Double C-Face Spring-Set Brakes

KEB Combistop Type 17

KEB

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KEB Double C-Face Brakes make saving time and money easy!!!

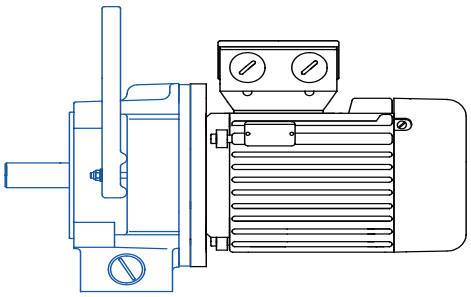
Do you have a NEMA frame motor but you just can't find the brake you need? The KEB Type 17 Spring Set Brake is the answer to all your motor braking problems! We have a simple solution to your braking headaches. This catalog will quickly and easily point you to the exact brake your looking for.

Why the Type 17 Spring Set Brake?

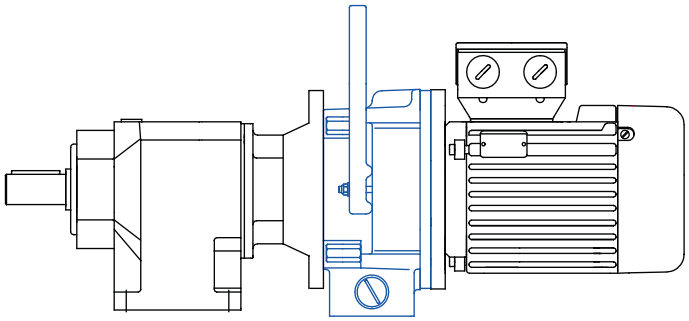
GUARANTEED ENGINEERING PERFORMANCE

- 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

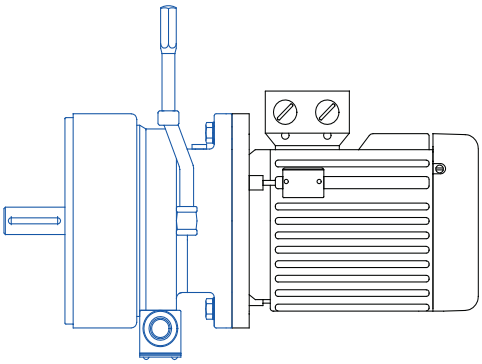
Mounting Examples



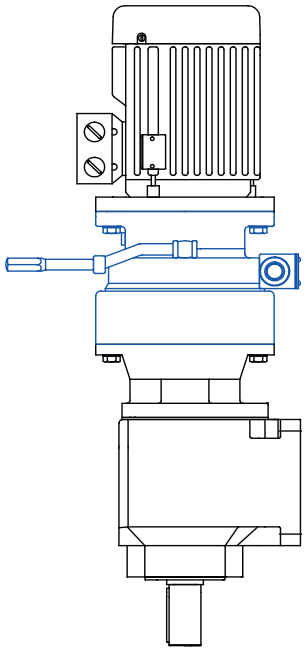
Motor and Small Brake



Horizontally Mounted with Gearbox



Motor and Large Brake

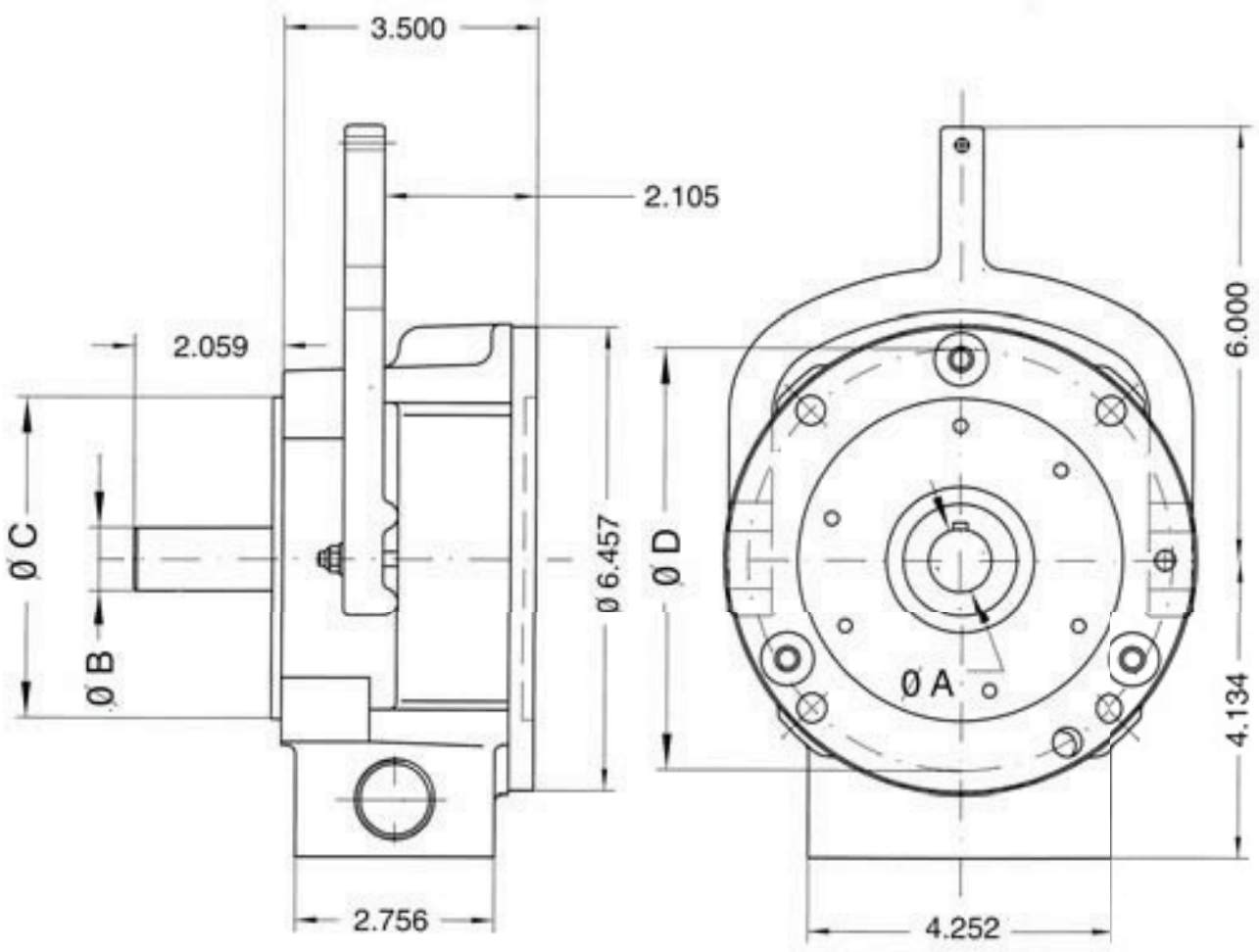


Vertically Mounted with Gearbox

Options:

* Microswitch
* Dual coil heater
* Locking hand release
* Higher torque for non dynamic applications
* Others available upon request

56C & 145C Frame

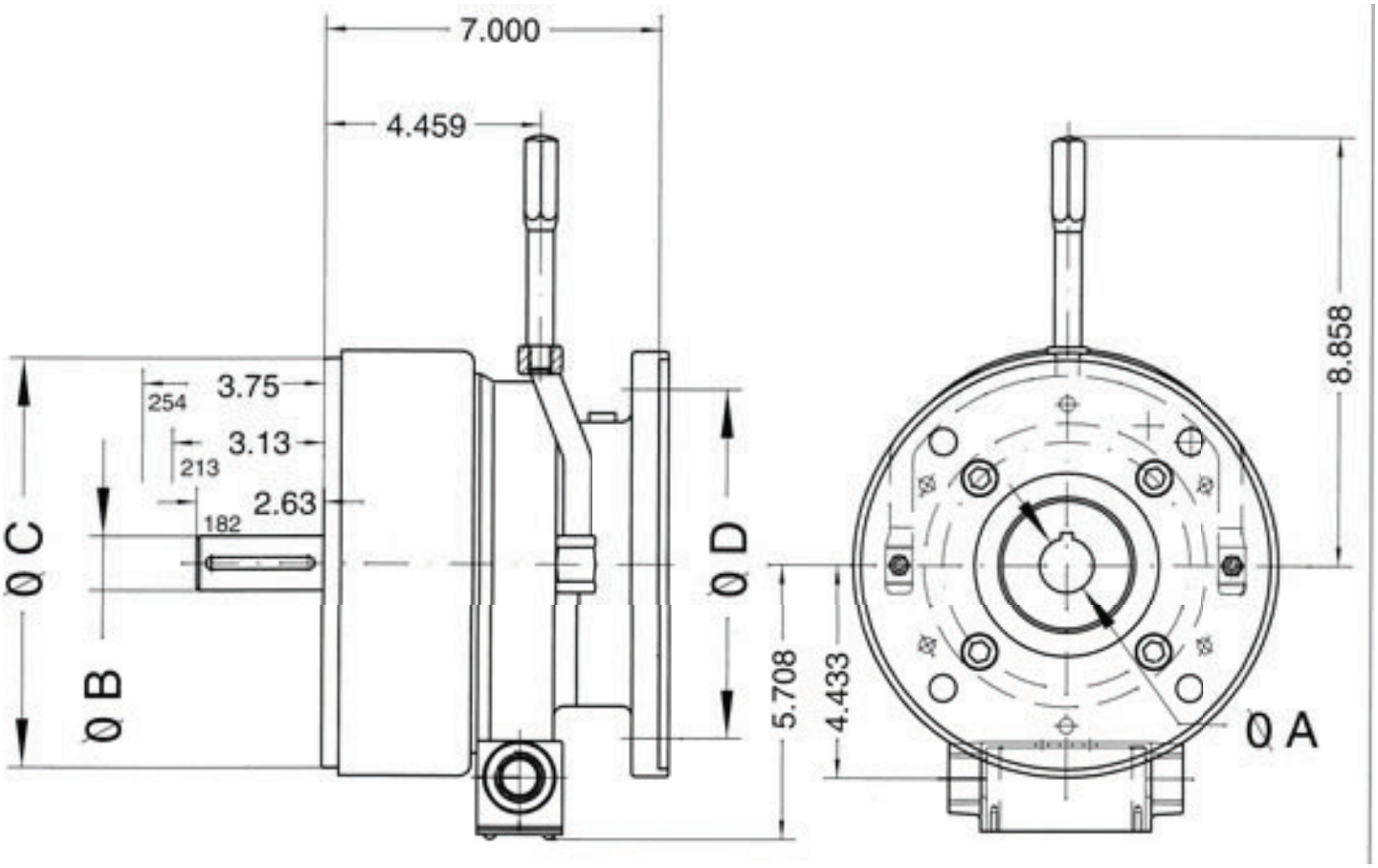


Size	Torque	Frame Size	A Input	B Output	C Pilot	D Bolt Circle	Overall Length
2	3 ft lbs	56C 145C	0.625 0.875	0.625 0.875	4.500	5.875	3.500
3	6 ft lbs	56C 145C	0.625 0.875	0.625 0.875	4.500	5.875	3.500
4	12 ft lbs	56C 145C	0.625 0.875	0.625 0.875	4.500	5.875	3.500
5	18 ft lbs	56C 145C	0.625 0.875	0.625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

Approx. weight is 18 lbs.

*Note all dimensions are in inches

182C, 213C & 254C Frame



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			

Approx. weight is 55 lbs.

*Note all dimensions are in inches

Selection Chart

	NEMA Frame Size		Motor Dimensions (in.)			Brake*		
Hp	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	6 ft 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
	182C/184C	182C/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	182C/184C	182C/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	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
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 KEB.

*All KEB 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

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

$$T_{required} = \frac{9550 \times KW}{n} \qquad T_{required} = T_a \pm T_{load}$$

$$KW = HP \times 0.746 \qquad T_a = J \times a$$

Deceleration Time

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

Heat Load

$$W_R = \frac{J \times n^2}{182.5} \times \frac{T_{brake}}{T_{brake} \pm T_{load}} \qquad W_R \leq W_{Rmax}$$

Friction Work Per Second

$$P_R = W_R \times S \qquad P_R \leq P_{Rmax}$$

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 decleration of the load.

3) Use of the KEB 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	1.3×10^{-4}	3.5×10^3	100	15	210	40	8	115	20
03	8.0	1.3×10^{-4}	3.5×10^3	100	40	175	35	20	110	20
04	16.5	1.3×10^{-4}	3.5×10^3	100	65	145	35	35	105	20
05	24.5	1.3×10^{-4}	3.5×10^3	100	90	110	30	45	100	20
06	34.0	3.9×10^{-3}	11×10^3	300	100	900	40	50	750	20
07	68.0	3.9×10^{-3}	11×10^3	300	140	725	38	70	620	20
08	102.0	3.9×10^{-3}	11×10^3	300	180	550	35	90	495	20