APPLICATION EXAMPLES

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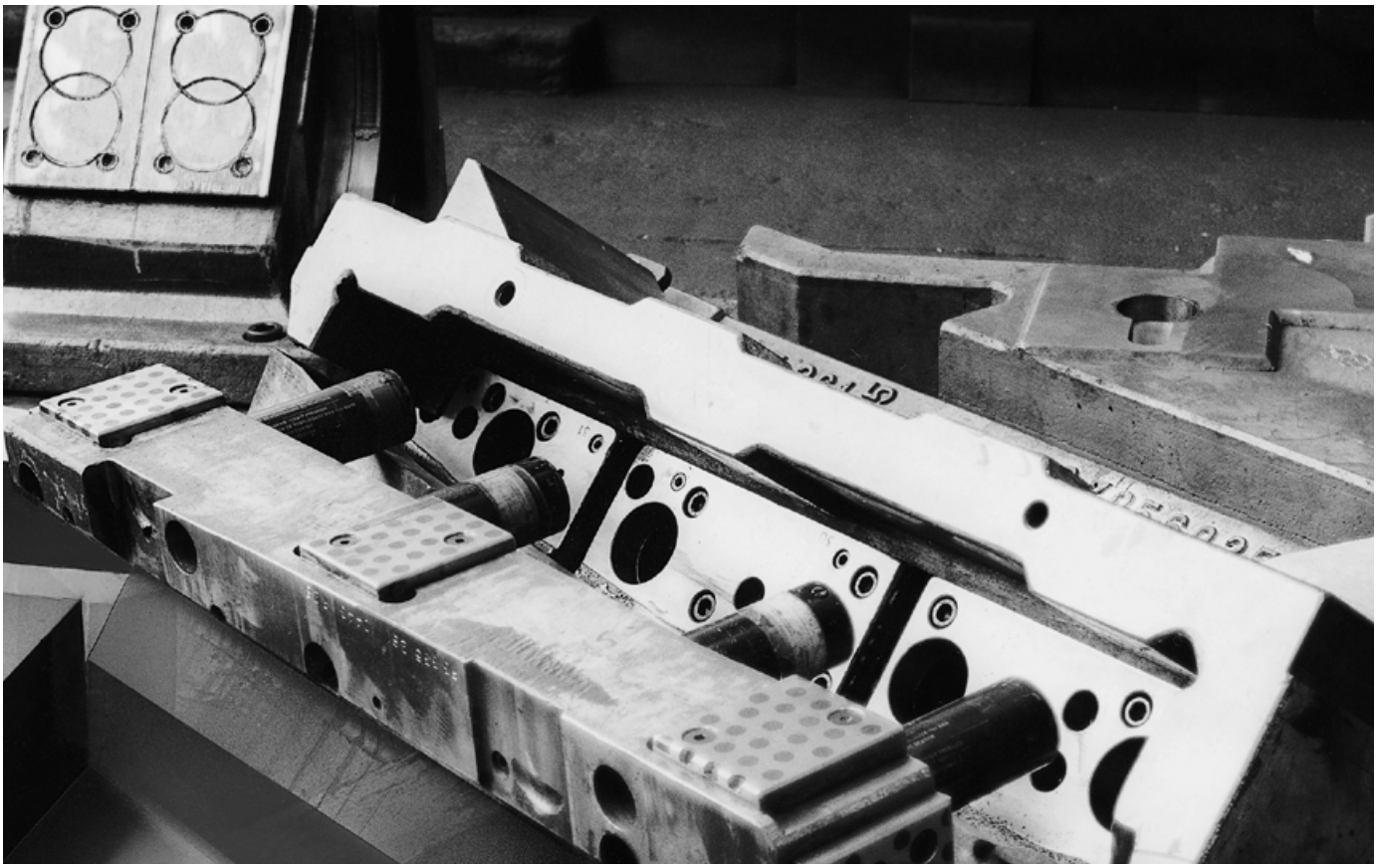
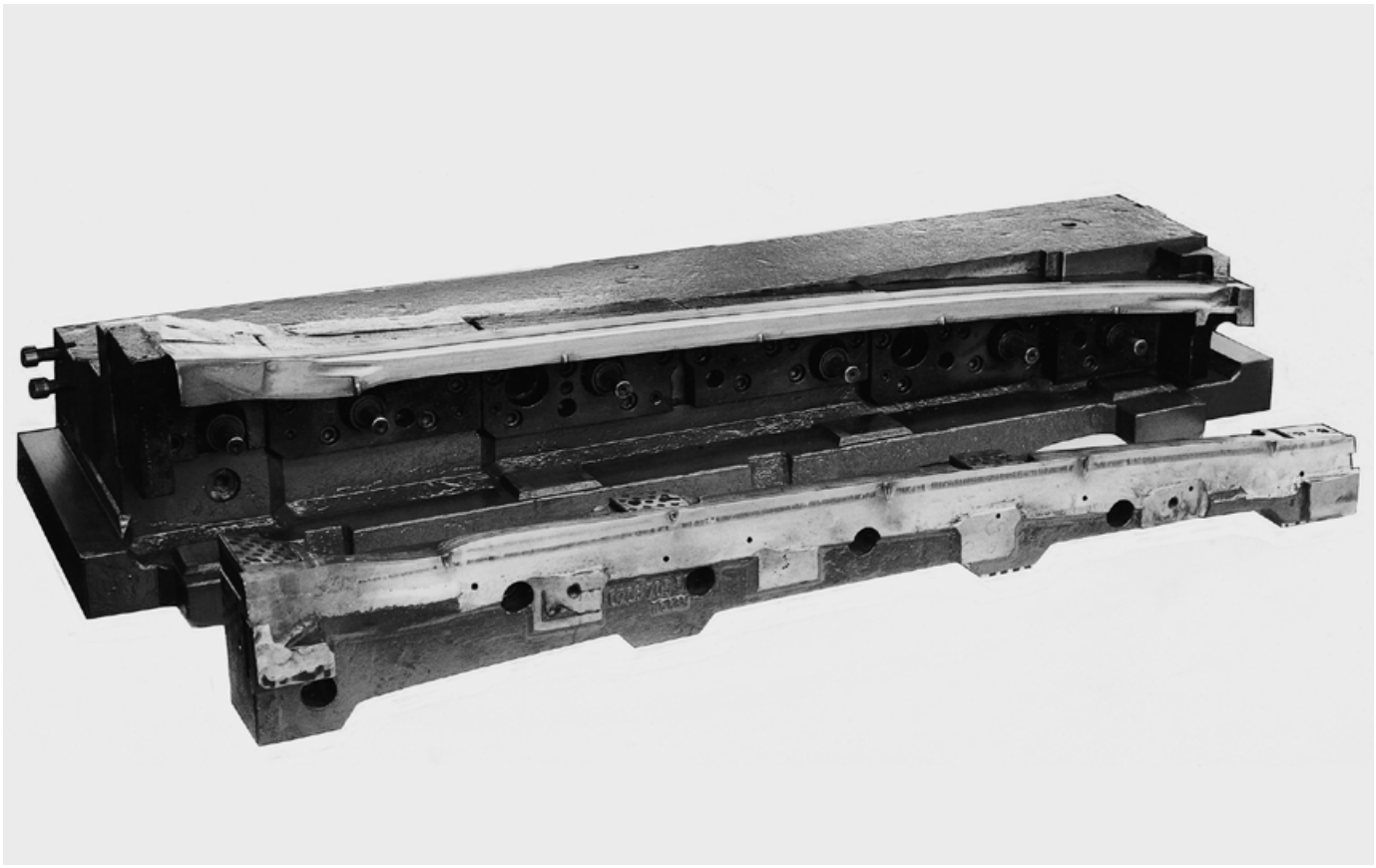


Trimming tool with inclined, Cam-Operated slide

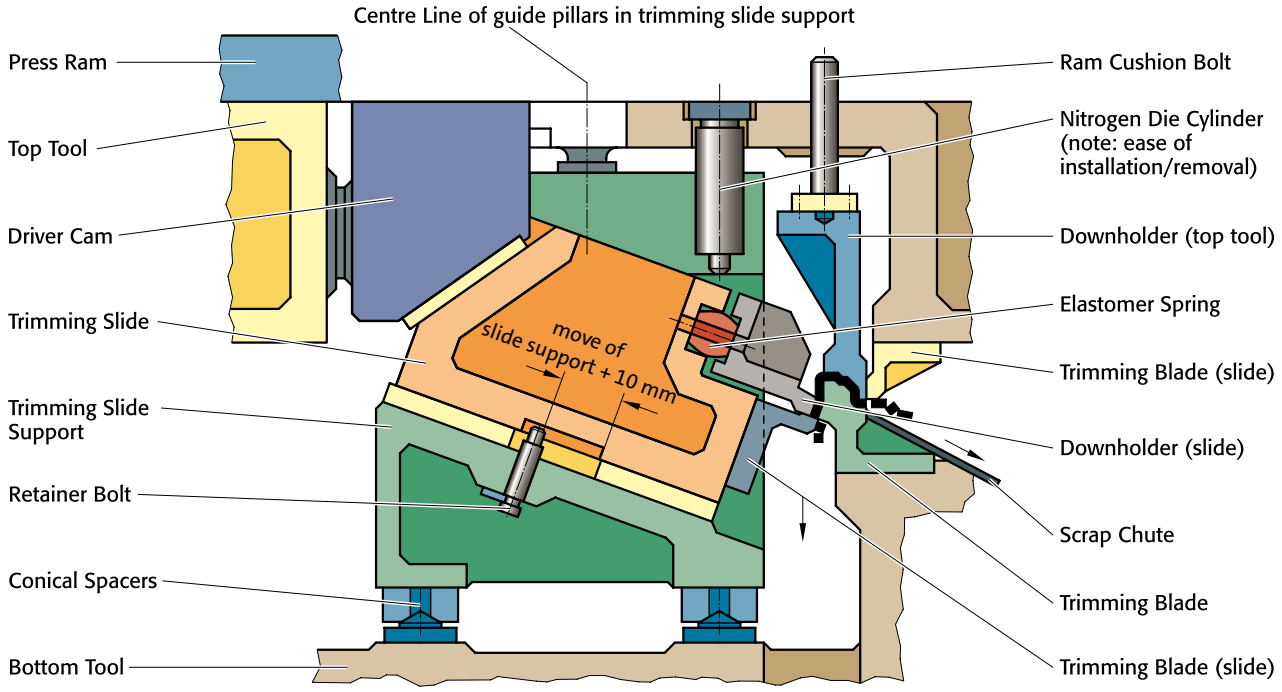


Drawing slide of large forming tool

APPLICATION EXAMPLES

Trimming tool with inclined, Cam-Operated slide

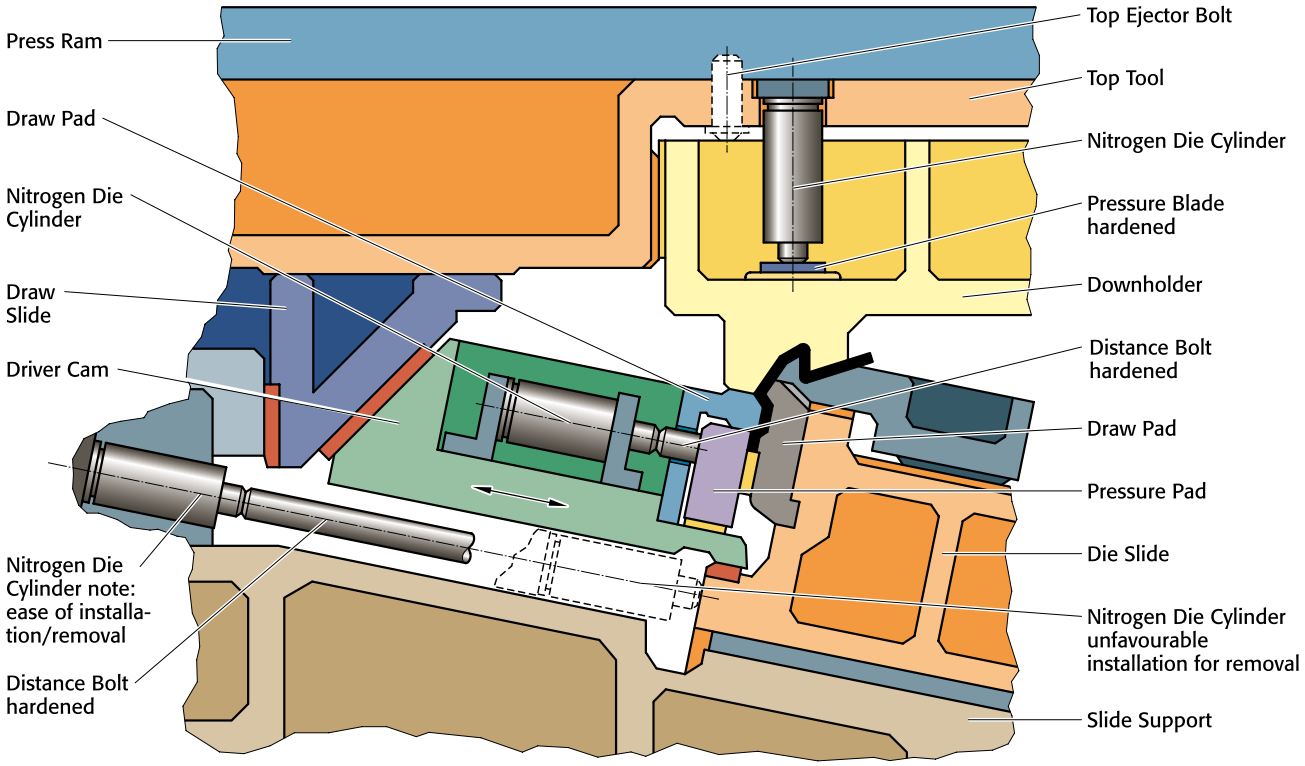
Nitrogen die cylinders in the top ensure the positive centering of the trimming slide on the centering cones in the bottom tool section.



Drawing tool

The nitrogen die cylinder for the drawing slide is easily placed into position; the safety lid secures it. Very high forces are required in this tool for the draw pad in the slide.

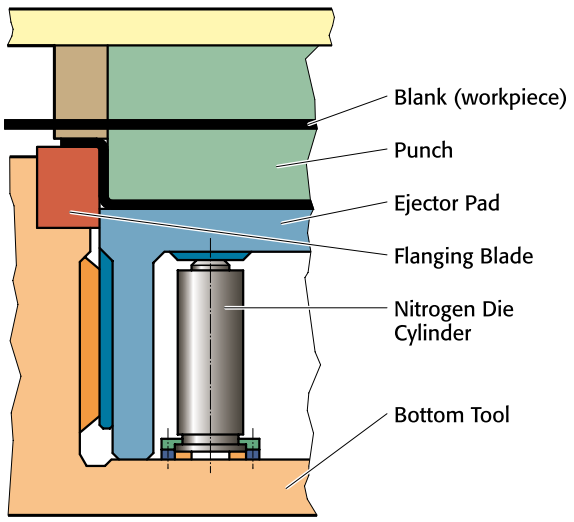
The nitrogen die cylinders in the top tool serve as boosters for the insufficient ram cushion.



APPLICATION EXAMPLES

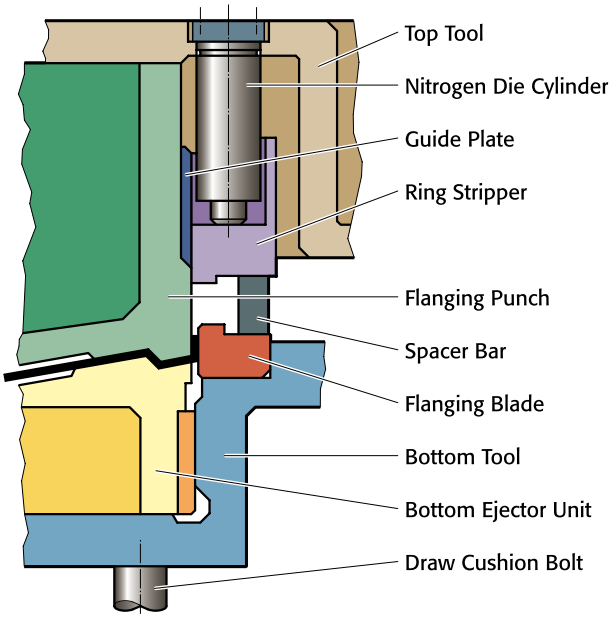
Flanging tool with nitrogen die cylinders

Where bottom ejection facilities are lacking, FIBRO Nitrogen die cylinders will provide reliable actuation of piece part ejectors.



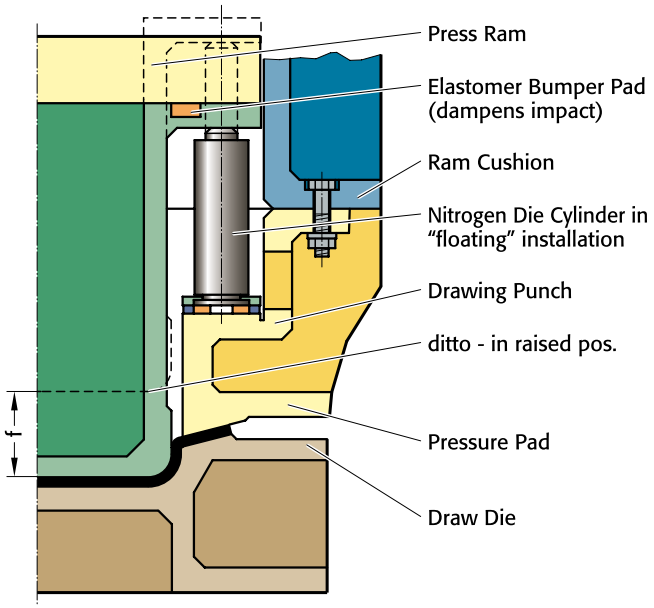
Flanging tool with ring stripper

The ring stripper is actuated by nitrogen die cylinders.



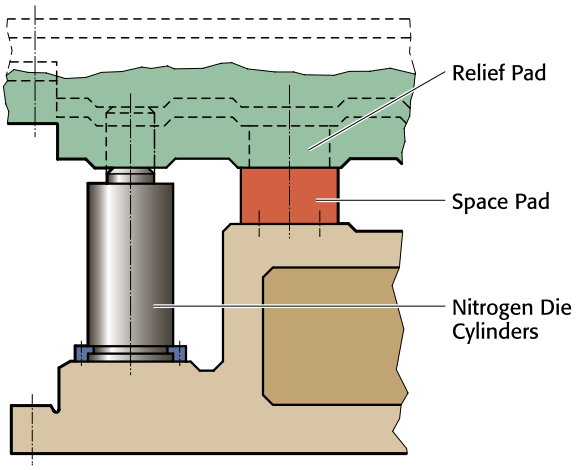
Double-Acting drawing tool

In order to obtain shorter setting times, only the downholder is boltet to the ram cushion. The drawing punch is raised through f + 20 mm by nitrogen die cylinders.



Blanking and piercing tool

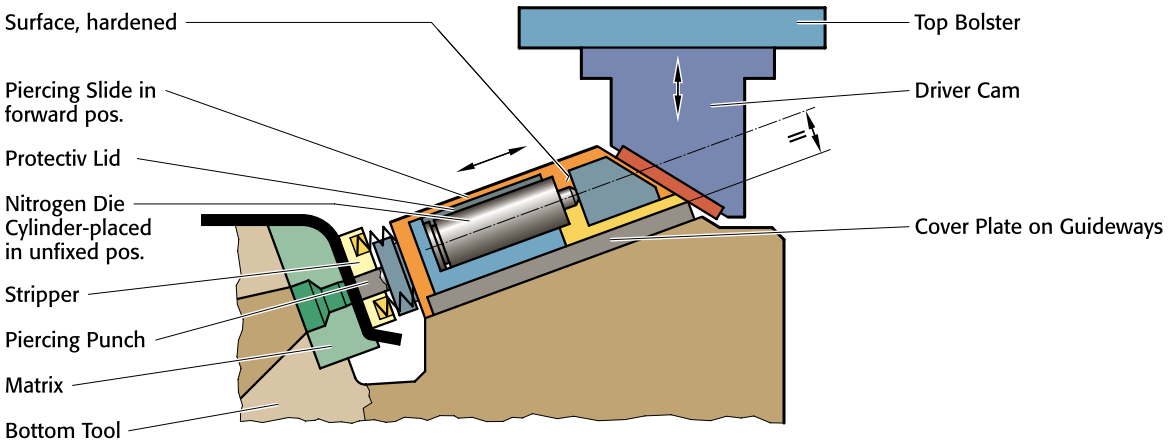
The application of nitrogen die cylinders instead of the usual elastomer bumpers results in a significant reduction of setting time. Moreover, injuries caused by "fly-out" elastomer bumpers are eliminated.



APPLICATION EXAMPLES

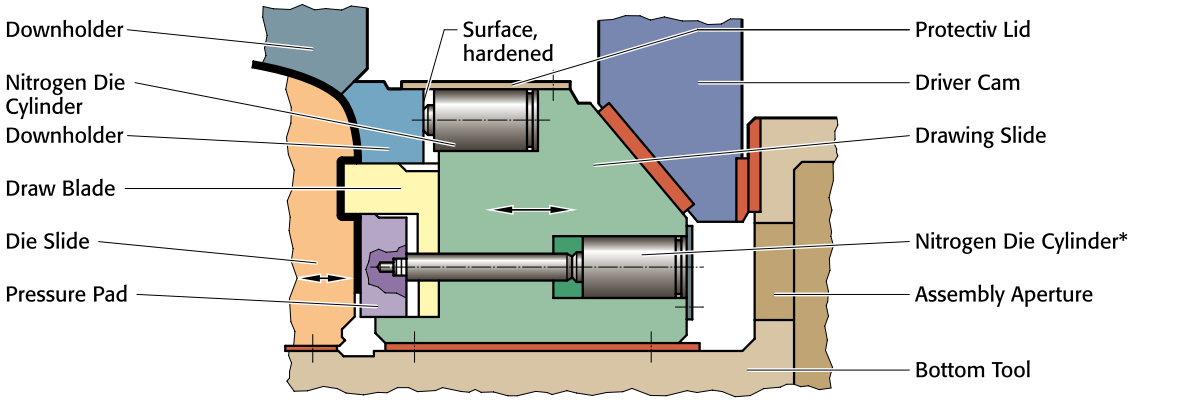
Retraction of piercing slide by nitrogen die cylinder

Die cylinder is mounted to bottom tool. It retracts the slide after completention of the piercing operation. We recommend a “soft”-start on the cam shape in order to reduce impact and accerleration on the die cylinder.



Drawing tool

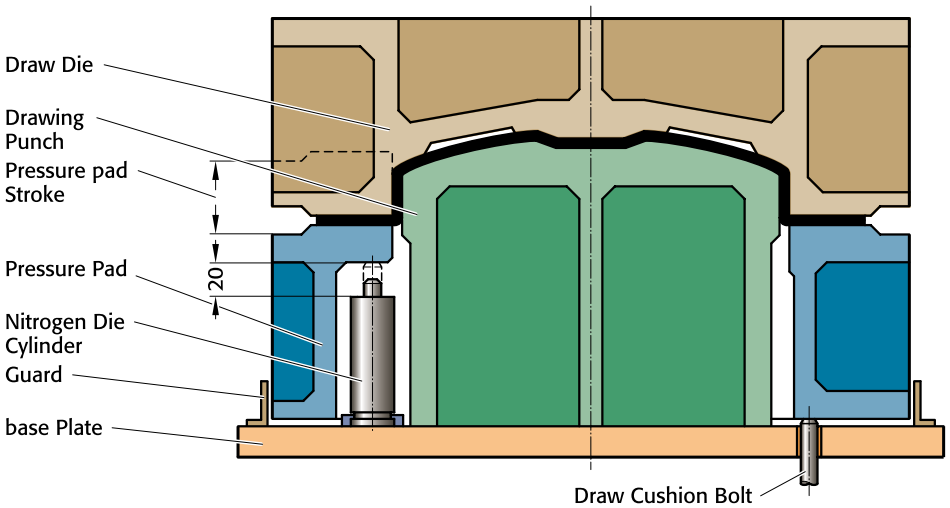
In order to prevent wrinkling, this tool requires high forces on the downholder and pressure pad. An elegant solution was achieved with nitrogen die cylinders. Ease of cylinder installation was ensured.



*Must be secured with special flange.

Drawing tool

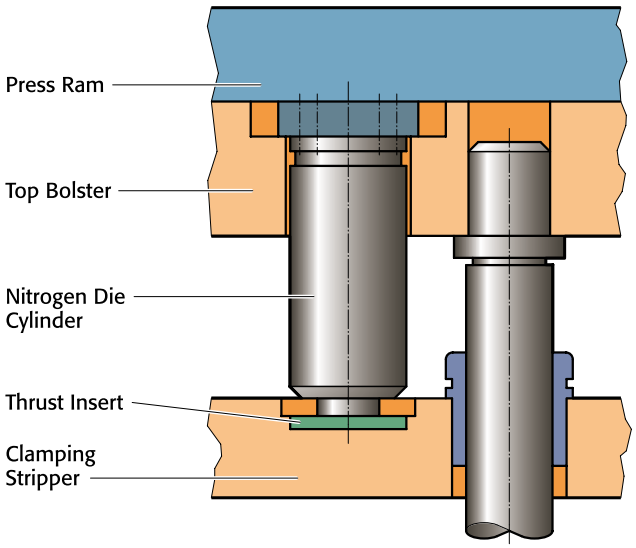
The pressure pad is actuated by nitrogen die cylinders during the final 20 mm of the draw.



APPLICATION EXAMPLES

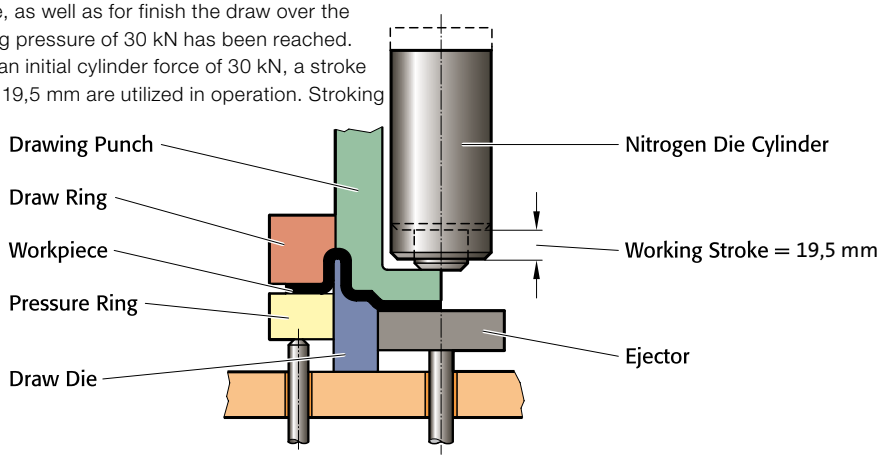
Detail of progression compound tool

The clamping stripper is actuated by two nitrogen die cylinders 2480.12.01500.025. The units provide an initial cylinder force of 15 kN each and a stroke capacity of 25 mm – of which 20 mm are utilized.



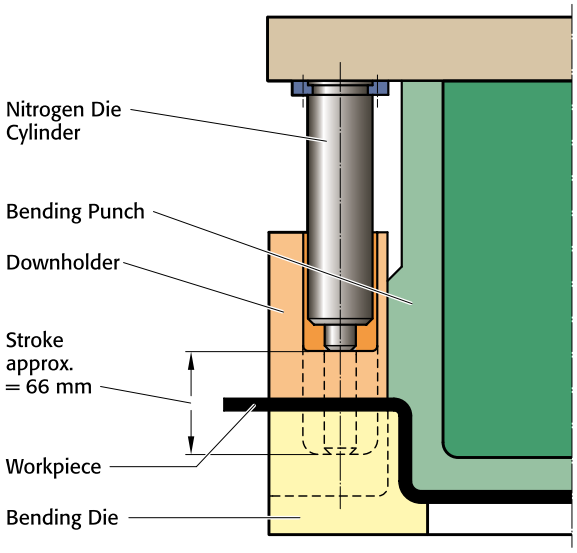
Drawing tool

Intended for use in a 100 ton hydraulic press, with one nitrogen die cylinder 2480.12.03000.025 mounted in the drawing punch.
In this application the die cylinder serves to accomplish the initial pre-draw of the internal shape, as well as for finish the draw over the draw ring – after the bottoming pressure of 30 kN has been reached.
The nitrogen die cylinder has an initial cylinder force of 30 kN, a stroke capacity of 25 mm – of which 19,5 mm are utilized in operation. Stroking speed is 4 SPM.



Bending tool for round bars

This tool employs two nitrogen die cylinders 2480.13.00750.080 for actuating the downholder. Press stroke is 92 mm. The stroke of the downholder is approx. 66 mm.
Because of manual loading, press strokes vary from 36 to 40 SPM. Part ejection is automatic.
The nitrogen die cylinders provide an initial force of 7,5 kN each, and a stroke capacity of 80 mm.

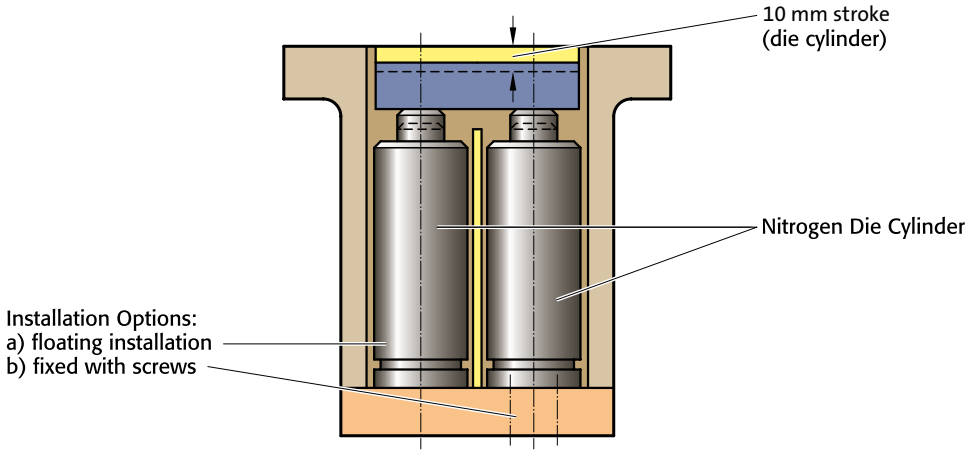


APPLICATION EXAMPLES

Bottom ejector in progression compound tool

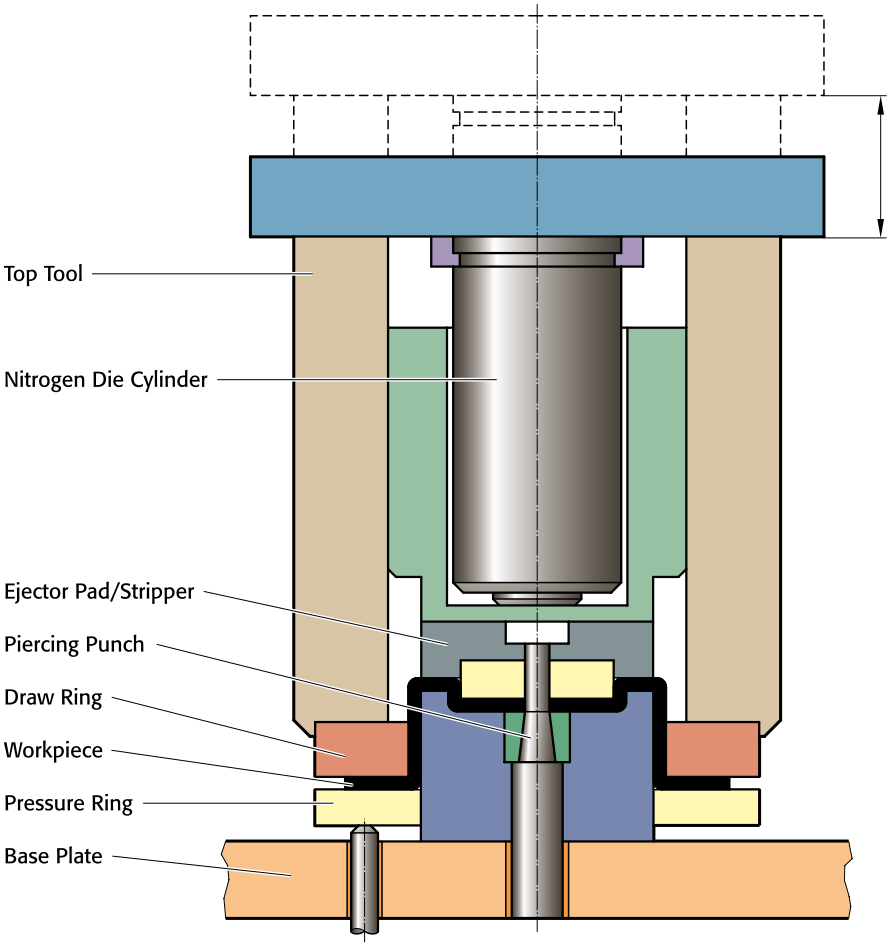
Two nitrogen die cylinders 2480.13.00750.025 are used, providing an initial force of 7,5 kN each, and a stroke capacity of 25 mm.

The actual working stroke is 10 mm. The tool is run at a speed of 150 SPM, with a ram stroke of 48 mm.



Drawing- and piercing tool

This tool is used in a 100 ton hydraulic press.
The nitrogen die cylinder is a 2480.13.03000.080, with a charge pressure of 130 bar – giving an initial cylinder force of 26 kN. Stroke capacity is 80 mm. The actual working stroke is 76 mm. The press is run at 14 SPM.

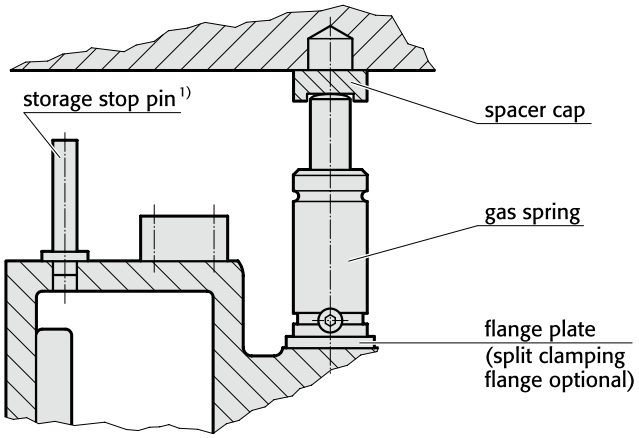


APPLICATION EXAMPLES

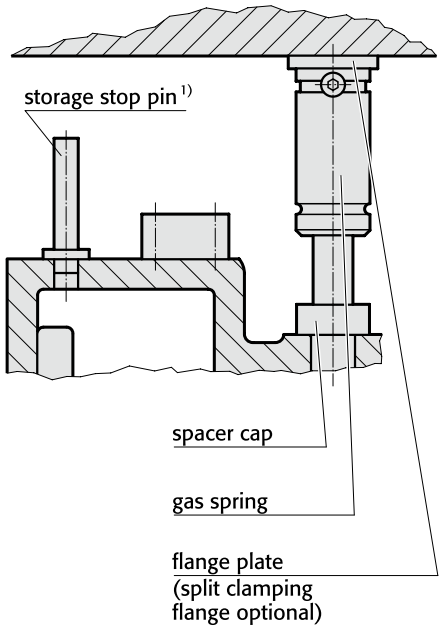
Gas springs facilitate tools storage and tools preparation for production

Gas springs find increasing use in large press tools - in the sole role of aiding theier storage and production preparation.
The springs are bolted to either the upper or lower bolsters. They are activated only when the tool is being taken out of the press.
Application examples 1 and 2 show that special spacer caps are inserted prior to the tool being let down onto the gas springs – this being done whilst still in the press. During removal from the press and subsequent storage, the springs will keep the top tool elevated.
Storage stop pins are provided next to the springs; when tools are stacked one on top of the other, the increasing mass will force the springs to recade – and the tops will eventually abut against the storage pins. Once the stack is removed, the springs take over adain and push the top tool up.
With the usage of 4 gas springs, for example upper die parts with a weight up to 20 tons can be held high.
Upon being prepared for production, the springs facilitate access to the tool. Once back in the press, the spacer caps are removed and the storage springs remain inactive during the production run.
It is recommended to affix warning signs to the tools in a prominent position: the presence of gas springs in the tool often cannot be seen from the outside.

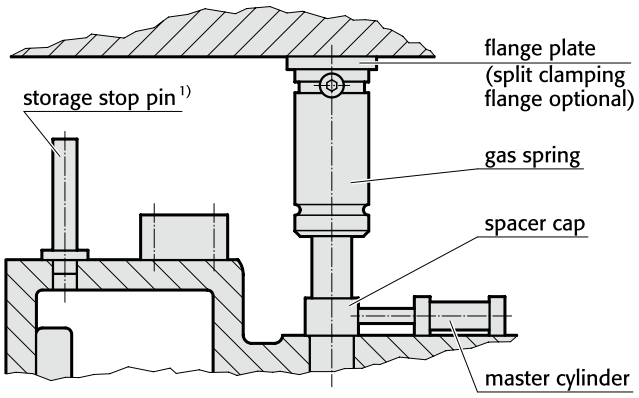
Example 1: Gas Spring fixed to bottom bolster



Example 2: Gas Spring fixed to top tool



Example 3: Gas Spring fixed to bottom bolster



1) storage stop pins are reversible - they are turned round and pushed down into their holes during getting the tool ready for production