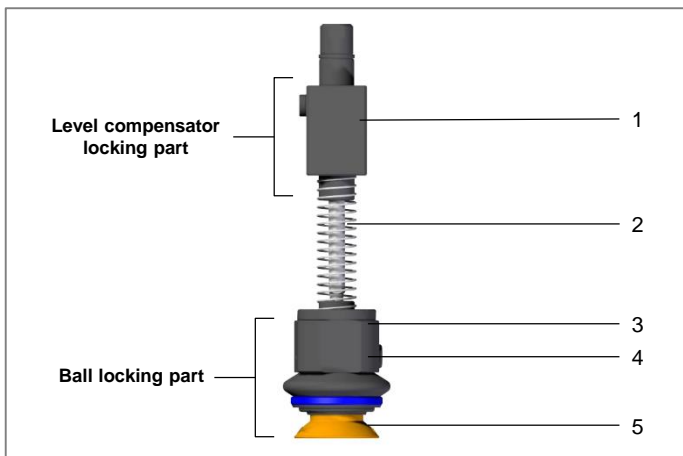


## Valock



Valock : Automatically fix the positioning according to application



Products Structure of VMECA Valock system



Valock system being used in automobile industry - Body line

### Suitable for handling

### Features & Strengths

- ▶ Automatic flexible positioning which fixates and locks its positioning regardless of shape (Elimination of multiple special jigs / fixtures)
- ▶ No vibration while transferring products in rotating application
- ▶ Various shapes of products can be handled with one VALOCK SYSTEM

### Products Structure

- ▶ Strong locking force by double locking structure<sup>1)</sup>
- ▶ Level compensator<sup>2)</sup> for long life-span due to bearing inserted
- ▶ Ball locking to fix angle according to shape of product<sup>3)</sup>
- ▶ Integrated with VMECA Vacuum Cartridge Pump<sup>4)</sup>
- ▶ Easily changeable with different size and material suction cups without any tools – Smart cups<sup>5)</sup>

### Applications

- ▶ Automobile industry (Body / Assembly line)
- ▶ Metal Sheet
- ▶ Glass
- ▶ Wood panel
- ▶ Uploading products of different angles
- ▶ Existing zig system of clamping type

## Valock – Smart ball joint type

### Designation Ordering No.

Level compensator locking	Smart cup*		Ball Joint	Suction cup Material
	F – Series	C – Series		
BX407A – 40Ø locking piston & 70mm stroke	F60T F70T F80T F90T F100T	FCF40 FCF50 FCF60 FCF70 FCF80 FCF100	BJ	N – NBR PU – Polyurethane U – Urethane

Example) BX407A-F100T-BJ-N or BX407A-FCF40-BJ-PU

\* In Smart cup option, F – series is not available with PU material and C – series is not available with Urethane material.

\* For detail information, dimension section on request.

### Automatically fixing the positioning – Valock (Smart ball joint type)

Model	Code	Model	Code
BX407A-F60T-BJ-N	1A75 6008 600	BX407A-FCF40-BJ-N	1A76 4008 600
BX407A-F60T-BJ-U	1A74 4008 600	BX407A-FCF40--BJ-PU	1A77 0008 600
BX407A-F70T-BJ-N	1A75 5008 600	BX407A-FCF50-BJ-N	1A76 5008 600
BX407A-F70T-BJ-U	1A74 5008 600	BX407A-FCF50--BJ-PU	1A77 1008 600
BX407A-F80T-BJ-N	1A75 4008 600	BX407A-FCF60-BJ-N	1A76 6008 600
BX407A-F80T-BJ-U	1A74 6008 600	BX407A-FCF60--BJ-PU	1A77 5008 600
BX407A-F90T-BJ-N	1A74 2008 600	BX407A-FCF70-BJ-N	1A76 7008 600
BX407A-F90T-BJ-U	1A74 7008 600	BX407A-FCF70--BJ-PU	1A77 9008 600
BX407A-F100T-BJ-N	1A74 3008 600	BX407A-FCF80-BJ-N	1A76 8008 600
BX407A-F100T-BJ-U	1A74 8008 600	BX407A-FCF80--BJ-PU	1A77 4008 600
		BX407A-FCF100-BJ-N	1A76 9008 600
		BX407A-FCF100--BJ-PU	1A77 3008 600

### Spare part Ordering data for Suction cups

Suction cup material					
N - NBR	Code	PU - Polyurethane	Code	U - Urethane	Code
F60T-N	12U0 1010 000	-		F60T-U	12U0 1040 000
F70T-N	12U0 2010 000	-		F70T-U	12U0 2040 000
F80T-N	12U0 3010 000	-		F80T-U	12U0 3040 000
F90T-N	12U0 4010 000	-		F90T-U	12U0 4040 000
F100T-N	12U0 5010 000	-		F100T-U	12U0 5040 000
FCF40-N	5202 0400 100 000	FCF40-PU	5202 0400 800 000	-	
FCF50-N	5202 0500 100 000	FCF50-PU	5202 0500 800 000	-	
FCF60-N	5202 0600 100 000	FCF60-PU	5202 0600 800 000	-	
FCF70-N	5202 0700 100 000	FCF70-PU	5202 0700 800 000	-	
FCF80-N	5202 0800 100 000	FCF80-PU	5202 0800 800 000	-	
FCF100-N	5202 1000 100 000	FCF100-PU	5202 1000 800 000	-	

\* For detail information, dimension section on request.

## Valock – Smart ball joint type

### Technical Data – Valock (Brake cylinder - BX407A)

Description	Unit	Data
Cylinder locking piston diameter	∅	40
Cylinder stroke*	mm	70
Lock torque	Kgf	40
Cylinder rod thread	-	G1/8"
Supply air type	-	Dry Compressed Air
Supply air pressure	Bar	2~7
Max. hose inner diameter	∅	4
Net weight**	g	800

\* Another Cylinder stroke option is on request to VMECA.

\*\* Net weight is calculated for only brake cylinder.

### Performance Data (Lifting force) – Suction cup (F - series)

Model	Volume (cm <sup>3</sup> )	Lifting Force (kg) - Perpendicular		
		-20 kPa	-60 kPa	-90 kPa
F60T	16	5.8	12.6	17.3
F70T	23.5	8.4	16.9	26.3
F80T	30	10.5	24.6	35.0
F90T	38.8	11.3	31.2	43.7
F100T	48.7	15.6	38.4	55.0

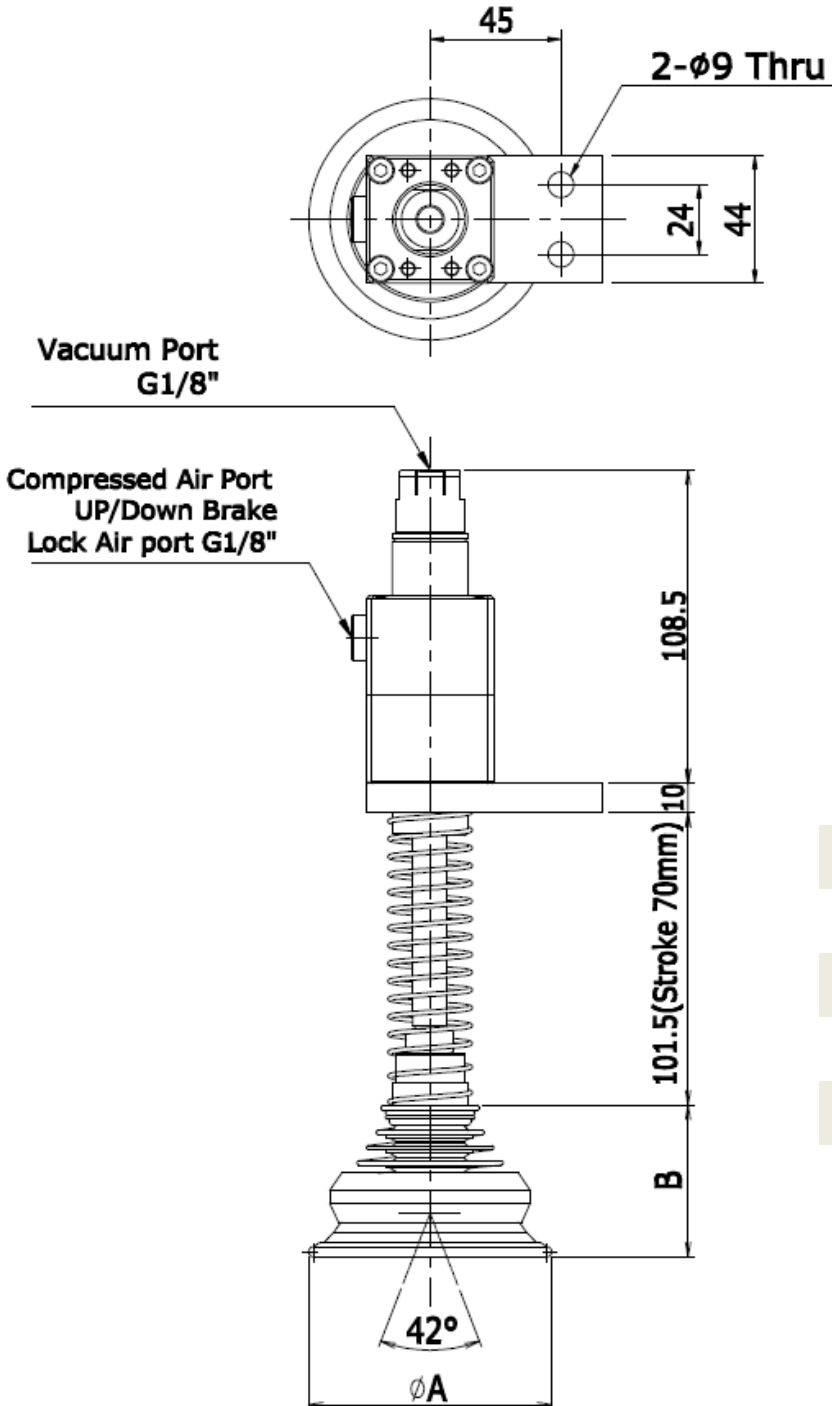
### Performance Data (Lifting force) – Suction cup (C - series)

Model	Volume (cm <sup>3</sup> )	Lifting Force (kg) - Perpendicular			Lifting Force (kg) - Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
FCF40	4.4	2.9	6.9	9.9	2.1	5.0	7.2
FCF50	8	4.2	10.8	15.4	3.7	6.7	8.9
FCF60	14.6	5.6	15.2	22.3	5.5	13.3	16.7
FCF70	20.7	7.6	19.6	28.2	6.3	15.8	20.1
FCF80	36.0	10.3	25.9	34.4	6.7	17.7	23.8
FCF100	58.0	14.7	37.1	50.6	13.6	35.4	43.7

## Valock – Smart ball joint type

### Dimensional Data

### BX407A with Smart ball joint type (F – series)



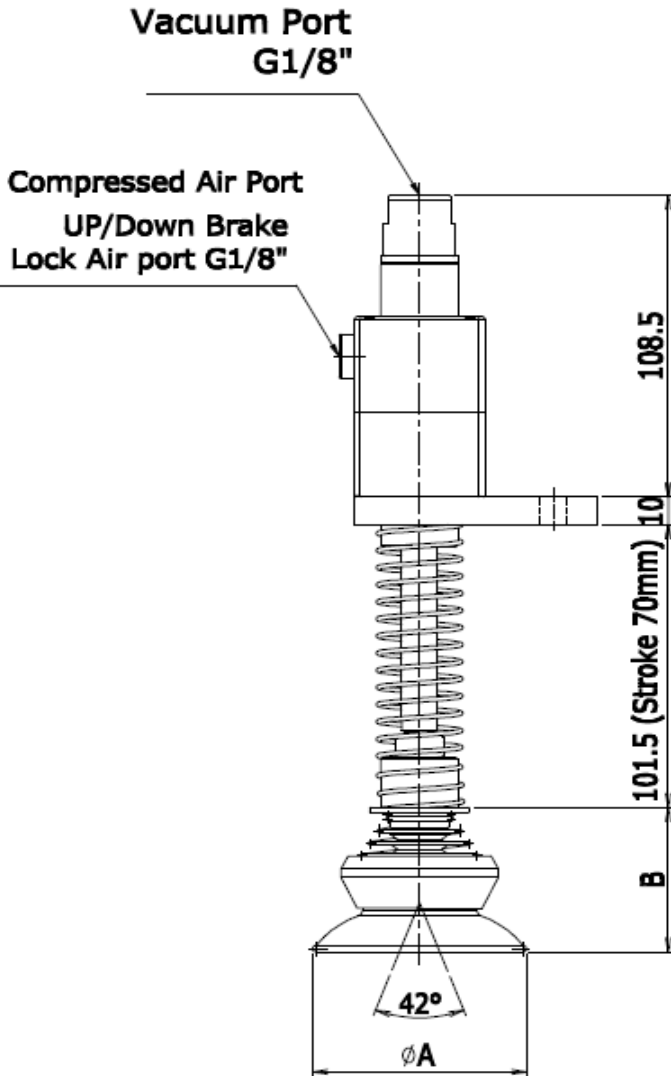
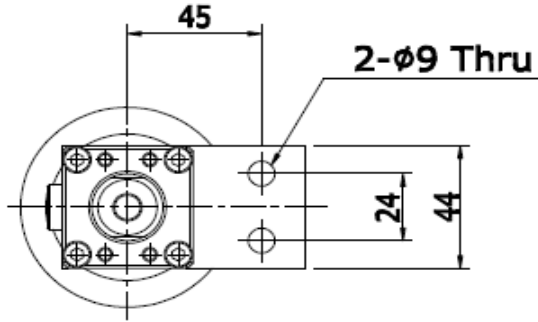
Model	Ø A	B
F60T	62.5	65.5
F70T	73.5	70.5
F80T	83.5	70.5
F90T	93.5	70.5
F100T	103.5	70.5

[Measure unit : mm[in]]

## Valock – Smart ball joint type

### Dimensional Data

### BX407A with Smart ball joint type (C – series)



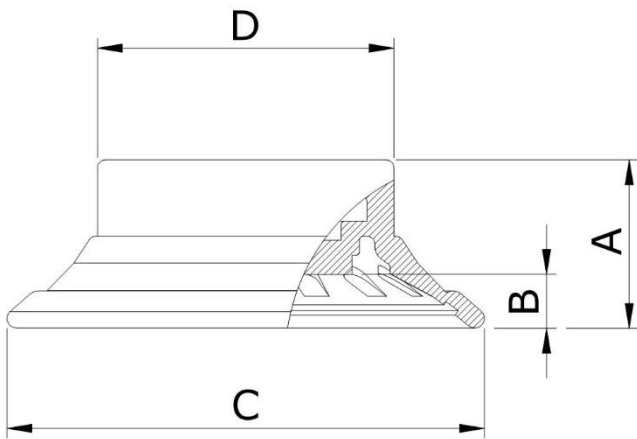
Model	Ø A	B
FCF40	42	47.5
FCF50	52	49
FCF60	62	52
FCF70	72	52
FCF80	82.5	56.5
FCF100	104	56.5

[Measure unit : mm[in]]

## Valock – Smart ball joint type

### Dimensional Data for Suction cup

#### F suction cup for F-series

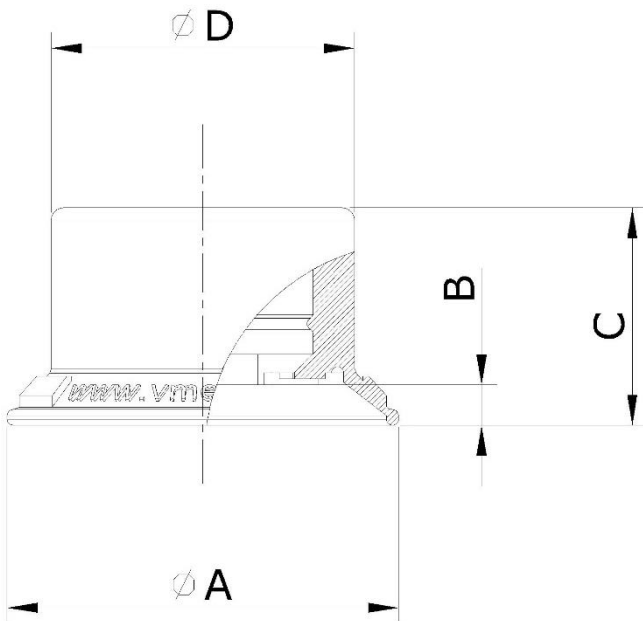


Model	A	B	Ø C	Ø D
F60T	22	7	62.5	38.8
F70T	23	9.5	73.7	50
F80T	23	9.5	83.7	60
F90T	23	9.5	93.7	70
F100T	23	9.5	103.7	80

[Measure unit : mm[in]]

### Dimensional Data for Suction cup

### FCF Suction cup for C-series



Model	Ø A	B	C	Ø D
FCF40	42	4	19.5	24.8
FCF50	52	5	23.5	38.5
FCF60	62	6	26.5	38.5
FCF70	72	6.5	26.5	38.5
FCF80	82.5	7.5	30	38.5
FCF100	104	9.5	30	38.5

[Measure unit : mm[in]]

## Valock – Ball locking type

### Designation Ordering No.

Cylinder brake	Ball lock	Vacuum Switch	Smart cup (C – Series)	Suction cup Material
BX407A – 40Ø locking piston & 70mm stroke	VL40 – without cartridge VL40C – with VC202 cartridge	(No mark)* SG SGP S SP	FCF40 FCF50 FCF60 FCF70 FCF80 FCF100	N – NBR PU – Polyurethane

Example) BX407A-VL40-SG-FCF100-N or BX407A-VL40C-SP-FCF80-PU

- \* No mark means not included.
- \* For additional switch information, section "Overall Switch" on request.
- \* For detail information, dimension section on request.

### Automatically fixing the positioning – Valock (Ball locking type)

Model	Code	Model	Code
BX407A-VL40-SG-FCF40-N	1A72 6028 600	BX407A-VL40-S-FCF40-N	1A72 6048 600
BX407A-VL40-SG-FCF50-N	1A72 7028 600	BX407A-VL40-S-FCF50-N	1A72 7048 600
BX407A-VL40-SG-FCF60-N	1A72 8028 600	BX407A-VL40-S-FCF60-N	1A72 8048 600
BX407A-VL40-SG-FCF70-N	1A72 9028 600	BX407A-VL40-S-FCF70-N	1A72 9048 600
BX407A-VL40-SG-FCF80-N	1A73 0028 600	BX407A-VL40-S-FCF80-N	1A73 0048 600
BX407A-VL40-SG-FCF100-N	1A73 3028 600	BX407A-VL40-S-FCF100-N	1A73 3048 600
BX407A-VL40-SG-FCF40-PU	1A72 5028 600	BX407A-VL40-S-FCF40-PU	1A72 5048 600
BX407A-VL40-SG-FCF50-PU	1A72 4028 600	BX407A-VL40-S-FCF50-PU	1A72 4048 600
BX407A-VL40-SG-FCF60-PU	1A72 1028 600	BX407A-VL40-S-FCF60-PU	1A72 1048 600
BX407A-VL40-SG-FCF70-PU	1A72 2028 600	BX407A-VL40-S-FCF70-PU	1A72 2048 600
BX407A-VL40-SG-FCF80-PU	1A72 0028 600	BX407A-VL40-S-FCF80-PU	1A72 0048 600
BX407A-VL40-SG-FCF100-PU	1A71 7028 600	BX407A-VL40-S-FCF100-PU	1A71 7048 600
BX407A-VL40C-SG-FCF40-N	1A73 8028 600	BX407A-VL40C-S-FCF40-N	1A73 8048 600
BX407A-VL40C-SG-FCF50-N	1A73 9028 600	BX407A-VL40C-S-FCF50-N	1A73 9048 600
BX407A-VL40C-SG-FCF60-N	1A75 7028 600	BX407A-VL40C-S-FCF60-N	1A75 7048 600
BX407A-VL40C-SG-FCF70-N	1A75 8028 600	BX407A-VL40C-S-FCF70-N	1A75 8048 600
BX407A-VL40C-SG-FCF80-N	1A75 9028 600	BX407A-VL40C-S-FCF80-N	1A75 9048 600
BX407A-VL40C-SG-FCF100-N	1A76 0028 600	BX407A-VL40C-S-FCF100-N	1A76 0048 600
BX407A-VL40C-SG-FCF40-PU	1A73 4028 600	BX407A-VL40C-S-FCF40-PU	1A73 4048 600
BX407A-VL40C-SG-FCF50-PU	1A73 5028 600	BX407A-VL40C-S-FCF50-PU	1A73 5048 600
BX407A-VL40C-SG-FCF60-PU	1A73 6028 600	BX407A-VL40C-S-FCF60-PU	1A73 6048 600
BX407A-VL40C-SG-FCF70-PU	1A73 1028 600	BX407A-VL40C-S-FCF70-PU	1A73 1048 600
BX407A-VL40C-SG-FCF80-PU	1A73 7028 600	BX407A-VL40C-S-FCF80-PU	1A73 7048 600
BX407A-VL40C-SG-FCF100-PU	1A74 0028 600	BX407A-VL40C-S-FCF100-PU	1A74 0048 600



## Valock – Ball locking type

### Spare part Ordering data for Suction cups

#### Suction cup material

N - NBR	Code	PU - Polyurethane	Code
FCF40-N	5202 0400 100 000	FCF40-PU	5202 0400 800 000
FCF50-N	5202 0500 100 000	FCF50-PU	5202 0500 800 000
FCF60-N	5202 0600 100 000	FCF60-PU	5202 0600 800 000
FCF70-N	5202 0700 100 000	FCF70-PU	5202 0700 800 000
FCF80-N	5202 0800 100 000	FCF80-PU	5202 0800 800 000
FCF100-N	5202 1000 100 000	FCF100-PU	5202 1000 800 000

\* For detail information, dimension section on request.

### Technical Data – Valock (Brake cylinder - BX407A)

Description	Unit	Data
Cylinder locking piston diameter	∅	40
Cylinder stroke*	mm	70
Lock torque	Kgf	40
Cylinder rod thread	-	G1/8"
Supply air type	-	Dry Compressed Air
Supply air pressure	Bar	2–7
Max. hose inner diameter	∅	4
Net weight**	g	800

\* Another Cylinder stroke option is on request to VMECA.

\*\* Net weight is calculated for only brake cylinder.

### Technical Data – Valock (Ball lock - VL40)

Description	Unit	Data
Ball joint angle	-	±15° ~ 360°
Ball joint moment torque	Kg.cm	30 at 7bar
Supply air type	-	Dry Compressed Air
Supply air pressure	Bar	5–7
Air connection thread	-	M5xP0.8
Max. hose inner diameter	∅	4
Net weight*	g	600

\* Net weight is calculated for only ball lock.

## Valock – Ball locking type

### Technical Data – Valock (Ball lock - VL40C)

Description	Unit	Data
Max. vacuum level	kPa	-90
Max. Flow rate	NI/min	41.3
Air consumption	NI/min	17 ~ 32
Ball joint angle	-	±15° ~ 360°
Ball joint moment torque	Kg.cm	30 at 7bar
Supply air type	-	Dry Compressed Air
Supply air pressure	Bar	2.2 ~ 4
Air connection thread	-	M5xP0.8
Max. hose inner diameter	Ø	4
Net weight*	g	623

\* Net weight is calculated for only ball lock.

### Performance Data (Lifting force) – Suction cup (C - series)

Model	Volume (cm <sup>3</sup> )	Lifting Force (kg) - Perpendicular			Lifting Force (kg) - Parallel		
		-20 kPa	-60 kPa	-90 kPa	-20 kPa	-60 kPa	-90 kPa
FCF40	4.4	2.9	6.9	9.9	2.1	5.0	7.2
FCF50	8	4.2	10.8	15.4	3.7	6.7	8.9
FCF60	14.6	5.6	15.2	22.3	5.5	13.3	16.7
FCF70	20.7	7.6	19.6	28.2	6.3	15.8	20.1
FCF80	36.0	10.3	25.9	34.4	6.7	17.7	23.8
FCF100	58.0	14.7	37.1	50.6	13.6	35.4	43.7

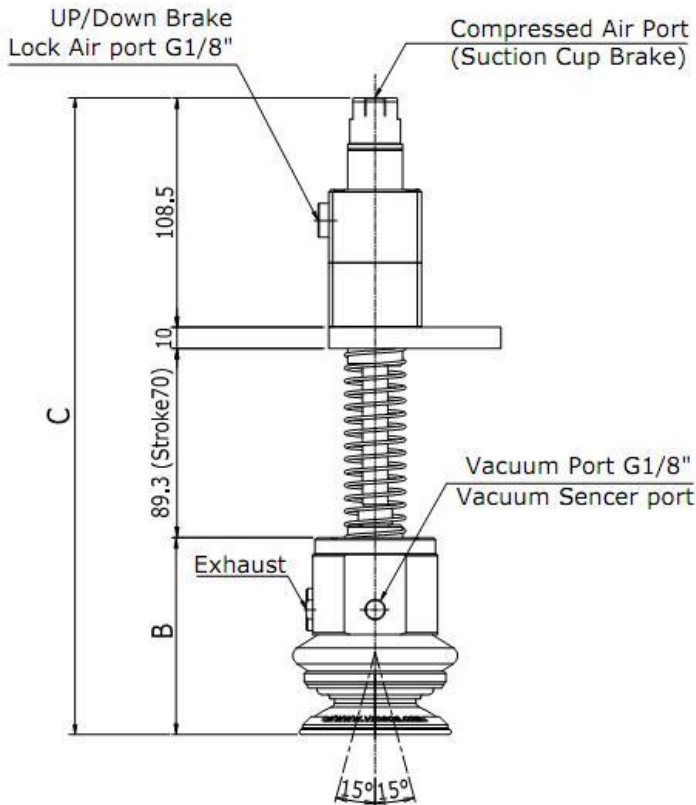
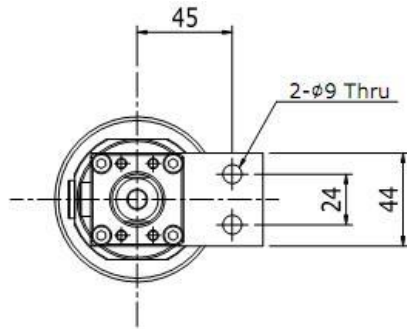
### Ordering No. for overall Switch

Model	Ordering Designation	Description	Remark
Vacuum Switch	No Mark	Not included	* VCM8 42 (M8-4Pin connector wire) is available only for 'S' or 'SP'
	SG	Solid state switch, 3-wire type with 1m length	
	SGP	PNP open collector of SG	
	S	Solid state switch, M8- 3Pin, M8 male connector with 0.15m	
	SP	PNP open collector of S	

## Valock – Ball locking type

### Dimensional Data

### BX407A-VL40 series (without cartridge)



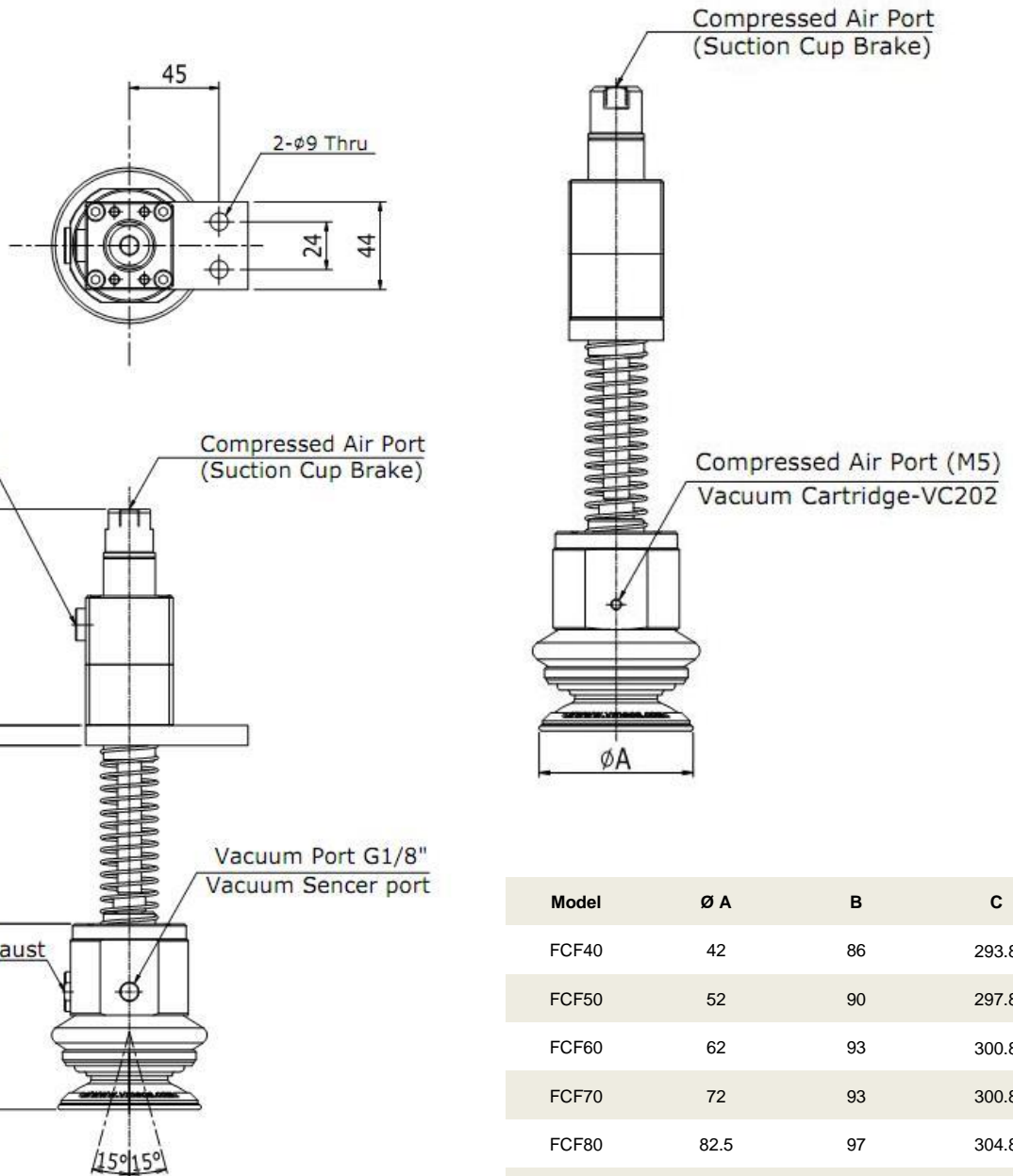
Model	Ø A	B	C
FCF40	42	86	293.8
FCF50	52	90	297.8
FCF60	62	93	300.8
FCF70	72	93	300.8
FCF80	82.5	97	304.8
FCF100	104	97	304.8

[Measure unit : mm[in]]

## Valock – Ball locking type

### Dimensional Data

### BX407A-VL40C series (with cartridge)

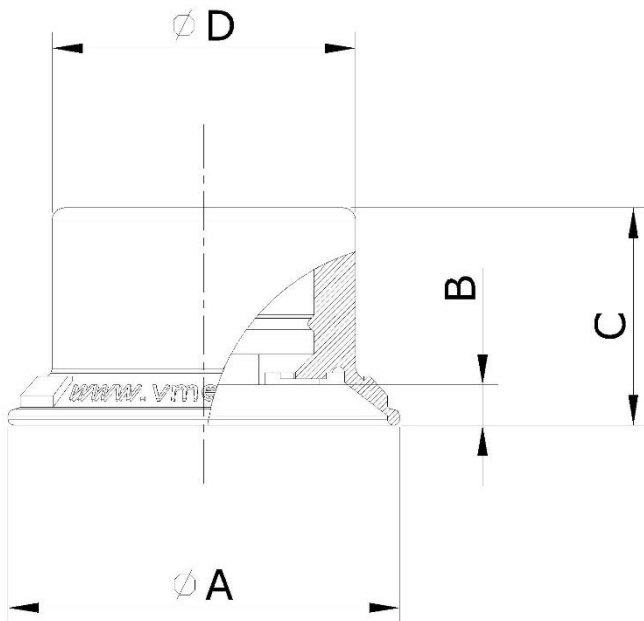


Model	Ø A	B	C
FCF40	42	86	293.8
FCF50	52	90	297.8
FCF60	62	93	300.8
FCF70	72	93	300.8
FCF80	82.5	97	304.8
FCF100	104	97	304.8

[Measure unit : mm[in]]

### Dimensional Data for Suction cup

### FCF Suction cup for C-series



Model	Ø A	B	C	Ø D
FCF40	42	4	19.5	24.8
FCF50	52	5	23.5	38.5
FCF60	62	6	26.5	38.5
FCF70	72	6.5	26.5	38.5
FCF80	82.5	7.5	30	38.5
FCF100	104	9.5	30	38.5

[Measure unit : mm[in]]