

ARF SERIES

FOUR-PISTON RACK & PINION PNEUMATIC ACTUATORS

Compact architecture. Balanced forces. Fast response.

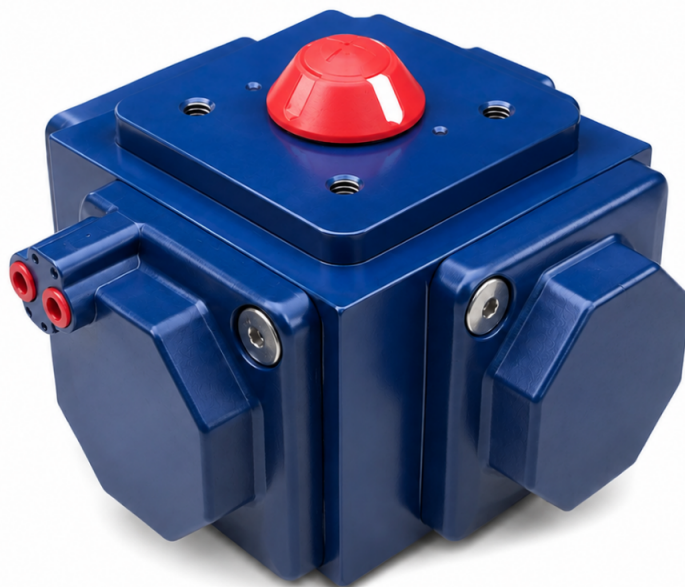


ENGINEERED FOR PERFORMANCE

FOUR-PISTON PNEUMATIC ACTUATORS

ARF SERIES

Eight actuator sizes share one compact four-piston architecture.



AVAILABLE MODELS

ARF-15

ARF-20

ARF-25

ARF-30

ARF-35

ARF-45

ARF-60

ARF-75

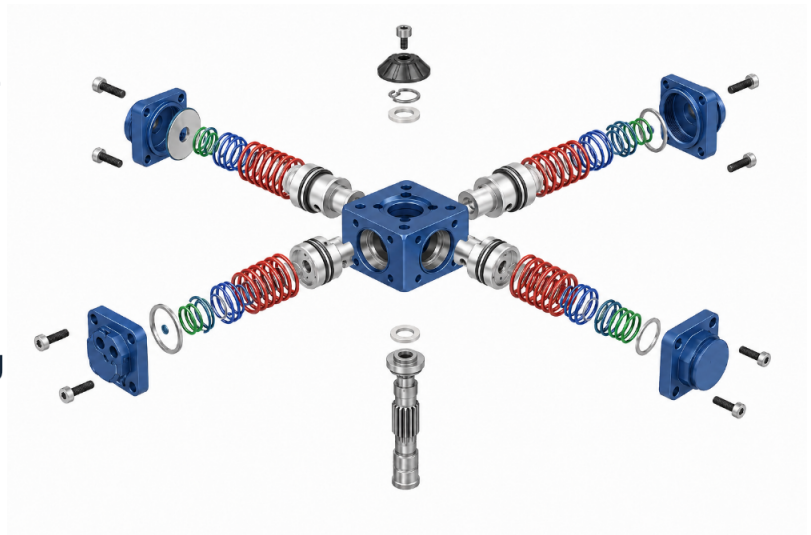
Double acting and spring return configurations are selected by model, spring set and temperature version.

DESIGN & CONSTRUCTION

Four pistons act symmetrically around the pinion.

BALANCED FORCES

- Each piston develops thrust along its own axis.
- The geometry avoids piston side loading inherent in conventional layouts.
- Reduced off-axis loading lowers stress on seals.



The cube-shaped arrangement concentrates torque in a compact envelope while maintaining symmetrical force transmission.

KEY FEATURES

FAST ACTION

01

Short piston travel reduces response time compared with a conventional two-piston design of equivalent torque.

ADJUSTABLE LIMIT STOPS

02

Four diametrically opposed stainless-steel stop screws provide equal force on both sides of the stop cam.

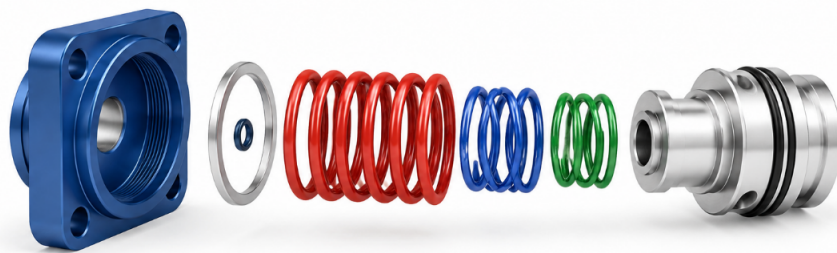
LOW AIR CONSUMPTION

03

The cubic body and short piston travel reduce internal volume and the air required for each cycle.

ALFAMATIC ARF SERIES

SPRING CARTRIDGE



Three nested spring sizes

- Four spring chambers are positioned between the pistons and cylinder covers.
- Small, middle and large springs nest concentrically in the piston locating grooves.
- Twelve spring combinations support selection for different available air pressures.

Spring combinations and output torque must be selected together from the manufacturer tables.

ALFAMATIC ARF SERIES

OPERATING CONDITIONS & SPECIFICATION

Model	DA kg	SR kg	CCW L	CW L	Total L	Stroke s
ARF-15	0.9	1.1	0.07	0.09	0.16	0.1
ARF-20	1.5	1.9	0.12	0.15	0.27	0.15
ARF-25	2.8	3.5	0.25	0.33	0.58	0.2
ARF-30	4.4	5	0.44	0.54	0.98	0.3
ARF-35	7.1	9	0.74	0.8	1.54	0.5
ARF-45	11	15	1.33	1.33	2.66	0.9
ARF-60	26	35	3.2	3.2	6.4	2
ARF-75	51	64	5.76	5.76	11.52	3

PRESSURE RANGE

2–8 bar

OPERATING TEMPERATURE

NBR: -20°C to +80°C
 FKM: -20°C to +120°C
 LTNBR: -40°C to +80°C

WORKING MEDIUM

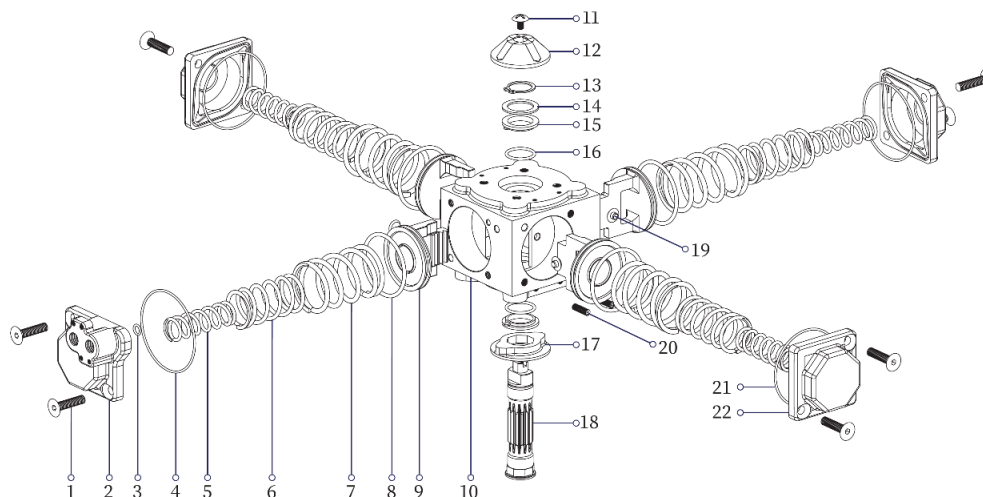
Air
 Nitrogen
 CO₂
 Natural gas

Weight: kg • Air consumption: litres • Stroke-time source condition: CV 1.4 at 5.5 bar.

ALFAMATIC ARF SERIES

PARTS & MATERIALS

Exploded construction and manufacturer-listed materials.

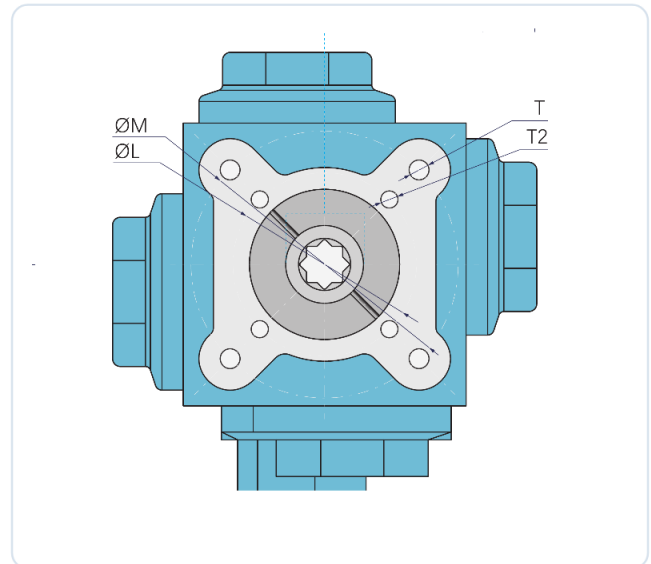
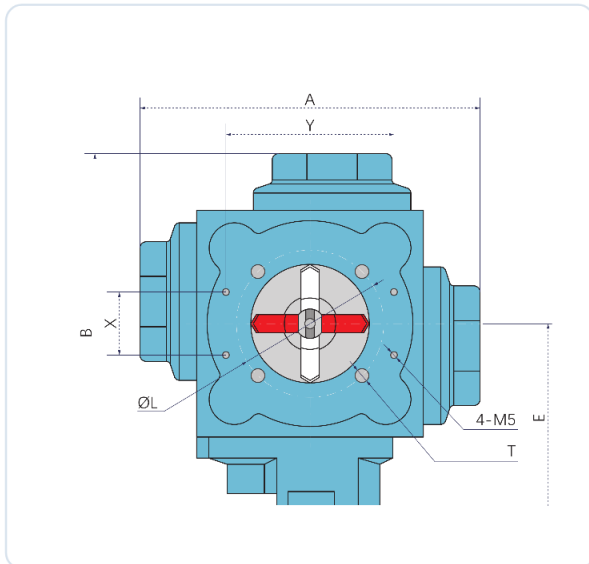
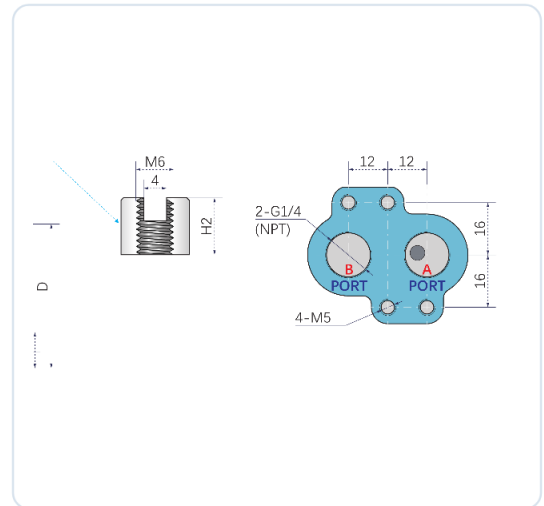
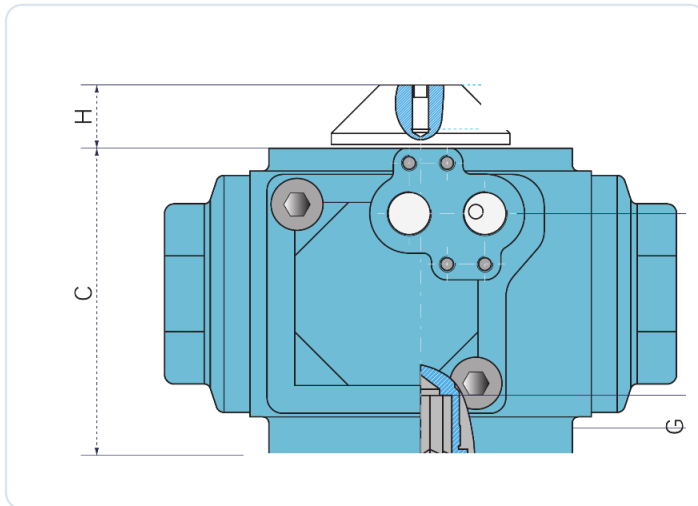


No.	Part	Qty	Material
1	End-cap screw	8	Stainless steel
2	NAMUR end cap	1	Die-cast aluminum
3	Air-supply O-ring	1	NBR / FKM / LTNBR
4	NAMUR end-cap O-ring	1	NBR / FKM / LTNBR
5	Small spring	4	Spring steel
6	Middle spring	4	Spring steel
7	Large spring	4	Spring steel
8	Piston O-ring	4	NBR / FKM / LTNBR
9	Piston	4	Die-cast aluminum
10	Body	1	Gravity-cast aluminum
11	Indicator screw	1	Plastic + stainless steel
12	Indicator	1	ABS plastic
13	Spring clip	1	Stainless steel
14	Thrust washer	1	POM
15	Bearing	2	POM
16	Shaft O-ring	2	NBR / FKM / LTNBR
17	Cam	1	Stainless steel
18	Pinion	1	Nickel-coated alloy steel
19	Piston guide	4	POM
20	Adjustment screw	4	Stainless steel
21	End-cap O-ring	3	NBR / FKM / LTNBR
22	End cap	3	Die-cast aluminum

ALFAMATIC ARF SERIES

MOUNTING & INTERFACES

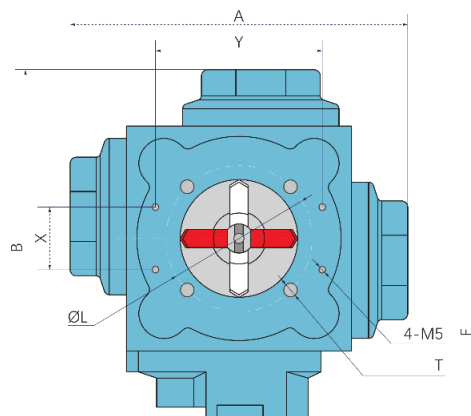
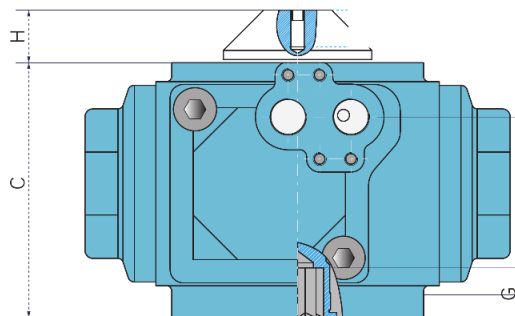
The ARF body integrates standardized air and accessory interfaces shown in the manufacturer drawing.



- Air connection: NAMUR interface shown with 2 × G1/4 (NPT).
- Drive and accessory mounting interfaces are shown as separate, unobstructed views.

ALFAMATIC ARF SERIES

DIMENSIONS



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

Model	T	T2	X×Y,H	H2
ARF-15	M6×8	M8×11	30×80,20	14
ARF-20	M6×8	M8×11	30×80,20	14
ARF-25	M6×11	M10×14	30×80,20	14
ARF-30	M6×11	M10×14	30×80,20	14
ARF-35	M6×14	—	30×80,20	14
ARF-45	M6×14	M12×18	30×80,20	14
ARF-60	M6×24	—	30×130,30	20
ARF-75	M6×30	—	30×130,30	20

ALFAMATIC ARF SERIES

SPRING SET CONFIGURATION

Twelve combinations use small, middle and large nested springs.

S = small spring • M = middle spring • L = large spring

S4 (1A)

M4 (1B)

S2M4 (1B2)

S4M4 (2)

S2M4 (2AB)

S4M4 (2A)

S4M2L2 (2A2B)

S4L4 (2B)

S4M4L2 (2A3)

M4L4 (2C)

S2M4L4 (2C3)

S4M4L4 (3)

Green labels apply to ARF-15SR only; blue labels apply to ARF-20SR through ARF-75SR.

ALFAMATIC ARF SERIES

DOUBLE ACTING – OUTPUT TORQUE

Output torque in Nm across the stated operating-pressure range.

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

Selection note

Apply the required design safety factor and verify that the available operating pressure is maintained at the actuator during valve movement.

PART 1 OF 6

SPRING RETURN – OUTPUT TORQUE

ARF-15 to ARF-25 • 3 to 5.5 bar • Output torque in Nm.

Each pressure column shows actuator torque at 0° / 90°. Spring columns show 90° / 0°.

Model	Set	3/0	3/90	4/0	4/90	5/0	5/90	5.5/0	5.5/90
ARF-15	S4 1A	7	4	10	7	13	11	15	12
ARF-15	M4 1B			8	4	12	8	13	10
ARF-15	S2M4 1B2					10	5	12	7
ARF-15	S4M4 2								
ARF-20	S2M4 2AB	10	5	17	12	24	18	27	22
ARF-20	S4M4 2A			16	10	22	16	26	19
ARF-20	S4M2L2 2A2B			14	7	20	13	24	16
ARF-20	S4L4 2B					18	10	22	13
ARF-20	S4M4L2 2A3					17	9	20	12
ARF-20	M4L4 2C							19	10
ARF-20	S2M4L4 2C3								
ARF-20	S4M4L4 3								
ARF-25	S2M4 2AB	25	15	38	27	51	40	58	47
ARF-25	S4M4 2A	23	11	36	23	49	36	55	42
ARF-25	S4M2L2 2A2B			33	19	46	32	53	39
ARF-25	S4L4 2B					43	27	50	34
ARF-25	S4M4L2 2A3					41	22	47	29
ARF-25	M4L4 2C					38	18	45	24
ARF-25	S2M4L4 2C3							43	19
ARF-25	S4M4L4 3								

Blank cells indicate that the spring-set / pressure combination is not specified by the manufacturer.

PART 2 OF 6

SPRING RETURN – OUTPUT TORQUE

ARF-15 to ARF-25 • 6 to 8 bar + spring torque • Output torque in Nm.

Each pressure column shows actuator torque at 0° / 90°. Spring columns show 90° / 0°.

Model	Set	6/0	6/90	7/0	7/90	8/0	8/90	Sp/90	Sp/0
ARF-15	S4 1A	17	14	20	17	24	21	6	3
ARF-15	M4 1B	15	11	18	14	22	18	9	5
ARF-15	S2M4 1B2	13	9	16	11	20	15	12	7
ARF-15	S4M4 2	11	6	14	8.5	18	12	15	9
ARF-20	S2M4 2AB	30	25	37	31	43	37	12	7
ARF-20	S4M4 2A	29	22	35	29	41	35	15	9
ARF-20	S4M2L2 2A2B	27	19	33	26	39	32	18	11
ARF-20	S4L4 2B	25	17	31	23	38	29	21	13
ARF-20	S4M4L2 2A3	23	15	30	22	36	28	22	15
ARF-20	M4L4 2C	22	13	28	19	35	25	25	16
ARF-20	S2M4L4 2C3	21	11	27	17	33	23	27	17
ARF-20	S4M4L4 3	19	9	24	15	30	21	29	19
ARF-25	S2M4 2AB	65	53	78	66	90	78	23	13
ARF-25	S4M4 2A	62	49	75	62	88	74	28	16
ARF-25	S4M2L2 2A2B	60	45	73	58	86	70	32	18
ARF-25	S4L4 2B	57	41	70	53	83	66	36	21
ARF-25	S4M4L2 2A3	54	36	67	48	80	61	42	24
ARF-25	M4L4 2C	52	31	64	44	77	56	47	27
ARF-25	S2M4L4 2C3	50	25	63	38	75	50	52	29
ARF-25	S4M4L4 3	47	21	60	34	73	46	57	31

Blank cells indicate that the spring-set / pressure combination is not specified by the manufacturer.

PART 3 OF 6

SPRING RETURN – OUTPUT TORQUE

ARF-30 to ARF-45 • 3 to 5.5 bar • Output torque in Nm.

Each pressure column shows actuator torque at 0° / 90°. Spring columns show 90° / 0°.

Model	Set	3/0	3/90	4/0	4/90	5/0	5/90	5.5/0	5.5/90
ARF-30	S2M4 2AB	40	26	62	47	84	70	96	81
ARF-30	S4M4 2A	36	19	57	40	80	62	91	73
ARF-30	S4M2L2 2A2B			52	30	75	52	86	63
ARF-30	S4L4 2B			48	18	70	43	81	54
ARF-30	S4M4L2 2A3					66	36	77	47
ARF-30	M4L4 2C					64	25	73	39
ARF-30	S2M4L4 2C3								
ARF-30	S4M4L4 3								
ARF-35	S2M4 2AB	81	50	118	86	156	123	174	141
ARF-35	S4M4 2A	75	39	111	74	150	112	168	129
ARF-35	S4M2L2 2A2B	64	26	100	62	139	99	157	117
ARF-35	S4L4 2B			92	44	130	82	148	99
ARF-35	S4M4L2 2A3					123	67	141	84
ARF-35	M4L4 2C							133	68
ARF-35	S2M4L4 2C3								
ARF-35	S4M4L4 3								
ARF-45	S2M4 2AB	148	86	222	158	295	229	331	264
ARF-45	S4M4 2A	134	60	208	132	280	203	317	239
ARF-45	S4M2L2 2A2B			197	113	269	184	306	219
ARF-45	S4L4 2B			179	82	252	153	288	188
ARF-45	S4M4L2 2A3					238	127	274	163
ARF-45	M4L4 2C					223	102	260	137
ARF-45	S2M4L4 2C3								
ARF-45	S4M4L4 3								

Blank cells indicate that the spring-set / pressure combination is not specified by the manufacturer.

PART 4 OF 6

SPRING RETURN – OUTPUT TORQUE

ARF-30 to ARF-45 • 6 to 8 bar + spring torque • Output torque in Nm.

Each pressure column shows actuator torque at 0° / 90°. Spring columns show 90° / 0°.

Model	Set	6/0	6/90	7/0	7/90	8/0	8/90	Sp/90	Sp/0
ARF-30	S2M4 2AB	107	92	130	114	152	136	35	21
ARF-30	S4M4 2A	102	84	125	107	148	129	42	26
ARF-30	S4M2L2 2A2B	98	74	120	96	143	118	53	31
ARF-30	S4L4 2B	93	65	115	87	138	109	62	36
ARF-30	S4M4L2 2A3	89	58	111	80	134	103	69	40
ARF-30	M4L4 2C	85	50	107	72	130	94	78	44
ARF-30	S2M4L4 2C3	80	40	102	62	125	85	88	49
ARF-30	S4M4L4 3	75	33	98	55	120	77	96	54
ARF-35	S2M4 2AB	192	158	230	195	268	232	62	32
ARF-35	S4M4 2A	186	147	224	184	262	221	74	38
ARF-35	S4M2L2 2A2B	175	134	213	171	251	208	87	49
ARF-35	S4L4 2B	166	117	204	154	242	191	105	58
ARF-35	S4M4L2 2A3	159	102	197	139	235	176	121	65
ARF-35	M4L4 2C	151	86	189	123	227	160	137	73
ARF-35	S2M4L4 2C3	143	75	181	112	219	149	149	82
ARF-35	S4M4L4 3	135	63	173	100	211	137	161	89
ARF-45	S2M4 2AB	367	300	440	371	513	442	133	72
ARF-45	S4M4 2A	353	275	426	346	499	417	159	86
ARF-45	S4M2L2 2A2B	342	255	415	326	488	397	179	97
ARF-45	S4L4 2B	325	224	398	295	471	366	212	115
ARF-45	S4M4L2 2A3	311	198	383	269	456	340	239	130
ARF-45	M4L4 2C	296	173	369	244	442	315	265	144
ARF-45	S2M4L4 2C3	283	147	355	218	428	289	292	158
ARF-45	S4M4L4 3	268	122	341	193	414	364	318	173

Blank cells indicate that the spring-set / pressure combination is not specified by the manufacturer.

PART 5 OF 6

SPRING RETURN – OUTPUT TORQUE

ARF-60 to ARF-75 • 3 to 5.5 bar • Output torque in Nm.

Each pressure column shows actuator torque at 0° / 90°. Spring columns show 90° / 0°.

Model	Set	3/0	3/90	4/0	4/90	5/0	5/90	5.5/0	5.5/90
ARF-60	S2M4 2AB	359	216	532	385	706	554	792	639
ARF-60	S4M4 2A	328	160	501	329	675	498	762	583
ARF-60	S4M2L2 2A2B			478	285	651	454	738	538
ARF-60	S4L4 2B			442	221	615	390	702	475
ARF-60	S4M4L2 2A3					580	327	667	411
ARF-60	M4L4 2C					548	268	635	352
ARF-60	S2M4L4 2C3								
ARF-60	S4M4L4 3								
ARF-75	S2M4 2AB	672	443	992	755	1312	1067	1472	1223
ARF-75	S4M4 2A	614	345	935	657	1255	969	1414	1124
ARF-75	S4M2L2 2A2B			891	582	1211	894	1370	1049
ARF-75	S4L4 2B			820	461	1140	773	1299	928
ARF-75	S4M4L2 2A3					1082	674	1242	830
ARF-75	M4L4 2C					1025	576	1184	732
ARF-75	S2M4L4 2C3							1127	633
ARF-75	S4M4L4 3								

Blank cells indicate that the spring-set / pressure combination is not specified by the manufacturer.

PART 6 OF 6

SPRING RETURN – OUTPUT TORQUE

ARF-60 to ARF-75 • 6 to 8 bar + spring torque • Output torque in Nm.

Each pressure column shows actuator torque at 0° / 90°. Spring columns show 90° / 0°.

Model	Set	6/0	6/90	7/0	7/90	8/0	8/90	Sp/90	Sp/0
ARF-60	S2M4 2AB	879	723	1052	891	1225	1060	302	162
ARF-60	S4M4 2A	848	667	1021	835	1194	1004	360	194
ARF-60	S4M2L2 2A2B	824	623	997	791	1170	960	406	218
ARF-60	S4L4 2B	789	559	961	727	1134	896	473	254
ARF-60	S4M4L2 2A3	754	495	926	663	1099	832	539	290
ARF-60	M4L4 2C	721	437	894	605	1067	774	600	323
ARF-60	S2M4L4 2C3	688	378	861	546	1034	715	661	356
ARF-60	S4M4L4 3	657	322	830	490	1003	659	720	388
ARF-75	S2M4 2AB	1631	1378	1951	1690	2270	2000	512	292
ARF-75	S4M4 2A	1574	1280	1894	1592	2212	1902	615	350
ARF-75	S4M2L2 2A2B	1530	1205	1850	1517	2168	1827	693	395
ARF-75	S4L4 2B	1459	1084	1779	1396	2097	1706	819	467
ARF-75	S4M4L2 2A3	1401	986	1722	1298	2040	1608	921	525
ARF-75	M4L4 2C	1344	887	1664	1199	1982	1509	1024	584
ARF-75	S2M4L4 2C3	1286	789	1607	1101	1925	1411	1126	642
ARF-75	S4M4L4 3	1229	691	1549	1003	1867	1313	1229	700

Blank cells indicate that the spring-set / pressure combination is not specified by the manufacturer.

ALFAMATIC ARF SERIES

HOW TO ORDER

Build the ordering code from product family, model, acting type, spring set and temperature version.

Field	Available code
Product	ARF
Model	15 / 20 / 25 / 30 / 35 / 45 / 60 / 75
Acting type	DA – Double Acting / SR – Spring Return
Spring set	Select the validated spring combination code
Temperature	Blank – Standard / HT – High / LT – Low

ORDERING STRUCTURE

**ARF – MODEL – ACTING TYPE – SPRING SET – TEMPERATURE
VERSION**

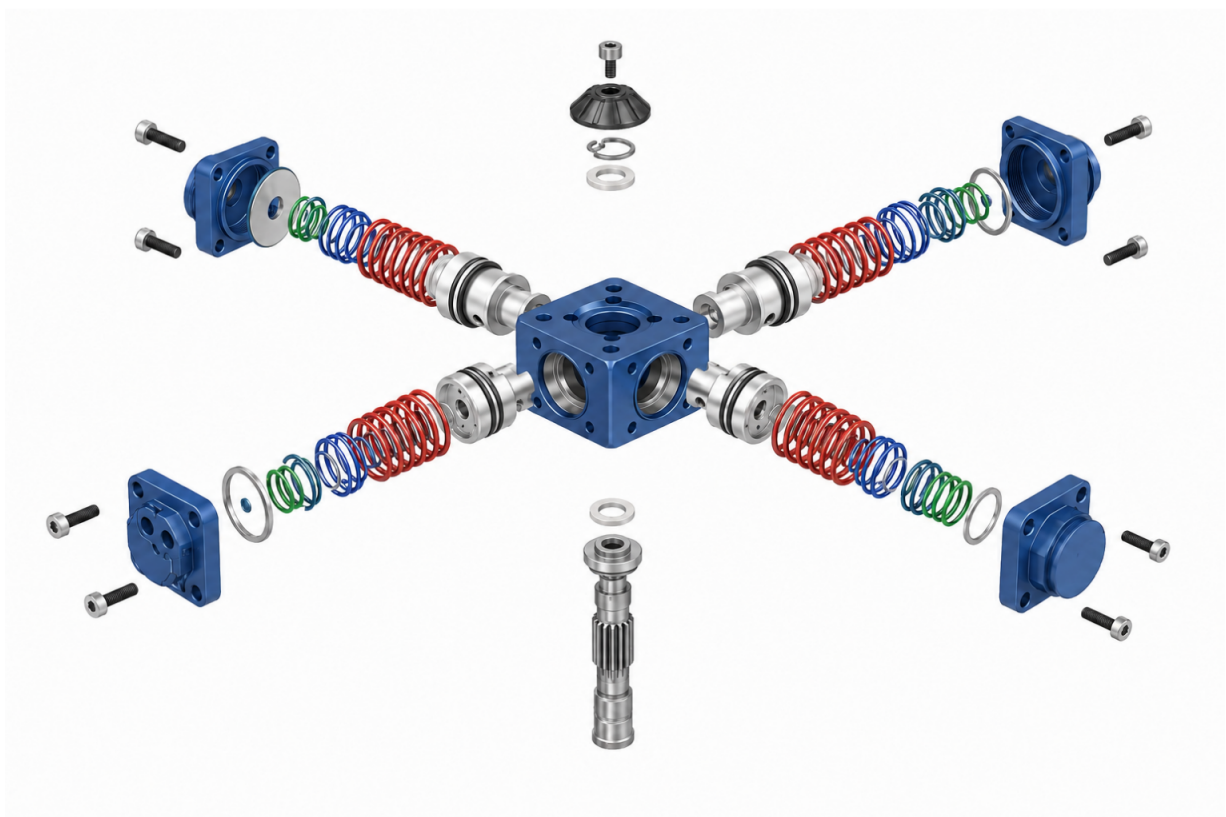
DATA CONFIRMATION REQUIRED

The ordering table states HT to +150°C, while the specification page lists FKM to +120°C. Confirm the applicable temperature limit with the manufacturer before ordering.

ALFAMATIC ARF SERIES

PRODUCT COMPONENTS

Key service components shown in the manufacturer ordering section.



Use only component versions compatible with the selected ARF model and sealing material.

ACTUATOR SELECTION GUIDE

A reliable selection starts with the valve torque requirement and the real operating conditions.

1 VALVE TORQUE

Determine maximum break, running and seating torque for the valve and service.

2 ACTING MODE

Choose double acting or spring return according to the required fail position.

3 AIR PRESSURE

Use the minimum pressure reliably available at the actuator—not only compressor pressure.

4 SPRING SET

For SR versions, select the spring code together with both air and spring torque values.

5 INTERFACES

Verify drive, mounting pattern, air connection and accessory interfaces.

6 ENVIRONMENT

Select the seal temperature range compatible with the actual operating environment.

**PRECISION.
RELIABILITY.
CONTROL.**



FOUR-PISTON PNEUMATIC ACTUATION

ALFACOM ENGINEERING LTD.

Hamasger 4, Haifa 2629012, Israel
Tel. +972 4 8490060
Fax +972 4 8491199
info@alfacom.co.il
www.alfacom.co.il