

Solenoids





Our Standard Solenoid Product Line

This product brochure provides general information on our standard product line of solenoids. Complete product information can be obtained by visiting our website www.deltrol-controls.com.

Custom Solenoid Models

At Deltrol Controls we take pride in our ability to customize a standard product or design an entirely new product specific to your application. Please contact Deltrol Controls directly to discuss your application with a Sales Engineer.

UL Approval

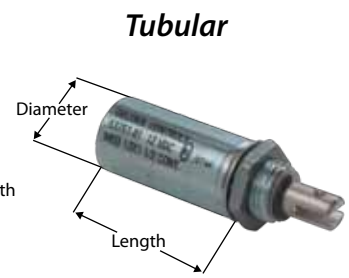
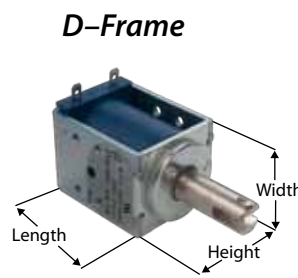
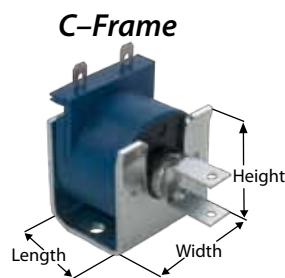
Most of our continuous duty solenoids have UL approval, and are listed in the UL File NO. E57982. Refer to our online catalog at www.deltrol-controls.com for specific information on UL approvals.

Typical Applications



Our solenoids are being successfully used in a multitude of applications. Some of the more common applications are as follows: Appliances – Generators – Printing Equipment – HVAC– Security – Beverage Dispensing Equipment – Commercial Laundry Equipment – Medical Equipment – Small Engines – Electric Door Locks – Motorcycle Aftermarket – Valves – Gaming Equipment – Office Equipment – Vending Equipment

Solenoid Models

This information on the following pages refers to 4 types of solenoids: C-Frames, D-Frames Tubular and Magnetic Latching. The following illustrates each of these types of solenoids. (Note: Models shown are pull-type versions, and may also be available in push-type versions.)



C-Frame

	Model	Size (in) LxWxH	Coil Treatment	Maximum Stroke (in)	Voltage Type (2)	Duty Cycle (3)	Typical Force (oz) 100% Voltage, 77° F at the following strokes (in).			
							0.000	0.125	0.250	0.500
	C-4	0.768 x 0.687 x 0.765	TW	0.300	DC	Cont, 3.5 W	18.0	2.2	0.8	
					DC	Int, 8 W	27.0	5.0	2.0	
					DC	Pulse, 35 W	46.0	15.0	6.0	
					AC	Cont, 4.5 VA	23.0	2.4	0.8	
					AC	Int, 12 VA	45.0	5.0	1.7	
					AC	Pulse, 45 VA	90.0	15.0	5.0	
	C-5	0.969 x 0.734 x 0.812	TW	0.400	DC	Cont, 3.7 W	25.0	3.0	1.5	
					DC	Int, 11 W	38.0	12.0	5.0	
					DC	Pulse, 42 W	62.0	34.0	19.0	
					AC	Cont, 4.7 VA	24.0	3.5	2.0	
					AC	Int, 14 VA	50.0	9.5	5.5	
					AC	Pulse, 47 VA	86.0	25.0	15.0	
	C-6	1.126 x 0.860 x 0.839	ENC	0.500	DC	Cont, 4.7 W	38.0	4.0	1.9	0.5
					DC	Int, 12 W	50.0	11.0	5.0	2.0
					DC	Pulse, 45 W	68.0	34.0	17.0	6.0
					AC	Cont, 6.8 VA	33.0	5.9	4.0	2.0
					AC	Int, 19.6 VA	57.0	13.0	9.0	4.5
					AC	Pulse, 68 VA	95.0	32.0	24.0	10.0
	C-7	1.140 x 1.062 x 1.025	ENC	0.500	DC	Cont, 5 W	42.0	6.5	3.0	1.0
					DC	Int, 11.5 W	60.0	16.0	8.0	2.5
					DC	Pulse, 50 W	93.0	60.0	40.0	15.0
					AC	Cont, 7.8 VA	42.0	9.0	7.0	4.0
					AC	Int, 21 VA	66.0	20.0	16.0	8.0
					AC	Pulse, 78 VA	110.0	52.0	42.0	21.0
	C-8	1.187 x 1.280 x 1.261	ENC	0.500	DC	Cont, 6.5 W	65.0	12.0	5.5	2.5
					DC	Int, 16 W	79.0	27.0	14.0	5.0
					DC	Pulse, 65 W	103.0	74.0	53.0	24.0
					AC	Cont, 9.5 VA	50.0	12.0	8.0	6.0
					AC	Int, 25 VA	90.0	25.0	20.0	15.0
					AC	Pulse, 95 VA	134.0	53.0	42.0	30.0
	C-9	1.062 x 1.375 x 1.413	ENC	0.500	DC	Cont, 8.6 W	75.0	18.0	10.0	3.0
					DC	Int, 15.5 W	84.0	30.0	17.0	6.0
					DC	Pulse, 86 W	156.0	105.0	76.0	30.0
					AC	Cont, 13.7 VA	59.0	17.0	14.0	10.0
					AC	Int, 52 VA	137.0	45.0	36.0	27.0
					AC	Pulse, 137 VA	181.0	85.0	75.0	57.0
	C-15	1.734 x 0.844 x 0.942	ENC	0.800	DC	Cont, 7.4 W	53.0	16.0	7.5	3.0
					DC	Int, 19 W	59.0	32.0	17.0	7.0
					DC	Pulse, 74 W	70.0	33.0	23.0	13.0
					AC	Cont, 12 VA	41.0	11.0	8.0	7.0
					AC	Int, 26 VA	75.0	17.0	14.0	12.5
					AC	Pulse, 120 VA	102.0	44.0	35.0	30.0

(1) Coil Treatment: TW = Tape Wrapped with Lead Wires, ENC = Polyester Encapsulated with Spade Terminals

(2) Typical DC voltages are 6, 12, 24, 110. Typical AC voltages are 6, 12, 24, 120, 240. Other voltages may be available upon request.

(3) Duty Cycle: Cont = Continuous Duty (100%), Int = Intermittent Duty, Pulse Duty (10%, 100 ms on)

Specifications subject to change without notice.

Custom Solenoids

- In addition to our standard lines, Deltrol Controls can design and manufacture custom solenoids to your specifications

For more information, visit our website at www.deltrol-controls.com or contact us directly at 414-671-6800

D-Frame

	Model	Size (in) LxWxH	Coil Treatment	Maximum Stroke (in)	Voltage Type (2)	Duty Cycle (3)	Typical Force (oz) 100% Voltage, 77° F at the following strokes (in).			
							0.000	0.125	0.500	0.750
	D-2	1.558 x 1.437 x 1.625	ENC	1.000	DC	Cont, 11W	107.0	24.0	9.0	4.0
					DC	Int, 29 W	127.0	55.0	20.0	9.0
					DC	Pulse, 115 W	158.0	140.0	70.0	30.0
					AC	Cont, 13 VA	64.0	15.0	13.0	6.0
					AC	Int, 59 VA	131.0	44.0	40.0	21.0
					AC	Pulse, 135 VA	180.0	80.0	72.0	41.0
	D-3HD	1.737 x 1.437 x 1.625	ENC	1.000	DC	Cont, 11 W	153.0	30.0	10.0	4.0
					DC	Int, 27 W	165.0	70.0	26.0	10.0
					DC	Pulse, 110 W	207.0	180.0	90.0	40.0
					AC	Cont, 21 VA	87.0	20.0	18.0	10.0
					AC	Int, 120 VA	205.0	65.0	58.0	34.0
					AC	Pulse, 210 VA	254.0	100.0	90.0	63.0
	D-4	1.996 x 1.437 x 1.625	ENC	1.000	DC	Cont, 11.5 W	112.0	32.0	12.0	8.0
					DC	Int, 47 W	134.0	90.0	50.0	30.0
					DC	Pulse, 105 W	155.0	122.0	80.0	55.0
					AC	Cont, 10 VA	50.0	9.0	10.0	11.0
					AC	Int, 59 VA	123.0	33.0	36.0	41.0
					AC	Pulse, 100 VA	155.0	52.0	59.0	65.0
	D-4HD	2.175 x 1.437 x 1.625	ENC	1.000	DC	Cont, 11.5 W	141.0	41.0	15.0	9.0
					DC	Int, 38 W	163.0	95.0	48.0	25.0
					DC	Pulse, 115 W	201.0	175.0	105.0	62.0
					AC	Cont, 31 VA	92.0	20.0	23.0	27.0
					AC	Int, 145 VA	192.0	58.0	65.0	75.0
					AC	Pulse, 310 VA	254.0	105.0	108.0	125.0
	D-11	1.851 x 0.938 x 1.190	ENC	0.800	DC	Cont, 8 W	61.0	8.0	4.0	2.0
				DC	Int, 19 W	65.0	22.0	10.0	5.0	
				DC	Pulse, 80 W	77.0	53.0	34.0	21.0	
				AC	Cont, 12.5 VA	54.0	11.0	10.0	8.0	
				AC	Int, 39 VA	92.0	23.0	23.0	20.0	
				AC	Pulse, 125 VA	116.0	40.0	38.0	34.0	
	D-17	1.624 x 0.875 x 1.062	ENC	0.800	DC	Cont, 6 W	53.0	5.0	1.8	0.8
					DC	Int, 14.5 W	63.0	12.0	4.5	2.0
					DC	Pulse, 60 W	76.0	38.0	19.0	7.0
					AC	Cont, 9.4 VA	58.0	9.0	7.0	3.0
					AC	Int, 23 VA	81.0	16.0	12.0	7.0
					AC	Pulse, 93 VA	113.0	36.0	27.0	14.0
	D-22	1.130 x 0.750 x 0.750	ENC	0.400	DC	Cont, 4.2 W	30.0	1.8		
				DC	Int, 9.6 W	38.0	4.0			
				DC	Pulse, 40 W	49.0	15.0			
				AC	Cont, 6.5 VA	31.0	2.4	1.0		
				AC	Int, 8.5 VA	53.0	3.3	1.5		
				AC	Pulse, 60 VA	73.0	14.0	7.0		
	D-28	1.125 x 0.938 x 1.188	ENC	0.750	DC	Cont, 5.5 W	61.0	8.0	4.0	2.5
					DC	Int, 11.5 W	65.0	22.0	10.0	6.0
					DC	Pulse, 55 W	77.0	54.0	34.0	21.0
					AC	Cont, 8 VA	54.0	11.0	11.0	8.0
					AC	Int, 21 VA	92.0	23.0	23.0	20.0
					AC	Pulse, 80 VA	116.0	40.0	38.0	35.0
	D-30	2.015 x 1.000 x 1.218	ENC	1.000	DC	Cont, 8.5 W	110.0	15.0	6.0	
					DC	Int, 21 W	133.0	40.0	16.0	
					DC	Pulse, 85 W	185.0	97.0	55.0	23.0
					AC	Cont, 13 VA	65.0	13.0	11.0	
					AC	Int, 37 VA	108.0	21.0	17.0	
					AC	Pulse, 120 VA	176.0	40.0	33.0	
	D-50	1.625 x 1.562 x 1.828	TW	0.850	DC	Cont, 10 W	158.0	25.0	8.0	4.0
				DC	Int, 25 W	183.0	65.0	21.0	9.0	
				DC	Pulse, 100 W	226.0	180.0	82.0	35.0	
				AC	Cont, 14 VA	84.0	21.0	19.0	10.0	
				AC	Int, 53 VA	151.0	46.0	40.0	24.0	
				AC	Pulse, 140 VA	227.0	94.0	90.0	54.0	
	D-70	2.625 x 1.562 x 1.828	TW	1.000	DC	Cont, 13 W	150.0	62.0	30.0	15.0
					DC	Int, 48 W	211.0	112.0	82.0	50.0
					DC	Pulse, 130 W	247.0	165.0	135.0	100.0
	D-90	3.540 x 1.750 x 1.940	TW	1.500	DC	Cont, 23 W	150.0	108.0	80.0	50.0
					DC	Int, 58 W	202.0	158.0	133.0	100.0
					DC	Pulse, 230 W	303.0	275.0	235.0	205.0
	PS-75	2.625 x 1.562 x 1.828	TW	0.900	DC	Cont, 12/150 W	200.0	205.0	125.0	80.0

(1) Coil Treatment: TW = Tape Wrapped with Lead Wires, ENC = Polyester Encapsulated with Spade Terminals
 (2) Typical DC voltages are 6, 12, 24, 110. Typical AC voltages are 6, 12, 24, 120, 240. Other voltages may be available upon request.
 (3) Duty Cycle: Cont = Continuous Duty (100%), Int = Intermittent Duty (25%, 3 min on), Pulse Duty (10%, 100 ms on)

Specifications subject to change without notice.




Tubular

	Model	Size (in) Dia x L	Coil Treatment	Maximum Stroke (in)	Voltage Type (2)	Duty Cycle (3)	Typical Force (oz) 100% Voltage, 77° F at the following strokes (in).			
							0.000	0.250	0.500	0.750
	MED 12 x 1.5	Ø0.750 x 1.500	TW	0.600	DC DC DC	Cont, 6 W Int, 15 W Pulse, 58 W	38.0 50.0 64.0	3.0 10.0 26.0	1.5 4.0 16.0	
	MED 16 x 1.125	Ø1.000 x 1.125	TW	0.400	DC DC DC	Cont, 8 W Int, 19 W Pulse, 77 W	94.0 126.0 180.0	4.0 10.0 50.0		
	MED 16 x 2	Ø1.000 x 2.000	TW	0.800	DC DC DC	Cont, 10 W Int, 24 W Pulse, 96 W	129.0 149.0 201.0	18.0 36.0 115.0	8.0 15.0 77.0	5.0 8.0 60.0
	MED 19 x 2.7	Ø1.187 x 2.700	TW	1.400	DC DC DC	Cont, 12 W Int, 30 W Pulse 116 W	116.0 133.0 165.0	25.0 35.0 75.0	16.0 25.0 56.0	14.0 22.0 52.0
	MED 24 x 1.7	Ø1.500 x 1.700	TW	0.800	DC DC DC	Cont, 12 W Int, 33 W Pulse, 120 W	173.0 251.0 358.0	26.0 60.0 185.0	8.0 20.0 75.0	7.0 22.0
	MED 24 x 2.4	Ø1.500 x 2.400	TW	1.000	DC DC DC	Cont, 14 W Int, 40 W Pulse, 140 W	200.0 265.0 328.0	52.0 120.0 210.0	25.0 63.0 140.0	17.0 35.0 85.0

(1) Coil Treatment: TW = Tape Wrapped with Lead Wires, ENC = Polyester Encapsulated with Spade Terminals
 (2) Typical DC voltages are 6, 12, 24, 110, 115. Other voltages may be available upon request.
 (3) Duty Cycle: Cont = Continuous Duty (100%), Int = Intermittent Duty(25%, 1 min on), Pulse Duty (10%, 100 ms on)

Specifications subject to change without notice.

Magnetic Latching

	Model	Size (in) LxWxH	Coil Treatment	Maximum Stroke (in)	Voltage Type (2)	Duty Cycle (3)	Typical Force (oz) 100% Voltage, 77° F at the following strokes (in).			
							0.000*	0.125	0.250	0.500
	D4-ML	1.996 x 1.437 x 1.625	ENC	1.000	DC DC	Intermittent 29 W Pulse 115 W	121.0 121.0	90.0 148.0	73.0 133.0	37.0 87.0
	D26-ML	1.420 x 0.790 x 1.020	TW	0.500	DC DC	Intermittent 12 W Pulse 48 W	109.0 109.0	47.1 71.2	31.0 46.8	14.3 19.4
	D30-ML	2.015 x 1.000 x 1.218	ENC	1.000	DC DC	Intermittent 21 W Pulse 85 W	96.0 96.0	65.0 172.0	46.0 152.0	19.7 99.0

*Latching Force

(1) Coil Treatment: TW = Tape Wrapped with Lead Wires, ENC = Polyester Encapsulated with Spade Terminals
 (2) Typical DC voltages are 6, 12, 24. Other voltages may be available upon request.
 (3) Duty Cycle: Int = Intermittent Duty, Pulse Duty (10%, 100 ms on)

Specifications subject to change without notice.

Deltrol Controls Products

Deltrol Controls designs and manufactures dispensing valves, inlet valves, solenoids, relays, hose sets and fittings, proportional valves and custom assemblies. We offer an extensive line of standard products and have an in-house engineering staff that will work with you to design a custom product specific to your application.

Please visit www.deltrol-controls.com for further information.



Dispensing Valves



Inlet Valves



Relays



Solenoids



Hose Sets



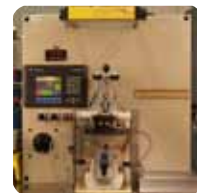
Custom Assemblies

Deltrol Controls Overview

Deltrol Controls is located in Milwaukee, Wisconsin USA and is a wholly-owned subsidiary of Deltrol Corp. For over 45 years, we have designed and manufactured valves, solenoids, relays, and custom assemblies for a variety of applications. Our Milwaukee operation employs approximately 110 employees, working out of a 110,000 sq. ft. ISO 9001:2008 Registered manufacturing facility. We also have manufacturing capabilities in other parts of the world that allow us to be a globally competitive supplier.



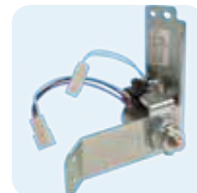
Custom Product Engineering/ Manufacturing



On-Site Product Testing



Product Manufacturing



Value Added Assembly



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