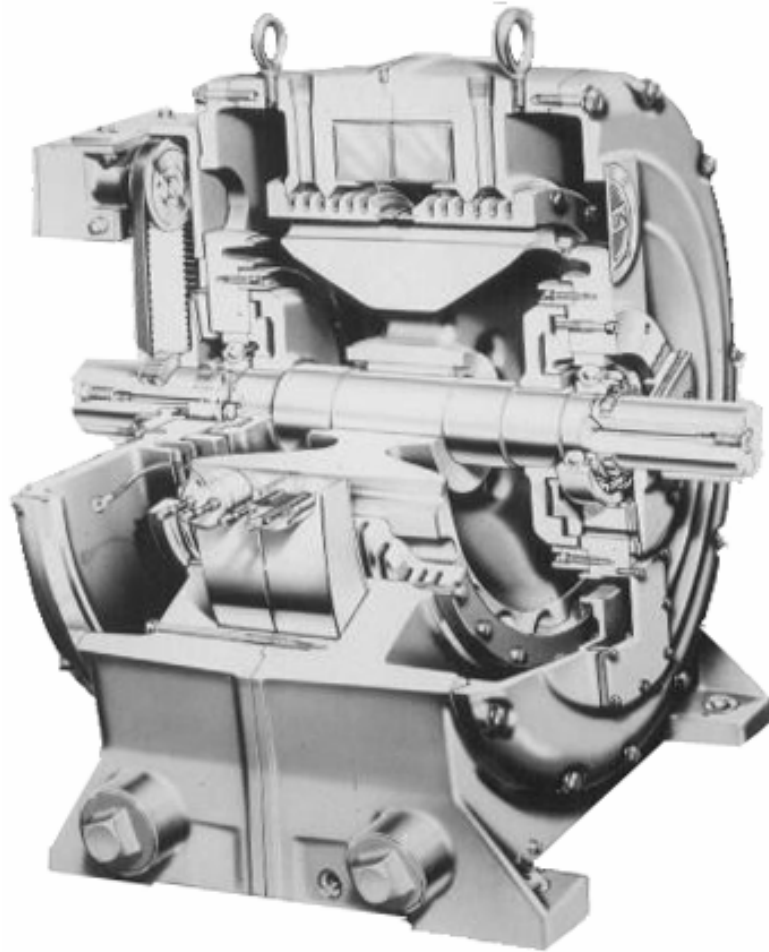
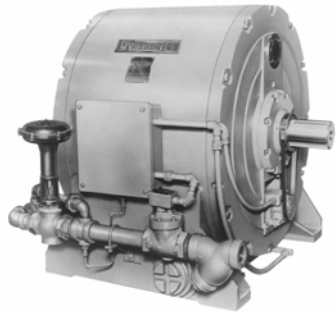


# Dynamatic® Heavy-Duty Eddy Current Clutches



Electric Drives Division

## Liquid Cooled Eddy Current Clutches — Models WCS-215 through WCS-2253 200 through 2,000 HP



Dynamatic® heavy duty Eddy Current clutches provide stepless adjustable speed with full load torque, continuously available, over a wide speed range. Standard ratings are included in the table below. Units with capacities up to 2,000 HP at 1200 rpm have been successfully built and operated.

The basic clutch is horizontal, foot mounted, stationary field, water cooled, equipped with a cylindrical roller center support bearing and automatic water piping. These ruggedly constructed clutches require no brushes, slip rings or commutators.

A wall mounted solid state controller converts a relatively small amount of ac power to dc to energize the field coil

of the Eddy Current clutch. By controlling this dc power to the field coil, the output speed can be regulated. Accurate speed regulation is maintained by a feedback system which includes an externally mounted ac tachometer generator. Since the clutch is a constant torque device, the available output torque depends on the rating of the driving motor.

The Eddy Current principle of torque transmission features no direct physical contact between the constant speed and output members. This results in a high degree of cushioning between the drive system and load, permitting longer life for the machinery involved.

### Benefits:

Ratings — From 200 to 2,000 HP.

Efficient Operation — Motor operates AF full voltage; no need for step down transformers.

Quiet Operation — Totally enclosed clutch has no loud wind noise from internal cooling fans.

Wide Speed Ranges — Designed to provide wide stepless speed ranges without blowers.

Long Operating Life — Eddy Current design allows torque to be transmitted by magnetic field without friction or wear.

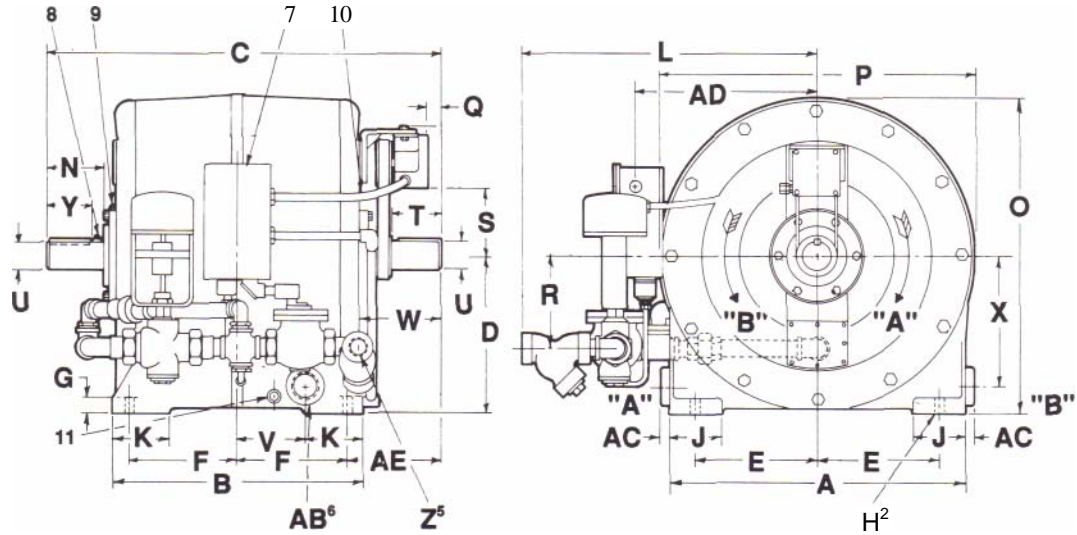
- Low Maintenance Costs — The only wearing parts are four industrial bearings which need only occasional lubrication.
- Reliable Operation — Horsepower ratings are based on continuous duty 24 hours a day, 7 days a week, using summer conditions of 90°F inlet water.
- Factory Backup — Availability of replacement parts and service for many years of reliable operation is assured by a multinational organization.

### Application Data

Model wcs-	Torque at Slip RPM (Pounds Feet)						Water Cooled Thermal Capacity (HP)	Normal Maximum Speed (RPM)	Controller Size	Cooling Water GPM	
	40	50	60	75	1150	1750				Bypass	Max.
215	310	380	435	500	990	1000	300	1800	3	—	30
2163	490	580	660	780	1590	1525	450	1800	3 4	3	45
2164	650	750	840	975	2375	2325					
2165	750	875	1020	1200	2350	1975					
2172	1025	1200	1325	1520	2990	2950	600	1800	3	5	60
2173	1250	1475	1650	1925	2880	2300					
2192	1525	1760	1980	2275	4250	4150	800	1800	4	6	80
2193	1750	2030	2300	2700	3800	3150					
2212	2450	2650	2800	3100	5100	4600	1000	1800	7	9	100
2213	2800	3200	3575	4050	4900	3775					
2232	3450	3950	4350	4900	7300	6300	1250	1200	8	10	125
2233	4500	5150	5800	6500	8100	6800					
2252	5250	6000	6600	7400	9500	8500	1800	1200	8	10	180
2253	6400	7500	8400	9200	10800	9400					

# Outline Drawings 215 — 2213

Models  
 215  
 2163  
 2164  
 2165  
 2172  
 2173  
 2192  
 2193  
 2212  
 2213



## Dimensions - Inches

Model WCS-	A	B	C	D <sup>1</sup>	E	F	G	H <sup>2</sup>	J	K	L	N	O	P	Q
215	25.00	17.38	28.00	13.50	10.50	7.44	1.12	1.00	4.00	4.75	22.50	4.25	26.18	25.38	—
2163 2164 2165	25.00	20.00	31.25	13.50	10.50	8.75	1.12	1.00	4.00	4.75	23.06	5.06	26.18	26.75	0.25
2172 2173	28.00	21.50	33.00	14.50	12.00	9.50	1.25	1.12	4.00	4.50	30.00	5.38	29.32	29.56	0.26
2192 2193	30.00	22.00	34.75	17.25	13.00	9.50	1.25	1.12	4.00	5.00	31.50	5.50	34.00	33.44	1.00
2212 2213	32.00	27.12	40.88	17.25	14.00	12.06	1.25	1.12	4.00	5.00	34.12	6.06	34.25	34.06	1.50

Model WCS-	R	S	Shaft Extension				V	W	X	Z <sup>5</sup>	AB <sup>6</sup>	AC	AD	AE
			T <sup>3</sup>	Y <sup>3</sup>	U <sup>4</sup>	Keyway								
215	7.62	6.25	4.25	3.50	2.000	.50 X .25	3.00	6.75	10.62	1.00	2.50	1.00	—	7.06
2163 2164 2165	7.62	6.25	4.50	3.75	2.250	.50 X .25	3.75	3.50	10.68	1.00	3.00	1.56	—	7.25
2172 2173	8.50	7.82	4.75	4.75	3.000	.75 x .38	5.88	2.25	11.62	1.25	3.00	1.56	17.25	7.25
2192 2193	10.00	8.75	5.00	5.00	3.375	.88 x .44	6.00	3.00	14.12	1.50	3.50	1.62	19.00	8.25
2212 2213	10.00	8.50	5.50	5.50	3.750	.88 x .44	8.50	6.50	14.12	2.00	3.50	1.62	19.38	8.75

C-47330/N, C-52099/J

## NOTES:

- Dimensions will never be exceeded. When exact dimensions are needed, liners up to .06 inch may be required.
- Four mounting holes "H" diameter.
- Maximum usable shaft length.

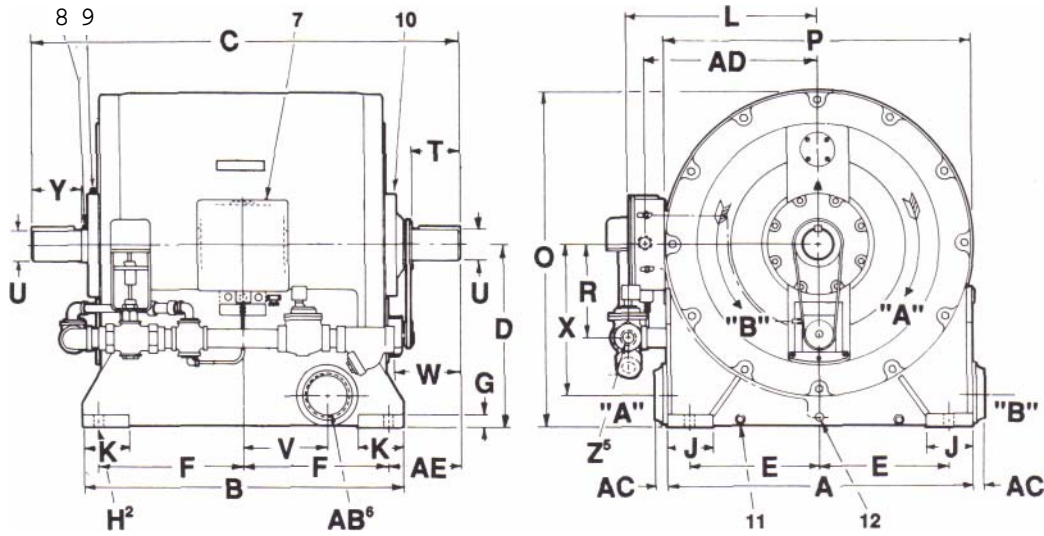
4 Shaft diameter tolerance:  $\pm 0.000$   
 $-0.000$

- Water inlet "Z" pipe tap.
- Water discharge "AB" pipe tap. Use water discharge "A" for rotation "A". Use water discharge "B" for rotation "B".
- Water piping, clutch field and tachometer generator leads junction box. Furnished opposite standard on request.

- Grease inlet for center support bearing. Grease fitting can be used in end of input shaft if desired.
- Grease inlet for input shaft bearing.
- Grease inlet for output and drum support bearings.
- Immersion bulb (1" pipe tap) must be located in water discharge side of machine.

# Outline Drawings 2232 — 2253

Models  
2232  
2233  
2252  
2253



Dimensions • Inches

Model WCS-	A	B	C	D <sup>1</sup>	E	F	G	H <sup>2</sup>	J	K	L	O	P	R
2232, 3	40.00	36.00	50.00	22.00	17.00	16.00	1.50	1.25	5.00	6.00	27.00	42.12	40.25	12.25
2252, 3	40.00	42.00	56.50	24.00	17.00	19.00	1.50	1.25	6.00	6.00	27.00	44.12	40.25	12.25

Model WCS-	Shaft Extension				V	W	X	Z <sup>5</sup>	AB <sup>6</sup>	AC	AD	AE
	T <sup>3</sup>	Y <sup>3</sup>	U <sup>4</sup>	Keyway								
2232, 3	6.50	6.50	4.375	1.00x0.50	7.50	4.00	17.62	2.00	6.00	1.44	22.50	9.62
2252, 3	6.75	6.75	4.500	1.00x0.50	10.50	7.00	19.62	2.50	6.00	1.44	22.50	9.88

C-52100/P

**NOTES:**

1 Dimensions will never be exceeded. When exact dimensions are needed, liners up to .06 inch may be required.

2 Four mounting holes "H" diameter.

3 Maximum usable shaft length.

4 Shaft diameter tolerance: ± 0.000

5 Water inlet "Z" pipe tap.

6 Water discharge "AB" pipe tap. Use water discharge "A" for rotation "A". Use water discharge "B" for rotation "B".

7 Water piping, clutch field and tachometer generator leads junction box. Furnished opposite standard on request.

8 Grease inlet for center support bearing. Grease fitting can be used in end of input shaft if desired.

9 Grease inlet for input shaft bearing.

10 Grease inlet for output and drum support bearings.

11 Immersion bulb (1" pipe tap) must be mounted in water discharge side of machine.

12 Temperature switch location.