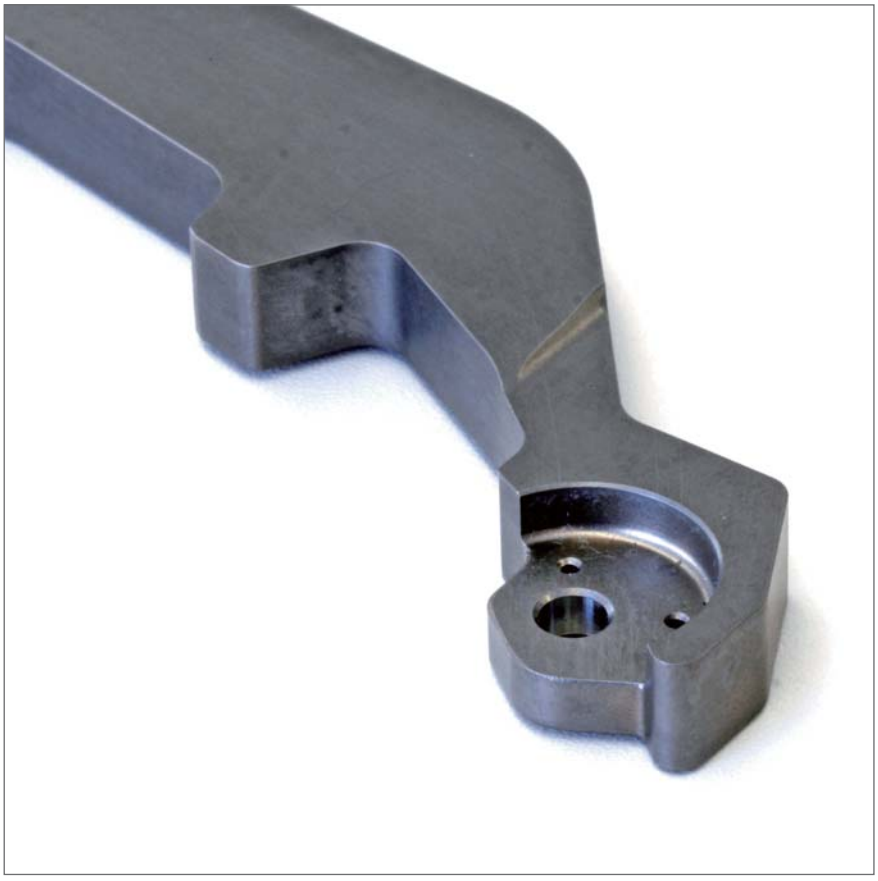
Pascal fine blanking system

Hydraulic die cushion



Pascal
corporation

www.pascaleng.co.jp

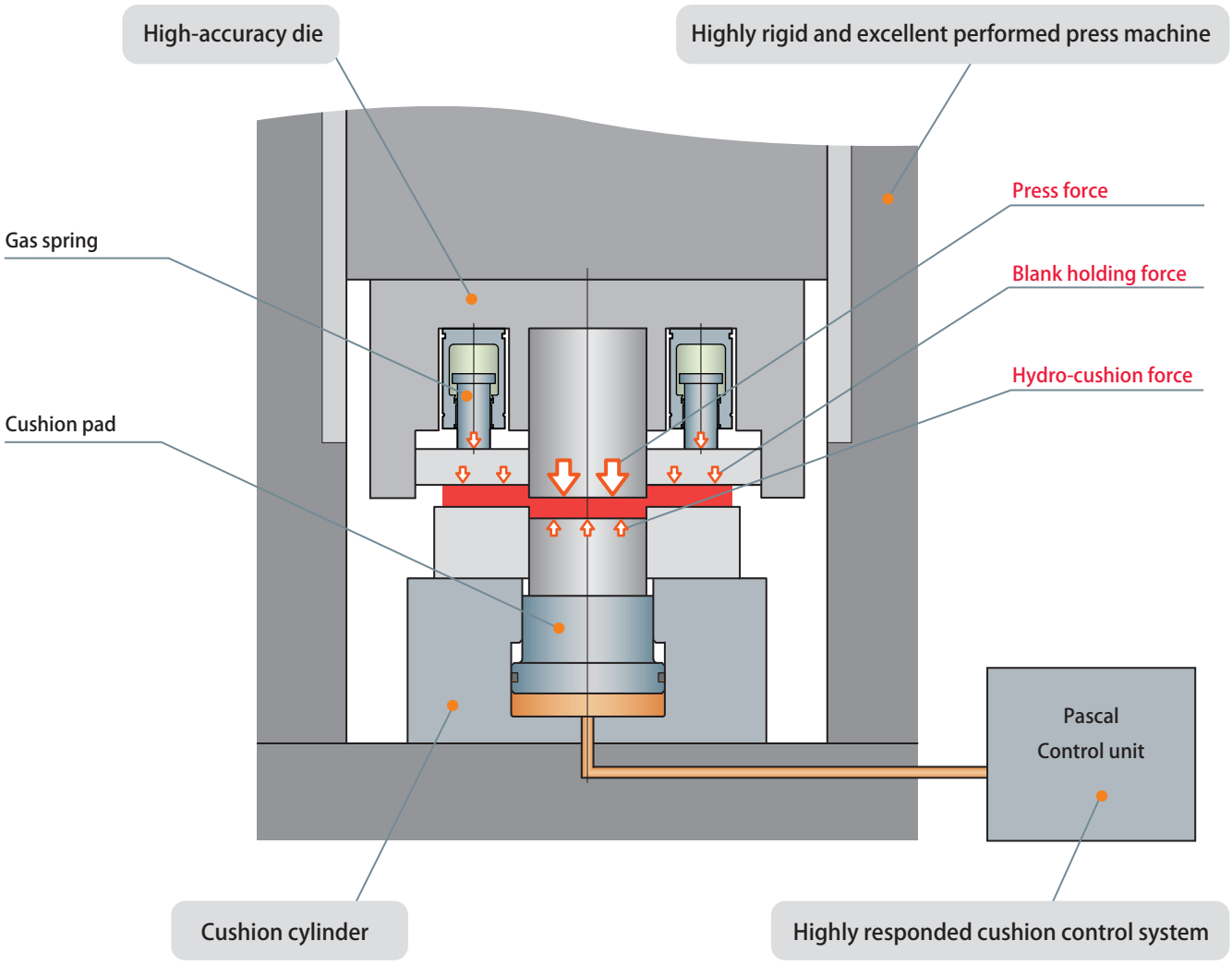
Pamphlet PA-292E REV.0 2009.11

Pascal fine blanking system

Hydraulic die cushion

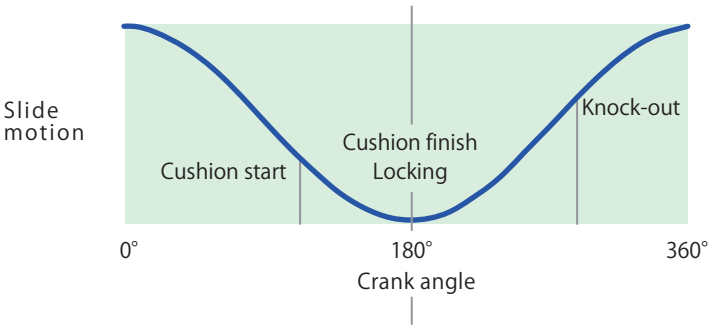
In order to make fine blanking surface, it needs to hold proper blanking force out according to the material ductibility which generates strongly stable compressive stress on the surface. At the same time it should stably control hydraulic cushion force. Pascal has developed a relief valve with high response for the cushion hydraulic control. It can highly respond to high-speed press force, and also is available to minimize surge pressure and stabilize cushion force.

Integrated four factors in cushion control, rigid press machine, cushion cylinder and sophisticated die can create fine worked surface eventually.
Pascal fine blanking system can perform minor installation cost and highly value-added productivity without a fine blanking special machine.

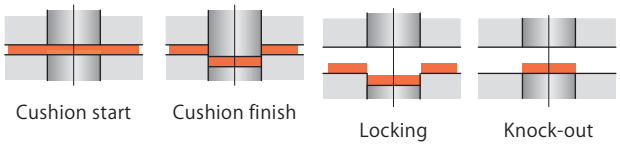


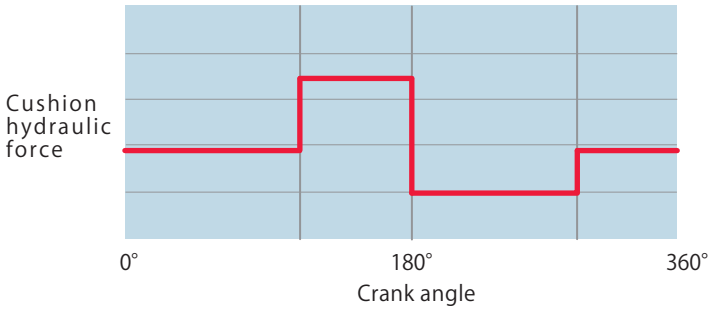
Manufactural data for Cushion cylinder

	Blanking	Block-in forging	Throttling
Cushion force	~1500 kN (150tonf)	~2500 kN (250tonf)	~600 kN (60tonf)
Stroke	~40mm	~50mm	~200mm
Speed	~80spm	~60spm	~45spm

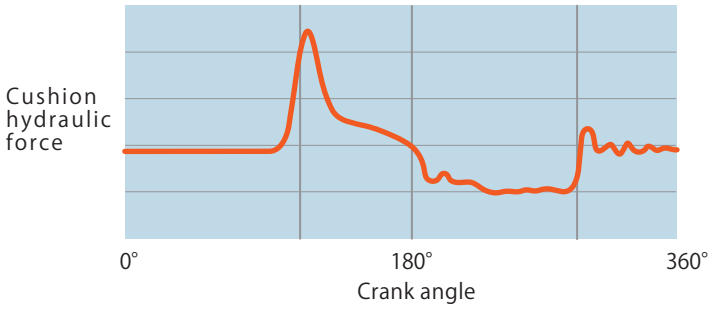


In case of fine blanking process, it must generate strong and stable compressive stress on the surface and scale up material ductibility during process start and finish.

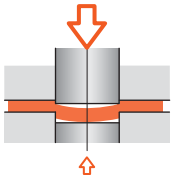




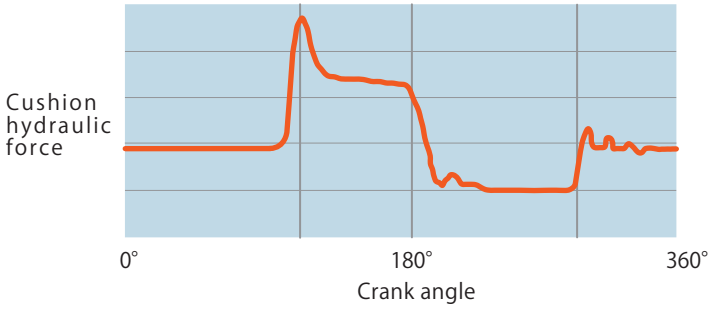
The ideal cushion force is hydraulic wave on left Figure. It should start up high response at cushion start and control "0" pressure at cushion finish as bottom dead point in order not to raise up the cushion pad.



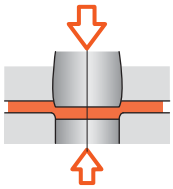
However, the blanking process completes in short time, so that a normal relief valve can hardly follow up. Surged pressure which generates at the initial stage makes only cushion force on the downside due the process goes during relief valve opening.



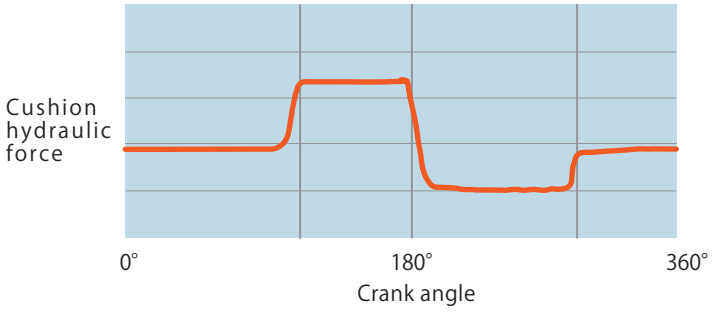
Unstable cushion force makes to deform the work.



Even the relief valve which tends to follow efficient is difficult to eliminate the surged pressure which generates at cushion start.



Die lifetime is affected by surged pressure.



Relief valve newly developed by Pascal is controlled properly that generates stable cushion hydraulic force on left Figure and gains ideal cushion force. Pascal has achieved various performances in the fine blanking processes which lead better productivity and economic efficiency.

Pascal
corporation

Itami, Hyogo, Japan 664-8502
TEL.(072)777-3333　FAX.(072)777-3520

CERTIFICATE OF APPROVAL ISO9001