# Mounting Guidelines

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

## Mounting Method Overview

Generally speaking, Hyson Gas Springs are machined with two external grooves. The C-groove being located towards the piston rod 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 Hyson.

### 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.

# 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.

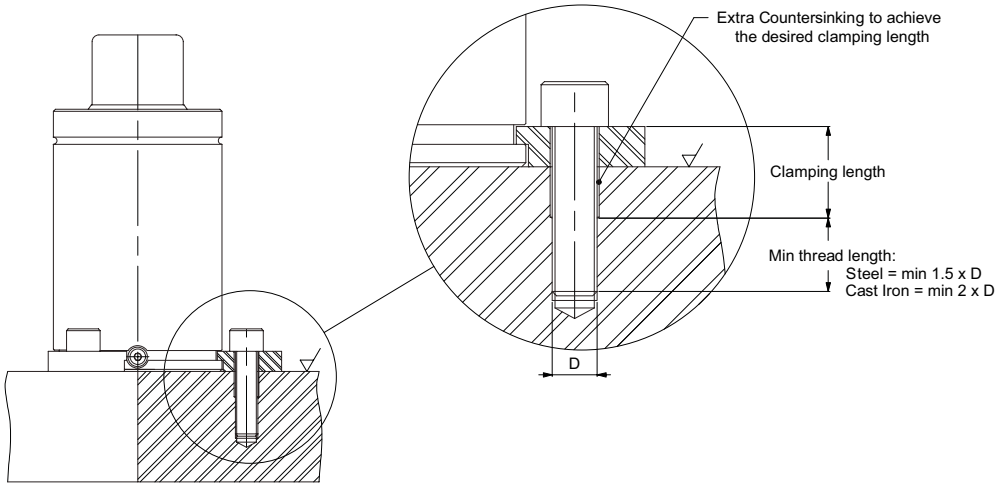
**Recommendations:**

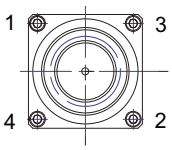
Screws should have a free length (clamping length) of two to four times their thread diameter and a thread depth of at least one-and-a-half times their thread diameter in steel and two times their thread diameter in cast iron.

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 Automotive standards may differ. Always use a torque wrench to apply the appropriate torque for the class of screws used.

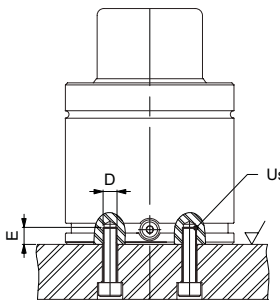
| Thread | Torque (for screw class 8.8 according to ISO 898-1) |
|---|---|
| M6 | 10 Nm |
| M8 | 24 Nm |
| M10 | 45 Nm |
| M12 | 80 Nm |
| M16 | 160-200 Nm |

## For all types of Flange Mounting using mounting screws:




When tightening the mounting screws in the tool, apply an evenly cross like pattern according to the picture (1-2-3-4). Otherwise there is a risk for the mount to tilt.




For example: T3-2400

For those Gas Springs whose thread depth (E) is less than one time its thread size (D) we recommend the following:

- select a screw length to engage all available thread depth
- use a thread locking compound (middle strength or higher)
- ensure the correct screw torque setting is applied

# Mounting Method: Drop-In

**1. Gas Spring orientations:** only vertically upright installations.

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

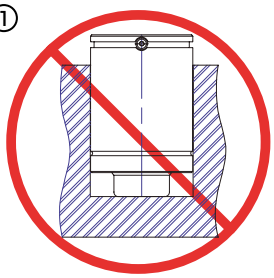
**Hole depth:** min 70% of the spring's Lmin length to ensure sufficient support and reduce the risk of side loading.

**Hole diameter:** +0.5 to +1.0 mm greater than the Gas Spring's cylinder diameter.

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

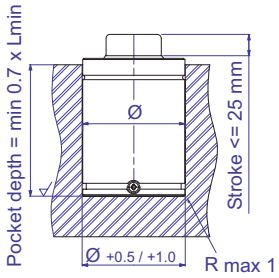
**4. For stroke lengths > 25 mm:** base threaded holes should always be used for longer stroke lengths to prevent possible side loads and/or Gas Spring movement within the pocket.

①



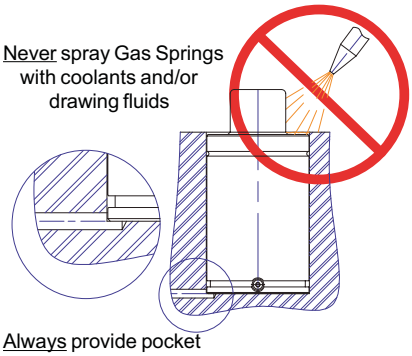
Never mount a Gas Spring in a pocket upside down

②




Always observe pocket dimension recommendations

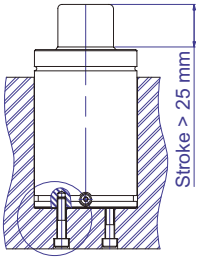
③



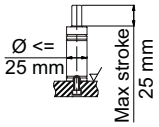
Never spray Gas Springs with coolants and/or drawing fluids

Always provide pocket drainage if coolants are used in the die

④




Use Drop-In and Base Thread: B together for longer stroke lengths




If the Gas Spring has only a single base threaded hole, then the max stroke length for this mounting method should not exceed 25 mm

# Mounting Method:
# Base Mount (MP, RM, SPRM, SPT5 and SP)

**Stroke length suitabilty:**

For cylinder diameters < Ø25 = Max stroke 25 mm

For cylinder diameters > Ø25 = OK for all stroke lengths

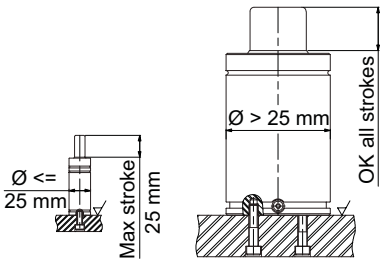
**Gas Spring orientations:** Vertically upright - OK for all stroke lengt ,except T2 -70, T2- 90, T3 -170, T4SC-420 and T3-320

Vertically upside down - OK up to stroke 125 mm*

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

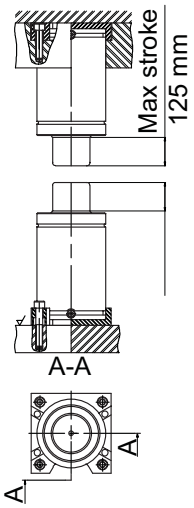
*For thread depths less than one time its thread size use a screw length that engages all thread depth, use a thread locking compound (middle strength or higher) and apply correct screw torque setting.

For base mount without flang

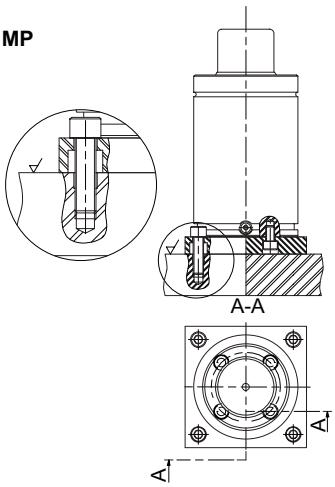


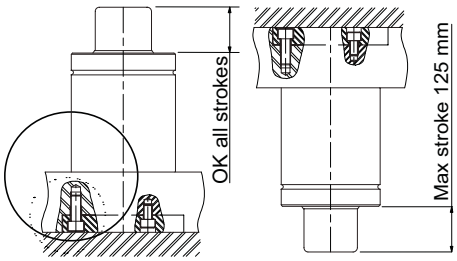

If the Gas Spring has only a single base threaded hole, then the max stroke length for this mounting method should not exceed 25 mm

**For: RM**




**For: MP**




Always support the mount to avoid compression forces being transferred through to the mounting screws.

# Mounting Method:
# Foot Mount (LM-lug, L, SF, FFC, BFB, BF and FM)

**Gas Spring orientations:** Vertically upright = OK for all stroke lengths,
except T2 -70, T2- 90, T3 -170, T4SC-420 and T3-320

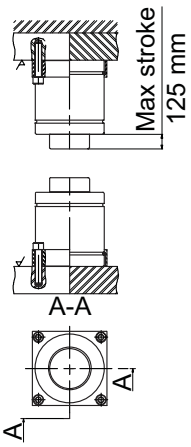
Vertically upside down = OK up to 125 mm stroke (see ***Warning!*** below)

**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.

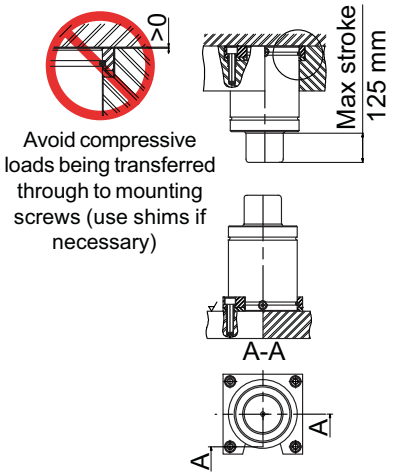
***Note!*** A small gap between Foot Mount and mounting surface is normal before the Gas Spring is clamped to the die using the mounting screws.

***Warning!*** Foot Mounts 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.

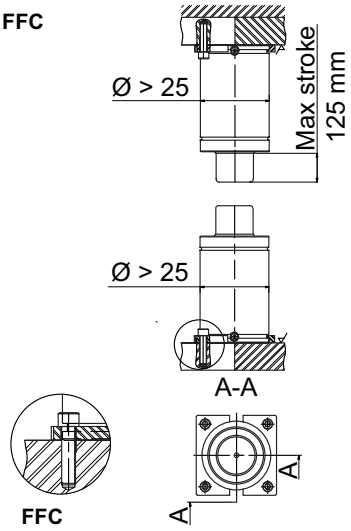
**For: FM**



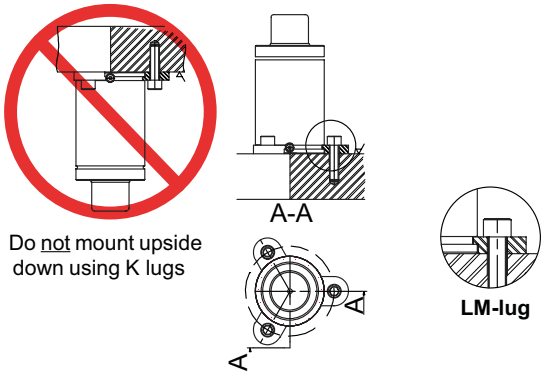

**For: SF**




**For: FFC**




**For: LM-lug**



# Mounting Method:
# Top Mount (FCR ISO, FCR, FC, FK, FCSC and FCS)

**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 Ø = cylinder Ø + 0.5 to 1.0 mm

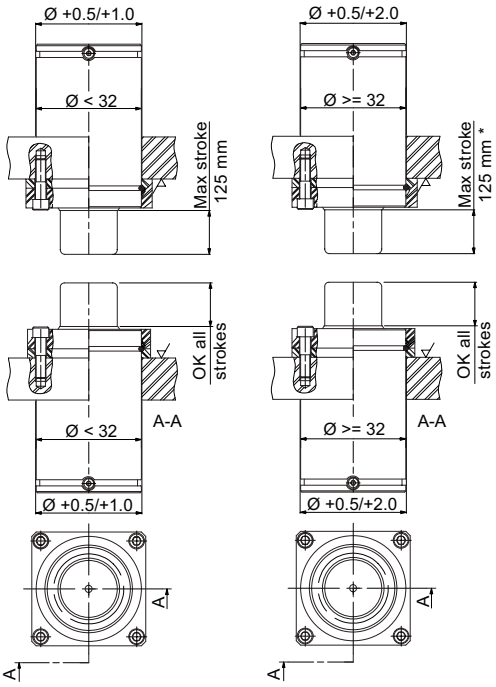
**Cylinder hole clearance for cylinder diameters > Ø32**

hole Ø = cylinder Ø + 0.5 to 2.0 mm

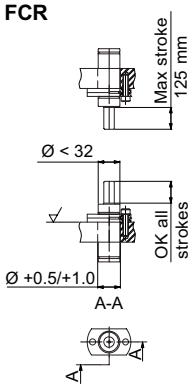
**Link systems:** FCSC is the preferred Flange Mount for linked systems as the Gas Spring is unable to rotate in the flange (see Note below).

***Warning!*** Depending on the stroke speed of the press, longer stroke Gas Springs are not generally recommended for up-side 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*).

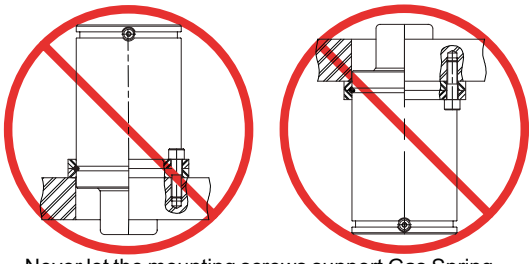
**For: FCR ISO, FC, FK, FCSC and FCS**




**FCR**




***For: all Top mounts**



Never let the mounting screws support Gas Spring compression forces

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

# Mounting Method:
# Body Mount (SM, S, HMF and HM)

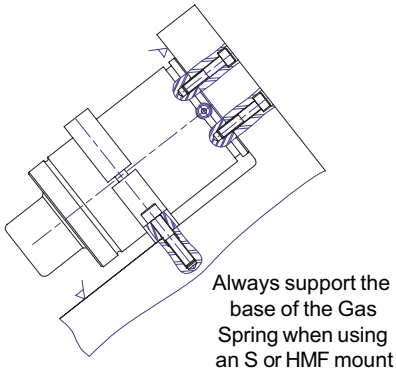
**Gas Spring orientations:** suitable for all stroke lengths and all Gas Spring orientations from vertically upright through to upside down (see ***Warning!*** below).

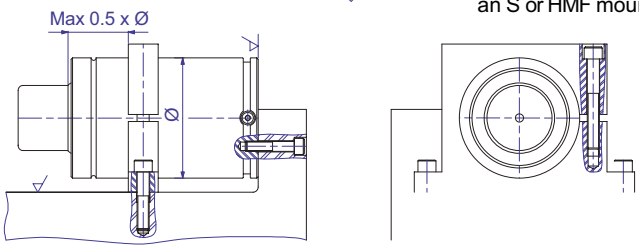
**Key grooves:** Key grooves should be used to either recess the Body Mount or to back up the Body Mount with an additional key, thus preventing Gas Spring compression forces exerting a shear stress on the mounting screws.

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

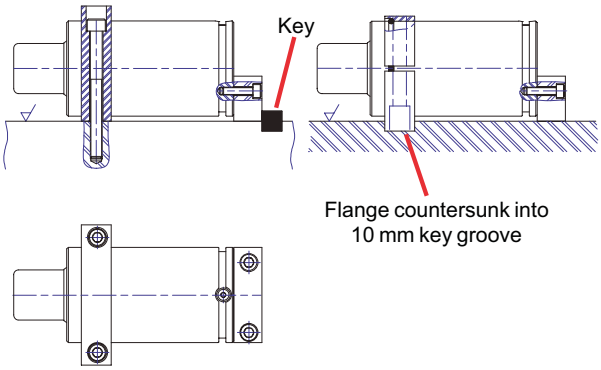
***Warning!***
Always ensure the Gas Spring sits parallel with its mounting surface to minimise the risk of side loading.

**For: SM, S and HMF**




**For: HM, HMF**



# Mounting Method: Thread Mount

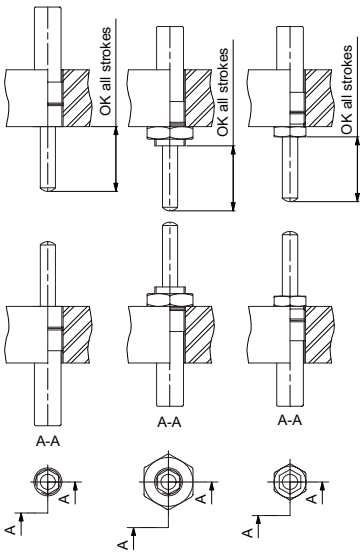
**Gas Spring orientations:** Vertically upright = OK for all stroke lengths

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.



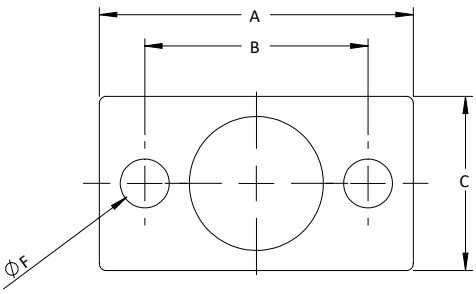
## Flanges

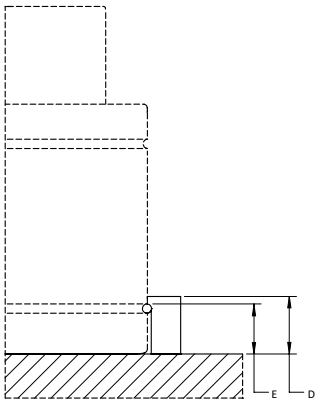
# FM

## Base Mount Rectangular Flange

**FM is a flange used to clamp the base of the cylidner to the tool by using the lower C-groove of the cylinder.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FM-90 | 45 | 1,772 | 32 | 1,26 | 25 | 0,984 | 10 | 0,394 | 7 | 0,276 | 7 | 0,276 |



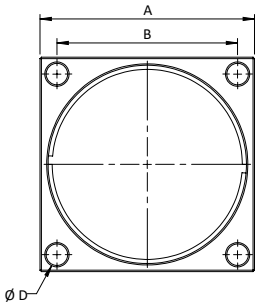



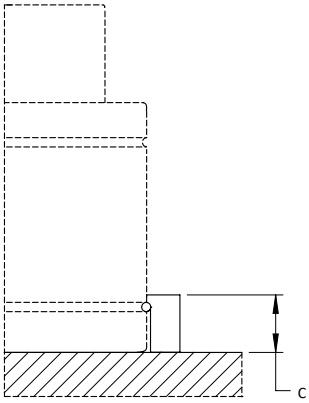
# BF

## Square Base Mount Flange

**BF is a Flange Mount used to clamp the base of the Gas Spring to the tool by using the lower C-groove of the Gas Spring.**

| Order No. | A | | B | | C | | D | |
|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in |
| BF-1000 | 52 | 2.047 | 40 | 1.575 | 14.5 | 0.571 | 7 | 0.276 |
| BF-1800 | 70 | 2.756 | 56.5 | 2.224 | 19.5 | 0.768 | 9 | 0.354 |
| BF-11800 | 130 | 5.118 | 109.5 | 4.311 | 29.5 | 1.161 | 13 | 0.512 |
| BF-18300 | 162 | 6.378 | 138 | 5.433 | 34.5 | 1.358 | 17.5 | 0.689 |



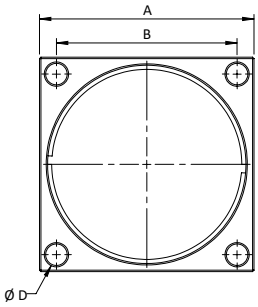



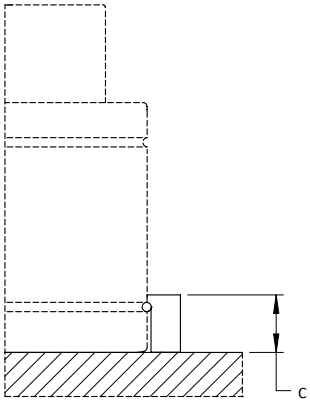
# BFP

## Bottom Square Flange

**BFP is a Flange Mount used to clamp the base of the Gas Spring to the tool by using the lower C-groove of the Gas Spring.**

| Order No. | A | | B | | C | | D | |
|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in |
| BFP-4700 | 90 | 3.543 | 73.5 | 2.894 | 24.5 | 0.965 | 11 | 0.433 |
| BFP-7500 | 110 | 4.331 | 92 | 3.622 | 27.5 | 1.083 | 13 | 0.512 |



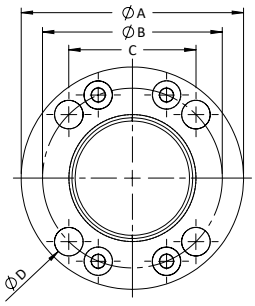



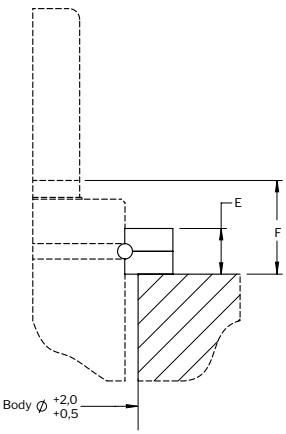
# FC

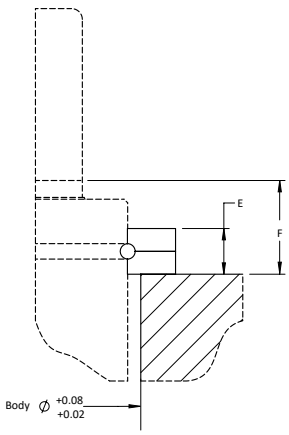
## Circular Flange

**FC is a round Flange Mount used to mount the Gas Spring in the upper C-groove.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FC-180 | 50 | 1.969 | 38 | 1.496 | 26.9 | 1.059 | 7 | 0.276 | 9 | 0.354 | 16/21,5 | |
| FC-250 | 68 | 2.677 | 56.5 | 2.224 | 40 | 1.575 | 7 | 0.276 | 9 | 0.354 | 15/17 | |
| FC-350 | 60 | 2.362 | 49.5 | 1.949 | 35 | 1.378 | 7 | 0.276 | 9 | 0.354 | 16/17 | |
| FC-500 | 86 | 3.386 | 70.7 | 2.783 | 50 | 1.969 | 9 | 0.354 | 13 | 0.512 | 22/23 | |
| FC-750 | 95 | 3.74 | 80 | 3.15 | 56.5 | 2.224 | 9 | 0.354 | 13 | 0.512 | 22/24 | |
| FC-1500 | 122 | 4.803 | 104 | 4.094 | 73.5 | 2.894 | 11 | 0.433 | 16 | 0.63 | 29 | 1.142 |
| FC-3000 | 150 | 5.906 | 130 | 5.118 | 92 | 3.622 | 13.5 | 0.531 | 18 | 0.709 | 33 | 1.299 |
| FC-5000 | 175 | 6.89 | 155 | 6.102 | 109.5 | 4.311 | 13.5 | 0.531 | 21 | 0.827 | 33/36 | |
| FC-7500 | 220 | 8.661 | 195 | 7.677 | 138 | 5.433 | 17.5 | 0.689 | 27 | 1.063 | 38/41 | |
| FCN-150 | 56 | 2.205 | 42 | 1.654 | 29.7 | 1.169 | 9 | 0.354 | 9 | 0.354 | 16/21,5 | |
| FCN-250 | 70 | 2.756 | 56.6 | 2.228 | 40 | 1.575 | 9 | 0.354 | 9 | 0.354 | 15/17 | |



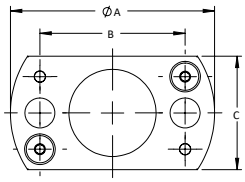



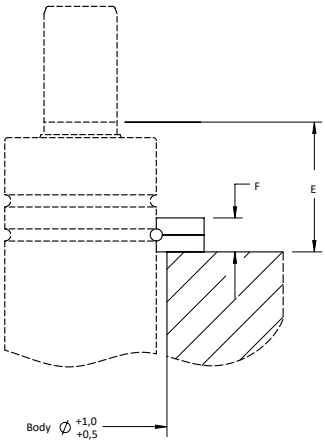
# FCR

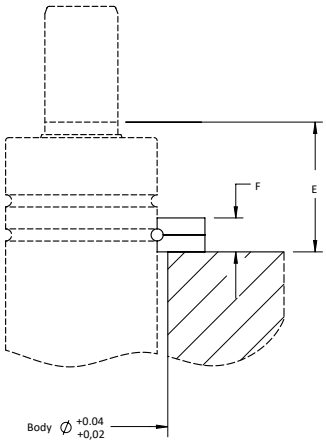
## Upper Square Flange

**FCR is a rectangular Flange Mount used to mount the Gas Spring in the upper C-groove. FCR meets ISO 11901-2, VDI 3003, GM 90.25 and other standards.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FCR-25 | 50 | 1.969 | 38 | 1.496 | 30 | 1.181 | 7 | 0.276 | 16/21,5 | 0.63/0.85 | 9 | 0.354 |
| FCR-50 | 34 | 1.339 | 24 | 0.945 | 21 | 0.827 | 6.6 | 0.26 | 21.5 | 0.846 | 9 | 0.354 |
| FCR-70 | 37 | 1.457 | 27 | 1.063 | 24 | 0.945 | 6.6 | 0.26 | 21.5 | 0.846 | 9 | 0.354 |
| FCR-19 VDI2 | 45 | 1.772 | 32 | 1.26 | 25 | 0.984 | 7 | 0.276 | 21.5 | 0.846 | 9 | 0.354 |



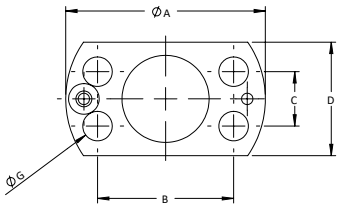



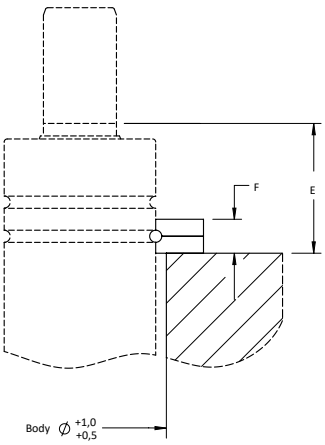
# FCR ISO

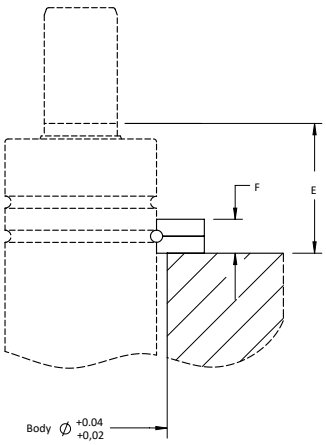
## Upper Square Flange

**FCR is a rectangular Flange Mount used to mount the Gas Spring in the upper C-groove. FCR meets ISO 11901-2, VDI 3003, GM 90.25 and other standards.**

| Order No. | A | | B | | C | | D | | E | | F | | G | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FCR-90 | 45 | 1.772 | 30 | 1.181 | 12 | 0.472 | 25 | 0.984 | 21.5 | 0.846 | 9 | 0.354 | 7 | 0.276 |
| FCR-180 | 50 | 1.969 | 34 | 1.339 | 18 | 0.709 | 30 | 1.181 | 16/21,5 | 0,63/0,85 | 9 | 0.354 | 7 | 0.276 |



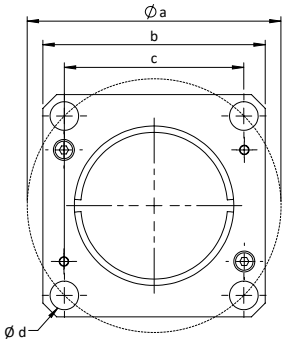



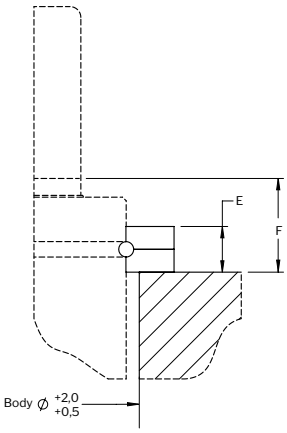
# FCS

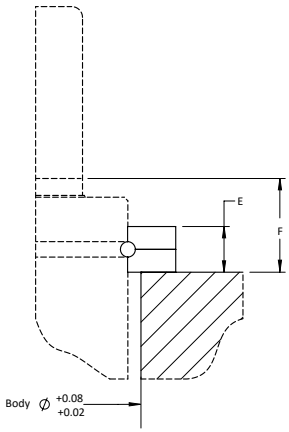
## Upper Square Flange

**FCS is a square Flange Mount used to mount the Gas Spring in the upper C-groove. FCS meets the ISO 11901-2, VDI 3003, Ford WDX35-62, GM 90.25 and other standards.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FCS-32 | 49.5 | 1.949 | 45 | 1.772 | 35 | 1.378 | 7 | 0.276 | 9 | 0.354 | 16/17 | 0.63/0.67 |
| FCS-250 | 56.5 | 2.224 | 52 | 2.047 | 40 | 1.575 | 7 | 0.276 | 9 | 0.354 | 15/17 | 0.59/0.67 |
| FCS-500 | 70.7 | 2.783 | 64 | 2.52 | 50 | 1.969 | 9 | 0.354 | 13 | 0.512 | 22/23 | 0.87/0.91 |
| FCS-750 | 80 | 3.15 | 70 | 2.756 | 56.5 | 2.224 | 9 | 0.354 | 13 | 0.512 | 22/24 | 0.87/1.14 |
| FCS-1500 | 104 | 4.094 | 90 | 3.543 | 73.5 | 2.894 | 11 | 0.433 | 16 | 0.63 | 29 | 1.14 |
| FCS-3000 | 130 | 5.118 | 110 | 4.331 | 92 | 3.622 | 13.5 | 0.531 | 18 | 0.709 | 33 | 1.30 |
| FCS-5000 | 155 | 6.102 | 130 | 5.118 | 109.5 | 4.311 | 13.5 | 0.531 | 21 | 0.827 | 33/36 | 1.30/1.42 |
| FCS-7500 | 195 | 7.677 | 162 | 6.378 | 138 | 5.433 | 17.5 | 0.689 | 27 | 1.063 | 38/41 | 1.50/1.61 |
| FCS-10000 | 240.4 | 9.465 | 210 | 8.268 | 170 | 6.693 | 17.5 | 0.689 | 27 | 1.063 | 47 | 1.85 |
| FCSX-1500 | 90.5 | 3.563 | 80 | 3.15 | 64 | 2.52 | 11 | 0.433 | 16 | 0.63 | 27 | 1.06 |



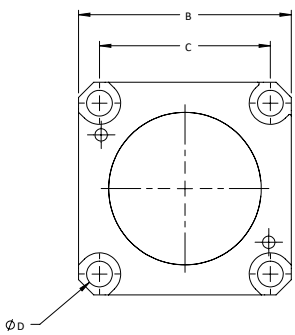



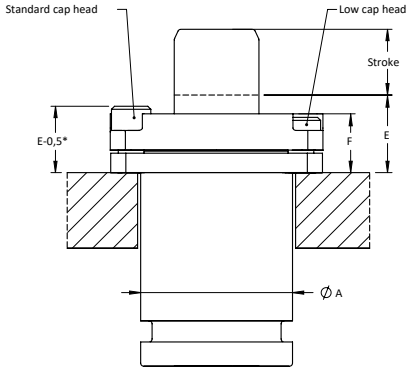
# FCSC

## Upper Square Flange

**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 upside-down 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.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FCSC-500 | 45 | 1.772 | 64 | 2.52 | 50 | 1.969 | 8.5 | 0,335 | 22/23 | 0.87/0.91 | 18.4 | 0.724 |
| FCSC-750 | 50 | 1.969 | 70 | 2.756 | 56.5 | 2.224 | 8.5 | 0,335 | 22/24 | 0.87/0.94 | 19.4 | 0.764 |
| FCSC-1500 | 75 | 2.953 | 90 | 3.543 | 73.5 | 2.894 | 10.5 | 0.413 | 29 | 1.142 | 38 | 1.496 |
| FCSC-3000 | 95 | 3.74 | 110 | 4.331 | 92 | 3.622 | 12.5 | 0.492 | 33 | 1.299 | 30 | 1.181 |
| FCSC-5000 | 120 | 4.724 | 130 | 5.118 | 109.6 | 4.315 | 12.5 | 0.492 | 33/36 | 1.30/1.42 | 32.4 | 1.276 |
| FCSC-7500 | 150 | 5.906 | 162 | 6.378 | 138 | 5.433 | 16.5 | 0.65 | 38/41 | 1.50/.161 | 38 | 1.496 |
| FCSCX-1500 | 63 | 2.48 | 80 | 3.15 | 64 | 2.52 | 10.5 | 0.413 | 27 | 1.063 | 23.9 | 0.941 |



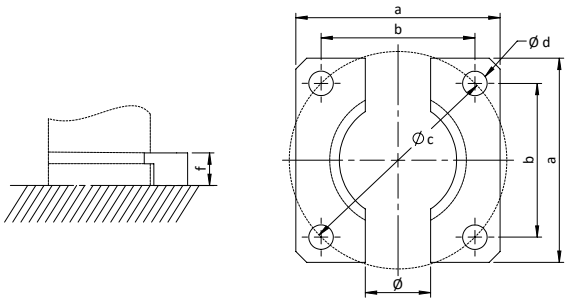

Low cap head screws are recommended
* If standard screws are used

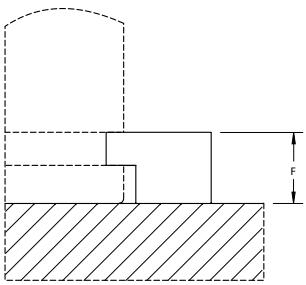
# FFC

## Lower Square Flange

**FFC is a foot mount used to clamp the base of the Gas Spring to the tool by using U-groove of the Gas Spring. FFC meets the ISO 11901-2, VDI 3003, Ford WDX35-62, GM 90.25 and other standards.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FFC-250 | 55 | 2.165 | 40 | 1.575 | 56.6 | 2.228 | 7 | 0.276 | 12 | 0.472 | 6.5 | 0.256 |
| FFC-350 | 50 | 1.969 | 35 | 1.378 | 49.5 | 1.949 | 7 | 0.276 | 12 | 0.472 | 6.5 | 0.256 |
| FFC-500 | 70 | 2.756 | 50 | 1.969 | 70.7 | 2.783 | 9 | 0.354 | 20 | 0.787 | 6.5 | 0.256 |
| FFC-750 | 75 | 2.953 | 56.5 | 2.224 | 80 | 3.15 | 9 | 0.354 | 24 | 0.945 | 12 | 0.472 |
| FFC-1500 | 100 | 3.937 | 73.5 | 2.894 | 104 | 4.094 | 11 | 0.433 | 24 | 0.945 | 12 | 0.472 |
| FFC-3000 | 120 | 4.724 | 92 | 3.622 | 130 | 5.118 | 13.5 | 0.531 | 24 | 0.945 | 12 | 0.472 |
| FFC-5000 | 140 | 5.512 | 109.5 | 4.311 | 155 | 6.102 | 13.5 | 0.531 | 24 | 0.945 | 12 | 0.472 |
| FFC-7500 | 190 | 7.48 | 138 | 5.433 | 195.2 | 7.685 | 17.5 | 0.689 | 24 | 0.945 | 12 | 0.472 |
| FFC-10000 | 210 | 8.268 | 170 | 6.693 | 240.4 | 9.465 | 17.5 | 0.689 | 24 | 0.945 | 13 | 0.512 |
| FFC-T3T-350 | 50 | 1.969 | 35 | 1.378 | 49.5 | 1.949 | 7 | 0.276 | 18 | 0.709 | 6.5 | 0.256 |
| FFC-T3T-500 | 55 | 2.165 | 40 | 1.575 | 56.6 | 2.228 | 7 | 0.276 | 18 | 0.709 | 6.5 | 0.256 |
| FFX-1500 | 100 | 3.937 | 73.5 | 2.894 | 104 | 4.094 | 11 | 0.433 | 24 | 0.945 | 12 | 0.472 |



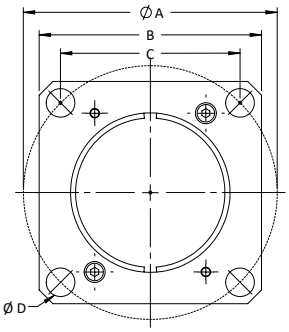



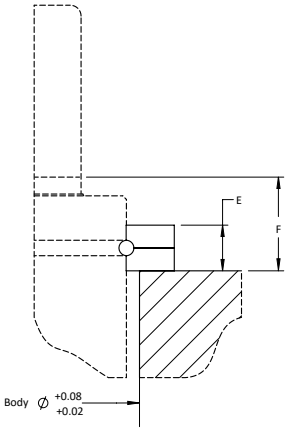
# FK

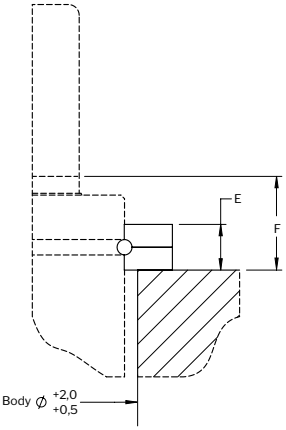
## Upper Square Flange

**FK is a square Flange Mount used to mount the Gas Spring in the upper C-groove.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| FK-1500 | 104 | 4.094 | 90 | 3.543 | 73.5 | 2.894 | 11 | 0.433 | 16 | 0.63 | 26/29 | |
| FK-1800 | 80 | 3.15 | 70 | 2.756 | 56.5 | 2.224 | 9 | 0.354 | 13 | 0.512 | 21 | 0.827 |
| FK-3000 | 130 | 5.118 | 110 | 4.331 | 92 | 3.622 | 13.5 | 0.531 | 18 | 0.709 | 30 | 1.181 |



# HM

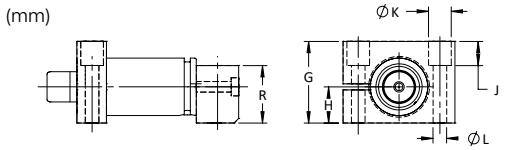
## Horizonal Foot Flange Specifically for NP springs

**HM (Horizontal Mount) is a mount for NP 250, 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.The support is supplied complete with screws for attaching the mount to the spring.**

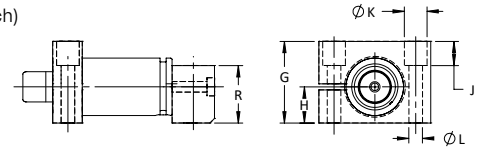
| Order No. | A | | B | | C | | D | | E | | F | | G | | H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| HM-250 | 74 | 2.913 | 54 | 2.126 | 29.5 | 1.161 | 12 | 0.472 | 40 | 1.575 | 60 | 2.362 | 54 | 2.126 | 23.9 | 0.941 |
| HM-750 | 90 | 3.543 | 68 | 2.677 | 43 | 1.693 | 13 | 0.512 | 44 | 1.732 | 65 | 2.559 | 70 | 2.756 | 30 | 1.181 |
| HM-1500 | 125 | 4.921 | 100 | 3.937 | 45 | 1.772 | 12 | 0.472 | 57 | 2.244 | 80 | 3.15 | 94 | 3.701 | 42 | 1.654 |
| HM-3000 | 140 | 5.512 | 115 | 4.528 | 48 | 1.89 | 15 | 0.591 | 70 | 2.756 | 95 | 3.74 | 115 | 4.528 | 52.5 | 2.067 |

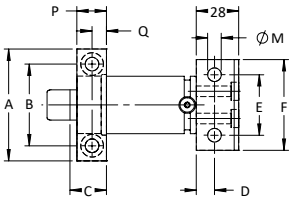
| Order No. | J | | K | | L | | M | | N | | P | | Q | | R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| HM-250 | 16 | 0.63 | 15 | 0.591 | 9 | 0.354 | 9 | 0.35 | 0.354 | 0.01 | 20 | 0.787 | 10 | 0.394 | 38 | 1.496 |
| HM-750 | 25 | 0.984 | 18 | 0.709 | 11 | 0.433 | 11 | 0.43 | 0.433 | 0.02 | 30 | 1.181 | 15 | 0.591 | 45 | 1.772 |
| HM-1500 | 19 | 0.748 | 20 | 0.787 | 13.5 | 0.531 | 13.5 | 0.53 | 0.531 | 0.02 | 30 | 1.181 | 15 | 0.591 | 45 | 1.772 |
| HM-3000 | 40 | 1.575 | 20 | 0.787 | 13.5 | 0.531 | 13.5 | 0.53 | 0.531 | 0.02 | 30 | 1.181 | 15 | 0.591 | 45 | 1.772 |

(mm)




(Inch)



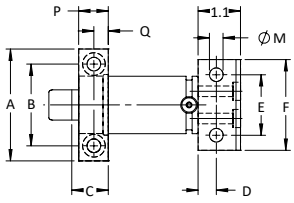




Fig. A

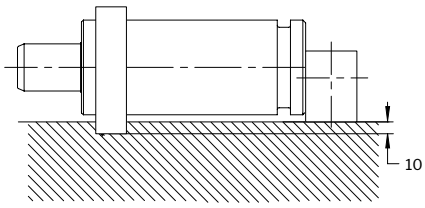
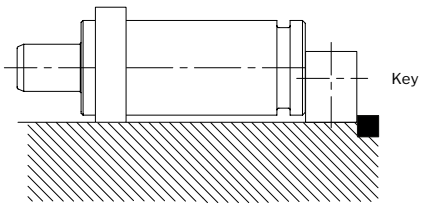
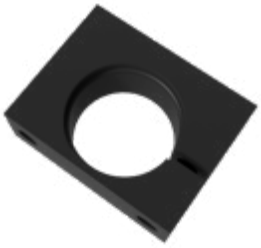



Fig. B



# HMF

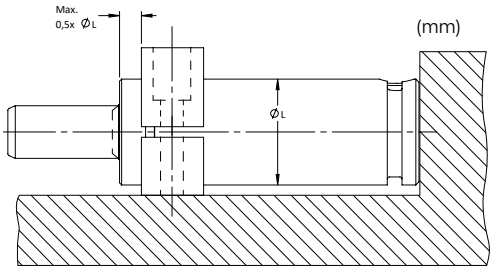


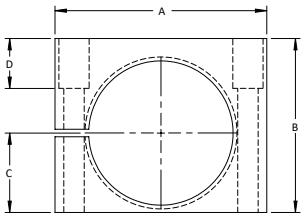
## HMF is a Horizontal Body Flange

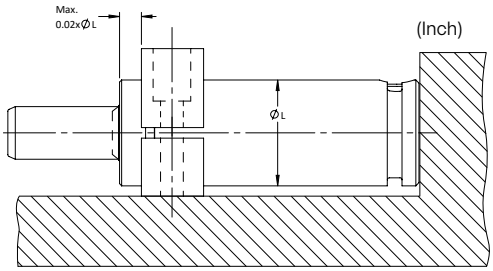
**The HMF mount is a symmetric horizontal body mount similar to the S mount. The HMF mount meets the VDI 3003, Ford WD-X35-62 and GMDS 90.25.455 standard.**

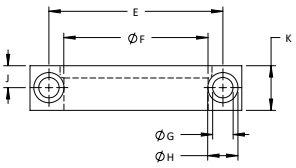
| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| HMF-150 | 68 | 2.677 | 48 | 1.89 | 20.9 | 0.823 | 10 | 0.394 | 50 | 1.969 | 32.1 | 1.264 |
| HMF-250 | 74 | 2.913 | 54 | 2.126 | 23.9 | 0.941 | 16 | 0.63 | 54 | 2.126 | 38.1 | 1.5 |
| HMF-500 | 80 | 3.15 | 60 | 2.362 | 27.5 | 1.083 | 22 | 0.866 | 60 | 2.362 | 45.4 | 1.787 |
| HMF-750 | 90 | 3.543 | 70 | 2.756 | 30 | 1.181 | 25 | 0.984 | 68 | 2.677 | 50.4 | 1.984 |
| HMF-1500 | 125 | 4.921 | 94 | 3.701 | 42 | 1.654 | 32 | 1.26 | 100 | 3.937 | 75.4 | 2.969 |
| HMF-3000 | 140 | 5.512 | 115 | 4.528 | 52.5 | 2.067 | 33 | 1.299 | 115 | 4.528 | 95.4 | 3.756 |
| HMF-5000 | 170 | 6.693 | 140 | 5.512 | 65 | 2.559 | 58 | 2.283 | 145 | 5.709 | 120.4 | 4.74 |
| HMF-7500 | 200 | 7.874 | 170 | 6.693 | 80 | 3.15 | 68 | 2.677 | 175 | 6.89 | 150.4 | 5.921 |
| HMFX-1500 | 108 | 4.252 | 82 | 3.228 | 36.5 | 1.437 | 27 | 1.063 | 84 | 3.307 | 63.4 | 2.496 |

| Order No. | G | | H | | J | | K | | L | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| HMF-150 | 9 | 0.354 | 15 | 0.591 | 10 | 0.394 | 20 | 0.787 | 31.9 | 1.256 |
| HMF-250 | 9 | 0.354 | 15 | 0.591 | 10 | 0.394 | 20 | 0.787 | 38 | 1.496 |
| HMF-500 | 9 | 0.354 | 15 | 0.591 | 10 | 0.394 | 20 | 0.787 | 45.2 | 1.78 |
| HMF-750 | 11 | 0.433 | 18 | 0.709 | 15 | 0.591 | 30 | 1.181 | 50.2 | 1.976 |
| HMF-1500 | 13.5 | 0.531 | 20 | 0.787 | 15 | 0.591 | 30 | 1.181 | 75.2 | 2.961 |
| HMF-3000 | 13.5 | 0.531 | 20 | 0.787 | 15 | 0.591 | 30 | 1.181 | 95.2 | 3.748 |
| HMF-5000 | 13.5 | 0.531 | 20 | 0.787 | 15 | 0.591 | 30 | 1.181 | 120.2 | 4.732 |
| HMF-7500 | 13.5 | 0.531 | 20 | 0.787 | 15 | 0.591 | 30 | 1.181 | 150.2 | 5.913 |
| HMFX-1500 | 11 | 0.433 | 18 | 0.709 | 15 | 0.591 | 30 | 1.181 | 63.2 | 2.488 |



# LM-LUG


## Lower Lug Flange

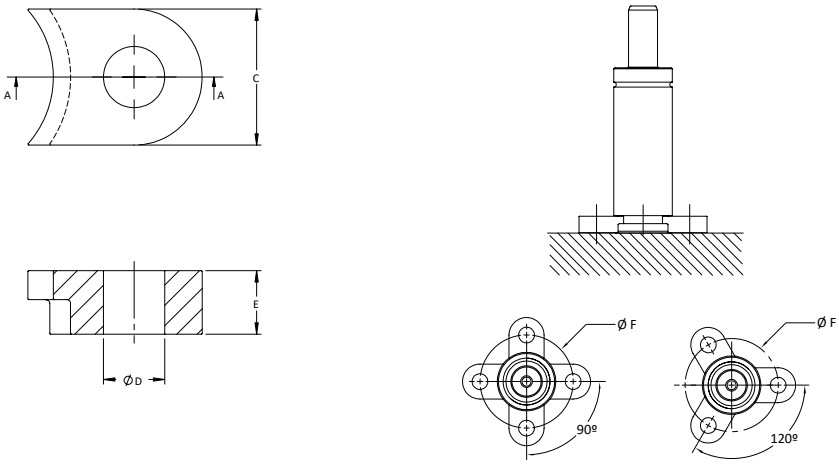
**The LM-lug is used to clamp the Gas Spring vertically upright to the tool. The Gas Spring can be clamped down using 2, 3 or 4 LM-lugs. If only 2 lugs are used, then locking plate L must also be used to fix the Gas Spring.**

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

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

| Order No. | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in |
| LM-250 | 20 | 0.787 | 7 | 0.276 | 7 | 0.276 | 56.6 | 2.228 |
| LM-500 | 25 | 0.984 | 9 | 0.354 | 7 | 0.276 | 70.7 | 2.783 |
| LM-750 | 30 | 1.181 | 13.5 | 0.531 | 14 | 0.551 | 80 | 3.15 |
| LM-1500 | 30 | 1.181 | 13.5 | 0.531 | 14 | 0.551 | 104 | 4.094 |
| LM-3000 | 40 | 1.575 | 17.5 | 0.689 | 14 | 0.551 | 130 | 5.118 |
| LM-5000 | 50 | 1.969 | 17.5 | 0.689 | 14 | 0.551 | 155 | 6.102 |
| LM-7500 | 50 | 1.969 | 21.5 | 0.846 | 14 | 0.551 | 195 | 7.677 |
| LM-10000 | 58 | 2.283 | 21.5 | 0.846 | 15 | 0.591 | 240 | 9.449 |
| LMX-1500 | 30 | 1.181 | 13.5 | 0.531 | 14 | 0.551 | 92 | 3.622 |

Note: When ordering K-lugs for T3/T4 springs, a lug of smaller size than the spring must be used.

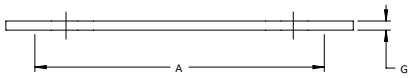


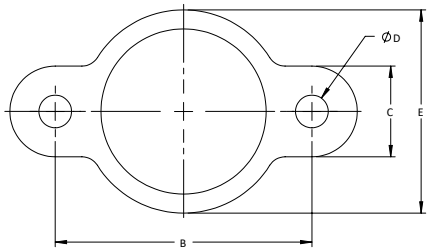
# L

## Locking Bracket for LM-lugs

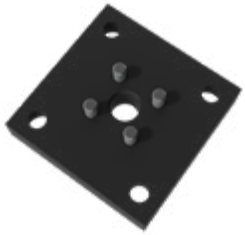
**When fixing Gas Springs vertically using 2 LM-lugs, locking plate L must be used at the same time to ensure that the spring is fixed radially.**

| Order No. | A | | B | | C | | D | | E | | F | | G | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| L-250 | 76.6 | 3.016 | 56.6 | 2.228 | 20 | 0.787 | 7 | 0.276 | 48 | 1.89 | 9.5 | 0.374 | 2.5 | 0.098 |
| L-500 | 95.8 | 3.772 | 70.7 | 2.783 | 25 | 0.984 | 9 | 0.354 | 56 | 2.205 | 9.5 | 0.374 | 2.5 | 0.098 |
| L-750 | 110 | 4.331 | 80 | 3.15 | 30 | 1.181 | 13 | 0.512 | 61 | 2.402 | 16.5 | 0.65 | 2.5 | 0.098 |
| L-1500 | 134 | 5.276 | 104 | 4.094 | 30 | 1.181 | 13 | 0.512 | 86 | 3.386 | 16.5 | 0.65 | 2.5 | 0.098 |
| L-3000 | 170 | 6.693 | 130 | 5.118 | 40 | 1.575 | 17 | 0.669 | 106 | 4.173 | 16.5 | 0.65 | 2.5 | 0.098 |
| L-5000 | 205 | 8.071 | 155 | 6.102 | 50 | 1.969 | 17 | 0.669 | 131 | 5.157 | 16.5 | 0.65 | 2.5 | 0.098 |
| L-7500 | 245 | 9.646 | 195 | 7.677 | 50 | 1.969 | 21 | 0.827 | 170 | 6.693 | 16.5 | 0.65 | 2.5 | 0.098 |
| L-T3-1500 | 122 | 4.803 | 92 | 3.622 | 30 | 1.181 | 13.5 | 0,531 | 74 | 2.913 | 16.5 | 0,65 | 2.5 | 0,098 |



# MP



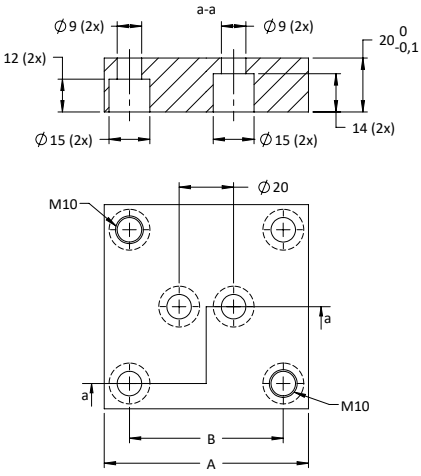
## Bottom Mounting Plate

**MP is a square base mount to mount the Gas Spring to the tool by using the bottom threads of the Gas Spring into the tool. MP meets the ISO 11901-2, GM 90.25 and other standards.**

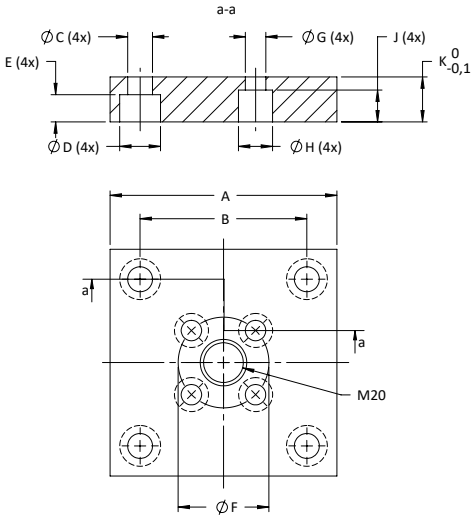
| Order No. | A | | B | | C | | D | | E | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| MP-500 | 70 | 2.756 | 50 | 1.969 | 9 | 0.354 | 15 | 0.591 | 12 | 0.472 |
| MP-750 | 75 | 2.953 | 56.5 | 2,224 | 9 | 0.354 | 15 | 0.591 | 12 | 0.472 |
| MP-1500 | 100 | 3.937 | 73.5 | 2,894 | 11 | 0.433 | 18 | 0.709 | 12 | 0.472 |
| MP-3000 | 120 | 4.724 | 92 | 3.622 | 13.5 | 0,531 | 20 | 0.787 | 13 | 0.512 |
| MP-5000 | 140 | 5.512 | 109.5 | 0,17 | 13.5 | 0,531 | 20 | 0.787 | 13 | 0.512 |
| MP-7500 | 190 | 7.48 | 138 | 5.433 | 17.5 | 0,689 | 26 | 1.024 | 17 | 0.669 |
| MP-10000 | 210 | 8.268 | 170 | 6.693 | 17.5 | 0,689 | 26 | 1.024 | 17 | 0.669 |
| MPX-1500 | 100 | 3.937 | 73.5 | 2,894 | 10.5 | 0,413 | 18 | 0.709 | 13 | 0.512 |

| Order No. | F | | G | | H | | J | | K | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| MP-500 | 20 | 0.787 | 9 | 0.354 | 15 | 0.591 | 14 | 0.551 | 20 | 0.787 |
| MP-750 | 20 | 0.787 | 9 | 0.354 | 15 | 0.591 | 14 | 0.551 | 20 | 0.787 |
| MP-1500 | 40 | 1.575 | 9 | 0.354 | 15 | 0.591 | 14 | 0.551 | 20 | 0.787 |
| MP-3000 | 60 | 2.362 | 9 | 0.354 | 15 | 0.591 | 14 | 0.551 | 20 | 0.787 |
| MP-5000 | 80 | 3.15 | 11 | 0.433 | 18 | 0.709 | 15 | 0.591 | 20 | 0.787 |
| MP-7500 | 100 | 3.937 | 11 | 0.433 | 18 | 0.709 | 20 | 0.787 | 25 | 0.984 |
| MP-10000 | 120 | 4.724 | 13.5 | 0,531 | 20 | 0.787 | 13 | 0.512 | 25 | 0.984 |
| MPX-1500 | 20 | 0.787 | 9 | 0.354 | 15 | 0.591 | 12 | 0.472 | 20 | 0.787 |

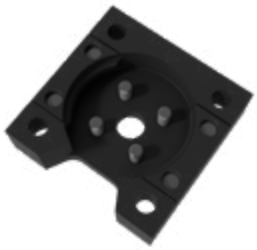
MP-500 and MP-750 (mm)




MP-1500 to MP-10000 (mm )



# RM

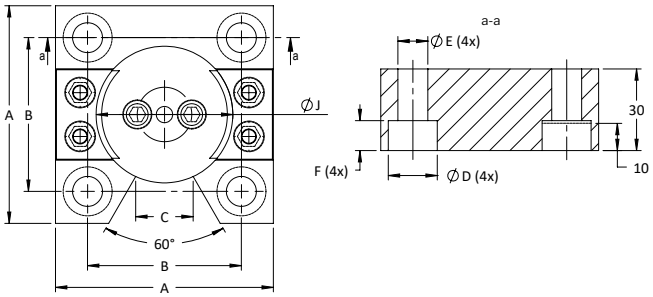


## Removable Square Flange

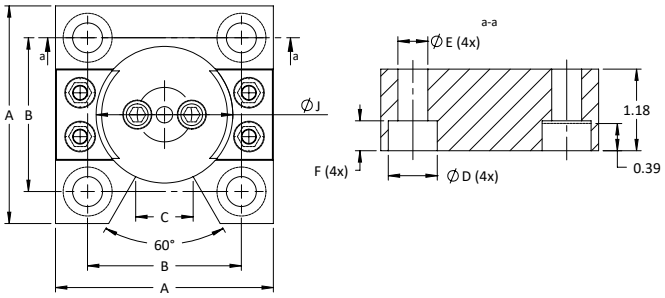
**The RM mount is a removable square mount for mounting the Gas Spring in the base. The RM mount is an alternative to an SW (Square Welded) mount, making it possible to keep a more flexible inventory. The RM mount meets the Ford W-DX35-80 North America standard.**

| Order No. | A | | B | | C | | D | | E | | F | | G | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| RM-750 | 80 | 3.15 | 56.5 | 2,224 | 21.1 | 0,831 | 18 | 0.709 | 11 | 0.433 | 11 | 0.433 | 50.2 | 1,976 |
| RM-1500 | 100 | 3.937 | 73.5 | 2,894 | 33.7 | 1,327 | 18 | 0.709 | 11 | 0.433 | 11 | 0.433 | 75.2 | 2,961 |
| RM-3000 | 120 | 4.724 | 92 | 3.622 | 43.2 | 1,701 | 20 | 0.787 | 13.5 | 0,531 | 13 | 0.512 | 95.2 | 3,748 |
| RM-5000 | 140 | 5.512 | 109.5 | 0,17 | 55.7 | 2,193 | 20 | 0.787 | 13.5 | 0,531 | 13 | 0.512 | 120.2 | 0,186 |
| RM-7500 | 190 | 7.48 | 138 | 5.433 | 70.7 | 2,783 | 26 | 1.024 | 18 | 0.709 | 17 | 0.669 | 150.2 | 0,233 |

(mm)




(Inch)



# S

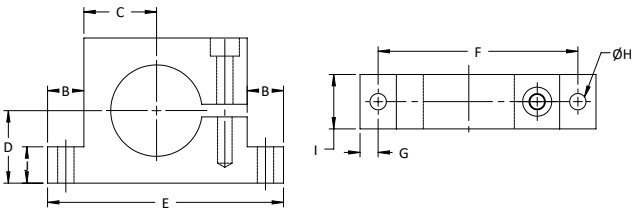
## Horizontal Body Flange

**The S mount is a horizontal body mount allowing the Gas Spring to be installed in any orientation within the die.**

| Order No. | A | | B | | C | | D | | E | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| S-200 | 32.1 | 1,264 | 18 | 0.709 | 22 | 0.866 | 22.5 | 0,886 | 90 | 3.543 |
| S-250 | 38.1 | 1,5 | 18 | 0.709 | 24 | 0.945 | 27.5 | 1,083 | 95 | 3.74 |
| S-750 | 50.4 | 1,984 | 20 | 0.787 | 40 | 1.575 | 40 | 1.575 | 130 | 5.118 |
| S-1500 | 75.4 | 2,969 | 22.5 | 0,886 | 52.5 | 2,067 | 52.5 | 2,067 | 160 | 6.299 |
| S-3000 | 95.4 | 3,756 | 25 | 0.984 | 67.5 | 2,657 | 62.5 | 2,461 | 195 | 7.677 |
| S-5000 | 120.4 | 0,187 | 27.5 | 1,083 | 77.5 | 3,051 | 74 | 2.913 | 220 | 8.661 |
| S-7500 | 150.4 | 0,233 | 30 | 1.181 | 95 | 3.74 | 100 | 3.937 | 260 | 10.236 |
| HMF-7500 | 45.4 | 1,787 | 17 | 0.669 | 29 | 1.142 | 30 | 1.181 | 100 | 3.937 |

| Order No. | F | | G | | H | | I | | J | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| S-200 | 72 | 2.835 | 9 | 0.354 | 8.5 | 0,335 | 20 | 0.787 | 15 | 0.591 |
| S-250 | 77 | 3.031 | 8 | 0.315 | 9 | 0.354 | 20 | 0.787 | 15 | 0.591 |
| S-500 | 82 | 3.228 | 9 | 0.354 | 9 | 0.354 | 20 | 0.787 | 15 | 0.591 |
| S-750 | 110 | 4.331 | 10 | 0.394 | 9 | 0.354 | 30 | 1.181 | 20 | 0.787 |
| S-1500 | 137 | 5.394 | 11.5 | 0,453 | 11 | 0.433 | 30 | 1.181 | 20 | 0.787 |
| S-3000 | 170 | 6.693 | 12.5 | 0,492 | 13 | 0.512 | 30 | 1.181 | 20 | 0.787 |
| S-5000 | 195 | 7.677 | 12.5 | 0,492 | 13 | 0.512 | 30 | 1.181 | 20 | 0.787 |
| S-7500 | 230 | 9.055 | 15 | 0.591 | 13 | 0.512 | 30 | 1.181 | 20 | 0.787 |

Note! The base of the Gas Spring must always be supported when using the S mount.



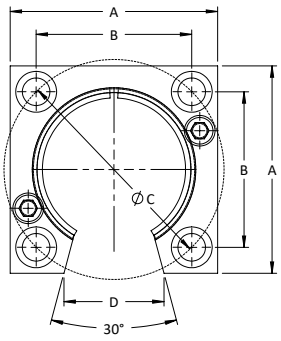
# SF

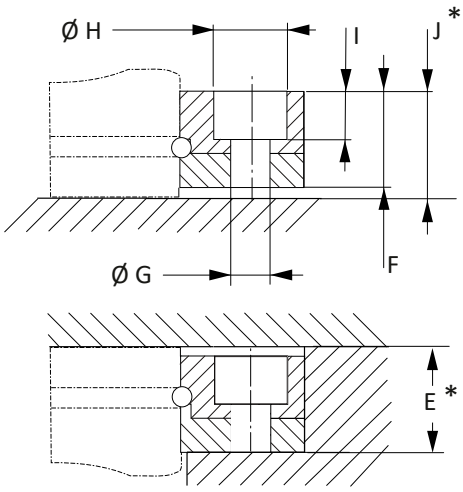
## Lower Square Flange

**The SF 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 SF Flange can be used for both upright and upside-down installations. The SF Flange can also be used on Gas Springs with a lower U-groove by using the additional SF Adapter Ring. The SF Adapter Ring is ordered separately and is to replace the standard lock ring included in the SF Flange.**

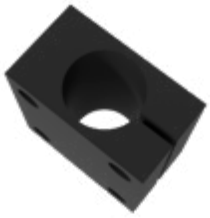
| Order No. | A | | B | | C | | D | | E | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| SF-750 | 76.2 | 3 | 53.9 | 2.122 | 76.2 | 3 | 35 | 1.378 | 25,7 | |
| SF-1500 | 101.6 | 4 | 76.2 | 3 | 107.6 | 4.236 | 49 | 1.929 | 25,7 | |
| SF-3000 | 127 | 5 | 98.3 | 3.87 | 139 | 5.472 | 61 | 2.402 | 25,7 | |
| SF-5000 | 139.7 | 5.5 | 114.3 | 4.5 | 161.8 | 6.37 | 71 | 2.795 | 25,7 | |
| SF-7500 | 177.8 | 7 | 139.7 | 5.5 | 197.8 | 7.787 | 88 | 3.465 | 25,7 | |
| SFX-1500 | 100 | 3.937 | 73.5 | 2.894 | 103.9 | 4.091 | 49 | 1.929 | 25,5 | |

| Order No. | F | | G | | H | | I | | J | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| SF-750 | 25 | 0.984 | 11 | 0.433 | 17 | 0.669 | 11 | 0.433 | 25,7 | |
| SF-1500 | 25 | 0.984 | 13 | 0.512 | 20 | 0.787 | 13 | 0.512 | 25,7 | |
| SF-3000 | 25 | 0.984 | 13.5 | 0.531 | 20 | 0.787 | 13 | 0.512 | 25,7 | |
| SF-5000 | 25 | 0.984 | 13.5 | 0.531 | 20 | 0.787 | 13 | 0.512 | 25,7 | |
| SF-7500 | 25 | 0.984 | 18 | 0.709 | 26 | 1.024 | 17 | 0.669 | 25,7 | |
| SFX-1500 | 24 | 0.945 | 11 | 0.433 | 18 | 0.709 | 11 | 0.433 | 25 | |



# SM

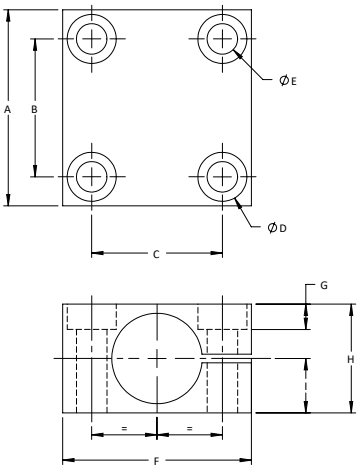


## Special Body Flange

**SM is a body mount for the T2-200 Gas Spring.**

| Order No. | A | | B | | C | | D | | E | | F | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| SM-180 | 54 | 2.126 | 38 | 1.496 | 37 | 1.457 | 13.5 | 0,531 | 9 | 0.354 | 6.5 | 0,256 |

| Order No. | G | | H | | I | | J | | K | | L | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| SM-180 | 14.5 | 0,571 | 9 | 0.354 | 52 | 2.047 | 15 | 0.591 | 30 | 1.181 | 7 | 0.276 |



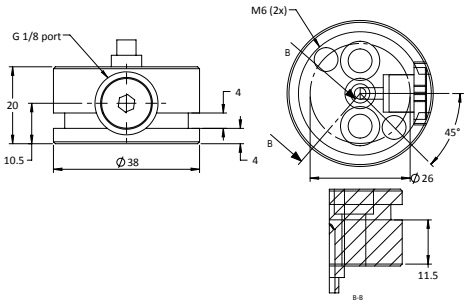
# SP

## Side Port Plate for the T4SC Series

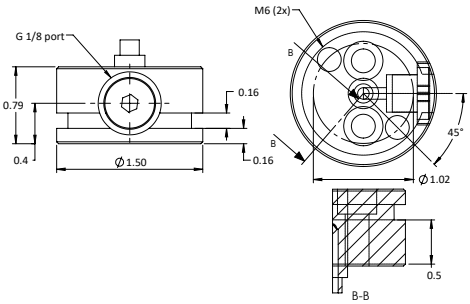
**SP is a Side Port plate for the T4SC spring used for connecting into a hosed or linked system.**

| Order No. | B | | C | |
|---|---|---|---|---|
| | mm | in | mm | in |
| SP-1000 | 25 | 0.984 | 38 | 1.496 |
| SP-1800 | 26 | 1.024 | 50.2 | 1,976 |
| SP-2900 | 34 | 1.339 | 63.2 | 2,488 |
| SP-4700 | 40 | 1.575 | 75.2 | 2,961 |
| SP-7500 | 52 | 2.047 | 95.2 | 3,748 |
| SP-11800 | 68 | 2.677 | 120.2 | 0,186 |
| SP-18300 | 90 | 3.543 | 150.2 | 0,233 |

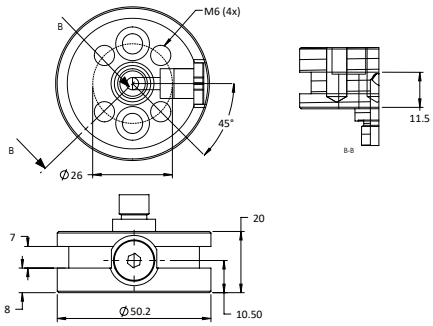
SP-1000 (mm)



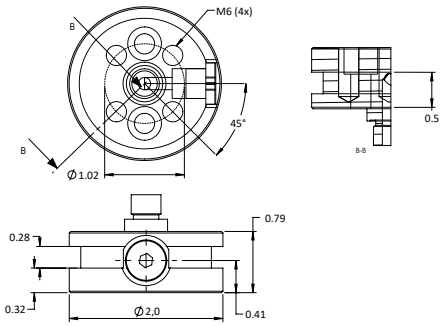

SP-1000 (Inch)



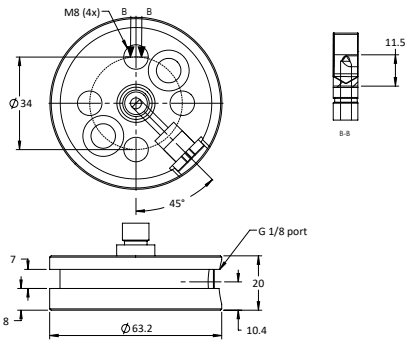

SP-1800 (mm)



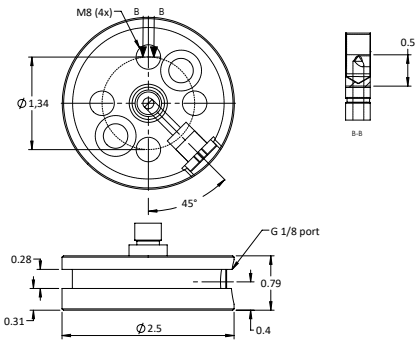

SP-1800 (Inch)



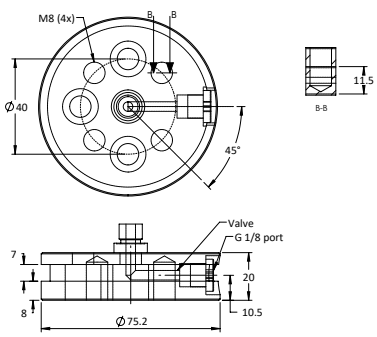

SP-2900 (mm)



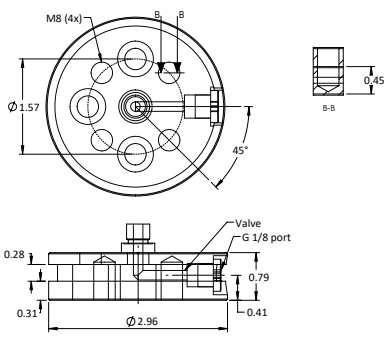

SP-2900 (mm)



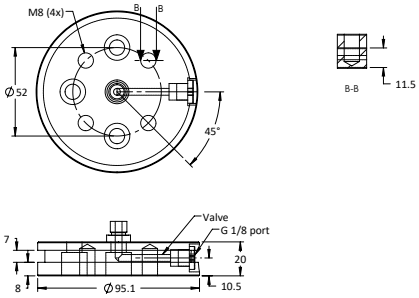
SP-4700 (mm)



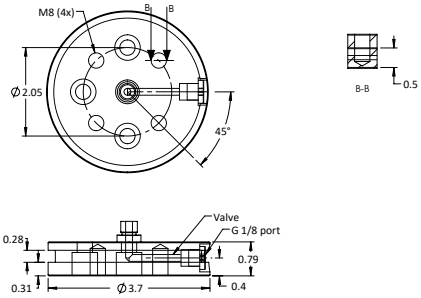

SP-4700 (Inch)



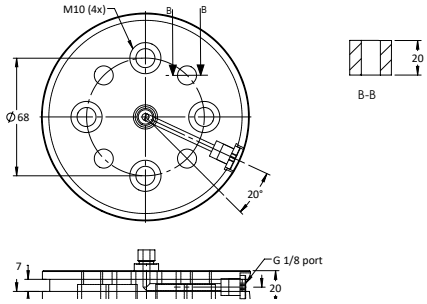

SP-7500 (mm)



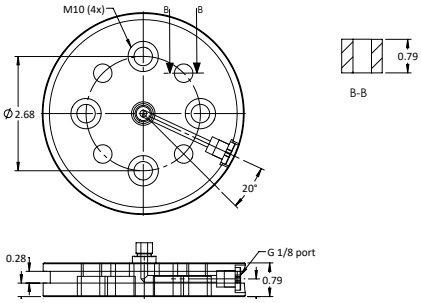

SP-7500 (Inch)



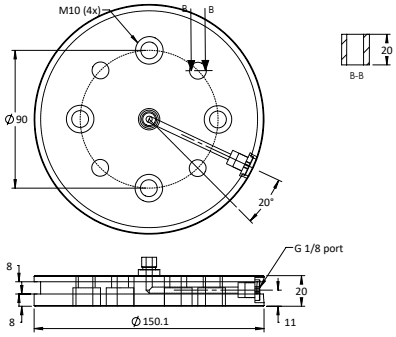

SP-11800 (mm)



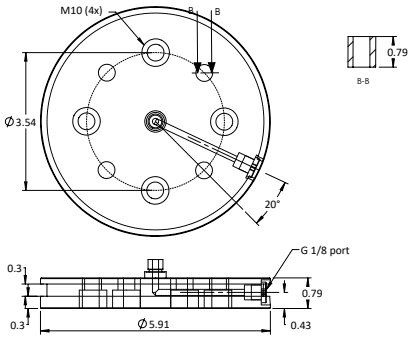

SP-11800 (Inch)




SP-11800 (mm)




SP-11800 (Inch)



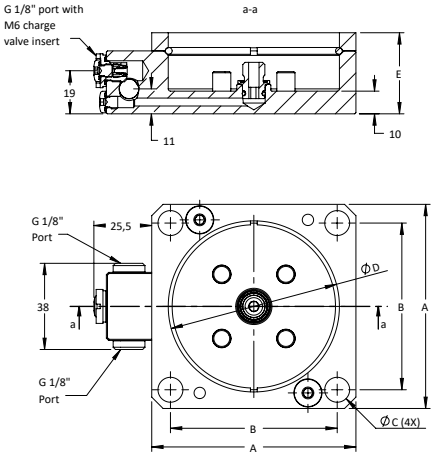
# SPRM

## Side Port Rear Mount

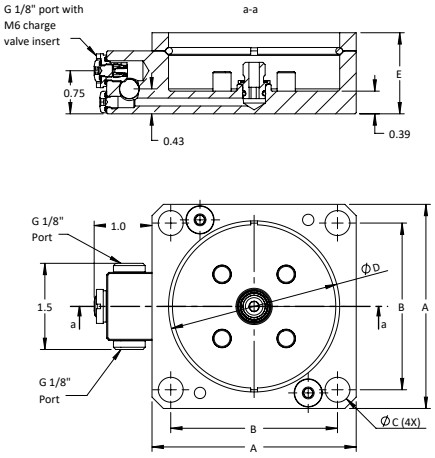
**SPRM is a side port rear mount for the T4SC spring (T4SC 4700 - 18300) used for connecting into a hosed or linked system. The SPRM mount meets the Ford W-DX35-62 global standard.**

| Order No. | A | | B | | C | | D | | E | |
|---|---|---|---|---|---|---|---|---|---|---|
| | mm | in | mm | in | mm | in | mm | in | mm | in |
| SPRM-75 | 90 | 3.543 | 73.5 | 2,894 | 11 | 0.433 | 75.2 | 2,961 | 36 | 1.417 |
| SPRM-95 | 110 | 4.331 | 92 | 3.622 | 13.5 | 0,531 | 95.2 | 3,748 | 40 | 1.575 |
| SPRM-120 | 130 | 5.118 | 109.5 | 0,17 | 13.5 | 0,531 | 120.2 | 0,186 | 43 | 1.693 |
| SPRM-150 | 162 | 6.378 | 138 | 5.433 | 17.5 | 0,689 | 150.2 | 0,233 | 48 | 1.89 |

(mm)




(Inch)



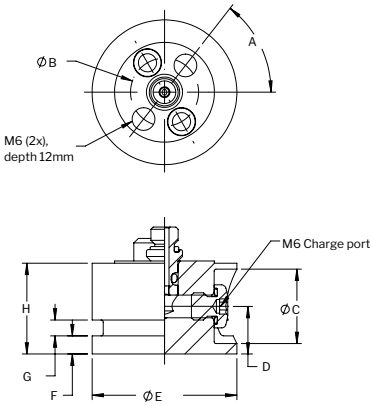
# SPT5

## Side Port Plate for the T5 Series

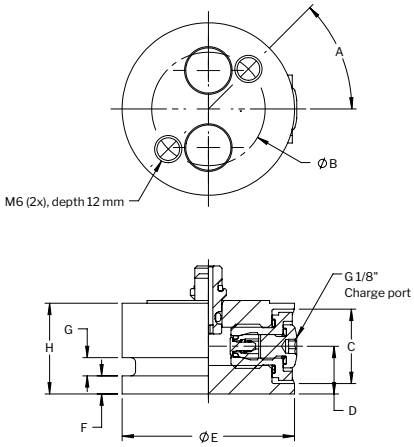
**SPT5 is a side port plate for the T5 spring used for connecting into a hosed or linked system.**

| Order No. | A | B | | C | | D | | E | | F | | G | | H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | degrees | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| SPT5-500 | 52° | 15 | 0.591 | 16.4 | 0,646 | 10.5 | 0,413 | 31.9 | 1,256 | 4 | 0.157 | 3.5 | 0,138 | 20 | 0.787 |
| SPT5-1000 | 45° | 25 | 0.984 | 16.4 | 0,646 | 10.5 | 0,413 | 38 | 1.496 | 4 | 0.157 | 4 | 0.157 | 20 | 0.787 |
| SPT5-1900 | 45° | 26 | 1.024 | 16.4 | 0,646 | 10.5 | 0,413 | 50.2 | 1,976 | 8 | 0.315 | 7 | 0.276 | 20 | 0.787 |

SPCX-500




SP-1000




SPCX-1900