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Heavy Duty Industrial Solenoids

- A wide selection of Solenoids available for loads from 13N to 1557N, and strokes from 6mm to 178mm.
- Built to order to meet a wide range of customer and applications requirements.
- Designed to give a long trouble-free life in the toughest conditions.
- Nickel plated plungers running in brass sleeves for a longer operational life.
- RoSH compliant.

1. Description

This range of heavy duty solenoids is designed to give long, trouble-free life in the toughest conditions. They have nickel plated plungers running in brass sleeves and are available for pull or thrust operation. The solenoids operate on DC only, but can be supplied with full wave bridge rectifiers fitted within the terminal boxes for AC supplies up to 440V. Both the CM and WM Solenoids come in a range of seven case sizes, dependant on specification (see selection tables and outline drawings).

The CM Solenoid's case is of cylindrical steel construction, housing a totally enclosed coil and a welded steel mounting bracket. Alternative plunger profiles provide a selection of force/stroke characteristics. Thrust rods are fitted as standard.

The larger rectangular WM Solenoid's case is of welded steel construction using 6.4mm or 12.7mm steel plates to give excellent shock resistance and alternative mountings are available for flange or base mounting. Alternative plunger profiles cater for strokes of up to 178mm and loads up to 1557N. Thrust rods are optional on this type.

Mass in kg.

Type	Total	Plunger
CMA	1.59	0.24
CMB	1.93	0.31
CMC	2.27	0.38
CMD	2.72	0.45
CME	2.95	0.54
CMH	5.0	0.71
CMK	5.22	0.88
WML	8	1.2
WMO	13	2.0
WMP	17	2.4
WMS	24	3.5
WMT	32	4.6
WMX	44	6.5
WMY	57	7.0

2. Technical Data

Coil Voltages
CM Solenoid: 6V to 220VDC continuous rating.
WM Solenoid: 12V to 220VDC continuous rating, with surge suppression for voltages above 50V.

A significant increase in pull or thrust can be obtained at intermittent ratings (see selection tables).

3. Selection Tables

Figures are taken from typical solenoids operating horizontally at working temperature, and are subject to normal manufacturing tolerances. To select your solenoid, check stroke against force i.e. a solenoid to pull 45N through 32mm at 50% rating would be type CMH7.
For intermediate forces/strokes use the next higher in each case.

100% RATING

STROKE (mm)	FORCE (N)																														
	4	9	13	18	22	27	31	36	40	45	49	67	80	89	98	107	125	133	156	176	200	222	245	267	289	311	400	423	489	556	756
6	SEE SM		A1	A1	B1	B1	C1	D2	D2	H6	H6	H6	LA	LA	LA	LA	OA	OA	OA	OA	PA	PA	PA	SA	SA	SA	TA	TA	TA	YA	YA
13	RANGE		B1	D2	D2	D2	D2	H6	H6	H6	H6	LA	LA	OA	OA	OA	OA	OA	PA	PA	PA	SA	SA	SA	SA	TA	TA	TA	XA	YA	YA
19		B5	C3	D3	D3	E3	H6	H6	H6	K7	LA	OA	OA	OA	OA	PA	PA	PA	PA	PA	SA	SA	SA	TA	TA	TA	XA	XA	YA	YA	-
25	B5	C4	D3	D3	E4	H7	H7	K7	K7	LB	OA	OA	PA	PA	PA	PA	PA	PA	SA	SA	SA	TA	TA	TA	TA	TA	XA	YA	YA	YA	
32	C4	D4	D4	E4	H7	H7	H7	H7	OB	OB	OB	OB	PA	PA	PA	PA	SA	SA	SA	SA	TA	TA	TA	TA	XA	XA	-	-	-	-	
38	D4	D4	E4	H8	H8	K8	OA	OB	OB	OB	OB	OB	PB	PB	PB	PB	SA	SA	TA	TA	TA	TA	XA	XA	XA	XA	-	-	-	-	
45	D4	E4	H8	H8	K8	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	SA	SB	TA	TA	TA	TB	XA	XA	XA							
51	E4	H8	H8	K8	OB	OB	OB	OB	OB	OB	OB	PB	PB	PB	SB	SB	SB	TB	TB	TB	XA	XA	-	-							
57	E4	H8	OB	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	SB	SB	SB	SB	TB	TB	TB	XB	XB	-	-							
64	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	PB	PB	SB	SB	SB	SB	SB	TB	TB	TB	XB	XB	-	-							
76	OB	OB	PB	PB	PB	PB	PB	PB	PB	SB	SB	SB	SB	SB	SB	TB	TB	TB	TB	XB	XB	XB	-	-							
102	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	TB	TB	XB	XB	XB	XB	XB	XB	-	-	-	-	-	-							
127	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB																			

50% RATING

STROKE (mm)	FORCE (N)																																
	4	9	13	18	22	27	31	36	40	45	49	53	62	76	89	102	116	133	156	178	200	222	245	267	289	311	334	378	400	534	556	578	600	623	980
6	SEE SM				A1	A1	A1	B1	B1	C1	C1	C1	D2	H6	H6	H6	LA	LA	LA	LA	OA	OA	OA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	YA
13	RANGE			A5	B2	B2	C3	D2	D2	D2	D2	D2	H6	H6	H6	LA	LA	LA	OA	OA	OA	PA	PA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	YA
19			A5	B5	C3	C3	D3	D3	D3	E3	E3	H6	H6	H6	LA	OA	OA	OA	OA	PA	PA	PA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	XA	YA	YA
25		B5	B5	C4	C4	D3	D3	E3	H7	H7	H7	H7	H7	OA	OA	OA	OA	OA	PA	PA	PA	PA	PA	SA	SA	SA	SA	TA	TA	TA	TA	XA	YA	YA	YA
32	B5	B5	C4	C4	D4	D4	E4	E4	H7	H7	H7	H7	OA	OA	OA	OA	PA	PA	PA	PA	SA	SA	SA	SA	SA	TA	TA	TA	TA	XA	XA	YA	YA	-	-
38	C4	C4	C4	D4	D4	E4	H7	H7	H7	H7	LB	LB	LB	OB	OB	OB	PB	PB	PB	SA	SA	SA	TA	TA	TA	TA	TA	XA	XA	YA	YA	YA	-	-	
45	C4	D4	D4	E4	E4	H8	H8	K8	K8	LB	LB	OB	OB	OB	OB	OB	PB	PB	PB	SA	SA	TB	TB	TA	TA	TA	XA	XA	-						
51	D4	D4	E4	H8	H8	H8	K8	LB	OB	OB	OB	OB	OB	OB	OB	PB	PB	PB	SB	SB	TB	TB	TB	TB	TB	XA	XA	XA	-						
57	D4	E4	H8	H8	K8	K8	OB	OB	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	SB	SB	TB	TB	TB	TB	TB	XA	XA	-	-	-					
64	E4	H8	H8	K8	OB	OB	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	PB	SB	SB	SB	TB	TB	TB	TB	XB	XB	XB								
70	E4	K8	K8	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	PB	PB	PB	SB	SB	SB	TB	TB	TB	TB	TB	XB	XB	XB								
76	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	PB	PB	PB	PB	PB	SB	SB	SB	TB	TB	TB	TB	TB	XB	XB	XB	XB								
102	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	TB	TB	TB	TB	XB	XB	XB	XB	-	-											
127	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	TB	TB	XB	XB	XB	XB	-	-	-	-	-	-	-											
152	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	-	-	-	-	-	-	-	-	-	-	-											

25% RATING

STROKE (mm)	FORCE (N)																																						
	4	9	13	18	22	27	31	36	40	45	49	53	58	62	71	80	89	98	120	133	142	156	200	222	245	267	289	378	423	445	467	489	512	263	667	690	778	800	1557
6	SEE SM						A1	A1	A1	A1	A1	A1	B1	B1	B1	C1	C1	H6	H6	H6	H6	LA	LA	LA	LA	LA	OA	PA	PA	PA	PA	PA	SA	TA	TA	TA	TA	TA	YA
13	RANGE					A5	A5	B2	B2	B2	B2	B2	D2	D2	D2	H6	H6	H6	H6	H6	LA	LA	LA	LA	OA	OA	OA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	TA	YA
19				A5	B5	B5	B5	B5	B5	C3	C3	D2	D2	D2	H6	H6	H6	H6	H6	LA	LA	LA	OA	OA	OA	PA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	TA	TA	YA
25			A5	B5	B5	B5	B5	C3	C3	D3	D3	D3	E3	H6	H6	H6	H6	H6	LA	OA	OA	OA	OA	PA	PA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	TA	TA	YA	YA
32	A5	B5	B5	B5	C4	C4	C4	D4	D4	D4	E4	E4	H7	H7	H7	H7	H7	LB	OA	OA	OA	OA	PA	PA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	TA	TA	YA	YA	-
38	B5	B5	C4	C4	C4	C4	D4	D4	E4	E4	H7	H7	H7	H7	H7	LB	LB	LB	OA	OB	OB	OB	PA	PA	PA	PA	PA	SA	SA	TA	TA	TA	TA	TA	TA	XA	YA	YA	-
45	C4	C4	C4	D4	D4	D4	E4	E4	H8	H8	H8	H8	H8	H8	LB	LB	LB	OA	OB	OB	OB	OB	PA	PB	SA	SA	SA	TA	TA	TA	TA	TA	TA	XA	-	-			
51	C4	D4	D4	D4	E4	E4	H8	H8	H8	H8	K8	K8	K8	LB	LB	OA	OB	OB	OB	OB	OB	PB	PB	PB	SA	SA	SA	TA	TA	TA	TA	TA	TA	XA	-	-			
57	D4	D4	D4	E4	E4	H8	H8	H8	K8	K8	K8	OA	OA	OA	OA	OB	OB	OB	PB	PB	PB	PB	PB	PB	SA	SA	SA	TA	TA	XA	XA	XA	XA	-	-	-			
64	E3	E3	E3	E3	H7	K8	K8	K8	K8	OA	OA	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	PB	PB	SB	SB	SB	TA	TB	TB	XA	XA	XA	XA						
70	E3	E3	E3	H7	K8	K8	K8	OA	OA	OA	OA	OB	OB	OB	OB	PB	PB	PB	PB	PB	PB	PB	SB	SB	SB	SB	TB	TB	XA	XB	XB	-	-						
76	OA	OA	OA	OA	OA	OA	OA	OB	OB	OB	OB	OB	OB	OB	PB	PB	PB	PB	PB	PB	PB	SB	SB	SB	SB	SB	TB	TB	XB	XB	XB	-	-						
102	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	TB	TB	TB	XB	XB	XB	XB	-	-									
127	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	TB	TB	XB	XB	XB	XB	XB	XB	XB	XB	-	-	-	-	-									
152	SB	SB	SB	SB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	-	-	-	-	-	-	-	-									
178	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	XB	-	-																					

CM RANGE

WM RANGE

SEE SM SOLENOID DATA SHEET

4. Nominal Power Consumption (cold)

Type	Watts
CMA	15
CMB	18
CMC	22
CMD	26
CME	30
CMH	32
CMK	36
WML	33
WMO	50
WMP	60
WMS	82
WMT	86
WMX	113
WMY	125

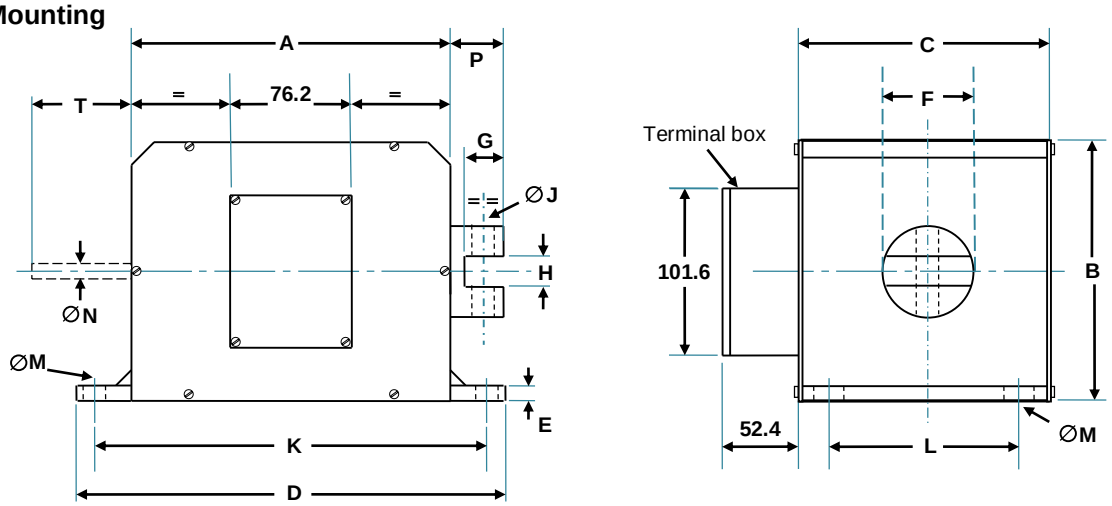
This table gives the power consumption for continuous (100%) rated performance.

Multiply the figures above by: -
X2 for 50% rating.
X4 for 25% rating.

5. Outline Drawing – WM Range

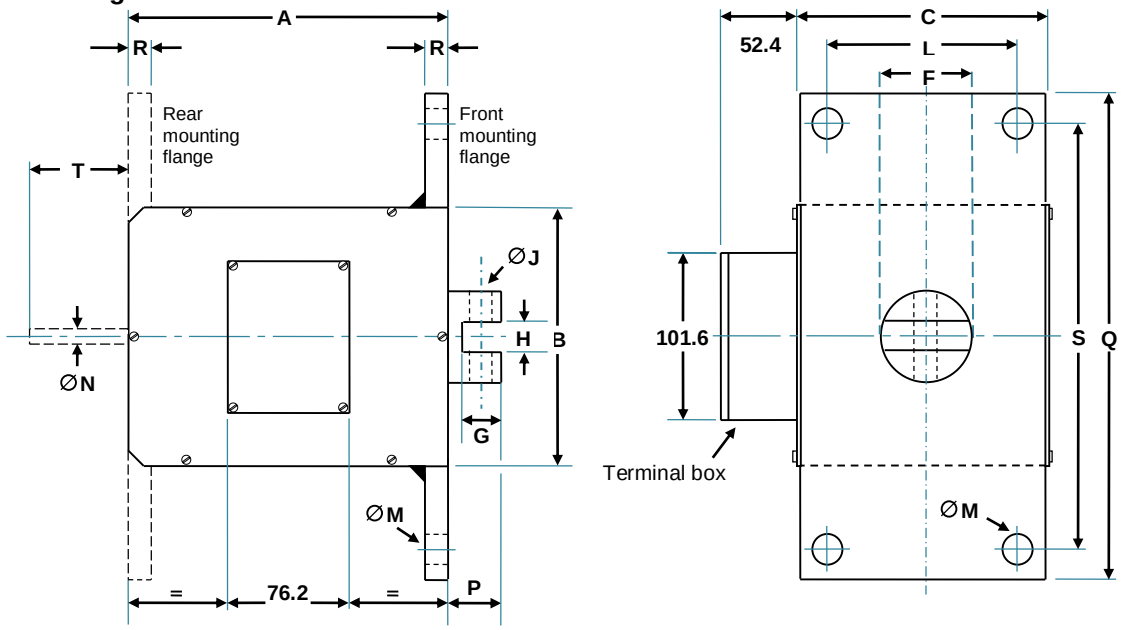
All dimensions in mm with solenoid energised.

Base Mounting



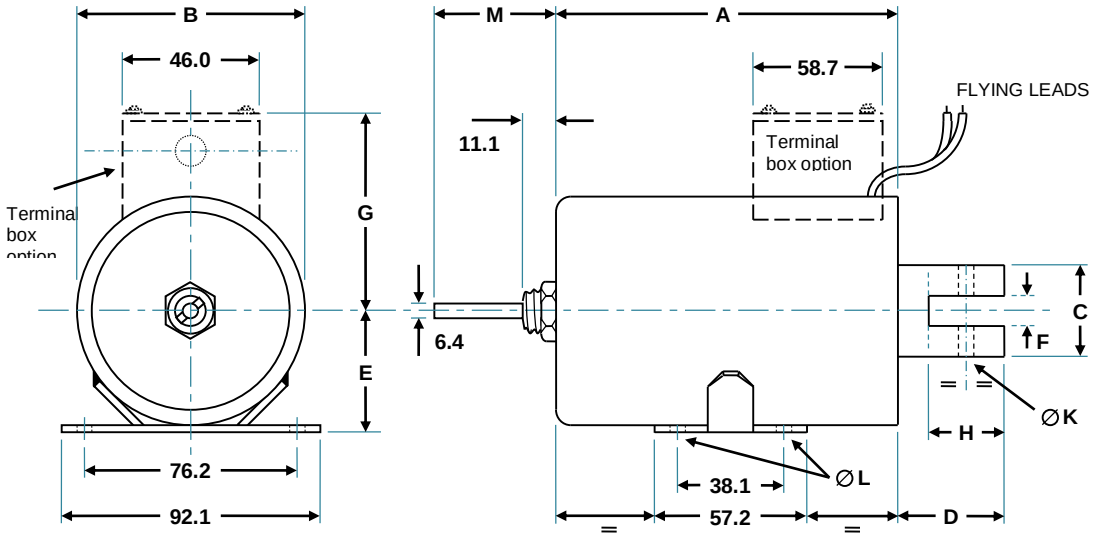
TYPE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
WML	127.0	114.3	104.8	196.9	6.4	41.3	25.4	9.9	7.94	168.3	73.0	10.3	9.5	34.9	184.1	12.7	155.6	FOR THRUST TYPES ONLY SPECIFY REQUIRED LENGTH
WMO	203.2	114.3	104.8	273.1	6.4	41.3	25.4	9.9	7.94	244.5	73.0	10.3	9.5	34.9	184.1	12.7	155.6	
WMP	177.8	139.7	130.1	247.7	6.4	50.8	28.6	13.1	9.5	219.1	98.4	10.3	12.7	34.9	215.9	12.7	184.2	
WMS	254.0	139.7	130.1	330.2	6.4	50.8	28.6	13.1	9.5	298.5	95.3	13.5	12.7	34.9	215.9	12.7	184.2	
WMT	228.6	171.5	155.6	304.8	9.5	63.5	28.6	13.1	9.5	273.1	120.7	13.5	15.9	34.9	247.7	19.1	215.9	
WMX	304.8	171.5	155.6	381.0	9.5	63.5	28.6	13.1	9.5	349.3	120.7	13.5	15.9	34.9	247.7	19.1	215.9	
WMY	228.6	215.9	193.7	368.3	12.7	63.5	38.1	13.1	12.7	330.2	152.4	13.5	19.1	50.8	304.8	19.1	266.7	

Flange Mounting



6. Outline Drawing – CM Range

NOTE: all standard-type CM Solenoids are fitted with thrust rods and will pull or thrust through the stroke indicated but in one direction only.
All dimensions mm with solenoid energised



TYPE	A	B	C	D	E	F	G	H	K	L	M
CMA	63.5	66.7	25.4	25.4	36.5	7.9	62.7	19.1	4.8	7.1	plunger thrust rod shall be selected from our standard range to provide a minimum of 12.7mm projection at the maximum stroke. If a specific length is required please contact Sales or Engineering for available options and technical support.
CMB	82.6	66.7	25.4	25.4	36.5	7.9	62.7	19.1	4.8	7.1	
CMC	101.6	66.7	25.4	25.4	36.5	7.9	62.7	19.1	4.8	7.1	
CMD	120.7	66.7	25.4	25.4	36.5	7.9	62.7	19.1	4.8	7.1	
CME	139.7	66.7	25.4	25.4	36.5	7.9	62.7	19.1	4.8	7.1	
CMH	139.7	82.6	31.8	38.1	44.5	9.9	70.6	28.6	6.4	7.1	
CMK	158.8	82.6	31.8	38.1	44.5	9.9	70.6	28.6	6.4	7.1	

7. How to Order

Please specify:
1. Type. e.g. CMH7 (see selection tables).
2. DC voltage, or AC voltage and frequency for rectifier operation.
3. Pull or Thrust (including rod projection (T) for WM types, or any special projection (M) for CM types.
4. Rating e.g. 50%.
5. Mounting required for WM types i.e. Front Flange, Rear Flange or Base Mounting.
6. Special requirements e.g. lead length or terminal box for CM types.

8. Technical Advice

Our Engineers and Sales will be pleased to assist in selecting the most suitable solenoids and available options to meet your application requirements.