

# KAVAC

## KVC Series

### Vacuum Cups and Inserts



#### Features

- ◆ Four basic cup styles
- ◆ Available in three material types: vinyl, silicone and polyurethane

#### Type 1 Standard Cups

Standard cups are flexible and work well in applications that do not require lifting heavy loads. In food packaging for example, a standard cup can be used to apply a label to an uneven surface such as a package of chicken.

#### Type 2 Cleated Cups

Cleated cups are strong with a rigid, low profile that will lift heavy loads. The low profile allows heavy loads to be lifted vertically without the cup "peeling" away from the product surface. These cups perform well when gripping smooth, flat heavy objects such as steel sheet, glass (television picture tubes), and corrugated materials.

#### Type 3 Bellows Cups - with 1, 2, 3 or 4 bellows

Bellows cups have a pliable outer rim that will conform to curved or uneven surfaces while the bellows sections compensate for inconsistent stack heights. Under vacuum, the accordion-style bellows cup will collapse on contact. The collapsing action simulates a short cylinder stroke lifting the product for a short distance, possibly saving the need for a separate lifting mechanism/ cylinder - thereby reducing costs.

#### Type 4 Oval cups

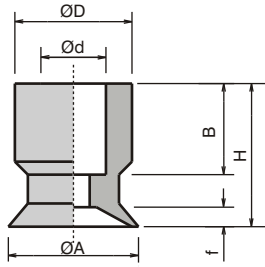
Like cleated cups, oval cups have a high load-handling capacity due to their rigid design and large vacuum work area. Oval cups apply the largest lifting forces because they provide the maximum surface area for a given cup footprint.

## Dimensions

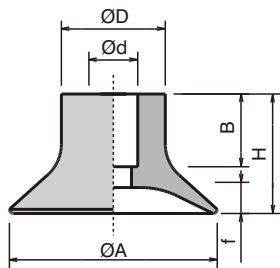
units mm

### Flat vacuum cups F05 to F95 mm Ø

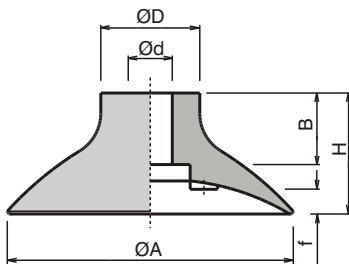
#### F05 to 10



#### F15 to 25



#### F30 to 95



Part Number	Cup Style	ØA mm	H mm	Ød mm	ØD mm	f mm	B mm	Weight g	Int. vol. cm <sup>3</sup>	Fr* N
KVCF05NBR	F05	5.5	9	4	7	1	7	0.3	0.03	0.65
KVCF05SI	F05	5.5	9	4	7	1	7	0.3	0.03	0.65
KVCF10NBR	F10	10	10.5	5	9	1.5	7	0.5	0.05	2.2
KVCF10SI	F10	10	10.5	5	9	1.5	7	0.5	0.05	2.2
KVCF15NBR	F15	15	11	5	9	2.25	7	0.7	0.18	5.1
KVCF15SI	F15	15	11	5	9	2.25	7	0.7	0.18	5.1
KVCF20NBR	F20	20	11.5	4.7	10	3	7	1.2	0.44	8.5
KVCF20SI	F20	20	11.5	4.7	10	3	7	1.2	0.44	8.5
KVCF25NBR	F25	25	12	4.5	10	3	7	1.4	0.7	13
KVCF25SI	F25	25	12	4.5	10	3	7	1.4	0.7	13
KVCF30NBR	F30	30	19	8	16	2.5	13	4	2.9	22
KVCF30SI	F30	30	19	8	16	2.5	13	4	2.9	22
KVCF35NBR	F35	36	20	8	16	3	13	5.6	2.7	32
KVCF35SI	F35	36	20	8	16	3	13	5.6	2.7	32
KVCF40NBR	F40	40	20	8	16	3	13	9	4	37
KVCF40SI	F40	40	20	8	16	3	13	9	4	37
KVCF52NBR	F52	52	22	8	18	4.5	13	14	7	53
KVCF52SI	F52	52	22	8	18	4.5	13	14	7	53
KVCF60NBR	F60	60	22	8	18	4.5	13	16	7.3	80
KVCF60SI	F60	60	22	8	18	4.5	13	16	7.3	80
KVCF75NBR	F75	75	32	12	23	4.5	20	33	16	140
KVCF75SI	F75	75	32	12	23	4.5	20	33	16	140
KVCF95SI	F95	95	38	12	25	12	20	50	47.5	170
KVCF95NE	F95	95	38	12	25	12	20	50	47.5	170

\* Fr (in Newtons): actual practical force of the suction cup @ 90% vacuum **including** a safety factor of 2.

**Special materials on request:** HNBR: Hydrogenated nitrile  
SIHT: High temperature silicone (>300°C)

See Installation diagrams for available connections

**Ordering Information:**  
By part number

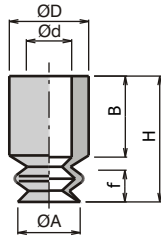


## Dimensions

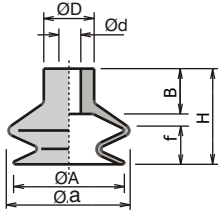
units mm

### 1.5 Bellows vacuum cups B05 to B78 mm Ø

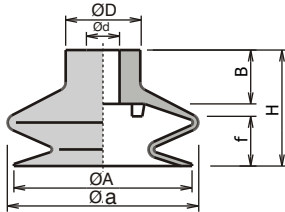
B05



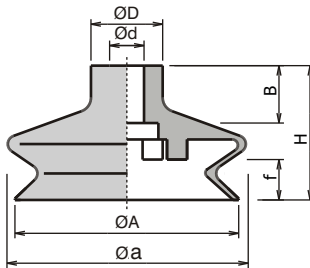
B11 to 33



B43



B53 to 78



Part Number	Cup Style	ØA mm	Øa mm	Ød mm	ØD mm	f mm	B mm	H mm	Weight g	Int. vol. cm <sup>3</sup>	Fr* N
KVCB05NBR	B05	5.5	6	4	7	2	7	11	0.5	0.04	0.68
KVCB05SI	B05	5.5	6	4	7	2	7	11	0.5	0.04	0.68
KVCB11NBR	B11	11	12.2	5	10	5.5	9	16	0.7	0.225	2.4
KVCB11SI	B11	11	12.2	5	10	5.5	9	16	0.7	0.225	2.4
KVCB11NR	B11	11	12.2	5	10	5.5	9	16	0.7	0.225	2.4
KVCB14NBR	B14	13	14	4	10	5	9	16	1.0	0.42	3.5
KVCB14SI	B14	13	14	4	10	5	9	16	1.0	0.42	3.5
KVCB14NR	B14	13	14	4	10	5	9	16	1.0	0.42	3.5
KVCB16NBR	B16	16	17.3	5	10	8.5	9	19	1.2	0.75	3.7
KVCB16SI	B16	16	17.3	5	10	8.5	9	19	1.2	0.75	3.7
KVCB16NR	B16	16	17.3	5	10	8.5	9	19	1.2	0.75	3.7
KVCB20NBR	B20	19	20	4	10	5	9	15.5	1.6	1.15	7.7
KVCB20SI	B20	19	20	4	10	5	9	15.5	1.6	1.15	7.7
KVCB20NR	B20	19	20	4	10	5	9	15.5	1.6	1.15	7.7
KVCB22NBR	B22	22	24	4.7	10	8	9	19	1.8	1.40	8.5
KVCB22SI	B22	22	24	4.7	10	8	9	19	1.8	1.40	8.5
KVCB22NR	B22	22	24	4.7	10	8	9	19	1.8	1.40	8.5
KVCB25NBR	B25	24	25	5	10	12	9	23	2.8	3.15	11
KVCB25SI	B25	24	25	5	10	12	9	23	2.8	3.15	11
KVCB25NR	B25	24	25	5	10	12	9	23	2.8	3.15	11
KVCB33NBR	B33	33	36.2	8	18	11	13	27.5	6.4	4.75	19.2
KVCB33SI	B33	33	36.2	8	18	11	13	27.5	6.4	4.75	19.2
KVCB33NR	B33	33	36.2	8	18	11	13	27.5	6.4	4.75	19.2
KVCB43NBR	B43	43	46	8	18	12.5	13	28	10	9.25	28
KVCB43SI	B43	43	46	8	18	12.5	13	28	10	9.25	28
KVCB43NR	B43	43	46	8	18	12.5	13	28	10	9.25	28
KVCB53NBR	B53	53	59	8	18	15	13	34	15	26.25	59
KVCB53SI	B53	53	59	8	18	15	13	34	15	26.25	59
KVCB53NR	B53	53	59	8	18	15	13	34	15	26.25	59
KVCB78NBR	B78	78	83	12	25	14	20	46.8	42	76	152
KVCB78SI	B78	78	83	12	25	14	20	46.8	42	76	152
KVCB78NR	B78	78	83	12	25	14	20	46.8	42	76	152

\* Fr (in Newtons): actual practical force of the suction cup @ 90% vacuum *including* a safety factor of 2.

**Special materials on request:** HNBR: Hydrogenated nitrile  
SIHT: High temperature silicone (>300°C)

See Installation diagrams for available connections

**Ordering Information:**  
By part number

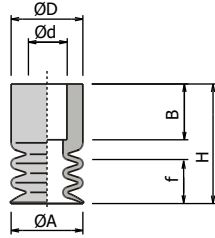


## Dimensions

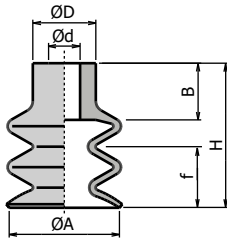
units mm

### 2.5 Bellows vacuum cups M05 to M88 mm

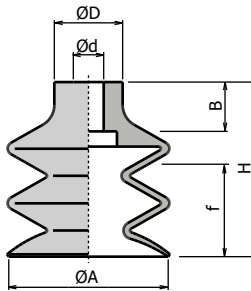
#### M05 to 09



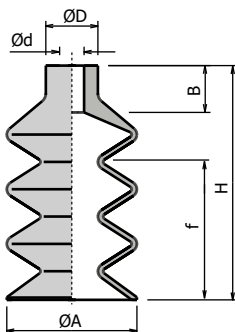
#### M14 to 25



#### M32 to 88



#### S2501



Part Number	Cup Style	ØA mm	Ød mm	ØD mm	f mm	B mm	H mm	Weight g	Int. vol. cm <sup>3</sup>	Fr* N
KVCM05NBR	M05	5	4	7	3	8	13.5	0.5	0.04	0.66
KVCM05SI	M05	5	4	7	3	8	13.5	0.5	0.04	0.66
KVCM07NBR	M07	7	5	9	4	5.5	14	0.5	0.0425	1.3
KVCM07SI	M07	7	5	9	4	5.5	14	0.5	0.0425	1.3
KVCM09NBR	M09	9	5	9	3	7	15	0.6	0.15	1.5
KVCM09SI	M09	9	5	9	3	7	15	0.6	0.15	1.5
KVCM09NR	M09	9	5	9	3	7	15	0.6	0.15	1.5
KVCM14NBR	M14	14	5	10	10	9	23	1.4	0.975	4.1
KVCM14SI	M14	14	5	10	10	9	23	1.4	0.975	4.1
KVCM14NR	M14	14	5	10	10	9	23	1.4	0.975	4.1
KVCM18NBR	M18	17.5	5	10	10	9	23	1.8	1.35	6.1
KVCM18SI	M18	17.5	5	10	10	9	23	1.8	1.35	6.1
KVCM18NR	M18	17.5	5	10	10	9	23	1.8	1.35	6.1
KVCM20NBR	M20	20	4.7	10	10	9	23	2.2	2	6.4
KVCM20SI	M20	20	4.7	10	10	9	23	2.2	2	6.4
KVCM20NR	M20	20	4.7	10	10	9	23	2.2	2	6.4
KVCM25NBR	M25	25	5	10	20	9	34	3.8	5.4	9
KVCM25SI	M25	25	5	10	20	9	34	3.8	5.4	9
KVCM25NR	M25	25	5	10	20	9	34	3.8	5.4	9
KVCM32NBR	M32	32	8	18	14.5	13	37.5	9.4	10	16.8
KVCM32SI	M32	32	8	18	14.5	13	37.5	9.4	10	16.8
KVCM32NR	M32	32	8	18	14.5	13	37.5	9.4	10	16.8
KVCM42NBR	M42	42	8	18	22	13	46	18.5	19.5	29
KVCM42SI	M42	42	8	18	22	13	46	18.5	19.5	29
KVCM42NR	M42	42	8	18	22	13	46	18.5	19.5	29
KVCM62NBR	M62	62	8	21	31	13	55	50	72.5	57
KVCM62SI	M62	62	8	21	31	13	55	50	72.5	57
KVCM62NR	M62	62	8	21	31	13	55	50	72.5	57
KVCM88NBR	M88	88	12	25	48.5	20	87.5	175	165	184
KVCM88SI	M88	88	12	25	48.5	20	87.5	175	165	184
KVCM88NR	M88	88	12	25	48.5	20	87.5	175	165	184
KVCS2501NBR	S2501	25	5	10	29	9	45	5	7.48	9
KVCS2501SI	S2501	25	5	10	29	9	45	5	7.48	9
KVCS2501NR	S2501	25	5	10	29	9	45	5	7.48	9

\* Fr (in Newtons): actual practical force of the suction cup @ 90% vacuum **including** a safety factor of 2.

**Special materials on request:** HNBR: Hydrogenated nitrile  
SIHT: High temperature silicone (>300°C)

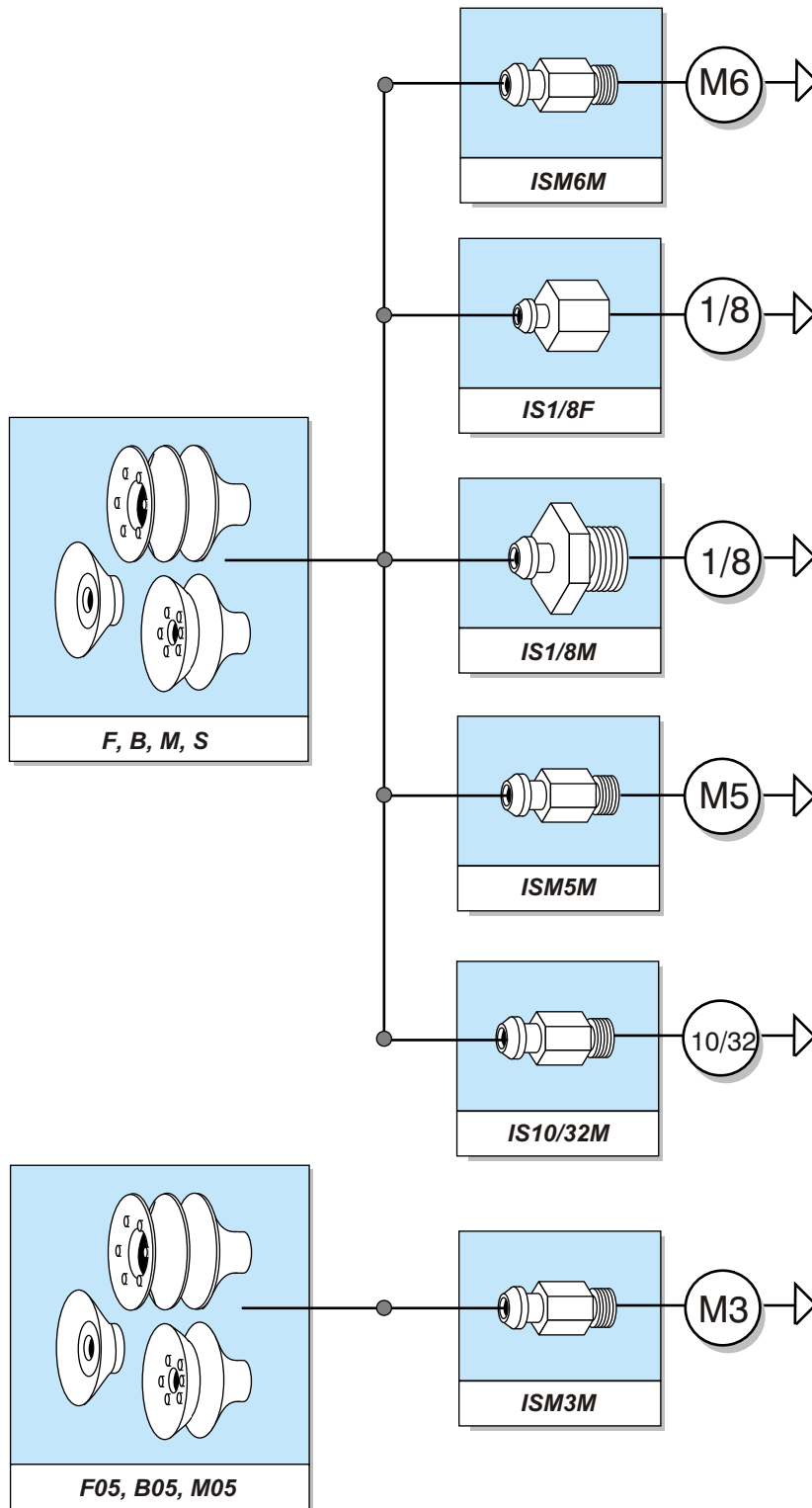
See Installation diagrams for available connections

**Ordering Information:**  
By part number



## Installation diagram

F, B, M and S  
5 to 30 mm diameter

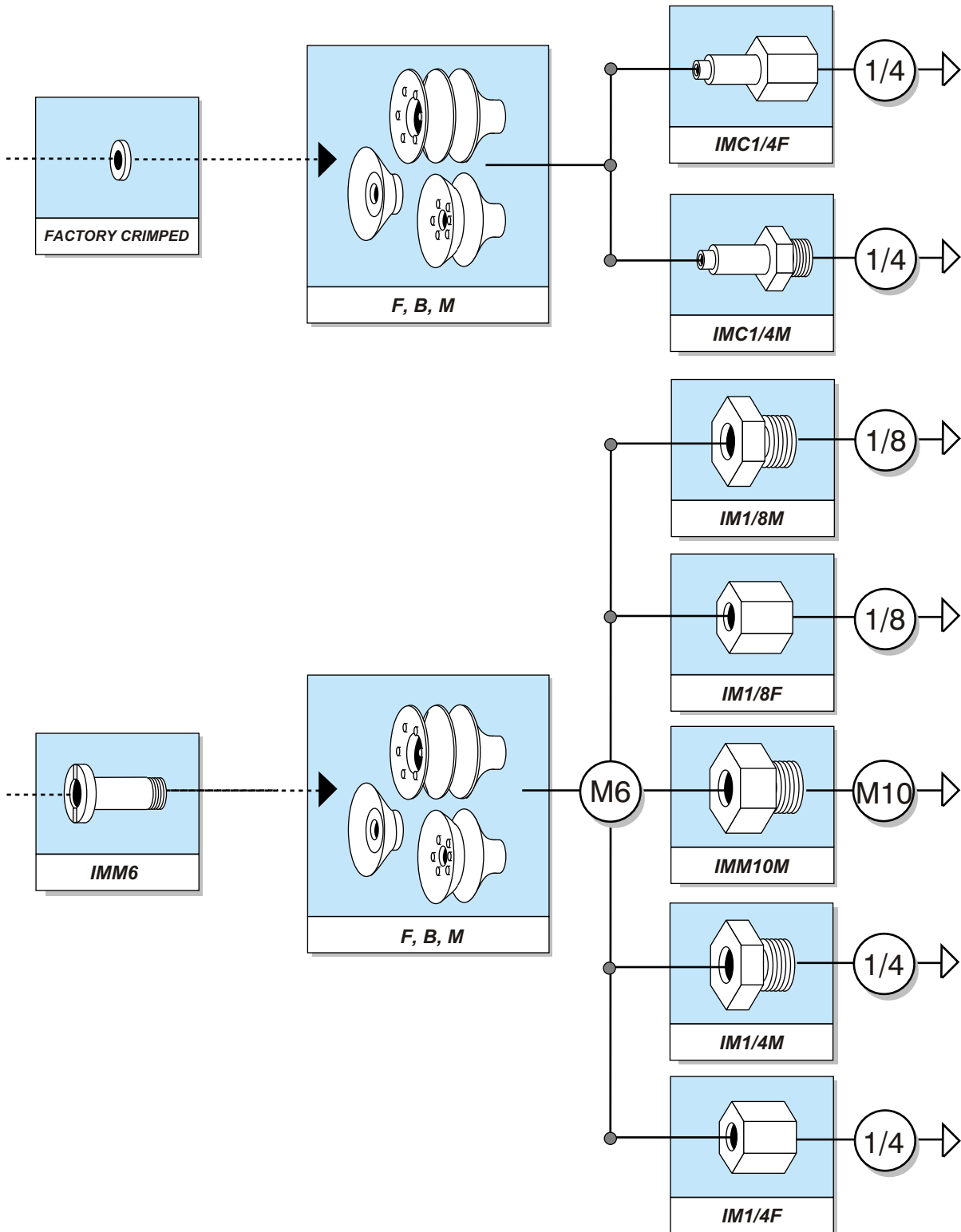


Ordering Information:  
By part number



## Installation diagram

F, B and M  
32 to 62 mm diameter

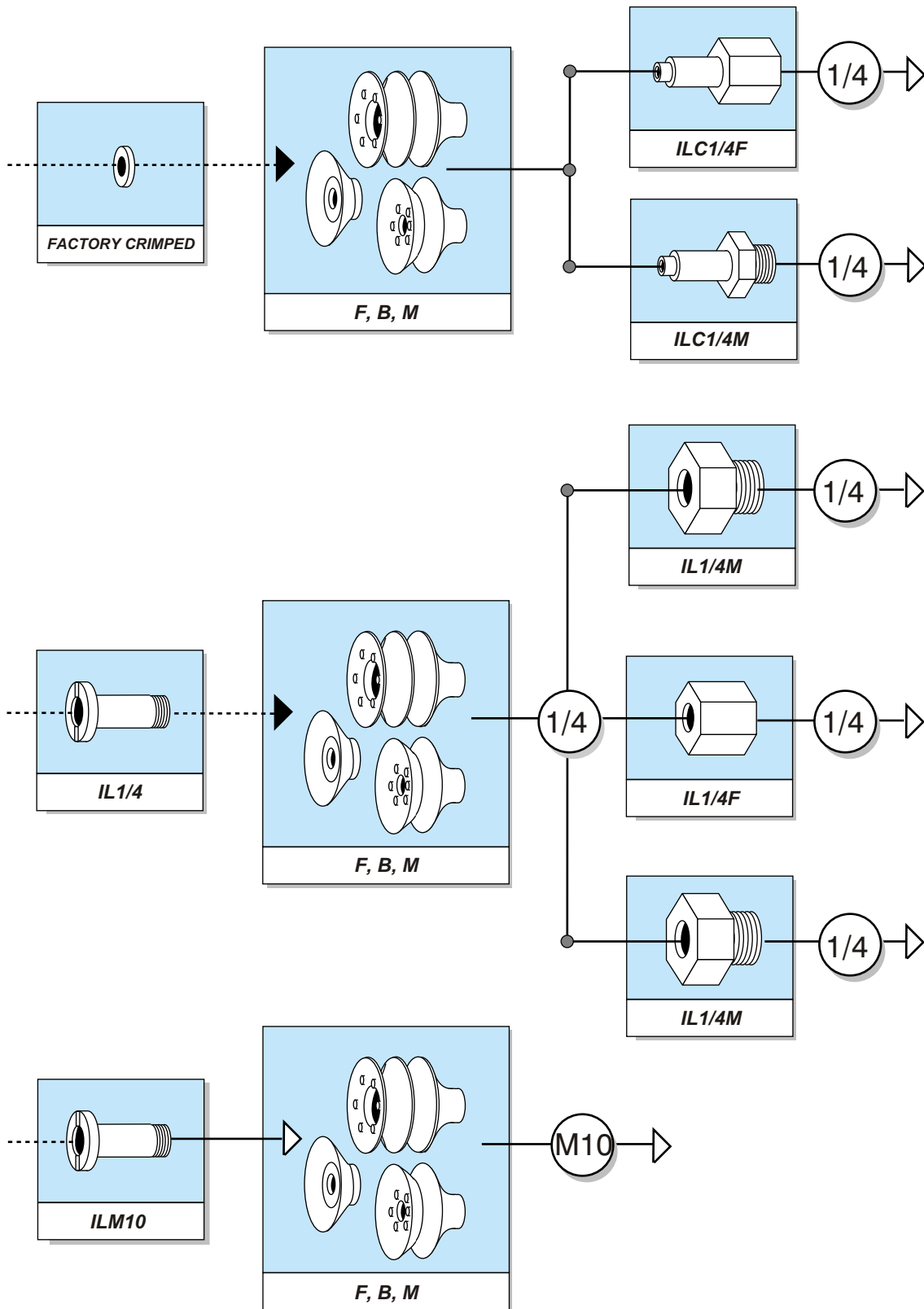


Ordering Information:  
By part number



## Installation diagram

F, B and MS  
75 to 95 mm diameter



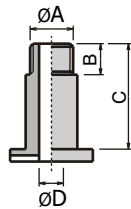
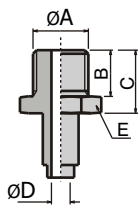
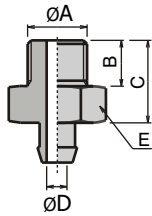
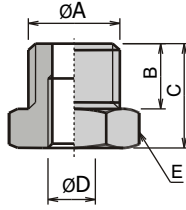
Ordering Information:  
By part number



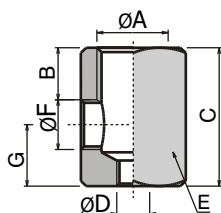
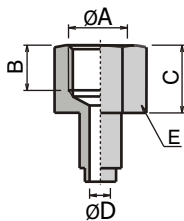
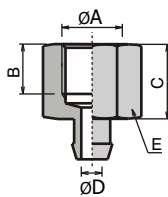
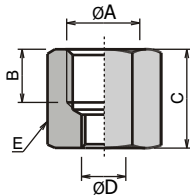
## Dimensions

units mm

### IM Male inserts



### IF Female inserts



Ordering  
Information:  
By part number



#### Adapter for socket head screw

Part Number	Model	ØA	B	C	ØD	E
KVCIM1/8M	IM1/8M	G1/8	6	10.5	M6	13
KVCIMM10M	IMM10M	M10	7	10.5	M6	13
KVCIM1/4M	IM1/4M	G1/4	8	13	M6	17
KVCIL1/4M	IL1/4M	G1/4	8	13	1/8G	17

#### With hollow shaft

Part Number	Model	ØA	B	C	ØD	E
KVCIS1/8M	IS1/8M	G1/8	7.5	13.5	3.5	14
KVCISM5M	ISM5M	M5	4.5	9.5	2.5	7
KVCISM6M	ISM6M	M6	5	10	3.5	7
KVCIS10/32M	IS10/32M	10-32	4.5	9.5	2.5	7
KVCISM3M	ISM3M	M3	3	5	1.2	5

#### Riveted

Part Number	Model	ØA	B	C	ØD	E
KVCIMC1/4M	IMC1/4M	G1/4	11	15	4.4	17
KVCILC1/4M	ILC1/4M	G1/4	11	17	8	21

#### Socket head screw

Part Number	Model	ØA	B	C	ØD
KVCIL1/4	IL1/4	G1/4	8	26	6
KVCILM10	ILM10	M10**	8	26	6
KVCIMM6	IMM6	M6	7	18	3.5

\*\* M10, pitch 1.50

#### Adapter for socket head screw

Part Number	Model	ØA	B	C	ØD	E
KVCIM1/8F	IM1/8F	1/8 G	7.5	13	M6	13
KVCIM1/4F	IM1/4F	1/4 G	11	17	M6	17
KVCIL1/4F	IL1/4F	1/4 G	9	19	1/8 G	17

#### With hollow shaft

Part Number	Model	ØA	B	C	ØD	E
KVCIS1/8F	IS1/8F	1/8 G	8	12	3.5	14

#### Riveted

Part Number	Model	ØA	B	C	ØD	E
KVCIMC1/4F	IMC1/4F	1/4 G	10	15	4.4	17
KVCILC1/4F	ILC1/4F	1/4 G	10	15	8	21

#### With radial outlet

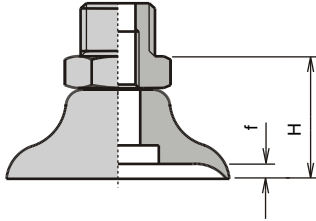
Part Number	Model	ØA	B	C	ØD	E	ØF	G
KVCIL1/4R	IL1/4R	1/4 G	30	30	1/4 G	19	1/8G	15
KVCIMM5R	IMM5R	M5	12	12	M5	14x8	M5	6

## Dimensions

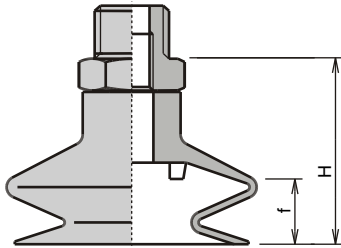
units mm

### Vacuum cups with male inserts

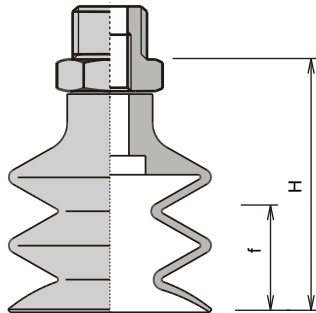
#### F05 to 95



#### B05 to 53



#### M05 to 88 & S2501



Model	M3 H	M5 H	M6 H	M10 H	G1/8 H	G1/4 H	Crimped G1/4 H	Deflection (mm) f	No. of bellows
KVCF05	11	14	14	-	15	-	-	1	0
KVCF10	-	15.5	15.5	-	16.5	-	-	1.5	0
KVCF15	-	16	16	-	17	-	-	2.25	0
KVCF20	-	16.5	16.5	-	17.5	-	-	3	0
KVCF25	-	17	17	-	18	-	-	3	0
KVCF30	-	-	-	-	23.5	24	23	2.5	0
KVCF35	-	-	20	23.5	24.5	25	24	3	0
KVCF40	-	-	-	23.5	24.5	25	24	3	0
KVCF52	-	-	22	25.5	26.5	27	26	4.5	0
KVCF60	-	-	22	25.5	26.5	27	26	4.5	0
KVCF75	-	-	-	-	32	37	38	4.5	0
KVCF95	-	-	-	-	38	43	44	12	0
KVCB05	13	16	16	-	17	-	-	2	1.5
KVCB11	-	21	21	-	22	-	-	5.5	1.5
KVCB14	-	21	21	-	22	-	-	5	1.5
KVCB16	-	24.2	24.2	-	25.2	-	-	8.5	1.5
KVCB20	-	21	21	-	22	-	-	5	1.5
KVCB22	-	24	24	-	25	-	-	8	1.5
KVCB25	-	30	30	-	31	-	-	12	1.5
KVCB33	-	30	27.5	31	32	32.5	31.5	1	1.5
KVCB43	-	-	28	31.5	32.5	33	32	10.5	1.5
KVCB53	-	-	34	37.5	38.5	39	38	15	1.5
KVCM05	15.5	18.5	18.5	-	19.5	-	-	2	2.5
KVCM07	-	19	19	-	20	-	-	4	2.5
KVCM09	-	20	20	-	21	-	-	3	2.5
KVCM14	-	28	28	-	29	-	-	10	2.5
KVCM18	-	28	28	-	29	-	-	10	2.5
KVCM20	-	28	28	-	29	-	-	10	2.5
KVCM25	-	39.5	39.5	-	49.5	-	-	20	2.5
KVCM32	-	-	37.5	41	42	42.5	41.5	14.5	2.5
KVCM42	-	-	46	49.5	50.5	51	50	22	2.5
KVCM62	-	-	55	58.5	59.5	60	59	31	2.5
KVCM88	-	-	-	-	87.5	92.5	93.5	48.5	2.5
KVCS2501	-	50	50	-	51	-	-	29	3.5

Ordering Information:  
By part number

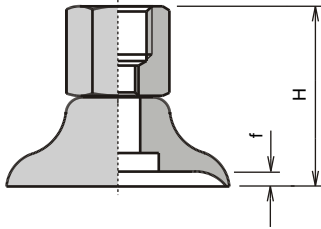


## Dimensions

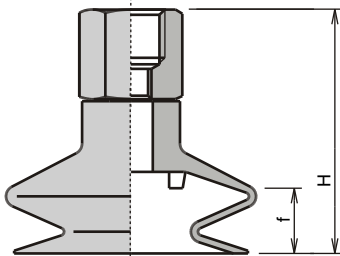
units mm

### Vacuum cups with female inserts

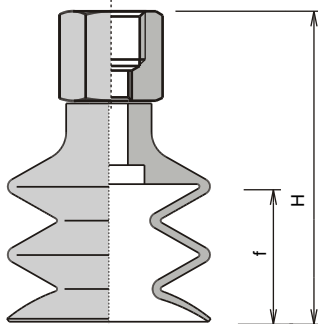
#### F05 to 95



#### B05 to 78



#### M05 to 88 & S2501



Model	G1/4 H	G1/4 H	Crimped (mm) H	Deflection of f	No. bellows
KVCF05	21	-	-	1	0
KVCF10	22.5	-	-	1.5	0
KVCF15	23	-	-	2.25	0
KVCF20	25	-	-	3	0
KVCF25	24	-	-	3	0
KVCF30	32	36	34	2.5	0
KVCF35	35	37	35	3	0
KVCF40	33	37	35	3	0
KVCF52	35	39	37	4.5	0
KVCF60	35	39	37	4.5	0
KVCF75	-	51	47	4.5	0
KVCF95	-	57	53	12	0
KVCB05	23	-	-	2	1.5
KVCB11	28	-	-	5.5	1.5
KVCB14	28	-	-	5	1.5
KVCB16	31.2	-	-	8.5	1.5
KVCB20	28	-	-	5	1.5
KVCB22	31	-	-	8	1.5
KVCB25	37	-	-	12	1.5
KVCB33	40.5	44.5	42.5	11	1.5
KVCB43	41	45	43	10.5	1.5
KVCB53	47	51	49	15	1.5
KVCB78	-	66	62	14	1.5
KVCM05	25.5	-	-	2	2.5
KVCM07	26	-	-	4	2.5
KVCM09	27	-	-	3	2.5
KVCM14	35	-	-	10	2.5
KVCM18	35	-	-	10	2.5
KVCM20	35	-	-	10	2.5
KVCM25	46.5	-	-	20	2.5
KVCM32	50.5	54.5	-	14.5	2.5
KVCM42	59	63	-	22	2.5
KVCM62	68	72	-	31	2.5
KVCM88	-	106.5	-	48.5	2.5
KVCS2501	57	-	-	29	3.5

Ordering Information:  
By part number



## Dimensions

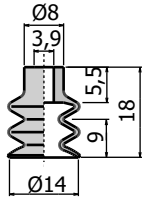
units mm

### Vacuum cups - Applications

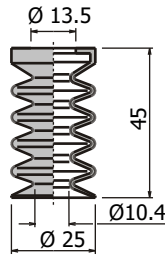
#### Pastries

**Application:** Used to grip cakes, buns, pizza bases, etc.

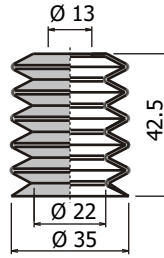
**Material:** Translucent silicone (SI)



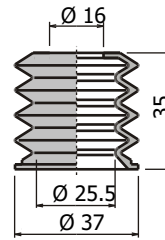
KVCS1401SI



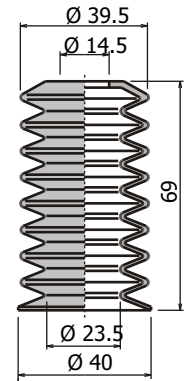
KVCS2502SI



KVCS3501SI

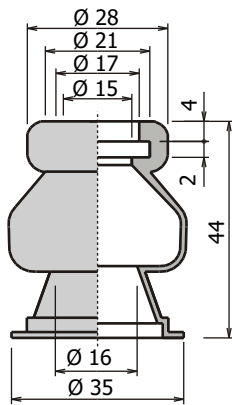


KVCS3801SI



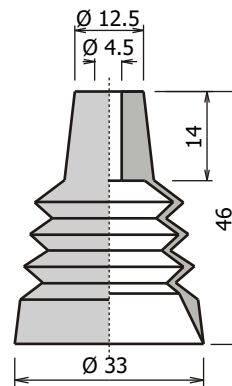
KVCS4001SI

#### Vacuum cups - Eggs



KVCS3502NR

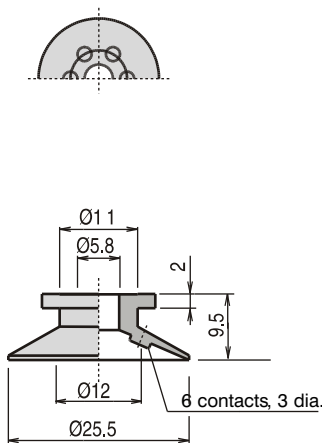
**Material:** Black natural rubber (NR)



KVCS3301SI

**Material:** Translucent silicone (SI)

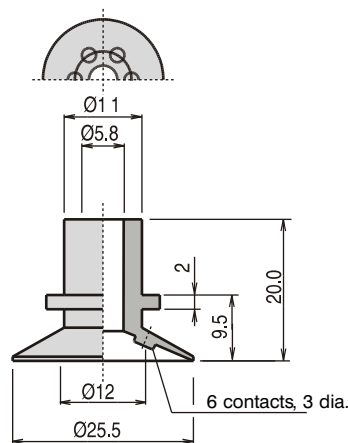
#### Vacuum cups - Paper



KVCS2503NR

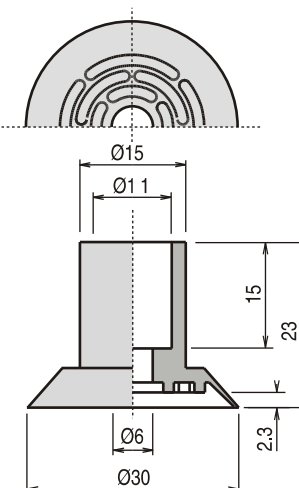
**Material:** Natural rubber (NR)

**Inserts:** Male or female 1/8 BSP  
Add M18 or F18 to part number



KVCS2504NR

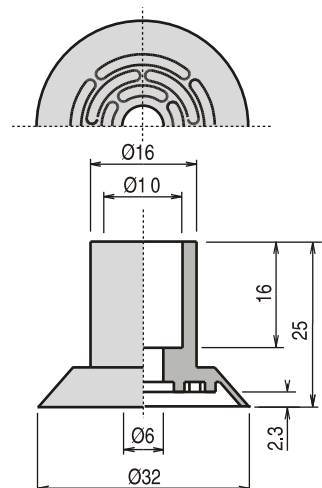
**Material:** Natural rubber (NR)



KVCS3001NR

**Material:** Natural rubber (NR)  
with very fine lip for thin paper

**Inserts:** Male or female 1/4 BSP  
Add M14 or F14 to part number



KVCS3302NR

**Material:** Natural rubber (NR)  
with thick lip for cardboard

**Inserts:** Male or female 1/4 BSP  
Add M14 or F14 to part number

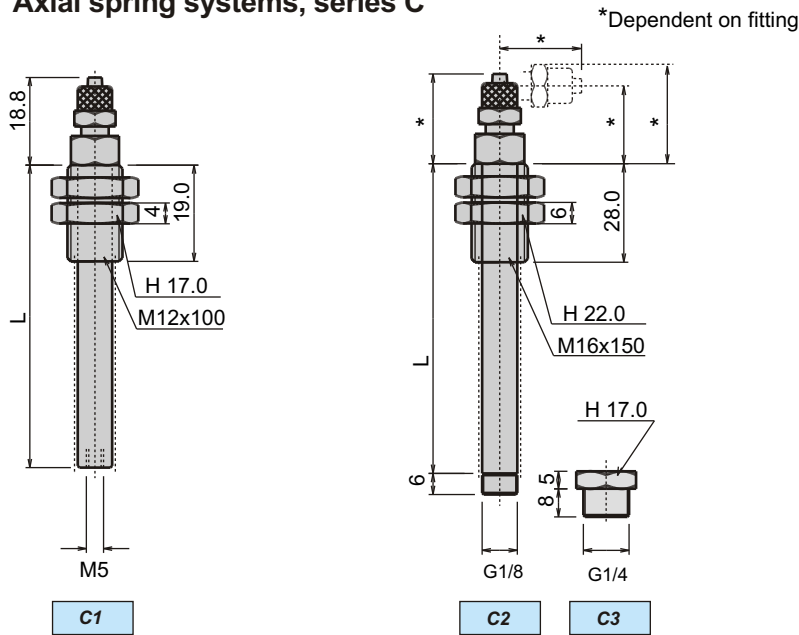
**Ordering Information:**  
By part number



## Dimensions

units mm

### Axial spring systems, series C



Model	Stroke (mm)	L (mm)	Spring Force N/mm	Force at rest N
C1	05	29	0.36	1.00
C1	10	39	0.15	1.70
C1	20	59	0.07	1.45
C1	30	79	0.045	2
C2	10	48	0.9	8.1
C2	30	88	0.2	4.2
C2	50	128	0.115	4.5
C2	70	168	0.08	4.5
C3	10	48	0.9	5.1
C3	30	88	0.2	4.2
C3	50	128	0.115	4.5
C3	70	168	0.08	4.5

#### Specifications:

- Spring material - Stainless steel
- Tube material - Zinc-plated steel
- Slider material - Brass

#### Order by Part Number:

Prefix	Model size	Stroke length	Fitting type	Tube ØD	Fitting size
e.g. KVCC110EC4M5	KVC C1	10	EC	4	M5

#### Model size

C1 Small M5  
C2 Medium 1/8 BSP  
C3 Large 1/4 BSP

#### Stroke length

C1 05, 10, 20, 30,  
C2 10, 30, 50, 70  
C3 10, 30, 50, 70

#### Fitting type

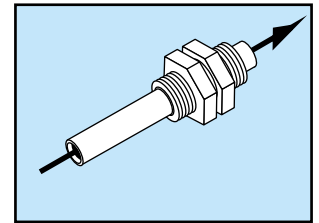
ECP K-fit, straight  
ELP K-fit, elbow  
Q-fit, Straight  
Q-fit, elbow

#### Tube ØD

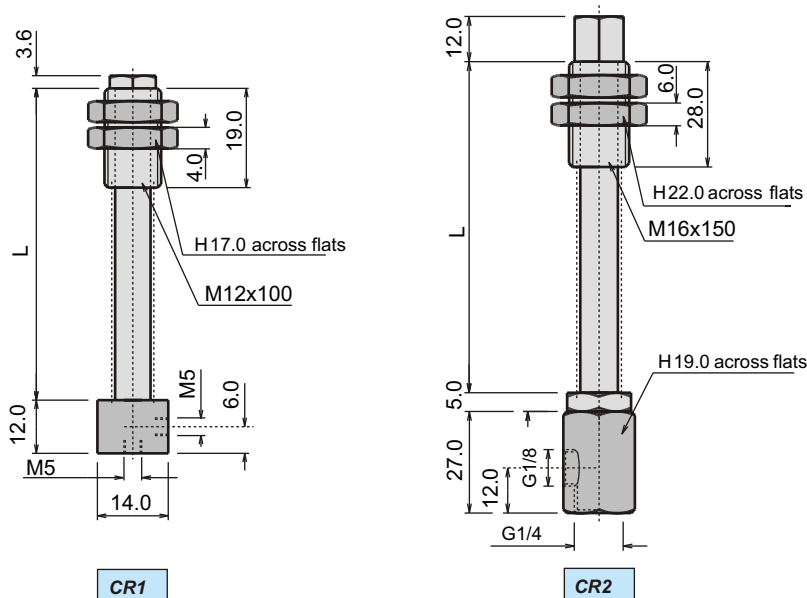
C1 4, 6  
C2 6, 8  
C3 6, 8

#### Fitting size

M5 C1 only  
1/8 C2, C3



### Axial spring systems, series CR



Model	Stroke (mm)	L (mm)	Spring Force N/mm	Force at rest N
CR1	05	29	0.36	1.00
CR1	10	39	0.15	1.70
CR1	20	59	0.07	1.45
CR1	30	79	0.045	2
CR2	10	48	0.9	8.1
CR2	30	88	0.2	4.2
CR2	50	128	0.115	4.5
CR2	70	168	0.08	4.5

#### Specifications:

- Spring material - Stainless steel
- Tube material - Zinc-plated steel
- Slider material - Brass

#### Order by Part Number:

Prefix	Model size	Stroke length	Fitting type	Tube ØD	Fitting size
e.g. KVCCR110EC4M5	KVC CR1	10	EC	4	M5

#### Model size

CR1 Small M5  
CR2 Large 1/4 BSP

#### Stroke length

CR1 05, 10, 20, 30,  
CR2 10, 30, 50, 70

#### Fitting type

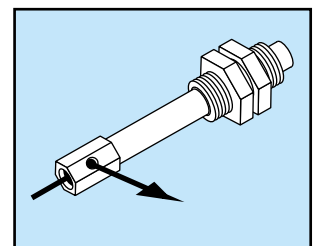
ECP K-fit, straight  
ELP K-fit, elbow  
Q-fit, Straight  
Q-fit, elbow

#### Tube ØD

CR1 4, 6  
CR2 6, 8

#### Fitting size

M5 CR1  
1/8 CR2



Compensated spring systems are recommended for horizontal handling of parts at different levels.

The spring function also ensures that the gripping points are applied on the same plane during gripping by multiple vacuum cups.

