

Pneumatic Pivot Units

01/28/2025



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Table of Contents

Pneumatic Pivot Units

PC-PVT-1

Table of Contents (continued)

RCM/RFM

Pneumatic Pivot Units | Ordering Information

Base

RCM

RFM

Description

Standard

Integrated Braking

RCM125-V/LS-PX-P-N-X

125

.2

129

V/LS

PX

P

N

X

Cylinder

Description

100

100 mm Bore

125

125 mm Bore

160

160 mm Bore

200

200 mm Bore

Opening Angles

100

125, 160, 200

O

O/LS

V

V/LS

O

O/LS

V

V/LS

N/A

15°

29°

30°

45°

43°

61°

61°

77°

76°

92°

N/A

92°

91°

N/A

91°

104°

N/A

104°

107°

N/A

107°

121°

N/A

121°

N/A

129°

Saddle Orientation

O

V

O/LS

V/LS

Description

Horizontal

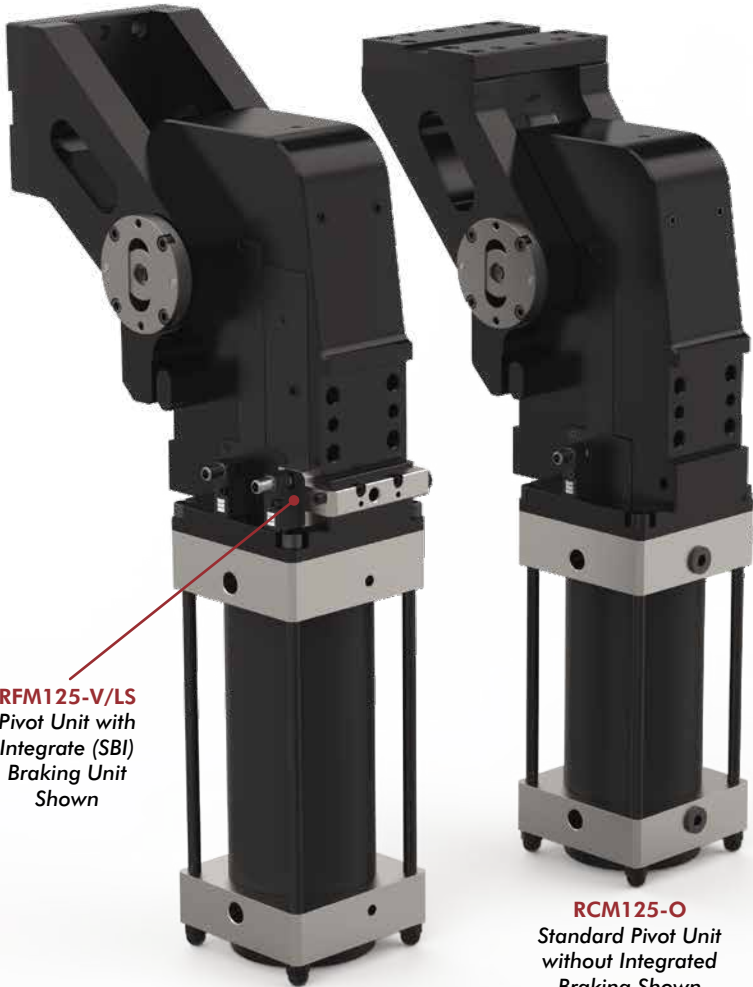
Vertical

Inverted Horizontal

Inverted Vertical



Opening angles are easily field adjustable.



RFM125-V/LS
Pivot Unit with
Integrate (SBI)
Braking Unit
Shown

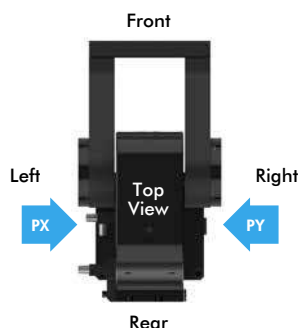
RCM125-O
Standard Pivot Unit
without Integrated
Braking Shown



Ports	Description
N	NPT Ports
G	G Port

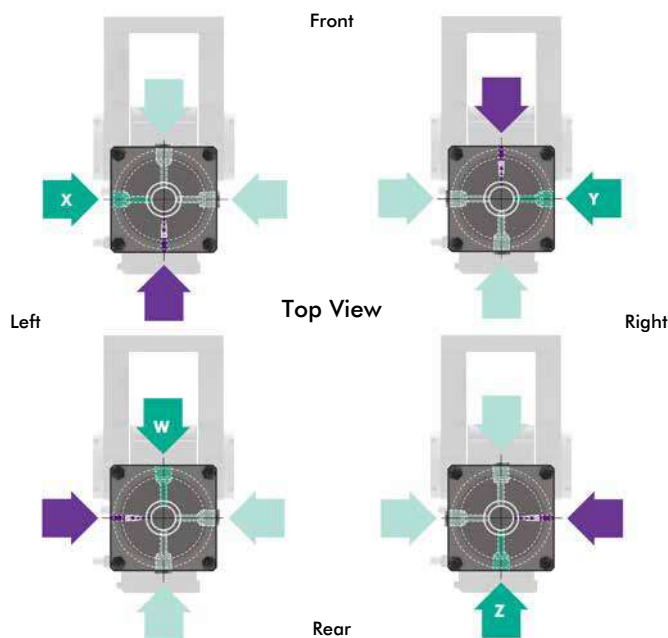
Proximity Switch Type	Description
O	No Proximity Switch
P	Pepperl+Fuchs Proximity Switch

Proximity Switch Location	Description
P0	No Proximity Switch
PX	Proximity Switch on Left-Side
PY	Proximity Switch on Right-Side



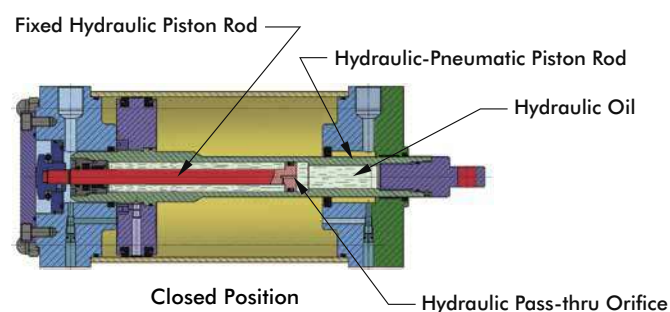
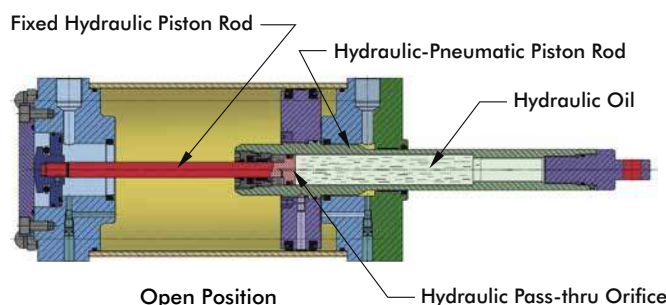
Cylinder Orientation	Description
X	Left-Facing Airport
Y	Right-Facing Airport
W	Front-Facing Airport
Z	Rear-Facing Airport

Air Port
Air Ports Plugged
Cushion Adjustment



Cylinder Operating Principle

The RCM/RFM series pivot units use a combined pneumatic and hydraulic cylinder, using a hydraulic/pneumatic piston rod within the standard pneumatic cylinder structure. This will allow for standard pneumatic operation while providing shock absorption or dampening in heavy duty applications during opening and closing positioning.



Specifications	Units	100	125	160	200
Max Torque by Load [5 bar] Opening Angle $\leq 92^\circ$	Nm [ft-lbs]	150 [111]	240 [171]	410 [302]	660 [487]
Max Torque by Load [5 bar] Opening Angle $> 92^\circ / \leq 121^\circ$	Nm [ft-lbs]	110 [81]	180 [133]	300 [221]	480 [354]
Max Torque by Load [5 bar] Opening angle $> 121^\circ$	Nm [ft-lbs]	55 [41]	65 [48]	100 [74]	175 [129]
Holding Moment	Nm [ft-lbs]	2000 [1475]	3500 [2581]		
RCM Weight	kg [lbs]	~27 [60]	~61 [134]	~74 [163]	~81 [178]
RFM Weight	kg [lbs]	~30 [66]	~64 [141]	~77 [169]	~84 [185]

Pneumatic Pivot Units | Dimensions

[illegible]

Saddle Arm [27.38 lbs]
Weight: 12.42 Kg

Technical drawing of a mechanical part showing two views: a front view on the left and a side view on the right.

Front View Dimensions:

- Overall width: 145
- Overall height: 90
- Top section height: 60
- Bottom section height: 90
- Top section width: 145
- Bottom section width: 145
- Top section material: [2.36 ± 0.0004]
- Bottom section material: [1.18 ± 0.002]
- Top section material: [3.54 #]
- Bottom section material: [4.33]
- Top section material: [1.18 ± 0.0004]
- Bottom section material: [4.92 ± 0.01]
- Top section material: [0.20 ± 0.008]
- Bottom section material: [5.51 ± 0.001]
- Top section material: [0.79]
- Bottom section material: [0.79 ± 0.002]
- Top section material: [7.68 ± 0.01]
- Bottom section material: [1.97 ± 0.004]
- Top section material: [R8.50]
- Bottom section material: [R216]
- Top section material: [R4.33]
- Bottom section material: [R110]
- Top section material: [Ø10 H7]
- Bottom section material: [Ø10 H7]
- Top section material: [M12]
- Bottom section material: [M12]
- Top section material: [A]
- Bottom section material: [A]

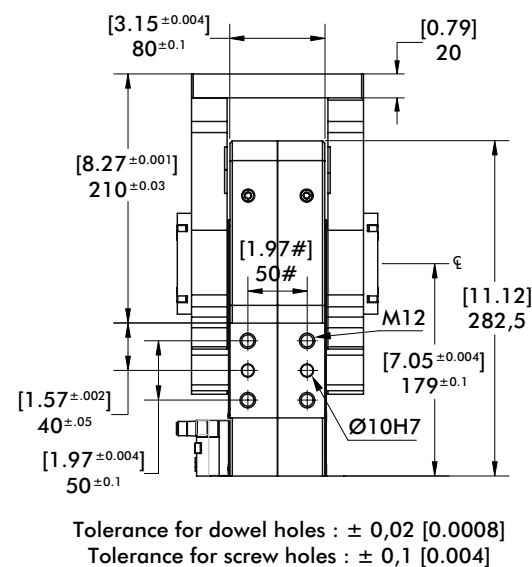
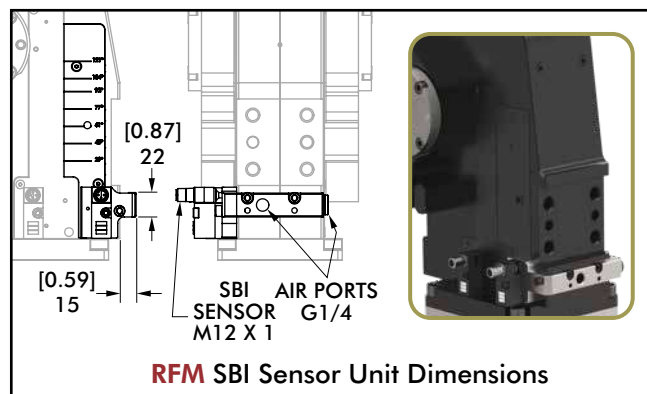
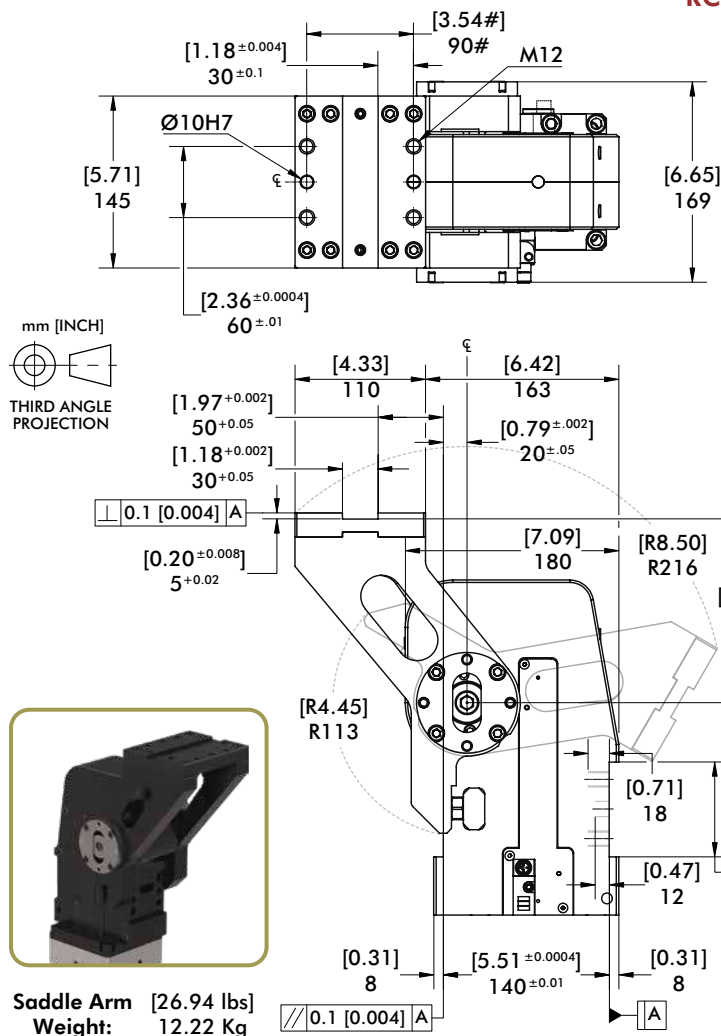
Side View Dimensions:

- Overall width: 145
- Overall height: 195
- Top section height: 60
- Bottom section height: 90
- Top section width: 145
- Bottom section width: 145
- Top section material: [2.36 ± 0.0004]
- Bottom section material: [1.18 ± 0.002]
- Top section material: [3.54 #]
- Bottom section material: [4.33]
- Top section material: [1.18 ± 0.0004]
- Bottom section material: [4.92 ± 0.01]
- Top section material: [0.20 ± 0.008]
- Bottom section material: [5.51 ± 0.001]
- Top section material: [0.79]
- Bottom section material: [0.79 ± 0.002]
- Top section material: [7.68 ± 0.01]
- Bottom section material: [1.97 ± 0.004]
- Top section material: [R8.50]
- Bottom section material: [R216]
- Top section material: [R4.33]
- Bottom section material: [R110]
- Top section material: [Ø10 H7]
- Bottom section material: [Ø10 H7]
- Top section material: [M12]
- Bottom section material: [M12]
- Top section material: [A]
- Bottom section material: [A]

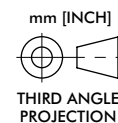
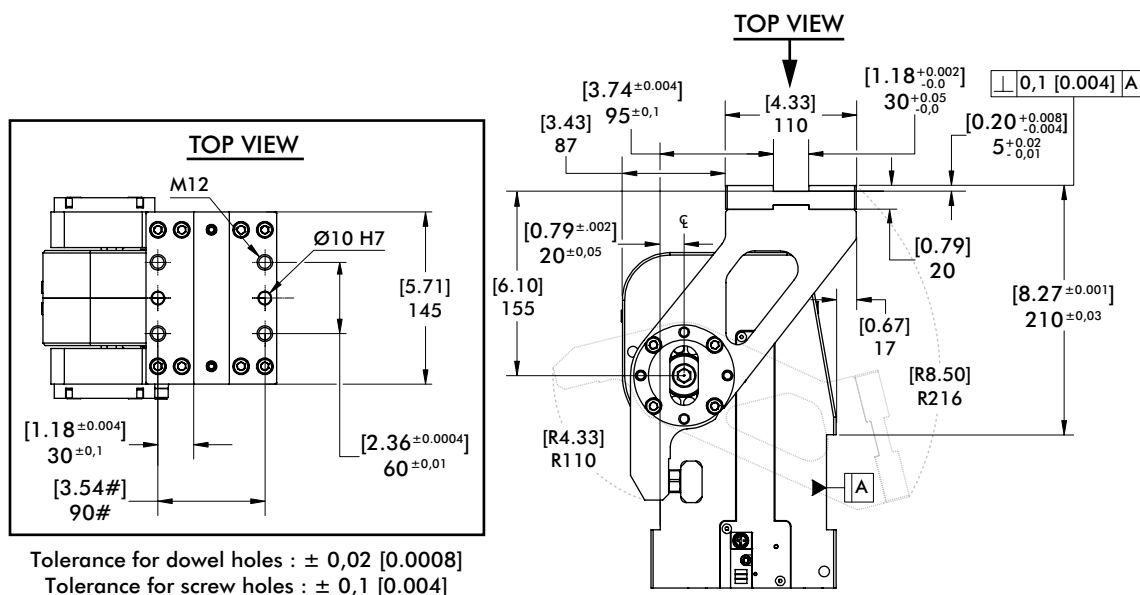
Tolerance for dowel holes : ± 0,02 [0.0008]

Tolerance for screw holes : ± 0,1 [0.004]

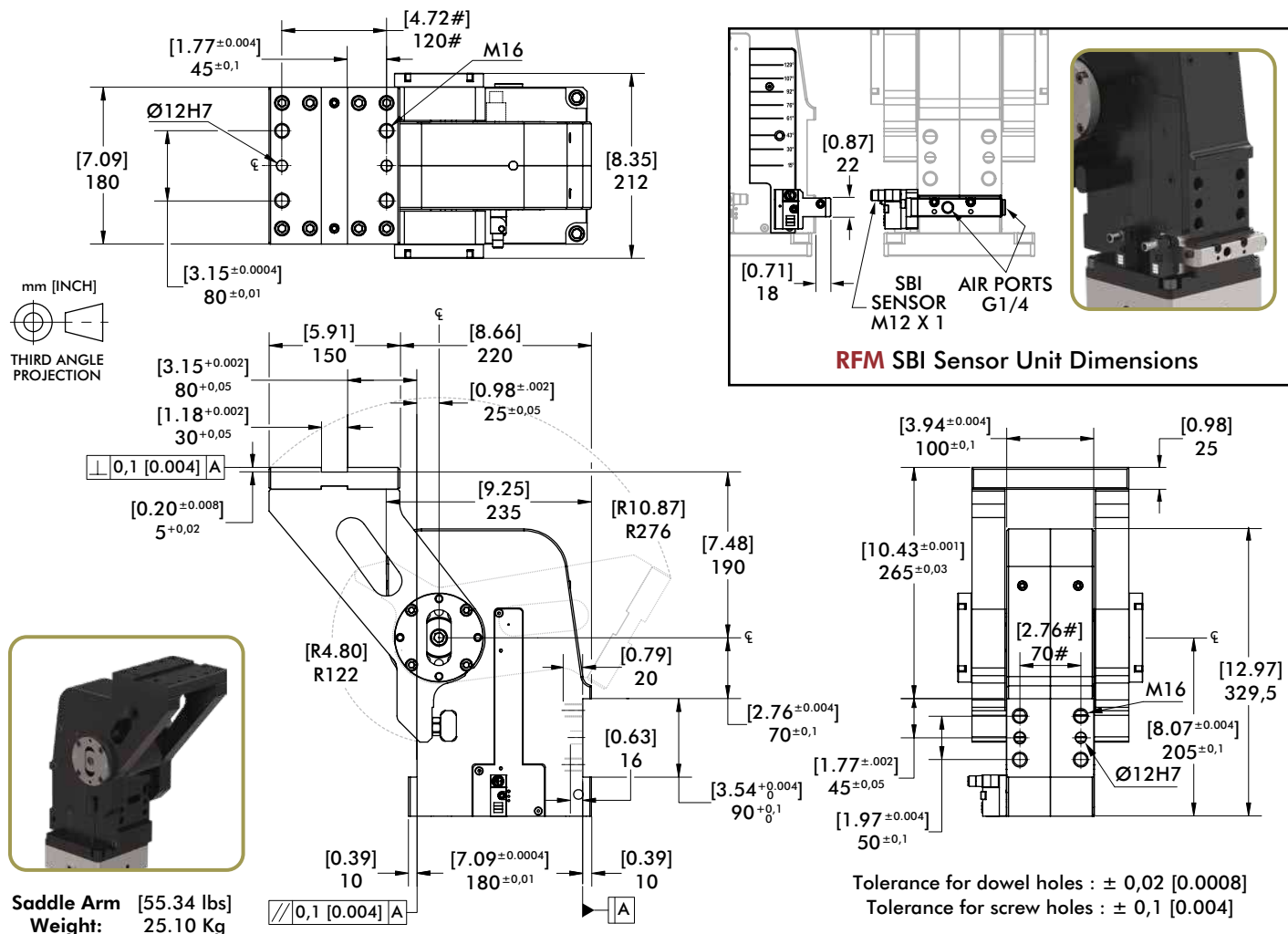
RCM/RFM100 Horizontal "O" Orientation Pivot Dimensions



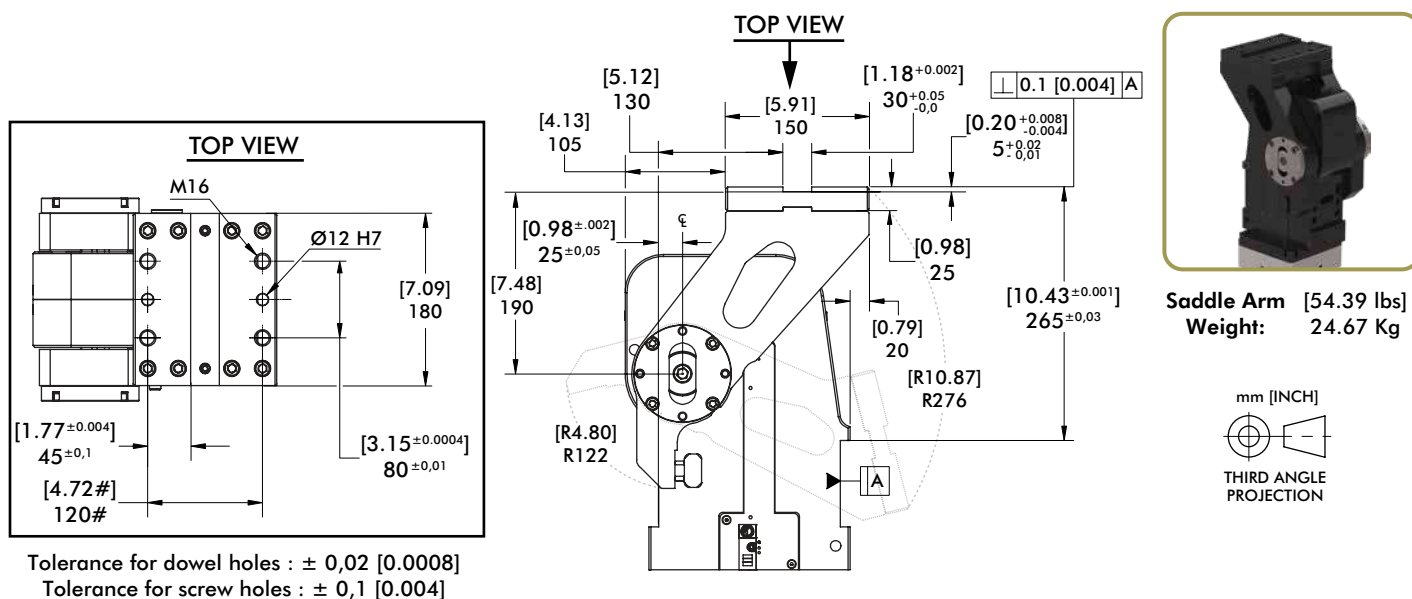
RCM/RFM100 Horizontal "O/LS" Orientation Pivot Dimensions



RCM/RFM125, 160, 200 Horizontal "O" Orientation Pivot Unit and Saddle Dimensions

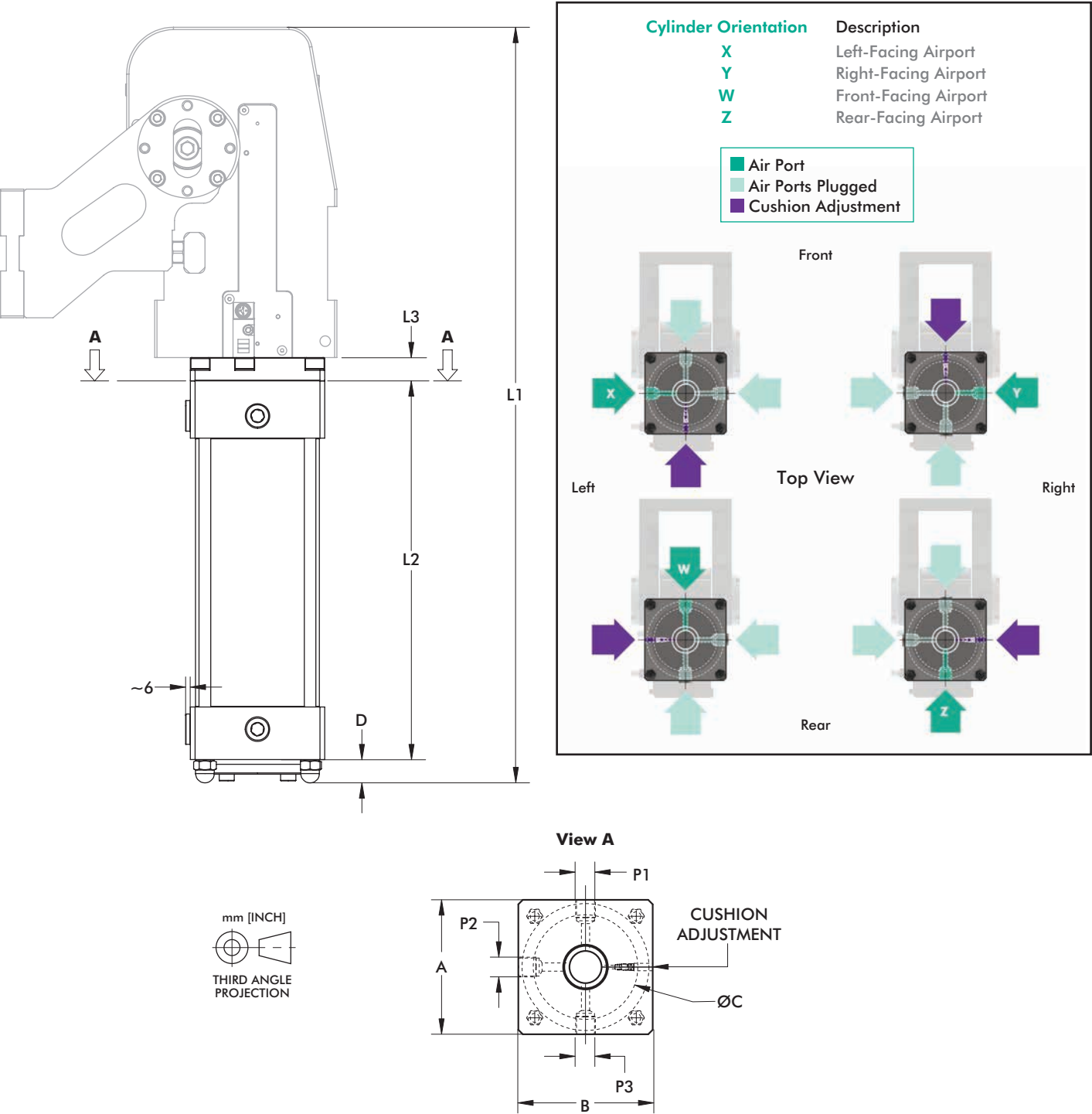


RCM/RFM125, 160, 200 Horizontal "O/LS" Orientation Saddle Dimensions



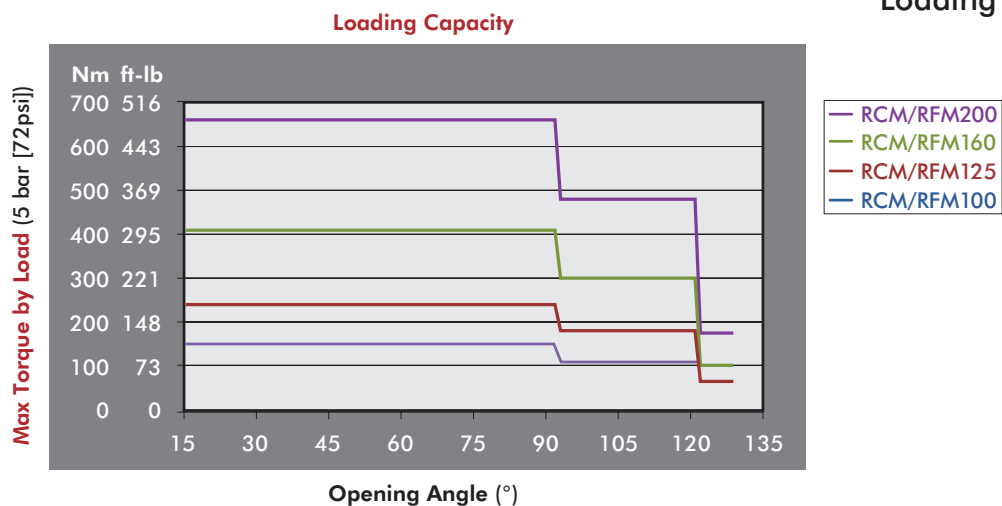
RCM/RFM

Pneumatic Pivot Units | Cylinder Dimensions



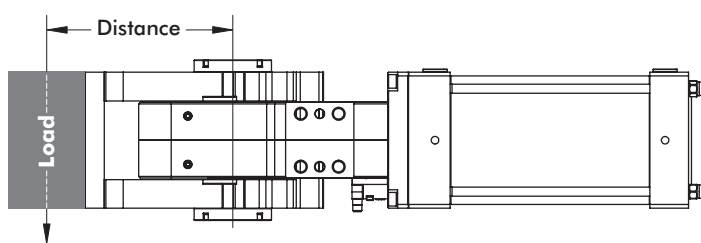
For Models	A	B	C	D	L1	L2	L3	P1-P3
RCM/RFM100.2	[4.53] 115	[4.53] 115	[3.94] 100	[0.75] 19	[25.41] 645,5	[12.76] 324	[0.79] 20	[1/2NPT] G1/2
RCM/RFM125.2	[6.30] 160	[6.30] 160	[4.92] 125	[0.91] 23	[29.17] 741	[14.35] 364,5	[0.94] 24	
RCM/RFM160.2	[7.09] 180	[7.09] 180	[6.30] 160		[29.55] 750,5	[14.59] 370,5	[1.08] 27,5	[3/4NPT] G3/4
RCM/RFM200.2	[8.66] 220	[8.66] 220	[7.87] 200	[0.75] 19	[29.70] 754,5	[14.82] 376,5	[1.16] 29,5	

Loading Capacity



Model	Max. Torque by Load Nm [ft-lb]								
	Opening Angle ≤ 92°			Opening Angle > 92° / ≤ 121°			Opening Angle > 121°		
	4 bar [58 psi]	5 bar [72 psi]	6 bar [87 psi]	4 bar [58 psi]	5 bar [72 psi]	6 bar [87 psi]	4 bar [58 psi]	5 bar [72 psi]	6 bar [87 psi]
RCM/RFM100.2	120 [89]	150 [111]	190 [140]	90 [66]	110 [81]	130 [96]	45 [33]	55 [41]	65 [48]
RCM/RFM125.2	180 [133]	240 [177]	290 [214]	140 [103]	180 [133]	210 [155]	55 [41]	65 [48]	80 [59]
RCM/RFM160.2	320 [236]	410 [302]	500 [369]	260 [192]	300 [221]	360 [266]	85 [63]	100 [74]	125 [92]
RCM/RFM200.2	510 [376]	660 [487]	800 [590]	380 [280]	480 [354]	570 [420]	130 [96]	175 [129]	210 [155]

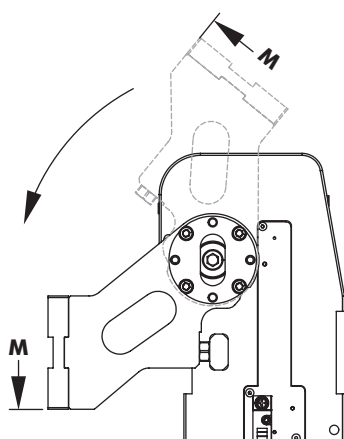
Side Loading Capacity



Max. applicable load with swivel unit positioned on its side (6 bar [87 psi])

Models	Max. Torque by Load @ 6 bar [87 psi] Nm [ft-lb]
RCM/RFM100.2	[59] 80
RCM/RFM125.2	
RCM/RFM160.2	[148] 200
RCM/RFM200.2	

Angular Speed Limitation



To avoid elevated angular speed it's necessary to respect the min. times among the electric signal of opening and that of closing brought in tab.

If don't respect the value report in tab, the device may break.

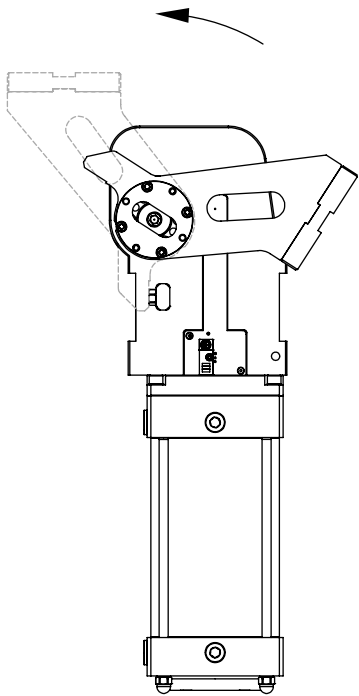
Model	Least Time Between Opening Electric Signal & Closing (Seconds) @ 6 bar [87 psi]				
	45°	76°	91°	121°	129°
RCM/RFM100.2	0.6	0.9	1.0	1.2	1.5
RCM/RFM125.2	0.8	1.1	1.2	1.4	1.7
RCM/RFM160.2	0.9	1.2	1.3	1.5	1.8
RCM/RFM200.2	1.4	1.7	1.8	2.1	2.5

RCM/RFM

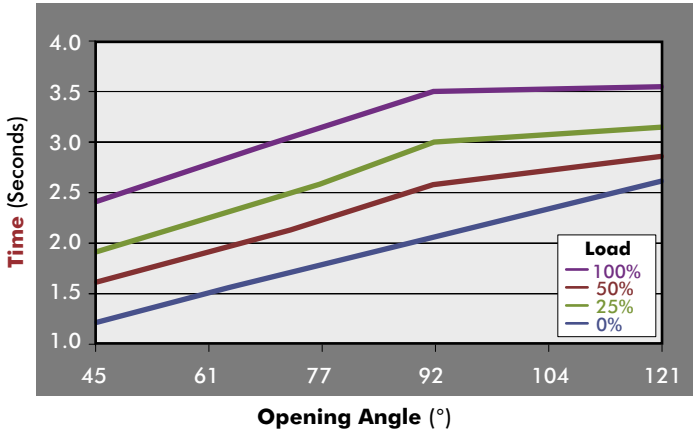
Pneumatic Pivot Units | Time Diagrams

Closing Operation

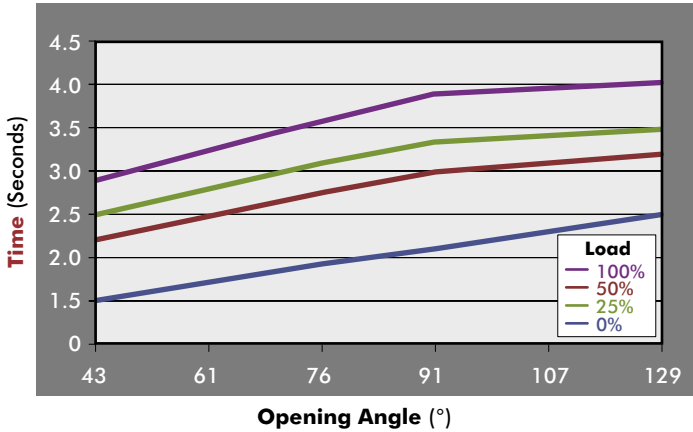
Working Pressure: 5 bar [72 psi]
Arm Type: O (shown)
Swivel Unit Position: Vertical (shown)



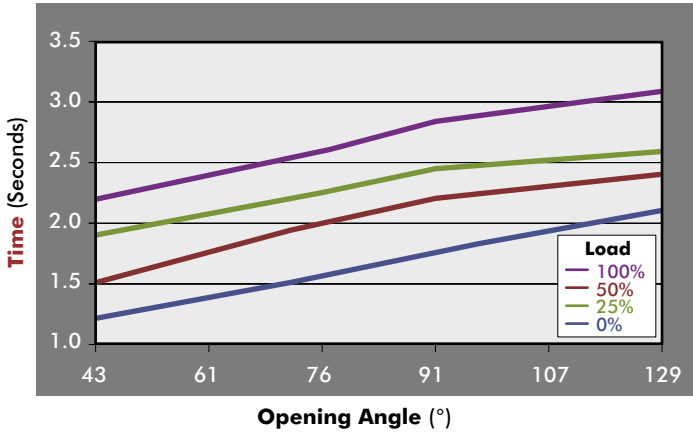
RFM/RCM100.2



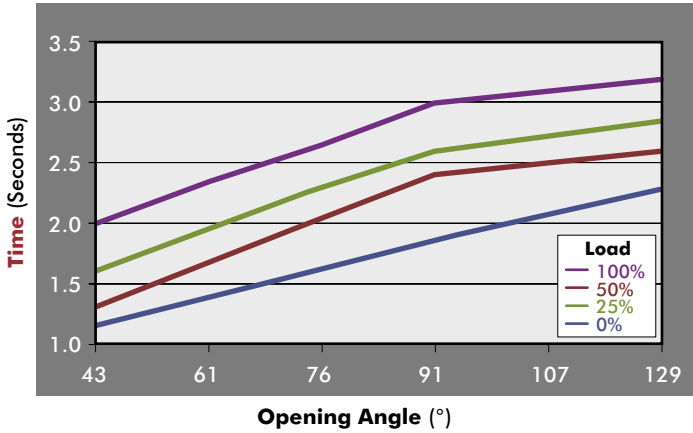
RFM/RCM125.2



RFM/RCM160.2



RFM/RCM200.2

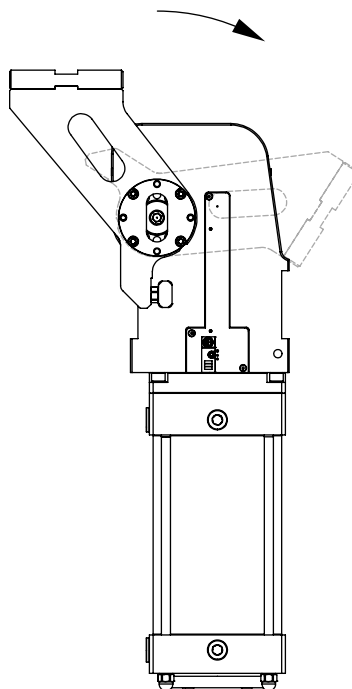


Opening Operation

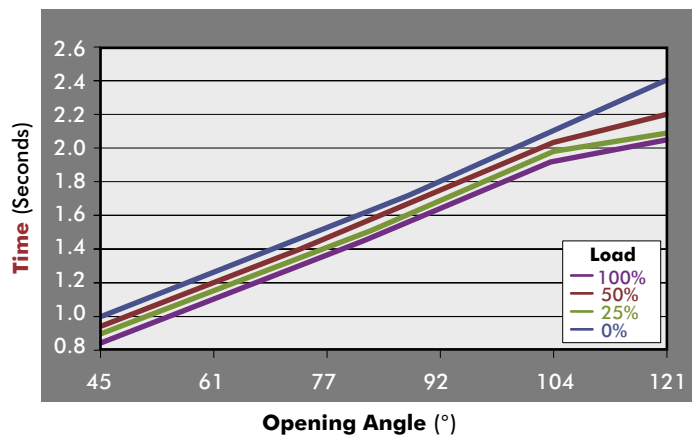
Working Pressure: 5 bar [72 psi]

Arm Type: O (shown)

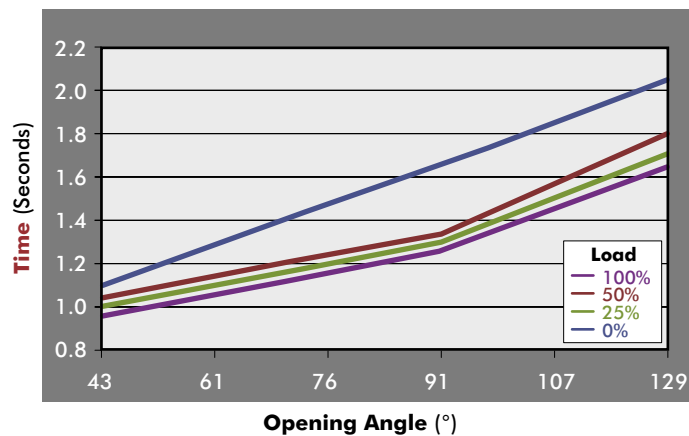
Swivel Unit Position: Vertical (shown)



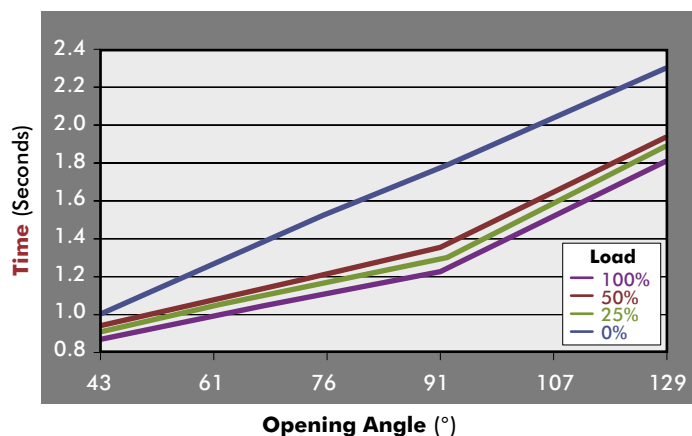
RFM/RCM100.2



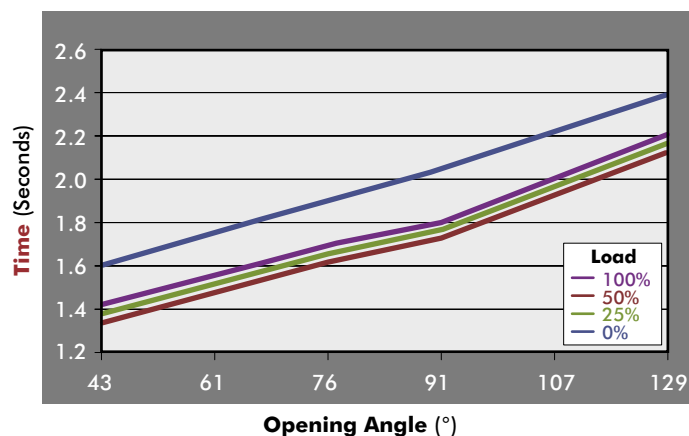
RFM/RCM125.2



RFM/RCM160.2



RFM/RCM200.2



Open/Close Sensor

Proximity Switch Type:* Pepperl+Fuchs
Feeding Voltage: 10-30 VDC
Max. Commutating Current: 200 mA
Power Supply: < 20mA
Voltage Drop: < 2 V
Temperature Range: -25° / 70° C

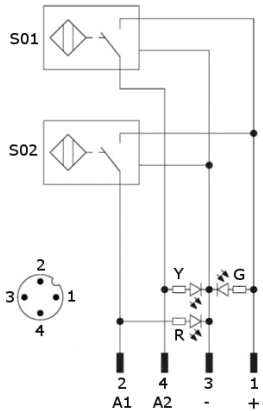
Pepperl+Fuchs

for Model	Power Amplifier (1)	Sensor's Satellite (2)	Complete Inductive Switch
RCM/RFM100.2	3/413	3/417	RFMSI – 1.2/A
RCM/RFM125.2			RFMSI – 125.2/A
RCM/RFM160.2			RFMSI – 160.2/A
RCM/RFM200.2			RFMSI – 200.2/A



Pepperl+Fuchs

S01 = Opening Signal
S02 = Closing signal
Y = Yellow LED
G = Green LED
R = Red LED
1 = Brown Wire
2 = Black Wire
3 = Blue Wire
4 = White Wire



Integrated Locking Sensor (SBI)

Locking Sensor Type:* Pepperl+Fuchs
Output Type: PNP
Feeding Voltage: 10-30 VDC
Max. Commutating Current: 200 mA
Power Supply: < 25mA
Voltage Drop: < 2 V
Temperature Range: -25° / 70° C

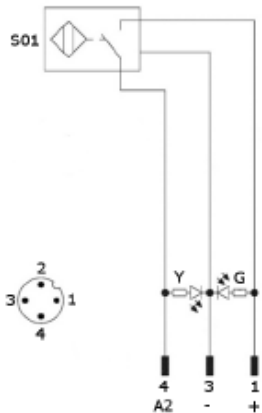
Pepperl+Fuchs

for Model	Sensor Type
RFM100.2	RF1 – BIF
RFM125.2	RF2 – BIF
RFM160.2	
RFM200.2	



Pepperl+Fuchs

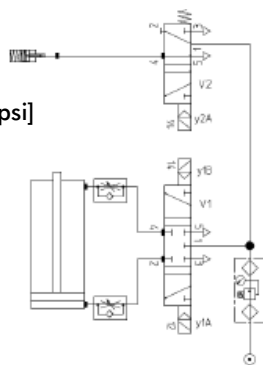
S01 = Opening Signal
Y = Yellow LED
G = Green LED
1 = Brown Wire
3 = Blue Wire
4 = White Wire



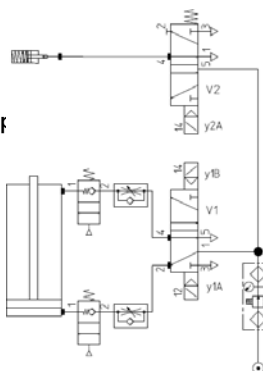
*Proximity switch and locking sensor types cannot be mixed.

Pneumatic Control Diagrams

Control Valve: 5/3
Pressure Range: 4-8 bar [58-116 psi]



Control Valve: 5/2
Pressure Range: 4-8 bar [58-116 psi]



Air Consumption

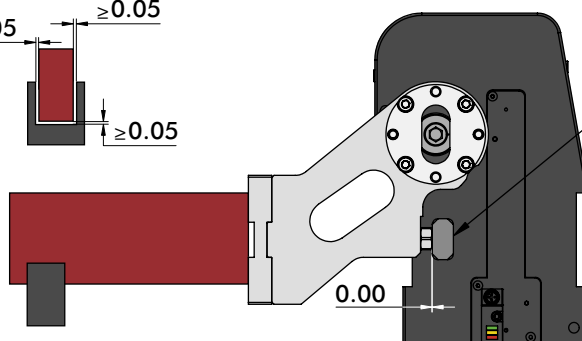
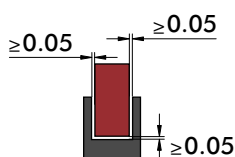
Model	Opening Angle (°)	Air consumption @ 5 bar [72 psi] litre [ft3]	Air Consumption @ 6 bar [87 psi] litre [ft3]
RCM/RFM100.2	29°	5,9 [167]	6,9 [195]
	77°	10,3 [292]	12,1 [343]
	121°	14,3 [405]	16,7 [473]
RCM/RFM125.2	15°	7,9 [224]	9,2 [261]
	76°	18,0 [510]	21,0 [595]
	107°	22,4 [634]	26,2 [742]
	129°	24,7 [699]	28,8 [816]
RCM/RFM160.2	15°	14,2 [402]	16,6 [470]
	76°	31,0 [878]	36,2 [1025]
	107°	38,5 [1090]	44,9 [1271]
	129°	42,2 [1195]	49,3 [1396]
RCM/RFM200.2	15°	20,8 [589]	24,3 [688]
	76°	47,4 [1342]	55,3 [1566]
	107°	59,2 [1676]	69,1 [1957]
	129°	65,1 [1843]	76,0 [2152]

Shock Absorber, External Stop Guide Usage

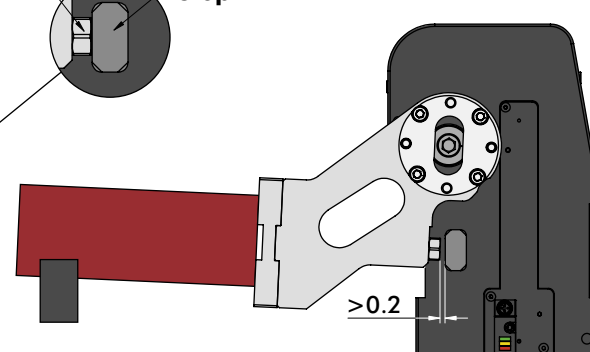
Make sure that the swivel unit makes the complete stroke until the closing position is reached (0°). Any interference with external bodies can cause serious damage to the device and to the equipment mounted on it.

Note: The use of external stops and shock absorbers is not recommended as they can have negative effects on the life of the unit.

External Guide



Integrated Stop



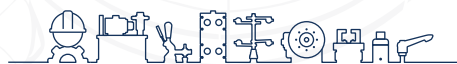
CORRECT USE: Integrated Stop is properly used. The distance between the arm and the Integrated Stop = [0.00] 0,00

INCORRECT USE: External Stop being used does not allow the arm to reach a 0° position. The distance between the arm and the Integrated Stop is greater than [0.008] 0,2

If External Guides are used, the following points must be guaranteed:

- The swivel unit must fully reach the closed position
- The above measures for External Guides must be maintained
- They must not be used as External Stops

If the points indicated above are not followed, we reserve the right to void the warranty.



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