

Round cylinders DPRA

FESTO



Key features

At a glance

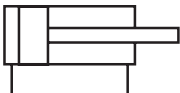
- Double- and single-acting versions
- With and without protection against rotation
- With and without cushioning
- Stainless steel piston rod
- Good running performance and long service life
- The variants can be configured according to individual needs using a modular product system

System of units

[N] Imperial

Function

[] Double-acting



- The cylinder has two pneumatic connections which can be pressurised with compressed air one after the other
- When the rear connection is pressurised with compressed air, the cylinder advances. For the cylinder to retract, the front connection is pressurised with compressed air

Function

[-S] Single-acting, pushing (piston rod retracted by spring force)



- The cylinder has one pneumatic connection. The piston rod is retracted in its initial position
- When the connection is pressurised with compressed air, the cylinder advances. It is retracted by a spring

Protection against rotation

[-Q] With protection against rotation



- Protection against rotation prevents the piston rod from turning during the movement
- Application example: position-oriented feeding

Function

[-P] Single-acting, pulling (piston rod advanced by spring force)



- The cylinder has one pneumatic connection. The piston rod is advanced in its initial position
- When the connection is pressurised with compressed air, the cylinder retracts. It is advanced by a spring

Piston rod type

[] At one end



- The piston rod can be used for connection at one end of the cylinder

Key features

Piston rod type

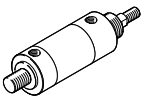
[H] Through, hollow piston rod



- The piston rod can be used for connection at both ends of the cylinder
- The piston rod is hollow inside, so it can be used to carry vacuum or compressed air
- Identical forces in the forward and return stroke

Type of bearing cover

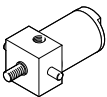
[] With mounting thread



- Including ring nut for combination with end cap type [NG] Without mounting thread

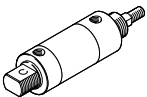
Type of bearing cover

[M] With trunnion flange



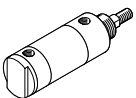
Type of end cap

[U] With swivelling rod eye



Type of end cap

[NG] Without mounting thread



Piston rod type

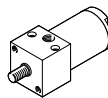
[T] Through piston rod



- The piston rod can be used for connection at both ends of the cylinder
- Identical forces in the forward and return stroke

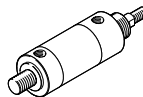
Type of bearing cover

[B] For direct mounting



Type of end cap

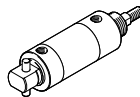
[] Standard



- Including ring nut

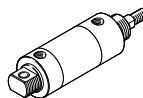
Type of end cap

[ME] With trunnion flange



Type of end cap

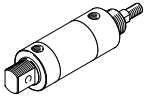
[UB] With swivelling rod eye and bearing sleeve



Key features

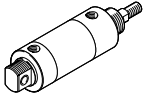
Type of end cap

[U90] With swivelling rod eye, rotated 90°



Type of end cap

[UB90] With swivelling rod eye and bearing sleeve, rotated 90°



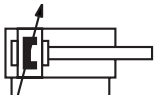
Compressed air supply port

[P4] Axial

- The front compressed air supply port is located on the side of the cylinder and the rear compressed air supply port is located axially on the cylinder
- Can only be selected with end cap type [NG] Without mounting thread

Cushioning

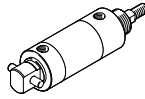
[-PPV] Pneumatic cushioning, adjustable at both ends



- The cylinder is fitted with pneumatic end-position cushioning, which can be adapted by the operator for maximum performance according to the moving mass and speed
- Very powerful

Type of end cap

[ME90] Trunnion flange, rotated 90°



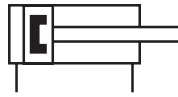
Compressed air supply port

[] Lateral

- The compressed air supply ports are located on the side of the cylinder

Cushioning

[-P] Flexible cushioning rings/plates at both ends



- The cylinder is fitted with flexible polymer end-position cushioning
- No adjustment required
- Saves time

Position sensing

[A] For proximity switch

By using proximity switches, any position can be detected

Key features

Corrosion protection

[-R1] Stainless steel



- For use in damp or dirty environments
- Stainless steel end cap
- Stainless steel piston rod

Temperature range

[] Standard



- The cylinder is intended for use in a temperature range of $-5 \dots +165 \text{ }^{\circ}\text{F}$

Temperature range[-T4] $+32 \dots +300 \text{ }^{\circ}\text{F}$ 

- The cylinder is intended for use in a temperature range of $+32 \dots +300 \text{ }^{\circ}\text{F}$

Piston rod extension

[...NE] 0 ... 6 inch

- The piston rod can be extended by 0 ... 6 inches

Corrosion protection

[R3] High corrosion protection



- For use in very damp or very dirty environments
- POM end cap
- Stainless steel piston rod
- Temperature range $+32 \dots +160 \text{ }^{\circ}\text{F}$
- Operating pressure 10 ... 100 psi

Temperature range[-T3] $-40 \dots +225 \text{ }^{\circ}\text{F}$ 

- The cylinder is intended for use in a temperature range of $-40 \dots +225 \text{ }^{\circ}\text{F}$

Scraper variant

[A4] Scraper made of NBR



- The scraper prevents dirt from getting into the cylinder

Extended piston rod thread

[...NL] 0 ... 6 inch

- The piston rod thread can be extended by 0 ... 6 inches

Product range overview

Function	Type	Piston ø	Stroke	Protection against ro- tation	Piston rod type			Type of bearing cap		Type of end cap							Compressed air supply port ¹⁾
		[in]	[in]	[Q]	[H]	[T]	[B]	[M]	[U]	[ME]	[NG]	[UB]	[U90]	[ME90]	[UB90]	[P4]	
Double- acting	DPRA																
	DPRA	9/16	0.0625 ... 12	–	–	■	–	–	–	–	■	■	–	–	■	■	
		3/4		–	–	■	■	■	■	■	■	■	–	■	–	■	
		7/8		–	–	–	–	–	■	■	■	■	–	■	–	■	
		1 1/16		–	■	■	■	■	■	■	■	■	■	–	■	–	■
		1 1/4		–	■	■	–	–	■	–	■	■	■	■	–	–	■
		1 1/2		–	■	■	■	■	■	■	■	■	■	–	■	–	■
		1 3/4		–	–	–	–	–	■	–	■	■	■	■	–	–	■
		2		–	–	■	–	–	–	–	–	■	■	–	–	■	■
		2 1/2		–	–	–	–	–	–	–	■	■	■	–	–	■	■
		3		–	–	–	–	–	–	–	–	■	■	–	–	■	■
Single- acting	DPRA-....P (pulling, piston rod advanced by spring force)																
	DPRA-....S (pushing, piston rod retracted by spring force)																
	DPRA-....P DPRA-....S	9/16	0.0625 ... 6	■	–	–	–	–	–	–	■	■	–	–	■	■	
		3/4		■	–	–	–	–	■	■	■	■	–	■	–	■	
		7/8		■	–	–	–	–	–	■	■	■	■	–	■	–	■
		1 1/16		■	–	–	–	–	■	■	■	■	■	–	■	–	■
		1 1/4		■	–	–	–	–	■	–	■	■	■	■	–	–	■
		1 1/2		■	–	–	–	–	■	■	■	■	■	■	–	■	■
		1 3/4		–	–	–	–	–	■	–	■	■	■	■	–	–	■
		2		–	–	–	–	–	–	–	■	■	■	–	–	■	■

1) Can only be selected with end cap type [NG] without mounting thread

Product range overview

Function	Type	Piston ø	Stroke	Cushioning		Position sensing	Corrosion protection		Temperature range		Scraper variant	Piston rod extension	Piston rod thread extension
		[In]	[In]	[P]	[PPV]	[A]	[R1]	R3]	[T3]	[T4]	[A4]	[...NE]	[...NL]
Double-acting	DPRA												
	DPRA	9/16	0.0625 ... 12	■	–	■	–	–	■	■	–	■	■
		3/4		■	■	■	■	■	■	■	■	■	
		7/8		■	–	■	–	–	■	■	■	■	■
		1 1/16		■	■	■	■	■	■	■	■	■	■
		1 1/4		■	–	■	■	–	■	■	■	■	■
		1 1/2		■	■	■	■	■	■	■	■	■	■
		1 3/4		■	–	■	–	–	■	■	■	■	■
		2		■	■	■	■	–	■	■	■	■	■
		2 1/2		■	–	■	–	–	■	■	–	■	■
3	■	–	■	–	–	■	■	–	■	■			
Single-acting	DPRA-...-P (pulling, piston rod advanced by spring force) DPRA-...-S (pushing, piston rod retracted by spring force)												
	DPRA-...-P DPRA-...-S	9/16	0.0625 ... 6	■	–	■	–	–	■	■	–	■	■
		3/4		■	–	■	–	–	■	■	–	■	■
		7/8		■	–	■	–	–	■	■	–	■	■
		1 1/16		■	–	■	–	–	■	■	–	■	■
		1 1/4		■	–	■	–	–	■	■	–	■	■
		1 1/2		■	–	■	–	–	■	■	–	■	■
		1 3/4		■	–	■	–	–	■	■	–	■	■
		2		■	–	■	–	–	■	■	–	■	■
		0.0625 ... 4	■	–	■	–	–	■	■	–	■	■	

Type codes

001	Series
DPRA	Round cylinders

002	System of units
N	Imperial

003	Protection against rotation
	None
Q	With protection against rotation

004	Piston diameter ["]
9/16"	9/16"
3/4"	3/4"
7/8"	7/8"
1 1/16"	1 1/16"
1 1/4"	1 1/4"
1 1/2"	1 1/2"
1 3/4"	1 3/4"
2"	2"
2 1/2"	2 1/2"
3"	3"

005	Stroke range ["]
...	0.0625 ... 12

006	Function
	Double-acting
P	Single-acting, pulling
S	Single-acting, pushing

007	Piston rod type
	At one end
H	Through, hollow piston rod
T	Through piston rod

008	Type of bearing cover
	With mounting thread
B	For direct mounting
M	With trunnion flange

009	Type of end cap
	Standard
U	With swivelling rod eye
ME	With trunnion flange
NG	Without mounting threads
UB	With swivelling rod eye and bearing sleeve
U90	With swivelling rod eye, rotated 90°
ME90	Trunnion flange, rotated 90°
UB90	With swivelling rod eye and bearing sleeve, rotated 90°

010	Compressed air connection
	Lateral
P4	Axial

011	Cushioning
N	No cushioning
P	Elastic cushioning rings/plates on both sides
PPV	Pneumatic cushioning, adjustable at both ends

012	Position sensing
	None
A	For proximity sensor

013	Corrosion protection
	Standard
R1	Stainless steel
R3	High corrosion protection

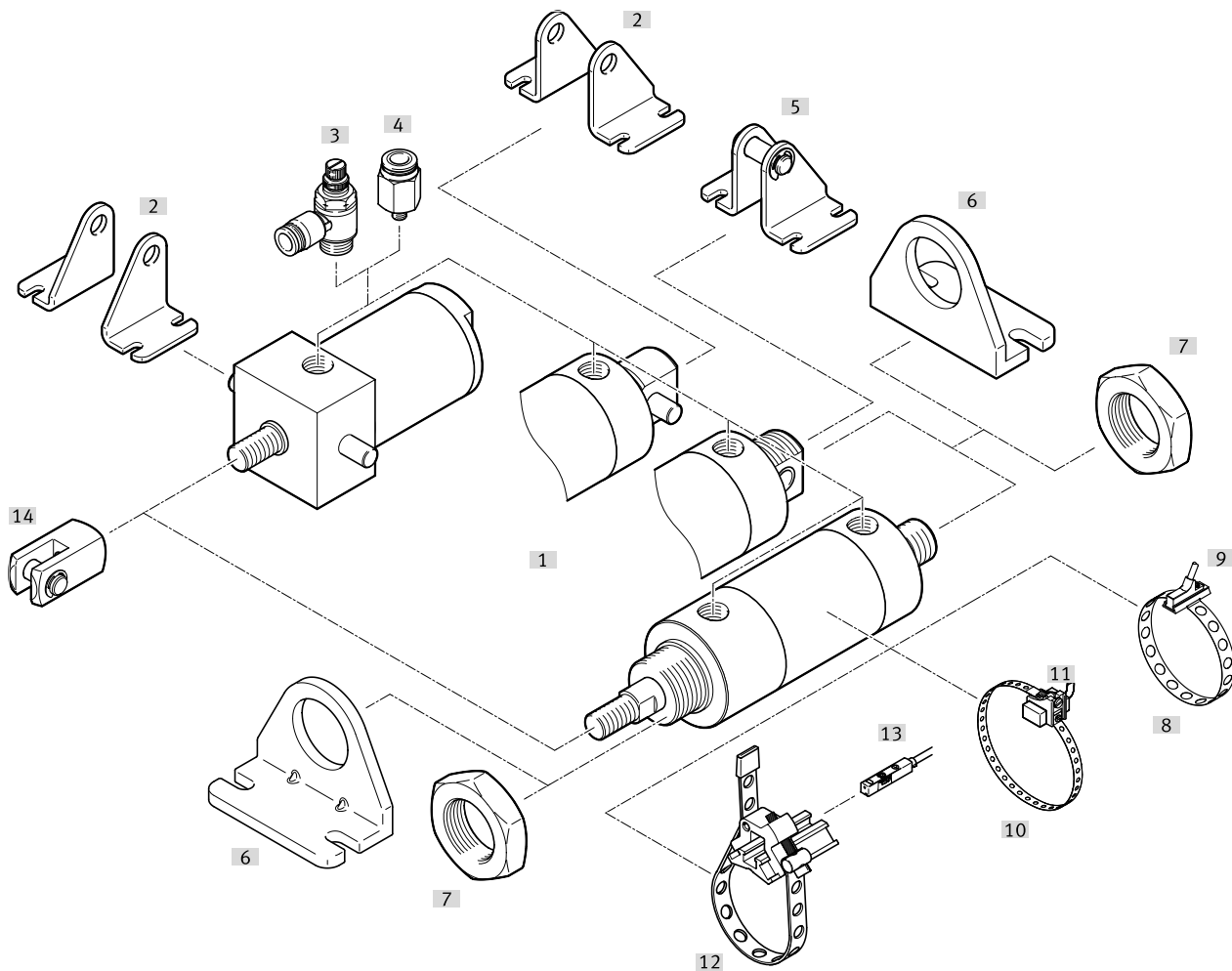
014	Temperature range
	Standard
T3	-40 ... +80°C
T4	0 ... +150°C

015	Scraper variant
	None
A4	Scraper made of NBR

016	Piston rod extension
	None
...NE	0 ... 6"

017	Piston rod thread extension
	None
...NL	0.001" ... 6"

Peripherals overview



Accessories			
Type/order code	Description	→ Page/Internet	
[1] Round cylinder DPRA	Double-acting	10	
	Single-acting	30	
[2] Clevis foot DAMC-C6-...-D	- For mounting the cylinder via the bearing cap/end cap - Permits a swivelling movement in one plane	51	
[3] One-way flow control valve GRLA	For regulating speed	54	
[4] Push-in fitting QB/QBL	For connecting tubing with standard O.D.	54	
[5] Clevis foot DAMC-C6-...-B	- For mounting the cylinder via the end cap - Permits a swivelling movement in one plane	51	
[6] Foot mounting DAMH-C6	For mounting the cylinder via the bearing cap/end cap	50	
[7] Hex nut DAMD	- For directly mounting the cylinder - For fixing the foot mounting DAMH-C6 in place	50	
[8] Sensor bracket SAMH-FB-SH	For proximity switch SDBF-FBS	52	
[9] Proximity switch SDBF-FBS	Can be integrated into sensor bracket SAMH-FB-SH	53	
[10] Sensor bracket SAMH-FB-4-SH	For proximity switch SDBF-FES	52	
[11] Proximity switch SDBF-FES	Can be integrated into sensor bracket SAMH-FB-4-SH	53	
[12] Mounting kit SMBR	For proximity switch SMT/SDBT	53	
[13] Proximity switch SMT/SDBT	Can be integrated in mounting kit SMBR	53	
[14] Rod clevis DARC-C6	Permits a swivelling movement in one plane	52	

Datasheet

General technical data										
Piston Ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2	2 1/2	3
Design	Piston									
	Piston rod									
	Cylinder barrel									
Operating mode	Double-acting									
Pneumatic connection	1/8 NPT						1/4 NPT			
Piston rod thread	10-32 UNF-2A	1/4-28 UNF-2A		5/16-24 UNF-2A	7/16-20 UNF-2A		1/2-20 UNF-2A		5/8-18 UNF-2A	
Stroke	[in]	0.0625 ... 12								
Cushioning										
[N]	No cushioning									
[P]	Elastic cushioning rings/plates at both ends									
[PPV]	—	¹⁾	—	¹⁾	—	¹⁾	—	¹⁾	—	
Position sensing	Via proximity switch									
Type of mounting	With lock nut						—			
	With accessories									
Mounting position	Any									

1) Pneumatic cushioning, adjustable at both ends

Operating and environmental conditions										
Piston Ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2	2 1/2	3
Operating pressure [psi]	10 ... 150 ¹⁾									
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]									
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)									
Ambient temperature ²⁾ [°F]	–40 ... +300									
Corrosion resistance class CRC ³⁾	1 - Low corrosion stress									
	–	⁴⁾	–	⁴⁾	–	⁴⁾	–			
	–	⁵⁾	–	⁵⁾	–		–	⁵⁾	–	

1) With [R3] high corrosion protection max. 100 psi

2) Note operating range of proximity switches

3) More information www.festo.com/x/topic/crc

4) 3 - High corrosion stress

5) 4 - Particularly high corrosion stress

Datasheet

Forces [lb] at 80 psi										
Piston ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2	2 1/2	3
Theoretical force, advancing	19.9	35.3	48.1	70.9	98.2	141.4	192.4	251.3	392.7	565.5
Theoretical force, retracting	17.7	31.4	44.2	64.8	86.1	129.3	176.7	226.8	368.2	530.1
Weight [lb]										
Piston ø	9/16		3/4		7/8		1 1/16		1 1/4	
Product weight	45.36 ... 385.55						99.79 ... 598.74		176.9 ... 1097.69	
Weight [lb]										
Piston ø	1 1/2		1 3/4		2		2 1/2		3	
Product weight	199.58 ... 1238.3		385.55 ... 1374.38		471.74 ... 1832.51		898.11 ... 1954.98			
Materials										
Piston ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2	2 1/2	3
Cover material	Wrought aluminium alloy									
	–	POM	–	POM	–	POM	–			
	–	1)	–	1)	–		–	1)	–	
Sealing material	FPM									
	NBR									
Piston rod material	High-alloy stainless steel									
Cylinder barrel material	High-alloy stainless steel									
Note on materials	RoHS-compliant									
LABS (PWIS) conformity	VDMA24364 zone III									

1) High-alloy stainless steel

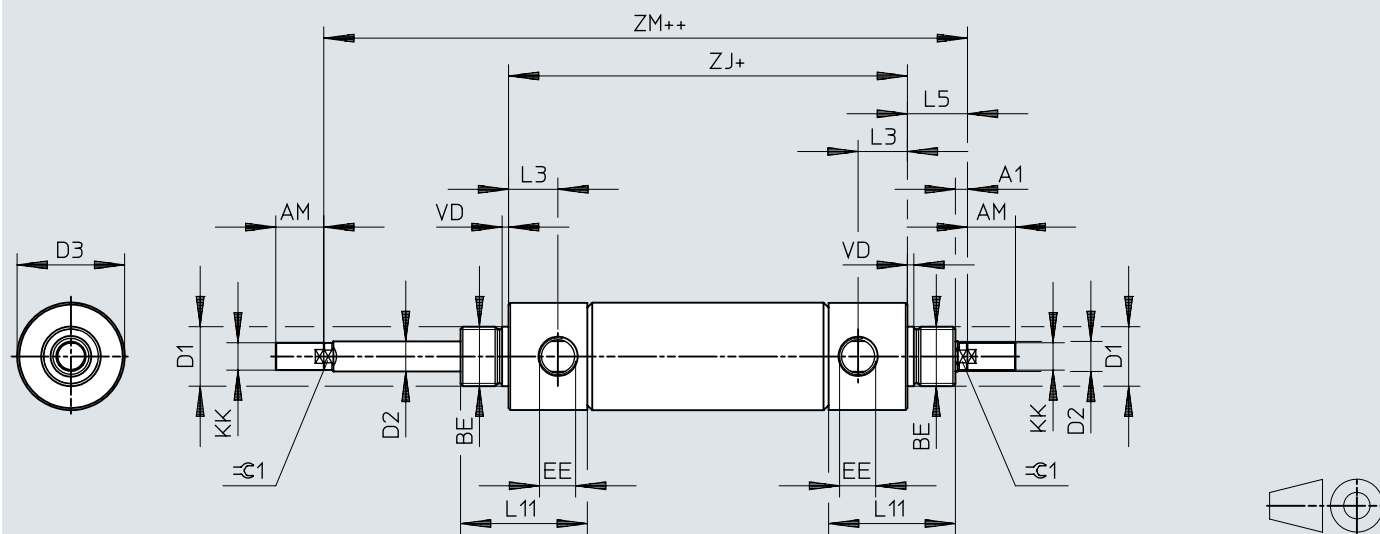
Datasheet

Dimensions

Download CAD data → www.festo.com

[T] Through piston rod

[TR3] Through piston rod; high corrosion protection



+ = plus stroke length

++ = plus 2x stroke length

∅	A1	AM	BE		D1 ∅	D2 ∅	D3 ∅		EE	KK
[in]				[TR3]				[TR3]		
9/16	–	0.5	7/16-20 UNF-2A	–	0.437	0.188	0.625	–	1/8 NPT	10-32 UNF-2A
3/4	–	0.5	5/8-18 UNF-2A	5/8-18 UNF-2A	0.624	0.25	0.875	0.875	1/8 NPT	1/4-28 UNF-2A
1 1/16	0.125	0.5	5/8-18 UNF-2A	–	0.624	0.313	1.125	1.180	1/8 NPT	5/16-24 UNF-2A
1 1/4	0.25	0.75	3/4-16 UNF-2A	–	0.749	0.438	1.344	–	1/8 NPT	7/16-20 UNF-2A
1 1/2	0.25	0.75	3/4-16 UNF-2A	1-14 UNF-2A	0.999	0.438	1.562	1.615	1/8 NPT	7/16-20 UNF-2A
2	0.375	0.875	1 1/4-12 UNF-2A	–	1.375	0.625	2.078	–	1/4 NPT	1/2-20 UNF-2A

∅	L1		L2		L3		L5	L11		VD	⊖1
[in]		[TR3]		[TR3]		[TR3]			[TR3]		
9/16	2.938	–	2.188	–	0.375	–	0.375	1	–	0.063	–
3/4	4	4.656	3	3.406	0.469	0.469	0.5	1.343	1.593	0.094	–
1 1/16	4.406	–	3.156	–	0.563	0.512	0.625	1.322	1.317	0.094	0.25
1 1/4	5.563	–	3.813	–	0.75	–	0.875	1.625	–	0.094	0.25
1 1/2	5.125	–	3.375	–	0.625	–	0.875	1.625	–	0.094	0.25
2	6.563	–	4.188	–	0.734	–	1.188	2	–	0.125	0.25

Datasheet

Formula for calculating the length ZM/ZJ

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

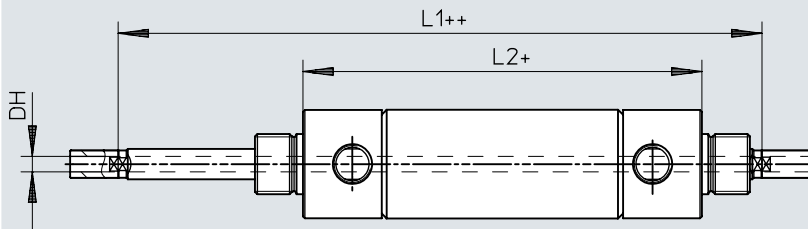
n = stroke length

Stroke [in]	O0	O1	O2	O3	ZM		ZJ	
						[TR3]		[TR3]
Piston Ø 9/16								
0.0625 ... 12	0	0.13	0.25	0.38	2.188+n+O...	–	2.938+(2*n)+O...	–
Piston Ø 3/4								
0.0625 ... 12	0	0.25	–	0.25	3+n+O...	3.438+n+O...	4+(2*n)+O...	4.438+(2*n)+O...
Piston Ø 1 1/16								
0.0625 ... 12	0	0.25	–	0.25	3.156+n+O...	–	4.406+(2*n)+O...	–
Piston Ø 1 1/4								
0.0625 ... 12	0	0.25	–	0.25	3.813+n+O...	–	5.563+(2*n)+O...	–
Piston Ø 1 1/2								
0.0625 ... 12	0	0.25	–	0.25	3.375+n+O...	–	5.125+(2*n)+O...	–
Piston Ø 2								
0.0625 ... 12	0	0.25	–	0.25	4.188+n+O...	–	6.563+(2*n)+O...	–

Dimensions

Download CAD data → www.festo.com

[H] Through, hollow piston rod



+ = plus stroke length

++ = plus 2x stroke length

Ø	DH	L1	L2
[in]			
1 1/16	0.16	4	2.75
1 1/4	0.25	5.63	3.813
1 1/2	0.25	5.125	3.375

Datasheet

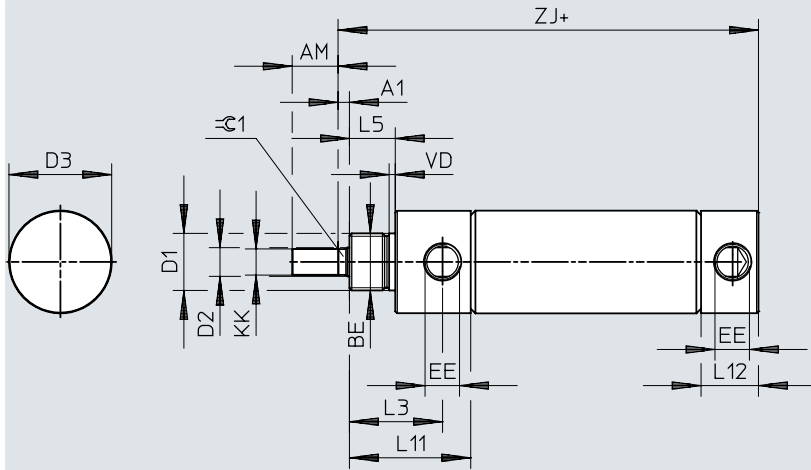
Dimensions

Download CAD data → www.festo.com

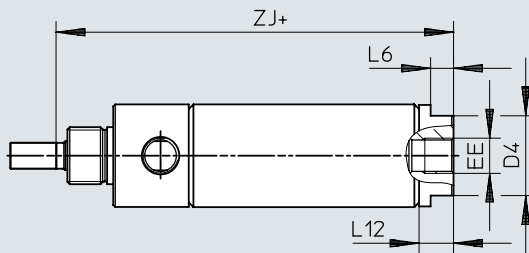
[] End cap type: standard

[NG] Without mounting thread

[NG-R3] Without mounting thread; high corrosion protection



DPRA-N- -NGP4



+ = plus stroke length

ø	A1			AM	BE			D1			D2	D3		
	[in]	[NG]	[NG-R3]		[NG]	[NG-R3]		[NG]	[NG-R3]			[NG]	[NG-R3]	
9/16	-	-	-	0.5	7/16-20 UNF-2A	7/16-20 UNF-2A	-	0.437	0.437	-	0.188	0.625	0.625	-
3/4	-	-	-	0.5	5/8-18 UNF-2A	5/8-18 UNF-2A	5/8-18 UNF-2A	0.624	0.624	0.624	0.25	0.875	0.875	0.875
7/8	-	-	-	0.5	5/8-18 UNF-2A	5/8-18 UNF-2A	-	0.624	0.624	-	0.25	0.938	0.938	-
1 1/16	0.125	0.125	-	0.5	5/8-18 UNF-2A	5/8-18 UNF-2A	5/8-18 UNF-2A	0.624	0.624	0.624	0.313	1.125	1.125	1.18
1 1/4	-	0.25	-	0.75	-	3/4-16 UNF-2A	-	-	0.749	-	0.438	-	1.344	-
1 1/2	0.25	0.25	0.25	0.75	3/4-16 UNF-2A	3/4-16 UNF-2A	1-14 UNF-2A	0.749	0.749	0.999	0.438	1.563	1.563	1.615
1 3/4	-	0.313	-	0.875	-	1-14 UNF-2A	-	-	1.031	-	0.5	-	1.844	-
2	-	0.375	-	0.875	-	1 1/4-12 UNF-2A	-	-	1.375	-	0.625	-	2.078	-
2 1/2	-	0.375	-	0.875	-	1 3/8-12 UNF-2A	-	-	1.5	-	0.625	-	2.625	-
3	-	0.375	-	1.25	-	1 1/2-12 UNF-2A	-	-	1.625	-	0.75	-	3.156	-

ø	D4			EE	KK	L3			L5		
	[in]	[NG]	[NG-R3]			[NG]	[NG-R3]		[NG]	[NG-R3]	
9/16	-	0.5	-	10-32 UNF-2B	10-32 UNF-2A	0.75	0.75	-	0.375	0.375	-
3/4	-	0.625	0.625	1/8 NPT	1/4-28 UNF-2A	0.969	0.969	0.969	0.5	0.5	-
7/8	-	0.625	-	1/8 NPT	1/4-28 UNF-2A	0.968	0.968	-	0.5	0.5	-
1 1/16	-	0.875	0.875	1/8 NPT	5/16-24 UNF-2A	1.188	1.188	1.063	0.625	0.625	0.5
1 1/4	-	0.875	-	1/8 NPT	7/16-20 UNF-2A	-	1.625	-	-	0.875	-
1 1/2	-	0.875	0.875	1/8 NPT	7/16-20 UNF-2A	1.5	1.5	1.375	0.875	0.875	0.875
1 3/4	-	1.25	-	1/4 NPT	1/2-20 UNF-2A	-	1.938	-	-	1.063	-
2	-	1.25	-	1/4 NPT	1/2-20 UNF-2A	-	1.922	-	-	1.188	-
2 1/2	-	1.75	-	1/4 NPT	1/2-20 UNF-2A	-	1.84	-	-	1.188	-
3	-	2	-	3/8 NPT	5/8-18 UNF-2A	-	2.094	-	-	1.375	-

Datasheet

∅	L6			L11			L12			VD	≈G1		
[in]		[NG]	[NG-R3]		[NG]	[NG-R3]		[NG]	[NG-R3]			[NG]	[NG-R3]
9/16	–	0.188	–	1	1	–	0.844	0.375	–	0.063	–	–	–
3/4	–	0.188	0.188	1.34	1.343	1.34	1.348	0.284	0.284	0.094	–	–	–
7/8	–	0.188	–	1.325	1.325	–	1.230	0.325	–	0.067	–	–	–
1 1/16	–	0.188	0.188	1.322	1.322	1.317	1.25	0.375	0.375	0.094	0.25	0.25	–
1 1/4	–	0.25	–	–	1.625	–	–	0.545	–	0.094	–	0.375	–
1 1/2	–	0.25	0.25	1.625	1.625	1.625	1.5	0.438	0.438	0.094	0.375	0.375	0.375
1 3/4	–	0.25	–	–	2.202	–	–	0.39	–	0.094	–	0.438	–
2	–	0.313	–	–	2	–	–	0.5	–	0.125	–	0.5	–
2 1/2	–	0.313	–	–	2	–	–	0.5	–	0.125	–	0.5	–
3	–	0.313	–	–	2.313	–	–	0.563	–	0.188	–	0.625	–

Formula for calculating the length Z)

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

O4 = NG (without mounting thread) or NG-R3 (without mounting thread and high corrosion protection)

n = stroke length

Stroke	O0	O1			O2			O3			O4	Z)		
[in]			[NG]	[NG-R3]		[NG]	[NG-R3]		[NG]	[NG-R3]	[NG]		[NG]	[NG-R3]
Piston ∅ 9/16														
0.0625 ... 12	0	0.125	0.125	–	0.25	0.25	–	0.375	0.375	–	0.031	2.312+n+O...	2.281+n+0.031+O...	–
Piston ∅ 3/4														
0.0625 ... 12	0	–	–	0.281	–	–	0.281	0.125	0.125	0.406	0.44	3.75+n+O...	2.969+n+0.44+O...	3.125+n+O...
Piston ∅ 7/8														
0.0625 ... 12	0	–	–	–	–	–	–	0.125	0.125	–	0.28	3.218+n+O...	2.938+n+0.28+O...	–
Piston ∅ 1 1/16														
0.0625 ... 12	0	0.125	0.125	0.375	–	–	0.25	0.125	0.125	0.375	0.25	3.844+n+O...	3.25+n+0.25+O...	3.188+n+O...
Piston ∅ 1 1/4														
0.0625 ... 12	0	–	–	–	–	–	–	–	0.125	–	0.31	–	4+n+0.31+O...	–
Piston ∅ 1 1/2														
0.0625 ... 12	0	0.125	0.125	0.375	–	–	0.25	0.25	0.25	0.5	0.19	4.75+n+O...	3.688+n+0.19+O...	3.562+n+O...
Piston ∅ 1 3/4														
0.0625 ... 12	0	–	–	–	–	–	–	–	–	–	0.56	–	4.688+n+0.56+O...	–
Piston ∅ 2														
0.0625 ... 12	0	–	0.25	–	–	–	–	–	0.25	–	0.38	–	4.688+n+0.38+O...	–
Piston ∅ 2 1/2														
0.0625 ... 12	0	–	0.062	–	–	–	–	–	0.062	–	0.38	–	4.688+n+0.38+O...	–
Piston ∅ 3														
0.0625 ... 12	0	–	0.062	–	–	–	–	–	0.062	–	0.437	–	5.25+n+0.437+O...	–

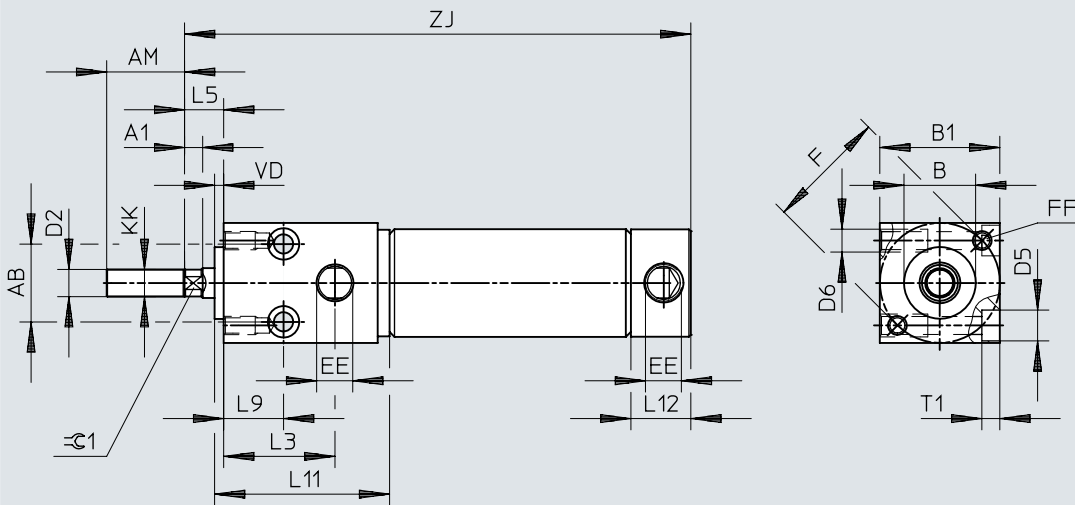
Datasheet

Dimensions

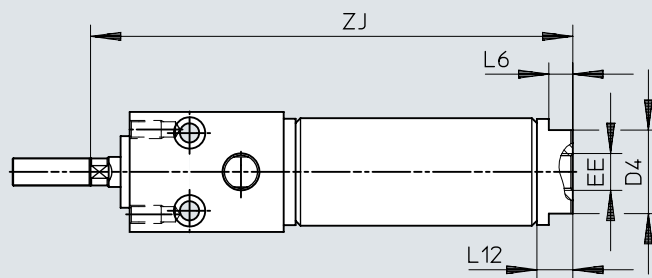
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[BNG] For direct mounting, without mounting thread

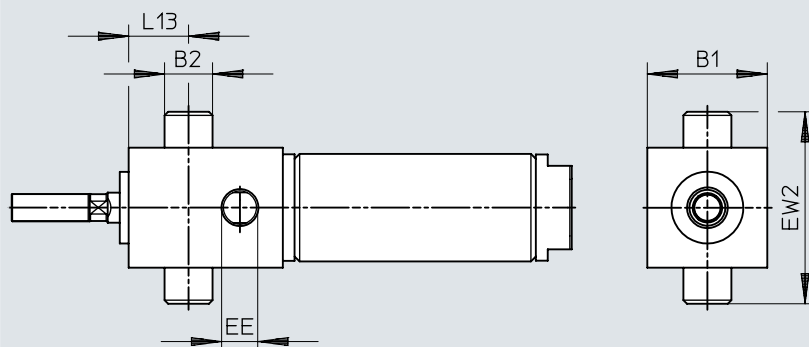
[BNGP4] For direct mounting, without mounting thread, axial compressed air supply port



DPRA-N- -BNGP4



[MNGP4] With trunnion flange, without mounting thread, axial compressed air supply port



∅	A1	AB	AM	B	B1	B2	D2	D4	D5	D6	EE	EW2	F
[in]						[MNGP4]	∅	∅	∅			[MNGP4]	
3/4	0.188	0.625	0.562	0.625	1	0.5	0.25	0.625	0.332	1/4-20 UNC-2A	1/8 NPT	1.75	1
1 1/16	0.125	0.812	0.75	0.749	1.25	0.5	0.313	0.875	0.328	1/4-20 UNC-2A	1/8 NPT	2	1.25
1 1/2	0.25	1.125	1.25	0.999	1.75	0.5	0.438	0.875	0.406	5/16-18 UNC-2A	1/8 NPT	2.5	1.75

∅	FF	KK	L3	L5	L6	L9	L11	L12		L13	T1	VD	≈G1
[in]					[BNGP4]				[BNGP4]	[MNGP4]			
3/4	10-32 UNF-2B	1/4-28 UNF-2A	0.875	0.344	0.188	0.375	1.233	0.724	0.284	0.0343	0.187	0.093	0.218
1 1/16	10-32 UNF-2B	5/16-24 UNF-2A	1.156	0.468	0.188	0.625	1.7	0.625	0.375	0.625	0.187	0.094	0.25
1 1/2	1/4-20 UNC-2B	7/16-20 UNF-2A	1.531	0.375	0.25	0.875	2	0.628	0.438	0.937	0.259	0.094	0.375

Datasheet

Formula for calculating the length ZJ

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

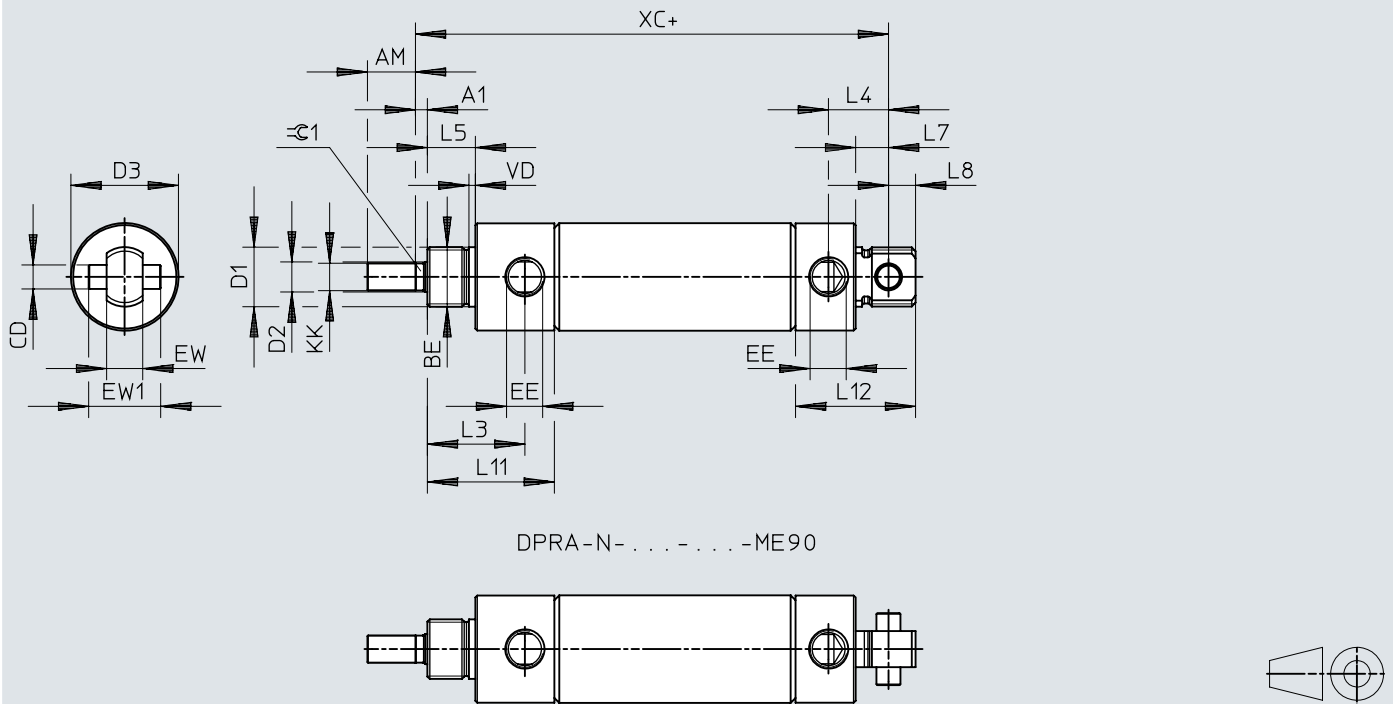
n = stroke length

Stroke [in]	O0	O1	O2	O3	ZJ	
						[BNGP4]
Piston Ø 3/4						
0.0625 ... 12	0	–	–	0.125	3.659+n+O...	3.219+n+O...
Piston Ø 1 1/16						
0.0625 ... 12	0	0.125	–	0.125	4+n+O...	3.75+n+O...
Piston Ø 1 1/2						
0.0625 ... 12	0	0.125	–	0.25	4.378+n+O...	4.188+n+O...

Datasheet

Dimensions Download CAD data → www.festo.com

[ME] With trunnion flange
[ME90] With trunnion flange, rotated 90°



+ = plus stroke length

∅	A1	AM	BE	CD ∅	D1 ∅	D2 ∅	D3 ∅	EE	EW	EW1
[in]										
3/4	–	0.5	5/8-18 UNF-2A	0.25	0.624	0.25	0.875	1/8 NPT	0.375	0.75
7/8	–	0.5	5/8-18 UNF-2A	0.25	0.624	0.25	0.938	1/8 NPT	0.375	0.75
1 1/16	0.125	0.5	5/8-18 UNF-2A	0.25	0.624	0.313	1.125	1/8 NPT	0.375	0.75
1 1/2	0.25	0.75	3/4-16 UNF-2A	0.375	0.749	0.438	1.563	1.8 NPT	0.625	1

∅	KK	L3	L4	L5	L7	L8	L11	L12	VD	XC	⌀1
[in]											
3/4	1/4-28 UNF-2A	0.969	0.625	0.5	0.344	0.281	1.34	1.348	0.094	3.75	–
7/8	1/4-28 UNF-2A	0.968	0.625	0.5	0.344	0.281	1.325	1.23	0.067	3.563	–
1 1/16	5/16-24 UNF-2A	1.188	0.625	0.625	0.344	0.281	1.322	1.25	0.094	3.844	0.25
1 1/2	7/16-20 UNF-2A	1.5	0.813	0.875	0.5	0.375	1.625	1.5	0.094	4.375	0.375

Datasheet

Formula for calculating the length XC

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

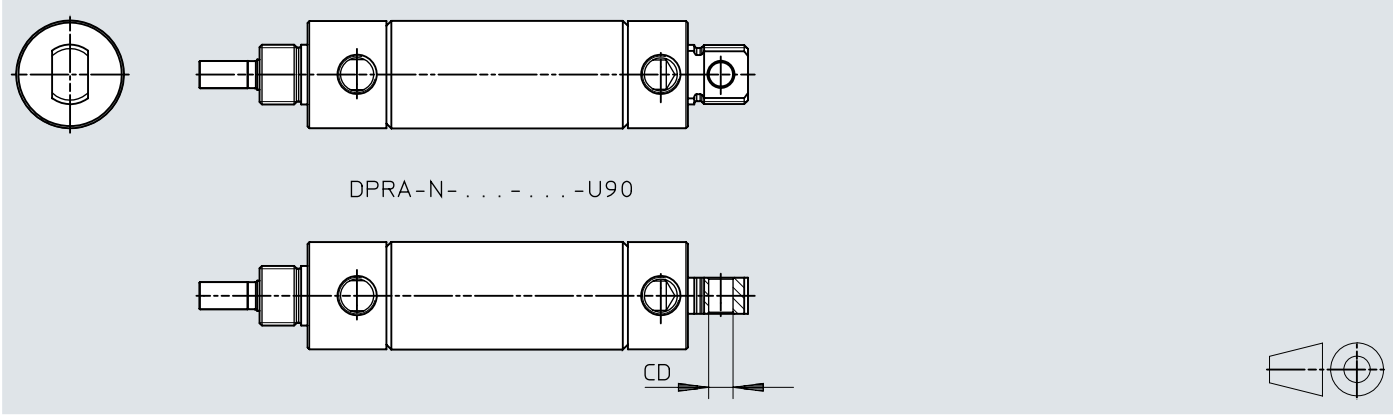
n = stroke length

Stroke [in]	O0	O1	O2	O3	XC
Piston $\varnothing$ 3/4					
0.0625 ... 12	0	–	–	0.125	$3.75+n+O...$
Piston $\varnothing$ 7/8					
0.0625 ... 12	0	–	–	0.125	$3.563+n+O...$
Piston $\varnothing$ 1 1/16					
0.0625 ... 12	0	0.125	–	0.125	$3.844+n+O...$
Piston $\varnothing$ 1 1/2					
0.0625 ... 12	0	0.125	–	0.25	$4.375+n+O...$

Datasheet

Dimensions Download CAD data → www.festo.com

- [U] With swivelling rod eye
- [U90] With swivelling rod eye, rotated 90°



ø	CD	
	ø	[U90]
[in]		
3/4	0.25	0.25
1 1/16	0.25	0.25
1 1/4	0.251	0.251
1 1/2	0.375	0.375
1 3/4	0.376	0.376

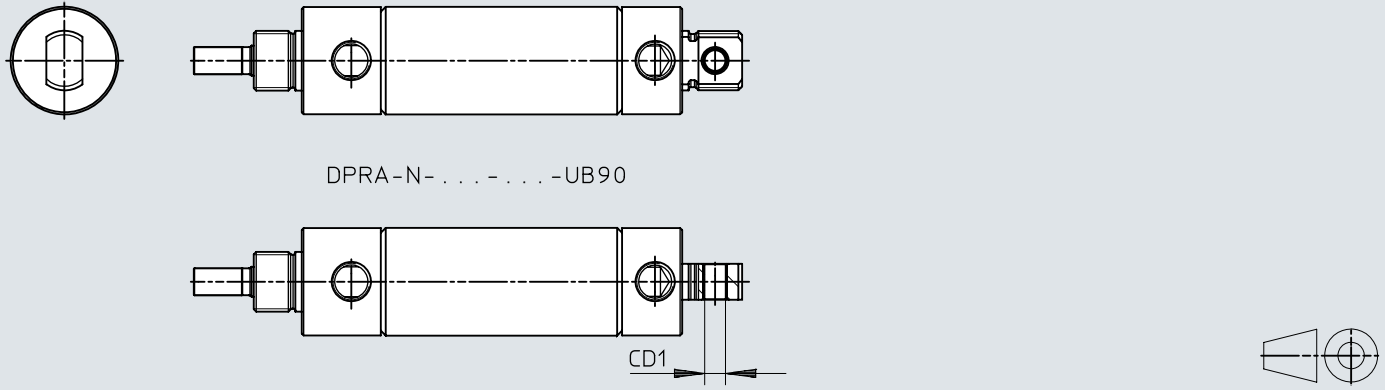
Datasheet

Dimensions

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[UB] With swivelling rod eye and bearing sleeve

[UB90] With swivelling rod eye and bearing sleeve, rotated 90°

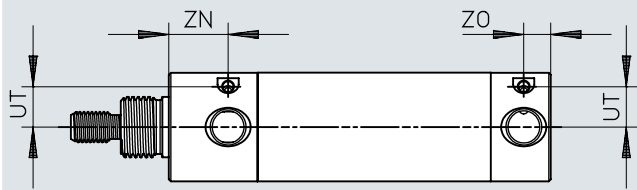


∅	CD1	
[in]	∅	[UB90]
9/16	0.157	0.157
3/4	0.25	–
7/8	0.25	–
1 1/16	0.251	–
1 1/4	0.251	–
1 1/2	0.375	–
1 3/4	0.376	–
2	0.375	0.375
2 1/2	0.376	0.376
3	0.501	0.501

Datasheet

Dimensions Download CAD data → www.festo.com

- [-PPV] Pneumatic cushioning, adjustable at both ends
- [NG-PPV] Without mounting thread; pneumatic cushioning, adjustable at both ends
- [ME-PPV] With trunnion flange; pneumatic cushioning, adjustable at both ends



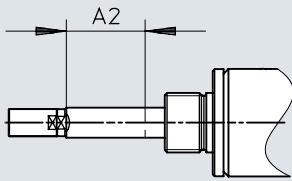
ø [in]	UT			ZO			ZN		
		[NG]	[ME]		[NG]	[ME]		[NG]	[ME]
3/4	0.29	0.29	0.29	0.281	0.281	0.281	0.46	0.46	0.46
1 1/16	0.335	0.335	0.335	0.281	0.281	0.281	0.563	0.563	0.563
1 1/2	0.475	0.475	0.475	0.297	0.297	0.313	0.625	0.625	0.625
2	0.625	0.625	–	0.469	0.469	–	0.737	0.737	–

Datasheet

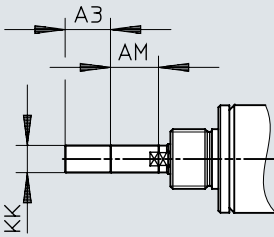
Dimensions

[Download CAD data → www.festo.com](http://www.festo.com)

[...NE] Piston rod extension



[...NL] Piston rod thread extension



∅	A2	A3	AM	KK
[in]	[...NE]	[...NL]		
9/16	1/16 ... 6	1/16 ... 6	0.5	10-32 UNF-2A
3/4	1/16 ... 6	1/16 ... 6	0.5	1/4-28 UNF-2A
7/8	1/16 ... 6	1/16 ... 6	0.5	1/4-28 UNF-2A
1 1/16	1/16 ... 6	1/16 ... 6	0.5	5/16-24 UNF-2A
1 1/4	1/16 ... 6	1/16 ... 6	0.75	7/16-24 UNF-2A
1 1/2	1/16 ... 6	1/16 ... 6	0.75	7/16-24 UNF-2A
1 3/4	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A
2	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A
2 1/2	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A
3	1/16 ... 6	1/16 ... 6	1.25	5/8-18 UNF-2A

Ordering data

[NGP4] Without mounting thread, axial compressed air supply port			
Piston Ø	Stroke	Part no.	Type
3/4"	0.5"	8217823	DPRA-N-3/4"-0.5-NGP4-N
	1"	8217824	DPRA-N-3/4"-1-NGP4-N
	1.5"	8217826	DPRA-N-3/4"-1.5-NGP4-N
	2"	8217827	DPRA-N-3/4"-2-NGP4-N
	3"	8217828	DPRA-N-3/4"-3-NGP4-N
	4"	8217829	DPRA-N-3/4"-4-NGP4-N
1 1/16"	0.5"	8217854	DPRA-N-1 1/16"-0.5-NGP4-N
	1"	8217838	DPRA-N-1 1/16"-1-NGP4-N
	1.5"	8217853	DPRA-N-1 1/16"-1.5-NGP4-N
	2"	8217845	DPRA-N-1 1/16"-2-NGP4-N
	3"	8217846	DPRA-N-1 1/16"-3-NGP4-N
	4"	8217842	DPRA-N-1 1/16"-4-NGP4-N
1 1/4"	5"	8217844	DPRA-N-1 1/16"-5-NGP4-N
	1"	8217855	DPRA-N-1 1/4"-1-NGP4-N
	2"	8217856	DPRA-N-1 1/4"-2-NGP4-N
	3"	8217857	DPRA-N-1 1/4"-3-NGP4-N
	4"	8217858	DPRA-N-1 1/4"-4-NGP4-N
1 1/2"	5"	8217859	DPRA-N-1 1/4"-5-NGP4-N
	1"	8217879	DPRA-N-1 1/2"-1-NGP4-N
	1.5"	8217866	DPRA-N-1 1/2"-1.5-NGP4-N
	2"	8217867	DPRA-N-1 1/2"-2-NGP4-N
	3"	8217868	DPRA-N-1 1/2"-3-NGP4-N
	4"	8217869	DPRA-N-1 1/2"-4-NGP4-N
	5"	8217870	DPRA-N-1 1/2"-5-NGP4-N
2"	6"	8217871	DPRA-N-1 1/2"-6-NGP4-N
	1"	8217891	DPRA-N-2"-1-NGP4-N
	2"	8217880	DPRA-N-2"-2-NGP4-N
	3"	8217881	DPRA-N-2"-3-NGP4-N
	4"	8217882	DPRA-N-2"-4-NGP4-N
	5"	8217883	DPRA-N-2"-5-NGP4-N
	6"	8217884	DPRA-N-2"-6-NGP4-N

[ME] With trunnion flange			
Piston Ø	Stroke	Part no.	Type
3/4"	0.5"	8217830	DPRA-N-3/4"-0.5-ME-N
	1"	8217825	DPRA-N-3/4"-1-ME-N
	1.5"	8217831	DPRA-N-3/4"-1.5-ME-N
	2"	8217832	DPRA-N-3/4"-2-ME-N
	3"	8217833	DPRA-N-3/4"-3-ME-N
	4"	8217834	DPRA-N-3/4"-4-ME-N
	5"	8217835	DPRA-N-3/4"-5-ME-N
1 1/16"	0.5"	8217839	DPRA-N-1 1/16"-0.5-ME-N
	1"	8217840	DPRA-N-1 1/16"-1-ME-N
	1.5"	8217849	DPRA-N-1 1/16"-1.5-ME-N
	2"	8217847	DPRA-N-1 1/16"-2-ME-N
	3"	8217848	DPRA-N-1 1/16"-3-ME-N
	4"	8217843	DPRA-N-1 1/16"-4-ME-N
	5"	8217850	DPRA-N-1 1/16"-5-ME-N
1 1/2"	6"	8217852	DPRA-N-1 1/16"-6-ME-N
	1"	8217872	DPRA-N-1 1/2"-1-ME-N
	1.5"	8217873	DPRA-N-1 1/2"-1.5-ME-N
	2"	8217874	DPRA-N-1 1/2"-2-ME-N
	3"	8217875	DPRA-N-1 1/2"-3-ME-N
	4"	8217876	DPRA-N-1 1/2"-4-ME-N
	5"	8217877	DPRA-N-1 1/2"-5-ME-N
	6"	8217878	DPRA-N-1 1/2"-6-ME-N

Ordering data

[U] With swivelling rod eye			
Piston Ø	Stroke	Part no.	Type
1 1/4"	1"	8217860	DPRA-N-1 1/4"-1-U-N
	2"	8217865	DPRA-N-1 1/4"-2-U-N
	3"	8217861	DPRA-N-1 1/4"-3-U-N
	4"	8217862	DPRA-N-1 1/4"-4-U-N
	5"	8217863	DPRA-N-1 1/4"-5-U-N
	6"	8217864	DPRA-N-1 1/4"-6-U-N

[UB] With swivelling rod eye and bearing sleeve			
Piston Ø	Stroke	Part no.	Type
2"	1"	8217885	DPRA-N-2"-1-UB-N
	2"	8217886	DPRA-N-2"-2-UB-N
	3"	8217887	DPRA-N-2"-3-UB-N
	4"	8217888	DPRA-N-2"-4-UB-N
	5"	8217889	DPRA-N-2"-5-UB-N
	6"	8217890	DPRA-N-2"-6-UB-N

Ordering data – Modular product system

Ordering table									
Piston ø	9/16	3/4	7/8	1 1/16	1 1/4	Conditions	Code		Enter code
Module no.	8180567	8109549	8180568	8109550	8109551				
Series	Round cylinder, double-acting						DPRA		DPRA
System of units	Imperial						-N		
Protection against rotation	None								
Piston ø	9/16"	3/4"	7/8"	1 1/16"	1 1/4"		-"		
Stroke	0.0625 ... 12"						-"		
Function	Double-acting								
Piston rod type	At one end								
	-			Through, hollow piston rod			H		
	-	Through piston rod	-	Through piston rod			T		
Type of bearing cover	With mounting thread								
	-	For direct mounting	-	For direct mounting	-	[1][2]	B		
	-	With trunnion flange	-	With trunnion flange	-	[1][2]	M		
Type of end cap	Standard								
	-	With swivelling rod eye	-	With swivelling rod eye		[1][4][5][10]	U		
	-	With trunnion flange			-	[1][4][5][8][17]	ME		
	Without mounting thread					[1]	NG		
	With swivelling rod eye and bearing sleeve					[1][4][5][8]	UB		
	-				With swivelling rod eye, rotated 90°	[1][4][5]	U90		
	-	With trunnion flange			-	[1][4][5][17]	ME90		
	With swivelling rod eye and bearing sleeve, rotated 90°	-				[1][4][5]	UB90		
	Compressed air supply port	Lateral							
Axial					[1][2][14]	P4			
Cushioning	No cushioning						-N		
	Elastic cushioning rings/plates at both ends					[6]	-P		
	-	Pneumatic cushioning, adjustable at both ends	-	Pneumatic cushioning, adjustable at both ends	-	[1][4][7][16]	-PPV		
Position sensing	None								
	Via proximity switch					[6]	A		

[1] B, M, U, ME, NG, UB, U90, ME90, UB90, P4, cushioning PPV, R1

Not with H, T

[2] B, M, P4, R1

Not with standard type of end cap

[4] U, ME, UB, U90, ME90, UB90, cushioning PPV, R1, R3

Not with M, B

[5] U, ME, UB, U90, ME90, UB90

Not with P4

[6] Cushioning P, A, R3, T3, T4, A4

Not with U90, UB90, ME90

[7] Cushioning PPV

Not with P4, U90

Only in combination with standard type of end cap, if piston diameter 3/4", 1 1/16" selected

[8] ME, UB, T3, T4, A4

Not with R3

[10] U

Only with piston diameter 3/4", 1 1/16" if R3 selected

[14] P4

Mandatory with NG if A or T4 selected

[16] Cushioning PPV, R1

Not with U

[17] ME, ME90, T3

Not with R1

Ordering data – Modular product system

Ordering table									
Piston ø	9/16	3/4	7/8	1 1/16	1 1/4	Conditions	Code		Enter code
Module no.	8180567	8109549	8180568	8109550	8109551				
Corrosion protection	Standard								
	–	Stainless steel	–	Stainless steel		[1][2][3] [4][16]	-R1		
	–	High corrosion protection	–	High corrosion protection	–	[3][4][6] [9][12]	-R3		
Temperature range	Standard –5 ... + 165 °F								
	–40 ... +225 °F					[6][8][17]	-T3		
	+32 ... +300 °F					[3][6][8] [11]	-T4		
Scraper variant	None								
	–	Scraper made of NBR				[6][8][9] [15]	A4		
Piston rod extension	None								
	0 ... 6 inch						---NE		
Piston rod thread extension	None								
	0 ... 6 inch					[13]	---NL		

- | | |
|--|--|
| [1] B, M, U, ME, NG, UB, U90, ME90, UB90, P4, cushioning PPV, R1 | Not with H, T |
| [2] B, M, P4, R1 | Not with standard type of end cap |
| [3] R1, R3, T4 | Not with cushioning PPV |
| [4] U, ME, UB, U90, ME90, UB90, cushioning PPV, R1, R3 | Not with M, B |
| [6] Cushioning P, A, R3, T3, T4, A4 | Not with U90, UB90, ME90 |
| [8] ME, UB, T3, T4, A4 | Not with R3 |
| [9] R3, A4 | Not with NG if lateral compressed air supply port is selected |
| [11] T4 | Not with A, cushioning P |
| [12] R3 | Not with H |
| | Only in combination with standard type of end cap, if T selected |
| [13] ...NL | Not with ...NE |
| [15] A4 | Not with T3 |
| | Mandatory with R1 |
| [16] Cushioning PPV, R1 | Not with U |
| [17] ME, ME90, T3 | Not with R1 |

Ordering data – Modular product system

Ordering table									
Piston ø	1 1/2	1 3/4	2	2 1/2	3	Conditions	Code		Enter code
Module no.	8109552	8109553	8109554	8109555	8180569				
Series	Round cylinder, double-acting						DPRA		DPRA
System of units	Imperial						-N		
Protection against rotation	None								
Piston ø	1 1/2"	1 3/4"	2"	2 1/2"	3"		-"		
Stroke	0.0625 ... 12"						-"		
Function	Double-acting								
Piston rod type	At one end								
	Through, hollow piston rod	-					H		
	Through piston rod	-	Through piston rod	-			T		
Type of bearing cover	With mounting thread								
	For direct mounting	-				[1][2]	B		
	With trunnion flange	-				[1][2]	M		
Type of end cap	Standard	-	Standard	-					
	With swivelling rod eye		-			[1][4][5][10]	U		
	With trunnion flange	-				[1][4][5][8][18]	ME		
	Without mounting thread					[1][16]	NG		
	With swivelling rod eye and bearing sleeve					[1][4][5][8][16]	UB		
	-	With swivelling rod eye, rotated 90°	-			[1][4][5][16]	U90		
	Trunnion flange, rotated 90°	-				[1][4][5][18]	ME90		
	-		With swivelling rod eye and bearing sleeve, rotated 90°			[1][4][5]	UB90		
Compressed air supply port	Lateral								
	Axial					[1][2][14]	P4		
Cushioning	No cushioning						-N		
	Elastic cushioning rings/plates at both ends					[6]	-P		
	Pneumatic cushioning, adjustable at both ends	-	Pneumatic cushioning, adjustable at both ends	-		[1][4][7][17]	-PPV		
Position sensing	None								
	Via proximity switch					[6]	A		

[1] B, M, U, ME, NG, UB, U90, ME90, UB90, P4, cushioning PPV, R1

Not with H, T

[2] B, M, P4, R1

Not with standard type of end cap

[4] U, ME, UB, U90, ME90, UB90, cushioning PPV, R1, R3

Not with M, B

[5] U, ME, UB, U90, ME90, UB90

Not with P4

[6] Cushioning P, A, R3, T3, T4, A4

Not with U90, UB90, ME90

[7] Cushioning PPV

Not with P4, U90

[8] ME, UB, T3, T4, A4

Not with R3

[10] U

Only with piston diameter 1 1/2" if R3 selected

[14] P4

Mandatory with NG if A or T4 selected

[16] NG, UB, UB90

Mandatory with piston diameter 2" with piston rod type at one end

[17] Cushioning PPV, R1

Not with U

[18] ME, ME90, T3

Not with R1

Ordering data – Modular product system

Ordering table								
Piston Ø	1 1/2	1 3/4	2	2 1/2	3	Conditions	Code	Enter code
Module no.	8109552	8109553	8109554	8109555	8180569			
Corrosion protection	Standard							
	Stainless steel	–	Stainless steel	–		[1][2][3] [4][17]	-R1	
	High corrosion protection	–				[3][4][6] [9][12]	-R3	
Temperature range	Standard –5 ... + 165 °F							
	–40 ... +225 °F					[6][8][18]	-T3	
	+32 ... +300 °F					[3][6][8] [11]	-T4	
Scraper variant	None							
	Scraper made of NBR			–		[6][8][9] [15]	A4	
Piston rod extension	None							
	0 ... 6 inch						...NE	
Piston rod thread extension	None							
	0 ... 6 inch					[13]	...NL	

- | | |
|--|--|
| [1] B, M, U, ME, NG, UB, U90, ME90, UB90, P4, cushioning PPV, R1 | Not with H, T |
| [2] B, M, P4, R1 | Not with standard type of end cap |
| [3] R1, R3, T4 | Not with cushioning PPV |
| [4] U, ME, UB, U90, ME90, UB90, cushioning PPV, R1, R3 | Not with M, B |
| [6] Cushioning P, A, R3, T3, T4, A4 | Not with U90, UB90, ME90 |
| [8] ME, UB, T3, T4, A4 | Not with R3 |
| [9] R3, A4 | Not with NG if lateral compressed air supply port is selected |
| [11] T4 | Not with A, cushioning P |
| [12] R3 | Not with H |
| | Only in combination with standard type of end cap, if T selected |
| [13] ...NL | Not with ...NE |
| [15] A4 | Not with T3 |
| | Mandatory with R1 |
| [17] Cushioning PPV, R1 | Not with U |
| [18] ME, ME90, T3 | Not with R1 |

Datasheet

General technical data									
Piston Ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2	
Design	Piston								
	Piston rod								
	Cylinder barrel								
Operating mode									
[S]	Single-acting, pushing (piston rod retracted by spring force)								
[P]	Single-acting, pulling (piston rod advanced by spring force)								
Protection against rotation/guide									
[Q]	Hexagonal piston rod						–		
Pneumatic connection	1/8 NPT						1/4 NPT		
Piston rod thread	10-32 UNF-2A	1/4-28 UNF-2A		5/16-24 UNF-2A	7/16-20 UNF-2A		1/2-20 UNF-2A		
Stroke	[in]	0.0625 ... 6						0.0625 ... 4	
Cushioning									
[N]	No cushioning								
[P]	Elastic cushioning rings/plates at both ends								
Position sensing	Via proximity switch								
Type of mounting	With lock nut						–		
	With accessories								
Mounting position	Any								
Operating and environmental conditions									
Piston Ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2	
Operating pressure	[psi]	10 ... 150							
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]								
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)								
Ambient temperature ¹⁾	[°F]	–40 ... +300							
Corrosion resistance class CRC ²⁾	1 - Low corrosion stress								
	–	3)	–	3)	–	3)	–		
	–	4)	–	4)	–			4)	

1) Note operating range of proximity switches

2) More information www.festo.com/x/topic/crc

3) 3 - High corrosion stress

4) 4 - Particularly high corrosion stress

Datasheet

Forces [lb] at 80 psi¹⁾								
Piston Ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2
[P] Single-acting, pulling (piston rod advanced by spring force)								
Stroke start [in]	15.7	28.4	41.2	61.8	78.6	122.3	165.7	211.8
Stroke end [in]	13.7	25.4	38.2	58.8	71.1	115.3	152.7	196.8
[S] Single-acting, pushing (piston rod retracted by spring force)								
Stroke start [in]	17.9	32.3	45.1	67.9	90.7	134.4	181.4	236.3
Stroke end [in]	17.7	31.4	44.2	64.8	86.1	129.3	176.7	226.8

1) The theoretical forces apply for full strokes only (stroke 1, 2, 3, 4, 5, and 6).

For intermediate strokes, the force at the start of the stroke is reduced due to higher spring preload. At the end of the stroke the force corresponds to that for full strokes.

Weight [lb]			
Piston Ø	9/16	3/4	7/8
Product weight	45.36 ... 385.55	99.79 ... 598.74	176.9 ... 1097.69

Weight [lb]			
Piston Ø	1 1/2	1 3/4	2
Product weight	199.58 ... 1238.3	385.55 ... 1374.38	471.74 ... 1832.51

Materials								
Piston Ø	9/16	3/4	7/8	1 1/16	1 1/4	1 1/2	1 3/4	2
Cover material	Wrought aluminium alloy							
	–	POM	–	POM	–	POM	–	
	–	1)	–	1)			–	1)
Sealing material	FPM							
	NBR							
Piston rod material	High-alloy stainless steel							
Cylinder barrel material	High-alloy stainless steel							
Note on materials	RoHS-compliant							
LABS (PWIS) conformity	VDMA24364 zone III							

1) High-alloy stainless steel

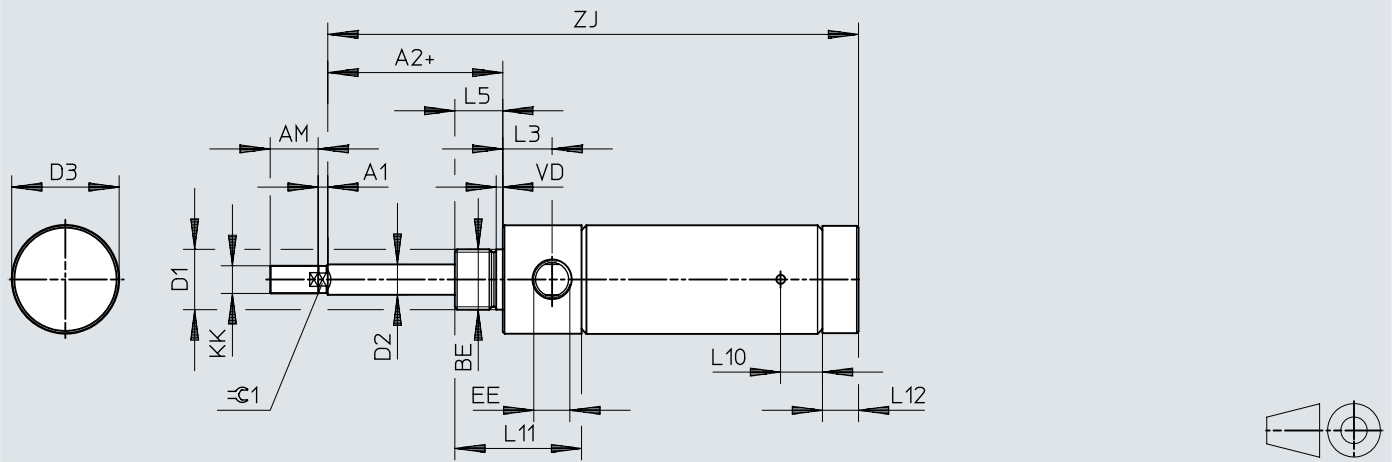
Datasheet

Dimensions

Download CAD data → www.festo.com

[-P] Single-acting, pulling (piston rod advanced by spring force)

[NG] Without mounting thread



+ = plus stroke length

∅	A1	A2	AM	BE	D1 ∅	D2 ∅	D3 ∅	EE
[in]								
9/16	0	0.375	0.5	7/16-20 UNF-2A	0.437	0.188	0.625	10-32 UNF-2B
3/4	0	0.5	0.5	5/8-18 UNF-2A	0.624	0.25	0.875	1/8 NPT
7/8	0	0.5	0.5	5/8-18 UNF-2A	0.624	0.25	0.938	1/8 NPT
1 1/16	0.125	0.5	0.5	5/8-18 UNF-2A	0.624	0.313	1.125	1/8 NPT
1 1/4	0.25	0.625	0.75	3/4-16 UNF-2A	0.749	0.438	1.344	1/8 NPT
1 1/2	0.25	0.625	1.25	3/4-16 UNF-2A	0.749	0.438	1.563	1/8 NPT
1 3/4	0.313	0.75	0.875	1-14 UNF-2A	1.031	0.5	1.844	1/4 NPT
2	0.375	0.813	0.875	1 1/4-12 UNF-2A	1.375	0.625	2.078	1/4 NPT

∅	KK	L3	L5	L10	L11	L12	VD	⌀1
[in]								
9/16	10-32 UNF-2A	0.375	0.375	0.3	1	0.375	0.063	–
3/4	1/4-28 UNF-2A	0.469	0.5	0.437	1.343	0.313	0.094	–
7/8	1/4-28 UNF-2A	0.469	0.5	0.35	1.325	0.23	0.67	–
1 1/16	5/16-24 UNF-2A	0.563	0.5	0.437	1.322	0.477	0.094	0.25
1 1/4	7/16-20 UNF-2A	0.75	0.625	0.437	1.625	0.522	0.094	0.375
1 1/2	7/16-20 UNF-2A	0.625	0.625	0.437	1.625	0.683	0.094	0.375
1 3/4	1/2-20 UNF-2A	0.875	0.75	0.437	2.202	0.259	0.094	0.438
2	1/2-20 UNF-2A	0.734	0.813	0.437	2	0.376	0.125	0.5

Formula for calculating the length ZJ

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

n = stroke length

Stroke [in]	O0	O1	O2	O3	ZJ
Piston ∅ 9/16					
1/16 ... 1	0	0.062	0.531	0.713	$2+(2.625*1)-2*(1-n)+O...$
1 1/16 ... 2	0	0.062	0.531	0.713	$2+(2.625*2)-2*(2-n)+O...$
2 1/16 ... 3	0	0.062	0.531	0.713	$2+(2.625*3)-2*(3-n)+O...$
3 1/16 ... 4	0	0.062	0.531	0.713	$2+(2.625*4)-2*(4-n)+O...$
4 1/16 ... 5	0	0.062	0.531	0.713	$2+(2.625*5)-2*(5-n)+O...$
5 1/16 ... 6	0	0.062	0.531	0.713	$2+(2.625*6)-2*(6-n)+O...$

Datasheet

Formula for calculating the length ZJ

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

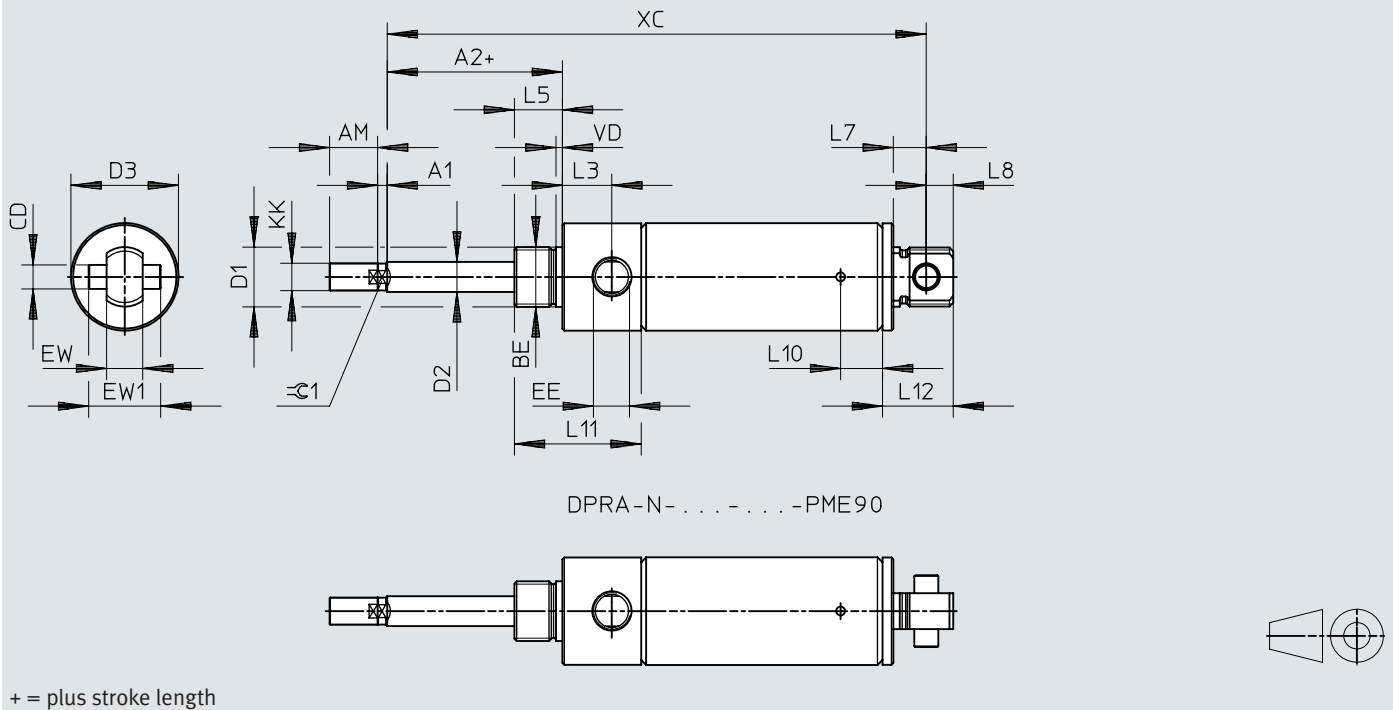
n = stroke length

Stroke [in]	O0	O1	O2	O3	ZJ
Piston Ø 3/4					
1/16 ... 1	0	0.125	0.688	0.89	$2.313 + (2.687 \cdot 1) - 2 \cdot (1 - n) + 0...$
1 1/16 ... 2	0	0.125	0.688	0.89	$2.313 + (2.687 \cdot 2) - 2 \cdot (2 - n) + 0...$
2 1/16 ... 3	0	0.125	0.688	0.89	$2.313 + (2.687 \cdot 3) - 2 \cdot (3 - n) + 0...$
3 1/16 ... 4	0	0.125	0.688	0.89	$2.313 + (2.687 \cdot 4) - 2 \cdot (4 - n) + 0...$
4 1/16 ... 5	0	0.125	0.688	0.89	$2.313 + (2.687 \cdot 5) - 2 \cdot (5 - n) + 0...$
5 1/16 ... 6	0	0.125	0.688	0.89	$2.313 + (2.687 \cdot 6) - 2 \cdot (6 - n) + 0...$
Piston Ø 7/8					
1/16 ... 1	0	–	0.531	0.733	$2.313 + (2.562 \cdot 1) - 2 \cdot (1 - n) + 0...$
1 1/16 ... 2	0	–	0.531	0.733	$2.313 + (2.562 \cdot 2) - 2 \cdot (2 - n) + 0...$
2 1/16 ... 3	0	–	0.531	0.733	$2.313 + (2.562 \cdot 3) - 2 \cdot (3 - n) + 0...$
3 1/16 ... 4	0	–	0.531	0.733	$2.313 + (2.562 \cdot 4) - 2 \cdot (4 - n) + 0...$
4 1/16 ... 5	0	–	0.531	0.733	$2.313 + (2.562 \cdot 5) - 2 \cdot (5 - n) + 0...$
5 1/16 ... 6	0	–	0.531	0.733	$2.313 + (2.562 \cdot 6) - 2 \cdot (6 - n) + 0...$
Piston Ø 1 1/16					
1/16 ... 1	0	0.125	0.562	0.687	$2.5 + (2.812 \cdot 1) - 2 \cdot (1 - n) + 0...$
1 1/16 ... 2	0	0.125	0.562	0.687	$2.5 + (2.812 \cdot 2) - 2 \cdot (2 - n) + 0...$
2 1/16 ... 3	0	0.125	0.562	0.687	$2.5 + (2.812 \cdot 3) - 2 \cdot (3 - n) + 0...$
3 1/16 ... 4	0	0.125	0.562	0.687	$2.5 + (2.812 \cdot 4) - 2 \cdot (4 - n) + 0...$
4 1/16 ... 5	0	0.125	0.562	0.687	$2.5 + (2.812 \cdot 5) - 2 \cdot (5 - n) + 0...$
5 1/16 ... 6	0	0.125	0.562	0.687	$2.5 + (2.812 \cdot 6) - 2 \cdot (6 - n) + 0...$
Piston Ø 1 1/4					
1/16 ... 1	0	–	0.531	0.734	$3.219 + (2.812 \cdot 1) - 2 \cdot (1 - n) + 0...$
1 1/16 ... 2	0	–	0.531	0.734	$3.219 + (2.812 \cdot 2) - 2 \cdot (2 - n) + 0...$
2 1/16 ... 3	0	–	0.531	0.734	$3.219 + (2.812 \cdot 3) - 2 \cdot (3 - n) + 0...$
3 1/16 ... 4	0	–	0.531	0.734	$3.219 + (2.812 \cdot 4) - 2 \cdot (4 - n) + 0...$
4 1/16 ... 5	0	–	0.531	0.734	$3.219 + (2.812 \cdot 5) - 2 \cdot (5 - n) + 0...$
5 1/16 ... 6	0	–	0.531	0.734	$3.219 + (2.812 \cdot 6) - 2 \cdot (6 - n) + 0...$
Piston Ø 1 1/2					
1/16 ... 1	0	–	0.5	0.827	$2.938 + (3 \cdot 1) - 2 \cdot (1 - n) + 0...$
1 1/16 ... 2	0	–	0.5	0.827	$2.938 + (3 \cdot 2) - 2 \cdot (2 - n) + 0...$
2 1/16 ... 3	0	–	0.5	0.827	$2.938 + (3 \cdot 3) - 2 \cdot (3 - n) + 0...$
3 1/16 ... 4	0	–	0.5	0.827	$2.938 + (3 \cdot 4) - 2 \cdot (4 - n) + 0...$
4 1/16 ... 5	0	–	0.5	0.827	$2.938 + (3 \cdot 5) - 2 \cdot (5 - n) + 0...$
5 1/16 ... 6	0	–	0.5	0.827	$2.938 + (3 \cdot 6) - 2 \cdot (6 - n) + 0...$
Piston Ø 1 3/4					
1/16 ... 1	0	–	0.656	0.735	$4.031 + (3 \cdot 1) - 2 \cdot (1 - n) + 0...$
1 1/16 ... 2	0	–	0.656	0.735	$4.031 + (3 \cdot 2) - 2 \cdot (2 - n) + 0...$
2 1/16 ... 3	0	–	0.656	0.735	$4.031 + (3 \cdot 3) - 2 \cdot (3 - n) + 0...$
3 1/16 ... 4	0	–	0.656	0.735	$4.031 + (3 \cdot 4) - 2 \cdot (4 - n) + 0...$
4 1/16 ... 5	0	–	0.656	0.735	$4.031 + (3 \cdot 5) - 2 \cdot (5 - n) + 0...$
5 1/16 ... 6	0	–	0.656	0.735	$4.031 + (3 \cdot 6) - 2 \cdot (6 - n) + 0...$
Piston Ø 2					
1 1/16 ... 0.5	0	–	0.714	0.789	$5.234 - 2 \cdot (0.5 - n) + 0...$
9/16 ... 1	0	–	0.714	0.789	$5.734 - 2 \cdot (1 - n) + 0...$
1 1/16 ... 1.5	0	–	0.714	0.789	$7.534 - 2 \cdot (1.5 - n) + 0...$
1 9/16 ... 2	0	–	0.714	0.789	$7.734 - 2 \cdot (2 - n) + 0...$
2 1/6 ... 2.5	0	–	0.714	0.789	$8.469 - 2 \cdot (2.5 - n) + 0...$
2 9/16 ... 3	0	–	0.714	0.789	$8.696 - 2 \cdot (3 - n) + 0...$
3 1/6 ... 4	0	–	0.714	0.789	$11.969 - 2 \cdot (4 - n) + 0...$

Datasheet

Dimensions Download CAD data → www.festo.com

- [P] Single-acting, pulling (piston rod advanced by spring force)
- [ME] With trunnion flange
- [ME90] Trunnion flange, rotated 90°



∅	A1	A2	AM	BE	CD ∅	D1 ∅	D2 ∅	D3 ∅	EE	EW
[in]										
3/4	0	0.5	0.5	5/8-18 UNF-2A	0.25	0.624	0.25	0.875	1/8 NPT	0.375
7/8	0	0.5	0.5	5/8-18 UNF-2A	0.25	0.624	0.25	0.938	1/8 NPT	0.375
1 1/16	0.125	0.5	0.5	5/8-18 UNF-2A	0.25	0.624	0.313	1.125	1/8 NPT	0.375
1 1/2	0.25	0.625	1.25	3/4-16 UNF-2A	0.375	0.749	0.438	1.563	1/8 NPT	0.625

∅	EW1	KK	L3	L5	L7	L8	L10	L11	L12	VD	⌀1
[in]											
3/4	0.75	1/4-28 UNF-2A	0.469	0.5	–	–	0.437	1.343	0.724	0.094	–
7/8	0.75	1/4-28 UNF-2A	0.469	0.5	0.344	0.281	0.35	1.325	0.825	0.067	–
1 1/16	0.75	5/16-24 UNF-2A	0.563	0.5	0.344	0.281	0.437	1.322	0.915	0.094	0.25
1 1/2	1	7/16-20 UNF-2A	0.625	0.625	0.5	0.375	0.437	1.625	1.745	0.094	0.375

Datasheet

Formula for calculating the length XC

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

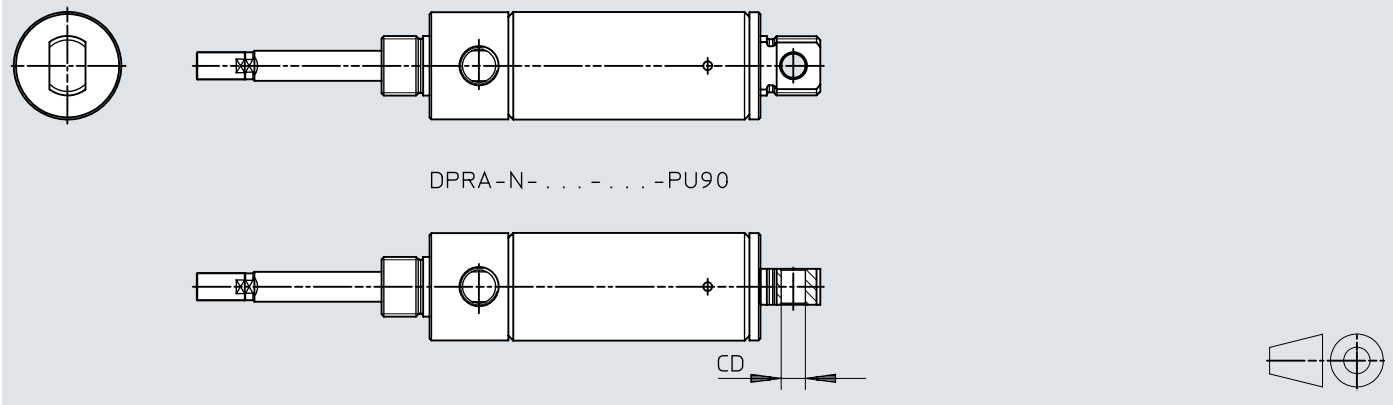
n = stroke length

Stroke [in]	O0	O1	O2	O3	XC
Piston Ø 3/4					
1/16 ... 1	0	0.125	0.688	0.89	$2.437 + (2.687 \cdot 1) - 2 \cdot (1 - n) + 0 \dots$
1 1/16 ... 2	0	0.125	0.688	0.89	$2.437 + (2.687 \cdot 2) - 2 \cdot (2 - n) + 0 \dots$
2 1/16 ... 3	0	0.125	0.688	0.89	$2.437 + (2.687 \cdot 3) - 2 \cdot (3 - n) + 0 \dots$
3 1/16 ... 4	0	0.125	0.688	0.89	$2.437 + (2.687 \cdot 4) - 2 \cdot (4 - n) + 0 \dots$
4 1/16 ... 5	0	0.125	0.688	0.89	$2.437 + (2.687 \cdot 5) - 2 \cdot (5 - n) + 0 \dots$
5 1/16 ... 6	0	0.125	0.688	0.89	$2.437 + (2.687 \cdot 6) - 2 \cdot (6 - n) + 0 \dots$
Piston Ø 7/8					
1/16 ... 1	0	–	0.531	0.733	$2.625 + (2.565 \cdot 1) - 2 \cdot (1 - n) + 0 \dots$
1 1/16 ... 2	0	–	0.531	0.733	$2.625 + (2.565 \cdot 2) - 2 \cdot (2 - n) + 0 \dots$
2 1/16 ... 3	0	–	0.531	0.733	$2.625 + (2.565 \cdot 3) - 2 \cdot (3 - n) + 0 \dots$
3 1/16 ... 4	0	–	0.531	0.733	$2.625 + (2.565 \cdot 4) - 2 \cdot (4 - n) + 0 \dots$
4 1/16 ... 5	0	–	0.531	0.733	$2.625 + (2.565 \cdot 5) - 2 \cdot (5 - n) + 0 \dots$
5 1/16 ... 6	0	–	0.531	0.733	$2.625 + (2.565 \cdot 6) - 2 \cdot (6 - n) + 0 \dots$
Piston Ø 1 1/16					
1/16 ... 1	0	0.125	0.562	0.765	$2.656 + (2.812 \cdot 1) - 2 \cdot (1 - n) + 0 \dots$
1 1/16 ... 2	0	0.125	0.562	0.765	$2.656 + (2.812 \cdot 2) - 2 \cdot (2 - n) + 0 \dots$
2 1/16 ... 3	0	0.125	0.562	0.765	$2.656 + (2.812 \cdot 3) - 2 \cdot (3 - n) + 0 \dots$
3 1/16 ... 4	0	0.125	0.562	0.765	$2.656 + (2.812 \cdot 4) - 2 \cdot (4 - n) + 0 \dots$
4 1/16 ... 5	0	0.125	0.562	0.765	$2.656 + (2.812 \cdot 5) - 2 \cdot (5 - n) + 0 \dots$
5 1/16 ... 6	0	0.125	0.562	0.765	$2.656 + (2.812 \cdot 6) - 2 \cdot (6 - n) + 0 \dots$
Piston Ø 1 1/2					
1/16 ... 1	0	–	0.438	0.765	$3.875 + (3 \cdot 1) - 2 \cdot (1 - n) + 0 \dots$
1 1/16 ... 2	0	–	0.438	0.765	$3.875 + (3 \cdot 2) - 2 \cdot (2 - n) + 0 \dots$
2 1/16 ... 3	0	–	0.438	0.765	$3.875 + (3 \cdot 3) - 2 \cdot (3 - n) + 0 \dots$
3 1/16 ... 4	0	–	0.438	0.765	$3.875 + (3 \cdot 4) - 2 \cdot (4 - n) + 0 \dots$
4 1/16 ... 5	0	–	0.438	0.765	$3.875 + (3 \cdot 5) - 2 \cdot (5 - n) + 0 \dots$
5 1/16 ... 6	0	–	0.438	0.765	$3.875 + (3 \cdot 6) - 2 \cdot (6 - n) + 0 \dots$

Datasheet

Dimensions Download CAD data → www.festo.com

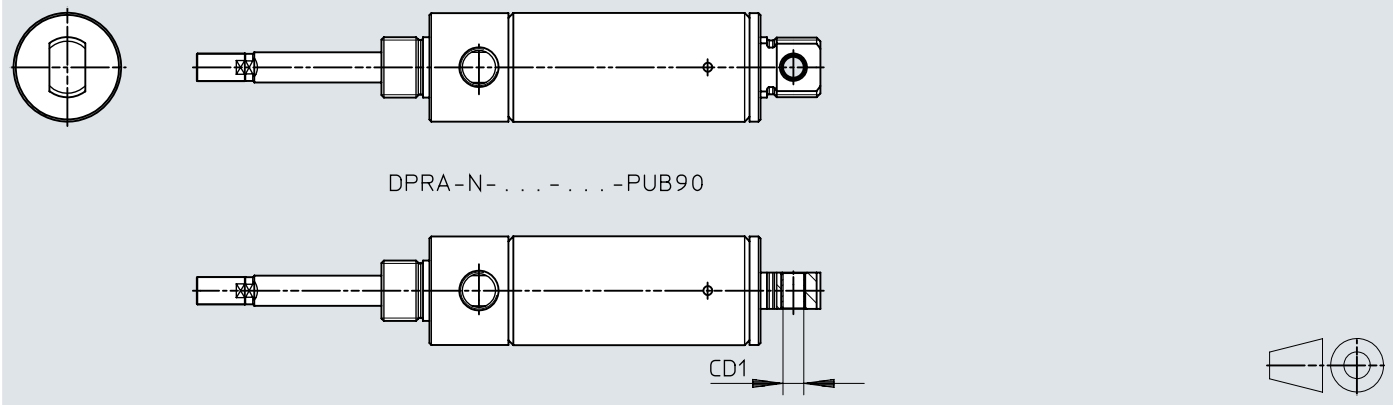
- [-P] Single-acting, pulling (piston rod advanced by spring force)
- [U] With swivelling rod eye
- [U90] With swivelling rod eye, rotated 90°



ø	CD	
	ø	[U90]
[in]		
3/4	0.25	0.25
1 1/16	0.25	0.25
1 1/4	0.251	0.251
1 1/2	0.375	0.375
1 3/4	0.376	0.376

Dimensions Download CAD data → www.festo.com

- [-P] Single-acting, pulling (piston rod advanced by spring force)
- [UB] With swivelling rod eye and bearing sleeve
- [UB90] With swivelling rod eye and bearing sleeve, rotated 90°



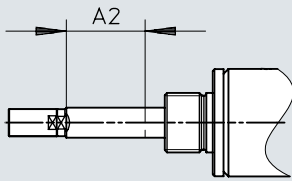
ø	CD1	
	ø	[UB90]
[in]		
9/16	0.157	0.157
3/4	0.25	—
7/8	0.25	—
1 1/16	0.25	—
1 1/4	0.251	—
1 1/2	0.375	—
1 3/4	0.376	—
2	0.375	0.375

Datasheet

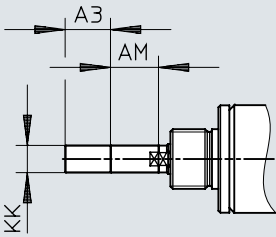
Dimensions

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[...NE] Piston rod extension



[...NL] Piston rod thread extension



Ø	A2	A3	AM	KK
[in]	[...NE]	[...NL]		
9/16	1/16 ... 6	1/16 ... 6	0.5	10-32 UNF-2A
3/4	1/16 ... 6	1/16 ... 6	0.5	1/4-28 UNF-2A
7/8	1/16 ... 6	1/16 ... 6	0.5	1/4-28 UNF-2A
1 1/16	1/16 ... 6	1/16 ... 6	0.5	5/16-24 UNF-2A
1 1/4	1/16 ... 6	1/16 ... 6	0.75	7/16-24 UNF-2A
1 1/2	1/16 ... 6	1/16 ... 6	0.75	7/16-24 UNF-2A
1 3/4	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A
2	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A

Datasheet

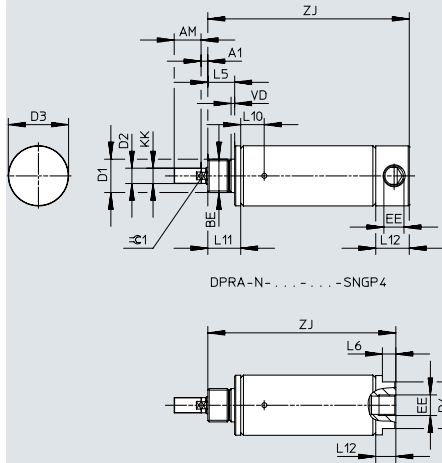
Dimensions

Download CAD data → www.festo.com

[S] Single-acting, pushing (piston rod retracted by spring force)

[NG] Without mounting thread

[NGP4] Without mounting thread, axial compressed air supply port



∅	A1	AM	BE	D1 ∅	D2 ∅	D3 ∅	D4 ∅ [NGP4]	EE
[in]								
9/16	0	0.5	7/16-20 UNF-2A	0.437	0.188	0.625	0.5	10-32 UNF-2B
3/4	0	0.5	1/2-20 UNF-2A	0.5	0.25	0.813	0.625	1/8 NPT
7/8	0.125	0.5	5/8-18 UNF-2A	0.624	0.25	0.938	0.625	1/8 NPT
1 1/16	0.125	0.5	5/8-18 UNF-2A	0.624	0.313	1.125	0.875	1/8 NPT
1 1/4	0.25	0.75	3/4-16 UNF-2A	0.749	0.438	1.344	0.875	1/8 NPT
1 1/2	0.25	0.75	3/4-16 UNF-2A	0.749	0.438	1.563	0.875	1/8 NPT
1 3/4	0.313	0.875	1-14 UNF-2A	1.031	0.5	1.844	1.250	1/8 NPT
2	0.375	0.875	1 1/4-12 UNF-2A	1.375	0.625	2.078	1.250	1/8 NPT

∅	KK	L5	L6	L10	L11	L12		VD	≈G1
[in]			[NGP4]				[NGP4]		
9/16	10-32 UNF-2A	0.375	0.188	0.3	0.531	0.405	0.375	0.063	–
3/4	1/4-28 UNF-2A	0.438	0.188	0.437	0.563	0.724	0.284	0.094	–
7/8	1/4-28 UNF-2A	0.5	0.188	0.35	0.75	0.605	0.325	0.067	–
1 1/16	5/16-24 UNF-2A	0.5	0.188	0.437	0.613	0.625	0.375	0.094	0.25
1 1/4	7/16-20 UNF-2A	0.625	0.25	0.437	0.791	0.855	0.545	0.094	0.375
1 1/2	7/16-20 UNF-2A	0.625	0.25	0.437	0.438	0.565	0.438	0.094	0.375
1 3/4	1/2-20 UNF-2A	0.75	0.25	0.437	1.014	0.95	0.39	0.094	0.438
2	1/2-20 UNF-2A	0.813	0.313	0.437	1.065	0.88	0.5	0.125	0.5

Formula for calculating the length ZJ

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

n = stroke length

Stroke [in]	O0	O1	O2	O3	ZJ	[NGP4]
Piston ∅ 9/16						
1/16 ... 1	0	0.062	0.531	0.713	$1.561+(1.625*1)-(1-n)+0...$	$1.531+(1.531*1)-(1-n)+0...$
1 1/16 ... 2	0	0.062	0.531	0.713	$1.561+(1.625*2)-(2-n)+0...$	$1.531+(1.531*2)-(2-n)+0...$
2 1/16 ... 3	0	0.062	0.531	0.713	$1.561+(1.625*3)-(3-n)+0...$	$1.531+(1.531*3)-(3-n)+0...$
3 1/16 ... 4	0	0.062	0.531	0.713	$1.561+(1.625*4)-(4-n)+0...$	$1.531+(1.531*4)-(4-n)+0...$
4 1/16 ... 5	0	0.062	0.531	0.713	$1.561+(1.625*5)-(5-n)+0...$	$1.531+(1.531*5)-(5-n)+0...$
5 1/16 ... 6	0	0.062	0.531	0.713	$1.561+(1.625*6)-(6-n)+0...$	$1.531+(1.531*6)-(6-n)+0...$

Datasheet

Formula for calculating the length ZJ

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

n = stroke length

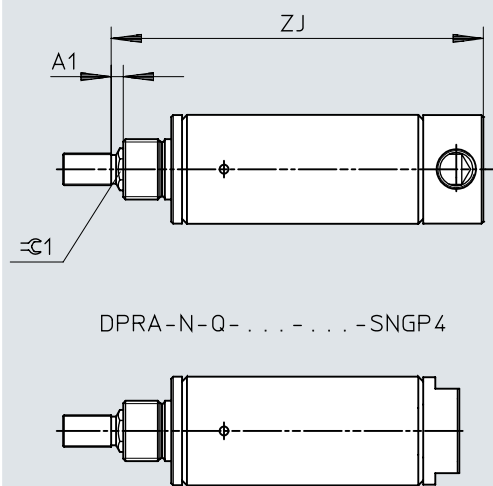
Stroke [in]	O0	O1	O2	O3	ZJ	
						[NGP4]
Piston Ø 3/4						
1/16 ... 1	0	0.125	0.688	0.89	1.94+(1.687*1)-(1-n)+O...	1.5+(1.5*1)-(1-n)+O...
1 1/16 ... 2	0	0.125	0.688	0.89	1.94+(1.687*2)-(2-n)+O...	1.5+(1.5*2)-(2-n)+O...
2 1/16 ... 3	0	0.125	0.688	0.89	1.94+(1.687*3)-(3-n)+O...	1.5+(1.5*3)-(3-n)+O...
3 1/16 ... 4	0	0.125	0.688	0.89	1.94+(1.687*4)-(4-n)+O...	1.5+(1.5*4)-(4-n)+O...
4 1/16 ... 5	0	0.125	0.688	0.89	1.94+(1.687*5)-(5-n)+O...	1.5+(1.5*5)-(5-n)+O...
5 1/16 ... 6	0	0.125	0.688	0.89	1.94+(1.687*6)-(6-n)+O...	1.5+(1.5*6)-(6-n)+O...
Piston Ø 7/8						
1/16 ... 1	0	–	0.531	0.733	2.124+(1.562*1)-(1-n)+O...	1.844+(1.844*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.531	0.733	2.124+(1.562*2)-(2-n)+O...	1.844+(1.844*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.531	0.733	2.124+(1.562*3)-(3-n)+O...	1.844+(1.844*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.531	0.733	2.124+(1.562*4)-(4-n)+O...	1.844+(1.844*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.531	0.733	2.124+(1.562*5)-(5-n)+O...	1.844+(1.844*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.531	0.733	2.124+(1.562*6)-(6-n)+O...	1.844+(1.844*6)-(6-n)+O...
Piston Ø 1 1/16						
1/16 ... 1	0	0.125	0.562	0.765	2.188+(1.562*1)-(1-n)+O...	1.938+(1.938*1)-(1-n)+O...
1 1/16 ... 2	0	0.125	0.562	0.765	2.188+(1.562*2)-(2-n)+O...	1.938+(1.938*2)-(2-n)+O...
2 1/16 ... 3	0	0.125	0.562	0.765	2.188+(1.562*3)-(3-n)+O...	1.938+(1.938*3)-(3-n)+O...
3 1/16 ... 4	0	0.125	0.562	0.765	2.188+(1.562*4)-(4-n)+O...	1.938+(1.938*4)-(4-n)+O...
4 1/16 ... 5	0	0.125	0.562	0.765	2.188+(1.562*5)-(5-n)+O...	1.938+(1.938*5)-(5-n)+O...
5 1/16 ... 6	0	0.125	0.562	0.765	2.188+(1.562*6)-(6-n)+O...	1.938+(1.938*6)-(6-n)+O...
Piston Ø 1 1/4						
1/16 ... 1	0	–	0.531	0.734	2.716+(1.812*1)-(1-n)+O...	2.406+(2.406*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.531	0.734	2.716+(1.812*2)-(2-n)+O...	2.406+(2.406*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.531	0.734	2.716+(1.812*3)-(3-n)+O...	2.406+(2.406*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.531	0.734	2.716+(1.812*4)-(4-n)+O...	2.406+(2.406*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.531	0.734	2.716+(1.812*5)-(5-n)+O...	2.406+(2.406*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.531	0.734	2.716+(1.812*6)-(6-n)+O...	2.406+(2.406*6)-(6-n)+O...
Piston Ø 1 1/2						
1/16 ... 1	0	–	0.438	0.765	2.378+(1.687*1)-(1-n)+O...	2.188+(2.188*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.438	0.765	2.378+(1.687*2)-(2-n)+O...	2.188+(2.188*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.438	0.765	2.378+(1.687*3)-(3-n)+O...	2.188+(2.188*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.438	0.765	2.378+(1.687*4)-(4-n)+O...	2.188+(2.188*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.438	0.765	2.378+(1.687*5)-(5-n)+O...	2.188+(2.188*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.438	0.765	2.378+(1.687*6)-(6-n)+O...	2.188+(2.188*6)-(6-n)+O...
Piston Ø 1 3/4						
1/16 ... 1	0	–	0.656	0.735	3.216+(2*1)-(1-n)+O...	2.656+(2.656*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.656	0.735	3.216+(2*2)-(2-n)+O...	2.656+(2.656*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.656	0.735	3.216+(2*3)-(3-n)+O...	2.656+(2.656*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.656	0.735	3.216+(2*4)-(4-n)+O...	2.656+(2.656*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.656	0.735	3.216+(2*5)-(5-n)+O...	2.656+(2.656*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.656	0.735	3.216+(2*6)-(6-n)+O...	2.656+(2.656*6)-(6-n)+O...
Piston Ø 2						
1 1/16 ... 0.5	0	–	0.461	0.789	4.911-(0.5-n)+O...	4.531-(0.5-n)+O...
9/16 ... 1	0	–	0.461	0.789	5.411-(1-n)+O...	5.031-(1-n)+O...
1 1/16 ... 1.5	0	–	0.461	0.789	6.911-(1.5-n)+O...	6.531-(1.5-n)+O...
1 9/16 ... 2	0	–	0.461	0.789	7.411-(2-n)+O...	7.031-(2-n)+O...
2 1/6 ... 2.5	0	–	0.461	0.789	8.161-(2.5-n)+O...	7.781-(2.5-n)+O...
2 9/16 ... 3	0	–	0.461	0.789	8.661-(3-n)+O...	8.281-(3-n)+O...
3 1/6 ... 4	0	–	0.461	0.789	11.598-(4-n)+O...	11.218-(4-n)+O...

Datasheet

Dimensions

Download CAD data → www.festo.com

- [S] Single-acting, pushing (piston rod retracted by spring force)
- [-QNG] With protection against rotation; without mounting thread
- [-QNGP4] With protection against rotation; without mounting thread; axial compressed air supply port



∅	A1	⌀1
[in]		
9/16	0.25	0.188
3/4	0.25	0.25
7/8	0.25	0.25
1 1/16	0.25	0.375
1 1/4	0.25	0.438
1 1/2	0.375	0.438

Datasheet

Formula for calculating the length Zl

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

n = stroke length

Stroke [in]	O0	O1	O2	O3	Z]	
					[NGP4]	
Piston Ø 9/16						
1/16 ... 1	0	0.062	0.531	0.713	1.811+(1.625*1)-(1-n)+O...	1.781+(1.625*1)-(1-n)+O...
1 1/16 ... 2	0	0.062	0.531	0.713	1.811+(1.625*2)-(2-n)+O...	1.781+(1.625*2)-(2-n)+O...
2 1/16 ... 3	0	0.062	0.531	0.713	1.811+(1.625*3)-(3-n)+O...	1.781+(1.625*3)-(3-n)+O...
3 1/16 ... 4	0	0.062	0.531	0.713	1.811+(1.625*4)-(4-n)+O...	1.781+(1.625*4)-(4-n)+O...
4 1/16 ... 5	0	0.062	0.531	0.713	1.811+(1.625*5)-(5-n)+O...	1.781+(1.625*5)-(5-n)+O...
5 1/16 ... 6	0	0.062	0.531	0.713	1.811+(1.625*6)-(6-n)+O...	1.781+(1.625*6)-(6-n)+O...
Piston Ø 3/4						
1/16 ... 1	0	0.125	0.688	0.89	2.19+(1.687*1)-(1-n)+O...	1.75+(1.687*1)-(1-n)+O...
1 1/16 ... 2	0	0.125	0.688	0.89	2.19+(1.687*2)-(2-n)+O...	1.75+(1.687*2)-(2-n)+O...
2 1/16 ... 3	0	0.125	0.688	0.89	2.19+(1.687*3)-(3-n)+O...	1.75+(1.687*3)-(3-n)+O...
3 1/16 ... 4	0	0.125	0.688	0.89	2.19+(1.687*4)-(4-n)+O...	1.75+(1.687*4)-(4-n)+O...
4 1/16 ... 5	0	0.125	0.688	0.89	2.19+(1.687*5)-(5-n)+O...	1.75+(1.687*5)-(5-n)+O...
5 1/16 ... 6	0	0.125	0.688	0.89	2.19+(1.687*6)-(6-n)+O...	1.75+(1.687*6)-(6-n)+O...
Piston Ø 7/8						
1/16 ... 1	0	–	0.531	0.733	2.374+(1.562*1)-(1-n)+O...	2.094+(1.687*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.531	0.733	2.374+(1.562*2)-(2-n)+O...	2.094+(1.687*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.531	0.733	2.374+(1.562*3)-(3-n)+O...	2.094+(1.687*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.531	0.733	2.374+(1.562*4)-(4-n)+O...	2.094+(1.687*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.531	0.733	2.374+(1.562*5)-(5-n)+O...	2.094+(1.687*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.531	0.733	2.374+(1.562*6)-(6-n)+O...	2.094+(1.687*6)-(6-n)+O...
Piston Ø 1 1/16						
1/16 ... 1	0	0.125	0.562	0.765	2.188+(1.562*1)-(1-n)+O...	1.938+(1.562*1)-(1-n)+O...
1 1/16 ... 2	0	0.125	0.562	0.765	2.188+(1.562*2)-(2-n)+O...	1.938+(1.562*2)-(2-n)+O...
2 1/16 ... 3	0	0.125	0.562	0.765	2.188+(1.562*3)-(3-n)+O...	1.938+(1.562*3)-(3-n)+O...
3 1/16 ... 4	0	0.125	0.562	0.765	2.188+(1.562*4)-(4-n)+O...	1.938+(1.562*4)-(4-n)+O...
4 1/16 ... 5	0	0.125	0.562	0.765	2.188+(1.562*5)-(5-n)+O...	1.938+(1.562*5)-(5-n)+O...
5 1/16 ... 6	0	0.125	0.562	0.765	2.188+(1.562*6)-(6-n)+O...	1.938+(1.562*6)-(6-n)+O...
Piston Ø 1 1/4						
1/16 ... 1	0	–	0.531	0.734	2.716+(1.812*1)-(1-n)+O...	2.406+(1.812*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.531	0.734	2.716+(1.812*2)-(2-n)+O...	2.406+(1.812*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.531	0.734	2.716+(1.812*3)-(3-n)+O...	2.406+(1.812*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.531	0.734	2.716+(1.812*4)-(4-n)+O...	2.406+(1.812*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.531	0.734	2.716+(1.812*5)-(5-n)+O...	2.406+(1.812*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.531	0.734	2.716+(1.812*6)-(6-n)+O...	2.406+(1.812*6)-(6-n)+O...
Piston Ø 1 1/2						
1/16 ... 1	0	–	0.438	0.75	2.378+(1.687*1)-(1-n)+O...	2.188+(1.687*1)-(1-n)+O...
1 1/16 ... 2	0	–	0.438	0.75	2.378+(1.687*2)-(2-n)+O...	2.188+(1.687*2)-(2-n)+O...
2 1/16 ... 3	0	–	0.438	0.75	2.378+(1.687*3)-(3-n)+O...	2.188+(1.687*3)-(3-n)+O...
3 1/16 ... 4	0	–	0.438	0.75	2.378+(1.687*4)-(4-n)+O...	2.188+(1.687*4)-(4-n)+O...
4 1/16 ... 5	0	–	0.438	0.75	2.378+(1.687*5)-(5-n)+O...	2.188+(1.687*5)-(5-n)+O...
5 1/16 ... 6	0	–	0.438	0.75	2.378+(1.687*6)-(6-n)+O...	2.188+(1.687*6)-(6-n)+O...

Datasheet

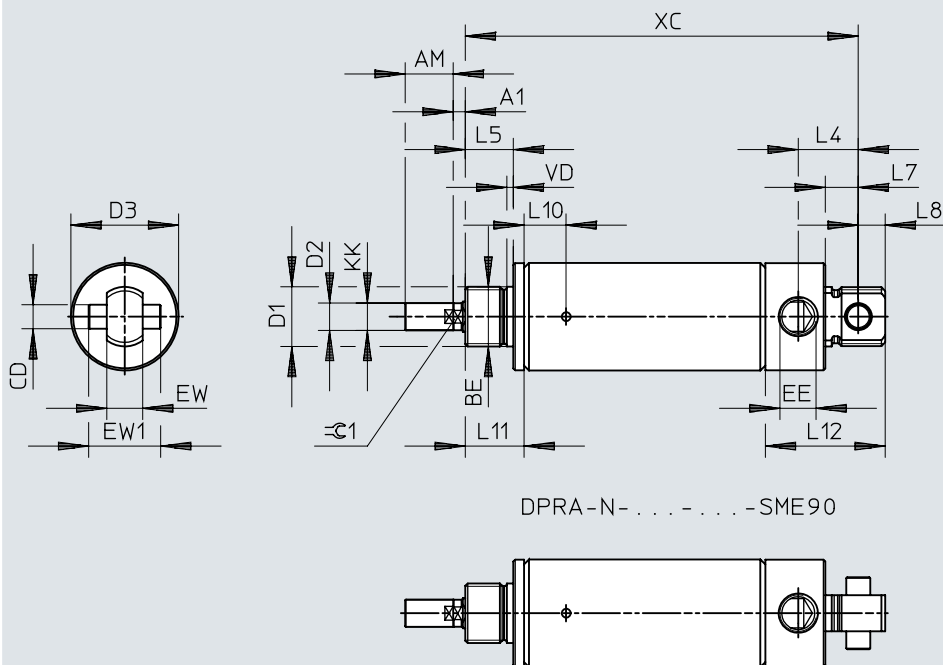
Dimensions

Download CAD data → www.festo.com

[S] Single-acting, pushing (piston rod retracted by spring force)

[ME] With trunnion flange

[ME90] Trunnion flange, rotated 90°



∅	A1	AM	BE	CD ∅	D1 ∅	D2 ∅	D3 ∅	EE	EW	EW1
[in]										
3/4	0	0.5	1/2-20 UNF-2A	0.25	0.5	0.25	0.875	1/8 NPT	0.375	0.75
7/8	0	0.5	5/8-18 UNF-2A	0.25	0.624	0.25	0.938	1/8 NPT	0.375	0.75
1 1/16	0.125	0.5	5/8-18 UNF-2A	0.25	0.624	0.313	1.125	1/8 NPT	0.375	0.75
1 1/2	0.25	0.75	3/4-16 UNF-2A	0.375	0.749	0.438	1.563	1/8 NPT	0.625	1

∅	KK	L4	L5	L7	L8	L10	L11	L12	VD	≡C1
[in]										
3/4	1/4-28 UNF-2A	0.625	0.438	0.344	0.281	0.437	0.563	1.348	0.094	–
7/8	1/4-28 UNF-2A	0.625	0.5	0.344	0.281	0.35	0.75	1.23	0.067	–
1 1/16	5/16-24 UNF-2A	0.625	0.5	0.344	0.281	0.437	0.613	1.25	0.094	0.25
1 1/2	7/16-20 UNF-2A	0.813	0.625	0.5	0.375	0.437	0.438	1.5	0.094	0.375

Datasheet

Formula for calculating the length XC

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

n = stroke length

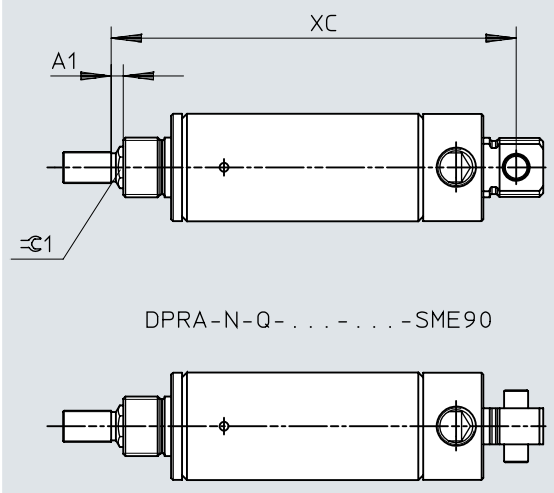
Stroke [in]	O0	O1	O2	O3	XC
Piston Ø 3/4					
1/16 ... 1	0	0.125	0.688	0.89	$2.281+(1.687*1)-(1-n)+O...$
1 1/16 ... 2	0	0.125	0.688	0.89	$2.281+(1.687*2)-(2-n)+O...$
2 1/16 ... 3	0	0.125	0.688	0.89	$2.281+(1.687*3)-(3-n)+O...$
3 1/16 ... 4	0	0.125	0.688	0.89	$2.281+(1.687*4)-(4-n)+O...$
4 1/16 ... 5	0	0.125	0.688	0.89	$2.281+(1.687*5)-(5-n)+O...$
5 1/16 ... 6	0	0.125	0.688	0.89	$2.281+(1.687*6)-(6-n)+O...$
Piston Ø 7/8					
1/16 ... 1	0	–	0.531	0.733	$2.469+(1.562*1)-(1-n)+O...$
1 1/16 ... 2	0	–	0.531	0.733	$2.469+(1.562*2)-(2-n)+O...$
2 1/16 ... 3	0	–	0.531	0.733	$2.469+(1.562*3)-(3-n)+O...$
3 1/16 ... 4	0	–	0.531	0.733	$2.469+(1.562*4)-(4-n)+O...$
4 1/16 ... 5	0	–	0.531	0.733	$2.469+(1.562*5)-(5-n)+O...$
5 1/16 ... 6	0	–	0.531	0.733	$2.469+(1.562*6)-(6-n)+O...$
Piston Ø 1 1/16					
1/16 ... 1	0	0.125	0.562	0.765	$2.531+(1.562*1)-(1-n)+O...$
1 1/16 ... 2	0	0.125	0.562	0.765	$2.531+(1.562*2)-(2-n)+O...$
2 1/16 ... 3	0	0.125	0.562	0.765	$2.531+(1.562*3)-(3-n)+O...$
3 1/16 ... 4	0	0.125	0.562	0.765	$2.531+(1.562*4)-(4-n)+O...$
4 1/16 ... 5	0	0.125	0.562	0.765	$2.531+(1.562*5)-(5-n)+O...$
5 1/16 ... 6	0	0.125	0.562	0.765	$2.531+(1.562*6)-(6-n)+O...$
Piston Ø 1 1/2					
1/16 ... 1	0	–	0.438	0.765	$3.125+(1.687*1)-(1-n)+O...$
1 1/16 ... 2	0	–	0.438	0.765	$3.125+(1.687*2)-(2-n)+O...$
2 1/16 ... 3	0	–	0.438	0.765	$3.125+(1.687*3)-(3-n)+O...$
3 1/16 ... 4	0	–	0.438	0.765	$3.125+(1.687*4)-(4-n)+O...$
4 1/16 ... 5	0	–	0.438	0.765	$3.125+(1.687*5)-(5-n)+O...$
5 1/16 ... 6	0	–	0.438	0.765	$3.125+(1.687*6)-(6-n)+O...$

Datasheet

Dimensions

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- [S] Single-acting, pushing (piston rod retracted by spring force)
- [-QME] With protection against rotation; trunnion flange, rotated 90°



ø	A1	≅1
[in]		
3/4	0.25	0.25
7/8	0.25	0.25
1 1/16	0.25	0.375
1 1/2	0.375	0.438

Datasheet

Formula for calculating the length XC

The value O... is to be selected for the formula depending on the cushioning and position sensing variants

O0 = N (no cushioning)

O1 = P (flexible cushioning rings/plates at both ends)

O2 = A (for proximity switch)

O3 = PA (flexible cushioning rings/plates at both ends and for proximity switch)

n = stroke length

Stroke [in]	O0	O1	O2	O3	XC
Piston Ø 3/4					
1/16 ... 1	0	0.125	0.688	0.89	$2.531 + (1.687 \cdot 1) - (1 \cdot n) + O...$
1 1/16 ... 2	0	0.125	0.688	0.89	$2.531 + (1.687 \cdot 2) - (2 \cdot n) + O...$
2 1/16 ... 3	0	0.125	0.688	0.89	$2.531 + (1.687 \cdot 3) - (3 \cdot n) + O...$
3 1/16 ... 4	0	0.125	0.688	0.89	$2.531 + (1.687 \cdot 4) - (4 \cdot n) + O...$
4 1/16 ... 5	0	0.125	0.688	0.89	$2.531 + (1.687 \cdot 5) - (5 \cdot n) + O...$
5 1/16 ... 6	0	0.125	0.688	0.89	$2.531 + (1.687 \cdot 6) - (6 \cdot n) + O...$
Piston Ø 7/8					
1/16 ... 1	0	–	0.531	0.733	$2.719 + (1.562 \cdot 1) - (1 \cdot n) + O...$
1 1/16 ... 2	0	–	0.531	0.733	$2.719 + (1.562 \cdot 2) - (2 \cdot n) + O...$
2 1/16 ... 3	0	–	0.531	0.733	$2.719 + (1.562 \cdot 3) - (3 \cdot n) + O...$
3 1/16 ... 4	0	–	0.531	0.733	$2.719 + (1.562 \cdot 4) - (4 \cdot n) + O...$
4 1/16 ... 5	0	–	0.531	0.733	$2.719 + (1.562 \cdot 5) - (5 \cdot n) + O...$
5 1/16 ... 6	0	–	0.531	0.733	$2.719 + (1.562 \cdot 6) - (6 \cdot n) + O...$
Piston Ø 1 1/16					
1/16 ... 1	0	0.125	0.562	0.765	$2.781 + (1.562 \cdot 1) - (1 \cdot n) + O...$
1 1/16 ... 2	0	0.125	0.562	0.765	$2.781 + (1.562 \cdot 2) - (2 \cdot n) + O...$
2 1/16 ... 3	0	0.125	0.562	0.765	$2.781 + (1.562 \cdot 3) - (3 \cdot n) + O...$
3 1/16 ... 4	0	0.125	0.562	0.765	$2.781 + (1.562 \cdot 4) - (4 \cdot n) + O...$
4 1/16 ... 5	0	0.125	0.562	0.765	$2.781 + (1.562 \cdot 5) - (5 \cdot n) + O...$
5 1/16 ... 6	0	0.125	0.562	0.765	$2.781 + (1.562 \cdot 6) - (6 \cdot n) + O...$
Piston Ø 1 1/2					
1/16 ... 1	0	–	0.438	0.765	$3.25 + (1.687 \cdot 1) - (1 \cdot n) + O...$
1 1/16 ... 2	0	–	0.438	0.765	$3.25 + (1.687 \cdot 2) - (2 \cdot n) + O...$
2 1/16 ... 3	0	–	0.438	0.765	$3.25 + (1.687 \cdot 3) - (3 \cdot n) + O...$
3 1/16 ... 4	0	–	0.438	0.765	$3.25 + (1.687 \cdot 4) - (4 \cdot n) + O...$
4 1/16 ... 5	0	–	0.438	0.765	$3.25 + (1.687 \cdot 5) - (5 \cdot n) + O...$
5 1/16 ... 6	0	–	0.438	0.765	$3.25 + (1.687 \cdot 6) - (6 \cdot n) + O...$

Datasheet

Dimensions

Download CAD data → www.festo.com

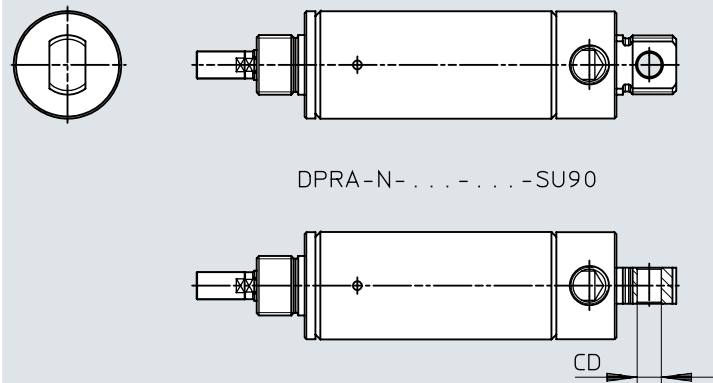
[S]Single-acting, pushing (piston rod retracted by spring force)

[U]With swivelling rod eye

[U90]With swivelling rod eye, rotated 90°

[-QU]With protection against rotation; with swivelling rod eye

[-QU90]With protection against rotation; with swivelling rod eye, rotated 90°



DPRA-N- . . . - . . . -SU90

ø	CD			
	ø			
[in]		[U90]	[-QU]	[-QU90]
3/4	0.25	0.25	0.25	0.25
1 1/16	0.25	0.25	0.25	0.25
1 1/4	0.251	0.251	0.251	0.251
1 1/2	0.375	0.375	0.375	0.375
1 3/4	0.376	0.376	-	-

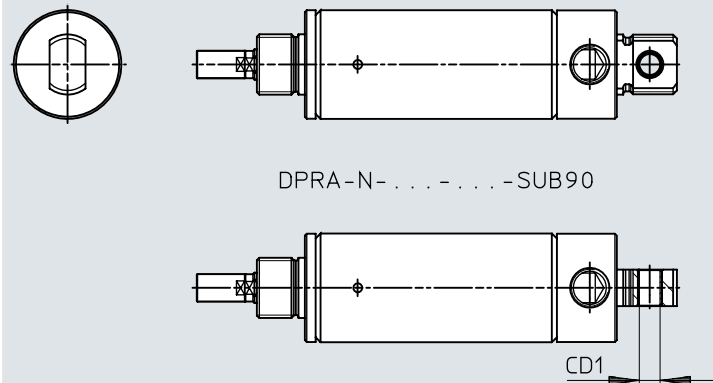
Dimensions

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[S]Single-acting, pushing (piston rod retracted by spring force)

[UB]With swivelling rod eye and bearing sleeve

[UB90]With swivelling rod eye and bearing sleeve, rotated 90°



DPRA-N- . . . - . . . -SUB90

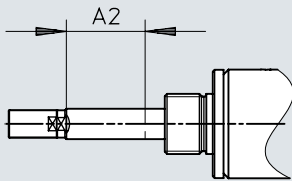
ø	CD1	
	ø	
[in]		[UB90]
9/16	0.157	0.157
3/4	0.25	-
7/8	0.25	-
1 1/16	0.25	-
1 1/4	0.251	-
1 1/2	0.375	-
1 3/4	0.376	-
2	0.375	0.375

Datasheet

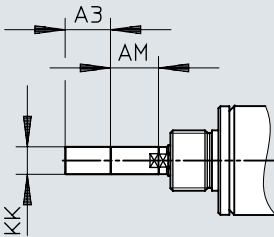
Dimensions

Download CAD data → www.festo.com

[...NE] Piston rod extension



[...NL] Piston rod thread extension



∅	A2	A3	AM	KK
[in]	[...NE]	[...NL]		
9/16	1/16 ... 6	1/16 ... 6	0.5	10-32 UNF-2A
3/4	1/16 ... 6	1/16 ... 6	0.5	1/4-28 UNF-2A
7/8	1/16 ... 6	1/16 ... 6	0.5	1/4-28 UNF-2A
1 1/16	1/16 ... 6	1/16 ... 6	0.5	5/16-24 UNF-2A
1 1/4	1/16 ... 6	1/16 ... 6	0.75	7/16-24 UNF-2A
1 1/2	1/16 ... 6	1/16 ... 6	0.75	7/16-24 UNF-2A
1 3/4	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A
2	1/16 ... 6	1/16 ... 6	0.875	1/2-20 UNF-2A

Ordering data

[-S] Single-acting, pushing (piston rod retracted by spring force)
[NGP4] Without mounting thread, axial compressed air supply port

Piston Ø	Stroke	Part no.	Type
3/4"	1"	8217836	DPRA-N-3/4"-1-SNGP4-N
1 1/16"		8217851	DPRA-N-1 1/16"-1-SNGP4-N

[-S] Single-acting, pushing (piston rod retracted by spring force)
[ME] With trunnion flange

Piston Ø	Stroke	Part no.	Type
3/4"	1"	8217837	DPRA-N-3/4"-1-SME-N
1 1/16"		8217841	DPRA-N-1 1/16"-1-SME-N

Ordering data – Modular product system

Ordering table								
Piston ø	9/16	3/4	7/8	1 1/16	1 1/4	Conditions	Code	Enter code
Module no.	8180567	8109549	8180568	8109550	8109551			
Series	Round cylinder, single-acting						DPRA	DPRA
System of units	Imperial						-N	
Protection against rotation	None							
	With protection against rotation						-Q	
Piston ø	9/16"	3/4"	7/8"	1 1/16"	1 1/4"		-..."	
Stroke	0.0625 ... 6"						-..."	
Function	Single-acting, pulling (piston rod advanced by spring force)					[4]	-P	
	Single-acting, pushing (piston rod retracted by spring force)					[5]	-S	
Piston rod type	At one end							
Type of bearing cover	With mounting thread							
Type of end cap	–	With swivelling rod eye	–	With swivelling rod eye		[1]	U	
	–	With trunnion flange			–	[1]	ME	
	Without mounting thread						NG	
	With swivelling rod eye and bearing sleeve					[1]	UB	
	–				With swivelling rod eye, rotated 90°	[1]	U90	
	–	Trunnion flange, rotated 90°			–	[1]	ME90	
	With swivelling rod eye and bearing sleeve, rotated 90°	–				[1]	UB90	
Compressed air supply port	Lateral							
	Axial					[7]	P4	
Cushioning	No cushioning						-N	
	Elastic cushioning rings/plates at both ends					[2]	-P	
Position sensing	None							
	Via proximity switch					[2]	A	
Corrosion protection	Standard							
Temperature range	Standard –5 ... + 165 °F							
	–40 ... +225 °F					[2]	-T3	
	+32 ... +300 °F					[2][3]	-T4	
Piston rod extension	None							
	0 ... 6 inch						-...NE	
Piston rod thread extension	None							
	0 ... 6 inch					[6]	-...NL	

- [1] U, ME, UB, U90, ME90, UB90 Not with P4
 [2] Cushioning P, A, T3, T4 Not with U90, UB90, ME90
 [3] T4 Not with A, cushioning P
 [4] Function P Not with Q
 [5] Function S Mandatory with Q
 [6] ...NL Not with ...NE
 [7] P4 Not with function P
 Mandatory with NG if function S and cushioning P or A or T4 selected

Ordering data – Modular product system

Ordering table						
Piston ø	1 1/2	1 3/4	2	Conditions	Code	Enter code
Module no.	8109552	8109553	8109554			
Series	Round cylinder, single-acting				DPRA	DPRA
System of units	Imperial				-N	
Protection against rotation	None					
	With protection against rotation	–			-Q	
Piston ø	1 1/2"	1 3/4"	2"		-..."	
Stroke	0.0625 ... 6"		0.0625 ... 4"		-..."	
Function	Single-acting, pulling (piston rod advanced by spring force)			[4]	-P	
	Single-acting, pushing (piston rod retracted by spring force)			[5]	-S	
Piston rod type	At one end					
Type of bearing cover	With mounting thread					
Type of end cap	With swivelling rod eye		–	[1]	U	
	With trunnion flange	–		[1]	ME	
	Without mounting thread			[8]	NG	
	With swivelling rod eye and bearing sleeve			[1][8]	UB	
	–	With swivelling rod eye, rotated 90°	–	[1]	U90	
	Trunnion flange, rotated 90°		–	[1]	ME90	
	–		With swivelling rod eye and bearing sleeve, rotated 90°	[1][8]	UB90	
Compressed air supply port	Lateral					
	Axial			[7]	P4	
Cushioning	No cushioning				-N	
	Elastic cushioning rings/plates at both ends			[2]	-P	
Position sensing	None					
	Via proximity switch			[2]	A	
Corrosion protection	Standard					
Temperature range	Standard –5 ... + 165 °F					
	–40 ... +225 °F			[2]	-T3	
	+32 ... +300 °F			[2][3]	-T4	
Piston rod extension	None					
	0 ... 6 inch				-...NE	
Piston rod thread extension	None					
	0 ... 6 inch			[6]	-...NL	

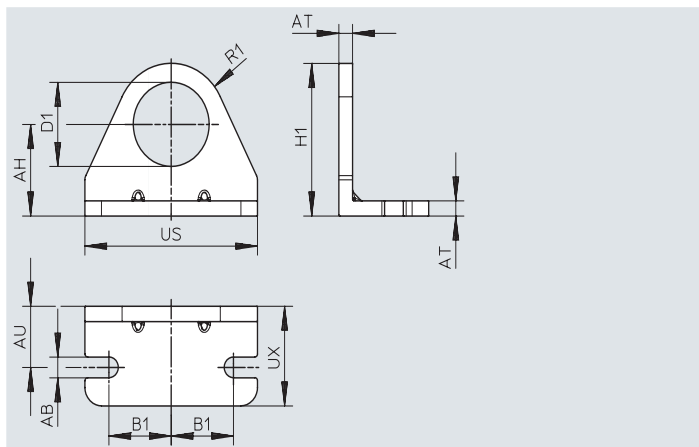
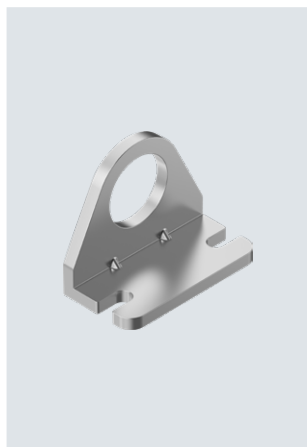
- [1] U, ME, UB, U90, ME90, UB90 Not with P4
 [2] Cushioning P, A, T3, T4 Not with U90, UB90, ME90
 [3] T4 Not with A, cushioning P
 [4] Function P Not with Q
 Only with piston diameter 1 3/4" if NG selected
 [5] Function S Mandatory with Q
 [6] ...NL Not with ...NE
 [7] P4 Not with function P
 Mandatory with NG if function S and cushioning P or A or T4 selected
 [8] NG, UB, UB90 Mandatory with piston diameter 2" with piston rod type at one end

Accessories

Foot mounting DAMH-C6

Material:
Mounting: Steel
(galvanised or nickel-plated)

RoHS-compliant
LABS (PWIS) conformity:
VDMA24364-Zone III



Dimensions and ordering data

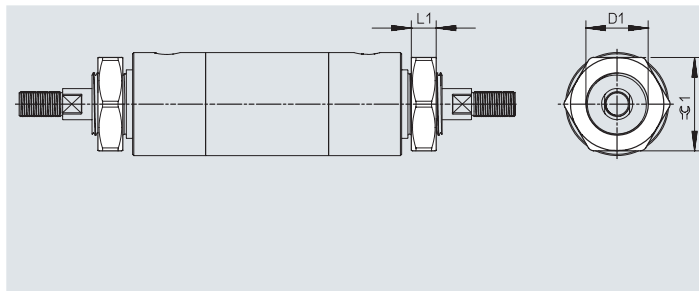
For $\varnothing$ [in]	AB	AH	AT	AU	B1	D1 +0.002	H1	R1	US	UX	Part no.	Type
9/16	0.2	0.563	0.94	0.38	0.5	0.438	0.83	0.38	1.38	0.69	8180570	DAMH-C6-9/16"-1
3/4 ¹⁾ ; 7/8; 1 1/16	0.26	0.813	0.125	0.56	0.75	0.626	1.38	0.56	1.88	1	8109921	DAMH-C6-1 1/16"-1
3/4 ²⁾	0.2	0.688	0.94	0.44	0.63	0.501	1.09	0.41	1.63	0.75	8109922	DAMH-C6-3/4"-1
1 1/4; 1 1/2	0.28	1	0.125	0.75	0.94	0.751	1.75	0.75	2.5	1.5	8109923	DAMH-C6-1 1/2"-1
1 3/4	0.34	1.250	0.188	0.88	1.13	1.032	2.13	0.91	3	1.5	8109924	DAMH-C6-1 3/4"-1
2	0.34	1.5	0.25	1	1.13	1.376	2.5	1	3.13	1.63	8109925	DAMH-C6-2"-1
2 1/2	0.34	1.75	0.25	1	1.44	1.501	3	1.25	3.75	1.63	8109926	DAMH-C6-2 1/2"-1
3	0.34	1.89	0.25	1	1.75	1.626	3.14	1.25	4.38	1.63	8180572	DAMH-C6-3"-1

- 1) For mounting on the end cap
2) For mounting on the bearing cap

Hex nut DAMD

Material:
Nut: Steel (galvanised or nickel-plated)

RoHS-compliant
LABS (PWIS) conformity: VD-
MA24364-Zone III



Dimensions and ordering data

For $\varnothing$ [in]	D1	L1	$\approx \varnothing 1$	Part no.	Type
9/16	7/16-20 UNF-2B	0.25	0.687	8180576	DAMD-N-U716
3/4	1/2-20 UNF-2B	0.31	0.75	8109934	DAMD-N-U1/2
3/4; 7/8; 1 1/16	5/8-18 UNF-2B	0.38	0.938	8109935	DAMD-N-U58
1 1/4; 1 1/2	3/4-16 UNF-2B	0.42	1.125	8109936	DAMD-N-U34
1 3/4	1-14 UNF-2B	0.55	1.5	8109937	DAMD-N-U15
2	1 1/4-12 UNF-2B	0.5	1.875	8109938	DAMD-N-U114
2 1/2	1 3/8-12 UNF-2B	0.5	2.062	8109939	DAMD-N-138
3	1 1/2-12 UNF-2B	0.5	2.25	8180577	DAMD-N-U112

Accessories

Clevis foot DAMC-C6-...-B

Material:

Clevis foot: Steel

(galvanised or nickel-plated)

Bolt: Steel

(galvanised or nickel-plated)

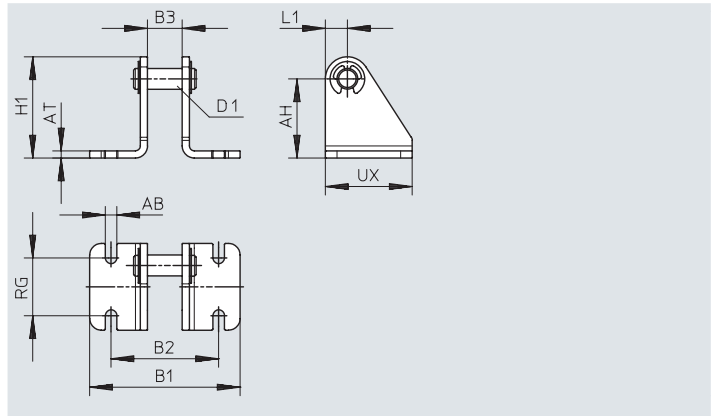
Lock: Steel

(galvanised or nickel-plated)

RoHS-compliant

LABS (PWIS) conformity:

VDMA24364-Zone III



Dimensions and ordering data													
For $\varnothing$ [in]	AB	AH	AT	B1	B2	B3	D1 $\varnothing$	H1	L1	RG	UX	Part no.	Type
9/16	0.2	0.56	0.63	1.34	0.9	0.34	0.157	0.77	0.2	0.5	0.5	8180573	DAMC-C6-9/16"-B
3/4; 1 1/16	0.26	0.88	0.125	2	1.25	0.38	0.25	1.19	0.31	0.75	1.13	8109927	DAMC-C6-1 1/16"-B
1 3/4	0.26	1.38	0.250	2.88	2	0.63	0.375	1.75	0.38	1	1.5	8109928	DAMC-C6-1 3/4"-B
1 1/4	0.26	0.88	0.125	2.12	1.38	0.5	0.25	1.19	0.31	0.75	1.13	8109929	DAMC-C6-1 1/4"-B
2; 2 1/2	0.26	1.38	0.250	3	2.13	0.75	0.375	1.75	0.38	1	1.5	8109930	DAMC-C6-2"-B
3	0.26	1.75	0.25	3.88	2.63	0.88	0.5	2.25	0.5	1.25	1.75	8180575	DAMC-C6-3"-B

Clevis foot DAMC-C6-...-D

Material:

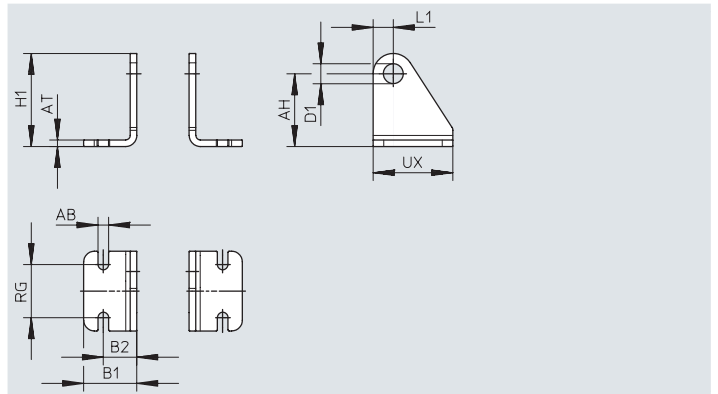
Clevis foot: Steel

(galvanised or nickel-plated)

RoHS-compliant

LABS (PWIS) conformity:

VDMA24364-Zone III



Dimensions and ordering data												
For ø [in]	AB	AH	AT	B1	B2	D1 ø	H1	L1	RG	UX	Part no.	Type
3/4 ¹⁾ ; 7/8 ¹⁾ ; 1 1/16 ¹⁾	0.26	0.88	0.125	0.81	0.44	0.25	1.19	0.31	0.75	1.13	8109931	DAMC-C6-3/4"-D
1 1/2 ¹⁾	0.26	1.38	0.125	1	0.63	0.375	1.75	0.38	1	1.5	8109932	DAMC-C6-1 1/2"-D
3/4 ²⁾ ; 1 1/16 ²⁾ ; 1 1/2 ²⁾	0.26	1.38	0.25	1.13	0.69	0.5	1.75	0.38	1	1.5	8109933	DAMC-C6-1 1/16"-D

1) For mounting on the end cap with trunnion flange

2) For mounting on the bearing cap with trunnion flange

Accessories

Rod clevis DARC-C6

Material:

Rod clevis: Steel

(galvanised or nickel-plated)

Bolt: Steel

(galvanised or nickel-plated)

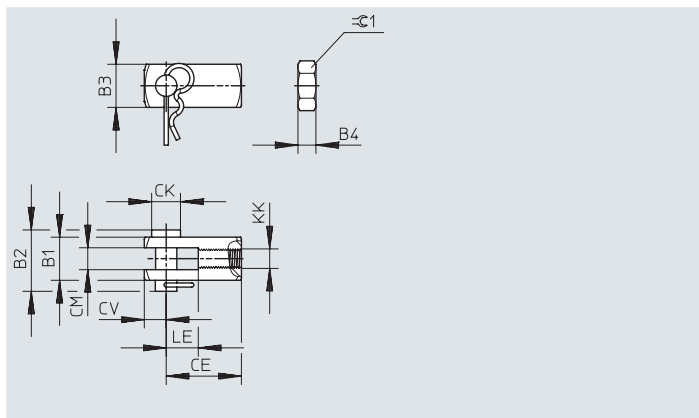
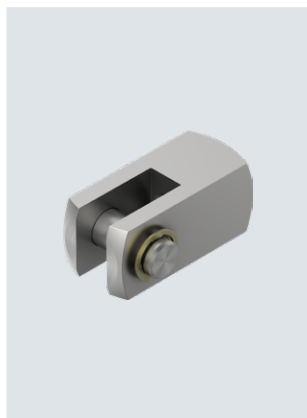
Lock: Steel

(galvanised or nickel-plated)

RoHS-compliant

LABS (PWIS) conformity:

VDMA24364-Zone III



Dimensions and ordering data

For Ø [in]	B1	B2	B3	B4	CE	CK	CM	CV	KK	LE	±0.1	Part no.	Type
9/16	0.38	0.62	0.38	0.13	0.75	0.188	0.19	0.19	10-32 UNF-2B	0.37	0.375	8180578	DARC-C6-U10
3/4; 7/8	0.5	0.77	0.5	0.16	0.94	0.25	0.25	0.25	1/4-28 UNF-2B	0.43	0.44	8109940	DARC-C6-U14
1 1/16	0.5	0.77	0.5	0.19	0.94	0.25	0.25	0.25	5/16-24 UNF-2B	0.43	0.5	8109941	DARC-C6-U516
1 1/4; 1 1/2	0.75	1.06	0.75	0.25	1.31	0.375	0.38	0.38	7/16-20 UNF-2B	0.56	0.69	8109942	DARC-C6-U716
1 3/4; 2; 2 1/2	0.75	1.06	0.75	0.25	1.31	0.375	0.38	0.38	1/2-20 UNF-2B	0.56	0.75	8109943	DARC-C6-U12
3	1	2.75	1	0.39	2.25	0.5	0.5	0.5	5/8-18 UNF-2B	1	0.938	8180580	DARC-C6-U58

Sensor bracket SAMH-FB-SH

For proximity switch SDBF-FBS

Material:

Mounting: High-alloy stainless steel

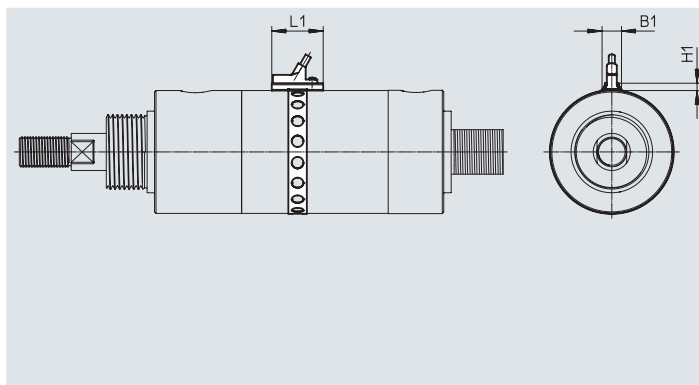
Screw: Steel

(galvanised or nickel-plated)

RoHS-compliant

LABS (PWIS) conformity:

VDMA24364-Zone III



Dimensions and ordering data

For Ø [in]	B1	H1	L1	Part no.	Type
3/4; 1 1/16 ... 2 1/2	0.36	0.26	0.79	8109945	SAMH-FB-SH

Accessories

Sensor bracket SAMH-FB-4-SH

For proximity switch SDBF-FES

Material:

Mounting: High-alloy stainless steel

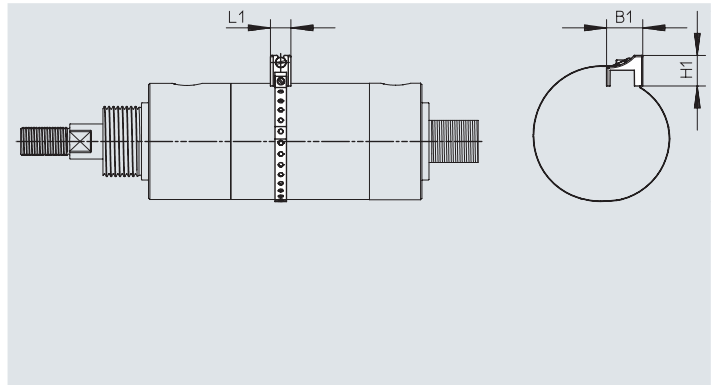
Screw: Steel

(galvanised or nickel-plated)

RoHS-compliant

LABS (PWIS) conformity:

VDMA24364-Zone III



Dimensions and ordering data					
For ø [in]	B1	H1	L1	Part no.	Type
9/16 ... 3	0.79	0.67	0.45	8182282	SAMH-FB-4-SH

Ordering data – Proximity switch with dovetail slot, magneto-resistive						Datasheets → Internet: sdbf
	For ø [in]	Type of mounting	Switching out- put	Electrical connection	Part no.	Type
	9/16; 3/4; 1 1/16 ... 3	Can be integrated into sen- sor bracket SAMH-FB-SH	PNP	Cable, 3-core	8106575	SDBF-FBS-1L-PU-K-9-N-LE
				Plug M8x1, 3-pin	8106576	SDBF-FBS-1L-PU-K-0.5-N-M8
			NPN	Cable, 3-core	8106577	SDBF-FBS-1L-NU-K-9-N-LE
				Plug M8x1, 3-pin	8106578	SDBF-FBS-1L-NU-K-0.5-N-M8

Ordering data – Proximity switch block design, magneto-resistive						Datasheets → Internet: sdbf
	For ø [in]	Type of mounting	Switching out- put	Electrical connection	Part no.	Type
	9/16 ... 3	Can be integrated into sen- sor bracket SAMH-FB-4-SH	PNP	Cable, 3-core	8182046	SDBF-FES-1L-PU-K-9-N-LE
				Plug M8x1, 3-pin	8182048	SDBF-FES-1L-PU-K-N-M8
			NPN	Cable, 3-core	8182047	SDBF-FES-1L-NU-K-9-N-LE
				Plug M8x1, 3-pin	8182049	SDBF-FES-1L-NU-K-N-M8

Ordering data – Mounting kits for proximity switches SMT/SDBT				Datasheets → Internet: smbr	
Designation	For ø [in]			Part no.	Type
Mounting kit SMBR-8					
	9/16 ... 3			538937	SMBR-8-8/100-S6

Ordering data – Proximity switch for T-slot, magneto-resistive						Datasheets → Internet: smt
	For ø [in]	Type of mounting	Switching out- put	Electrical connection	Part no.	Type
	9/16 ... 3	Can be integrated in mount- ing kit SMBR-8-8/100-S6	PNP	Cable, 3-core	574335	SMT-8M-A-PS-24V-E-2.5-OE
				Cable, 3-core	574336	SMT-8M-A-PS-24V-E-5.0-OE
				Plug M8x1, 3-pin	574334	SMT-8M-A-PS-24V-E-0.3-M8D
			NPN	Cable, 3-core	574338	SMT-8M-A-NS-24V-E-2.5-OE
				Plug M8x1, 3-pin	574339	SMT-8M-A-NS-24V-E-0.3-M8D

Accessories

Ordering data – Proximity switch for T-slot, magnetic Hall						Datasheets → Internet: sdbt
	For Ø [in]	Type of mounting	Switching out- put	Electrical connection	Part no.	Type
N/O or N/C contact, switchable						
	9/16 ... 3	Can be integrated in mount- ing kit SMBR-8-8/100-S6	PNP, can be switched to NPN	Cable, 3-core	8059122	SDBT-MSX-1L-PU-E-5-N-LE
				Cable, 3-core	8059121	SDBT-MSX-1L-PU-E-2.5-N-LE
				Plug M8x1, 3-pin	8059120	SDBT-MSX-1L-PU-E-0.3-N-M8
			NPN, can be switched to PNP	Cable, 3-core	8059125	SDBT-MSX-1L-NU-E-5-N-LE
				Cable, 3-core	8059124	SDBT-MSX-1L-NU-E-2.5-N-LE
				Plug M8x1, 3-pin	8059123	SDBT-MSX-1L-NU-E-0.3-N-M8

Ordering data – Connecting cables						Datasheets → Internet: nebu
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type	
	Straight socket, M8x1, 3-pin	Cable, open end, 3-core	2.5	541333	NEBU-M8G3-K-2.5-LE3	
			5	541334	NEBU-M8G3-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-core	2.5	541338	NEBU-M8W3-K-2.5-LE3	
			5	541341	NEBU-M8W3-K-5-LE3	

Ordering data					
	For Ø [in]	Description	Part no.	Type	
One-way flow control valve GRLA					
	9/16 ... 1 1/2	For regulating speed	534658	GRLA-1/8-QB-1/4-U	
	1 3/4 ... 3		534663	GRLA-1/4-QB-3/8-U	
Push-in fitting, straight					
	9/16 ... 1 1/2	For connecting tubing with standard O.D.	533273	QB-1/8-1/4-U	
	1 3/4 ... 3		567773	QB-1/8-3/8-U	
			533278	QB-1/4-3/8-U	
			567771	QB-1/4-1/2-U	
Push-in fitting, angled					
	9/16 ... 1 1/2	For connecting tubing with standard O.D.	533292	QBL-1/8-1/4-U	
	1 3/4 ... 3		567777	QBL-1/8-3/8-U	
			533297	QBL-1/4-3/8-U	
			567775	QBL-1/4-1/2-U	