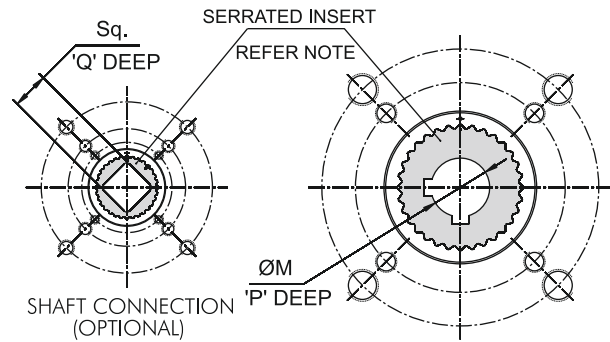
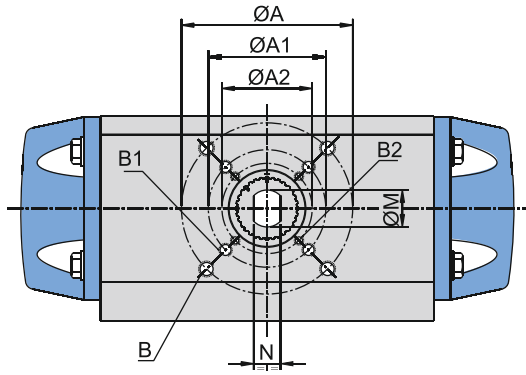


DelTorq[®] SERIES 21

Pneumatic Rack & Pinion Actuators
Double Acting and Spring Return

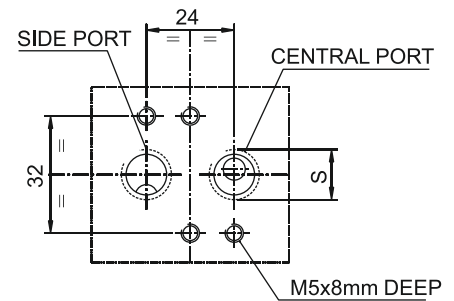
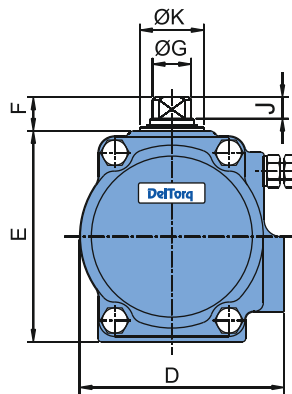
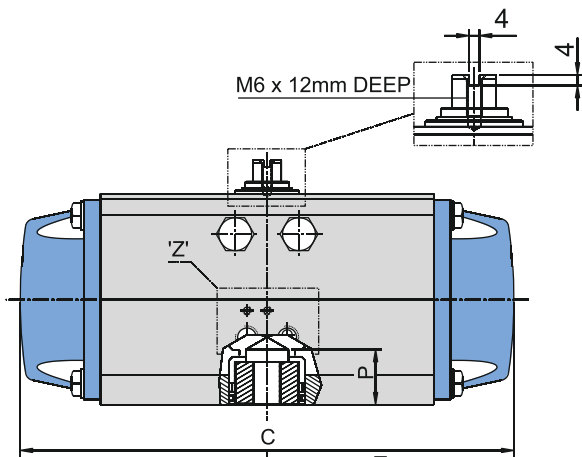


Leading the Industry with Innovation by Design



SHAFT CONNECTION (FOR 200)

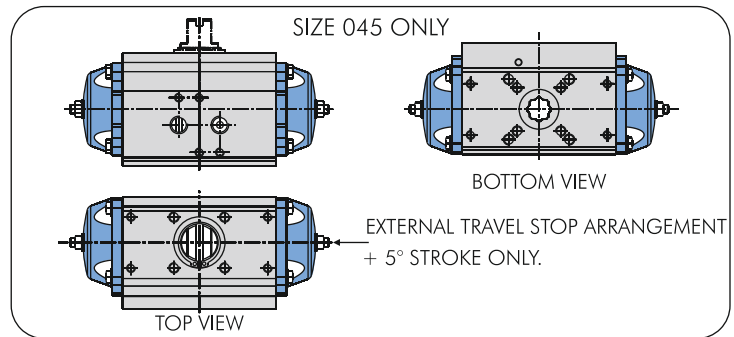
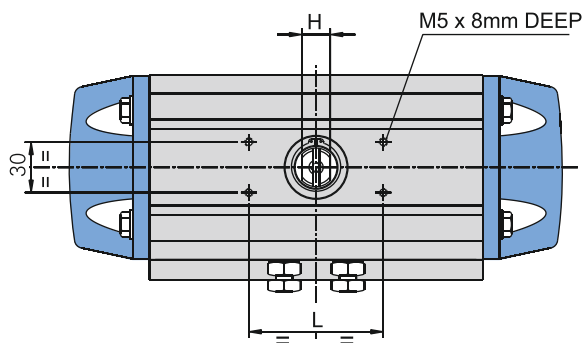
NOTE :- INSERTS AVAILABLE IN DOUBLE-D, ISO SQUARE AND ROUND AND KEYED OPTIONS



(FOR 045 TO 200)

DETAIL-Z'

SOLENOID VALVE CONNECTIONS TO NAMUR



Dimensions (mm)

	SIZE	ØA	ØA1	ØA2	ØB	ØB1	ØB2	C	D	E	F	ØG	H	J	ØK	L	ØM	N	P	Sq.	Q	S (BSP)
*	045	-	50	36	-	M6 x 9mm	M5 x 8mm	151	62.5	66	20	22	12	14	30	80	-	-	-	11	12	1/8
	055	70	50	36	M8 x 12mm	M6 x 9mm	M5 x 8mm	168	73	75.5	20	15	12	14	23.5	80	14	10	32.5	11	12	1/8
	065	70	50	-	M8 x 12mm	M6 x 9mm	-	212.5	84.5	87.8	20	18	14	14	30	80	14	10	32.5	11	16	1/4
	075	70	50	-	M8 x 12mm	M6 x 9mm	-	235	93.5	98.1	20	18	14	14	30	80	19	13	32.5	17	19	1/4
	085	70	50	-	M8 x 12mm	M6 x 9mm	-	273.7	105.5	108.7	20	21	17	14	34	80	19	13	32.5	17	19	1/4
	100	102	70	-	M10 x 15mm	M8 x 12mm	-	294.2	122	125.7	20	23	17	14	38	80	22	16	32.5	22	24	1/4
	115	125	102	70	M12 x 18mm	M10 x 15mm	M8 x 12mm	349.8	139.5	140.6	30	30	20	20	47	130	22	16	32.5	22	24	1/4
	125	125	102	-	M12 x 18mm	M10 x 15mm	-	405.2	149	152.3	30	30	20	20	47	130	30	22	54	22	24	1/4
	150	125	102	-	M12 x 18mm	M10 x 15mm	-	477.4	182.5	186.5	30	38	30	20	55	130	30	22	54	27	29	1/4
	175	125	102	-	M12 x 18mm	M10 x 15mm	-	529.2	210	215	30	43	32	18	62	130	30	22	54	27	29	1/4
	200	165	125	-	M20 x 30mm	M12 x 18mm	-	642	233.5	248	30	50	36	18	72	130	35	-	64	36	38	1/4

* 045 size actuator pinion design permits pinion to be inserted from top or bottom of the actuator to use all three bolt circles for mounting.

Top mounting dimensions PCD - 42 mm, Tapping M5 x 8mm DEEP. Bottom mounting dimensions (refer to chart).

Torques (N-m)

Actuator Weights (Kgs)											
Size	045	055	065	075	085	100	115	125	150	175	200
Double Acting	0.9	1.6	2.4	3.0	4.4	5.8	9.6	12	20.4	27.5	46
Spring Return	1.0	1.8	2.7	3.3	5.4	7.6	14.8	15	23.8	34.4	56

Double Acting Actuator Torque Data (N-m)							
Size	Air Supply Pressure (bar)						
	3	4	5.5	6	7	8	
045	9	11	16	17	20	23	
055	15	20	28	31	36	41	
065	25	33	46	50	59	67	
075	38	51	70	76	89	102	
085	55	74	101	110	129	147	
100	85	113	156	170	198	226	
115	140	187	257	280	327	374	
125	182	243	334	364	425	486	
150	315	420	577	630	735	840	
175	468	623	857	935	1091	1247	
200	713	950	1306	1425	1663	1900	

Actuator Volumes (cm ³)											
Size	045	055	065	075	085	100	115	125	150	175	200
Opening	75	145	260	360	535	840	1350	1700	2900	4350	6900
Closing	120	145	320	560	840	1220	1955	2700	4465	6800	11000

Actuator Cycle Time (sec.) are at 5.5 bar & Orifice dia. of approx 4mm.											
Size	045	055	065	075	085	100	115	125	150	175	200
Open Stroke/ Close Stroke	0.2	0.3	0.35	0.45	0.6	0.8	1.0	1.3	1.5	2.0	3.5

Spring Return Actuator Torque Data (N-m)																
Size	* Spring/ Piston	Air Supply Pressure (bar)														
		3		4		5.5		6		7		8		Spring Stroke		
		PB	PE	PB	PE	PB	PE	PB	PE	PB	PE	PB	PE	SB	SE	
045	2	5	2	8	5	12	10	13	11	16	14	19	17	6	3	
	3					10	6	12	8	15	11	17	14	8	5	
	4					8	3	10	5	13	8	16	10	11	7	
055	3	10	6	15	11	23	19							8	5	
	4			13	8	21	16	23	19	28	24			11	7	
	5					19	13	21	16	27	21	32	26	14	8	
065	6					17	10	20	13	25	18	30	23	16	10	
	3	16	11	25	19	37	32							13	8	
	4			22	14	34	27	38	31	47	39			17	11	
075	5					31	22	35	26	44	35	52	43	21	13	
	6					28	17	33	22	41	30	49	38	26	16	
	3	22	13	35	26	54	45							22	15	
085	4			29	18	48	37	55	43	67	56			30	20	
	5					43	28	49	35	62	47	75	60	37	24	
	6					37	20	44	26	56	39	69	52	45	29	
100	3	33	21	51	39	79	67							31	20	
	4			44	27	72	55	81	64	99	83			41	27	
	5					64	44	73	53	92	71	110	89	52	33	
115	6					57	32	66	41	84	60	103	78	62	40	
	3	51	31	79	59	122	102							49	30	
	4			68	41	111	84	125	98	153	126			65	40	
125	5					100	66	114	80	142	108	170	136	81	50	
	6					88	48	102	62	131	90	159	118	97	60	
	3	86	55	133	101	203	172							77	49	
150	4			115	73	185	143	208	166	255	213			103	65	
	5					167	115	190	138	237	185	284	231	128	81	
	6					149	86	172	109	219	156	266	203	154	97	
175	3	113	73	174	134	265	225							98	62	
	4			151	98	242	189	272	219	333	280			131	83	
	5					219	153	249	183	310	244	370	304	163	104	
200	6					196	116	226	147	287	207	347	268	196	125	
	3	178	113	283	218	441	375							182	123	
	4			238	151	395	308	448	361	553	465			242	164	
175	5					350	241	402	293	507	398	612	503	303	205	
	6					304	173	357	226	462	331	567	436	364	246	
	3	276	181	432	337	666	571							258	172	
200	4			369	242	602	476	680	554	836	709			343	229	
	5					539	380	617	458	772	614	928	770	429	287	
	6					475	285	553	363	709	519	865	674	515	344	
200	3	420	284	658	522	1014	878							386	263	
	4			560	379	917	735	1035	854	1273	1091			514	351	
	5					819	592	938	711	1175	949	1413	1186	643	438	
6					722	449	840	568	1078	806	1315	1043	771	526		

Actual torques are in the range of $\pm 5\%$ of the above values.

In between torque values to be interpolated.

SE= Spring End Torque, SB= Spring Break Torque, PE= Pneumatic End Torque, PB= Pneumatic Break Torque

* e.g. For SR12 spring combination = spring/piston x number of piston = 6 x 2 = 12

Features

1. Travel Stops

Two external travel stops permit adjustments of +/- 5 degree.
Note : Travel stops are located on end caps on size 045 only.

2. Bearings

Top quality bearings and seals for low friction and high cycle life to ensure trouble free operation. Same bearings are used for both high and low temperature operations.

3. Spring Cartridges

Modular pre-loaded spring cartridges with metal spring guides for use in both high and low temperature applications.

4. Extruded Aluminum Body

Hard anodized extruded aluminum body with honed internal surface for strength, high cycle life, and low frictional resistance.

5. Shaft Insert

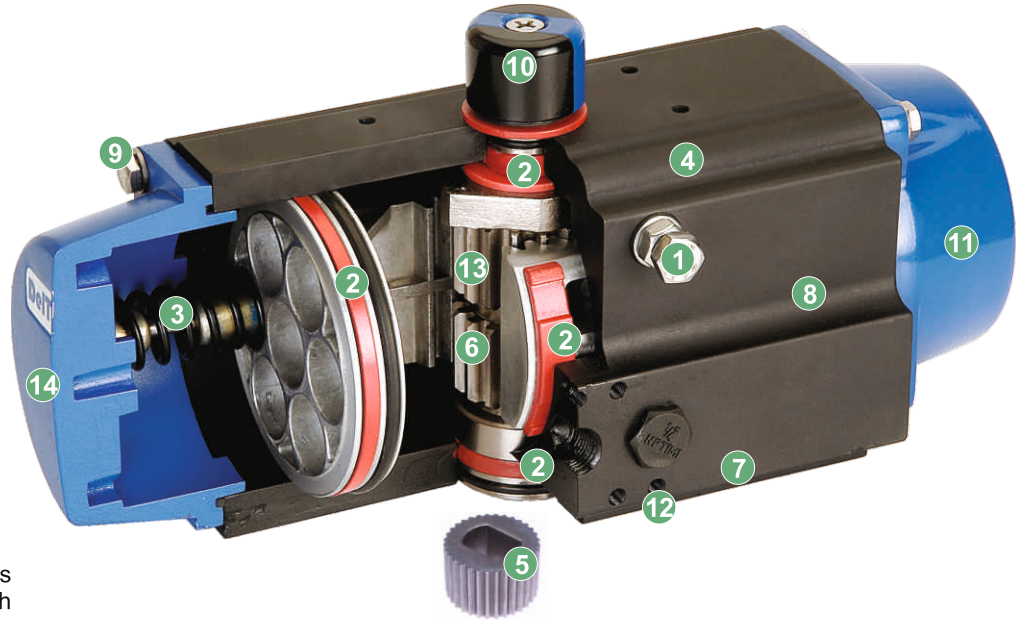
Unique output shaft insert can be selected from a variety of standard sizes, including double D, ISO square, and round and keyed, or can be custom designed to fit any output shaft configuration.

6. Blow-Out Proof Shaft

Guide bar in pistons provides an inherent blow-out proof shaft design.

7. Wide Base Design

Wide actuator base design option can be adapted to mount valve designs requiring wider than EN ISO 5211 drilling.



8. Dual Rack and Pinion Design

Dual rack and pinion design offers double acting and fail safe operations in same body. Reverse rotation can be accomplished by simply inverting the pistons.

9. Fasteners

Internal and external stainless steel fasteners and specially coated springs provide corrosion resistance in a variety of environments.

10. Position Indicator

Unique position indicator can be indexed to show alternate positions. Top of actuator has a NAMUR slot to engage with all popular sensors and positioners.

11. End Caps

Standard end caps are rounded with no crevices to accumulate contamination. Optional end caps are available to provide 100% stroke adjustment in one direction.

12. Actuator Mounting

Manufactured in full compliance with the latest requirements of EN ISO 5211, with provisions for mounting solenoid valves and accessories, comply with NAMUR VDI / VDE 3845.

13. Alloy Steel Shaft

High strength alloy steel shaft with electroless nickel plating protection for maximum wear and corrosion resistance.

14. Compact Modular Design

Compact modular design with same body and end caps for double acting and spring return designs combined with a shaft insert design to offer the most efficient use of inventory.

15. Size 045 Actuator

Size 045 actuator pinion design permits pinion to be inserted from top or bottom of the actuator to use all three bolt circles (F03, F04, F05) for mounting. The female drive of the pinion is available in the 9 mm and 11 mm square.

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