

Double C-Face Spring-Set Brakes

KEBCO

POWER TRANSMISSION



“GUARANTEED
ENGINEERING
PERFORMANCE”

**KEBCO Combistop
type 17**

The KEBCO Commitment

To provide the highest quality motion control products for power transmission applications using the most complete, cost effective solution possible.



KEBCO double C-face brakes make saving time and money easy!!!

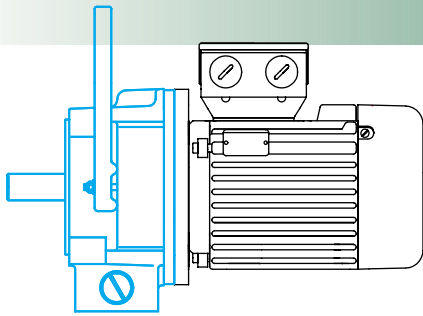
Do you have a NEMA frame motor but you just can't find the break you need? The KEBCO type 17 spring set brake is the answer to all your motor braking problems! We have a simple solution to your braking headaches. This catalog will quickly and easily point you to the exact brake you're looking for.

Why the type 17 spring set brake?

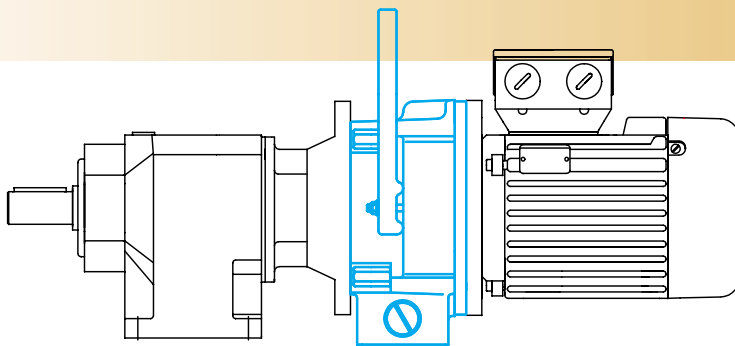
- Eliminates the need for expensive double shaft motors
- NEMA mounting available from 56C to 254C
- Reliable replacement for existing AC brake modules
- Standard washdown housing and hand release
- Rigid construction and long life
- Available torque from 3 to 75 ft lbs
- Convenient conduit box
- Mount vertically or horizontally with one brake!

**“GUARANTEED
ENGINEERING
PERFORMANCE”**

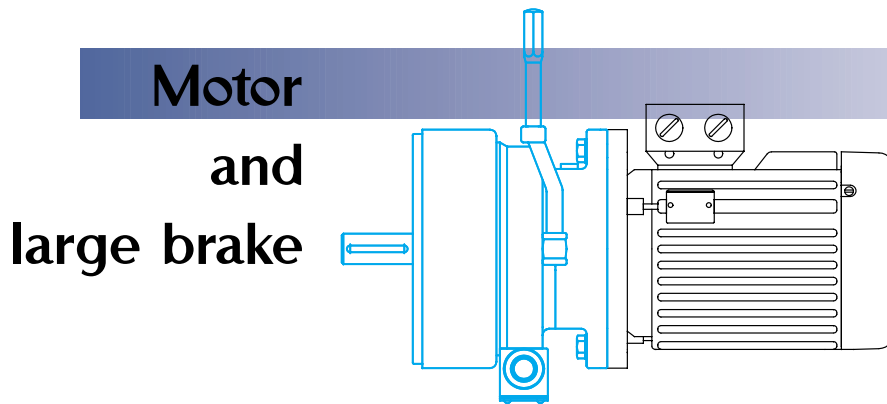
Mounting Examples*



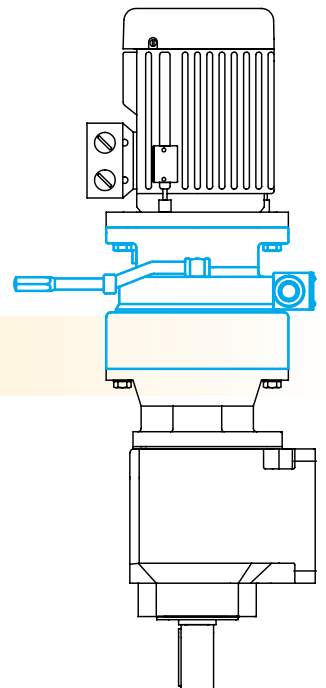
**Motor
and
small brake**



**Horizontally
mounted
with
gearbox**



**Motor
and
large brake**

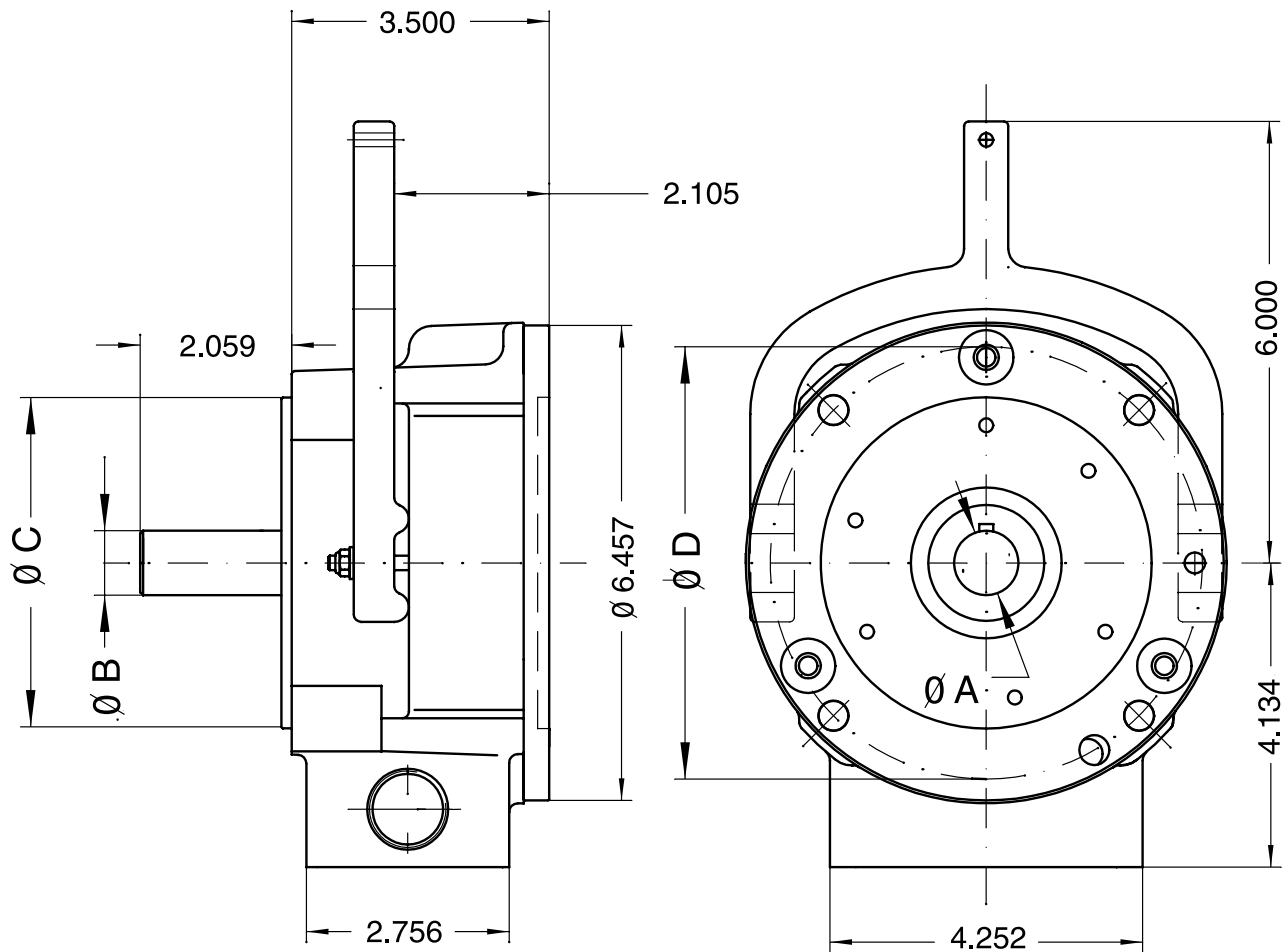


**Vertically
mounted
with
gearbox**

*We can supply many more mounting examples.

Small Housing

56C & 145C frame

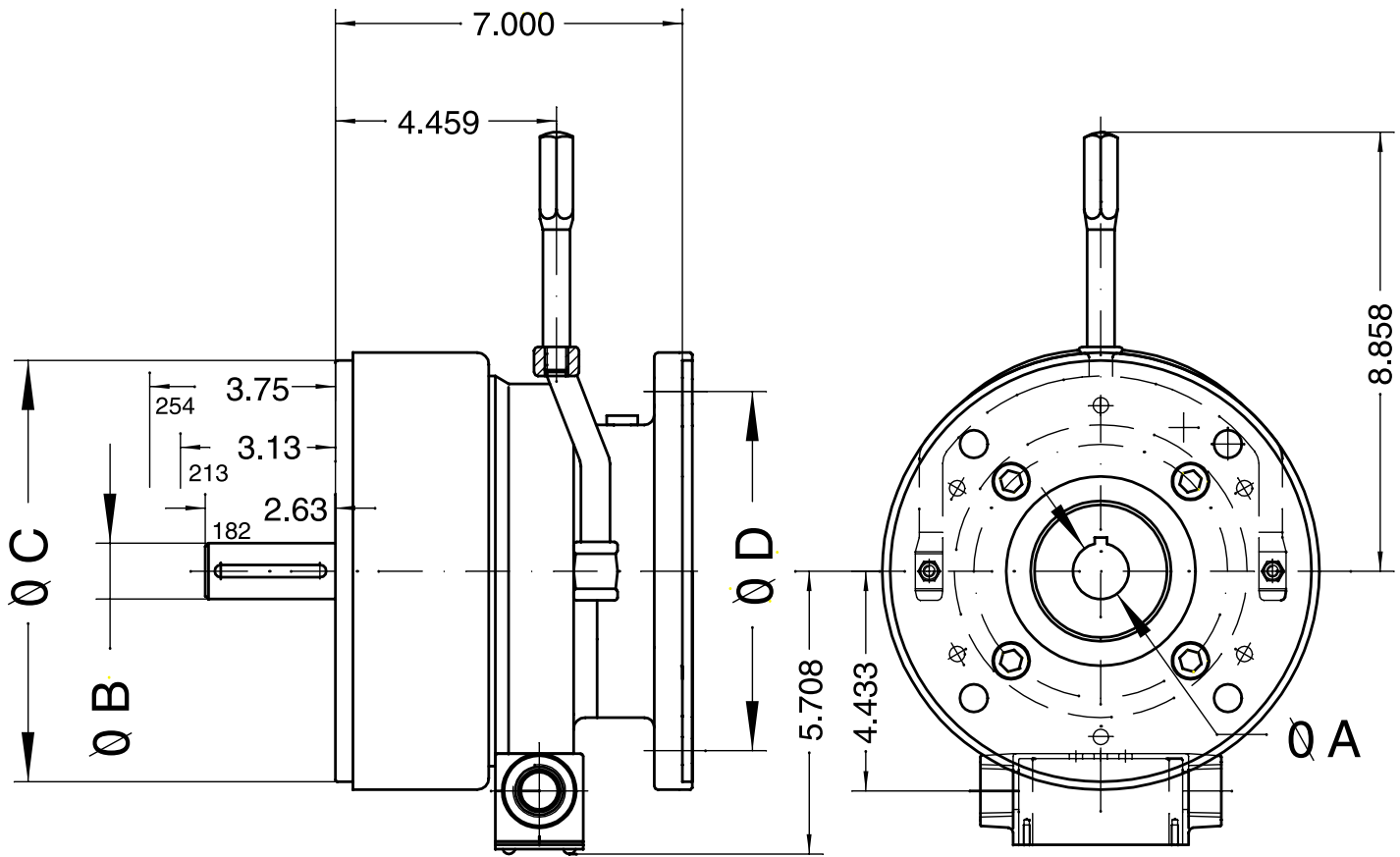


Size	Torque	Frame Size	A Input	B Output	C Pilot	D Bolt Circle	Overall Length																												
2	3 ft lbs	56C	0.625	0.625	4.500	5.875	3.500																												
		145C	0.875	0.875				3	6 ft lbs	56C	0.625	0.625	4.500	5.875	3.500	145C	0.875	0.875	4	12 ft lbs	56C	0.625	0.625	4.500	5.875	3.500	145C	0.875	0.875	5	18 ft lbs	56C	0.625	0.625	4.500
3	6 ft lbs	56C	0.625	0.625	4.500	5.875	3.500																												
		145C	0.875	0.875				4	12 ft lbs	56C	0.625	0.625	4.500	5.875	3.500	145C	0.875	0.875	5	18 ft lbs	56C	0.625	0.625	4.500	5.875	3.500	145C	0.875	0.875						
4	12 ft lbs	56C	0.625	0.625	4.500	5.875	3.500																												
		145C	0.875	0.875				5	18 ft lbs	56C	0.625	0.625	4.500	5.875	3.500	145C	0.875	0.875																	
5	18 ft lbs	56C	0.625	0.625	4.500	5.875	3.500																												
		145C	0.875	0.875																															

***Note: All dimensions are in inches**

182C, 213C & 254C frame

Large Housing



Size	Torque	Frame Size	A Input	B Output	C Pilot	D Bolt Circle	Overall Length
6	25 ft lbs	182C	1.125	1.125	8.500	7.250	7.000
		213C	1.375	1.375			
		254C	1.625	1.625			
7	45 ft lbs	182C	1.125	1.125	8.500	7.250	7.000
		213C	1.375	1.375			
		254C	1.625	1.625			
8	75 ft lbs	182C	1.125	1.125	8.500	7.250	7.000
		213C	1.375	1.375			
		254C	1.625	1.625			

***Note: All dimensions are in inches**

Selection Chart

Hp	NEMA Frame Size		Motor Dimensions (in.)			Brake*		
	T frame	C Frame	Shaft diameter	Pilot	Bolt circle	Torque	Voltage input	Part Number
1/3-1/2	56C	56C	0.625	4.500	5.875	3 ft lbs	120 VAC 230 VAC 460 VAC	02.17.670-710U 02.17.670-810U 02.17.670-910U
3/4	56C	56C	0.625	4.500	5.875	6 ft lbs	120 VAC 230 VAC 460 VAC	03.17.670-710U 03.17.670-810U 03.17.670-910U
1	56C	56C	0.625	4.500	5.875	6 ft lbs	120 VAC 230 VAC 460 VAC	03.17.670-710U 03.17.670-810U 03.17.670-910U
	143C/145C	143C/145C	0.875	4.500	5.875	6ft lbs	120 VAC 230 VAC 460 VAC	03.17.670-720U 03.17.670-820U 03.17.670-920U
1.5	56C	56C	0.625	4.500	5.875	12 ft lbs	120 VAC 230 VAC 460 VAC	04.17.670-710U 04.17.670-810U 04.17.670-910U
	143C/145C	143C/145C	0.875	4.500	5.875	12 ft lbs	120 VAC 230 VAC 460 VAC	04.17.670-720U 04.17.670-820U 04.17.670-920U
2	56C	56C	0.625	4.500	5.875	12 ft lbs	120 VAC 230 VAC 460 VAC	04.17.670-710U 04.17.670-810U 04.17.670-910U
	143C/145C	143C/145C	0.875	4.500	5.875	12 ft lbs	120 VAC 230 VAC 460 VAC	04.17.670-720U 04.17.670-820U 04.17.670-920U
3	143C/145C	143C/145C	0.875	4.500	5.875	18 ft lbs	120 VAC 230 VAC 460 VAC	05.17.670-720U 05.17.670-820U 05.17.670-920U
	182/184C	182/184C	1.125	8.500	7.250	25 ft lbs	120 VAC 230 VAC 460 VAC	06.17.670-730U 06.17.670-830U 06.17.670-930U
5	182/184C	182/184C	1.125	8.500	7.250	45 ft lbs	120 VAC 230 VAC 460 VAC	07.17.670-730U 07.17.670-830U 07.17.670-930U
	213C/215C	213/215C	1.375	8.500	7.250	45 ft lbs	120 VAC 230 VAC 460 VAC	07.17.670-740U 07.17.670-840U 07.17.670-940U
7.5	213C/215C	213C/215C	1.375	8.500	7.250	45 ft lbs	120 VAC 230 VAC 460 VAC	07.17.670-740U 07.17.670-840U 07.17.670-940U
	254C/256C	254C/256C	1.625	8.500	7.250	45 ft lbs	120 VAC 230 VAC 460 VAC	07.17.670-750U 07.17.670-850U 07.17.670-950U
10	213C/215C	213C/215C	1.375	8.500	7.250	75 ft lbs	120 VAC 230 VAC 460 VAC	08.17.670-740U 08.17.670-840U 08.17.670-940U
	254C/256C	254C/256C	1.625	8.500	7.250	75 ft lbs	120 VAC 230 VAC 460 VAC	08.17.670-750U 08.17.670-850U 08.17.670-950U
15	254C/256C	254C/256C	1.625	8.500	7.250	75 ft lbs	120 VAC 230 VAC 460 VAC	08.17.670-750U 08.17.670-850U 08.17.670-950U

This chart assumes that the brake is being mounted to a standard 4-pole motor. If the unit you need doesn't appear on this page, please use the engineering information on the following page or consult KEBCO.

*All KEBCO units come with DC coils. Our standard voltages are 12, 24, 105 & 205 VDC. Special voltages are available upon request. The part numbers listed include an internal rectifier to get suitable DC output from the AC mains to the brake.

Size Selection*

Nominal Torque

$$T_{\text{brake}} \geq T_{\text{required}} \times K$$

OR

$$T_{\text{brake}} \geq T_{\text{required}} \times K$$

$$T_{\text{required}} = \frac{9550 \times KW}{n}$$

$$KW = HP \times 0.746$$

$$T_{\text{required}} = T_a \pm T_{\text{load}}$$

$$T_a = J \times a$$

Deceleration Time

$$t = 104.6 \frac{J \times n}{T_{\text{brake}} \pm T_{\text{load}}} + t_2$$

Heat Load

$$W_R = \frac{J \times n^2}{182.5} \times \frac{T_{\text{brake}}}{T_{\text{brake}} \pm T_{\text{load}}}$$

$$W_R \leq W_{R\text{max}}$$

Friction Work Per Second

$$P_R = W_R \times S$$

$$P_R \leq P_{R\text{max}}$$

Overhung Load Ratings

Maximum force allowed at the center of the output shaft

Size 02-05 : 83lbs

Size 06-08 : 330lbs

a	= angular acceleration	[s ⁻²]
HP	= motor power	[HP]
J	= moment of inertia 1)	[kg-m ²]
K	= safety factor (K>2)	
KW	= motor power	[KW]
n	= speed	[rpm]
P _R	= friction work per second	[J/s]
P _{Rmax}	= max friction work per second	[J/s]
S	= switching operations per second	
t	= deceleration time	[ms]
t ₁	= brake release time 3)	[ms]
t ₂	= brake engagement time 3)	[ms]
T _a	= acceleration torque	[N-m]
T _{brake}	= rated brake torque	[N-m]
T _{load}	= load torque 2)	[N-m]
T _{required}	= required torque	[N-m]
W _R	= friction per switching operation	[J]
W _{Rmax}	= max friction per switching operation	[J]

- 1) The total moment of inertia is equal to the moment of inertia of the accelerated components plus the moment of inertia of the brakes.
- 2) For the selection of the sign, take notice of whether the load torque supports or counteracts the deceleration of the load.
- 3) Use of the KEBCO Power Box can be used to reduce either the brake release time or the brake engagement time.

Size	T _{brake}	J _{brake}	W _{Rmax}	P _{Rmax}	t ₁	AC side t ₂	DC side t ₂	Power Box t ₁	Power Box AC side t ₂	Power Box DC side t ₂
02	4.0	1.3 x 10 ⁻⁴	3.5 x 10 ³	100	15	210	40	8	115	20
03	8.0	1.3 x 10 ⁻⁴	3.5 x 10 ³	100	40	175	35	20	110	20
04	16.5	1.3 x 10 ⁻⁴	3.5 x 10 ³	100	65	145	35	35	105	20
05	24.5	1.3 x 10 ⁻⁴	3.5 x 10 ³	100	90	110	30	45	100	20
06	34.0	3.9 x 10 ⁻³	11 x 10 ³	300	100	900	40	50	750	20
07	68.0	3.9 x 10 ⁻³	11 x 10 ³	300	140	725	38	70	620	20
08	102.0	3.9 x 10 ⁻³	11 x 10 ³	300	180	550	35	90	495	20

*All calculations use SI units



KEBCO Combivert F4-S, F4-C

High quality general purpose frequency inverters. Excellent for indexing systems, complex profile requirements, and high dynamic applications.

Rating: 0.5... 400HP
Connection: 1/3-phase
230V, 460V



KEBCO Combidrive F4-F

High performance flux vector closed loop inverters with either an angular synchronization control or an absolute/incremental positioning built right into the drive.

Rating: 1 HP... 125HP
Connection: 230V, 460V



KEBCO Combidyn S4

AC-Servo amplifier/motor packages with peak torque ratings of 5x nominal torque. Includes an angular synchronization control or an absolute/incremental positioning control built right into the drive.

Torque: 2.6... 620lb-in
Speed: 1500/2000/3000/4000/6000 rpm



KEBCO Combigear

Compact, high performance integral gearmotors. Helical gearing available in inline, parallel shaft mount, and right angle shaft mount configurations. Gearmotors can be supplied with any combination of spring set brake, encoder, or force cooling fan.

Rating: 1/6... 40HP



KEBCO Combibox

Clutch/Brake Modules

KEBCO Combistop

Spring set brakes

KEBCO Combinorm

Electromagnetic clutches and brakes

KEBCO Combiperm

Permanent magnet clutches and brakes

KEBCO Combitron

Rectifiers and Controls



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