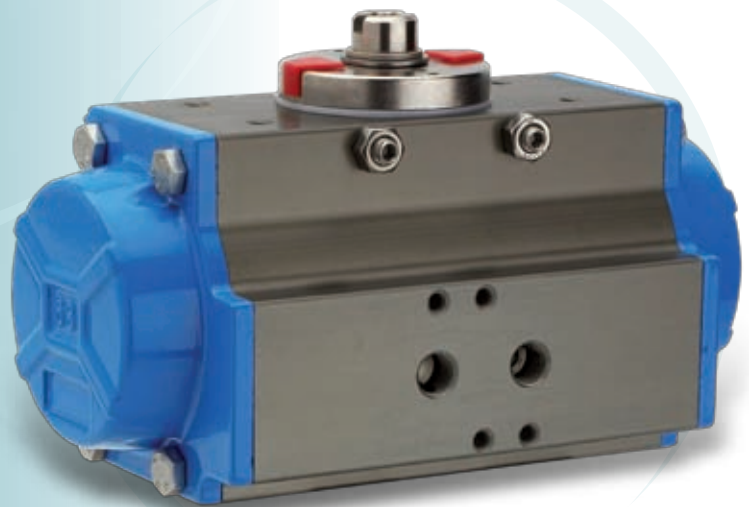


Fluid Power Actuators and Control Systems

rotork® Fluid Systems

Established Leaders in Valve Actuation



R Range

Rack & Pinion Actuators

Rotork Actuators – Quality Controlled

In the 50 years since the company was founded, Rotork has become the standard for excellence in the field of valve and damper automation for the oil, gas, power, water and waste treatment industries around the world.

As established leaders in actuation technology, we owe our success to a commitment to quality at every stage, and at every level, of Rotork's operations.

At the heart of the company is an exceptional workforce – the highly trained, forward thinking engineers, technicians, and sales support staff who each play a crucial role in maintaining Rotork's unrivaled reputation for innovation, reliability and first class after sale support.

With several fluid power manufacturing facilities in Europe and the United States, and additional *Centres of Excellence* strategically located around the globe, we are able to offer solutions and design systems for virtually any application — from subsea hydraulics to the most sophisticated yet simple control system.

Contact Rotork for your operational or safety application requirements. We will work with you from conception, to design, to manufacture, to installation, and finally to maintenance and service support.



R Range – Pneumatic Rack & Pinion Actuators

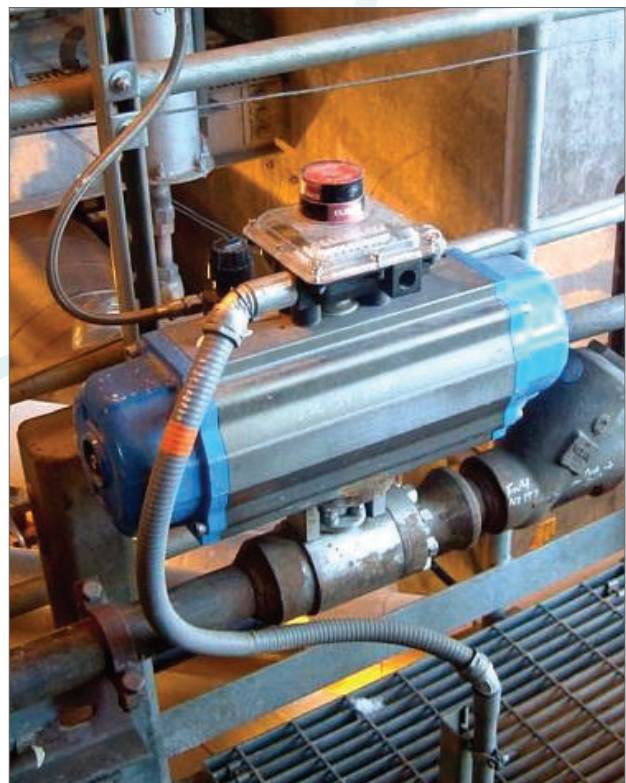
Reliability by design

Rotork R Range rack and pinion actuators satisfy a wide range of industrial and process applications. They feature a durable, compact twin rack design and are pre-lubricated for the life of the assembly – at least one million cycles under normal working conditions.

The range is manufactured in twelve different body sizes providing up to 4173 Nm (36,600 in.lbs) of torque in both double-acting and spring-return configurations. They provide 90° of rotation with a constant torque output throughout the stroke. Valve mounting dimensions are per ISO 5211-DIN3337. Accessory mounting dimensions conform to NAMUR standards.

Safe and Versatile

Spring-return units can be assembled to provide spring-return operation in either clockwise or counter-clockwise directions. Long end cap securing screws retain the cap until the spring is relaxed, providing for safe disassembly.



R Range – Pneumatic Rack & Pinion Actuators

Every Rotork Fluid Systems actuator is built to provide long and efficient service with a minimum of maintenance. The design, engineering and materials used in the construction ensure optimum performance even in the harshest of environments. Each unit is fully tested upon manufacture.

Nominal values:

- Max pressure rating 8 bar (116 psi)
- Temperature ranges:

Standard	-20°C to 85°C	(-4°F to 185°F)
High	-20°C to 150°C	(-4°F to 300°F)
Low	-40°C to 85°C	(-40°F to 185°F)

Rotation adjustment 0-90°

Model 52 up to 140.

- $\pm 5^\circ$ in both directions.
- Integral visual position indicator.

Model 160-200-270.

- $\pm 5^\circ$ in counterclockwise direction by means of adjusting screws in the caps.
- Kit for $\pm 5^\circ$ in clockwise direction available upon request.

Mounting

- Top of pinion to Namur standard.
- Solenoid valve connection according to Namur standard.
- Bottom of pinion to ISO 5211-DIN 3337.

1 Die cast aluminum end caps

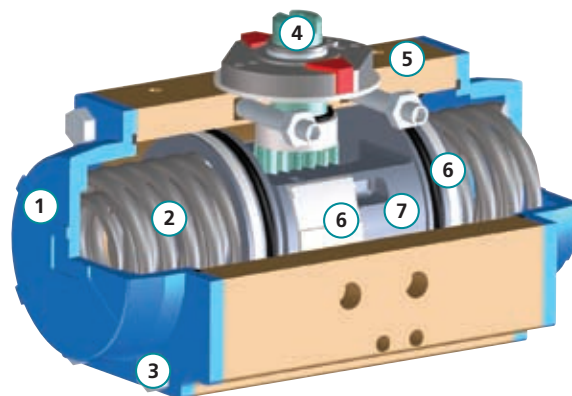
- Standard polyester powder coated.
- Nickel-plated upon request.

2 Concentric spring sets

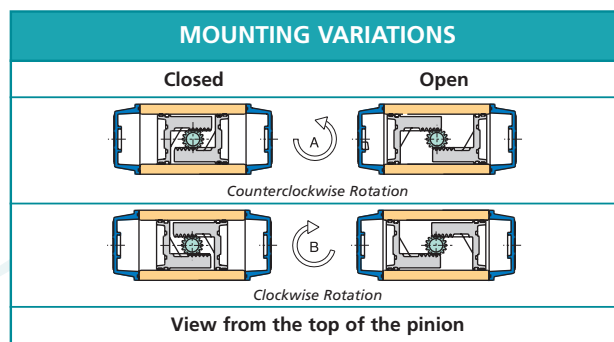
- Standard phosphate treatment.
- Multiple spring sets to suit different air supply pressure and torque requirements.
- Same body dimensions for DA/SR versions.

3 Assembly screws

- Stainless steel.



Representative of Models 52-140



4 Pinion

- Nickel-plated steel standard.
- Stainless steel upon request.
- Anti-blowout design.

5 UNI6060 extruded aluminum body

- 45-50 (micron) hard-coat anodized.
- High wear resistance.
- High corrosion resistance.
- Nickel-plated or epoxy coated upon request.
- Bore finished to high standard to ensure low friction and long life.

6 Piston guides in POM

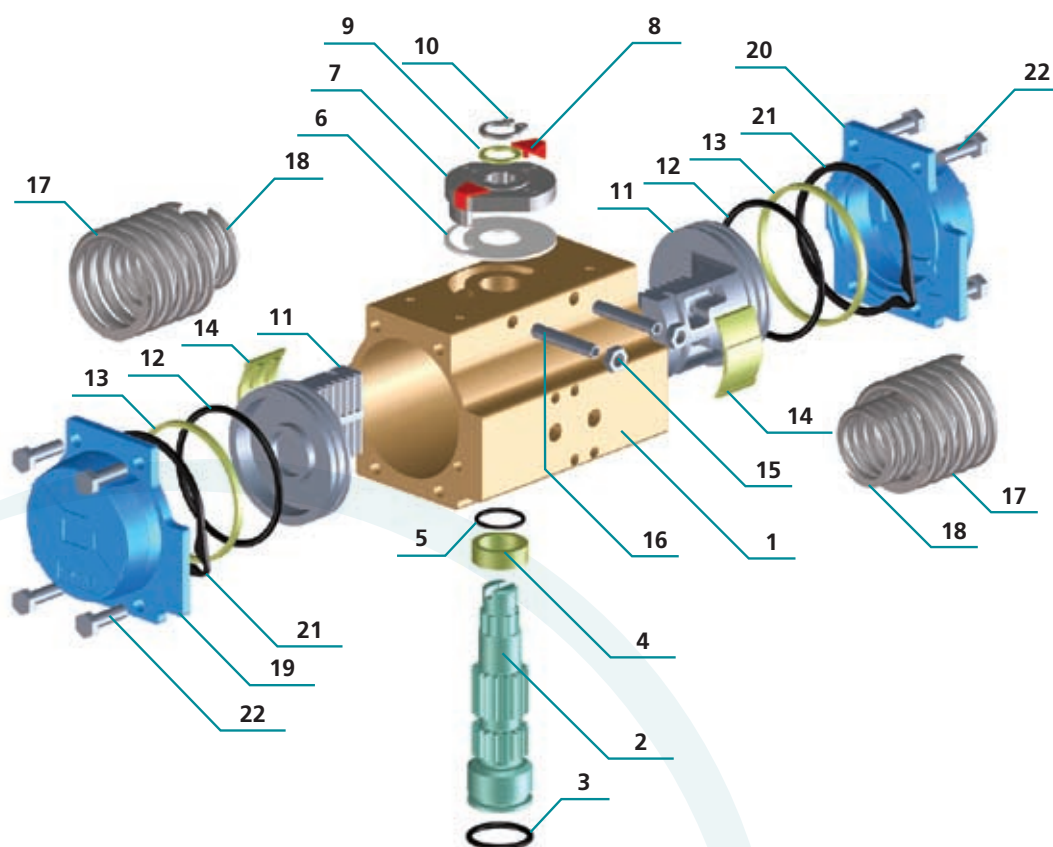
- Large contact area.
- Low friction.

7 Die cast aluminum pistons

- Chemical nickel-plated upon request.

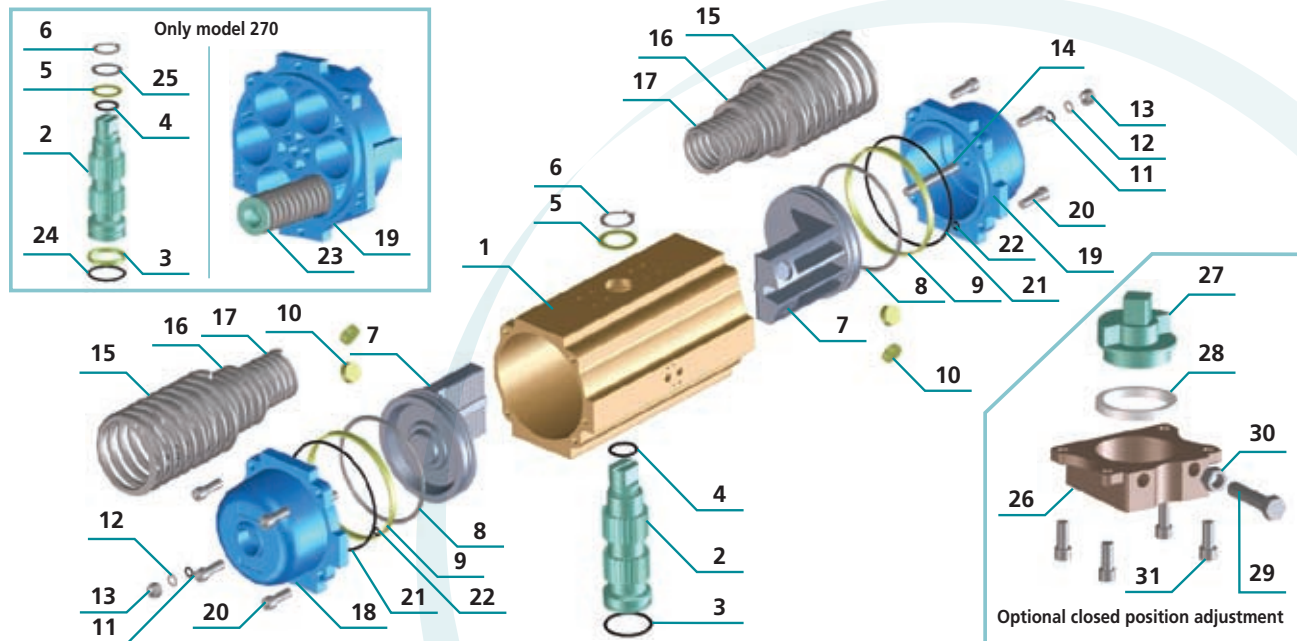
Inside the R Range Actuator

Models 52-140



ITEM	DESCRIPTION	MATERIAL	TREATMENT	QTY. DA	QTY. SR
1	Body	Extruded Aluminum	Hard Anodized	1	1
2	Anti-Blowout Pinion	Steel	Nickel-Plated	1	1
3	Lower Pinion O-Ring	NBR		1	1
4	Pinion Spacer Ring	POM		1	1
5	Upper Pinion O-Ring	NBR		1	1
6	Cam Spacer Ring	POM		1	1
7	Cam	Stainless Steel		1	1
8	Position Indicator	Nylon		2	2
9	Pinion Washer	Stainless Steel		1	1
10	Pinion Retaining Ring	Steel	Nickel-Plated	1	1
11	Piston	Die Cast Aluminum		2	2
12	Piston O-Ring	NBR		2	2
13	Anti-Friction Ring	POM		2	2
14	Piston Thrust Block	POM		2	2
15	Stop Bolt Retaining Nut	Stainless Steel		2	2
16	Stop Bolt	Stainless Steel		2	2
17	External Spring	Steel	Zinc-Phosphate	0	See spring setting on page10
18	Internal Spring	Steel	Zinc-Phosphate	0	See spring setting on page10
19	Left End Cap	Die Cast Aluminum	Polyester Powder Coated	1	1
20	Right End Cap	Die Cast Aluminum		1	1
21	End Cap O-Ring	NBR	Polyester Powder Coated	2	2
22	End Cap Fixing Screw	Stainless Steel		8	8

Models 160, 200, 270

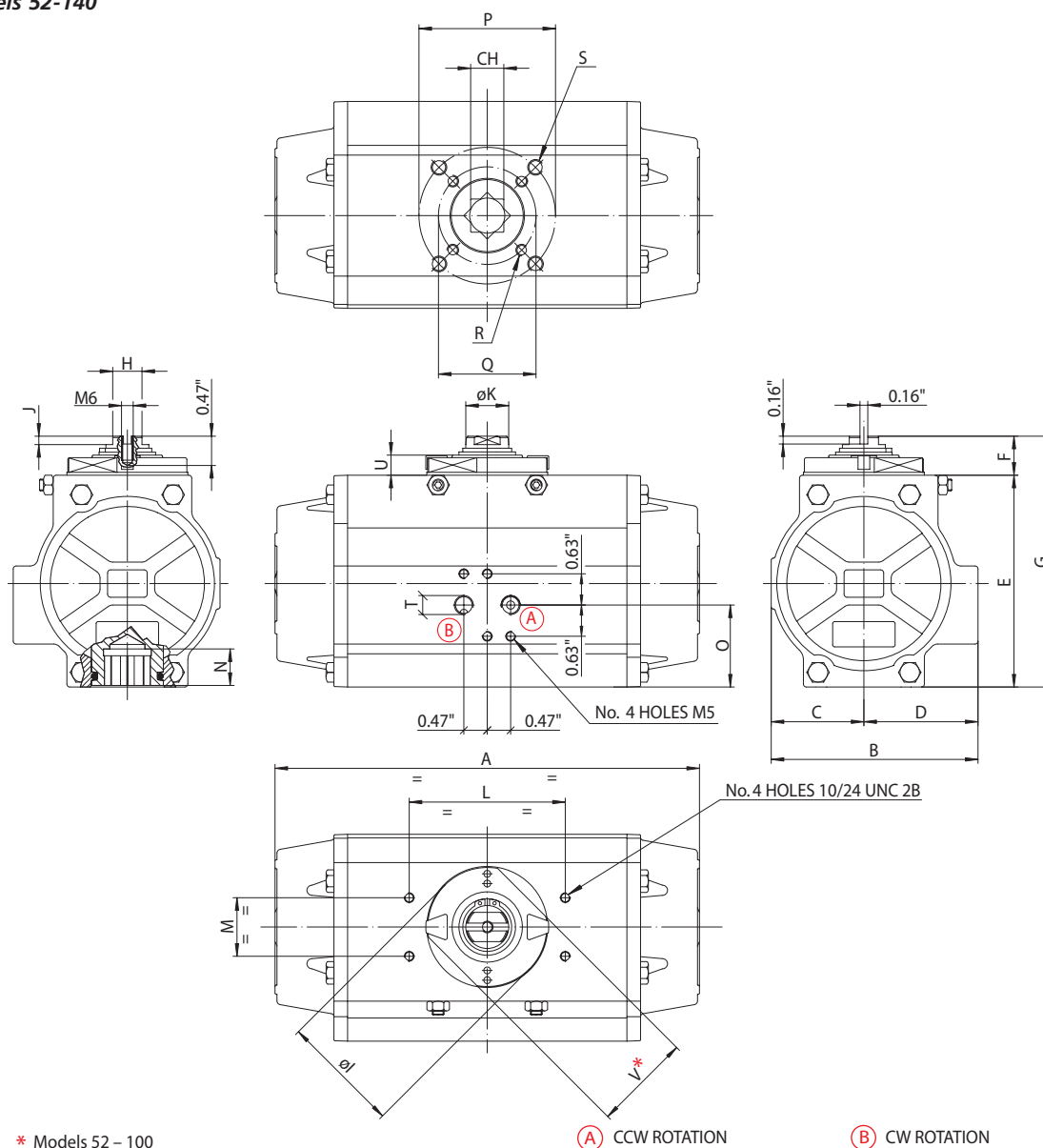


ITEM	DESCRIPTION	MATERIAL	TREATMENT	QTY. DA	QTY. SR
1	Body	Extruded Aluminum	Hard Anodized	1	1
2	Anti-Blowout Pinion	Steel	Nickel-Plated	1	1
3	Lower Pinion O-Ring	NBR		1	1
4	Upper Pinion O-Ring	NBR		1	1
5	Pinion Spacer Ring	POM		1	1
6	Pinion Retaining Ring	Steel	Nickel-Plated	1	1
7	Piston	Die Cast Aluminum		2	2
8	Piston O-Ring	NBR		2	2
9	Anti-Friction Ring	PTFE 15% Graphite		2	2
10	Piston Thrust Block	POM		4 (6*)	4 (6*)
11	Stop Bolt O Ring	NBR		2	2
12	Stop Bolt Washer	Stainless Steel		2	2
13	Stop Bolt Retaining Nut	Stainless Steel		2	2
14	Stop Bolt	Stainless Steel		2	2
15	External Spring	Steel	Zinc-Phosphate	0	See spring setting on page10
16	Central Spring	Steel	Zinc-Phosphate	0	See spring setting on page10
17	Internal Spring	Steel	Zinc-Phosphate	0	See spring setting on page10
18	Left End Cap	Die Cast Aluminum	Polyester Powder Coated	1	1
19	Right End Cap	Die Cast Aluminum	Polyester Powder Coated	1	1
20	End Cap Retaining Screw	Stainless Steel		8 (12*)	8 (12*)
21	End Cap O-Ring	NBR		2	2
22	Passage O-Ring	NBR		2	2
23	Precompressed Spring*	Steel	Zinc-Phosphate	0	See spring setting on page10
24	Anti-Friction Ring*	PTFE 15% Graphite		1	1
25	Pinion Washer*	Stainless Steel		1	1
OPTIONAL CLOSED POSITION ADJUSTMENT					
26	Housing	Ductile Iron	Polyester Powder Coated	1	1
27	Coupling	Steel	Nickel-Plated	1	1
28	Anti-Friction Ring	PTFE		1	1
29	Stop Bolt	Steel	Zinc Plated	1	1
30	Stop Bolt Retaining Nut	Stainless Steel		1	1
31	Mounting Bolt	Stainless Steel		4	4

* Valid for model 270 only

Dimensions

Models 52-140

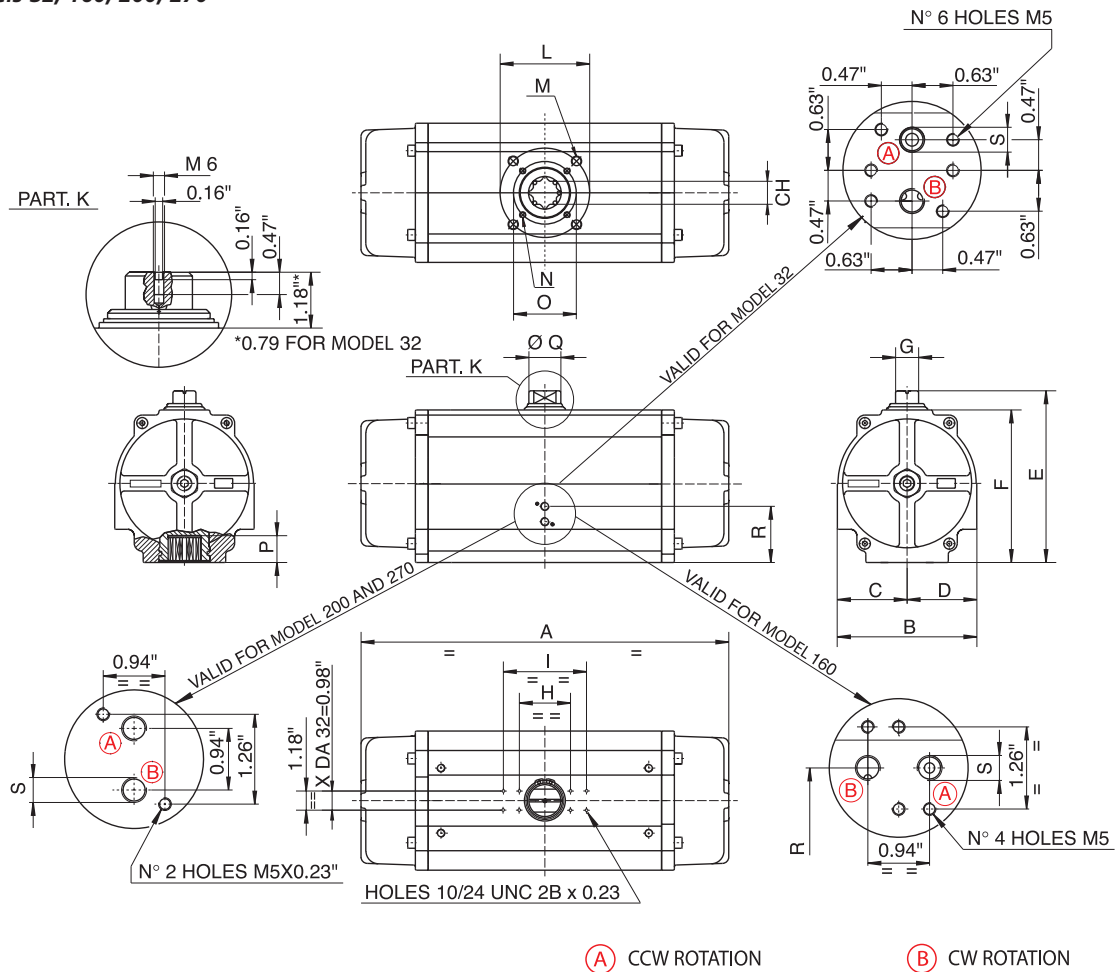


DIMENSIONS (INCHES)

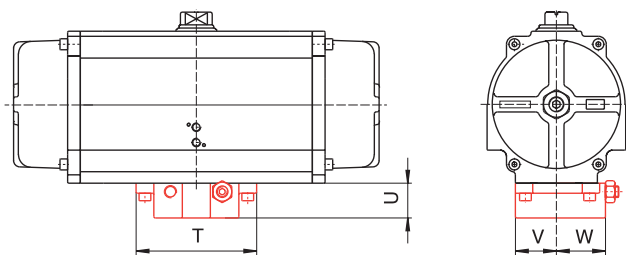
MOD.	DRILLING ISO 5211	CH--	A	B	C	D	E	F	G	H	Ø I	L	M	N	O	P	Q	R	S	T NPT	U	V
52	F03-F05	0.43	5.49	2.80	1.18	1.61	2.74	0.79	3.52	0.35	1.65	3.15	1.18	0.47	1.04	1.97	1.42	10-24 UNC 2Bx0.29"	1/4-20 UNC 2Bx0.35"	1/8"	0.35	1.50
63	F05-F07	0.55	6.38	3.17	1.40	1.77	3.17	0.79	3.96	0.43	1.89	3.15	1.18	0.63	1.08	2.76	1.97	1/4-20 UNC 2Bx0.31"	5/16-18 UNC 2Bx0.47"	1/8"	0.35	1.61
75	F05-F07	0.67	8.15	3.72	1.65	2.07	3.82	0.79	4.61	0.51	2.40	3.15	1.18	0.75	1.38	2.76	1.97	1/4-20 UNC 2Bx0.31"	5/16-18 UNC 2Bx0.47"	1/8"	0.41	1.97
85	F05-F07	0.67	9.35	4.17	1.87	2.30	4.27	0.79	5.06	0.59	2.40	3.15	1.18	0.75	1.65	2.76	1.97	1/4-20 UNC 2Bx0.31"	5/16-18 UNC 2Bx0.47"	1/8"	0.41	1.97
100	F07-F10	0.67	10.69	4.84	2.17	2.68	4.78	0.79	5.57	0.59	2.40	3.15	1.18	0.81	1.97	4.02	2.76	5/16-18 UNC 2Bx0.31"	3/8-16 UNC 2Bx0.55"	1/4"	0.41	1.97
115	F07-F10	0.87	12.91	5.39	2.52	2.87	5.57	1.18	6.75	0.87	3.31	5.12	1.18	0.94	1.97	4.02	2.76	5/16-18 UNC 2Bx0.47"	3/8-16 UNC 2Bx0.59"	1/4"	0.63	—
125	F07-F10	0.87	14.41	5.83	2.68	3.15	6.04	1.18	7.22	0.87	3.31	5.12	1.18	0.94	2.40	4.02	2.76	5/16-18 UNC 2Bx0.47"	3/8-16 UNC 2Bx0.59"	1/4"	0.63	—
140	F10-F12	1.06	16.85	6.46	3.01	3.44	6.93	1.18	8.11	0.94	3.46	5.12	1.18	1.14	2.80	4.92	4.02	3/8-16 UNC 2Bx0.59"	1/2-13 UNC 2Bx0.71"	1/4"	0.63	—

Dimensions

Models 32, 160, 200, 270



OPTIONAL CLOSED POSITION ADJUSTMENT FOR MOD. 160, 200, 270



MODEL	KIT
160	RI 3197
200	RI 3198
270	RI 3199

DIMENSIONS (INCHES)

MOD.	DRILLING ISO 5211	CH	A	B	C	D	E	F	G	H	I	L	M	N	O	P	ØQ	R	S NPT	T	U	V	W
32	F03	0.35	4.33	1.77	0.89	0.89	2.56	1.77	0.39	1.97	-	1.42	10-24 UNC 2Bx0.29"	-	-	0.47	0.46	-	1/8"	-	-	-	-
160	F10-F12	1.06	20.55	7.36	3.43	3.94	8.58	7.40	1.18	3.15	5.12	4.92	1/2-13 UNC 2Bx0.71"	3/8-16 UNC 2Bx0.59"	4.02	1.26	1.38	3.21	1/4"	6.30	1.77	2.20	2.50
200	F14	1.42	22.64	8.58	4.29	4.29	10.59	9.41	1.42	3.15	5.12	5.51	5/8-11 UNC 2Bx0.98"	-	-	1.54	1.97	3.46	1/4"	7.48	2.03	2.52	3.11
270	F16	1.81	26.46	11.42	5.71	5.71	14.21	13.03	1.42	3.15	5.12	6.50	3/4-10 UNC 2Bx1.18"	-	-	2.05	1.97	4.76	1/4"	9.06	2.68	3.11	4.37

*single square drive at 45° on model 270

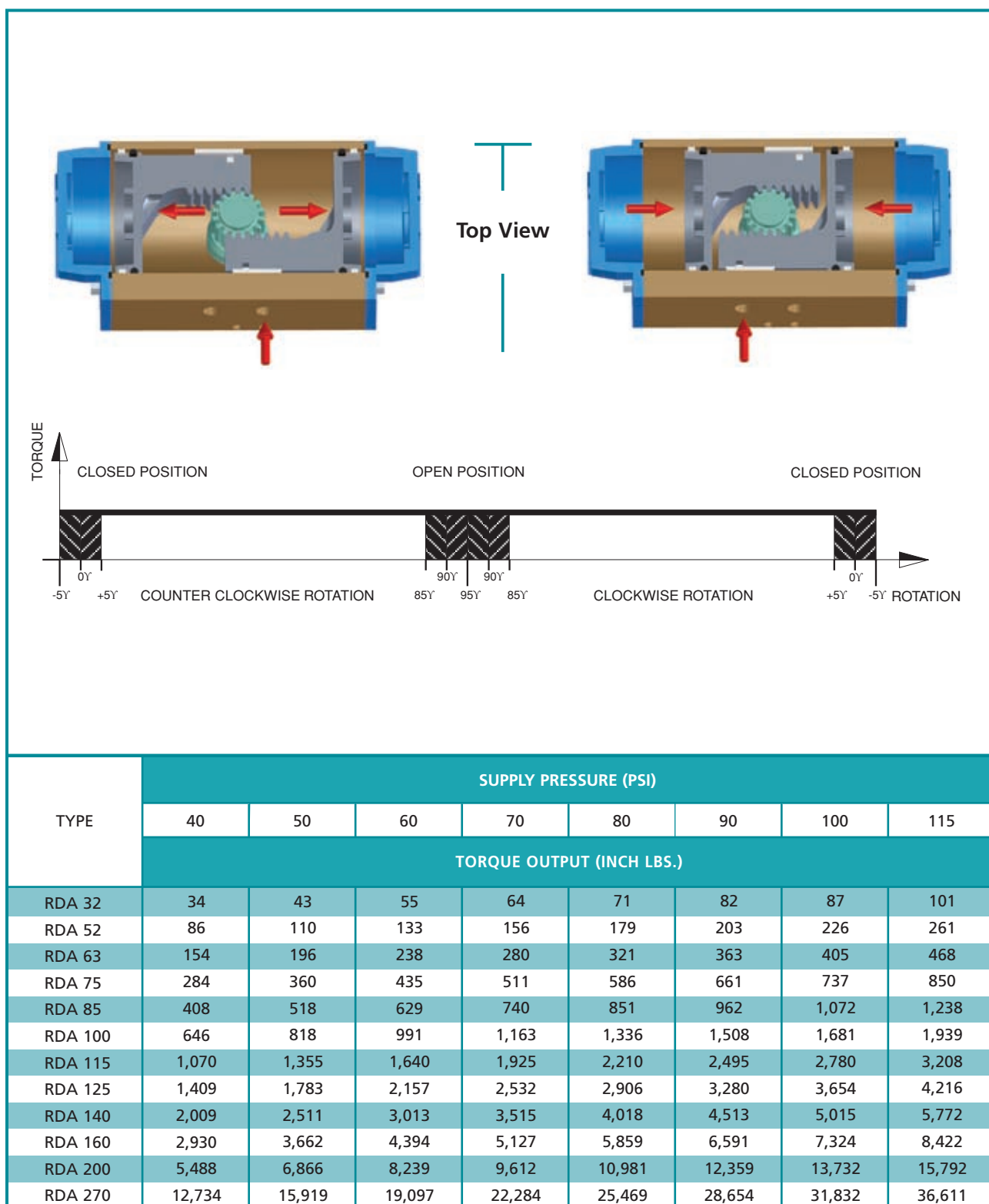
Technical Data

STROKE TIME (SEC.)												
MODEL DIRECTION	32	52	63	75	85	100	115	125	140	160	200	270
Counterclockwise rotation DA	0.03	0.03	0.06	0.12	0.20	0.30	0.53	0.83	0.98	1.15	1.74	4.50
Clockwise rotation DA	0.03	0.04	0.08	0.12	0.19	0.27	0.47	0.66	0.93	1.10	1.70	4.50
Counterclockwise rotation SR	–	0.09	0.14	0.22	0.31	0.44	0.83	1.08	1.23	1.75	2.38	4.50
Clockwise rotation SR	–	0.09	0.14	0.22	0.33	0.46	0.78	0.90	0.97	1.34	2.19	6.20
Approximative stroke times with a 6 bar (87 psi) supply												

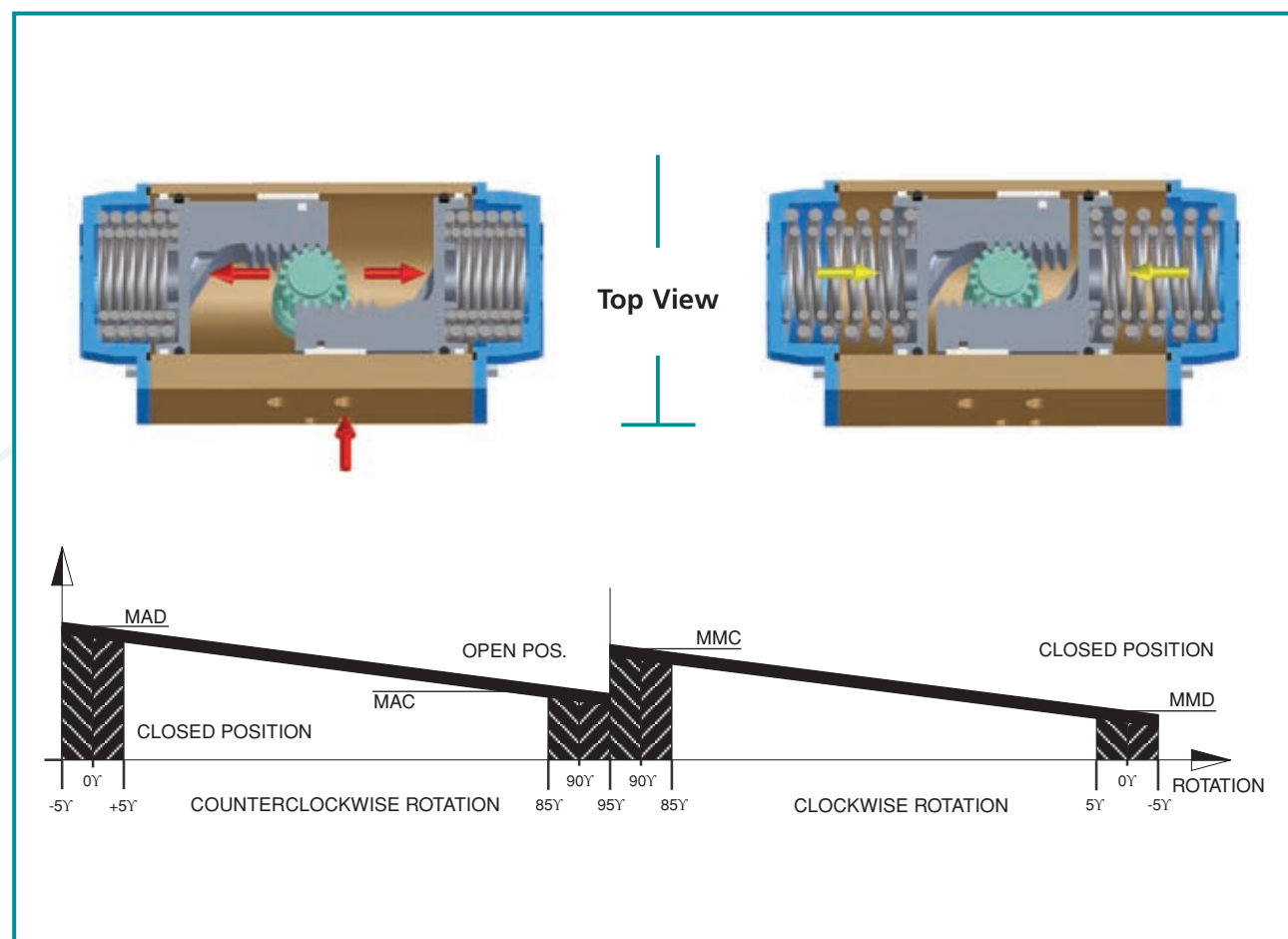
WEIGHT (LB)												
MODEL TYPE	32	52	63	75	85	100	115	125	140	160	200	270
Double Acting	1.08	2.30	3.30	5.60	7.50	11.15	17.60	22.05	33.86	43.50	72.30	157.50
Spring Return	–	2.65	3.95	7.05	9.50	14.45	22.35	29.50	45.28	53.80	111.30	194.00

AIR CONSUMPTION (U.S. GALLONS)												
MODEL DIRECTION	32	52	63	75	85	100	115	125	140	160	200	270
Counterclockwise rotation DA, SR	0.01	0.03	0.06	0.06	0.10	0.21	0.24	0.43	0.60	0.95	0.75	3.96
Clockwise rotation DA	0.01	0.03	0.05	0.12	0.17	0.27	0.45	0.57	0.84	1.26	2.60	4.70
Clockwise rotation SR	–	0.03	0.06	0.10	0.14	0.21	0.37	0.47	0.63	0.93	2.00	4.10

Torque Data Double-Acting



Torque Data Spring-Return



SPRING COMPLEMENT FOR RSR 52 - RSR 140



SET	EXTERNAL SPRING	INTERNAL SPRING
01	1	1
02	2	0
03	1	2
04	2	1
05	2	2

SPRING COMPLEMENT FOR RSR 160, RSR 200



SET	EXTERNAL SPRING	CENTRAL SPRING	INTERNAL SPRING
01	0	2	0
02	2	0	0
03	1	2	0
04	2	0	2
05	2	2	0
06	2	2	2

SPRING COMPLEMENT FOR RSR 270



PRETENSIONED SPRING

SET	N° of springs per side
01	2/3
02	3/3
03	3/4
04	4/4
05	4/5
06	5/5
07	5/6
08	6/6

Torque Data Spring-Return

MOD.	SET	SPRING TORQUE (INCH LBS)		SUPPLY PRESSURE (PSI)															
				40		50		60		70		80		90		100		115	
		0° MMD	90° MMC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC	0° MAD	90° MAC
RSR52	01	32	44	48	23	72	47	95	70										
	02	42	59			61	31	84	54	108	77								
	03	46	66					80	47	104	70	127	94	150	117				
	04	57	82					70	31	93	55	116	78	140	101	163	125		
	05	72	105							78	32	101	55	125	78	148	102	183	137
RSR63	01	44	85	92	38	134	80	176	122										
	02	58	109			120	56	162	98	204	140								
	03	71	128					149	79	191	121	233	162	275	204				
	04	85	152					136	54	177	96	219	138	261	180	303	222		
	05	111	196							151	53	193	95	235	136	276	178	339	241
RSR75	01	89	172	168	63	244	138	319	214										
	02	118	226			215	85	291	160	366	235								
	03	133	249					275	137	351	212	426	288	502	363				
	04	162	303					247	83	322	158	398	234	473	309	549	385		
	05	205	380							279	81	354	157	430	232	505	308	618	421
RSR85	01	143	242	238	109	349	219	460	330										
	02	176	298			316	163	427	274	537	384								
	03	215	361					387	211	498	322	609	432	720	543				
	04	248	417					354	155	465	265	576	376	687	487	797	633		
	05	321	536							392	146	503	257	614	368	725	478	891	645
RSR100	01	218	395	384	154	556	326	728	499										
	02	288	521			485	199	658	372	830	544								
	03	318	564					628	329	801	502	973	674	1,146	847				
	04	389	691					558	203	730	375	903	548	1,075	720	1,248	893		
	05	489	860							630	206	802	378	975	551	1,147	723	1,406	982
RSR115	01	363	658	650	270	935	555	1,220	840										
	02	449	835			848	378	1,133	663	1,419	949								
	03	538	957					1,044	541	1,329	827	1,615	1,112	1,900	1,397				
	04	625	1,133					958	365	1,243	650	1,528	935	1,813	1,220	2,098	1,505		
	05	800	1,432							1,067	352	1,352	637	1,638	922	1,923	1,207	2,350	1,635
RSR125	01	470	877	850	328	1,224	703	1,599	1,077										
	02	560	1,040			1,135	539	1,509	914	1,883	1,288								
	03	718	1,313					1,351	640	1,725	1,015	2,099	1,389	2,474	1,763				
	04	808	1,477					1,261	477	1,636	851	2,010	1,226	2,384	1,600	2,758	1,974		
	05	1,055	1,913							1,388	415	1,762	789	2,136	1,164	2,511	1,538	3,072	2,099
RSR140	01	726	1,346	1240	508	1,741	1,010	2,244	1,512										
	02	815	1,523			1,642	821	2,144	1,323	2,646	1,825								
	03	1,038	1,958					1,910	856	2,412	1,358	2,914	1,861	3,408	2,355				
	04	1,134	2,126					1,810	668	2,312	1,170	2,814	1,672	3,308	2,166	3,810	2,668		
	05	1,453	2,728							1,979	515	2,481	1,017	2,975	1,511	3,477	2,013	4,233	2,769
RSR160	01	885	1,345	1,921	1,390	2,644	2,140												
	02	1,301	1,991			2,228	1,503	2,952	2,217										
	03	1,531	2,336			1,980	1,131	2,713	1,854	3,419	2,569								
	04	1,770	2,841					2,447	1,350	3,162	2,074	3,886	2,779						
	05	2,230	3,327							2,737	1,507	3,452	2,240	4,175	2,963				
RSR200	01	1,540	2,168	3,718	2,904	5,069	4,317												
	02	2,186	3,150			4,414	3,308	5,770	4,681										
	03	2,637	3,752			3,936	2,591	5,301	4,035	6,639	5,400								
	04	3,124	4,699					4,788	3,080	6,126	4,445	7,486	5,795						
	05	3,726	5,327							5,453	3,613	6,822	5,008	8,182	6,385				
RSR270	01	4,469	6,973	8,574	6,017	11,883	9,317	15,309	12,743										
	02	5,363	8,372	7,619	4,548	10,928	7,857	14,353	11,283										
	03	6,257	9,761	6,672	3,088	9,972	6,388	13,398	9,814	16,824	13,240								
	04	7,150	11,159	5,716	1,619	9,016	4,928	12,442	8,353	15,877	11,779	19,177	15,080						
	05	8,044	12,549			8,069	3,459	11,495	6,884	14,921	10,310	18,221	13,619	21,530	16,920				
	06	8,938	13,947					10,539	5,415	13,965	8,850	17,274	12,150	20,574	15,459				
	07	9,832	15,336					9,584	3,955	13,009	7,381	16,319	10,681	19,619	13,990	23,053	17,416		
	08	10,735	16,735					8,637	2,486	12,063	5,912	15,363	9,221	18,672	12,521	22,098	15,947	27,115	20,965

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