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The Dings Difference

When you need to stop and hold a motor quickly and reliably, you can count on a Dings Electromagnetic Spring-Set Brake to do the job. Dings' brakes are specifically engineered to provide you with years of trouble-free performance.

NEW!! See Dings brake operation on YouTube

Simplicity of Design

Our brakes operate on a very simple principle: while the motor is running with power engaged, an electromagnet within the brake pulls back the pressure plate, allowing the friction discs and motor shaft to rotate freely. When power is cut to the motor, the electromagnet releases, instantly stopping the rotating discs and preventing the motor shaft from turning. This **direct acting** design has only one moving part with no complicated linkages to break or fail. You won't have to worry about your brake - leaving you more time for your other responsibilities.

AVAILABLE IN THESE CONFIGURATIONS:

End Mount

Double C Face Coupler

Double Shafted with Foot Mount

NEMA 4X BISSC

Stainless Steel

Hazardous Location

Crane Duty

Marine Duty

Navy

2D drawings and 3D electronic files are available at www.dingsbrakes.com

Dings' Brakes are used in many applications, including:

- Door operators
- Cranes and hoists
- Elevators and walkways
- Satellite positioning equipment
- Conveyors and palletizers
- Motors/speed reducers
- Food and packaging machinery
- And many more...

Brake Selection Guide

To effectively determine which brake is appropriate for your particular application, you must first calculate the amount of torque required by the system. There are two types of situations in which a brake may be used: **Non-Overhauling** load and **Overhauling** load.

In the case of a non-overhauling load, gravitational forces do not change the energy in the system and the internal friction of the system is sufficient to hold the load, i.e. an external means is not required to maintain system stability after it has stopped. Examples of this situation would include grinders, horizontal conveyors, etc.

To calculate the torque required in a non-overhauling load situation, refer to the formula and chart below. For overhauling loads, refer to Application Engineering at the end of the catalog.

To calculate torque for a non-overhauling application:

$$T_S = \frac{5252 \times P}{N} \times SF$$

Where,
- T_S = Static torque, lb-ft
- P = Motor horsepower, hp
- N = Motor full load speed, rpm
- SF = Service Factor
- 5252 = Constant

Note: Brakes with a 1.0 Service Factor are not intended for critical holding applications.

Motor Hp	1.0 Service Factor							1.4 Service Factor							2.0 Service Factor						
	Speed (RPM)							Speed (RPM)							Speed (RPM)						
	720/750	900/1000	1200	1500	1800	3000	3600	720/750	900/1000	1200	1500	1800	3000	3600	720/750	900/1000	1200	1500	1800	3000	3600
	Static Torque Rating of Brake (lb-ft)																				
1/6	1 1/2	1 1/2	3/4	3/4	3/4	3/8	3/8	3	1 1/2	1 1/2	1 1/2	3/4	3/4	3/8	3	3	1 1/2	1 1/2	1 1/2	3/4	3/4
1/4	3	3	1 1/2	1 1/2	3/4	3/4	3/4	3	3	1 1/2	1 1/2	1 1/2	3/4	3/4	6	3	3	3	1 1/2	1 1/2	3/4
1/3	3	3	3	1 1/2	1 1/2	3/4	3/4	6	3	3	3	1 1/2	1 1/2	3/4	6	6	3	3	3	1 1/2	1 1/2
1/2	6	3	3	3	3	1 1/2	3/4	6	6	6	3	3	1 1/2	1 1/2	10	6	6	6	3	3	1 1/2
3/4	6	6	6	3	3	1 1/2	1 1/2	10	10	6	6	6	3	1 1/2	15	10	10	6	6	3	3
1	10	6	6	6	3	3	3	15	10	10	6	6	3	3	15	15	10	10	6	6	3
1 1/2	15	10	10	6	6	3	3	20	15	10	10	10	6	6	25	20	15	15	10	6	6
2	15	15	10	10	6	6	3	25	20	15	10	10	6	6	35	25	20	15	15	10	6
3	25	20	15	15	10	6	6	35	25	20	15	15	10	10	50	35	35	25	20	15	10
5	50	35	25	20	15	10	10	75	50	35	25	25	15	15	75	75	50	35	35	20	15
7 1/2	70	50	35	35	25	15	15	105	70	50	50	35	20	20	125	105	75	75	50	35	25
10	75	70	50	50	35	20	15	105	105	70	50	50	35	25	175	125	105	75	75	35	35
15	125	105	70	70	50	35	25	175	125	105	75	75	50	35	230	175	175	105	105	75	50
20	180	125	105	75	70	50	35	230	175	125	105	105	50	50	330	270	175	175	125	75	75
25	230	180	125	105	75	50	50	270	230	175	125	105	75	75	450	330	230	175	175		75
30	230	180	180	125	105	75	50	330	270	230	175	125	75	75	450	360	270	230	175		
40	330	270	180	180	125	75	75	450	330	270	230	175					360	330	270		
50	450	330	230	180	180		75		450	330	270	230					450	360	330		
60	450	360	270	230	180					450	330	270						450	360		
75		450	330	270	230						450	330							450		
100			450	360	330							450									
125				450	450																
150					450																

Selection by Frame Size

x= mounts directly, ①= adaptor required

Brake Series	Torque Ratings in lb-ft	Motor Frame Size										
		small/ fractional hp	48C	56C	143TC 145TC	182TC 184TC	213TC 215TC	254TC 256TC 254UC 256UC	284TC 286TC 284UC 286UC	324/326TC 324/326UC 324/326TSC 324/326USC	364/365TC 364/365UC 364/365TSC 364/365USC	404/405TC 404/405UC 404/405TSC 404/405USC
40	3/8 & 3/4	X										
50	1.5-6		X	①	①							
5600 Style 60	1.5-15		①	X	X	①	①	①	①			
60	1.5-25		①	X	X	①	①	①	①			
1-70	1.5-25			①	①	X	X	X	①			
70	10-75			①	①	X	X	X	①			
80	25-175					①	①	①	X	①	①	①
90	125-450								①	X	X	X

40 Series End Mount

For Small AC and DC Motors
Torque Ratings: 3/8 and 3/4 lb-ft

Specifications:

Reaction Time: 15-20 milliseconds (release and set)
Maximum RPM: 3600
CSA File #LR13814

RoHS Compliant- Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Design Features:

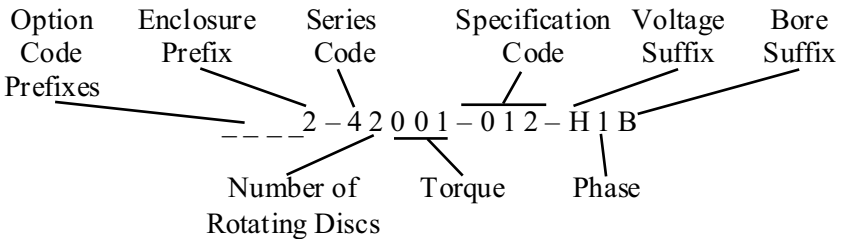
Selectable torque: Two rotating friction discs are used for 3/4 lb-ft torque and one friction disc is used for 3/8 lb-ft torque.
Retrofit to small AC and DC motors
Plated internal parts

Enclosure Type:

Dripproof Enclosure
- ♦NEMA 2, IP40
- ♦Steel cover and mounting bracket

Model #	Instructions and Parts Manual	Torque lb-ft (lb-in)	Wt. Lbs.	Inertia Wk^2 $lb\text{-}ft^2$	Manual Release	List Price
2-42001-012	BK4042	3/8 or 3/4 (4.5 or 9)	3	0.001	No	$180
2-42001-013	BK4042	3/8 or 3/4 (4.5 or 9)	3	0.001	Yes	$228

Brake Model Number Definition



Standard Voltages (single phase only)**:**

Suffix	Voltage
H	115V, 60Hz
M	220/230V, 60 Hz

Optional DC voltages are available.

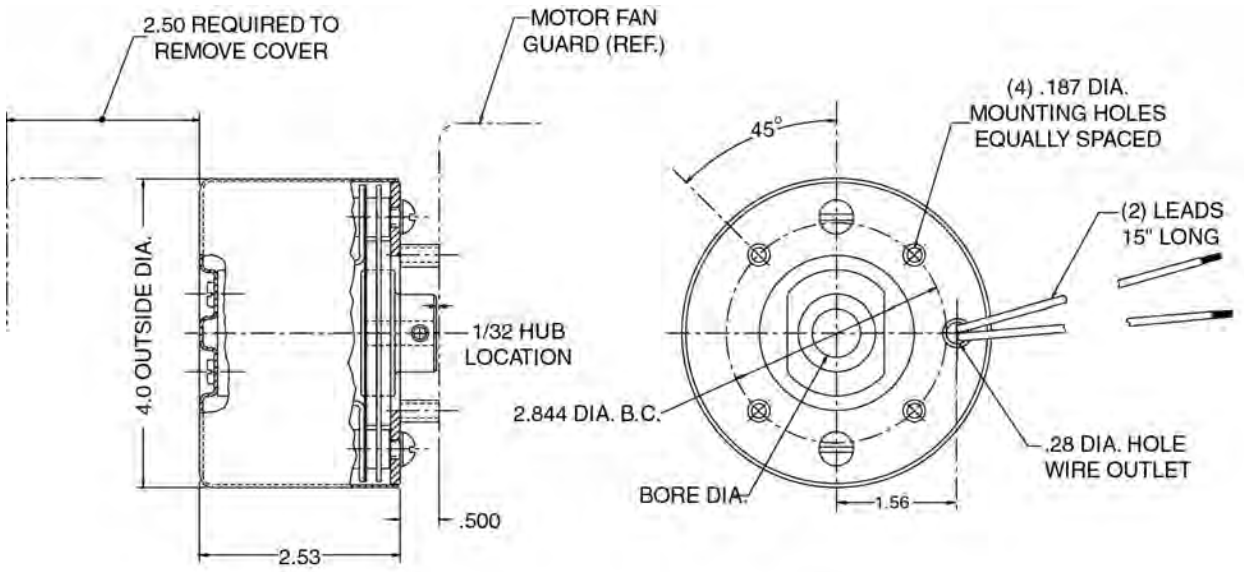
Standard Hub Bore Sizes:

Suffix	Size	Keyway
A	8mm	None
B	3/8”	None
C	1/2”	None
D	5/8”	None

Maximum bore diameter is 5/8”.

Available Options:	Prefix
Direct Current (DC Voltage)	D
Class H Insulation	Q

Refer to pages 47-52 for option descriptions and pricing.



50 Series End Mount

NEMA Frame Size 48C
Torque Ratings: 1.5 to 6 lb-ft

Specifications:

Reaction Time: 15-20 milliseconds (release and set)
AK: 3" Register
AJ: 3.75" Bolt Circle
Thermal Capacity: 4 HPS/MIN
Maximum RPM: 3600
CSA File #LR13814
Coil insulation: Class B Standard, Class H Optional

RoHS Compliant- Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Design Features:

Torque adjustable for specific applications
Spring set, electrically released
Deadman release (Model 2-50000-05A without release)
Splined hub
Through shaft knockout standard, all models

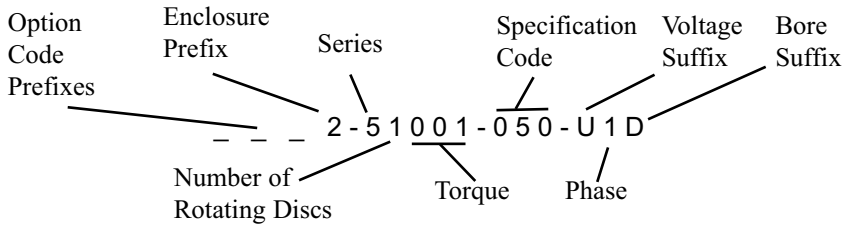
Enclosure Type:

♦Dripproof Enclosure
♦NEMA 2, IP40
♦Steel cover and mounting bracket

Instructions & Parts Manual: BK4618

Torque lb-ft	Model # Internal lead connection	List Price Internal lead connection	Model # Internal / external lead connection	List Price Internal / external lead connection	Wt Lbs.	Inertia Wk^2 $lb\text{-}ft^2$	Manual Release
1.5	2-51001-050	$380	6-51001-080	$420	7	0.002	Yes
3	2-51003-050	$395	6-51003-080	$435	7	0.002	Yes
6	2-51006-050	$410	6-51006-080	$450	7	0.002	Yes

Brake Model Number Definition



Standard Voltages (single phase only):

Suffix	Voltage
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

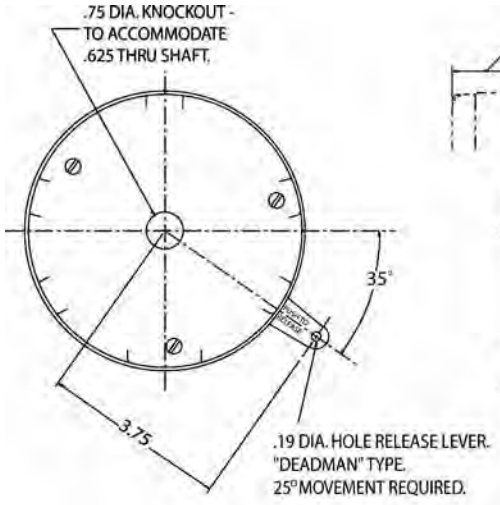
Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"

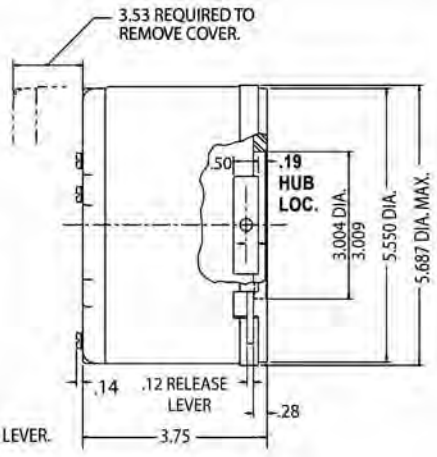
Special bore sizes available.

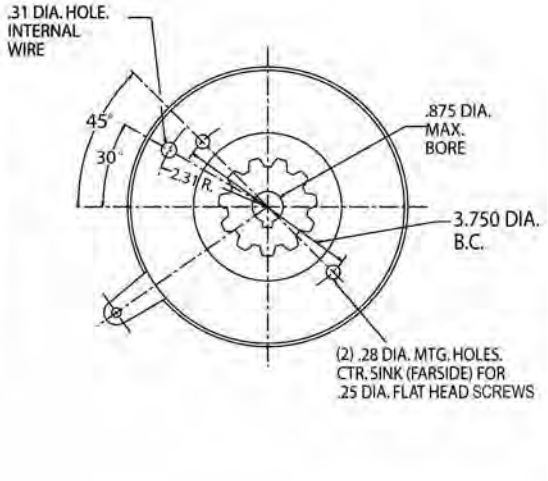
Available Options:

	Prefix
Adapter to Larger Frame Size(s)	A
Direct Current (DC Voltage)	DD
Tropical Protection	P
Class H Insulation	Q

Refer to pages 47-52 for option descriptions and pricing.







5600 Style End Mount

60 Series

NEMA Frame Sizes 56C, 143TC, 145TC

Torque Ratings: 1.5 to 15 lb-ft

RoHS Compliant- Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

NEW BRAKE DESIGN!
LONG LIFE – EASY INSTALLATION & MAINTENANCE

Direct "Drop-in" Replacement for Stearns® 56,000 Series:

Dings Model	Enclosure	Torque lb.ft.	Stearns Model
61003-5601	NEMA 2	3	1-056-011-00
61006-5601	NEMA 2	6	1-056-021-00
62010-5601	NEMA 2	10	1-056-031-00
62015-5601	NEMA 2	15	1-056-041-00

- **Same Overall Length**
- **Same Diameter**
- **Same Hub Location**
- **No Shaft Modification Required**

Stearns® is a registered trademark of Rexnord Industries, LLC.

Specifications:

Reaction Time: 15-20 milliseconds (release and set)
AK: 4.5" Register
AJ: 5.88" Bolt Circle
Thermal Capacity: 6 HPS/MIN
Maximum RPM: 3600
CSA File #LR13814
Coil insulation: 1.5 – 3 lb-ft Class B std, Class H Optional
6 – 15 lb-ft Class H std

Design Features:

Direct acting design with no linkages to break
One moving part for longer life
Single point air gap adjustment
Through shaft knockout standard on all models
Splined hub
Spring set, electrically released
Manual release, automatic reset

Enclosure Type:

♦Dripproof Enclosure
♦NEMA 2, CSA 2, IP41
♦Stamped steel cover with steel bracket

Standard Voltages
(single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
P	575V, 60 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
1	115/208-230V, 60 Hz
5	208-230/460V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"
F	7/8"	3/16" x 3/32"

Special bore sizes available.

Available Options:	Suffix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Class H Insulation	Q

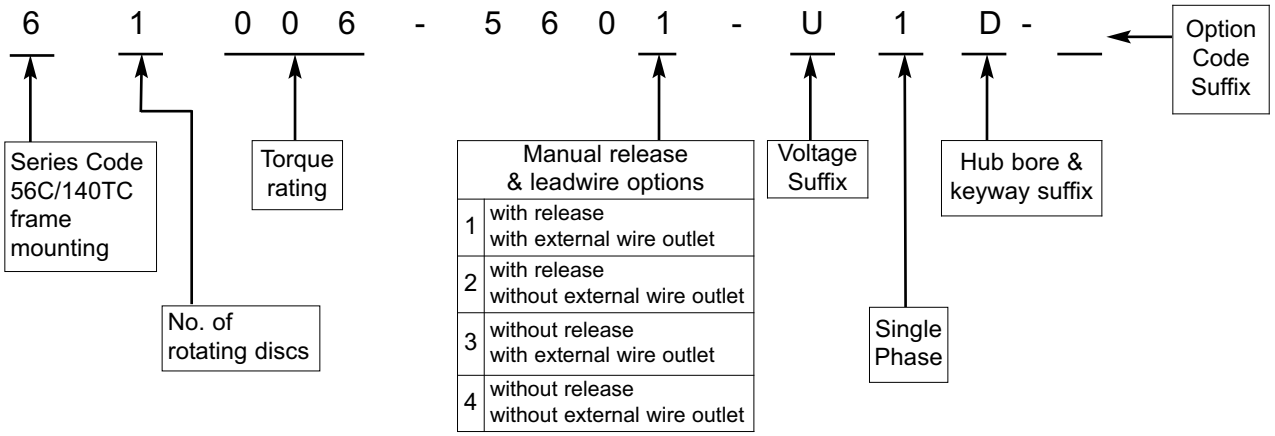
Refer to pages 47-52 for option descriptions and pricing.

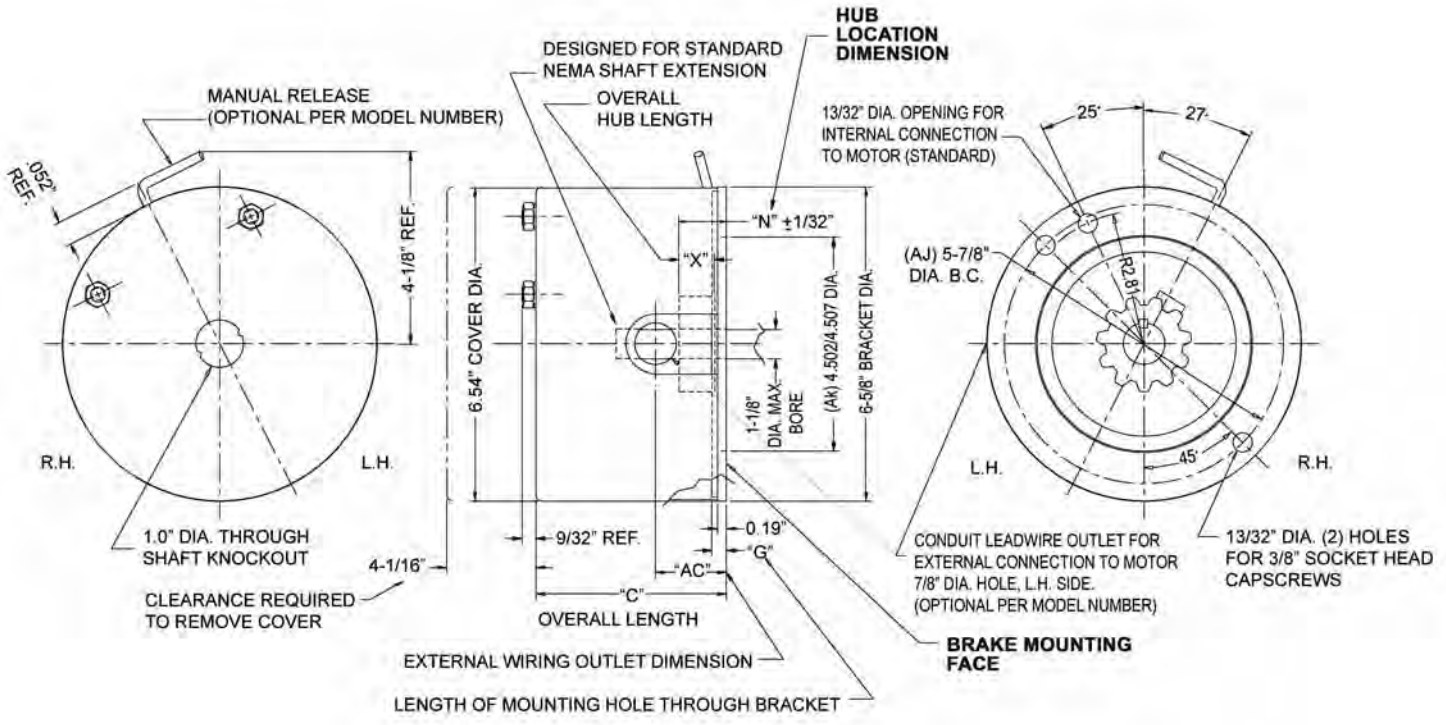
For vertical mounting option, contact factory.

Torque Rating lb-ft	Model Number*	Number of friction discs	Thermal Capacity HPS/MIN	Inertia lb-ft^2	Dimensions					List Price
					C	AC	G	X	N± 1/32"	
1.5	61001-560*	1	6	0.006	4.01	1.50	0.31	0.81	1.00	$430.00
3	61003-560*	1	6	0.006	4.01	1.50	0.31	0.81	1.00	$450.00
6	61006-560*	1	6	0.006	4.01	1.50	0.31	0.81	1.00	$515.00
10	62010-560*	2	6	0.011	4.01	1.50	0.31	0.81	1.00	$615.00
15	62015-560*	2	6	0.011	4.01	1.50	0.31	0.81	1.00	$715.00

Instructions & Parts Manual: BK4684

*Brake Model Number Description





60 Series End Mount

NEMA Frame Sizes 56C, 143TC, 145TC
Torque Ratings: 1.5 to 25 lb-ft

Dripproof NEMA 2, CSA 2, IP41

60 Series Specifications:

Reaction Time: 15-20 milliseconds (release and set)
AK: 4.5" Register
AJ: 5.88" Bolt Circle
Thermal Capacity: 6 HPS/MIN
Maximum RPM: 3600
Coil insulation:
Class B : 1.5, 3, 10 &15 lb-ft brakes (Class H optional)
Class H : 6, 20 & 25 lb-ft brakes
CSA File #LR13814

NEMA 2 Specifications:

External paint: Red primer
Lead wires: Internal or conduit connections
Nameplate: Thermally printed adhesive label (pre-masked)

Design Features:

Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
Plated internal parts
All position brake available

RoHS Compliant- Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Other Enclosure Types:

Waterproof/Dusttight NEMA 4, CSA 4, IP56
With hub seal for TEFC applications . . . . . PAGES 11&12
Without hub seal for non-TEFC applications . PAGES 9&10

Washdown Enclosure NEMA 4X, CSA 4, IP56

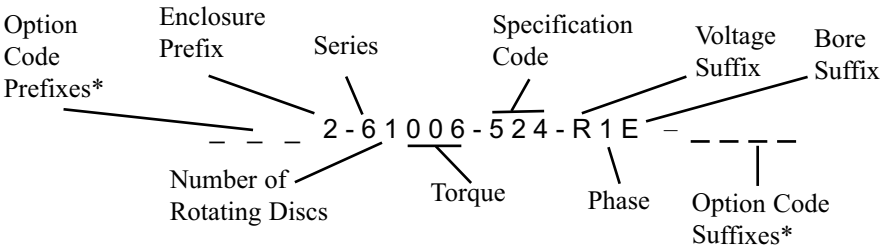
WHITE BISSC
- ♦Cast iron cover and bracket with FDA Approved white epoxy paint
- ♦**BISSC Certified** Authorization #695

With hub seal for TEFC applications . . . . . .PAGES 11&12
Without hub seal for non-TEFC applications .PAGES 9&10

STAINLESS STEEL BISSC
- ♦300 Series Stainless steel cover and bracket
- ♦**BISSC Certified** Authorization #695

With hub seal for TEFC applications . . . . . .PAGES 11&12
Without hub seal for non-TEFC applications . PAGES 9&10

Brake Model Number Description



Standard AC Voltages
(single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Optional DC Voltages
(See price for DC modification):

Suffix	Voltage	List Price Adder
A	12	$300
B	24	$300
C	36	$300
D	48	$300
7	76	$300
E	95	$300
H	115	$300
M	230	$300

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"
F	7/8"	3/16" x 3/32"

Special bore sizes available.

Available Options:
*NOTE: Some models may be nameplated with the option codes as a prefix, and some may list the option codes as a suffix.

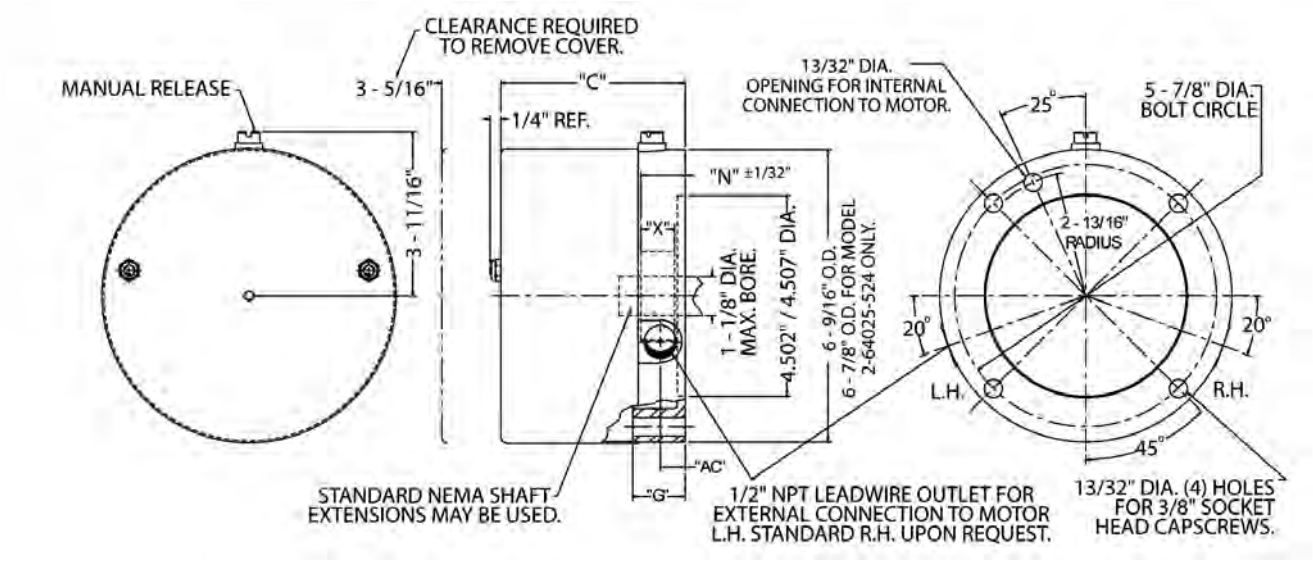
	Prefix*
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

NEMA 2 / IP41 Enclosure

Instructions & Parts Manual: BK4655

Torque lb-ft	Model #	Construction	Wt. Lbs.	Inertia Wk^2 lb-ft^2	Dimensions in inches					List Price
					C	N	X	AC	G	
1.5	2-61001-524	Aluminum/Steel	8	0.006	4.13	1.13	0.88	0.59	1.19	$430
3	2-61003-524	Aluminum/Steel	8	0.006	4.13	1.13	0.88	0.59	1.19	$450
6	2-61006-524	Aluminum/Steel	8	0.006	4.13	1.13	0.88	0.59	1.19	$515
10	2-62010-524	Aluminum/Steel	8	0.010	4.13	1.13	0.88	0.59	1.19	$615
15	2-63015-524	Aluminum/Steel	9	0.015	4.50	1.44	1.19	0.59	1.56	$715
20	2-63020-524	Aluminum/Steel	9	0.015	4.50	1.44	1.19	0.59	1.56	$805
25	2-64025-524	Cast Iron/Steel	16	0.020	5.19	2.00	1.34	1.56	2.25	$900



NEMA 4 & 4X Enclosures are listed on following pages

60 Series End Mount

NEMA Frame Sizes 56C, 143TC, 145TC
Torque Ratings: 1.5 to 25 lb-ft

NEMA 4/4X, CSA 4, IP56 without hub seal for Non-TEFC applications

60 Series Specifications:

Reaction Time:	15-20 milliseconds (release and set)
AK:	4.5" Register
AJ:	5.88" Bolt Circle
Thermal Capacity:	6 HPS/MIN
Maximum RPM:	3600

Coil insulation:
Class B : 1.5, 3, 10 &15 lb-ft brakes (Class H optional)
Class H : 6, 20 & 25 lb-ft brakes
CSA File #LR13814

NEMA 4 Non-TEFC Specifications:

External paint: Red primer
Lead wires: Internal or conduit connections
Nameplate: Aluminum/Steel brake: Thermally printed adhesive label (pre-masked)
Cast iron brake: Riveted stamped stainless steel

NEMA 4X Non-TEFC Specifications:

External paint: Cast Iron: FDA approved white epoxy
Stainless Steel: None
BISSC Certified Authorization #695
Lead wires: Internal or conduit connections
Nameplate: Riveted stamped stainless steel (pre-masked)

RoHS Compliant- Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Other Enclosure Types:

Dripproof NEMA 2, CSA 2, IP41 . . . . . PAGES 7&8
1.5–20 lb-ft Stamped steel cover with die cast aluminum bracket
25 lb-ft Stamped steel cover with cast iron bracket

Waterproof/Dusttight NEMA 4, CSA 4, IP56
With hub seal for TEFC applications . . .PAGES 11&12

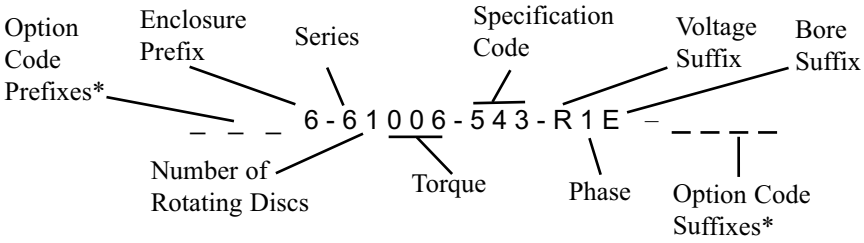
Washdown Enclosure NEMA 4X, CSA 4, IP56
WHITE BISSC
♦Cast iron cover and bracket with FDA Approved white epoxy paint
♦**BISSC Certified** Authorization #695
With hub seal for TEFC applications . . .PAGES 11&12

STAINLESS STEEL BISSC
♦300 Series Stainless steel cover and bracket
♦**BISSC Certified** Authorization #695
With hub seal for TEFC applications . . .PAGES 11&12

Design Features:

Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
Plated internal parts
All position brake available

Brake Model Number Description



Standard AC Voltages
(single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Optional DC Voltages
(See price for DC modification):

Suffix	Voltage	List Price Adder
A	12	$300
B	24	$300
C	36	$300
D	48	$300
7	76	$300
E	95	$300
H	115	$300
M	230	$300

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"
F	7/8"	3/16" x 3/32"

Special bore sizes available.

Available Options:
*NOTE: Some models may be nameplated with the option codes as a prefix, and some may list the option codes as a suffix.

	Prefix*
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

NEMA 4 / IP56 Enclosure no hub seal

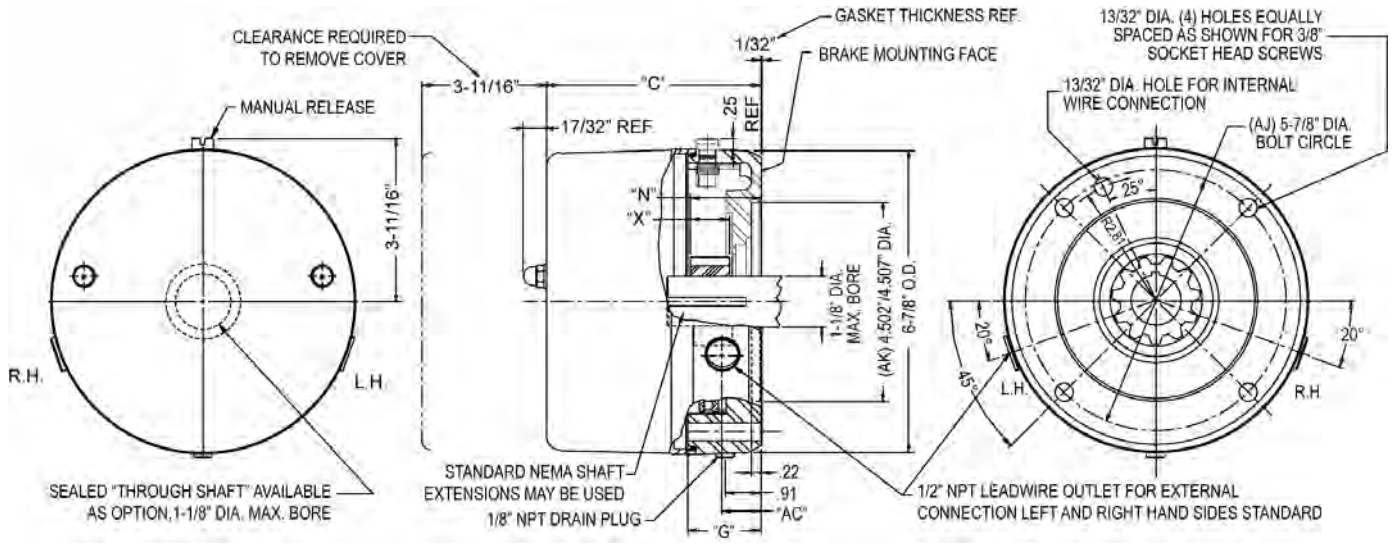
Instructions & Parts Manual :
Aluminum/Steel BK4710
Cast Iron BK4660

Torque lb-ft	Model #	Construction	Wt. Lbs.	Inertia Wk^2 lb-ft²	Dimensions in inches					List Price
					C	N	X	AC	G	
1.5	6-61001-545	Aluminum/Steel	10	0.008	4.13	1.13	.88	.59	1.19	$500
	6-61001-543	Cast Iron	16	0.008	4.81	1.59	1.37	0.94	1.63	$800
3	6-61003-545	Aluminum/Steel	10	0.008	4.13	1.13	.88	.59	1.19	$520
	6-61003-543	Cast Iron	16	0.008	4.81	1.59	1.37	0.94	1.63	$835
6	6-61006-545	Aluminum/Steel	10	0.008	4.13	1.13	.88	.59	1.19	$585
	6-61006-543	Cast Iron	17	0.008	4.81	1.59	1.37	0.94	1.63	$930
10	6-62010-545	Aluminum/Steel	10	0.013	4.13	1.13	.88	.59	1.19	$690
	6-62010-543	Cast Iron	17	0.013	4.81	1.59	1.37	0.94	1.63	$1,040
15	6-63015-545	Aluminum/Steel	11	0.019	4.50	1.44	1.19	.96	1.56	$790
	6-63015-543	Cast Iron	18	0.019	5.13	1.90	1.93	0.94	1.94	$1,180
20	6-63020-545	Aluminum/Steel	11	0.019	4.50	1.44	1.19	.96	1.56	$875
	6-63020-543	Cast Iron	18	0.019	5.13	1.90	1.93	0.94	1.94	$1,280
25	6-64025-543	Cast Iron	19	0.024	5.44	2.05	1.83	1.56	2.25	$1,425

WASHDOWN NEMA 4X / IP56 Enclosure no hub seal

Instructions & Parts Manual :
Cast Iron BK4660 Stainless Steel BK4661

Torque lb-ft	Model #	Construction	Wt. Lbs.	Inertia Wk^2 lb-ft²	Dimensions in inches					List Price
					C	N	X	AC	G	
1.5	6-61001-5115	Cast Iron	16	0.008	4.81	1.59	1.37	0.94	1.63	$855
	6-61001-5141	Stainless Steel	16	0.008	4.81	1.59	1.37	0.94	1.63	$2,339
3	6-61003-5115	Cast Iron	16	0.008	4.81	1.59	1.37	0.94	1.63	$890
	6-61003-5141	Stainless Steel	16	0.008	4.81	1.59	1.37	0.94	1.63	$2,350
6	6-61006-5115	Cast Iron	17	0.008	4.81	1.59	1.37	0.94	1.63	$985
	6-61006-5141	Stainless Steel	17	0.008	4.81	1.59	1.37	0.94	1.63	$2,415
10	6-62010-5115	Cast Iron	17	0.013	4.81	1.59	1.37	0.94	1.63	$1,095
	6-62010-5141	Stainless Steel	17	0.013	4.81	1.59	1.37	0.94	1.63	$2,515
15	6-63015-5115	Cast Iron	18	0.019	5.13	1.90	1.93	0.94	1.94	$1,235
	6-63015-5141	Stainless Steel	18	0.019	5.13	1.90	1.93	0.94	1.94	$2,615
20	6-63020-5115	Cast Iron	18	0.019	5.13	1.90	1.93	0.94	1.94	$1,335
	6-63020-5141	Stainless Steel	18	0.019	5.13	1.90	1.93	0.94	1.94	$2,700
25	6-64025-5115	Cast Iron	19	0.022	5.44	2.05	1.83	1.56	2.25	$1,480
	6-64025-5141	Stainless Steel	19	0.022	5.44	2.05	1.83	1.56	2.25	$2,810



60 Series End Mount

NEMA Frame Sizes 56C, 143TC, 145TC
Torque Ratings: 1.5 to 25 lb-ft

NEMA 4/4X, CSA 4, IP56*
with hub seal for TEFC applications

*To obtain full IP56 protection, the customer shaft, hub bore, key and keyway's mating surface(s) must be sealed to meet IP56. Considerations should be reviewed to appropriately seal mounting hardware as well. Contact factory for details and/or assistance.

60 Series Specifications:

Reaction Time: 15-20 milliseconds (release and set)
AK: 4.5" Register
AJ: 5.88" Bolt Circle
Thermal Capacity: 6 HPS/MIN
Maximum RPM: 3600
Coil insulation:
Class B : 1.5, 3, 10 &15 lb-ft brakes (Class H optional)
Class H : 6, 20 & 25 lb-ft brakes
CSA File #LR13814

NEMA 4 TEFC Specifications:

External paint: Red primer
Lead wires: Conduit connections
Nameplate: Aluminum/Steel brake: Thermally printed adhesive label (pre-masked)
Cast iron brake: Riveted stamped stainless steel

NEMA 4X TEFC Specifications:

External paint: Cast Iron: FDA approved white epoxy
Stainless Steel: None
BISSC Certified Authorization #695
Lead wires: Conduit connections
Nameplate: Riveted stamped stainless steel (pre-masked)

Design Features:

Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
Plated internal parts
All position brake available

RoHS Compliant- Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Other Enclosure Types:

Dripproof NEMA 2, CSA 2, IP41 . . . . . .PAGES 7&8
1.5–20 lb-ft Stamped steel cover with die cast aluminum bracket
25 lb-ft Stamped steel cover with cast iron bracket

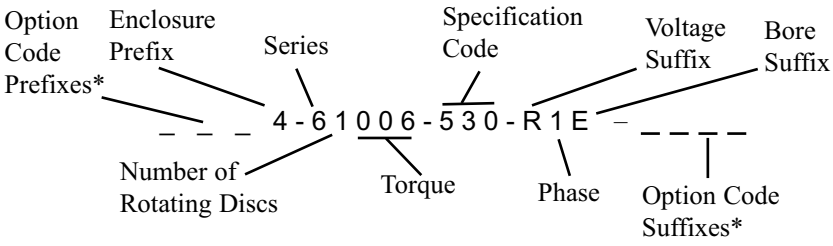
Waterproof/Dusttight NEMA 4, CSA 4, IP56
Without hub seal for non-TEFC applications .PAGES 9&10

Washdown Enclosure NEMA 4X, CSA 4, IP56

WHITE BISSC
♦Cast iron cover and bracket with FDA Approved white epoxy paint
♦**BISSC Certified** Authorization #695
Without hub seal for non-TEFC applications .PAGES 9&10

STAINLESS STEEL BISSC
♦300 Series Stainless steel cover and bracket
♦**BISSC Certified** Authorization #695
Without hub seal for non-TEFC applications .PAGES 9&10

Brake Model Number Description



Standard AC Voltages
(single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Optional DC Voltages
(See price for DC modification):

Suffix	Voltage	List Price Adder
A	12	$300
B	24	$300
C	36	$300
D	48	$300
7	76	$300
E	95	$300
H	115	$300
M	230	$300

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"
F	7/8"	3/16" x 3/32"

Special bore sizes available.

Available Options:
*NOTE: Some models may be nameplated with the option codes as a prefix, and some may list the option codes as a suffix.

	Prefix*
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

NEMA 4 / IP56 Enclosure

Instructions & Parts Manual : Aluminum/Steel BK4710
Cast Iron BK4660

With hub seal

Torque lb-ft	Model #	Construction	Wt. lbs.	Inertia Wk² lb-ft²	Dimensions in inches						List Price
					C	N	X*	Xh*	AC	G	
1.5	6-61001-535	Aluminum/Steel	10	0.008	4.72	1.68	1.47	.88	1.18	1.63	$565
	4-61001-530	Cast Iron	16	0.008	4.81	1.59	1.37	.88	0.94	1.63	$900
3	6-61003-535	Aluminum/Steel	10	0.008	4.72	1.68	1.47	.88	1.18	1.63	$585
	4-61003-530	Cast Iron	16	0.008	4.81	1.59	1.37	.88	0.94	1.63	$935
6	6-61006-535	Aluminum/Steel	10	0.008	4.72	1.68	1.47	.88	1.18	1.63	$650
	4-61006-530	Cast Iron	17	0.008	4.81	1.59	1.37	.88	0.94	1.63	$1,030
10	6-62010-535	Aluminum/Steel	10	0.013	4.72	1.68	1.47	.88	1.18	1.63	$755
	4-62010-530	Cast Iron	17	0.013	4.81	1.59	1.37	.88	0.94	1.63	$1,140
15	6-63015-535	Aluminum/Steel	11	0.019	5.10	2.00	1.78	1.19	1.18	1.94	$855
	4-63015-530	Cast Iron	18	0.019	5.13	1.90	1.93	1.19	0.94	1.94	$1,280
20	6-63020-535	Aluminum/Steel	11	0.019	5.10	2.00	1.78	1.19	1.18	1.94	$940
	4-63020-530	Cast Iron	18	0.019	5.13	1.90	1.93	1.19	0.94	1.94	$1,380
25	4-64025-530	Cast Iron	19	0.024	5.44	2.05	1.83	1.34	1.56	2.25	$1,525

*"X" = Overall length of hub, gap, & V-ring
"Xh" = Hub only length

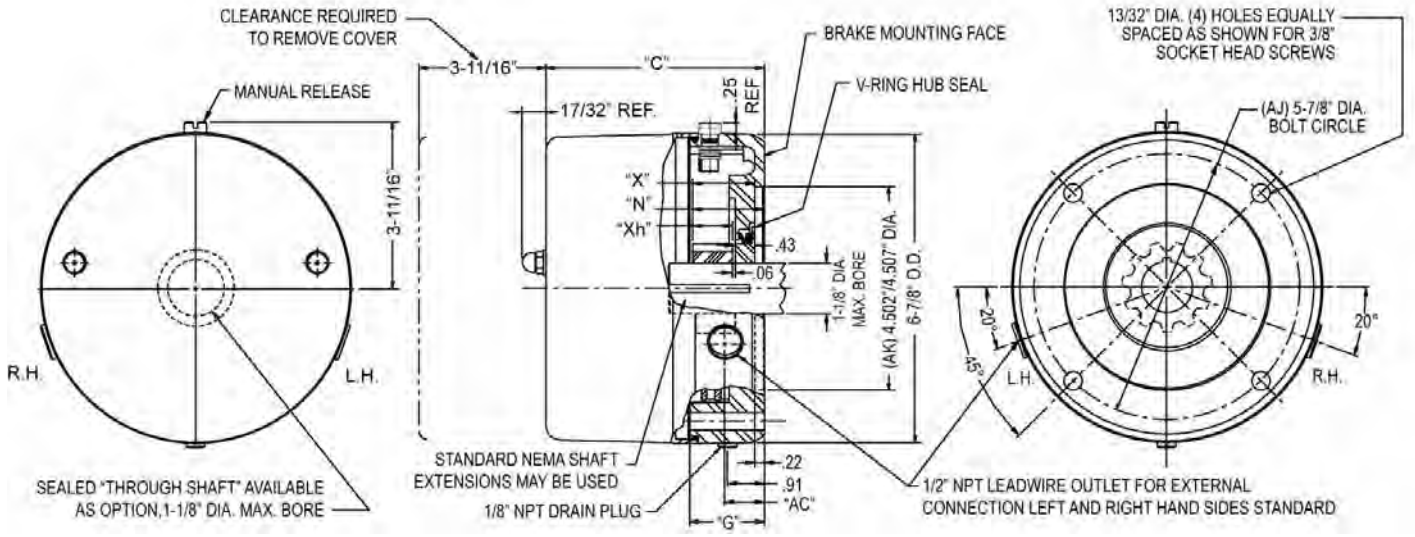
WASHDOWN NEMA 4X / IP56 Enclosure

Instructions & Parts Manual : Cast Iron BK4660
Stainless Steel BK4661

With hub seal

Torque lb-ft	Model #	Construction	Wt. lbs.	Inertia Wk² lb-ft²	Dimensions in inches						List Price
					C	N	X*	Xh*	AC	G	
1.5	6-61001-5116	Cast Iron	16	0.008	4.81	1.59	1.37	.88	0.94	1.63	$920
	6-61001-5140	Stainless Steel	16	0.008	4.81	1.59	1.37	.88	0.94	1.63	$2,439
3	6-61003-5116	Cast Iron	16	0.008	4.81	1.59	1.37	.88	0.94	1.63	$955
	6-61003-5140	Stainless Steel	16	0.008	4.81	1.59	1.37	.88	0.94	1.63	$2,450
6	6-61006-5116	Cast Iron	17	0.008	4.81	1.59	1.37	.88	0.94	1.63	$1,050
	6-61006-5140	Stainless Steel	17	0.008	4.81	1.59	1.37	.88	0.94	1.63	$2,515
10	6-62010-5116	Cast Iron	17	0.013	4.81	1.59	1.37	.88	0.94	1.63	$1,160
	6-62010-5140	Stainless Steel	17	0.013	4.81	1.59	1.37	.88	0.94	1.63	$2,615
15	6-63015-5116	Cast Iron	18	0.019	5.13	1.90	1.93	1.19	0.94	1.94	$1,300
	6-63015-5140	Stainless Steel	18	0.019	5.13	1.90	1.93	1.19	0.94	1.94	$2,715
20	6-63020-5116	Cast Iron	18	0.019	5.13	1.90	1.93	1.19	0.94	1.94	$1,400
	6-63020-5140	Stainless Steel	18	0.019	5.13	1.90	1.93	1.19	0.94	1.94	$2,800
25	6-64025-5116	Cast Iron	19	0.022	5.44	2.05	1.83	1.34	1.56	2.25	$1,545
	6-64025-5140	Stainless Steel	19	0.022	5.44	2.05	1.83	1.34	1.56	2.25	$2,910

*"X" = Overall length of hub, gap, & V-ring
"Xh" = Hub only length



60 Series Double C Face

NEMA Frame Sizes 56C, 143TC, 145TC
Torque Ratings: 1.5 to 20 lb-ft

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Specifications:

Reaction Time: 15-20 milliseconds (release and set)
AK: 4.5" Register
AJ: 5.88" Bolt Circle
Thermal Capacity: 6 HPS/MIN
Maximum RPM: 3600
CSA File #LR13814
Coil insulation:
Class B : 1.5, 3, 10 &15 lb-ft brakes (Class H optional)
Class H : 6, 20 & 25 lb-ft brakes

Design Features:

Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Plated internal parts standard
Spring set, electrically released
Lead wires for internal or conduit connections
Manual release, automatic reset
All position brake available

Enclosure Types:

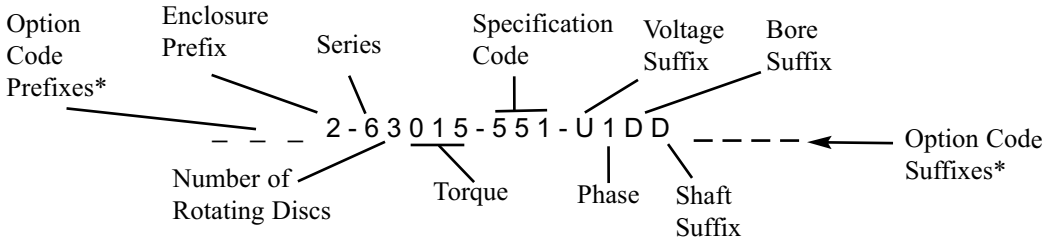
Dripproof NEMA 2, CSA 2, IP41
♦Aluminum bracket & housing with steel wrap cover
♦Exterior Paint: Gray enamel
♦Nameplate:Thermally printed adhesive label

Waterproof/Dusttight Enclosure NEMA 4, CSA 4, IP56
♦Aluminum bracket and housing with stainless steel caps
Exterior Paint: Gray enamel
Nameplate: Stainless steel

Washdown Enclosure NEMA 4X, CSA 4, IP56
WHITE BISSC
♦Aluminum bracket and housing with stainless steel caps and FDA Approved white epoxy paint
♦**BISSC Certified** Authorization #695
Nameplate:Stainless steel

STAINLESS STEEL BISSC
♦300 Series Stainless steel bracket, housing and caps
♦**BISSC Certified** Authorization #695
Nameplate:Stainless steel

Brake Model Number Definition



Standard AC Voltages
(single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Optional DC Voltages
(See price for DC modification):

Suffix	Voltage	List Price Adder
A	12	$300
B	24	$300
C	36	$300
D	48	$300
7	76	$300
E	95	$300
H	115	$300
M	230	$300

Special voltages available.

Standard Hub Bore & Shaft Sizes:

Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"
F	7/8"	3/16" x 3/32"

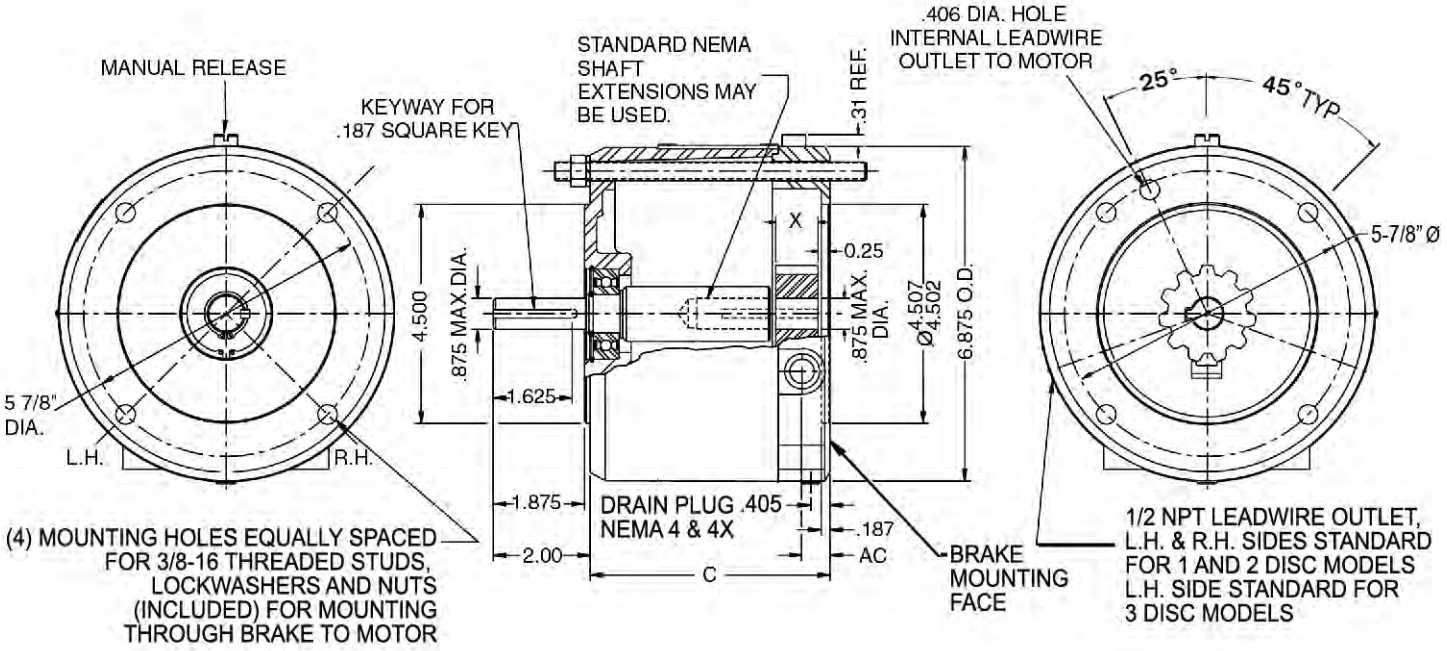
Special bore sizes available.

Available Options:
*NOTE: Some models may be nameplated with the option codes as a prefix, and some may list the option codes as a suffix.

	Prefix*
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

Torque lb-ft	Model #	Instructions and Parts Manual	Enclosure	Construction	Wt. Lbs.	Inertia Wk^2 lb-ft^2	Dimensions in inches				List Price
							C	X		AC	
								1-Piece Shaft	2-Piece Shaft		
1.5	6-61001-551	BK4650	NEMA 2	Cast Aluminum	11	0.006	4.94	0.81	0.88	0.59	$480
	4-61001-5153	BK4652	NEMA 4	Cast Aluminum	11	0.006	4.94	0.81	0.88	0.59	$615
	6-61001-5155	BK4646	NEMA 4X	Cast Aluminum	11	0.006	4.94	0.81	0.88	0.59	$690
	6-61001-5145	BK4651	NEMA 4X	Stainless Steel	20	0.006	5.07	0.81	0.88	0.63	$2,454
3	6-61003-551	BK4650	NEMA 2	Cast Aluminum	11	0.006	4.94	0.81	0.88	0.59	$500
	4-61003-5153	BK4652	NEMA 4	Cast Aluminum	11	0.006	4.94	0.81	0.88	0.59	$635
	6-61003-5155	BK4646	NEMA 4X	Cast Aluminum	11	0.006	4.94	0.81	0.88	0.59	$710
	6-61003-5145	BK4651	NEMA 4X	Stainless Steel	20	0.006	5.07	0.81	0.88	0.63	$2,474
6	6-61006-551	BK4650	NEMA 2	Cast Aluminum	12	0.006	4.94	0.81	0.88	0.59	$565
	4-61006-5153	BK4652	NEMA 4	Cast Aluminum	12	0.006	4.94	0.81	0.88	0.59	$700
	6-61006-5155	BK4646	NEMA 4X	Cast Aluminum	12	0.006	4.94	0.81	0.88	0.59	$775
	6-61006-5145	BK4651	NEMA 4X	Stainless Steel	21	0.006	5.07	0.81	0.88	0.63	$2,539
10	6-62010-551	BK4650	NEMA 2	Cast Aluminum	12	0.010	4.94	0.81	0.88	0.59	$665
	4-62010-5153	BK4652	NEMA 4	Cast Aluminum	12	0.010	4.94	0.81	–	0.59	$805
	6-62010-5155	BK4646	NEMA 4X	Cast Aluminum	12	0.010	4.94	0.81	–	0.59	$880
	6-62010-5145	BK4651	NEMA 4X	Stainless Steel	21	0.010	5.07	0.81	–	0.63	$2,639
15	6-63015-551	BK4650	NEMA 2	Cast Aluminum	13	0.014	5.31	1.19	–	0.87	$765
	4-63015-5153	BK4652	NEMA 4	Cast Aluminum	13	0.014	5.31	1.19	–	0.87	$905
	6-63015-5155	BK4646	NEMA 4X	Cast Aluminum	13	0.014	5.31	1.19	–	0.87	$980
	6-63015-5145	BK4651	NEMA 4X	Stainless Steel	23	0.014	5.44	1.19	–	0.94	$2,739
20	6-63020-551	BK4650	NEMA 2	Cast Aluminum	13	0.014	5.31	1.19	–	0.87	$855
	4-63020-5153	BK4652	NEMA 4	Cast Aluminum	13	0.014	5.31	1.19	–	0.87	$990
	6-63020-5155	BK4646	NEMA 4X	Cast Aluminum	13	0.014	5.31	1.19	–	0.87	$1,065
	6-63020-5145	BK4651	NEMA 4X	Stainless Steel	23	0.014	5.44	1.19	–	0.94	$2,824



1-70 Series End Mount

NEMA Frame Sizes 182TC through 256TC/UC
Torque Ratings: 1.5 to 25 lb-ft

Specifications:

Reaction Time: 15-20 milliseconds (release and set)
AK: 8.5" Register
AJ: 7.25" Bolt Circle
Thermal Capacity: 6 HPS/MIN
Maximum RPM: 3600
CSA File #LR13814
Coil insulation:
1.5 – 15 lb-ft Class B Standard, Class H Optional
20 & 25 lb-ft Class H Standard

RoHS Compliant - Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Design Features:

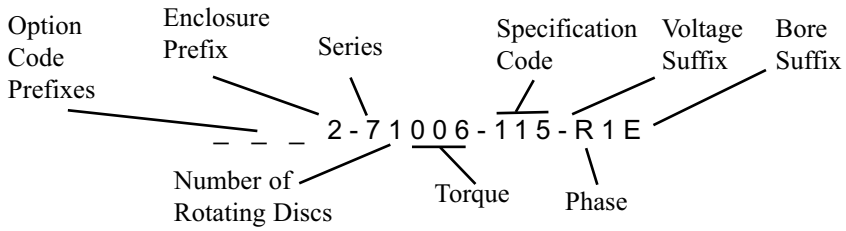
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Plated internal parts
Spring set, electrically released
Lead wires for internal or conduit connections
Manual release, automatic reset
All position brake available

Enclosure Types:

Dripproof Enclosure NEMA 2, CSA 2, IP41
- ♦Stamped steel cover with aluminum bracket & cast iron adapter, 1.5 - 20 lb-ft
- ♦Stamped steel cover with cast iron bracket & adaptor, 25 lb-ft

External paint: Red primer
Nameplate: Thermally printed adhesive label (pre-masked)

Brake Model Number Description



Standard AC Voltages
(single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Optional DC Voltages
(See price for DC modification):

Suffix	Voltage	List Price Adder
A	12	$300
B	24	$300
C	36	$300
D	48	$300
7	76	$300
E	95	$300
H	115	$300
M	230	$300

Special voltages available.

Available Options:

	Prefix*
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

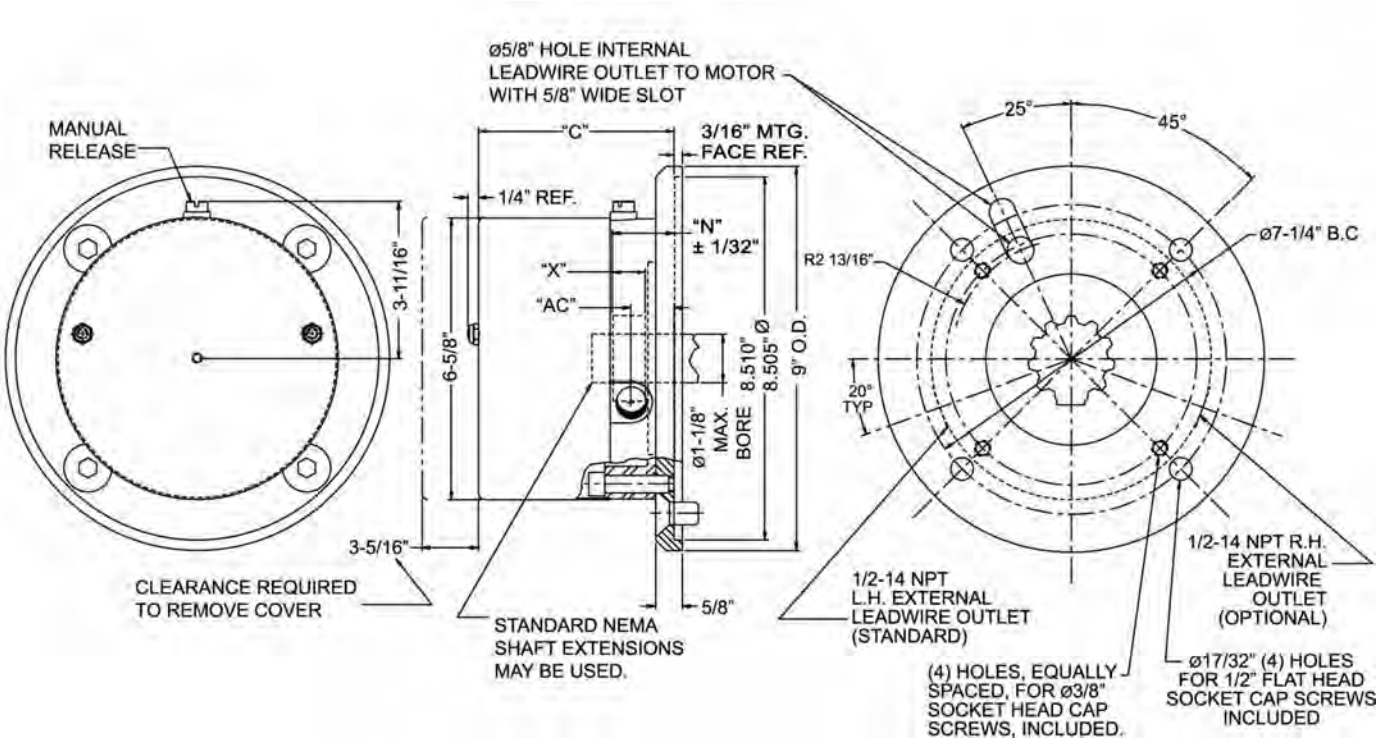
Refer to pages 47-52 for option descriptions and pricing.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
D	5/8"	3/16" x 3/32"
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"

Special bore sizes available.

Torque lb-ft	Model #	Instruction and Parts Manual	Enclosure	Construction	Wt. Lbs.	Intertia WK^2 lb-ft ^{2}	Dimensions				List Price
							C	N	X	AC	
1.5	2-71001-115	BK4755	NEMA 2	Aluminum/Steel	10	0.006	4.57	1.69	0.88	1.21	$705
3	2-71003-115	BK4755	NEMA 2	Aluminum/Steel	10	0.006	4.57	1.69	0.88	1.21	$730
6	2-71006-115	BK4755	NEMA 2	Aluminum/Steel	10	0.006	4.57	1.69	0.88	1.21	$765
10	2-72010-115	BK4755	NEMA 2	Aluminum/Steel	10	0.010	4.94	1.87	1.19	1.50	$840
15	2-73015-115	BK4755	NEMA 2	Aluminum/Steel	11	0.015	4.94	1.87	1.19	1.50	$940
20	2-73020-115	BK4755	NEMA 2	Aluminum/Steel	11	0.015	4.94	1.87	1.19	1.50	$1,030
25	2-74025-115	BK4755	NEMA 2	Cast Iron/Steel	18	0.020	5.63	2.44	1.34	2.19	$1,125



70 Series End Mount
2 Post Design & *Heavy Duty* 4 Post

NEMA Frame Sizes 182TC through 256TC/UC
Torque Ratings: 10 to 75 lb-ft

Dripproof NEMA 2, CSA 2, IP41

No Disassembly Required for Mounting!

70 Series Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	8.5" Register
AJ:	7.25" Bolt Circle
Maximum RPM:	3600

CSA File #LR13814
Coil insulation: Class B std, Class H Optional
2 Post Design for standard applications OR
HEAVY DUTY 4 Post Design for high cycle/ jogging

NEMA 2 Specifications:

External paint: Red primer
Lead wires: Internal or conduit connections
Nameplate: Stamped stainless steel

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

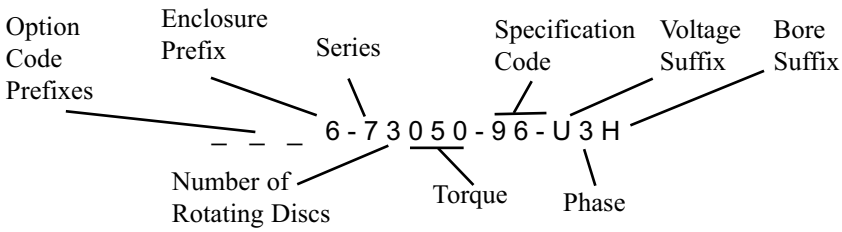
Other Enclosure Types:

Waterproof/Dusttight NEMA 4, CSA 4, IP56
With hub seal for TEFC applications . . . . . PAGES 21-22
Without hub seal for non-TEFC applications . PAGES 19-20
Washdown Enclosure NEMA 4X, CSA 4, IP56
Cast iron cover and bracket with FDA Approved white epoxy paint
BISSC Certified Authorization #695
With hub seal for TEFC applications . . . . . .PAGES 21-22
Without hub seal for non-TEFC applications .PAGES 19-20

Design Features:

No disassembly required for mounting
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
All position brake available
External manual release available
Refer to brake options on pages 47-52

Brake Model Number Definition



Standard Voltages (single and three phase)**:**

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
M*	1 5/8"*	3/8" x 3/16"

Special bore sizes available.

*On brakes with 1-5/8" bore, the motor shaft cannot extend beyond the brake hub.
Also refer to **NOTE 1** on facing page.

Available Options:

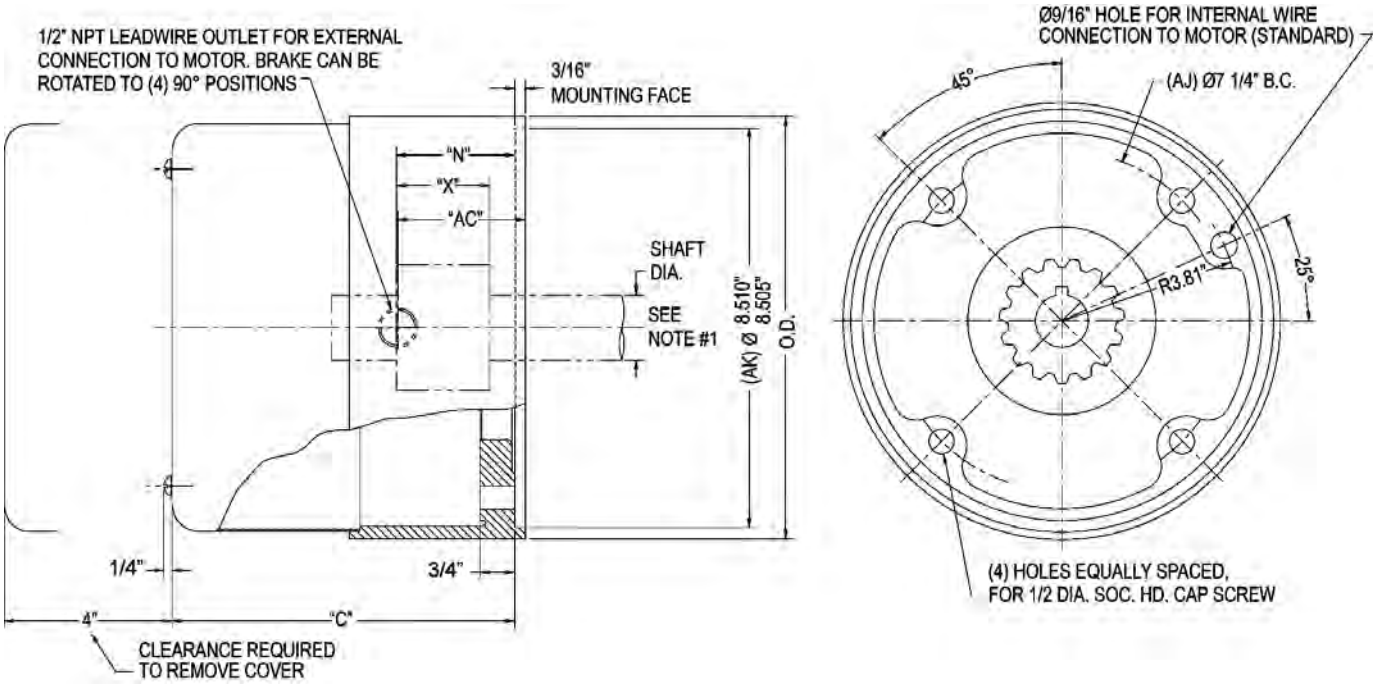
	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS
External Manual Release	see options pages

Refer to pages 47-52 for option descriptions and pricing.

NEMA 2 / IP41 Enclosure

Instruction & Parts Manual: 2 Post BK4703; 4 Post BK4705

Torque lb-ft	2 POST Model #	Heavy Duty 4 POST Model #	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 Lb-Ft^2	Dimensions in inches						2 POST List Price	4 POST List Price
							C		N	X	AC	O.D.		
							2 Post	4 Post						
10	6-71010-96	6-71010-97	Cast Iron/Steel	37	10	0.028	5.95	5.95	1.50	1.00	1.48	9.00	$925	$1,175
	R71010	–	Cast Iron/Aluminum	40	10	0.028	5.75	5.95	1.50	1.00	1.48	9.00	$970	–
15	6-71015-96	6-71015-97	Cast Iron/Steel	37	10	0.028	5.95	5.95	1.50	1.00	1.48	9.00	$975	$1,225
	R71015	–	Cast Iron/Aluminum	40	10	0.028	5.75	–	1.50	1.00	1.48	9.00	$1,025	–
25	6-72025-96	6-72025-97	Cast Iron/Steel	41	11	0.051	6.58	6.58	2.00	1.50	2.10	9.00	$1,050	$1,300
	R72025	–	Cast Iron/Aluminum	44	11	0.051	6.38	–	2.00	1.50	2.10	9.00	$1,100	–
35	6-72035-96	6-72035-97	Cast Iron/Steel	41	11	0.051	6.58	6.58	2.00	1.50	2.10	9.00	$1,200	$1,450
	R72035	–	Cast Iron/Aluminum	44	11	0.051	6.38	–	2.00	1.50	2.10	9.00	$1,280	–
50	6-73050-96	6-73050-97	Cast Iron/Steel	45	12	0.075	7.20	7.20	2.50	2.00	2.73	9.25	$1,500	$1,738
	R73050	–	Cast Iron/Aluminum	48	12	0.075	7.00	–	2.50	2.00	2.73	9.25	$1,575	–
75	6-74075-96	6-74075-97	Cast Iron/Steel	50	13	0.099	7.83	7.83	3.00	2.50	3.35	9.25	$2,000	$2,250
	R74075	–	Cast Iron/Aluminum	53	13	0.107	7.63	–	3.00	2.50	3.35	9.25	$2,090	–



NOTE 1: The maximum shaft diameter for this brake is 1-5/8". For any given shaft up to and including this diameter, standard NEMA shaft lengths may have to be shortened. Consult factory for specific details.

Spacer is available so that shaft does not need to be modified. Consult factory for details.

NEMA 4 & 4X Enclosures are listed on following pages

70 Series End Mount
2 Post Design & *Heavy Duty* 4 Post

NEMA Frame Sizes 182TC through 256TC/UC
Torque Ratings: 10 to 75 lb-ft

NEMA 4 / 4X, CSA 4, IP56
without hub seal for Non-TEFC applications

No Disassembly Required for Mounting!

70 Series Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	8.5" Register
AJ:	7.25" Bolt Circle
Maximum RPM:	3600

CSA File #LR13814
Coil insulation: Class B Standard, Class H Optional
2 Post Design for standard applications OR
HEAVY DUTY 4 Post Design for high cycle/ jogging

NEMA 4 Non-TEFC Specifications:
External paint: Red primer
Lead wires: Internal or conduit connections
Nameplate: Stamped stainless steel

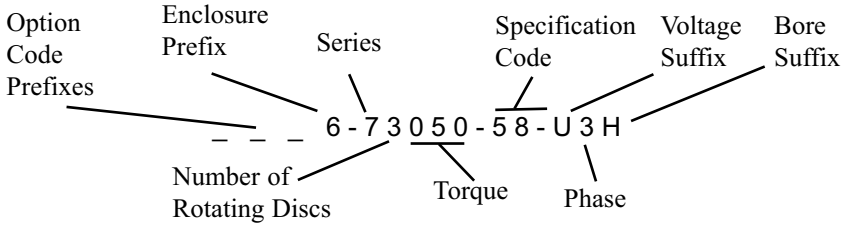
NEMA 4X Non-TEFC Specifications:
External paint: FDA approved white epoxy
Plated internal parts
Lead wires: Internal or conduit connections
Nameplate: Stamped stainless steel

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Other Enclosure Types:

Dripproof NEMA 2, CSA 2, IP41 . . . . . PAGES 17-18
Cast iron bracket with stamped steel cover
OR with cast aluminum cover
Waterproof/Dusttight NEMA 4, CSA 4, IP56
With hub seal for TEFC applications . . . . . PAGES 21-22
Washdown Enclosure NEMA 4X, CSA 4, IP56
Cast iron cover and bracket with FDA Approved white epoxy paint
BISSC Certified Authorization #695
With hub seal for TEFC applications . . . . . .PAGES 21-22

Brake Model Number Definition



Design Features:
No disassembly required for mounting
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
All position brake available
External manual release available
Refer to brake options on pages 47-52

Standard Voltages
(single and three phase):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
M*	1 5/8"*	3/8" x 3/16"

Special bore sizes available.

*On brakes with 1-5/8" bore, the motor shaft cannot extend beyond the brake hub.
Also refer to **NOTE 1** on facing page.

Available Options:

	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS
External Manual Release	see options pages

Refer to pages 47-52 for option descriptions and pricing.

NEMA 4 / IP56 Enclosure
without hub seal for non-TEFC applications

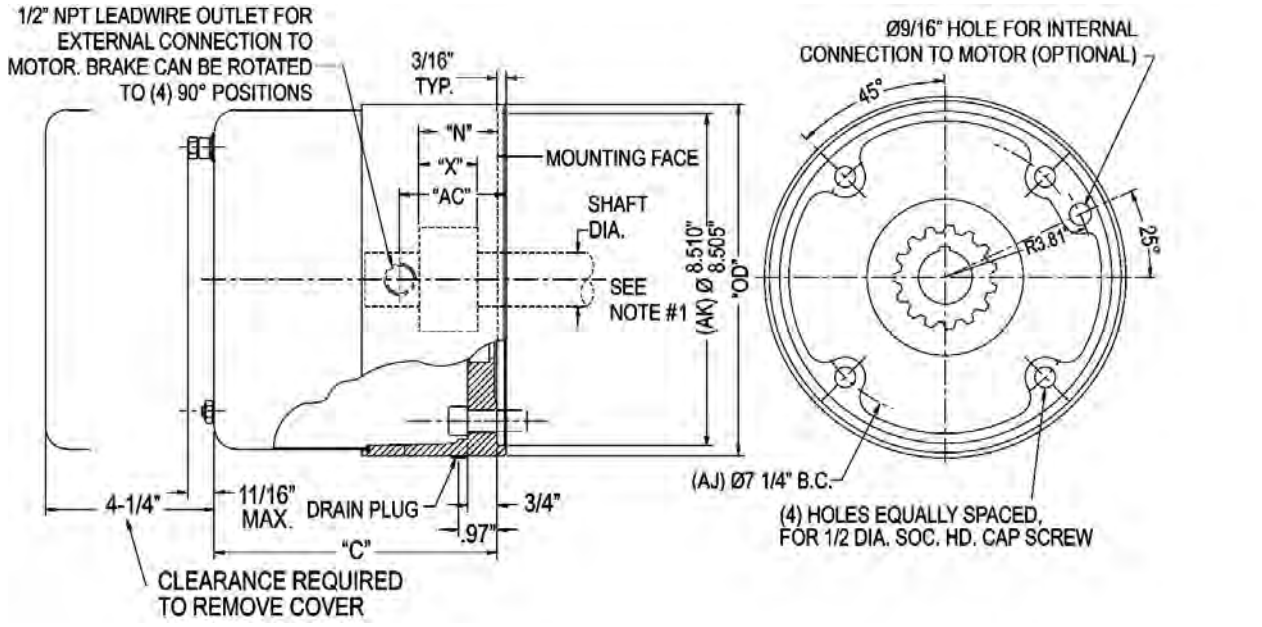
Instruction & Parts Manual:
2 Post: BK4713; 4 Post: BK4715

Torque lb-ft	2 POST Model #	Heavy Duty 4 POST Model #	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 Lb-Ft^2	Dimensions in inches						2 POST List Price	4 POST List Price
							C		N	X	AC	O.D.		
							2 Post	4 Post						
10	4-71010-101	4-71010-100	Cast Iron/Steel	38	10	0.036	5.98	5.98	1.50	1.31	1.48	9.00	$1,045	$1,295
	R71010-37	6-71010-58	Cast Iron	45	10	0.036	5.75	5.86	1.50	1.31	1.48	9.00	$1,445	$1,720
15	4-71015-101	4-71015-100	Cast Iron/Steel	38	10	0.036	5.98	5.98	1.50	1.31	1.48	9.00	$1,095	$1,345
	R71015-37	6-71015-58	Cast Iron	45	10	0.036	5.75	5.86	1.50	1.31	1.48	9.00	$1,495	$1770
25	4-72025-101	4-72025-100	Cast Iron/Steel	42	11	0.059	6.61	6.61	2.00	1.81	2.10	9.00	$1,170	$1,420
	R72025-37	6-72025-58	Cast Iron	49	11	0.059	6.38	6.48	2.00	1.81	2.10	9.00	$1,570	$1,845
35	4-72035-101	4-72035-100	Cast Iron/Steel	42	11	0.059	6.61	6.61	2.00	1.81	2.10	9.00	$1,300	$1,570
	R72035-37	6-72035-58	Cast Iron	49	11	0.059	6.38	6.48	2.00	1.81	2.10	9.00	$1,720	$1,995
50	4-73050-101	4-73050-100	Cast Iron/Steel	46	12	0.083	7.23	7.23	2.50	2.31	2.73	9.25	$1,620	$1,870
	R73050-37	6-73050-58	Cast Iron	53	12	0.083	7.00	7.11	2.50	2.31	2.73	9.25	$2,000	$2,295
75	4-74075-101	4-74075-100	Cast Iron/Steel	51	13	0.107	7.86	7.86	3.00	2.81	3.35	9.25	$2,120	$2,370
	R74075-37	6-74075-58	Cast Iron	58	13	0.107	7.63	7.73	3.00	2.81	3.35	9.25	$2,500	$2,795

WASHDOWN NEMA 4X / IP56 Enclosure
without hub seal for non-TEFC applications

Instruction & Parts Manual:
BK4629

Torque lb-ft	2 POST Model #	Heavy Duty 4 POST Model #	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 Lb-Ft^2	Dimensions in inches					2 POST List Price	4 POST List Price
							C		N	X	AC		
							2 Post	4 Post					
10	6-71010-91	6-71010-92	Cast iron	45	10	0.032	5.79	5.79	1.50	1.43	1.48	$1,620	$1,950
15	6-71015-91	6-71015-92	Cast iron	45	10	0.032	5.79	5.79	1.50	1.43	1.48	$1,750	$2,000
25	6-72025-91	6-72025-92	Cast iron	49	11	0.055	6.41	6.41	2.00	1.93	2.10	$1825	$2,075
35	6-72035-91	6-72035-92	Cast iron	49	11	0.055	6.41	6.41	2.00	1.93	2.10	$1,975	$2,225
50	6-73050-91	6-73050-92	Cast iron	53	12	0.079	7.04	7.04	2.50	2.43	2.73	$2,275	$2,525
75	6-74075-91	6-74075-92	Cast iron	58	13	0.103	7.66	7.66	3.00	2.93	3.35	$2,775	$3,025



NOTE 1: The maximum shaft diameter for this brake is 1-5/8". For any given shaft up to and including this diameter, standard NEMA shaft lengths may have to be shortened. Consult factory for specific details.

Spacer is available so that shaft does not need to be modified. Consult factory for details.

70 Series End Mount
2 Post Design & *Heavy Duty* 4 Post

NEMA Frame Sizes 182TC through 256TC/UC
Torque Ratings: 10 to 75 lb-ft

NEMA 4 / 4X, CSA 4, IP56*
with hub seal for TEFC applications

No Disassembly Required for Mounting!

*To obtain full IP56 protection, the customer shaft, hub bore, key and keyway's mating surface(s) must be sealed to meet IP56. Considerations should be reviewed to appropriately seal mounting hardware as well. Contact factory for details and/or assistance.

70 Series Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	8.5" Register
AJ:	7.25" Bolt Circle
Maximum RPM:	3600

CSA File #LR13814
Coil insulation: Class B Standard, Class H Optional
2 Post Design for standard applications OR
HEAVY DUTY 4 Post Design for high cycle/ jogging

NEMA 4 TEFC Specifications:
External paint: Red primer
Lead wires: Conduit connections
Nameplate: Stamped stainless steel

NEMA 4X TEFC Specifications:
External paint: FDA approved white epoxy
Plated internal parts
Lead wires: Conduit connections
Nameplate: Stamped stainless steel

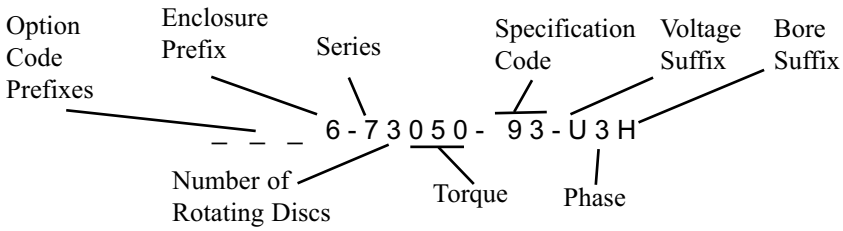
Design Features:
No disassembly required for mounting
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
All position brake available
External manual release available
Refer to brake options on pages 47-52

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Other Enclosure Types:

Dripproof NEMA 2, CSA 2, IP41 . . . . . PAGES 17-18
Cast iron bracket with stamped steel cover
OR with cast aluminum cover
Waterproof/Dusttight NEMA 4, CSA 4, IP56
Without hub seal for non-TEFC applications . PAGES 19-20
Washdown Enclosure NEMA 4X, CSA 4, IP56
Cast iron cover and bracket with FDA Approved white epoxy paint
BISSC Certified Authorization #695
Without hub seal for non-TEFC applications .PAGES 19-20

Brake Model Number Definition



Standard Voltages
(single and three phase):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
M*	1 5/8"*	3/8" x 3/16"

Special bore sizes available.

*On brakes with 1-5/8" bore, the motor shaft cannot extend beyond the brake hub.
Also refer to **NOTE 1** on facing page.

Available Options:

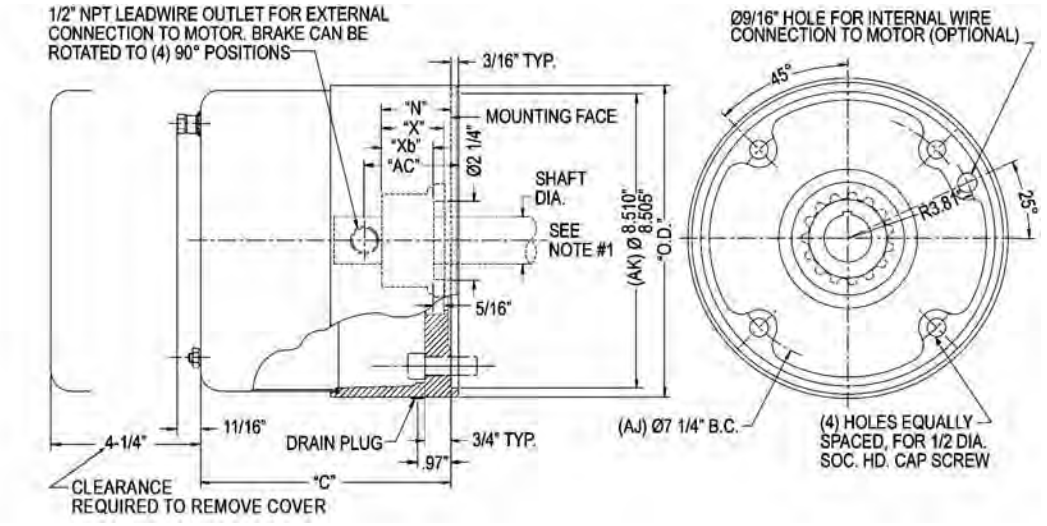
	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS
External Manual Release	see options pages

Refer to pages 47-52 for option descriptions and pricing.

NEMA 4 / IP56 Enclosure with hub seal

Instruction & Parts Manual: 2 Post: BK4713; 4 Post: BK4715

Torque lb-ft	2 POST Model #	Heavy Duty 4 POST Model #	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 Lb-Ft^2	Dimensions in inches							2 POST List Price	4 POST List Price
							C		N	X	Xb	AC	O.D.		
							2 Post	4 Post							
10	4-71010-103	4-71010-102	Cast Iron/Steel	38	10	0.036	5.98	5.98	1.50	1.31	1.00	1.48	9.00	$1,125	$1,375
	R71010-4	6-71010-57	Cast Iron	45	10	0.036	5.75	5.86	1.50	1.31	1.00	1.48	9.00	$1,525	$1,775
15	4-71015-103	4-71015-102	Cast Iron/Steel	38	10	0.036	5.98	5.98	1.50	1.31	1.00	1.48	9.00	$1,175	$1,425
	R71015-4	6-71015-57	Cast Iron	45	10	0.036	5.75	5.86	1.50	1.31	1.00	1.48	9.00	$1,575	$1,825
25	4-72025-103	4-72025-102	Cast Iron/Steel	42	11	0.059	6.61	6.61	2.00	1.81	1.50	2.10	9.00	$1,250	$1,520
	R72025-4	6-72025-57	Cast Iron	49	11	0.059	6.38	6.48	2.00	1.81	1.50	2.10	9.00	$1,650	$1,900
35	4-72035-103	4-72035-102	Cast Iron/Steel	42	11	0.059	6.61	6.61	2.00	1.81	1.50	2.10	9.00	$1,400	$1,650
	R72035-4	6-72035-57	Cast Iron	49	11	0.059	6.38	6.48	2.00	1.81	1.50	2.10	9.00	$1,800	$2,050
50	4-73050-103	4-73050-102	Cast Iron/Steel	46	12	0.083	7.23	7.23	2.50	2.31	2.00	2.73	9.25	$1,700	$1,950
	R73050-4	6-73050-57	Cast Iron	53	12	0.083	7.00	7.11	2.50	2.31	2.00	2.73	9.25	$2,100	$2,350
75	4-74075-103	4-74075-102	Cast Iron/Steel	51	13	0.107	7.86	7.86	3.00	2.81	2.50	3.35	9.25	$2,200	$2,450
	R74075-4	6-74075-57	Cast Iron	58	13	0.107	7.63	7.73	3.00	2.81	2.50	3.35	9.25	$2,600	$2,850

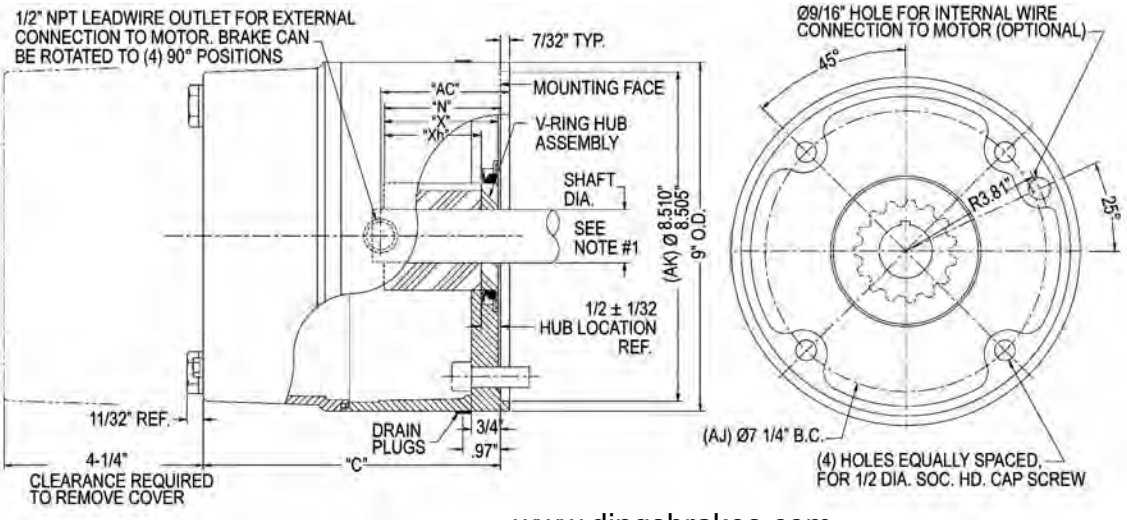


NOTE 1: The maximum shaft diameter for this brake is 1-5/8". For any given shaft up to and including this diameter, standard NEMA shaft lengths may have to be shortened. Consult factory for specific details. **Spacer is available so that shaft does not need to be modified.**

WASHDOWN NEMA 4X / IP56 Enclosure with hub seal

Instruction & Parts Manual: BK4629

Torque lb-ft	2 POST Model #	Heavy Duty 4 POST Model #	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 Lb-Ft^2	Dimensions in inches					2 POST List Price	4 POST List Price
							C	N	X	Xh	AC		
10	6-71010-93	6-71010-94	Cast Iron	45	10	0.032	5.79	1.50	1.44	1.00	1.48	$1,700	$2,030
15	6-71015-93	6-71015-94	Cast Iron	45	10	0.032	5.79	1.50	1.44	1.00	1.48	$1,830	$2,080
25	6-72025-93	6-72025-94	Cast Iron	49	11	0.055	6.41	2.00	1.94	1.50	2.10	$1,905	$2,155
35	6-72035-93	6-72035-94	Cast Iron	49	11	0.055	6.41	2.00	1.94	1.50	2.10	$2,055	$2,305
50	6-73050-93	6-73050-94	Cast Iron	53	12	0.079	7.04	2.50	2.44	2.00	2.73	$2,355	$2,605
75	6-74075-93	6-74075-94	Cast Iron	58	13	0.103	7.66	3.00	2.94	2.50	3.35	$2,855	$3,105



NOTE 1: The maximum shaft diameter for this brake is 1-5/8". For any given shaft up to and including this diameter, standard NEMA shaft lengths may have to be shortened. Consult factory for specific details. **Spacer is available so that shaft does not need to be modified.**

70 Series Double C Face

NEMA Frame Sizes 182TC through 256TC/UC
Torque Ratings: 10 to 75 lb-ft

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

No Disassembly Required for Mounting!

Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	8.5" Register
AJ:	7.25" Bolt Circle
Maximum RPM:	3600

CSA File #LR13814
Coil insulation: Class B Standard, Class H Optional

Design Features:

Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Lead wires for conduit connections (internal connection available)
Manual release, automatic reset
All position brake available

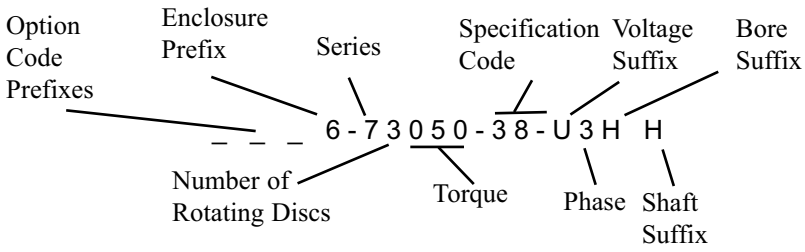
Enclosure Types:

Dripproof Enclosure NEMA 2, CSA 2, IP41
- ♦Cast iron bracket and aluminum housing with steel wrap cover
- Exterior paint: Red primer
- Nameplate:Riveted stamped stainless steel

Waterproof/Dusttight Enclosure NEMA 4, CSA 4, IP56
- ♦Cast iron bracket and aluminum housing with Neoprene gasketed steel wrap cover
- Exterior paint: Red primer
- Nameplate: Riveted stamped stainless steel

Washdown Enclosure NEMA 4X, CSA 4, IP56
- ♦Cast iron bracket and aluminum housing
- ♦BISSC Certified Authorization #695
- Exterior paint: FDA approved white epoxy paint
- Plated internal parts
- Nameplate: Stamped stainless steel (pre-masked)

Brake Model Number Definition



Standard Voltages (single and three phase)**:**

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore & Shaft Sizes:

Suffix	Bore Size	Shaft Size	Keyway
H	1 1/8"	1 1/8"	1/4" x 1/8"
K	1 3/8" *	1 3/8"	5/16" x 5/32"
M	1 5/8" **	N/A	3/8" x 3/16"

*For 10 or 15 lb-ft brake with 1-3/8" bore, the motor shaft may need to be modified. See dimension "AH", opposite page. For 25 or 35 lb-ft brake with 1-3/8" bore, use the 3-disc version.
**Motor shaft must be modified. Maximum shaft length shown on opposite page as dimension "AH".
Spacer is available so that shaft does not need to be modified. Consult factory for details.

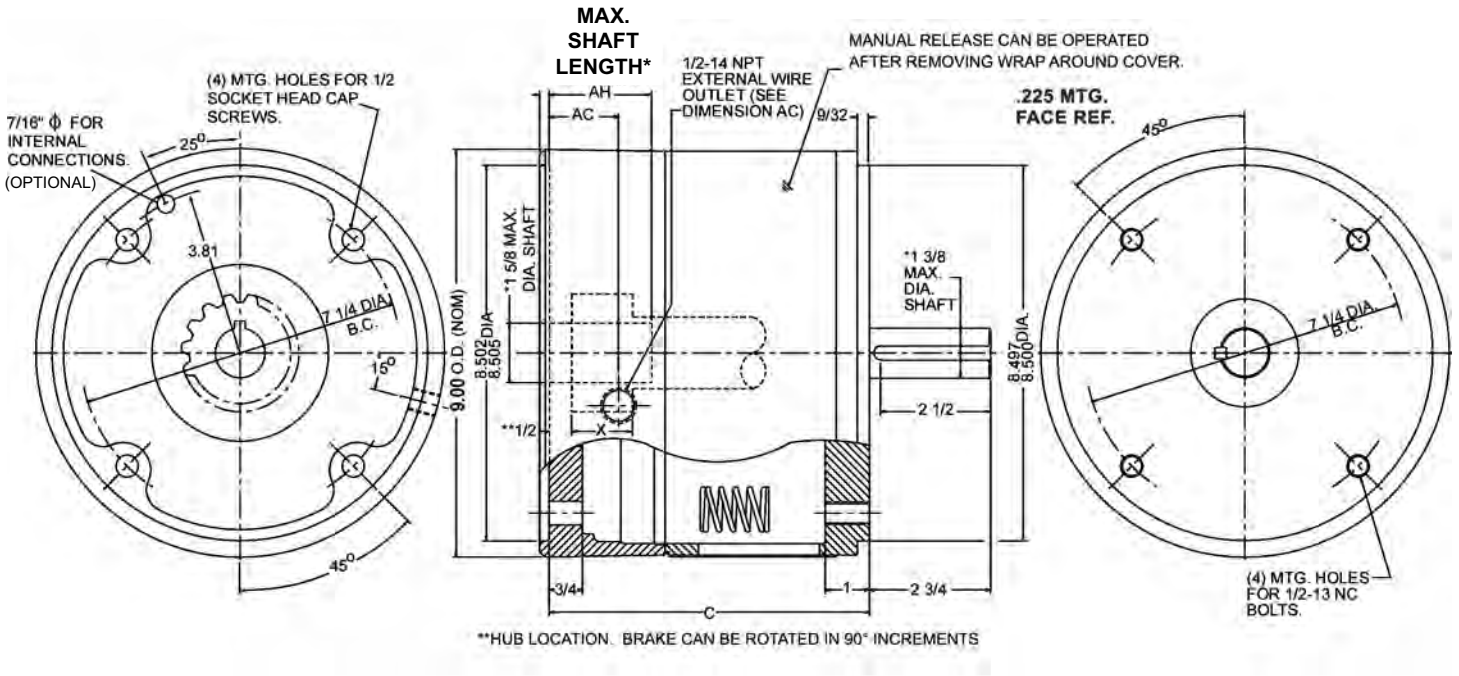
Available Options:

	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

Torque lb-ft	Model #	Instructions and Parts Manual	Enclosure	Construction	Wt. Lbs.	Thermal Capacity HPS/MIN	Inertia Wk^2 $lb\text{-}ft^2$	Dimensions in inches				List Price
								C	AH	X	AC	
10	6-71010-38	BK4620	NEMA 2	Cast Iron/Aluminum	45	10	0.069	6.84	1.81*	0.75	1.19	$2,275
	4-71010-46	BK4620	NEMA 4	Cast Iron/Aluminum	45	10	0.069	6.84	1.81*	0.75	1.19	$2,875
	6-71010-105	BK4720	NEMA 4X	Cast Iron/Aluminum	45	10	0.069	6.84	1.81*	0.75	1.19	$3,180
15	6-71015-38	BK4620	NEMA 2	Cast Iron/Aluminum	45	10	0.069	6.84	1.81*	0.75	1.19	$2,288
	4-71015-46	BK4620	NEMA 4	Cast Iron/Aluminum	45	10	0.069	6.84	1.81*	0.75	1.19	$2,900
	6-71015-105	BK4720	NEMA 4X	Cast Iron/Aluminum	45	10	0.069	6.84	1.81*	0.75	1.19	$3,230
25	6-72025-38	BK4620	NEMA 2	Cast Iron/Aluminum	49	11	0.110	7.47	2.44*	1.38	1.63	$2,375
	4-72025-46	BK4620	NEMA 4	Cast Iron/Aluminum	49	11	0.110	7.47	2.44*	1.38	1.63	$3,000
	6-72025-105	BK4720	NEMA 4X	Cast Iron/Aluminum	49	11	0.110	7.47	2.44*	1.38	1.63	$3,305
25	6-73025-38	BK4620	NEMA 2	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$2,375
	4-73025-46	BK4620	NEMA 4	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$3,000
	6-73025-105	BK4720	NEMA 4X	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$3,305
35	6-72035-38	BK4620	NEMA 2	Cast Iron/Aluminum	49	11	0.110	7.47	2.44*	1.38	1.63	$2,500
	4-72035-46	BK4620	NEMA 4	Cast Iron/Aluminum	49	11	0.110	7.47	2.44*	1.38	1.63	$3,150
	6-72035-105	BK4720	NEMA 4X	Cast Iron/Aluminum	49	11	0.110	7.47	2.44*	1.38	1.63	$3,455
35	6-73035-38	BK4620	NEMA 2	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$2,500
	4-73035-46	BK4620	NEMA 4	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$3,150
	6-73035-105	BK4720	NEMA 4X	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$3,455
50	6-73050-38	BK4620	NEMA 2	Cast Iron/Aluminum	53	12	0.150	8.09	3.13*	2.00	2.25	$2,700
	4-73050-46	BK4620	NEMA 4	Cast Iron/Aluminum	53	12	0.150	8.09	3.13*	2.00	2.25	$3,300
	6-73050-105	BK4720	NEMA 4X	Cast Iron/Aluminum	53	12	0.150	8.09	3.13	2.00	2.25	$3,605
75	6-74075-38	BK4620	NEMA 2	Cast Iron/Aluminum	57	13	0.190	8.72	3.25*	2.63	2.88	$2,775
	4-74075-46	BK4620	NEMA 4	Cast Iron/Aluminum	57	13	0.190	8.72	3.25*	2.63	2.88	$3,375
	6-74075-105	BK4720	NEMA 4X	Cast Iron/Aluminum	57	13	0.190	8.72	3.25*	2.63	2.88	$3,650

*For 10 or 15 lb-ft brake with 1-3/8" bore, the motor shaft may need to be modified. See dimension "AH".
For 25 or 35 lb-ft brake with 1-3/8" bore, use the 3-disc version.
For brakes with 1-5/8" bore, motor shaft must be modified. Maximum shaft length shown as dimension "AH".
Spacer is available so that shaft does not need to be modified. Consult factory for details.



NEW

70 Series Double Shafted
with Foot Mount

Torque Ratings: 10 to 75 lb-ft

No Disassembly Required for Mounting!

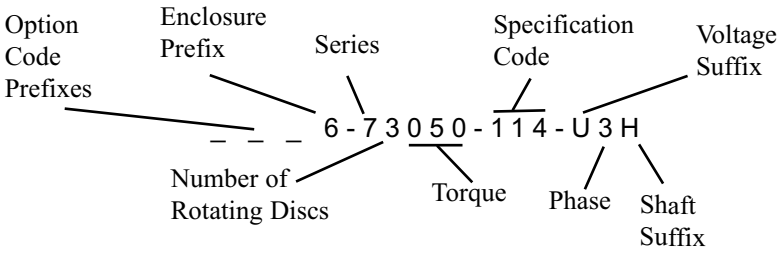
Specifications:
Reaction Time: 20-25 milliseconds (release and set)
Maximum RPM: 3600
Coil insulation: Class B Standard, Class H Optional

Design Features:
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Lead wires for conduit connections
(internal connection available)
Manual release, automatic reset
All position brake available

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Enclosure Types:
Dripproof Enclosure, NEMA 2, CSA 2, IP41, 6-70000-114
Cast iron bracket and aluminum housing with steel wrap cover
Exterior paint: Red primer

Brake Model Number Definition



Standard Voltages
(single or three phase):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
5	208-230/460V, 60 Hz
R	115/230V, 60 Hz
1	115/208-230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Shaft Sizes:

Suffix	Shaft Size	Keyway
H	1 1/8”	1/4” x 1/8”
K	1 3/8”	5/16” x 5/32”

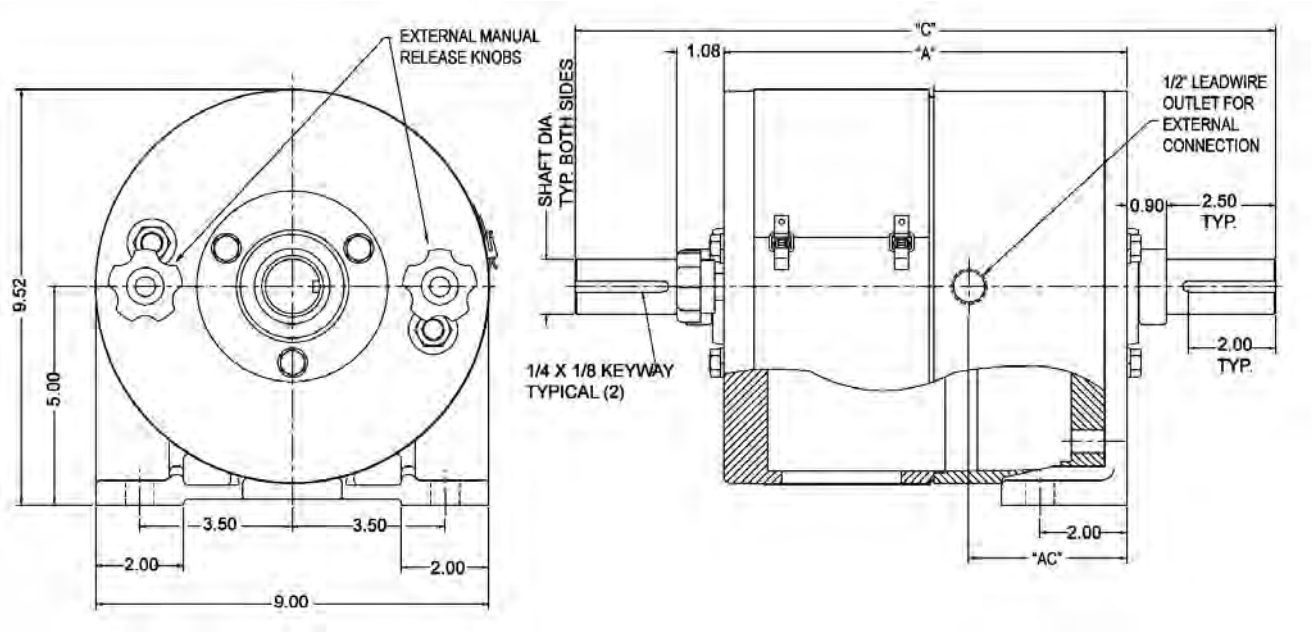
Special shaft sizes available.

Available Options:	Prefix
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

Torque lb-ft	Model #	Enclosure	Wt. Lbs.	Thermal Capacity HPS/MIN	Inertia Wk^2 $lb\text{-}ft^2$	Dimensions in inches				List Price
						A	C 1-1/8" shaft	C 1-3/8" shaft	AC	
10	6-71010-114	NEMA 2	45	10	0.069	7.63	14.74	14.95	1.97	$2,475
15	6-71015-114	NEMA 2	45	10	0.069	7.63	14.74	14.95	1.97	$2,525
25	6-72025-114	NEMA 2	49	11	0.110	8.26	15.36	15.57	2.41	$2,600
35	6-72035-114	NEMA 2	49	11	0.110	8.26	15.36	15.57	2.41	$2,750
50	6-73050-114	NEMA 2	53	12	0.150	8.88	15.96	16.20	3.03	$3,050
75	6-74075-114	NEMA 2	57	13	0.190	9.51	16.61	16.82	3.66	$3,550

Instructions and Parts Manual: BK4760



80 Series End Mount

NEMA Frame Sizes 284TC/UC, 286TC/UC
Torque Ratings: 25 to 175 lb-ft

No Disassembly Required for Mounting!

Dripproof NEMA 2, CSA 2, IP41

80 Series Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	10.5" Register
AJ:	9.00" Bolt Circle
Maximum RPM:	2400

CSA File #LR13814
Coil insulation: Class B Standard, Class H Optional

NEMA 2 Specifications:

External paint: Red primer
Lead wires: Internal or conduit connections
Nameplate: Stamped stainless steel
HEAVY DUTY 4 Post Design

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

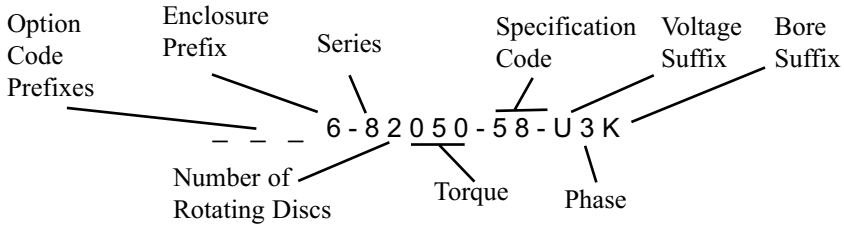
Other Enclosure Types:

Waterproof/Dusttight NEMA 4, CSA 4, IP56
Cast iron cover and bracket
With hub seal for TEFC applications . . . . . PAGES 31-32
Without hub seal for non-TEFC applications . PAGES 29-30

Design Features:

No disassembly required for mounting
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
All position brake available
External manual release available
Refer to brake options on pages 47-52

Brake Model Number Definition



Standard Voltages (single and three phase)**:**

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway Width
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
M	1 5/8"	3/8" x 3/16"
N	1 7/8"	1/2" x 1/4"

Special bore sizes available.

Available Options:

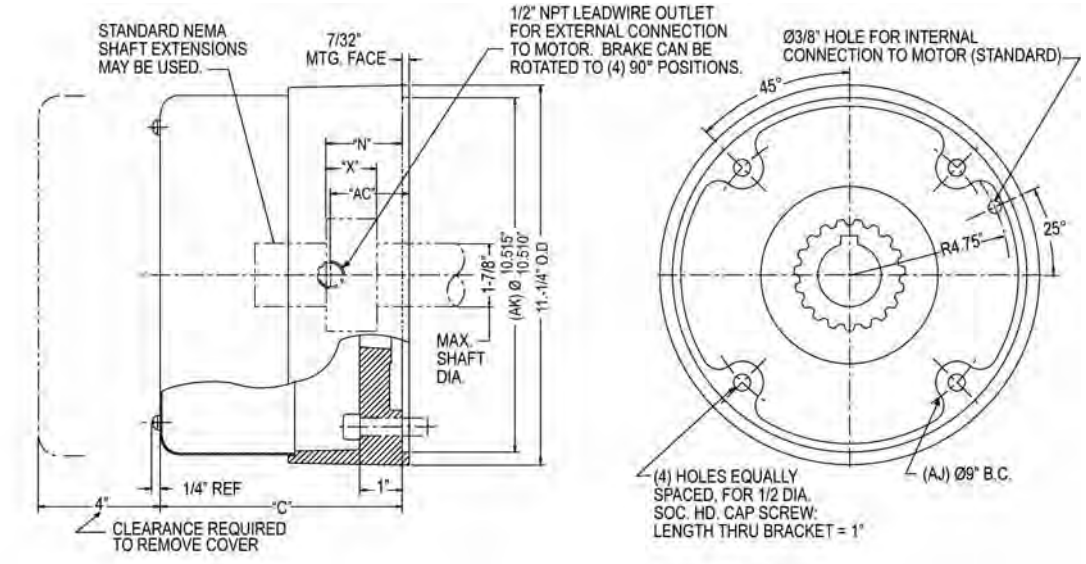
	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Harsh Environment Protection	G
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

NEMA 2 / IP41 Enclosure, Cast Iron/Steel

Instruction & Parts Manual: BK4804

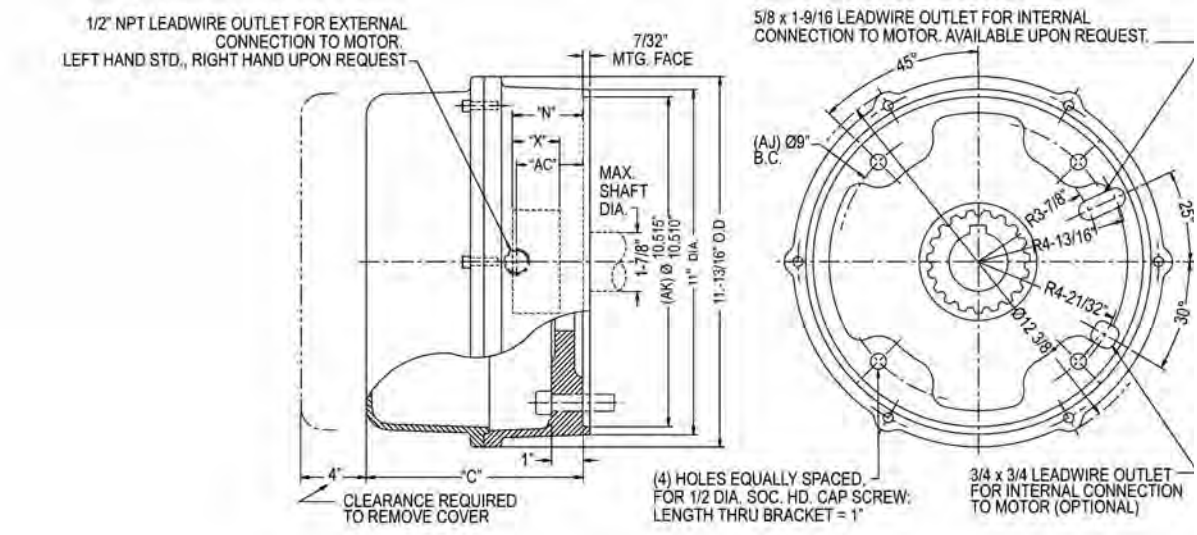
Torque lb-ft	Model #	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK² Lb-Ft²	Dimensions in inches				List Price
						C	N	X	AC	
25	6-81025-58	Cast Iron/Steel	57	15	0.084	5.95	1.75	1.00	1.48	$1,500
35	6-81035-58	Cast Iron/Steel	57	15	0.084	5.95	1.75	1.00	1.48	$1,600
50	6-82050-58	Cast Iron/Steel	65	17	0.158	6.58	2.25	1.50	2.10	$1,650
70	6-82070-58	Cast Iron/Steel	65	17	0.158	6.58	2.25	1.50	2.10	$2,100
75	6-83075-58	Cast Iron/Steel	70	19	0.233	7.20	2.75	2.00	2.73	$2,150
105	6-83105-58	Cast Iron/Steel	70	19	0.233	7.83	2.75	2.00	3.35	$2,800
125	6-84125-58	Cast Iron/Steel	75	21	0.307	8.12	3.25	2.50	3.60	$3,300
175	6-85175-58	Cast Iron/Steel	81	21	0.384	8.75	3.87	3.12	4.23	$4,500



NEMA 2 / IP41 Enclosure, Cast Iron/Aluminum

Instruction & Parts Manual: BK4804

Torque lb-ft	Model No.	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK² lb-ft ²	Dimensions in inches				List Price
					C	N	X	AC	
25	2-81025-28	60	15	0.084	6.31	1.75	1.00	1.73	$1,830
35	2-81035-28	60	15	0.084	6.31	1.75	1.00	1.73	$1,880
50	2-82050-28	68	17	0.158	6.94	2.25	1.50	2.35	$1,930
70	2-82070-28	68	17	0.158	6.94	2.25	1.50	2.35	$2,180
75	2-83075-28	73	19	0.233	7.56	2.75	2.00	2.98	$2,430
105	2-83105-28	74	19	0.233	7.56	2.75	2.00	2.98	$2,910
125	2-84125-28	79	21	0.307	3.25	3.25	2.50	3.60	$3,380
175	2-85175-28	85	21	0.384	8.81	3.87	3.12	4.23	$4,580



80 Series End Mount

NEMA Frame Sizes 284TC/UC, 286TC/UC
Torque Ratings: 25 to 175 lb-ft

No Disassembly Required for Mounting!

NEMA 4, CSA 4, IP56
without hub seal for Non-TEFC applications

80 Series Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	10.5" Register
AJ:	9.00" Bolt Circle
Maximum RPM:	2400

CSA File #LR13814
Coil insulation: Class B Standard, Class H Optional

NEMA 4 Non-TEFC Specifications:

Without hub seal for non-TEFC applications
External paint: Red primer
Lead wires: Internal or conduit connections
Nameplate: Stamped stainless steel
HEAVY DUTY 4 Post Design

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Other Enclosure Types:

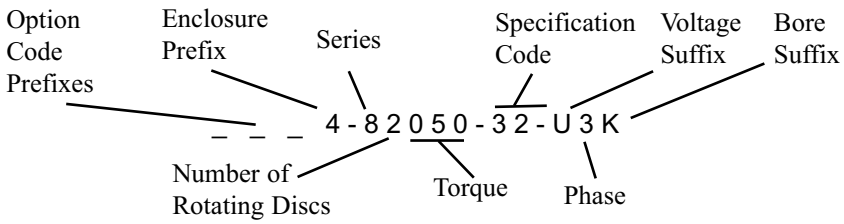
Dripproof NEMA 2, CSA 2, IP41 . . . . . PAGES 27-28
Cast iron bracket with stamped steel cover
OR with cast aluminum cover

Waterproof/Dusttight NEMA 4, CSA 4, IP56
Cast iron cover and bracket
With hub seal for TEFC applications . . . . . PAGES 31-32

Design Features:

No disassembly required for mounting
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
All position brake available
External manual release available
Refer to brake options on pages 47-52

Brake Model Number Definition



Standard Voltages (single and three phase)**:**

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway Width
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
M	1 5/8"	3/8" x 3/16"
N	1 7/8"	1/2" x 1/4"

Special bore sizes available.

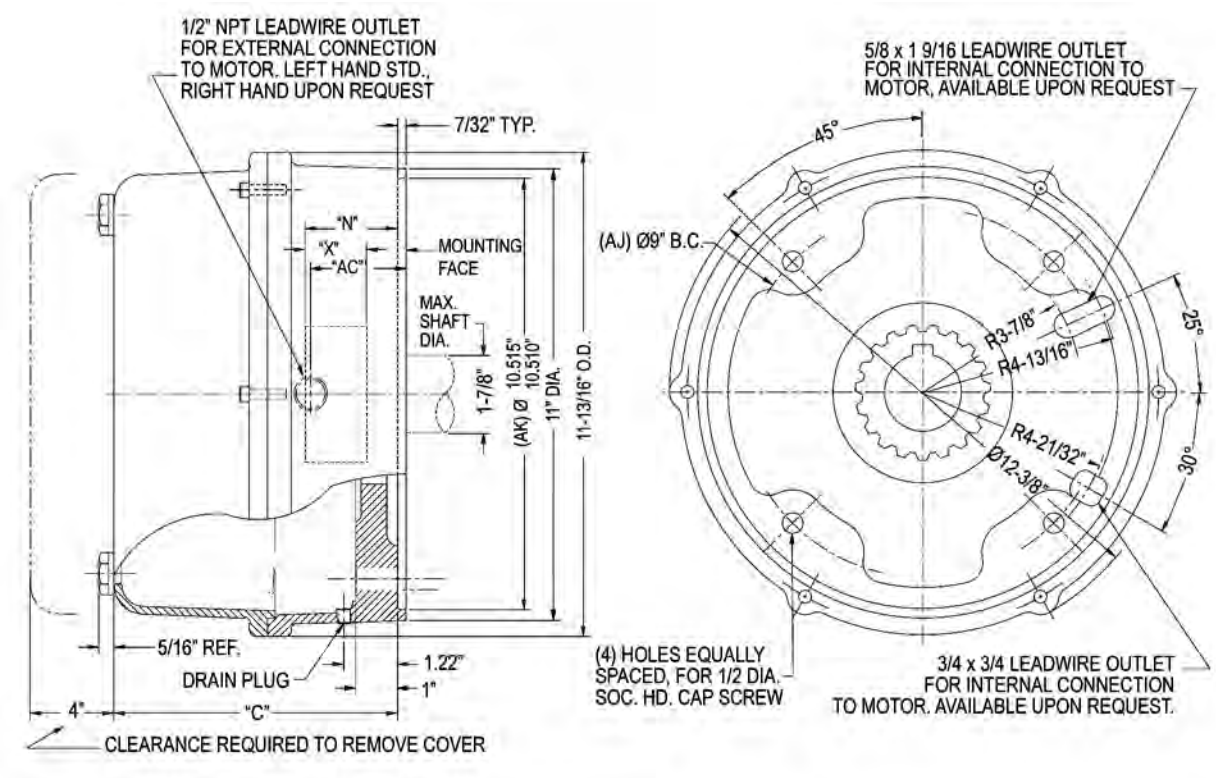
Available Options:	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Harsh Environment Protection	G
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

NEMA 4 / IP56 Enclosure without hub seal for non-TEFC applications

Instruction & Parts Manual: BK4814

Torque lb-ft	Model No.	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 lb-ft ^{2}	Dimensions in inches				List Price
						C	N	X	AC	
25	4-81025-32	Cast Iron	57	15	0.084	6.25	1.75	1.00	1.73	$2,000
35	4-81035-32	Cast Iron	57	15	0.084	6.25	1.75	1.00	1.73	$2,150
50	4-82050-32	Cast Iron	65	17	0.158	6.87	2.25	1.50	2.35	$2,350
70	4-82070-32	Cast Iron	65	17	0.158	6.87	2.25	1.50	2.35	$2,600
75	4-83075-32	Cast Iron	70	19	0.233	7.50	2.75	2.00	2.98	$2,850
105	4-83105-32	Cast Iron	70	19	0.233	7.50	2.75	2.00	2.98	$3,300
125	4-84125-32	Cast Iron	75	21	0.307	8.12	3.25	2.50	3.60	$3,800
175	4-85175-32	Cast Iron	81	21	0.384	8.75	3.87	3.12	4.23	$5,850



80 Series End Mount

NEMA Frame Sizes 284TC/UC, 286TC/UC
Torque Ratings: 25 to 175 lb-ft

No Disassembly Required for Mounting!

NEMA 4, CSA 4, IP56*
with hub seal for TEFC applications

*To obtain full IP56 protection, the customer shaft, hub bore, key and keyway's mating surface(s) must be sealed to meet IP56. Considerations should be reviewed to appropriately seal mounting hardware as well. Contact factory for details and/or assistance.

80 Series Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK: 10.5" Register	
AJ:	9.00" Bolt Circle
Maximum RPM:	2400
CSA File #LR13814	
Coil insulation: Class B Standard, Class H Optional	

NEMA 4 TEFC Specifications:

External paint: Red primer
Lead wires: Conduit connections
Nameplate: Stamped stainless steel
HEAVY DUTY 4 Post Design

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

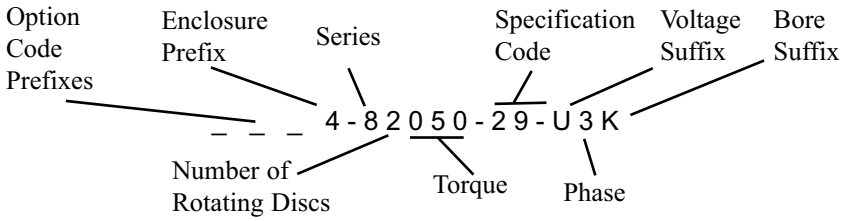
Other Enclosure Types:

Dripproof NEMA 2, CSA 2, IP41 . . . . . PAGES 27-28
Cast iron bracket with stamped steel cover
OR with cast aluminum cover
Waterproof/Dusttight NEMA 4, CSA 4, IP56
Cast iron cover and bracket
Without hub seal for non-TEFC applications . PAGES 29-30

Design Features:

No disassembly required for mounting
Direct acting design with no linkages to break
One moving part for longer life
Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset
All position brake available
External manual release available
Refer to brake options on pages 47-52

Brake Model Number Definition



Standard Voltages (single and three phase)**:**

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway Width
F	7/8"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
M	1 5/8"	3/8" x 3/16"
N	1 7/8"	1/2" x 1/4"

Special bore sizes available.

Available Options:

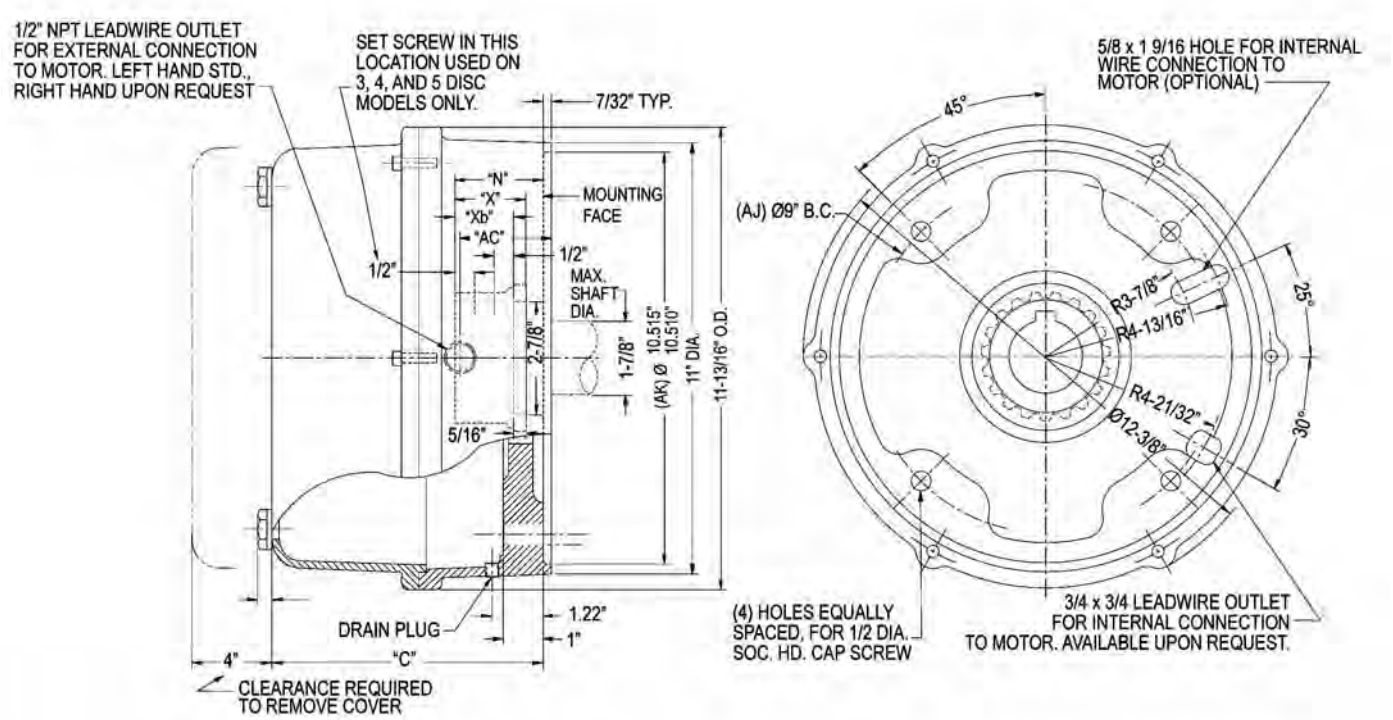
	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Ductile Iron Stationary Disc	E
Foot Mounting Bracket	F
Harsh Environment Protection	G
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
High Tensile Studs	J
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Class H Insulation	Q
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

Refer to pages 47-52 for option descriptions and pricing.

NEMA 4 / IP56 Enclosure with hub seal

Instruction & Parts Manual: BK4814

Torque lb-ft	Model No.	Construction	Wt. Lbs.	Thermal Capacity HPS/Min	Inertia WK^2 lb-ft ^{2}	Dimensions in inches					List Price
						C	N	X	Xb	AC	
25	4-81025-29	Cast Iron	57	15	0.084	6.25	1.75	1.31	1.00	1.73	$2,100
35	4-81035-29	Cast Iron	57	15	0.084	6.25	1.75	1.31	1.00	1.73	$2,250
50	4-82050-29	Cast Iron	65	17	0.158	6.87	2.25	1.81	1.50	2.35	$2,450
70	4-82070-29	Cast Iron	65	17	0.158	6.87	2.25	1.81	1.50	2.35	$2,700
75	4-83075-29	Cast Iron	70	19	0.233	7.50	2.75	2.31	2.00	2.98	$2,950
105	4-83105-29	Cast Iron	70	19	0.233	7.50	2.75	2.31	2.00	2.98	$3,400
125	4-84125-29	Cast Iron	75	21	0.307	8.12	3.25	2.81	2.50	3.60	$3,900
175	4-85175-29	Cast Iron	81	21	0.384	8.75	3.87	3.44	3.13	4.23	$5,950



90 Series End Mount

NEMA Frame Sizes 324TC/UC/TSC/USC through 405TC/UC/TSC/USC
Torque Ratings: 125 to 450 lb-ft

NEW BRAKE DESIGN!
EASY INSTALLATION

No Disassembly Required for Mounting!

Direct "Drop-in" Replacement for Stearns® 82,000 Series:

Dings Model	Enclosure	Torque lb.ft.	Stearns Model
92125-50	NEMA 2	125	1-082-011-02
92125-51	NEMA 4	125	1-082-012-02
92180-50	NEMA 2	180	1-082-021-02
92180-51	NEMA 4	180	1-082-022-02
93230-50	NEMA 2	230	1-082-031-02
93230-51	NEMA 4	230	1-082-032-02
94330-50*	NEMA 2	330	1-082-041-02*
94330-51*	NEMA 4	330	1-082-042-02*

***Specify requirement for Stearns replacement at time of order**

Stearns® is a registered trademark of Rexnord Industries, LLC.

RoHS Compliant-Standard brakes meet the requirements of the Restriction of Hazardous Substances Directive

Enclosure Types:

Dripproof Enclosure 90000-50
NEMA 2, CSA 2, IP41
Cast iron cover and bracket

Waterproof/Dusttight Enclosure 90000-51
NEMA 4, CSA 4, IP56**
Cast iron cover and bracket
Also available without hub seal for non-TEFC applications, model 90000-52

**To obtain full IP56 protection, the customer shaft, hub bore, key and keyway's mating surface(s) must be sealed to meet IP56. Considerations should be reviewed to appropriately seal mounting hardware as well. Contact factory for details and/or assistance.

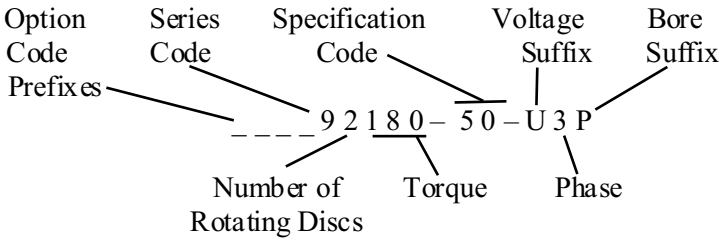
Specifications:

Reaction Time: 20-25 milliseconds (release and set)
AK: 12.5" Register
AJ: 11" Bolt Circle
Thermal Capacity: 20 HPS/MIN
Maximum RPM: 1800
Coil insulation: Class H Standard
CSA File #LR13814 (CSA nameplate upon request)
External paint: Red primer

Design Features:

Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Lead wires for conduit connections
Manual release, automatic reset
High tensile studs standard

Brake Model Number Definition



Standard Voltages (three phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
N	1 7/8"	1/2" x 1/4"
O	2 1/8"	1/2" x 1/4"
P	2 3/8"	5/8" x 5/16"
Q	2 7/8"	3/4" x 3/8"

Special bore sizes available.

Available Options:	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
External Breather	K
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU
Micro-Switch Warning	XS

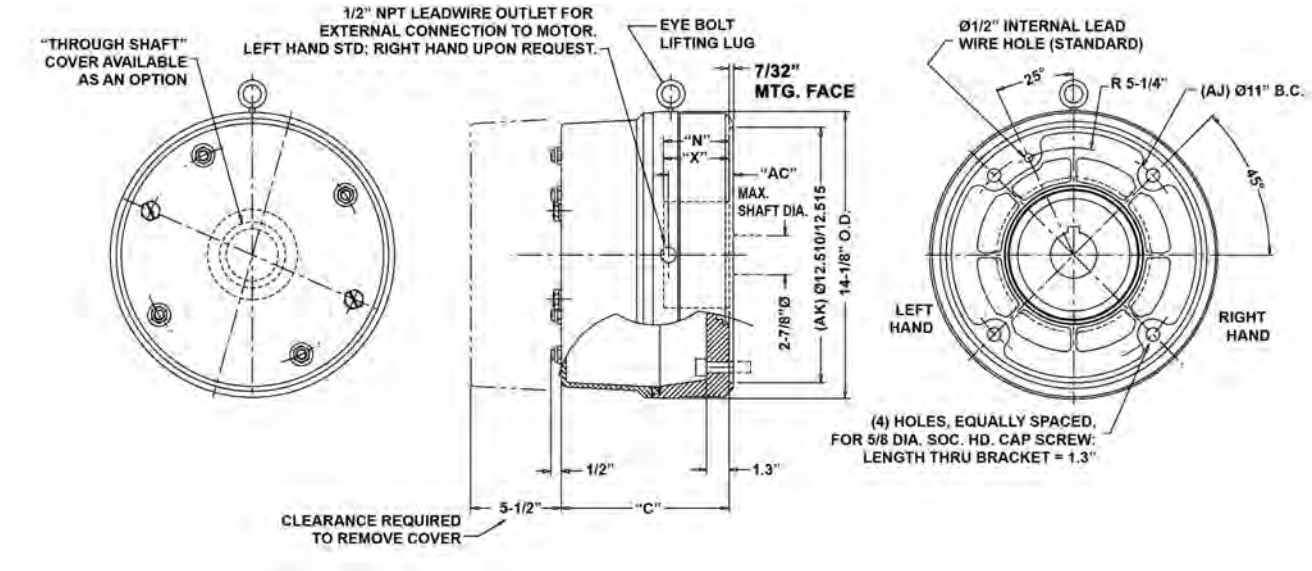
Refer to pages 47-52 for option descriptions and pricing.

Torque lb-ft	Model #	Instructions and Parts Manual	Enclosure	Construction	Wt. Lbs.	Inertia Wk^2 $Lb\text{-}Ft^2$	Dimensions in inches				List Price
							C	"N"	"X"	AC	
125	92125-50	BK4699	NEMA 2	Cast Iron	126	1.0	7.88	2.31	2.31	2.19	$4,800
	92125-51	BK4696	NEMA 4	Cast Iron	128	1.0	7.88	2.31	2.31	2.19	$6,250
180	92180-50	BK4699	NEMA 2	Cast Iron	126	1.0	7.88	2.31	2.31	2.19	$5,150
	92180-51	BK4696	NEMA 4	Cast Iron	128	1.0	7.88	2.31	2.31	2.19	$6,600
230	93230-50	BK4699	NEMA 2	Cast Iron	139	1.3	8.25	2.94	2.94	2.19	$5,700
	93230-51	BK4696	NEMA 4	Cast Iron	139	1.3	8.25	2.94	2.94	2.19	$7,150
270	93270-50	BK4699	NEMA 2	Cast Iron	139	1.3	8.25	2.94	2.94	2.19	$6,350
	93270-51	BK4696	NEMA 4	Cast Iron	139	1.3	8.25	2.94	2.94	2.19	$7,650
330	94330-50	BK4699	NEMA 2	Cast Iron	147	1.6	8.88	3.56	3.56	3.44	$7,800
	94330-51	BK4696	NEMA 4	Cast Iron	149	1.6	8.88	3.56	3.56	3.44	$8,800
360	94360-50	BK4699	NEMA 2	Cast Iron	147	1.6	8.88	3.56	3.56	3.44	$8,050
	94360-51	BK4696	NEMA 4	Cast Iron	149	1.6	8.88	3.56	3.56	3.44	$9,050

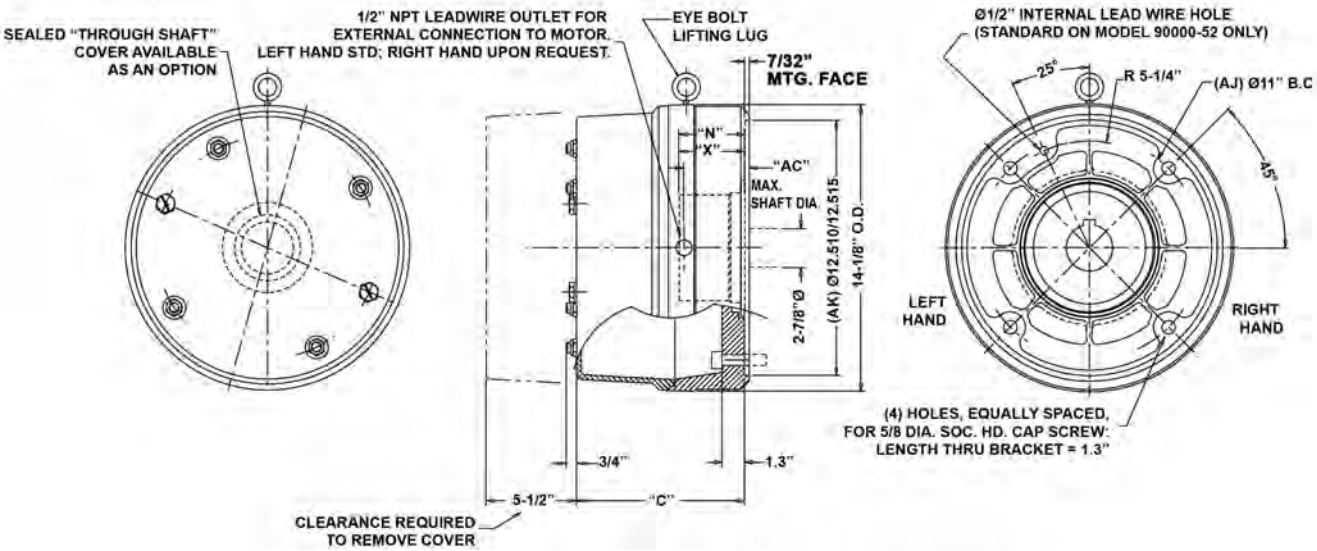
450 LB-FT FOR HOLDING APPLICATIONS ONLY

450 Holding	95450-50	BK4699	NEMA 2	Cast Iron	157	1.9	9.28	4.19	4.19	4.06	$8,700
	95450-51	BK4696	NEMA 4	Cast Iron	159	1.9	9.28	4.19	4.19	4.06	$9,700

OUTLINE DRAWING, NEMA 2 ENCLOSURE



OUTLINE DRAWING, NEMA 4 ENCLOSURE



90 Series End Mount

NEMA Frame Sizes 324TC through 405TC
Torque Ratings: 450 lb. ft.

RoHS Compliance upon request- can be constructed to meet the requirements of the Restriction of Hazardous Substances Directive

Specifications:

Reaction Time:	20-25 milliseconds (release and set)
AK:	12.5” Register
AJ:	11” Bolt Circle
Thermal Capacity:	30 HPS/MIN
Maximum RPM:	1800

CSA File #LR13814 (CSA nameplate upon request)
External paint: Red primer

Design Features:

Torque adjustable for specific applications
Splined hub
Coil insulation: Class H Standard
Spring set, electrically released
Lead wires for conduit connections
Manual release, automatic reset
Heavy duty friction discs standard
Plated internal parts

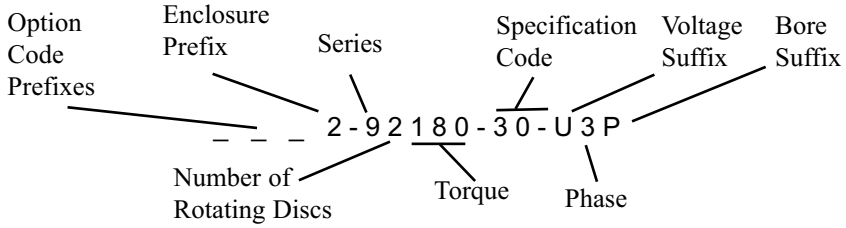
Enclosure Types:

Dripproof Enclosure 2-90000-30
NEMA 2, CSA 2, IP41
Ductile iron cover and bracket

Waterproof/Dusttight Enclosure 4-90000-31
(Model 6-90000-32 without hub seal for non-TEFC applications)
NEMA 4, CSA 4, IP56*
Ductile iron cover and bracket

*To obtain full IP56 protection, the customer shaft, hub bore, key and keyway’s mating surface(s) must be sealed to meet IP56. Considerations should be reviewed to appropriately seal mounting hardware as well. Contact factory for details and/or assistance.

Brake Model Number Definition



Standard Voltages
(three phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

Standard Hub Bore Sizes:

Suffix	Size	Keyway
N	1 7/8”	1/2” x 1/4”
O	2 1/8”	1/2” x 1/4”
P	2 3/8”	5/8” x 5/16”
Q	2 7/8”	3/4” x 3/8”

Special bore sizes available.

Available Options:

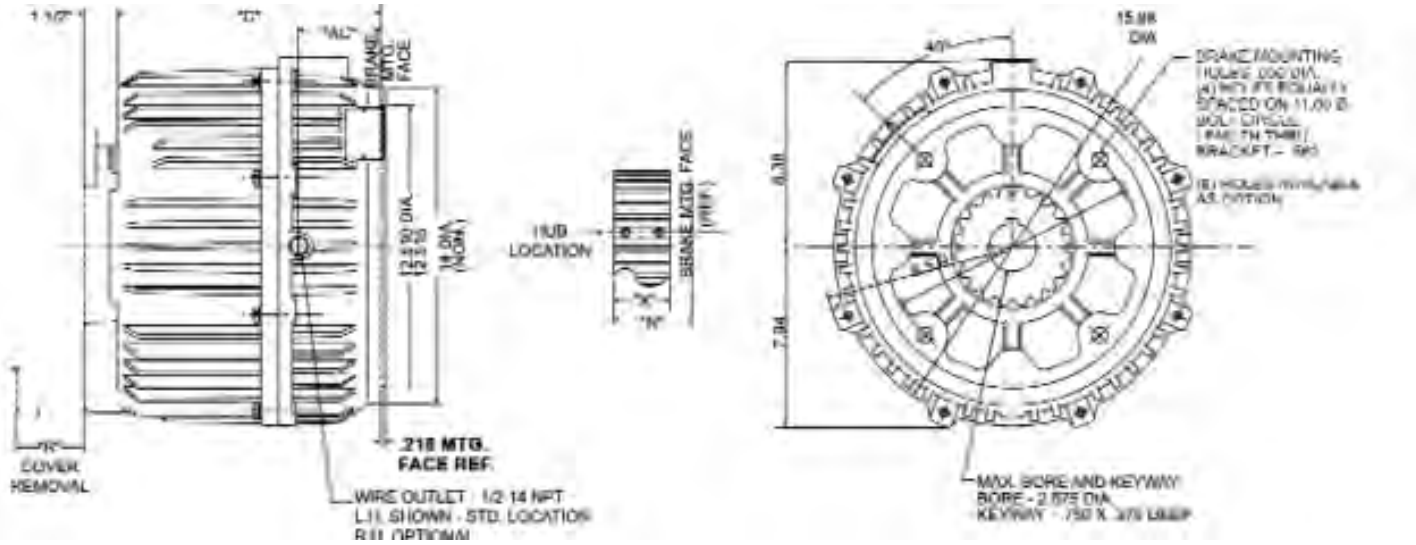
	Prefix
Adapter to Larger Frame Size(s)	A
Reverse Adapter	AB
Foot Mounting Bracket	F
Marine/Maritime Duty with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	M
Marine/Maritime Duty	N
Tropical Protection	P
Internal Space Heater	R
Stainless Steel Stationary Disc	S
Through Shaft	T

Refer to pages 47-52 for option descriptions and pricing.

Torque lb-ft	Model #	Enclosure	Wt. Lbs.	Inertia Wk^2 $Lb.Ft.^2$	Dimensions					List Price
					R	C	N	X	AC	
450	2-95450-30	NEMA 2	250	2.3	7.88	11.44	5.00	3.69	3.65	$8,700
	4-95450-31	NEMA 4	255	2.4	7.88	11.50	5.00	4.78	3.65	$9,700

Instructions and Parts Manual: BK4690

SEE PAGES 33-34 FOR 125 THROUGH 360 LB-FT BRAKES



NEMA 4 HUB WITH SEAL

Hazardous Location Brakes

A hazardous location is an explosive atmosphere due to the presence of flammable gases, vapors, or liquids (Class I), combustible dusts (Class II), or ignitable fibers & flyings (Class III). Dings provides brakes for Division 1, Class I Group C and D, and Division 1, Class II Groups E, F and G, hazardous locations. The National Electrical Code (NEC) defines hazardous locations by Class, Division and Group. For more information about hazardous locations please refer to: http://www.ul.com/global/eng/pages/offerings/services/hazardouslocations/.

Hazardous Location Classifications

Class I Locations

Locations in which ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors can exist under normal operating conditions. An electric disc brake for Class I locations must be capable of withstanding an explosion of a specified gas or vapor that may occur within it and prevent the ignition of the gas or vapor surrounding the enclosure by sparks, flashes, or explosion of the gas or vapor within, and operate at such an external temperature that a surrounding flammable atmosphere will not be ignited thereby.

Class II Locations

Locations in which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitible mixtures. An electric disc brake for Class II locations must be enclosed in a manner that excludes dusts and does not permit heat generated inside of the enclosure to cause ignition of exterior accumulations of a specified dust on or in the vicinity of the enclosure.

Divisions

Each hazardous-location Class is also divided into two Divisions, 1 and 2. Division 1 brakes can be used in both Division 1 and Division 2 environments. Division 2 brakes can be used in Division 2 environments ONLY.
Note that the brake and motor must be rated for the same Division; i.e., a Division 1 brake must be used on a motor which is also rated for Division 1.

Division 1
A Division 1 location is a location where an ignitable concentration of a flammable or combustible material is present under normal operating conditions.

Division 2
A Division 2 location is a location where an ignitable concentration of a flammable or combustible material is present only under abnormal operating condition.

Groups
Class I gases and vapors are listed in four Groups: A, B, C and D. These materials are grouped according to explosion pressure, ignition temperature and the conductivity of the hazardous substance. Class II airborne dusts are listed in three Groups: E, F,and G. These groups are classified according to ignition temperature and electrical conductivity.

Brake Labels and Listing
Dings brakes for use in hazardous locations are marked to show the Class, Group, and Operating Temperature Code of the brake. Compliance with the NEC is demonstrated by UL Listing of the product in Underwriters Laboratories Hazardous Location Equipment Directory. A label displaying the UL Listing mark and required rating information will be found on each Dings brake to confirm the Listing. In Canada, the Canadian Standards Association (CSA) is an organization with the responsibility to publish and administer national electrical standards as well as to test and certify electrical products. The CSA mark is not on Dings hazardous-location brakes as standard, but can be requested as an option.
Dings motor-mounted, hazardous-location electric disc brakes are Listed only when mounted directly to a Listed hazardous-location motor of the same Class and Group at the motor manufacturer's facility, and where the combination has been accepted by UL. This procedure completes the explosion-proof assembly of the brake. However, Listed hazardous-location brakes with a foot mounting option are also available for coupling to a motor, and may be installed by anyone. **Refer to page 48 for foot mounting option.** Installation and servicing must be in compliance with all existing local safety codes. All wiring and electrical connections must comply with the National Electric Code (NEC) and local electrical codes in effect at the time. For additional information see the UL website: http://www.ul.com/hazloc/codes/html. Hazardous Location inspection authorities are responsible for verifying and authorizing the use of suitably designed, manufactured and installed Hazardous Location equipment. When questions arise always consult the local Authority Having Jurisdiction (AHJ) for directions and approvals. Dings Division 1 hazardous location brakes are provided without gaskets. If the brake is used in a high humidity or low temperature environment, internal electric heaters should be used.

NOTE: Foot mount required for hazardous location brakes if purchased by other than a U.L. authorized electric motor manufacturer or shop. Brakes used with a foot mount are suitable for use in Division 1 or Division 2 applications. Refer to page 48 for foot mounting option.

Hazardous Location Brakes

Brake Selection

When selecting a Dings hazardous-location disc brake, the Class and Group designations of the hazardous atmosphere and its ignition temperature must be known. For more information on hazardous location responsibilities, see:http://www.ul.com/global/eng/pages/offerings/services/hazardouslocations/.

1. Determine the Class and Group designation of the hazardous atmosphere.

2. For Class I hazardous substances, determine the ignition temperature of the explosive gas or vapor. Select a brake listed for the appropriate group and operating temperature code, with a maximum external operating temperature that does NOT exceed the ignition temperature of the explosive gas or vapor. The operating temperature code for Dings Hazardous Location brakes is T3C. For an explanation of temperature codes refer to:
   http://www.ul.com/global/documents/offerings/services/hazardouslocations/CI-Tcodes.
   NOTE: Maximum exterior surface temperature is based on operation in an ambient of 32°F to 104°F (0° to 40°C).

3. For Class II hazardous substances, select a brake listed for the appropriate group and operating temperature code. The operating temperature code for Dings Hazardous Location brakes is T3C. For an explanation of temperature codes refer to:
   http://www.ul.com/global/documents/offerings/services/hazardouslocations/CII-Tcodes.
   NOTE: Maximum exterior surface temperature is based on operation in an ambient of 32°F to 104°F (0° to 40°C).

Thermal Considerations

One of the design requirements of hazardous-location brakes is to limit exterior surface temperature. The surface temperature of the enclosure must not exceed a specified limit as a result of heat energy created in stopping the motor and load. This NEC restriction on the exterior surface temperature limits the hazardous-location brake's ability to dissipate heat, resulting in less thermal capacity than a comparable brake with a standard or dust-tight, water-proof enclosure. **THEREFORE, HAZARDOUS-LOCATION BRAKES ARE INTENDED ESSENTIALLY FOR NON-CYCLIC OR HOLDING PURPOSES, BUT MAY BE USED FOR STOPPING LIGHT INTERTIAL LOADS.**

60 Series Hazardous Location

DIVISION 1 HAZARDOUS LOCATION

NEMA Frame Sizes 56C through 145TC
Torque Ratings: 1.5 to 15 lb-ft

RoHS Compliance upon request- can be constructed to meet the requirements of the Restriction of Hazardous Substances Directive

Specifications:

Reaction Time:	15-20 milliseconds (release and set)
AK:	4.5” Register
AJ:	5.88” Bolt Circle
Maximum RPM:	3600
Coil insulation: Class B	

Design Features:

Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset

Enclosure Types:

60 Series: Cast iron cover and bracket

Enclosure Protection:

NEMA 2, and Hazardous Location NEMA 7, 9

Certifications:

CSA File No. LR 19464 (CSA nameplate upon request)
UL File No. E27811 Class I Group C and D, Class II Groups E, F, and G

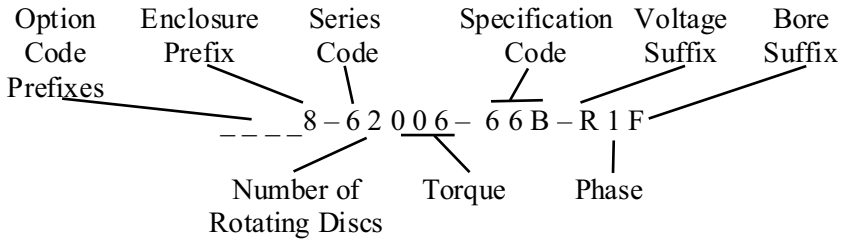
NOTE: Foot mount required for hazardous location brakes if purchased by other than a U.L. authorized electric motor manufacturer or shop. Brakes used with a foot mount are suitable for use in Division 1 or Division 2 applications. Refer to page 48 for foot mounting option.

Special Note: Dings 60 Series Hazardous Location Brakes are equipped with a thermal overload release mechanism. When the external surface of the brake approaches the specified temperature limit, the mechanism will automatically release the brake and hold it in the released position. This prevents the surface temperature from rising to a level that could ignite surrounding gases or dust by releasing the brake and thereby stopping a further increase in temperature.

Caution: Once the brake has been released by the thermal overload mechanism, control over the rotation of the motors and movement of the load is lost. This uncontrolled rotation of the motor and movement of the load could cause injury to personnel and damage to property.

Dings 60 Series Hazardous Location Brakes are also equipped with a thermal switch. When properly wired into the motor starting circuit, the thermal switch shuts down the motor before the thermal overload mechanism releases the brake. When the thermal switch activates, it stops the motor and load, preventing the uncontrolled motion described in the “caution” above. See bulletin BK4614X.

Brake Model Number Definition



Standard Hub Bore Sizes:

Suffix	Size	Keyway
D	5/8”	3/16” x 3/32”
E	3/4”	3/16” x 3/32”
F	7/8”	3/16” x 3/32”
G	1”	3/16” x 3/32”
H	1 1/8”	1/4” x 1/8”

Special bore sizes available.

Standard Voltages

(Single phase only):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

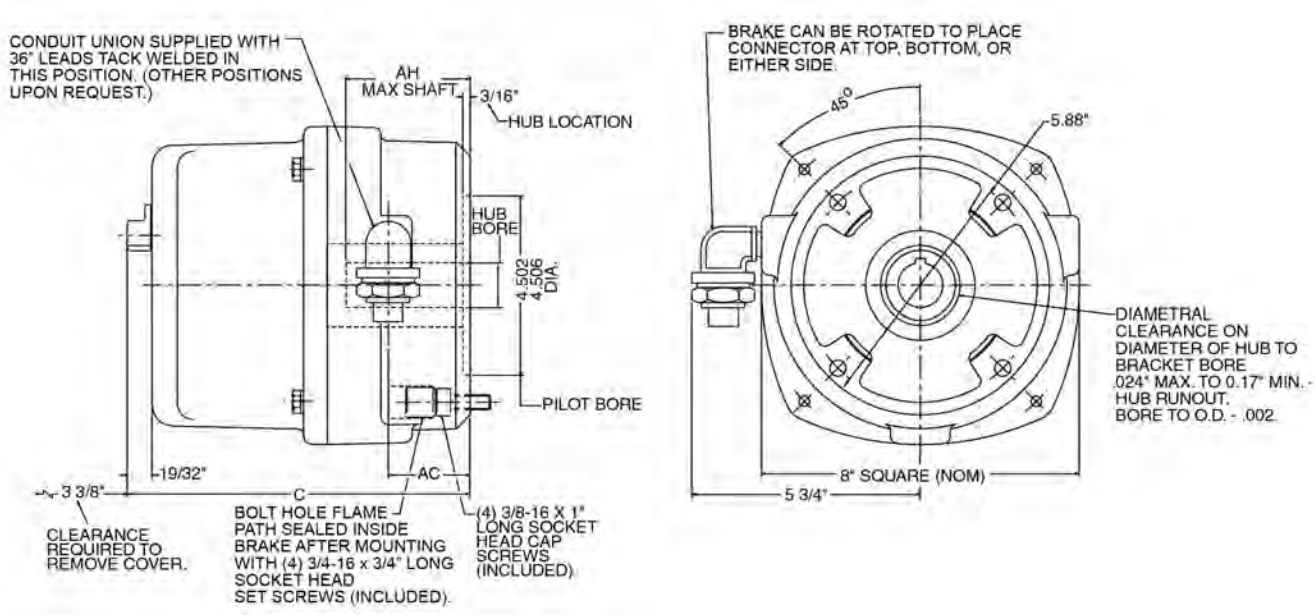
Available Options:	Prefix
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU

Refer to pages 47-52 for option descriptions and pricing.

DIVISION 1 HAZARDOUS LOCATION

Torque lb-ft	Model #	Instruction and Parts Manual	Construction	Wt. Lbs.	Thermal Capacity HPS/MIN*	Inertia WK^2 $Lb.Ft.^2$	Dimensions in inches				List Price
							C	AH		AC	
								Max.	Min.		
1.5	8-61001-66B	BK4614	Cast Iron	42	6	0.020	7 15/16	2 3/8	1 3/4	2 1/16	$2,330
3	8-61003-66B	BK4614	Cast Iron	42	6	0.020	7 15/16	2 3/8	1 3/4	2 1/16	$2,450
6	8-62006-66B	BK4614	Cast Iron	44	6	0.030	8 5/16	2 3/4	2	2 7/16	$2,590
10	8-63010-66B	BK4614	Cast Iron	47	6	0.040	8 11/16	3 1/8	2 1/4	2 13/16	$2,795
15	8-63015-66B	BK4614	Cast Iron	47	6	0.040	8 11/16	3 1/8	2 1/4	2 13/16	$2,915

***Hazardous location brakes are intented for non-cyclic or holding purposes only, but may be used for stopping light inertial loads.**



70 Series Hazardous Location

DIVISION 1 HAZARDOUS LOCATION

NEMA Frame Sizes 182TC through 256TC
Torque Ratings: 10 to 75 lb-ft

RoHS Compliance upon request- can be constructed to meet the requirements of the Restriction of Hazardous Substances Directive

Specifications:

Reaction Time: 20-25 milliseconds (release and set)
AK: 8.5" Register
AJ: 7.25" Bolt Circle
Maximum RPM: 3600
Coil insulation: Class B Std., Class H Optional

Design Features:

Torque adjustable for specific applications
Splined hub
Spring set, electrically released
Manual release, automatic reset

Enclosure Types:

70 Series: Cast iron cover and bracket R70000-9

Enclosure Protection:

NEMA 2, and Hazardous Location NEMA 7, 9

Certifications:

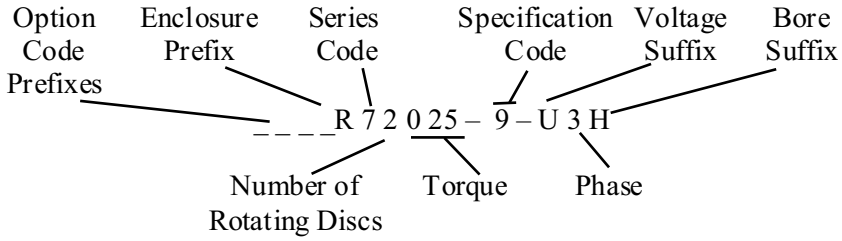
CSA File No. LR 19464 (CSA nameplate upon request)
UL File No. E27811 Class I Group C and D, Class II Groups E, F, and G

NOTE: Foot mount required for hazardous location brakes if purchased by other than a U.L. authorized electric motor manufacturer or shop. Brakes used with a foot mount are suitable for use in Division 1 or Division 2 applications. Refer to page 48 for foot mounting option.

Special Note: Dings 70 Series Hazardous Location Brakes are equipped with a thermal overload release mechanism. When the external surface of the brake approaches the specified temperature limit, the mechanism will automatically release the brake and hold it in the released position. This prevents the surface temperature from rising to a level that could ignite surrounding gases or dust by releasing the brake and thereby stopping a further increase in temperature.

Caution: Once the brake has been released by the thermal overload mechanism, control over the rotation of the motors and movement of the load is lost. This uncontrolled rotation of the motor and movement of the load could cause injury to personnel and damage to property.

Brake Model Number Definition



Standard Hub Bore Sizes:

Suffix	Size	Keyway
F	7/8"	3/16" x 3/32"
G	1"	3/16" x 3/32"
H	1 1/8"	1/4" x 1/8"
J	1 1/4"	1/4" x 1/8"
K	1 3/8"	5/16" x 5/32"
L	1 1/2"	3/8" x 3/16"
M	1 5/8"	3/8" x 3/16"

Special bore sizes available.

Standard Voltages

(Single or three phase):

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Special voltages available.

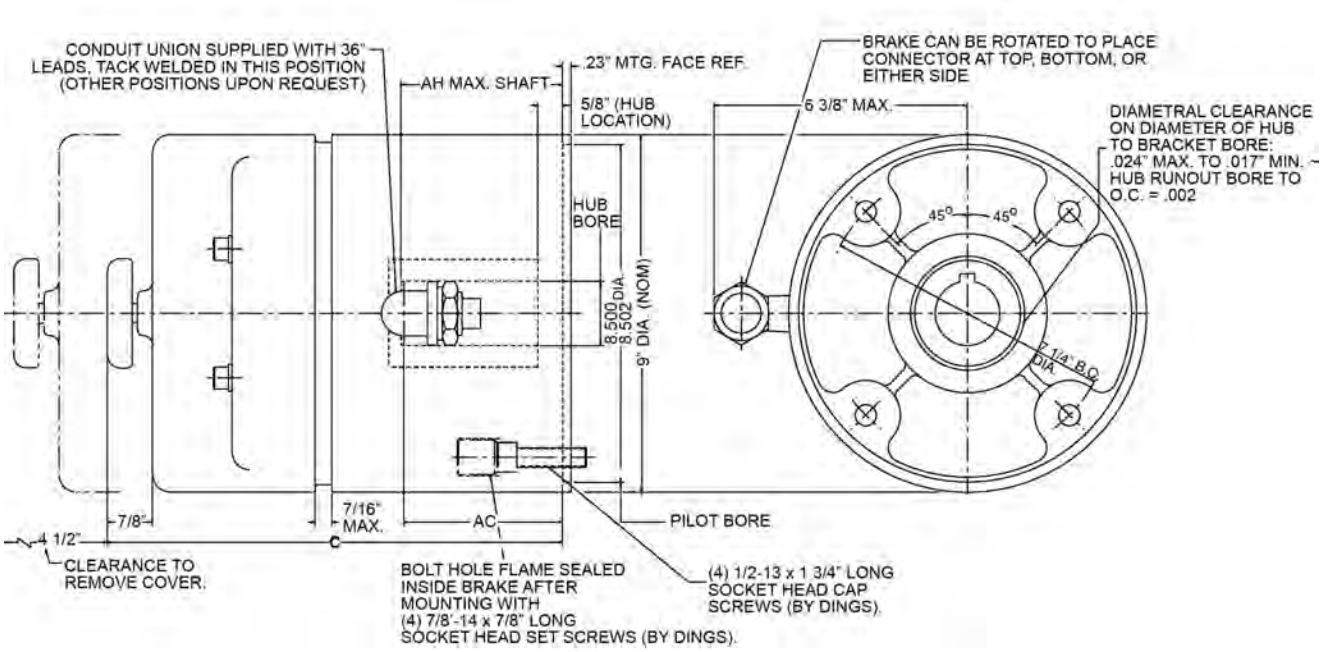
Available Options:	Prefix
Foot Mounting Bracket	F
Heavy-Duty Rotating Friction Disc with Hardened Steel Hub	H
Class H Insulation	Q
Internal Space Heater	R
Vertical Mounting	
Vertical Over, or above motor	VO
Vertical Under, or below motor	VU

Refer to pages 47-52 for option descriptions and pricing.

DIVISION 1 HAZARDOUS LOCATION

Torque lb-ft	Model #	Instruction and Parts Manual	Construction	Wt. Lbs.	Thermal Capacity HPS/MIN*	Inertia WK^2 Lb.Ft.^{2}	Dimensions in inches				List Price
							C	AH		AC	
								Max.	Min.		
10	R71010-9	BK4606	Cast Iron	69	10	0.035	10 5/8	3 7/16	2 3/8	3 13/32	$3,350
15	R71015-9	BK4606	Cast Iron	69	10	0.035	10 5/8	3 7/16	2 3/8	3 13/32	$3,500
25	R72025-9	BK4606	Cast Iron	74	11	0.076	11 1/4	3 3/4	2 5/8	4 1/32	$3,725
35	R73035-9	BK4606	Cast Iron	79	12	0.102	11 7/8	4 3/8	3	4 21/32	$4,000
50	R74050-9	BK4606	Cast Iron	84	13	0.130	12 1/2	5 1/8	3 1/2	5 9/32	$4,700
75	R75075-9	BK4606	Cast Iron	84	13	0.115	12 1/2	5 1/8	3 1/2	5 9/32	$5,700

***Hazardous location brakes are intented for non-cyclic or holding purposes only, but may be used for stopping light inertial loads.**



Marine/Maritime Duty Brakes

Torque Ratings: 1.5 to 450 lb-ft

Dings Marine duty brakes are suitable for many shipboard, dockside and severe duty applications where water, salt water and salt vapor exist.

STANDARD FEATURES

-Enclosure Rating: IP56/NEMA 4X
-Compliant with IEEE 45.
IEEE 45 nameplate must be requested
-Housing Material: Cast Iron (ductile iron optional)
-Pressure Plate: Plated Steel
-Stationary Disc: Steel
-Plated hardware
-Manual Release is maintained with automatic reset
-Coil Insulation: Class B or Class H, see specific brake series
-Housing exterior and interior are painted with a primer and high solid epoxy paint (non-military). For MIL-SPEC paint, see OPTIONS
-Interior parts are zinc plated or painted.
-Hub seals included

60 Series – 56C - 143/145TC

Torque lb-ft.	Model No.	Coil Insulation	List Price
1.5	N4-61001-530	B	$1,460
3	N4-61003-530	B	$1,495
6	N4-61006-530	B	$1,590
10	N4-62010-530	B	$1,700
15	N4-63015-530	B	$1,840
20	N4-63020-530	H	$1,940
25	N4-64025-530	H	$2,085

70 Series – 182TC - 256TC HEAVY DUTY 4 Post Design

Torque lb-ft.	Model No.	Coil Insulation	List Price
10	N6-71010-57	B	$2,405
15	N6-71015-57	B	$2,455
25	N6-72025-57	B	$2,530
35	N6-72035-57	B	$2,680
50	N6-73050-57	B	$2,980
75	N6-74075-57	B	$3,480

80 Series – 284TC/286TC HEAVY DUTY 4 Post Design

Torque lb-ft.	Model No.	Coil Insulation	List Price
25	N4-81025-29	B	$2,975
35	N4-81035-29	H	$3,125
50	N4-82050-29	B	$3,325
75	N4-83075-29	B	$3,825
105	N4-83105-29	H	$4,275
125	N4-84125-29	H	$4,775
175	N4-84175-29	H	$6,825

90 Series – 324TC-405TC HEAVY DUTY 4 Post Design

Torque lb-ft.	Model No.	Coil Insulation	List Price
125	N92125-51	H	$7,315
180	N92180-51	H	$7,665
270	N93270-51	H	$8,715
360	N94360-51	H	$10,115
450	N4-95450-31	H	$10,765

Model Number Example

Options	Model/ Series	No. of Friction Discs	Torque in lb-ft	Model/Spec No. specified above	Voltage	Bore size
___ ___ ___	N6 - 7	2	0 3 5	- ___ 5 7	- U	3 H

1=Single phase
3=Three phase

OPTIONS Description	Prefix	List Price Adder Series 60	70	80	90
Class H insulation	Q	$125	$155	$175	Std
Space heater	R	$210	$225	$225	$275
Breather drain	K	$235	$250	$250	$250
Tropical protection	P	$140	$155	$170	$185
Stainless steel stationary disc (add per disc)	S	$210	$305	$405	$645
Stainless hardware	X	$170	$170	$170	$250
Military primer & top coat per TT-P-645 & MIL-DTL-15090	M	$610	$790	$920	$1,065
Heavy duty friction discs and hardened hub — 1st disc	H	$160	$170	$310	$500
Heavy duty friction discs and hardened hub — Each add'l disc	H	$50	$80	$130	$350
Ductile iron enclosure	X	$750	$900	$1,050	$1,200

Standard Voltages:

Suffix	Voltage
Y	110/220V, 50Hz
U	230/460V, 60 Hz or 190/380V, 50 Hz
R	115/230V, 60 Hz
T	220/440V, 60 Hz
P	575V, 60 Hz

Standard Hub Bore Sizes:

Suffix	Size	Series
D	5/8"	60
F	7/8"	60,70,80
H	1 1/8"	70,80
J	1 1/4"	70,80
K	1 3/8"	70,80
M	1 5/8"	70,80
N	1 7/8"	80
O	2 1/8"	90
P	2 3/8"	90
Q	2 7/8"	90

Naval Service

NEMA Frame Sizes 182TC through 286TC
Torque Ratings: 3 to 180 lb-ft

Specifications:

70 Series

Reaction Time: 15-20 milliseconds (release & set)
AK: 8.5" Register AJ: 7.25" Bolt Circle
Maximum RPM: 3600

80 Series

Reaction Time: 20-25 milliseconds (release & set)
AK: 10.5" Register AJ: 9.00" Bolt Circle
Maximum RPM: 2400

Conforms to MIL-B-16392 specifications

Design Features:

Splined hub
Deadman release
36" leadwire length
Spring set, electrically released
Aluminum bronze stationary discs
Ductile iron construction
Torque adjustable for specific applications
Coil insulation: Class B Standard, Class H Optional (Class H standard on 80 Series single phase)
Housing exterior and interior are primed and top coated per MIL-E-917. Internal parts are zinc plated or painted. Meets IEEE 45 and CFR110.1-1 standards.
Also available - nonmagnetic construction
- 70 Series nonmagnetic model 5-70000-85
- 80 Series nonmagnetic model 5-80000-51

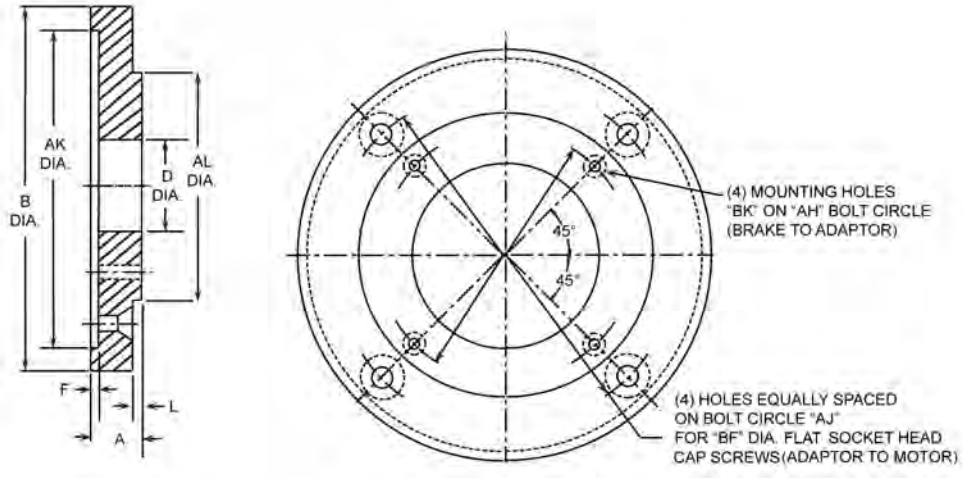
70 Series–Frame Sizes 182TC - 256TC

Torque lb-ft	Model #	Wt. Lbs.	Thermal Capactity HPS/MIN	Inertia WK^2 Lb-ft^2	List Price
3	5-71003-42	54	11	0.028	$8,500.00
10	5-71010-42	54	11	0.028	$8,760.00
15	5-71015-42	54	11	0.028	$8,835.00
25	5-72025-42	58	12	0.051	$8,950.00
35	5-72035-42	58	12	0.051	$9,085.00
50	5-73050-42	62	13	0.075	$9,350.00
75	5-74075-42	66	14	0.099	$9,775.00

80 Series–Frame Sizes 284TC and 286TC

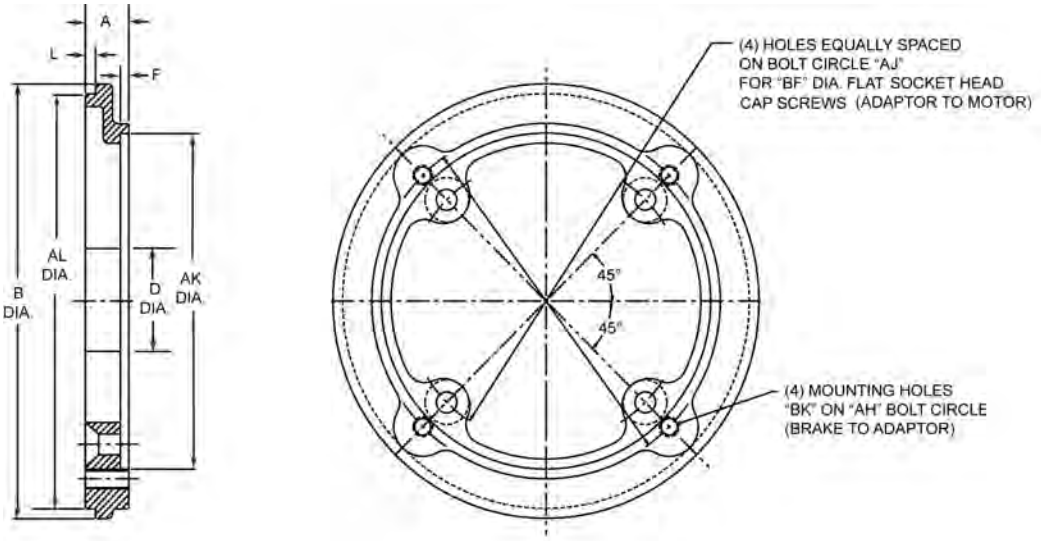
Torque lb-ft	Model #	Wt. Lbs.	Thermal Capactity HPS/MIN	Inertia WK^2 Lb-ft^2	List Price
25	5-81025-27	80	15	0.084	$9,225.00
35	5-81035-27	80	15	0.084	$9,360.00
50	5-82050-27	86	17	0.158	$9,950.00
75	5-83075-27	90	19	0.233	$10,450.00
90	5-83090-27	90	19	0.233	$11,150.00
135	5-84135-27	97	21	0.309	$17,600.00
180	5-85180-27	104	21	0.384	$19,250.00

Motor Frame Adaptors



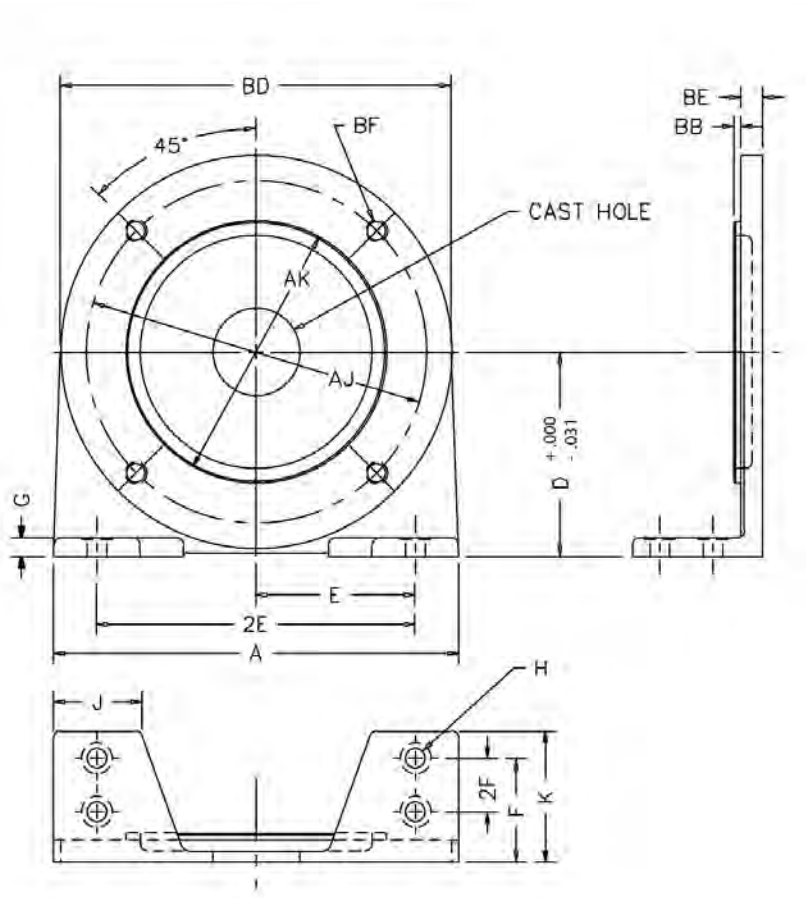
Brake Series	NEMA C Face BRAKE SIDE	NEMA C Face MOTOR SIDE	Brake Bracket Material	Brake Model Prefix	Adaptor Part Number	Dimensions in inches										
						A	AH	AJ	AK	AL	B	BF	BK	D	F	L
60	56C, 143TC,145TC	182TC-256TC	Aluminum	A	G060539-001	0.75	5.88	7.25	8.50	4.50	9.00	1/2-13	3/8-16	4.00	0.19	0.12
		182TC-256TC	Cast Iron	A	G060540-001	0.75	5.88	7.25	8.50	4.50	9.00	1/2-13	3/8-16	4.00	0.19	0.12
60 Hazardous Location	56C, 143TC,145TC	182TC-256TC	Aluminum	A	G060552-001	0.75	5.88	7.25	8.50	4.50	9.00	1/2-13	3/8-16	4.00	0.19	0.13
		182TC-256TC	Cast Iron	A	G060553-001	0.75	5.88	7.25	8.50	4.50	9.00	1/2-13	3/8-16	4.00	0.19	0.12
70	182TC-256TC	284-286TC/UC	Cast Iron	A	G070558-001	1.09	7.25	9.00	10.50	8.50	11.00	1/2-13	1/2-13	8.00	0.23	0.25
	182TC-256TC	324TC-405TC	Cast Iron	AA	G070535-001	1.09	7.25	11.00	12.50	8.50	13.00	5/8-11	1/2-13	6.00	0.23	0.25
70 Hazardous Location	182TC-256TC	284-286TC/UC	Cast Iron	A	G070534-001	1.09	7.25	9.00	10.50	8.50	11.00	1/2-13	1/2-13	8.00	0.23	0.25
80	284-286TC/UC	324TC-405TC	Cast Iron	A	G080202-001	1.22	9.00	11.00	12.50	10.50	13.00	1/2-13	1/2-13	10.00	0.23	0.25
	284-286TC/UC	444-445TC/UC	Cast Iron	AA	G080203-001	1.09	9.00	9.00	10.50	10.50	16.50	5/8-11	1/2-13	8.00	0.23	0.25
90	324TC-405TC	444-445TC/UC	Cast Iron	A	L090018-001	1.74	11.00	14.00	16.00	12.50	17.00	5/8-11	5/8-11	12.00	0.25	0.25
	324TC-405TC	505TC/UC	Cast Iron	AA	L090018-002	1.74	11.00	14.50	16.50	12.50	17.00	5/8-11	5/8-11	12.00	0.25	0.25

Reverse Adaptors



Brake Series	NEMA C face BRAKE SIDE	NEMA C face MOTOR SIDE	P/N Prefix	Adaptor Part Number	Dimensions in inches										
					A	AH	AJ	AK	AL	B	BF	BK	D	F	L
60	56C, 143TC,145TC	48C	AB	G060546-001	0.50	5.88	3.75	3.00	4.50	6.50	1/4-20	3/8-16	3.00	0.50	0.13
70	182TC-256TC	56C, 143TC,145TC	AB	G070560-001	0.50	7.25	5.88	4.50	8.50	8.50	3/8-16	1/2-13	4.50	0.50	0.50
70 Hazardous Location	182TC-256TC	56C, 143TC,145TC	AB	G070536-001	0.50	7.25	5.88	4.50	8.50	8.50	3/8-16	1/2-13	4.50	0.50	0.50
80	284-286TC/UC	182TC-256TC	AB	G080204-001	1.09	9.00	7.25	8.50	10.50	11.00	1/2-13	1/2-13	8.00	0.22	0.25
90	324TC-405TC	284-286TC/UC	AB	G090238-001	0.88	11.00	9.00	10.50	12.50	12.50	1/2-13	1/2-13	7.75	0.22	0.66

Foot Mounting Brackets



Brake Series	Foot Mounting Kit	Dimensions in inches							
		A	AJ	AK	BB	BD	BE	BF	D
60	G060541-001	7.00	5.88	4.500/4.497	.13	6.75	.38	3/8-16	3.50
70	G070561-001	9.00	7.25	8.500/8.497	.25	9.00	.50	1/2-13	5.00
80	G080208-001	11.00	9.00	10.500/10.497	.25	11.00	.50	1/2-13	6.00
90	G090288-001	20.00	11.00	12.500/12.497	.28	14.00	1.50	5/8-11	8.25
60 Hazardous Location	G060559-001	8.00	5.88	4.500/4.497	.19	6.63	.50	3/8-16	3.50
70 Hazardous Location	G070545-001	9.00 OR 12.50	7.25	8.500/8.498	.25	9.00	.50	1/2-13	5.00

Brake Series	Torque lb-ft	Bracket Weight lbs.	Dimensions in inches									
			E	2E	F	2F	G	H (Hole)		J	K	Cast Hole
								Dia.	Qty.			
60	1.5-25	4	2.750	5.50	1.50	–	.312	.531	2	1.50	2.25	1.50
70	10-70	8	3.500	7.00	2.00	–	.437	.656	2	2.00	3.00	1.75
80	25-175	12	4.250	8.50	2.00	–	.500	.656	2	2.50	3.00	3.50
90	125-450	78	9.000	18.00	5.50	4.50	.937	.656	4	3.00	6.50	4.00
60 Hazardous Location	1.5-15	7	3.500	7.00	1.50	–	.500	.531	2	2.00	2.50	1.38
70 Hazardous Location	10-75	11	2.750 OR 5.812	5.50 OR 11.63	2.50	–	.500	.656	2	1.75	3.00	2.00

Brake Options

A Adaptor to Next Larger Size

List Price Adders:

50 Series	$235
60 Series End Mount	$320
60 Series Double C Face	$320
60 Series Hazardous	$320
70 Series End Mount	$375
70 Series Double C Face	$375
70 Series Hazardous	$375
80 Series	$450
90 Series	$1,025

Increases C face dimension to allow mounting to next larger motor frame size.

AB Reverse Adaptor to Next Smaller Size

List Price Adders:

60 Series End Mount	$235
60 Series Double C Face	$235
60 Series Hazardous	$235
70 Series End Mount	$320
70 Series Double C Face	$320
70 Series Hazardous	$320
80 Series	$375
90 Series	$580

Reduces C face dimension to allow mounting to next smaller motor frame size.

B Aluminum Bronze Stationary Disc

List Price Adders:

70 Series End Mount	$450/disc
80 Series	$550/disc
90 Series	$645/disc

Provides extra corrosion resistance.

C Conduit Box

List Price Adders:

60 Series	$300
70 Series	$300
80 Series	$300
90 Series	$300

External junction box to connect brake leads. No terminal blocks included unless requested.

DD DC Voltage

List Price Adders:

40 Series	$70
50 Series	$300
60 Series End Mount	$300
60 Series Double C Face	$300
1-70 Series End Mount	$300

Special coil and electronic circuit allows brake to operate on DC voltage. Not intended for half wave rectified DC power.

E Ductile Iron Stationary Disc

List Price Adders:

70 Series End Mount	$130/disc
70 Series Double C Face	$130/disc
80 Series	$160/disc

Ductile iron provides greater strength for high cycle applications.

Brake Options

F Foot Mounting Bracket

List Price Adders:

60 Series End Mount	$350
60 Series Double C Face	$350
60 Series Hazardous	$520
70 Series End Mount	$450
70 Series Double C Face	$450
70 Series Hazardous	$1,095
80 Series	$475
90 Series	$1,325

Allows brake to be supported without having to be mounted to a motor C Face.

H Heavy Duty Rotating Friction Disc with Hardened Steel Hub

Metal disc center provides extra tooth support for high cycle/shock applications.

Single Disc Brake

List Price Adders:

60 Series End Mount	$160
60 Series Double C Face	$160
60 Series Hazardous	$160
70 Series End Mount	$170
70 Series Double C Face	$170
70 Series Hazardous	$170
80 Series	$310
90 Series (New design)	$500

Additional Adders (Per Disc):

60 Series	$50
70 Series	$80
80 Series	$130
90Series (New design)	$350

J High Tensile Stud

List Price Adders:

70 Series End Mount :	
2 Post	$72.50
4 Post	$145
70 Series Double C Face	$145
80 Series:	
2 Post	$72.50
4 Post	$145

Studs are made from high strength steel for use in high cycle/shock applications.

K External Breather

List Price Adders:

60 Series End Mount	$235
70 Series End Mount	$250
80 Series	$250
90 Series	$250

Prevents ingress of moisture in humid conditions, reducing corrosion.

M Marine/Maritime Duty Brake with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090

Special **Military spec**. enamel paint along with plating or painting of interior components provides additional corrosion protection for brakes exposed to severe weather conditions. Meets IEEE 45, CFR110.1-1 standards.

List Price Adders:

60 Series End Mount	$1,170
60 Series Double C Face	$1,170
70 Series End Mount	$1,420
70 Series Double C Face	$1,420
80 Series	$1,795
90 Series	$2,130

N Marine/Maritime Duty Brake

High Solids epoxy paint along with plating or painting of interior components provides additional corrosion protection for brakes exposed to severe weather conditions. Intended for **non-military** offshore applications.

List Price Adders:

60 Series End Mount	$560
60 Series Double C Face	$560
70 Series End Mount	$630
70 Series Double C Face	$630
80 Series	$875
90 Series	$1,065

Brake Options

P Tropical Protection

Special anti-fungal coating on electrical coils provides protection for brakes exposed to hot, humid conditions.

List Price Adders:

60 Seriest	$140
70 Series	$155
80 Series	$175
90 Series	$300

Q Class H Coil Wire Insulation

List Price Adders:

50 Series	$100
60 Series End Mount	$125
60 Series Double C Face	$125
70 Series End Mount	$155
70 Series Double C Face	$155
80 Series	$175
90 Series	Standard

High temperature coil wire insulation for extra thermal protection in high temperature applications.

R Heater

List Price Adders:

60 Series End Mount	$210
60 Series Double C Face	$210
70 Series End Mount	$225
70 Series Double C Face	$225
80 Series	$225
90 Series	$275

Special resistor helps dissipate moisture in brakes exposed to cold or humid conditions.

S Stainless Steel Stationary Disc

List Price Adders:

60 Series End Mount	$210/disc
70 Series End Mount	$305/disc
80 Series	$405/disc
90 Series	$645/disc

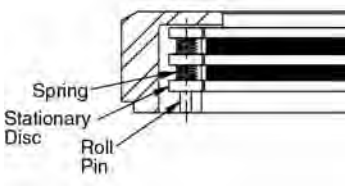
High quality stainless steel discs provide extra corrosion resistance.

T Through Shaft

Series	List Adder	Enclosure
40	$25	NEMA 2, IP40
50	$25	NEMA 2, IP40
60	$25	Steel Cover NEMA 2, IP41
60	$110	Cast Iron Cover NEMA 2, IP41
60	$225	Cast Iron Cover NEMA 4, IP54
70	$25	Steel Cover NEMA 2, IP41
70	$225	Cast Iron Cover NEMA 2, IP41
70	$300	Cast Iron Cover NEMA 4, IP54
80	$25	Steel Cover NEMA 2, IP41
80	$225	Cast Iron Cover NEMA 2, IP41
80	$300	Cast Iron Cover NEMA 4, IP54
90	$225	NEMA 2
90	$520	NEMA 4

Special cover allows shaft to continue through the brake enclosure.

VO/VU Vertical Over/Vertical Under Mounting



List Price Adders (Per Disc):

60 Series End Mount	$10
70 Series Vertical Over	$30
70 Series Vertical Under	$20
80 Series	$30
90 Series (NEW)	$75

Special springs stabilize discs allowing brake to be mounted in a vertical position either over or under the motor.

Brake Options

XE *Smart Brake* Encoder Brake

List Price Adders:

60 Series End Mount	$1,535
60 Series Hazardous	$3,000
70 Series End Mount	$2,200
70 Series Hazardous	$3,835
80 Series	$2,270
90 Series	$2,400

Internally mounted encoder provides feedback on brake positioning and speed.
Pricing includes Encoder Products Company Model 260 encoder. For encoder details or for other encoders, contact factory.

XS Microswitch Warning

List Price Adders:

60 Series End Mount	$415
60 Series Double C Face	$415
70 Series End Mount	$450
70 Series Double C Face	$450
80 Series	$450
90 Series	$450

Switch provides a NO/NC contact to alert when brake is released electrically or manually.

XT Tach Machining

List Price Adders:

60 Series End Mount	$585
70 Series End Mount NEMA 2	$700
70 Series End Mount NEMA 4	$850
80 Series End Mount NEMA 2	$700
80 Series End Mount NEMA 4	$850
(Models with cast iron covers only)	

Machined face on cover allows mounting of tachometer or resolver.

External Manual Release
MARK II Design

List Price Adders:

70 Series End Mount	$400
80 Series	$425

Single point, hand activated, external release lever. Manually set / automatically reset by manually deactivating or energizing the brake.
Available on brakes with cast covers only.

External Manual Release
MARK III Design

List Price Adders:

70 Series End Mount	$325
80 Series	$350

Dual, hand activated, external release knobs. Manually set / automatically reset by manually deactivating or energizing the brake.
Available on brakes with cast covers only.

Brake Option List Price Additions

		40 Series	50 Series	60 Series								1-70 Series
		NEMA 2	NEMA 2	NEMA 2			NEMA 4		NEMA 4X		Haz Location	NEMA 2
		End Mount	End Mount	End Mount	End Mount	CC	End Mount	CC	End Mount	CC	End Mount	End Mount
	Specification Number→	-012 -013	-050 -05A	-524	-5601 -5602 -5603 -5604	-551	-530 -535 -543 -545	-5153	-5115 -5116 -5140 -5141	-5145 -5155	-66B -67B	-115
Prefix	**Option Description**											
A	Adaptor to next frame size	–	$235	$320	$320	$320	$320	$320	$320	$320	$320	$375
AA	Double Adaptor to 2nd larger frame size	–	–	–		–	–	–	–	–	–	$575
AB	Reverse Adaptor to next smaller frame size	–	–	$235	$235	$235	$235	$235	$235	$235	$235	$320
B	Aluminum Bronze Stat Disc (Per Disc) (Number of Stat Discs=# Rotating Discs +1)	–	–	–	–	–	–	–	–	–	–	–
C	Conduit Box	–	–	$300		$300	$300	$300				
DD	Direct Current (DC Voltage)	$70	$300	$300	–	$300	$300	$300	$300	$300	–	$300
DA	Drain Hole Special	–	–	**	–	**	**	**	**	**	–	**
E	Ductile Iron Stat Discs Per Disc (4 Post) (Number of Stat Discs=# Rotating Discs +1)	–	–	–	–	–	–	–	–	–	–	–
F	Foot Mounting Bracket	–	–	$350	$350	$350	$350	$350	$350	$350	$520	$450
H	Heavy Duty Friction Discs/Hardened Hub — 1st Disc	–	–	$160	–	$160	$160	$160	$160	$160	$160	$160
	Heavy Duty Friction Discs/Hardened Hub — Each Add'l Disc	–	–	$50	–	$50	$50	$50	$50	$50	$50	$50
J	High Tensile Stud***	–	–	–	–	–	–	–	–	–	–	–
K	External Breather	–	–	–	–	–	$235	–	$235	–	–	–
M	Marine/Maritime Duty Brake with MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	–	–	$1,170	–	$1,170	$1,170	$1,170	$1,170	$1,170	**	$1,170
N	Marine/Maritime Duty Brake	–	–	$560	–	$560	$560	$560	$560	$560	**	$560
P	Tropical (Moisture/Fungus) Protection	–	–	$140	–	$140	$140	$140	$140	$140	$140	$140
Q	Class H Insulation	–	$100	$125	$125	$125	$125	$125	$125	$125	–	$125
R	Heater (Specify voltage)	–	–	$210	–	$210	$210	$210	$210	$210	–	$210
S	Stainless Stat Disc (Per Disc) (Number of Stat Discs=# Rotating Discs +1)	–	–	$210	–	$210	$210	$210	$210	$210	–	$210
T	Thru-Hole in cover for shaft extension — Cast Cover	–	–	–	–	–	$225	–	**	–	–	–
	Thru-Hole in cover for shaft extension — Steel Cover	–	$25	$25	–	–	–	–	–	–	–	$25
VO	Vertical Mount Over Motor- cost per disc	–	–	$10	$10	$10	$10	$10	$10	$10	$10	$10
VU	Vertical Mount Under Motor- cost per disc	–	–	$10	$10	$10	$10	$10	$10	$10	$10	$10
W	Electronic Wear Indicator Switch	–	–	–	–	–	–	–	–	–	–	–
X	Special Modifications	**	**	**	**	**	**	**	**	**	**	**
XE	Smart Brake Encoder Option	–	–	$1,535	–	–	$1,535	–	$1,535	–	$3,000	$1,535
XS	Micro Switch (Brake Released/Engaged)	–	–	$415	–	$415	$415	$415	$415	$415	–	$415
XT	Tach Mounting (Cast Cover Only)	–	–	**	–	–	$585	–	$585	–	–	**
Y	Manual Release Handle	–	–	$45	–	$45	$45	$45	$45	$45	–	$45
Z	Stabilizer Clip Rotating (Per Rotating Disc)	–	$10	$10	–	Std.	$10	Std.	$10	Std.	$10	$10
	One Piece Hub/Shaft (Brakes 1-6 lb.ft. only)	–	–	–	–	$270	–	$270	–	$270	–	–
	Corrosion Resistant Internal Parts	–	–	$135	–	$135	$135	$135	Std.	Std.	$135	$135
	Deadman Release	–	Std.	–	–	–	–	–	–	–	–	–
	Non Standard Voltages	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165
	Non Standard Bore Sizes	$135	$180	$180	$180	$180	$180	$180	$180	$180	$180	$180

**-Contact your Local Dings Dynamics Distributor or Factory Representative for availability and pricing.

www.dingsbrakes.com

Brake Option List Price Additions

		70 Series								80 Series			90 Series			
		NEMA 2		NEMA 4		NEMA 4X	NEMA 4X	Haz Location	NAVAL	NEMA 2	NEMA 4	NAVAL	NEMA 2	NEMA 4	NEMA 2	NEMA 4
		End Mount	CC	End Mount	CC	End Mount	CC	End Mount	End Mount	End Mount	End Mount	End Mount	End Mount	End Mount	End Mount	End Mount
	Specification Number→	R -96 -97	-38	-4, -37 -55 -57 -58 -100 -101 -102 -103	-46	-91 -92 -93 -94	-105	-9	-42 -85	R -28 -57 -58	-4 -29 -32	-27 -52	-30	-31 -32	-50	-51 -52
Prefix	**Option Description**															
A	Adaptor to next frame size	$375	$375	$375	$375	$375	$375	$375	$375	$450	$450	$450	$1,025	$1,025	$1,025	$1,025
AA	Double Adaptor to 2nd larger frame size	$575	$575	$575	$575	$575	575	$575	$575	$1,025	$1,025	$1,025	–	–	–	–
AB	Reverse Adaptor to next smaller frame size	$320	$320	$320	$320	$320	$320	$320	$320	$375	$375	$375	$580	$580	$580	$580
B	Aluminum Bronze Stat Disc Per Disc (Number of Stat Discs=# Rotating Discs-1)	$450	$450	$450	$450	$450	$450	–	–	$550	$550	–	$645	$645	**	**
C	Conduit Box	$300	$300	$300	$300					$300	$300		$300	$300	$300	$300
DD	Direct Current (DC Voltage)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DA	Drain Hole Special	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
E	Ductile Iron Sat Discs Per Disc (4 Post) (Number of Stat Discs=# Rotating Discs-1)	$130	$130	$130	$130	$130	$130	–	–	$160	$160	–	–	–	–	–
F	Foot Mounting Bracket	$450	$450	$450	$450	$450	$450	$1,095	$450	$475	$475	$475	$1,325	$1,325	$1,325	$1,325
H	Heavy Duty Friction Discs/Hardened Hub — 1st Disc	$170	$170	$170	$170	$170	$170	$170	$170	$310	$310	$310	Std.	Std.	$500	$500
	Heavy Duty Friction Discs/Hardened Hub — Each Add'l Disc	$80	$80	$80	$80	$80	$80	$80	$80	$130	$130	$130	Std.	Std.	$350	$350
J	High Tensile Stud***	$145	$145	$145	$145	$145	$145	Std.	$145	$145	$145	$145	–	–	–	–
K	External Breather	$250	$250	$250	$250	$250	$250	–	$250	$250	$250	$250	$250	$250	$250	$250
M	Marine/Maritime Duty Brake, MIL-SPEC paint per TT-P-645 & MIL-DTL-15090	$1,420	$1,420	$1,420	$1,420	–	–	**	Std.	$1,795	$1,795	Std.	$2,130	$2,130	$2,130	$2,130
N	Marine/Maritime Duty Brake	$630	$630	$630	$630	–	–	**	–	$875	$875	–	$1,065	$1,065	$1,065	$1,065
P	Tropical (Moisture/Fungus) Protection	$155	$155	$155	$155	$155	$155	$155	$155	$170	$170	$170	$185	$185	$185	$185
Q	Class H Insulation	$155	$155	$155	$155	$155	$155	$155	$155	$175	$175	$175	Std.	Std.	Std.	Std.
R	Heater (Specify voltage)	$225	$225	$225	$225	$225	$225	$225	$225	$225	$225	$225	$275	$275	$275	$275
S	Stainless Stationary Disc (Per Disc)	$305	$305	$305	$305	$305	$305	–	Std.	$405	$405	Std.	$645	$645	**	**
T	Thru-Hole in cover for shaft extension — Cast Cover	$225	–	$300	–	**	–	–	–	$225	$300	–	$225	$520	$225	$520
	Thru-Hole in cover for shaft extension — Steel Cover	$25	–	–	–	–	–	–	–	$25	–	–	–	–	–	–
VO	Vertical Mount Over Motor- cost per disc	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	–	–	$75	$75
VU	Vertical Mount Under Motor- cost per disc	$20	$20	$20	$20	$20	$20	$20	$20	$30	$30	$30	–	–	$75	$75
W	Electronic Wear Indicator Switch	**	**	**	**	**	**	–	**	**	**	**	–	–	–	–
X	Special Modifications	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
XE	Smart Brake Encoder Option	$2,200	–	$2,200	–	$2,200	–	$3,835	–	$2,270	$2,270	–	$2,400	$2,400	$2,400	$2,400
XS	Micro Switch (Brake Released/Engaged)	$450	$450	$450	$450	$450	$450	–	$450	$450	$450	$450	$450	$450	$450	$450
XT	Tach Mounting (Cast Cover Only)	$700	–	$850	–	$850	–	–	–	$700	$850	–	–	–	$1,100	$1,375
Y	Manual Release Handle	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Z	Stabilizer Clip Rotating (Per Rotating Disc)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Corrosion Resistant Internal Parts	$170	$170	$170	$170	Std.	Std.	$170	Std.	$245	$245	Std.	$340	$340	$340	$340
	Deadman Release	**	–	**	–	**	–	**	Std.	**	**	Std.	**	**	–	–
	Non Standard Voltages	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$175	$200	$200	$200	$200
	Non Standard Bore Sizes	$210	$210	$210	$210	$210	$210	$210	$210	$250	$250	$250	$335	$335	$335	$335
	External Release (Mark II Release) This option requires a new Specification No.	$400	–	$400	–	$400	–	–	–	$425	$425	–	–	–	–	–
	External Release (Mark III Release) This option requires a new Specification No.	$325	–	$325	–	$325	–	–	–	$350	$350	–	–	–	–	–

**-Contact your Local Dings Dynamics Distributor or Factory Representative for availability and pricing.
***-Divide List Price by 2 for 2 Post Brakes.

www.dingsbrakes.com

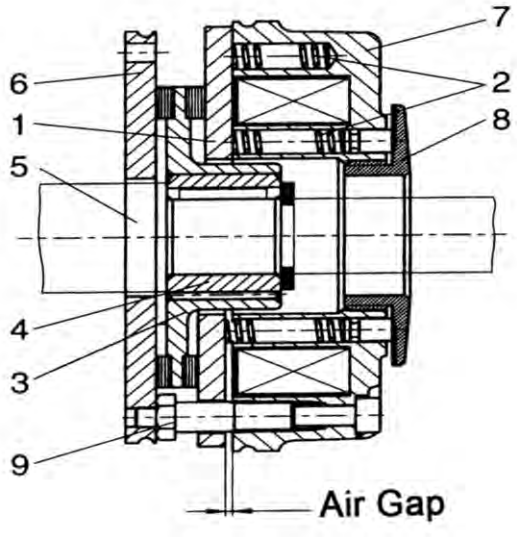
Armature Actuated Brakes

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

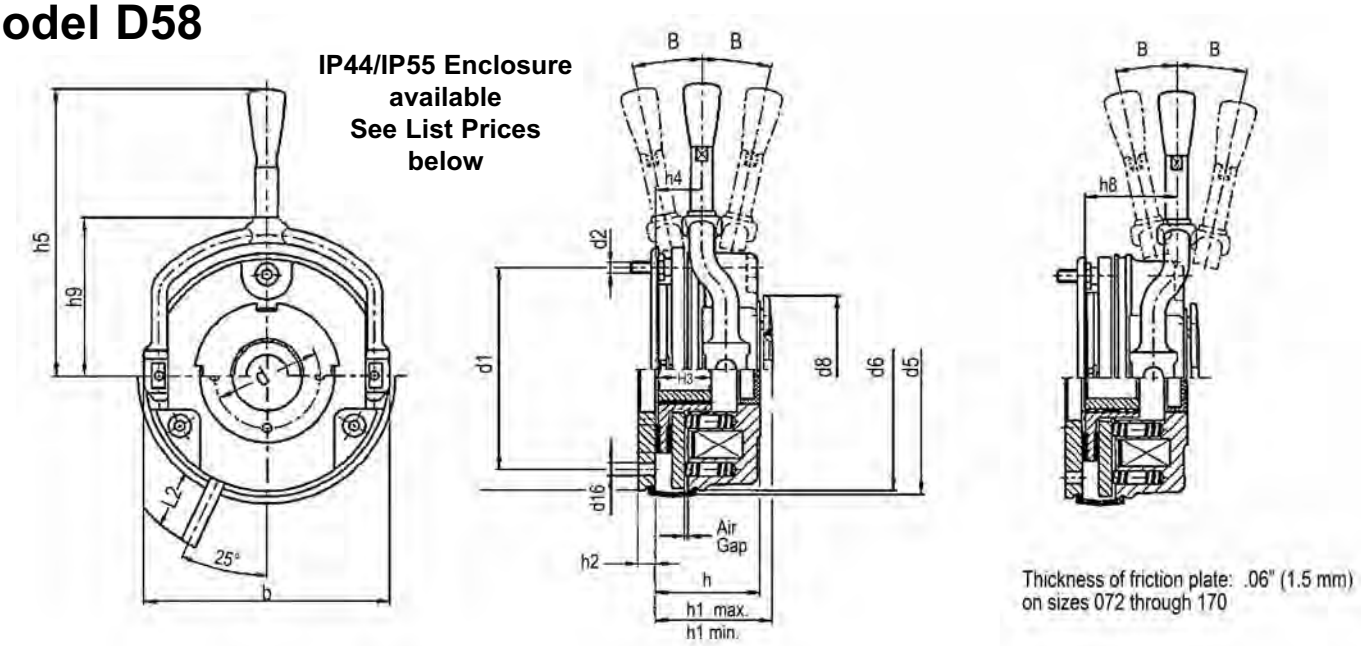
**Reaction times apply to DC switching at rated air gap (see dimensions page). Refer to page 58 for explanation of Reaction Times.

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



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)	$322	$377	$24	$15	$42
D58-090	6 (8)	$355	$420	$24	$15	$42
D58-112	12 (16)	$495	$583	$30	$15	$42
D58-132	25 (32)	$588	$680	$34	$35	$42
D58-145	45 (60)	$875	$985	$50	$35	$70
D58-170	60 (80)	$1,125	$1,250	$70	$35	$70
D58-196	110 (150)	$2,080	$2,270	$85	$50	$70
D58-230	190 (260)	$2,700	$2,965	$105	$65	$70
D58-278	300 (400)	$5,925	$6,245	$120	$75	$83

*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 $24 170 $70 112 $30 196 $85 132 $34 230 $105 145 $50 278 $120
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	$300
E	Sealing Plug	A cover is pressed into the brake center	All	**Size Adder Size Adder** 072 - 112 $15 196 $50 132 - 170 $35 230 $65 278 $75
L	Long Life Rotor	Service life at least twice as long (wear-resistant coating)	All	**Size Adder Size Adder** 072 - 112 $20 196 $70 132 - 170 $35 230 $140 278 $280
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 $55 170 $125 090 $65 196 $190 112 $88 230 $265 132 $92 278 $320 145 $110
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 = $185 145 & 170 = $415 196 - 278 = $465
MT	Manual Release Indicator, direction of release towards motor		072, 090, 112	072 through 112 = $185
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 $55 170 $210 090 $68 196 $245 112 $78 230 $295 132 $95 278 $360 145 $140
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 $45 132 $105 090 $60 145-278 $140 112 $82
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 $42 145 - 230 $70 278 $83
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 $25 145 - 196 $62 230 - 278 $160
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 $415 196 - 278 $465
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 $415 196 - 278 $465
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 $92 132 $160 090 $96 145 $215 112 $125 170 $230

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

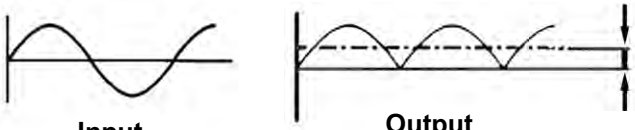
Armature Actuated Brakes

AC Rectifiers

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

Full-Wave Bridge Rectifiers

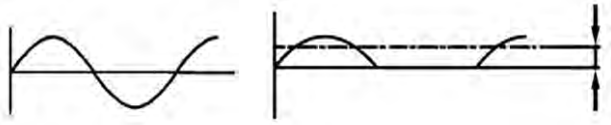
Both positive and negative half-cycles of the AC signal are rectified to produce a DC current output. V_{DC} = .90 V_{AC}.



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

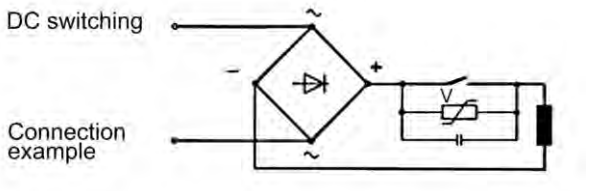
AC input voltage	Rectifier part number	Type	DC Coil voltage	Mounting	Max. Supply Voltage	List Price
42	D-630-H-V D-630-H-H	Half Wave	20	Vertical Horizontal	555 V	$130.00
48	D-630-H-V D-630-H-H	Half Wave	20	Vertical Horizontal	555 V	$130.00
	D-630-B-V D-630-B-H	Bridge	42	Vertical Horizontal	270 V	$92.00
110	D-630-B-V D-630-B-H	Bridge	103	Vertical Horizontal	270 V	$92.00
230	D-630-H-V D-630-H-H	Half Wave	103	Vertical Horizontal	555 V	$130.00
	D-630-B-V D-630-B-H	Bridge	205	Vertical Horizontal	270 V	$92.00
240	D-630-H-V D-630-H-H	Half Wave	103	Vertical Horizontal	555 V	$130.00
	D-630-B-V D-630-B-H	Bridge	215	Vertical Horizontal	270 V	$92.00
380	D-630-H-V D-630-H-H	Half Wave	180	Vertical Horizontal	555 V	$130.00
400	D-630-H-V D-630-H-H	Half Wave	180	Vertical Horizontal	555 V	$130.00
440	D-630-H-V D-630-H-H	Half Wave	205	Vertical Horizontal	555 V	$130.00
460	D-630-H-V D-630-H-H	Half Wave	205	Vertical Horizontal	555 V	$130.00
480	D-634-H-V* D-634-H-H*	Half Wave	215	Vertical Horizontal	555 V	$130.00
500	D-634-H-V* D-634-H-H*	Half Wave	225	Vertical Horizontal	555 V	$130.00
555	D-634-H-V* D-634-H-H*	Half Wave	250	Vertical Horizontal	555 V	$130.00

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	$85.00
D-198-002	50V - 120V	110 W	$85.00
D-198-003	120V - 200V	110 W	$85.00
D-198-004	200V - 250V	110 W	$85.00

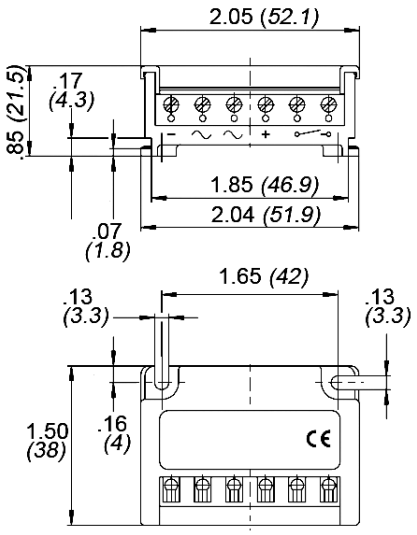


Armature Actuated Brakes

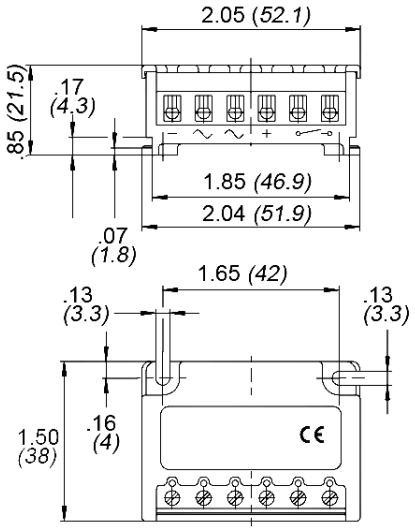
AC Rectifiers

Dimensions in inches *(Dimensions in Millimeters)*

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



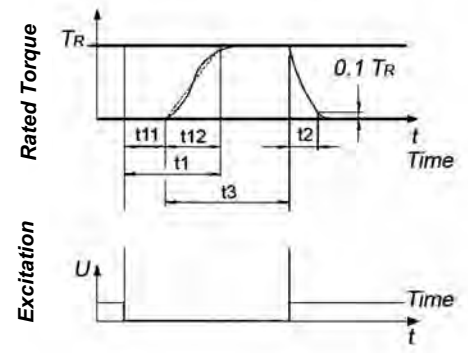
Models D-630-H-H and D-630-B-H

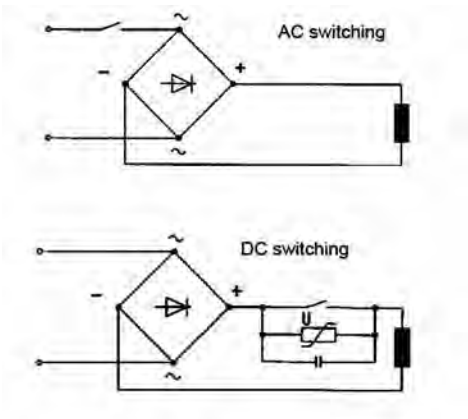


Operating Times

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)

Application Engineering- Overhauling Loads

TABLE OF SYMBOLS

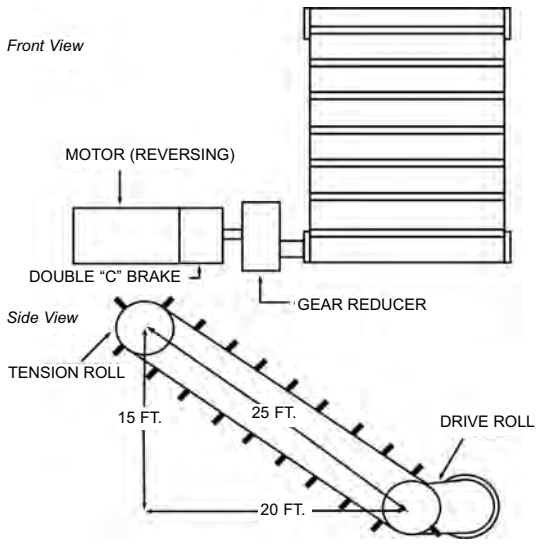
W_L	Weight of overhauling load
W	Total weight of load acting at motor brake
V_L	Linear velocity of load subjected to linear motion
Θ	Angle of incliination for overhauling load
WK^2_T	Total rotational moment of inertia acting at motor brake
N_L	Rotational speed of load
N_B	Rotational speed of brake
T_O	Torque required at brake to hold overhauling load
T_{BM}	Minimum brake torque to stop and hold application
T_{SB}	Torque rating of selected brake
t_{SB}	Stopping time of application using selected brake
TDS	Total distance travelled by linear load during stop
HPS	Horsepower seconds per stop
ASM	Allowable stops per minute
RTC	Rated thermal capacity of brake

The procedure for sizing a brake in an application subjected to overhauling loads has four steps:

I. Determine rotational moment of inertia acting at motor brake.
II. Determine minimum torque required to stop and hold system.
III. Calculate system performance using selected brake.
IV. Evaluate system performance.

Before starting this process, the following application information is needed to conduct the sizing calculations:

- A detailed sketch of the brake-motor application.
- Motor data, including horsepower rating, speed (rpm), rotational inertia (lb-ft^2) and NEMA frame size.
- Rotational inertia (lb-ft^2) of all system components acting at the brake.
- Rotational speed (rpm) of all system components acting at the brake.
- Weight (lbs) and velocity (ft/min) of loads subjected to linear motion.
- Angle of inclination if overhauling load is not acting vertically.
- Cycle rate of system (stops/min).



Example: Application Information for Bucket Conveyor

Motor Data:

Horsepower Rating	5 HP
Speed	1,760 RPM
Rotational Inertia	0.30 lb-ft^2
NEMA Frame Size	184 TC

Rotational Inertia of All Active System Components:

Motor Brake Data:

Rotational Inertia	0.11 lb-ft^2

Gear Reducer Data:

Gear Reduction Ratio	50:1
Gear Reducer Inertia	0.14 lb-ft^2

Drive Roll Data:

Roll Diameter	0.955 ft
Roll Length	2.5 ft
Rotational Inertia	99.338 lb-ft^2
Tension Roll Data	Same as Drive Roll

Rotational Speed of All Components Acting at Brake:

Motor	1,760 RPM
Brake	1,760 RPM
Gear Reducer	1,760 RPM (in)
	35.2 RPM (out)
Drive Roll	35.2 RPM
Tension Roll	35.2 RPM

Weight and Velocity of Loads Subjected to Linear Motion:

For this example, we will use the following conveyor data:

Empty weight of conveyor belt (per foot basis)	15 lbs
Total length of conveyor belt	53 ft
Empty weight of conveyor bucket	20 lbs
Spacing of buckets on conveyor	1 ft
Total number of buckets on conveyor	52
Load capacity of each bucket	75 lbs

$$W_C = (53\text{ ft})(15\text{ lb/ft}) + (52)(20\text{ lbs}) = 1{,}835\text{ lbs}$$

$$W_L = (0.5)(52)(75\text{ lbs}) = 1{,}950\text{ lbs}$$

**The W_L calculation assumes that only half of the buckets will carry a load at any given instant.*

$$W = W_C + W_L = 3{,}785\text{ lbs}$$

(For velocity calculations)

$$V_L = (35.2\text{ rev/min})(0.955\text{ ft})\,\pi = 105.6\text{ ft/min}$$

Angle of Inclination:

$$\text{Ø} = \text{SIN}^{-1}\left(\frac{H}{L}\right) = \text{SIN}^{-1}\left(\frac{15}{25}\right) = 36.87^{o}$$

$$\text{SIN Ø} = 0.600$$

Then: (For weight calculations)
Cyclic Rate of System:
Maximum of 2 stops/minute.
Using the application information, select a brake for this system.

www.dingsbrakes.com

Application Engineering- Overhauling Loads

I. DETERMINE ROTATIONAL MOMENT OF INERTIA ACTING AT MOTOR BRAKE

Known Quantities:

Motor	0.3000 lb-ft^2
Brake	0.1100 lb-ft^2
Gear Reducer	0.1400 lb-ft^2

(A) Contribution from rotary load at different speed than brake shaft:

(For Drive Roller)

$$WK^2_{DR} = WK^2_{DRD}\left(\frac{N_L}{N_B}\right)^2 = (99.338 \text{ lb-ft}^2)\left(\frac{35.2}{1760}\right)^2 = 0.0397 \text{ lb-ft}^2$$

(For Tension Roller)

$$WK^2_{TR} = WK^2_{TRD}\left(\frac{N_L}{N_B}\right)^2 = (99.338 \text{ lb-ft}^2)\left(\frac{35.2}{1760}\right)^2 = 0.0397 \text{ lb-ft}^2$$

**This assumes that there is no slippage between conveyor belt and rollers.*

(B) Contribution from loads subjected to linear motion:

$$WK^2_L = W\left(\frac{V_L}{2\pi N_B}\right)^2 = (3{,}785 \text{ lbs})\left(\frac{105.6}{2\pi 1760}\right)^2 = 0.3452 \text{ lb-ft}^2$$

Then:

$$WK^2_T = WK^2_M + WK^2_B + WK^2_{GR} + WK^2_{DR} + WK^2_{TR}$$

$$WK^2_T = 0.9746 \text{ lb. ft.}^2$$

II. DETERMINE MINIMUM TORQUE REQUIRED TO STOP AND HOLD SYSTEM

(A) Calculate overhauling torque of fully loaded conveyor belt:

$$T_O = \frac{(0.158)(SIN(\Theta))(W_L)(V_L)}{N_B}$$

$$T_O = \frac{(0.158)(0.600)(1950 \text{ lb})(105.6 \text{ ft/min})}{1760 \text{ RPM}} = 11.092 \text{ lb. ft.}$$

(B) Calculate minimum brake torque:

$$T_{BM} = \frac{(WK^2_T)(N_B)}{308t} + T_O$$

$$T_{BM} = \frac{(0.9746 \text{ lb. ft.}^2)(1760)}{(308)(1)} + 11.092 \text{ lb. ft.}$$

$$T_{BM} = 5.569 \text{ lb. ft.} + 11.092 \text{ lb. ft.} = 16.661 \text{ lb. ft.}$$

Please note that the maximum stopping time should not exceed one second.

Therefore, we must select a brake with a torque rating of at least 16.661 lb-ft which fits on a NEMA 184 TC frame size.

Selected Brake Data:

Dings Model Number	4-72025-46
Enclosure Type	NEMA 4
Brake Style	Double “C” Face
Rated Thermal Capacity	12
Rotational Inertia	0.1097 lb-ft^2

III. CALCULATE SYSTEM PERFORMANCE USING SELECTED BRAKE

(A) Stopping time calculation:

$$t_{SB\uparrow} = \frac{\left(WK^2_T\right)\left(N_B\right)}{(308)(T_{SB} + T_O)} = \frac{(0.9746 \text{ lb. ft.}^2)(1760)}{(308)(25+11.092)} = 0.154 \text{ sec}$$

$$t_{SB\downarrow} = \frac{\left(WK^2_T\right)\left(N_B\right)}{(308)(T_{SB} - T_O)} = \frac{(0.9746 \text{ lb. ft.}^2)(1760)}{(308)(25-11.092)} = 0.400 \text{ sec}$$

(B) Travel distance during stop calculations:

$$TDS_\uparrow = \frac{0.5\, V_L\, t_{SB\uparrow}}{60} = \frac{(0.5)(105.6 \text{ ft/min})(0.154\text{s})}{60} = 0.136 \text{ ft}$$

$$TDS_\downarrow = \frac{0.5\, V_L\, t_{SB\downarrow}}{60} = \frac{(0.5)(105.6 \text{ ft/min})(0.400\text{s})}{60} = 0.352 \text{ ft}$$

(C) Thermal requirement calculations:

(without overhauling load)

$$\text{H.P. Sec/Stop} = WK^2_T\left(\frac{N_B}{1800}\right)^2 = (0.9746 \text{ lb. ft.}^2)\left(\frac{1760}{1800}\right)^2 = 0.932 \text{ HPS/Stop}$$

(with ascending overhauling load)

$$\text{H.P. Sec/Stop}_{O\uparrow} = \text{H.P. Sec/Stop}\left(\frac{T_{SB}}{T_{SB} + T_O}\right)$$

$$= (0.932)\left(\frac{25}{25+11.092}\right) = 0.646 \text{ HPS/Stop}_{O\uparrow}$$

(with descending overhauling load)

$$\text{H.P. Sec/Stop}_{O\downarrow} = \text{H.P. Sec/Stop}\left(\frac{T_{SB}}{T_{SB} - T_O}\right)$$

$$= (0.932)\left(\frac{25}{25-11.092}\right) = 1.675 \text{ HPS/Stop}_{O\downarrow}$$

Since the worst case scenario is a descending overhauling load, it will be used to determine allowable stops:

(D) Allowable stops calculation:

$$ASM = \frac{RTC}{\left(\frac{HPS_{O\uparrow}}{MIN}\right)} = \frac{12}{1.675} = 7.16 \frac{STOPS}{MIN}$$

IV. EVALUATE SYSTEM PERFORMANCE

(1) Stopping time of system is less than one second so brake torque is adequate.

(2) Allowable stops per minute is more than three times the specified number of two, so rated thermal capacity is adequate.

Therefore, we can conclude that the brake will function as intended.

Product Warranty

Seller warrants products manufactured by it and supplied hereunder to be free from defects in material and workmanship under normal use and proper maintenance for a period of twelve months from date of shipment. If within such period any such products shall be proved to Sellers's reasonable satisfaction to be defective, such products shall be repaired or replaced at Seller's option. Seller's obligation and Buyer's exclusive remedy hereunder shall be limited to such repair and replacement and shall be conditioned upon Seller's receiving written notice of any alleged defect no later than 10 days after its discovery within the warranty period and, at Seller's option, the return of such products to Seller, f.o.b. its factory, when such return is feasible. Seller reserves the right to satisfy its warranty obligation in full by reimbursing Buyer for all payments it makes hereunder, and Buyer shall thereupon return the products to Seller. Seller shall have the right to remedy such defects. Seller makes no warranty with respect to wear or use items, such as belts, chains, sprockets, discs and coils, all of which are sold strictly AS IS.

The foregoing warranties are exclusive and in lieu of all other express and implied warranties (except of title) including but not limited to implied warranties of merchantability, fitness for a particular purpose, performance or otherwise, and in no event shall the Seller be liable for claims (based upon breach of express or implied warranty, negligence, product liability, or otherwise) for any other damages, whether direct, immediate, incidental, foreseeable, consequential, or special.

Conversions

Measurement	Base Unit	Convert to	Factor
Torque	pound-feet (lb-ft) Newton-meter (Nm) pound-inches (lb-in) Newton-meter (Nm) ounce-inches (oz-in) Newton-meter (Nm)	Newton-meter (Nm) pound-feet (lb-ft) Newton-meter (Nm) pound-inches (lb-in) Newton-meter (Nm) ounce-inches (oz-in)	1.355818 .73756 .113 8.85 .007062 141.611
Horsepower	horsepower (hp) kilowatt (Kw)	kilowatt (Kw) horsepower (hp)	.7457 1.341
Weight	pound (lb) kilogram (kg)	kilogram (kg) pound (lb)	.453592 2.20462
Inertia	pound-feet squared (lb-ft^2) kilogram-meter squared (kgm^2)	kilogram-meter squared (kgm^2) pound-feet squared (lb-ft^2)	.042 23.81
Length	inch millimeter (mm)	millimeter (mm) inch	25.4 .03937

Sales Offices

	Company	Address	City	State	Phone No	Fax No
①	Advantage Sales Network	80 Hale Road, Unit 1	Brampton	ON	905-455-6969	905-455-6061
	Canada					
②	B C & H Company	1011 Van Buren Ave	Indian Trail	NC	704-575-0458	704-847-3651
	North Carolina, South Carolina, Virginia, West Virginia					
③	Brundage Associates	555 Goffle Road	Ridgewood	NJ	201-445-3897	201-803-0568
	Delaware, Maryland, New Jersey, Southern New York, Eastern Pennsylvania					
④	J.T. Chapman Company	3251 Royalty Row	Irving	TX	800-494-1918	972-438-5507
	Colorado, Idaho, Kansas, Missouri, Montana, Nebraska, New Mexico, Oregon, Utah, Washington, Wyoming					
⑤	Drive Solutions, Inc.	4327 S Hwy 27 Ste 327	Clermont	FL	352-243-7517	352-243-7518
	Florida- Excluding Panhandle, Georgia- Southern					
⑥	Empower Sales	74998 Country Club Dr	Palm Desert	CA	760-779-5182	760-779-5183
	Arizona, California, Nevada					
⑦	Kacey Enterprises, Inc.	346 Taft Ave. Ste 203	Glen Ellyn	IL	630-790-9783	630-790-9654
	Illinois- Northern, Indiana- Northwest only, Iowa, Minnesota, North Dakota, South Dakota, Wisconsin					
⑧	Midwest Drives, Inc.	4006 Industrial Drive	St Peters	MO	636-928-9555	636-447-4413
	Illinois- Southern, Indiana- Southwest only, Kentucky-Western, Missouri- Eastern					
⑨	Motion Control Resources	6519 Eastland Road	Brookpark	OH	440-829-2633	440-234-1200
	Indiana, Kentucky-Eastern, New York-Western, Ohio, Pennsylvania-Western					
⑩	Northgate Technologies	14 Station Street	Simsbury	CT	860-658-1998	860-651-1712
	Connecticut, Massachussetts, Maine, New Hampshire, New York- Eastern, Vermont					
⑪	Robco, Inc.	1523 Crescent	Carrollton	TX	972-242-3300	972-245-2328
	Arkansas, Louisiana, Oklahoma, Texas					
⑫	V.E. Brackett	135 Cecil Court	Fayetteville	GA	770-461-8334	770-461-1312
	Alabama, Florida- Panhandle, Georgia- North, Mississippi, Tennessee					