



 **PBM VALVE SOLUTIONS**

ACTUATORS

pneumatic rack and pinion



actuator features

Nominal Values:

Pressure rating of 120 psig (8 barg). Standard temperature range is -4°F to 185°F (-20°C to 85°C). High temperature range is -4°F to 302°F (-20°C; 150°C). Low temperature range is -40°F to 185°F (-40°C to 85°C). Pre-lubricated for life of actuator on assembly. Fully tested on manufacture 100%.

Rotation adjustment 0-90°

From MOD. 52 up to 200

- standard + or - 5° in both clockwise and counterclockwise direction by means of adjusting screws outside the internal air supply chambers
- standard visual position indicators

MOD. 270

- standard + or - 5° in counterclockwise direction by means of adjusting screws in the caps
- kit for + or - 5° in clockwise direction available on request

Die cast aluminum end caps

- Standard polyester powder coated
- Nickel plated upon request

Concentric spring sets

- Standard treatment phosphated
- High resistance and reliability
- Spring sets to suit different air pressure/torque requirements
- Long securing screws to allow safe dismantling for maintenance
- Same body dimensions for DA/SR versions

Assembling screws

- Stainless steel as standard

External connection

- Namur pinion mounting
- Namur solenoid valve mounting
- Bottom of pinion according to ISO 5211-DIN 3337
- Optional Beacon Indicator

Operating Pressure

Range - 40 psig to 120 psig (2.8 barg to 8 barg)

Operating Media

Clean, dry air or clean, dry, non-corrosive gas

Stroke

90 degrees standard

Steel pinion

- Nickel-plated for resistance to corrosion
- Stainless steel (optional) for corrosive environments
- Anti-blowout design

Body manufactured from extruded aluminum UNI 6060

- Hard-coat anodized as standard finish 45-50 (micron)
- Good wear resistance
- Bore finished to high standard to ensure low friction and long life

Piston guides

- Large contact area
- Self-lubricating materials
- Long life

Seals

- NBR standard
- Viton high temperature (optional)
- HNBR low temperature (optional)

Pistons

- Die cast aluminum
- Nickel-plating upon request

Twin rack and pinion design

- Constant torque output (double acting)
- compact design
- Balanced internal forces
- Robust design to ensure long life

PBM Pneumatic Actuator Torque Ratings

All published torque values are guaranteed minimum values.

Double Acting Actuators

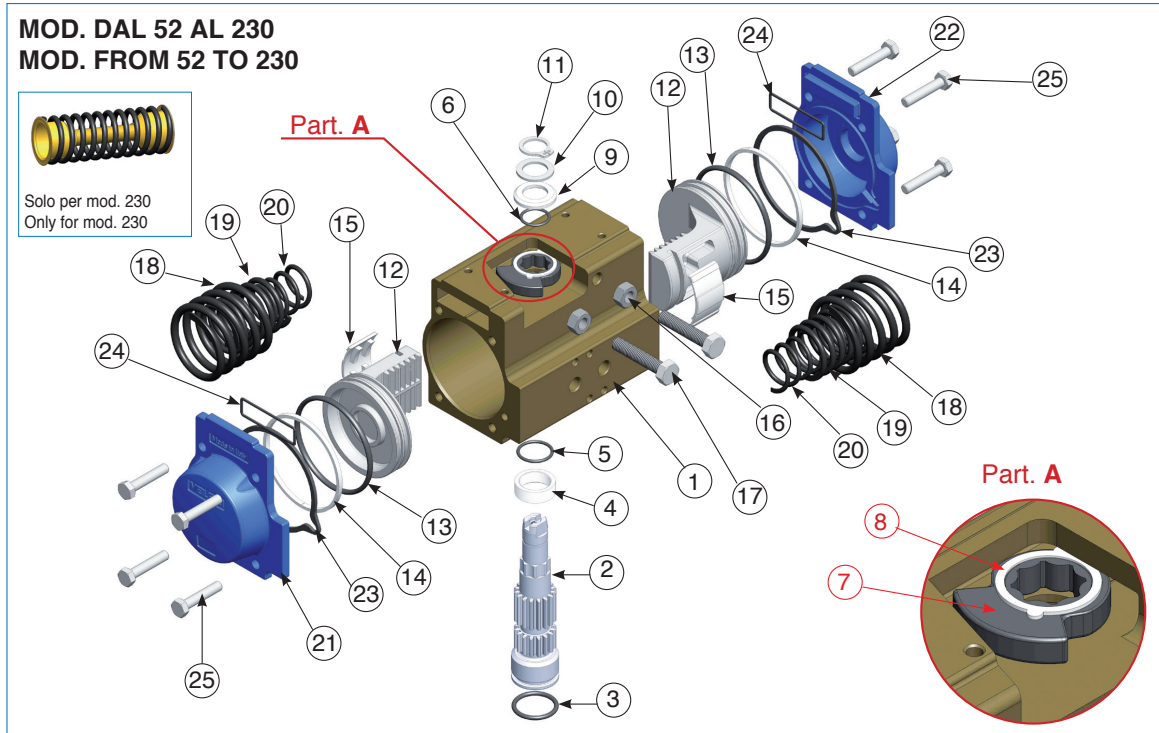
Actuator Model	Air pressure at actuator (psig)		Repair Kit
	60 psig	80 psig	
	Constant Torque Output		
PAVCL453D -- 0052	133	179	PAVCL4 -- 1 -- 0052
PAVCL453D -- 0063	238	321	PAVCL4 -- 1 -- 0063
PAVCL453D -- 0075	435	586	PAVCL4 -- 1 -- 0075
PAVCL453D -- 0085	629	851	PAVCL4 -- 1 -- 0085
PAVCL453D -- 0100	991	1,336	PAVCL4 -- 1 -- 0100
PAVCL453D -- 0115	1,640	2,210	PAVCL4 -- 1 -- 0115
PAVCL453D -- 0125	2,157	2,906	PAVCL4 -- 1 -- 0125
PAVCL453D -- 0140	3,013	4,018	PAVCL4 -- 1 -- 0140
PAVCL453D -- 0160	4,394	5,859	PAVCL4 -- 1 -- 0160
PAVCL453D -- 0200	8,239	10,981	PAVCL4 -- 1 -- 0200
PAVCL453D -- 0270	19,097	25,469	PAVCL4 -- 1 -- 0270

Spring Return Actuators

Actuator Model	Spring Set	Spring Torque Output (in-lbs)		Air Pressure at Actuator (psig)				Repair Kit
				60 psig		80 psig		
				Torque Output from Pressure (in-lbs.)				
		Start	End	Start	End	Start	End	
PAVCL253S -- 0052	03	66	46	80	47	N/A	N/A	PAVCL4 -- 1 -- 0052
PAVCL453S -- 0052	05	105	72	N/A	N/A	101	55	
PAVCL253S -- 0063	03	128	71	149	79	N/A	N/A	PAVCL4 -- 1 -- 0063
PAVCL453S -- 0063	05	196	111	N/A	N/A	193	95	
PAVCL253S -- 0075	03	249	133	275	137	N/A	N/A	PAVCL4 -- 1 -- 0075
PAVCL453S -- 0075	05	380	205	N/A	N/A	354	157	
PAVCL253S -- 0085	03	361	215	387	211	N/A	N/A	PAVCL4 -- 1 -- 0085
PAVCL453S -- 0085	05	536	321	N/A	N/A	503	257	
PAVCL253S -- 0100	03	564	318	628	329	N/A	N/A	PAVCL4 -- 1 -- 0100
PAVCL453S -- 0100	05	860	489	N/A	N/A	802	378	
PAVCL253S -- 0115	03	957	538	1,044	541	N/A	N/A	PAVCL4 -- 1 -- 0115
PAVCL453S -- 0115	05	1,432	800	N/A	N/A	1,352	637	
PAVCL253S -- 0125	03	1,313	718	1,351	640	N/A	N/A	PAVCL4 -- 1 -- 0125
PAVCL453S -- 0125	05	1,913	1,055	N/A	N/A	1,762	789	
PAVCL253S -- 0140	03	1,958	1,036	1,910	856	N/A	N/A	PAVCL4 -- 1 -- 0140
PAVCL453S -- 0140	05	2,728	1,453	N/A	N/A	2,481	1,017	
PAVCL253S -- 0160	04	2,841	1,770	2,447	1,350	N/A	N/A	PAVCL4 -- 1 -- 0160
PAVCL453S -- 0160	05	3,327	2,230	N/A	N/A	3,452	2,240	
PAVCL253S -- 0200	04	4,699	3,124	4,788	3,080	N/A	N/A	PAVCL4 -- 1 -- 0200
PAVCL453S -- 0200	06	6,867	4,664	N/A	N/A	5,893	3,539	
PAVCL253S -- 0270	05	12,549	8,044	11,495	6,884	N/A	N/A	PAVCL4 -- 1 -- 0270
PAVCL453S -- 0270	08	16,735	10,735	N/A	N/A	15,360	9,220	

Weights and Operation Volumes

Actuator Model	Rotate CCW DA/SR Volume (cu.in.)	Rotate CW DA Volume (cu.in.)	Approx. wgt (lbs)
PAVCL453D -- 0052	6.1	7.9	2.47
PAVCL453S -- 0052	6.1	-	2.87
PAVCL453D -- 0063	12	14	3.66
PAVCL453S -- 0063	12	-	4.35
PAVCL453D -- 0075	22	27	6.13
PAVCL453S -- 0075	22	-	7.48
PAVCL453D -- 0085	31	39	8.60
PAVCL453S -- 0085	31	-	10.60
PAVCL453D -- 0100	48	61	12.13
PAVCL453S -- 0100	48	-	15.44
PAVCL453D -- 0115	79	104	19.51
PAVCL453S -- 0115	79	-	25.25
PAVCL453D -- 0125	99	135	23.81
PAVCL453S -- 0125	99	-	31.04
PAVCL453D -- 0140	138	193	35.94
PAVCL453S -- 0140	138	-	48.06
PAVCL453D -- 0160	220	306	47.95
PAVCL453S -- 0160	220	-	65.04
PAVCL453D -- 0200	348	644	81.57
PAVCL453S -- 0200	348	-	121.26
PAVCL453D -- 0270	915	1,086	182.23
PAVCL453S -- 0270	915	-	221.06

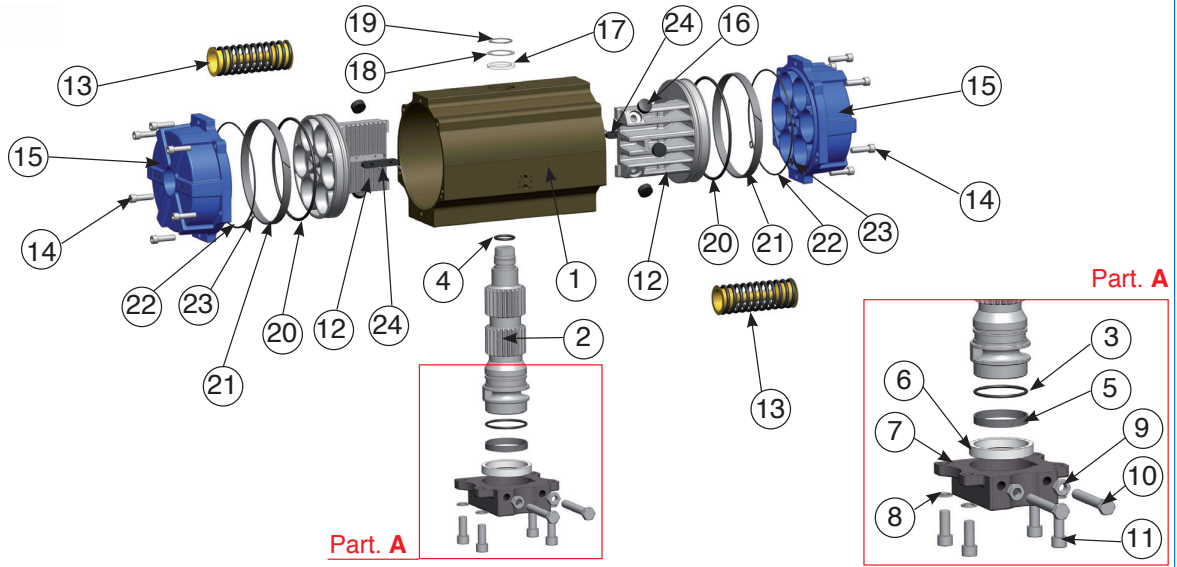


ITEM	DESCRIPTION	MATERIAL	TREATMENT	QUANTITY DA	QUANTITY SR
1	BODY	EXTRUDED ALUMINUM	HARD ANODIZED	1	1
2	ANTI-BLOWOUT PINION	STEEL	NICKEL PLATED	1	1
3*	O-RING	NBR		1	1
4*	SPACER RING	POM		1	1
5*	O-RING	NBR		1	1
6*	O-RING	NBR		1	1
7	CAM	STAINLESS STEEL		1	1
8	SPACER	POM		1	1
9*	SPACER	POM		1	1
10	WASHER	STAINLESS STEEL		1	1
11**	SNAP RING	STEEL	NICKEL PLATED	1	1
12	PISTON	DIE CAST ALUMINUM		2	2
13*	O-RING	NBR		2	2
14*	ANTIFRICTION RING	POM		2	2
15*	THRUST BLOCK	POM		2 [4]	2 [4]
16	STOP BOLT RETAINING NUT	STAINLESS STEEL		2	2
17	STOP BOLT	STAINLESS STEEL		2	2
18	EXTERNAL SPRING	STEEL	ZINC-PHOSPHATE	0	SEE SPRING SETTING AT PAGE 15
19***	CENTRAL SPRING	STEEL	ZINC-PHOSPHATE	0	
20	INTERNAL SPRING	STEEL	ZINC-PHOSPHATE	0	
21	LEFT END CAP	DIE CAST ALUMINUM	PAINTED	1	1
22	RIGHT END CAP	DIE CAST ALUMINUM	PAINTED	1	1
23	END CAP SEATS	NBR		2	2
24	O-RING	NBR		2	2
25	END CAP FIXING SCREW	STAINLESS STEEL		8	8

*Parts subject to wear ** Reinforced series DIN 471 - UNI 7436
Valid for mod. 140-160-180-200 only
***Only for mod. 160-180-200

ACTUATOR PARTS

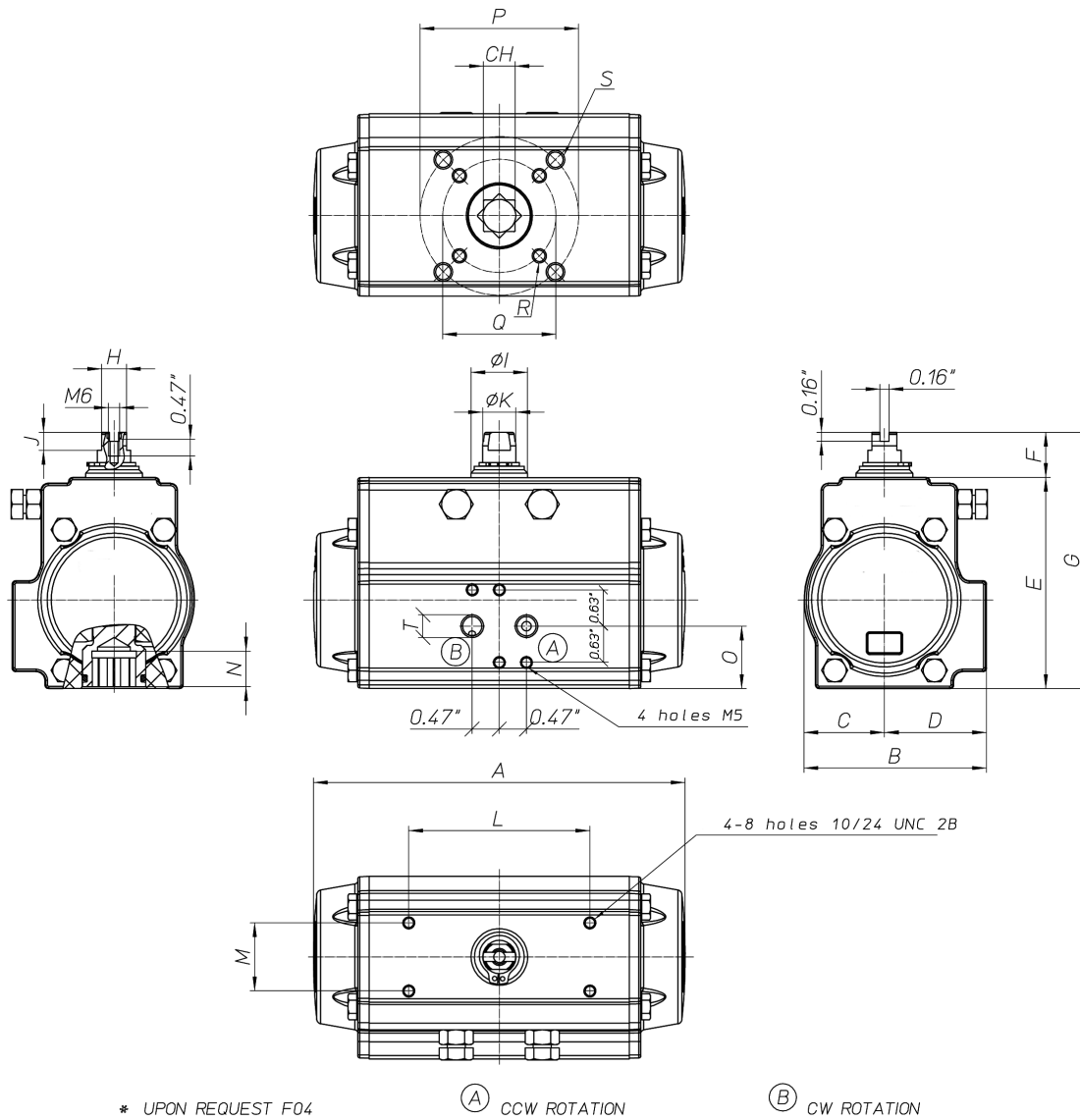
MOD. 270



ITEM	DESCRIPTION	MATERIAL	TREATMENT	QUANTITY DA	QUANTITY SR
1	BODY	EXTRUDED ALUMINUM	HARD ANODIZED	1	1
2	ANTI-BLOWOUT PINION	STEEL	NICKEL PLATED	1	1
3*	O-RING	NBR		1	1
4*	O-RING	NBR		1	1
5*	ANTIFRICTION RING	PTFE 15% GRAPHITE		1	1
6*	ANTIFRICTION RING	PTFE		1	1
7	PLATE	GGG40	PAINTED	1	1
8	WASHER	STAINLESS STEEL		4	8
9	STOP BOLT RETAINING NUT	STAINLESS STEEL		2	2
10	STOP SCREW	STEEL	ZINC PLATED	2	2
11	FIXING SCREWS	STAINLESS STEEL		4	4
12	PISTON	DIE CAST ALUMINUM	ZINC-PHOSPHATE	2	2
13	PRECOMPRESSED SPRING	STEEL		0	See spring setting at page 15
14	END CAP FIXING SCREW	STAINLESS STEEL		12	12
15	END CAP	DIE CAST ALUMINUM	PAINTED	2	2
16*	THRUST BLOCK	POM		6	6
17*	SPACER RING	POM		1	1
18	PINION WASHER	STAINLESS STEEL		1	1
19	SNAP RING	STEEL	NICKEL PLATED	1	1
20*	O-RING	NBR		2	2
21*	ANTIFRICTION RING	PTFE 15% GRAPHITE		2	2
22	O-RING	NBR		2	2
23	O-RING	NBR		4	4
24	ANTI BLOWOUT KEY	POM		2	2

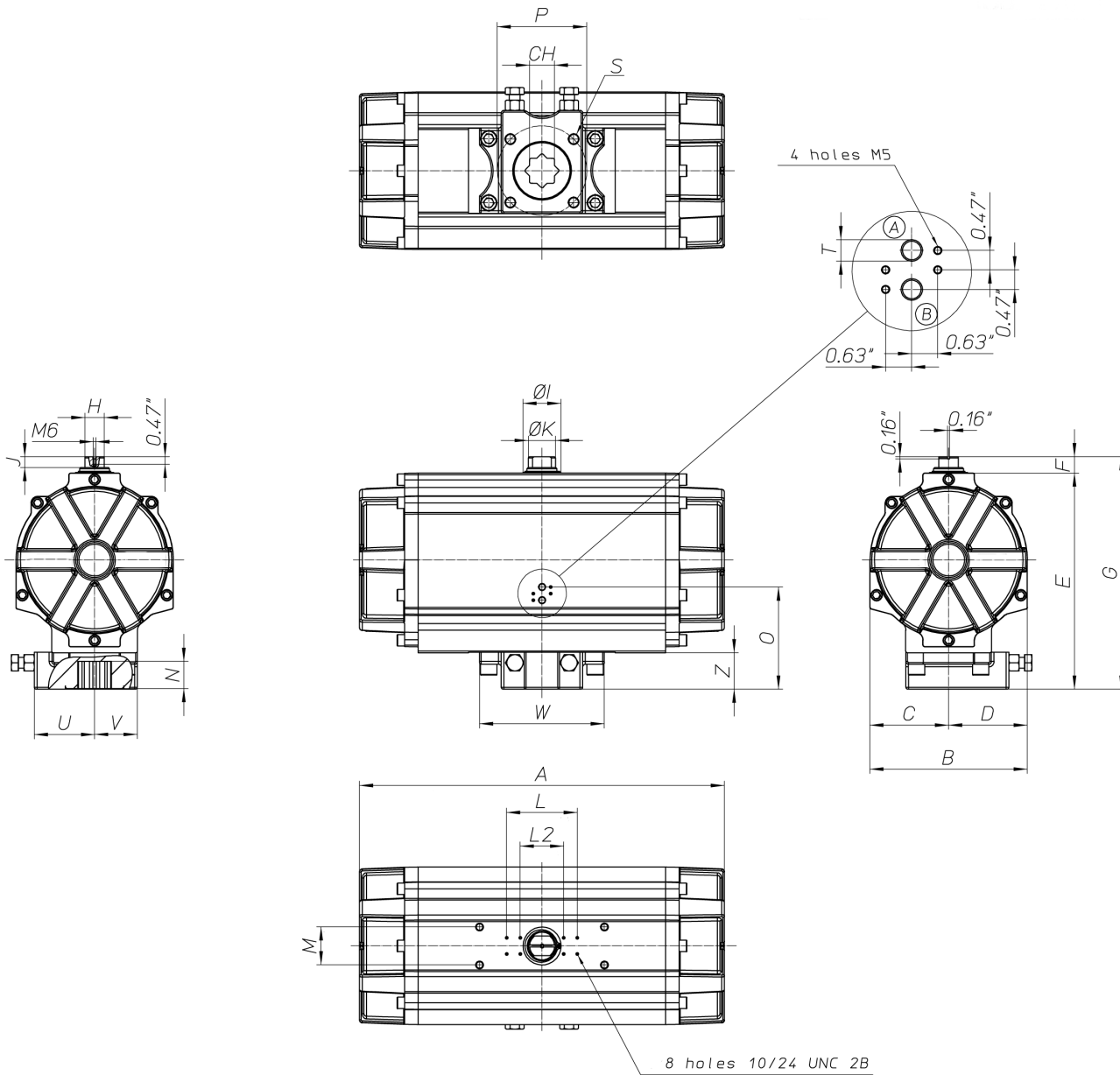
*Parts subject to wear

Dimensional Data for models 52 to 200



MOD.	DRILLING ISO 5211	CH	A	B	C	D	E	F	G	H	ØI	J	ØK	L	M	N	O	P	Q	R	S	T NPT
52	F03-F05	0.43	5.55	2.80	1.18	1.61	3.21	0.79	4.00	0.35	0.83	0.31	0.47	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"
63	F05-F07	0.55	6.46	3.17	1.4	1.77	3.66	0.79	4.45	0.43	0.98	0.31	0.59	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"
75	F05-F07	0.67	8.27	3.72	1.65	2.07	4.37	0.79	5.16	0.51	1.14	0.31	0.75	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"
85	F05-F07	0.67	9.47	4.17	1.87	2.3	4.92	0.79	5.71	0.59	1.38	0.31	0.87	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"
100	F07-F10	0.67	10.83	4.84	2.17	2.68	5.43	0.79	6.21	0.59	1.38	0.31	0.87	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"
115	F07-F10	0.87	13.11	5.39	2.52	2.87	6.39	1.18	7.57	0.87	1.93	0.55	1.26	5.12	1.18	0.95	1.97	4.02	2.76	5/16-18 UNC 2BX0.47"	3/8-16 UNC 2BX0.59"	1/4"
125	F07-F10	0.87	14.65	5.83	2.68	3.15	6.87	1.18	8.05	0.87	1.93	0.55	1.26	5.12	1.18	0.95	2.46	4.02	2.76	5/16-18 UNC 2BX0.47"	3/8-16 UNC 2BX0.59"	1/4"
140	F10-F12	1.06	17.13	6.46	3.01	3.44	7.76	1.18	8.94	0.94	1.93	0.63	1.38	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"
160	F10-F12	1.06	19.69	7.32	3.43	3.90	8.70	1.18	9.88	1.18	2.24	0.63	1.57	3.15/ 5.12	1.18	1.26	3.15	4.92	4.02	3/8-16 UNC 2BX0.55"	1/2-13 UNC 2BX0.67"	1/4"
200	F14	1.42	22.78	8.54	4.25	4.29	10.94	1.18	12.13	1.42	2.64	0.63	1.97	3.15/ 5.12	1.18	1.46	3.07	5.51	/	/	5/8-11 UNC 2BX0.94"	1/4"

Dimensions for model 270



(A) CCW ROTATION

(B) CW ROTATION

MOD.	DRILLING ISO 5211	CH	A	B	C	D	E	F	G	H	ØI	J	ØK	L	L2	M	N	O	P	S	T NPT	U	V	W	Z
270	F16	1.81	26.46	11.42	5.71	5.71	15.71	1.18	16.89	1.42	2.76	0.79	1.97	5.12	3.15	1.18	1.97	7.40	6.50	3/4-10 UNC 2B X 1.18"	1/4"	4.37	3.11	9.06	2.68



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