TOX® PRESSOTECHNIK

TOX®-Pneumohydraulic System
TOX®-Hydraulic Cylinder
Type HZ 40

Data-sheet 15.01

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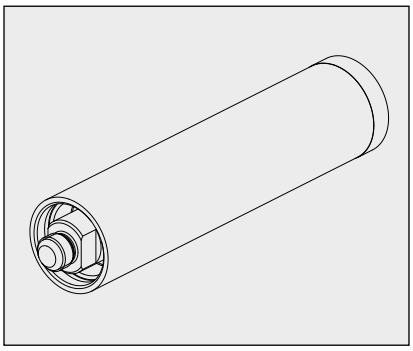
TOX®-Hydraulic Cylinder
Type HZ 40 for up to 500 bar oil pressure

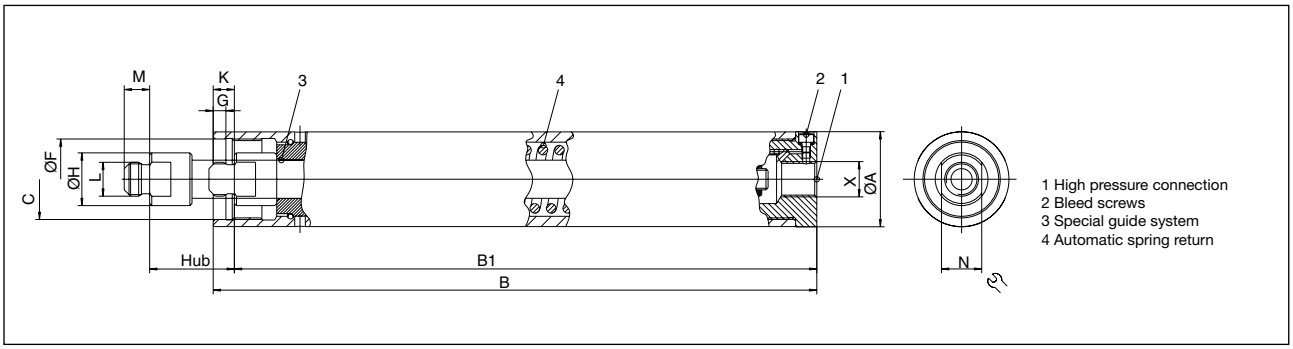
The concept behind the KT-system
The “split” Powerpackage is often used where limited space is available, when several cylinders must operate simultaneously, or where small cylinders are needed. The system consists of the pressure intensifier ES, the hydraulic cylinder HZ and hydraulic hose with quick connect coupling.

It is possible to connect several hydraulic cylinders to one pressure intensifier.



The **hydraulic cylinder HZ 40** is a single-acting cylinder with spring return. It can also be used in pure hydraulic installations.

HZ & ES: If a short overall length and a cost effective solution is required.



Order no. Type	Version	Stroke** mm		Max. pressing force at 488 bar oil pressure kN	Return force by spring ES kN	Volumetric displacement cm^{3*} V_{HZ}	Factor* F_2	A	B	B1	C	F_{H7}	G	H	K	L	M	N	X
HZ 40.	12.035.18.	20.	431	46	0.3	0.96	0.25	44.9	191	181	M38x1.5	38	6	24,9	10	M16x1.5	12	19	G3/8
HZ 40.	12.035.18.	40.	431	46	0.3	0.96	0,25	44.9	285	275	M38x1,5	38	6	24.9	10	M16x1.5	12	19	G3/8

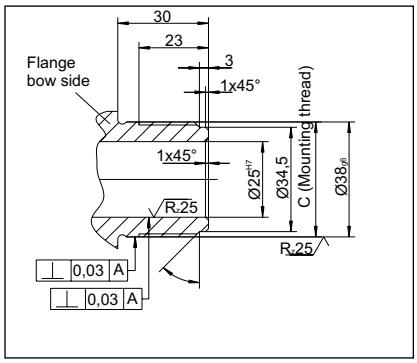
* Calculation formula: see page 4

** Stroke can be limited on request. Caution: dimension B1 changes

Function
Full press force at any point of the stroke as there is no distinction between approach stroke and power stroke.
Due to the smart design, the cylinder housing serves as piston guidance and provides the thread for mounting the cylinder to the flange thread of the bow or press without additional fasteners – a cost saving solution!

Ordering example:
1. HZ 40.12.035.18.20.431 quantity: 2
2. ES 160.13.067.99 quantity: 1
3. ZS 01.1000 quantity: 2

According to the above example, you receive:
2x HZ 40 incl. hose and quick connect coupling + 1x ES to be switched manually. Completely filled with oil. Ready for installation.



Mounting flange
The illustration below shows the flange recommended for mounting the HZ 40 to a bow or press frame. The same way it is mounted on the **TOX®-Machine Tongs CMH 03.45** (see data sheet 90.10 TOX®-Tongs).

The optimum application:

TOX®-Mini-Handheld Tongs / TOX®-Machine Tongs CMH 03.45

Model 11:
14 mm stroke. With 2-hand safety control. Handles with trigger buttons.
Drive: PHA 160.99 (see data sheet 10.10 TOX®-Tongs).

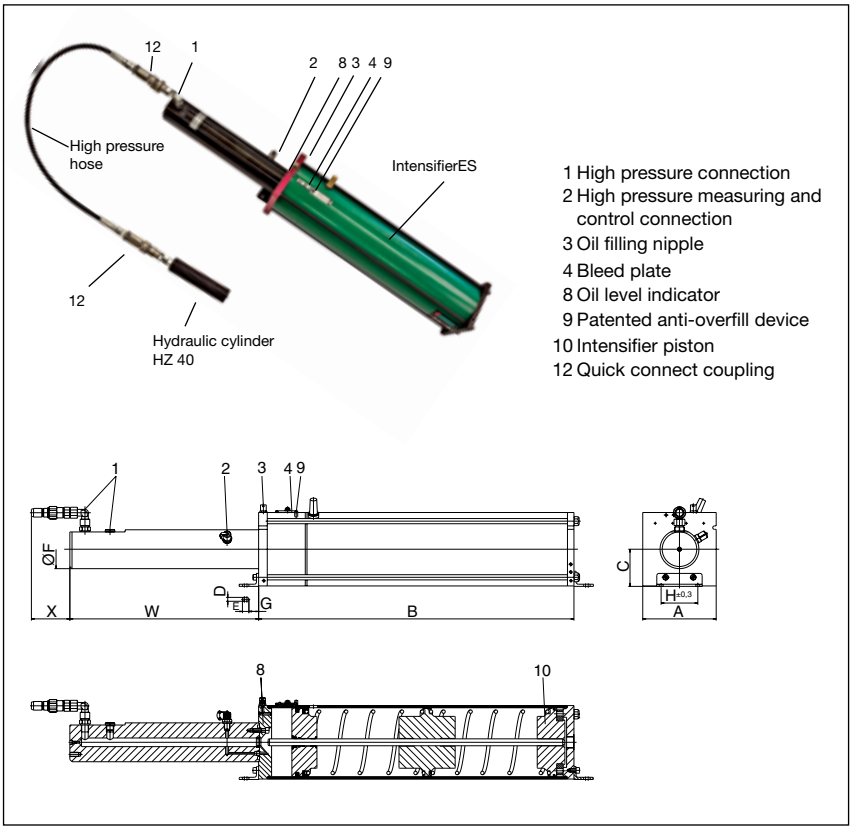
Multi point die sets

Even for punching!

For more accessories see data sheet 10.10 TOX®-Powerpackage

Applications

TOX®-Intensifier
Type ES 160.99



The power intensifier with absolute air/oil separation and integrated bypass for reliable operation. Can be mounted in any orientation.

Closed oil system. Uses simple pneumatic controls like any single-acting pneumatic cylinder with spring reset in the intensifier and in HZ 40.

Function
Only power stroke, no fast approach stroke in combination with HZ 40.

Order no.	A	B	C	D	E	F	G	H	W	X	Pneumatic connection power stroke	High pressure connection	Volumetric displacement power stroke cm^3 V_{ESKH}
ES 160.13.067.99	170	730	86	9	15	90	22.5	85	437	89	G3/4	2x G3/8	67

Air pressure bar	1	2	3	4	5	5.5 = Max.
Oil pressure* bar	88	150	247	342	440	488**

* **Note:** Use pressure values only as guideline. Table of actual values might deviate.
Note: Do not exceed max. pressures/press forces!

** Pressure tolerance ± 5%

Total stroke calculation:

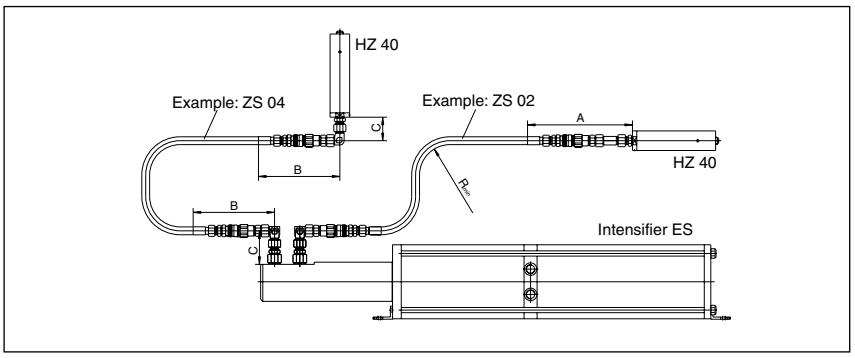
$(V_{ESKH} - F_2 \,^{\text{per 100 mm}}_{\text{hose length}} \text{ x length } \,^{\text{per 100 mm high}}_{\text{pressure hose}}) : (V_{HZ} \text{ x number of cylinders}) = \text{possible total stroke per cylinder (mm)}$

$V_{ESKH} = 67\ cm^3$, $F_2 = 0{,}25$, $V_{HZ} = 0{,}96$

Examples for total stroke calculation can be found in data sheet 10.05.

TOX®-Intensifier
Type ES 160.99

The suitable high pressure hose



Drive	Standard hose lengths [mm]	Hose dimensions [mm]			
		A	B	C	Rmin
HZ 40	1000, 3000, 5000, 7000	225	265	65	70

Other hose lengths on request. R_{min}: smallest allowable bending radius

Variants:
01: 2x straight connection
02: 1x 90° elbow on ES;
1x straight connection on HZ
03: 1x straight connection on ES;
1x 90° elbow on HZ
04: 2x 90° elbow connection

Please observe the mounting instructions of the TOX®-KT catalog.
A hydro-split coupling for ES 160.13.067.99 is not available.
Quick connect couplings are standard.
For multi-cylinder solutions please contact us.

Ordering example for hoses:
ZS 01 - 5000
└ hose length
└ variant no.

The optimum application:

PHA 160.64.02.00 /
PHA 160.99.02.02
The ES intensifiers are available as horizontal carriage or as pedestal with casters and with control system (see data sheet 90.10 TOX®-Tongs).

Horizontal carriage with casters

Pedestal stand with casters

Several tongs connected to one intensifier