

TOX®-Handheld Tongs



Data
sheet
90.10

2015/12

TOX[®]-Mini-Handheld Tongs/TOX[®]-Mini Machine Mount Tongs with Hydraulic drive – C-frame type

Type: CMH 03.45 $F_{max} = 45 \text{ kN}$ at 470 bar (5 tons at 6800 psi)

Tool area dimensions for clinching applications

Version 01

Version 05

Version 10

Flat plate die

| | | | | |
|----------------|----|-----|-----|-----|
| Throat depth A | 25 | 50 | 75 | 100 |
| Dimension B | 28 | 26 | 26 | 26 |
| Dimension C | 38 | 46 | 67 | 83 |
| Height H | 70 | 110 | 150 | 200 |

Stepped flat plate die

Special die reduced press force $F_{max} = 20 \text{ kN}$ stripping force $F_{max} = 2 \text{ kN}$

Model 10:

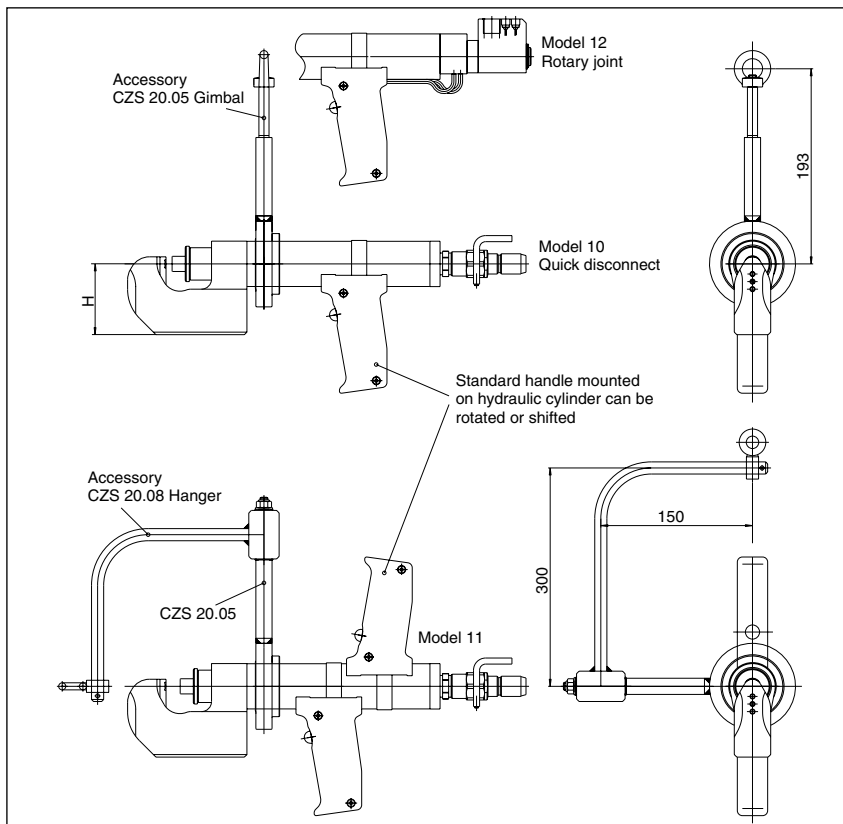
With 1-hand controls. Tool opening of 6 mm for operator safety. Handle with trigger. Driven by pneumohydraulic unit PHA 160.99.

Model 11:

14 mm stroke. With 2-hand safety controls. Handles with triggers. Drive: PHA 160.99.

Model 12:

Pneumatic controls with 1-hand cycle initiation. Only available with 6 mm tool opening for operator safety. Handle with integrated trigger. Includes rotary feed through for supply and control lines. Drive: BES 125.10.



TOX[®]-Machine Tongs:

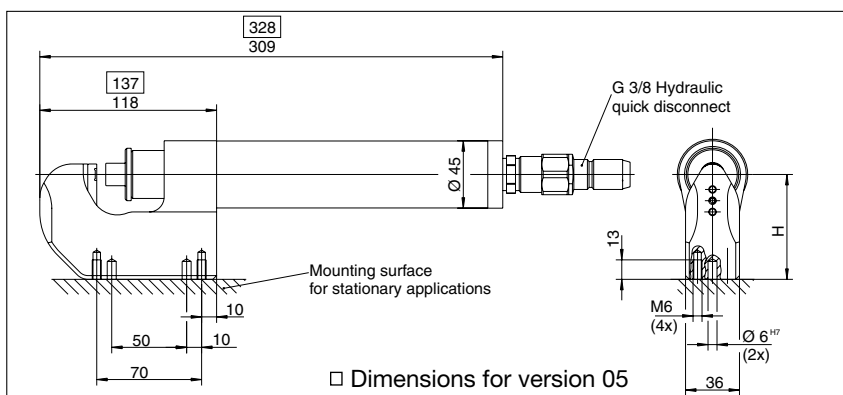
Stationary integration.

Model 40:

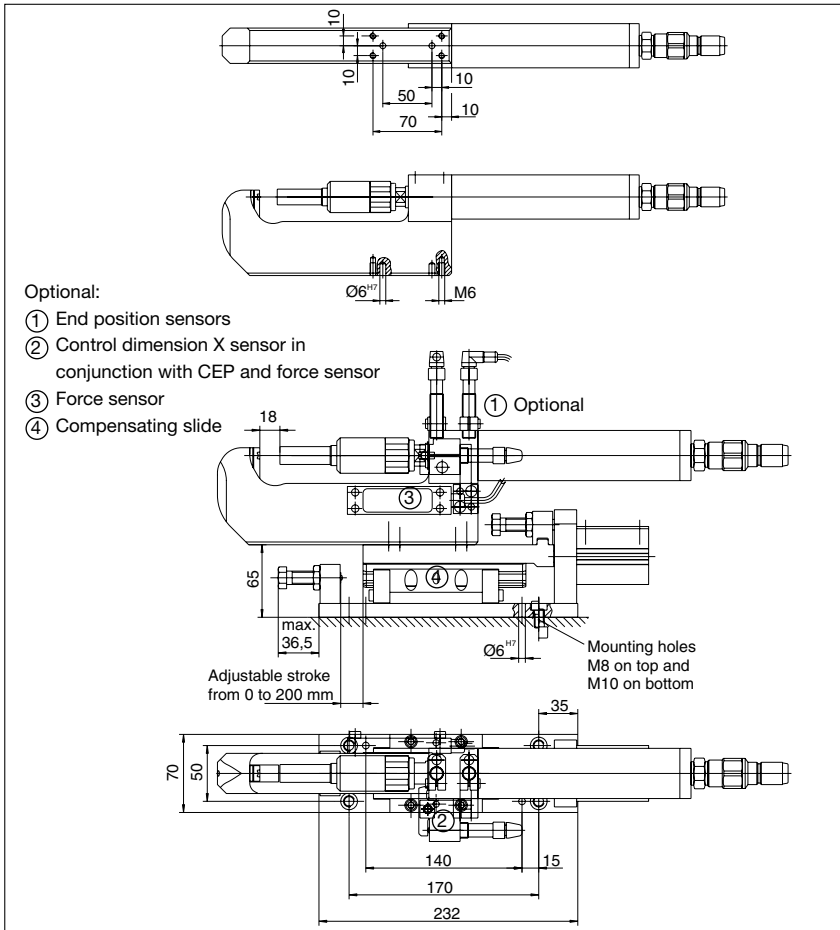
C-frame body with hydraulic cylinder from the CMH handheld program.

Model 42:

Includes indexing slide.



TOX®-Mini-Machine Mount Tongs for stationary applications or robot guided tongs



Optional:

- ① End position sensors
- ② Control dimension X sensor in conjunction with CEP and force sensor
- ③ Force sensor
- ④ Compensating slide

Model 51:

Machine mount tongs with integrated punch stripper type CSR for clinching applications. Many options are available for the machine mount tongs. Please order separately.

Model 52:

Tongs including compensating slide with stroke adjustment and pneumatic cylinder. The slide moves tongs back to clear the TOX®-Point or any embossment on the parts. Includes end position sensor. Optional end position damping for slider available.

Special version of CMH 03 available with 40 mm stroke. See data sheet 15.01 for drive details.

Technical data:

Type: CMH 03.45

TOX®-Point Ø 3, 4, 5, 6, 8 mm

Weight of model 40 approx. 3.8 kg (8.4 lbs)

Hydraulic cylinder Ø 35 mm, with spring return.

Operating pressure 470 bar max. (6800 psi)

Scope of delivery:

C-frame, hydraulic cylinder, stripper. Handles, compensating slides according to model. Without TOX®-Clinching Tools, without pneumo-hydraulic unit.

Additional equipment:

Gimbal CZS 20.05 or gimbal with hanger CZS 20.08. The handles for 2- or 1-hand cycle initiation can also be mounted on the frame. A special mounting adapter allows the handle to be rotated 360° and swiveled ± 35°.

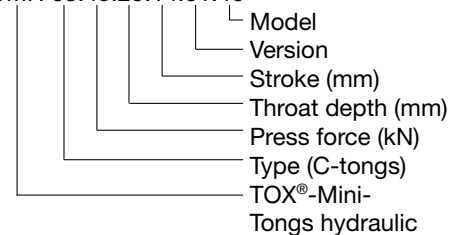
Available combinations:

| Type | Force kN | Stroke mm | Version | Model | | | | | |
|---------|----------|-----------|---------|-------|----|----|----|----|----|
| | | | | 10 | 11 | 12 | 40 | 51 | 52 |
| CMH 03. | 20 | 6 | 10 | x | x | x | x | x | * |
| CMH 03. | 45 | 6 | 01 | x | x | x | x | x | |
| CMH 03. | 45 | 6 | 05 | x | x | x | x | x | |
| CMH 03. | 45 | 14 | 01 | x | x | x | x | | |
| CMH 03. | 45 | 14 | 05 | x | x | x | x | | |
| CMH 03. | 20 | 14 | 10 | x | x | x | x | * | |

*CMH 03.20.06.10 and CMH 03.30.14.10 are only available with 14 mm throat depth as standard.

Ordering example:

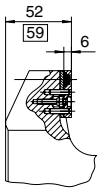
CMH 03.45.25.14.01.40



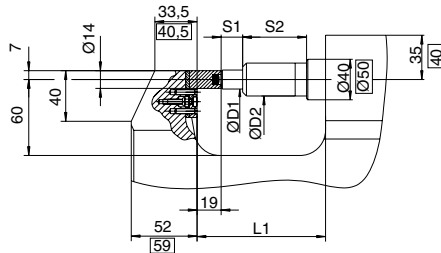
TOX[®]-Handheld Tongs with hydraulic drive – C-frame type

Type: CHH 03.45 $F_{max} = 45 \text{ kN at } 250 \text{ bar (5 tons at 3600 psi)}$
 Type: CHH 03.75 $F_{max} = 75 \text{ kN at } 250 \text{ bar (8 tons at 3600 psi)}$

Tool area dimensions for clinching applications



Flat plate die



Stepped flat plate die

Optional see table on next page for corresponding type of tongs.

Model 10:

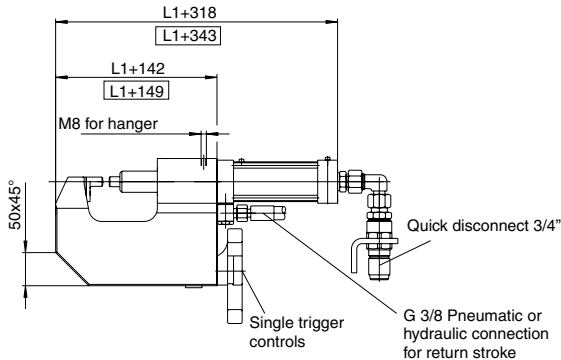
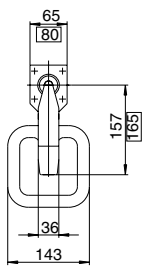
With 1-hand controls. Tool opening of 6 mm for operator safety. Suspension and electric cabling to be provided by customer. Trigger switch is included.

Special C-frames and special drives on request.

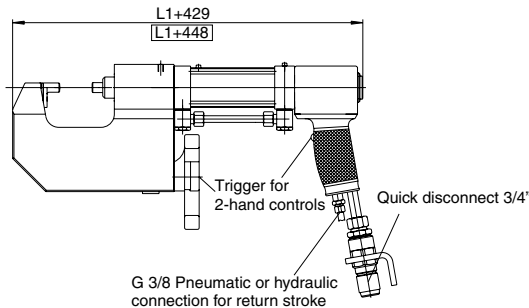
Model 11:

Including rotating handle. 50 mm stroke with 2-hand safety cycle initiation. Suspension and electric cabling provided by customer. Trigger switch is included.

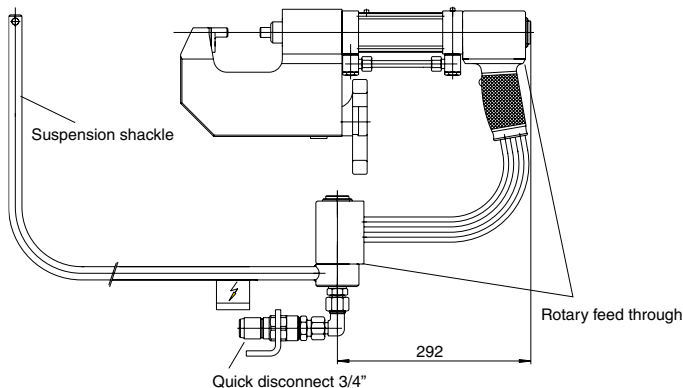
Model 10



Model 11



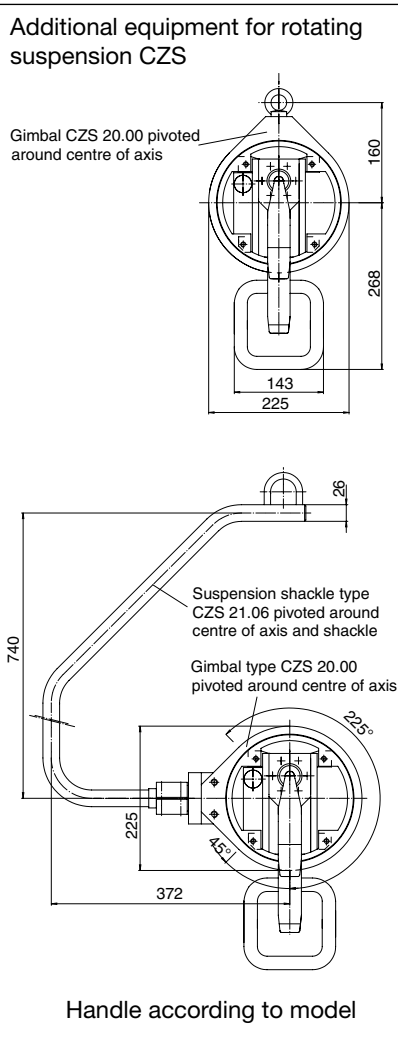
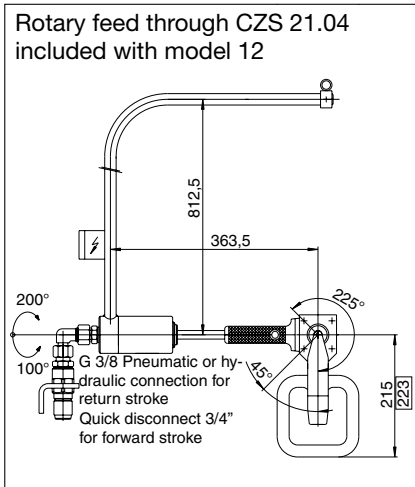
Model 12



□ Dimensions for CHH 03.75

Model 12:

Including rotary feed through CZS 21.04 and suspension shackle. 50 mm stroke. With 2-hand safety cycle initiation. Electric cabling up to terminal box. This model is not available for special large dimensions. The TOX[®]-Tongs can be equipped with a gimbal CZS 20.00 and suspension shackle CZS 21.06.



Technical data:

Type CHH 03.45

TOX®-Point Ø 3, 4, 5, 6 and 8 mm
 Weight of model 12 approx. 26 kg (57 lbs)
 Hydraulic cylinder Ø 50 mm.

Type CHH 03.75

TOX®-Point Ø 3, 4, 5, 6 and 8 mm
 Weight of model 12 approx. 32 kg (70 lbs)
 Hydraulic cylinder Ø 63 mm.

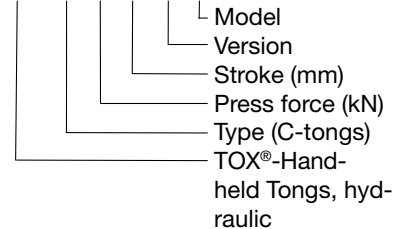
Scope of delivery:

C-frame, hydraulic cylinder, stripper. Rotary feed through depending on model. Pneumohydraulic unit and TOX®-Clinging Tools are not included.

Driven by pneumohydraulic unit PHA 160.64.

Ordering example:

CHH 03.45.50.04.12



Type: CHH 03.45 $F_{max} = 45 \text{ kN}$ at 250 bar (5 tons at 3600 psi)

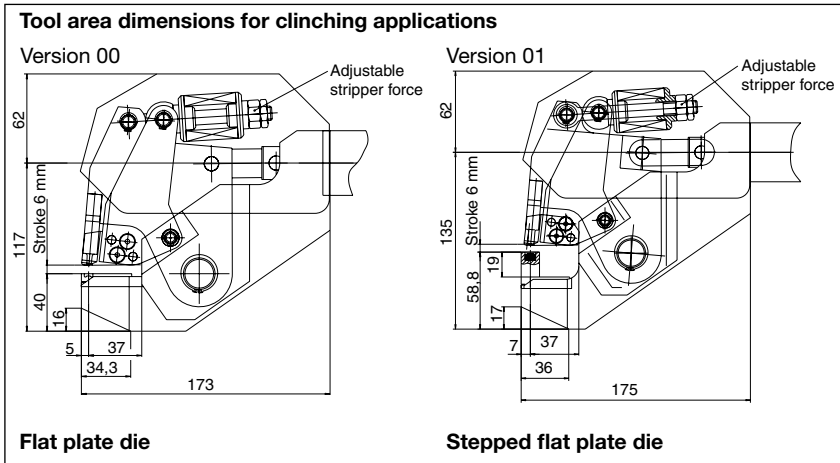
| Available combinations: | | | | | | | | | | Interference contour dimensions | | | | | |
|-------------------------|----------|-----------|---------|-------|----|----|----------------|-----------------|-----------------|---------------------------------|-------|-------|-------|-------|-------|
| Type | Force kN | Stroke mm | Version | Model | | | Flat plate die | Flat offset die | Punch length mm | Stripping force F_{max} N | D1 mm | D2 mm | S1 mm | S2 mm | L1 mm |
| | | | | 10 | 11 | 12 | | | | | | | | | |
| CHH 03. | 45. | 50 | (6) 04 | (x) | x | x | x | | 60 | 2775 | 15 | 32 | 11 | 56.5 | 101 |
| CHH 03. | 45. | 50 | (6) 05 | (x) | x | x | x | | 80 | 2775 | 15 | 32 | 31 | 56.5 | 101 |
| CHH 03. | 45. | 50 | (6) 06 | (x) | x | x | x | | 100 | 2775 | 15 | 32 | 51 | 56.5 | 141 |
| CHH 03. | 45. | 50 | (6) 07 | (x) | x | x | x | | 80 | 4025 | 18 | 40 | 23.5 | 65 | 101 |
| CHH 03. | 45. | 50 | (6) 08 | (x) | x | x | x | | 100 | 4025 | 18 | 40 | 43.5 | 65 | 141 |
| CHH 03. | 45. | 50 | (6) 12 | (x) | x | x | | x | 60 | 2775 | 15 | 32 | 11 | 56.5 | 101 |
| CHH 03. | 45. | 50 | (6) 13 | (x) | x | x | | x | 80 | 2775 | 15 | 32 | 31 | 56.5 | 141 |
| CHH 03. | 45. | 50 | (6) 14 | (x) | x | x | | x | 100 | 2775 | 15 | 32 | 51 | 56.5 | 141 |
| CHH 03. | 45. | 50 | (6) 15 | (x) | x | x | | x | 80 | 4025 | 18 | 40 | 23.5 | 65 | 141 |
| CHH 03. | 45. | 50 | (6) 16 | (x) | x | x | | x | 100 | 4025 | 18 | 40 | 43.5 | 65 | 141 |

Type: CHH 03.75 $F_{max} = 75 \text{ kN}$ at 250 bar (8 tons at 3600 psi)

| | | | | | | | | | | | | | | | |
|---------|-----|----|--------|-----|---|---|---|---|-----|------|----|----|------|------|-----|
| CHH 03. | 75. | 50 | (6) 01 | (x) | x | x | x | | 60 | 2775 | 15 | 32 | 11 | 56.5 | 101 |
| CHH 03. | 75. | 50 | (6) 02 | (x) | x | x | x | | 80 | 2775 | 15 | 32 | 31 | 56.5 | 101 |
| CHH 03. | 75. | 50 | (6) 03 | (x) | x | x | x | | 100 | 2775 | 15 | 32 | 51 | 56.5 | 141 |
| CHH 03. | 75. | 50 | (6) 04 | (x) | x | x | x | | 80 | 4025 | 18 | 40 | 23.5 | 65 | 101 |
| CHH 03. | 75. | 50 | (6) 05 | (x) | x | x | x | | 100 | 4025 | 18 | 40 | 43.5 | 65 | 141 |
| CHH 03. | 75. | 50 | (6) 06 | (x) | x | x | x | | 80 | 6850 | 22 | 50 | 12.5 | 78 | 101 |
| CHH 03. | 75. | 50 | (6) 07 | (x) | x | x | x | | 100 | 6850 | 22 | 50 | 32.5 | 78 | 141 |
| CHH 03. | 75. | 50 | (6) 08 | (x) | x | x | | x | 60 | 2775 | 15 | 32 | 11 | 56.5 | 101 |
| CHH 03. | 75. | 50 | (6) 09 | (x) | x | x | | x | 80 | 2775 | 15 | 32 | 31 | 56.5 | 141 |
| CHH 03. | 75. | 50 | (6) 10 | (x) | x | x | | x | 100 | 2775 | 15 | 32 | 51 | 56.5 | 141 |
| CHH 03. | 75. | 50 | (6) 11 | (x) | x | x | | x | 80 | 4025 | 18 | 40 | 23.5 | 65 | 141 |
| CHH 03. | 75. | 50 | (6) 12 | (x) | x | x | | x | 100 | 4025 | 18 | 40 | 43.5 | 65 | 141 |
| CHH 03. | 75. | 50 | (6) 13 | (x) | x | x | | x | 80 | 6850 | 22 | 50 | 12.5 | 78 | 141 |
| CHH 03. | 75. | 50 | (6) 14 | (x) | x | x | | x | 100 | 6850 | 22 | 50 | 32.5 | 78 | 141 |

TOX[®]-Mini-Handheld Tongs with hydraulic drive – X type

Type: CMH 04.45 $F_{max} = 45 \text{ kN}$ at 470 bar (5 tons at 6800 psi)



Model 06:

With 1-hand controls. Tool opening of 6 mm for operator safety.
 Drive: PHA 160.99.

Model 12:

Tongs frame with hydraulic cylinder, pneumatic controls with 1-hand cycle initiation. 6 mm stroke only for operator safety. Handle with integrated trigger button. Includes rotary feed through for supply and control lines. Driven by pressure intensifier BES 125.10.

Technical data:

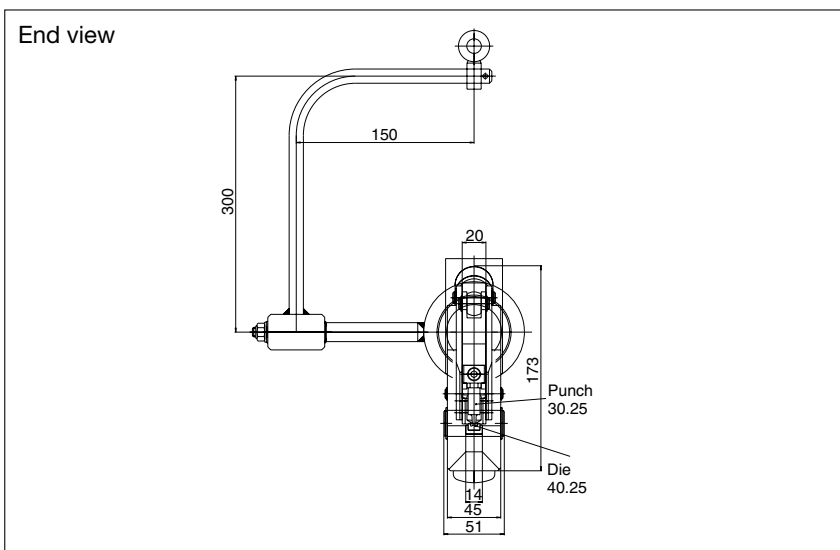
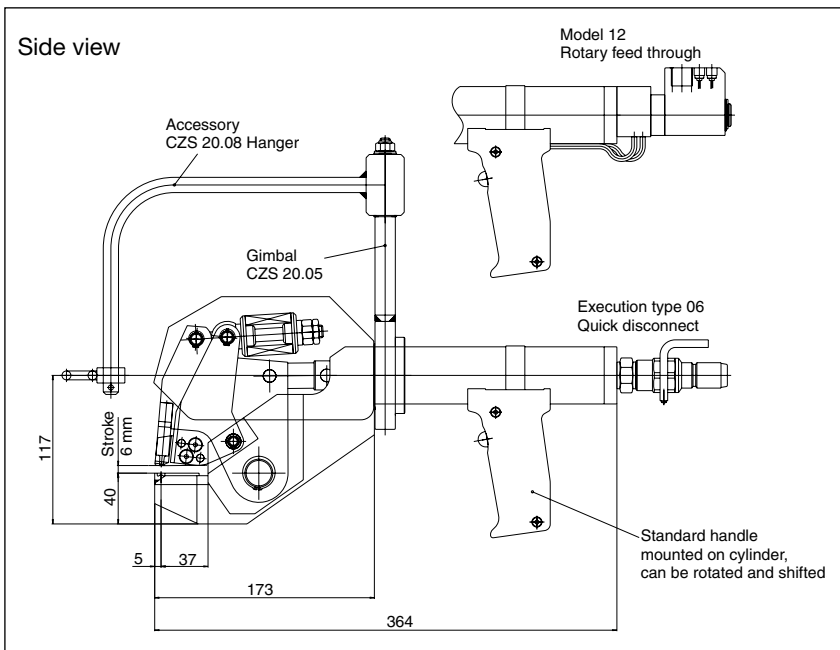
TOX[®]-Point Ø 3, 4, 5, and 6 mm
 Weight of model 06 approx. 9 kg (19.8 lbs)
 Hydraulic cylinder Ø 35 mm, with spring return
 Operating pressure 470 bar max. (6800 psi)
 Possible total material thickness 2.5 mm

Scope of delivery:

Tongs body, hydraulic cylinder, stripper, handle. Pneumohydraulic unit and TOX[®]-Clinching Tools are not included.

Additional equipment:

Gimbal or gimbal with hanger
 CZS 20.05 and CZS 20.08.



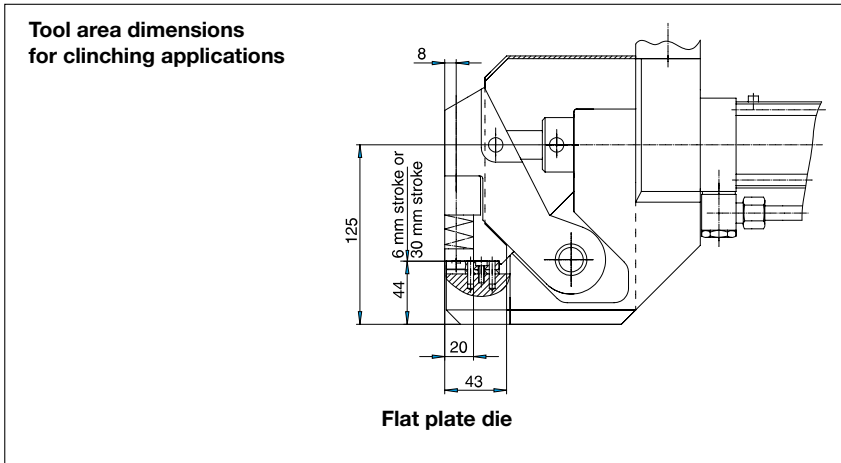
Ordering example:

CMH 04.45.06.00.12

- └─ Model
- └─ Version
- └─ Stroke (mm)
- └─ Press force (kN)
- └─ Type (X-tongs)
- └─ TOX[®]-Mini-Tongs hydraulic

TOX®-Handheld Tongs with hydraulic drive – X type

Type: CHH 04.45 $F_{max} = 45 \text{ kN at } 250 \text{ bar (5 tons at 3600 psi)}$

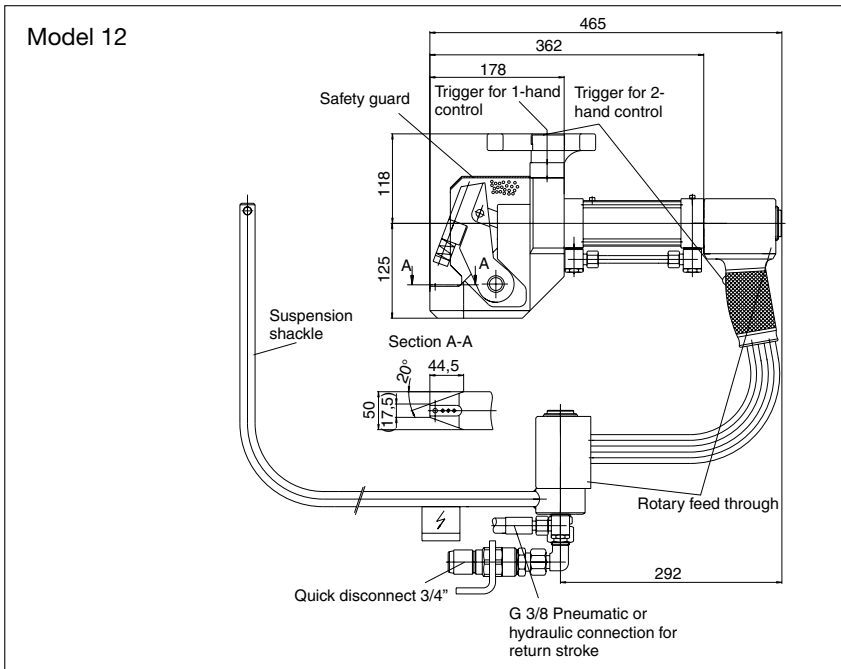


Model 10:
With 1-hand controls. Tool opening of 6 mm for operator safety. Suspension and electric cabling to be provided by customer. Trigger switch is included.

Model 11:
Complete with rotating handle. Tool opening 30 mm. With 2-hand safety cycle initiation. Suspension and electric cabling provided by customer. Switches supplied.

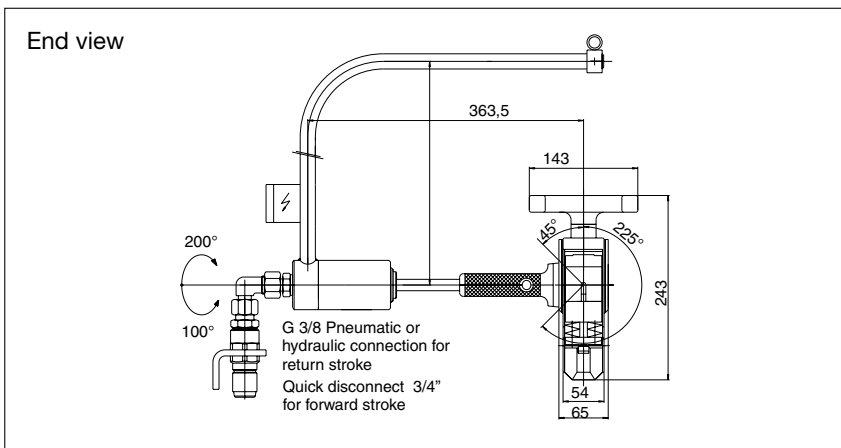
Model 12:
Complete with rotary feed through CZS 21.01 and suspension shackle. Electric cabling up to terminal box. Tool opening 30 mm.

Driven by pneumohydraulic unit PHA 160.64.



Technical data:
TOX®-Point Ø 3, 4, 5, 6, 8 mm
Weight approx. 32 kg (70 lbs)
Hydraulic cylinder Ø 50 mm,
Operating pressure 250 bar max. (3600 psi)
Stripping force 2900 N (644 lbf)
Possible total material thickness 2.5 mm

Scope of delivery:
Tongs body, hydraulic cylinder, stripper, rotary power feed and suspension shackle. Pneumohydraulic unit and TOX®-Clinching Tools are not included.



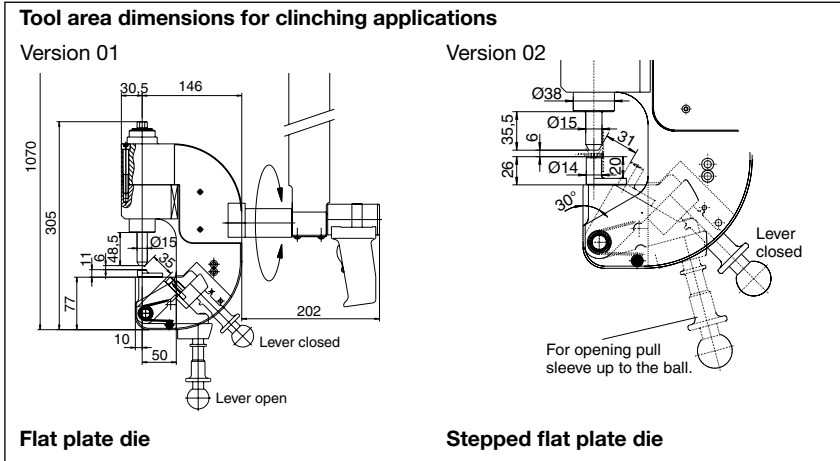
Ordering example:
CHH 04.45.30.11

- └─ Model
- └─ Tool opening
- └─ Press force (kN)
- └─ Type (X-tongs)
- └─ TOX®-Handheld Tongs hydraulic

TOX[®]-Special-Handheld Tongs

TOX[®]-Handheld Tongs with hydraulic drive

Type: CMH 01.45 $F_{max} = 45 \text{ kN}$ (5 tons)



High repeatability of the defined, adjustable stroke (adjustment of control dimension X). Long tool life.

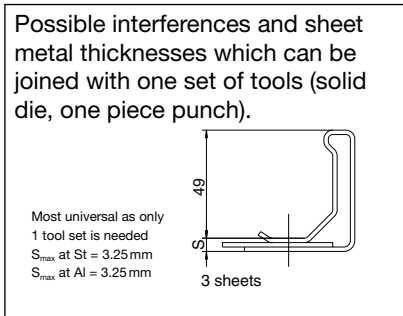
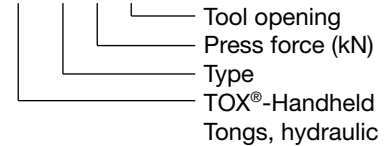
Scope of delivery:

Tongs body rotates 360°, with integrated hydraulic cylinder, handle, suspension arm (version dependent).

Pneumohydraulic intensifier and TOX[®]-Clinching Tools are not included.

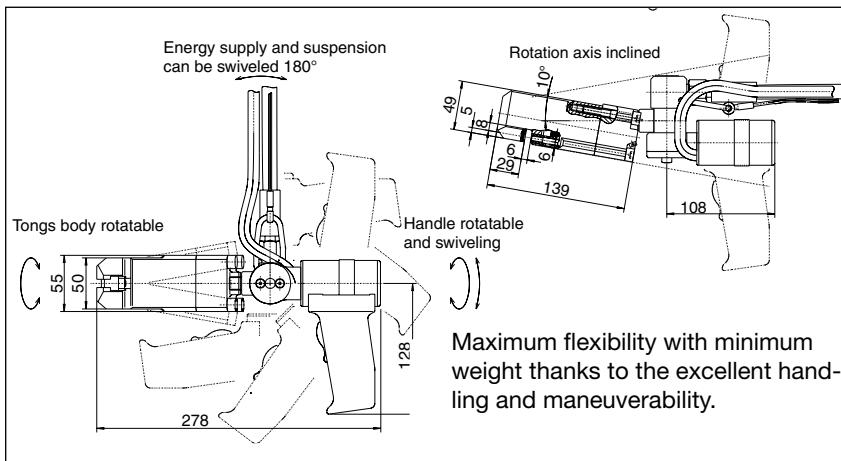
Ordering no.:

CMH 01.45.06.



TOX[®]-Flange Tongs with hydraulic drive

Type: CMH 02.30 $F_{max} = 30 \text{ kN}$ (3.4 tons)



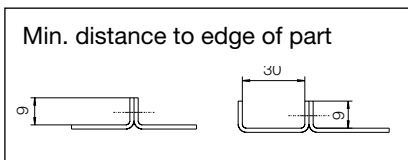
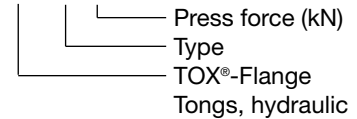
Scope of delivery:

Tongs body rotates 360°, with integrated hydraulic cylinder, swiveling handle.

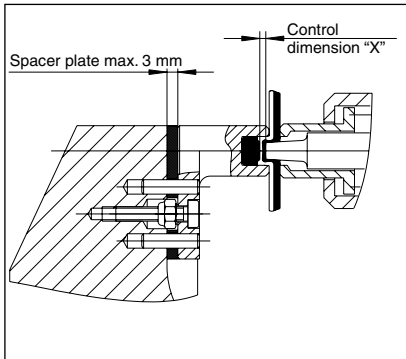
Pneumohydraulic intensifier and TOX[®]-Clinching Tools are not included.

Ordering no.:

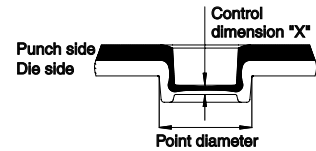
CMH 02.30



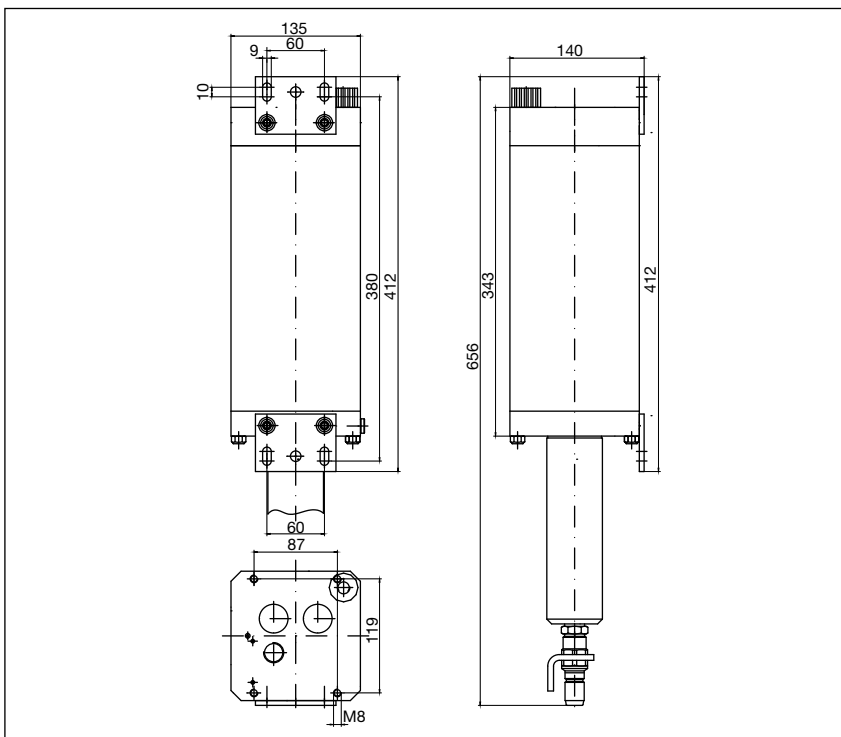
Technical information about clinching with CMH/CHH



Spacer plate for adjusting the control dimension X for clinching
 The tongs drive has an internal positive stop which ensures that the control dimension X is always the same. If different material thicknesses or punch and die combinations are used, the control dimension X will change (see TOX®-Test Report). This dimension can be modified by parallel grinding the spacer plate to the required thickness.



TOX®-Pneumohydraulic Unit



Type BES 125.10 for TOX®-Tongs CMH

Pressure intensifier including 1/2" pneumatic controls. Process reliability is provided by the automatically activated return stroke. Includes pressure relief valve. Weight: approx. 15 kg (33 lbs)

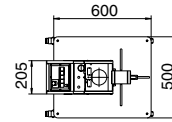
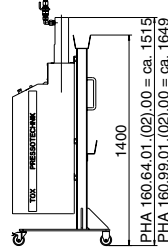
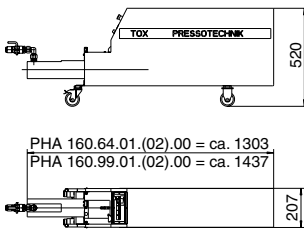
Hose package 3 m (approx. 10 ft) long. Please order separately. Order No. BZS 01-3000 G3/8", including quick disconnect

Mounting brackets on pressure intensifier

Note:
 BES 125.10.18.108 applies to version 12 for CMH 03.45 and CMH 04.45 as well as CMH 01.45. BES 125.10.21.39 applies to CMH 02.30.

TOX®-Pneumohydraulic Unit

Type PHA 160.64 for TOX®-Tongs CHH
 Type PHA 160.99 for TOX®-Tongs CMH



The Pneumohydraulic Units are equipped with various controls.

PHA 160.64 for Hydraulic Cylinder HZL and RHZL. Fast approach and return stroke pneumatically

PHA 160.64.00.00 (without hood)*
 For TOX®-Robot Tongs/TOX®-Machine Tongs. Activated via external electrical impulse. The changeover control mechanism from fast approach to power stroke is a standard feature of the system and is initiated automatically. Automatic return stroke activated when the adjustable press force is reached. If this press force is not reached, e.g. due to insufficient air pressure, the return stroke has to be activated via the watchdog timer of the line control system.

PHA 160.64.01.00
 For TOX®-Tongs with 1-hand control. Max. 6 mm stroke for operator safety. Return stroke activated automatically when the adjustable press force is reached.

PHA 160.64.02.00
 For TOX®-Tongs with 2-hand safety control according to UVV accident prevention regulations. The changeover control mechanism from fast approach to power stroke is a standard feature of the system and is initiated automatically. Return stroke activated automatically when the adjustable press force is reached.

Weight: approx 87 kg (192 lbs)

PHA 160.99 for Hydraulic Cylinder HZ 40. No fast approach, return stroke via mechanical spring in hydraulic cylinder.

PHA 160.99.00.00 (without hood)*
 For TOX®-Robot Tongs/TOX®-Machine Tongs. Activated via external electrical impulse. Return stroke impulse by pressure switch when the adjustable press force is reached. If this press force is not reached, e.g. due to insufficient air pressure the return stroke has to be activated via the watchdog timer of the line control system.

PHA 160.99.01.00
 For TOX®-Hand Tongs with 1-hand control. Max. 6 mm stroke for operator safety. Return stroke activated automatically by press switch when the adjustable press force is reached.

PHA 160.99.02.00
 For TOX®-Hand Tongs with 2-hand safety control according to UVV accident prevention regulations. Return stroke activated automatically by press switch when the adjustable press force is reached.

All controls feature a pressure relief valve for the drive.

Weight: approx 65 kg (143 lbs)

Scope of delivery: supplied complete and ready for operation in conjunction with our TOX®-Tongs, including a stroke counter. Air servicing units and options are not included.

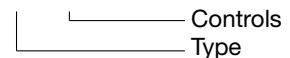
- Options, please order separately:**
- Hose package 5 m (16 ft) or 7 m (23 ft)
 - PHA 03.160.64.01.00 caster kit for horizontal mounting
 - PHA 05.160.64.01.00 pedestal mount
 - PHA 04.160.64.01.00 caster kit for pedestal mounting
 - ZU 05.00.00 oil level monitor, complete. Optical warning signal for low oil level.

Technical data:
 Supply voltage: 115-230V/AC
 Driving voltage: 24V/DC
 Connected load: 100VA
 Pneumatic connection: G3/4

PHA 160.64
 Working pressure pneumatic: min. 3 bar, max. 4.5 bar
 Working pressure hydraulic: 250 bar

PHA 160.99
 Working pressure pneumatic: min. 3 bar, max. 5.5 bar
 Working pressure hydraulic: 470 bar

Ordering no.:
 PHA 160.99.01.00.



* Electrical equipment not contained in scope of delivery