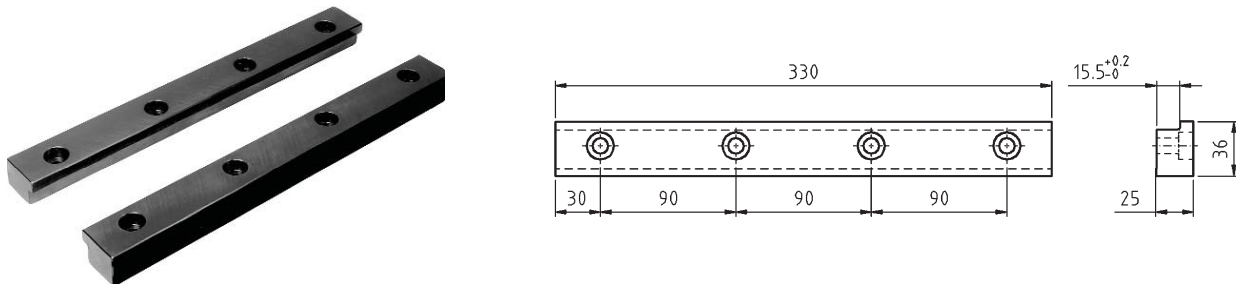
751 615
751 617

spacing 200 x 200 ±0,01mm
spacing 250 x 250 ±0,01 mm



751 176

Cucking claw rail, suitable for OML CALIFORNIA 2
machine vice and 751 615





Pull-in force: 20'000 N
Retention force: 60'000 N

Flanged cylinders

**SAFE 30
SAFE 30 Slim Line**

page

32-33



Built-up cylinders

SAFE 30

page

34



**Recommended plug arrangement
Plugs**

page

35-36



Accessories

page

37



Indexable Pallets

page

38



**Flanged cylinders
for direct integration into machining tables,
pallets and fixtures**

Pull-in force: 20'000 N
Retention force: 60'000 N



752 172
752 172 U
752 172 L
752 172 LU

Standard
with rearside media connection
with air-blast cleaning
with air-blast cleaning and rear side media connection

752 172 I
752 172 LI
752 172 LIU

with indexing grooves
with air-blast cleaning and indexing grooves
with air-blast cleaning and indexing grooves and rear side media connection



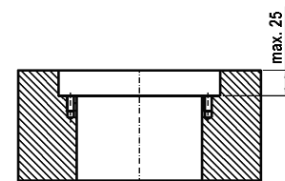
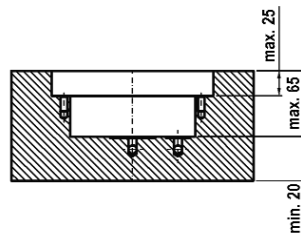
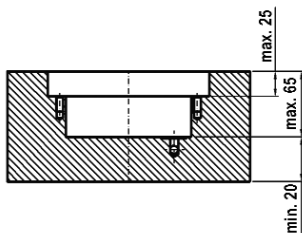
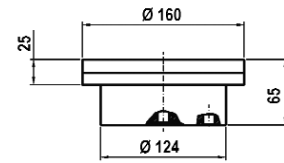
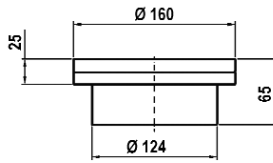
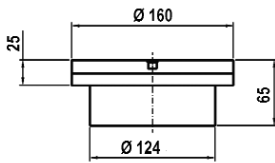
Indexing grooves

Pallets and indexing
set screws
see page 38

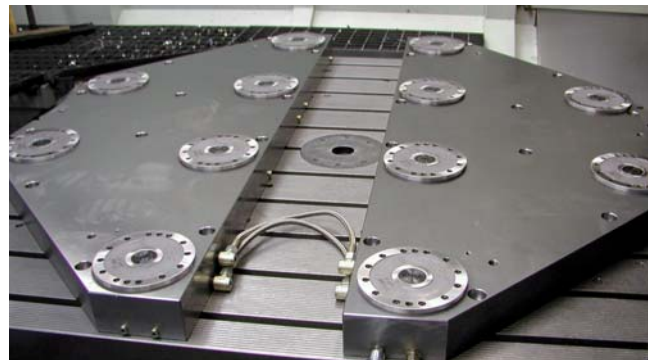
752 172
752 172 I

752 172 L
752 172 LI

752 172 U
752 172 LU
752 172 LIU



For in-house mounting please ask for instructions



**Flanged cylinders
for direct integration into machine tables,
pallets and fixtures**

Pull-in force: 16'000 N
Retention force: 50'000 N



752 176
752 176 L

Standard
with air-blast cleaning

752 176 I
752 176 LI

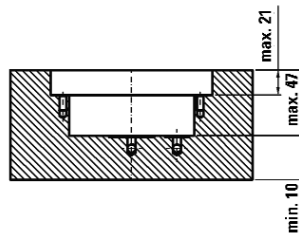
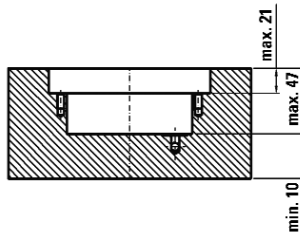
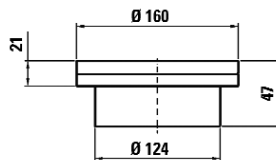
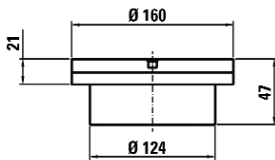
with indexing grooves
with air-blast cleaning and indexing grooves



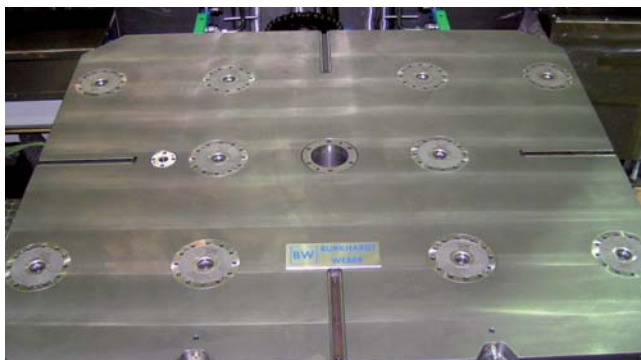
Indexing grooves
pallets and indexing
set screws
see page 38

752 176
752 176 I

752 176 L
752 176 LI



For in-house mounting please ask for instructions



**Built-up cylinders
for flexible configurations on machine tables,
set-up stations, measuring machines**

pull-in force: 20'000 N
retention force: 60'000 N



752 178
752 178 L

Standard
with air-blast cleaning

752 178I
752 178 LI

with indexing grooves
with air-blast cleaning and indexing grooves

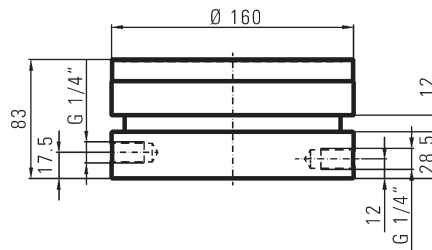
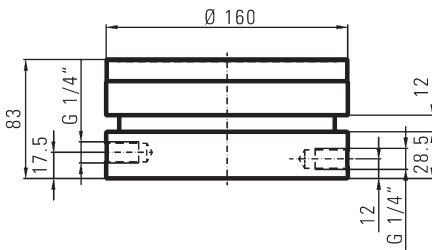


752 178
752 178 I

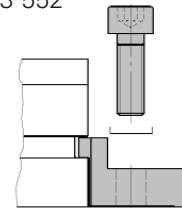


752 178 L
752 178 LI

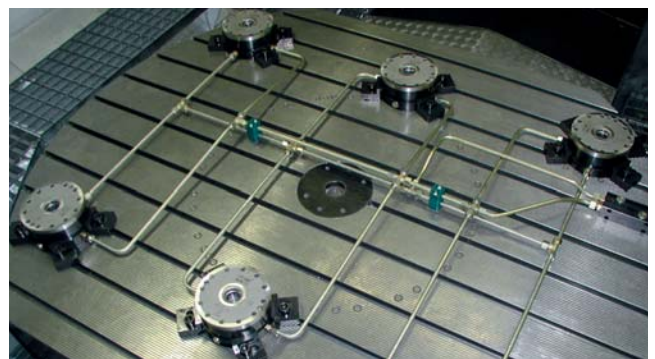
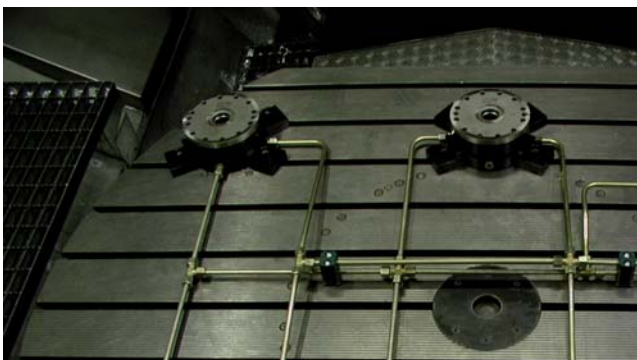
Indexing grooves
Pallets and indexing
set-screws
see page 38



Socket head screw M16x35
753 552



Bracket
753 170





1



Centering plug
- ground $\varnothing 36 \pm 0,01$ mm

The centering plug defines the zero-point.
It centers with a diameter of 36mm. (1.2598")

2



Compensation plug
- two ground raised cams
 $\varnothing 36 \pm 0,01$ mm

The compensation plug defines the X- or Y-axis.
The came line must be set 90° to the line connecting with the centering plug. Compensates for variations in temperature.

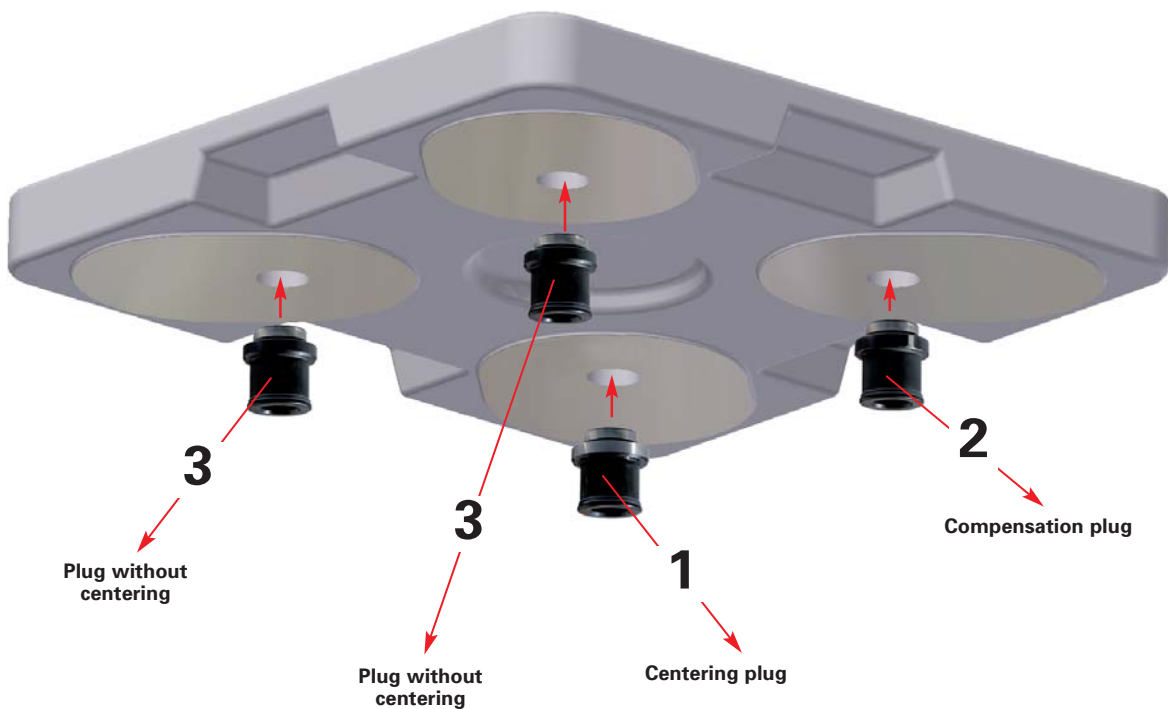


3



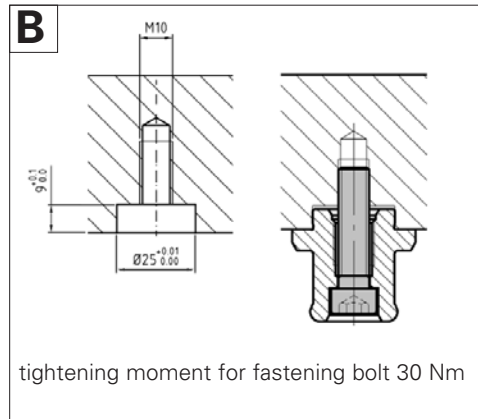
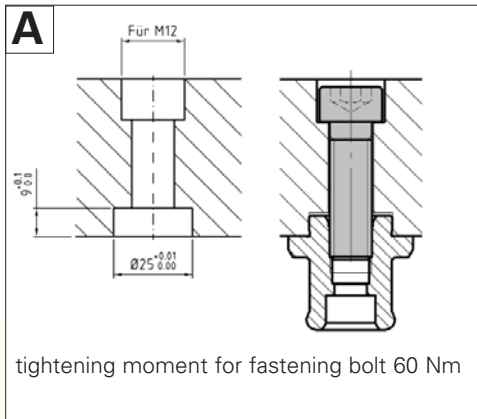
Plug without centering
- $\varnothing 34,5 \pm 0,1$ mm

Plugs without centering only serve for clamping




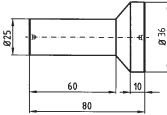

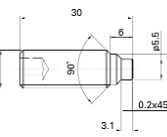




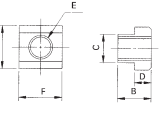




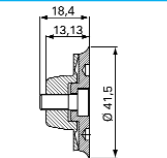

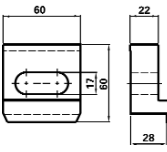


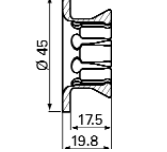

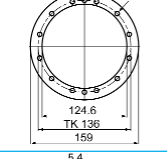

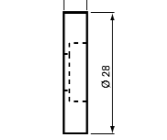
Plug fitting versions (preferably version **A**)



| | | | without air-blast | with air-blast | fitting version A | fitting version B |
|---|--|--|----------------------|-------------------|--------------------------------|--------------------------------|
| 752 702 Centering plug | | | x | x | x | x |
| 752 712 Plug without centering | | | x | x | x | x |
| 752 722 Compensation plug | | | x | x | x | x |



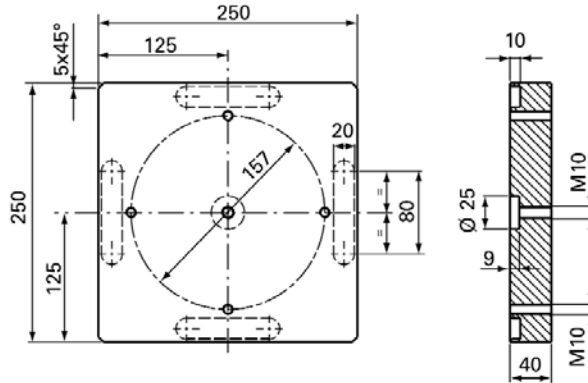
| | | |
|--|---|---|
| <p>752 790 Set-up plug for built-up cylinder</p> |  |  |
| <p>753 580 Indexing set-screw M10 (12.9) hardened, for basic indexing pallet 752 601</p> |  |  |
| <p>752 551 Socket head screw M10 x 40 (12.9) for mounting plugs from underneath</p> |  | |
| <p>751 99. Brass cover disc for SAFE 30</p> |  |  |
| <p>751 998 $\varnothing 10,5 \pm 0,10$ mm 1 mm thick</p> | | |
| <p>Swarf protection of counterbores on vb Lock® units</p> <p>Attention: most important for automated applications</p> <p>Fitting: fit flush by using a plastic faced hammer</p> <p>Removal: Strike the center with a small punch and pull out with a scribe or similar tool.</p> | | |
| <p>775 ... T-Slot Nuts</p> |  |  |
| <p>775 PT06 1412</p> | <p>A 22,0 B 16,0 C 13,8 D 8,0</p> | <p>E M12 F 28 kg 0,048</p> |
| <p>775 PT06 1816</p> | <p>A 28,0 B 20,0 C 17,7 D 10,5</p> | <p>E M16 F 30 kg 0,085</p> |
| <p>Other sizes see catalogue 7 page 85</p> | | |

| | | |
|---|---|---|
| <p>753 555 Socket head screw M6 x 30 low head for flange mounting</p> |  | |
| <p>752 734 Cover plug</p> |  |  |
| <p>753 170 Bracket</p> |  |  |
| <p>751 558 Socket head screw M16 x 60 to bracket 753 170</p> |  | |
| <p>752 00095 Collet assembly including circular spring 752 00094</p> |  |  |
| <p>752 168 Spacers used to compensate height variations on cavities for flanged cylinders SAFE 30 Thickness 2 mm</p> |  |  |
| <p>752 006-1 Washer and mounting screw for inclined lifting 752 006-2</p> |  |  |



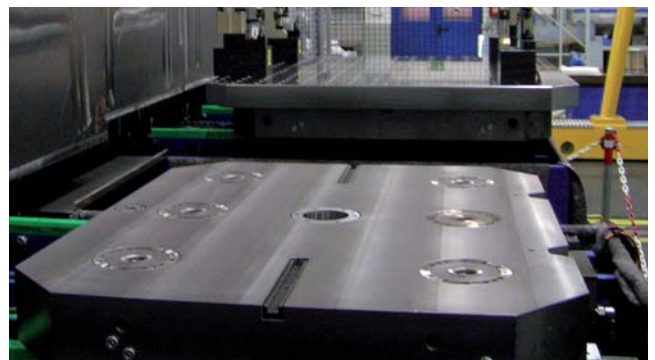
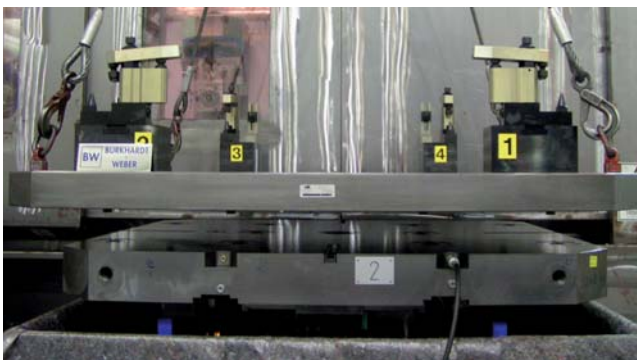
752 601

Basic pallet, indexable in high-strength aluminium, with one plug bore and 4 indexing set screws mounted.



753 580

Indexing set screw M10 (12.9 hardened)



Pull-in force per unit: 30'000 N
Retention force per unit: 90'000 N

Flanged cylinders

page

14



Built-up cylinders

page

41



**Recommended plug arrangement
Plugs**

page

42-43



Accessories

page

44



Indexable pallets

page

45



**Flanged cylinders
for direct integration into machine tables,
pallets and fixtures**

Pull-in force: 30'000 N
Retention force: 90'000 N



753 172
753 172 U
753 172 L
753 172 LU

Standard
with rear side connection
with air-blast cleaning
with air-blast cleaning and rear side media connection

753 172 I
753 172 LI
753 172 LIU

with indexing grooves
with air-blast cleaning and indexing grooves
with air-blast cleaning and indexing grooves and rear side media connection

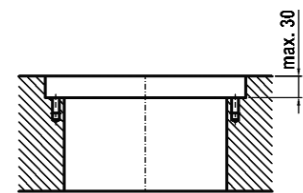
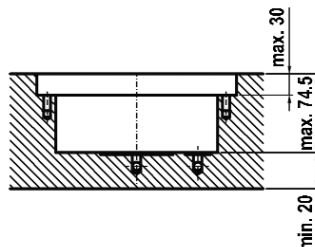
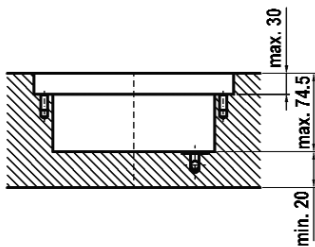
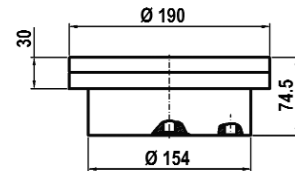
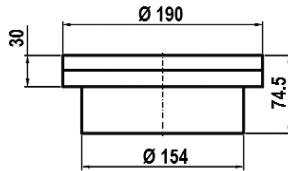
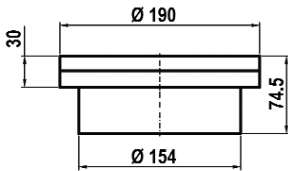


Indexing grooves
pallets and indexing
set screws
see page 45

753 172
753 172 I

753 172 L
753 172 LI

753 172 U
753 172 LU
753 172 LIU



For in-house mounting please ask for instruction!



**Built-up cylinders
for flexible configurations on machine tables,
set-up stations, measuring machines**

Pull-in force: 30'000 N
Retention force: 90'000 N



753 178
753 178 L

Standard
with air-blast cleaning

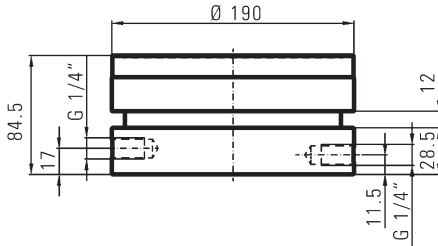
753 178 I
753 178 LI

with indexing grooves
with air-blast cleaning and indexing grooves

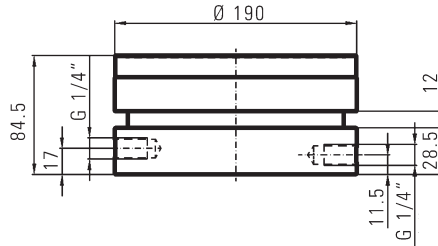


Indexing grooves
Pallets and indexing
set-screws
see page 45

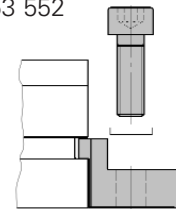
753 178
753 178 I



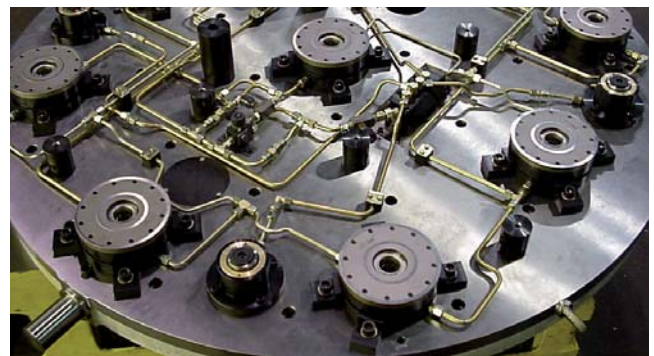
753 178 L
753 178 LI



Socket head screw M16x35
753 552



Bracket
753 170





1



Centering plug
- ground $\varnothing 48 \pm 0,01$ mm

The centering plug defines the zero-point. It centers with a diameter of 48mm.

2



Compensation plug
- two ground raised cams
 $\varnothing 48 \pm 0,01$ mm

The compensation plug defines the X- or Y-axis. The came line must be set 90° to the line connecting with the centering plug. Compensates for variations in temperature.

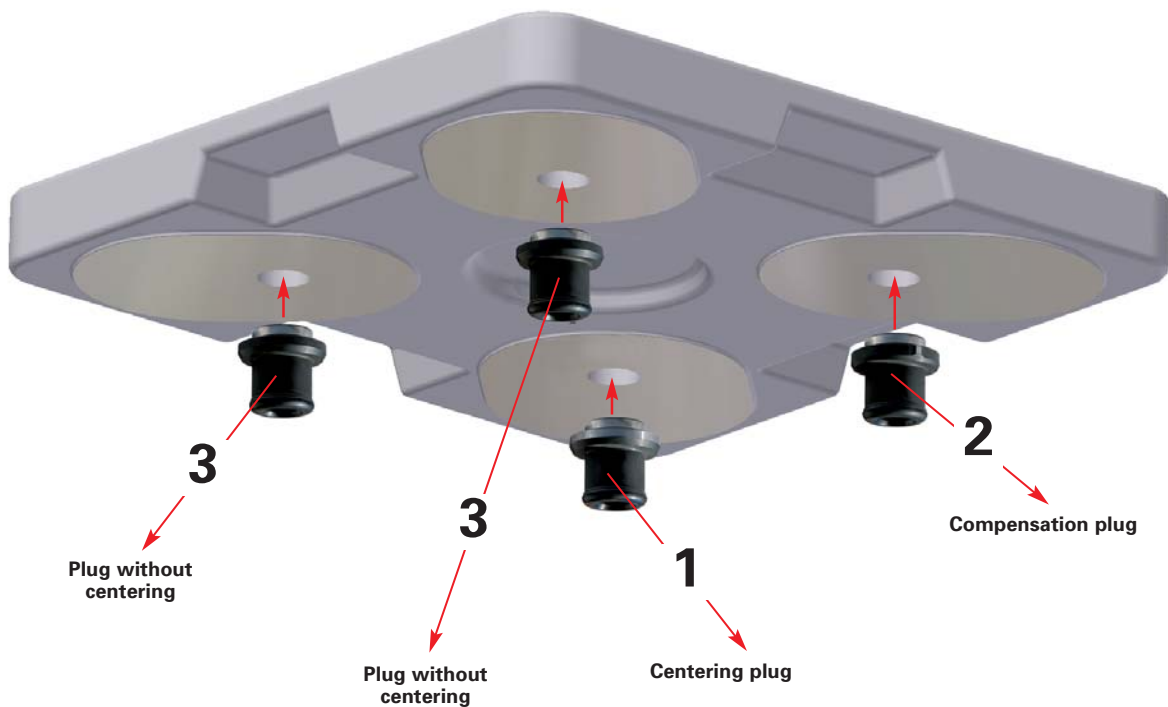


3



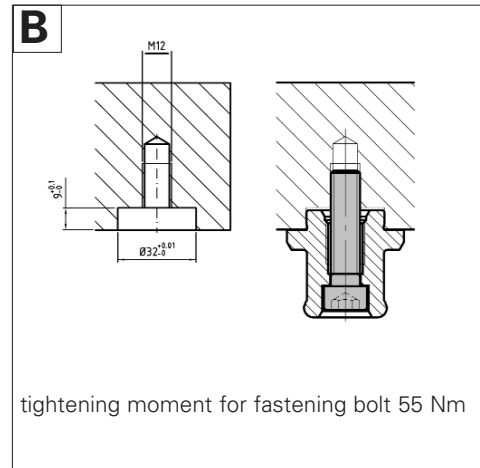
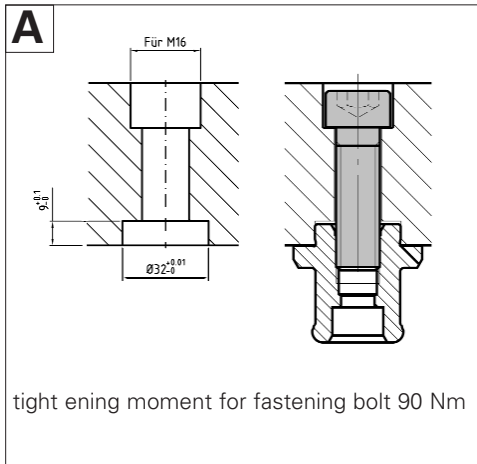
Plug without centering
- $\varnothing 46,5 \pm 0,1$ mm

Plugs without centering only serve for clamping





Plug fitting versions (preferably version **A**)



| | | | without air-blast | with air-blast | fitting version A | fitting version B |
|--|--|--|----------------------|-------------------|--------------------------------|--------------------------------|
| 753 702 Centering plug | | | x | x | x | x |
| 753 712 Plug without centering | | | x | x | x | x |
| 753 722 Compensation plug | | | x | x | x | x |



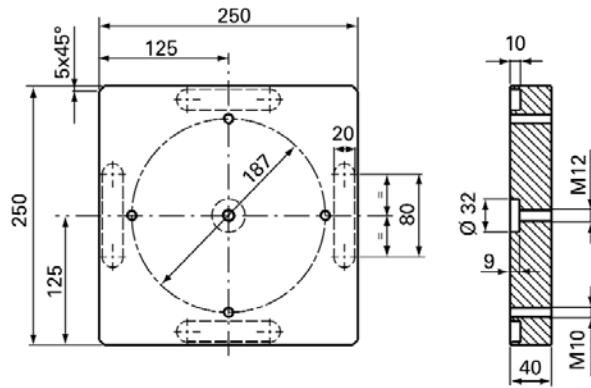
| <p>753 590 Set up plug for built-up cylinder</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------|------|------|-----|----|-------|----|---------------|------|------|------|------|-----|----|-------|---------------|------|------|------|------|-----|----|-------|--|
| <p>753 580 Indexing set screw M8 (12.9) hardened for basic indexing pallet 753 601</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>753 551 Socket head screw M12 x 65 (12.9) for mounting plugs from underneath</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>753 998 Brass cover disc for SAFE 50</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>753 998 \varnothing 13,55 \pm0,05 mm 1 mm thick</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Swarf protection of counterbores on vb Lock units</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Attention: most important for automated applications</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Fitting: fit flush by using a plastic faced hammer</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Removal: Strike the center with a small punch and pull out with a scriber or similar tool.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>775 ... T-slot Nuts</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>kg</th> </tr> </thead> <tbody> <tr> <td>775 PT06 1816</td> <td>28,0</td> <td>20,0</td> <td>17,7</td> <td>10,5</td> <td>M16</td> <td>30</td> <td>0,085</td> </tr> <tr> <td>775 PT06 2016</td> <td>32,0</td> <td>20,0</td> <td>19,0</td> <td>11,9</td> <td>M16</td> <td>30</td> <td>0,098</td> </tr> </tbody> </table> | A | B | C | D | E | F | kg | 775 PT06 1816 | 28,0 | 20,0 | 17,7 | 10,5 | M16 | 30 | 0,085 | 775 PT06 2016 | 32,0 | 20,0 | 19,0 | 11,9 | M16 | 30 | 0,098 | |
| A | B | C | D | E | F | kg | | | | | | | | | | | | | | | | | | | |
| 775 PT06 1816 | 28,0 | 20,0 | 17,7 | 10,5 | M16 | 30 | 0,085 | | | | | | | | | | | | | | | | | | |
| 775 PT06 2016 | 32,0 | 20,0 | 19,0 | 11,9 | M16 | 30 | 0,098 | | | | | | | | | | | | | | | | | | |
| <p>Other sizes see catalogue 7 page 85</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | |
|---|--|--|
| <p>753 556 Socket head screw M8 x 40 low head for flange mounting</p> | | |
| <p>753 159 Aluminium cover</p> | | |
| <p>753 534 Cover plug</p> | | |
| <p>753 170 Bracket</p> | | |
| <p>751 558 Socket screw M16 x 60 for bracket 753 170</p> | | |
| <p>753 00095 Collet assembly including circular spring 753 00094</p> | | |
| <p>753 165 Spacers used to compensate height variations on cavities for flanged cylinders SAFE 50 Thickness 3 mm</p> | | |
| <p>753 023-1 Washer and mounting screw for inclined lifting 752 006-2</p> | | |



753 601

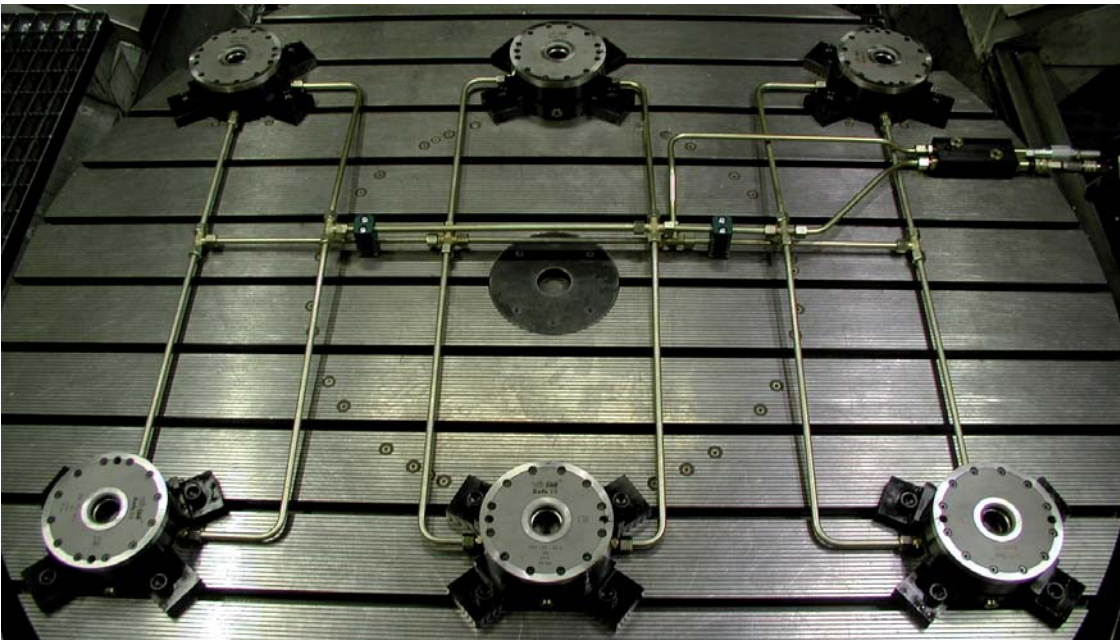
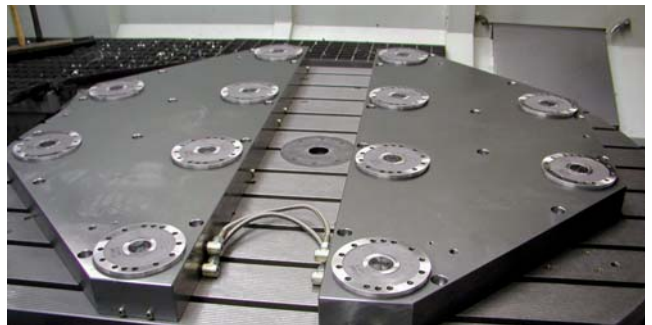
Basic pallet, indexable, in high-strength aluminium with one plug bare and 4 indexing set-screws 753 580 mounted.



753 580

Indexing set-screw
M10 (12.9 hardened)





vb SWISS Dock[®] AUTO SAFE 30

Pull-in force per unit: 20'000 N
Retention force per unit: 60'000 N

Flanged cylinders for automation

page **48**



Plugs

page **49**



Accessories

page **49**



Pull-in force: 20'000 N
Retention force: 60'000 N

automated manufacturing with the highest degree of security!

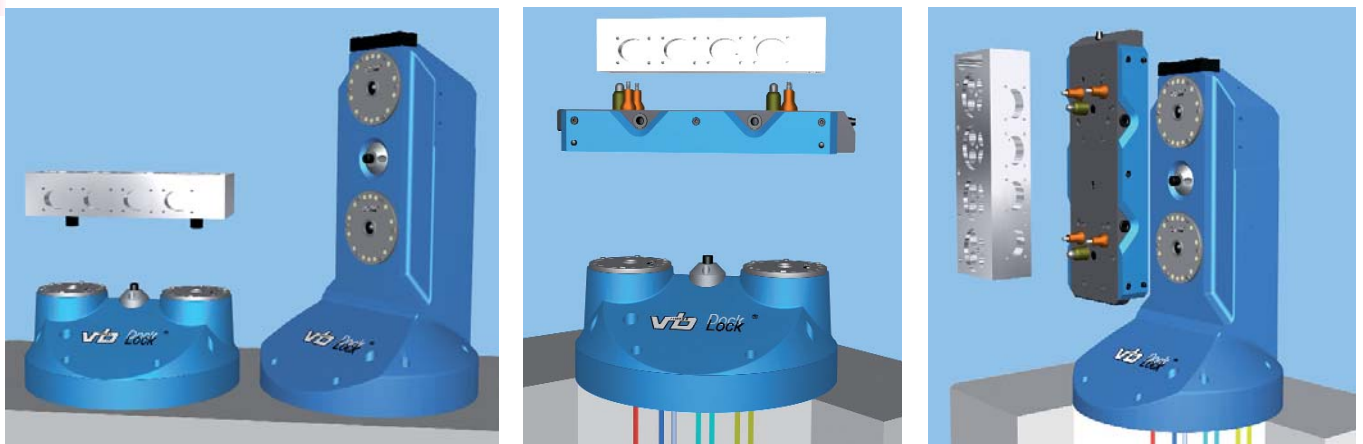
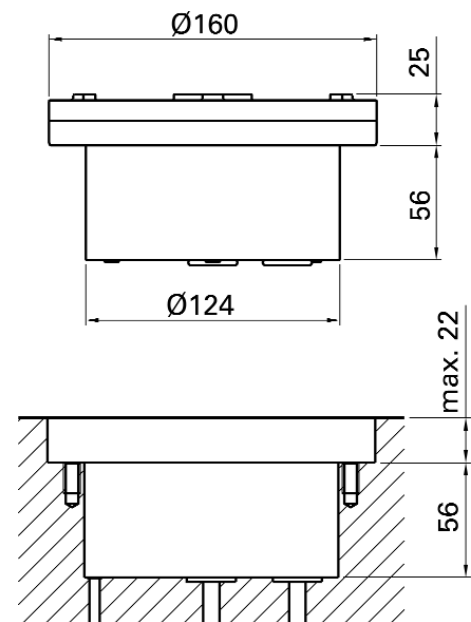


752 170-30 LA with air-blast cleaning through center, support isles, and scanning of piston position

752 170-30 LAU with air-blast cleaning through center and support isles, rear side connection for oil and air, and scanning of piston position

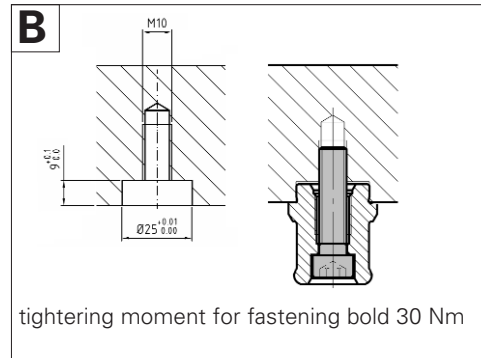
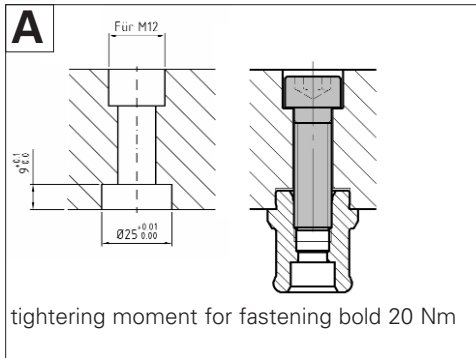
The AUTO SAFE Series are representing a veritable break-through for the automation of zero-point workholding

- total protection from dirt through automatical sealing of coupling *1.
- air-blast cleaning from swarf and coolant through the center *2 and support islets *3.
- absolute operational security due to electrical scanning of piston position and stat of surface.
- pre-locking effect of the collet, important on vertical arrays.
- form-fit and frictional connection of the patented collet-lock with the plugs through practically 100% are of contact.
- the pre-centering of the plug facilitates the automated loading.
- accessible from the top makes for easy servicing.





Plug fitting versions (preferably version A)



| | | | without air-blast | with air-blast | fitting version A | fitting version B |
|--|--|--|-------------------|----------------|-------------------|-------------------|
| 752 704 Centering plug | | | x | x | x | x |
| 752 714 Plug without centering | | | x | x | x | x |
| 752 724 Compensation plug | | | x | x | x | x |

Accessories

| | | |
|--|--|--|
| 752 551 Socket head screw M10 x 40 (12.9) for mounting plugs from underneath | | |
| 751 99. Brass cover disc for SAFE 30 | | |
| 751 998 Ø 10,5 $\begin{smallmatrix} 0 \\ +0,10 \end{smallmatrix}$ mm 1 mm Dicke | | |

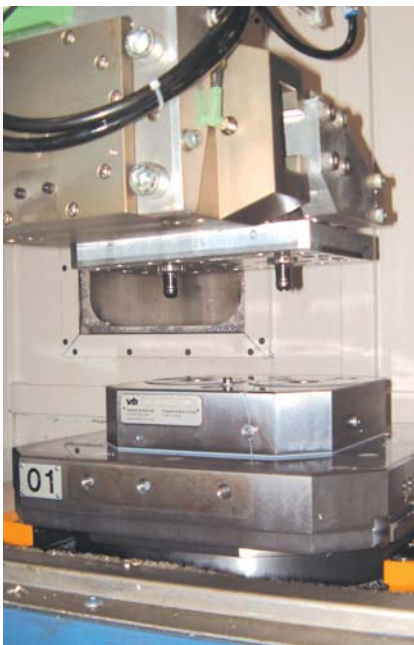
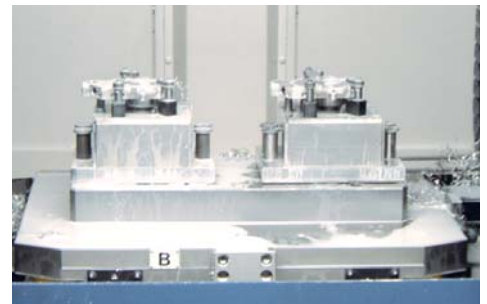
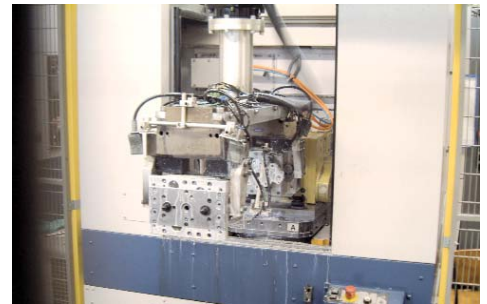
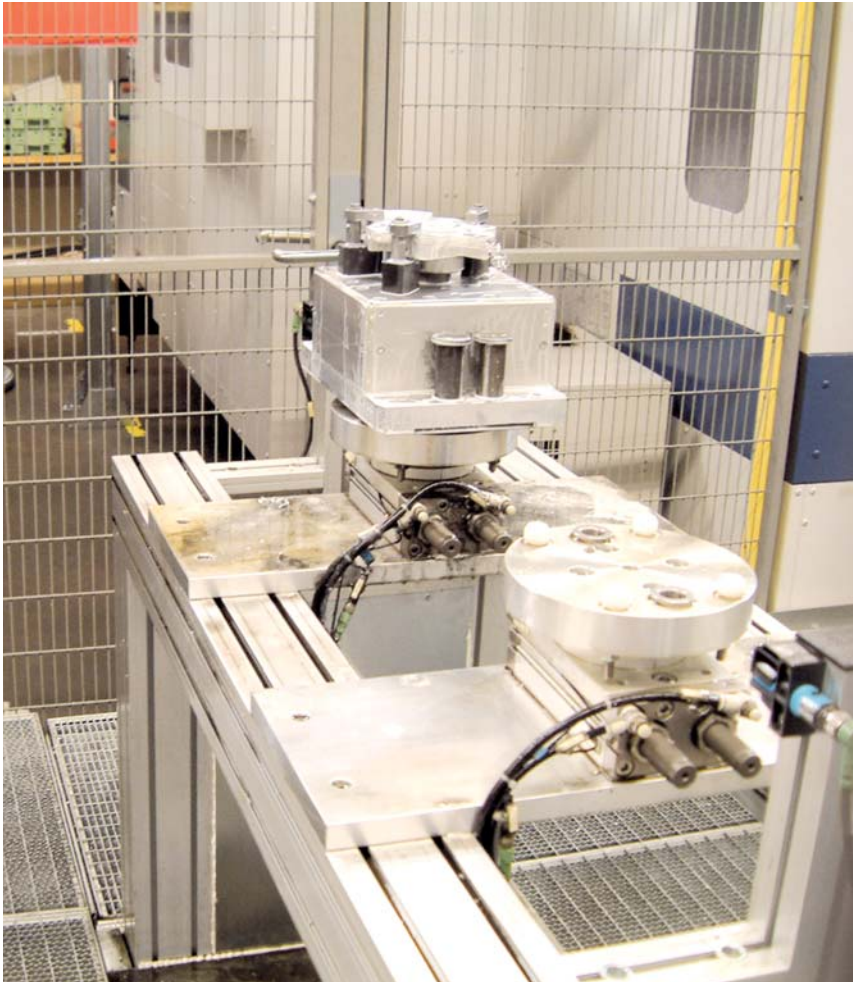
Swarf protection of counterbores on vb Lock units

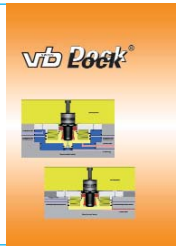
Attention:
most important for automated applications

Fitting:
fit flush by using a plastic faced hammer

Removal:
Strike the center with a small punch and pull out with a scriber or similar tool.

| | | |
|---|--|--|
| 752 00095-AS Collet assembly | | |
| 752 168 Spacers used to compensate height variations on cavities for flanged cylinders SAFE 30 Thickness 2 mm | | |

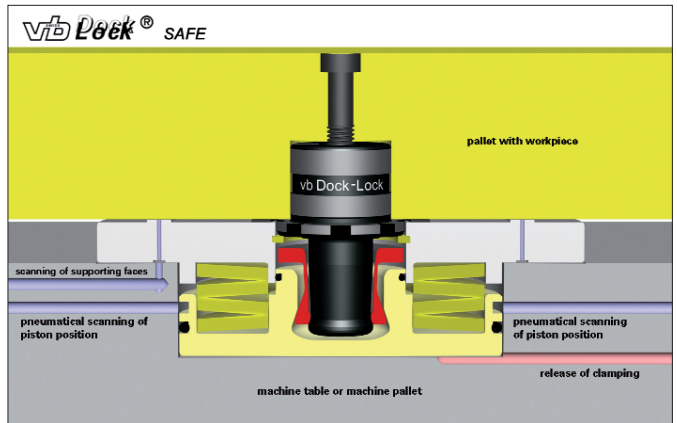
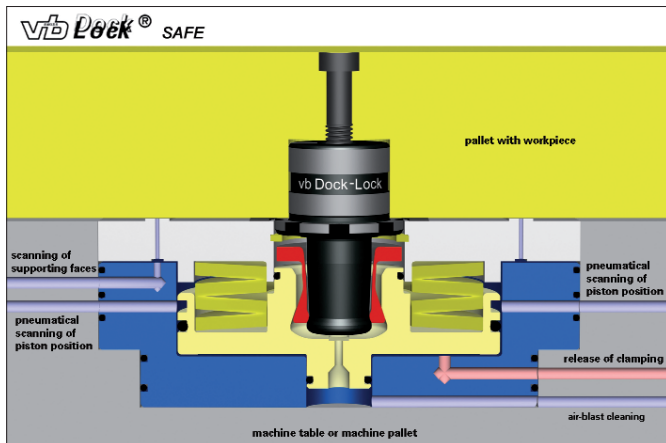
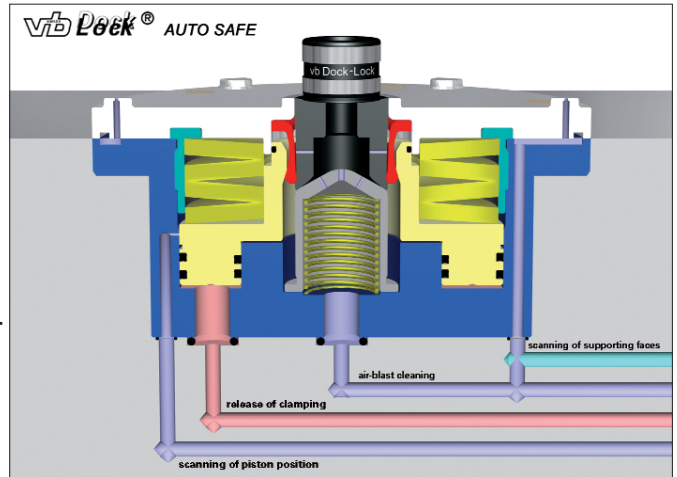




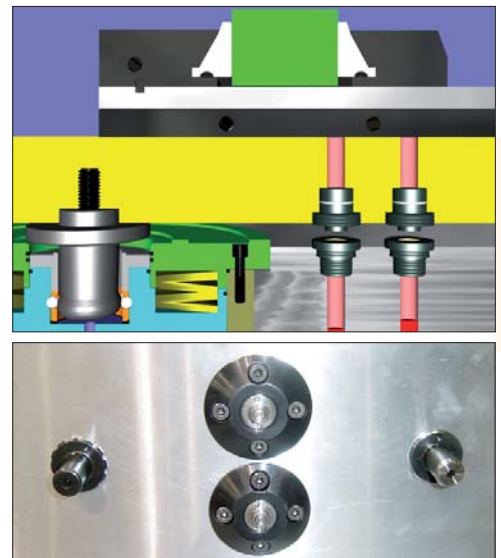
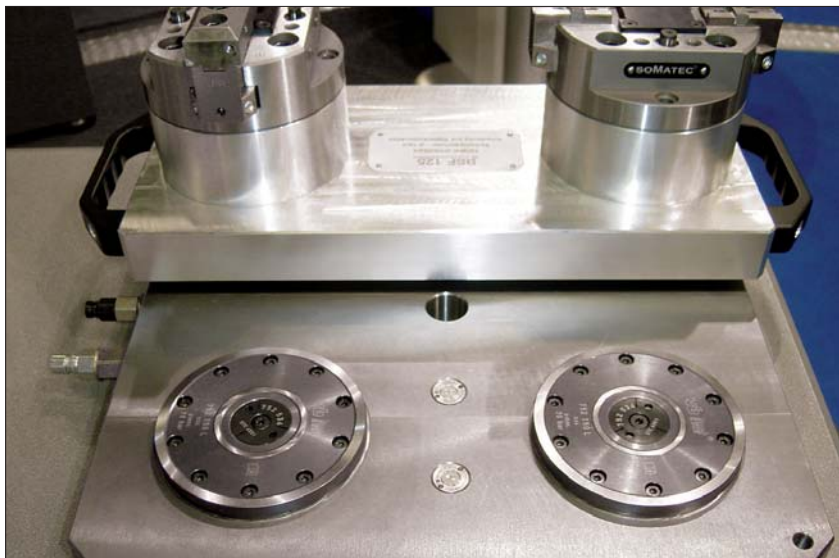
DockLock Safe units can control various functions by means of flow sensor technology and incorporating compressed air meters:

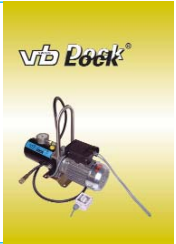
- Piston position control
- Pallet support control
- Airblast and Airflow control

Separate hydraulic workholding equipment like swing clamps, machining vises etc. can be operated by additionally built in coupling elements.



Media connection





Pressure pumps for **SAFE, AUTO SAFE**

758 800-1-220V
758 800-1-110V

Input: 220 Volt
Input: 110 Volt

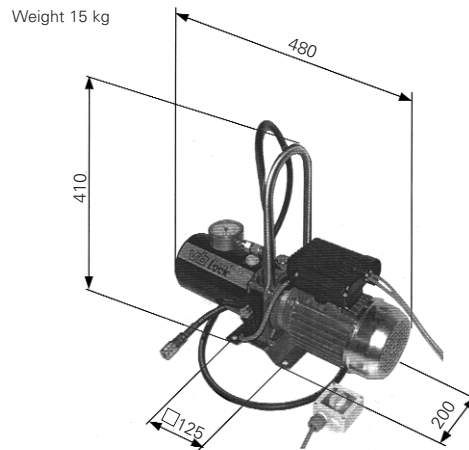
Output: 65 bar oil pressure
Output: 65 bar oil pressure

Oil volume: 2 l
recommended:

from 1 to 30 units
from 1 to 15 units
from 1 to 8 units

SAFE 20
SAFE 30
SAFE 50

recommended hydraulic oil: ISO-VG 32-46



758 806-3-24

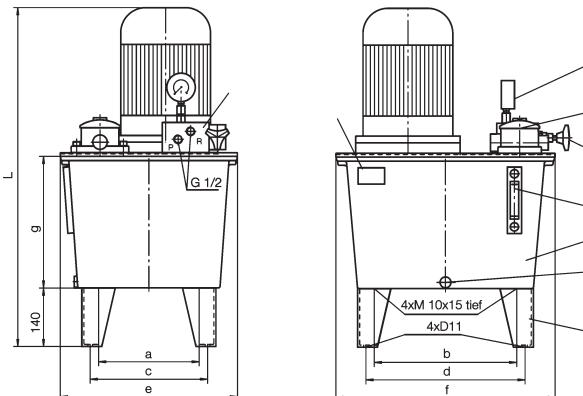
Input: 400 Volt / 16A

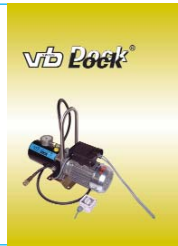
Output: 65 bar oil pressure

Oil volume: 24 l
recommended for up to 60 units


SAFE 30
SAFE 50

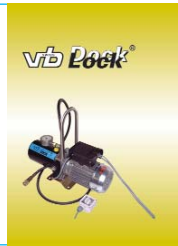
recommended hydraulic oil: HLP 22





Hydraulic components and spare parts

| | | | |
|--------------|--------|---|---|
| 758 808 | 2 m | Replacement hose without coupling |  |
| 758 809 | 3 m | Replacement hose without coupling | |
| 758 802 | 2 x 3m | Twin hose without coupling |  |
| 758 811 | | Coupling plug G 1/8" Air |  |
| 758 816 | | Coupling plug G 1/8" Air |  |
| 758 812 | | Coupling plug G 1/4" Oil |  |
| 758 813 | | Coupling collar G 1/4" Oil |  |
| 758 814 | | Reduction long G 1/8" x G 1/4" |  |
| 758 820 10KN | | Distributor block G 1/4" |  |
| 758 821 30KN | | Distributor block G 1/4" | |
| 758 822 | | Distributor block with flow control valves 4 x Air, 2 x Oil with G 3/8" thread |  |
| 758 823 | | Distributor block with flow control 2 x Air, 2 x Oil with G 3/8" thread |  |
| 758 825 | | Distributor block without flow control 2 x 3 units Oil and Air with G 3/8" thread |  |
| 758 826 | | Distributor block with flow control Oil with G 3/8" thread |  |
| 758 829 | | Non reflux flow control valve for distributor blocks |  |



Hydraulic components and spare parts

| | | |
|----------------|---|--|
| 758 845 | Thread reduction piece 1/8" x 3/8" | |
| 758 844 | Ø 6 x G 1/4" Threaded fitting | |
| 758 846 | Ø 6 x G 3/8" | |
| 758 841 | Ø 8 x G 3/8" | |
| 758 842 | Ø 10 x G 3/8" | |
| 758 843 | Ø 10 x G 3/8" | |
| 758 847 | Threaded reduction piece G 1/4" x G 3/8" | |
| 758 848 | Double connector piece G 1/4" x G 1/4" | |
| 758 849 | Double connector piece G 1/8" x G 1/8" | |
| 758 850 | Threaded reduction piece G 1/4" x G 1/8" | |
| 758 851 | Double connector piece G 3/8" x G 3/8" | |
| 758 830 | Threaded plug G 3/4"-16UNF for 758 822 and 758 823 | |
| 758 852 | Threaded plug G 1/4" | |
| 758 853 | Threaded plug G 1/8" | |
| 758 854 | Threaded plug G 3/8" | |
| 758 855 | Threaded fitting Ø 6 x G 1/8" | |
| 758 856 | Threaded fitting T6 | |
| 758 857 | Threaded fitting W6 | |
| 758 858 | Threaded fitting K6 | |
| 758 859 | Threaded fitting, rotatable | |
| 758 860 | Hydraulic tube, Ø 6 x 1,5 x 500 mm 10 KN | |
| 758 861 | Hydraulic tube, Ø 6 x 1,5 x 1000 mm 30 KN | |
| 758 871 | Cartridge-ball valve | |
| 758 872 | Cranked lever for Cartridge-ball valve | |

vb

7.52

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Machining and Workholding

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Fax (+41) 044 802 15 95

info@vb-tools.com
www.vb-tools.com

vb^{SWISS} Dock[®]

**You are producing,
while others are still setting-up!**

