

Die Designers Dream

Reduce Press Impact

Control Shock

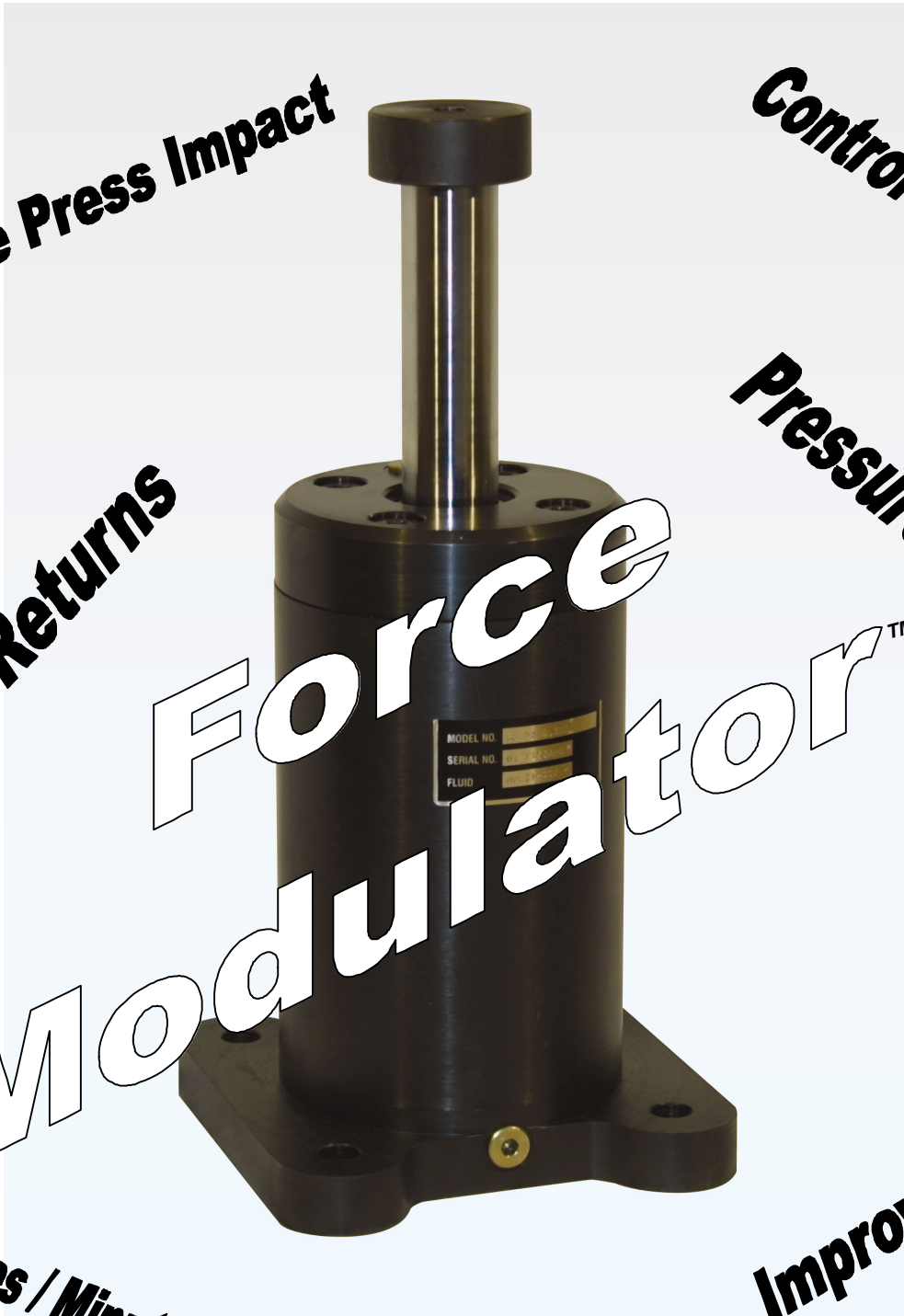
Delay Returns

Pressure Control

**Force
Modulator™**

More Strokes / Minute

Improve Quality



*Force Modulator*TM

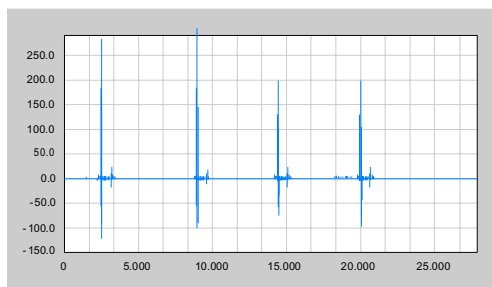
Cylinder Technology

What is it? - The *Force Modulator*TM is truly a revolution in cylinder systems. The system incorporates a die mounted, hydraulic spring system which allows control over the forces exerted during the blanking cycle. Unlike other hydraulic systems there are no hydraulic hoses to connect to the die during set-up.

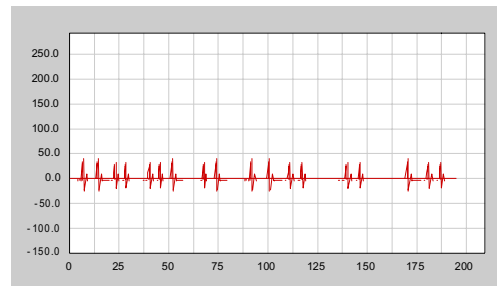
When to use? - This system will replace existing nitrogen spring systems and can be retrofitted into existing tooling.

Why use us?

Reduce Press Impact—Shock loading of presses is a serious problem in press shops today. The initial impact caused at tool closing can, with nitrogen cylinders exceed press design parameters. Use of the *Force Modulator*TM can reduce these shocks to 20% or less of nitrogen based systems and bring the loading back into acceptable limits reducing press maintenance costs.



BEFORE
Typical Nitrogen System



AFTER
*Force Modulator*TM System

The graphs above show the dramatic reduction in shock loading when the *Force Modulator*TM is utilized. Also critical to the press operation is the reduction of the shock rebound which can allow material movement and wrinkling.

Pressure Control—The *Force Modulator*TM can be programmed for any tonnage curve the customer desires. Our proprietary control system allows us to customize the cylinders to our customers requirements

Delay Returns—Our customizable controls allow for the delay of the cylinder return to guarantee that the part is not damaged on exit from the die.

Quality / Productivity Improvements—Our *Force Modulator*TM system produces a more repeatable part, improving part quality. This greater consistency in part quality allows for press speeds to be increased significantly, further improving profitability.

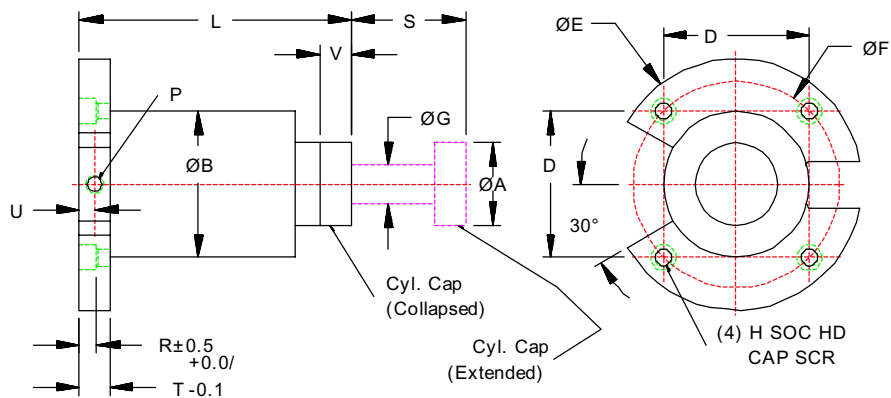


ONE CYLINDER DOES IT ALL!

Reduced shock
 Soft return
 Lower press maintenance costs
 Smaller blank sizes
 Improve quality
 Increased press speed

Return delay
 Reduced back slap
 Less cylinder maintenance costs
 Allows use of newer higher tensile strength materials
 Increased repeatability
 Increases part design possibilities

In addition to the standards listed below, cylinders can be built to match any existing nitrogen cylinder designs.



Part No.	Cap. (kN)	A	B	D	E	H	R	T	U	P (Port)	V
HCF07__	7.5	25	51	62.9	108	M10	11	19	13	1/4-19 BSPP	25.4
HCF15__	15	36	70	85.3	151	M10	11	19	13	1/4-19 BSPP	25.4
HCF30__	30	50	89	98.8	171	M12	13	25	16	3/8-19 BSPP	25.4
HCF50__	50	68	117.5	117.7	197	M12	13	25	16	3/8-19 BSPP	25.4
HCF75__	75	80	146	138	234	M16	17	25	16	3/8-19 BSPP	25.4

Part No.	S (Stroke)								
	25	38	50	63	80	100	125	160	200
L (Length Fully Collapsed)									
HCF 07__	162	175	187	200	217	237	262	297	337
HCF 15__	162	175	187	200	217	237	262	297	337
HCF 30__	193	206	218	231	248	268	293	328	368
HCF 50__	193	206	218	231	248	268	293	328	368
HCF 75__	193	206	218	231	248	268	293	328	368

Note: All dimensions in millimeters, SAE fittings in inches.



Home of the
*Force Modulator*TM

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