

Now there's a gas spring that can

- **INCREASE PRODUCTION RATES!**
- **LOWER NOISE LEVELS**
- **REDUCE PRESS MAINTENANCE**



 **LCF** TM
Patent no, US 6322059
Patent no, EP 1097314
FORCE MANAGER TM

Introducing the LCF™ Force Manager

The LCF Series is the next generation of nitrogen gas springs. This innovative series is engineered to address the major problems facing metal stampers today: excessive shock load, high noise levels, and extreme pad bounce. All factors that lead to high press maintenance costs and noise pollution.

- 100% interchangeable with standard height (ISO) gas springs
- Retrofits in existing dies
- Charged and rebuilt like standard gas spring
- Drop in, flange mount, or base plate mounting
- Can be hosed together
- Can be incorporated into press cushions



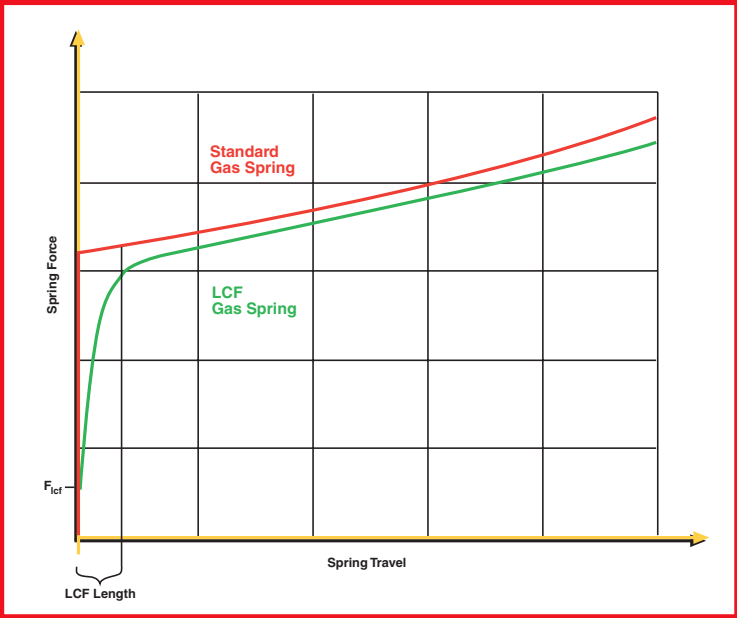
The LCF Series reduces shock load by as much as 50% compared to traditional gas springs. It supplies a gradual force build-up and smooth acceleration so there's less impact on gear and bearings and less wear on drive components.

The payoff is reduced press maintenance.

The LCF Series lowers noise levels significantly, with a 20% or higher reduction in sound pressure level compared to standard gas springs. Its lesser impact force results in these lower noise levels and makes these springs a cost-effective alternative to building noise enclosures. **The payoff is a quieter, safer and healthier working environment.**

The LCF Series decreases pad bounce, allowing improved part transfer efficiency, increased production rates and reduced scrap. A gradual force increase and return results in smoother pad operation. **The payoff is higher production rates.**

And because LCF gas springs mount directly to the die and are independent of the press, all benefits travel with the tool.

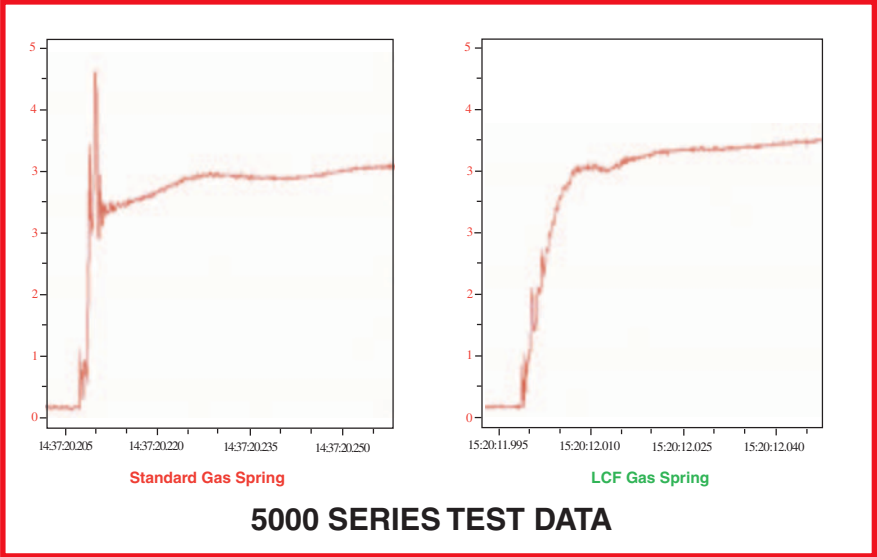


Gas Spring Force Curve

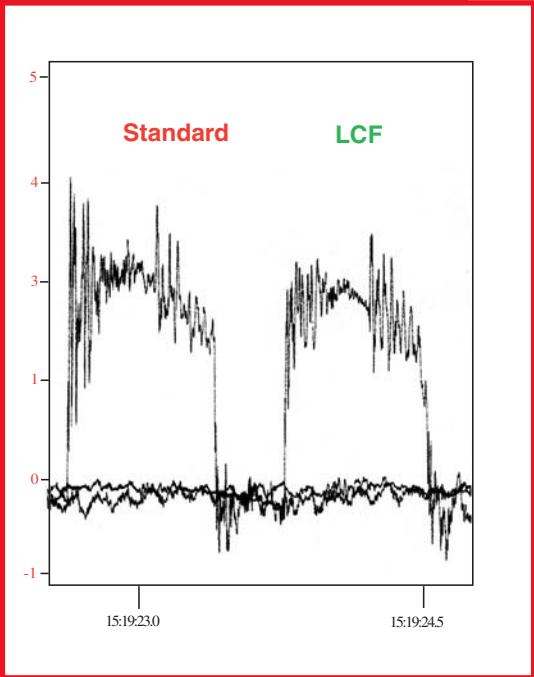
The LFC Series offers a gradual force build-up and smooth acceleration.



Measured Dynamic Piston Rod Force



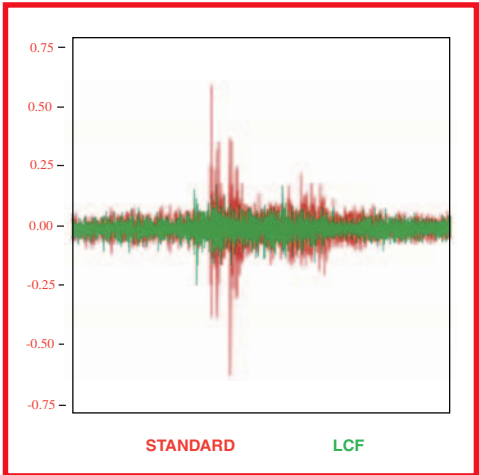
5000 SERIES TEST DATA



Press Load Signature Curves

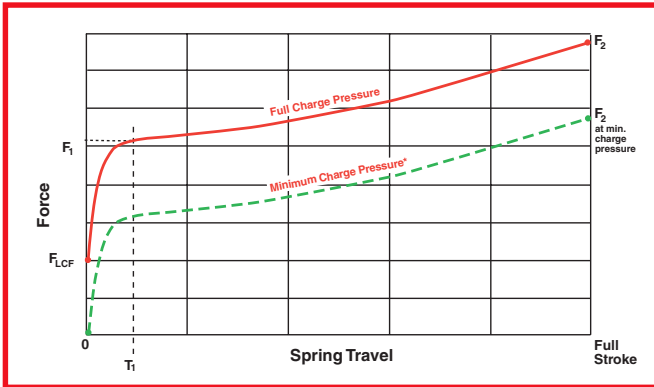
Noise Reduction

The LFC Series offers decreased noise levels because of its reduced impact force.



LCF Product Information

Force vs Stroke for LCF Springs



* Note: Other models available for lower operating pressures.

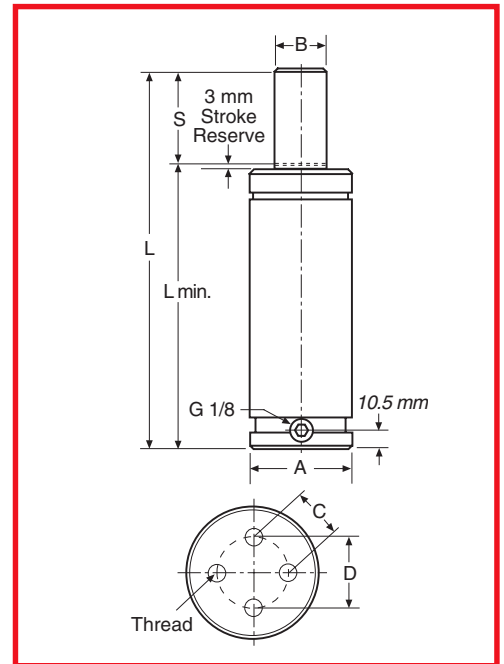
Specifications

Part Number	Force in Newton at 150 bar			T ₁ Stroke Length For Force Rise	S Max. Stroke	L Min.	L	A mm	B mm	C	D	Thread								
	F _{LCF}	F ₁	F ₂																	
LCF 750-013	4 700	7 400	12 000	3.1 mm	12.7	107.7	120.4	50.2	25	20	--	M8 x 1.25 Depth 13 mm								
LCF 750-025			12 000		25.0	120.0	145.0													
LCF 750-038			12 000		38.1	133.1	171.2													
LCF 750-050			12 000		50.0	145.0	195.0													
LCF 750-063			12 000		63.5	158.5	222.0													
LCF 750-080			12 000		80.0	175.0	255.0													
LCF 750-100			12 000		100.0	195.0	295.0													
LCF 750-125			12 100		125.0	220.0	345.0													
LCF 750-160			12 100		160.0	255.0	415.0													
LCF 750-200			12 100		200.0	295.0	495.0													
LCF 750-250			12 100		250.0	345.0	595.0													
LCF 750-300			12 100		300.0	395.0	695.0													
LCF 1500-025			7 000		15 000	23 000	4.6 mm						25.0	135.0	160.0	75.2	36	28.3	40	M8 x 1.25 Depth 13 mm
LCF 1500-038						23 000							38.1	148.1	186.2					
LCF 1500-050	23 000	50.0		160.0		210.0														
LCF 1500-063	23 000	63.5		173.5		237.0														
LCF 1500-080	23 000	80.0		190.0		270.0														
LCF 1500-100	23 000	100.0		210.0		310.0														
LCF 1500-125	23 000	125.0		235.0		360.0														
LCF 1500-160	23 000	160.0		270.0		430.0														
LCF 1500-200	23 000	200.0		310.0		510.0														
LCF 1500-250	23 000	250.0		360.0		610.0														
LCF 1500-300	23 000	300.0		410.0		710.0														
LCF 3000-025	16 000	30 000		42 000		3.8 mm		25.0	145.0	170.0	95.2	50.0	42.4	60.0	M8 x 1.25 Depth 13 mm					
LCF 3000-038				43 000				38.1	158.1	196.2										
LCF 3000-050				44 000				50.0	170.0	220.0										
LCF 3000-063			45 000	63.5	183.5		247.0													
LCF 3000-080			46 000	80.0	200.0		280.0													
LCF 3000-100			47 000	100.0	220.0		320.0													
LCF 3000-125			47 000	125.0	245.0		370.0													
LCF 3000-160			47 000	160.0	280.0		440.0													
LCF 3000-200			48 000	200.0	320.0		520.0													
LCF 3000-250			48 000	250.0	370.0		620.0													
LCF 3000-300			48 000	300.0	420.0		720.0													
LCF 5000-025			25 000	50 000	71 000		7.7 mm	25.0	165.0	190.0						120.0	65.0	56.0	80.0	M10 x 1.5 Depth 13 mm
LCF 5000-038					75 000			38.1	178.1	216.2										
LCF 5000-050					77 000			50.0	190.0	240.0										
LCF 5000-063	80 000	63.5			203.5	267.0														
LCF 5000-080	81 000	80.0			220.0	300.0														
LCF 5000-100	82 000	100.0			240.0	340.0														
LCF 5000-125	82 000	125.0			265.0	390.0														
LCF 5000-160	83 000	160.0			300.0	460.0														
LCF 5000-200	84 000	200.0			340.0	540.0														
LCF 5000-250	84 000	250.0			390.0	640.0														
LCF 5000-300	84 000	300.0			440.0	740.0														
LCF 7500-025	30 000	75 000			105 000	10.4 mm		25.0	180.0	205.0	150.2	80.0	70.0	100.0	M10 x 1.5 Depth 13 mm					
LCF 7500-038					110 000			38.1	193.1	231.2										
LCF 7500-050					113 000			50.0	205.0	255.0										
LCF 7500-063			115 000	63.5	218.5		282.0													
LCF 7500-080			117 000	80.0	325.0		315.0													
LCF 7500-100			119 000	100.0	355.0		355.0													
LCF 7500-125			121 000	125.0	405.0		405.0													
LCF 7500-160			122 000	160.0	475.0		475.0													
LCF 7500-200			123 000	200.0	555.0		555.0													
LCF 7500-250			124 000	250.0	655.0		655.0													
LCF 7500-300			124 000	300.0	755.0		755.0													

LCF Application Guidelines

- 1 The F₁ is the initial force used to calculate the number of gas springs required for the application.
- 2 The LCF gas spring provides the same F₁ and force increase as an ISO standard gas spring.
- 3 For the selected charge pressure, the total F_{LCF} value should exceed the pad weight by a minimum of 15% to ensure that the pad will be supported at the correct height.
- 4 Minimum Operating Pressures

Model	*Minimum Charging Pressure (bar)
LCF 750	70
LCF 1500	105
LCF 3000	68
LCF 5000	75
LCF 7500	89



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by

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