DelVal Series 25 Pneumatic Scotch Yoke Actuator

The DelVal DelTorq Series 25 is a pneumatic scotch yoke actuator for larger quarter-turn valves, with rated torque to 240,101 in-lb (27,128 Nm) and a spring cartridge that allows conversion from double acting to spring return.



Key data	
Rated torque	To 240,101 in-lb (27,128 Nm)
Configuration	DA to SR conversion by changing cylinder and spring cartridge assembly
Mounting	Hollow drive with universal adapter insert
Certifications	ATEX 2014/34/EU, SIL3

Standards and specifications

Operating conditions and standards

Item	Detail
Standard Working Temperature	-20°C to +80°C (with Nitrile O-ring)
Low Temperatures	-40°C to +150°C (Optional with Silicone O-ring)
High Temperatures	-20°C to +180°C (Optional with Viton O-ring)
Maximum Working Pressure	9 bar
Operating Media	Clean dry air, nitrogen, non-corrosive gas or sweet gas
Supply Pressure	3 to 9 bar
Rotation	0 +/-5° to 90 +/-5°
Top Accessories Mounting Interface	VDI/VDE 3845
Valve Mounting Interface	ISO 5211
Housing Ingress Protection	IEC 60529 IP 67
Housing Surface Coating	Epoxy coated blue (RAL 5010)

Dimensions and weights

Weights are approximate.

Model 250, dimensions (mm)

Model	A	B / DA	B / SR 40	B / SR 60	B / SR 80	B / SR 100	C	D	P
250-06	430	430	607	607	624	666	173	230	3/8" NPT
250-07	425	425	616	616	642	678	200	244	3/8" NPT
250-08	440	440	613	613	690	697	228	256	1/2" NPT
250-10	455	455	644	655	662	716	283	281	1/2" NPT

Model 250, approximate weight (kg)

Model	DA	SR 40	SR 60	SR 80	SR 100
250-06	55	62	65	70	78
250-07	65	77	80	85	90
250-08	75	92	95	100	116
250-10	115	142	145	150	152

Model 350, dimensions (mm)

Model	A	B / DA	B / SR 40	B / SR 60	B / SR 80	B / SR 100	C	D	P
350-10	610.0	610.0	805	894	974	1035	275	401.5	1/2" NPT
350-12	620.0	620.0	805	894	975	1035	354	441.0	3/4" NPT
350-14	632.5	632.5	805	894	974	1035	396	462.0	3/4" NPT

Model 350, approximate weight (kg)

Model	DA	SR 40	SR 60	SR 80	SR 100
350-10	315	375	400	430	470
350-12	320	390	420	455	485
350-14	330	395	442	480	520

Model 500, dimensions (mm)

Model	A	B / DA	B / SR 40	B / SR 60	B / SR 80	B / SR 100	C	D	P
500-12	830	830	1120	1227	1352	1437	350	535	3/4" NPT
500-14	850	850	1122	1246	1360	1421	396	558	3/4" NPT
500-16	850	850	1142	1245	1365	1475	420	585	3/4" NPT
500-18	900	900	1180	1255	1370	1500	500	610	3/4" NPT
500-20	900	900	1365	1365	Consult UEC	Consult UEC	550	675	3/4" NPT
500-22	900	900	1375	Consult UEC	Consult UEC	Consult UEC	600	700	3/4" NPT

Model 500, approximate weight (kg)

Model	DA	SR 40	SR 60	SR 80	SR 100
500-12	580	667	675	720	770
500-14	605	744	755	805	849
500-16	644	817	829	890	940
500-18	683	907	920	988	1043
500-20	724	1007	1021	Consult UEC	Consult UEC
500-22	767	1117	Consult UEC	Consult UEC	Consult UEC

Key to dimension letters

Item	Detail
A	Actuator centreline to outer end, cylinder side
B	Actuator centreline to outer end, opposite side (varies with DA or spring set)
C	End plate square size
D	Overall width (end view)
P	Air connection port size

Torque output and performance

Model 250, spring return (Nm)

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
250-06	PB	556	834	1112	1389
250-06	PE	309	463	617	771
250-06	SB	531	797	1063	1328
250-06	SE	295	442	590	737
250-06	RUN	222	334	445	556
250-07	PB	762	1143	1524	1905
250-07	PE	423	635	846	1058
250-07	SB	729	1093	1457	1821
250-07	SE	405	607	809	1011
250-07	RUN	305	458	610	763
250-08	PB	991	1487	1983	2478
250-08	PE	550	826	1101	1376
250-08	SB	on request	1421	1895	2369
250-08	SE	526	789	1052	1315
250-08	RUN	397	595	794	992
250-10	PB	1552	2328	3104	3880
250-10	PE	862	1293	1723	2154
250-10	SB	1484	2225	2967	3709
250-10	SE	824	1236	1647	2059
250-10	RUN	621	932	1242	1553

Actual torque are in the range of ±5° of the above value. In-between torque values are to be interpolated.
PB = Pneumatic Break, PE = Pneumatic End, SB = Spring Break, SE = Spring End.

Model 250, double acting (Nm)

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
250-06	Break	826	1239	1652	2066
250-06	Run	540	810	1080	1351
250-07	Break	1133	1700	2266	2833
250-07	Run	741	1111	1482	1852
250-08	Break	1474	2211	2947	3684
250-08	Run	964	1445	1927	2409
250-10	Break	2307	3461	4614	N.A.
250-10	Run	1509	2263	3017	N.A.

Actual torque are in the range of ±5° of the above value. In-between torque values are to be interpolated.

Model 250, air volume at 1 bar (cm³)

Model	Open / close
250-06	6252
250-07	8571
250-08	11247
250-10	17669

For spring return actuator refer volume as mentioned in the table and for double acting multiply values by 2. Air consumption = Volume (cm³) x air supply pressure in bar i.e. 250-10-DA at 4 bar = 17669 x 4 x 2 =141352 cm³ 250-10-SR at 4 bar = 17669 x 4 = 70676 cm³.

Model 350, spring return (Nm)

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
350-10	PB	2200	3300	4399	5499
350-10	PE	1221	1832	2443	3053
350-10	SB	2103	3154	4205	5257
350-10	SE	1167	1751	2335	2919
350-10	RUN	880	1321	1761	2201
350-12	PB	3298	4947	6595	8244
350-12	PE	1831	2746	3662	4577
350-12	SB	3152	4728	6304	7881
350-12	SE	1750	2625	3500	4375
350-12	RUN	1320	1980	2640	3300
350-14	PB	4468	6702	8936	11170
350-14	PE	2481	3721	4961	6202
350-14	SB	4271	6406	8542	10677
350-14	SE	2371	3557	4742	5928
350-14	RUN	1788	2682	3576	4471

Actual torque are in the range of ±5° of the above value. In-between torque values are to be interpolated.
PB = Pneumatic Break, PE = Pneumatic End, SB = Spring Break, SE = Spring End.

Model 350, double acting (Nm)

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
350-10	Break	3270	4905	6540	8175
350-10	Run	2138	3207	4276	5345
350-12	Break	4902	7354	9805	12256
350-12	Run	3205	4808	6411	8013
350-14	Break	6642	9963	13284	N.A.
350-14	Run	4343	6514	8686	N.A.

Actual torque are in the range of ±5° of the above value. In-between torque values are to be interpolated.

Model 350, air volume at 1 bar (cm³)

Model	Open / close
350-10	18332
350-12	26583
350-14	36333

For spring return actuator refer volume as mentioned in the table and for double acting multiply values by 2. Air consumption = Volume (cm³) x air supply pressure in bar i.e. 350-10-DA at 4 bar =18332 x 4 x 2 = 146656 cm³ 350-10-SR at 4 bar = 18332 x 4 = 73328 cm³.

Model 500, spring return (Nm)

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
500-12	PB	4763	7145	9527	11908
500-12	PE	2645	3967	5289	6612
500-12	SB	4553	6830	9106	11383
500-12	SE	2528	3792	5056	6320
500-12	RUN	1906	2860	3813	4766
500-14	PB	6454	9681	on request	16134
500-14	PE	3583	5375	7166	8958
500-14	SB	6169	9253	12338	15422
500-14	SE	3425	5138	6850	8563
500-14	RUN	2583	3875	5166	6458
500-16	PB	8388	12582	16776	20970
500-16	PE	4657	6986	9314	11643
500-16	SB	8018	12027	16036	20045
500-16	SE	4452	6678	8903	11129

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
500-16	RUN	3357	5036	6714	8393
500-18	PB	10376	14429	20185	25943
500-18	PE	5939	7772	11310	13832
500-18	SB	9977	14966	19954	25959
500-18	SE	5540	8309	11079	13848
500-18	RUN	4197	6295	8393	10491
500-20	PB	12950	19136	Consult UEC	Consult UEC
500-20	PE	7600	12000	Consult UEC	Consult UEC
500-20	SB	12027	16036	Consult UEC	Consult UEC
500-20	SE	6678	8903	Consult UEC	Consult UEC
500-20	RUN	5059	6745	Consult UEC	Consult UEC
500-22	PB	14672	Consult UEC	Consult UEC	Consult UEC
500-22	PE	7527	Consult UEC	Consult UEC	Consult UEC
500-22	SB	16036	Consult UEC	Consult UEC	Consult UEC
500-22	SE	8903	Consult UEC	Consult UEC	Consult UEC
500-22	RUN	6745	Consult UEC	Consult UEC	Consult UEC

Actual torque are in the range of ±5° of the above value. In-between torque values are to be interpolated.
PB = Pneumatic Break, PE = Pneumatic End, SB = Spring Break, SE = Spring End.

Model 500, double acting (Nm)

Model	Type	2.8 bar (SR 40)	4.0 bar (SR 60)	5.5 bar (SR 80)	7.0 bar (SR 100)
500-12	Break	7081	10622	14162	17703
500-12	Run	4630	6945	9260	11575
500-14	Break	9594	14391	19188	23985
500-14	Run	6273	9410	12546	15683
500-16	Break	12470	18705	24939	31174
500-16	Run	8153	12230	16307	20383
500-18	Break	15916	22740	31264	39791
500-18	Run	10406	14868	20442	26017
500-20	Break	19411	27731	38130	Consult UEC
500-20	Run	12695	18137	24938	Consult UEC
500-22	Break	23589	33698	46335	Consult UEC
500-22	Run	15428	22039	30304	Consult UEC

Actual torque are in the range of ±5° of the above value. In-between torque values are to be interpolated.

Model 500, air volume at 1 bar (cm³)

Model	Open / close
500-12	50709
500-14	69155
500-16	90440
500-18	114568
500-20	141523
500-22	171321

For spring return actuator refer volume as mentioned in the table and for double acting multiply values by 2. Air consumption = Volume (cm³) x air supply pressure in bar i.e. 500-12-DA at 4 bar = 50709 x 4 x 2 = 405672 cm³ 500-12-SR at 4 bar = 50709 x 4 = 202836 cm³.

Materials of construction

Part list

Item	Description	*Standard Material
01	Bottom Housing	Ductile Iron Gr. 100-70-03
02	Housing Top Cover	Ductile Iron Gr. 100-70-03
03	Yoke	17-4ph - 2.5" Yoke & DI 3.5" & 5"
04	Piston Rod	En24 Chrome Plated
05	Piston	Ductile Iron Gr. 100-70-03
06	Yoke Pin	En24 (Full Hardened)
****07**	Yoke Pin Roller	AB2 (Aluminum Bronze)
08	Cylinder	Carbon Steel
09	Cylinder Spring side	Carbon Steel
10	Cylinder/Spring Side Adpt. Plate	Ductile Iron Gr. 100-70-03
11	Cylinder Side End Plate	Ductile Iron Gr. 100-70-03
12	Spring Side End Plate	Ductile Iron Gr. 100-70-03
13	Outer Spring	50CRV4 (Powder Coated)
14	Inner Spring	50CRV4 (Powder Coated)
15	Spring Guide Cup	Ductile Iron Gr. 100-70-03
16	Spring Cartridge Mounting Rod	HTS Gr. 10.9
16A	Spring Mounting Rod Nut	HTS Gr. 10.9
17	Yoke Mounted Indication Plate	En8 (Black Passivated)
****18**	Piston Rod Bearing	Ph Bronze
****19**	Steel Backup Bearing	DU (Steel + PTFE)
****20**	Steel Backup Bearing (Top cover)	DU (Steel + PTFE)
****21**	Housing/Top Cover Gasket	Champion AF 159
****22**	Housing End Gasket	Champion AF 159
****23**	Yoke Indication Plate Gasket	Champion AF 159
****24**	O-Ring	NBR (Nitrile)
****25**	O-Ring	NBR (Nitrile)
****26**	O-Ring	NBR (Nitrile)
****27**	O-Ring	NBR (Nitrile)
****28**	O-Ring	NBR (Nitrile)
****29**	O-Ring	NBR (Nitrile)
****30**	Piston Seal	NBR (Nitrile)
****31**	Piston Band	Nylon 6 (Mos2 Filled)
32	Dowel Pin	En24 (Induction Hardened)
33	Adaptor Plate Hex Bolt	HTSGr.10.9
****34**	Adapter Bolt Dowty Washer	Carbon Steel Zinc Plated
35	Piston Bolt	HTS Gr. 10.9
****36**	Piston Bolt Spring Washer	Spring Steel
37	Spring Side Tie Rod	HTS Gr. 10.9
****38**	Tie Rod Washer	Spring Steel
39	Tie Rod Nut	HTS Gr. 10.9
****40**	Housing Top Cover Hex Bolt	HTS Gr. 10.9
41	Locater rod punch washer	SS 304
****42**	Top Cover Hex Bolt Washer	Spring Steel
43	Indicator Plate Hex Bolt	SS 304
44	Stroke Adj. Bolts	HTS Gr. 10.9
45	Stroke Adj. Bolt Nut	HTS Gr. 10.9
****46**	Stroke Adj. Bolts M/C Washer	SS 304
47	Tie Rod Cylinder Side	HTS Gr. 10.9

Item	Description	*Standard Material
48	Position indicator washer	SS 304
49	Greasing Plug	Carbon Steel
50	Local Position Indicator	Plastic
51	Name Plate	SS 304
52	Pressure Name Plate	SS 304
53	Tee	SS 304
54	Connector	SS 304
55	Elbow	SS 304
56	Insert	En8
57	Circlip	70 C6
58	1/2" NPT Plug	Carbon Steel Zinc Plated
59	Warning Name Plate For Plug	SS 304
60	Top Cover Countersunk Bolt	HTS Gr. 10.9
61	Silencer	Brass
62	Locking Plate & Pin Assembly	CS Trivalent Passivated
63	Warning Name Plate	SS 304

*Other materials may be available upon request.
**Recommended spares.
DI = Ductile Iron, SS = Stainless Steel, HTS = High Tensile Steel, CS= Carbon Steel

For a quotation, send the size, pressure rating, materials, operator and quantity to UEC by phone, WhatsApp or email. Data as published by DelVal Flow Controls; DelVal and DelTorq are trademarks of DelVal Flow Controls.