# VSL

## Suspensions pour ventouses

- Les suspensions (ou buffer, ou compensateurs de niveau) sont employées pour maintenir en position les ventouses durant l'approche du robot.
- Gimatic propose une gamme spécialement conçue pour les applications plastiques.
- Elles sont généralement montées sur des effecteurs de robot (EOAT) avec les étriers MFI.

## *Vacuum cup suspensions*

- *The suspensions (or buffers, or level compensators) are used to keep the suction cups in position as the robot approaches.*
- *Gimatic offers a range specifically designed for Plastics applications.*
- *They are typically mounted on EOATs (End Of Arm Toolings) with MFI brackets.*

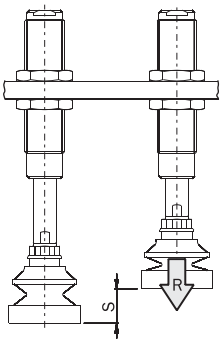
## Force de réaction

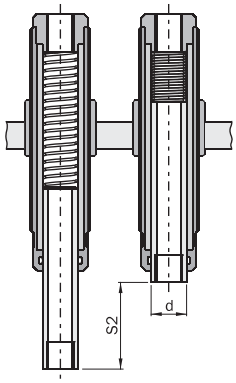
La force de réaction dépend de la compression (S) du ressort interne. Elle dépend aussi du diamètre du piston (d) et de la pression d'utilisation (p) dans le cas des suspensions télescopiques.
Utiliser la formule suivante pour le calcul.

## *Reaction force*

*The reaction force depends on the compression (S) of the internal spring. And also on the piston diameter (d) and operation pressure (p), in the case of telescopic suspensions.*
*Use the following formula for calculation.*

$$R = R1 + K \cdot S + d^2 \cdot \frac{\pi}{40} \cdot p$$




| | |
|---|---|
| R [N] | Force de réaction<br>*Reaction force* |
| R1 [N] | Force du ressort au début de la course<br>*Spring force at the beginning* |
| K [N/mm] | Elasticité constante du ressort<br>*Spring rate* |
| S [mm] | Course effectuée<br>*Compression stroke* |
| d [mm] | Alésage<br>*Piston bore* |
| p [bar] | Pression<br>*Pressure* |
| R2 [N] | Force du ressort à la fin de la course<br>*Spring force at the end-stroke* |
| S2 [mm] | Course maximum<br>*Maximum stroke* |
| m [g] | Poids<br>*Weight* |


**VSL**


**VSC**


**VSR** NEW


**VSRT** NEW


**VSE** NEW


**VSET** NEW


**VVX**


**VSRTG**


**VSNG** NEW


**VSNTG** NEW


**VSS**


**VSD** NEW


**VSNF**

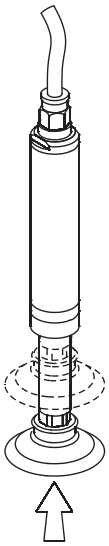

**VSNTF**


**VSRF**


**VSRTF**

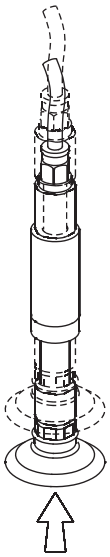
## Suspensions télescopiques
## *Telescopic suspensions*

- VSC
- VSL
- VSS



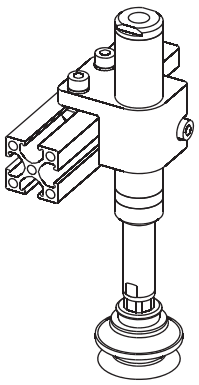
## Suspensions à tige traversante
## *Through rod suspensions*

- VSR
- VSRT
- VSN
- VSNT
- VSE
- VSET
- VVX
- VSRTG
- VSNG
- VSNTG
- VSD



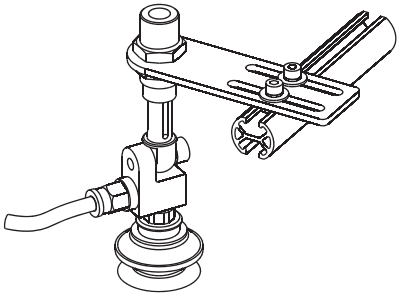
## Suspensions avec corps lisse
## *Suspensions with smooth body*

- VSL
- VSS
- VSR
- VSN
- VSE
- VVX
- VSNG
- VSD
- VSNF
- VSRF



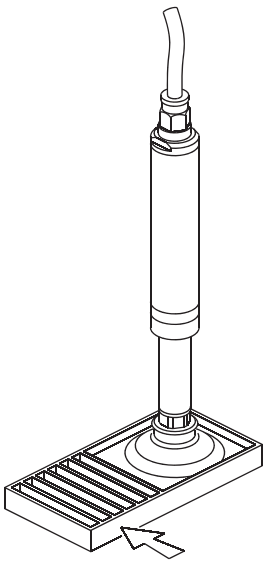
## Suspensions avec corps taraudé
## *Suspensions with threaded body*

- VSC
- VSRT
- VSNT
- VSET
- VSRTG
- VSNTG
- VSNTF
- VSRTF



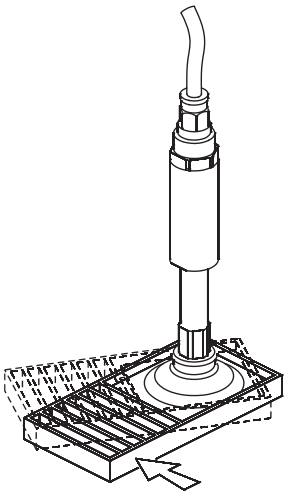
## Suspensions anti-rotation
## *Non-rotative suspensions*

- VSC
- VSL
- VSN
- VSNT
- VSE
- VSET
- VVX
- VSNG
- VSNTG
- VSD
- VSNF
- VSNTF



## Suspensions rotatives
## *Rotative suspensions*

- VSS
- VSR
- VSRT
- VSRTG
- VSRF
- VSRTF



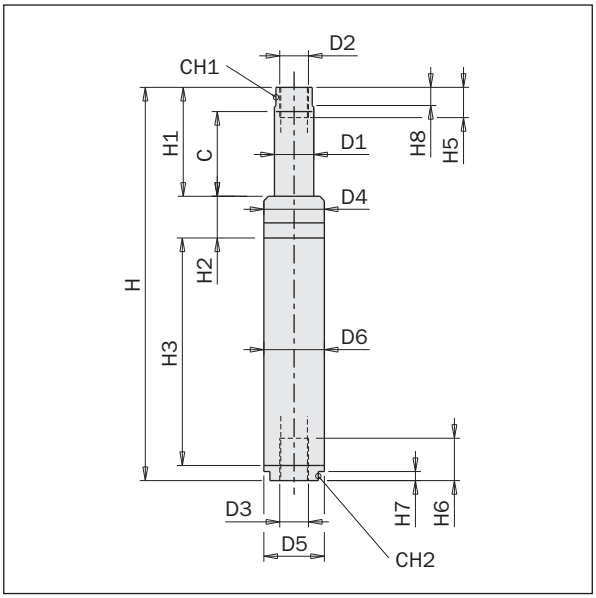
# VSL

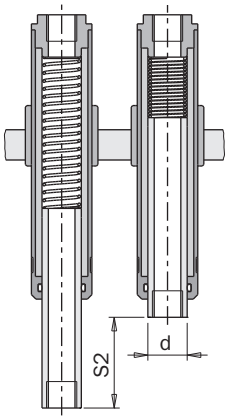
## Suspensions télescopiques anti-rotation avec corps lisse

- Corps à tige en aluminium anodisé.
- Traitement anti-friction sur tige.
- Coussinet en polymère pour un mouvement plus homogène.
- Tige anti-rotation avec jeu réduit.
- Mouvement télescopique: les raccords et les tubes ne bougent pas.
- Joint unidirectionnels utilisables seulement dans le vide.
- Pression d'utilisation: -1 ÷ 0 bar.
- Graisse alimentaire FDA-H1.

## *Smooth-body non-rotative telescopic suspensions*

- *Body and rod in anodized aluminum.*
- *Anti-friction treatment on the rod.*
- *Smooth movement thanks to the plastic bearing.*
- *Non-rotative rod with reduced tolerance.*
- *Telescopic lay-out: fittings and hoses don't move.*
- *Unidirectional sealing: only for vacuum applications.*
- *Pressure range: -1 ÷ 0 bar.*
- *FDA-H1 food-grade grease.*






| | | VSL1620 | VSL2030 | VSL2430 |
|---|---|---|---|---|
| H | [mm] | 100 | 130 | 130 |
| H1 | [mm] | 26 | 36 | 36 |
| H2 | [mm] | 12 | 14 | 14 |
| H3 | [mm] | 57 | 75 | 75 |
| H4 | [mm] | 5 | 5 | 5 |
| H5 | [mm] | 10 | 10 | 10 |
| H6 | [mm] | 14 | 14 | 14 |
| H7 | [mm] | 3 | 3 | 3 |
| H8 | [mm] | 5 | 6 | 6 |
| D1 | [mm] | Ø8 | Ø13 | Ø16 |
| D2 | | M5 | G1/8" | G1/4" |
| D3 | | M5 | G1/8" | G1/4" |
| D4 | [mm] | Ø14.5 | Ø20 | Ø23 |
| D5 | [mm] | Ø14.5 | Ø20 | Ø23 |
| D6 | [mm] | Ø16 | Ø20 | Ø24 |
| CH1 | [mm] | 7 | 12 | 14 |
| CH2 | [mm] | 13 | 16 | 20 |
| C | [mm] | 20 | 30 | 30 |
| S2 | [mm] | 20 | 30 | 30 |
| d | [mm] | 8 | 13 | 16 |
| K | [N/mm] | 0.311 | 0.239 | 0.334 |
| R1 | [N] | 9.338 | 14.80 | 20.05 |
| R2 | [N] | 16.04 | 22.37 | 30.42 |
| m | [g] | 30 | 55 | 70 |