

Copar quarter turn actuators DRD/DRE






Copar quarter turn actuators DRD/DRE

Key features and product range overview



Brief description

-  Size
1 ... 880
-  Torque
7,5 ... 8 800 Nm
-  Swivel angle
0 ... 90°

The Copar quarter turn actuators are ideally suited for automating swivel valves in the process industry. Sturdy, but nevertheless accurate for high precision positioning, especially with ball valves and plug valves, as well as shut-off and butterfly valves.

- Direction of rotation can be optionally changed from clockwise to anticlockwise
- End-position sensor and limit switch module can be mounted directly to the drive
- Fast or slow valve actuation
- Suitable for manual on-site use, as well as automatic operation
- Resistant to overload and continuous loads
- Can be used as a variable-speed actuator in combination with an electro-pneumatic positioning controller
- Opening and closing are controlled with a flange-mounted solenoid valve with port pattern to Namur
- Highly corrosion resistant
- Optionally adjustable end positions for sizes 8 ... 100, facilitating adjustment ranges of -4° ... $+4^\circ$ and 86° ... 94°
- Selected types according to ATEX directive for explosive atmospheres
→ www.festo.com/en/ex
- Port pattern to Namur VDI/VDE 3845 for attaching solenoid valves



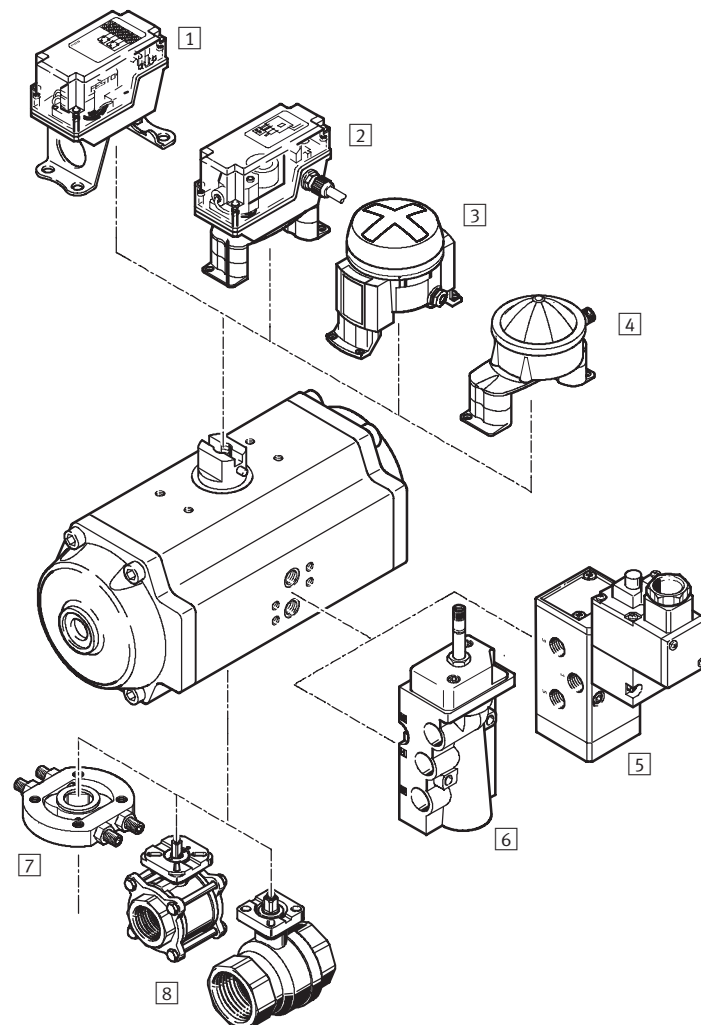
Flange hole pattern – Connection dimensions to DIN ISO 5211 and Namur VDI/VDE 3845

Connection	F03	F04		F05	F07		F10	F12	F14	F16	F25	F30	Shaft height
Square	V09	V11		V14	V17		V22	V27	V36	V46	V55	V75	
DR...-1-F03	■	-	-	-	-	-	-	-	-	-	-	-	20
DR...-2-F03	■	-	-	-	-	-	-	-	-	-	-	-	20
DR...-2-F04	-	■	-	-	-	-	-	-	-	-	-	-	20
DR...-4-F04	-	-	■	-	-	-	-	-	-	-	-	-	20
DR...-4-F05	-	-	-	■	-	-	-	-	-	-	-	-	20
DR...-8-F05	-	-	-	■	-	-	-	-	-	-	-	-	20
DR...-14-F05	-	-	-	■	-	-	-	-	-	-	-	-	20
DR...-26-F07	-	-	-	-	■	-	-	-	-	-	-	-	20
DR...-50-F07	-	-	-	-	-	■	-	-	-	-	-	-	20
DR...-50-F10	-	-	-	-	-	-	■	-	-	-	-	-	30
DR...-77-F10	-	-	-	-	-	-	■	-	-	-	-	-	30
DR...-77-F12	-	-	-	-	-	-	-	■	-	-	-	-	30
DR...-100-F12	-	-	-	-	-	-	-	■	-	-	-	-	30
DR...-150-F14	-	-	-	-	-	-	-	-	■	-	-	-	30
DR...-225-F14	-	-	-	-	-	-	-	-	■	-	-	-	30
DR...-375-F16	-	-	-	-	-	-	-	-	-	■	-	-	30
DR...-575-F16	-	-	-	-	-	-	-	-	-	■	-	-	30
DR...-575-F25	-	-	-	-	-	-	-	-	-	-	■	-	30
DR...-880-F25	-	-	-	-	-	-	-	-	-	-	■	-	30
DR...-880-F30	-	-	-	-	-	-	-	-	-	-	-	■	30
Hole pattern for Namur accessories	25	25	30	30	30	30	30	30	30	30	30	30	
	50	50	80	80	80	80	130	130	130	130	150	175	

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Peripherals overview

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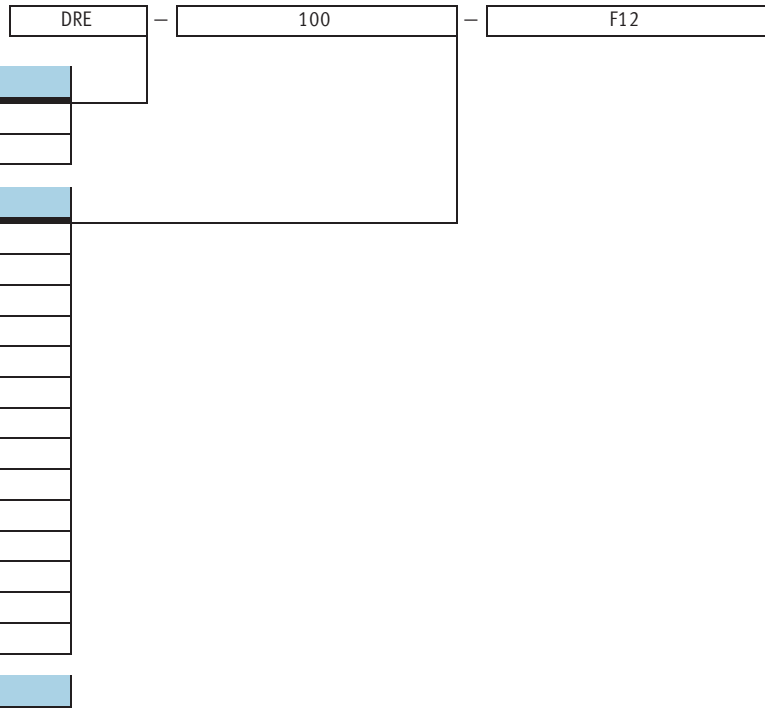


Mounting attachments and accessories			
	Brief description	→ Page/Internet	
1	Limit switch attachment QH-DR-E	Square design, pneumatic, electrical or inductive sensing fits sizes 4 ... 50	qh-dr-e
2	Limit switch attachment DAPZ	Square design, electrical, electrically explosion-proof or inductive sensing fits sizes 4 ... 225, size 1 and 2 or 375 ... 880	dapz
3	Limit switch attachment DAPZ	Round design, variant AR, electrical, inductive or inductively explosion-proof sensing fits sizes 4 ... 225	dapz
4	Limit switch attachment DAPZ	Round design, variant RO, electrical, inductive or inductive Namur sensing fits sizes 4 ... 225, size 1 and 2 or 375 ... 880	dapz
5	Solenoid valve MFH	Basic valve with pilot control valve for F solenoid coil	mfh
	Solenoid valve MN1H	Basic valve with pilot control valve for N1 solenoid coil	mn1h
	Solenoid valve MGTBH	Basic valve with pilot control valve, solenoid coil and socket	mgtbh
6	Solenoid valve NVF3	For F solenoid coil and explosion-proof F solenoid coil	nvf3
7	Stop DADP	For end-position adjustment, based on standard VDI/VDE 3845 (Namur) fits sizes 150 ... 880; for size 1 ... 100 the adjustable end-position cushioning is in the end caps	33
8	Ball valve VAPB	Brass or stainless steel, corrosion-resistant	vapb

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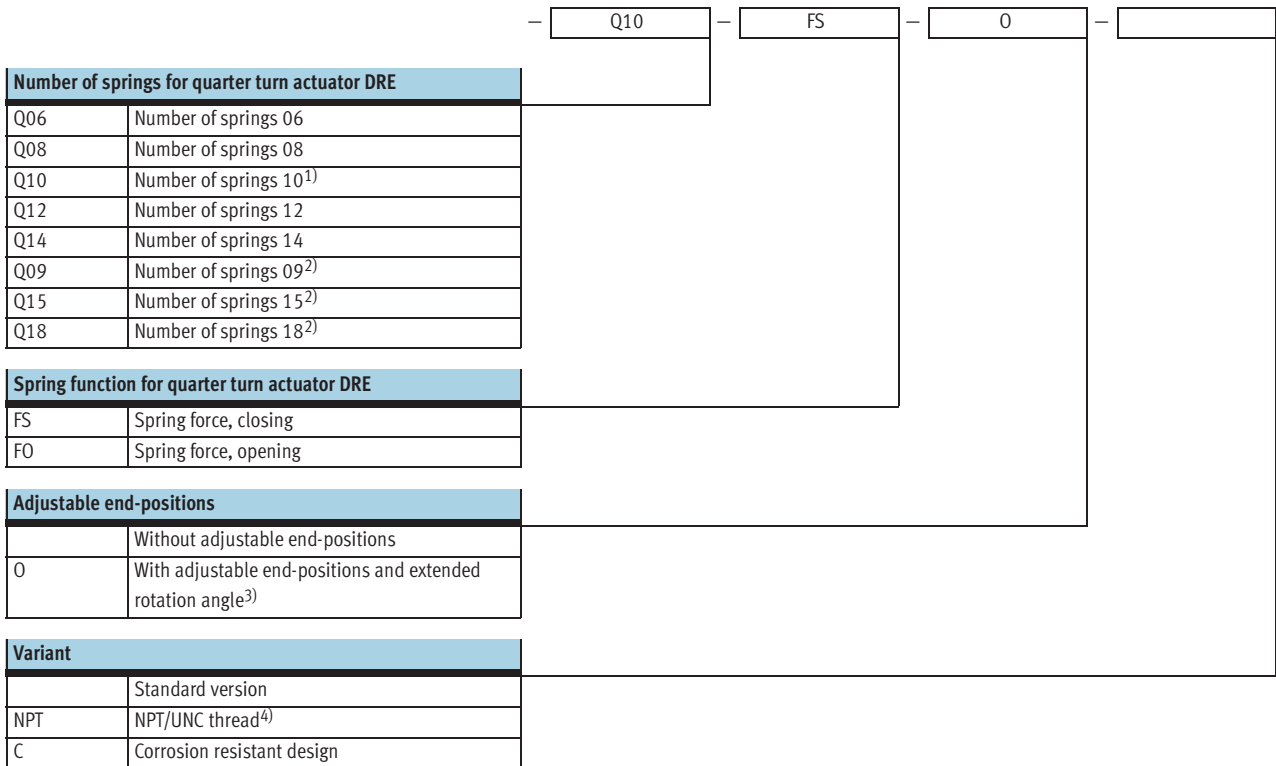
Type codes

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Copar quarter turn actuators DRD/DRE

Type codes



- 1) Standard spring quantity designed for 6 bar operating pressure
- 2) Only with size 575
- 3) Swivel range to 98°, only with size 8 ... 100
- 4) On request

Copar quarter turn actuators DRD/DRE

Sizing information

Sizing and adapting quarter turn actuators for process valves

We will use the example of a rack-and-pinion actuator to explain how to size double-acting and single-acting

quarter turn actuators. The procedure is the same for scotch yoke actuators, with the exception that the non-linear

characteristic of the actuator's torque curve does not have to be taken into account.

Sizing example for a double-acting quarter turn actuator

Breakaway torque of the process valve

The torque required to facilitate reliable opening of the valve's shut-off device (disc in a butterfly valve, ball in a ball valve ...) under the specified operating conditions (medium, temperature, inline pressure, etc.).

Compressed air supply

The minimum compressed air pressure available at all times at the valve to be sized forms the basis for sizing (worst-case analysis).

Process valve type

What type of valve (butterfly valve, ball valve, etc.) is being used?

The main operating conditions must be known before the breakaway torque can be specified by the valve manufacturer or correctly derived from existing tables:

- Medium
 - Temperature, concentration, viscosity of the medium
 - Gas or liquid, lubricating or non-lubricating
 - Presence of particles that form deposits or caking
 - Differential pressure at the process valve
 - Required safety factor
- If no safety factor is specified, a factor of at least approx. 1.2 (20% safety) should be taken into account when sizing the quarter turn actuator.

Example

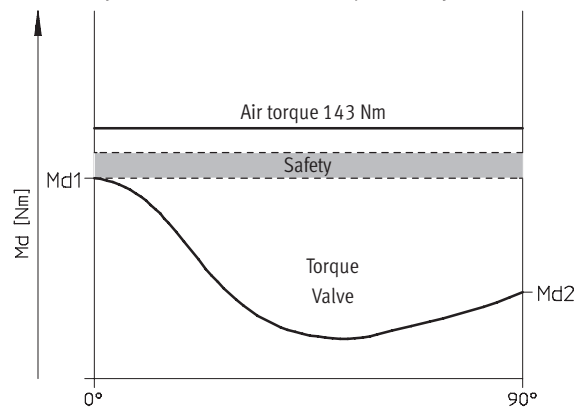
A breakaway torque of 100 Nm is determined for the valve. A safety factor of 1.2 is selected.

This gives a minimum torque of 120 Nm for the quarter turn actuator. The torque tables for double-acting quarter turn actuators propose the actuator with the designation

DRD-14-F05 from the Copar series. This actuator has a torque of 143 Nm at compressed air pressure of 6 bar.

This torque is constant across the entire swivel range (0° ... 90°) thanks to the rack-and-pinion design and is therefore sufficient for the valve.

Relationship of the actuator to the butterfly valve torque curve:



0° =Valve closed
90° =Valve open

Md1 = Breakaway torque
Md2 = Closing torque

Copar quarter turn actuators DRD/DRE

Sizing information

Sizing example for a single-acting quarter turn actuator

The most important criteria for the sizing of single-acting quarter turn actuators are, with the exception of the valve's closing torque, the same as for double-acting actuators:

- Breakaway torque of the process valve
- Closing torque of the process valve
What torque is required to move the shut-off device (disc, ball ...)
securely back into the seal?
- Compressed air supply
- Process valve type

As with double-acting actuators, the main operating conditions must be known before the breakaway torque can be specified by the valve manufacturer or correctly derived from existing tables → 6.

These conditions also apply for the closing torque. As the lubricating properties of the medium remain almost incalculable here, this is more difficult to determine. For that reason, most process valve manufacturers do not specify a closing torque.

The solution

The breakaway torque is used instead of the closing torque as it is always greater than the closing torque of a process valve.

It can generally be assumed that the breakaway torque specified by the process valve manufacturer can be used without a safety factor.

If no safety factor is specified for the breakaway torque, a factor of at least 1.2 to 1.3 (20% to 30% safety) should be included when sizing the single-acting quarter turn actuator.

Single-acting quarter turn actuators can close or open with spring force as a safety function.

The most frequent application: Closing with spring force

When the valve is closed, the springs in the actuators are pretensioned. This means: A single-acting actuator will always have a lower maximum air torque than the identically sized double-acting actuator (same piston diameter, same design).

When the process valve opens, the actuator works against the spring force. If the springs are compressed, the force in the springs increases and the opening force of the air decreases proportionally.

This means that the actuator must overcome the torque generated by the spring force as well as the normal breakaway torque. The air torque decreases in accordance with the increasing spring force.

Example

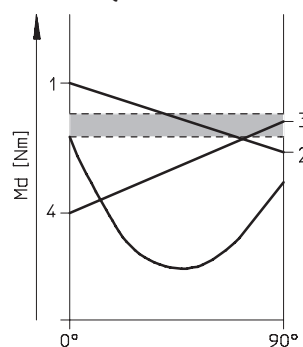
A breakaway torque of 20 Nm is established for a ball valve. A safety factor of 1.2 is selected. This gives a minimum torque of 24 Nm for opening the ball valve.

The necessary torque in the ball valve's open position is estimated at 50% of the breakaway torque (12 Nm). This gives a torque requirement of approx. 14 Nm taking into consideration a safety factor of 20%.

The closing torque of the process valve is not known, therefore the breakaway torque is selected without an additional safety factor: 20 Nm.

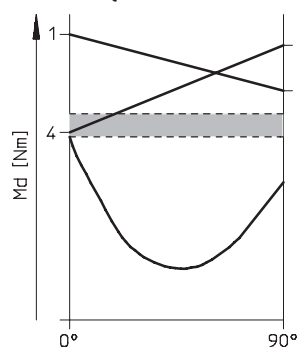
The 3 diagrams below show the calculated breakaway torques and closing torques using the typical torque characteristics of a ball valve and the torque lines of quarter turn actuators of the Copar series. These were selected using the torque tables.

Figure 1:
DRE-4-F05-Q10-FS



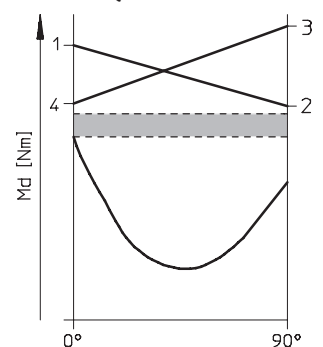
■ Necessary safety factor 20%

Figure 2:
DRE-8-F05-Q10-FS



0° = Valve closed
90° = Valve open

Figure 3:
DRE-8-F05-Q12-FS



1 → 2 = Air torque
3 → 4 = Spring torque

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Sizing information

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Torques [Nm]		Figure 1 DRE-4-F05-Q10-FS	Figure 2 DRE-8-F05-Q10-FS	Figure 3 DRE-8-F05-Q12-FS
Air torque	max. 1	26.9	53.5	49.5
	min. 2	16.6	32.5	24.2
Spring torque	max. 3	20.6	41.5	49.8
	min. 4	10.3	20.5	24.6

Re. Figure 1:

The quarter turn actuator in Figure 1 is not suitable for this application as the low closing torque of the springs is not enough to close the ball valve (3 → 4).

Re. Figure 2:

The use of the actuator shown in Figure 2 is critical as the closing torque of the springs (4) is only slightly above the breakaway torque of the ball valve. Even small pressure increases in the piping or pressure

drops in the compressed air system will stop the ball valve closing completely.

Re. Figure 3:

The ideal quarter turn actuator in this case is shown in Figure 3. The break-

away and closing torques of the actuator are above the torque values incl. safety factor (20%) calculated for this ball valve when both opening and closing. This guarantees a reliable actuator function.

An example for the influence of the compressed air pressure:

The available air torque falls from 49.5 Nm to 24.2 Nm at a pressure of 5 bar for the actuator in Figure 3 and is therefore not sufficient for this application example. For this reason, particular attention must be paid to

the constant available minimum air pressure when sizing a quarter turn actuator.

Note that all single-acting actuators are more often than not 1 ... 2 sizes larger than the double-acting

actuators for the same process valve because of the reduced available torques on the air side.

In the case of actuators that open using spring force (rotation of the

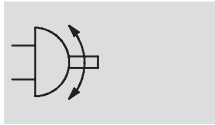
piston by 180° to reverse the direction of rotation), the springs must apply the breakaway torque and the air torque must be large enough to be able to close the valve once more.


Copar quarter turn actuators DRD

Technical data


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Function



 Swivel angle
0 ... 90°



 Size
1 ... 880

 Torque
2.5 ... 11 750 Nm

General technical data			
Size	1 ... 4	8 ... 100	150 ... 880
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	
Design	Rack and pinion, double-acting		
Assembly position	Any		
Swivel angle [°]	90		
End-position adjusting range [°]	-	-4 ... +4	-
Closing direction	Closes to right		

Operating and environmental conditions			
Size	1 ... 4	8 ... 100	150 ... 880
Operating pressure ¹⁾ [bar]	2.5 ... 10	2 ... 10	
Operating medium	Dried compressed air, lubricated or unlubricated		
Ambient temperature ²⁾³⁾ [°C]	-20 ... +80		
Corrosion resistance class CRC ⁴⁾	3		
Corrosion resistance class CRC ⁵⁾ for corrosion-resistant design	4		
CE marking (see declaration of conformity) → www.festo.com	-	Explosion protection directive 94/9/EC - ATEX	
ATEX specification	-	II 2 GD c X	
ATEX ambient temperature ³⁾	-	-20°C ≤ Ta ≤ +60°C	

1) Minimum operating pressures vary for single-acting quarter-turn actuators depending upon spring quantity

2) Further temperature ranges upon request

3) Note operating range of proximity sensors

4) Corrosion resistance class 3 according to Festo standard 940 070

Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface

5) Corrosion resistance class 4 according to Festo standard 940 070

Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required

Air consumption [l/cycle] at 6 bar			
Size		Size	
DRD-1	1.44	DRD-77	36
DRD-2	2.04	DRD-100	48
DRD-4	3	DRD-150	74.4
DRD-8	4.2	DRD-225	99.6
DRD-14	12	DRD-375	204
DRD-26	19.2	DRD-575	276
DRD-50	24	DRD-880	384


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Weight [g]			
Size		Size	
DRD-1	600	DRD-77	18,500
DRD-2	800	DRD-100	23,000
DRD-4	1,100	DRD-150	31,000
DRD-8	2,400	DRD-225	37,000
DRD-14	3,600	DRD-375	80,000
DRD-26	6,400	DRD-575	123,000
DRD-50	11,200	DRD-880	156,000

Theoretical torque [Nm] at swivel angle 0° and 90° as a function of operating pressure [bar]							
Size	Operating pressure [bar]						
	2	3	4	5	6	7	8
DRD-1	2.48	3.72	4.96	6.2	7.44	8.68	9.92
DRD-2	5.4	8.1	10.8	13.5	16.2	18.9	21.6
DRD-4	12.4	18.6	24.8	31	37.2	43.4	49.6
DRD-8	24.7	37	49.3	61.6	74	86.3	98.6
DRD-14	47	72	95	119	143	167	191
DRD-26	89	133	177	222	266	310	354
DRD-50	169	253	337	421	505	589	673
DRD-77	256	385	513	642	770	898	1,026
DRD-100	338	506	675	843	1,012	1,181	1,350
DRD-150	506	758	1,011	1,264	1,517	1,770	2,023
DRD-225	758	1,138	1,517	1,896	2,275	2,654	3,033
DRD-375	1,264	1,896	2,528	3,159	3,791	4,423	5,055
DRD-575	1,919	2,879	3,839	4,799	5,758	6,718	7,677
DRD-880	2,938	4,407	5,876	7,345	8,814	10,283	11,752

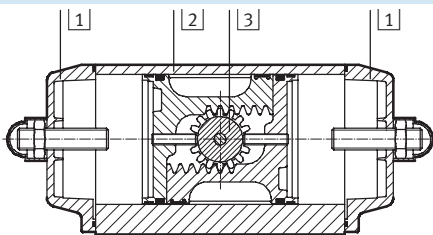
-  - Note

The following minimum degrees of efficiency apply for all quarter turn actuators:

DR...-1 ... 4: ≥ 80%
 DR...-8 ... 880: ≥ 90%

Materials

Sectional view



Quarter turn actuator				
1	Cover	Size	1 ... 4	Plastic, glass fibre reinforced
			8 ... 880	Painted aluminium
2	Housing	Size	1 ... 225	Anodised aluminium
			375 ... 880	Painted aluminium
3	Shaft	Size	1 ... 100	Aluminium
			150 ... 880	Steel
-	External screws			Stainless steel
-	Seals			Nitrile rubber, polyurethane, polyacetate

Copar quarter turn actuators DRD

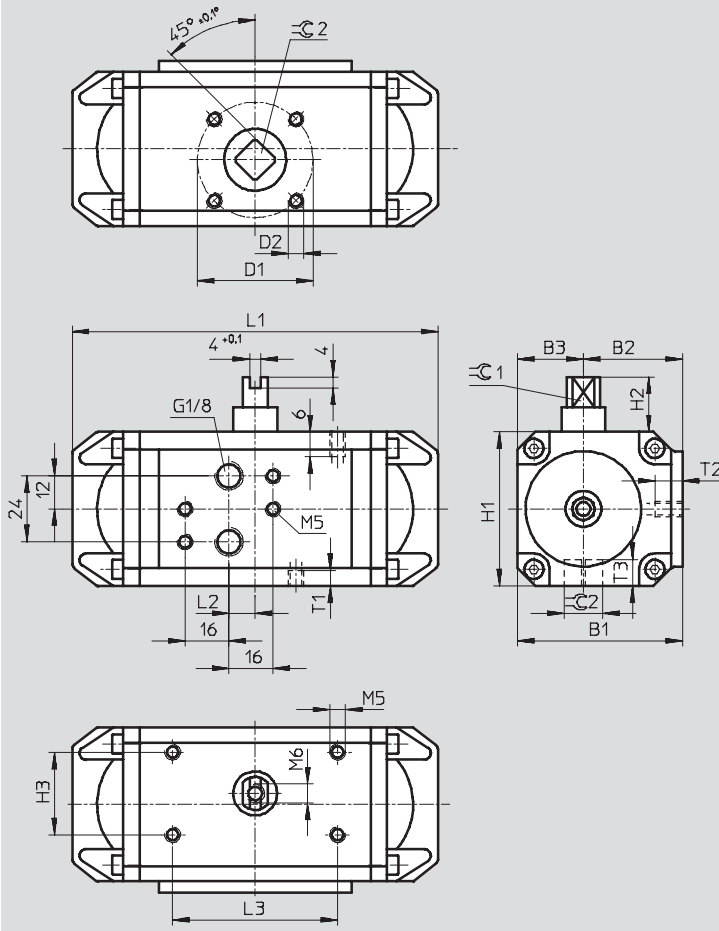
Technical data

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Dimensions

Download CAD data → www.festo.com

Size 1 ... 4



Size	B1	B2	B3	D1	D2	H1	H2	H3
DRD-1-F03	45	25	20	36	M5	45	20	25
DRD-2-F04	60	34	26	42	M5	56	20	25
DRD-2-F03				36				
DRD-4-F05	71	38	33	50	M6	66	20	30
DRD-4-F04				42	M5			

Size	L1	L2	L3	T1	T2	T3	≡C1	≡C2
DRD-1-F03	89	11	50	5	5	10	8	9
DRD-2-F04	133	10	50	6	7	12	9	11
DRD-2-F03						10		9
DRD-4-F05	175	24	80	7	7	16	15	14
DRD-4-F04						12		11

Copar quarter turn actuators DRD

Technical data

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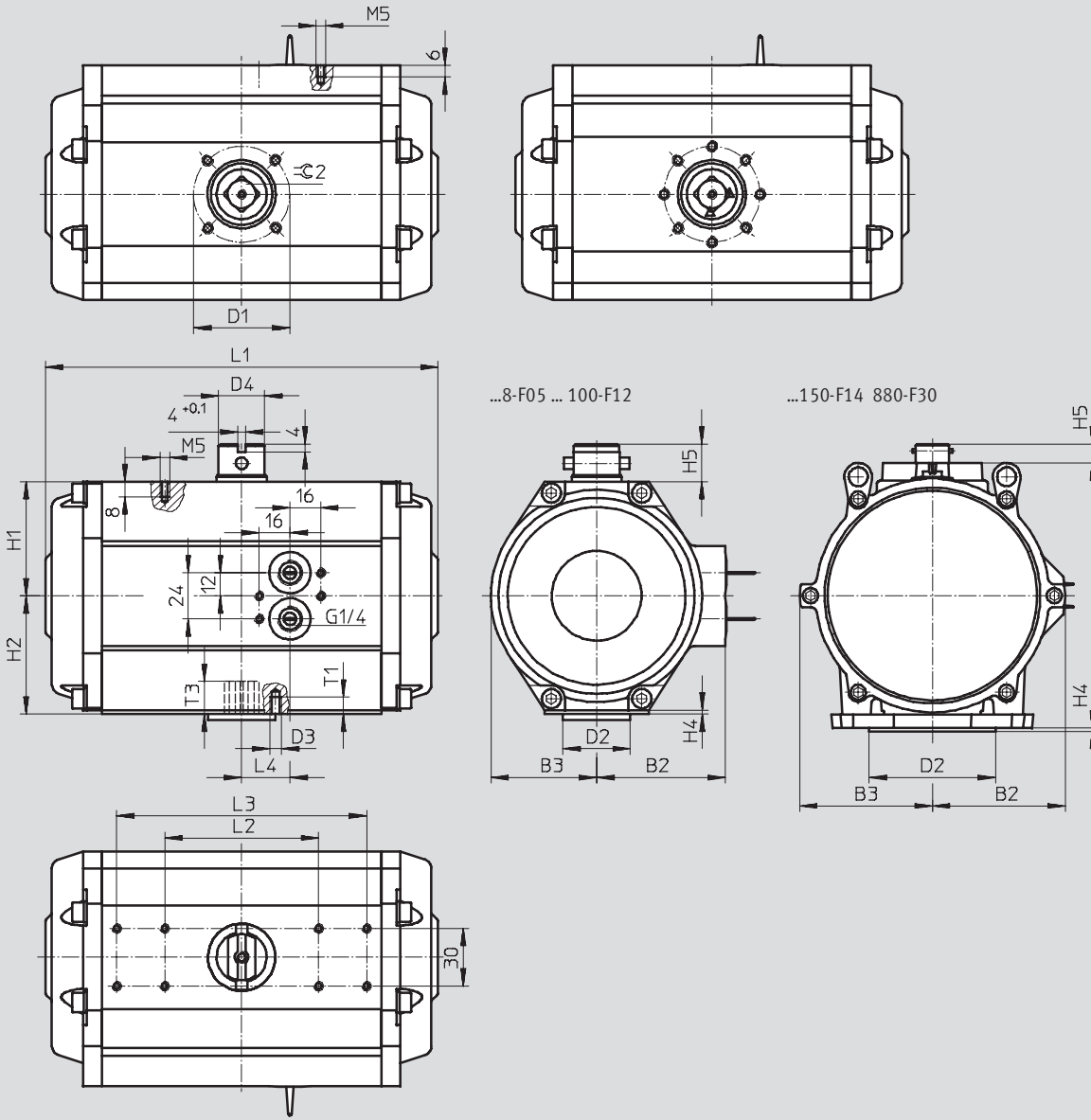
Dimensions

Size 8 ... 880

Download CAD data → www.festo.com

Flange hole pattern F05 ... F16

Flange hole pattern F25 ... F30



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Technical data

Size	B2	B3	D1 ∅	D2 ∅	D3 ∅	D4 ∅	H1	H2	H3
DRD-8-F05	52.5 \pm 1	41 \pm 1	50	35	M6	24	44.5 \pm 1.5	46.5 \pm 1	12
DRD-14-F05	67 \pm 1.5	55 \pm 1.5	50	35	M6	24	59.5 \pm 1.5	61.5 \pm 1	12
DRD-26-F07	79 \pm 2	67 \pm 2	70	55	M8	24	71.5 \pm 1.5	74.5 \pm 1.5	12
DRD-50-F07	94 \pm 2	78 \pm 2	70	55	M8	24	81.5 \pm 2.5	84.5 \pm 1.5	12
DRD-50-F10			102	70	M10	24			
DRD-77-F10	100 \pm 2	90 \pm 2	102	70	M10	24	94 \pm 3	98 \pm 2	12
DRD-77-F12			125	85	M12	24			
DRD-100-F12	114 \pm 2.5	102 \pm 2	125	85	M12	24	106.5 \pm 3	111.5 \pm 1.5	12
DRD-150-F14	140 \pm 3	136 \pm 2.5	140	100	M16	53	137 \pm 3	137 \pm 3	12
DRD-225-F14			140	100	M16	53	137	147 \pm 3	12
DRD-375-F16	177 \pm 3.5	175 \pm 3.5	165	130	M20	53	172 \pm 3.5	172 \pm 3.5	18
DRD-575-F16	210 \pm 4	210 \pm 4	165	130	M20	53	210 \pm 4	210 \pm 4	18
DRD-575-F25			254	200	M16	53			
DRD-880-F25	223.5 \pm 4.5	223.5 \pm 4.5	254	200	M16	53	225 \pm 4.5	225 \pm 4.5	18
DRD-880-F30			298	230	M20	53			

Size	H4 max.	H5 \pm 1	L1 max.	L2	L3	L4 \pm 1	T1	T3 +1	2 H11
DRD-8-F05	3	20	215	80	-	25.5	8.8	17	14
DRD-14-F05			220	80		25.15			
DRD-26-F07	3	20	280	80	130	32.25	12.5	21	17
DRD-50-F07			4	30	365	80	130		
DRD-50-F10	130	16				25		22	
DRD-77-F10	4	30	430	130	-		54.5		16
DRD-77-F12						18			
DRD-100-F12	4	30	440	130	-	67.1	18	40	36
DRD-150-F14							370		
DRD-225-F14	4	30	480	130	-	96.5	26	50	46
DRD-375-F16	5	30	520	130		99	22		
DRD-575-F16	5	30	540	150	-	96.41	25	59	55
DRD-575-F25							25		
DRD-880-F25	5	30	700	175	-	136	25	79	75
DRD-880-F30							25		

Copar quarter turn actuators DRD

Technical data

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Ordering data – Without adjustable end position			
Part No.	Type	Part No.	Type
Size 1		Size 77	
189 781	DRD-1-F03	189 768	DRD-77-F10
		189 769	DRD-77-F12
Size 2		Size 100	
189 782	DRD-2-F03	189 770	DRD-100-F12
189 783	DRD-2-F04		
Size 4		Size 150	
189 784	DRD-4-F04	189 772	DRD-150-F14
189 785	DRD-4-F05		
Size 8		Size 225	
189 763	DRD-8-F05	189 774	DRD-225-F14
Size 14		Size 375	
189 764	DRD-14-F05	189 776	DRD-375-F16
Size 26		Size 575	
189 765	DRD-26-F07	189 777	DRD-575-F16
		189 778	DRD-575-F25
Size 50		Size 880	
189 766	DRD-50-F07	189 779	DRD-880-F25
189 767	DRD-50-F10	189 780	DRD-880-F30



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary date see

→ 4

Ordering data – With adjustable end position			
Part No.	Type	Part No.	Type
Size 8		Size 50	
560 518	DRD-8-F05-O	560 524	DRD-50-F07-O
		560 526	DRD-50-F10-O
Size 14		Size 77	
560 520	DRD-14-F05-O	560 528	DRD-77-F10-O
		560 530	DRD-77-F12-O
Size 26		Size 100	
560 522	DRD-26-F07-O	560 532	DRD-100-F12-O



Note


Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary date see

→ 4

Copar quarter turn actuators DRD

Technical data

Ordering data – Corrosion resistant		Ordering data – Corrosion resistant	
Part No.	Type	Part No.	Type
Size 1		Size 77	
189 835	DRD-1-F03-C	189 822	DRD-77-F10-C
		189 823	DRD-77-F12-C
Size 2		Size 100	
189 836	DRD-2-F03-C	189 824	DRD-100-F12-C
189 837	DRD-2-F04-C		
Size 4		Size 150	
189 838	DRD-4-F04-C	189 826	DRD-150-F14-C
189 839	DRD-4-F05-C		
Size 8		Size 225	
189 817	DRD-8-F05-C	189 828	DRD-225-F14-C
Size 14		Size 375	
189 818	DRD-14-F05-C	189 830	DRD-375-F16-C
Size 26		Size 575	
189 819	DRD-26-F07-C	189 831	DRD-575-F16-C
		189 832	DRD-575-F25-C
Size 50		Size 880	
189 820	DRD-50-F07-C	189 833	DRD-880-F25-C
189 821	DRD-50-F10-C	189 834	DRD-880-F30-C

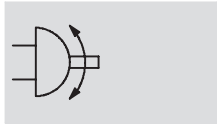
 Note
 Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary date see → 4

Copar quarter turn actuators DRE

FESTO

Technical data

Function



Swivel angle
0 ... 90°



Size
2 ... 880

Torque
2.5 ... 9 305 Nm

General technical data			
Size	2 ... 4	8 ... 100	150 ... 880
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$	
Design	Rack and pinion, single-acting		
Assembly position	Any		
Swivel angle [°]	90		
End-position adjusting range [°]	–	–4 ... +4	–
Closing direction	Spring force, closing		

Operating and environmental conditions			
Size	2 ... 4	8 ... 100	150 ... 880
Operating pressure ¹⁾ [bar]	2.5 ... 10		2 ... 10
Operating medium	Dried compressed air, lubricated or unlubricated		
Ambient temperature ²⁾³⁾ [°C]	–20 ... +80		
Corrosion resistance class CRC ⁴⁾	3		
Corrosion resistance class CRC ⁵⁾ for corrosion-resistant design	4		
CE marking (see declaration of conformity) → www.festo.com	–	Explosion protection directive 94/9/EC - ATEX	
ATEX specification	–	II 2 GD c X	
ATEX ambient temperature ³⁾	–	–20°C ≤ Ta ≤ +60°C	

1) Minimum operating pressures vary for single-acting quarter-turn actuators depending upon spring quantity

2) Further temperature ranges upon request

3) Note operating range of proximity sensors

4) Corrosion resistance class 3 according to Festo standard 940 070

Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface

5) Corrosion resistance class 4 according to Festo standard 940 070

Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required


Air consumption [l/cycle] at 6 bar			
Type		Type	
DRE-2	1.02	DRE-100	24
DRE-4	1.5	DRE-150	37.2
DRE-8	2.1	DRE-225	49.8
DRE-14	6	DRE-375	102
DRE-26	9.6	DRE-575	138
DRE-50	12	DRE-880	192
DRE-77	18		

Copar quarter turn actuators DRE

Technical data

Theoretical torque [Nm] at swivel angle 0° and 90° as a function of operating pressure [bar]								
Number of springs ¹⁾	Spring torque [Nm]	Md available	Operating pressure					
			3	4	5	6	7	8
Quarter turn actuators DRE-2								
6	2.7	min.	2.7	5.4	8.1	10.8	13.5	16.2
	5.4	max.	5.4	8.1	10.8	13.5	16.2	18.9
8	3.6	min.	0.9	3.6	6.3	9	11.7	14.4
	7.2	max.	4.5	7.2	9.9	12.6	15.3	18
10	4.5	min.	-	2.8	5.5	8.2	10.9	13.6
	8	max.	-	6.3	9	11.7	14.4	17.1
12	5.4	min.	-	-	2.7	5.4	8.1	10.8
	10.8	max.	-	-	8.1	10.8	13.5	16.2
14	8.3	min.	-	-	0.9	3.6	6.3	9
	12.6	max.	-	-	5.2	7.9	10.6	13.3
Quarter turn actuators DRE-4								
6	6.1	min.	6.4	12.6	18.8	25	31.2	37.4
	12.2	max.	12.5	18.7	24.9	31.1	37.3	43.5
8	8.2	min.	2.2	8.4	14.6	20.8	27	33.2
	16.4	max.	10.4	16.6	22.8	29	35.2	41.4
10	10.3	min.	-	4.2	10.4	16.6	22.8	29
	20.6	max.	-	14.5	20.7	26.9	33.1	39.3
12	12.3	min.	-	-	6.4	12.6	18.8	25
	24.6	max.	-	-	18.7	24.9	31.1	37.3
14	14.4	min.	-	-	2.2	8.4	14.6	20.8
	28.8	max.	-	-	16.6	22.8	29	35.2
Quarter turn actuators DRE-8								
6	12.3	min.	12.1	24.4	36.7	49.1	61.4	73.7
	24.9	max.	24.7	37	49.3	61.7	74	86.3
8	16.4	min.	3.8	16.1	28.4	40.8	53.1	65.4
	33.2	max.	20.6	32.9	45.2	57.6	69.9	82.2
10	20.5	min.	-	7.8	20.1	32.5	44.8	57.1
	41.5	max.	-	28.8	41.1	53.5	65.8	78.1
12	24.6	min.	-	-	11.8	24.2	36.5	48.8
	49.8	max.	-	-	37	49.4	61.7	74
14	28.7	min.	-	-	4.5	16.9	29.2	41.5
	57.1	max.	-	-	32.9	45.3	57.6	69.9

1) Smaller number of springs on request.

 - Note

The following minimum degrees of efficiency apply for all quarter turn actuators:

DR...-1 ... 4:	≥ 80%
DR...-8 ... 880:	≥ 90%


Copar quarter turn actuators DRE

Technical data

FESTO

Theoretical torque [Nm] at swivel angle 0° and 90° as a function of operating pressure [bar]								
Number of springs ¹⁾	Spring torque [Nm]	Md available	Operating pressure					
			3	4	5	6	7	8
Quarter turn actuators DRE-14								
6	24	min.	24	47	71	95	119	143
	48	max.	48	71	95	119	143	167
8	32	min.	8	31	55	79	103	127
	64	max.	40	63	87	111	135	159
10	40	min.	-	15	39	63	87	111
	80	max.	-	55	79	103	127	151
12	48	min.	-	-	23	47	71	95
	96	max.	-	-	71	95	119	143
14	56	min.	-	-	7	31	55	79
	112	max.	-	-	63	87	111	135
Quarter turn actuators DRE-26								
6	44	min.	44	88	133	177	221	275
	89	max.	89	133	178	222	266	320
8	58	min.	15	59	104	148	192	246
	118	max.	75	119	164	208	252	306
10	73	min.	-	29	74	118	162	216
	148	max.	-	104	149	193	237	291
12	88	min.	-	-	44	88	132	186
	178	max.	-	-	134	178	222	276
14	102	min.	-	-	15	59	103	157
	207	max.	-	-	120	164	208	262
Quarter turn actuators DRE-50								
6	80	min.	85	169	253	337	421	505
	168	max.	173	257	341	425	509	593
8	107	min.	29	113	197	281	365	449
	224	max.	146	230	314	398	482	556
10	134	min.	-	57	141	225	309	393
	280	max.	-	203	287	371	455	539
12	160	min.	-	-	85	169	253	337
	336	max.	-	-	261	345	429	513
14	187	min.	-	-	29	113	197	281
	392	max.	-	-	234	318	402	486

1) Smaller number of springs on request.

 Note

The following minimum degrees of efficiency apply for all quarter turn actuators:

DR...-1 ... 4:	≥ 80%
DR...-8 ... 880:	≥ 90%


Copar quarter turn actuators DRE

Technical data

FESTO

Theoretical torque [Nm] at swivel angle 0° and 90° as a function of operating pressure [bar]								
Number of springs ¹⁾	Spring torque [Nm]	Md available	Operating pressure					
			3	4	5	6	7	8
Quarter turn actuators DRE-77								
6	122	min.	132	260	389	517	645	773
	253	max.	263	391	520	648	776	904
8	162	min.	48	176	305	433	561	689
	337	max.	223	351	480	608	736	864
10	203	min.	-	91	220	348	476	604
	422	max.	-	310	439	567	695	823
12	244	min.	-	-	136	264	392	520
	506	max.	-	-	398	526	654	772
14	284	min.	-	-	52	180	308	436
	590	max.	-	-	358	486	614	742
Quarter turn actuators DRE-100								
6	160	min.	174	343	511	680	849	1,018
	332	max.	346	515	683	852	1,021	1,190
8	213	min.	63	232	400	569	738	907
	443	max.	293	462	630	799	968	1,137
10	267	min.	-	121	289	458	627	796
	554	max.	-	408	576	745	914	1,083
12	320	min.	-	-	178	347	516	685
	665	max.	-	-	523	692	861	1,030
14	373	min.	-	-	67	236	405	574
	767	max.	-	-	470	639	808	977
Quarter turn actuators DRE-150								
6	253	min.	252	505	758	1,011	1,264	1,517
	506	max.	505	758	1,011	1,264	1,517	1,770
8	337	min.	84	337	590	843	1,096	1,349
	674	max.	421	674	927	1,180	1,433	1,686
10	421	min.	-	168	421	674	927	1,180
	843	max.	-	590	843	1,096	1,349	1,602
12	506	min.	-	-	253	506	759	1,012
	1,011	max.	-	-	758	1,011	1,264	1,517
14	590	min.	-	-	84	337	590	843
	1,180	max.	-	-	674	927	1,180	1,433

1) Smaller number of springs on request.

 - Note

The following minimum degrees of efficiency apply for all quarter turn actuators:

DR...-1 ... 4:	≥ 80%
DR...-8 ... 880:	≥ 90%


Copar quarter turn actuators DRE

Technical data

FESTO

Theoretical torque [Nm] at swivel angle 0° and 90° as a function of operating pressure [bar]								
Number of springs ¹⁾	Spring torque [Nm]	Md available	Operating pressure					
			3	4	5	6	7	8
Quarter turn actuators DRE-225								
6	379	min.	382	761	1,140	1,519	1,898	2,277
	756	max.	759	1,138	1,517	1,896	2,275	2,654
8	506	min.	127	506	885	1,264	1,643	2,022
	1,011	max.	632	1,011	1,390	1,769	2,148	2,527
10	632	min.	–	253	632	1,011	1,390	1,769
	1,264	max.	–	885	1,264	1,643	2,022	2,401
12	758	min.	–	–	379	758	1,137	1,516
	1,517	max.	–	–	1,138	1,517	1,896	2,275
14	885	min.	–	–	127	506	885	1,264
	1,769	max.	–	–	1,011	1,390	1,769	2,148
Quarter turn actuators DRE-375								
6	632	min.	632	1,264	1,895	2,527	3,159	3,791
	1,264	max.	1,264	1,896	2,527	3,159	3,791	4,423
8	843	min.	211	843	1,474	2,106	2,738	3,370
	1,685	max.	1,053	1,685	2,316	2,948	3,580	4,212
10	1,053	min.	–	421	1,052	1,684	2,360	2,948
	2,107	max.	–	1,475	2,106	2,738	3,370	4,002
12	1,264	min.	–	–	631	1,263	1,895	2,527
	2,528	max.	–	–	1,895	2,527	3,159	3,791
14	1,475	min.	–	–	210	842	1,474	2,106
	2,949	max.	–	–	1,684	2,316	2,948	3,580
Quarter turn actuators DRE-575								
6	632	min.	1,615	2,575	3,535	4,494	5,454	6,413
	1,264	max.	2,247	3,207	4,167	5,126	6,086	7,045
9	948	min.	938	1,943	2,903	3,862	4,822	5,781
	1,896	max.	1,931	2,891	3,851	4,810	5,770	6,729
12	1,264	min.	351	1,311	2,271	3,230	4,190	5,149
	2,528	max.	1,615	2,575	3,535	4,494	5,454	6,413
15	1,580	min.	–	679	1,639	2,598	3,558	4,517
	3,160	max.	–	2,259	3,219	4,178	5,138	6,097
18	1,896	min.	–	–	1,007	1,966	2,926	3,885
	3,792	max.	–	–	2,903	3,862	4,822	5,781

1) Smaller number of springs on request.

 Note

The following minimum degrees of efficiency apply for all quarter turn actuators:


DR...-1 ... 4:	≥ 80%
DR...-8 ... 880:	≥ 90%

Copar quarter turn actuators DRE

Technical data

Theoretical torque [Nm] at swivel angle 0° and 90° as a function of operating pressure [bar]								
Number of springs ¹⁾	Spring torque [Nm]	Md available	Operating pressure					
			3	4	5	6	7	8
Quarter turn actuators DRE-880								
6	1,468	min.	1,470	2,939	4,408	5,877	7,346	8,815
	2,937	max.	2,939	4,408	5,877	7,346	8,815	10,284
8	1,958	min.	791	2,260	3,729	5,198	6,667	8,136
	3,616	max.	2,449	3,918	5,387	6,856	8,325	9,794
10	2,447	min.	–	982	2,451	3,920	5,389	6,858
	4,894	max.	–	3,429	4,898	6,367	7,836	9,305
12	2,937	min.	–	–	1,472	2,941	4,410	5,879
	5,873	max.	–	–	4,408	5,877	7,346	8,815
14	3,792	min.	–	–	493	1,962	3,431	4,900
	6,852	max.	–	–	3,553	5,022	6,491	7,960

1) Smaller number of springs on request.

 - Note

The following minimum degrees of efficiency apply for all quarter turn actuators:

DR...-1 ... 4:	≥ 80%
DR...-8 ... 880:	≥ 90%

Copar quarter turn actuators DRE

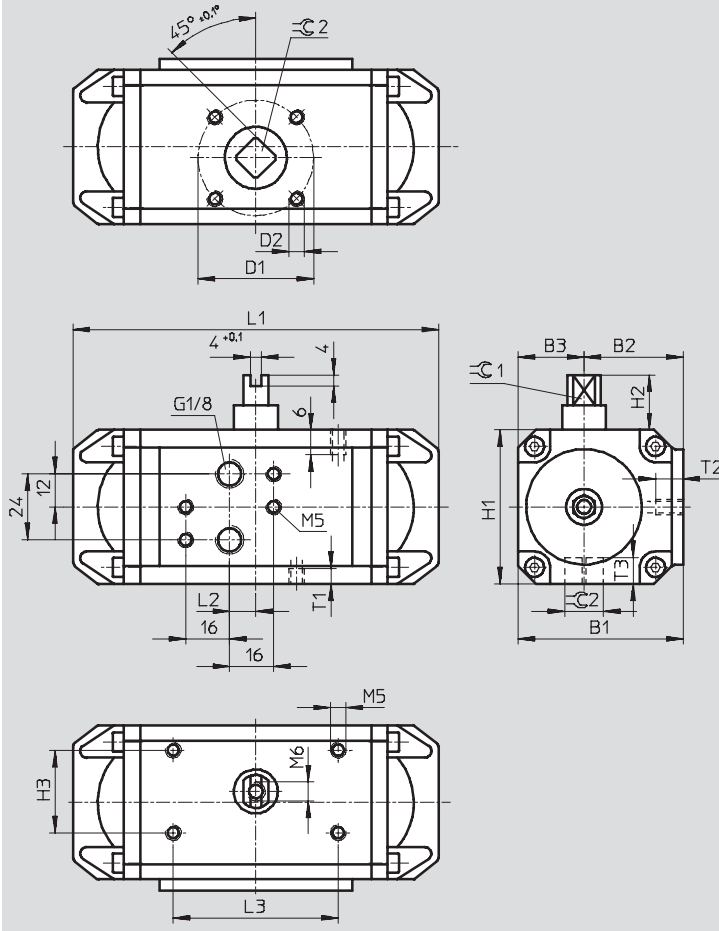
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Size 2 ... 4



Copar quarter turn actuators DRE

Technical data

Size	B1	B2	B3	D1	D2	H1	H2	H3
DRE-2-F04	60	34	26	42	M5	56	20	25
DRE-2-F03				36				
DRE-4-F05	71	38	33	50	M6	66	20	30
DRE-4-F04				42	M5			

Size	L1	L2	L3	T1 min.	T2	T3 +2	⊖C1 ±0.1	⊖C2 H11
DRE-2-F04	133	10	50	6	7	12	9	11
DRE-2-F03						10		9
DRE-4-F05	175	24	80	7	7	16	15	14
DRE-4-F04						12		11

Copar quarter turn actuators DRE

Technical data

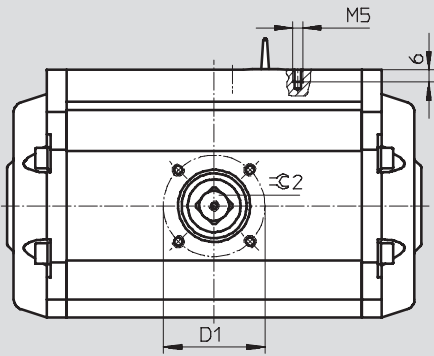
FESTO

Dimensions

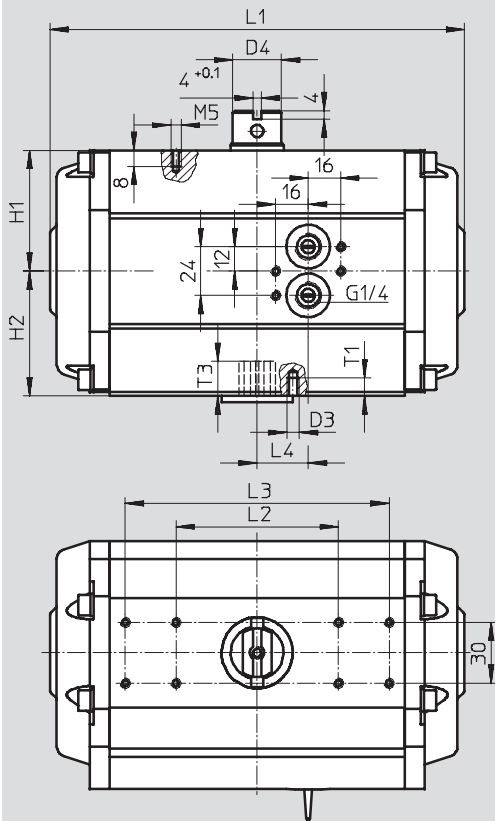
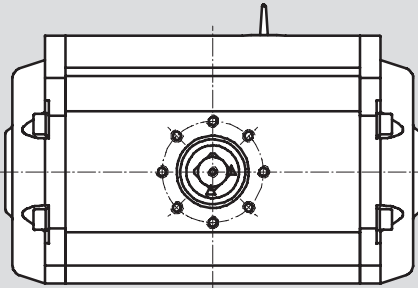
Size 8 ... 880

Download CAD data → www.festo.com

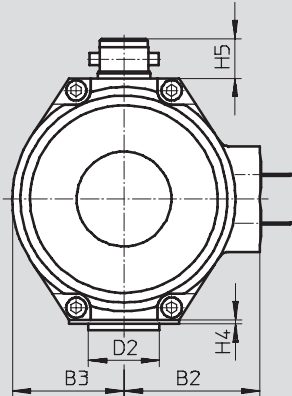
Flange hole pattern F05 ... F16



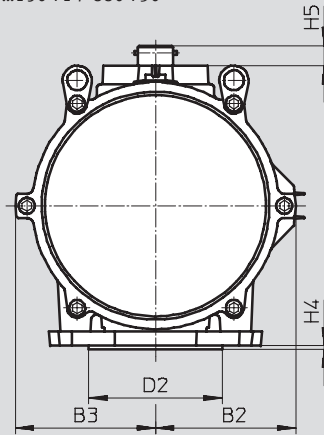
Flange hole pattern F25 ... F30



...8-F05 ... 100-F12



...150-F14 880-F30



Copar quarter turn actuators DRE

Technical data

FESTO

Size	B2	B3	D1 ∅	D2 ∅	D3 ∅	D4 ∅	H1	H2	H3
DRD-8-F05	52.5 \pm 1	41 \pm 1	50	35	M6	24	44.5 \pm 1.5	46.5 \pm 1	12
DRD-14-F05	67 \pm 1.5	55 \pm 1.5	50	35	M6	24	59.5 \pm 1.5	61.5 \pm 1	12
DRD-26-F07	79 \pm 2	67 \pm 2	70	55	M8	24	71.5 \pm 1.5	74.5 \pm 1.5	12
DRD-50-F07	94 \pm 2	78 \pm 2	70	55	M8	24	81.5 \pm 2.5	84.5 \pm 1.5	12
DRD-50-F10			102	70	M10	24			
DRD-77-F10	100 \pm 2	90 \pm 2	102	70	M10	24	94 \pm 3	98 \pm 2	12
DRD-77-F12			125	85	M12	24			
DRD-100-F12	114 \pm 2.5	102 \pm 2	125	85	M12	24	106.5 \pm 3	111.5 \pm 1.5	12
DRD-150-F14	140 \pm 3	136 \pm 2.5	140	100	M16	53	137 \pm 3	137 \pm 3	12
DRD-225-F14			140	100	M16	53	137	147 \pm 3	12
DRD-375-F16	177 \pm 3.5	175 \pm 3.5	165	130	M20	53	172 \pm 3.5	172 \pm 3.5	18
DRD-575-F16	210 \pm 4	210 \pm 4	165	130	M20	53	210 \pm 4	210 \pm 4	18
DRD-575-F25			254	200	M16	53			
DRD-880-F25	223.5 \pm 4.5	223.5 \pm 4.5	254	200	M16	53	225 \pm 4.5	225 \pm 4.5	18
DRD-880-F30			298	230	M20	53			

Size	H4 max.	H5 \pm 1	L1 max.	L2	L3	L4 \pm 1	T1	T3 +1	2 H11
DRD-8-F05	3	20	215	80	-	25.5	8.8	17	14
DRD-14-F05			220	80		25.15			
DRD-26-F07	3	20	280	80	130	32.25	12.5	21	17
DRD-50-F07			365	80	130	46.85	13		
DRD-50-F10	4	30	430	130	-	54.5	16	25	22
DRD-77-F10	4	30		440			130		
DRD-77-F12			18	30	500	130	18		
DRD-100-F12	4	30	610		130	67.1	26	40	36
DRD-150-F14			500	130	96.5	26			
DRD-225-F14	4	30	755	130	-	99	22	50	46
DRD-375-F16	5	30	760	150		96.41	25		
DRD-575-F16	5	30	920	175	-	136	25	59	55
DRD-575-F25							25		
DRD-880-F25	5	30	920	175	-	136	25	79	75
DRD-880-F30							25		

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – Without adjustable end position			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Type
Size 2			
189 840	DRE-2-F03-Q06-FS	189 906	DRE-2-F03-Q06-FO
189 841	DRE-2-F04-Q06-FS	189 907	DRE-2-F04-Q06-FO
189 842	DRE-2-F03-Q08-FS	189 908	DRE-2-F03-Q08-FO
189 843	DRE-2-F04-Q08-FS	189 909	DRE-2-F04-Q08-FO
189 900	DRE-2-F03-Q10-FS	189 910	DRE-2-F03-Q10-FO
189 901	DRE-2-F04-Q10-FS	189 911	DRE-2-F04-Q10-FO
189 902	DRE-2-F03-Q12-FS	189 912	DRE-2-F03-Q12-FO
189 903	DRE-2-F04-Q12-FS	189 913	DRE-2-F04-Q12-FO
189 904	DRE-2-F03-Q14-FS	189 914	DRE-2-F03-Q14-FO
189 905	DRE-2-F04-Q14-FS	189 915	DRE-2-F04-Q14-FO
Size 4			
189 956	DRE-4-F04-Q06-FS	189 966	DRE-4-F04-Q06-FO
189 957	DRE-4-F05-Q06-FS	189 967	DRE-4-F05-Q06-FO
189 958	DRE-4-F04-Q08-FS	189 968	DRE-4-F04-Q08-FO
189 959	DRE-4-F05-Q08-FS	189 969	DRE-4-F05-Q08-FO
189 960	DRE-4-F04-Q10-FS	189 970	DRE-4-F04-Q10-FO
189 961	DRE-4-F05-Q10-FS	189 971	DRE-4-F05-Q10-FO
189 962	DRE-4-F04-Q12-FS	189 972	DRE-4-F04-Q12-FO
189 963	DRE-4-F05-Q12-FS	189 973	DRE-4-F05-Q12-FO
189 964	DRE-4-F04-Q14-FS	189 974	DRE-4-F04-Q14-FO
189 965	DRE-4-F05-Q14-FS	189 975	DRE-4-F05-Q14-FO
Size 8			
190 017	DRE-8-F05-Q06-FS	190 022	DRE-8-F05-Q06-FO
190 018	DRE-8-F05-Q08-FS	190 023	DRE-8-F05-Q08-FO
190 019	DRE-8-F05-Q10-FS	190 024	DRE-8-F05-Q10-FO
190 020	DRE-8-F05-Q12-FS	190 025	DRE-8-F05-Q12-FO
190 021	DRE-8-F05-Q14-FS	190 026	DRE-8-F05-Q14-FO
Size 14			
190 057	DRE-14-F05-Q06-FS	190 062	DRE-14-F05-Q06-FO
190 058	DRE-14-F05-Q08-FS	190 063	DRE-14-F05-Q08-FO
190 059	DRE-14-F05-Q10-FS	190 064	DRE-14-F05-Q10-FO
190 060	DRE-14-F05-Q12-FS	190 065	DRE-14-F05-Q12-FO
190 061	DRE-14-F05-Q14-FS	190 066	DRE-14-F05-Q14-FO
Size 26			
190 097	DRE-26-F07-Q06-FS	190 102	DRE-26-F07-Q06-FO
190 098	DRE-26-F07-Q08-FS	190 103	DRE-26-F07-Q08-FO
190 099	DRE-26-F07-Q10-FS	190 104	DRE-26-F07-Q10-FO
190 100	DRE-26-F07-Q12-FS	190 105	DRE-26-F07-Q12-FO
190 101	DRE-26-F07-Q14-FS	190 106	DRE-26-F07-Q14-FO



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see


→ 4

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – Without adjustable end position			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Type
Size 50			
190 137	DRE-50-F07-Q06-FS	190 147	DRE-50-F07-Q06-FO
190 138	DRE-50-F10-Q06-FS	190 148	DRE-50-F10-Q06-FO
190 139	DRE-50-F07-Q08-FS	190 149	DRE-50-F07-Q08-FO
190 140	DRE-50-F10-Q08-FS	190 150	DRE-50-F10-Q08-FO
190 141	DRE-50-F07-Q10-FS	190 151	DRE-50-F07-Q10-FO
190 142	DRE-50-F10-Q10-FS	190 152	DRE-50-F10-Q10-FO
190 143	DRE-50-F07-Q12-FS	190 153	DRE-50-F07-Q12-FO
190 144	DRE-50-F10-Q12-FS	190 154	DRE-50-F10-Q12-FO
190 145	DRE-50-F07-Q14-FS	190 155	DRE-50-F07-Q14-FO
190 146	DRE-50-F10-Q14-FS	190 156	DRE-50-F10-Q14-FO
Size 77			
190 217	DRE-77-F10-Q06-FS	190 227	DRE-77-F10-Q06-FO
190 218	DRE-77-F12-Q06-FS	190 228	DRE-77-F12-Q06-FO
190 219	DRE-77-F10-Q08-FS	190 229	DRE-77-F10-Q08-FO
190 220	DRE-77-F12-Q08-FS	190 230	DRE-77-F12-Q08-FO
190 221	DRE-77-F10-Q10-FS	190 231	DRE-77-F10-Q10-FO
190 222	DRE-77-F12-Q10-FS	190 232	DRE-77-F12-Q10-FO
190 223	DRE-77-F10-Q12-FS	190 233	DRE-77-F10-Q12-FO
190 224	DRE-77-F12-Q12-FS	190 234	DRE-77-F12-Q12-FO
190 225	DRE-77-F10-Q14-FS	190 235	DRE-77-F10-Q14-FO
190 226	DRE-77-F12-Q14-FS	190 236	DRE-77-F12-Q14-FO
Size 100			
190 297	DRE-100-F12-Q06-FS	190 302	DRE-100-F12-Q06-FO
190 298	DRE-100-F12-Q08-FS	190 303	DRE-100-F12-Q08-FO
190 299	DRE-100-F12-Q10-FS	190 304	DRE-100-F12-Q10-FO
190 300	DRE-100-F12-Q12-FS	190 305	DRE-100-F12-Q12-FO
190 301	DRE-100-F12-Q14-FS	190 306	DRE-100-F12-Q14-FO
Size 150			
190 338	DRE-150-F14-Q06-FS	190 348	DRE-150-F14-Q06-FO
190 340	DRE-150-F14-Q08-FS	190 350	DRE-150-F14-Q08-FO
190 342	DRE-150-F14-Q10-FS	190 352	DRE-150-F14-Q10-FO
190 344	DRE-150-F14-Q12-FS	190 354	DRE-150-F14-Q12-FO
190 346	DRE-150-F14-Q14-FS	190 356	DRE-150-F14-Q14-FO

 Note
 Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see → 4

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – Without adjustable end position			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Type
Size 225			
190 398	DRE-225-F14-Q06-FS	190 408	DRE-225-F14-Q06-FO
190 400	DRE-225-F14-Q08-FS	190 410	DRE-225-F14-Q08-FO
190 402	DRE-225-F14-Q10-FS	190 412	DRE-225-F14-Q10-FO
190 404	DRE-225-F14-Q12-FS	190 414	DRE-225-F14-Q12-FO
190 406	DRE-225-F14-Q14-FS	190 416	DRE-225-F14-Q14-FO
Size 375			
190 458	DRE-375-F16-Q06-FS	190 468	DRE-375-F16-Q06-FO
190 460	DRE-375-F16-Q08-FS	190 470	DRE-375-F16-Q08-FO
190 462	DRE-375-F16-Q10-FS	190 472	DRE-375-F16-Q10-FO
190 464	DRE-375-F16-Q12-FS	190 474	DRE-375-F16-Q12-FO
190 466	DRE-375-F16-Q14-FS	190 476	DRE-375-F16-Q14-FO
Size 575			
190 517	DRE-575-F16-Q06-FS	190 527	DRE-575-F16-Q06-FO
190 518	DRE-575-F25-Q06-FS	190 528	DRE-575-F25-Q06-FO
190 519	DRE-575-F16-Q09-FS	190 529	DRE-575-F16-Q09-FO
190 520	DRE-575-F25-Q09-FS	190 530	DRE-575-F25-Q09-FO
190 521	DRE-575-F16-Q12-FS	190 531	DRE-575-F16-Q12-FO
190 522	DRE-575-F25-Q12-FS	190 532	DRE-575-F25-Q12-FO
190 523	DRE-575-F16-Q15-FS	190 533	DRE-575-F16-Q15-FO
190 524	DRE-575-F25-Q15-FS	190 534	DRE-575-F25-Q15-FO
190 525	DRE-575-F16-Q18-FS	190 535	DRE-575-F16-Q18-FO
190 526	DRE-575-F25-Q18-FS	190 536	DRE-575-F25-Q18-FO
Size 880			
189 719	DRE-880-F25-Q06-FS	189 729	DRE-880-F25-Q06-FO
189 720	DRE-880-F30-Q06-FS	189 730	DRE-880-F30-Q06-FO
189 721	DRE-880-F25-Q08-FS	189 731	DRE-880-F25-Q08-FO
189 722	DRE-880-F30-Q08-FS	189 732	DRE-880-F30-Q08-FO
189 723	DRE-880-F25-Q10-FS	189 733	DRE-880-F25-Q10-FO
189 724	DRE-880-F30-Q10-FS	189 734	DRE-880-F30-Q10-FO
189 725	DRE-880-F25-Q12-FS	189 735	DRE-880-F25-Q12-FO
189 726	DRE-880-F30-Q12-FS	189 736	DRE-880-F30-Q12-FO
189 727	DRE-880-F25-Q14-FS	189 737	DRE-880-F25-Q14-FO
189 728	DRE-880-F30-Q14-FS	189 738	DRE-880-F30-Q14-FO



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see

→ 4

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – With adjustable end position			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Typ
Size 8			
190 027	DRE-8-F05-Q06-FS-O	190 032	DRE-8-F05-Q06-FO-O
190 028	DRE-8-F05-Q08-FS-O	190 033	DRE-8-F05-Q08-FO-O
190 029	DRE-8-F05-Q10-FS-O	190 034	DRE-8-F05-Q10-FO-O
190 030	DRE-8-F05-Q12-FS-O	190 035	DRE-8-F05-Q12-FO-O
190 031	DRE-8-F05-Q14-FS-O	190 036	DRE-8-F05-Q14-FO-O
Size 14			
190 067	DRE-14-F05-Q06-FS-O	190 072	DRE-14-F05-Q06-FO-O
190 068	DRE-14-F05-Q08-FS-O	190 073	DRE-14-F05-Q08-FO-O
190 069	DRE-14-F05-Q10-FS-O	190 074	DRE-14-F05-Q10-FO-O
190 070	DRE-14-F05-Q12-FS-O	190 075	DRE-14-F05-Q12-FO-O
190 071	DRE-14-F05-Q14-FS-O	190 076	DRE-14-F05-Q14-FO-O
Size 26			
561 881	DRE-26-F07-Q06-FS-O	561 886	DRE-26-F07-Q06-FO-O
561 882	DRE-26-F07-Q08-FS-O	561 887	DRE-26-F07-Q08-FO-O
561 883	DRE-26-F07-Q10-FS-O	561 888	DRE-26-F07-Q10-FO-O
561 884	DRE-26-F07-Q12-FS-O	561 889	DRE-26-F07-Q12-FO-O
561 885	DRE-26-F07-Q14-FS-O	561 890	DRE-26-F07-Q14-FO-O
Size 50			
561 901	DRE-50-F07-Q06-FS-O	561 911	DRE-50-F07-Q06-FO-O
561 902	DRE-50-F10-Q06-FS-O	561 912	DRE-50-F10-Q06-FO-O
561 903	DRE-50-F07-Q08-FS-O	561 913	DRE-50-F07-Q08-FO-O
561 904	DRE-50-F10-Q08-FS-O	561 914	DRE-50-F10-Q08-FO-O
561 905	DRE-50-F07-Q10-FS-O	561 915	DRE-50-F07-Q10-FO-O
561 906	DRE-50-F10-Q10-FS-O	561 916	DRE-50-F10-Q10-FO-O
561 907	DRE-50-F07-Q12-FS-O	561 917	DRE-50-F07-Q12-FO-O
561 908	DRE-50-F10-Q12-FS-O	561 918	DRE-50-F10-Q12-FO-O
561 909	DRE-50-F07-Q14-FS-O	561 919	DRE-50-F07-Q14-FO-O
561 910	DRE-50-F10-Q14-FS-O	561 920	DRE-50-F10-Q14-FO-O
Size 77			
561 941	DRE-77-F10-Q06-FS-O	561 951	DRE-77-F10-Q06-FO-O
561 942	DRE-77-F12-Q06-FS-O	561 952	DRE-77-F12-Q06-FO-O
561 943	DRE-77-F10-Q08-FS-O	561 953	DRE-77-F10-Q08-FO-O
561 944	DRE-77-F12-Q08-FS-O	561 954	DRE-77-F12-Q08-FO-O
561 945	DRE-77-F10-Q10-FS-O	561 955	DRE-77-F10-Q10-FO-O
561 946	DRE-77-F12-Q10-FS-O	561 956	DRE-77-F12-Q10-FO-O
561 947	DRE-77-F10-Q12-FS-O	561 957	DRE-77-F10-Q12-FO-O
561 948	DRE-77-F12-Q12-FS-O	561 958	DRE-77-F12-Q12-FO-O
561 949	DRE-77-F10-Q14-FS-O	561 959	DRE-77-F10-Q14-FO-O
561 950	DRE-77-F12-Q14-FS-O	561 960	DRE-77-F12-Q14-FO-O
Size 100			
561 981	DRE-100-F12-Q06-FS-O	561 986	DRE-100-F12-Q06-FO-O
561 982	DRE-100-F12-Q08-FS-O	561 987	DRE-100-F12-Q08-FO-O
561 983	DRE-100-F12-Q10-FS-O	561 988	DRE-100-F12-Q10-FO-O
561 984	DRE-100-F12-Q12-FS-O	561 989	DRE-100-F12-Q12-FO-O
561 985	DRE-100-F12-Q14-FS-O	561 990	DRE-100-F12-Q14-FO-O



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see

→ 4

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – Corrosion resistant			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Type
Size 2			
189 936	DRE-2-F03-Q06-FS-C	189 946	DRE-2-F03-Q06-FO-C
189 937	DRE-2-F04-Q06-FS-C	189 947	DRE-2-F04-Q06-FO-C
189 938	DRE-2-F03-Q08-FS-C	189 948	DRE-2-F03-Q08-FO-C
189 939	DRE-2-F04-Q08-FS-C	189 949	DRE-2-F04-Q08-FO-C
189 940	DRE-2-F03-Q10-FS-C	189 950	DRE-2-F03-Q10-FO-C
189 941	DRE-2-F04-Q10-FS-C	189 951	DRE-2-F04-Q10-FO-C
189 942	DRE-2-F03-Q12-FS-C	189 952	DRE-2-F03-Q12-FO-C
189 943	DRE-2-F04-Q12-FS-C	189 953	DRE-2-F04-Q12-FO-C
189 944	DRE-2-F03-Q14-FS-C	189 954	DRE-2-F03-Q14-FO-C
189 945	DRE-2-F04-Q14-FS-C	189 955	DRE-2-F04-Q14-FO-C
Size 4			
189 997	DRE-4-F04-Q06-FS-C	190 007	DRE-4-F04-Q06-FO-C
189 998	DRE-4-F05-Q06-FS-C	190 008	DRE-4-F05-Q06-FO-C
189 999	DRE-4-F04-Q08-FS-C	190 009	DRE-4-F04-Q08-FO-C
190 000	DRE-4-F05-Q08-FS-C	190 010	DRE-4-F05-Q08-FO-C
190 001	DRE-4-F04-Q10-FS-C	190 011	DRE-4-F04-Q10-FO-C
190 002	DRE-4-F05-Q10-FS-C	190 012	DRE-4-F05-Q10-FO-C
190 003	DRE-4-F04-Q12-FS-C	190 013	DRE-4-F04-Q12-FO-C
190 004	DRE-4-F05-Q12-FS-C	190 014	DRE-4-F05-Q12-FO-C
190 005	DRE-4-F04-Q14-FS-C	190 015	DRE-4-F04-Q14-FO-C
190 006	DRE-4-F05-Q14-FS-C	190 016	DRE-4-F05-Q14-FO-C
Size 8			
190 047	DRE-8-F05-Q06-FS-C	190 052	DRE-8-F05-Q06-FO-C
190 048	DRE-8-F05-Q08-FS-C	190 053	DRE-8-F05-Q08-FO-C
190 049	DRE-8-F05-Q10-FS-C	190 054	DRE-8-F05-Q10-FO-C
190 050	DRE-8-F05-Q12-FS-C	190 055	DRE-8-F05-Q12-FO-C
190 051	DRE-8-F05-Q14-FS-C	190 056	DRE-8-F05-Q14-FO-C
Size 14			
190 087	DRE-14-F05-Q06-FS-C	190 092	DRE-14-F05-Q06-FO-C
190 088	DRE-14-F05-Q08-FS-C	190 093	DRE-14-F05-Q08-FO-C
190 089	DRE-14-F05-Q10-FS-C	190 094	DRE-14-F05-Q10-FO-C
190 090	DRE-14-F05-Q12-FS-C	190 095	DRE-14-F05-Q12-FO-C
190 091	DRE-14-F05-Q14-FS-C	190 096	DRE-14-F05-Q14-FO-C
Size 26			
190 127	DRE-26-F07-Q06-FS-C	190 132	DRE-26-F07-Q06-FO-C
190 128	DRE-26-F07-Q08-FS-C	190 133	DRE-26-F07-Q08-FO-C
190 129	DRE-26-F07-Q10-FS-C	190 134	DRE-26-F07-Q10-FO-C
190 130	DRE-26-F07-Q12-FS-C	190 135	DRE-26-F07-Q12-FO-C
190 131	DRE-26-F07-Q14-FS-C	190 136	DRE-26-F07-Q14-FO-C



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see

→ 4

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – Corrosion resistant			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Type
Size 50			
190 197	DRE-50-F07-Q06-FS-C	190 207	DRE-50-F07-Q06-FO-C
190 198	DRE-50-F10-Q06-FS-C	190 208	DRE-50-F10-Q06-FO-C
190 199	DRE-50-F07-Q08-FS-C	190 209	DRE-50-F07-Q08-FO-C
190 200	DRE-50-F10-Q08-FS-C	190 210	DRE-50-F10-Q08-FO-C
190 201	DRE-50-F07-Q10-FS-C	190 211	DRE-50-F07-Q10-FO-C
190 202	DRE-50-F10-Q10-FS-C	190 212	DRE-50-F10-Q10-FO-C
190 203	DRE-50-F07-Q12-FS-C	190 213	DRE-50-F07-Q12-FO-C
190 204	DRE-50-F10-Q12-FS-C	190 214	DRE-50-F10-Q12-FO-C
190 205	DRE-50-F07-Q14-FS-C	190 215	DRE-50-F07-Q14-FO-C
190 206	DRE-50-F10-Q14-FS-C	190 216	DRE-50-F10-Q14-FO-C
Size 77			
190 277	DRE-77-F10-Q06-FS-C	190 287	DRE-77-F10-Q06-FO-C
190 278	DRE-77-F12-Q06-FS-C	190 288	DRE-77-F12-Q06-FO-C
190 279	DRE-77-F10-Q08-FS-C	190 289	DRE-77-F10-Q08-FO-C
190 280	DRE-77-F12-Q08-FS-C	190 290	DRE-77-F12-Q08-FO-C
190 281	DRE-77-F10-Q10-FS-C	190 291	DRE-77-F10-Q10-FO-C
190 282	DRE-77-F12-Q10-FS-C	190 292	DRE-77-F12-Q10-FO-C
190 283	DRE-77-F10-Q12-FS-C	190 293	DRE-77-F10-Q12-FO-C
190 284	DRE-77-F12-Q12-FS-C	190 294	DRE-77-F12-Q12-FO-C
190 285	DRE-77-F10-Q14-FS-C	190 295	DRE-77-F10-Q14-FO-C
190 286	DRE-77-F12-Q14-FS-C	190 296	DRE-77-F12-Q14-FO-C
Size 100			
190 327	DRE-100-F12-Q06-FS-C	190 332	DRE-100-F12-Q06-FO-C
190 328	DRE-100-F12-Q08-FS-C	190 333	DRE-100-F12-Q08-FO-C
190 329	DRE-100-F12-Q10-FS-C	190 334	DRE-100-F12-Q10-FO-C
190 330	DRE-100-F12-Q12-FS-C	190 335	DRE-100-F12-Q12-FO-C
190 331	DRE-100-F12-Q14-FS-C	190 336	DRE-100-F12-Q14-FO-C
Size 150			
190 378	DRE-150-F14-Q06-FS-C	190 388	DRE-150-F14-Q06-FO-C
190 380	DRE-150-F14-Q08-FS-C	190 390	DRE-150-F14-Q08-FO-C
190 382	DRE-150-F14-Q10-FS-C	190 392	DRE-150-F14-Q10-FO-C
190 384	DRE-150-F14-Q12-FS-C	190 394	DRE-150-F14-Q12-FO-C
190 386	DRE-150-F14-Q14-FS-C	190 396	DRE-150-F14-Q14-FO-C



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see

→ 4

Copar quarter turn actuators DRE

Technical data

FESTO

Ordering data – Corrosion resistant			
Spring-force closing		Spring-force opening	
Part No.	Type	Part No.	Type
Size 225			
190 438	DRE-225-F14-Q06-FS-C	190 448	DRE-225-F14-Q06-FO-C
190 440	DRE-225-F14-Q08-FS-C	190 450	DRE-225-F14-Q08-FO-C
190 442	DRE-225-F14-Q10-FS-C	190 452	DRE-225-F14-Q10-FO-C
190 444	DRE-225-F14-Q12-FS-C	190 454	DRE-225-F14-Q12-FO-C
190 446	DRE-225-F14-Q14-FS-C	190 456	DRE-225-F14-Q14-FO-C
Size 375			
190 498	DRE-375-F16-Q06-FS-C	190 508	DRE-375-F16-Q06-FO-C
190 500	DRE-375-F16-Q08-FS-C	190 510	DRE-375-F16-Q08-FO-C
190 502	DRE-375-F16-Q10-FS-C	190 512	DRE-375-F16-Q10-FO-C
190 504	DRE-375-F16-Q12-FS-C	190 514	DRE-375-F16-Q12-FO-C
190 506	DRE-375-F16-Q14-FS-C	190 516	DRE-375-F16-Q14-FO-C
Size 575			
189 699	DRE-575-F16-Q06-FS-C	189 709	DRE-575-F16-Q06-FO-C
189 700	DRE-575-F25-Q06-FS-C	189 710	DRE-575-F25-Q06-FO-C
189 701	DRE-575-F16-Q08-FS-C	189 711	DRE-575-F16-Q09-FO-C
189 702	DRE-575-F25-Q08-FS-C	189 712	DRE-575-F25-Q09-FO-C
189 703	DRE-575-F16-Q10-FS-C	189 713	DRE-575-F16-Q12-FO-C
189 704	DRE-575-F25-Q10-FS-C	189 714	DRE-575-F25-Q12-FS-C
189 705	DRE-575-F16-Q12-FS-C	189 715	DRE-575-F16-Q15-FS-C
189 706	DRE-575-F25-Q12-FS-C	189 716	DRE-575-F25-Q15-FO-C
189 707	DRE-575-F16-Q14-FS-C	189 717	DRE-575-F16-Q18-FO-C
189 708	DRE-575-F25-Q14-FS-C	189 718	DRE-575-F25-Q18-FO-C
Size 880			
189 759	DRE-880-F25-Q06-FS-C	189 850	DRE-880-F25-Q06-FO-C
189 760	DRE-880-F30-Q06-FS-C	189 851	DRE-880-F30-Q06-FO-C
189 761	DRE-880-F25-Q08-FS-C	189 852	DRE-880-F25-Q08-FO-C
189 762	DRE-880-F30-Q08-FS-C	189 853	DRE-880-F30-Q08-FO-C
189 844	DRE-880-F25-Q10-FS-C	189 854	DRE-880-F25-Q10-FO-C
189 845	DRE-880-F30-Q10-FS-C	189 855	DRE-880-F30-Q10-FO-C
189 846	DRE-880-F25-Q12-FS-C	189 856	DRE-880-F25-Q12-FO-C
189 847	DRE-880-F30-Q12-FS-C	189 857	DRE-880-F30-Q12-FO-C
189 848	DRE-880-F25-Q14-FS-C	189 858	DRE-880-F25-Q14-FO-C
189 849	DRE-880-F30-Q14-FS-C	189 859	DRE-880-F30-Q14-FO-C



Note

Should a quarter turn actuator be required with options that exceed these, then the appropriate order code needs to be established. There is no part number for this order code; for the necessary data see

→ 4

Copar quarter turn actuators DRD/DRE

Accessories

FESTO

Stop DADP

Based/complies with standard VDI/VDE 3845 (Namur)

Scope of delivery:

1 stop

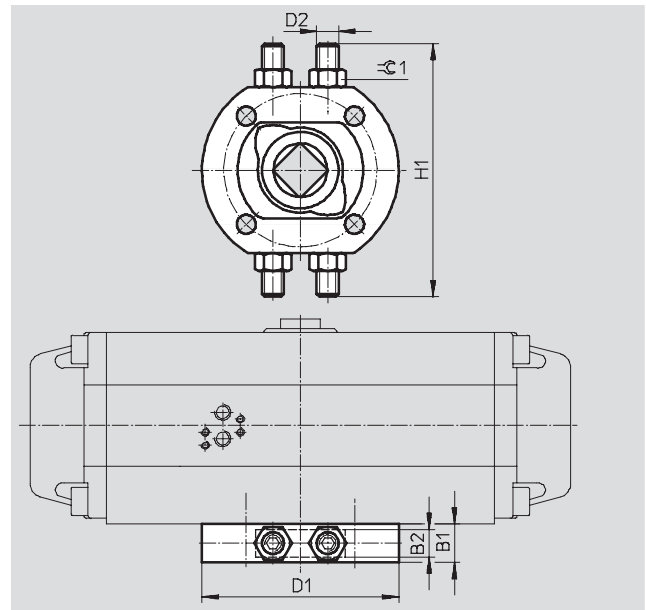
Material:

Housing, plate: Nickel plated steel

Nut, screws: Galvanised steel

Bearing: Polyacetal

Free of copper, PTFE and silicone



Dimensions and ordering data

Size	Flange hole pattern	B1	B2	D1 \varnothing	D2	H1	$\varnothing 1$	CRC ¹⁾	Weight [g]	Part No.	Type
150, 225	F14	35	25	180	M20	232	30	2	5,000	539 930	DADP-F14
375, 575	F16	45	35	200	M24	256	36	2	8,000	539 931	DADP-F16
575, 880	F25	60	50	300	M30	344	46	2	23,500	539 932	DADP-F25

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.