Product Series Mounts



Special Mounts

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Special Mounts

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Κ

The K-lug is used to clamp the gas spring vertically upright to the tool. The gas spring can be clamped down using 2, 3 or 4 K-lugs.

If only 2 lugs are used, then locking plate L must also be used to fix the gas spring.

Note: When using locking plate L together with K-lugs, the spring cannot be hosed together as the L-plate will cover the gas charge port of the gas spring.

Important! The K-lugs are only to be used to mount the spring vertically upright.

Spring size	Order No.	с	ØD	Е	ØF
250 (X 500)	K-250	20	7	7	56.6
500 (X, TX 750)	K-500	25	9	7	70.7
750 (X, TX 1000)	K-750	30	13.5	14	80
X, TX 1500	KX-1500	30	13.5	14	92
1,500 (X,TX 2400)	K-1500	30	13.5	14	104
3,000 (X, TX 4200)	K-3000	40	17.5	14	130
5,000 (X, TX 6600)	K-5000	50	17.5	14	155
7,500 (X, TX 9500)	K-7500	50	21.5	14	195
10,000 (X, TX 20 000)	K-10000	58	21.5	15	240

Surface finish = Black oxide.

Note:

When ordering K-lugs for X/TX springs, a lug of smaller size than the spring must be used. For example, an X/TX 2400 spring requires lug K-1500.



Screw size	Torque (Nm)*
M6	10-17
M8	25-40
M12	85-136
M16	200-333
M20	390-649

* The torque setting depends on the strength of the screw used!

When fixing gas springs vertically using 2 K-lugs, locking plate L must be used at the same time to ensure that the spring will be fixed radially.

Order No.	Α	В	С	ØD	Е	F	G
L-250	76.6	56.6	20	7	48	9.5	2.5
L-500	95.8	70.7	25	9	56	9.5	2.5
L-750	110	80	30	13	61	16.5	2.5
L-1500	134	104	30	13	86	16.5	2.5
LX-1500	122	92	30	13.5	74	16.5	2.5
L-3000	170	130	40	17	106	16.5	2.5
L-5000	205	155	50	17	131	16.5	2.5
L-7500	245	195	50	21	170	16.5	2.5

Surface finish = Black oxide.





HM

HM (Horizontal Mount) is a mount for TU 750-3000 springs. This mount meets FORD WD-X35-62-standard. The front support can be rotated 180° allowing it to be mounted in a 10 mm key groove. If the front support is not mounted in a key groove, we recommend that the rear mount is backed up using a key (see Fig. A and B).

The support is supplied complete with screws for attaching the mount to the spring.



Order No.	Α	В	С	D	E	F	G	н	J	ØК	ØL	ØМ	Р	Q	R
HM-250	74	54	29.5	12	40	60	54	23.9	16	15	9	9	20	10	38
HM-750	90	68	43	13	44	65	70	30	25	18	11	11	30	15	45
HM-1500	125	100	45	12	57	80	94	42	32	20	13.5	13.5	30	15	45
HM-3000	140	115	48	15	70	95	115	52.5	33	20	13.5	13.5	30	15	45

HMF

The HMF mount is a symmetric horizontal body mount similar to the S mount. The HMF mount meets the VDI 3003, Ford WD-X35-62 and GMDS 90.25.455 standard.









Note! The base of the gas spring must always be supported when using the HMF mount.

Order No.	Α	В	С	D	E	ØF	ØG	ØН	J	К	ØL
HMF-150	68	48	20.9	10	50	32.1	9	15	10	20	31.9
HMF-250	74	54	23.9	16	54	38.1	9	15	10	20	38
HMF-500	80	60	27.5	22	60	45.4	9	15	10	20	45.2
HMF-750	90	70	30	25	68	50.4	11	18	15	30	50.2
HMF-X1500	108	82	36.5	27	84	63.4	11	18	15	30	63.2
HMF-1500	125	94	42	32	100	75.4	13.5	20	15	30	75.2
HMF-3000	140	115	52.5	33	115	95.4	13.5	20	15	30	95.2
HMF-5000	170	140	65	58	145	120.4	13.5	20	15	30	120.2
HMF-7500	200	170	80	68	175	150.4	13.5	20	15	30	150.2

Surface finish = Black oxide.

Mounts

FAC







The FAC is a 90° angled, 2-piece flange for TU 750 -5000. The flange is only to be used together with the SA support or any other support that supports the bottom of the spring. It is recommended to back the SA mount with a key, see figure above.

Order No.	Α	в	С	D*	Е	F	G	н	J
FAC-750	38	8	65	33	12	11	13	45.5	70
FAC-1500	57	11	90	37	15	14	19	53.5	101
FAC-3000	66.5	11	110	63	15	14	19	57.5	121
FAC-5000	79	11	140	88	18	14	19	59.5	149
Surface fi	nish = Bl	ack oxide		*Recomm	ended cer	nter to cen	ter distan	ce for inst	allation.

SA

The SA support can be fitted using the B mount option on TU springs and is normally used together with the FAC flange. The SA support is supplied complete with screws needed to mount the support to the spring.

It is recommended to back the SA mount with a key, see figure above.





Order No.	Α	В	С	ØD	Е	F	G	ØН
SA-750	60	32	30	11.5	38	11	11	18
SA-1500	90	38	35	14.5	57	13	14	20.5
SA-3000	110	63.5	40	14.5	66.5	13	14	20.5
SA-5000	130	88.9	50	17.5	79	16	14	25

Surface finish = Black oxide.

E

ØD

øc

30°

SW

hased ou The SW (Square Welded) is a welded mount for the TU 750 – 7500 springs. This mount must always be ordered together with the gas spring.

For more information about this mount, please contact your distributor.

Order No.	Α	в	ØC	ØD	E			
SW-750	80	56.5	11	18	19	~11		
SW-1500	100	73.5	11	18	9	11		
SW-3000	120	92	13.5		e	13		
SW-5000	140	109.5	13.5	20	25	13		
SW-7500	190	139	ان ۱۴	26	25	17		
Surface finish = Bercharine								

RM/RMX

The RM mount is a removable square mount that can be used for mounting onto TU and X springs. The RM mount is an alternative to an SW (Square Welded) mount, making it possible to keep a more flexible inventory of replacement of gas springs and mounts on site. The RM mount is included in the Ford W-DX35-80 North America standard.

30	1		
		(4x)	$\square = 1$ $\square = $

Δ

в

Order No.	Α	в	С	ØD	ØE	F	ØJ
RM-750	80	56.5	21.1	18	11	11	50.2
RM-1500	100	73.5	33.7	18	11	11	75.2
RM-3000	120	92	43.2	20	13.5	13	95.2
RM-5000	140	109.5	55.7	20	13.5	13	102.2
RM-7500	190	138	70.7	26	18	17	150.2
Order No.	Α	В	С	ØD	ØΕ	F	ØJ
RMX-750	70	50	21.2	15	9	11	45.2
RMX-1000	80	56.5	21.1	18	11	11	50.2
RMX-1500	100	73.5	33.7	18	11	11	63.2
BMX-2400	100	73.5	33.7	18	11	11	75.2

FCSC

The FCSC Clamp Flange has a unique patented design that offers a very robust play-free connection between the gas spring and the mount. This play-free connection also prevents rotation of the gas spring.

The FCSC Clamp Flange is especially suitable for gas springs that will be hosed together and/ or are used in high-speed, long-stroke upsidedown installations.

The FCSC Clamp Flange is available for gas springs sizes from 500 up to 7,500.

Note: The FCSC and FCS flanges are fully interchangeable if low head cap mounting screws (4x) are used. Using low head cap screws ensures the top of the screw is flush with the top of the flange. If normal head cap screws are used, the top of the screw will protrude from the top of the flange by 3 mm.



If standard screws are used

	Flange as scn Holes for mou screw	sembly ew (2x) nting s (4x)	0
ØD	E*	F	
9	23 / 22	18.4	
9	24 / 22	19.4	
10.5	27	23.9	

Order No.	Spring size	ØA	в	С	ØD	E*	F
FCSC-500	X 750, TU 500, TX 750, K 500	45	64	50	9	23/22	18.4
FCSC-750	X 1000, TU 750, TX 1000, K 750	50	70	56.5	9	24 / 22	19.4
FCSCX-1500	CU4 2900, X 1500, TX 1500	63	80	64	10.5	27	23.9
FCSC-1500	X 2400, TU 1500, TX 2400	75	90	73.5	10.5	29	26
FCSC-3000	X 4200, TU 3000, TX 4200	95	110	92	12.5	33	30
FCSC-5000	CU4 11800, X 6600, TU 5000, TX 6600	120	130	109.5	12.5	33/ 36	32.4
FCSC-7500	CU4 18300, X 9500, TU 7500, TX 9500	150	162	138	16.5	38/41	38

* depending on spring model

Patent No. SE 521 352, EP 1 565 670, US 7,544,008

11.6

FC

In addition to the standard flanges there is also a round FC flange available for smaller sizes according to below.





Order No.	Spring size	ØA	ØВ	øс	Е	F
FC-12	R12	25	36	6.6	9	21.5
FC-15	R15	27	37	6.6	9	21.5
FC-19	R19, X 170	32	44	6.6	9	21.5





Order No.	Spring size	ØA	ØВ	с	ØD	Е	F
FCN-150	M2, X 320	56	42	29.7	9	9	21.5
FCN-250	TU 250, X/XG 500	70	56.6	40	9	9	17
XFC-1500	X/XG 1500	105	85	60	11	16	27
XFCJ-1500	X /XG 1500	122	104	73.5	11	16	27

FSL

- The FSL flange type originally was developed to fit gas springs with a lower C-groove and consists of two halves with a lock ring between.
- The FSL flange can be used for both upright and upside-down installations.
- The FSL flange can also be used on gas springs with a lower U-groove by using the additional FSL adapter ring.
- The FSL adapter ring is ordered separately and is to replace the standard lock ring included in the FSL flange.





Order No.	Spring size	Α	в	ØC	D	E*	F	ØG	ØН	I	J*
FSL-750	TU 750, X 1000	76.2	53.9	76.2	35	25.7	25	11	17	11	25.7
FSLT-1500	X 1500	100	73.5	103.9	49	25.5	24	11	18	10	25
FSL-1500	TU 1500, X 2400	101.6	76.2	107.6	49	25.7	25	13	20	13	25.7
FSL-3000	TU 3000, X 4200	127	98.3	139	61	25.7	25	13.5	20	13	25.7
FSL-5000	TU 5000, X 6600	139.7	114.3	161.8	71	25.7	25	13.5	20	13	25.7
FSL-7500	TU 7500, X 9500	177.8	139.7	197.8	88	25.7	25	18	26	17	25.7

Important! FSL-Adapter Ring location

The location of the FSL-Adapter Ring should always be the same regardless of the orientation of the installed gas spring (standing upright or upsidedown). Only the flange halves change position.

Please note! It is normal for the thin section to break when the ring is repetively opened and closed. This will not cause a problem if the ring is in its correct orientation.

	appr	oximate	value
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FSL Adapter Ring size	Spring Size	G*	H*
750	TU 750, X 1000	26	26
X 1500	X 1500	25.8	25.4
1500	TU 1500, X 2400	26	25.9
3000	TU 3000, X 4200	26	25.9
5000	TU 5000, X 6600	26	25.9
7500	TU 7500, X 9500	26.6	26.4
	FSL Adapter Ring size 750 X 1500 1500 3000 5000 7500	FSL Adapter Ring size Spring Size 750 TU 750, X 1000 X 1500 X 1500 1500 TU 1500, X 2400 3000 TU 3000, X 4200 5000 TU 500, X 6600 7500 TU 7500, X 9500	FSL Adapter Ring size Spring Size G* 750 TU 750, X 1000 26 X 1500 X 1500 25.8 1500 TU 1500, X 2400 26 3000 TU 3000, X 4200 26 5000 TU 5000, X 6000 26 7500 TU 7500, X 9500 26.6



Important! Avoid compressive loads being transferred through to mounting screws (use shims or machine the tool if necessary)

11.8

FSS

The FSS mount is of the same type as the FSL mount, but with external dimensions and hole pattern as the FFC mount. The FSS mount fits on gas springs with a lower U-groove. The FSL adapter ring is included in the FSS mount and does not need to be ordered separately. The FSS mount can be used for both upright and upside down installation.

The FSS mount meets the Subaru standard SD116401.



Order No.	Spring size	Α	в	øc	D	E*	F	ØG	ØН	I	J*
FSS-750	TU 750, X/XG 1000	75	56.5	80	35	26	25.5	9	15	10.5	26
FSS-1500	TU 1500, X/XG 2400	100	73.5	104	49	26	25.9	11	18	13	26
FSS-3000	TU 3000, X/XG 4200	120	92	130	61	26	25.9	13.5	20	13	26
FSS-5000	TU 5000, X/XG 6600	140	109.5	155	71	26	25.9	13.5	20	13	26
FSS-7500	TU 7500, X 9500	190	138	195.2	88	26.4	26.2	18	26	16	26.6

* approximate value

Important! FSS-Adapter Ring location

The location of the FSS-Adapter Ring should always be the same regardless of the orientation of the installed gas spring (standing upright or upside-down). Only the flange halves change position.

Please note! It is normal for the thin section to break when the ring is repetively opened and closed. This will not cause a problem if the ring is in its correct orientation.

Important! Avoid compressive loads being transferred through to mounting screws (use shims or machine the tool if necessary)

NMP

The NMP mount is a base mount, which meets the Nissan standard K32P0









NMP-750 and NMP-1000



NMP-2400 and NMP-4200

Order No.	Spring size	Α	В	ØC	D	Е	F	ØG	ØН	ØI
NMP-750	XG 750	90	70	20	45	16	10	9	14	9
NMP-1000	XG 1000	100	75	20	50	19	13	14	14	9
NMP-2400	XG 2400	130	105	40	80	19	13	14	14	9
NMP-4200	XG 4200	150	125	60	100	19	13	14	14	9

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The FFL mount is of the same type as the FFC mount, but with external dimensions and hole pattern as the FSL mount.



Order No.	Α	В	ØC	D	E	F
FFL-750	76.2	53.9	76.2	11	26	12
FFL-1500	101.6	76.2	107.8	13.5	26	12
FFL-3000	127	98.3	139	13.5	24	12
FFL-5000	139.7	114.3	161.7	13.5	24	12
FFL-7500	177.8	139.7	197.6	18	24	12

FRM

FRM is a slotted round lock nut, which meets the GM standard 90.25.99. The FRM lock nut is to be used on gas springs with an outer thread on the tube.





Order No.	Α	ØВ	D	Е	G
FRM-16	M16 x 1.5	32	5	2	7
FRM-19	M24 x 1.5	42	6	2.5	9





KALLER gas springs are engineered for use in modern day, metal stamping dies and plastic moulding tools. Over the years, KALLER has developed a wide range of mounting methods for the gas springs. The following is intended as a reminder of the correct procedure when using these various mounting methods.

Mounting method overview

Generally speaking, KALLER gas spring cylinders are machined with two external grooves. The C-groove being located towards the cylinder opening and a U-groove or second C-groove located just above its base. These grooves allow various flange mounts to be attached. It is then the flange mount that is clamped to the tool using mounting screws of a suitable length, property class and torque setting (see next page for more details). Only use mounts manufactured or approved by KALLER.



Drop-In The gas spring is dropped into a flat bottomed pocket within the die.



Base mount

The gas spring's base threaded holes are used to mount the gas spring directly to the tool or indirectly via a base mounting plate.



Foot mount A flange mount is used to clamp the base of the gas spring to the tool using the gas spring's lower U or C groove.



Top mount A flange mount is first attached to the gas spring's upper C-groove before being mounted into a hole in the die.



Thread mount A section of the gas spring's cylinder, which has an external thread (either cylinder body or base stud), is used to install the gas spring in the die. In some cases with an additional lock nut or flange mount.



Body mount The body mounts are attached to the gas spring to allow it to be installed in any orientation within the die, from vertically upright through to vertically upside down.

Mounting screws

When mounting the gas spring directly to the tool or via a flange mount, it is important to observe the following recommendations in order to prevent the gas spring or its mounting accessories from working loose into the tool.

Recommendations:

Screws should have a free length (clamping length) of 2 to 4 times their thread diameter and a thread depth of at least 1.5 times their thread diameter in steel and 2 times their thread diameter in cast iron If the free length cannot be achieved in any other way, the screw holes should be countersunk (see below). Please note that the specifications in automative standards may differ. Always use a torque wrench to apply the appropriate torque for the class of screws used.

Thread	Torque (for screw class 8.8 according to ISO 898-1)
M6	10 Nm
M8	24 Nm
M10	45 Nm
M12	80 Nm
M16	160-200 Nm

For all types of flange mounting using mounting screws:



Mounting Guidelines

Mounting method: Drop-In

For stroke lengths < 25 mm: base threaded holes are optional for stroke lengths up to and including 25 mm.

For stroke lengths > 25 mm: base threaded holes should always be used for longer stroke lengths to prevent possible side loads and/or gas spring movement within the pocket.

Gas spring orientations: only vertically upright installations are recommended (see *Warning!*).

Hole depth: min 70% of the spring's Lmin length to ensure sufficient support and reduce the risk of side loading.

Hole diameter: +0.5 to +1.0 mm greater than the gas spring's cylinder diameter.

Hole drainage: recommended wherever drawing fluids and/or liquid coolants are used in the die.

Link systems: Not recommended for stroke lengths < 25 mm.

Warning! Never drop a gas spring into a pocket upside down as this may lead to excessive wear on the outside of the tube.







Mounting Guidelines

Mounting method: Base Mount (B, MP, MPX)

Stroke length suitabilty:

For cylinder diameters < \emptyset 25 = Max stroke 25 mm For cylinder diameters > \emptyset 25 = OK for all stroke lengths

Gas spring orientations: Vertically upright - OK for all stroke lengths Vertically upside down - OK up to stroke 125 mm*

Link systems: this mounting method is very suitable for gas link systems

*For thread depths less than 1 times its thread size use a screw length that engages all thread depth, use a thread locking compound (middle strength or higher) and apply correct screw torque setting



For: B (Base thread)



If the gas spring has only a single base threaded hole, then the max stroke length for this mounting method should <u>not</u> exceed 25 mm



Mounting method: Foot mount (BF, FCR, FFC, FFX, FSL, RM)

Gas spring orientations:

Vertically upright = OK for all stroke lengths Vertically upside down = OK up to 125 mm stroke (see *Warning!* below)

Link systems: this mounting method is generally suitable for gas link systems, with the exception of the BF, FCR and FSL flange mounts that do not fully prevent rotation of the gas spring.

Note! A small gap between Foot Mount and mounting surface is normal before the gas spring is clamped to the die using the mounting screws.

Warning! K Foot Mounts are not recommended for vertically upside down installations. Wherever possible, vertically upside down installations using Foot Mounts should be used in combination with base threaded holes to prevent gas spring rotation within the flange and to provide additional security.





Mounting Guidelines

Mounting method: Top mount (FC, FCS, FCX, FK, FCSC, FCR, FCSX)

Gas spring orientations:

Vertically upright = OK for all stroke lengths Vertically upside down = OK up to 125 mm stroke (see *Warning!* below)

Cylinder hole clearance for cylinder diameters < Ø32

hole \emptyset = cylinder \emptyset + 0.5 to 1.0 mm

Cylinder hole clearance for cylinder diameters > Ø32

hole \emptyset = cylinder \emptyset + 0.5 to 2.0 mm

Link systems: FCSC is the preferred flange mount for linked systems as the gas spring is unable to rotate in the flange (see Note below).

Note! A small gap between flange halves is normal before the gas spring is clamped to the die using the mounting screws. Recent tolerance improvements between gas spring C-grooves and Top Mounts has, in some cases, eliminated the tendency for the gas spring to rotate within the flange. This now makes them more suitable for Link systems.

Warning! Depending on the stroke speed of the press, longer stroke gas springs are not generally recommended for upside down installations unless the FCSC flange mount is used. Top Mounts must never be installed in the die, whereby the mounting screws are required to support the full compression force of the gas spring when stroked (see below).

For: FC, FCS, FCX, FK, FCSC, FCSX



* Note: for the FCSC flange, upside down installation is OK for all stroke lengths



For: FCR

Never let the mounting screws support gas spring compression forces



mm

25

Mounting method: Thread mount (including FRM, FTM)

Gas spring orientations:

Vertically upright = OK for all stroke lengths Vertically upside down = OK for all stroke lengths

Link systems: it is possible to link thread mounted gas springs if there is sufficient access to the spring's charge port.

Note! It is important to always use the appropriate torque setting for the springs thread size when mounting the spring to the tool in order to prevent tool vibrations working the spring loose.

Use a dismountable thread locking compound and ensure that the compound do not touch the piston rod.

For: EP, EPS









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Mounting Guidelines

Mounting method: Body mount (S, SM, HM, FAC, SA, HMF)

Gas spring orientations: suitable for all stroke lengths and all gas spring orientations from vertically upright through to upside down (see Warning! below).

Key grooves: Key-grooves should be used to either recess the Body Mount or to back up the Body Mount with an additional key, thus preventing gas spring compression forces exerting a shear stress on the mounting screws.

Link systems: this mounting method is very suitable for gas link systems, since the gas spring is unable to rotate.

Warning!

Always ensure the gas spring sits parallel with its mounting surface to minimise the risk of side loading.







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KALLER – The Safer Choice for global support and service

Our employees in eight countries – in-house manufacturing and assembly in Europe and North America – and distributors in 46 countries provide a great base for product development, excellent training, service and support to our customers worldwide.

Please visit your local contact at kaller.com/distributors.

The Safer Choice

Introduced in 1983, the KALLER gas spring technology quickly led to worldwide demand. The Safer Choice – Training, Safety and Reliability – has always been a KALLER top priority for providing innovative solutions for the safer working environment. We recommend looking through all available KALLER features when selecting gas springs and gas or hose linked systems.



KALLER Training Program

TRAINING. Without doubt the KALLER Training Program is the best and most creative way to fully understand and appreciate the importance of the safety and reliability features.

KALLER Safety App

SAFETY. Fake or KALLER original? With the KALLER Safety App you can identify and verify your specific KALLER gas springs.



Overstroke Protection System

SAFETY. When a gas spring is overstroked, this helps reduce the risk of tool damage or injury.



Overload Protection System

SAFETY. Jammed cam or tool part being forced by gas springs? This will help reducing such risks.



Overpressure Protection System

SAFETY. Vents the spring if the internal gas pressure exceeds the maximum allowable limit to prevent accidents.



PED approved for a minimum of 2 million strokes

RELIABILITY. Our 2 million stroke PED approval ensures safer component cycle life.



Flex Guide[™] System

RELIABILITY. Prolongs service life, allows more strokes per minute, and offers greater tolerance to lateral tool movements.



Dual Seal[™] Link Systems

RELIABILITY. Fewer production interruptions due to leakage caused by vibration. Simplified installation thanks to the non-rotation feature.

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