



Clinching with Compressed Air

- Advantages of Clinching
- Joint connection only by material forming
- No additional connecting material required
- No action of heat – form and force locking connection
- Joining of different materials and intermediate layers (plastic) is possible
- Clean plant operation – no weld spatter on fixture or component parts caused by weld spatter
- Reproducible joining process without “tip dressing and cap exchanging”



Conclusion: Simple and inexpensive joining process, firmness similar to welding points, particularly suitable for increasing material mix in body framework

- The clinching process requires forces in the order of 30-60kN
- Therefore current drives of clinching units are:

Drive unit:

- Hydraulic cylinder - >
- Hydro air cylinder - >
- Electrical servo-drive - >

Disadvantages:

- Additional consumables required
- Technically complex, high construction volume, high weight
- Expensive, high construction volume, high weight, additional control system required

Tünkers relies on simple and compact multi-force cylinders with a pneumatic cylinder acting on a toggle mechanism in the power zone.

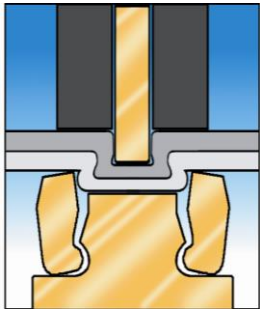
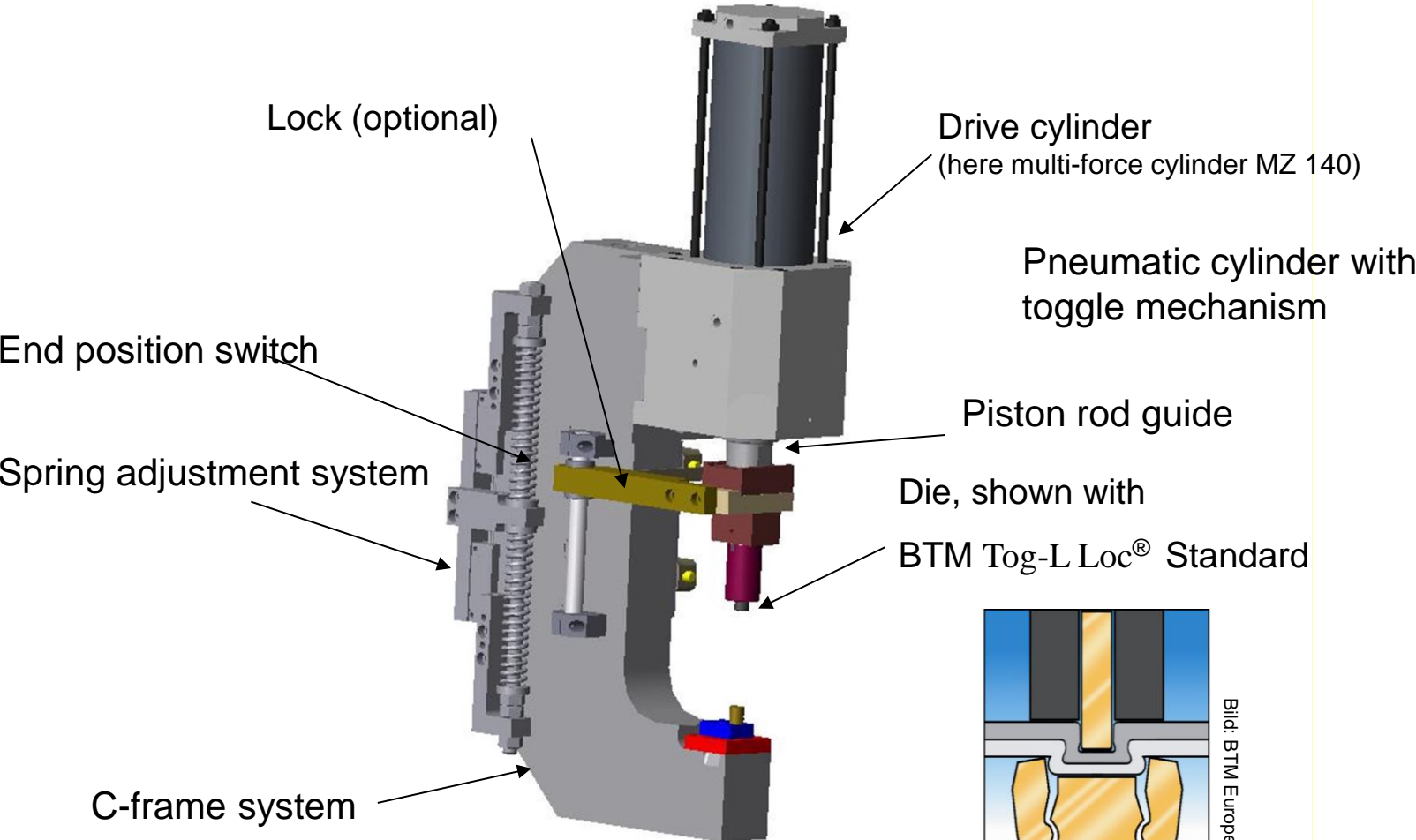
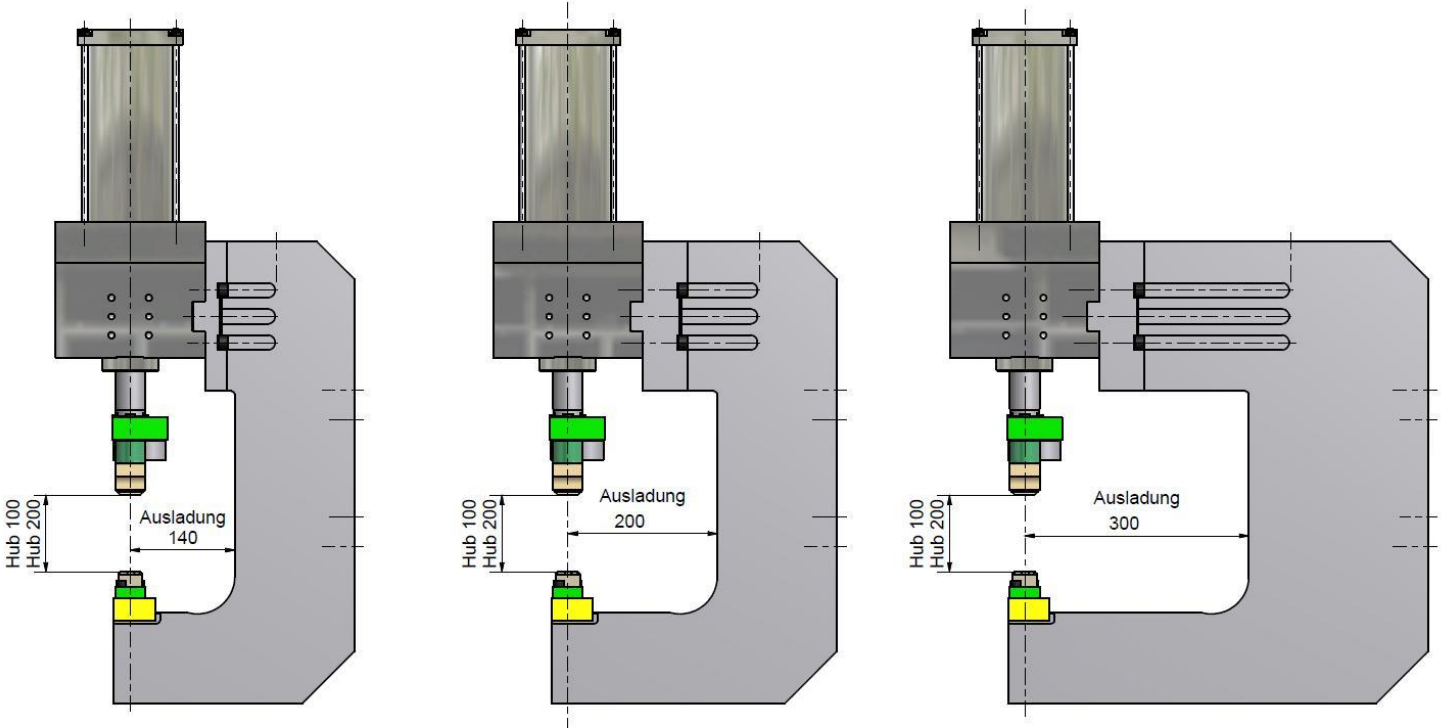


Bild: BTM Europe

C-frame Standard Versions Modular System



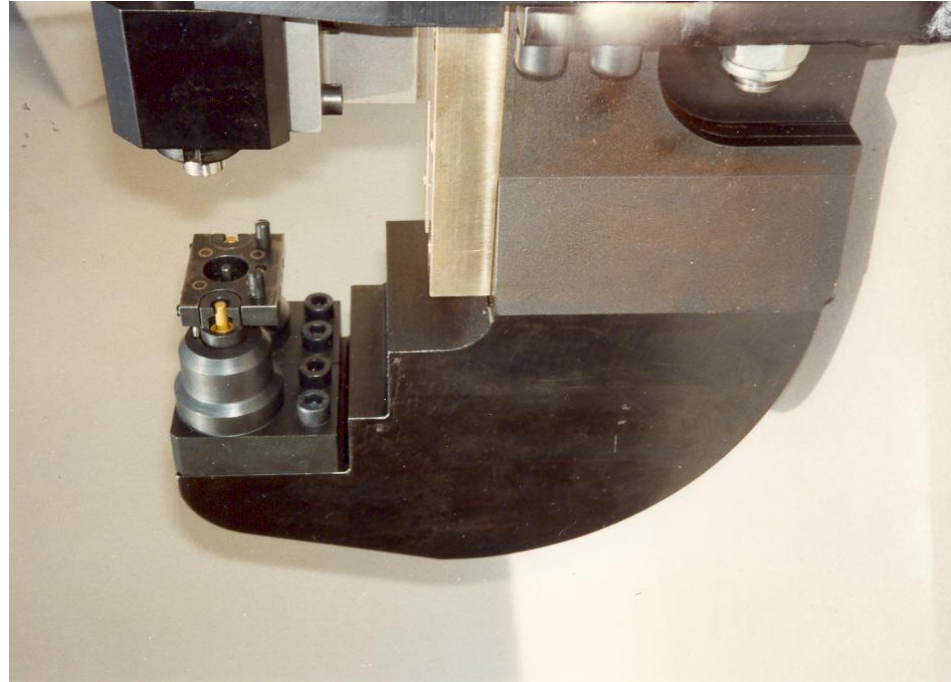
Throat depth	140mm	200mm	300mm
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Stroke
100
200

C-frame standard versions



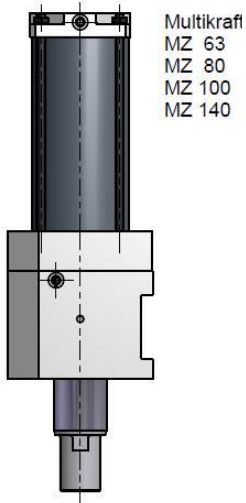
C-frame with
multi-force cylinder



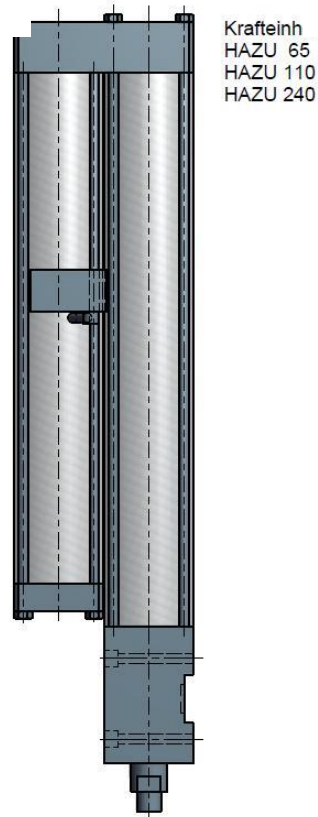
C-frame with double tool and interchangeable tools
(template on the piston rod)

Additional Drive Versions Modular System for C-frames

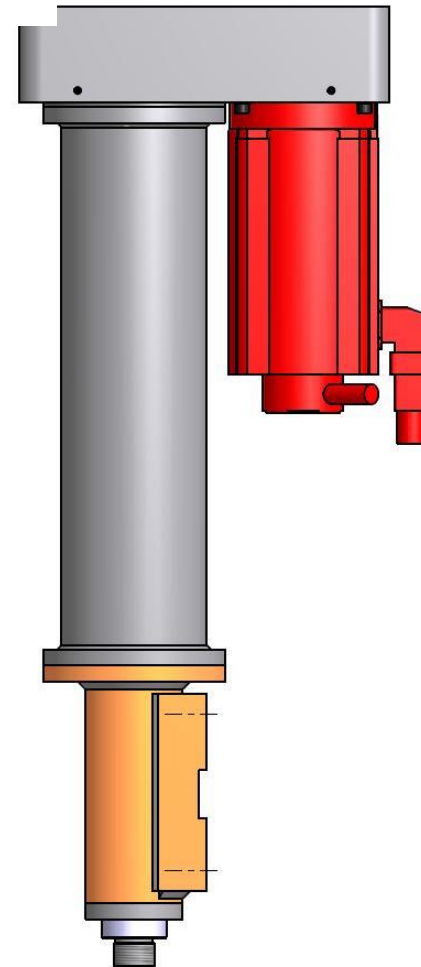
Multi force cylinder



Hydro air cylinder



E-Servo-Drive



Performance data:

Force $F_{\max} = 150 \text{ kN}$
Reduction gear with gear drive
Module $m = 5$
Transmission $i = 0,62$
Electric motor (here SEW)
 $n = 2000 \text{ rpm}$

Thank you for your kind attention!

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