

This catalog is continuously evolving, as Xela — being an innovative product — is constantly updated. The rigorous tests to which we subject our gas spring provide increasingly precise data. The information is currently being verified: before using it, please compare your specific requirements with the manufacturer.

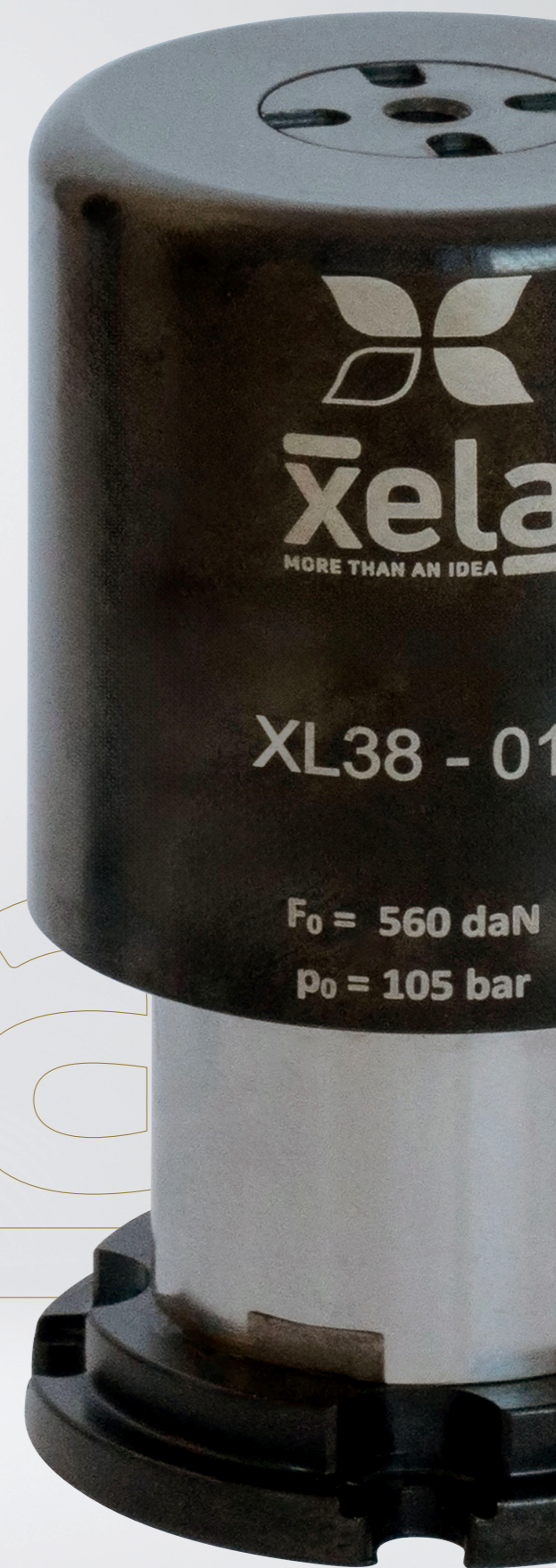
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ENGLISH



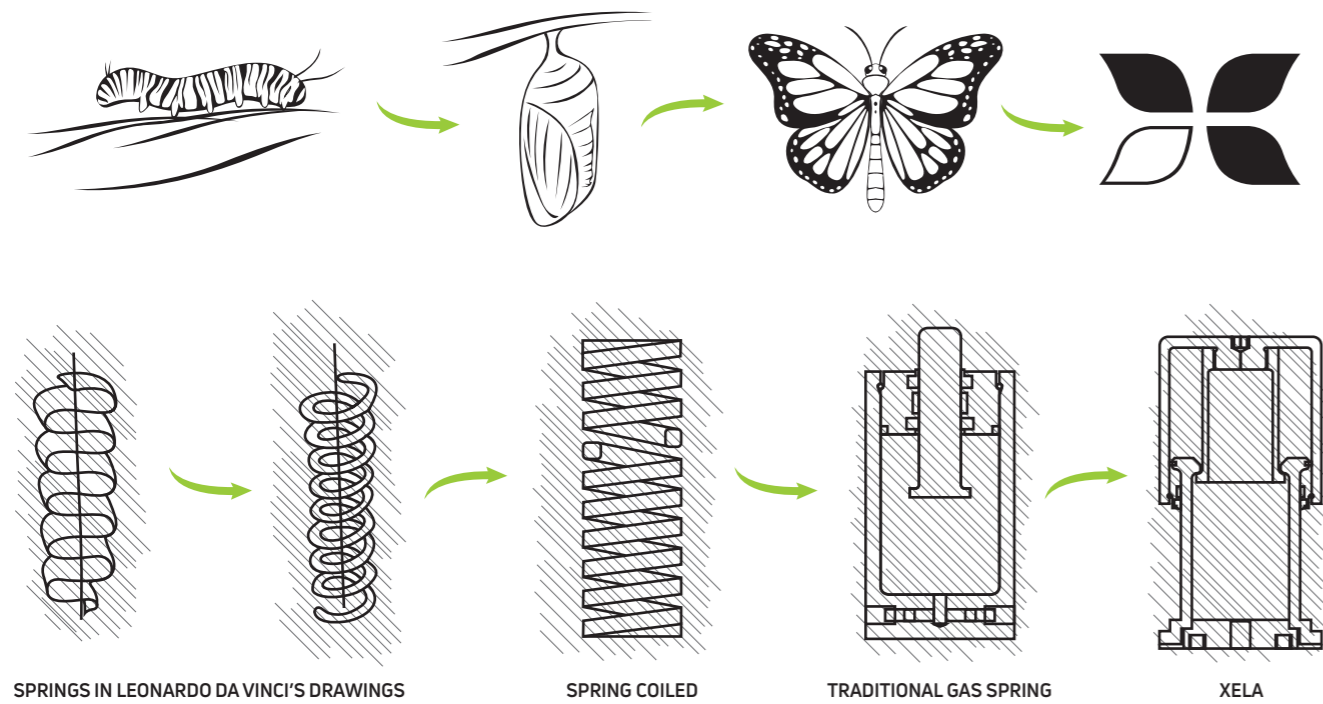
xela
MORE THAN AN IDEA



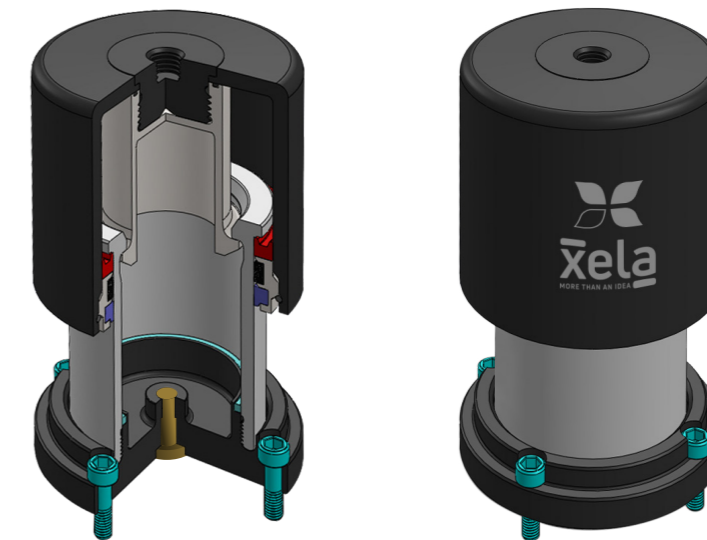
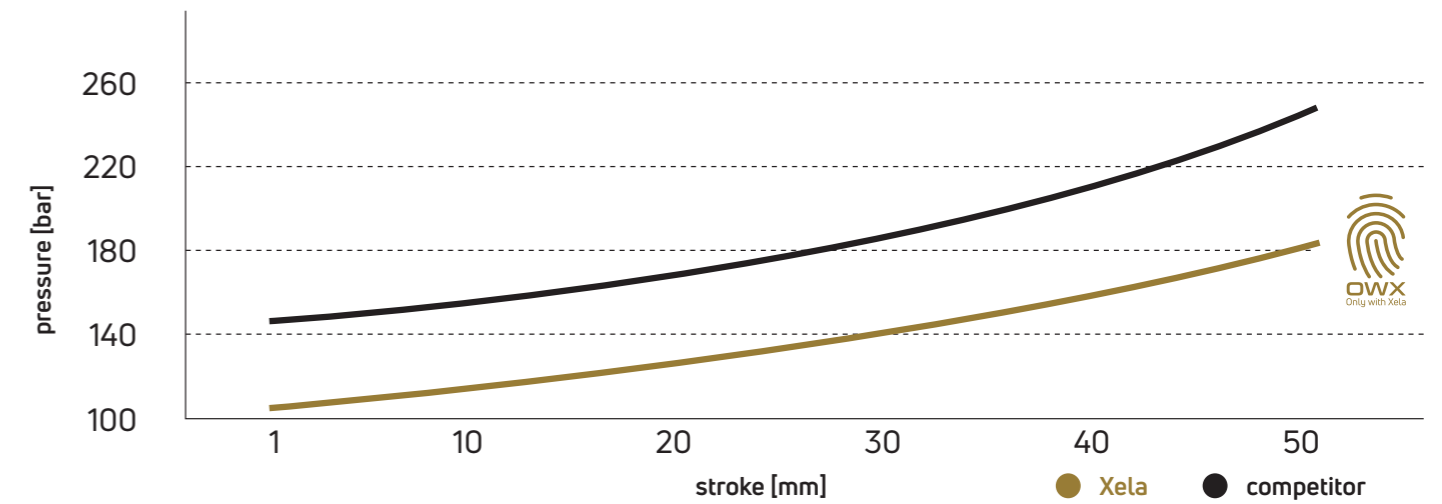
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LOW PRESSURE LONG LIFE



STEP-BY-STEP MEASUREMENT



The innovative design of Xela delivers unique performance and technical advantages in the gas spring industry. Developed to enhance efficiency, safety, and durability, the Xela design operates at lower pressures than standard models, while maintaining identical dimensions and ensuring equal or even greater force output.

Xela operates with a low initial pressure, resulting in several key benefits:

- Reduced heat generation caused by friction,
- Extended component lifespan,
- Increased operating speeds,
- Lower compression-phase pressures.

Xela also sets a new benchmark for user safety by:

- Preventing the entry of unwanted fluids into the compression chamber,
- Releasing internal pressure in cases of overstroke,
- Preventing and correcting uncontrolled return movements of mobile elements.

This makes Xela the safest and most cost-effective solution available on the market.

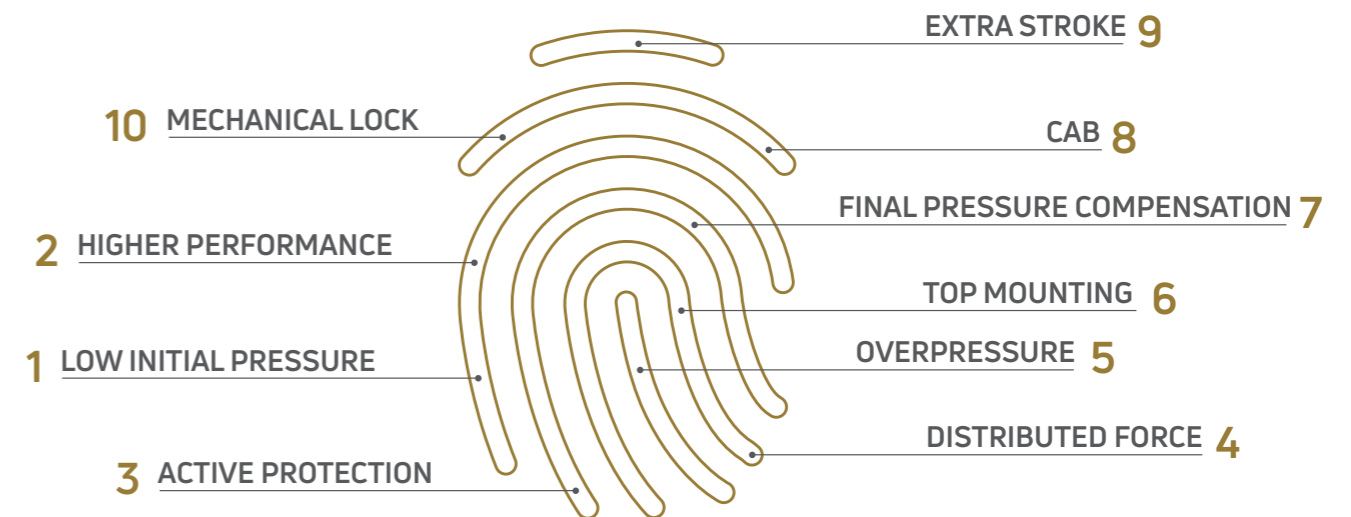
Our product range is constantly evolving — get in touch to learn about the latest innovations.



See page 5 for the definition of OWX



OWX – Only With Xela



OWX – Only With Xela – identifies a set of exclusive design features and patented technologies that cannot be replicated or found in any other gas springs currently available on the market.

1 Low Initial Pressure → with the possibility to increase it, achieving forces equivalent to those of a larger-sized gas spring.

2 Higher Performance → compared to conventional gas springs, Xela delivers 5–10% higher initial forces at equal dimensions, while operating with up to 30% lower internal pressure.

3 Active Protection → prevents the entry of contaminating fluids thanks to protected sliding seals and an internal pressure that always remains higher than atmospheric pressure ($p > p_{atm}$).

4 Distributed Force → acting over a large contact surface, equal to the diameter of the gas spring.

5 Overpressure Control → inhibited by a safety valve that operates without the need to stop the press. **COMING SOON**

6 Top Mounting → direct spring mounting without flanges, reducing both cost and space requirements;

7 Final Pressure Compensation → with the Xela *MiTis* series, the force increase during compression is minimized, resulting in lower stress and energy consumption

8 CAB – Clever Automatic Block → detects abnormal strokes before serious collisions occur. It can generate a controlled force peak strong enough for detection by production monitoring tools (e.g. strain gauges), yet without damaging the equipment.

9 Extra Stroke → activates effectively after just one cycle, releasing internal pressure safely.

10 Mechanical Lock → a pin locking system prevents ejection under any condition.



OVERPRESSURE



SLD

Overpressure refers to the possibility of an uncontrolled pressure increase inside the gas spring. The main cause is the potential entry of contaminating fluids into the pressurized chamber. Since these fluids are incompressible, they reduce the available gas volume, causing the internal pressure (p) to rise.

Some gas springs on the market feature protection systems connected to the rod, but these solutions are not suitable for all applications and may damage equipment if disconnected.

Other safety systems exist that activate in the event of overpressure, but their engagement is often uncertain and delayed, occurring only at excessively high pressure levels.

Thanks to its **innovative design**, Xela prevents contaminant ingress: the moving section acts as a **protective shield (Shield – SLD)**, and the internal pressure always remains higher than the external pressure, thereby eliminating the **vacuum effect (No Vacuum Effect – NVE)** that could otherwise draw process fluids inside.

In future developments, Xela will integrate a **patented safety valve** designed to react precisely and promptly in the event of undesired pressure increases.



$P > P_{atm}$

NEV



CAB

OVERSTROKE

Overstroke refers to the condition in which a gas spring is operated beyond its maximum allowable stroke. This situation is potentially frequent and represents the most dangerous operating error, as it can seriously damage the structure of the gas spring.

Xela is equipped with a **dual safety system** designed specifically to prevent and mitigate such occurrences: **Clever Automatic Block – CAB**

This system activates when the moving part approaches the base. If the press is equipped with load monitoring systems, they can detect the **instantaneous increase in gas spring force** (shown as the red segment in the graph).

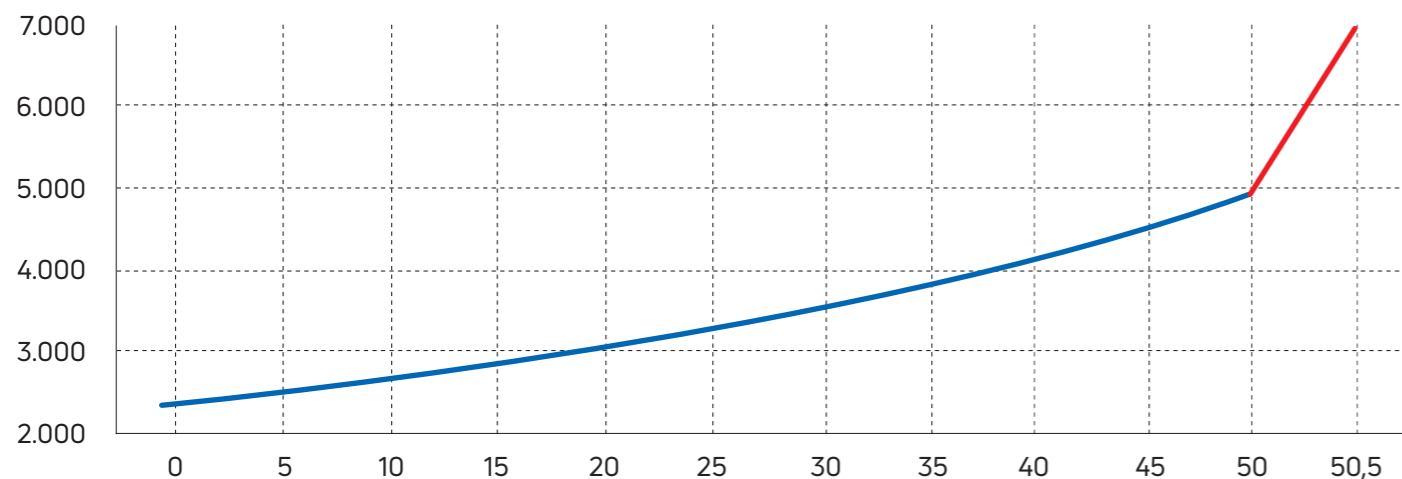
Over Stroke Device – OSD

This second level of protection intervenes if contact actually occurs between the moving part and the base. In this event, an internal decoupling mechanism is triggered, engineered to ensure the complete release of the gas within a single cycle, thereby preventing structural damage and ensuring operator safety.

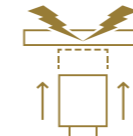


OSD

FORCE INCREASING, UPON CONTACT
XL 75 stroke 50 mm



UNCONTROLLED IMPACT SAFETY DEVICE (UISD)



UISD

Under improper operating conditions, a gas spring may become jammed and fail to follow the motion of the press slide.

When it is released, the moving part can be suddenly propelled at high speed, and the resulting impact may cause the **breakage of the end pin**, leading to **dangerous ejections of material**.

Xela incorporates a **dual guiding system** that ensures smooth movement of the mobile elements, making jamming highly unlikely.

In the event of a pin failure, a **mechanical stop** prevents the ejection of the piston rod, while the **seal system** is designed to lose its pressure-retaining capability, thereby allowing the **safe release of the internal gas** — a safety concept defined as the **Uncontrolled Impact Safety Device (UISD)**.



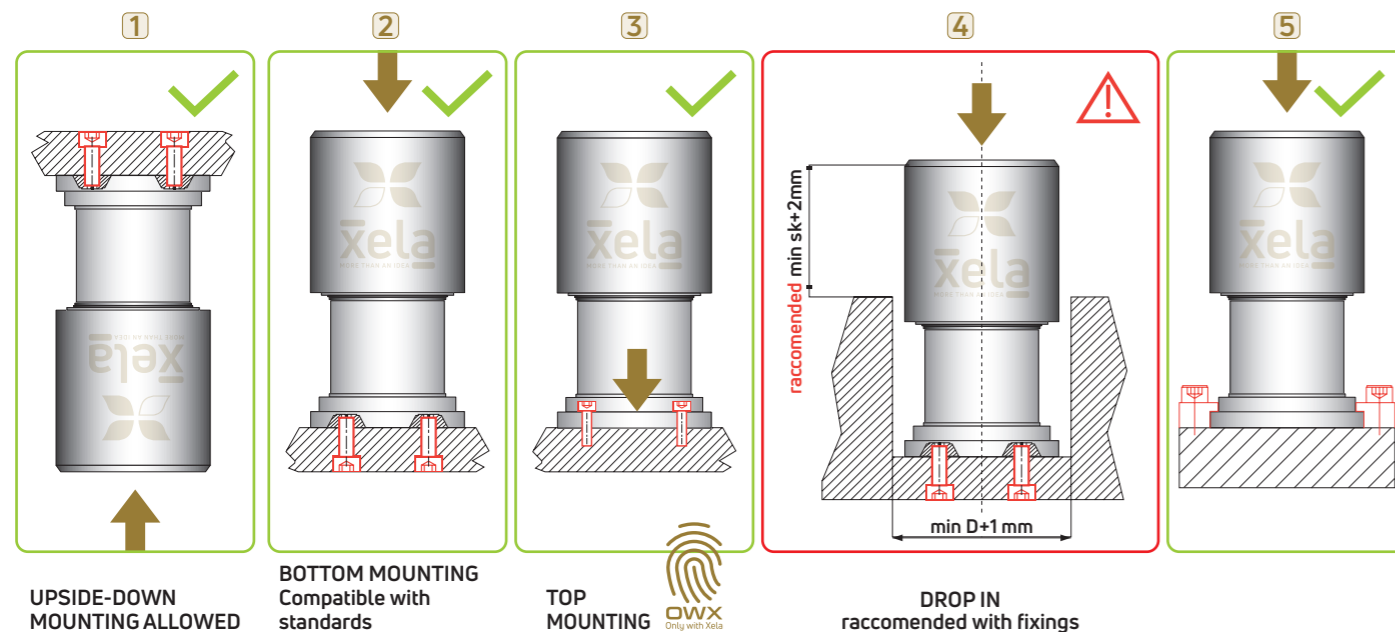
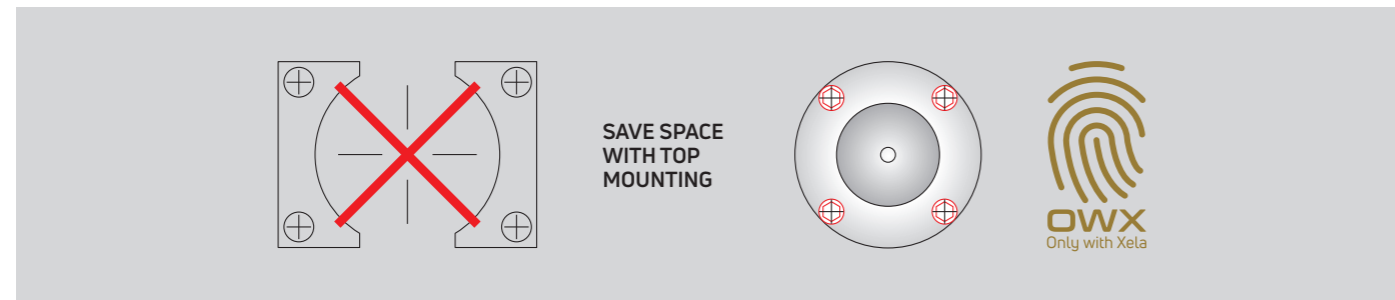
Proper Installation

It is essential to install the gas spring correctly. Installation methods other than those described below may compromise both service life and safety.

- Fig. 1** **Upside-Down Mounting:** Xela can be installed and operated in either orientation.
- Fig. 2** **Bottom Mounting:** Fastening from below using the threaded holes located on the base.
- Fig. 3** **Top Mounting – OWX:** Fastening from above through the through-holes.
- Fig. 4** **Drop-In Mounting:** Positioning in a slot is recommended with screw fastening; always respect the minimum stroke allowances specified for the press.
- Fig. 5** **Lateral Mounting:** Allowed only when using catalogue components (coming soon). The manufacturer does not guarantee the clamping effectiveness when alternative systems are used.

For each mounting option, all designated holes must be used, and the screws must be tightened until full thread engagement is ensured.

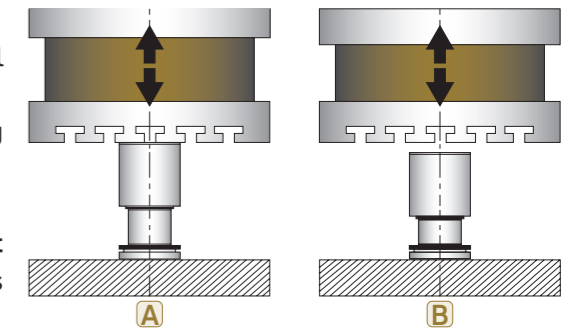
Use **Grade 8.8 screws** for bottom mounting and **Grade 12.9 screws** for top mounting. Unless otherwise specified, always apply the corresponding **tightening torques**.



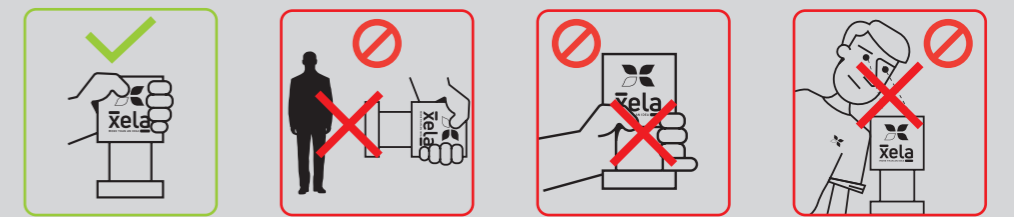
XELA MUST ALWAYS BE USED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED IN THIS MANUAL. IMPROPER USE OR THE USE OF UNSUITABLE MATERIALS MAY CAUSE MALFUNCTIONS AND MAKE THE GAS SPRING HAZARDOUS.

1. The gas spring must be installed with a **slight preload of 0.1 mm**.
2. It is recommended to use **95% of the effective stroke** for optimal performance and durability.

- A - Ideal Condition.** The press slide remains in contact with the gas spring throughout the entire working cycle: **preload of 0.1 mm**.
- B - Acceptable but Not Recommended Condition**
The press slide is not in contact with the gas spring, but the **impact speed must be below 0.2 m/s**. Impact forces are potentially hazardous and may compromise both safety and component integrity.

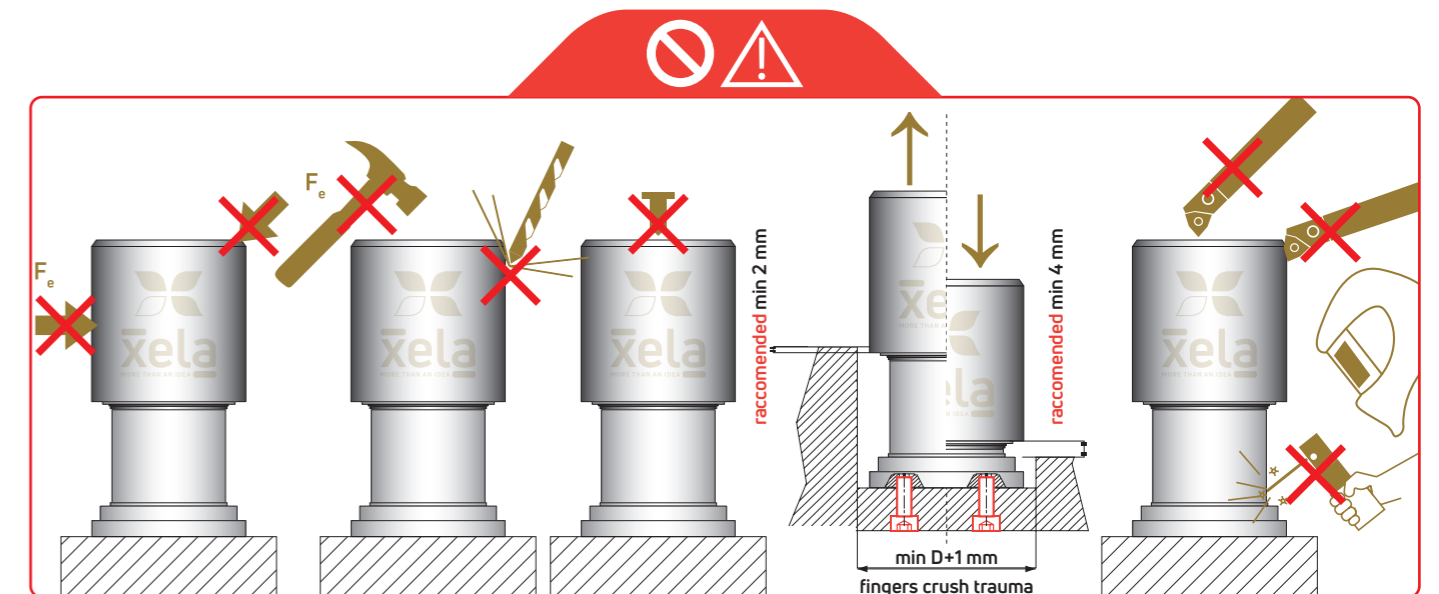


Gas springs are devices that require special care to ensure safety during handling. Always wear protective gloves, hold the gas spring only from the upper part of the product, and never point it toward yourself or others.



! THE FOLLOWING ACTIONS ARE STRICTLY PROHIBITED:

- It is strictly prohibited to use the threaded hole located on the top of the piston rod (moving part) to fasten the gas spring to the equipment. This hole is intended solely for handling and positioning the gas spring.
- To use gases other than nitrogen.
- To use the gas spring in environments with temperatures exceeding 40 °C; if higher temperatures are required, the manufacturer must be notified so that gas springs with lower charging pressures can be supplied.
- To perform any type of mechanical machining or modification on any part of the gas spring.
- To strike the gas spring with hammers or any other blunt objects.
- To apply lateral forces to the gas spring.
- To perform any type of welding on the gas spring.



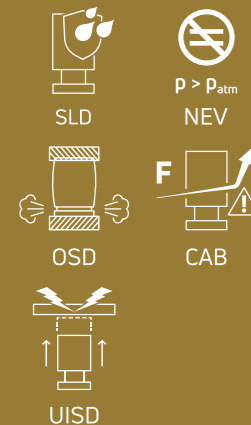
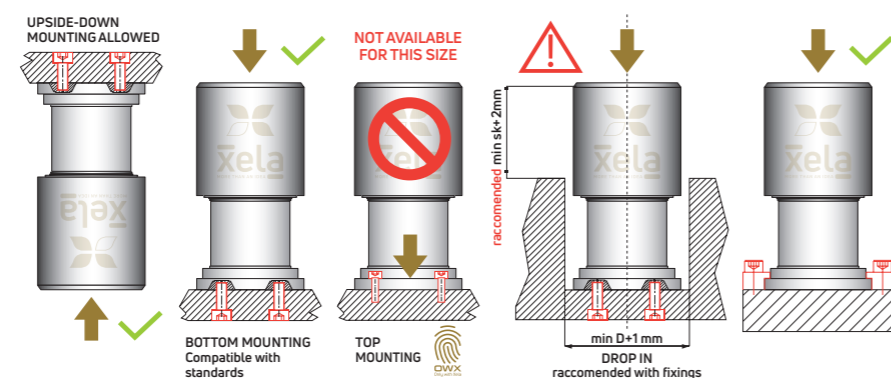
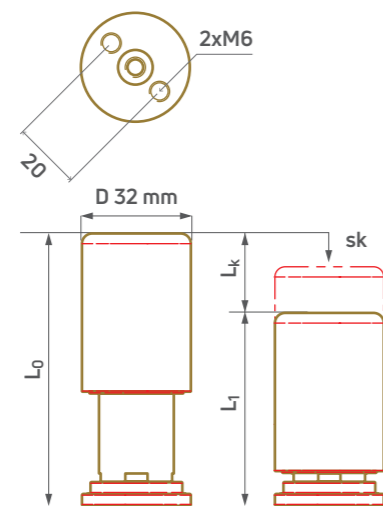
XL 32 - 400 daN

The range is constantly evolving — contact us to stay up to date!
Comply with the instructions provided in the "Correct operations" and "Mounting Systems" sections.



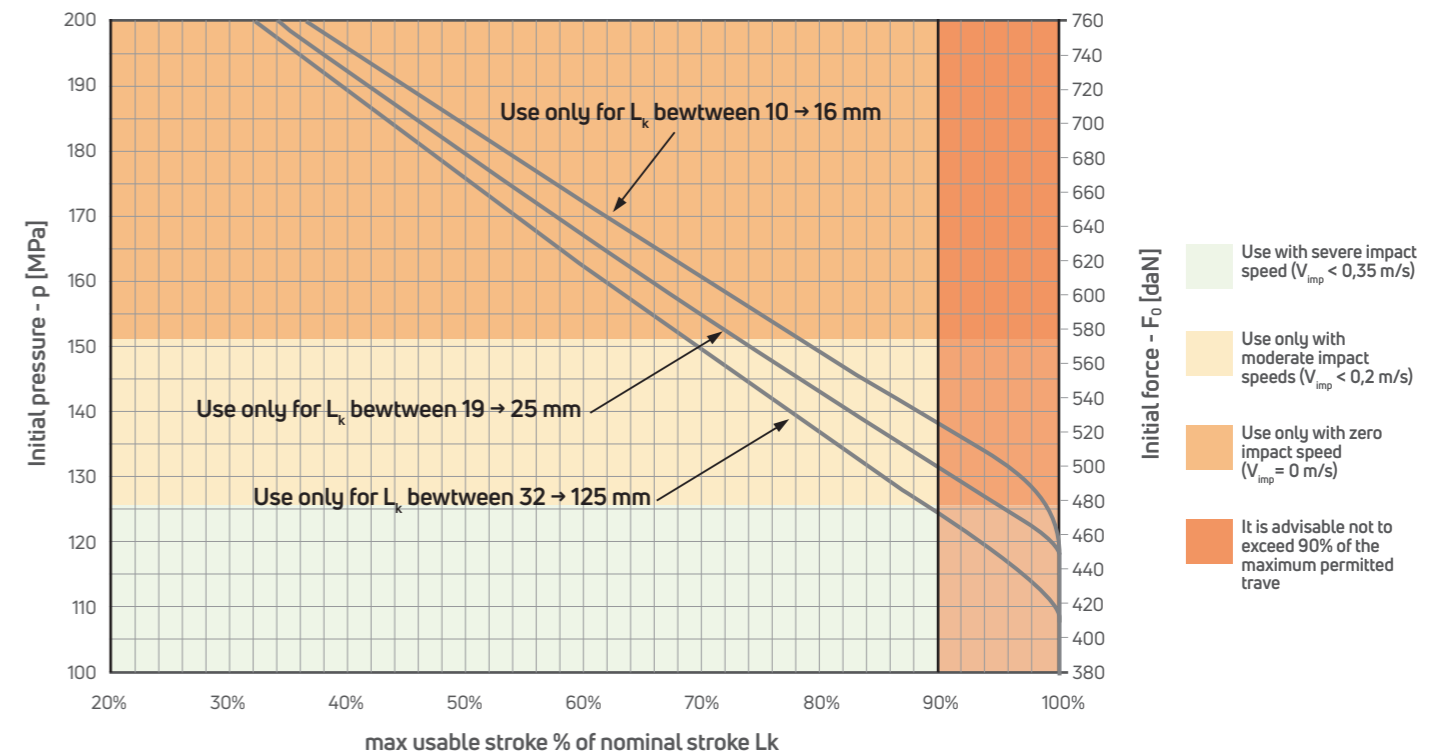
Order No.	Stroke	Max lenght	Min lenght	Initial Force	End Force*	Initial Force	End Force*	Gas volume	Net surface
CODE	L _k [mm]	L ₀ [mm]	L ₁ [mm]	F ₀ [daN]	F ₁ [daN]	F ₀ [lbf]	F ₁ [lbf]	V ₀ [cm ³]	S [mm ²]
XL 32 010	10	50	40	@ 20 °C @105 bar 400	619	@ 20 °C @105 bar 900	1391	10,70	380
XL 32 013	13	56	43		651		1464	13,30	
XL 32 016	16	62	46		647		1455	15,85	
XL 32 019	19	68	49		670		1506	18,41	
XL 32 025	25	80	55		681		1530	23,51	
XL 32 032	32	94	62		689		1548	29,46	
XL 32 038	38	106	68		694		1559	34,56	
XL 32 050	50	130	80		700		1573	44,76	
XL 32 063	63	156	93		704		1583	55,82	
XL 32 075	75	180	105		707		1589	66,02	
XL 32 080	80	190	110		708		1591	70,27	
XL 32 100	100	230	130		710		1597	87,28	
XL 32 125	125	280	155		713		1602	108,53	
p_{min} [bar]	20	p^{**}_{max} [bar]	120	S [mm²]	380	SPM^{***} @ 20°C	20-350	T_{amb,max} [°C]	35

* Values refer to compression tests performed at a speed of 0.2 mm/min.
** Higher pressure values are permitted only if the guidelines described in the "Proper Selection" section are strictly followed.
***The indicated frequency refers to tests carried out at room temperature (20 °C); different operating conditions may affect the performance of the gas spring. SPM depend on the conditions of use.



Proper selection

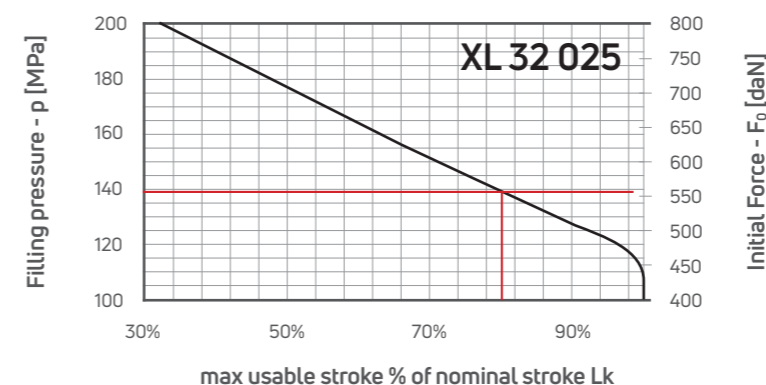
The XL Series provides higher forces than traditional gas springs while operating at a lower initial pressure and maintaining the same external dimensions.
The XL Series can be charged up to twice the nominal pressure, provided it is installed with a preload of 0.1 mm. If this is not possible, it is mandatory to comply with the prescribed impact speed limits (v_{imp} according to color ranges).



Example — XL selection

If I need to operate with an initial pressure F_0 of 550 bar, I can choose:
• XL 38 with a standard initial pressure of 105 bar.
• XL 32 with an initial pressure $p = 140$ bar, $v_{imp} \leq 0.2$ m/s, and a maximum stroke equal to 78% of the selected nominal stroke.

Example calculation (XL 32) — nominal stroke $L_k = 25$ mm:
 $25 \times 78\% = 25 \times 0.78 = 19.5$ mm



Therefore, instead of using an XL 38 with a 19 mm stroke, you can use an XL 32 with a 25 mm stroke — a more compact solution with a lower cost per gas spring, provided the installation and operating limits (preload, v_{imp} , and maximum usable stroke) are respected.

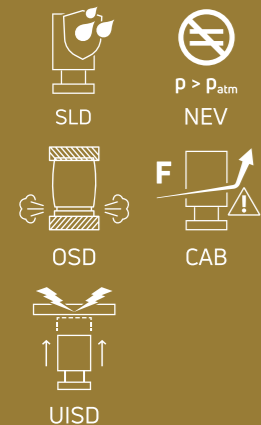
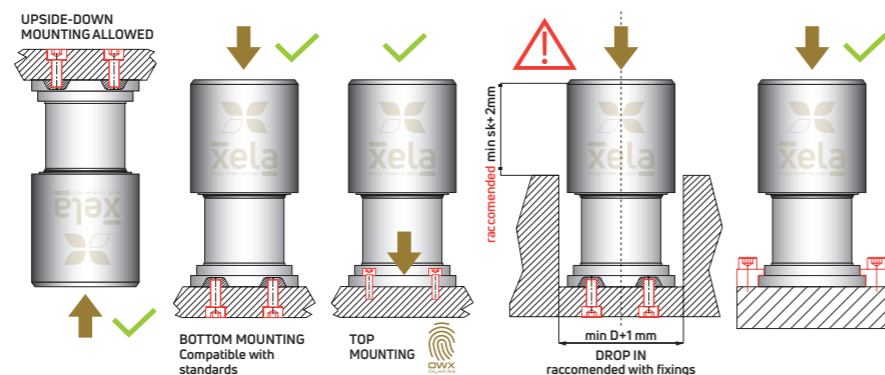
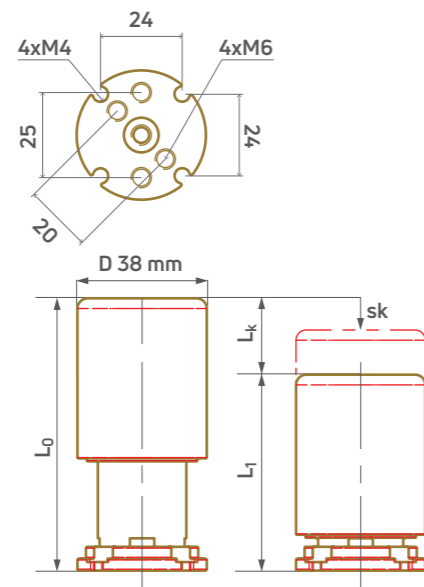
XL 38 - 560 daN

The range is constantly evolving — contact us to stay up to date!
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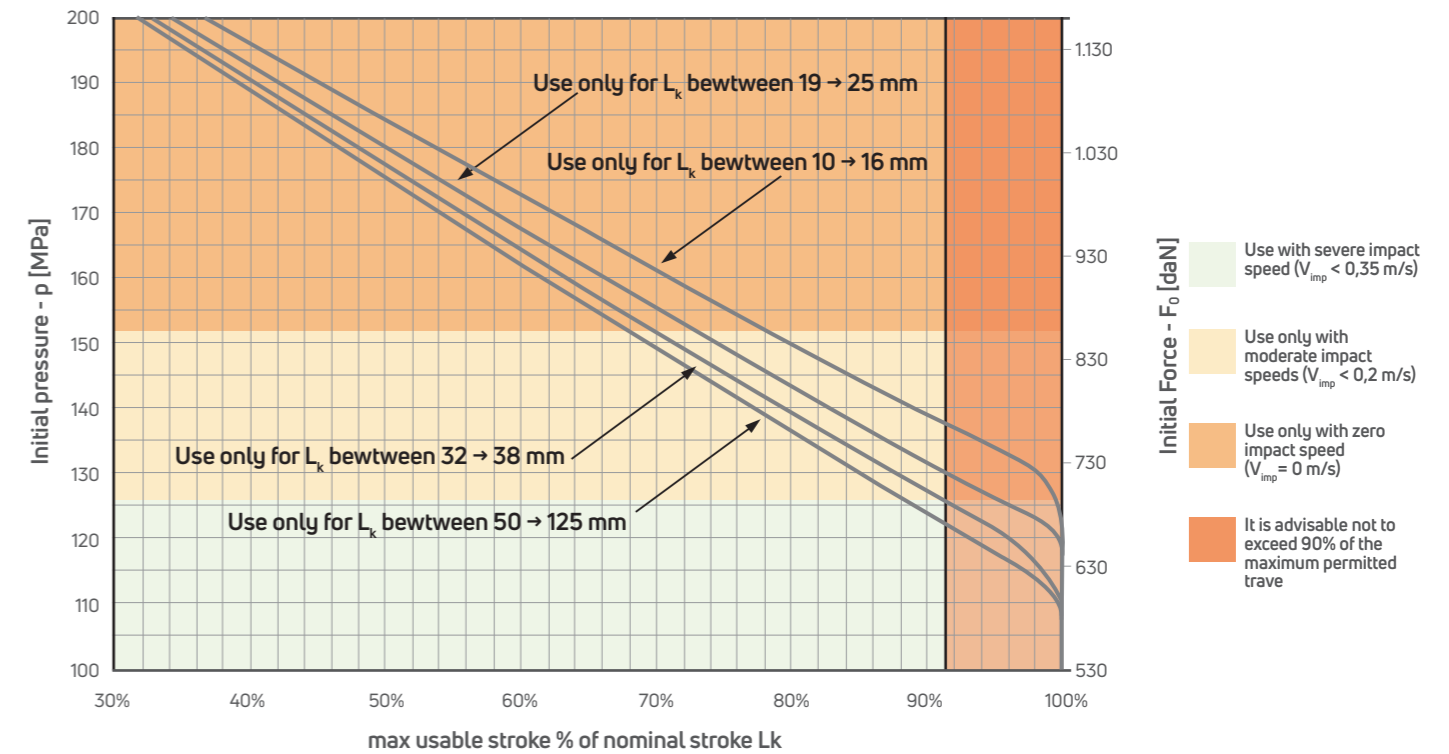
Order No.	Stroke	Max length	Min length	Initial Force	End Force*	Initial Force	End Force*	Gas volume	Net surface
CODE	L _k [mm]	L ₀ [mm]	L ₁ [mm]	F ₀ [daN]	F ₁ [daN]	F ₀ [lbf]	F ₁ [lbf]	V ₀ [cm ³]	S [mm ²]
XL 38 010	10	50	40		902		2028	13,90	
XL 38 013	13	56	43		922		2072	17,46	
XL 38 016	16	62	46		945		2172	21,02	
XL 38 019	19	68	49		945		2125	24,59	
XL 38 025	25	80	55	@ 20 °C	958	@ 20 °C	2155	31,72	
XL 38 032	32	94	62	@105 bar	968	@105 bar	2177	40,04	
XL 38 038	38	106	68		974		2190	47,16	531
XL 38 050	50	130	80	560	982	1250	2207	61,42	
XL 38 063	63	156	93		987		2218	76,87	
XL 38 075	75	180	105		990		2225	91,13	
XL 38 080	80	190	110		991		2235	97,07	
XL 38 100	100	230	130		994		2235	120,83	
XL 38 125	125	280	155		1187		2668	150,53	
p_{min} [bar]	20	p_{max}** [bar]	120	S [mm²]	531	SPM*** @ 20°C	20-350	T_{amb,max} [°C]	35

* Values refer to compression tests performed at a speed of 0.2 mm/min.
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Proper selection

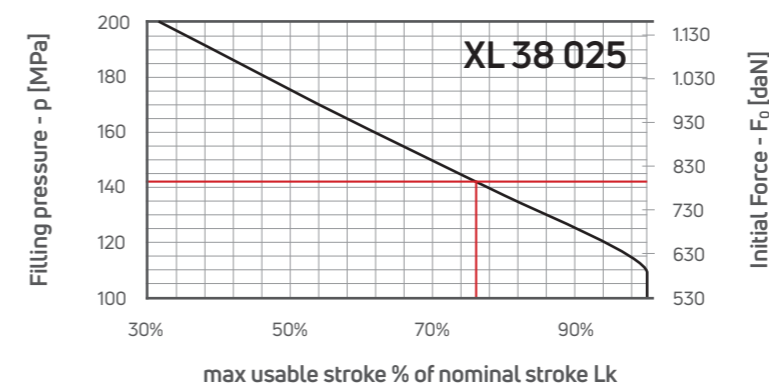
The XL Series provides higher forces than traditional gas springs while operating at a lower initial pressure and maintaining the same external dimensions.
The XL Series can be charged up to twice the nominal pressure, provided it is installed with a preload of 0.1 mm. If this is not possible, it is mandatory to comply with the prescribed impact speed limits (v_{imp} according to color ranges).



Example: XL 45 or XL 38?

If I need to work with an initial force F₀ = 800 daN, I can choose:
- XL 45 with standard initial pressure
- XL 38 with an initial pressure p = 144 bar, v_{imp} ≤ 0.2 m/s, and a maximum stroke equal to 74% of the nominal one.

In the graph, an example of an XL 38 with a nominal stroke L_k = 25 mm:
25 × 74% = 18.5 mm → maximum allowable stroke for safe operation with F₀ = 800 daN.



Therefore, instead of using an XL 45 with a 19 mm stroke, you can use an XL 38 with a 25 mm stroke — a more compact solution with a lower cost per gas spring, provided the installation and operating limits (preload, v_{imp}, and maximum usable stroke) are respected.

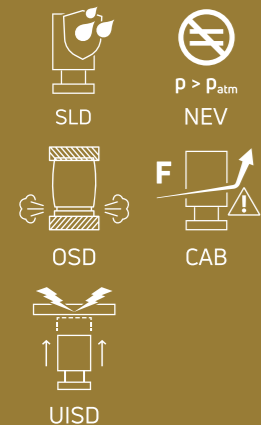
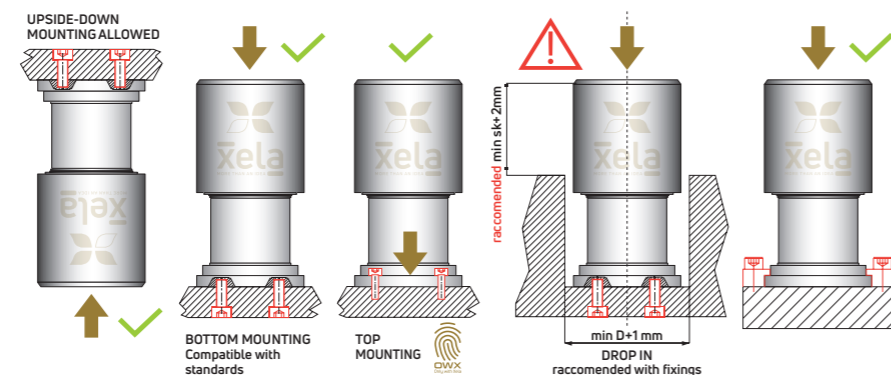
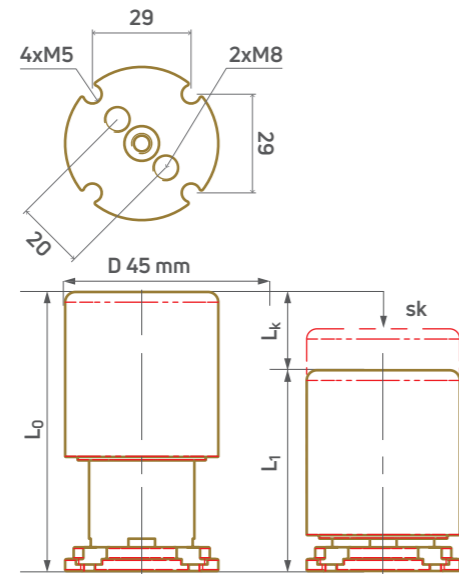
XL 45 - 800 daN

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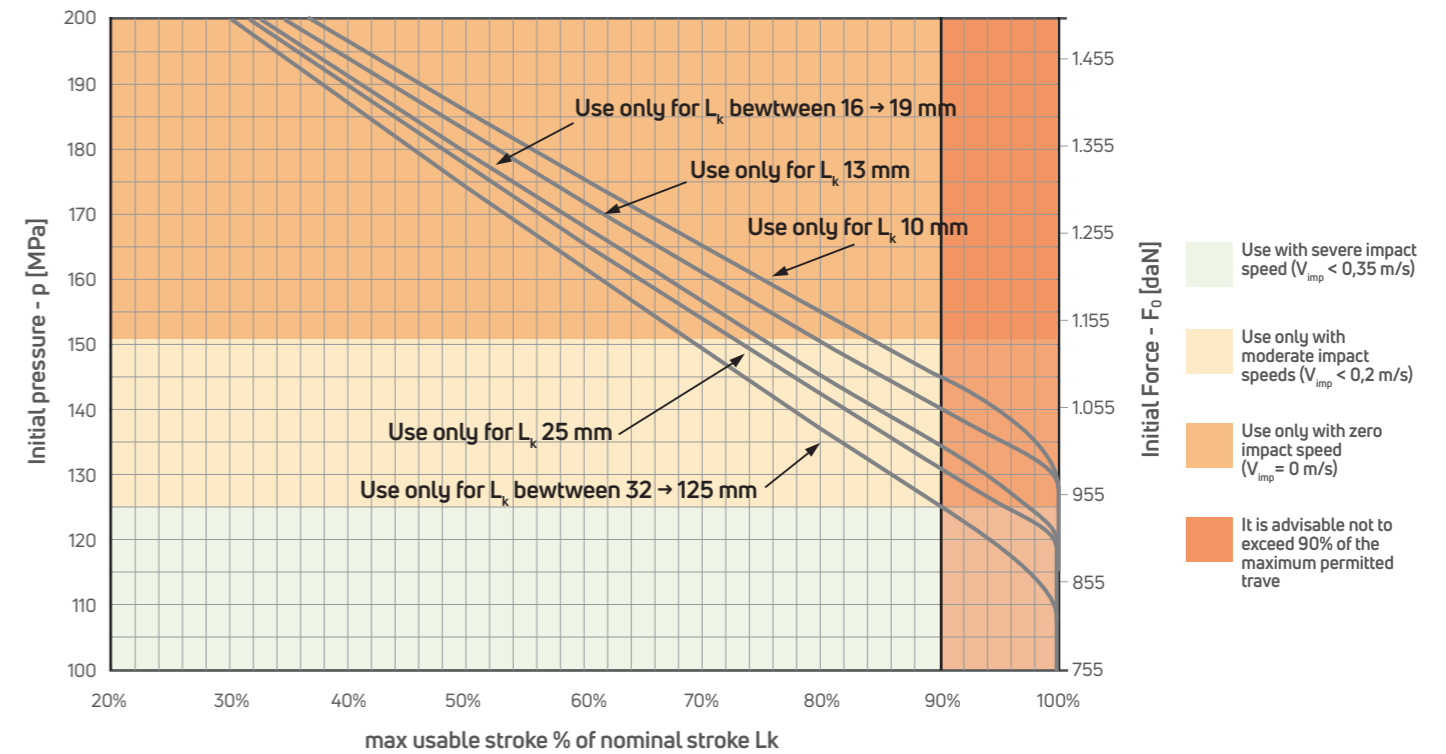
Order No.	Stroke	Max lenght	Min lenght	Initial Force	End Force*	Initial Force	End Force*	Gas volume	Net surface
CODE	L _k [mm]	L ₀ [mm]	L ₁ [mm]	F ₀ [daN]	F ₁ [daN]	F ₀ [lbf]	F ₁ [lbf]	V ₀ [cm ³]	S [mm ²]
XL 45 010	10	52	40		1209		2718	21,91	
XL 45 013	13	58	43		1245		2799	26,99	
XL 45 016	16	64	46		1291		2901	32,06	
XL 45 019	19	70	49		1291		2901	37,14	
XL 45 025	25	82	55	@ 20 °C	1318	@ 20 °C	2963	47,30	
XL 45 032	32	96	62	@105 bar	1722	@105 bar	3870	59,16	755
XL 45 038	38	108	68		1352		3038	69,32	
XL 45 050	50	132	80	800	1369	1780	3076	89,63	
XL 45 063	63	158	93		1380		3103	111,65	
XL 45 075	75	182	105		1388		3119	131,97	
XL 45 080	80	192	110		1390		3125	140,43	
XL 45 100	100	232	130		1398		3142	174,30	
XL 45 125	125	282	155		1404		3155	216,63	
p_{min} [bar]	20	p^{**}_{max} [bar]	120	S [mm²]	755	SPM^{***} @ 20°C	20-350	T_{amb,max} [°C]	35

* Values refer to compression tests performed at a speed of 0.2 mm/min.
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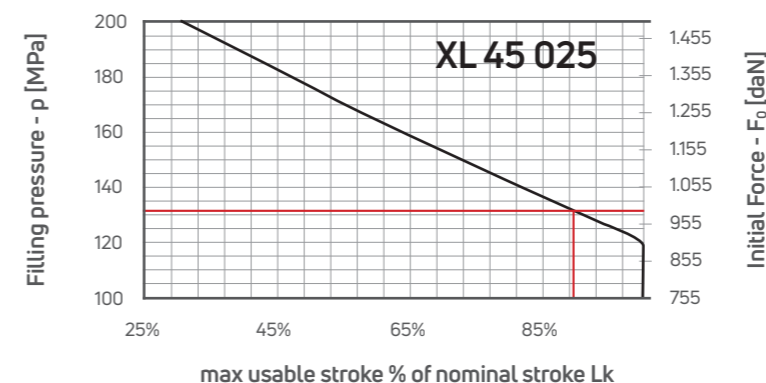
Proper selection

The XL Series provides higher forces than traditional gas springs while operating at a lower initial pressure and maintaining the same external dimensions.
The XL Series can be charged up to twice the nominal pressure, provided it is installed with a preload of 0.1 mm. If this is not possible, it is mandatory to comply with the prescribed impact speed limits (v_{imp} according to color ranges).



Example: XL 50 or XL 45?

If I need to work with an initial force F₀ = 1000 daN, I can choose:
– XL 50 with standard initial pressure
– XL 45 with an initial pressure p = 132 bar, v_{imp} ≤ 0.2 m/s, and a maximum stroke equal to 85% of the nominal one.
In the graph, an example of an XL 45 with a nominal stroke L_k = 25 mm:
25 × 85% = 21.2 mm → maximum allowable stroke for safe operation with F₀ = 1000 daN.

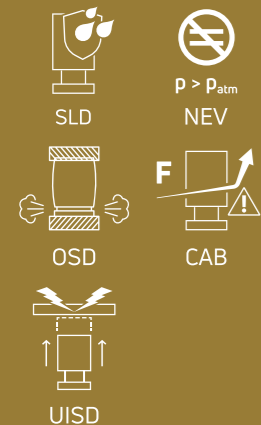
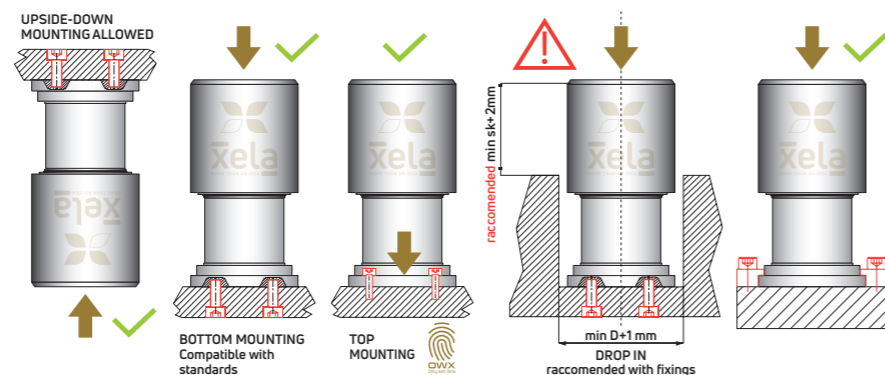
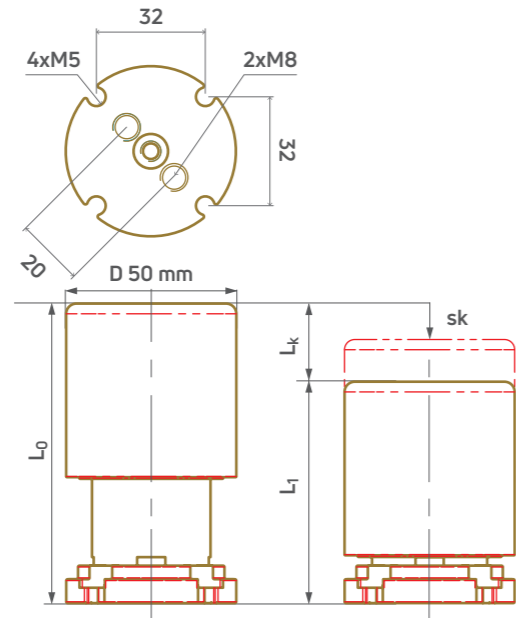


Therefore, instead of using an XL 50 with a 19 mm stroke, you can use an XL 45 with a 25 mm stroke — a more compact solution with a lower cost per gas spring, provided the installation and operating limits (preload, v_{imp}, and maximum usable stroke) are respected.



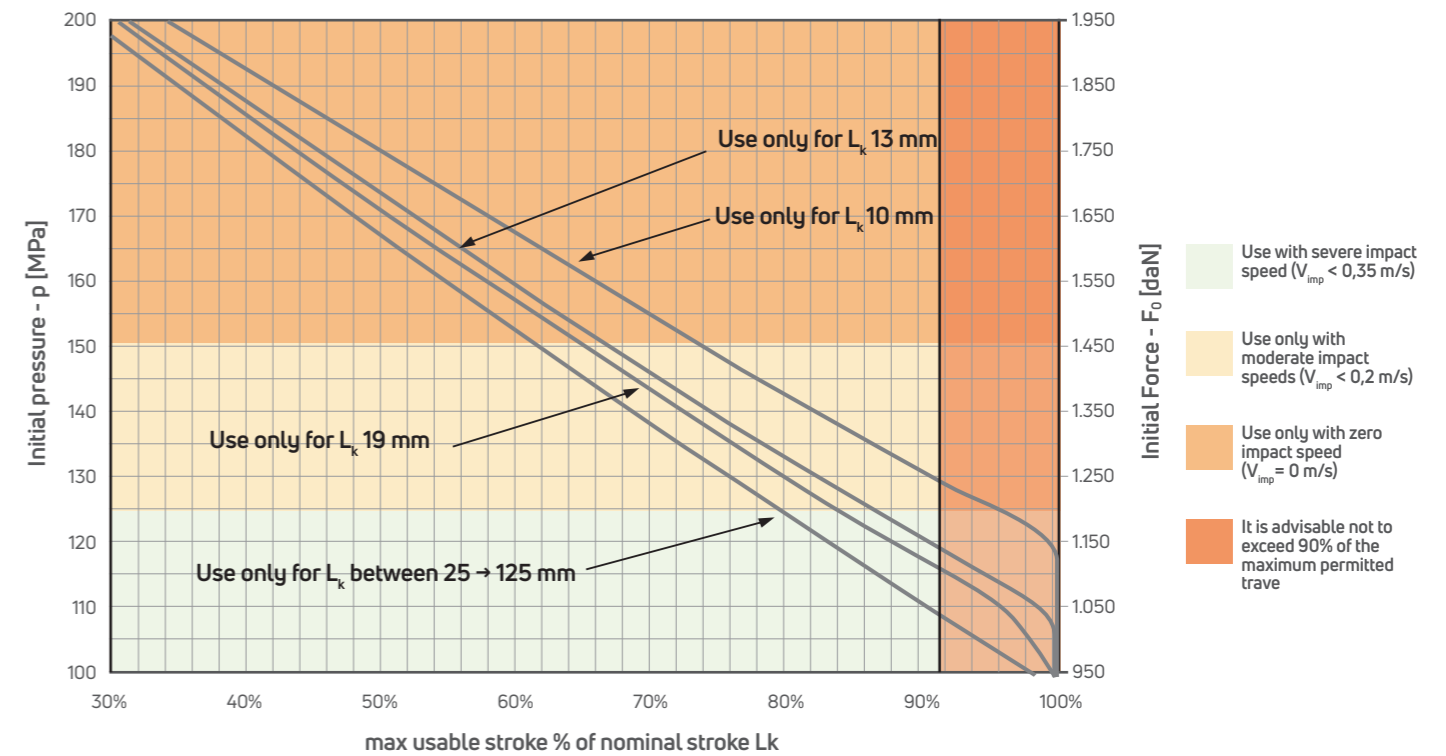
Order No.	Stroke	Max lenght	Min lenght	Initial Force	End Force*	Initial Force	End Force*	Gas volume	Net surface
CODE	L _k [mm]	L ₀ [mm]	L ₁ [mm]	F ₀ [daN]	F ₁ [daN]	F ₀ [lbf]	F ₁ [lbf]	V ₀ [cm ³]	S [mm ²]
XL 50 010	10	58	40		1621		3643	37,80	
XL 50 013	13	64	43		1731		3892	44,20	
XL 50 016	16	70	46		1794		3809	50,55	
XL 50 019	19	76	49		1769		3977	56,96	
XL 50 025	25	88	55	@ 20 °C	1790	@ 20 °C	4025	69,71	
XL 50 032	32	102	62	@105 bar	1806	@105 bar	4060	79,33	
XL 50 038	38	114	68		1815		4080	91,94	951
XL 50 050	50	138	80	1000	1827	2245	4107	117,16	
XL 50 063	63	164	93		1835		4124	144,48	
XL 50 075	75	188	105		1840		4135	169,70	
XL 50 080	80	198	110		1841		4139	180,21	
XL 50 100	100	238	130		1846		4150	222,24	
XL 50 125	125	288	155		1850		4159	274,79	
p_{min} [bar]	20	p^{**}_{max} [bar]	120	S [mm²]	951	SPM^{***} @ 20°C	20-350	T_{amb,max} [°C]	35

* Values refer to compression tests performed at a speed of 0.2 mm/min.
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***The indicated frequency refers to tests carried out at room temperature (20 °C); different operating conditions may affect the performance of the gas spring. SPM depend on the conditions of use.



Proper selection

The XL Series provides higher forces than traditional gas springs while operating at a lower initial pressure and maintaining the same external dimensions.
The XL Series can be charged up to twice the nominal pressure, provided it is installed with a preload of 0.1 mm. If this is not possible, it is mandatory to comply with the prescribed impact speed limits (v_{imp} according to color ranges).



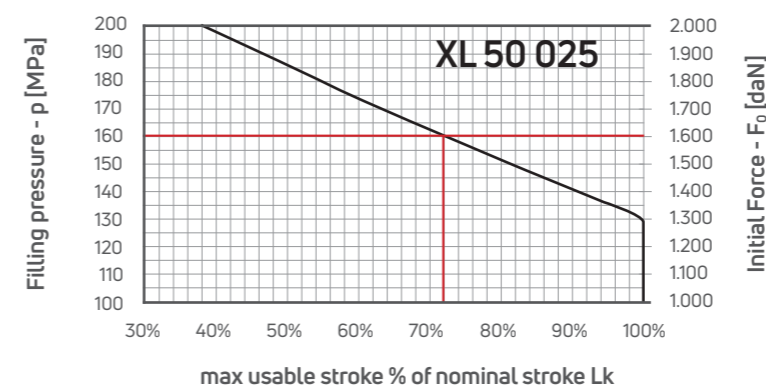
Example: XL 63 or XL 50?

If I need to work with an initial force $F_0 = 1600$ daN, I can choose:

- XL 63 with standard initial pressure
- XL 50 with an initial pressure $p = 160$ bar, $v_{imp} \leq 0.2$ m/s, and a maximum stroke equal to 72% of the nominal one.

In the graph, an example of an XL 50 with a nominal stroke $L_k = 25$ mm:

$25 \times 72\% = 18$ mm \rightarrow maximum allowable stroke for safe operation with $F_0 = 1600$ daN.



Therefore, instead of using an XL 63 with a 19 mm stroke, you can use an XL 50 with a 25 mm stroke — a more compact solution with a lower cost per gas spring, provided the installation and operating limits (preload, v_{imp} , and maximum usable stroke) are respected.

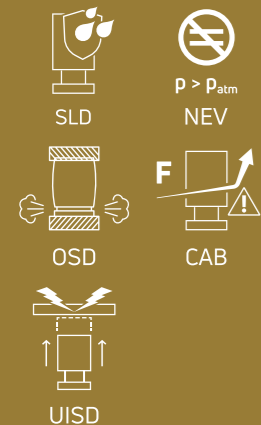
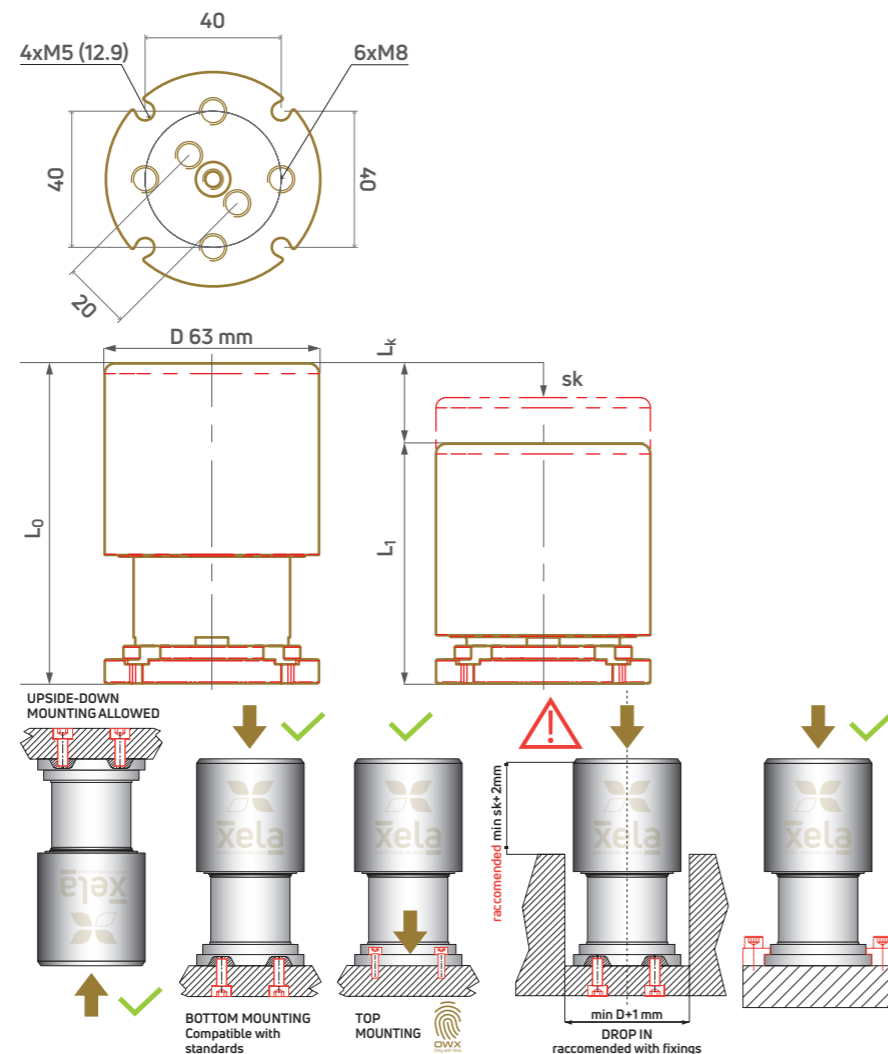
XL 63 - 1750 daN

The range is constantly evolving — contact us to stay up to date!
Comply with the instructions provided in the "Correct operations" and "Mounting Systems" sections.



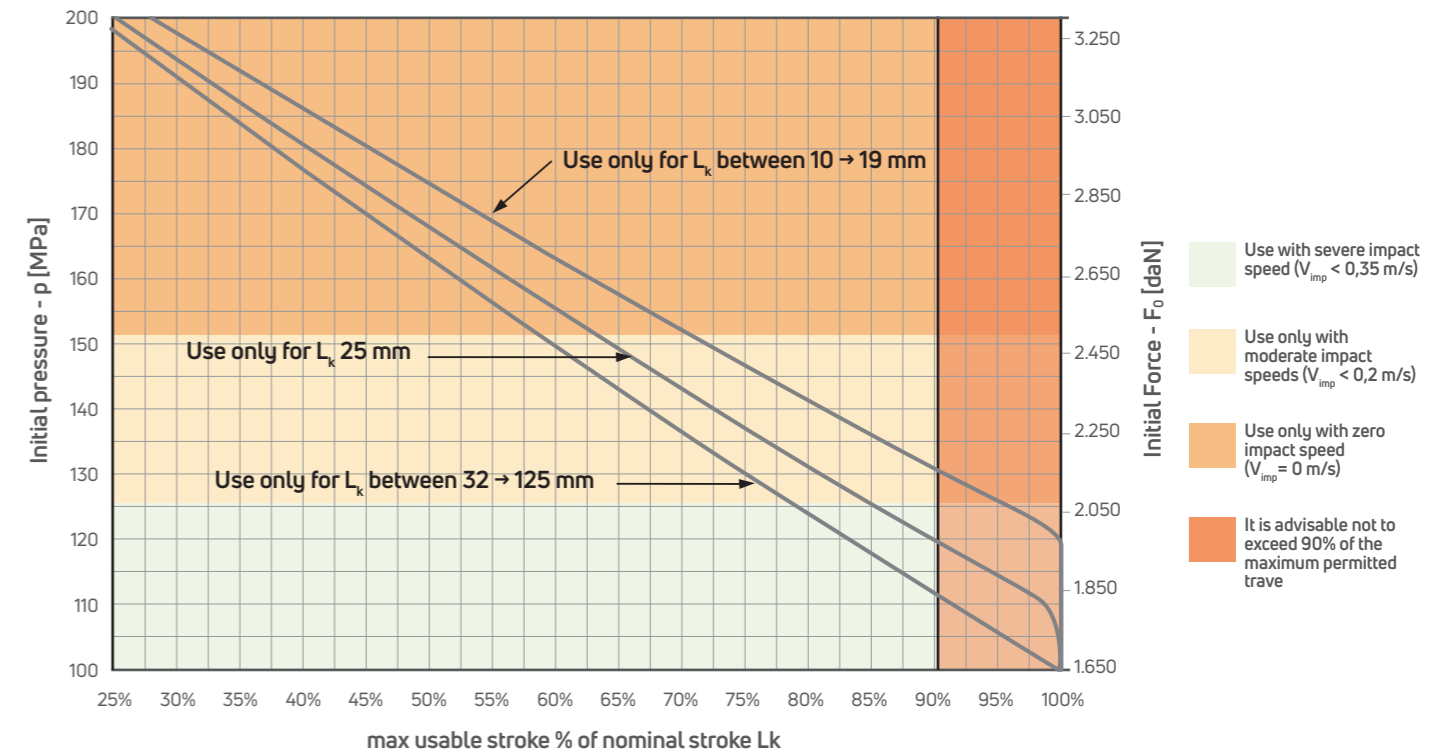
Order No.	Stroke	Max lenght	Min lenght	Initial Force	End Force*	Initial Force	End Force*	Gas volume	Net surface
CODE	L _k [mm]	L ₀ [mm]	L ₁ [mm]	F ₀ [daN]	F ₁ [daN]	F ₀ [lbf]	F ₁ [lbf]	V ₀ [cm ³]	S [mm ²]
XL 63 010	10	64	40	@ 20 °C @105 bar 1750	2726	@ 20 °C @105 bar 3810	6128	92,0	1.662
XL 63 013	13	70	43		2712		6097	102,8	
XL 63 016	16	76	46		2880		6473	117,0	
XL 63 019	19	82	49		2840		6384	127,7	
XL 63 025	25	94	55		2921		6566	152,7	
XL 63 032	32	108	62		2984		6709	181,8	
XL 63 038	38	120	68		3023		6796	183,0	
XL 63 050	50	144	80		3076		6916	236,2	
XL 63 063	63	170	93		3114		7000	290,1	
XL 63 075	75	194	105		3138		7054	339,9	
XL 63 080	80	204	110		3146		7072	360,6	
XL 63 100	100	244	130		3171		7128	443,5	
XL 63 125	125	294	155		3191		7174	547,2	
p_{min} [bar]	20	p_{max}** [bar]	120	S [mm ²]	1.662	SPM*** @ 20°C	20-350	T_{amb,max} [°C]	35

* Values refer to compression tests performed at a speed of 0.2 mm/min.
** Higher pressure values are permitted only if the guidelines described in the "Proper Selection" section are strictly followed.
***The indicated frequency refers to tests carried out at room temperature (20 °C); different operating conditions may affect the performance of the gas spring. SPM depend on the conditions of use.



Proper selection

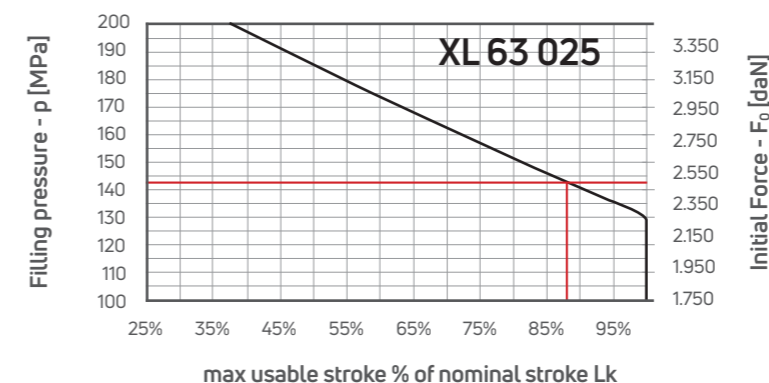
The XL Series provides higher forces than traditional gas springs while operating at a lower initial pressure and maintaining the same external dimensions.
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Example: XL 75 or XL 63?

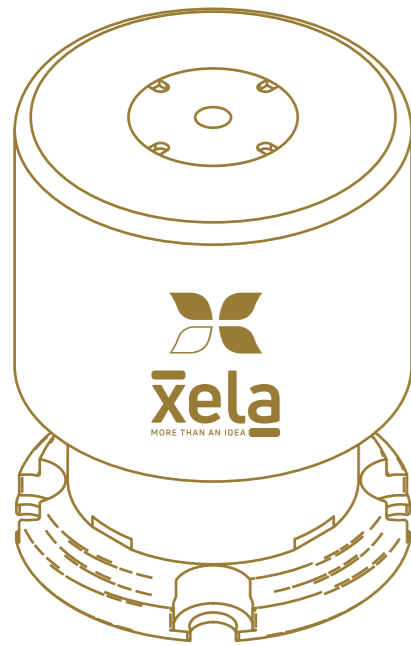
If I need to work with an initial force $F_0 = 2500$ daN, I can choose:
– XL 75 with standard initial pressure
– XL 63 with an initial pressure $p = 142$ bar, $v_{imp} \leq 0.2$ m/s, and a maximum stroke equal to 87% of the nominal one.

In the graph, an example of an XL 63 with a nominal stroke $L_k = 25$ mm:
 $25 \times 87\% = 21.75$ mm → maximum allowable stroke for safe operation with $F_0 = 2500$ daN.



Therefore, instead of using an XL 75 with a 19 mm stroke, you can use an XL 63 with a 25 mm stroke — a more compact solution with a lower cost per gas spring, provided the installation and operating limits (preload, v_{imp} , and maximum usable stroke) are respected.

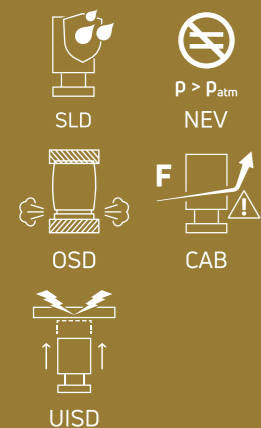
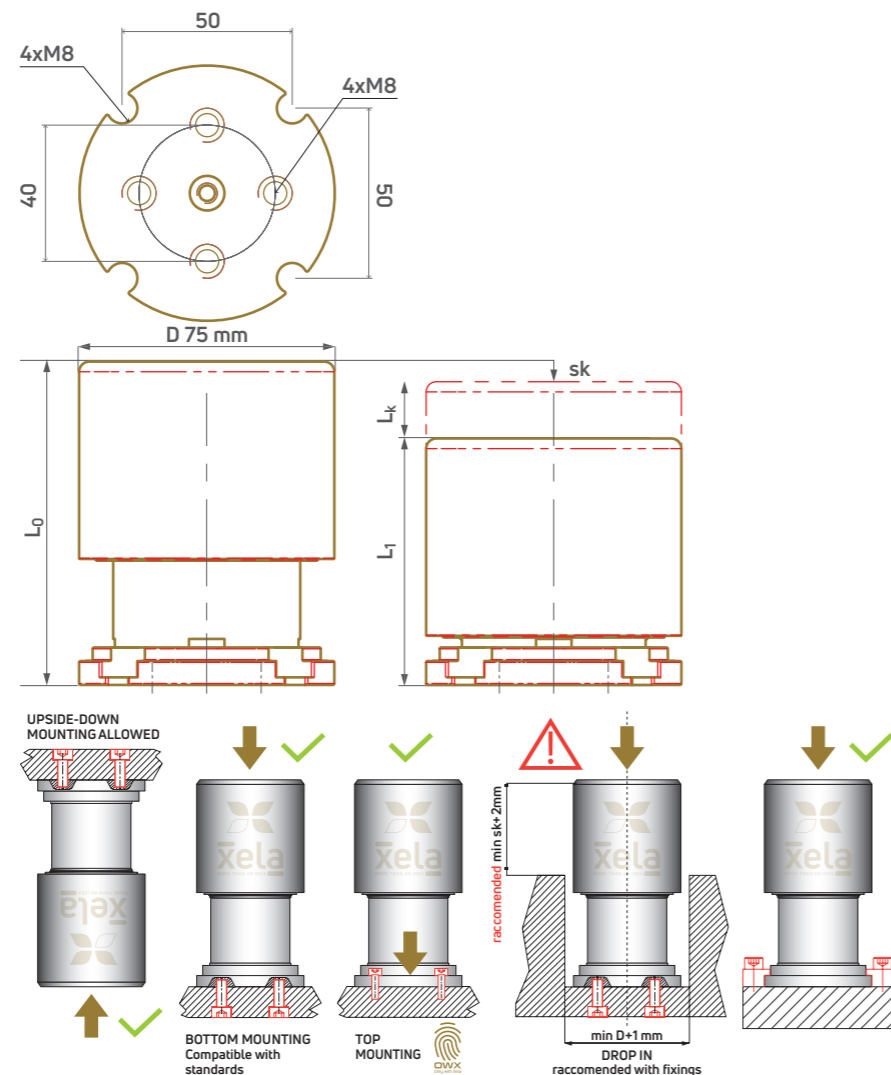
The range is constantly evolving — contact us to stay up to date!
Comply with the instructions provided in the "Correct operations" and "Mounting Systems" sections.



Order No.	Stroke	Max lenght	Min lenght	Initial Force	End Force*	Initial Force	End Force*	Gas volume	Net surface
CODE	L _k [mm]	L ₀ [mm]	L ₁ [mm]	F ₀ [daN]	F ₁ [daN]	F ₀ [lbf]	F ₁ [lbf]	V ₀ [cm ³]	S [mm ²]
XL 75 010	10	65	40		3519		7910	87,7	
XL 75 013	13	71	43		3659		8226	99,8	
XL 75 016	16	77	46		3769		8472	118,1	
XL 75 019	19	83	49		3856		8669	130,1	
XL 75 025	25	95	55	@ 20 °C	3987	@ 20 °C	8964	160,4	
XL 75 032	32	109	62	@105 bar	4172	@105 bar	9379	195,8	
XL 75 038	38	121	68		4161		9354	226,2	2.376
XL 75 050	50	145	80	2500	4499	5600	10114	286,8	
XL 75 063	63	171	93		4324		9720	352,5	
XL 75 075	75	195	105		4368		9820	413,2	
XL 75 080	80	205	110		4383		9854	438,5	
XL 75 100	100	245	130		4430		9959	539,6	
XL 75 125	125	295	155		4469		10047	547,2	

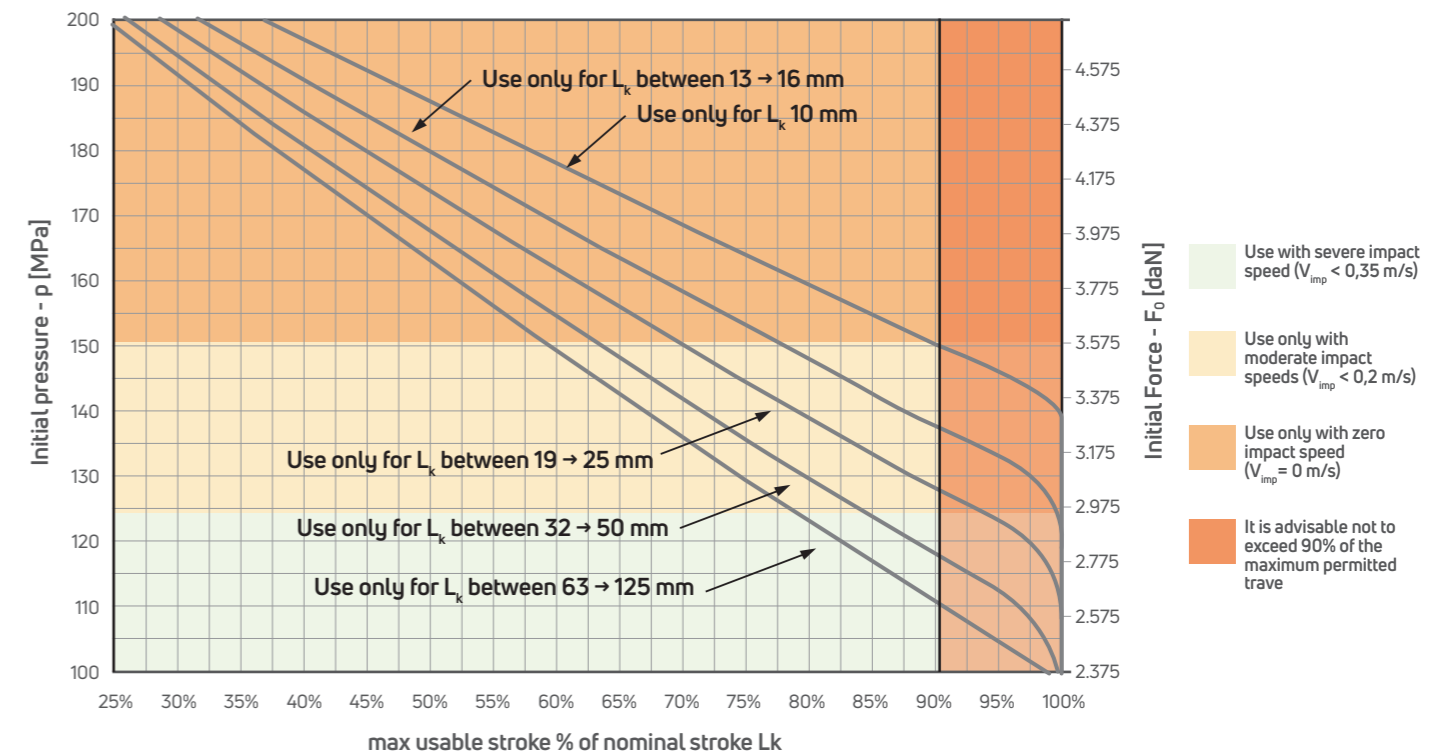
p _{min} [bar]	20	p _{max} ** [bar]	120	S [mm ²]	2.376	SPM*** @ 20°C	20-350	T _{amb,max} [°C]	35
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* Values refer to compression tests performed at a speed of 0.2 mm/min.
** Higher pressure values are permitted only if the guidelines described in the "Proper Selection" section are strictly followed.
***The indicated frequency refers to tests carried out at room temperature (20 °C); different operating conditions may affect the performance of the gas spring. SPM depend on the conditions of use.



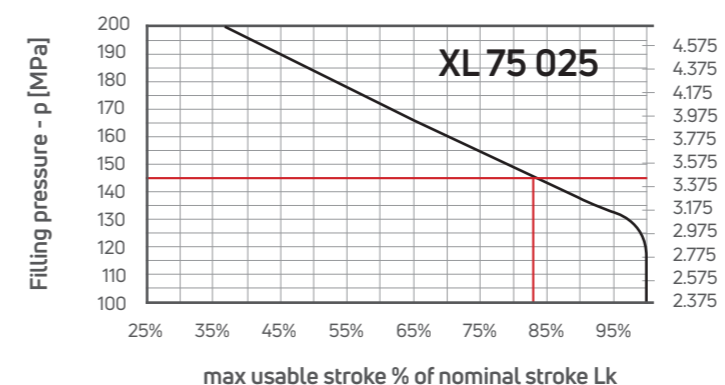
Proper selection

The XL Series provides higher forces than traditional gas springs while operating at a lower initial pressure and maintaining the same external dimensions.
The XL Series can be charged up to twice the nominal pressure, provided it is installed with a preload of 0.1 mm. If this is not possible, it is mandatory to comply with the prescribed impact speed limits (v_{imp} according to color ranges).



Example: **XL 75** — If I need to work with an initial force F₀ = 3450 daN, I can choose an XL 75 with an initial pressure p = 145 bar, v_{imp} ≤ 0.2 m/s, and a maximum stroke equal to 83% of the nominal one.

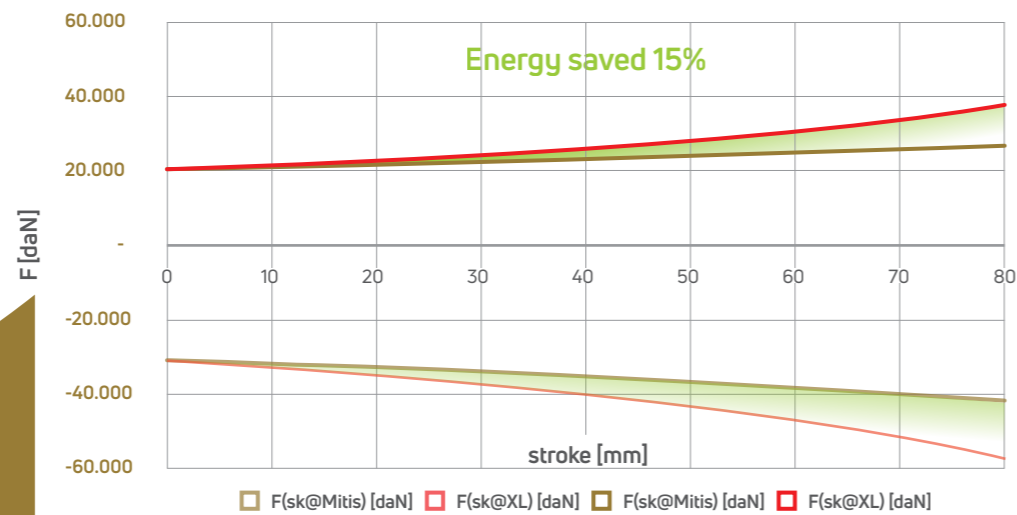
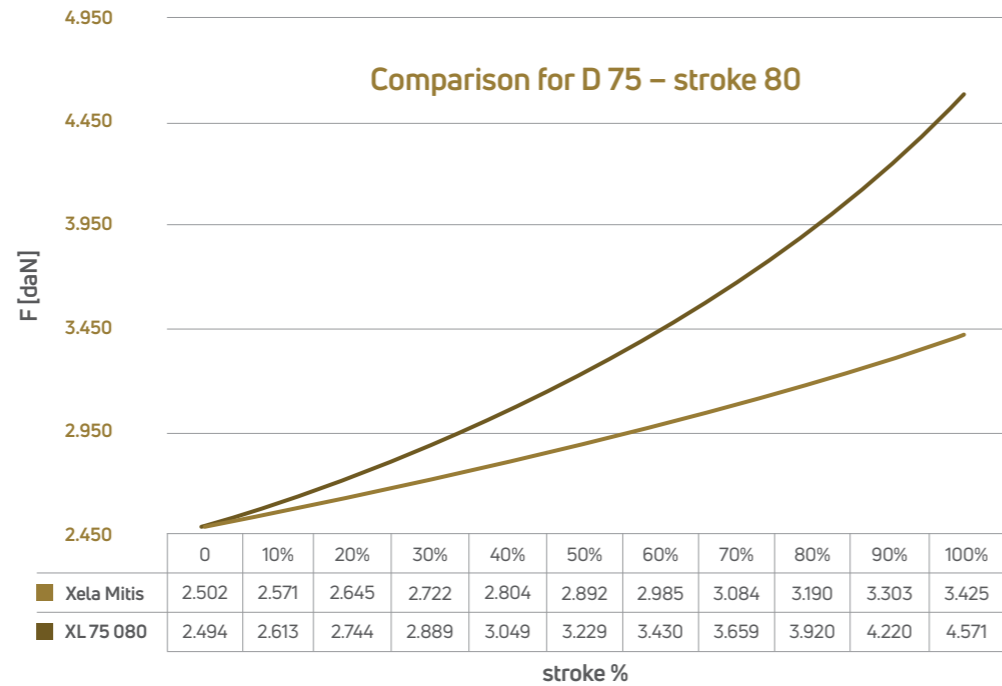
In the graph, an example of an XL 75 with a nominal stroke L_k = 25 mm:
25 × 83% = **20.75 mm** → maximum allowable stroke for safe operation with F₀ = 3450 daN.



For this series as well, it is possible to reach the force of the next series (XL 95 with F₀ = 4450 daN) by limiting the stroke to 37–67% of L_k and using an initial pressure of 187 bar.
The table shows the maximum allowable values for each model. For example, for an XL 75 025 (L_k = 25 mm), the usable stroke sk must be limited to 48%, that is 12 mm (25 × 0.48 = 12 mm).

Xela XLM serie MiTis

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Innovative Design – Xela MiTis Series

The innovative design of Xela has made it possible to develop a new series that reduces the compression ratio by up to 20% (depending on the model). As a result, the force–stroke curve becomes significantly more linear, and the final force does not reach the high values typical of conventional gas springs. Key benefits:

- Lower energy demand during operation → cost savings
- Reduced stress on the press structure
- Lower risk of material tearing during deep drawing operations

The graphs illustrate the force progression versus stroke, comparing the **XL 75 080** with the equivalent **Xela MiTis XLM 75 080**. The XL Series curve follows the trend of traditional gas springs, while the Xela MiTis curve demonstrates a clear advantage in terms of reduced force increase — **approximately 1150 daN** lower (about ~25%). From an energy standpoint, the estimated saving per cycle for this spring is about **240 J**, corresponding to a reduction of approximately 15%.

