TOX® Handheld Tongs

Data sheet 90.10
2025/12



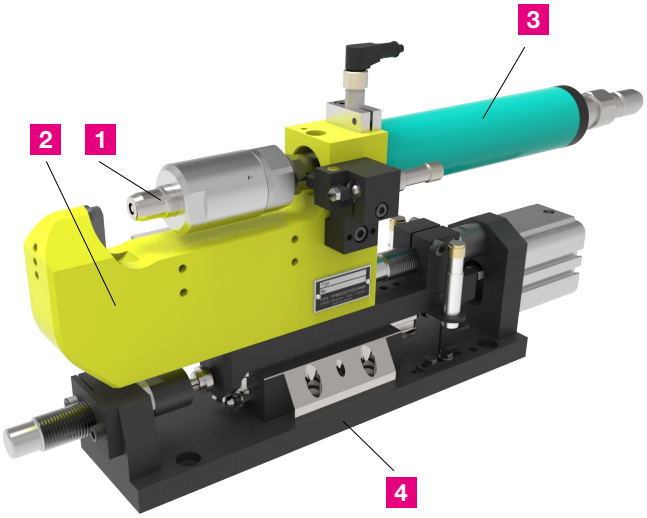
TOX® PRESSOTECHNIK SE & Co. KG, Riedstrasse 4, 88250 Weingarten/Germany
Find your local contact at: www.tox.com

Subject to technical modifications.

TOX® Mini-Handheld Tongs

The TOX® Handheld Tongs with their compact dimensions are suited to all areas of the sheet metal joining technology. They are robust, durable and optimized for simple handling.

TOX® Handheld Tongs for mobile or stationary operation are available with different mounting brackets and rotary manifold connections.

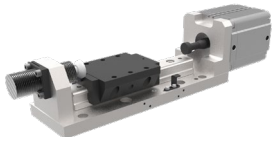


1 Tools

2 Bow

3 Drives

4 Installation accessories



Compensating slide



Robot consoles



Equalizing for drive with die

Possible applications



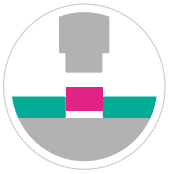
Clinching. TOX® Sheet Metal Joining



Riveting



Pressing-in, insertion of functional elements



Assembling, press-fitting



Punching, piercing



Coining, marking

TOX® Mini-Handheld Tongs

CMH 03.45



- Hydraulically driven C-frame tongs
- Tool opening: up to 6 mm for 1-hand operation
- Tool opening: up to 14 mm for 2-hand operation
- Press force: 45 kN at 470 bar oil pressure
- Throat depth: up to 100 mm

CHH 06.75



- Versatile C-bow designs
- Tool opening: up to 6 mm with 1-hand operation
- Tool opening: up to 48 mm for 2-hand operation
- Press force: 75 kN at 250 bar oil pressure
- Throat depth: 60 mm

Drive combinations

- Mini-handheld tongs type CMH 03.45 are driven by a pneumohydraulic intensifier and a TOX® Hydraulic Cylinder HZ 40.
- For model 10 with 1-hand controls and a tool opening of 6 mm or model 11 with 14 mm stroke and 2-hand safety control, the intensifier PHA 160.99 is used.
- For model 12 with pneumatic control and 1-hand start, the intensifier BES 125.10 is used.

- Hydraulic pressure is provided by a pneumatic operated TOX® Pressure Intensifier PHA

Accessories

- Self equalizing slide with stroke adjustment and pneumatic cylinder: The slide moves tongs back to clear the TOX® Clinching Point or any embossment on the parts. Includes end position sensor. Optional end position dampers.
- Tongs with integrated punch stripper type CSR for clinching applications.
- Gimbal CZS or gimbal with hanging bracket: 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°.

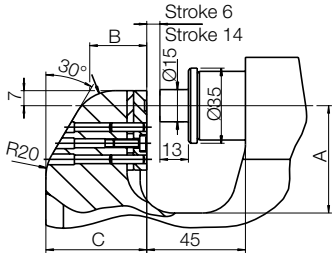
- Available with rotary feed through CZS and suspension shackle.
- Can be equipped with a live ring and suspension shackle or live ring with hanger.

TOX® Mini-Handheld Tongs

with Hydraulic drive – C-frame type CMH 03.45. F_{max} = 45 kN at 470 bar

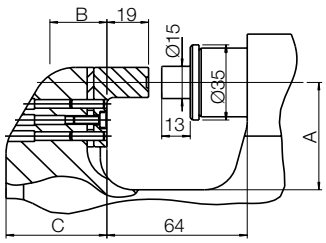
Available versions with various tool areas

Version 01



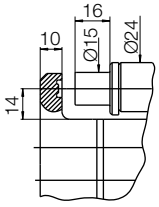
Flat plate die

Version 05



Stepped flat plate die

Version 10



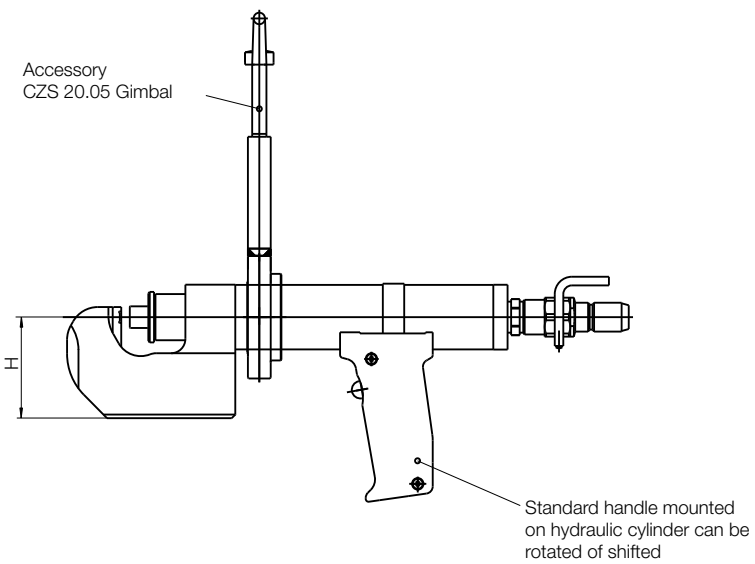
Special die reduced press force F_{max} = 20 kN
stripping force F_{max} = 2 kN

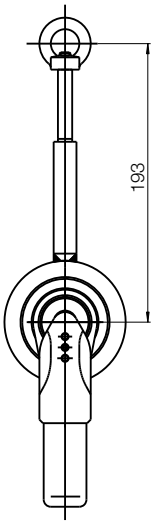
Throat depth A	Dimension B	Dimension C	Height H
25	28	38	70
50	26	46	110
75	26	67	150
100	26	83	200

Tool area dimensions for clinching applications.

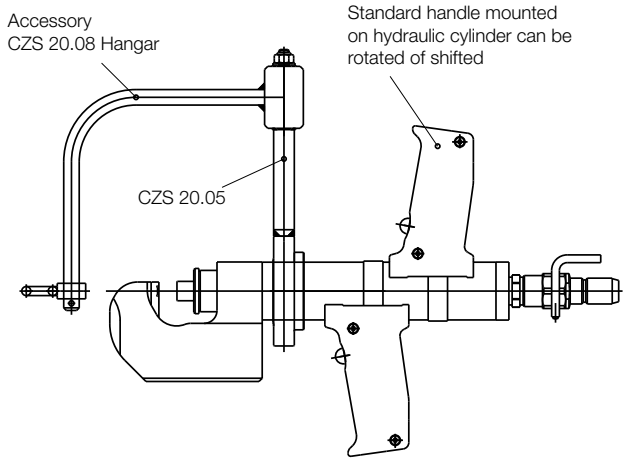
Available models with various tong construction

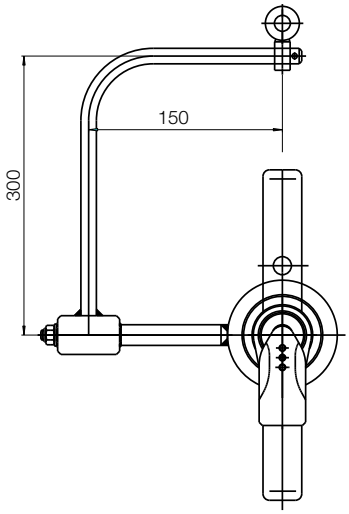
Model 10:
With 1-hand controls. Tool opening of 6 mm for operator safety. Handle with trigger. Driven by pneumohydraulic unit PHA 160.99.



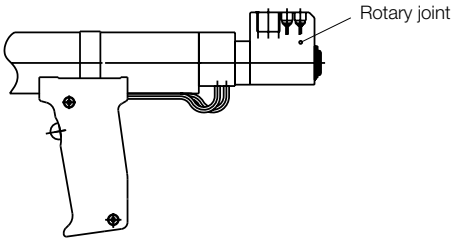


Model 11:
14 mm stroke. With 2-hand safety controls. Handles with triggers. Drive: PHA 160.99.





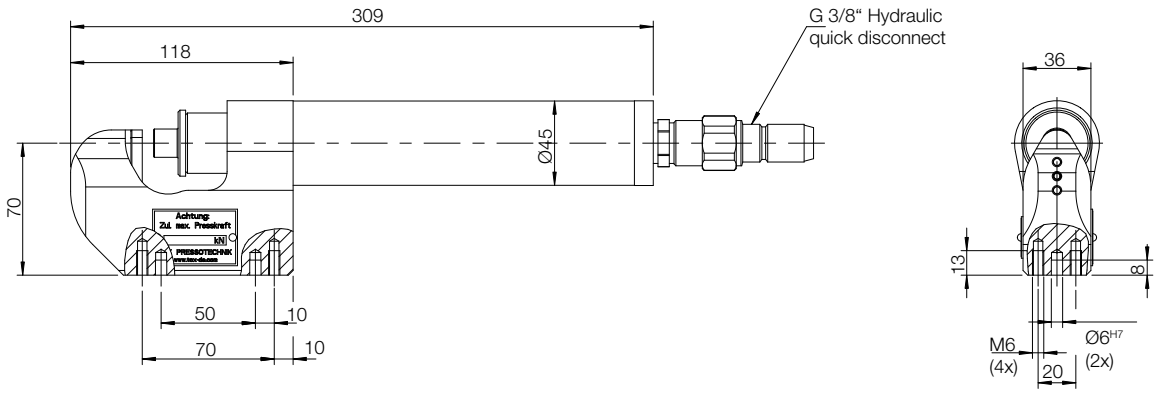
Model 12:
Pneumatic controls with 1-hand cycle initiation. Only available with 6 mm tool opening for operator safety. Handle with integrated trigger. Includes rotary feed through for supply and control lines. Drive: BES 125.10.



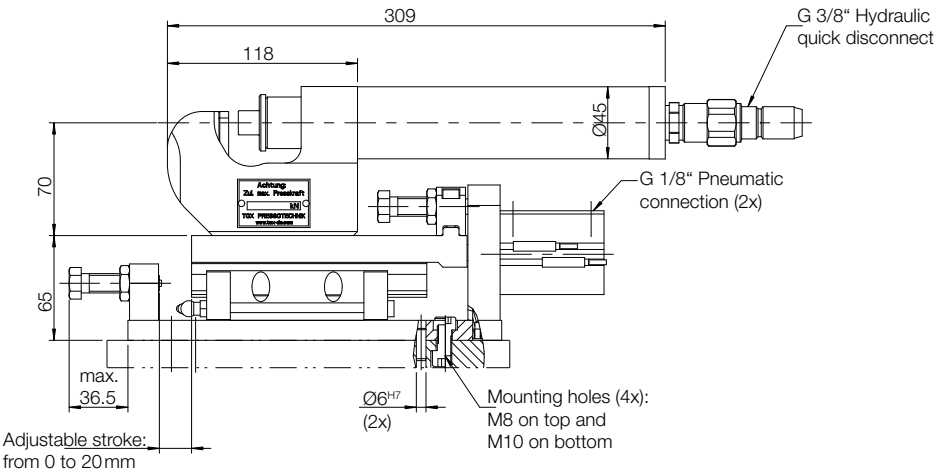
TOX® Machine Mount Tongs

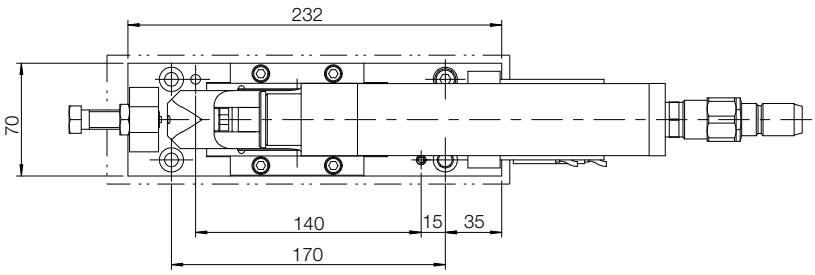
Stationary integration

Model 40:
C-frame body with hydraulic cylinder from the CMH hand-held program.



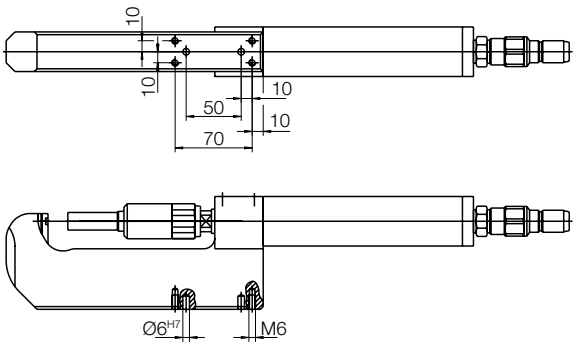
Model 42:
Includes indexing slide ZFS 25.



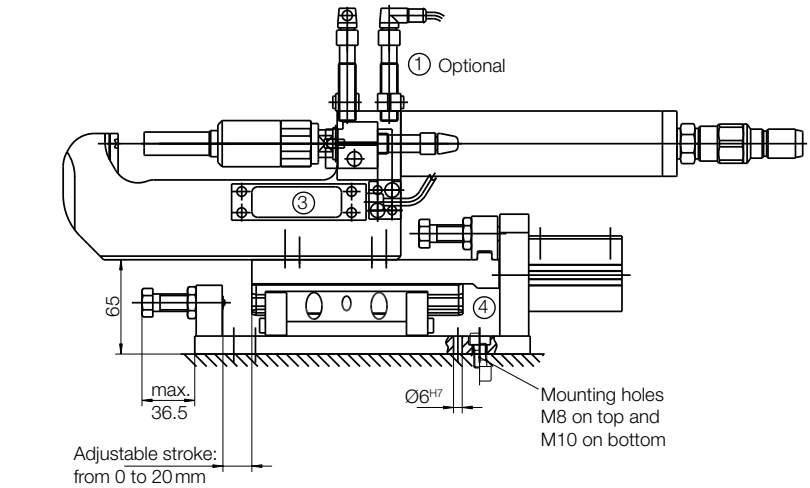


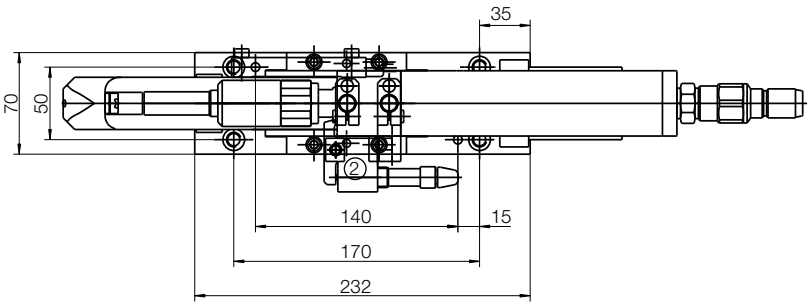
For stationary applications or robot guided tongs

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.





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

Available combinations:

Type	Force kN	Stroke mm	Version	Model 10	11	12	40	42	51	52
CMH 03.	45	6	01	■		■	■	■	■	■
CMH 03.	45	6	05	■		■	■	■	■	■
CMH 03.	45	14	01		■		■	■	■	■
CMH 03.	45	14	05		■		■	■	■	■

Technical data

Type	CMH 03.45
TOX® Point Ø	3, 4, 5, 6, 8 mm
Weight of model 40 approx.	3.8 kg
Hydraulic cylinder	Ø 35 mm with spring return
Operating pressure max.	470 bar
Hold-down force when the punch pin on the piece part (4 mm)	approx. 2.600 N
Spring rate	approx. 670 N / mm

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

Option:
Special version of CMH 03 for other technologies (except clinching and punching) available with 40 mm stroke. See data sheet 15.01 for drive details.

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°.

Ordering example:

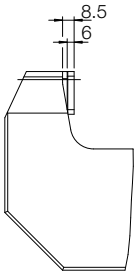
CMH 03.45.25.14.01.40

- Model
- Version
- Stroke (mm)
- Throat depth (mm)
- Press force (kN)
- Type (C-tongs)
- TOX® Mini-Tongs, hydraulic

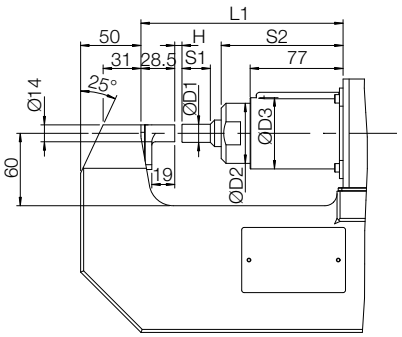
TOX® Handheld Tongs

with hydraulic drive – C-frame type CHH 06.75. F_{max} = 75 kN at 250 bar

Tool area dimensions for clinching applications.



Flat plate die



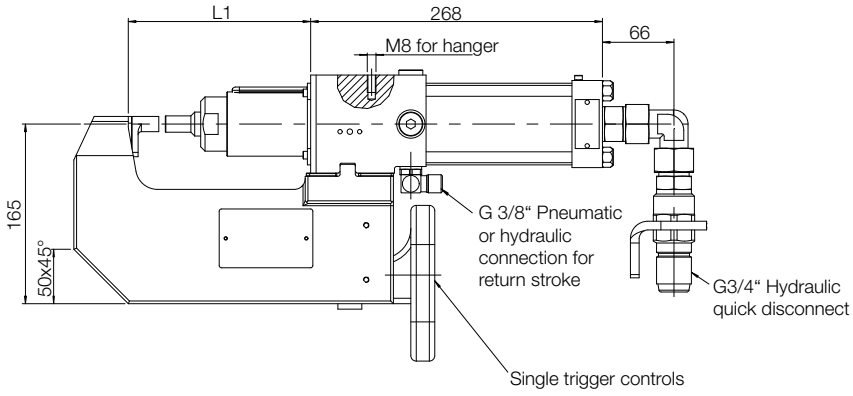
Stepped flat plate die

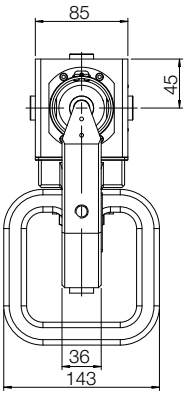
Optional see table on next page for corresponding type of tongs.

Available models with various tong construction

Model 10:

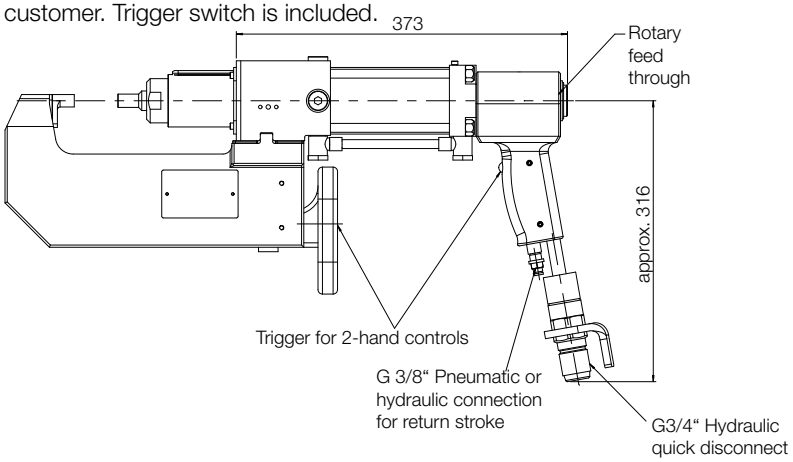
With 1-hand controls. Tool opening of 6 mm for operator safety. Suspension and electric cabling to be provided by customer. Trigger switch is included.





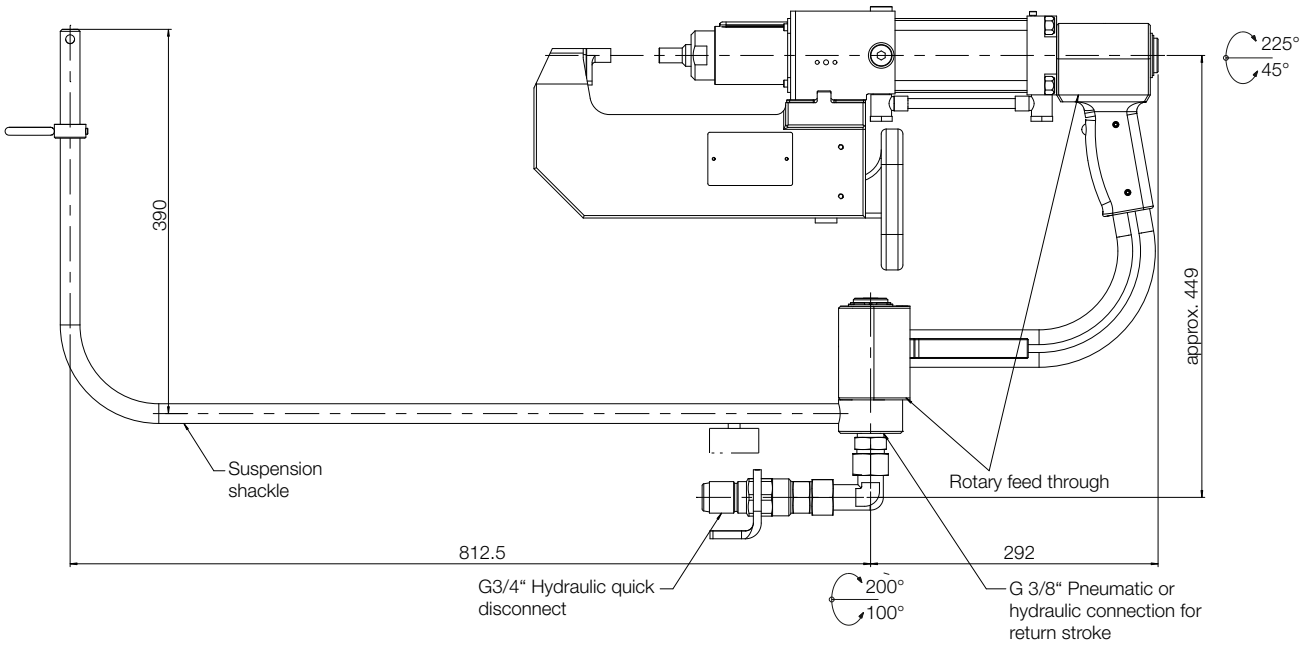
Model 11:

Including rotating handle. 48 mm stroke with 2-hand safety cycle initiation. Suspension and electric cabling provided by customer. Trigger switch is included.



TOX® Handheld Tongs

Model 12:
Including rotary feed through CZS 21.04 and suspension shackle. 48 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.



CHH 06.75 F_{max} 75 kN at 250 bar

H = stroke	Version	Model 10	Model 11	Model 12	Flat plate die	Flat offset die	Punch length	Stripping force max. in N	Interference contour dimensions D1	D2	D3	S1	S2	L1
6	01	■	■	■	■		80	4608	15	40	49	18.5	90	128
6	02	■	■	■	■		100	4608	15	40	49	38.5	90	148
6	03	■	■	■		■	80	4608	15	40	49	18.5	90	148
6	04	■	■	■		■	100	4608	15	40	49	38.5	90	168
6	05	■	■	■	■		80	7424	18	50	59	4.5	101	128
6	06	■	■	■	■		100	7424	18	50	59	24.5	101	148
6	07	■	■	■		■	80	7424	18	50	59	4.5	101	148
6	08	■	■	■		■	100	7424	18	50	59	24.5	101	168
48	09		■	■	■		80	4608	15	40	49	18.5	90	170
48	10		■	■	■		100	4608	15	40	49	38.5	90	190
48	11		■	■		■	80	4608	15	40	49	18.5	90	190
48	12		■	■		■	100	4608	15	40	49	38.5	90	210
48	13		■	■	■		80	7424	18	50	59	4.5	101	170
48	14		■	■	■		100	7424	18	50	59	24.5	101	190
48	15		■	■		■	80	7424	18	50	59	4.5	101	190
48	16		■	■		■	100	7424	18	50	59	24.5	101	210

Special C-frames and special drives on request.

Technical data:

Type	CHH 06.75
TOX® Point Ø	3, 4, 5, 6, 8 mm
Weight of model 12 approx.	32 kg
Hydraulic cylinder	Ø 50 mm

Scope of delivery:
C-frame, hydraulic cylinder, stripper. Rotary feed through depending on model. Pneumohydraulic unit and TOX® Clinching Tools are not included.

Driven by pneumohydraulic unit PHA 160.64.

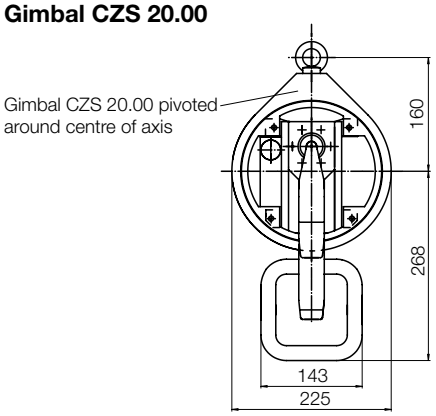
Ordering example

CHH 06.75.48.10.11

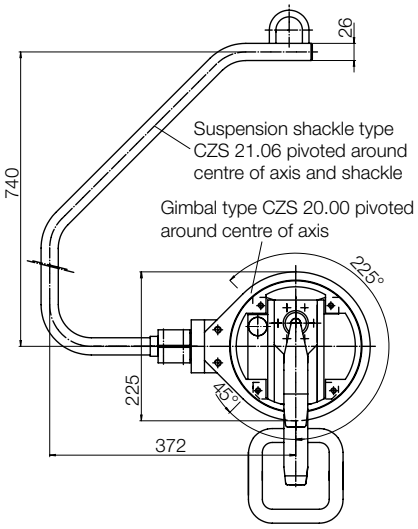
- Model
- Version
- Stroke (mm)
- Press force (kN)
- Type (C-tongs)
- TOX® Handheld Tongs, hydraulic

Additional equipment for model 10 and 11

Gimbal CZS 20.00

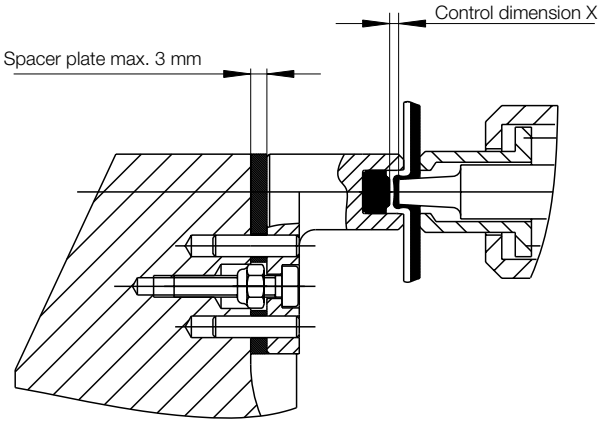


Additional equipment for rotating suspension CZS 21.06



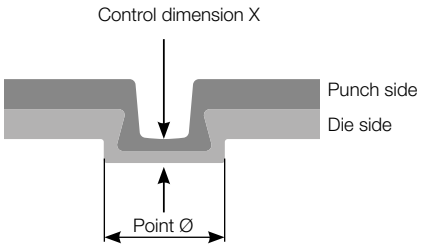
Handle according to model

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® Pressure intensifier

TOX® Pressure Intensifier – drives for your tongs
Depending on the unit type, the working cylinder of the TOX® Handheld Tongs requires hydraulic pressure of 250 bar (3600 psi) or 470 bar (6900 psi). The simplest way to generate this hydraulic pressure is to use a pneumohydraulic TOX® Pressure Intensifier, which boosts the compressed air pressure from 6 bar (90 psi) to the required hydraulic pressure. We offer two intensifier versions in different variations:

Compact pressure intensifier type BES
With pneumatic controls, including a pressure relief valve.

Tongs pressure intensifier type PHA
The intensifiers type ES are available with 1- and 2-hand control with safety valve. They are either horizontally mounted in a rolling casteror or on a pedestal.



The burst protection hose is part of the standard equipment of the hose packages for the BES and PHA pressure intensifier and complies with the applicable Press C-Norm EN 16092-1.

BES 125.10 for TOX® Tongs CMH 03.45

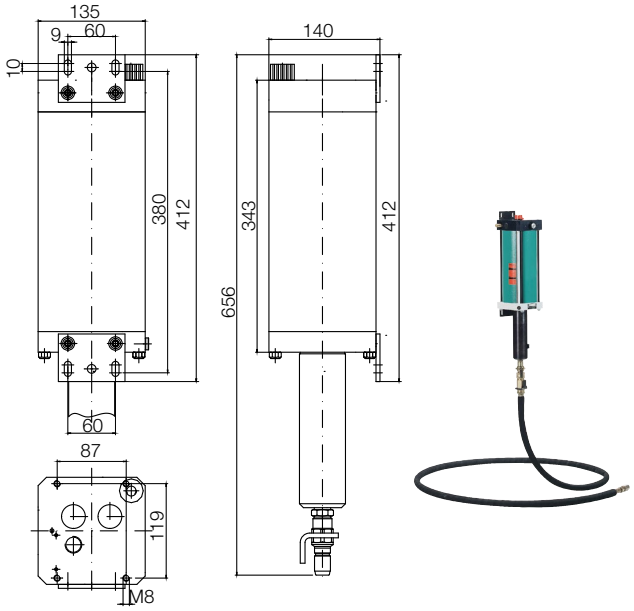
Pressure intensifier including 1/2“ pneumatic controls. Process reliability is provided by the automatically activated return stroke. Includes pressure relief valve.

Weight: approx. 15 kg

Hose package 3 m long. Please order separately. Order No. BZS 01-3000 G3/8“, including quick disconnect

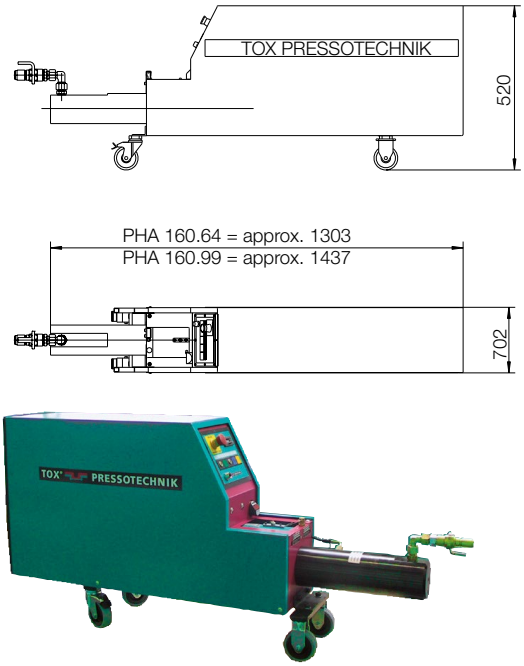
Mounting brackets on pressure intensifier.

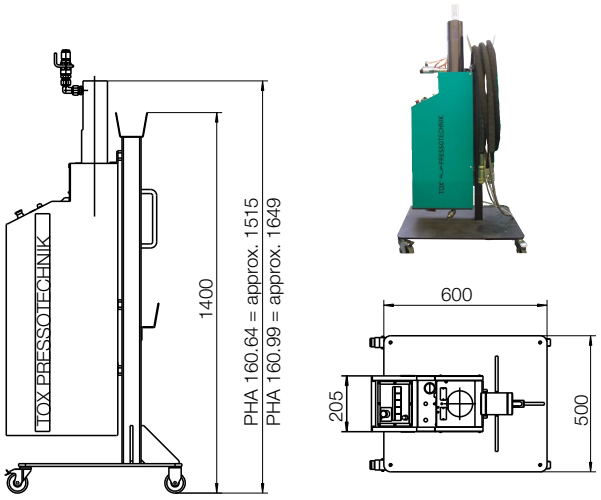
Note:
BES 125.10.18.108 applies to version 12 of CMH 03.45



TOX® Pressure intensifier

PHA 160.64 / PHA 160.99





PHA 160.99 for TOX® Tongs CMH 03.45

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

PHA 160.99.00 (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 acivated via the watchdog timer of the line control system.

* Electrical equipment not contained in scope of delivery

PHA 160.99.01
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
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

PHA 160.64 for TOX® Tongs CHH 06.75

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

PHA 160.64.00 (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.

* Electrical equipment not contained in scope of delivery

PHA 160.64.01
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
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

Technical data

Supply voltage	115-230 V/AC
Driving voltage	24 V/DC
Connected load	100 VA
Pneumatic connection	G 3/4

Working pressure

Typ	pneumatic	hydraulic
PHA 160.64	min. 3 bar, max. 4.5 bar	250 bar
PHA 160.99	min. 3 bar, max. 5.5 bar	470 bar

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 or 7 m
- 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

Ordering no.:
PHA 160.99.01
- Controls
- Type