

Direct Replacement for European Brakes - *Kebco, Lenze, and Binder

The 33X Series have the following design features:

- *Direct Acting*
- *Torque rating 3 to 300 lb-ft (4 to 400 NM)*
- *UL Recognized Class H coil insulation system to US Standards (UR) and Canadian National Standards (CUR) - File E125303*
- *Spring-set and DC voltage released - AC rectifiers optional*
- *Series 333 torque adjustable*
- *Pre-adjusted air gap for easy assembly*
- *Corrosion resistance*
- *Spline hub for quiet dependable operation*
- *Metric and US Customary bore sizes*

Options:

- *AC rectifiers (full and half wave) See pages 86-89 for rectifier specifications*
- *Band seal (boot)*
- *Tach/encoder Mounting*
- *Manual release - Non-Maintained or Maintained*
- *Shaft seal*
- *Mounting flange*
- *Electronic brake release indicator switch*

Product Overview

333 Series

Static torque from 3 to 300 lb-ft, with nine different sizes ranging from 72mm bolt circle up to 278 mm bolt circle.

Torque can be adjusted down to approximately 50% of the nameplate torque rating.

Shown here with optional non-maintained manual release lever; other options include boot (band seal), end cap plug, through-shaft seal, and many more listed in the AAB Modification Section.



33X Series Enclosed

Series 33X with a C-face adaptor and a brake housing. Order as an IP43 Enclosure with or without external manual release:

33B Series for brake without torque adjust
 33C Series for brake with torque adjust

OR IP54 Enclosure with the option of internal maintained manual release:

33H Series for brake without torque adjust
 33J Series for brake with torque adjust



331 Series

Basic brake without the torque adjust option. Available in torque ratings from 3 to 300 lb-ft (4 to 400 Nm).

Manual release optional, can be provided with non-maintained release lever or maintained release bolts.

Metric mount; also can be ordered with C-face adaptor or as the C-face Enclosed version, and as Severe Duty.



Also Available.....

330 Series

Magnet body is not machined for a manual release option. See ordering information for the 33X Series brakes.

33X Severe Duty

Any of the 33X Series can be ordered as Severe Duty, appropriate for high-cycle rate applications. See ordering information for the 33X series brakes.

33X Series with C-face Adaptor

Series 331 or Series 333 can be provided with a C-face adaptor for motor frames from 48C through 404/405TC, TSC, UC, USC.

All other available modifications for the 33X Series can be ordered for this brake.



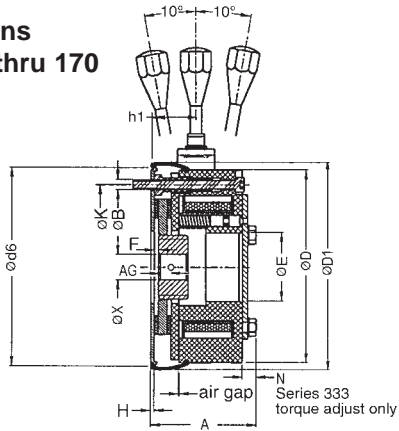
332 Series

Basic brake with the torque adjust option, and the magnet body not machined for the manual release option. See ordering information for the 33X series brakes.

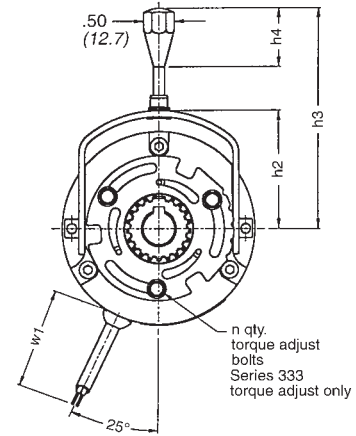
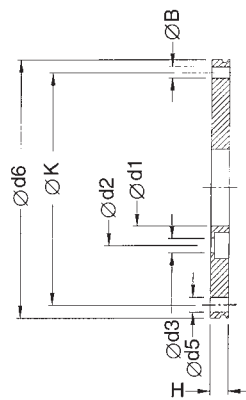
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Series 331 (without torque adjust) & Series 333 (torque adjustable) Armature Actuated Brakes [BACK TO TABLE OF CONTENTS](#)

**Dimensions
Sizes 72 thru 170**



OPTIONAL: Thick mounting /pressure plate



Size	Basic Model Number	Torque lb-ft (Nm)	D1 Max	øB	X		C Hub length	øE	F Recommended Hub Location	AG Set screw location English bores only	A			H		D	øK	N 333 Series only	n torque adjust bolts 333 series only
					Min. Bore	Max. Bore					Thick Plate	Thin Plate	No Plate	Thick Plate	Thin Plate				
72	33X-14010	3 (4)	3.56 90.4	3 x M4	3/8 9*	9/16 15	0.709 18	1.183 30	0.070 1.78	.355 9.02	2.016 51.20	1.838 46.68	1.780 45.20	0.236 6	0.058 1.47	3.346 85	2.835 72	0.257 6.52	3
90	33X-24010	6 (8)	4.48 113.8	3 x M5	1/2 9*	3/4 16, 20**	0.787 20	1.183 30	0.070 1.78	.394 10.01	2.275 57.78	2.057 52.24	1.999 50.77	0.276 7	0.058 1.47	4.016 102	3.543 90	0.257 6.52	4
112	33X-34010	12 (16)	5.39 136.9	3 x M6	5/8 10*	7/8 22, 24**	0.787 20	1.262 32	0.105 2.67	.393 9.98	2.771 70.38	2.475 62.86	2.417 61.38	0.354 9	0.058 1.47	5.000 127	4.409 112	0.287 7.29	3
132	33X-44010	25 (32)	6.19 157.2	3 x M6	7/8 14*	1-1/8 25, 28**	0.984 25	1.380 35	0.105 2.67	.492 12.50	3.001 76.23	2.705 68.71	2.647 67.23	0.354 9	0.058 1.47	5.787 147	5.197 132	0.327 8.30	4
145	33X-54010	45 (60)	6.81 173	3 x M8	7/8 14*	1-1/8 30, 34**	1.181 30	1.577 40	0.130 3.30	.590 14.99	3.696 93.88	3.321 84.35	3.263 82.88	0.433 11	0.058 1.47	6.457 164	5.709 145	0.366 9.30	4
170	33X-64010	60 (80)	7.80 198	3 x M8	1-1/8 15*	1-3/8 35, 38**	1.181 30	1.852 47	0.133 3.38	.590 14.99	3.781 96.04	3.406 86.51	3.348 85.04	0.433 11	0.058 1.47	7.480 190	6.693 170	0.380 9.65	4

Size	Basic Model Number	d1	d2	d3	d5	d6	h1			h2 ①	h3 ①	h4	w1
							Thick Plate	Thin Plate	No Plate				
72	33X-14010	0.787 20	1.181 30	0.177 4.5	0.177 4.5	3.268 83	0.905 23	0.727 18.47	0.669 17	2.05 52.1	3.85 97.8	1.00 25.4	17.5 444.5
90	33X-24010	1.181 30	1.772 45	0.217 5.5	0.217 5.5	3.937 100	0.985 25	0.767 19.48	0.709 18	2.33 59.2	4.52 114.8	1.00 25.4	17.5 444.5
112	33X-34010	1.575 40	2.205 56	0.261 6.6	0.261 6.6	4.921 125	1.338 34	1.042 26.47	0.984 25	2.96 75.2	5.08 129.0	.950 24.13	17.5 444.5
132	33X-44010	1.772 45	2.441 62	0.261 6.6	0.261 6.6	5.709 145	1.200 31	0.924 23.47	0.866 22	3.35 85.1	5.47 138.9	.950 24.13	17.5 444.5
145	33X-54010	2.165 55	2.913 74	0.354 9	0.354 9	6.299 160	1.575 40	1.142 30.48	1.142 29	2.96 100.3	5.08 175.3	1.25 31.9	17.5 444.5
170	33X-64010	2.559 65	3.307 84	0.354 9	0.354 9	7.283 185	1.338 34	1.042 26.47	0.984 25	4.69 119.1	7.73 196.3	1.25 31.9	23.6 600

* Without keyway pilot bore. ** Keyway to DIN 6885/3 p9 - standard metric keyway DIN 6885/1 p9. ① Size 132: "h2" and "h3" dimensions, contact factory. May vary .09 inch. For verification of manual release dimensions, contact factory.

Specifications - Sizes 72 thru 170

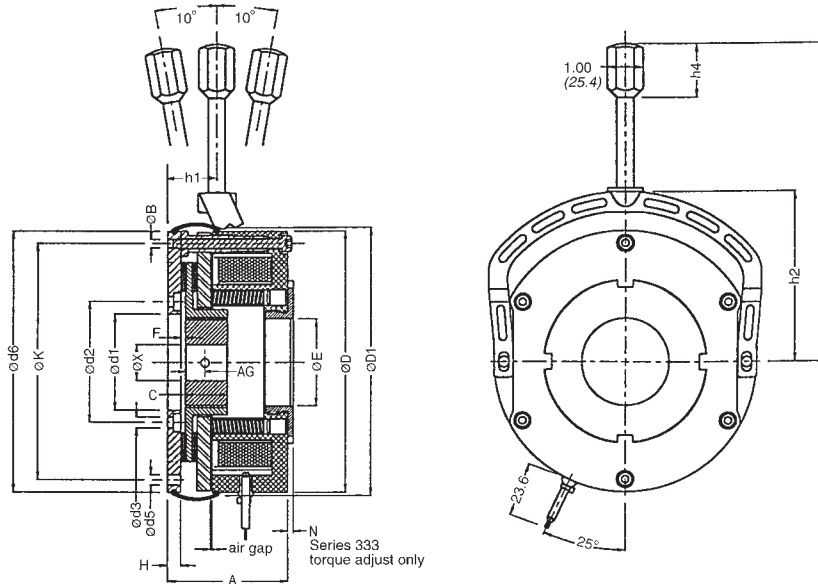
Size Bolt Circle (mm)	Part Number	Nominal Static Torque	Inertia (Wk ²)		Approx Weight	Max RPM	Power (Watts)	Thermal Capacity Hp-Sec/Min
			lb-ft ²	Kgm ² x 10 ⁻⁴				
72	33X-14010-XX-XX	3 (4)	.002	.84	2.28 (1.03)	3600	24	2
90	33X-24010-XX-XX	6 (8)	.003	1.26	4 (1.81)	3600	29	3
112	33X-34010-XX-XX	12 (16)	.005	2.10	6.78 (3.07)	3600	32	4
132	33X-44010-XX-XX	25 (32)	.011	4.62	11.42 (5.18)	3600	49	6
145	33X-54010-XX-XX	45 (60)	.019	7.98	14.45 (6.55)	3600	62	12
170	33X-64010-XX-XX	60 (80)	.041	17.22	22.6 (10.25)	3600	76	13

Series 331 (without torque adjust) & Series 333 (torque adjustable) Armature Actuated Brakes

[BACK TO TABLE OF CONTENTS](#)

Dimensions

Sizes 196 thru 278



Dimensions

Size	Basic Model Number	Torque lb-ft (Nm)	D1 Max	B	X		C Hub length	E	F Recommended Hub Location	AG Set screw location English bores only	A		H		D	K	N 333 Series only	
					Min. Bore	Max. Bore					Pressure Plate	No Plate	Pressure Plate	No Plate			Min.	Max.
196	33X-74020	110 (149)	8.94 227	6 x M8	1-3/8 20*	1-5/8 45, 48**	1.378 35	2.836 72	0.174 4.42	.689 17.50	3.902 99.11	3.469 88.11	0.433 11	0	8.543 217	7.717 196	0.187 4.75	0.479 12.17
230	33X-84020	180 (240)	10.38 263.6	6 x M10	1-5/8 25*	1-7/8 45, 50**	1.575 40	2.836 72	0.216 5.49	.790 20.07	4.352 110.54	3.927 99.75	0.433 11	0	10.000 254	9.055 230	0.340 8.64	0.740 18.80
278	33X-94020	300 (400)	12.43 315.7	6 x M10	1-7/8 25*	2-1/8 70	1.969 50	2.836 72	0.216 5.49	.985 25.02	4.915 124.84	4.438 112.73	0.492 12.5	0	12.047 306	10.945 278	0.340 8.64	0.730 18.54

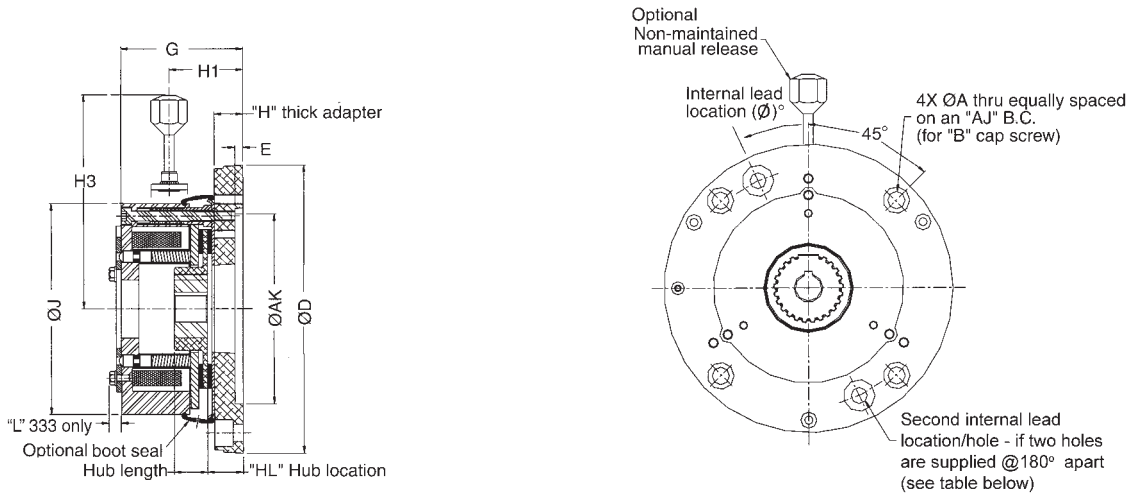
Size	Basic Model Number	d1	d2	d3	d5	d6	h1		h2	h3	h4
							Pressure Plate	No Plate			
196	33X-74020	3.125 79.4	3.937 100	0.354 9	0.354 9	8.543 217	1.575 40	1.142 29	5.51 140	10.43 265	1.75 44.5
230	33X-84020	3.86 98	4.724 120	0.433 11	0.433 11	10.00 254	1.850 47	1.417 36	5.34 161	11.26 286	1.75 44.5
278	33X-94020	4.724 120	5.906 150	0.433 11	0.433 11	11.654 296	2.205 56	1.772 45	7.36 187	13.34 339	1.71 43.4

* Without keyway pilot bore. ** Keyway to DIN 6885/3 p9 - standard metric keyway DIN 6885/1 p9

Specifications - Sizes 196 thru 278

Size Bolt Circle (mm)	Part Number	Nominal Static Torque	Inertia (Wk ²)		Approx Weight	Max RPM	Power (Watts)	Thermal Capacity Hp-Sec/Min
			lb-ft ²	Kgm ² x 10 ⁻⁴				
196	33X-74020-XX-XX	110 (150)	.066	27.72	50.00 (22.7)	1800	84	22
230	33X-84020-XX-XX	180 (240)	.163	68.46	47.00 (21.3)	1800	102	28
278	33X-94020-XX-XX	300 (400)	.401	168.42	75.00 (34.0)	1800	112	30

Series 331 & Series 333 Armature Actuated Brakes C-Face Mounted



Model Number	Size	NEMA Frame	A	AJ	AK	B	D	E	G	H	HL	Hub Length	H1	H3	J	L	Internal Lead Hole Location
3-3X-140F0	72	48C	.28	3.75	3.0	1/4	5.50	.19	2.07	.50	.54	.709	1.22	3.85	3.35	.257	(2) @ 60°/180° apart
3-3X-240F0	90*	48C	.28	3.75	3.0	1/4	5.50	.19	2.30	.50	.55	.787	1.25	4.52	3.96	.257	(2) @ 60°/180° apart
3-3X-240G0	90	56C	.41	5.875	4.50	3/8	6.83	.19	2.48	.68	.73	.787	1.43	4.52	3.96	.257	(2) @ 25°/180° apart
3-3X-340G0	112	56C, 145TC	.41	5.875	4.50	3/8	6.83	.19	2.86	.68	.74	.787	1.72	5.08	4.97	.287	(2) @ 25°/180° apart
3-3X-440G0	132	56C, 145TC	.41	5.875	4.50	3/8	6.83	.19	3.05	.68	.74	.984	1.59	5.47	5.79	.327	(2) @ 25°/180° apart
3-3X-440H0	132	182-256TC [△]	.56	7.25	8.50	1/2	9.25	.19	3.37	1.00	.81	.984	1.91	5.47	5.79	.327	(1) @ 25°
3-3X-540G0	145*	145TC	.41	5.875	4.50	3/8	6.83	.19	3.63	.68	.92	1.181	1.87	6.90	6.45	.366	(2) @ 25°/180° apart
3-3X-540H0	145	182-256TC [△]	.56	7.25	8.50	1/2	9.25	.19	3.95	1.00	.94	1.181	2.19	6.90	6.45	.366	(1) @ 25°
3-3X-640H0	170*	182-256TC [△]	.56	7.25	8.50	1/2	9.25	.19	4.03	1.00	.94	1.181	2.04	7.73	7.47	.380	(1) @ 15°
3-3X-740H0	196	182-256TC	.53	7.25	8.50	1/2	8.90	.19	5.0	1.30	1.50	1.378	2.14	10.43	8.54	**	None
3-3X-740K0	196	324/326TC- [△] 404/405TC	.66	11.0	12.50	5/8	13.25	.19	5.38	1.50	1.67	1.378	2.69	10.43	8.54	**	(2) @ 25°****
3-3X-840H0	230*	182-256TC [△]	.53	7.25	8.50	1/2	10.00	.19	5.62	1.00	1.22	1.58	2.42	11.26	10.00	**	None
3-3X-840K0	230	324/326TC- [△] 404/405TC	.66	11.0	12.50	5/8	13.25	.19	6.10	1.50	1.72	1.58	2.94	11.26	10.00	**	(2) @ 25°****
3-3X-940K0	278*	324/326TC- 404/405TC	.66	11.0	12.50	5/8	13.25	.19	6.75	1.60	1.82	1.97	3.38	13.34	12.05	**	(2) @ 25°****

*On these sizes, the brake diameter is larger than the adaptor mounting/bolt circle. **L min. & max: size 196 = .187 min. & .479 max.
 ***On each side of the 12:00 position (the location of second hole is not shown on above drawing) size 230/278 = .340 min. & .730 max.

△ Frame shaft size may require derate of a larger brake. Confirm hub bore.

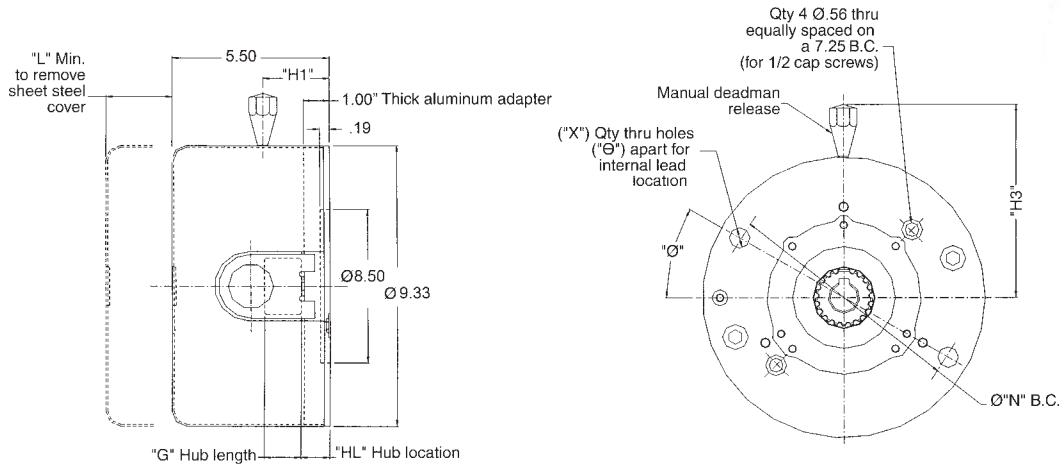
Available Frames/Sizes

Model Number	Size	Nominal Static Torque		NEMA Frame Size [△]	Approximate Weight	
		Lb-Ft	Nm		Lbs	Kg
3-3X-140F0-XX-XX	72	3	4	48C	2.76	1.25
3-3X-240F0-XX-XX	90	6	8	48C	4.48	2.03
3-3X-240G0-XX-XX	90	6	8	56C	5.24	2.38
3-3X-340G0-XX-XX	112	12	16	56C	8.02	3.64
3-3X-440G0-XX-XX	132	25	32	56C	14.00	6.36
3-3X-440H0-XX-XX	132	25	32	182TC-256TC	17.52	7.95
3-3X-540G0-XX-XX	145	45	60	56C	16.14	7.32
3-3X-540H0-XX-XX	145	45	60	182TC-256TC	20.55	9.32
3-3X-640H0-XX-XX	170	60	80	182TC-256TC	35.00	15.89
3-3X-740H0-XX-XX	196	110	150	182TC-256TC	55.00	25.00
3-3X-740K0-XX-XX	196	110	150	324-365/404-405TC/TSC/UC/USC	72.30	32.79
3-3X-840H0-XX-XX	230	180	240	182TC-256TC	65.55	29.76
3-3X-840K0-XX-XX	230	180	240	324-365/404-405TC/TSC/UC/USC	88.30	40.05
3-3X-940K0-XX-XX	278	300	400	324-365/404-405TC/TSC/UC/USC	140.00	63.50

Series 331 & Series 333 Armature Actuated Brakes C-Face with Brake Housing



IP43 Enclosure

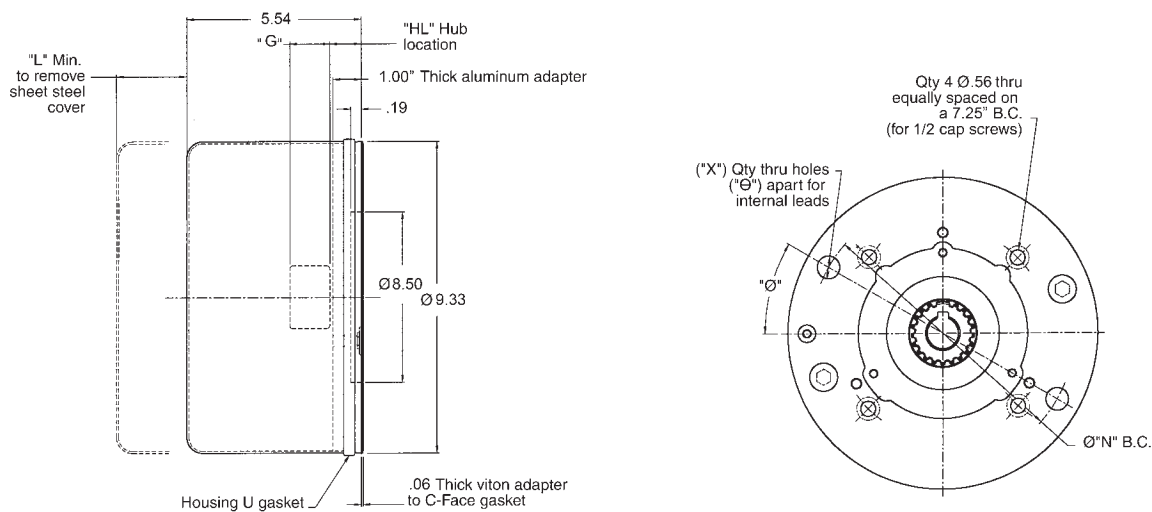


Dimensions IP43

Model Number	Size	Nominal Static Torque Lb-Ft (Nm)	NEMA Frame*	HL	G	H1	H3	L	Internal lead location X, Ø and O on "N" Bolt circle	Approximate Weight Lbs (Kg)
33X-441H0	132	25 (32)	182TC-256TC	1.16	.984	1.94	6.35	2.88	(1) @ 65° on R3.81	20.14 (9.1)
33X-541H0	145	45 (60)	182TC-256TC	1.19	1.181	2.22	6.90	3.50	(1) @ 65° on R3.81	23.17 (10.5)

For sizes 196 through 278 with C-Face and housing, see Series 350 or Series 360.

IP54 Enclosure (No manual release/Optional Internal manual release)



Dimensions IP54

Model Number	Size	Nominal Static Torque Lb-Ft (Nm)	NEMA Frame*	HL	G	L	Internal lead location X, Ø and O on N B.C.	Approximate Weight Lbs (Kg)
33X-444H0	132	25 (32)	182TC-256TC	1.16	.984	2.88	(1) @ 65° on R3.81	25 (11.35)
33X-544H0	145	45 (60)	182TC-256TC	1.19	1.181	3.50	(1) @ 65° on R3.81	29 (13.16)
33X-644H0	170	60 (80)	182TC-256TC	1.19	1.181	3.50	(1) @ 65° on R3.81	36 (16.34)

*For NEMA 48C and 56C mounting, see pages 77-78, Series 321/322 NEMA C.

Ordering Information

Group "3" Armature Acting Brake — 333-44110-OD-KC

Numeral	Description
0	No torque adjust, mag body not machined for manual release
1	No torque adjust
2	With torque adjust, mag body not machined for manual release
3	With torque adjust
B	Housing with conduit hole, no torque adjust (Size 72 - 145)
C	Housing with conduit hole, with torque adjust
H	IP54 housing, no torque adjust (Size 72 - 170)
J	IP54 housing, with torque adjust (Size 72 - 170)

Numeral	AAB-E Unit Sizes
1	72
2	90
3	112
4	132
5	145
6	170
7	196
8	230
9	278

Numeral	Description
2	Reduced torque with air gap shim
3	Reduced torque (severe duty- long life)
4	Standard
5	Size 90 Only; 8.34 lb-ft holding applications only
6	Std torque with air gap shim

Numeral	Mounting Style
0	Less pressure plate
1	Thin pressure plate (Size 72 - 170 only)
2	Thick pressure plate
F	NEMA 48C (Size 72 & 90)
G	NEMA 56C (Size 90, 132, & 112)
H	NEMA 180/210/250 TC (Size 132, 145, 170, 196 & 230)
J	NEMA 280 TC/UC (Size 196)
K	NEMA 320/360/400 TC/UC (Size 196, 230, 278)

Numeral	Enclosure Type
0	Standard
1	Seal (boot) kit thru bore
2	Seal (boot) and end cap plug
3	Seal (boot) and through-shaft seal
4	IP54 Enclosure

Numeral	Modifications
0	Standard

Table 1 - Hub Bores 333-14010--**-EA**

NOTE: See page 100 for recommended minimum bore size by torque

Bore (in)	Character to insert	Keyway Size*		Available Bores									
				Brake Size									
				1	2	3	4	5	6	7	8	9	
		Width (in)	Depth (in)	72	90	112	132	145	170	196	230	278	
3/8	0V	3/32	3/64	std									
1/2	OK	1/8	1/16	std	std								
9/16	ON	1/8	1/16	non std	non std								
5/8	OB	3/16	3/32		std	std	non std						
3/4	OC	3/16	3/32		non std	non std	non std						
7/8	OD	3/16	3/32			std	std	std	non std				
1	OL	1/4	1/8				non std	std	non std				
1-1/8	OE	1/4	1/8					std	std	non std			
1-1/4	OF	1/4	1/8						non std	non std			
1-3/8	OG	5/16	5/32						std	std	non std	non std	
1-1/2	OM	3/8	3/16							std	non std	non std	
1-5/8	OH	3/8	3/16							std	std	non std	
1-3/4	OI	3/8	3/16								std	non std	
1-7/8	OJ	1/2	1/4								std	std	
2	OL	1/2	1/4									non std	
2-1/8	ON	1/2	1/4									std	
Metric		Width (mm)	Depth (mm)	Metric Bores Supplied Without Set Screws, circlip recommended									
11	11	4	1.8	std		non std							
14	14	5	2.3	std	std	std	non std	non std					
15	15	5	2.3	non std	std	std	non std	non std	non std				
16	16	5	2.3		non std	non std	non std	non std	non std				
20	20	6	2.8		std**	std	non std	non std	non std	non std**			
22	22	6	2.8			std**	non std	non std	non std	non std			
24	24	8	3.3				std	non std	non std	non std			
25	25	8	3.3				std	non std	std	non std	non std**	non std**	
28	28	8	3.3				non std**	non std	std	non std	non std	non std	
30	30	8	3.3					std	std	std	std	std	
34	34	10	3.3					std**	non std	non std	non std	non std	
35	35	10	3.3						non std	std	std	std	
38	38	10	3.3						std**	std	std	non std	
40	40	12	3.3							std	std	std	
42	42	12	3.3							non std	std	non std	
45	45	14	3.8								std	std	
48	48	14	3.8								std**	non std	non std
49	49	14	3.8									non std	non std
50	50	14	3.8									std**	std
55	55	16	4.3										std
60	60	18	4.4										std
70	70	20	4.9										std

*Standard U.S. Keyseats made to ANSI B17.1 standard. Standard metric Keyseat DIN 6885/1 p9.
 ** Keyseat to DIN 6885/3 p9.

Table 2 - STD Coil Voltage 333-14010-14-□A

Character to insert	Coil Voltage	Current Rating in Amps								
		1	2	3	4	5	6	7	8	9
		72	90	112	132	145	170	196	230	278
B	414/432 Vdc	0.06	0.07	0.09	0.12	0.16	0.22	0.25	0.26	0.29
C	12 Vdc	2.13	2.66	2.27	3.50	3.90	5.60	6.40	8.30	N/A
E	24 Vdc	1.10	1.28	1.16	1.80	1.84	2.80	3.30	4.27	3.85
J	90 Vdc	0.28	0.32	0.29	0.45	0.72	0.70	0.82	1.05	1.19
K	103 Vdc	0.21	0.24	0.33	0.51	0.53	0.80	0.75	0.96	1.08
L	180 Vdc	0.15	0.17	0.15	0.23	0.38	0.36	0.42	0.54	0.61
M	205 Vdc	0.11	0.12	0.17	0.27	0.27	0.41	0.38	0.49	0.56
S	258 Vdc	0.09	0.10	0.14	0.21	0.23	0.33	0.34	0.40	0.44
N*	115 Vac	0.21	0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P*	230 Vac	0.11	0.12	0.17	.27	N/A	N/A	N/A	N/A	N/A
V**	115 Vac quickset	0.21	0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W**	230 Vac quickset	0.11	0.12	0.17	N/A	N/A	N/A	N/A	N/A	N/A

*In-line rectifier. Consult factory for pricing

**In-line quickset rectifier. Consult factory for pricing

Contact factory for non-standard coils.

Add the following for non-std. coil voltage

- Sizes 72 through 112 = Consult factory for pricing
- Sizes 132 through 170 = Consult factory for pricing
- Sizes 196 through 278 = Consult factory for pricing

For separate AC rectifiers see pages 89-92

Table 3 - Options 333-14010-14-E □

Character to insert	Description/Options
A	Basic brake
C	Option A with non-maintained release
J	Steel hub w/manual release (for press-fit applications)
K	Steel hub, no manual release
L	Internal manual release, non-maintained
R	Maintained manual release (bolts)

Modifications are available- see AAB Modification Section