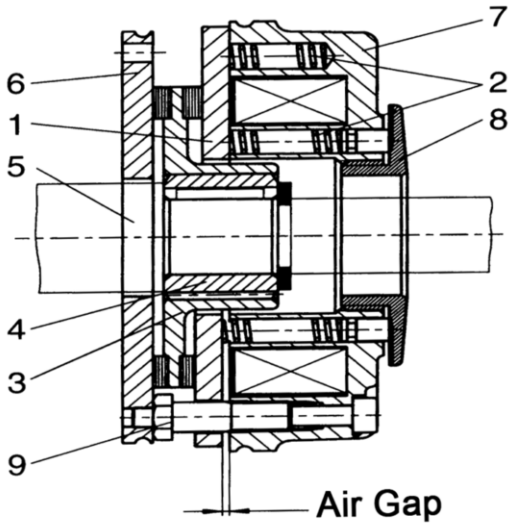
Armature Actuated Brakes

RoHS Compliant- meets the requirements of the Restriction of Hazardous Substances Directive

Direct-Acting, DC brakes in torque ratings from 3 lb-ft to 300 lb-ft (4 Nm to 400 Nm) of torque. Dings Armature Actuated Brakes are spring-applied (fail-safe), single-disc brakes.

Operation

During the braking procedure, the rotor (3), which can be shifted axially on the hub (4), is pressed against the counter friction face (6) via the armature plate (1), by means of the compression springs (2). When the brake is applied, an air gap is present between the armature plate and the stator (7). The brake is released electro-magnetically. The stator's coil is energized with DC voltage in order to release the brake. The resulting magnetic flux works against the spring force to draw the armature plate to the stator. This releases the rotor from the spring force and allows it to rotate freely.
Torque adjustment ring (8) to reduce the braking torque is standard.



Features

- Torque adjustable
- Spring-set, electrically released (fail-safe)
- Fixed air gap for easy installation
- Compact size- high torque in a small package
- Standard DC voltages 24, 96, 103, 170, 180 190, 205
- Nine sizes ranging from 3lb-ft - 300 lb-ft (4 Nm-400 Nm)
- Class F Coil Insulation
- Universal Mounting

Options

- **IP44/IP55 Enclosure Rating**
  -Boot Seal, Shaft Seal, Sealing Cap
- Torque Adjust
- Manual Release
- Manual Release Monitoring
- Metric or English Bore Sizes
- Air Gap Shim for improved brake set time
- Noise-reduced Design
- AC Rectifiers
- Proving Switch (Electrical Release Indicator)
- Wear Indicator
- Terminal Box
- Cover
- C Face Mounting

Contact factory for C face mounting options

Specifications

Model Number	Torque lb-ft (Nm)	Mounting bolt circle (mm)	Inertia kg cm^2	Approximate weight lbs. (kg)	Max. speed RPM	Power in watts*	Max. Allowable Thermal Energy per Stop HP-Sec/stop	Max. # of stops per hour (at max. thermal energy)	Reaction Time in milliseconds**	
									Set	Release
D58-072	3 (4)	72	0.15	2.4 (1.1)	12400	20	4.0	79	28	45
D58-090	6 (8)	90	0.61	4.2 (1.9)	10100	25	10.0	50	31	57
D58-112	12 (16)	112	2.00	8.4 (3.8)	8300	30	16.0	40	47	76
D58-132	25 (32)	132	4.50	11.7 (5.3)	6700	40	32.1	30	53	115
D58-145	45 (60)	145	6.30	16.5 (7.5)	6000	50	40.2	28	42	210
D58-170	60 (80)	170	15.00	24.0 (10.9)	5300	55	48.2	27	57	220
D58-196	110 (150)	196	29.00	35.7 (16.2)	4400	85	80.4	20	78	270
D58-230	190 (260)	230	73.00	55.8 (25.3)	3700	100	107.2	19	165	340
D58-278	300 (400)	278	200.00	84.2 (38.2)	3000	110	160.8	15	230	390

*Coil power at 20° C in Watts, up to +10%, depending on supply voltage

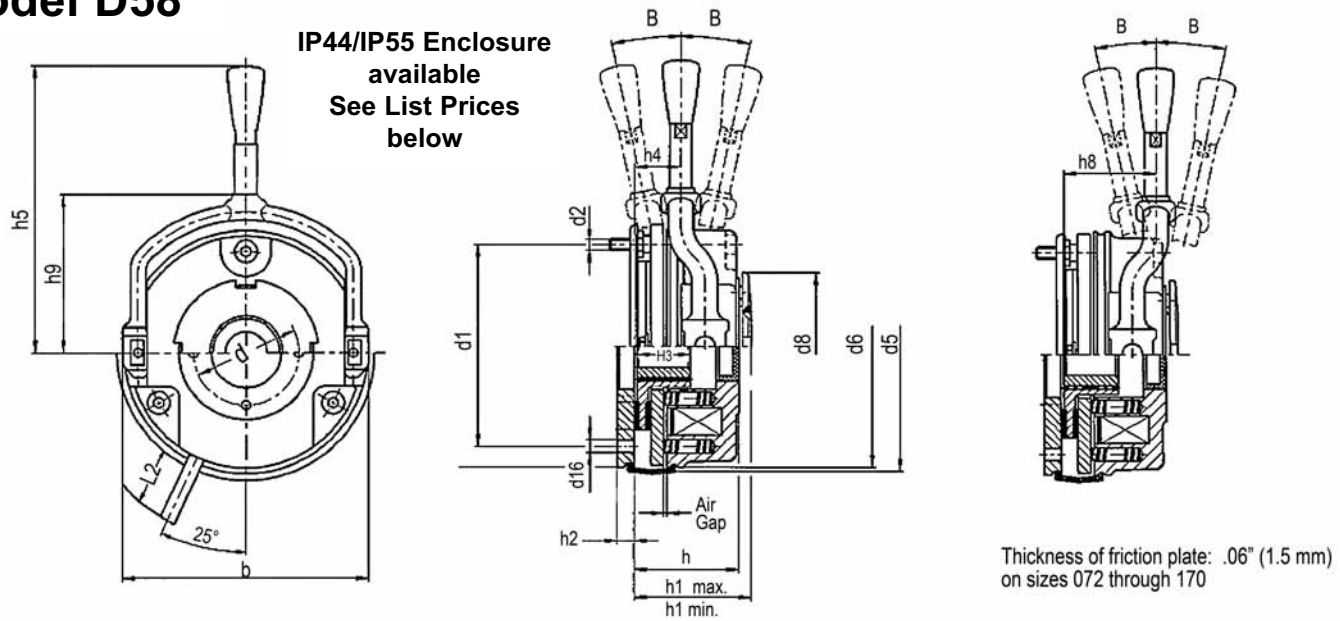
**Reaction times apply to DC switching at rated air gap (see dimensions page). Refer to page 58 for explanation of Reaction Times.

Armature Actuated Brakes

RoHS Compliant- meets the requirements of the Restriction of Hazardous Substances Directive

Model D58

IP44/IP55 Enclosure available See List Prices below



Thickness of friction plate: .06" (1.5 mm) on sizes 072 through 170

Dimensions in inches- *Dimensions in millimeters*

Basic Model Number	Torque lb-ft (Nm)	b	Max. bore size	d	B	d1	d2	d8	d5	d6	d16	h	h1 Min.	h1 Max.	h2	h3	h4	h5 std	h5 max	h8	h9
D58-072	3 (4)	3.47 *88*	9/16"; *15 mm*	1.48 *37.7*	12°	2.84 *72*	3xM4	2.05 *52*	3.58 *91*	3.43 *87*	3x4.5	1.43 *36.3*	1.55 *39.3*	1.71 *43.3*	.24 *6*	0.71 *18*	.62 *15.8*	4.21 *107*	-	1.29 *32.8*	2.22 *56.3*
D58-090	6 (8)	4.19 *106.5*	3/4"; *20 mm*	1.93 *49*	10°	3.54 *90*	3xM5	2.36 *60*	4.29 *109*	4.13 *105*	3x5.5	1.69 *42.8*	1.84 *46.8*	2.00 *50.8*	.28 *7*	0.79 *20*	.64 *16.3*	4.57 *116*	-	1.63 *41.3*	2.56 *65*
D58-112	12 (16)	5.20 *132*	3/4"; *20 mm*	2.13 *54*	9°	*4.41* *112*	3xM6	2.68 *68*	5.28 *134*	5.12 *130*	3x6.6	1.91 *48.4*	2.06 *52.4*	2.20 *55.9*	.35 *9*	0.79 *20*	1.08 *27.4*	5.20 *132*	-	1.67 *42.4*	*3.06* *77.8*
D58-132	25 (32)	5.98 *152*	1-1/8"; *25 mm*	2.52 *64*	10°	5.20 *132*	3xM6	3.23 *82*	6.10 *155*	5.91 *150*	3x6.6	2.16 *54.9*	2.32 *58.9*	2.66 *67.5*	.35 *9*	0.98 *25*	1.16 *29.4*	6.34 *161*	-	1.87 *47.4*	3.48 *88.5*
D58-145	45 (60)	6.65 *169*	1-1/8"; *30 mm*	2.95 *75*	9°	5.71 *145*	3xM8	3.62 *92*	6.65 *169*	6.50 *165*	3x9	2.61 *66.3*	2.81 *71.3*	3.04 *77.3*	.43 *11*	1.18 *30*	1.30 *33*	7.68 *195*	-	1.97 *50*	4.00 *101.5*
D58-170	60 (80)	7.66 *194.5*	1-3/8"; *38 mm**	3.35 *85*	10°	6.69 *170*	3xM8	4.02 *102*	7.68 *195*	7.48 *190*	3x9	2.85 *72.5*	3.05 *77.5*	3.37 *85.5*	.43 *11*	1.18 *30*	1.48 *37.5*	9.45 *240*	-	2.11 *53.5*	4.57 *116*
D58-196	110 (150)	8.75 *222*	1 5/8"; *45 mm*	3.74 *95*	9°	7.72 *196*	6xM8	4.57 *116*	8.74 *222*	8.54 *217*	4x9**	3.27 *83.1*	3.51 *89.1*	3.82 *97.1*	.43 *11*	1.38 *35*	1.62 *41.1*	10.98 *279*	15.51 *394*	2.33 *59.1*	5.06 *128.5*
D58-230	190 (260)	10.16 *258*	1-7/8"; *50 mm*	4.33 *110*	10°	9.06 *230*	6xM10	5.32 *135*	10.20 *259*	10.00 *254*	4x11**	3.84 *97.6*	4.12 *104.6*	4.51 *114.6*	.43 *11*	1.57 *40*	1.87 *47.6*	12.56 *319*	16.38 *416*	2.70 *68.6*	5.89 *149.5*
D58-278	300 (400)	11.89 *302*	2-3/8"; *70 mm*	5.51 *140*	10°	10.95 *278*	6xM10	6.50 *165*	12.09 *307*	11.89 *302*	6x11	4.20 *106.7*	4.56 *115.7*	5.03 *127.7*	.49 *12.5*	1.97 *50*	2.27 *57.7*	17.52 *445*	19.72 *501*	3.49 *88.7*	7.07 *179.5*

*Bore diameter 38, DIN 6885/3 9 keyway **Thread in the mounting surface is offset 30° in relation to the center axle of the manual release lever

Basic Model Number	Torque lb-ft (Nm)	L2 Lead Length	Air Gap ± .004 ± *0.1*	Approx. Weight lbs. (kg)
D58-072	3 (4)	15.75 *400*	.008 *0.2*	2.4 (1.1)
D58-090	6 (8)	15.75 *400*	.008 *0.2*	4.2 (1.9)
D58-112	12 (16)	15.75 *400*	.008 *0.2*	8.4 (3.8)
D58-132	25 (32)	15.75 *400*	.012 *0.3*	11.7 (5.3)
D58-145	45 (60)	15.75 *400*	.012 *0.3*	16.5 (7.5)
D58-170	60 (80)	23.62 *600*	.012 *0.3*	24.0 (10.9)
D58-196	110 (150)	23.62 *600*	.016 *0.4*	35.7 (16.2)
D58-230	190 (260)	23.62 *600*	.016 *0.4*	55.8 (25.3)
D58-278	300 (400)	23.62 *600*	.020 *0.5*	84.2 (38.2)

List Prices (includes torque adjust)

Basic Model Number	Torque lb-ft (Nm)	List Price		IP44 Enclosure* Adders		
		Basic Brake	Brake with Manual Release	Boot Seal	Sealing Plug	Shaft Seal
D58-072	3 (4)	$	$	$	$	$
D58-090	6 (8)	$	$	$	$	$
D58-112	12 (16)	$	$	$	$	$
D58-132	25 (32)	$	$	$	$	$
D58-145	45 (60)	$	$	$	$	$
D58-170	60 (80)	$	$	$	$	$
D58-196	110 (150)	$	$	$	$	$
D58-230	190 (260)	$	$	$	$	$
D58-278	300 (400)	$	$	$	$	$

*IP44 with boot seal in combination with either the sealing plug or shaft seal. Enclosure Rating is IP55 when brake is also mounted under a fan cover.

Armature Actuated Brakes
Ordering Information

Model Number Example: D58 - 112 - M 20 - MR ← **Options**

Brake Model | **Brake Size** | **Coil Voltage** | **Hub Bore Size**

Refer to following page for option descriptions and pricing.

Coil Voltages

See pages 57 and 58 for AC rectifiers

Suffix	DC Voltage
B	24
E	96
G	103
J	170
K	180
L	190
M	205

Available Options

Suffix	Description
B	Boot Seal
C	Terminal Box
E	Sealing Plug
L	Long Life *(ceramic rotor)*
MR	Manual Release
MA	Manual Release Indicator *(direction of release away from motor)*
MT	Manual Release Indicator *(direction of release towards motor)*
NA	Noise Reduced Armature
NR	Noise Reduced Rotor
T	Shaft Seal
W	Air Gap Shim
WI	Wear Indicator (sizes 132 & up)
XS	Electrical Release Indicator (Sizes 132 & up)
Y	Thin Plate (Friction Plate)
Z	Thick Plate (Mounting Flange)
*	Brake cover
*	C Face Mounting
*	Without Torque Adjust

***Contact Factory**

Standard Bore Sizes

Metric Bores *			Availability by Brake Size								
Suffix	**Size**	**Keyway**	**72**	**90**	**112**	**132**	**145**	**170**	**196**	**230**	**278**
PL	Pilot**	none	10	10	10	14	14	15	20	25	30
10	10	3 x 1.5	X	X	X						
11	11	4 x 2	X	X	X						
12	12	4 x 2	X	X	X						
14	14	5 x 2.5	X	X	X	X	X				
15	15	5 x 2.5	X	X	X	X	X	X			
20	20	6 x 3		X	X	X	X	X	X		
25	25	8 x 3.5				X	X	X	X	X	
30	30	8 x 3.5					X	X	X	X	X
35	35	10 x 4						X	X	X	X
38*	38*	10 x 3***						X	X	X	X
40	40	12 x 4							X	X	X
45	45	14 x 4.5							X	X	X
50	50	14 x 4.5								X	X
55	55	16 x 5									X
60	60	18 x 5.5									X
65	65	18 x 5.5									X
70	70	20 x 4***									X

*Metric Bore Hubs with non-pilot bore includes keyway per DIN 6885/1 P9 and are furnished without set screws. Bores are shown in millimeters.
**Pilot Bore Hub sizes are designated by a "PL" suffix and the appropriate bore diameter is shown under the corresponding brake size.
***Keyway is per DIN 6885/3 P9

English Bores*			Availability by Brake Size								
Suffix	**Size**	**Keyway**	**72**	**90**	**112**	**132**	**145**	**170**	**196**	**230**	**278**
PL	Pilot**	none	0.394	0.394	0.394	0.551	0.551	0.591	0.788	0.984	1.181
0C	1/2	1/8 x 1/16	X	X	X						
0X	9/16	1/8 x 1/16	X	X	X	X	X				
0D	5/8	3/16 x 3/32		X	X	X	X	X			
0E	3/4	3/16 x 3/32		X	X	X	X	X			
0F	7/8	3/16 x 3/32				X	X	X	X		
0G	1	1/4 x 1/8					X	X	X	X	
0H	1 1/8	1/4 x 1/8						X	X	X	
0J	1 1/4	1/4 x 1/8						X	X	X	X
0K	1 3/8	5/16 x 5/32							X	X	X
0M	1 5/8	3/8 x 3/16								X	X
0N	1 7/8	1/2 x 1/4									X
0O	2 1/8	1/2 x 1/4									X
0P	2 3/8	5/8 x 5/16									

*English Bore Hubs with non-pilot bore includes keyway per ANSI B17.1 and are furnished with set screw(s). Bores are shown in inches.
**Pilot Bore Hub sizes are designated by a "PL" suffix and the appropriate bore diameter is shown under the corresponding brake size.

For non-standard bore sizes, add: $78 for sizes 072 - 112; $130 for sizes 132 - 170; $195 for sizes 196 - 278

Armature Actuated Brakes

Options

Suffix	Option	Description	Availability by Size	List Price Adder
B	Boot Seal	The seal is inserted into the groove on the stator. If no suitable groove is available on the counter friction face,we recommend the use of a flange or a friction plate.	All	**Size Adder Size Adder** 072-090 $ 170 $ 112 $ 196 $ 132 $ 230 $ 145 $ 278 $
C	Terminal Box	The terminal box is mounted onto the spring-applied brake using a fixing bracket and screws.	132, 145, 170, 196, 230, 278	$
E	Sealing Plug	A cover is pressed into the brake center	All	**Size Adder Size Adder** 072 - 112 $ 196 $ 132 - 170 $ 230 $ 278 $
L	Long Life Rotor	Service life at least twice as long (wear-resistant coating)	All	**Size Adder Size Adder** 072 - 112 $ 196 $ 132 - 170 $ 230 $ 278 $
MR	Manual Release	The manual release is used to release the brake by hand and can be factory installed or retrofitted.	All	**Size Adder Size Adder** 072 $ 170 $ 090 $ 196 $ 112 $ 230 $ 132 $ 278 $ 145 $
MA	Manual Release Indicator, direction of release away from motor	The manual release operation is detected via a microswitch, whose switching signal must be combined with the motor control, so that the motor can be prevented from starting (thus also preventing any possible injury to the operator).	All	072 - 132 = $ 145 & 170 = $ 196 - 278 = $
MT	Manual Release Indicator, direction of release towards motor		072, 090, 112	072 through 112 = $
NA	Noise-Reduced Armature	O-rings are installed between the magnet housing and the armature plate as shock absorbers.	All	**Size Adder Size Adder** 072 $ 170 $ 090 $ 196 $ 112 $ 230 $ 132 $ 278 $ 145 $
NR	Noise-Reduced Rotor	Rattling noises, which can occur in the rotor/hub connection with changing loads, for example, are reduced by using a rotor with a plastic sleeve.	All	**Size Adder Size Adder** 072 $ 132 $ 090 $ 145-278 $ 112 $
T	Shaft Seal	A shaft seal is pressed into the brake center for through-shaft applications. Seal bore is equal to the hub bore.	All	**Size Adder** 072 - 132 $ 145 - 230 $ 278 $
W	Air Gap Shim	A shim is placed between the stator and the armature plate to reduce brake set time	All	**Size Adder** 072 - 132 $ 145 - 196 $ 230 - 278 $
WI	Wear Indicator	The microswitch can be set such that a signal is output before the wear reserve is reached.	132, 145, 170, 196, 230, 278	**Size Adder** 132 - 170 $ 196 - 278 $
XS	Electric Release Indicator	The microswitch is used to monitor the air gap. When the armature plate makes contact with the stator, the motor contactor is controlled via the microswitch. The motor can only start if the brake is released.	132, 145, 170, 196, 230, 278	**Size Adder** 132 - 170 $ 196 - 278 $
Z	Thick Plate (Mounting Flange)	If no suitable counter friction face is available, a flange on which the seal can be installed can be used.	Standard on sizes 196, 230, and 278 Optional on sizes 072 through 170	**Size Adder Size Adder** 072 $ 132 $ 090 $ 145 $ 112 $ 170 $

NOTE: For brake covers, C face adaptors, or brake without torque adjust, contact factory

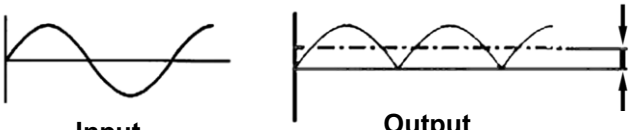
Armature Actuated Brakes

AC Rectifiers

Full- and half-wave rectifiers for use with D58 brakes. Rectifiers are UL listed, file number E307886.

Full-Wave Bridge Rectifiers

Both positive and negative half-cycles of the AC signal are rectified to produce a DC current output. V_{DC} = .90 V_{AC}.



Input Output

Half-Wave Rectifiers

Only alternate half-cycles of the AC signal are rectified to produce a DC current output. V_{DC} = .45 V_{AC}.

Input Output

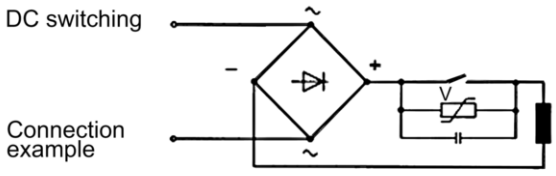
AC input voltage	Rectifier part number	Type	DC Coil voltage	Mounting	Max. Supply Voltage	List Price
42	D-630-H-V D-630-H-H	Half Wave	20	Vertical Horizontal	555 V	$
48	D-630-H-V D-630-H-H	Half Wave	20	Vertical Horizontal	555 V	$
	D-630-B-V D-630-B-H	Bridge	42	Vertical Horizontal	270 V	$
110	D-630-B-V D-630-B-H	Bridge	103	Vertical Horizontal	270 V	$
230	D-630-H-V D-630-H-H	Half Wave	103	Vertical Horizontal	555 V	$
	D-630-B-V D-630-B-H	Bridge	205	Vertical Horizontal	270 V	$
240	D-630-H-V D-630-H-H	Half Wave	103	Vertical Horizontal	555 V	$
	D-630-B-V D-630-B-H	Bridge	215	Vertical Horizontal	270 V	$
380	D-630-H-V D-630-H-H	Half Wave	180	Vertical Horizontal	555 V	$
400	D-630-H-V D-630-H-H	Half Wave	180	Vertical Horizontal	555 V	$
440	D-630-H-V D-630-H-H	Half Wave	205	Vertical Horizontal	555 V	$
460	D-630-H-V D-630-H-H	Half Wave	205	Vertical Horizontal	555 V	$
480	D-634-H-V* D-634-H-H*	Half Wave	215	Vertical Horizontal	555 V	$
500	D-634-H-V* D-634-H-H*	Half Wave	225	Vertical Horizontal	555 V	$
555	D-634-H-V* D-634-H-H*	Half Wave	250	Vertical Horizontal	555 V	$

Max. DC current at 60°C 0.75 A ; Max. ambient temperature 80°C
The rectifiers are protected against overvoltage by varistors in the input and output.
* Spark suppressor without capacitor. For optimum interference suppression, we recommend the use of spark suppressor D-198-004.

Universal spark suppressor

The universal spark suppressor limits the inductive voltages which appear when switching off clutches and brakes on the DC side. These inductive voltages can otherwise damage coils and switches. Four types of universal spark suppressors are available for the following voltage ranges:

Part Number	Coil Voltage V	Max. Coil Power	List Price
D-198-001	24V - 50V	110 W	$
D-198-002	50V - 120V	110 W	$
D-198-003	120V - 200V	110 W	$
D-198-004	200V - 250V	110 W	$

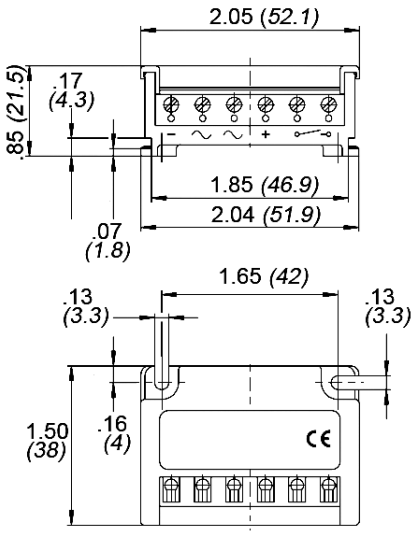


Armature Actuated Brakes

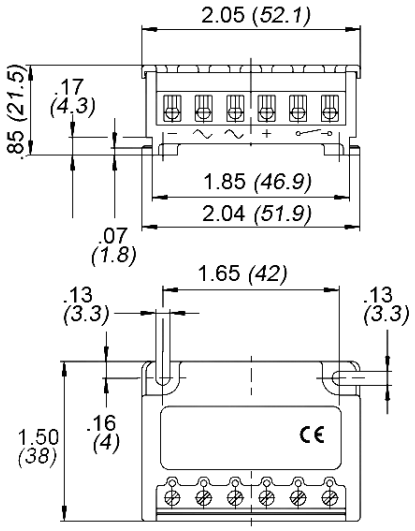
AC Rectifiers

Dimensions in inches *(Dimensions in Millimeters)*

Models D-630-H-V and D-630-B-V



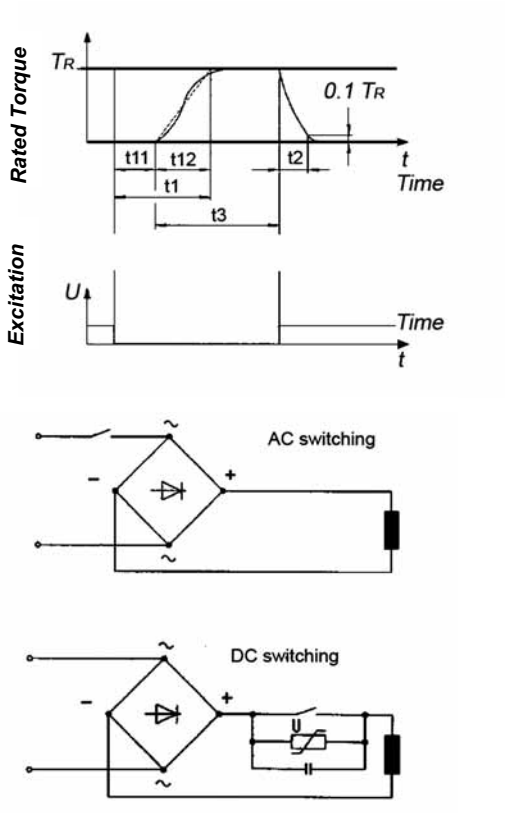
Models D-630-H-H and D-630-B-H



Operating Times

The listed operating times apply to DC switching with rated air gap and a warm coil. The times are mean values which may vary depending on the method of rectification and the air gap. The engagement time t1 is approximately 10 times higher for AC switching than for DC switching.

t11= Delay time
t12= Rise time of braking torque
t1= Engagement time
t2= Disengagement time
t3= Slipping time



Model Number	Torque lb-ft (Nm)	Reaction Time in milliseconds*			
		t11	t12	t1	t2
D58-072	3 (4)	15	13	28	45
D58-090	6 (8)	15	16	31	57
D58-112	12 (16)	28	19	47	76
D58-132	25 (32)	28	25	53	115
D58-145	45 (60)	17	25	42	210
D58-170	60 (80)	27	30	57	220
D58-196	110 (150)	33	45	78	270
D58-230	190 (260)	65	100	165	340
D58-278	300 (400)	110	120	230	390

*Reaction times apply to DC switching at rated air gap (see dimensions page)