

Quarter turn actuators DFPD

FESTO



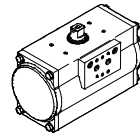
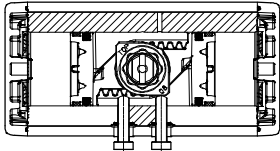
Quarter turn actuators DFPD

Key features

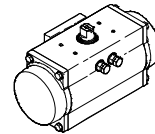
Function

The DFPD series features a rack and pinion combination with a constant torque characteristic across the entire swivel range. The torque range is from 10 to 480 Nm. Quarter turn actuators DFPD are suitable for automating butterfly valves, ball valves and air dampers. They are also suitable for water/wastewater,

beverage, pharmaceutical and process automation. The modular and compact design of the DFPD allows various spring configurations as a suitable solution for different applications.



DFPD-...-D
double-acting



DFPD-...-S
single-acting

Types of connection

- Port pattern to NAMUR VDI/VDE 3845 for mounting solenoid valves, position sensors and positioners
- Standard connection to the process valve to ISO 5211

Variants

High temperature DFPD-...-T4

- Seals made of FKM and plain bearings made of PPS
- For applications up to +150 °C
- II 2G c T3 X
- II 2D c 175°C X
- 0°C ≤ Ta ≤ +150°C

Low temperature DFPD-...-T6

- Seals made of FVMQ for applications down to -50 °C
- II 2G c T6 X
- II 2D c 85°C X
- -50°C ≤ Ta ≤ +60°C

Closes to the left and right DFPD-...-R/L

- The modular system offers the option of closing to the left. This is done by turning the pistons

Spring configuration DFPD-...-S

- The spring index can be adapted to the system's supply pressure in increments of 0.5 bar through free selection of the number of spring cartridges (4 to 12)

Epoxy coating DFPD-...-EP

- Drive with epoxy coating

Stainless steel shaft DFPD-...-R3

- With stainless steel shaft

NPT version DFPD-...-N

- Pneumatic connections with NPT threads

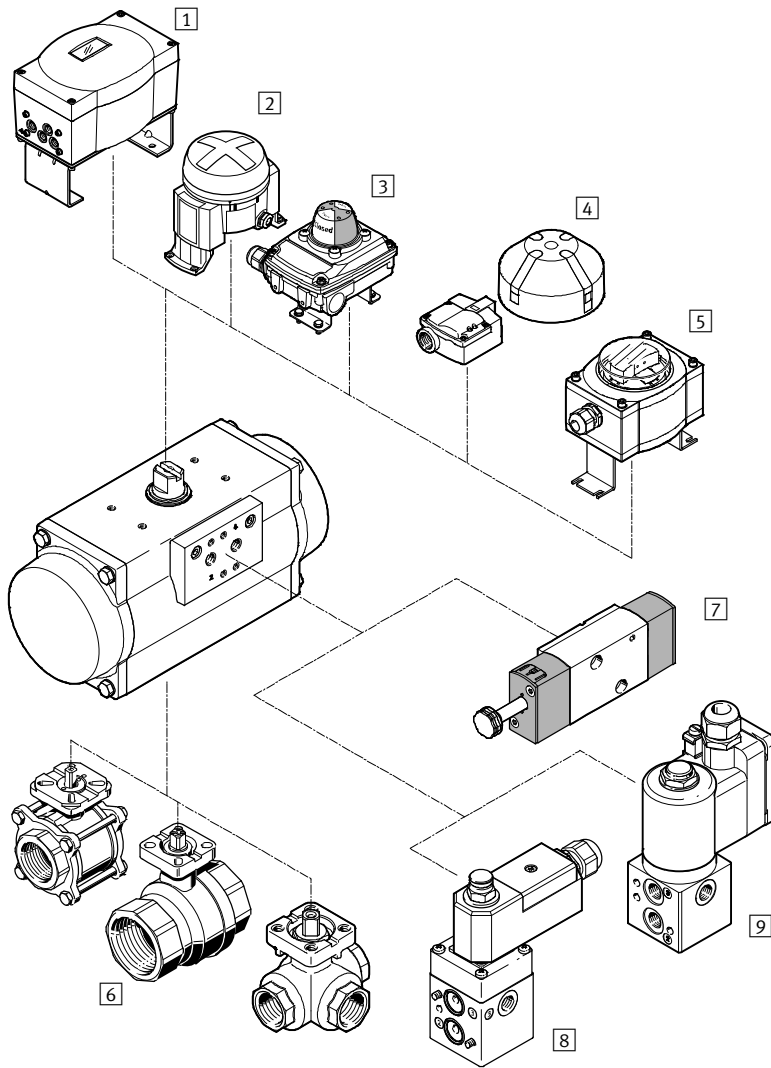
180° version DFPD-...-180

- Sizes 40, 120, 240, 480 double-acting also available with 180° swivel angle

Size	Flange pattern	Shaft connection	Shaft connection depth [mm]	Pneumatic connection
10	F03	V9	10.7	G1/8
	F04			NPT1/8
20	F04	V11	13.2	G1/8
	F05			NPT1/8
40	F05, F07	V14	16.5	G1/8
				NPT1/8
80	F05, F07	V17	19.3	G1/8
				NPT1/8
120	F05, F07	V17	19.3	G1/4
				NPT1/4
160	F07, F10	V22	24.3	G1/4
				NPT1/4
240	F07, F10	V22	24.3	G1/4
				NPT1/4
300	F07, F10	V22	24.3	G1/4
				NPT1/4
480	F10, F12	V27	29.5	G1/4
				NPT1/4

Quarter turn actuators DFPD

Peripherals overview



Mounting components and accessories		
	Brief description	→ Page/Internet
1	Positioner CMSX	For controlling the position of quarter turn actuators in process automation systems cmsx
2	Limit switch attachment DAPZ	Round design, variant AR, electrical, inductive or inductive and explosion-proof sensing dapz
3	Limit switch attachment SRBC	For electrical position feedback and monitoring the position of process valves actuated using quarter turn actuators srbc
4	Limit switch attachment SRBG	For electrical position feedback and monitoring the position of process valves actuated using quarter turn actuators srbg
5	Sensor box SRAP	Analogue sensor box continuously senses the entire swivel range and reports this back to the controller srap
6	Ball valve VAPB, VZBA	2-way brass or stainless steel, corrosion-resistant; 3-way stainless steel, corrosion-resistant vapb
7	Solenoid valve VSNC	For single- and double-acting quarter turn actuators with a port pattern to VDI/VDE 3845 vsnc
8	Solenoid valve VOFC	Solenoid valve with solenoid coil, port pattern to Namur vofc
9	Solenoid valve VOFD	Solenoid valve with solenoid coil, port pattern to Namur vofd

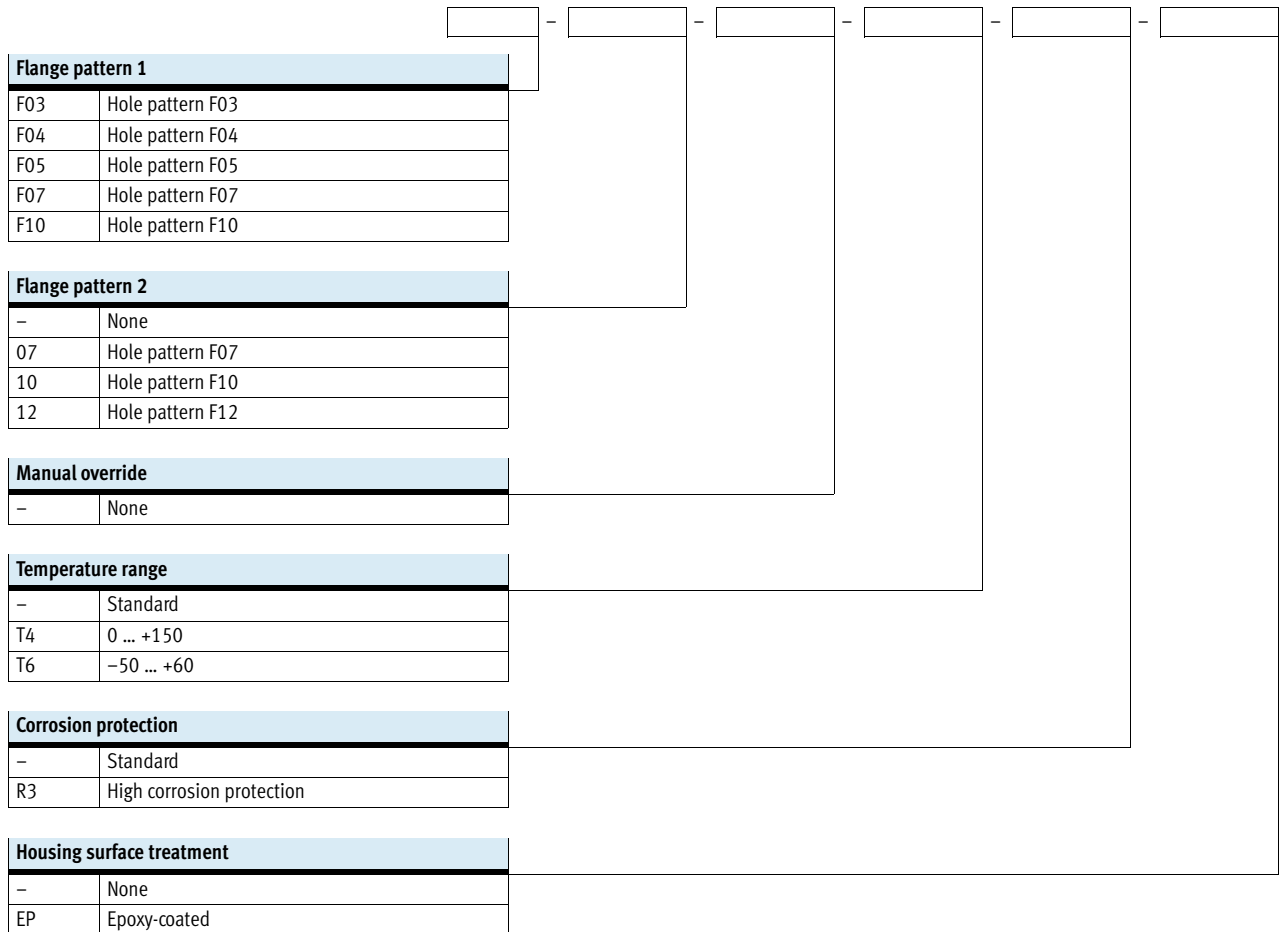
Quarter turn actuators DFPD

Type codes

		DFPD	-		-		-		-	RP	-		-		-		-		-	
Type																				
DFPD	Quarter turn actuator																			
System of units																				
-	Metric																			
N	Imperial																			
Version																				
-	Standard																			
Torque																				
10	10 Nm																			
20	20 Nm																			
40	40 Nm																			
80	80 Nm																			
120	120 Nm																			
160	160 Nm																			
240	240 Nm																			
300	300 Nm																			
480	480 Nm																			
Design																				
RP	Rack and pinion																			
Yoke type																				
-	None																			
Swivel angle																				
90	90°																			
180	180°																			
Swivel direction																				
L	To the left																			
R	To the right																			
Function																				
D	Double-acting																			
S	Single-acting																			
Spring configuration																				
-	None																			
20	For connection pressure 2 bar																			
25	For connection pressure 2.5 bar																			
30	For connection pressure 3 bar																			
35	For connection pressure 3.5 bar																			
40	For connection pressure 4 bar																			
45	For connection pressure 4.5 bar																			
50	For connection pressure 5 bar																			
55	For connection pressure 5.5 bar																			
60	For connection pressure 6 bar																			

Quarter turn actuators DFPD

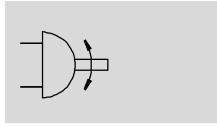
Type codes




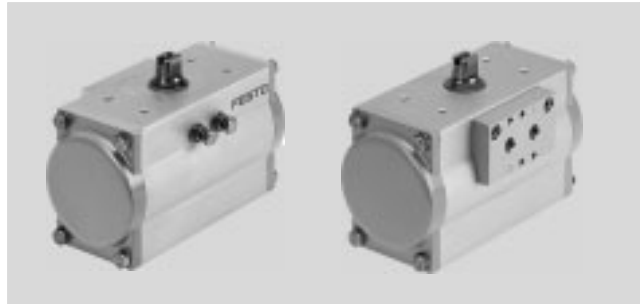
Quarter turn actuators DFPD, double-acting


Technical data


Function



 Swivel angle
0 ... 90°



 Size
10 ... 480

 Torque
10 ... 480 Nm


General technical data									
Size	10	20	40	80	120	160	240	300	480
Mode of operation	Double-acting								
Design	Rack and pinion								
Cushioning	No cushioning								
Mounting position	Any								
Pneumatic connection	G $\frac{1}{8}$					G $\frac{1}{4}$			
	NPT $\frac{1}{8}$					NPT $\frac{1}{4}$			
Connection to process valve as per standard	ISO 5211								
Valve connection conforms to standard	VDI/VDE 3845 (NAMUR)								
Connection for positioner and position sensor conforms to standard	VDI/VDE 3845 (NAMUR)								
Flange hole pattern	F03	F04	F04	F05	F05, F07		F07, F10		F10, F12
Swivel angle [°]	90								
End-position adjusting range at 0° [°]	-5 ... +5								
End-position adjusting range at 90° [°]	-5 ... +5								
Position sensing	Visual								
Closing direction	Closes to the right								

Operating and environmental conditions	
Operating pressure [bar]	2 ... 8
Nominal operating pressure [bar]	5.5
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Pressure dew point 10°C below ambient temperature/temperature of medium Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	-20 ... +80
CE marking (see declaration of conformity)	To EC Machinery Directive To EU Explosion Protection Directive (ATEX)
→ www.festo.com	
ATEX category for gas	II 2G
Explosion ignition protection type for gas	c T4 X
ATEX category for dust	II 2D
Explosion ignition protection type for dust	c 105°C X
Explosion-proof temperature rating [°C]	-20 ≤ Ta ≤ +80

Quarter turn actuators DFPD, double-acting

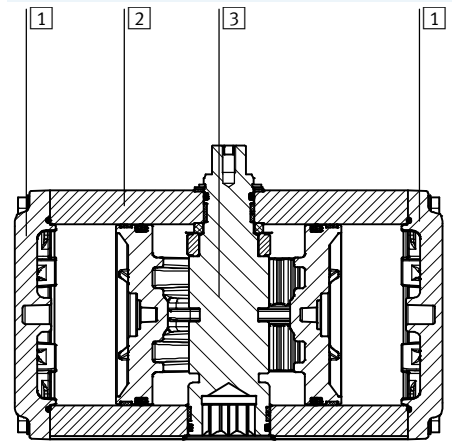
Technical data

Theoretical torque [Nm] as a function of operating pressure											
Size	Operating pressure [bar]										
	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
10	3.7	4.7	5.6	6.6	7.5	8.4	9.4	10.3	11.2	13.1	15.0
20	7.3	9.1	11.0	12.8	14.6	16.4	18.3	20.1	21.9	25.6	29.2
40	13.9	17.4	20.9	24.4	27.9	31.3	34.8	38.3	41.8	48.7	55.7
80	30.0	37.5	44.9	52.4	59.9	67.4	74.9	82.4	89.9	104.9	119.9
120	42.7	53.4	64.0	74.7	85.4	96.1	106.7	117.4	128.1	149.4	170.8
160	58.5	73.2	87.8	102.5	117.1	131.7	146.4	161.0	175.6	204.9	234.2
240	85.2	106.5	127.8	149.1	170.4	191.7	213.0	234.3	255.6	298.2	340.8
300	109.8	137.2	164.7	192.1	219.6	247.0	274.5	301.9	329.3	384.2	439.1
480	172.4	215.5	258.5	301.6	344.7	387.8	430.9	474.0	517.1	603.3	689.5

 **Note**
 The operating torque of the drive must not be higher than the maximum permissible torque listed in ISO 5211, with reference to the size of the mounting flange and of the coupling.

Materials

Sectional view



Quarter turn actuators		Basic material number
1	Cap	Coated die-cast aluminium EN AC-46100-D
2	Housing	Anodised wrought aluminium alloy EN AW-6063-T6
3	Shaft	Nickel-plated steel 1.0715
		R3 High-alloy stainless steel 1.4305
-	Mounting plate	Anodised wrought aluminium alloy EN AW-6063-T6
-	Piston	Die-cast aluminium EN AC-46100-D
-	Seals	NBR -
-	Spring	Spring steel -
-	Bearing	POM -
-	Cam	Stainless steel casting 1.4308
		Steel 1.0765
-	Screws	High-alloy stainless steel 1.4301
-	Note on materials	RoHS-compliant -

Air consumption [l/cycle] at 6 bar

Type		Type	
DFPD-10-RP-90-D	0.54	DFPD-160-RP-90-D	10.80
DFPD-20-RP-90-D	1.21	DFPD-240-RP-90-D	15.60
DFPD-40-RP-90-D	2.47	DFPD-240-RP-180-D	28.20
DFPD-40-RP-180-D	4.80	DFPD-300-RP-90-D	26.40
DFPD-80-RP-90-D	5.3	DFPD-480-RP-90-D	40.20
DFPD-120-RP-90-D	7.80	DFPD-480-RP-180-D	66.60
DFPD-120-RP-180-D	14.40		

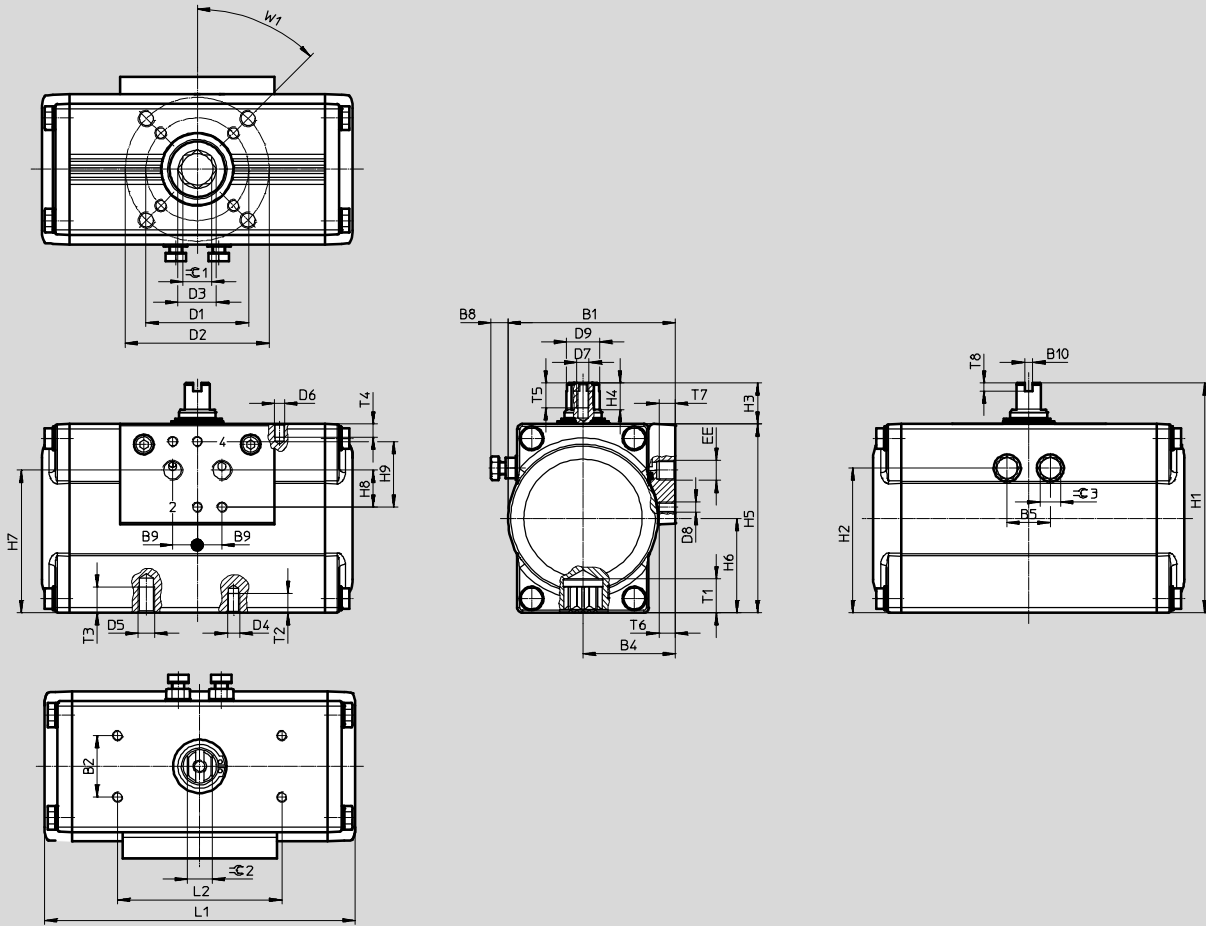
Quarter turn actuators DFPD, double-acting

Technical data

Dimensions

Size 10 ... 80

Download CAD data → www.festo.com



Quarter turn actuators DFPD, double-acting

Technical data

Type	B1	B2 ±0.1	B4 ±0.4	B5	B8 max.	B9	B10	D1 ∅ ±0.1	D2 ∅ ±0.1	D3 ∅	D4	D5	D6
DFPD-10-F03	59.5	30	35	16	10.7	12	4	36	-	12	M5	-	M5
DFPD-10-F04								42					
DFPD-20-F04	68.5		38.5	19	9.2			-	14.6	M6			
DFPD-20-F05													
DFPD-40	81.5		45	21	8.2			70	18.7	M6	M8		
DFPD-40-180													
DFPD-80	99	53	26	9	23.3								

Type	D7	D8	D9 ∅ ±0.1	EE	H1	H2	H3 -0.5	H4 +0.1	H5	H6 ±0.2	H7 ±0.3	H8 ±0.1	H9
DFPD-10-F03	M6	M5	10.9	G ¹ / ₈ or NPT ¹ / ₈	90	51	20	10	70	35	47	16	32
DFPD-10-F04			12.7		100	59.75		10	80	40	57.5		
DFPD-20-F04			16.2		112	70.5		13	92	46	67.5		
DFPD-20-F05													
DFPD-40			20.2		130	86		13	110	55	86.5		
DFPD-40-180													
DFPD-80													

Type	L1	L2 ±0.1	T1 ±0.4	T2	T3	T4	T5	T6	T7	T8 +0.5	≈C 1 H11	≈C 2 h11	≈C 3	W1
DFPD-10-F03	124.7	80	10.7	8	-	8	12	8	8	4	9	9	10	45°
DFPD-10-F04											11	9	10	
DFPD-20-F04	133.3		13.2	8	-						14	12	10	
DFPD-20-F05														
DFPD-40	151.4		16.5	9	12						17	15	13	
DFPD-40-180	227													
DFPD-80	189.3	19.3												

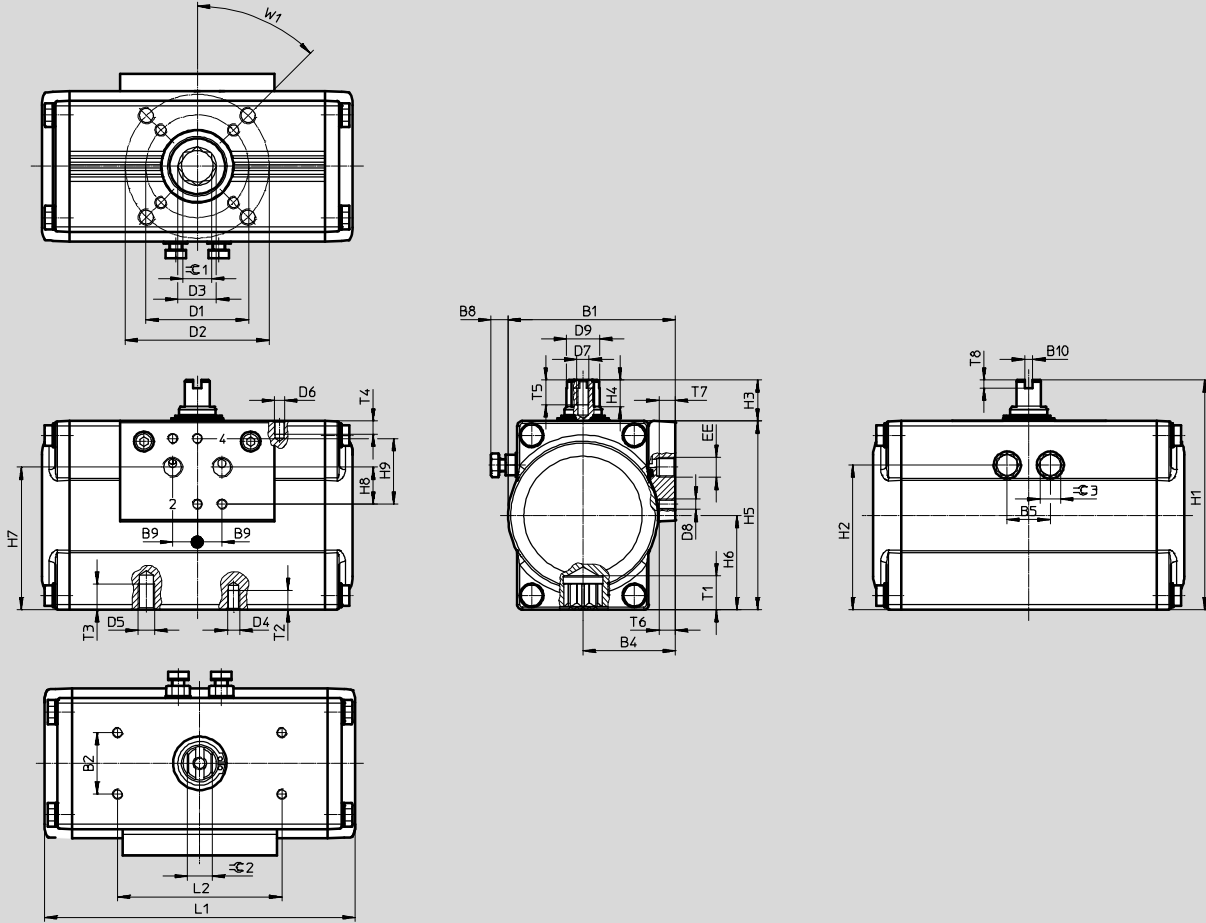
Quarter turn actuators DFPD, double-acting

Technical data

Dimensions

Size 120 ... 480

Download CAD data → www.festo.com



Quarter turn actuators DFPD, double-acting

Technical data

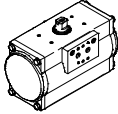
Type	B1	B2 ±0.1	B4	B5	B8 max.	B9	B10	D1 ∅ ±0.1	D2 ∅ ±0.1	D3 ∅	D4	D5	D6
DFPD-120	111.5	30	60.5	32	12.3	12	4	50	70	23.3	M6	M8	M5
DFPD-120-180													
DFPD-160	120		63.5	36	13.4			70	102	23.2	M8	M10	
DFPD-240	135.5		71.5	41	18.5					30			
DFPD-240-180								30.3					
DFPD-300	144		74.5	46	17			30					
DFPD-480	163		83	52	19.3			102	125	37.4	M10	M12	
DFPD-480-180													

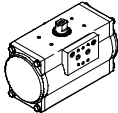
Type	D7	D8	D9 ∅ ±0.1	EE	H1	H2	H3 -0.5	H4 +0.1	H5	H6	H7 ±0.3	H8 ±0.1	H9
DFPD-120	M6	M5	22.5	G $\frac{1}{4}$ or NPT $\frac{1}{4}$	143	97.75	20	13	123	61.5±0.2	98.4	16	32
DFPD-120-180													
DFPD-160			31.8		180	120.5	30	19.5	150	75±0.2	120.2		
DFPD-240													
DFPD-240-180			38		214	149.5	184	92±0.4	152.5				
DFPD-300													
DFPD-480													
DFPD-480-180													

Type	L1	L2 ±0.1	T1 ±0.4	T2	T3	T4	T5	T6	T7	T8 +0.5	≈C 1 H11	≈C 2 h11	≈C 3	W1
DFPD-120	213.7	80	19.3	9	12	8	14	8	12	4	17	15	13	45°
DFPD-120/180	326.8													
DFPD-160	230.9		24.3	12	15						22	22	18	
DFPD-240	257													
DFPD-240/180	395.5		29.5	15	18						27	27	21	
DFPD-300	334.4													
DFPD-480	374.2													
DFPD-480/180	550.3													

Quarter turn actuators DFPD, double-acting

Technical data

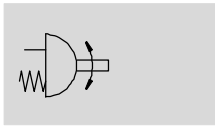
Ordering data				
Type	Size	Product weight [g]	Part No.	Type
	10	965	8047613	DFPD-10-RP-90-RD-F03
			8048010	DFPD-10-RP-90-RD-F04
	20	1275	8047614	DFPD-20-RP-90-RD-F04
			8048011	DFPD-20-RP-90-RD-F05
	40	1882	8047615	DFPD-40-RP-90-RD-F0507
	80	3308	8047616	DFPD-80-RP-90-RD-F0507
	120	4872	8048123	DFPD-120-RP-90-RD-F0507
	160	6082	8048124	DFPD-160-RP-90-RD-F0710
	240	8594	8048125	DFPD-240-RP-90-RD-F0710
	300	11224	8048126	DFPD-300-RP-90-RD-F0710
480	16025	8048127	DFPD-480-RP-90-RD-F1012	


Ordering data				
Type	Size	Product weight [g]	Part No.	Type
Version R3-EP, epoxy-coated				
	10	965	8047617	DFPD-10-RP-90-RD-F03-R3-EP
			8048012	DFPD-10-RP-90-RD-F04-R3-EP
	20	1275	8047618	DFPD-20-RP-90-RD-F04-R3-EP
			8048013	DFPD-20-RP-90-RD-F05-R3-EP
	40	1882	8047619	DFPD-40-RP-90-RD-F0507-R3-EP
	80	3308	8047620	DFPD-80-RP-90-RD-F0507-R3-EP
	120	4872	8048128	DFPD-120-RP-90-RD-F0507-R3-EP
	160	6082	8048129	DFPD-160-RP-90-RD-F0710-R3-EP
	240	8594	8048130	DFPD-240-RP-90-RD-F0710-R3-EP
	300	11224	8048131	DFPD-300-RP-90-RD-F0710-R3-EP
480	16025	8048132	DFPD-480-RP-90-RD-F1012-R3-EP	


Quarter turn actuators DFPD, single-acting


Technical data

Function



 Swivel angle
0 ... 90°

 Size
20 ... 480

 Torque
7 ... 156 Nm



General technical data								
Size	20	40	80	120	160	240	300	480
Mode of operation	Single-acting							
Design	Rack and pinion							
Cushioning	No cushioning							
Mounting position	Any							
Pneumatic connection	G $\frac{1}{8}$				G $\frac{1}{4}$			
	NPT $\frac{1}{8}$				NPT $\frac{1}{4}$			
Connection to process valve as per standard	ISO 5211							
Valve connection conforms to standard	VDI/VDE 3845 (NAMUR)							
Connection for positioner and position sensor conforms to standard	VDI/VDE 3845 (NAMUR)							
Flange hole pattern	F04	F05	F05, F07			F07, F10		F10, F12
Swivel angle [°]	90							
End-position adjusting range at 0° [°]	-5 ... +5							
End-position adjusting range at 90° [°]	-5 ... +5							
Position sensing	Visual							
Closing direction	Closes to the right							

Quarter turn actuators DFPD, single-acting

Technical data

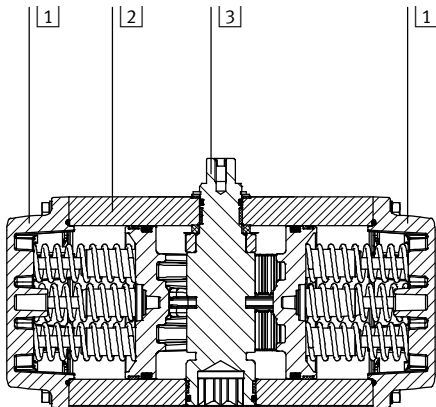
Operating and environmental conditions		
Variant	RS30	RS60
Operating pressure [bar]	2 ... 8	
Nominal operating pressure [bar]	3	6
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Pressure dew point 10°C below ambient temperature/temperature of medium Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature [°C]	-20 ... +80	
CE marking (see declaration of conformity) → www.festo.com	To EC Machinery Directive To EU Explosion Protection Directive (ATEX)	
ATEX category for gas	II 2G	
Explosion ignition protection type for gas	c T4 X	
ATEX category for dust	II 2D	
Explosion ignition protection type for dust	c 105°C X	
Explosion-proof temperature rating [°C]	-20 ≤ Ta ≤ +80	

Quarter turn actuators DFPD, single-acting

Technical data

Materials

Sectional view



Quarter turn actuators		Basic material number
1	Cap	Coated die-cast aluminium EN AC-46100-D
2	Housing	Anodised wrought aluminium alloy EN AW-6063-T6
3	Shaft	Nickel-plated steel 1.0715
	R3	High-alloy stainless steel 1.4305
-	Mounting plate	Anodised wrought aluminium alloy EN AW-6063-T6
	Piston rod	Die-cast aluminium EN AC-46100-D
	Seals	NBR -
	Spring	Spring steel -
	Bearing	POM -
	Cam	Stainless steel casting 1.4308
	Screws	High-alloy stainless steel 1.4301
	Note on materials	RoHS-compliant -

Air consumption [l/cycle] at 6 bar

Type	Air consumption [l/cycle] at 6 bar
DFPD-20-RP-90-S	0.60
DFPD-40-RP-90-S	1.80
DFPD-80-RP-90-S	3.60
DFPD-120-RP-90-S	5.40

Type	Air consumption [l/cycle] at 6 bar
DFPD-160-RP-90-S	7.20
DFPD-240-RP-90-S	10.20
DFPD-300-RP-90-S	13.20
DFPD-480-RP-90-S	21.00

Quarter turn actuators DFPD, single-acting

Technical data

Theoretical torque [Nm] as a function of operating pressure [bar] and swivel angle [°]													
Spring configuration	Nominal swivel angle	Spring torque [Nm]	Operating pressure [bar]										
	[°]		2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
Size DFPD-20													
20	0	2.4	4.9	6.7	8.6	10.4	12.2	14.0	15.9	17.7	19.5	23.2	26.8
	90	4.8	2.5	4.4	6.2	8.0	9.9	11.7	13.5	15.3	17.2	20.8	24.5
25	0	3.0	4.3	6.1	8.0	9.8	11.6	13.4	15.3	17.1	18.9	22.6	26.2
	90	6.0	1.4	3.2	5.0	6.8	8.7	10.5	12.3	14.2	16.0	19.6	23.3
30	0	3.6		5.5	7.4	9.2	11.0	12.8	14.7	16.5	18.3	22.0	25.6
	90	7.1		2.0	3.8	5.7	7.5	9.3	11.1	13.0	14.8	18.4	22.1
35	0	4.2			6.8	8.6	10.4	12.2	14.1	15.9	17.7	21.4	25.0
	90	8.3			2.6	4.5	6.3	8.1	9.9	11.8	13.6	17.3	20.9
40	0	4.8				8.0	9.8	11.6	13.5	15.3	17.1	20.8	24.4
	90	9.5				3.3	5.1	6.9	8.8	10.6	12.4	16.1	19.7
45	0	5.4					9.2	11.0	12.9	14.7	16.5	20.2	23.8
	90	10.7					3.9	5.7	7.6	9.4	11.2	14.9	18.5
50	0	6.0						10.4	12.3	14.1	15.9	19.6	23.2
	90	11.9						4.5	6.4	8.2	10.0	13.7	17.3
55	0	6.6							11.7	13.5	15.3	19.0	22.6
	90	13.1							5.2	7.0	8.8	12.5	16.1
60	0	7.2								12.9	14.7	18.4	22.0
	90	14.3								5.8	7.6	11.3	15.0
Size DFPD-40													
20	0	4.6	9.3	12.8	16.3	19.8	23.3	26.7	30.2	33.7	37.2	44.1	51.1
	90	9.1	4.8	8.3	11.8	15.3	18.8	22.3	25.7	29.2	32.7	39.7	46.6
25	0	5.8	8.2	11.7	15.1	18.6	22.1	25.6	29.1	32.6	36.0	43.0	50.0
	90	11.4	2.6	6.1	9.5	13.0	16.5	20.0	23.5	27.0	30.4	37.4	44.4
30	0	6.9		10.5	14.0	17.5	21.0	24.4	27.9	31.4	34.9	41.8	48.8
	90	13.6		3.8	7.3	10.8	14.2	17.7	21.2	24.7	28.2	35.1	42.1
35	0	8.1			12.8	16.3	19.8	23.3	26.8	30.3	33.7	40.7	47.7
	90	15.9			5.0	8.5	12.0	15.4	18.9	22.4	25.9	32.9	39.8
40	0	9.2				15.2	18.7	22.1	25.6	29.1	32.6	39.5	46.5
	90	18.2				6.2	9.7	13.2	16.7	20.1	23.6	30.6	37.5
45	0	10.4					17.5	21.0	24.5	28.0	31.4	38.4	45.4
	90	20.4					7.4	10.9	14.4	17.9	21.4	28.3	35.3
50	0	11.5						19.8	23.3	26.8	30.3	37.2	44.2
	90	22.7						8.6	12.1	15.6	19.1	26.0	33.0
55	0	12.7							22.2	25.7	29.1	36.1	43.1
	90	25.0							9.8	13.3	16.8	23.8	30.7
60	0	13.8								24.5	28.0	34.9	41.9
	90	27.2								11.1	14.5	21.5	28.5

 Note

The operating torque of the drive must not be higher than the maximum permissible torque listed in ISO 5211, with reference to the size of the mounting flange and of the coupling.

Quarter turn actuators DFPD, single-acting

Technical data

Theoretical torque [Nm] as a function of operating pressure [bar] and swivel angle [°]													
Spring configuration	Nominal swivel angle [°]	Spring torque [Nm]	Operating pressure [bar]										
			2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
Size DFPD-80													
20	0	9.9	20.1	27.6	35.1	42.6	50.0	57.5	65.0	72.5	80.0	95.0	110.0
	90	19.5	10.5	18.0	25.5	33.0	40.4	47.9	55.4	62.9	70.4	85.4	100.4
25	0	12.4	17.6	25.1	32.6	40.1	47.6	55.1	62.6	70.1	77.5	92.5	107.5
	90	24.4	5.6	13.1	20.6	28.1	35.6	43.1	50.6	58.1	65.5	80.5	95.5
30	0	14.8		22.6	30.1	37.6	45.1	52.6	60.1	67.6	75.1	90.1	105.0
	90	29.2		8.2	15.7	23.2	30.7	38.2	45.7	53.2	60.7	75.5	90.6
35	0	17.3			27.7	35.1	42.6	50.1	57.6	65.1	72.6	87.6	102.6
	90	34.1			10.9	18.3	25.8	33.3	40.8	48.3	55.8	70.8	85.8
40	0	19.8				32.7	40.2	47.7	55.1	62.6	70.1	85.1	100.1
	90	39.0				13.5	21.0	28.5	35.9	43.4	50.9	65.9	80.9
45	0	22.2					37.7	45.2	52.7	60.2	67.7	82.6	97.6
	90	43.8					16.1	23.6	31.1	38.6	46.1	61.0	76.0
50	0	24.7						42.7	50.2	57.7	65.2	80.2	95.2
	90	48.7						18.7	26.2	33.7	41.2	56.2	71.2
55	0	27.2							47.7	55.2	62.7	77.7	92.7
	90	53.6							21.3	28.8	36.3	51.3	66.3
60	0	29.6								52.8	60.3	75.2	90.2
	90	58.4								24.0	31.5	46.4	61.4
Size DFPD-120													
20	0	14.0	28.7	39.3	50.0	60.7	71.3	82.0	92.7	103.4	114.0	135.4	156.7
	90	27.8	14.9	25.6	36.3	46.9	57.6	68.3	79.0	89.6	100.3	121.7	143.0
25	0	17.6	25.1	35.8	46.5	57.2	67.8	78.5	89.2	99.9	110.5	131.9	153.2
	90	34.7	8.0	18.7	29.3	40.0	50.7	61.4	72.0	82.7	93.4	114.7	136.1
30	0	21.1		32.3	43.0	53.6	64.3	75.0	85.7	96.3	107.0	128.4	149.7
	90	41.6		11.7	22.4	33.1	43.7	54.4	65.1	75.8	86.4	107.8	129.1
35	0	24.6			39.5	50.1	60.8	71.5	82.2	92.8	103.5	124.8	146.2
	90	48.6			15.5	26.1	36.8	47.5	58.1	68.8	79.5	100.8	122.2
40	0	28.1				46.6	57.3	68.0	78.6	89.3	100.0	121.3	142.7
	90	55.5				19.2	29.9	40.5	51.2	61.9	72.6	93.9	115.2
45	0	31.6					53.8	64.5	75.1	85.8	96.5	117.8	139.2
	90	62.5					22.9	33.6	44.3	54.9	65.6	87.0	108.3
50	0	35.1						61.0	71.6	82.3	93.0	114.3	135.7
	90	69.4						26.7	37.3	48.0	58.7	80.0	101.4
55	0	38.6							68.1	78.8	89.5	110.8	132.2
	90	76.3							30.4	41.1	51.7	73.1	94.4
60	0	42.1								75.3	86.0	107.3	128.6
	90	83.3								34.1	44.8	66.1	87.5


Note

The operating torque of the drive must not be higher than the maximum permissible torque listed in ISO 5211, with reference to the size of the mounting flange and of the coupling.

Quarter turn actuators DFPD, single-acting

Technical data

Theoretical torque [Nm] as a function of operating pressure [bar] and swivel angle [°]													
Spring configuration	Nominal swivel angle	Spring torque [Nm]	Operating pressure [bar]										
	[°]		2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
Size DFPD-160													
20	0	19.2	39.3	53.9	68.6	83.2	97.9	112.5	127.1	141.8	156.4	185.7	214.9
	90	38.1	20.5	35.1	49.7	64.4	79.0	93.6	108.3	122.9	137.6	166.8	196.1
25	0	24.1	34.5	49.1	63.8	78.4	93.0	107.7	122.3	137.0	151.6	180.9	210.1
	90	47.6	37.6	25.6	40.2	54.9	69.5	84.1	98.8	113.4	128.0	157.3	186.6
30	0	28.9		44.3	59.0	73.6	88.2	102.9	117.5	132.1	146.8	176.0	205.3
	90	57.1		16.1	30.7	45.3	60.0	74.6	89.2	103.9	118.5	147.8	177.1
35	0	33.7			54.1	68.8	83.4	98.1	112.7	127.3	142.0	171.2	200.5
	90	66.6			21.2	35.8	50.4	65.1	79.7	94.4	109.0	138.3	167.5
40	0	38.5				64.0	78.6	93.2	107.9	122.5	137.2	166.4	195.7
	90	76.2				26.3	40.9	55.6	70.2	84.8	99.5	128.7	158.0
45	0	43.3					73.8	88.4	103.1	117.7	132.3	161.6	190.9
	90	85.7					31.4	46.0	60.7	75.3	90.0	119.2	148.5
50	0	48.1						83.6	98.3	112.9	127.5	156.8	186.1
	90	95.2						36.5	51.2	65.8	80.4	109.7	139.0
55	0	52.9							93.5	108.1	122.7	152.0	181.3
	90	104.7							41.6	56.3	70.9	100.2	129.5
60	0	57.7								103.3	117.9	147.2	176.5
	90	114.2								46.8	61.4	90.7	119.9
Size DFPD-240													
20	0	28.0	57.2	78.5	99.8	121.1	142.4	163.7	185.0	206.3	227.6	270.2	312.8
	90	55.4	29.8	51.1	72.4	93.7	115.0	136.3	157.6	178.9	200.2	242.8	285.4
25	0	35.0	50.2	71.5	92.8	114.1	135.4	156.7	178.0	199.3	220.6	263.2	305.8
	90	69.2	16.0	37.3	58.6	79.9	101.2	122.5	143.8	165.1	186.4	229.0	271.6
30	0	42.0		64.5	85.8	107.1	128.4	149.7	171.0	192.3	213.6	256.2	298.8
	90	83.0		23.5	44.8	66.1	87.4	108.7	130.0	151.3	172.6	215.2	257.8
35	0	49.0			78.8	100.1	121.4	142.7	164.0	185.3	206.6	249.2	291.8
	90	96.9			30.9	52.2	73.5	94.8	116.1	137.5	158.7	201.3	243.9
40	0	56.0				93.1	114.4	135.7	157.0	178.3	199.6	242.2	284.8
	90	110.7				38.4	59.7	81.0	102.3	123.6	144.9	187.5	230.1
45	0	63.0					107.4	128.7	150.0	171.3	192.6	235.2	277.8
	90	124.6					45.8	67.1	88.4	109.7	131.0	173.6	216.2
50	0	70.0						121.7	143.0	164.3	185.6	228.2	270.8
	90	138.4						53.3	74.6	95.9	117.2	159.8	202.4
55	0	77.0							136.0	157.3	178.6	221.2	263.8
	90	152.2							60.8	82.1	103.4	146.0	188.6
60	0	84.0								150.3	171.6	214.2	256.8
	90	166.1								68.2	89.5	132.1	174.7


 Note

The operating torque of the drive must not be higher than the maximum permissible torque listed in ISO 5211, with reference to the size of the mounting flange and of the coupling.

Quarter turn actuators DFPD, single-acting

Technical data

Theoretical torque [Nm] as a function of operating pressure [bar] and swivel angle [°]													
Spring configuration	Nominal swivel angle [°]	Spring torque [Nm]	Operating pressure [bar]										
			2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
Size DFPD-300													
20	0	36.1	73.7	101.1	128.6	156.0	183.4	210.9	238.3	265.8	293.2	348.1	403.0
	90	71.4	38.4	65.9	93.3	120.8	148.2	175.6	203.1	230.5	258.0	312.9	367.8
25	0	45.2	64.6	92.1	119.5	147.0	174.4	201.9	229.3	256.8	284.2	339.1	394.0
	90	89.2	20.6	48.0	75.5	102.9	130.4	157.8	185.3	212.7	240.1	295.0	349.9
30	0	54.2		83.0	110.5	137.9	165.4	192.8	220.3	247.7	275.2	330.1	384.9
	90	107.0		30.2	57.6	85.1	112.5	140.0	167.4	194.9	222.3	277.2	332.1
35	0	63.2			101.5	128.9	156.4	183.8	211.2	238.7	266.1	321.0	375.9
	90	124.9			39.8	67.2	94.7	122.1	149.6	177.0	204.5	259.4	314.2
40	0	72.2				119.9	147.3	174.8	202.2	229.7	257.1	312.0	366.9
	90	142.7				49.4	76.8	104.3	131.7	159.2	186.6	241.5	296.4
45	0	81.3					138.3	165.7	193.2	220.6	248.1	303.0	357.9
	90	160.6					59.0	86.4	113.9	141.3	168.8	223.7	278.6
50	0	90.3						156.7	184.2	211.6	239.0	293.9	348.8
	90	178.4						68.6	96.1	123.5	150.9	205.8	260.7
55	0	99.3							175.1	202.6	230.0	284.9	339.8
	90	196.2							78.2	105.7	133.1	188.0	242.9
60	0	108.4								193.5	221.0	275.9	330.8
	90	214.1								87.8	115.3	170.2	225.0
Size DFPD-480													
20	0	56.7	115.7	158.8	201.9	245.0	288.0	331.1	374.2	417.3	460.4	546.6	632.8
	90	112.0	60.3	103.4	146.5	189.6	232.7	275.8	318.9	362.0	405.1	491.2	577.4
25	0	70.9	101.5	144.6	187.7	230.8	273.9	317.0	360.1	403.2	446.2	532.4	618.6
	90	140.1	32.3	75.4	118.5	161.6	204.7	247.8	290.9	334.0	377.0	463.2	549.4
30	0	85.0		130.4	173.5	216.6	259.7	302.8	345.9	389.0	432.1	518.3	604.4
	90	168.1		47.4	90.5	133.6	176.7	219.8	262.8	305.9	349.0	435.2	521.4
35	0	99.2			159.4	202.4	245.5	288.6	331.7	374.8	417.9	504.1	590.3
	90	196.1			62.5	105.6	148.7	191.7	234.8	277.9	321.0	407.2	493.4
40	0	113.4				188.3	231.4	274.5	317.5	360.6	403.7	489.9	576.1
	90	224.1				77.6	120.6	163.7	206.8	249.9	293.0	379.2	465.4
45	0	127.5					217.2	260.3	303.4	346.5	389.6	475.7	561.9
	90	252.1					92.6	135.7	178.8	221.9	265.0	351.2	437.4
50	0	141.7						246.1	289.2	332.3	375.4	461.6	547.8
	90	280.1						107.1	150.8	193.9	237.0	323.2	409.4
55	0	155.9							275.0	318.1	361.2	447.4	533.6
	90	308.1							122.8	165.9	209.0	295.2	381.3
60	0	170.0								304.0	347.1	433.2	519.4
	90	336.1								137.9	181.0	267.2	353.3


Note

The operating torque of the drive must not be higher than the maximum permissible torque listed in ISO 5211, with reference to the size of the mounting flange and of the coupling.

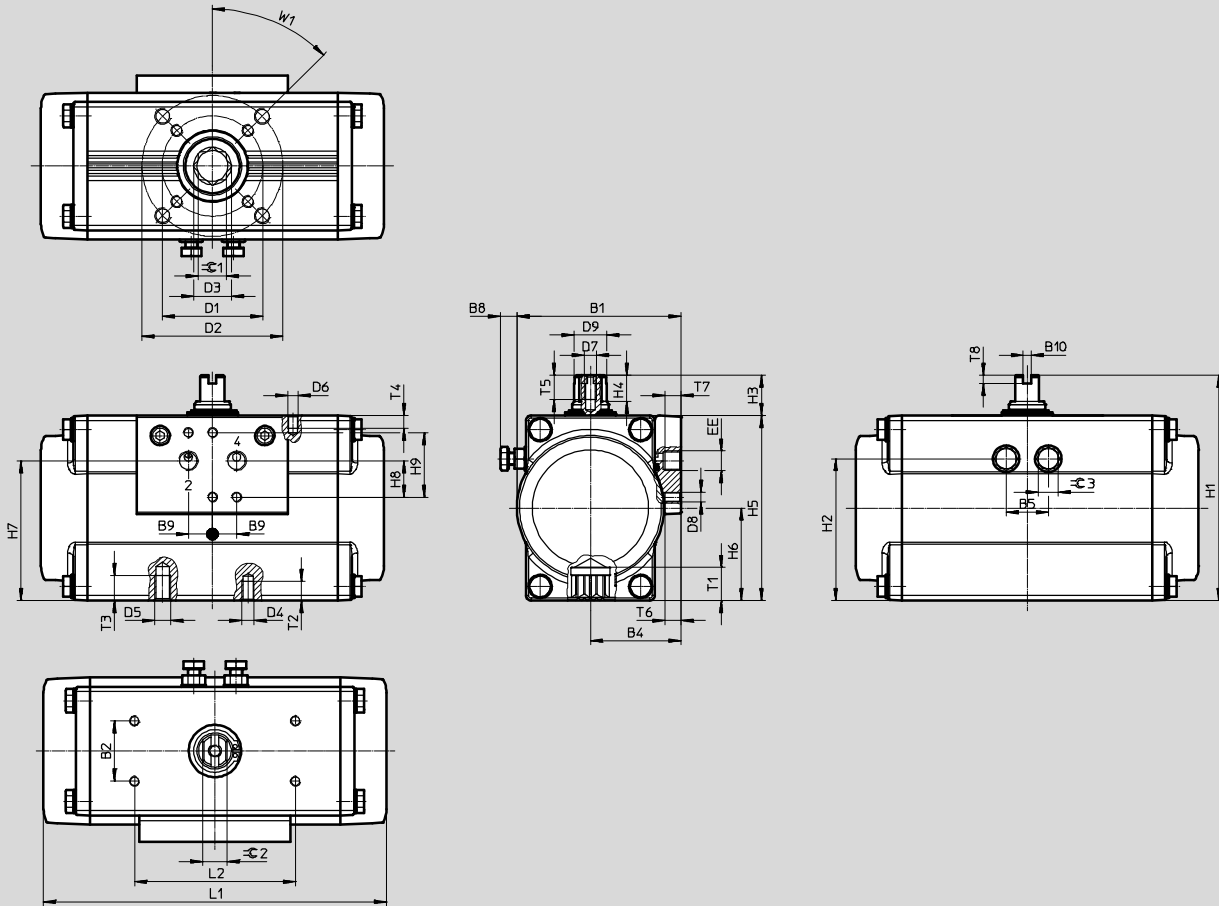
Quarter turn actuators DFPD, single-acting

Technical data

Dimensions

Size 20 ... 80

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Quarter turn actuators DFPD, single-acting

Technical data

Type	B1	B2	B4	B5	B8	B9	B10	D1 ∅	D2 ∅	D3 ∅	D4	D5	D6
[mm]		±0.1	±0.4		max.			±0.1	±0.1				
DFPD-20-F04	68.5	30	38.5	19	9.2	12	4	42	-	14.6	M5	-	M5
DFPD-20-F05								50			M6		
DFPD-40	81.5		45	21	8.2			50	70	18.7	M6	M8	
DFPD-40-180			53	26	9						70	23.3	
DFPD-80			99										

Type	D7	D8	D9 ∅	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9
[mm]			±0.1				0.5	+0.1		±0.2	±0.3	±0.1	
DFPD-20-F04	M6	M5	12.7	G ¹ / ₈ or NPT ¹ / ₈	100	59.75	20	10	80	40	57.5	16	32
DFPD-20-F05			16.2		112	70.5		13	92	46	67.5		
DFPD-40			20.2		130	86		13	110	55	86.5		
DFPD-40-180													
DFPD-80													

Type	L1	L2	T1	T2	T3	T4	T5	T6	T7	T8	≈C 1	≈C 2	≈C 3	W1
[mm]		±0.1	±0.4							+0.5	H11	h11		
DFPD-20-F04	145.7	80	13.2	8	-	6	12	8	8	4	11	9	10	45°
DFPD-20-F05				9							14	12	10	
DFPD-40	170.4		16.5	9	12						17	15	13	
DFPD-40-180	-													
DFPD-80	223.1		19.3											

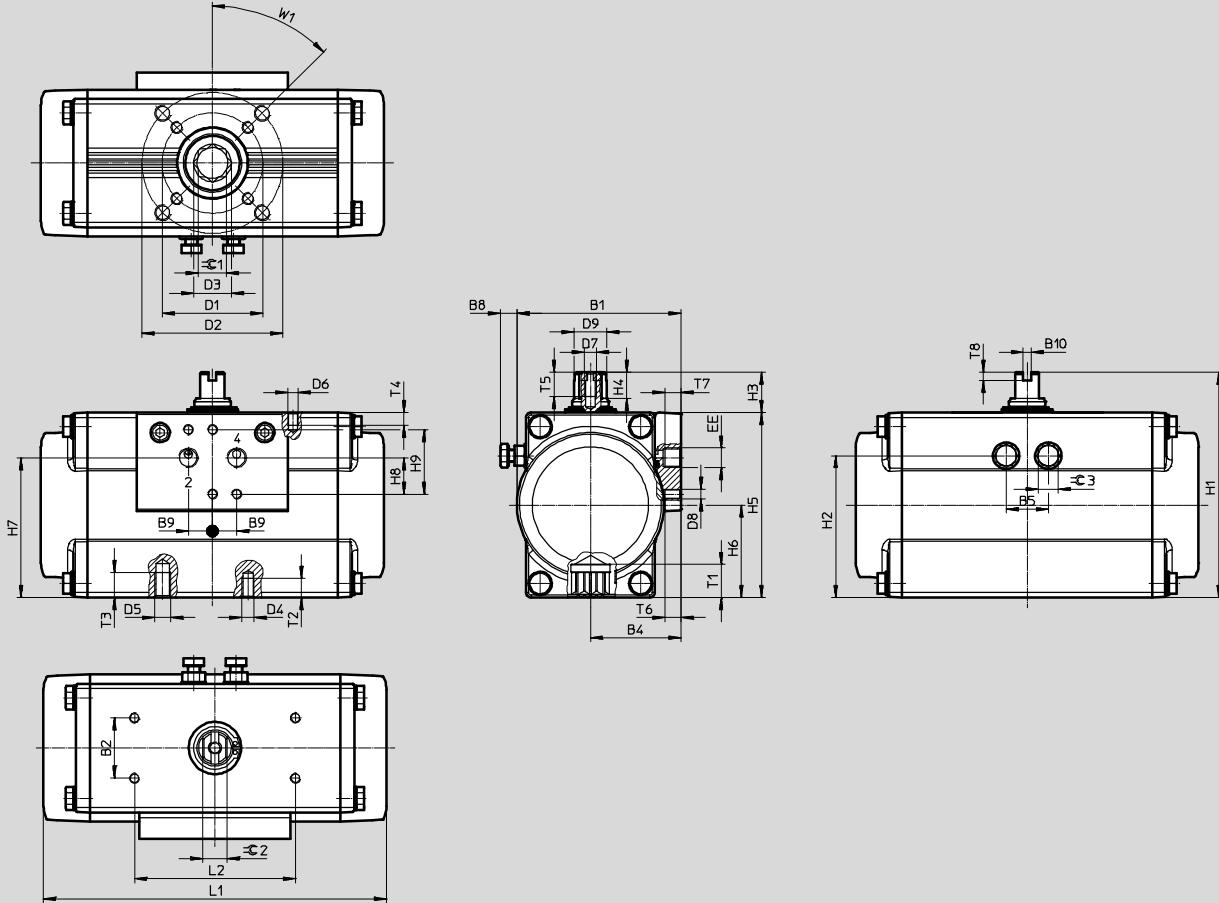
Quarter turn actuators DFPD, single-acting

Technical data

Dimensions

Size 120 ... 480

Download CAD data → www.festo.com



Quarter turn actuators DFPD, single-acting

Technical data

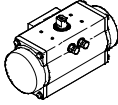
Type	B1	B2	B4	B5	B8	B9	B10	D1 ∅	D2 ∅	D3 ∅	D4	D5	D6		
[mm]		±0.1	±0.4		max.			±0.1	±0.1						
DFPD-120	111.5	30	60.5	32	12.3	12	4	50	70	23.2	M6	M8	M5		
DFPD-120-180															
DFPD-160	120		63.5	36	13.4							30			
DFPD-240	135.5		71.5	41	18.5					70	102	30.3		M8	M10
DFPD-240-180												30			
DFPD-300	144		74.5	46	17										
DFPD-480	163		83	52	19.3					102	125	37.4		M10	M12
DFPD-480-180															

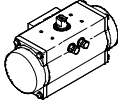
Type	D7	D8	D9 ∅	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9
[mm]			±0.1				0.5	+0.1			±0.3	±0.1	
DFPD-120	M6	M5	22.5	G $\frac{1}{4}$ or NPT $\frac{1}{4}$	143	97.75	20	13	123	61.5±0.2	98.4	16	32
DFPD-120-180													
DFPD-160			25.5		154	106.25			134	67±0.2	109.4		
DFPD-240			31.8		180	120.5	30	19.5	150	75±0.2	120.2		
DFPD-240-180													
DFPD-300			38		192	131			162	81±0.3	132.1		
DFPD-480					214	149.5			184	92±0.4	152.5		
DFPD-480-180													

Type	L1	L2	T1	T2	T3	T4	T5	T6	T7	T8	≈C 1	≈C 2	≈C 3	W1
[mm]		±0.1	±0.4							+0.5	H11	h11		
DFPD-120	252.3	80	19.3	9	12	8	14	8	12	4	17	15	13	45°
DFPD-120-180	–													
DFPD-160	270.9		19	16										
DFPD-240	301.4		22	22	18									
DFPD-240-180	–													
DFPD-300	334.4		27	27	21									
DFPD-480	374.2													
DFPD-480-180	–													

Quarter turn actuators DFPD, single-acting

Technical data

Ordering data				
Type	Size	Product weight [g]	Part No.	Type
	20	1371	8047621	DFPD-20-RP-90-RS30-F04
		1419	8047622	DFPD-20-RP-90-RS60-F04
		1371	8048014	DFPD-20-RP-90-RS30-F05
		1419	8048015	DFPD-20-RP-90-RS60-F05
	40	2087	8047623	DFPD-40-RP-90-RS30-F0507
		2180	8047624	DFPD-40-RP-90-RS60-F0507
	80	3746	8047625	DFPD-80-RP-90-RS30-F0507
		3960	8047626	DFPD-80-RP-90-RS60-F0507
	120	5422	8048133	DFPD-120-RP-90-RS30-F0507
		5736	8048134	DFPD-120-RP-90-RS60-F0507
	160	6767	8048135	DFPD-160-RP-90-RS30-F0710
		7179	8048136	DFPD-160-RP-90-RS60-F0710
	240	9442	8048137	DFPD-240-RP-90-RS30-F0710
		10036	8048138	DFPD-240-RP-90-RS60-F0710
	300	12052	8048139	DFPD-300-RP-90-RS30-F0710
		12880	8048140	DFPD-300-RP-90-RS60-F0710
	480	17261	8048141	DFPD-480-RP-90-RS30-F1012
		18485	8048142	DFPD-480-RP-90-RS60-F1012

Ordering data				
Type	Size	Product weight [g]	Part No.	Type
Version EP, epoxy-coated				
	20	1371	8047627	DFPD-20-RP-90-RS30-F04-R3-EP
		1419	8047628	DFPD-20-RP-90-RS60-F04-R3-EP
		1371	8048016	DFPD-20-RP-90-RS30-F05-R3-EP
		1419	8048017	DFPD-20-RP-90-RS60-F05-R3-EP
	40	2087	8047629	DFPD-40-RP-90-RS30-F0507-R3-EP
		2180	8047630	DFPD-40-RP-90-RS60-F0507-R3-EP
	80	3746	8047631	DFPD-80-RP-90-RS30-F0507-R3-EP
		3960	8047632	DFPD-80-RP-90-RS60-F0507-R3-EP
	120	5422	8048143	DFPD-120-RP-90-RS30-F0507-R3-EP
		5736	8048144	DFPD-120-RP-90-RS60-F0507-R3-EP
	160	6767	8048145	DFPD-160-RP-90-RS30-F0710-R3-EP
		7179	8048146	DFPD-160-RP-90-RS60-F0710-R3-EP
	240	9442	8048147	DFPD-240-RP-90-RS30-F0710-R3-EP
		10036	8048148	DFPD-240-RP-90-RS60-F0710-R3-EP
	300	12052	8048149	DFPD-300-RP-90-RS30-F0710-R3-EP
		12880	8048150	DFPD-300-RP-90-RS60-F0710-R3-EP
	480	17261	8048151	DFPD-480-RP-90-RS30-F1012-R3-EP
		18485	8048152	DFPD-480-RP-90-RS60-F1012-R3-EP

Quarter turn actuators DFPD

Ordering data – Modular product system, size 10 ... 80

Ordering table			10	20	40	80	Condi- tions	Code	Enter code	
M	Module No.		8042184	8042185	8042186	8042187				
	Function	Quarter turn actuator, based on ISO 5211							DFPD	DFPD
O	System of units	Metric								
		Imperial						-N		
	Version	Standard								
M	Torque	10 Nm		-	-	-		-10		
		20 Nm	-		-	-		-20		
		40 Nm	-	-		-		-40		
		80 Nm	-	-	-			-80		
M	Design	Rack and pinion						-RP	-RP	
O	Yoke type	None								
M	Swivel angle	90°						-90		
		180°	-	-		-		-180		
	Swivel direction	To the left						-L		
		To the right						-R		
	Function	Double-acting						D		
		Single-acting	-				[1]	S		
O	Spring configuration	None								
		Connection pressure	2 bar					[5]	20	
			2.5 bar					[5]	25	
			3 bar					[5]	30	
			3.5 bar					[5]	35	
			4 bar					[5]	40	
			4.5 bar					[5]	45	
			5 bar					[5]	50	
			5.5 bar					[5]	55	
	6 bar						[5]	60		
M	Flange pattern 1	Hole pattern	F03		-	-		-F03		
			F04			-		-F04		
			F05	-				-F05		
O	Flange pattern 2	None								
		Hole pattern	07	-	-		[6]	07		
	Manual override	None								
	Temperature range	Standard								
		0 ... +150 °C	-	-				-T4		
		-50 ... +60 °C	-	-				-T6		
	Corrosion protection	Standard								
		High					[8]	-R3		
	Housing surface treatment	None								
		Epoxy-coated					[4]	-EP		

[1] **S** Not in combination with swivel angle 180°
 [4] **EP** Only in combination with high corrosion protection -R3

[5] **20, 25, 30, 35, 40, 45, 50, 55, 60** Not in combination with double-acting function, with 2 cylinders (DD), mandatory specification in combination with (function) single-acting (S)
 [6] **07** Mandatory specification in combination with (torque) 40 Nm, 80 Nm, 120 Nm
 [8] **R3** Mandatory specification in combination with (housing surface treatment) epoxy-coated -EP

[M] Mandatory data
 [O] Options

Order code

	DFPD	-		-		-		-		-		-		-		-		-	
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Quarter turn actuators DFPD

Ordering data – Modular product system, size 120 ... 480

Ordering table			120	160	240	300	480	Condi- tions	Code	Enter code	
M	Module No.		8042188	8042189	8042190	8042191	8042192				
	Function		Quarter turn actuator, based on ISO 5211							DFPD	DFPD
O	System of units	Metric									
		Imperial							-N		
	Version	Standard									
M	Torque	120 Nm		-	-	-	-		-120		
		160 Nm	-		-	-	-		-160		
		240 Nm	-	-		-	-		-240		
		300 Nm	-	-	-		-		-300		
		480 Nm	-	-	-	-			-480		
M	Design	Rack and pinion							-RP	-RP	
O	Yoke type	None									
M	Swivel angle	90°							-90		
		180°		-		-			-180		
	Swivel direction	To the left							-L		
		To the right							-R		
	Function	Double-acting							D		
		Single-acting						1	S		
O	Spring configuration	None									
		Connection pressure	2 bar						5	20	
			2.5 bar						5	25	
			3 bar						5	30	
			3.5 bar						5	35	
			4 bar						5	40	
			4.5 bar						5	45	
			5 bar						5	50	
			5.5 bar						5	55	
	6 bar							5	60		

1 S Not in combination with swivel angle 180°

5 20, 25, 30, 35, 40, 45, 50, 55, 60 Not in combination with double-acting function, with 2 cylinders (DD), mandatory specification in combination with (function) single-acting (S)

M Mandatory data

O Options

Transfer order code

DFPD - - - - - - -

Quarter turn actuators DFPD

Ordering data – Modular product system, size 120 ... 480

Ordering table				120	160	240	300	480	Condi- tions	Code	Enter code
M	Module No.			8042188	8042189	8042190	8042191	8042192			
M	Flange pattern 1	Hole pattern	F05		-	-	-	-		-F05	
			F07	-	-	-	-	-		-F07	
			F10	-	-	-	-	-		-F10	
O	Flange pattern 2	Standard		-	-	-	-	-			
			Hole pattern	F07		-	-	-	-	6	07
			F10	-	-	-	-	-		10	
			F12	-	-	-	-	-		12	
O	Manual override	None									
		Temperature range	Standard								
			0 ... +150 °C							-T4	
			-50 ... +60 °C							-T6	
	Corrosion protection	Standard									
		High						8		-R3	
	Housing surface treatment	None									
		Epoxy-coated						4		-EP	

4 EP Only in combination with high corrosion protection -R3

6 07 Mandatory specification in combination with (torque) 40 Nm, 80 Nm, 120 Nm
8 R3 Mandatory specification in combination with (housing surface treatment) epoxy-coated -EP

M Mandatory data

O Options

Transfer order code

DFPD - - - - -