Notes on gas spring design and installation calculation

The Stabilus installation program allows us to design your optimized gas spring and its connection for each special application case. For this, we will need the following data for the application, e.g., a flap:

- Dimensions, location of the center of gravity and weight
- Opening angle to be accomplished
- Installation space available for the gas spring
- Point at which manual force is applied (handle)
- Temperature range
- Connection technology

This data will yield:

- Stroke A [mm]
- Extended length B [mm]
- Extension force F_1 [N]
- Manual force curve F_H [N] /α [degrees]

Hinweise zur Auslegung von Gasfedern und Einbauberechnung

Mit dem Stabilus-Einbauprogramm können wir Ihnen die optimale Gasfeder und deren Anbindung für jeden speziellen Anwendungsfall auslegen. Dazu sind folgende Angaben zur Anwendung, z.B. zu einer Klappe, notwendig:

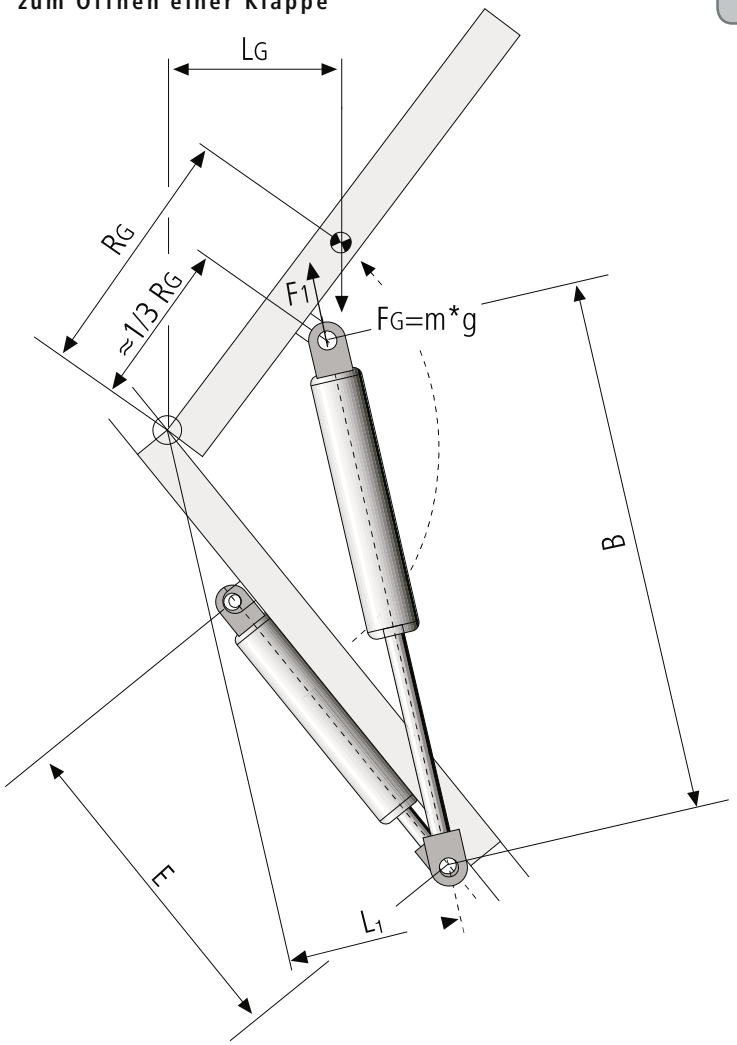
- Abmessungen, Schwerpunktlage und Gewicht
- Zu realisierender Öffnungswinkel
- Möglicher Einbauraum für die Gasfeder
- Handangriffspunkt
- Temperaturbereich
- Anschlusstechnik

Aus diesen Angaben ergeben sich:

- Der Hub A [mm]
- Die ausgeschobene Länge B [mm]
- Die Ausschubkraft F_1 [N]
- Handkraftverlauf F_H [N] /α [Grad]

Stroke and extension force of a gas spring to open a flap

Hub und Ausschubkraft der Gasfeder zum Öffnen einer Klappe



min. stroke / min. Hub: $A = B - E$

Extension force / Ausschubkraft: $F_1 = \frac{F_G \times L_G}{n \times L_1} \times R$

A:	Stroke of the gas spring	[mm]
B:	Extended length of the gas spring	[mm]
E:	Compressed length of the gas spring	[mm]
F_1:	Extension force of the gas spring	[N]
F_G:	Weight force of the application in the centre of gravity	[N]
g:	Acceleration due to gravity 9,81	[m/s²]
L_1:	Vertical distance bearing/deformation axis F_1	[mm]
L_G:	Vertical distance bearing/deformation axis F_G	[mm]
R_G:	Radius bearing/centre of gravity	[mm]
m:	Mass (weight) of the application	[kg]
n:	Number of gas springs	[/]
R:	Reserve force factor 1,2 ... 1,3	[/]

A:	Hub der Gasfeder	[mm]
B:	Ausgeschobene Länge der Gasfeder	[mm]
E:	Eingeschobene Länge der Gasfeder	[mm]
F_1:	Ausschubkraft der Gasfeder	[N]
F_G:	Gewichtskraft der Anwendung im Schwerpunkt	[N]
g:	Erdbeschleunigung 9,81	[m/s²]
L_1:	Senkr. Abstand Lager/Kraftwirkungslinie F_1	[mm]
L_G:	Senkr. Abstand Lager/Kraftwirkungslinie F_G	[mm]
R_G:	Radius Lager/Schwerpunkt	[mm]
m:	Masse (Gewicht) der Anwendung	[kg]
n:	Anzahl der Gasfedern	[/]
R:	Kraftreservefaktor 1,2 ... 1,3	[/]

Data sheet

Programme: mounting

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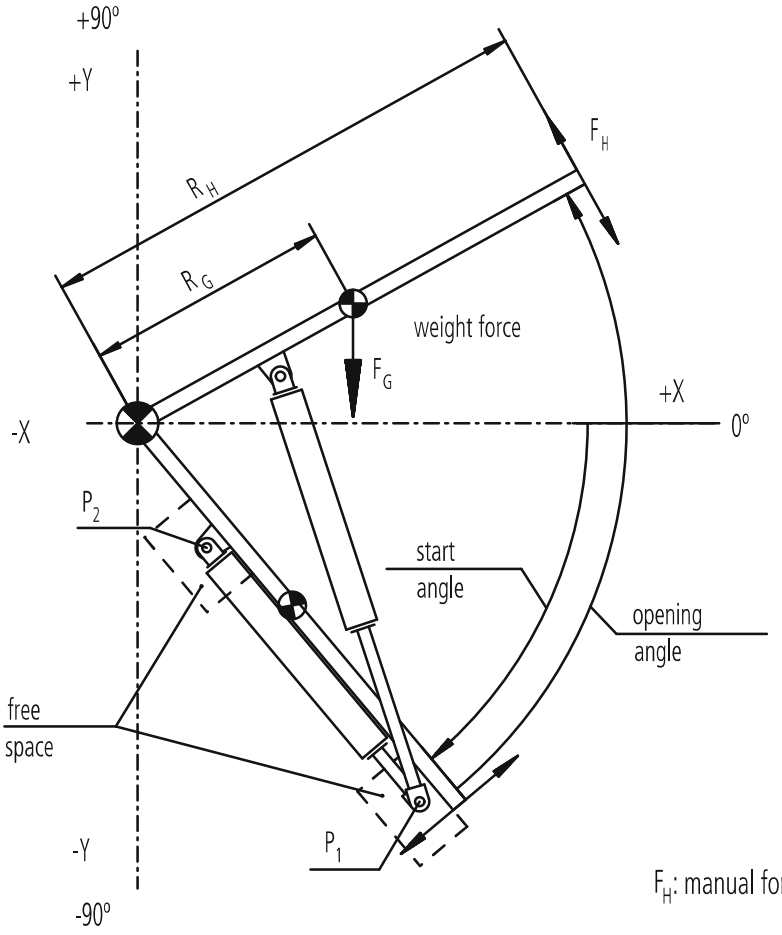

STABILUS recommends a minimum manuel force of 20 N at -30° C at open position. Is the calculated manuel force below 20 N, the agreement of the customer is needed.

confirmation of the customer

F_H: manual force for opening or closing

Customer:..... Project:..... Application:.....

gas spring:	x [mm]	y [mm]	free space ± X [mm]	free space ± Y [mm]
P_1 (flap):				
P_2 (frame):				

start angle:	[GRAD]	weight force F_G :	[N]
opening angle:	[GRAD]	number of the gas springs:	[/]
manual force radius R_H :	[mm]	temperature:	
radius bearing R_G :	[mm]	from to	[°C]

signed:	authorization:	last change:

For internal and external use

DE

last edition:

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