Product Data Sheet
VCTDS-02759-EN Rev. 1
October 2024

Biffi TPD/TPS Compact Pneumatic Actuators

Helical Slot Design

Compact quarter-turn pneumatic actuators for on-off control of ball, butterfly, plug or damper style valves in heavy-duty service. Available with output torques up to 300,000 Nm.

BIFFI

This page is intentionally left blank.

Table of Contents

This page is intentionally left blank.

Product Overview

Designed with a unique helical slot design, which transforms the linear movement of a piston into a quarter-turn rotation, generating high break torques to actuate large valves. With its spring integrated into the cylinder, it is very compact with the same dimensions whether for double-acting or spring-return; spring to open or spring to close operations.

Technical Data

Supply pressure:	3.0 to 10.0 barg
Design pressure (MAWP):	Up to 12.0 barg
Supply medium:	Air, nitrogen or sweet gas
Output torque:	To 300,000 Nm
Ambient temperature	
Standard range (PED compliant):	-20 to +100 °C / -4 to +210 °F
Low temperature range (PED compliant):	-40 to +100 °C / -40 to +210 °F
Low temperature ranges:	-60 to +100 °C / -76 to +210 °F
External angular stroke adjustment:	±5°
Valve attachment interface:	To ISO 5211

MAWP:	Maximum Allowable Working Pressure is the pressure defined for the design of the actuator pressure containing parts.
MOP:	Maximum Operating Pressure is the pressure that generates the torque used to engineer the mechanical loaded parts of the actuator and it is the one required to produce the design torque of the actuator.

Features

- Customizable helical profile to suit valve-specific torque profile (special execution).
- Totally enclosed, weatherproof housing in fabricated carbon steel provides maximum strength.
- Corrosion resistant to EN 15714-3; C5I/C5M.
- Internal coating and special surface treatment protects against corrosion.
- Hard chrome-plated piston rod for corrosion resistance and minimal friction.
- Electroless nickel-plated cylinder bore provides maximum corrosion resistance and reliability.
- Low hysteresis and high response enhance modulating service.
- Bearings in bronze or sintered bronze impregnated with Polytetrafluoroethylene (PTFE) provide reliability, smooth operation and extended service life.
- Adjustable end stopper installed below cylinder flange for easy access.
- Position indicator directly connected to output drive.

Approvals

Safety Integrity Level:	
(IEC 61508-1÷7:2010):	SIL 3
Area Classification:	
(ATEX):	II 2GD
Enclosure Standards:	
(IEC 60529):	IP66, IP67M
Pressure Equipment Directive:	2014/68/EU
Machinery Directive:	2006/42/EC

Figure 1. Actuator Assembly Drawing

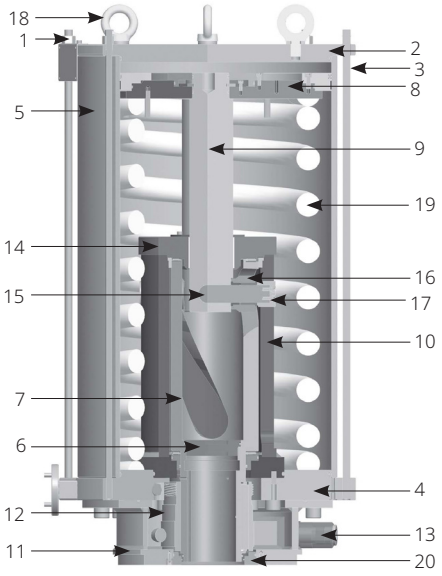


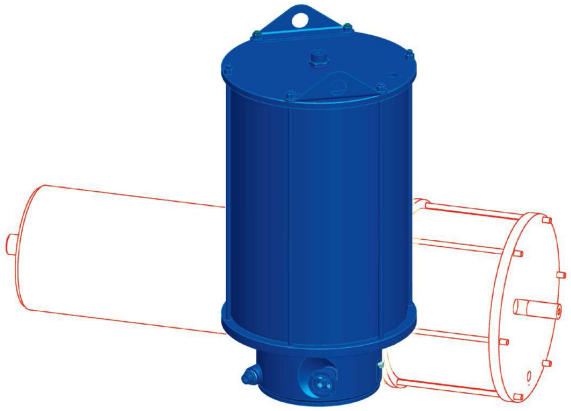
Table 1. Materials

Number	Part	Material
1	Tie rod nut	Alloy steel (stainless steel AISI 316 optional)
2	End flange	Carbon steel
3	Tie rod	Alloy steel (stainless steel AISI 316 optional)
4	Head flange	Carbon steel
5	Cylinder	Carbon steel
6	Closing plug	Carbon steel
7	Output drive	Alloy steel
8	Piston	Carbon steel
9	Piston rod	Alloy steel hard chrome plated
10	Central tube	Carbon steel
11	Base	Carbon steel
12	Adjustment sector	Carbon steel
13	Stopper and protection cover	Alloy steel (stainless steel AISI 316 optional)
14	Upper flange	Carbon steel
15	Pin	Alloy steel
16	Roller	Alloy steel
17	Slide	Bronze
18	Lifting eyebolt	Standard
19	Spring	Alloy steel
20	Lower flange	Carbon steel
Parts not shown		
21	Position indicator	Alloy steel
22	Bushing	Bronze/steel bronze PTFE
23	Seals	Nitrile rubber

Compact Dimensions

The compact helical slot design maximizes efficiency and optimizes overall equipment dimensions compared to a conventional scotch yoke design.

Figure 2. Footprint Comparison SY and TP



TPS Compact Spring-Return Pneumatic Actuators

Output Torques - Models TPS 0.A to 0.3-SY3-335

Table 2. TPS Compact Spring-Return Actuators - Output Torques (Nm) - Models 0.A to 0.3-SY3-335

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP1 175	600	9	3.6	302	246	191	-	-	-	-	-	-	-	-	-	257	194	131
0.A RP2 175	600	8.5	2.6	223	187	152	159	119	78	206	166	126	254	213	173	301	261	221
0.A SY1 175	600	7.5	3.6	371	143	239	-	-	-	-	-	-	-	-	-	315	113	164
0.A SY2 175	600	7	2.6	274	109	190	195	69	99	254	97	157	312	124	216	371	152	275
0.A SK1 175	600	6	3.6	356	195	373	-	-	-	-	-	-	-	-	-	470	142	156
0.A SK2 175	600	5.5	2.6	262	147	295	380	123	150	380	123	150	470	160	206	559	196	262
0.A SH1 175	600	7	3.6	557	180	228	-	-	-	-	-	-	-	-	-	302	154	261
0.A SH2 175	600	6	2.6	412	138	181	243	130	247	243	130	247	299	166	336	355	202	426
0.1 RP1 235	1200	8.5	4.1	760	630	500	-	-	-	-	-	-	-	-	-	483	335	186
0.1 RP2 235	1200	8.5	3.3	620	524	429	-	-	-	353	245	136	459	350	242	564	455	347
0.1 SY1 235	1200	7.5	4.1	936	366	624	-	-	-	-	-	-	-	-	-	592	195	237
0.1 SY2 235	1200	7	3.3	764	305	535	-	-	-	433	143	173	563	204	303	694	265	434
0.1 SK1 235	1200	6	4.1	896	497	973	-	-	-	-	-	-	-	-	-	879	241	225
0.1 SK2 235	1200	5.5	3.3	731	412	831	-	-	-	643	177	165	842	257	289	1040	338	414
0.1 SH1 235	1200	7.5	4	1407	462	595	-	-	-							567	271	385
0.1 SH2 235	1200	6.5	3.3	1149	386	511	-	-	-	415	198	282	540	277	480	664	357	679
0.1 RP1 280	1200	6	2.9	760	630	500	476	328	180	626	478	329	775	627	479	924	776	628
0.1 RP2 280	1200	6	2.3	620	524	429	557	449	340	706	598	489	856	747	639	1005	897	788
0.1 RP3 280	1200	6.5	3.2	854	712	569	-	-	-	-	385	223	696	534	372	845	683	522
0.1 SY1 280	1200	5.5	2.9	936	366	624	584	192	229	769	278	413	954	365	598	1139	452	783
0.1 SY2 280	1200	5	2.3	764	305	535	686	261	425	870	348	610	1055	435	795	-	-	-
0.1 SY3 280	1200	5.5	3.2	1052	413	711	-	-	-	670	225	283	855	311	467	1040	398	652
0.1 SK1 280	1200	4.5	2.9	896	497	973	867	236	217	1149	351	394	-	-	-	-	-	-
0.1 SK2 280	1200	4	2.4	731	412	831	1028	333	406	-	-	-	-	-	-	-	-	-
0.1 SK3 280	1200	4.5	3.2	1007	560	1107	-	-	-	996	278	269	-	-	-	-	-	-
0.1 SH1 280	1200	5	2.9	1407	462	595	560	266	373	736	379	655	913	492	937	-	-	-
0.1 SH2 280	1200	4.5	2.3	1149	386	511	656	352	667	833	465	949	-	-	-	-	-	-
0.1 SH3 280	1200	5.5	3.2	1581	522	678	-	-	-	642	310	457	819	423	739	996	536	1021
0.3 RP1 280	3600	10	4.2	1461	1187	912	-	-	-	-	-	-	-	-	-	922	610	297
0.3 RP2 280	3600	9	2.1	707	612	518	783	675	567	979	871	763	1175	1067	959	1371	1263	1155
0.3 SY1 280	3600	8.5	4.2	1798	689	1140	-	-	-	-	-	-	-	-	-	1130	356	380
0.3 SY2 280	3600	7.5	2.1	872	356	645	965	393	707	1207	507	949	1450	621	1192	1693	735	1435
0.3 SK1 280	3600	8	4.2	1722	938	1783	-	-	-	-	-	-	-	-	-	1672	435	361
0.3 SK2 280	3600	6.5	2.1	834	479	999	1454	507	675	1824	657	907	2194	807	1139	2564	957	1371
0.3 SH1 280	3600	9.5	4.2	2698	867	1087	-	-	-	-	-	-	-	-	-	1083	498	631
0.3 SH2 280	3600	7	2.1	1314	453	616	923	523	1096	1155	672	1466	1387	820	1836	1619	969	2206
0.3 RP1 335	3600	8.5	3	1461	1187	912	926	614	301	1207	894	582	1487	1175	862	1768	1455	1143
0.3 RP2 335	3600	7.5	1.5	707	612	518	1375	1267	1159	1655	1547	1440	1936	1828	1720	2216	2108	2001
0.3 RP3 335	3600	9	4.2	2067	1662	1258	-	-	-	-	-	-	-	-	-	1374	914	454
0.3 SY1 335	3600	7.5	3	1798	689	1140	1134	358	385	1482	521	732	1829	685	1080	2176	848	1427
0.3 SY2 335	3600	6.5	1.5	872	356	645	1698	737	1440	2045	901	1787	2392	1064	2134	2740	1227	2482
0.3 SY3 335	3600	8	4.2	2543	965	1574	-	-	-	-	-	-	-	-	-	1683	533	580

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							5.5			6			6.5			7		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP1 175	600	9	3.6	302	246	191	304	241	178	351	288	225	399	336	273	446	383	320
0.A RP2 175	600	8.5	2.6	223	187	152	348	308	268	396	356	315	443	403	363	491	450	410
0.A SY1 175	600	7.5	3.6	371	143	239	374	140	223	433	168	282	491	196	340	550	223	399
0.A SY2 175	600	7	2.6	274	109	190	430	179	333	488	207	392	547	235	451	-	-	-
0.A SK1 175	600	6	3.6	356	195	373	560	178	213	-	-	-	-	-	-	-	-	-
0.A SK2 175	600	5.5	2.6	262	147	295	-	-	-	-	-	-	-	-	-	-	-	-
0.A SH1 175	600	7	3.6	557	180	228	358	190	350	414	226	440	470	261	529	-	-	-
0.A SH2 175	600	6	2.6	412	138	181	411	238	515	-	-	-	-	-	-	-	-	-
0.1 RP1 235	1200	8.5	4.1	760	630	500	588	440	292	693	545	397	799	650	502	904	755	607
0.1 RP2 235	1200	8.5	3.3	620	524	429	669	560	452	774	666	557	879	771	662	984	876	767
0.1 SY1 235	1200	7.5	4.1	936	366	624	722	257	367	853	318	497	983	379	627	1113	440	758
0.1 SY2 235	1200	7	3.3	764	305	535	824	326	564	954	388	694	1084	449	824	-	-	-
0.1 SK1 235	1200	6	4.1	896	497	973	1078	322	350	-	-	-	-	-	-	-	-	-
0.1 SK2 235	1200	5.5	3.3	731	412	831	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SH1 235	1200	7.5	4	1407	462	595	692	350	584	816	430	783	941	509	981	1066	589	1180
0.1 SH2 235	1200	6.5	3.3	1149	386	511	789	437	878	913	516	1076	-	-	-	-	-	-
0.1 RP1 280	1200	6	2.9	760	630	500	1074	925	777	-	-	-	-	-	-	-	-	-
0.1 RP2 280	1200	6	2.3	620	524	429	1154	1046	937	-	-	-	-	-	-	-	-	-
0.1 RP3 280	1200	6.5	3.2	854	712	569	995	833	671	1144	982	820	-	-	-	-	-	-
0.1 SY1 280	1200	5.5	2.9	936	366	624	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SY2 280	1200	5	2.3	764	305	535	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SY3 280	1200	5.5	3.2	1052	413	711	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SK1 280	1200	4.5	2.9	896	497	973	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SK2 280	1200	4	2.4	731	412	831	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SK3 280	1200	4.5	3.2	1007	560	1107	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SH1 280	1200	5	2.9	1407	462	595	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SH2 280	1200	4.5	2.3	1149	386	511	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SH3 280	1200	5.5	3.2	1581	522	678	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP1 280	3600	10	4.2	1461	1187	912	1118	806	493	1314	1002	689	1510	1198	885	1706	1394	1081
0.3 RP2 280	3600	9	2.1	707	612	518	1567	1459	1351	1763	1655	1547	1959	1851	1743	2154	2047	1939
0.3 SY1 280	3600	8.5	4.2	1798	689	1140	1372	470	623	1615	584	865	1857	698	1108	2100	812	1351
0.3 SY2 280	3600	7.5	2.1	872	356	645	1935	849	1677	2178	963	1920	2421	1077	2163	2663	1191	2405
0.3 SK1 280	3600	8	4.2	1722	938	1783	2042	586	593	2412	736	825	2782	886	1057	3152	1036	1289
0.3 SK2 280	3600	6.5	2.1	834	479	999	2934	1108	1603	3304	1258	1835	-	-	-	-	-	-
0.3 SH1 280	3600	9.5	4.2	2698	867	1087	1315	646	1001	1547	794	1371	1779	943	1741	2011	1091	2111
0.3 SH2 280	3600	7	2.1	1314	453	616	1851	1117	2576	2083	1265	2946	2315	1414	3316	-	-	-
0.3 RP1 335	3600	8.5	3	1461	1187	912	2048	1736	1423	2329	2016	1704	2609	2297	1984	2890	2577	2265
0.3 RP2 335	3600	7.5	1.5	707	612	518	2497	2389	2281	2777	2670	2562	3058	2950	2842	3338	3231	3123
0.3 RP3 335	3600	9	4.2	2067	1662	1258	1654	1194	734	1935	1475	1015	2215	1755	1295	2496	2036	1576
0.3 SY1 335	3600	7.5	3	1798	689	1140	2524	1011	1774	2871	1174	2122	3218	1337	2469	3566	1500	2816
0.3 SY2 335	3600	6.5	1.5	872	356	645	3087	1390	2829	3434	1553	3176	-	-	-	-	-	-
0.3 SY3 335	3600	8	4.2	2543	965	1574	2030	697	927	2377	860	1275	2725	1023	1622	3072	1186	1969

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							7.5			8			8.5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP1 175	600	9	3.6	302	246	191	493	431	368	541	478	415	588	525	462
0.A RP2 175	600	8.5	2.6	223	187	152	538	498	458	585	545	505	-	-	-
0.A SY1 175	600	7.5	3.6	371	143	239	-	-	-	-	-	-	-	-	-
0.A SY2 175	600	7	2.6	274	109	190	-	-	-	-	-	-	-	-	-
0.A SK1 175	600	6	3.6	356	195	373	-	-	-	-	-	-	-	-	-
0.A SK2 175	600	5.5	2.6	262	147	295	-	-	-	-	-	-	-	-	-
0.A SH1 175	600	7	3.6	557	180	228	-	-	-	-	-	-	-	-	-
0.A SH2 175	600	6	2.6	412	138	181	-	-	-	-	-	-	-	-	-
0.1 RP1 235	1200	8.5	4.1	760	630	500	1009	861	712	1114	966	818	-	-	-
0.1 RP2 235	1200	8.5	3.3	620	524	429	1090	981	873	1195	1086	978	-	-	-
0.1 SY1 235	1200	7.5	4.1	936	366	624	-	-	-	-	-	-	-	-	-
0.1 SY2 235	1200	7	3.3	764	305	535	-	-	-	-	-	-	-	-	-
0.1 SK1 235	1200	6	4.1	896	497	973	-	-	-	-	-	-	-	-	-
0.1 SK2 235	1200	5.5	3.3	731	412	831	-	-	-	-	-	-	-	-	-
0.1 SH1 235	1200	7.5	4	1407	462	595	-	-	-	-	-	-	-	-	-
0.1 SH2 235	1200	6.5	3.3	1149	386	511	-	-	-	-	-	-	-	-	-
0.1 RP1 280	1200	6	2.9	760	630	500	-	-	-	-	-	-	-	-	-
0.1 RP2 280	1200	6	2.3	620	524	429	-	-	-	-	-	-	-	-	-
0.1 RP3 280	1200	6.5	3.2	854	712	569	-	-	-	-	-	-	-	-	-
0.1 SY1 280	1200	5.5	2.9	936	366	624	-	-	-	-	-	-	-	-	-
0.1 SY2 280	1200	5	2.3	764	305	535	-	-	-	-	-	-	-	-	-
0.1 SY3 280	1200	5.5	3.2	1052	413	711	-	-	-	-	-	-	-	-	-
0.1 SK1 280	1200	4.5	2.9	896	497	973	-	-	-	-	-	-	-	-	-
0.1 SK2 280	1200	4	2.4	731	412	831	-	-	-	-	-	-	-	-	-
0.1 SK3 280	1200	4.5	3.2	1007	560	1107	-	-	-	-	-	-	-	-	-
0.1 SH1 280	1200	5	2.9	1407	462	595	-	-	-	-	-	-	-	-	-
0.1 SH2 280	1200	4.5	2.3	1149	386	511	-	-	-	-	-	-	-	-	-
0.1 SH3 280	1200	5.5	3.2	1581	522	678	-	-	-	-	-	-	-	-	-
0.3 RP1 280	3600	10	4.2	1461	1187	912	1902	1590	1277	2098	1785	1473	2294	1981	1669
0.3 RP2 280	3600	9	2.1	707	612	518	2350	2243	2135	2546	2439	2331	2742	2635	2527
0.3 SY1 280	3600	8.5	4.2	1798	689	1140	2343	926	1593	2585	1040	1836	2828	1154	2079
0.3 SY2 280	3600	7.5	2.1	872	356	645	2906	1305	2648	3149	1419	2891	3391	1533	3133
0.3 SK1 280	3600	8	4.2	1722	938	1783	3522	1187	1521	-	-	-	-	-	-
0.3 SK2 280	3600	6.5	2.1	834	479	999	-	-	-	-	-	-	-	-	-
0.3 SH1 280	3600	9.5	4.2	2698	867	1087	2242	1239	2481	2474	1388	2851	2706	1536	3222
0.3 SH2 280	3600	7	2.1	1314	453	616	-	-	-	-	-	-	-	-	-
0.3 RP1 335	3600	8.5	3	1461	1187	912	3170	2858	2545	3451	3138	2826	-	-	-
0.3 RP2 335	3600	7.5	1.5	707	612	518	-	-	-	-	-	-	-	-	-
0.3 RP3 335	3600	9	4.2	2067	1662	1258	2776	2316	1856	3057	2597	2137	3337	2877	2417
0.3 SY1 335	3600	7.5	3	1798	689	1140	-	-	-	-	-	-	-	-	-
0.3 SY2 335	3600	6.5	1.5	872	356	645	-	-	-	-	-	-	-	-	-
0.3 SY3 335	3600	8	4.2	2543	965	1574	3419	1349	2317	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque(Nm)			Operating Supply Pressure (barg)								
							9			9.5			10		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP1 175	600	9	3.6	302	246	191	-	-	-	-	-	-	-	-	-
0.A RP2 175	600	8.5	2.6	223	187	152	-	-	-	-	-	-	-	-	-
0.A SY1 175	600	7.5	3.6	371	143	239	-	-	-	-	-	-	-	-	-
0.A SY2 175	600	7	2.6	274	109	190	-	-	-	-	-	-	-	-	-
0.A SK1 175	600	6	3.6	356	195	373	-	-	-	-	-	-	-	-	-
0.A SK2 175	600	5.5	2.6	262	147	295	-	-	-	-	-	-	-	-	-
0.A SH1 175	600	7	3.6	557	180	228	-	-	-	-	-	-	-	-	-
0.A SH2 175	600	6	2.6	412	138	181	-	-	-	-	-	-	-	-	-
0.1 RP1 235	1200	8.5	4.1	760	630	500	-	-	-	-	-	-	-	-	-
0.1 RP2 235	1200	8.5	3.3	620	524	429	-	-	-	-	-	-	-	-	-
0.1 SY1 235	1200	7.5	4.1	936	366	624	-	-	-	-	-	-	-	-	-
0.1 SY2 235	1200	7	3.3	764	305	535	-	-	-	-	-	-	-	-	-
0.1 SK1 235	1200	6	4.1	896	497	973	-	-	-	-	-	-	-	-	-
0.1 SK2 235	1200	5.5	3.3	731	412	831	-	-	-	-	-	-	-	-	-
0.1 SH1 235	1200	7.5	4	1407	462	595	-	-	-	-	-	-	-	-	-
0.1 SH2 235	1200	6.5	3.3	1149	386	511	-	-	-	-	-	-	-	-	-
0.1 RP1 280	1200	6	2.9	760	630	500	-	-	-	-	-	-	-	-	-
0.1 RP2 280	1200	6	2.3	620	524	429	-	-	-	-	-	-	-	-	-
0.1 RP3 280	1200	6.5	3.2	854	712	569	-	-	-	-	-	-	-	-	-
0.1 SY1 280	1200	5.5	2.9	936	366	624	-	-	-	-	-	-	-	-	-
0.1 SY2 280	1200	5	2.3	764	305	535	-	-	-	-	-	-	-	-	-
0.1 SY3 280	1200	5.5	3.2	1052	413	711	-	-	-	-	-	-	-	-	-
0.1 SK1 280	1200	4.5	2.9	896	497	973	-	-	-	-	-	-	-	-	-
0.1 SK2 280	1200	4	2.4	731	412	831	-	-	-	-	-	-	-	-	-
0.1 SK3 280	1200	4.5	3.2	1007	560	1107	-	-	-	-	-	-	-	-	-
0.1 SH1 280	1200	5	2.9	1407	462	595	-	-	-	-	-	-	-	-	-
0.1 SH2 280	1200	4.5	2.3	1149	386	511	-	-	-	-	-	-	-	-	-
0.1 SH3 280	1200	5.5	3.2	1581	522	678	-	-	-	-	-	-	-	-	-
0.3 RP1 280	3600	10	4.2	1461	1187	912	2490	2177	1865	2686	2373	2061	2882	2569	2257
0.3 RP2 280	3600	9	2.1	707	612	518	2938	2831	2723	3134	3027	2919	3330	3223	3115
0.3 SY1 280	3600	8.5	4.2	1798	689	1140	3071	1268	2321	3313	1382	2564	3556	1496	2807
0.3 SY2 280	3600	7.5	2.1	872	356	645	-	-	-	-	-	-	-	-	-
0.3 SK1 280	3600	8	4.2	1722	938	1783	-	-	-	-	-	-	-	-	-
0.3 SK2 280	3600	6.5	2.1	834	479	999	-	-	-	-	-	-	-	-	-
0.3 SH1 280	3600	9.5	4.2	2698	867	1087	2938	1684	3592	-	-	-	-	-	-
0.3 SH2 280	3600	7	2.1	1314	453	616	-	-	-	-	-	-	-	-	-
0.3 RP1 335	3600	8.5	3	1461	1187	912	-	-	-	-	-	-	-	-	-
0.3 RP2 335	3600	7.5	1.5	707	612	518	-	-	-	-	-	-	-	-	-
0.3 RP3 335	3600	9	4.2	2067	1662	1258	-	-	-	-	-	-	-	-	-
0.3 SY1 335	3600	7.5	3	1798	689	1140	-	-	-	-	-	-	-	-	-
0.3 SY2 335	3600	6.5	1.5	872	356	645	-	-	-	-	-	-	-	-	-
0.3 SY3 335	3600	8	4.2	2543	965	1574	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Output Torques - Models TPS 0.3-SK1-335 to 0.9

Table 3. TPS Compact Spring-Return Actuators - Output Torques (Nm) - Models 0.3-SK1-335 to 0.9

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.3 SK1 335	3600	5.5	2.9	1722	938	1783	1679	438	365	2209	653	697	2739	869	1030	3268	1084	1362
0.3 SK2 335	3600	4.5	1.5	834	479	999	2572	960	1375	3101	1176	1707	-	-	-	-	-	-
0.3 SK3 335	3600	6.5	4.1	2435	1317	2466	-	-	-	-	-	-	-	-	-	2491	653	551
0.3 SH1 335	3600	6.5	2.9	2698	867	1087	1087	500	638	1419	713	1168	1751	925	1698	2083	1138	2228
0.3 SH2 335	3600	5	1.5	1314	453	616	1624	971	2213	1956	1184	2743	2288	1396	3273	-	-	-
0.3 SH3 335	3600	7.5	4.1	3812	1212	1501	-	-	-	-	-	-	-	-	-	1613	745	960
0.3 RP1 385	3600	5.5	2.2	1461	1187	912	1518	1205	892	1927	1614	1301	2297	1985	1672	2668	2355	2042
0.3 RP2 385	3600	5	1.1	707	612	518	1966	1858	1751	2375	2267	2160	2745	2638	2530	-	-	-
0.3 RP3 385	3600	6	3.2	2067	1662	1258	-	-	-	1533	1073	613	1903	1443	983	2274	1814	1354
0.3 SY1 385	3600	4.5	2.2	1798	689	1140	1867	702	1117	2373	940	1624	2832	1156	2082	-	-	-
0.3 SY2 385	3600	4	1.1	872	356	645	2430	1081	2172	2936	1319	2678	-	-	-	-	-	-
0.3 SY3 385	3600	5	3.2	2543	965	1574	-	-	-	1879	626	777	2338	841	1235	2797	1057	1694
0.3 SK1 385	3600	4.5	2.2	1722	938	1783	2869	921	1111	3568	1205	1550	-	-	-	-	-	-
0.3 SK2 385	3600	4	1.1	834	479	999	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK3 385	3600	5	3.1	2435	1317	2466	-	-	-	2791	775	739	3491	1059	1177	-	-	-
0.3 SH1 385	3600	5	2.2	2698	867	1087	1833	977	1828	2271	1258	2528	2710	1538	3227	-	-	-
0.3 SH2 385	3600	4	1.1	1314	453	616	2370	1448	3403	-	-	-	-	-	-	-	-	-
0.3 SH3 385	3600	6	3.1	3812	1212	1501	-	-	-	1801	865	1260	2239	1145	1960	2678	1426	2659
0.9 RP1 385	9900	12	4.2	3383	2844	2305	-	-	-	-	-	-	-	-	-	1965	1352	738
0.9 RP2 385	9900	12	2.9	2313	2013	1713	1262	921	580	1721	1380	1038	2180	1838	1497	2639	2297	1956
0.9 SY1 385	9900	12	4.2	4167	1652	2875	-	-	-	-	-	-	-	-	-	2409	789	938
0.9 SY2 385	9900	11	2.9	2852	1169	2132	1550	537	731	2117	804	1299	2685	1071	1867	3253	1338	2435
0.9 SK1 385	9900	9	4.2	3989	2236	4473	-	-	-	-	-	-	-	-	-	3650	994	911
0.9 SK2 385	9900	8	2.9	2729	1574	3302	2357	685	711	3242	1045	1266	4127	1404	1820	5011	1763	2375
0.9 SH1 385	9900	10	4.2	6267	2091	2744	-	-	-	-	-	-	-	-	-	2358	1117	1565
0.9 SH2 385	9900	8.5	2.9	4300	1489	2036	1516	752	1196	2071	1107	2081	2626	1462	2966	3180	1817	3851
0.9 RP1 435	9900	9.5	3.3	3383	2844	2305	-	-	-	2063	1449	836	2648	2035	1422	3234	2621	2007
0.9 RP2 435	9900	9	2.3	2313	2013	1713	2151	1809	1468	2736	2395	2053	3322	2980	2639	3907	3566	3225
0.9 RP3 435	9900	10.5	4.6	4766	3964	3162	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SY1 435	9900	8.5	3.3	4167	1652	2875	-	-	-	2530	846	1059	3255	1186	1784	3980	1527	2509
0.9 SY2 435	9900	7.5	2.3	2852	1169	2132	2649	1054	1831	3374	1394	2556	4099	1735	3281	4824	2076	4006
0.9 SY3 435	9900	9	4.6	5869	2302	3946	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SK1 435	9900	7	3.3	3989	2236	4473	-	-	-	3839	1071	1029	4968	1529	1737	6098	1988	2445

NOTES:
1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.9 SK2 435	9900	6.5	2.2	2729	1574	3302	4070	1381	1785	5200	1840	2493	6329	2299	3201	7459	2757	3909
0.9 SK3 435	9900	8	4.6	5618	3122	6150	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SH1 435	9900	8	3.3	6267	2091	2744	-	-	-	2476	1193	1753	3184	1646	2882	3892	2099	4012
0.9 SH2 435	9900	7	2.2	4300	1489	2036	2590	1439	2909	3298	1892	4039	4006	2345	5169	4714	2798	6298
0.9 SH3 435	9900	9	4.6	8821	2908	3766	-	-	-	-	-	-	-	-	-	-	-	-
0.9 RP1 485	9900	8	2.7	3383	2844	2305	2474	1860	1247	3202	2588	1975	3930	3316	2703	4658	4044	3431
0.9 RP2 485	9900	7.5	1.8	2313	2013	1713	3147	2806	2464	3875	3534	3192	4603	4262	3920	5331	4990	4648
0.9 RP3 485	9900	8.5	3.7	4766	3964	3162	-	-	-	-	-	-	-	-	-	3683	2770	1857
0.9 SY1 485	9900	6.5	2.7	4167	1652	2875	3039	1085	1568	3940	1508	2469	4841	1931	3371	5743	2355	4272
0.9 SY2 485	9900	6	1.8	2852	1169	2132	3883	1633	3065	4784	2057	3966	5686	2480	4867	6587	2904	5769
0.9 SY3 485	9900	7.5	3.7	5869	2302	3946	-	-	-	-	-	-	-	-	-	4524	1615	2335
0.9 SK1 485 CL	9900	5.5	2.6	3989	2236	4473	4631	1393	1526	6035	1963	2406	7440	2533	3286	8844	3103	4167
0.9 SK2 485 CL	9900	5	1.8	2729	1574	3302	5992	2162	2990	7397	2732	3870	8801	3302	4750	-	-	-
0.9 SK3 485 CL	9900	6.5	3.7	5618	3122	6150	-	-	-	-	-	-	-	-	-	6895	2073	2273
0.9 SH1 485 CL	9900	6.5	2.6	6267	2091	2744	2973	1511	2546	3853	2074	3950	4733	2637	5354	5613	3199	6758
0.9 SH2 485 CL	9900	5.5	1.8	4300	1489	2036	3795	2210	4832	4675	2773	6236	5555	3336	7640	6436	3899	9044
0.9 SH3 485 CL	9900	7.5	3.7	8821	2908	3766	-	-	-	-	-	-	-	-	-	4426	2249	3791

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							5.5			6			6.5			7		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.3 SK1 335	3600	5.5	2.9	1722	938	1783	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK2 335	3600	4.5	1.5	834	479	999	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK3 335	3600	6.5	4.1	2435	1317	2466	3021	868	883	3551	1084	1215	-	-	-	-	-	-
0.3 SH1 335	3600	6.5	2.9	2698	867	1087	2416	1350	2757	2748	1562	3287	-	-	-	-	-	-
0.3 SH2 335	3600	5	1.5	1314	453	616	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SH3 335	3600	7.5	4.1	3812	1212	1501	1945	957	1490	2277	1169	2019	2609	1382	2549	2941	1594	3079
0.3 RP1 385	3600	5.5	2.2	1461	1187	912	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP2 385	3600	5	1.1	707	612	518	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP3 385	3600	6	3.2	2067	1662	1258	2644	2184	1724	-	-	-	-	-	-	-	-	-
0.3 SY1 385	3600	4.5	2.2	1798	689	1140	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SY2 385	3600	4	1.1	872	356	645	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SY3 385	3600	5	3.2	2543	965	1574	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK1 385	3600	4.5	2.2	1722	938	1783	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK2 385	3600	4	1.1	834	479	999	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK3 385	3600	5	3.1	2435	1317	2466	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SH1 385	3600	5	2.2	2698	867	1087	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SH2 385	3600	4	1.1	1314	453	616	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SH3 385	3600	6	3.1	3812	1212	1501	3117	1706	3359	-	-	-	-	-	-	-	-	-
0.9 RP1 385	9900	12	4.2	3383	2844	2305	2424	1811	1197	2883	2269	1656	3341	2728	2115	3800	3187	2573
0.9 RP2 385	9900	12	2.9	2313	2013	1713	3097	2756	2415	3556	3215	2873	4015	3673	3332	4473	4132	3791
0.9 SY1 385	9900	12	4.2	4167	1652	2875	2977	1056	1506	3545	1323	2074	4113	1589	2642	4681	1856	3210
0.9 SY2 385	9900	11	2.9	2852	1169	2132	3821	1604	3003	4389	1871	3571	4957	2138	4139	5525	2405	4707
0.9 SK1 385	9900	9	4.2	3989	2236	4473	4535	1354	1466	5420	1713	2020	6305	2072	2575	7190	2431	3130
0.9 SK2 385	9900	8	2.9	2729	1574	3302	5896	2123	2930	6781	2482	3484	7666	2841	4039	8551	3201	4594
0.9 SH1 385	9900	10	4.2	6267	2091	2744	2913	1472	2449	3467	1827	3334	4022	2182	4219	4576	2536	5104
0.9 SH2 385	9900	8.5	2.9	4300	1489	2036	3735	2171	4735	4289	2526	5620	4844	2881	6505	5399	3235	7390
0.9 RP1 435	9900	9.5	3.3	3383	2844	2305	3820	3206	2593	4405	3792	3179	4991	4377	3764	5576	4963	4350
0.9 RP2 435	9900	9	2.3	2313	2013	1713	4493	4152	3810	5079	4737	4396	5664	5323	4982	6250	5909	5567
0.9 RP3 435	9900	10.5	4.6	4766	3964	3162	2845	1932	1019	3430	2518	1605	4016	3103	2190	4601	3689	2776
0.9 SY1 435	9900	8.5	3.3	4167	1652	2875	4705	1868	3235	5430	2208	3960	6155	2549	4685	6880	2889	5410
0.9 SY2 435	9900	7.5	2.3	2852	1169	2132	5550	2416	4731	6275	2757	5456	7000	3097	6181	7725	3438	6906
0.9 SY3 435	9900	9	4.6	5869	2302	3946	3486	1128	1298	4211	1468	2023	4936	1809	2748	5661	2149	3473
0.9 SK1 435	9900	7	3.3	3989	2236	4473	7227	2447	3153	8357	2905	3861	9487	3364	4569	-	-	-
0.9 SK2 435	9900	6.5	2.2	2729	1574	3302	8589	3216	4617	9718	3675	5325	-	-	-	-	-	-
0.9 SK3 435	9900	8	4.6	5618	3122	6150	5278	1417	1259	6408	1876	1967	7538	2334	2676	8667	2793	3384
0.9 SH1 435	9900	8	3.3	6267	2091	2744	4600	2551	5142	5308	3004	6271	6016	3457	7401	6724	3910	8530
0.9 SH2 435	9900	7	2.2	4300	1489	2036	5422	3251	7428	6130	3703	8557	6839	4156	9687	-	-	-
0.9 SH3 435	9900	9	4.6	8821	2908	3766	3412	1601	2175	4120	2054	3304	4829	2507	4434	5537	2960	5563
0.9 RP1 485	9900	8	2.7	3383	2844	2305	5386	4772	4159	6114	5500	4887	6841	6228	5615	7569	6956	6343
0.9 RP2 485	9900	7.5	1.8	2313	2013	1713	6059	5718	5376	6787	6446	6104	7515	7174	6832	8243	7902	7560
0.9 RP3 485	9900	8.5	3.7	4766	3964	3162	4411	3498	2585	5139	4226	3313	5867	4954	4041	6594	5682	4769
0.9 SY1 485	9900	6.5	2.7	4167	1652	2875	6644	2778	5173	7545	3202	6075	8447	3625	6976	-	-	-
0.9 SY2 485	9900	6	1.8	2852	1169	2132	7488	3327	6670	8390	3750	7571	-	-	-	-	-	-
0.9 SY3 485	9900	7.5	3.7	5869	2302	3946	5425	2038	3237	6326	2462	4138	7228	2885	5039	8129	3309	5941
0.9 SK1 485 CL	9900	5.5	2.6	3989	2236	4473	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SK2 485 CL	9900	5	1.8	2729	1574	3302	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SK3 485 CL	9900	6.5	3.7	5618	3122	6150	8299	2644	3153	9703	3214	4033	-	-	-	-	-	-
0.9 SH1 485 CL	9900	6.5	2.6	6267	2091	2744	6494	3762	8162	7374	4325	9566	-	-	-	-	-	-
0.9 SH2 485 CL	9900	5.5	1.8	4300	1489	2036	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SH3 485 CL	9900	7.5	3.7	8821	2908	3766	5306	2812	5195	6186	3375	6599	7066	3938	8004	7946	4501	9408

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							7.5			8			8.5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.3 SK1 335	3600	5.5	2.9	1722	938	1783	-	-	-	-	-	-	-	-	-
0.3 SK2 335	3600	4.5	1.5	834	479	999	-	-	-	-	-	-	-	-	-
0.3 SK3 335	3600	6.5	4.1	2435	1317	2466	-	-	-	-	-	-	-	-	-
0.3 SH1 335	3600	6.5	2.9	2698	867	1087	-	-	-	-	-	-	-	-	-
0.3 SH2 335	3600	5	1.5	1314	453	616	-	-	-	-	-	-	-	-	-
0.3 SH3 335	3600	7.5	4.1	3812	1212	1501	-	-	-	-	-	-	-	-	-
0.3 RP1 385	3600	5.5	2.2	1461	1187	912	-	-	-	-	-	-	-	-	-
0.3 RP2 385	3600	5	1.1	707	612	518	-	-	-	-	-	-	-	-	-
0.3 RP3 385	3600	6	3.2	2067	1662	1258	-	-	-	-	-	-	-	-	-
0.3 SY1 385	3600	4.5	2.2	1798	689	1140	-	-	-	-	-	-	-	-	-
0.3 SY2 385	3600	4	1.1	872	356	645	-	-	-	-	-	-	-	-	-
0.3 SY3 385	3600	5	3.2	2543	965	1574	-	-	-	-	-	-	-	-	-
0.3 SK1 385	3600	4.5	2.2	1722	938	1783	-	-	-	-	-	-	-	-	-
0.3 SK2 385	3600	4	1.1	834	479	999	-	-	-	-	-	-	-	-	-
0.3 SK3 385	3600	5	3.1	2435	1317	2466	-	-	-	-	-	-	-	-	-
0.3 SH1 385	3600	5	2.2	2698	867	1087	-	-	-	-	-	-	-	-	-
0.3 SH2 385	3600	4	1.1	1314	453	616	-	-	-	-	-	-	-	-	-
0.3 SH3 385	3600	6	3.1	3812	1212	1501	-	-	-	-	-	-	-	-	-
0.9 RP1 385	9900	12	4.2	3383	2844	2305	4259	3645	3032	4717	4104	3491	5176	4563	3950
0.9 RP2 385	9900	12	2.9	2313	2013	1713	4932	4591	4249	5391	5050	4708	5850	5508	5167
0.9 SY1 385	9900	12	4.2	4167	1652	2875	5249	2123	3778	5817	2390	4346	6385	2657	4914
0.9 SY2 385	9900	11	2.9	2852	1169	2132	6093	2672	5275	6661	2939	5843	7229	3205	6411
0.9 SK1 385	9900	9	4.2	3989	2236	4473	8074	2791	3684	8959	3150	4239	9844	3509	4794
0.9 SK2 385	9900	8	2.9	2729	1574	3302	9436	3560	5148	-	-	-	-	-	-
0.9 SH1 385	9900	10	4.2	6267	2091	2744	5131	2891	5989	5686	3246	6874	6240	3600	7758
0.9 SH2 385	9900	8.5	2.9	4300	1489	2036	5953	3590	8275	6508	3945	9160	-	-	-
0.9 RP1 435	9900	9.5	3.3	3383	2844	2305	6162	5549	4935	6748	6134	5521	7333	6720	6107
0.9 RP2 435	9900	9	2.3	2313	2013	1713	6835	6494	6153	7421	7080	6738	8007	7665	7324
0.9 RP3 435	9900	10.5	4.6	4766	3964	3162	5187	4274	3362	5773	4860	3947	6358	5446	4533
0.9 SY1 435	9900	8.5	3.3	4167	1652	2875	7605	3230	6135	8330	3571	6860	-	-	-
0.9 SY2 435	9900	7.5	2.3	2852	1169	2132	8450	3779	7631	-	-	-	-	-	-
0.9 SY3 435	9900	9	4.6	5869	2302	3946	6386	2490	4198	7111	2831	4923	7837	3171	5648
0.9 SK1 435	9900	7	3.3	3989	2236	4473	-	-	-	-	-	-	-	-	-
0.9 SK2 435	9900	6.5	2.2	2729	1574	3302	-	-	-	-	-	-	-	-	-
0.9 SK3 435	9900	8	4.6	5618	3122	6150	9797	3252	4092	-	-	-	-	-	-
0.9 SH1 435	9900	8	3.3	6267	2091	2744	7432	4363	9660	-	-	-	-	-	-
0.9 SH2 435	9900	7	2.2	4300	1489	2036	-	-	-	-	-	-	-	-	-
0.9 SH3 435	9900	9	4.6	8821	2908	3766	6245	3413	6693	6953	3865	7823	7661	4318	8952
0.9 RP1 485	9900	8	2.7	3383	2844	2305	8297	7684	7071	-	-	-	-	-	-
0.9 RP2 485	9900	7.5	1.8	2313	2013	1713	8971	8630	8288	-	-	-	-	-	-
0.9 RP3 485	9900	8.5	3.7	4766	3964	3162	7322	6410	5497	8050	7138	6225	8778	7866	6953
0.9 SY1 485	9900	6.5	2.7	4167	1652	2875	-	-	-	-	-	-	-	-	-
0.9 SY2 485	9900	6	1.8	2852	1169	2132	-	-	-	-	-	-	-	-	-
0.9 SY3 485	9900	7.5	3.7	5869	2302	3946	-	-	-	-	-	-	-	-	-
0.9 SK1 485 CL	9900	5.5	2.6	3989	2236	4473	-	-	-	-	-	-	-	-	-
0.9 SK2 485 CL	9900	5	1.8	2729	1574	3302	-	-	-	-	-	-	-	-	-
0.9 SK3 485 CL	9900	6.5	3.7	5618	3122	6150	-	-	-	-	-	-	-	-	-
0.9 SH1 485 CL	9900	6.5	2.6	6267	2091	2744	-	-	-	-	-	-	-	-	-
0.9 SH2 485 CL	9900	5.5	1.8	4300	1489	2036	-	-	-	-	-	-	-	-	-
0.9 SH3 485 CL	9900	7.5	3.7	8821	2908	3766	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							9			9.5			10		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.3 SK1 335	3600	5.5	2.9	1722	938	1783	-	-	-	-	-	-	-	-	-
0.3 SK2 335	3600	4.5	1.5	834	479	999	-	-	-	-	-	-	-	-	-
0.3 SK3 335	3600	6.5	4.1	2435	1317	2466	-	-	-	-	-	-	-	-	-
0.3 SH1 335	3600	6.5	2.9	2698	867	1087	-	-	-	-	-	-	-	-	-
0.3 SH2 335	3600	5	1.5	1314	453	616	-	-	-	-	-	-	-	-	-
0.3 SH3 335	3600	7.5	4.1	3812	1212	1501	-	-	-	-	-	-	-	-	-
0.3 RP1 385	3600	5.5	2.2	1461	1187	912	-	-	-	-	-	-	-	-	-
0.3 RP2 385	3600	5	1.1	707	612	518	-	-	-	-	-	-	-	-	-
0.3 RP3 385	3600	6	3.2	2067	1662	1258	-	-	-	-	-	-	-	-	-
0.3 SY1 385	3600	4.5	2.2	1798	689	1140	-	-	-	-	-	-	-	-	-
0.3 SY2 385	3600	4	1.1	872	356	645	-	-	-	-	-	-	-	-	-
0.3 SY3 385	3600	5	3.2	2543	965	1574	-	-	-	-	-	-	-	-	-
0.3 SK1 385	3600	4.5	2.2	1722	938	1783	-	-	-	-	-	-	-	-	-
0.3 SK2 385	3600	4	1.1	834	479	999	-	-	-	-	-	-	-	-	-
0.3 SK3 385	3600	5	3.1	2435	1317	2466	-	-	-	-	-	-	-	-	-
0.3 SH1 385	3600	5	2.2	2698	867	1087	-	-	-	-	-	-	-	-	-
0.3 SH2 385	3600	4	1.1	1314	453	616	-	-	-	-	-	-	-	-	-
0.3 SH3 385	3600	6	3.1	3812	1212	1501	-	-	-	-	-	-	-	-	-
0.9 RP1 385	9900	12	4.2	3383	2844	2305	5635	5022	4408	6094	5480	4867	6552	5939	5326
0.9 RP2 385	9900	12	2.9	2313	2013	1713	6308	5967	5626	6767	6426	6084	7226	6884	6543
0.9 SY1 385	9900	12	4.2	4167	1652	2875	6953	2923	5482	7521	3190	6050	8089	3457	6618
0.9 SY2 385	9900	11	2.9	2852	1169	2132	7797	3472	6979	8365	3739	7547	8933	4006	8115
0.9 SK1 385	9900	9	4.2	3989	2236	4473	-	-	-	-	-	-	-	-	-
0.9 SK2 385	9900	8	2.9	2729	1574	3302	-	-	-	-	-	-	-	-	-
0.9 SH1 385	9900	10	4.2	6267	2091	2744	6795	3955	8643	7350	4310	9528			
0.9 SH2 385	9900	8.5	2.9	4300	1489	2036	-	-	-	-	-	-	-	-	-
0.9 RP1 435	9900	9.5	3.3	3383	2844	2305	7919	7306	6692	8504	7891	7278	-	-	-
0.9 RP2 435	9900	9	2.3	2313	2013	1713	8592	8251	7910	-	-	-	-	-	-
0.9 RP3 435	9900	10.5	4.6	4766	3964	3162	6944	6031	5119	7530	6617	5704	8115	7202	6290
0.9 SY1 435	9900	8.5	3.3	4167	1652	2875	-	-	-	-	-	-	-	-	-
0.9 SY2 435	9900	7.5	2.3	2852	1169	2132	-	-	-	-	-	-	-	-	-
0.9 SY3 435	9900	9	4.6	5869	2302	3946	8562	3512	6373	-	-	-	-	-	-
0.9 SK1 435	9900	7	3.3	3989	2236	4473	-	-	-	-	-	-	-	-	-
0.9 SK2 435	9900	6.5	2.2	2729	1574	3302	-	-	-	-	-	-	-	-	-
0.9 SK3 435	9900	8	4.6	5618	3122	6150	-	-	-	-	-	-	-	-	-
0.9 SH1 435	9900	8	3.3	6267	2091	2744	-	-	-	-	-	-	-	-	-
0.9 SH2 435	9900	7	2.2	4300	1489	2036	-	-	-	-	-	-	-	-	-
0.9 SH3 435	9900	9	4.6	8821	2908	3766	-	-	-	-	-	-	-	-	-
0.9 RP1 485	9900	8	2.7	3383	2844	2305	-	-	-	-	-	-	-	-	-
0.9 RP2 485	9900	7.5	1.8	2313	2013	1713	-	-	-	-	-	-	-	-	-
0.9 RP3 485	9900	8.5	3.7	4766	3964	3162	-	-	-	-	-	-	-	-	-
0.9 SY1 485	9900	6.5	2.7	4167	1652	2875	-	-	-	-	-	-	-	-	-
0.9 SY2 485	9900	6	1.8	2852	1169	2132	-	-	-	-	-	-	-	-	-
0.9 SY3 485	9900	7.5	3.7	5869	2302	3946	-	-	-	-	-	-	-	-	-
0.9 SK1 485 CL	9900	5.5	2.6	3989	2236	4473	-	-	-	-	-	-	-	-	-
0.9 SK2 485 CL	9900	5	1.8	2729	1574	3302	-	-	-	-	-	-	-	-	-
0.9 SK3 485 CL	9900	6.5	3.7	5618	3122	6150	-	-	-	-	-	-	-	-	-
0.9 SH1 485 CL	9900	6.5	2.6	6267	2091	2744	-	-	-	-	-	-	-	-	-
0.9 SH2 485 CL	9900	5.5	1.8	4300	1489	2036	-	-	-	-	-	-	-	-	-
0.9 SH3 485 CL	9900	7.5	3.7	8821	2908	3766	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Output Torques - Models TPS 1.5 to 3-SK3-635

Table 4. TPS Compact Spring-Return Actuators - Output Torques (Nm) - Models 1.5 to 3-SK3-635

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
1.5 RP1 485	16500	11	3.9	6577	5443	4309	-	-	-	-	-	-	-	-	-	4617	3327	2037
1.5 RP2 485	16500	11	3.4	5704	4724	3745	-	-	-	3355	2240	1126	4307	3192	2078	5259	4144	3030
1.5 SY1 485	16500	9	3.9	8099	3161	5380	-	-	-	-	-	-	-	-	-	5665	1940	2572
1.5 SY2 485	16500	8.5	3.4	7024	2744	4675	-	-	-	4110	1308	1438	5289	1862	2616	6468	2415	3795
1.5 SK1 485	16500	7.5	3.9	7753	4291	8392	-	-	-	-	-	-	-	-	-	8430	2418	2448
1.5 SK2 485	16500	7	3.4	6724	3724	7291	-	-	-	6087	1603	1365	7884	2333	2492	9682	3063	3619
1.5 SH1 485	16500	8.5	3.9	12167	3990	5134	-	-	-	-	-	-	-	-	-	5427	2667	4134
1.5 SH2 485	16500	8	3.3	10553	3464	4461	-	-	-	3939	1824	2375	5066	2545	4173	6193	3266	5971
1.5 RP1 535	16500	9.5	3.2	6577	5443	4309	-	-	-	4364	3074	1784	5522	4232	2942	6681	5391	4101
1.5 RP2 535	16500	9	2.8	5704	4724	3745	3848	2733	1619	5006	3892	2777	6165	5050	3935	7323	6208	5094
1.5 RP3 535	16500	10	4.1	8341	6705	5069	-	-	-	-	-	-	-	-	-	5817	3955	2093
1.5 SY1 535	16500	8	3.2	8099	3161	5380	-	-	-	5352	1793	2259	6787	2467	3694	8221	3141	5128
1.5 SY2 535	16500	8	2.8	7024	2744	4675	4720	1595	2048	6155	2268	3482	7589	2942	4916	9023	3616	6350
1.5 SY3 535	16500	8.5	4.1	10263	3893	6340	-	-	-	-	-	-	-	-	-	7129	2308	2665
1.5 SK1 535	16500	6	3.2	7753	4291	8392	-	-	-	7952	2224	2149	10140	3112	3520	12327	4001	4891
1.5 SK2 535	16500	6	2.8	6724	3724	7291	7017	1981	1948	9205	2869	3319	11392	3758	4691	13580	4646	6062
1.5 SK3 535	16500	6.5	4.1	9827	5311	9938	-	-	-	-	-	-	-	-	-	10568	2841	2532
1.5 SH1 535	16500	7	3.2	12167	3990	5134	-	-	-	5128	2476	3657	6499	3353	5845	7871	4229	8032
1.5 SH2 535	16500	7	2.8	10553	3464	4461	4523	2198	3306	5894	3074	5493	7265	3951	7681	8636	4828	9868
1.5 SH3 535	16500	8	4.1	15386	4888	6047	-	-	-	-	-	-	-	-	-	6831	3208	4369
1.5 RP1 585	16500	8	2.7	6577	5443	4309	4792	3502	2212	6177	4887	3597	7562	6272	4982	8947	7657	6367
1.5 RP2 585	16500	7.5	2.3	5704	4724	3745	5434	4320	3205	6819	5705	4590	8204	7090	5975	9589	8475	7360
1.5 RP3 585	16500	8.5	3.4	8341	6705	5069	-	-	-	5313	3451	1589	6698	4836	2974	8083	6221	4359
1.5 SY1 585	16500	7	2.7	8099	3161	5380	5882	2042	2789	7597	2848	4504	9312	3654	6219	11027	4459	7934
1.5 SY2 585	16500	6.5	2.3	7024	2744	4675	6685	2517	4012	8399	3323	5727	10114	4129	7442	11829	4934	9156
1.5 SY3 585	16500	7	3.4	10263	3893	6340	-	-	-	6505	2015	2041	8220	2821	3756	9935	3627	5471
1.5 SK1 585	16500	5	2.7	7753	4291	8392	8761	2552	2656	11376	3614	4295	13992	4677	5935	-	-	-
1.5 SK2 585	16500	5	2.4	6724	3724	7291	10013	3198	3826	12629	4260	5466	15244	5322	7105	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
1.5 SK3 585	16500	5.5	3.4	9827	5311	9938	-	-	-	9617	2454	1935	12232	3517	3575	14848	4579	5214
1.5 SH1 585	16500	6	2.7	12167	3990	5134	5635	2800	4466	7274	3848	7081	8914	4897	9697	10553	5945	12312
1.5 SH2 585	16500	5.5	2.4	10553	3464	4461	6401	3399	6302	8040	4447	8917	9680	5496	11533	11319	6544	14148
1.5 SH3 585	16500	7	3.4	15386	4888	6047	-	-	-	6235	2827	3418	7875	3876	6033	9514	4924	8649
3 RP1 585	33000	10.5	3.7	11505	9382	7259	-	-	-	-	-	-	-	-	-	9257	6842	4427
3 RP2 585	33000	10	2.9	8895	7409	5924	5522	3831	2141	7273	5583	3892	9025	7334	5644	10777	9086	7395
3 SY1 585	33000	10	3.7	14161	5448	9072	-	-	-	-	-	-	-	-	-	11366	3990	5576
3 SY2 585	33000	10	2.9	10955	4303	7393	6770	2236	2717	8939	3254	4886	11108	4273	7054	13276	5292	9223
3 SK1 585	33000	7.5	3.7	13557	7414	14184	-	-	-	-	-	-	-	-	-	16940	4997	5310
3 SK2 585	33000	7	2.9	10487	5835	11519	10049	2763	2583	13357	4107	4656	16665	5450	6730	19972	6793	8803
3 SH1 585	33000	9	3.7	21251	6858	8655	-	-	-	-	-	-	-	-	-	10887	5457	8899
3 SH2 585	33000	8	2.9	16466	5438	7055	6487	3095	4420	8561	4421	7728	10634	5747	11036	12708	7073	14344
3 RP1 635	33000	10	3.2	11505	9382	7259				8251	5836	3421	10315	7900	5485	12379	9964	7549
3 RP2 635	33000	10	2.5	8895	7409	5924	7707	6017	4326	9771	8080	6390	11835	10144	8454	13899	12208	10518
3 RP3 635	33000	10.5	4.1	14706	11788	8869	-	-	-	-	-	-	-	-	-	10547	7227	3906
3 SY1 635	33000	8.5	3.2	14161	5448	9072	-	-	-	10121	3405	4331	12676	4605	6886	15232	5806	9441
3 SY2 635	33000	8.5	2.5	10955	4303	7393	9476	3507	5423	12031	4707	7978	14587	5908	10533	17142	7108	13089
3 SY3 635	33000	9	4.1	18094	6844	11096	-	-	-	-	-	-	-	-	-	12929	4218	4967
3 SK1 635	33000	6.5	3.2	13557	7414	14184	-	-	-	15041	4226	4120	18939	5809	6563	22836	7391	9006
3 SK2 635	33000	6	2.4	10487	5835	11519	14176	4439	5170	18074	6022	7613	21971	7605	10056	25868	9187	12499
3 SK3 635	33000	7	4	17324	9340	17401	-	-	-	-	-	-	-	-	-	19175	5199	4720

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							5.5			6			6.5			7		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
1.5 RP1 485	16500	11	3.9	6577	5443	4309	5569	4279	2989	6521	5231	3940	7472	6182	4892	8424	7134	5844
1.5 RP2 485	16500	11	3.4	5704	4724	3745	6211	5096	3982	7163	6048	4934	8115	7000	5885	9067	7952	6837
1.5 SY1 485	16500	9	3.9	8099	3161	5380	6844	2494	3751	8023	3048	4930	9201	3602	6108	10380	4155	7287
1.5 SY2 485	16500	8.5	3.4	7024	2744	4675	7646	2969	4974	8825	3523	6152	10004	4076	7331	11182	4630	8510
1.5 SK1 485	16500	7.5	3.9	7753	4291	8392	10227	3148	3575	12025	3878	4702	13823	4608	5829	15620	5338	6956
1.5 SK2 485	16500	7	3.4	6724	3724	7291	11480	3793	4745	13277	4523	5872	15075	5253	6999	-	-	-
1.5 SH1 485	16500	8.5	3.9	12167	3990	5134	6554	3388	5932	7681	4108	7730	8808	4829	9528	9935	5550	11325
1.5 SH2 485	16500	8	3.3	10553	3464	4461	7320	3987	7768	8447	4707	9566	9574	5428	11364	10701	6149	13161
1.5 RP1 535	16500	9.5	3.2	6577	5443	4309	7839	6549	5259	8997	7707	6417	10156	8866	7576	11314	10024	8734
1.5 RP2 535	16500	9	2.8	5704	4724	3745	8481	7367	6252	9640	8525	7410	10798	9683	8569	11956	10842	9727
1.5 RP3 535	16500	10	4.1	8341	6705	5069	6975	5113	3251	8133	6272	4410	9292	7430	5568	10450	8588	6726
1.5 SY1 535	16500	8	3.2	8099	3161	5380	9655	3815	6562	11089	4489	7996	12523	5162	9430	13958	5836	10865
1.5 SY2 535	16500	8	2.8	7024	2744	4675	10457	4290	7785	11891	4963	9219	13326	5637	10653	14760	6311	12087
1.5 SY3 535	16500	8.5	4.1	10263	3893	6340	8563	2982	4099	9997	3656	5533	11431	4330	6967	12865	5003	8401
1.5 SK1 535	16500	6	3.2	7753	4291	8392	14515	4889	6263	-	-	-	-	-	-	-	-	-
1.5 SK2 535	16500	6	2.8	6724	3724	7291	15767	5534	7433	-	-	-	-	-	-	-	-	-
1.5 SK3 535	16500	6.5	4.1	9827	5311	9938	12755	3729	3903	14943	4617	5274	-	-	-	-	-	-
1.5 SH1 535	16500	7	3.2	12167	3990	5134	9242	5106	10220	10613	5983	12407	11984	6860	14595	-	-	-
1.5 SH2 535	16500	7	2.8	10553	3464	4461	10007	5705	12056	11379	6582	14243	12750	7459	16431	-	-	-
1.5 SH3 535	16500	8	4.1	15386	4888	6047	8203	4085	6556	9574	4962	8744	10945	5839	10931	12316	6716	13119
1.5 RP1 585	16500	8	2.7	6577	5443	4309	10332	9042	7752	11717	10427	9137	13102	11812	10522	14487	13197	11907
1.5 RP2 585	16500	7.5	2.3	5704	4724	3745	10974	9860	8745	12359	11245	10130	13744	12630	11515	15129	14015	12900
1.5 RP3 585	16500	8.5	3.4	8341	6705	5069	9468	7606	5744	10853	8991	7129	12238	10376	8514	13623	11761	9899
1.5 SY1 585	16500	7	2.7	8099	3161	5380	12742	5265	9649	14456	6070	11363	16171	6876	13078	-	-	-
1.5 SY2 585	16500	6.5	2.3	7024	2744	4675	13544	5740	10871	15259	6545	12586	-	-	-	-	-	-
1.5 SY3 585	16500	7	3.4	10263	3893	6340	11649	4432	7185	13364	5238	8900	15079	6043	10615	-	-	-
1.5 SK1 585	16500	5	2.7	7753	4291	8392	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SK2 585	16500	5	2.4	6724	3724	7291	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SK3 585	16500	5.5	3.4	9827	5311	9938	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SH1 585	16500	6	2.7	12167	3990	5134	12193	6994	14927	-	-	-	-	-	-	-	-	-
1.5 SH2 585	16500	5.5	2.4	10553	3464	4461	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SH3 585	16500	7	3.4	15386	4888	6047	11154	5973	11264	12793	7021	13880	14433	8070	16495	-	-	-
3 RP1 585	33000	10.5	3.7	11505	9382	7259	11008	8593	6178	12760	10345	7930	14511	12096	9681	16263	13848	11433
3 RP2 585	33000	10	2.9	8895	7409	5924	12528	10838	9147	14280	12589	10899	16031	14341	12650	17783	16092	14402
3 SY1 585	33000	10	3.7	14161	5448	9072	13535	5009	7744	15703	6027	9913	17872	7046	12082	20041	8065	14250
3 SY2 585	33000	10	2.9	10955	4303	7393	15445	6311	11392	17614	7330	13560	19782	8349	15729	21951	9368	17898
3 SK1 585	33000	7.5	3.7	13557	7414	14184	20248	6340	7383	23556	7684	9457	26864	9027	11530	30171	10370	13604
3 SK2 585	33000	7	2.9	10487	5835	11519	23280	8136	10877	26588	9480	12950	29896	10823	15024	-	-	-
3 SH1 585	33000	9	3.7	21251	6858	8655	12961	6784	12207	15034	8110	15515	17108	9436	18823	19181	10762	22131
3 SH2 585	33000	8	2.9	16466	5438	7055	14781	8399	17652	16855	9725	20959	18928	11051	24267	21001	12378	27575
3 RP1 635	33000	10	3.2	11505	9382	7259	14443	12028	9613	16506	14091	11676	18570	16155	13740	20634	18219	15804
3 RP2 635	33000	10	2.5	8895	7409	5924	15963	14272	12581	18026	16336	14645	20090	18400	16709	22154	20463	18773
3 RP3 635	33000	10.5	4.1	14706	11788	8869	12611	9290	5970	14675	11354	8034	16739	13418	10097	18803	15482	12161
3 SY1 635	33000	8.5	3.2	14161	5448	9072	17787	7006	11996	20342	8207	14552	22898	9407	17107	25453	10608	19662
3 SY2 635	33000	8.5	2.5	10955	4303	7393	19697	8309	15644	22253	9509	18199	24808	10710	20755	27363	11910	23310
3 SY3 635	33000	9	4.1	18094	6844	11096	15484	5418	7522	18039	6618	10077	20594	7819	12633	23150	9019	15188
3 SK1 635	33000	6.5	3.2	13557	7414	14184	26734	8974	11449	30631	10557	13892	-	-	-	-	-	-
3 SK2 635	33000	6	2.4	10487	5835	11519	29766	10770	14942	-	-	-	-	-	-	-	-	-
3 SK3 635	33000	7	4	17324	9340	17401	23073	6782	7163	26970	8364	9606	30867	9947	12049	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							7.5			8			8.5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
1.5 RP1 485	16500	11	3.9	6577	5443	4309	9376	8086	6796	10328	9038	7748	11280	9990	8700
1.5 RP2 485	16500	11	3.4	5704	4724	3745	10019	8904	7789	10971	9856	8741	11923	10808	9693
1.5 SY1 485	16500	9	3.9	8099	3161	5380	11559	4709	8466	12737	5263	9644	13916	5816	10823
1.5 SY2 485	16500	8.5	3.4	7024	2744	4675	12361	5184	9688	13540	5738	10867	14718	6291	12045
1.5 SK1 485	16500	7.5	3.9	7753	4291	8392	-	-	-	-	-	-	-	-	-
1.5 SK2 485	16500	7	3.4	6724	3724	7291	-	-	-	-	-	-	-	-	-
1.5 SH1 485	16500	8.5	3.9	12167	3990	5134	11062	6270	13123	12189	6991	14921	-	-	-
1.5 SH2 485	16500	8	3.3	10553	3464	4461	11827	6869	14959	-	-	-	-	-	-
1.5 RP1 535	16500	9.5	3.2	6577	5443	4309	12472	11182	9892	13631	12341	11051	14789	13499	12209
1.5 RP2 535	16500	9	2.8	5704	4724	3745	13115	12000	10885	14273	13158	12044	15432	14317	13202
1.5 RP3 535	16500	10	4.1	8341	6705	5069	11609	9747	7885	12767	10905	9043	13925	12063	10202
1.5 SY1 535	16500	8	3.2	8099	3161	5380	15392	6510	12299	-	-	-	-	-	-
1.5 SY2 535	16500	8	2.8	7024	2744	4675	16194	6985	13521	-	-	-	-	-	-
1.5 SY3 535	16500	8.5	4.1	10263	3893	6340	14300	5677	9836	15734	6351	11270	-	-	-
1.5 SK1 535	16500	6	3.2	7753	4291	8392	-	-	-	-	-	-	-	-	-
1.5 SK2 535	16500	6	2.8	6724	3724	7291	-	-	-	-	-	-	-	-	-
1.5 SK3 535	16500	6.5	4.1	9827	5311	9938	-	-	-	-	-	-	-	-	-
1.5 SH1 535	16500	7	3.2	12167	3990	5134	-	-	-	-	-	-	-	-	-
1.5 SH2 535	16500	7	2.8	10553	3464	4461	-	-	-	-	-	-	-	-	-
1.5 SH3 535	16500	8	4.1	15386	4888	6047	13688	7593	15306	-	-	-	-	-	-
1.5 RP1 585	16500	8	2.7	6577	5443	4309	15872	14582	13292	-	-	-	-	-	-
1.5 RP2 585	16500	7.5	2.3	5704	4724	3745	-	-	-	-	-	-	-	-	-
1.5 RP3 585	16500	8.5	3.4	8341	6705	5069	15008	13146	11284	16393	14531	12669	-	-	-
1.5 SY1 585	16500	7	2.7	8099	3161	5380	-	-	-	-	-	-	-	-	-
1.5 SY2 585	16500	6.5	2.3	7024	2744	4675	-	-	-	-	-	-	-	-	-
1.5 SY3 585	16500	7	3.4	10263	3893	6340	-	-	-	-	-	-	-	-	-
1.5 SK1 585	16500	5	2.7	7753	4291	8392	-	-	-	-	-	-	-	-	-
1.5 SK2 585	16500	5	2.4	6724	3724	7291	-	-	-	-	-	-	-	-	-
1.5 SK3 585	16500	5.5	3.4	9827	5311	9938	-	-	-	-	-	-	-	-	-
1.5 SH1 585	16500	6	2.7	12167	3990	5134	-	-	-	-	-	-	-	-	-
1.5 SH2 585	16500	5.5	2.4	10553	3464	4461	-	-	-	-	-	-	-	-	-
1.5 SH3 585	16500	7	3.4	15386	4888	6047	-	-	-	-	-	-	-	-	-
3 RP1 585	33000	10.5	3.7	11505	9382	7259	18015	15600	13185	19766	17351	14936	21518	19103	16688
3 RP2 585	33000	10	2.9	8895	7409	5924	19535	17844	16153	21286	19596	17905	23038	21347	19657
3 SY1 585	33000	10	3.7	14161	5448	9072	22210	9084	16419	24378	10103	18588	26547	11122	20757
3 SY2 585	33000	10	2.9	10955	4303	7393	24120	10386	20067	26289	11405	22235	28457	12424	24404
3 SK1 585	33000	7.5	3.7	13557	7414	14184	-	-	-	-	-	-	-	-	-
3 SK2 585	33000	7	2.9	10487	5835	11519	-	-	-	-	-	-	-	-	-
3 SH1 585	33000	9	3.7	21251	6858	8655	21255	12088	25438	23328	13414	28746	25402	14740	32054
3 SH2 585	33000	8	2.9	16466	5438	7055	23075	13704	30883	-	-	-	-	-	-
3 RP1 635	33000	10	3.2	11505	9382	7259	22698	20283	17868	24762	22347	19932	26826	24411	21996
3 RP2 635	33000	10	2.5	8895	7409	5924	24218	22527	20837	26282	24591	22901	28346	26655	24964
3 RP3 635	33000	10.5	4.1	14706	11788	8869	20867	17546	14225	22930	19610	16289	24994	21673	18353
3 SY1 635	33000	8.5	3.2	14161	5448	9072	28008	11808	22218	30563	13008	24773	-	-	-
3 SY2 635	33000	8.5	2.5	10955	4303	7393	29918	13110	25865	32474	14311	28420	-	-	-
3 SY3 635	33000	9	4.1	18094	6844	11096	25705	10220	17743	28260	11420	20298	30816	12621	22854
3 SK1 635	33000	6.5	3.2	13557	7414	14184	-	-	-	-	-	-	-	-	-
3 SK2 635	33000	6	2.4	10487	5835	11519	-	-	-	-	-	-	-	-	-
3 SK3 635	33000	7	4	17324	9340	17401	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							9			9.5			10		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
1.5 RP1 485	16500	11	3.9	6577	5443	4309	12232	10942	9652	13184	11894	10604	14136	12846	11556
1.5 RP2 485	16500	11	3.4	5704	4724	3745	12875	11760	10645	13827	12712	11597	14779	13664	12549
1.5 SY1 485	16500	9	3.9	8099	3161	5380	15095	6370	12002	16273	6924	13180	-	-	-
1.5 SY2 485	16500	8.5	3.4	7024	2744	4675	15897	6845	13224	-	-	-	-	-	-
1.5 SK1 485	16500	7.5	3.9	7753	4291	8392	-	-	-	-	-	-	-	-	-
1.5 SK2 485	16500	7	3.4	6724	3724	7291	-	-	-	-	-	-	-	-	-
1.5 SH1 485	16500	8.5	3.9	12167	3990	5134	-	-	-	-	-	-	-	-	-
1.5 SH2 485	16500	8	3.3	10553	3464	4461	-	-	-	-	-	-	-	-	-
1.5 RP1 535	16500	9.5	3.2	6577	5443	4309	15948	14657	13367	-	-	-	-	-	-
1.5 RP2 535	16500	9	2.8	5704	4724	3745	-	-	-	-	-	-	-	-	-
1.5 RP3 535	16500	10	4.1	8341	6705	5069	15084	13222	11360	16242	14380	12518	-	-	-
1.5 SY1 535	16500	8	3.2	8099	3161	5380	-	-	-	-	-	-	-	-	-
1.5 SY2 535	16500	8	2.8	7024	2744	4675	-	-	-	-	-	-	-	-	-
1.5 SY3 535	16500	8.5	4.1	10263	3893	6340	-	-	-	-	-	-	-	-	-
1.5 SK1 535	16500	6	3.2	7753	4291	8392	-	-	-	-	-	-	-	-	-
1.5 SK2 535	16500	6	2.8	6724	3724	7291	-	-	-	-	-	-	-	-	-
1.5 SK3 535	16500	6.5	4.1	9827	5311	9938	-	-	-	-	-	-	-	-	-
1.5 SH1 535	16500	7	3.2	12167	3990	5134	-	-	-	-	-	-	-	-	-
1.5 SH2 535	16500	7	2.8	10553	3464	4461	-	-	-	-	-	-	-	-	-
1.5 SH3 535	16500	8	4.1	15386	4888	6047	-	-	-	-	-	-	-	-	-
1.5 RP1 585	16500	8	2.7	6577	5443	4309	-	-	-	-	-	-	-	-	-
1.5 RP2 585	16500	7.5	2.3	5704	4724	3745	-	-	-	-	-	-	-	-	-
1.5 RP3 585	16500	8.5	3.4	8341	6705	5069	-	-	-	-	-	-	-	-	-
1.5 SY1 585	16500	7	2.7	8099	3161	5380	-	-	-	-	-	-	-	-	-
1.5 SY2 585	16500	6.5	2.3	7024	2744	4675	-	-	-	-	-	-	-	-	-
1.5 SY3 585	16500	7	3.4	10263	3893	6340	-	-	-	-	-	-	-	-	-
1.5 SK1 585	16500	5	2.7	7753	4291	8392	-	-	-	-	-	-	-	-	-
1.5 SK2 585	16500	5	2.4	6724	3724	7291	-	-	-	-	-	-	-	-	-
1.5 SK3 585	16500	5.5	3.4	9827	5311	9938	-	-	-	-	-	-	-	-	-
1.5 SH1 585	16500	6	2.7	12167	3990	5134	-	-	-	-	-	-	-	-	-
1.5 SH2 585	16500	5.5	2.4	10553	3464	4461	-	-	-	-	-	-	-	-	-
1.5 SH3 585	16500	7	3.4	15386	4888	6047	-	-	-	-	-	-	-	-	-
3 RP1 585	33000	10.5	3.7	11505	9382	7259	23270	20854	18439	25021	22606	20191	26773	24358	21943
3 RP2 585	33000	10	2.9	8895	7409	5924	24789	23099	21408	26541	24851	23160	28293	26602	24912
3 SY1 585	33000	10	3.7	14161	5448	9072	28716	12140	22925	30885	13159	25094	-	-	-
3 SY2 585	33000	10	2.9	10955	4303	7393	30626	13443	26573	32795	14462	28742	-	-	-
3 SK1 585	33000	7.5	3.7	13557	7414	14184	-	-	-	-	-	-	-	-	-
3 SK2 585	33000	7	2.9	10487	5835	11519	-	-	-	-	-	-	-	-	-
3 SH1 585	33000	9	3.7	21251	6858	8655	-	-	-	-	-	-	-	-	-
3 SH2 585	33000	8	2.9	16466	5438	7055	-	-	-	-	-	-	-	-	-
3 RP1 635	33000	10	3.2	11505	9382	7259	28889	26474	24059	30953	28538	26123	-	-	-
3 RP2 635	33000	10	2.5	8895	7409	5924	30409	28719	27028	32473	30783	29092	-	-	-
3 RP3 635	33000	10.5	4.1	14706	11788	8869	27058	23737	20417	29122	25801	22480	31186	27865	24544
3 SY1 635	33000	8.5	3.2	14161	5448	9072	-	-	-	-	-	-	-	-	-
3 SY2 635	33000	8.5	2.5	10955	4303	7393	-	-	-	-	-	-	-	-	-
3 SY3 635	33000	9	4.1	18094	6844	11096	-	-	-	-	-	-	-	-	-
3 SK1 635	33000	6.5	3.2	13557	7414	14184	-	-	-	-	-	-	-	-	-
3 SK2 635	33000	6	2.4	10487	5835	11519	-	-	-	-	-	-	-	-	-
3 SK3 635	33000	7	4	17324	9340	17401	-	-	-	-	-	-	-	-	-

NOTES:
1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Output Torques - Models TPS 3-SH1-635 to 6

Table 5. TPS Compact Spring-Return Actuators - Output Torques (Nm) - Models 3-SH1-635 to 6

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
3 SH1 635	33000	7.5	3.1	21251	6858	8655	-	-	-	9697	4696	7001	12140	6259	10898	14583	7821	14795
3 SH2 635	33000	7	2.4	16466	5438	7055	9074	4750	8548	11517	6312	12445	13960	7874	16342	16403	9437	20240
3 SH3 635	33000	8.5	4	27119	8588	10583	-	-	-	-	-	-	-	-	-	12389	5853	8119
3 RP1 685	33000	9	2.8	11505	9382	7259	8552	6137	3722	10954	8539	6123	13355	10940	8525	15757	13342	10927
3 RP2 685	33000	8.5	2.1	8895	7409	5924	10072	8381	6691	12473	10783	9092	14875	13185	11494	17277	15586	13896
3 RP3 685	33000	9	3.5	14706	11788	8869	-	-	-	-	-	-	-	-	-	13925	10605	7284
3 SY1 685	33000	7.5	2.8	14161	5448	9072	10494	3580	4703	13467	4977	7677	16441	6374	10650	19414	7771	13624
3 SY2 685	33000	7	2.1	10955	4303	7393	12404	4882	8350	15377	6279	11324	18351	7676	14298	21324	9073	17271
3 SY3 685	33000	8	3.5	18094	6844	11096	-	-	-	11164	3389	3202	14137	4786	6176	17111	6182	9149
3 SK1 685	33000	5.5	2.7	13557	7414	14184	15610	4457	4476	20145	6299	7319	24680	8140	10162	29216	9982	13005
3 SK2 685	33000	5.5	2.1	10487	5835	11519	18642	6253	7969	23177	8094	10812	27712	9936	13655	32248	11778	16498
3 SK3 685	33000	6	3.5	17324	9340	17401	-	-	-	16484	4106	3033	21019	5948	5876	25554	7790	8719
3 SH1 685	33000	6.5	2.7	21251	6858	8655	10053	4924	7569	12896	6742	12104	15739	8560	16639	18582	10379	21175
3 SH2 685	33000	6	2.1	16466	5438	7055	11873	6540	13013	14716	8358	17549	17559	10176	22084	20402	11994	26619
3 SH3 685	33000	7.5	3.4	27119	8588	10583	-	-	-	10702	4774	5428	13545	6593	9963	16388	8411	14498
6 RP1 735	65000	200	3.6	22798	18184	13570	-	-	-	-	-	-	-	-	-	20441	15192	9942
6 RP2 735	65000	200	3.5	22033	17536	13038	-	-	-	-	-	-	-	-	-	21047	15930	10813
6 SY1 735	65000	9.5	3.6	28045	10557	16983	-	-	-	-	-	-	-	-	-	25103	8859	12516
6 SY2 735	65000	9.5	3.5	27103	10180	16320	-	-	-	16972	5113	4704	21415	7200	9146	25857	9287	13589
6 SK1 735	65000	7.5	3.6	26853	14421	26659	-	-	-	-	-	-	-	-	-	37427	11108	11921
6 SK2 735	65000	7	3.5	25951	13911	25628	-	-	-	25049	6185	4453	31825	8936	8700	38601	11688	12948
6 SH1 735	65000	8.5	3.6	42020	13235	16198	-	-	-	-	-	-	-	-	-	24045	12105	19950
6 SH2 735	65000	8.5	3.5	40602	12758	15564	-	-	-	16271	7216	8012	20518	9932	14788	24766	12649	21564
6 RP1 785	65000	10	3.2	22798	18184	13570	-	-	-	17303	12054	6804	21396	16147	10897	25489	20240	14990
6 RP2 785	65000	10	3.1	22033	17536	13038	-	-	-	17909	12792	7675	22002	16885	11768	26095	20978	15861
6 RP3 785	65000	10.5	3.8	27269	21072	14874	-	-	-	-	-	-	-	-	-	24006	16954	9903
6 SY1 785	65000	8.5	3.2	28045	10557	16983	-	-	-	21217	7034	8631	26285	9414	13699	31352	11795	18766
6 SY2 785	65000	8.5	3.1	27103	10180	16320	-	-	-	21972	7462	9704	27040	9843	14771	32107	12224	19839
6 SY3 785	65000	9	3.8	33519	12230	18660	-	-	-	-	-	-	-	-	-	29445	9892	12538
6 SK1 785	65000	10	3.2	22798	18184	13570	-	-	-	31502	8702	8207	39231	11841	13052	46960	14979	17897
6 SK2 785	65000	10	3.1	22033	17536	13038	-	-	-	32675	9281	9233	40404	12420	14078	48133	15559	18923

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							3.5			4			4.5			5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
6 SK3 785	65000	10.5	3.8	27269	21072	14874	-	-	-	-	-	-	-	-	-	43756	12274	11927
6 SH1 785	65000	6.5	3.1	26853	14421	26659	-	-	-	20330	9730	14024	25175	12828	21753	30020	15927	29482
6 SH2 785	65000	6.5	3	25951	13911	25628	16206	7175	7909	21051	10273	15638	25896	13372	23367	30741	16470	31096
6 SH3 785	65000	6.5	3.7	32100	16798	29475	-	-	-	-	-	-	-	-	-	28212	13647	20278
6 RP1 835	65000	9	2.8	22798	18184	13570	16976	11727	6478	21607	16358	11108	26238	20989	15739	30869	25620	20370
6 RP2 835	65000	9	2.7	22033	17536	13038	17582	12465	7348	22213	17096	11979	26844	21727	16610	31475	26358	21241
6 RP3 835	65000	9	3.4	27269	21072	14874	-	-	-	20124	13072	6021	24755	17703	10652	29386	22334	15283
6 SY1 835	65000	7.5	2.8	28045	10557	16983	20813	6843	8226	26546	9537	13960	32280	12231	19694	38014	14924	25427
6 SY2 835	65000	7.5	2.7	27103	10180	16320	21567	7272	9299	27301	9966	15032	33035	12659	20766	38768	15353	26500
6 SY3 835	65000	8	3.4	33519	12230	18660	-	-	-	24639	7634	7732	30372	10327	13466	36106	13021	19199
6 SK1 835	65000	5.5	2.8	26853	14421	26659	30884	8451	7820	39629	12002	13302	48375	15554	18784	57120	19105	24265
6 SK2 835	65000	5.5	2.7	25951	13911	25628	32057	9031	8846	40802	12582	14328	49548	16133	19810	58293	19684	25292
6 SK3 835	65000	6	3.4	32100	16798	29475	-	-	-	36425	9297	7332	45170	12848	12814	53915	16399	18295
6 SH1 835	65000	6.5	2.8	42020	13235	16198	19943	9482	13407	25425	12988	22152	30907	16494	30897	36389	20000	39642
6 SH2 835	65000	6.5	2.7	40602	12758	15564	20664	10026	15020	26146	13532	23766	31628	17037	32511	37109	20543	41256
6 SH3 835	65000	7	3.3	50110	15239	17787	-	-	-	23617	10708	12948	29099	14214	21693	34581	17720	30438

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)											
							5.5			6			6.5			7		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
3 SH1 635	33000	7.5	3.1	21251	6858	8655	17026	9384	18693	19469	10946	22590	21912	12508	26488	24355	14071	30385
3 SH2 635	33000	7	2.4	16466	5438	7055	18846	10999	24137	21290	12562	28035	23733	14124	31932	-	-	-
3 SH3 635	33000	8.5	4	27119	8588	10583	14832	7416	12016	17275	8978	15914	19718	10541	19811	22161	12103	23709
3 RP1 685	33000	9	2.8	11505	9382	7259	18159	15743	13328	20560	18145	15730	22962	20547	18132	25363	22948	20533
3 RP2 685	33000	8.5	2.1	8895	7409	5924	19678	17988	16297	22080	20390	18699	24482	22791	21101	26883	25193	23502
3 RP3 685	33000	9	3.5	14706	11788	8869	16327	13006	9686	18729	15408	12087	21130	17810	14489	23532	20211	16891
3 SY1 685	33000	7.5	2.8	14161	5448	9072	22388	9168	16597	25361	10565	19571	28335	11961	22544	31308	13358	25518
3 SY2 685	33000	7	2.1	10955	4303	7393	24298	10470	20245	27272	11867	23218	30245	13264	26192	-	-	-
3 SY3 685	33000	8	3.5	18094	6844	11096	20085	7579	12123	23058	8976	15096	26032	10373	18070	29005	11770	21043
3 SK1 685	33000	5.5	2.7	13557	7414	14184	-	-	-	-	-	-	-	-	-	-	-	-
3 SK2 685	33000	5.5	2.1	10487	5835	11519	-	-	-	-	-	-	-	-	-	-	-	-
3 SK3 685	33000	6	3.5	17324	9340	17401	30090	9631	11562	-	-	-	-	-	-	-	-	-
3 SH1 685	33000	6.5	2.7	21251	6858	8655	21425	12197	25710	24268	14015	30245	-	-	-	-	-	-
3 SH2 685	33000	6	2.1	16466	5438	7055	23245	13812	31154	-	-	-	-	-	-	-	-	-
3 SH3 685	33000	7.5	3.4	27119	8588	10583	19231	10229	19034	22074	12047	23569	24917	13865	28104	27760	15683	32640
6 RP1 735	65000	200	3.6	22798	18184	13570	24029	18780	13531	27617	22368	17119	31206	25956	20707	34794	29544	24295
6 RP2 735	65000	200	3.5	22033	17536	13038	24635	19518	14401	28223	23106	17989	31811	26694	21577	35399	30282	25165
6 SY1 735	65000	9.5	3.6	28045	10557	16983	29545	10946	16959	33988	13033	21402	38430	15120	25844	42873	17207	30287
6 SY2 735	65000	9.5	3.5	27103	10180	16320	30300	11374	18031	34743	13462	22474	39185	15549	26916	43628	17636	31359
6 SK1 735	65000	7.5	3.6	26853	14421	26659	44203	13860	16169	50979	16611	20416	57755	19363	24664	64531	22114	28911
6 SK2 735	65000	7	3.5	25951	13911	25628	45376	14439	17195	52152	17191	21443	58928	19942	25690	-	-	-
6 SH1 735	65000	8.5	3.6	42020	13235	16198	28292	14822	26726	32540	17538	33502	36787	20255	40278	41035	22971	47053
6 SH2 735	65000	8.5	3.5	40602	12758	15564	29013	15365	28340	33260	18082	35116	37508	20798	41891	41755	23514	48667
6 RP1 785	65000	10	3.2	22798	18184	13570	29582	24333	19083	33675	28425	23176	37768	32518	27269	41861	36611	31362
6 RP2 785	65000	10	3.1	22033	17536	13038	30187	25070	19953	34280	29163	24046	38373	33256	28139	42466	37349	32232
6 RP3 785	65000	10.5	3.8	27269	21072	14874	28099	21047	13996	32191	25140	18089	36284	29233	22182	40377	33326	26274
6 SY1 785	65000	8.5	3.2	28045	10557	16983	36420	14176	23834	41488	16556	28901	46555	18937	33969	51623	21318	39037
6 SY2 785	65000	8.5	3.1	27103	10180	16320	37175	14604	24906	42242	16985	29974	47310	19366	35041	52378	21746	40109
6 SY3 785	65000	9	3.8	33519	12230	18660	34513	12272	17606	39580	14653	22673	44648	17034	27741	49715	19414	32808
6 SK1 785	65000	10	3.2	22798	18184	13570	54689	18118	22742	62418	21256	27587	-	-	-	-	-	-
6 SK2 785	65000	10	3.1	22033	17536	13038	55862	18697	23768	63591	21836	28613	-	-	-	-	-	-
6 SK3 785	65000	10.5	3.8	27269	21072	14874	51485	15412	16772	59214	18551	21617	-	-	-	-	-	-
6 SH1 785	65000	6.5	3.1	26853	14421	26659	34865	19025	37212	39710	22124	44941	44555	25223	52670	49400	28321	60399
6 SH2 785	65000	6.5	3	25951	13911	25628	35586	19569	38825	40431	22667	46555	45276	25766	54284	50121	28865	62013
6 SH3 785	65000	6.5	3.7	32100	16798	29475	33057	16746	28007	37902	19844	35736	42747	22943	43466	47592	26041	51195
6 RP1 835	65000	9	2.8	22798	18184	13570	35500	30251	25001	40131	34881	29632	44762	39512	34263	49393	44143	38894
6 RP2 835	65000	9	2.7	22033	17536	13038	36105	30988	25871	40736	35619	30502	45367	40250	35133	49998	44881	39764
6 RP3 835	65000	9	3.4	27269	21072	14874	34017	26965	19914	38647	31596	24545	43278	36227	29175	47909	40858	33806
6 SY1 835	65000	7.5	2.8	28045	10557	16983	43747	17618	31161	49481	20311	36895	55215	23005	42628	60948	25699	48362
6 SY2 835	65000	7.5	2.7	27103	10180	16320	44502	18046	32233	50236	20740	37967	55969	23434	43701	61703	26127	49434
6 SY3 835	65000	8	3.4	33519	12230	18660	41840	15714	24933	47573	18408	30667	53307	21102	36400	59041	23795	42134
6 SK1 835	65000	5.5	2.8	26853	14421	26659	-	-	-	-	-	-	-	-	-	-	-	-
6 SK2 835	65000	5.5	2.7	25951	13911	25628	-	-	-	-	-	-	-	-	-	-	-	-
6 SK3 835	65000	6	3.4	32100	16798	29475	62660	19951	23777	-	-	-	-	-	-	-	-	-
6 SH1 835	65000	6.5	2.8	42020	13235	16198	41871	23506	48387	47352	27012	57132	-	-	-	-	-	-
6 SH2 835	65000	6.5	2.7	40602	12758	15564	42591	24049	50001	48073	27555	58746	-	-	-	-	-	-
6 SH3 835	65000	7	3.3	50110	15239	17787	40062	21226	39183	45544	24732	47928	51026	28238	56673	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							7.5			8			8.5		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
3 SH1 635	33000	7.5	3.1	21251	6858	8655	-	-	-	-	-	-	-	-	-
3 SH2 635	33000	7	2.4	16466	5438	7055	-	-	-	-	-	-	-	-	-
3 SH3 635	33000	8.5	4	27119	8588	10583	24604	13665	27606	27047	15228	31503	-	-	-
3 RP1 685	33000	9	2.8	11505	9382	7259	27765	25350	22935	30167	27752	25337	32568	30153	27738
3 RP2 685	33000	8.5	2.1	8895	7409	5924	29285	27594	25904	31687	29996	28306	-	-	-
3 RP3 685	33000	9	3.5	14706	11788	8869	25934	22613	19292	28335	25015	21694	30737	27416	24096
3 SY1 685	33000	7.5	2.8	14161	5448	9072	-	-	-	-	-	-	-	-	-
3 SY2 685	33000	7	2.1	10955	4303	7393	-	-	-	-	-	-	-	-	-
3 SY3 685	33000	8	3.5	18094	6844	11096	31979	13167	24017	-	-	-	-	-	-
3 SK1 685	33000	5.5	2.7	13557	7414	14184	-	-	-	-	-	-	-	-	-
3 SK2 685	33000	5.5	2.1	10487	5835	11519	-	-	-	-	-	-	-	-	-
3 SK3 685	33000	6	3.5	17324	9340	17401	-	-	-	-	-	-	-	-	-
3 SH1 685	33000	6.5	2.7	21251	6858	8655	-	-	-	-	-	-	-	-	-
3 SH2 685	33000	6	2.1	16466	5438	7055	-	-	-	-	-	-	-	-	-
3 SH3 685	33000	7.5	3.4	27119	8588	10583	-	-	-	-	-	-	-	-	-
6 RP1 735	65000	200	3.6	22798	18184	13570	38382	33132	27883	41970	36721	31471	45558	40309	35059
6 RP2 735	65000	200	3.5	22033	17536	13038	38987	33870	28753	42575	37458	32341	46164	41047	35930
6 SY1 735	65000	9.5	3.6	28045	10557	16983	47315	19294	34729	51758	21381	39172	56201	23468	43614
6 SY2 735	65000	9.5	3.5	27103	10180	16320	48070	19723	35802	52513	21810	40244	56955	23897	44687
6 SK1 735	65000	7.5	3.6	26853	14421	26659	-	-	-	-	-	-	-	-	-
6 SK2 735	65000	7	3.5	25951	13911	25628	-	-	-	-	-	-	-	-	-
6 SH1 735	65000	8.5	3.6	42020	13235	16198	45282	25687	53829	49529	28404	60605	-	-	-
6 SH2 735	65000	8.5	3.5	40602	12758	15564	46003	26231	55443	50250	28947	62219	-	-	-
6 RP1 785	65000	10	3.2	22798	18184	13570	45954	40704	35455	50047	44797	39548	54139	48890	43641
6 RP2 785	65000	10	3.1	22033	17536	13038	46559	41442	36325	50652	45535	40418	54745	49628	44511
6 RP3 785	65000	10.5	3.8	27269	21072	14874	44470	37419	30367	48563	41512	34460	52656	45605	38553
6 SY1 785	65000	8.5	3.2	28045	10557	16983	56690	23698	44104	61758	26079	49172	-	-	-
6 SY2 785	65000	8.5	3.1	27103	10180	16320	57445	24127	45176	62513	26508	50244	-	-	-
6 SY3 785	65000	9	3.8	33519	12230	18660	54783	21795	37876	59850	24176	42944	64918	26556	48011
6 SK1 785	65000	10	3.2	22798	18184	13570	-	-	-	-	-	-	-	-	-
6 SK2 785	65000	10	3.1	22033	17536	13038	-	-	-	-	-	-	-	-	-
6 SK3 785	65000	10.5	3.8	27269	21072	14874	-	-	-	-	-	-	-	-	-
6 SH1 785	65000	6.5	3.1	26853	14421	26659	-	-	-	-	-	-	-	-	-
6 SH2 785	65000	6.5	3	25951	13911	25628	-	-	-	-	-	-	-	-	-
6 SH3 785	65000	6.5	3.7	32100	16798	29475	52437	29140	58924	-	-	-	-	-	-
6 RP1 835	65000	9	2.8	22798	18184	13570	54024	48774	43525	58654	53405	48156	63285	58036	52787
6 RP2 835	65000	9	2.7	22033	17536	13038	54629	49512	44395	59260	54143	49026	63891	58774	53657
6 RP3 835	65000	9	3.4	27269	21072	14874	52540	45489	38437	57171	50120	43068	61802	54751	47699
6 SY1 835	65000	7.5	2.8	28045	10557	16983	-	-	-	-	-	-	-	-	-
6 SY2 835	65000	7.5	2.7	27103	10180	16320	-	-	-	-	-	-	-	-	-
6 SY3 835	65000	8	3.4	33519	12230	18660	64774	26489	47868	-	-	-	-	-	-
6 SK1 835	65000	5.5	2.8	26853	14421	26659				-	-	-	-	-	-
6 SK2 835	65000	5.5	2.7	25951	13911	25628	-	-	-	-	-	-	-	-	-
6 SK3 835	65000	6	3.4	32100	16798	29475	-	-	-	-	-	-	-	-	-
6 SH1 835	65000	6.5	2.8	42020	13235	16198	-	-	-	-	-	-	-	-	-
6 SH2 835	65000	6.5	2.7	40602	12758	15564	-	-	-	-	-	-	-	-	-
6 SH3 835	65000	7	3.3	50110	15239	17787	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque — AST: air starting torque
   SRT: spring running torque — ART: air running torque
   SET: spring ending torque — AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Hold Pressure (barg)	Spring Torque (Nm)			Operating Supply Pressure (barg)								
							9			9.5			10		
				SST	SRT	SET	AST	ART	AET	AST	ART	AET	AST	ART	AET
3 SH1 635	33000	7.5	3.1	21251	6858	8655	-	-	-	-	-	-	-	-	-
3 SH2 635	33000	7	2.4	16466	5438	7055	-	-	-	-	-	-	-	-	-
3 SH3 635	33000	8.5	4	27119	8588	10583	-	-	-	-	-	-	-	-	-
3 RP1 685	33000	9	2.8	11505	9382	7259	-	-	-	-	-	-	-	-	-
3 RP2 685	33000	8.5	2.1	8895	7409	5924	-	-	-	-	-	-	-	-	-
3 RP3 685	33000	9	3.5	14706	11788	8869	-	-	-	-	-	-	-	-	-
3 SY1 685	33000	7.5	2.8	14161	5448	9072	-	-	-	-	-	-	-	-	-
3 SY2 685	33000	7	2.1	10955	4303	7393	-	-	-	-	-	-	-	-	-
3 SY3 685	33000	8	3.5	18094	6844	11096	-	-	-	-	-	-	-	-	-
3 SK1 685	33000	5.5	2.7	13557	7414	14184	-	-	-	-	-	-	-	-	-
3 SK2 685	33000	5.5	2.1	10487	5835	11519	-	-	-	-	-	-	-	-	-
3 SK3 685	33000	6	3.5	17324	9340	17401	-	-	-	-	-	-	-	-	-
3 SH1 685	33000	6.5	2.7	21251	6858	8655	-	-	-	-	-	-	-	-	-
3 SH2 685	33000	6	2.1	16466	5438	7055	-	-	-	-	-	-	-	-	-
3 SH3 685	33000	7.5	3.4	27119	8588	10583	-	-	-	-	-	-	-	-	-
6 RP1 735	65000	200	3.6	22798	18184	13570	49146	43897	38647	52734	47485	42236	56322	51073	45824
6 RP2 735	65000	200	3.5	22033	17536	13038	49752	44635	39518	53340	48223	43106	56928	51811	46694
6 SY1 735	65000	9.5	3.6	28045	10557	16983	60643	25555	48057	-	-	-	-	-	-
6 SY2 735	65000	9.5	3.5	27103	10180	16320	61398	25984	49129	-	-	-	-	-	-
6 SK1 735	65000	7.5	3.6	26853	14421	26659	-	-	-	-	-	-	-	-	-
6 SK2 735	65000	7	3.5	25951	13911	25628	-	-	-	-	-	-	-	-	-
6 SH1 735	65000	8.5	3.6	42020	13235	16198	-	-	-	-	-	-	-	-	-
6 SH2 735	65000	8.5	3.5	40602	12758	15564	-	-	-	-	-	-	-	-	-
6 RP1 785	65000	10	3.2	22798	18184	13570	58232	52983	47734	62325	57076	51826	-	-	-
6 RP2 785	65000	10	3.1	22033	17536	13038	58838	53721	48604	62931	57814	52697	-	-	-
6 RP3 785	65000	10.5	3.8	27269	21072	14874	56749	49698	42646	60842	53790	46739	64935	57883	50832
6 SY1 785	65000	8.5	3.2	28045	10557	16983	-	-	-	-	-	-	-	-	-
6 SY2 785	65000	8.5	3.1	27103	10180	16320	-	-	-	-	-	-	-	-	-
6 SY3 785	65000	9	3.8	33519	12230	18660	-	-	-	-	-	-	-	-	-
6 SK1 785	65000	10	3.2	22798	18184	13570	-	-	-	-	-	-	-	-	-
6 SK2 785	65000	10	3.1	22033	17536	13038	-	-	-	-	-	-	-	-	-
6 SK3 785	65000	10.5	3.8	27269	21072	14874	-	-	-	-	-	-	-	-	-
6 SH1 785	65000	6.5	3.1	26853	14421	26659	-	-	-	-	-	-	-	-	-
6 SH2 785	65000	6.5	3	25951	13911	25628	-	-	-	-	-	-	-	-	-
6 SH3 785	65000	6.5	3.7	32100	16798	29475	-	-	-	-	-	-	-	-	-
6 RP1 835	65000	9	2.8	22798	18184	13570	-	-	-	-	-	-	-	-	-
6 RP2 835	65000	9	2.7	22033	17536	13038	-	-	-	-	-	-	-	-	-
6 RP3 835	65000	9	3.4	27269	21072	14874	-	-	-	-	-	-	-	-	-
6 SY1 835	65000	7.5	2.8	28045	10557	16983	-	-	-	-	-	-	-	-	-
6 SY2 835	65000	7.5	2.7	27103	10180	16320	-	-	-	-	-	-	-	-	-
6 SY3 835	65000	8	3.4	33519	12230	18660	-	-	-	-	-	-	-	-	-
6 SK1 835	65000	5.5	2.8	26853	14421	26659	-	-	-	-	-	-	-	-	-
6 SK2 835	65000	5.5	2.7	25951	13911	25628	-	-	-	-	-	-	-	-	-
6 SK3 835	65000	6	3.4	32100	16798	29475	-	-	-	-	-	-	-	-	-
6 SH1 835	65000	6.5	2.8	42020	13235	16198	-	-	-	-	-	-	-	-	-
6 SH2 835	65000	6.5	2.7	40602	12758	15564	-	-	-	-	-	-	-	-	-
6 SH3 835	65000	7	3.3	50110	15239	17787	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque — AST: air starting torque
   SRT: spring running torque — ART: air running torque
   SET: spring ending torque — AET: air ending torque

TPD Compact Double-Acting Pneumatic Actuators

Output Torques - Models TPD 0.A to 6

Table 6. TPD Compact Double-Acting Actuators - Output Torques (Nm) - Models 0.A to 6

Model	Design Torque (Nm)	MOP (barg)	Operating Supply Pressure (barg)														
			3.5			4			4.5			5			5.5		
			AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP 175	600	5	332	332	332	379	379	379	427	427	427	474	474	474	-	-	-
0.A SY 175	600	4	411	193	411	469	221	469	-	-	-	-	-	-	-	-	-
0.1 RP 235	1200	4.5	736	736	736	841	841	841	947	947	947	-	-	-	-	-	-
0.1 SY 235	1200	4	912	428	912	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP 280	3600	9.5	1372	1372	1372	1568	1568	1568	1764	1764	1764	1960	1960	1960	2156	2156	2156
0.3 SY 280	3600	7.5	1698	798	1698	1941	912	1941	2184	1026	2184	2426	1140	2426	2669	1254	2669
0.3 SK 280	3600	5	2591	1052	1624	2961	1202	1856	3331	1353	2088	-	-	-	-	-	-
0.3 SH 280	3600	5	1624	1039	2591	1856	1187	2961	2088	1335	3331	-	-	-	-	-	-
0.3 RP 335	3600	6.5	1964	1964	1964	2244	2244	2244	2525	2525	2525	2805	2805	2805	3086	3086	3086
0.3 SY 335	3600	5.5	2431	1142	2431	2779	1305	2779	3126	1469	3126	3473	1632	3473	-	-	-
0.9 RP 385	9900	11	3211	3211	3211	3670	3670	3670	4129	4129	4129	4587	4587	4587	5046	5046	5046
0.9 SY 385	9900	9	3976	1868	3976	4544	2135	4544	5112	2401	5112	5680	2668	5680	6248	2935	6248
0.9 SK 385	9900	6	6194	2515	3883	7079	2874	4437	7964	3234	4992	8848	3593	5546	9733	3952	6101
0.9 SH 385	9900	6	3883	2483	6194	4437	2838	7079	4992	3193	7964	5546	3547	8848	6101	3902	9733
0.9 RP 435	9900	8.5	4099	4099	4099	4685	4685	4685	5271	5271	5271	5856	5856	5856	6442	6442	6442
0.9 SY 435	9900	7	5075	2384	5075	5801	2725	5801	6526	3066	6526	7251	3406	7251	7976	3747	7976
0.9 SK 435	9900	4.5	7907	3211	4956	9037	3670	5665	-	-	-	-	-	-	-	-	-
0.9 SH 435	9900	4.5	4956	3170	7907	5665	3623	9037	-	-	-	-	-	-	-	-	-
1.5 RP 485	16500	9	6664	6664	6664	7616	7616	7616	8568	8568	8568	9520	9520	9520	10472	10472	10472
1.5 SY 485	16500	7	8251	3876	8251	9429	4430	9429	10608	4983	10608	11787	5537	11787	12965	6091	12965
1.5 SK 485	16500	5	12584	5110	7888	14382	5840	9015	16179	6570	10142	-	-	-	-	-	-
1.5 SH 485	16500	5	7888	5045	12584	9015	5766	14382	10142	6486	16179	-	-	-	-	-	-
1.5 RP 535	16500	7.5	8109	8109	8109	9267	9267	9267	10425	10425	10425	11584	11584	11584	12742	12742	12742
1.5 SY 535	16500	6	10039	4716	10039	11474	5390	11474	12908	6064	12908	14342	6738	14342	15776	7412	15776
3 RP 585	33000	9.5	12261	12261	12261	14013	14013	14013	15765	15765	15765	17516	17516	17516	19268	19268	19268
3 SY 585	33000	8	15181	7132	15181	17350	8151	17350	19519	9170	19519	21687	10188	21687	23856	11207	23856
3 SK 585	33000	5	23155	9403	14514	26462	10746	16588	29770	12089	18661	-	-	-	-	-	-
3 SH 585	33000	5	14514	9283	23155	16588	10609	26462	18661	11935	29770	-	-	-	-	-	-
3 RP 635	33000	8	14447	14447	14447	16511	16511	16511	18574	18574	18574	20638	20638	20638	22702	22702	22702
3 SY 635	33000	6.5	17887	8403	17887	20442	9604	20442	22998	10804	22998	25553	12005	25553	28108	13205	28108
3 SK 635	33000	4.5	27282	11079	17101	31179	12661	19544	-	-	-	-	-	-	-	-	-
3 SH 635	33000	4.5	17101	10937	27282	19544	12500	31179	-	-	-	-	-	-	-	-	-
6 RP 735	65000	9.5	25117	25117	25117	28705	28705	28705	32293	32293	32293	35881	35881	35881	39469	39469	39469
6 SY 735	65000	7.5	31098	14609	31098	35541	16697	35541	39983	18784	39983	44426	20871	44426	48868	22958	48868
6 SK 735	65000	5	47431	19261	29732	54207	22012	33979	60983	24764	38227	-	-	-	-	-	-
6 SH 735	65000	5	29732	19015	47431	33979	21731	54207	38227	24448	60983	-	-	-	-	-	-
6 RP 785	65000	8	28650	28650	28650	32743	32743	32743	36836	36836	36836	40929	40929	40929	45022	45022	45022
6 SY 785	65000	6.5	35473	16665	35473	40540	19045	40540	45608	21426	45608	50676	23807	50676	55743	26188	55743
6 SK 785	65000	4.5	54104	21970	33915	61833	25109	38760	-	-	-	-	-	-	-	-	-
6 SH 785	65000	4.5	33915	21690	54104	38760	24789	61833	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Model	Design Torque (Nm)	MOP (barg)	Operating Supply Pressure (barg)													
			6			6.7			7			7.5			8		
			AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP 175	600	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.A SY 175	600	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1 RP 235	1200	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SY 235	1200	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP 280	3600	9.5	2352	2352	2352	2548	2548	2548	2744	2744	2744	2940	2940	2940	3136	3136	3136
0.3 SY 280	3600	7.5	2912	1368	2912	3154	1482	3154	3397	1596	3397	-	-	-	-	-	-
0.3 SK 280	3600	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SH 280	3600	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP 335	3600	6.5	3366	3366	3366	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SY 335	3600	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 RP 385	9900	11	5505	5505	5505	5963	5963	5963	6422	6422	6422	6881	6881	6881	7340	7340	7340
0.9 SY 385	9900	9	6816	3202	6816	7384	3469	7384	7951	3736	7951	8519	4002	8519	9087	4269	9087
0.9 SK 385	9900	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SH 385	9900	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 RP 435	9900	8.5	7027	7027	7027	7613	7613	7613	8199	8199	8199	8784	8784	8784	9370	9370	9370
0.9 SY 435	9900	7	8701	4088	8701	9426	4428	9426	-	-	-	-	-	-	-	-	-
0.9 SK 435	9900	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SH 435	9900	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 RP 485	16500	9	11424	11424	11424	12376	12376	12376	13328	13328	13328	14279	14279	14279	15231	15231	15231
1.5 SY 485	16500	7	14144	6645	14144	15323	7198	15323	-	-	-	-	-	-	-	-	-
1.5 SK 485	16500	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SH 485	16500	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 RP 535	16500	7.5	13900	13900	13900	15059	15059	15059	16217	16217	16217	-	-	-	-	-	-
1.5 SY 535	16500	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 RP 585	33000	9.5	21019	21019	21019	22771	22771	22771	24523	24523	24523	26274	26274	26274	28026	28026	28026
3 SY 585	33000	8	26025	12226	26025	28193	13245	28193	30362	14264	30362	32531	15283	32531	-	-	-
3 SK 585	33000	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 SH 585	33000	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 RP 635	33000	8	24766	24766	24766	26830	26830	26830	28894	28894	28894	30957	30957	30957	-	-	-
3 SY 635	33000	6.5	30664	14405	30664	-	-	-	-	-	-	-	-	-	-	-	-
3 SK 635	33000	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 SH 635	33000	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 RP 735	65000	9.5	43057	43057	43057	46646	46646	46646	50234	50234	50234	53822	53822	53822	57410	57410	57410
6 SY 735	65000	7.5	53311	25045	53311	57753	27132	57753	62196	29219	62196	-	-	-	-	-	-
6 SK 735	65000	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 SH 735	65000	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 RP 785	65000	8	49115	49115	49115	53208	53208	53208	57301	57301	57301	61394	61394	61394	-	-	-
6 SY 785	65000	6.5	60811	28568	60811	-	-	-	-	-	-	-	-	-	-	-	-
6 SK 785	65000	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 SH 785	65000	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

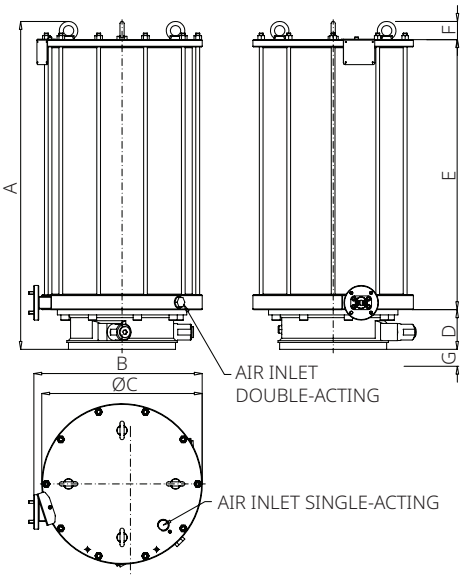
Model	Design Torque (Nm)	MOP (barg)	Operating Supply Pressure (barg)											
			8.5			9			9.5			10		
			AST	ART	AET	AST	ART	AET	AST	ART	AET	AST	ART	AET
0.A RP 175	600	5	-	-	-	-	-	-	-	-	-	-	-	-
0.A SY 175	600	4	-	-	-	-	-	-	-	-	-	-	-	-
0.1 RP 235	1200	4.5	-	-	-	-	-	-	-	-	-	-	-	-
0.1 SY 235	1200	4	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP 280	3600	9.5	3332	3332	3332	3527	3527	3527	-	-	-	-	-	-
0.3 SY 280	3600	7.5	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SK 280	3600	5	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SH 280	3600	5	-	-	-	-	-	-	-	-	-	-	-	-
0.3 RP 335	3600	6.5	-	-	-	-	-	-	-	-	-	-	-	-
0.3 SY 335	3600	5.5	-	-	-	-	-	-	-	-	-	-	-	-
0.9 RP 385	9900	11	7798	7798	7798	8257	8257	8257	8716	8716	8716	9175	9175	9175
0.9 SY 385	9900	9	9655	4536	9655	-	-	-	-	-	-	-	-	-
0.9 SK 385	9900	6	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SH 385	9900	6	-	-	-	-	-	-	-	-	-	-	-	-
0.9 RP 435	9900	8.5	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SY 435	9900	7	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SK 435	9900	4.5	-	-	-	-	-	-	-	-	-	-	-	-
0.9 SH 435	9900	4.5	-	-	-	-	-	-	-	-	-	-	-	-
1.5 RP 485	16500	9	16183	16183	16183	-	-	-	-	-	-	-	-	-
1.5 SY 485	16500	7	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SK 485	16500	5	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SH 485	16500	5	-	-	-	-	-	-	-	-	-	-	-	-
1.5 RP 535	16500	7.5	-	-	-	-	-	-	-	-	-	-	-	-
1.5 SY 535	16500	6	-	-	-	-	-	-	-	-	-	-	-	-
3 RP 585	33000	9.5	29777	29777	29777	31529	31529	31529	-	-	-	-	-	-
3 SY 585	33000	8	-	-	-	-	-	-	-	-	-	-	-	-
3 SK 585	33000	5	-	-	-	-	-	-	-	-	-	-	-	-
3 SH 585	33000	5	-	-	-	-	-	-	-	-	-	-	-	-
3 RP 635	33000	8	-	-	-	-	-	-	-	-	-	-	-	-
3 SY 635	33000	6.5	-	-	-	-	-	-	-	-	-	-	-	-
3 SK 635	33000	4.5	-	-	-	-	-	-	-	-	-	-	-	-
3 SH 635	33000	4.5	-	-	-	-	-	-	-	-	-	-	-	-
6 RP 735	65000	9.5	60998	60998	60998	64586	64586	64586	-	-	-	-	-	-
6 SY 735	65000	7.5	-	-	-	-	-	-	-	-	-	-	-	-
6 SK 735	65000	5	-	-	-	-	-	-	-	-	-	-	-	-
6 SH 735	65000	5	-	-	-	-	-	-	-	-	-	-	-	-
6 RP 785	65000	8	-	-	-	-	-	-	-	-	-	-	-	-
6 SY 785	65000	6.5	-	-	-	-	-	-	-	-	-	-	-	-
6 SK 785	65000	4.5	-	-	-	-	-	-	-	-	-	-	-	-
6 SH 785	65000	4.5	-	-	-	-	-	-	-	-	-	-	-	-

NOTES:

1. Design Torque is the maximum rating of helical spline mechanism.
2. Design pressure: 12 barg (maximum allowable pressure applicable to pressure equipment).
3. Maximum operating pressure (MOP) is the pressure required to produce the design torque of the actuator.
4. SST: spring starting torque
   SRT: spring running torque
   SET: spring ending torque
   AST: air starting torque
   ART: air running torque
   AET: air ending torque

Overall Dimensions

Figure 3. Actuator View



NOTE about G dimension:
Space for spool piece only if requested or necessary

Table 7. Dimensions

Model	Dimension (mm)							Weight (kg)				Air Inlet Connection NPT (in.)		Air Consumption (liters)	
	A	B	ØC	D	E	F	G	RP1/SY1/ SH1/SK1	RP2/SY2/ SH2/SK2	RP3/SY3/ SH3/SK3	Double-Acting RP/SY/SK/SH	SA	DA	SA	DA
TPS/TPD 0.A xxk 175	405	312	255.0	20.0	490.0	45	110	100	100	N/A	80	3/4	1/2	2.4	4
TPS/TPD 0.1 xxk 235	610	374	325.0	50.0	507.0	53	110	145	140	N/A	130	3/4	1/2	5.3	13
TPS/TPD 0.1 xxk 280	610	394	365.0	50.0	507.0	53	110	165	160	165	N/A	3/4	N/A	7.6	N/A
TPS/TPD 0.3 xxk 280	700	390	365.5	50.0	592.0	53	110	200	185	N/A	170	3/4	1/2	10	28
TPS/TPD 0.3 xxk 335	700	445	420.5	50.0	595.0	53	110	245	230	265	215	3/4	1/2	15	40
TPS/TPD 0.3 xxk 385	700	495	470.5	50.0	595.0	53	110	285	270	310	N/A	3/4	N/A	20	N/A
TPS/TPD 0.9 xxk 385	975	495	465.0	115.0	782.0	53	210	450	415	N/A	345	1	3/4	24	75
TPS/TPD 0.9 xxk 435	975	540	515.0	115.0	782.0	53	210	495	465	525	395	1	3/4	30	95
TPS/TPD 0.9 xxk 485	975	600	580.0	115.0	782.5	53	210	565	535	600	N/A	1	N/A	37	N/A
TPS/TPD 1.5 xxk 485	1100	600	580.0	125.5	884.5	74	245	710	680	N/A	565	1	3/4	49	136
TPS/TPD 1.5 xxk 535	1100	650	630.0	125.5	886.5	74	245	780	745	810	605	1	3/4	60	166
TPS/TPD 1.5 xxk 585	1100	700	680.0	125.5	891.5	74	245	860	830	900	N/A	1	N/A	71	N/A
TPS/TPD 3 xxk 585	1321	700	680.0	140.0	1107.0	74	265	1205	1155	N/A	940	1	3/4	90	251
TPS/TPD 3 xxk 635	1321	748	735.0	140.0	1107.0	74	265	1325	1275	1385	1070	1	3/4	105	296
TPS/TPD 3 xxk 685	1321	800	785.0	140.0	1107.0	74	265	1410	1360	1470	N/A	1	N/A	123	N/A
TPS/TPD 6 xxk 735	1679	840	835.0	170.0	1415.0	94	280	2455	2345	N/A	1675	1	1	174	467
TPS/TPD 6 xxk 785	1679	895	895.0	170.0	1415.0	94	280	2585	2495	2660	1795	1	1	198	533
TPS/TPD 6 xxk 835	1679	945	945.0	170.0	1415.0	94	280	2710	2620	2790	1910	1	N/A	224	N/A

NOTES:
1. Overall dimensions and weights given are without optional brackets, adaptor flange and any kind of accessories (limit switch box, manual override device or others).
2. For mounting flange details, see separate coupling dimensions leaflet.
3. Air inlet thread according to NPT standard (BSPP optional).
4. Air consumption (air volume required for one stroke); for double-acting, dead volume is included.
5. N/A = Not applicable
   SA = Single-acting
   DA = Double-acting

Biffi Italia s.r.l.
Strada Biffi 165
29017 Fiorenzuola d'Arda (PC)
Italy
T +39 0523 944 411

For complete list of sales and manufacturing sites, please visit
www.biffi.it or contact us at biffi_italia@biffi.it

BIFFI