

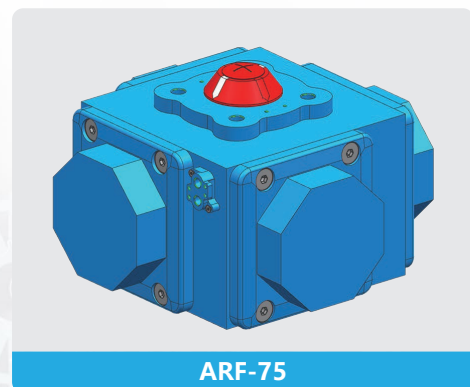
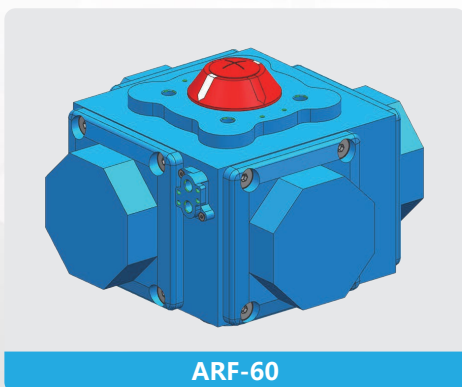
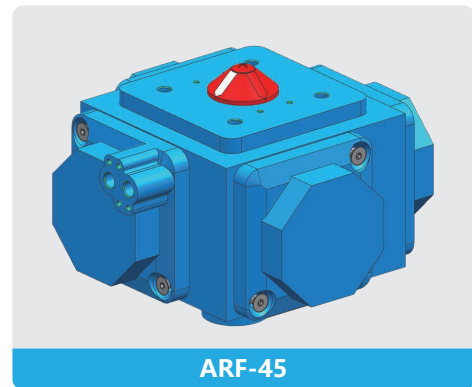
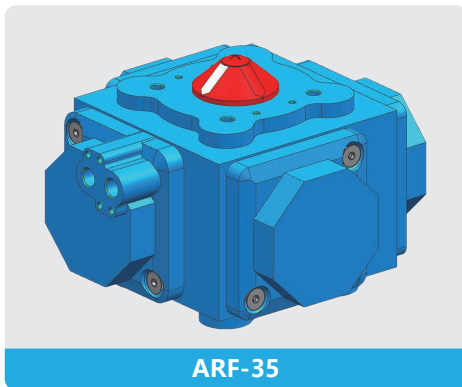
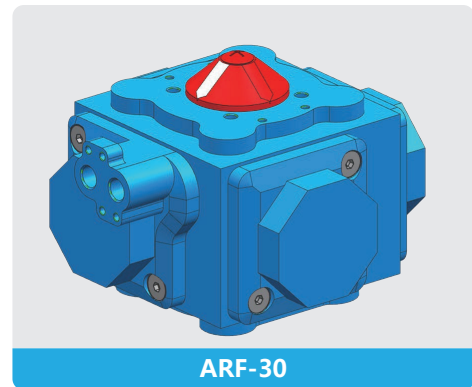
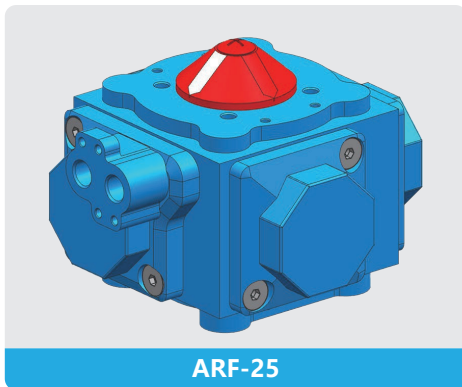
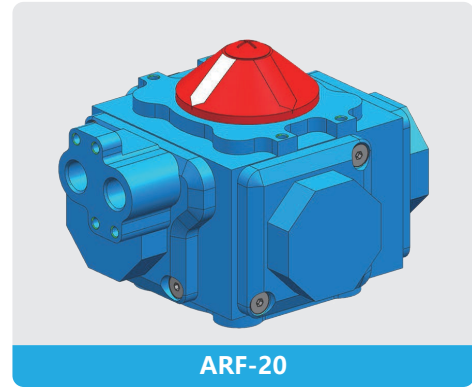
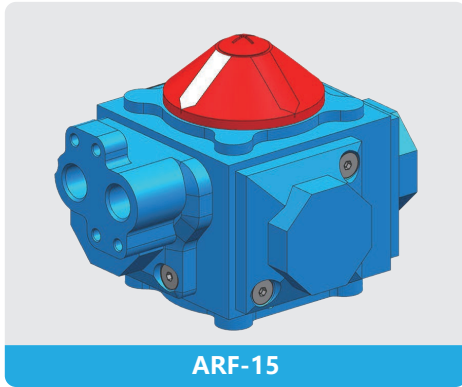


ARF 系列 四活塞气动执行器

ARF SERIES
FOUR PISTONS PNEUMATIC ACTUATORS

无锡爱圣拓克流体控制有限公司
Ascend Torque Flow Controls Co., Ltd.

产品外形/Product Profile





目录 CONTENTS

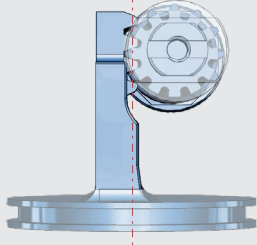
主要特征/Main Features	1
产品参数/Specification	2
零件和材料/Parts & Materials	3
外形尺寸/Dimension	4
弹簧配置/Spring combinations	5
输出扭矩/Output Torque	5
选型/How to order	6



主要特征/Main Features

受力均衡/Balanced forces

立方体结构将活塞定位成允许每个活塞沿着其自身轴线运动。这种设计有效的消除了导杆和轴承之间偏离轴方向的推力。使密封件上的应力比离轴活塞推力更小，因此可大大降低密封件上所承受的压力。



The cube-shaped configuration positions the pistons in a way that allows each piston to develop thrust along its own axis with zero side load. This efficient design eliminates the use of guide rods and thrust bearings. The result is less stress on the seals than off-axis piston thrust, which is caused by the piston side loading that is inherent in the geometry of traditional actuator configurations.

反应迅速/Fast action

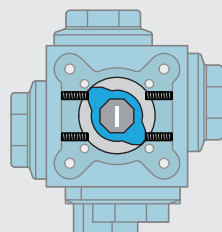
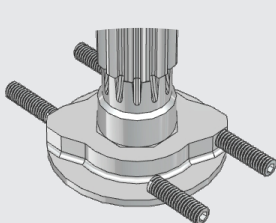
快速动作是四活塞执行器最具吸引力的功能之一。在相同扭矩的情况下，四个活塞设计，比双活塞设计运行距离更短，结构更紧凑，节省空间的同时也缩短了响应时间。

Fast action is one of the most attractive features offered by the 4-piston actuator. The unique four-piston design allows for a smaller diameter actuator pinion that significantly shortens piston travel, resulting in a shorter response time.

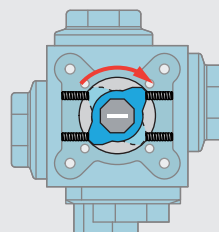
定位螺丝/Limit stop

轴和凸轮可通过四颗相对的可调节限位螺钉进行调节，限位螺钉拧入执行机构主体，当旋转至限定位置时，两颗限位螺钉在凸轮相对的侧面上同时施加阻力，达到限位的目的。限位螺钉有 $\pm 5^\circ$ 的调节范围，使用更长的限位螺钉可以实现更大的条接范围。限位螺钉的材料为不锈钢材质，耐磨抗腐蚀性强。

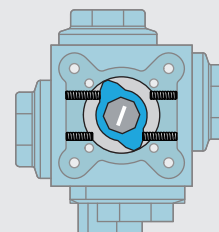
The pinion and stop rotation can be adjusted by four large-diameter, diametrically-opposed adjustable set-screws that are threaded into the actuator body. Each opposing pair of screws exerts simultaneous and equal force on opposite sides of the stop when the rotation limit is reached, thus preventing the generation of off-center forces. The stop screws allow for $\pm 5^\circ$ rotation adjustment in both directions of travel. Larger span can be achieved with a longer set of stop screws. The stop material is stainless steel for better wear and corrosion resistance.



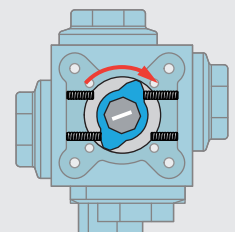
关闭/Close



打开/Open



部分关闭/Partially closed



部分打开/Partially open



更少的耗气量/Less air consumption

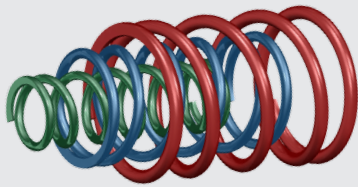
四活塞执行机构的立方体结构和短活塞式设计，很大程度上压缩了它的体积，减小了活塞的运动空间，从而达到了减少耗气量的效果。

The cubic structure and short piston design of the four-piston actuator greatly reduce its volume and reduce the movement space of the piston, thus achieving the effect of reducing air consumption.

嵌套式弹簧/Spring cartridge

执行机构的四个弹簧室能容纳三种不同规格的弹簧，弹簧嵌套在活塞与气缸盖之间，有活塞上的中心定位槽进行校准。确保每组弹簧之间不会互相缠绕；执行器有四个气缸，可提供十二种组合方式。满足在更多不同气压条件下工作的需求。

The actuator's four spring chambers accommodate three different sizes of springs that are nested between the piston and the cylinder head and have a central positioning groove on the piston for calibration. Make sure that each set of springs does not entangle each other. The actuator has four cylinders and offers twelve combinations. Meet the needs of working under more different pressure conditions.



产品参数/Specification

单位:牛米 / Unit: Nm

规格 Model	重量/Weight (公斤/KG)		耗气量/Air consumption (升/L)			工作时间/Stroke Time (秒/sec.)*
	双作用/DA	单作用/SR	CCW	CW	总计/Total	
ARF-15DA	0.9	1.1	0.07	0.09	0.16	0.1
ARF-20DA	1.5	1.9	0.12	0.15	0.27	0.15
ARF-25DA	2.8	3.5	0.25	0.33	0.58	0.2
ARF-30DA	4.4	5	0.44	0.54	0.98	0.3
ARF-35DA	7.1	9	0.74	0.8	1.54	0.5
ARF-45DA	11	15	1.33	1.33	2.66	0.9
ARF-60DA	26	35	3.2	3.2	6.4	2
ARF-75DA	51	64	5.76	5.76	11.52	3

* 工作条件/working conditions: CV1.4, 5.5 Bar

工作压力/Pressure range:

2~8 bar

工作温度/Operating temperature:

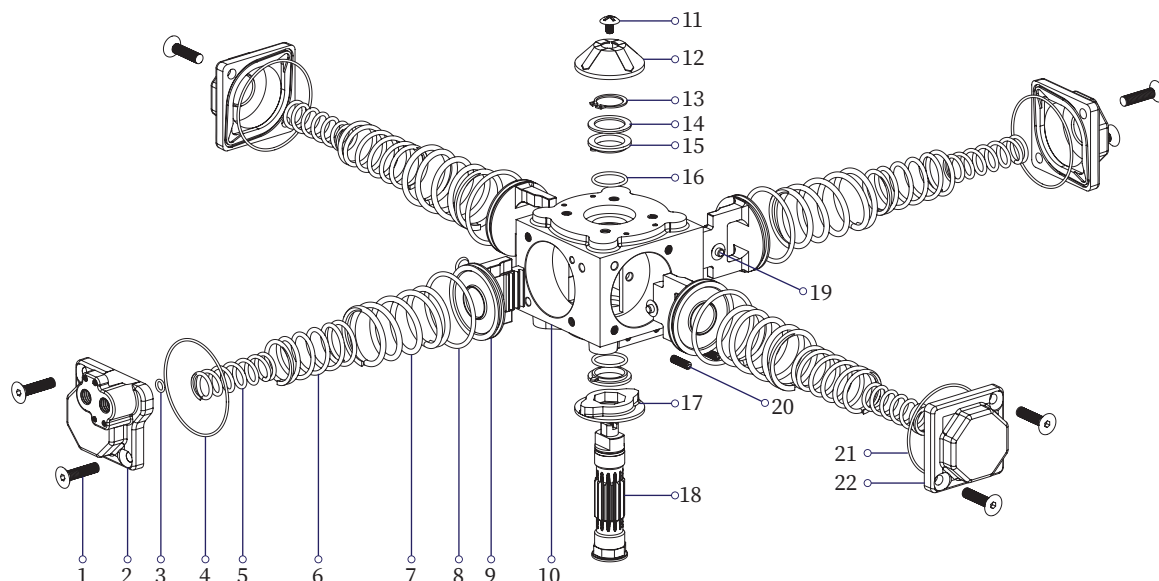
丁腈橡胶/NBR: -20°C~ +80°C
 氟橡胶/FKM: -20°C~ +120°C
 低温丁腈橡胶/LTNBR: -40°C~ +80°C

工作介质/Working medium:

空气/Air, 氮气/Nitrogen,
 二氧化碳/CO2,
 天然气/Natural gas



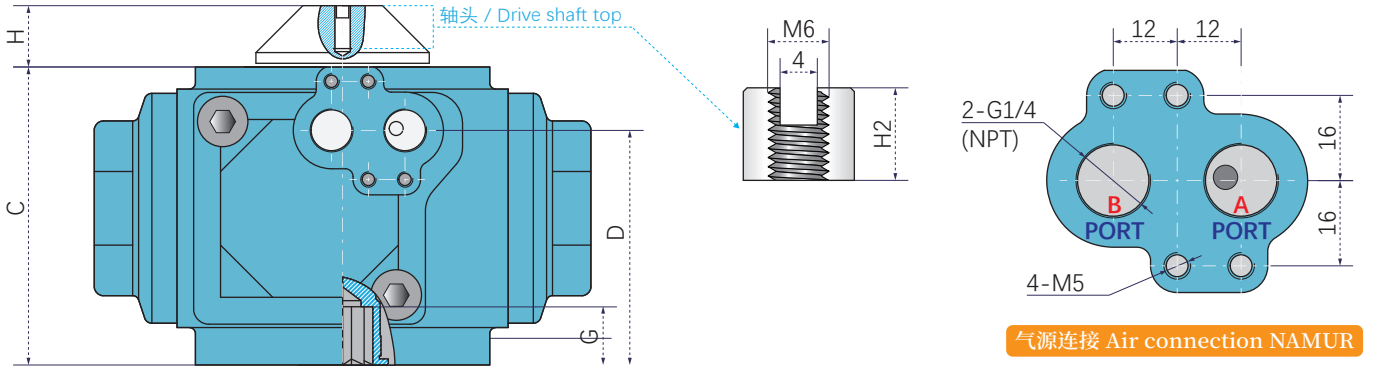
零件和材料/Parts & Materials



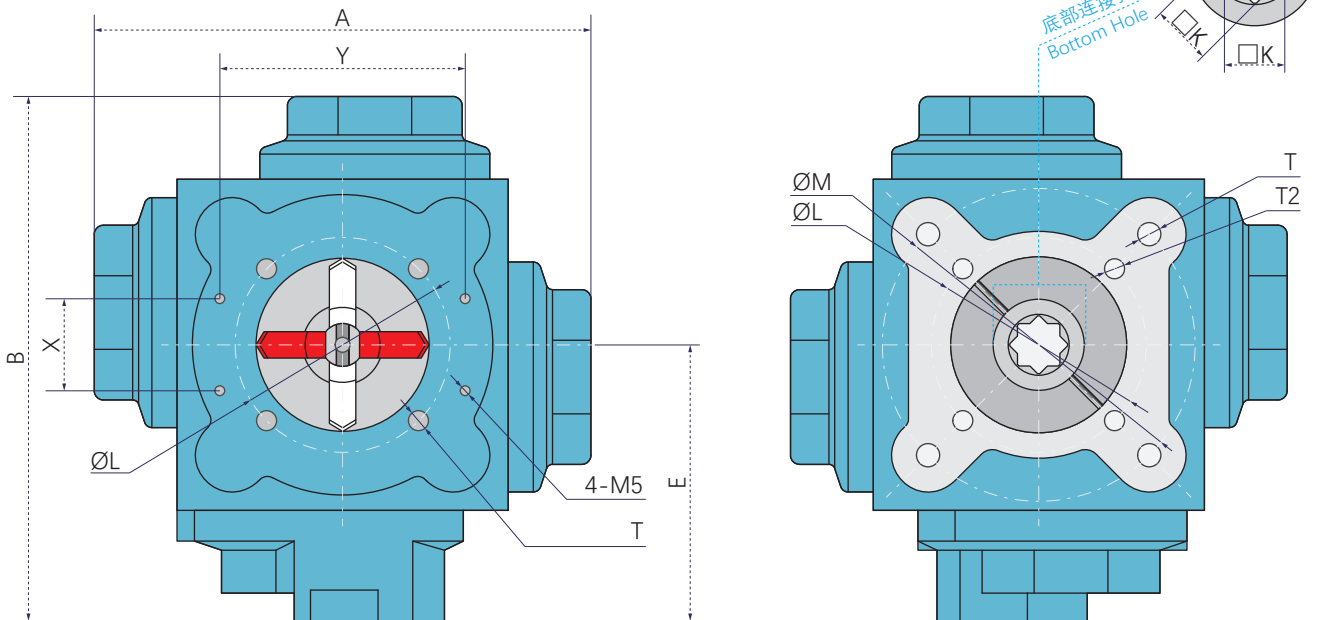
No.	名称 Name	Qty.	材质 Material
1	盖螺丝 Screw (End cap)	8	不锈钢 Stainless Steel
2	Namur面端盖 Namur (End cap)	1	压铸铝 Die-casting Aluminum
3	气源O型圈 O-ring (Air Supply)	1	NBR / FKM / LTNBR NBR / FKM / LTNBR
4	端盖O形圈 O-ring (Namur End cap)	1	NBR / FKM / LTNBR NBR / FKM / LTNBR
5	小弹簧 Small Spring	4	弹簧钢 Spring Steel
6	中弹簧 Middle Spring	4	弹簧钢 Spring Steel
7	大弹簧 Large Spring	4	弹簧钢 Spring Steel
8	活塞O型圈 O-ring (Piston)	4	NBR / FKM / LTNBR NBR / FKM / LTNBR
9	活塞 Piston	4	压铸铝 Die-casting Aluminum
10	体 Body	1	重力铸造铝 Gravity Casting Aluminum
11	指示器螺丝 Indicator Screw	1	塑料+不锈钢 Plastic+Stainless Steel
12	指示器 Indicator	1	塑料(ABS) Plastic(ABS)
13	卡簧 Spring clip	1	不锈钢 Stainless Steel
14	垫圈 Thrust Washer	1	工程塑料 POM
15	轴承 Bearing	2	工程塑料 POM
16	轴O型圈 O-ring (shaft)	2	NBR / FKM / LTNBR NBR / FKM / LTNBR
17	凸轮 Cam	1	不锈钢 Stainless Steel
18	活塞 Pinion	1	合金钢与镍化学涂层 Alloy Steel With Nickel Chemical Coating
19	活塞导板 Guide (Piston)	4	工程塑料 POM
20	行程调节螺栓 Adjustment Screw	4	不锈钢 Stainless Steel
21	端盖O型圈 O-ring (End cap)	3	NBR / FKM / LTNBR NBR / FKM / LTNBR
22	端盖 End cap	3	压铸铝 Die-casting Aluminum



外形尺寸/Dimension



侧视图 SIDE VIEW



顶视图 TOP VIEW

底视图 BOTTOM VIEW

单位:毫米 / Unit: mm

Model	A	B	C	D	E	G	□K	ØL	ØM	T	T2	X×Y,H	H2
ARF-15	112	122.5	70.7	52.2	66.5	13.4	9	50	70	M6×8	M8×11	30×80,20	14
ARF-20	131.5	143	82.5	63.4	77.2	16	11	50	70	M6×8	M8×11	30×80,20	14
ARF-25	162	171	98	77	90	19.5	14	70	102	M6×11	M10×14	30×80,20	14
ARF-30	186	198.5	117.3	93.7	105.5	23	17	70	102	M6×11	M10×14	30×80,20	14
ARF-35	222.6	233.1	136	104.7	122	27	22	102	-	M6×14	-	30×80,20	14
ARF-45	270.6	281.6	164.5	128.5	146	33	27	102	125	M6×14	M12×18	30×80,20	14
ARF-60	360	360	218	180	141.5	43	36	140	-	M6×24	-	30×130,30	20
ARF-75	434	434	268	222	166	43	36	165	-	M6×30	-	30×130,30	20

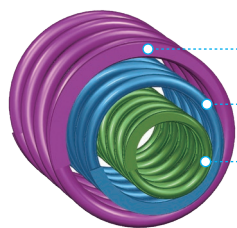


弹簧配置/Spring combinations

S4 (1A)	M4 (1B)	S2M4 (1B2)	S4M4 (2)
S2M4 (2AB)	S4M4 (2A)	S4M2L2 (2A2B)	S4L4 (2B)
S4M4L2 (2A3)	M4L4 (2C)	S2M4L4 (2C3)	S4M4L4 (3)

适用于ARF-15SR / ARF-15SR only

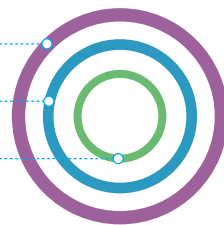
适用于ARF-20~75SR / For ARF-20~75SR



L: 大弹簧 / large

M: 中弹簧 / middle

S: 小弹簧 / small



双作用输出扭矩/Double Return Output Torque

单位: 牛米 / Unit: Nm

规格 Model	气源压力 / Operating Pressure (bar)						
	3 bar	4 bar	5 bar	5.5 bar	6 bar	7 bar	8 bar
ARF-15DA	10	14	17	19	21	24	27
ARF-20DA	18	25	32	35	38	45	51
ARF-25DA	39	52	65	72	79	92	105
ARF-30DA	62	84	107	119	130	153	176
ARF-35DA	114	151	190	208	226	265	304
ARF-45DA	222	297	371	408	445	519	593
ARF-60DA	527	703	879	967	1055	1230	1406
ARF-75DA	974	1299	1624	1786	1948	2273	2596



单作用输出扭矩/Spring Return Output Torque

单位:牛米 / Unit: Nm

型号 Model	弹簧配置代码 Spring set code		工作压力 / Operating Pressure (bar)														弹簧力矩 Spring stroke	
			3 bar		4 bar		5 bar		5.5 bar		6 bar		7 bar		8 bar			
			0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
ARF-15	S4	1A	7	4	10	7	13	11	15	12	17	14	20	17	24	21	6	3
	M4	1B			8	4	12	8	13	10	15	11	18	14	22	18	9	5
	S2M4	1B2					10	5	12	7	13	9	16	11	20	15	12	7
	S4M4	2									11	6	14	8.5	18	12	15	9
ARF-20	S2M4	2AB	10	5	17	12	24	18	27	22	30	25	37	31	43	37	12	7
	S4M4	2A			16	10	22	16	26	19	29	22	35	29	41	35	15	9
	S4M2L2	2A2B			14	7	20	13	24	16	27	19	33	26	39	32	18	11
	S4L4	2B					18	10	22	13	25	17	31	23	38	29	21	13
	S4M4L2	2A3					17	9	20	12	23	15	20	22	36	28	22	15
	M4L4	2C							19	10	22	13	28	19	35	25	25	16
	S2M4L4	2C3									21	11	27	17	33	23	27	17
S4M4L4	3									19	9	24	15	30	21	29	19	
ARF-25	S2M4	2AB	25	15	38	27	51	40	58	47	65	53	78	66	90	78	23	13
	S4M4	2A	23	11	36	23	49	36	55	42	62	49	75	62	88	74	28	16
	S4M2L2	2A2B			33	19	46	32	53	39	60	45	73	58	86	70	32	18
	S4L4	2B					43	27	50	34	57	41	70	53	83	66	36	21
	S4M4L2	2A3					41	22	47	29	54	36	67	48	80	61	42	24
	M4L4	2C					38	18	45	24	52	31	64	44	77	56	47	27
	S2M4L4	2C3							43	19	50	25	63	38	75	50	52	29
S4M4L4	3									47	21	60	34	73	46	57	31	
ARF-30	S2M4	2AB	40	26	62	47	84	70	96	81	107	92	130	114	152	136	35	21
	S4M4	2A	36	19	57	40	80	62	91	73	102	84	125	107	148	129	42	26
	S4M2L2	2A2B			52	30	75	52	86	63	98	74	120	96	143	118	53	31
	S4L4	2B			48	18	70	43	81	54	93	65	115	87	138	109	62	36
	S4M4L2	2A3					66	36	77	47	89	58	111	80	134	103	69	40
	M4L4	2C					64	25	73	39	85	50	107	72	130	94	78	44
	S2M4L4	2C3									80	40	102	62	125	85	88	49
S4M4L4	3									75	33	98	55	120	77	96	54	
ARF-35	S2M4	2AB	81	50	118	86	156	123	174	141	192	158	230	195	268	232	62	32
	S4M4	2A	75	39	111	74	150	112	168	129	186	147	224	184	262	221	74	38
	S4M2L2	2A2B	64	26	100	62	139	99	157	117	175	134	213	171	251	208	87	49
	S4L4	2B			92	44	130	82	148	99	166	117	204	154	242	191	105	58
	S4M4L2	2A3					123	67	141	84	159	102	197	139	235	176	121	65
	M4L4	2C							133	68	151	86	189	123	227	160	137	73
	S2M4L4	2C3									143	75	181	112	219	149	149	82
S4M4L4	3									135	63	173	100	211	137	161	89	
ARF-45	S2M4	2AB	148	86	222	158	295	229	331	264	367	300	440	371	513	442	133	72
	S4M4	2A	134	60	208	132	280	203	317	239	353	275	426	346	499	417	159	86
	S4M2L2	2A2B			197	113	269	184	306	219	342	255	415	326	488	397	179	97
	S4L4	2B			179	82	252	153	288	188	325	224	398	295	471	366	212	115
	S4M4L2	2A3					238	127	274	163	311	198	383	269	456	340	239	130
	M4L4	2C					223	102	260	137	296	173	369	244	442	315	265	144
	S2M4L4	2C3									283	147	355	218	428	289	292	158
S4M4L4	3									268	122	341	193	414	364	318	173	
ARF-60	S2M4	2AB	359	216	532	385	706	554	792	639	879	723	1052	891	1225	1060	302	162
	S4M4	2A	328	160	501	329	675	498	762	583	848	667	1021	835	1194	1004	360	194
	S4M2L2	2A2B			478	285	651	454	738	538	824	623	997	791	1170	960	406	218
	S4L4	2B			442	221	615	390	702	475	789	559	961	727	1134	896	473	254
	S4M4L2	2A3					580	327	667	411	754	495	926	663	1099	832	539	290
	M4L4	2C					548	268	635	352	721	437	894	605	1067	774	600	323
	S2M4L4	2C3									688	378	861	546	1034	715	661	356
S4M4L4	3									657	322	830	490	1003	659	720	388	
ARF-75	S2M4	2AB	672	443	992	755	1312	1067	1472	1223	1631	1378	1951	1690	2270	2000	512	292
	S4M4	2A	614	345	935	657	1255	969	1414	1124	1574	1280	1894	1592	2212	1902	615	350
	S4M2L2	2A2B			891	582	1211	894	1370	1049	1530	1205	1850	1517	2168	1827	693	395
	S4L4	2B			820	461	1140	773	1299	928	1459	1084	1779	1396	2097	1706	819	467
	S4M4L2	2A3					1082	674	1242	830	1401	986	1722	1298	2040	1608	921	525
	M4L4	2C					1025	576	1184	732	1344	887	1664	1199	1982	1509	1024	584
	S2M4L4	2C3							1127	633	1286	789	1607	1101	1925	1411	1126	642
S4M4L4	3									1229	691	1549	1003	1867	1313	1229	700	

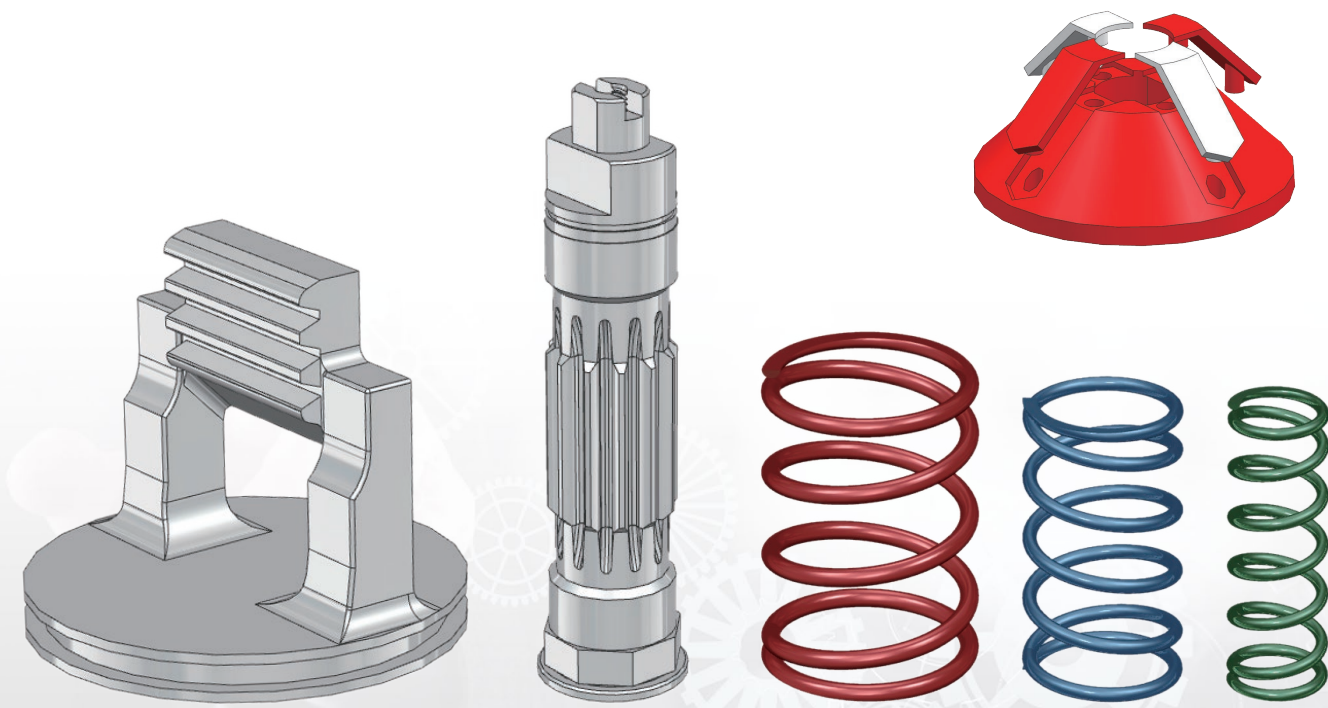


选型/How to order

产品代码 Product code	型号代码 Model code	类型 Acting type	弹簧配置代码* Spring code	工作温度 Operating temp.
ARF	15	DA: Double Acting 双作用	S4**	标准/BLANK: -20°C~ +80°C
	20		M4**	
	25		S2M4**	
	30		S4M4**	
	35	SR: Spring Return 单作用	S2M4	高温型/HT: -20°C~ +150°C
	45		S4M4	
	60		S4M2L2	
	75		S4M4	
			S4M4L2	
			M4L4	
			S2M4L4	
			S4M4L4	
				低温型/LT: -40°C~ +80°C

* 具体组合方式的详细信息请参见第5页/For details on the specific combination, please see page 5.

** ARF-15可选的弹簧组合方式/Optional spring combination for ARF-15





开拓进取 精益求精
Pioneering Excellence

无锡爱圣拓克流体控制有限公司
Ascend Torque Flow Controls Co., Ltd.

地址: 江苏省无锡市惠山区长安街道城塘路28号

ADD: 28 Chengtang Road, Huishan District, Wuxi 214174, Jiangsu, China.

电话(TEL): +86-510-88887800

传真(FAX): +86-510-88770718

Email: calvin@ascendtorque.com

kaka@ascendtorque.com (Overseas)

<http://www.ascendtorque.com>

* 本文中的信息 (包括产品规格) 有可能会变更, 恕不另行通知。请访问网站或联系我们以获取更多最新资讯。
Information contained herein, including the product specification is subject to change without notice.
Please visit our website or contact us for more information.

 ASCEND
TORQUE

Ver_1.2 ARF-05312019

修订版/REVISED EDITION