

# Biffi RPD/RPS Pneumatic Actuators

## Rack and Pinion Design

Double-Acting and Spring-Return pneumatic quarter-turn actuators for ON-OFF and modulating control of valves in heavy duty service. Models available for output torques to 3700 Nm.



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## General Application

RPD and RPS actuators are designed to provide maximum torque output with minimum supply pressure for any quarter-turn application such as ball, plug, butterfly valves or dampers.

## Technical Data

Design pressure (MAWP):	12 barg maximum
Supply Medium:	Air, nitrogen or sweet gas
Output torques:	up to 3700 Nm
Standard temperature range:	-20 to +100 °C / -4 to +210 °F
Extended temperature range:	-60 to +135 °C / -70 to +275 °F
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 needed to engineer the mechanical loaded parts of the actuator and it is the one required to produce the Maximum Operating Torque (MOT) of the actuator.

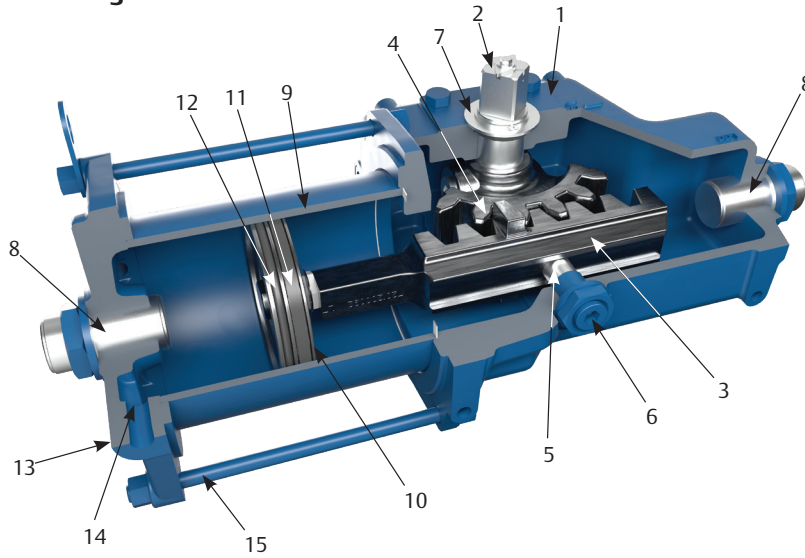
## Features

- Weatherproof and totally enclosed fabricated carbon steel housing for maximum strength.
- Constant output torque throughout the 90° stroke.
- Adjustable bronze sliding block ensures low transverse forces.
- Minimal friction nitrided rack.
- Precise angular stroke adjustment 90° +/- 4° at each end of travel.
- Electroless nickel-plated polished cylinder for corrosion resistance and minimal friction.
- Low hysteresis and high sensitivity floating-type piston seals prevent sticking problems.
- RPS spring module is fully encapsulated, ensuring personnel safety and simplifying assembly.
- RPS mountable as spring to close or spring to open without modification.
- Lever or jackscrew manual override.
- Extensive range of accessories available.
- Special coatings for offshore or corrosive environments.

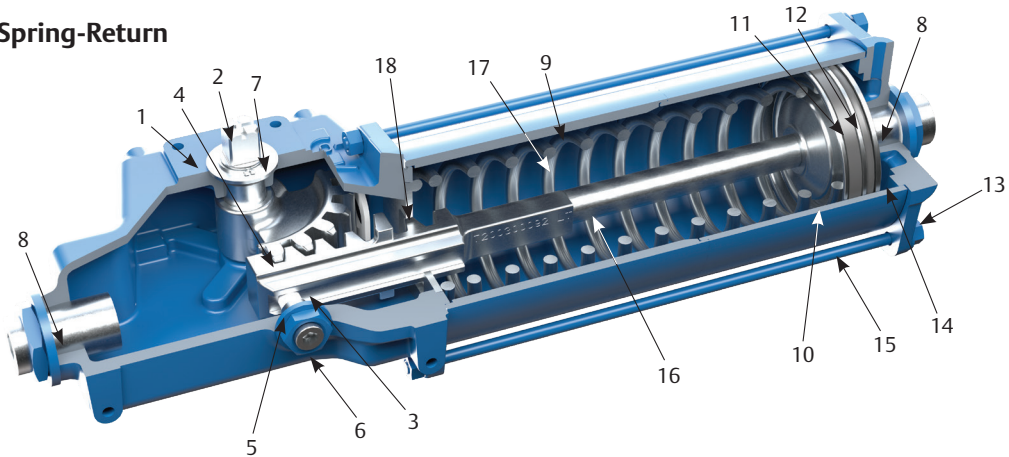
## Approvals

Safety Integrity Level: (IEC 61508-1÷7:2010)	suitable for use in SIL 3 applications
Area Classification: (ATEX)	II 2 GD
Enclosure Standards: (IEC 60529) (ANSI/NEMA 250)	IP66, IP66M, IP67M NEMA 4, 4X, 6
Pressure Equipment Directive (PED):	2014/68/EU
Machinery Directive:	2006/42/EC

**Figure 1. RPD - Double-Acting**



**Figure 2. RPS - Spring-Return**



**Materials**

Part	Material	Part	Material
1	Housing Ductile iron or carbon steel*	10	Piston Carbon steel
2	Shaft Alloy steel (nickel-plated)	11	Piston guide sliding ring PTFE + Graphite
3	Rack Ductile iron	12	Piston seal ring NBR rubber
4	Pinion Ductile iron	13	End flange Carbon steel
5	Sliding block Bronze	14	Cylinder gasket NBR Rubber
6	Thrust bearing screw Carbon steel	15	Tie rod Alloy steel
7	Shaft seal ring NBR rubber	16	Rack spacer rod Carbon steel
8	Travel stop screw Carbon steel	17	Spring Carbon steel
9	Cylinder tube Carbon steel (nickel-plated)	18	Spring retainer disk Carbon steel

**NOTE:**

\*Double-Acting available in carbon steel only.

BOM is for info only, please contact Factory for more details.  
Mounting brackets and tie rods are available in stainless steel as an option.  
Fluoroelastomer and fluorosilicone seals available as an option.

## Output Torques (Nm)

### RPD Double-Acting Pneumatic Actuator

Model	Operating Supply Pressure (barg)											MOP*
	3	3.5	4	4.5	5	5.5	6	6.5	8	10	12	
15-D1	72	86	99	112	126	139	152	165	205	258	311	12.0
15-D2	102	120	138	157	175	193	212	230	285	359	-	10.0
30-D1	131	155	178	202	226	249	273	296	367	462	556	12.0
30-D2	242	286	329	372	415	458	501	544	673	846	-	10.0
60-D1	298	351	404	457	510	563	616	668	827	1039	1251	12.0
60-D2	506	595	684	773	862	951	1040	1129	1396	1752	-	10.0
120-D1	596	701	805	910	1014	1119	1224	1328	1642	2061	2479	12.0
120-D2	1086	1275	1464	1652	1841	2030	2218	2407	2973	-	-	8.0
120-D2.4	1548	1816	2083	2351	2619	2887	3155	3423	-	-	-	7.0
120-D3	2223	2607	2990	3374	-	-	-	-	-	-	-	5.0

**NOTES:**

\* MOP = Maximum Operating Pressure (barg)

- 120-D2.4 Design pressure at 9.0 barg
- 120-D3 Design pressure at 5.0 barg

# Output Torques (Nm)

## RPS Spring-Return Pneumatic Actuator

Models 14-S1-A1 to 60-S2-J2

Model	Hold Pressure (barg)	MOP	BTC	ETC	Operating supply pressure (barg)											
					3		3.5		4		4.5		5		5.5	
					BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO
14-S1-A1	3.2	12.0	64	34	-	-	-	-	57	24	71	37	84	50	97	63
14-S1-B1	4.4	12.0	95	49	-	-	-	-	-	-	-	-	68	17	81	30
14-S1-J1	2.3	12.0	42	25	41	21	54	35	67	48	80	61	94	75	107	88
15-S2-A1	2.0	12.0	51	32	61	40	80	59	98	77	116	95	135	114	153	132
15-S2-B1	3.1	12.0	89	51	-	-	-	-	77	35	95	54	114	72	132	90
15-S2-C1	3.9	12.0	116	66	-	-	-	-	-	-	79	23	97	42	116	60
15-S2-D1	4.6	12.0	139	82	-	-	-	-	-	-	-	-	-	-	98	34
15-S2-J1	1.4	12.0	33	24	70	60	89	78	107	97	125	115	144	133	162	152
15-S2-A2	2.0	12.0	51	41	51	40	69	59	87	77	106	95	124	114	143	132
15-S2-B2	3.1	12.0	89	70	-	-	-	-	56	35	74	54	93	72	111	90
15-S2-C2	3.9	12.0	116	91	-	-	-	-	-	-	-	-	69	42	88	60
15-S2-D2	4.9	12.0	147	118	-	-	-	-	-	-	-	-	-	-	-	-
15-S2-J2	1.4	12.0	33	28	64	60	83	78	102	97	120	115	139	133	157	152
30-S2-A1	2.3	12.0	156	98	125	61	168	104	211	147	254	191	297	234	340	277
30-S2-B1	3.4	12.0	241	127	-	-	-	-	-	-	223	97	266	140	309	183
30-S2-C1	4.1	12.0	289	156	-	-	-	-	-	-	-	-	233	86	277	129
30-S2-D1	4.7	12.0	339	193	-	-	-	-	-	-	-	-	-	-	235	74
30-S2-J1	1.9	10.0	89	60	167	135	210	178	253	222	296	265	339	308	382	351
30-S2-A2	2.3	12.0	156	127	93	61	136	105	179	148	223	191	266	234	309	277
30-S2-B2	3.4	12.0	240	183	-	-	-	-	-	-	160	97	203	140	246	183
30-S2-C2	4.1	12.0	289	223	-	-	-	-	-	-	-	-	159	86	203	129
30-S2-D2	4.7	12.0	339	266	-	-	-	-	-	-	-	-	-	-	-	-
30-S2-J2	2.0	12.0	89	75	151	135	194	178	237	222	280	265	323	308	366	251
60-S2-A1	2.3	12.0	317	209	260	141	349	230	438	319	527	408	616	497	705	586
60-S2-B1	3.3	12.0	481	267	-	-	-	-	374	137	463	226	552	315	641	404
60-S2-C1	3.9	12.0	587	317	-	-	-	-	-	-	408	109	496	198	585	287
60-S2-D1	4.7	12.0	703	389	-	-	-	-	-	-	-	-	-	-	506	158
60-S2-J1	1.8	12.0	250	179	293	215	382	304	471	393	560	482	649	571	738	660
60-S2-A2	2.3	12.0	317	263	201	141	289	230	378	319	467	408	556	497	645	586
60-S2-B2	3.3	12.0	481	374	-	-	-	-	256	138	345	226	434	315	522	404
60-S2-C2	3.9	12.0	587	452	-	-	-	-	-	-	-	-	347	198	436	287
60-S2-D2	4.7	12.0	704	546	-	-	-	-	-	-	-	-	-	-	-	-
60-S2-J2	1.8	12.0	250	214	254	215	343	304	432	393	521	482	610	571	699	660

**NOTES:**

- MOP: Maximum Operating Pressure
- Hold pressure: the minimum pressure needed to operate the actuator
- BTC: Break to Close

- ETC: End to Close
- BTO: Break to Open
- ETO: End to Open

The table above can be used for spring to open (OP) actuators as follows:

- BTO (CL) = BTC (OP)
- ETO (CL) = ETC (OP)

- BTC (CL) = BTO (OP)
- ETC (CL) = ETO (OP)

Model	Hold Pressure (barg)	MOP	BTC	ETC	Operating supply pressure (barg)									
					6		6.5		8		10		12	
					BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO
14-S1-A1	3.2	12.0	64	34	111	77	124	90	164	130	217	183	270	236
14-S1-B1	4.4	12.0	95	49	94	43	107	56	147	96	200	149	253	202
14-S1-J1	2.3	12.0	42	25	120	101	133	114	173	154	226	207	279	260
15-S2-A1	2.0	12.0	51	32	171	150	190	169	245	224	318	297	392	371
15-S2-B1	3.1	12.0	89	51	150	109	169	127	224	182	297	256	371	329
15-S2-C1	3.9	12.0	116	66	134	78	153	97	208	152	281	225	354	299
15-S2-D1	4.6	12.0	139	82	116	53	135	71	190	126	263	200	337	273
15-S2-J1	1.4	12.0	33	24	181	170	199	188	254	243	327	317	-	-
15-S2-A2	2.0	12.0	51	41	161	150	179	169	234	224	308	297	381	371
15-S2-B2	3.1	12.0	89	70	130	109	148	127	203	182	276	256	350	329
15-S2-C2	3.9	12.0	116	91	106	78	125	97	180	152	253	225	326	299
15-S2-D2	4.9	12.0	147	118	76	44	94	62	149	117	223	191	296	264
15-S2-J2	1.4	12.0	33	28	175	170	194	188	249	243	322	317	396	390
30-S2-A1	2.3	12.0	156	98	383	320	427	363	556	492	728	664	900	837
30-S2-B1	3.4	12.0	241	127	352	226	395	269	524	398	697	571	869	743
30-S2-C1	4.1	12.0	289	156	320	172	363	215	492	345	664	517	837	689
30-S2-D1	4.7	12.0	339	193	279	117	322	160	451	290	623	462	796	634
30-S2-J1	1.9	10.0	89	60	425	394	468	437	597	566	770	739	-	-
30-S2-A2	2.3	12.0	156	127	352	320	395	363	524	492	697	665	869	837
30-S2-B2	3.4	12.0	240	183	289	226	332	269	462	399	634	571	806	743
30-S2-C2	4.1	12.0	289	223	246	172	289	215	418	344	590	517	763	689
30-S2-D2	4.7	12.0	339	266	198	117	241	160	370	290	543	462	715	634
30-S2-J2	2.0	12.0	89	75	410	394	453	437	582	566	754	739	-	-
60-S2-A1	2.3	12.0	317	209	794	675	883	764	1150	1030	1505	1386	1861	1742
60-S2-B1	3.3	12.0	481	267	729	493	818	582	1085	849	1441	1205	1797	1560
60-S2-C1	3.9	12.0	587	317	674	376	763	465	1030	731	1386	1087	1742	1443
60-S2-D1	4.7	12.0	703	389	595	247	683	336	950	603	1306	959	1662	1314
60-S2-J1	1.8	12.0	250	179	827	749	915	838	1182	1104	1538	1460	1894	1816
60-S2-A2	2.3	12.0	317	263	734	674	823	763	1090	1030	1446	1386	1801	1742
60-S2-B2	3.3	12.0	481	374	611	493	700	582	967	849	1323	1205	1679	1560
60-S2-C2	3.9	12.0	587	452	525	376	614	465	881	732	1237	1087	1592	1443
60-S2-D2	4.7	12.0	704	546	421	247	510	336	776	603	1132	959	1488	1314
60-S2-J2	1.8	12.0	250	214	788	749	877	838	1143	1105	1499	1460	1855	1816

**NOTES:**

- MOP: Maximum Operating Pressure
  - Hold pressure: the minimum pressure needed to operate the actuator
  - BTC: Break to Close
  - ETC: End to Close
  - BTO: Break to Open
  - ETO: End to Open
- The table above can be used for spring to open (OP) actuators as follows:
- BTO (CL) = BTC (OP)
  - ETO (CL) = ETC (OP)
  - BTC (CL) = BTO (OP)
  - ETC (CL) = ETO (OP)

**Models 120-S2-J1 to 120-S3-J2**

Model	Hold Pressure (barg)	MOP	BTC	ETC	Operating supply pressure (barg)											
					3		3.5		4		4.5		5		5.5	
					BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO
120-S2-J1	1.8	10.8	541	307	721	463	910	651	1098	840	1287	1029	1476	1217	1664	1406
120-S2-A1	2.3	11.2	705	420	597	281	785	470	974	658	1163	847	1351	1036	1540	1224
120-S2-B1	3.0	11.5	949	531	-	-	663	201	852	390	1040	578	1229	767	1418	956
120-S2-C1	3.9	11.8	1237	642	-	-	-	-	-	-	917	260	1106	448	1294	637
120-S2-D1	4.7	12.0	1507	784	-	-	-	-	-	-	-	-	-	-	1138	338
120-S2-J2	1.8	11.2	541	424	592	463	780	651	969	840	1158	1029	1346	1217	1535	1406
120-S2-A2	2.3	11.6	706	563	439	281	627	469	816	658	1005	847	1193	1035	1382	1224
120-S2-B2	3.0	12.0	949	740	-	-	-	-	620	389	809	578	998	767	1186	955
120-S2-C2	3.9	12.0	1237	940	-	-	-	-	-	-	-	-	777	448	965	637
120-S2-D2	4.7	12.0	1507	1145	-	-	-	-	-	-	-	-	-	-	-	-
120-S2.4-A1	1.7	7.9	699	413	1058	742	1326	1010	1594	1278	1862	1546	2129	1814	2397	2082
120-S2.4-B1	2.2	8.2	942	524	936	474	1203	741	1471	1009	1739	1277	2007	1545	2275	1813
120-S2.4-C1	2.8	8.4	1230	635	-	-	1080	423	1348	691	1616	959	1884	1227	2152	1494
120-S2.4-D1	3.3	8.7	1500	777	-	-	-	-	1191	392	1459	660	1727	928	1995	1196
120-S2.4-J1	1.3	7.7	534	301	1182	924	1450	1192	1718	1460	1986	1728	2254	1995	2522	2263
120-S2.4-A2	1.7	8.2	699	556	900	742	1168	1010	1436	1278	1704	1546	1971	1814	2239	2081
120-S2.4-B2	2.2	8.7	942	733	705	474	972	741	1240	1009	1508	1277	1776	1545	2044	1813
120-S2.4-C2	2.8	9.0	1230	933	-	-	751	423	1019	691	1287	958	1555	1226	1823	1494
120-S2.4-D2	3.3	9.0	1500	1138	-	-	-	-	792	392	1060	660	1328	928	1596	1196
120-S2.4-J2	1.3	7.9	534	417	1053	924	1321	1192	1589	1460	1857	1728	2125	1995	2392	2263
120-S3-A1	1.2	5.0	690	404	1734	1418	2117	1801	2500	2185	2884	2568	3267	2952	-	-
120-S3-B1	1.6	5.0	933	515	1611	1149	1995	1533	2378	1916	2762	2299	3145	2683	-	-
120-S3-C1	2.0	5.0	1221	626	1488	831	1871	1214	2255	1598	2638	1981	3022	2364	-	-
120-S3-D1	2.4	5.0	1491	768	1331	532	1715	916	2098	1299	2482	1682	2865	2066	-	-
120-S3-J1	1.0	5.0	525	292	1858	1600	2241	1983	2625	2366	3008	2750	3392	3133	-	-
120-S3-A2	1.2	5.0	690	547	1576	1418	1959	1801	2342	2185	2726	2568	3109	2951	-	-
120-S3-B2	1.6	5.0	933	724	1380	1149	1764	1533	2147	1916	2530	2299	2914	2683	-	-
120-S3-C2	2.0	5.0	1221	924	1159	830	1542	1214	1926	1597	2309	1981	2693	2364	-	-
120-S3-D2	2.4	5.0	1491	1129	932	532	1315	916	1699	1299	2082	1683	2466	2066	-	-
120-S3-J2	1.0	5.0	525	409	1729	1600	2112	1983	2496	2367	2879	2750	3262	3133	-	-

**NOTES:**

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The table above can be used for spring to open (OP) actuators as follows:

- BTO (CL) = BTC (OP)
- ETO (CL) = ETC (OP)
- BTC (CL) = BTO (OP)
- ETC (CL) = ETO (OP)

Model	Hold Pressure				Operating supply pressure (barg)									
	(barg)	MOP	BTC	ETC	6		6.5		8		10		12	
					BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO	BTO	ETO
120-S2-J1	1.8	10.8	541	307	1853	1595	2042	1783	2608	2349	3362	3104	-	-
120-S2-A1	2.3	11.2	705	420	1729	1413	1917	1602	2483	2168	3238	2922	-	-
120-S2-B1	3.0	11.5	949	531	1606	1144	1795	1333	2361	1899	3116	2654	-	-
120-S2-C1	3.9	11.8	1237	642	1483	826	1672	1014	2238	1580	2992	2335	-	-
120-S2-D1	4.7	12.0	1507	784	1326	527	1515	716	2081	1282	2836	2037	3590	2791
120-S2-J2	1.8	11.2	541	424	1724	1595	1913	1783	2479	2349	3233	3104	-	-
120-S2-A2	2.3	11.6	706	563	1571	1413	1759	1601	2325	2168	3080	2922	-	-
120-S2-B2	3.0	12.0	949	740	1375	1144	1564	1333	2130	1899	2885	2654	3639	3408
120-S2-C2	3.9	12.0	1237	940	1154	825	1343	1014	1909	1580	2663	2335	3418	3090
120-S2-D2	4.7	12.0	1507	1145	927	527	1116	716	1682	1282	2436	2037	3191	2791
120-S2.4-A1	1.7	7.9	699	413	2665	2349	2933	2617	3737	3421	-	-	-	-
120-S2.4-B1	2.2	8.2	942	524	2543	2081	2811	2349	3614	3152	-	-	-	-
120-S2.4-C1	2.8	8.4	1230	635	2419	1762	2687	2030	3491	2834	-	-	-	-
120-S2.4-D1	3.3	8.7	1500	777	2263	1464	2531	1731	3334	2535	-	-	-	-
120-S2.4-J1	1.3	7.7	534	301	2789	2531	3057	2799	-	-	-	-	-	-
120-S2.4-A2	1.7	8.2	699	556	2507	2349	2775	2617	3579	3421	-	-	-	-
120-S2.4-B2	2.2	8.7	942	733	2312	2081	2579	2348	3383	3152	-	-	-	-
120-S2.4-C2	2.8	9.0	1230	933	2091	1762	2358	2030	3162	2833	-	-	-	-
120-S2.4-D2	3.3	9.0	1500	1138	1863	1464	2131	1732	2935	2535	-	-	-	-
120-S2.4-J2	1.3	7.9	534	417	2660	2531	2928	2799	-	-	-	-	-	-
120-S3-A1	1.2	5.0	690	404	-	-	-	-	-	-	-	-	-	-
120-S3-B1	1.6	5.0	933	515	-	-	-	-	-	-	-	-	-	-
120-S3-C1	2.0	5.0	1221	626	-	-	-	-	-	-	-	-	-	-
120-S3-D1	2.4	5.0	1491	768	-	-	-	-	-	-	-	-	-	-
120-S3-J1	1.0	5.0	525	292	-	-	-	-	-	-	-	-	-	-
120-S3-A2	1.2	5.0	690	547	-	-	-	-	-	-	-	-	-	-
120-S3-B2	1.6	5.0	933	724	-	-	-	-	-	-	-	-	-	-
120-S3-C2	2.0	5.0	1221	924	-	-	-	-	-	-	-	-	-	-
120-S3-D2	2.4	5.0	1491	1129	-	-	-	-	-	-	-	-	-	-
120-S3-J2	1.0	5.0	525	409	-	-	-	-	-	-	-	-	-	-

**NOTES:**

- MOP: Maximum Operating Pressure
- Hold pressure: the minimum pressure needed to operate the actuator
- BTC: Break to Close

- ETC: End to Close
- BTO: Break to Open
- ETO: End to Open

The table above can be used for spring to open (OP) actuators as follows:

- BTO (CL) = BTC (OP)
- ETO (CL) = ETC (OP)

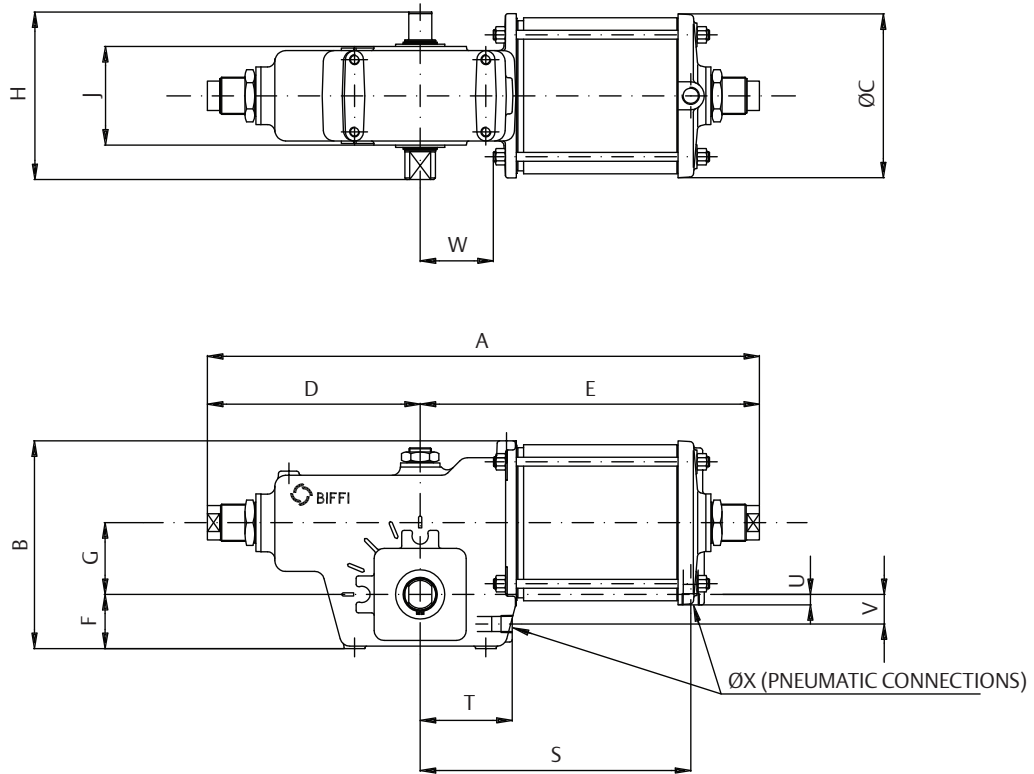
- BTC (CL) = BTO (OP)
- ETC (CL) = ETO (OP)

- 120-S2.4-xy 4 Design pressure at 9 barg
- 120-S3-xy Design pressure at 5 barg

# Overall Dimensions

## RPD Double-Acting Pneumatic Actuator

Figure 3. Models D1 and D2



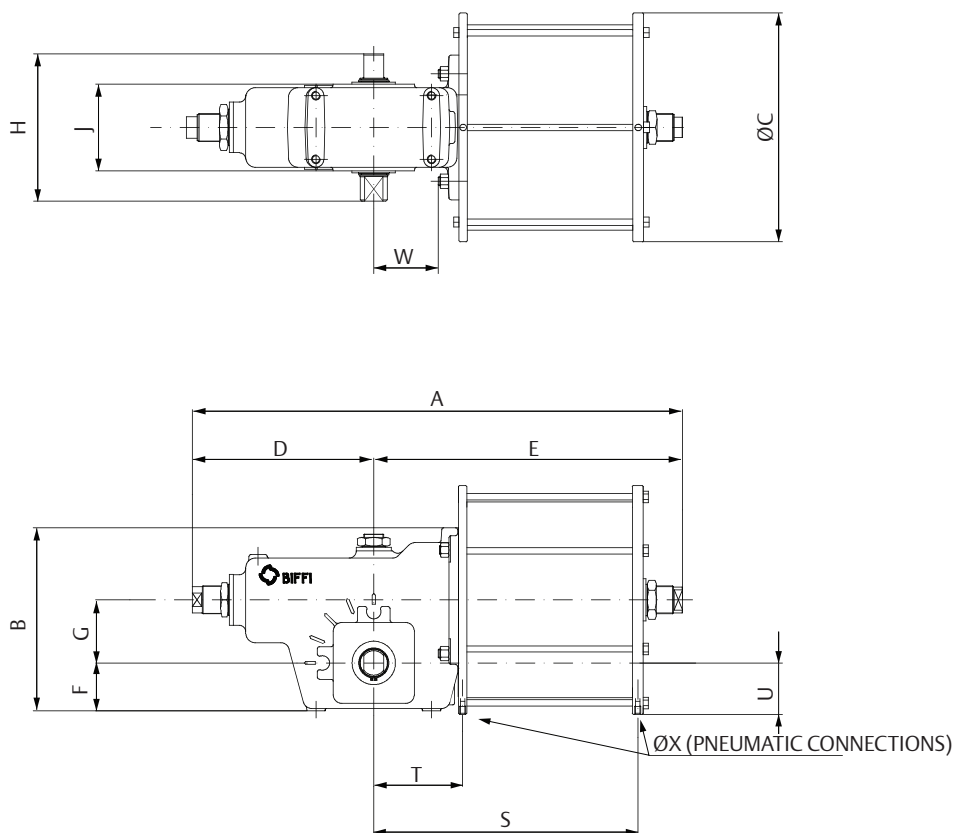
**NOTE:**  
W is the maximum allowable mounting bracket dimension (pneumatic cylinder side).

### Dimensions (mm)

Model	A	B	ØC	D	E	F	G	H	J	S	T	U	V	W	ØX (in.)*	Air consumption (liters) open	Air consumption (liters) close	Weight (kg)
15-D1	440	158	120	175	265	41	57	140	80	219	73	11	30	54	2 x 1/4	0.8	1.7	12
15-D2	440	158	120	175	265	41	57	140	80	219	73	11	30	54	2 x 1/4	0.9	1.8	13
30-D1	531	209	154	206	325	54	72	164	100	262	92	10	42	70	2 x 1/4	1.2	3.0	21
30-D2	531	209	154	206	325	54	72	164	100	262	92	10	42	70	2 x 1/4	2.0	4.0	25
60-D1	660	252	200	250	390	66	87	204	120	330	112	14	37	89	2 x 1/4	2.5	6.0	38
60-D2	660	252	200	250	390	66	87	204	120	330	112	14	37	89	2 x 1/4	4.0	8.0	44
120-D1	811	315	259	333	478	82	102	270	160	389	135	13	40	102	2 x 1/4	4.5	10.0	77
120-D2	811	315	259	333	478	82	102	270	160	389	135	13	40	102	2 x 1/4	8.0	15.0	85

**NOTE:**  
\* Pneumatic connection NPT (in.)

**Figure 4. Model D3**



**NOTE:**  
W is the maximum allowable mounting bracket dimension (pneumatic cylinder side).

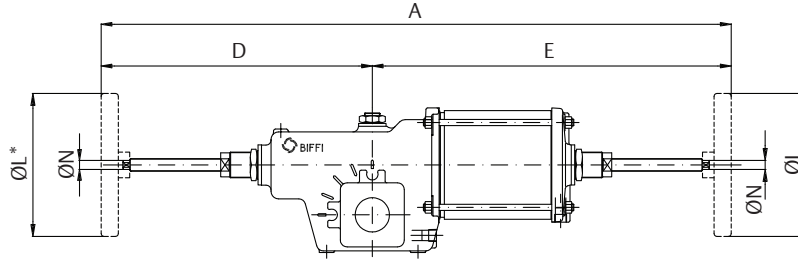
**Dimensions (mm)**

Model	A	B	ØC	D	E	F	G	H	J	S	T	U	W	ØX (in.)*	Air consumption (liters) open	Air consumption (liters) close	Weight (kg)
120-D3	854	384	400	330	524	82	102	270	160	449	156	98	102	2 x 1/2	16	23	172

**NOTE:**  
\* Pneumatic connection NPT (in.)

## MHW Manual Override

Figure 5. Models D1 - D2

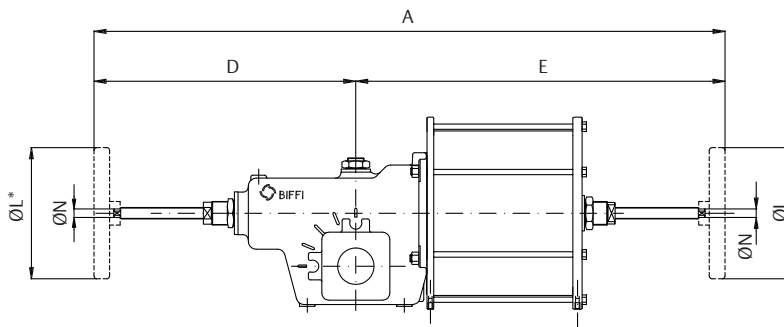


**NOTE:**  
ØL indicates optional handwheel available on request.

### Dimensions (mm)

Actuator Model	A	D	E	ØN	ØL	Weight (kg)	Jackscrew turns per stroke
15-D1	740	323	417	13	200	15	43
15-D2	740	323	417	13	200	16	43
30-D1	915	398	517	16	250	25	37
30-D2	915	398	517	16	250	29	37
60-D1	1080	472	608	16	250	43	45
60-D2	1080	472	608	16	250	49	45
120-D1	1263	557	706	16	250	82	52
120-D2	1263	557	706	16	250	90	52

Figure 6. Models D3



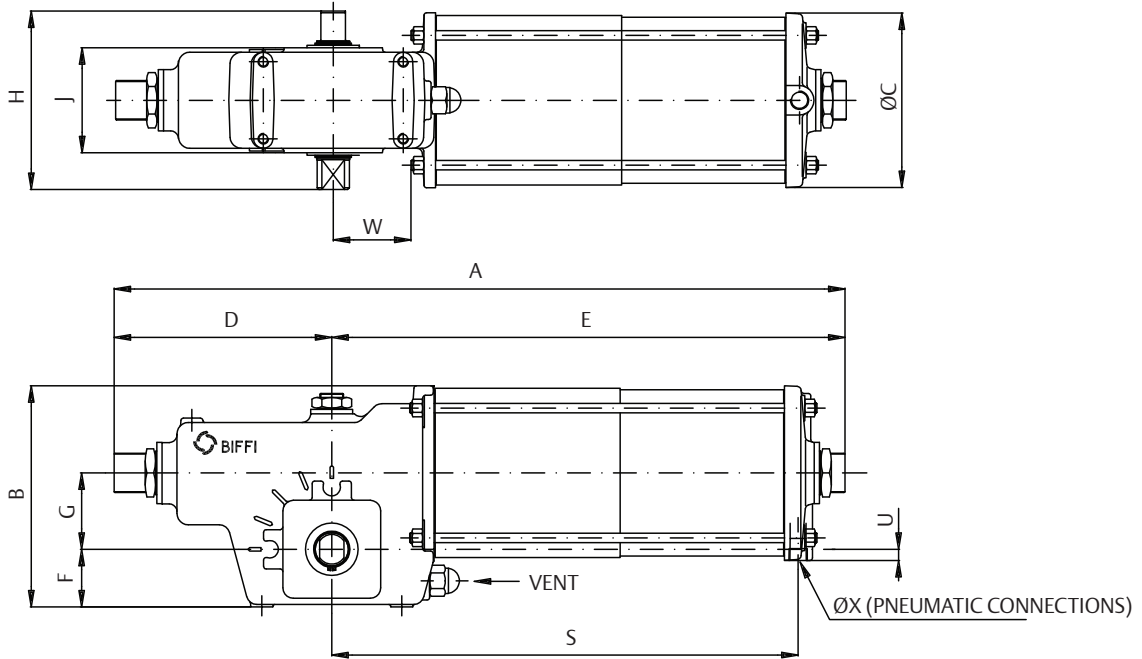
**NOTE:**  
ØL indicates optional handwheel available on request.

### Dimensions (mm)

Actuator Model	A	D	E	ØN	ØL	Weight (kg)	Jackscrew turns per stroke
120-D3	1309	557	752	16	250	155	52

## RPS Spring-Return Pneumatic Actuator

Figure 7. Models S1 and S2



**NOTE:**  
W is the maximum allowable mounting bracket dimension (pneumatic cylinder side).

### Dimensions (mm)

Model	A	B	ØC	D	E	F	G	H	J	S	U	W	ØX (in.)*	Air consumption (liters)	Weight (kg)
14-S1-A1	540	158	120	175	365	41	57	140	80	316	3	54	1/4	0.8	21
14-S1-B1	540	158	120	175	365	41	57	140	80	316	3	54	1/4	0.8	21
14-S1-J1	540	158	120	175	365	41	57	140	80	316	3	54	1/4	0.8	21
15-S2-A1	579	158	120	175	404	41	57	140	80	356	3	54	1/4	0.9	18
15-S2-B1	579	158	120	175	404	41	57	140	80	356	3	54	1/4	0.9	18
15-S2-C1	579	158	120	175	404	41	57	140	80	356	3	54	1/4	0.9	18
15-S2-D1	579	158	120	175	404	41	57	140	80	356	3	54	1/4	0.9	18
15-S2-J1	579	158	120	175	404	41	57	140	80	356	3	54	1/4	0.9	18
15-S2-A2	740	158	120	175	565	41	57	140	80	517	3	54	1/4	0.9	25
15-S2-B2	740	158	120	175	565	41	57	140	80	517	3	54	1/4	0.9	25
15-S2-C2	740	158	120	175	565	41	57	140	80	517	3	54	1/4	0.9	25
15-S2-D2	740	158	120	175	565	41	57	140	80	517	3	54	1/4	0.9	25
15-S2-J2	740	158	120	175	565	41	57	140	80	517	3	54	1/4	0.9	25

**NOTE:**  
\* Pneumatic connection NPT (in.)

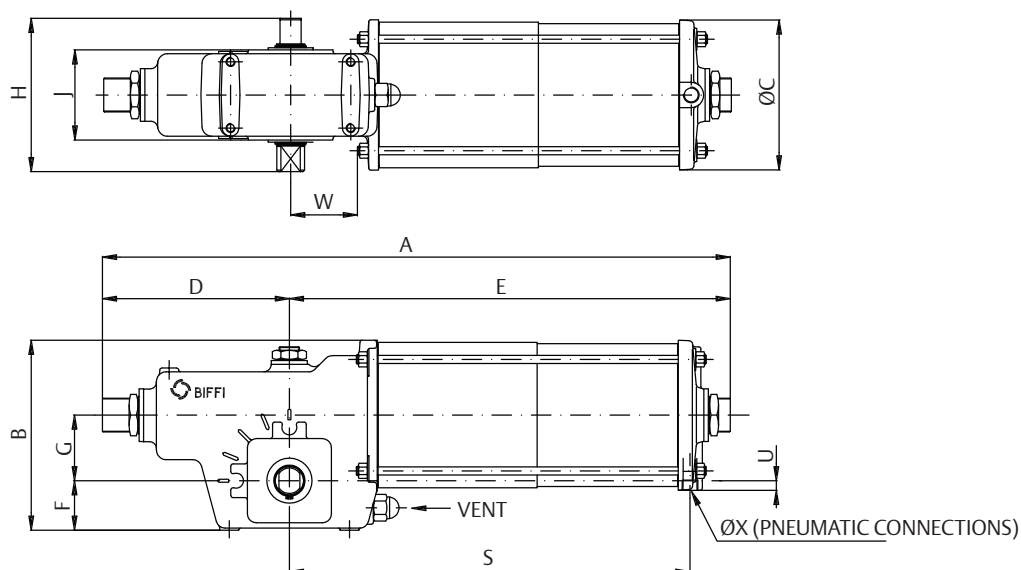
**Dimensions (mm)**

Model	A	B	ØC	D	E	F	G	H	J	S	U	W	ØX (in.)*	Air consumption (liters)	Weight (kg)
30-S2-A1	728	220	154	210	518	65	72	166	100	460	5	70	1/4	2.0	36
30-S2-B1	728	220	154	210	518	65	72	166	100	460	5	70	1/4	2.0	36
30-S2-C1	728	220	154	210	518	65	72	166	100	460	5	70	1/4	2.0	36
30-S2-D1	728	220	154	210	518	65	72	166	100	460	5	70	1/4	2.0	36
30-S2-J1	728	220	154	210	518	65	72	166	100	460	5	70	1/4	2.0	36
30-S2-A2	949	220	154	210	739	65	72	166	100	681	5	70	1/4	2.0	51
30-S2-B2	949	220	154	210	739	65	72	166	100	681	5	70	1/4	2.0	51
30-S2-C2	949	220	154	210	739	65	72	166	100	681	5	70	1/4	2.0	51
30-S2-D2	949	220	154	210	739	65	72	166	100	681	5	70	1/4	2.0	51
30-S2-J2	949	220	154	210	739	65	72	166	100	681	5	70	1/4	2.0	51
60-S2-A1	858	252	200	250	608	66	87	204	120	540	13	89	1/2	4.0	65
60-S2-B1	858	252	200	250	608	66	87	204	120	540	13	89	1/2	4.0	65
60-S2-C1	858	252	200	250	608	66	87	204	120	540	13	89	1/2	4.0	65
60-S2-D1	858	252	200	250	608	66	87	204	120	540	13	89	1/2	4.0	65
60-S2-J1	858	252	200	250	608	66	87	204	120	540	13	89	1/2	4.0	65
60-S2-A2	1126	252	200	250	876	66	87	204	120	808	13	89	1/2	4.0	86
60-S2-B2	1126	252	200	250	876	66	87	204	120	808	13	89	1/2	4.0	86
60-S2-C2	1126	252	200	250	876	66	87	204	120	808	13	89	1/2	4.0	86
60-S2-D2	1126	252	200	250	876	66	87	204	120	808	13	89	1/2	4.0	86
60-S2-J2	1126	252	200	250	876	66	87	204	120	808	13	89	1/2	4.0	86
120-S2-J1	1036	315	259	319	717	82	102	270	160	636	28	102	1/2	8.0	127
120-S2-A1	1036	315	259	319	717	82	102	270	160	636	28	102	1/2	8.0	127
120-S2-B1	1036	315	259	319	717	82	102	270	160	636	28	102	1/2	8.0	127
120-S2-C1	1036	315	259	319	717	82	102	270	160	636	28	102	1/2	8.0	127
120-S2-D1	1036	315	259	319	717	82	102	270	160	636	28	102	1/2	8.0	127
120-S2-J2	1321	315	259	319	1002	82	102	270	160	921	28	102	1/2	8.0	174
120-S2-A2	1321	315	259	319	1002	82	102	270	160	921	28	102	1/2	8.0	174
120-S2-B2	1321	315	259	319	1002	82	102	270	160	921	28	102	1/2	8.0	174
120-S2-C2	1321	315	259	319	1002	82	102	270	160	921	28	102	1/2	8.0	174
120-S2-D2	1321	315	259	319	1002	82	102	270	160	921	28	102	1/2	8.0	174

**NOTE:**

\* Pneumatic connection NPT (in.)

**Figure 8. Model S2**



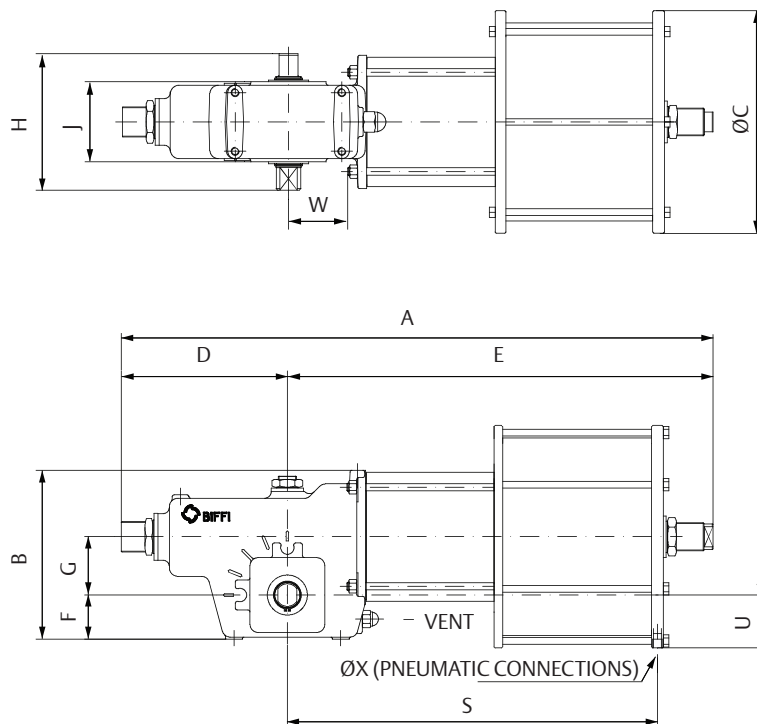
**NOTE:**  
W is the maximum allowable mounting bracket dimension (pneumatic cylinder side).

**Dimensions (mm)**

Model	A	B	ØC	D	E	F	G	H	J	S	U	W	ØX (in.)*	Air consumption (liters)	Weight (kg)
120-S2.4-A1	1071	357	345	320	750	82	102	270	160	674	70	102	3/4	11	149
120-S2.4-B1	1071	357	345	320	750	82	102	270	160	674	70	102	3/4	11	149
120-S2.4-C1	1071	357	345	320	750	82	102	270	160	674	70	102	3/4	11	149
120-S2.4-D1	1071	357	345	320	750	82	102	270	160	674	70	102	3/4	11	149
120-S2.4-J1	1071	357	345	320	750	82	102	270	160	674	70	102	3/4	11	149
120-S2.4-A2	1338	357	345	320	1018	82	102	270	160	948	70	102	3/4	11	202
120-S2.4-B2	1338	357	345	320	1018	82	102	270	160	948	70	102	3/4	11	202
120-S2.4-C2	1338	357	345	320	1018	82	102	270	160	948	70	102	3/4	11	202
120-S2.4-D2	1338	357	345	320	1018	82	102	270	160	948	70	102	3/4	11	202
120-S2.4-J2	1338	357	345	320	1018	82	102	270	160	948	70	102	3/4	11	202

**NOTE:**  
\* Pneumatic connection NPT (in.)

**Figure 9. Model S3**



**NOTE:**  
W is the maximum allowable mounting bracket dimension (pneumatic cylinder side).

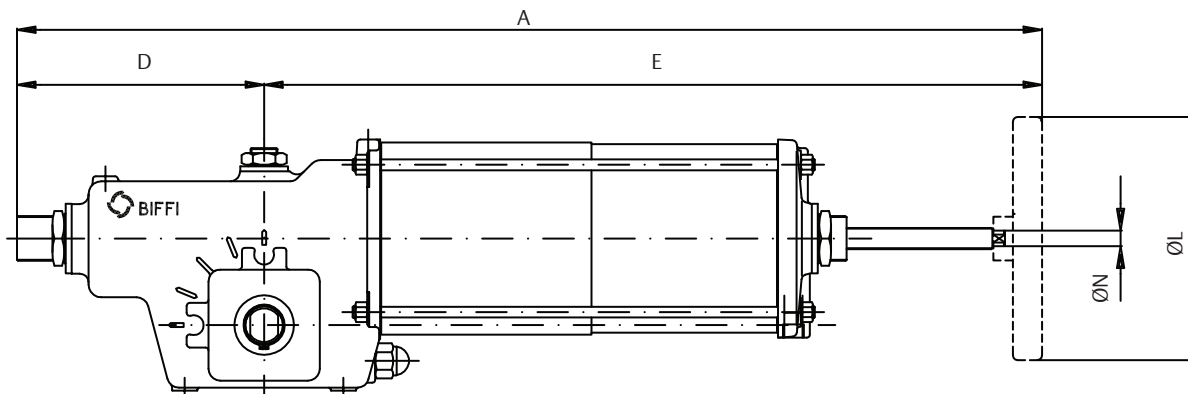
**Dimensions (mm)**

Model	A	B	ØC	D	E	F	G	H	J	S	U	W	ØX (in.)*	Air consumption (liters)	Weight (kg)
120-S3-A1	1036	384	400	320	716	82	102	270	160	639	98	102	1/2	16	172
120-S3-B1	1036	384	400	320	716	82	102	270	160	639	98	102	1/2	16	172
120-S3-C1	1036	384	400	320	716	82	102	270	160	639	98	102	1/2	16	172
120-S3-D1	1036	384	400	320	716	82	102	270	160	639	98	102	1/2	16	172
120-S3-J1	1036	384	400	320	716	82	102	270	160	639	98	102	1/2	16	172
120-S3-A2	1326	384	400	320	1006	82	102	270	160	929	98	102	1/2	16	207
120-S3-B2	1326	384	400	320	1006	82	102	270	160	929	98	102	1/2	16	207
120-S3-C2	1326	384	400	320	1006	82	102	270	160	929	98	102	1/2	16	207
120-S3-D2	1326	384	400	320	1006	82	102	270	160	929	98	102	1/2	16	207
120-S3-J2	1326	384	400	320	1006	82	102	270	160	929	98	102	1/2	16	207

**NOTE:**  
\* Pneumatic connection NPT (in.)

## MHW Manual Override

Figure 10. Models S1 and S2



**NOTE:**  
ØL indicates optional handwheel available on request.

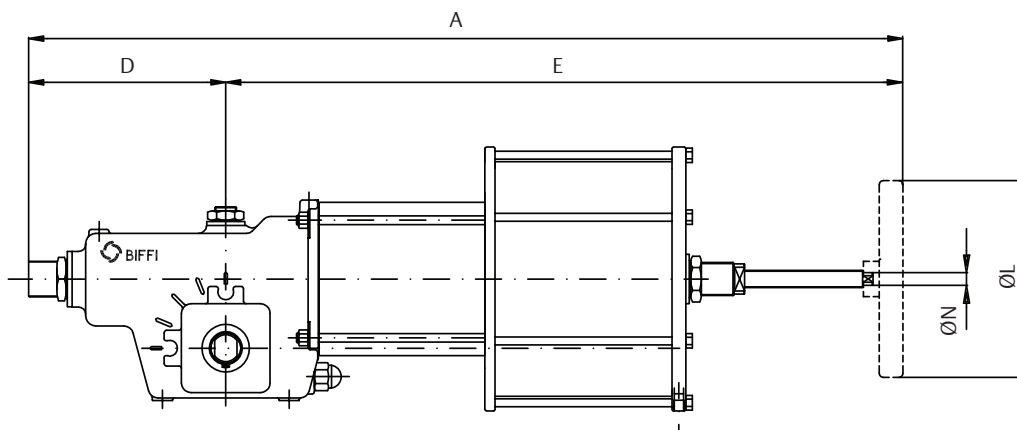
### Dimensions (mm)

Actuator Model	A	D	E	ØN	ØL	Weight (kg)	Jackscrew turns per stroke
14-S1-A1	682	175	507	24	200	43	26
14-S1-B1	682	175	507	24	200	43	26
14-S1-J1	682	175	507	24	200	43	26
15-S2-A1	721	175	546	13	200	19	43
15-S2-B1	721	175	546	13	200	19	43
15-S2-C1	721	175	546	13	200	19	43
15-S2-D1	721	175	546	13	200	19	43
15-S2-J1	721	175	546	13	200	19	43
15-S2-A2	882	175	707	13	200	26	43
15-S2-B2	882	175	707	13	200	26	43
15-S2-C2	882	175	707	13	200	26	43
15-S2-D2	882	175	707	13	200	26	43
15-S2-J2	882	175	707	13	200	26	43
30-S2-A1	909	206	703	16	250	38	37
30-S2-B1	909	206	703	16	250	38	37
30-S2-C1	909	206	703	16	250	38	37
30-S2-D1	909	206	703	16	250	38	37
30-S2-J1	909	206	703	16	250	38	37
30-S2-A2	1130	206	924	16	250	53	37
30-S2-B2	1130	206	924	16	250	53	37

**Dimensions (mm)**

Actuator Model	A	D	E	ØN	ØL	Weight (kg)	Jackscrew turns per stroke
30-S2-C2	1130	206	924	16	250	53	37
30-S2-D2	1130	206	924	16	250	53	37
30-S2-J2	1130	206	924	16	250	53	37
60-S2-A1	1077	250	827	16	250	68	45
60-S2-B1	1077	250	827	16	250	68	45
60-S2-C1	1077	250	827	16	250	68	45
60-S2-D1	1077	250	827	16	250	68	45
60-S2-J1	1077	250	827	16	250	68	45
60-S2-A2	1330	250	1080	16	250	89	45
60-S2-B2	1330	250	1080	16	250	89	45
60-S2-C2	1330	250	1080	16	250	89	45
60-S2-D2	1330	250	1080	16	250	89	45
60-S2-J2	1330	250	1080	16	250	89	45
120-S2-J1	1261	310	951	16	250	130	52
120-S2-A1	1261	310	951	16	250	130	52
120-S2-B1	1261	310	951	16	250	130	52
120-S2-C1	1261	310	951	16	250	130	52
120-S2-D1	1261	310	951	16	250	130	52
120-S2-J2	1546	310	1236	16	250	177	52
120-S2-A2	1546	310	1236	16	250	177	52
120-S2-B2	1546	310	1236	16	250	177	52
120-S2-C2	1546	310	1236	16	250	177	52
120-S2-D2	1546	310	1236	16	250	177	52
120-S2.4-A1	1398	319	1079	18	250	156	52
120-S2.4-B1	1398	319	1079	18	250	156	52
120-S2.4-C1	1398	319	1079	18	250	156	52
120-S2.4-D1	1398	319	1079	18	250	156	52
120-S2.4-J1	1398	319	1079	18	250	156	52
120-S2.4-A2	1688	319	1369	18	250	203	52
120-S2.4-B2	1688	319	1369	18	250	203	52
120-S2.4-C2	1688	319	1369	18	250	203	52
120-S2.4-D2	1688	319	1369	18	250	203	52
120-S2.4-J2	1688	319	1369	18	250	203	52

**Figure 11. Model S3**



**NOTE:**  
ØL indicates optional handwheel available on request.

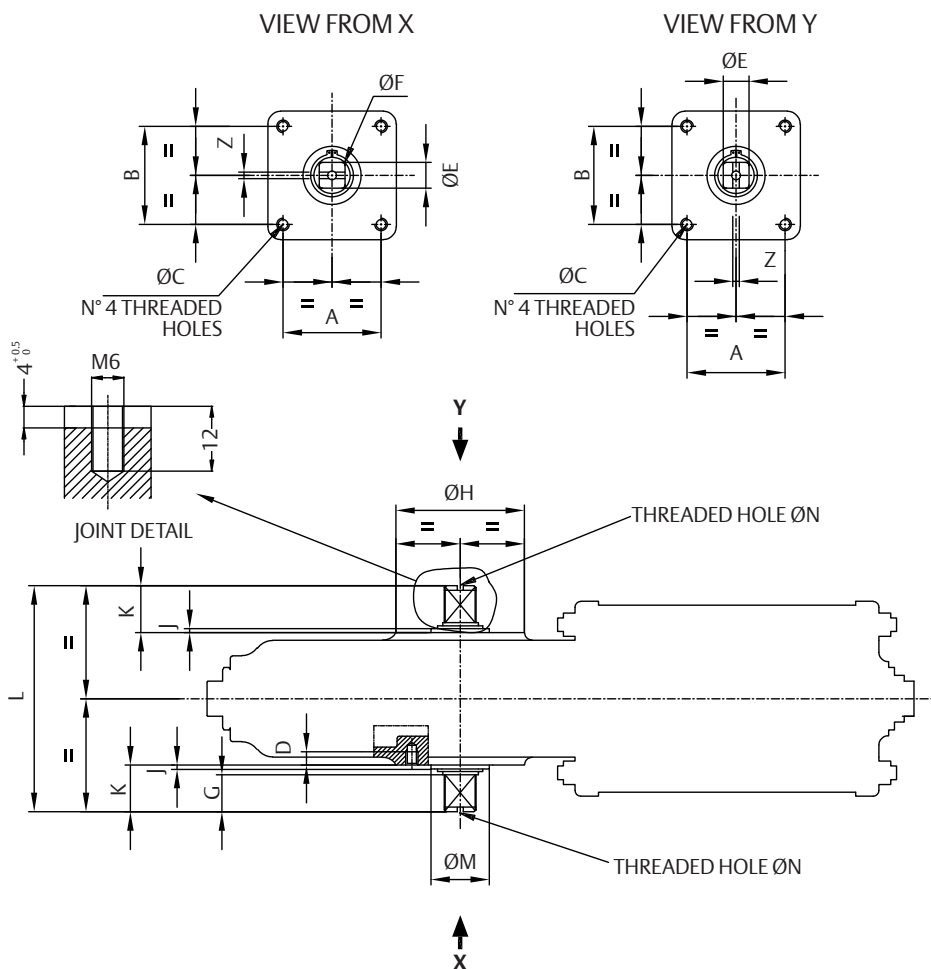
**Dimensions (mm)**

Actuator Model	A	D	E	ØN	ØL	Weight (kg)	Jackscrew turns per stroke
120-S3-A1	1259	310	949	16	250	175	52
120-S3-B1	1259	310	949	16	250	175	52
120-S3-C1	1259	310	949	16	250	175	52
120-S3-D1	1259	310	949	16	250	175	52
120-S3-J1	1259	310	949	16	250	175	52
120-S3-A2	1544	310	1234	16	250	210	52
120-S3-B2	1544	310	1234	16	250	210	52
120-S3-C2	1544	310	1234	16	250	210	52
120-S3-D2	1544	310	1234	16	250	210	52
120-S3-J2	1544	310	1234	16	250	210	52

# Mounting Dimensions - Couplings

## RPD/RPS Pneumatic Actuators

Figure 12.



**NOTES:**

All dimensions are in mm.

Both the actuator flanges can be used for valve coupling or the mounting of ancillary equipments (positioner, limit switch box, etc.).

**Dimensions (mm)**

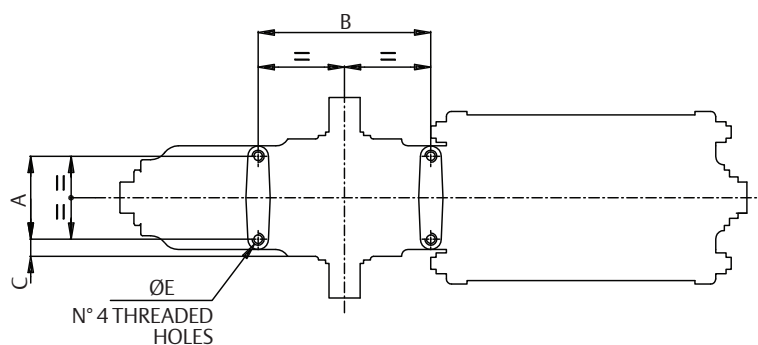
Actuator Model	A <sup>+0.2</sup>	B <sup>-0.2</sup>	ØC	D	ØE <sub>0.1</sub>	ØF <sub>0.5</sub>	G	ØH	K	J	L	ØM <sub>0.2</sub>	ØN <sup>*</sup> UNI 3221	Z <sup>+0.1</sup> 0
RP 13-14-15	49.5	49.5	M8	10	16	21	23	66	30	2.7	140	40	M6	4
RP 30	72.1	72.1	M10	12	22	29	25	92	32	2.7	164	50	M6	4
RP 60	88.4	88.4	M12	15	28	37	34	112	42	3.0	204	60	M6	4
RP 120	99.0	99.0	M16	23	37	49	45	132	55	3.0	270	75	M6	4

## Mounting Dimensions - Accessories

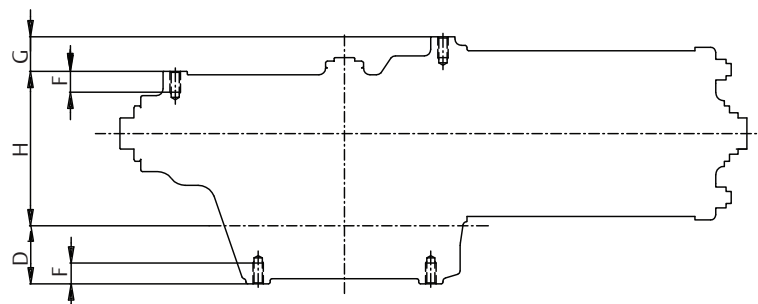
### RPD/RPS Pneumatic Actuators

Figure 13.

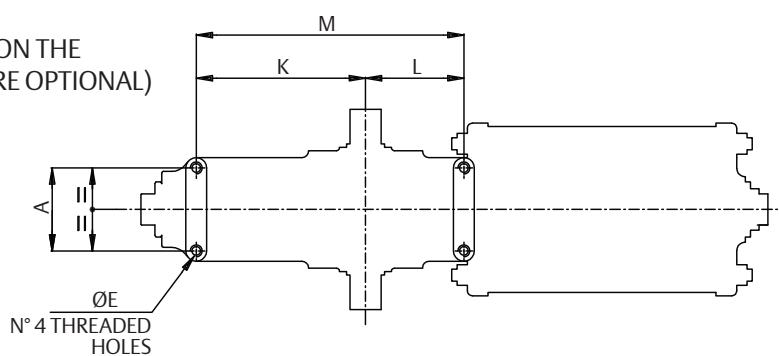
FRONT VIEW



TOP VIEW



BACK VIEW  
(THE HOLES ON THE  
BACK SIDE ARE OPTIONAL)

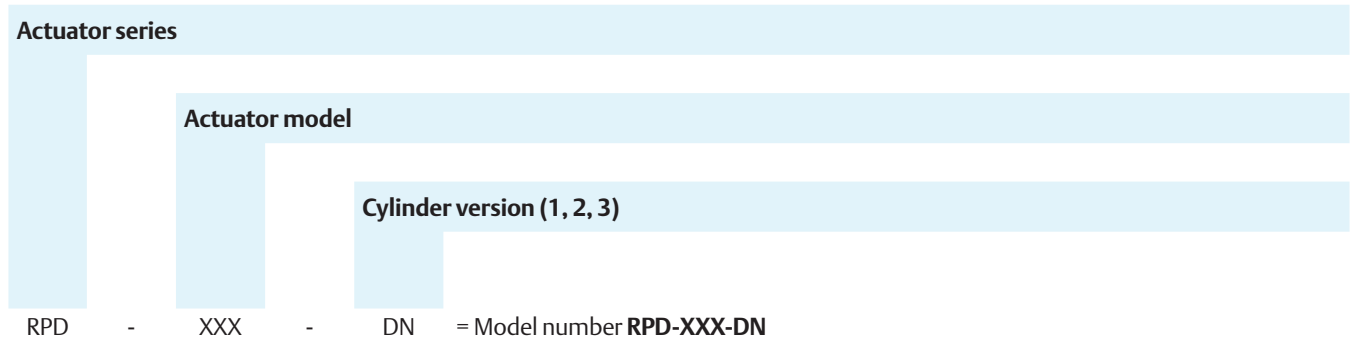


#### Dimensions (mm)

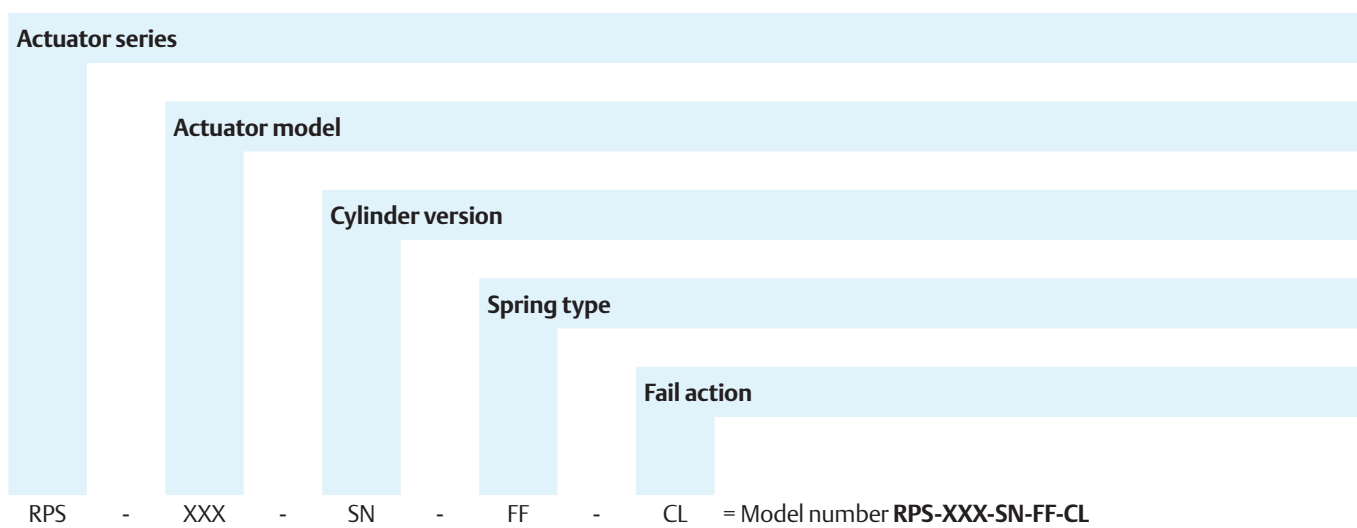
Actuator Model	A ± 0.2	B ± 0.2	C	D	ØE	F	G	H	K	L	ØM ± 0.2
RP 15	55	110	12.5	43	M8	14	17	98	114	67	181
RP 30	70	125	15.0	56	M10	16	35	120	136	80	216
RP 60	88	160	16.0	68	M12	19	35	150	160	105	265
RP 120	124	190	18.0	82	M16	23	50	183	210	124	334

# Model Decoding

## RP Double-Acting Pneumatic Actuators



## RP Single-Acting Pneumatic Actuators



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