TATUNG EDDY CURRENT MOTOR

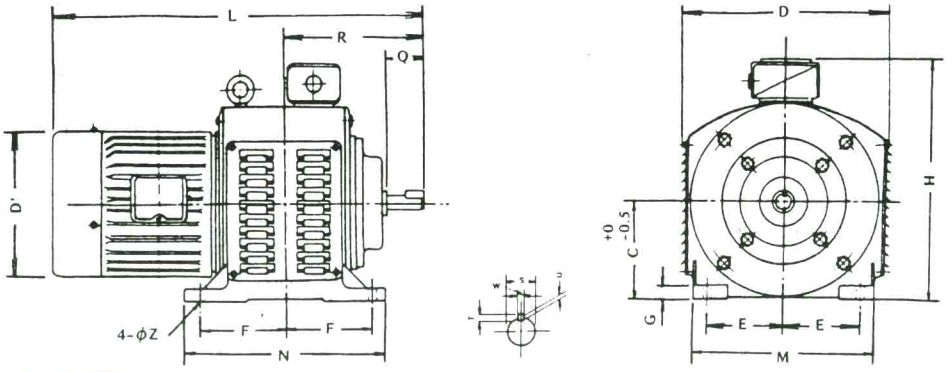
NEW! High Precision First Generation IC EC Controller

TATUNG E.C. MOTORS

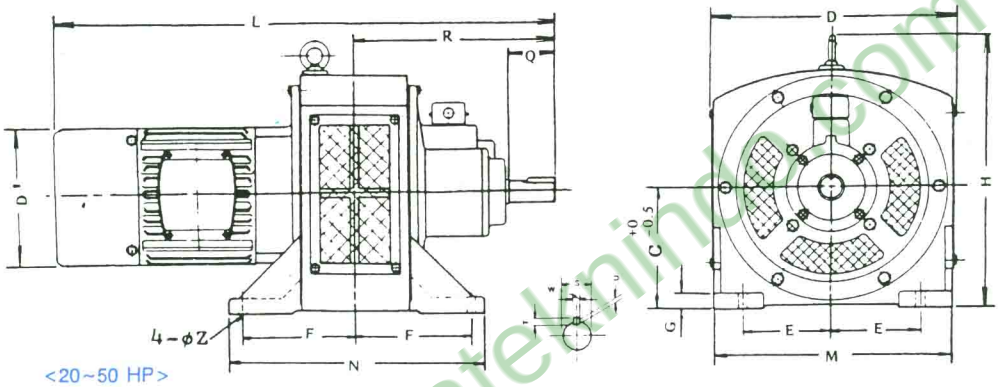
Along with recent industrial development, motors with variable speed and/or automatic control have been in demand. Tatung E.C. Motors with electronic control and eddy current coupling effect offer precisely controllable varying speed services to meet the stringent requirements of today.

Tatung Co. brings to the users of integral horsepower variable speed drives, a low-cost family of stationary field, air-cooled eddy current drives as a practical solution to almost every application that requires accurate, easily controlled, adjustable speed from an A.C. source. The high torque, low inertia eddy current drives are carefully mated with the latest developments in maintenance-free, solid-state controls and feedback devices.

OUTSIDE DIMENSION Unit: mm

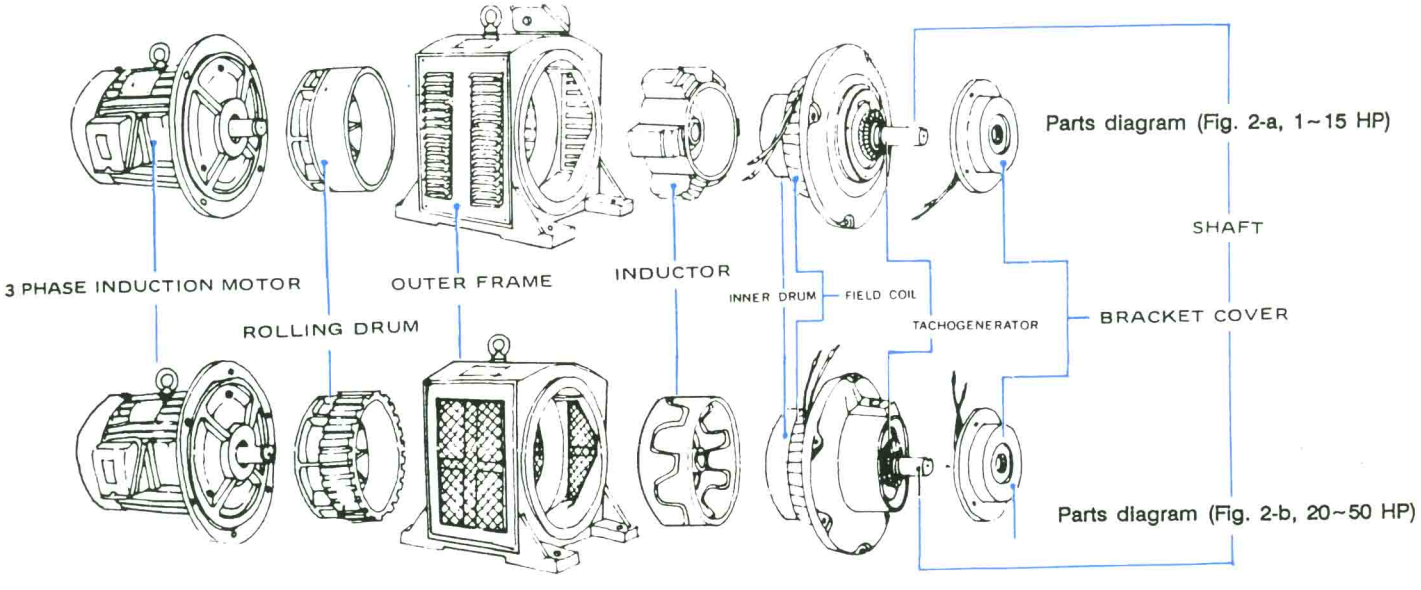


<1~15 HP>

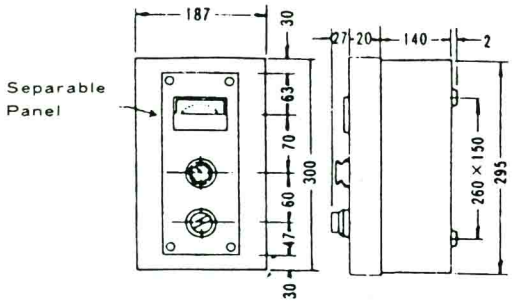


<20~50 HP>

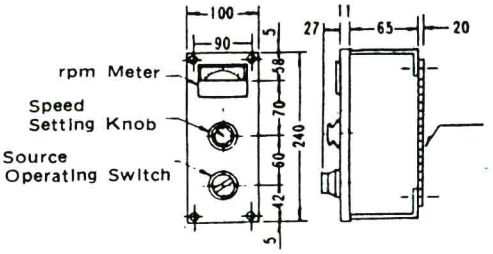
HP	Pole	Speed Control Range		C	D	D'	E	F	H	L	M	N	Q	R	S	T	U	W	Z	APP. WT. (Kg)
		50 Hz	60 Hz																	
1/2	4	120 ~ 1200	150 ~ 1500	105	227	162	80	85	267	433	200	200	40	165	18	5	3	5	11.5	40
1				120	261	179	92.5	110	299	470	230	260	40	178.5	18	5	3	5	11.5	61
2				135	299	199	107	130	334	557.5	270	300	50	210	22	7	4	7	11.5	91
3				170	333	223	120	150	369	632	310	370	60	240	28	7	4	7	15	128
5				170	337	228	120	150	400	665	310	370	60	243.5	28	7	4	7	15	158
7 1/2				205	397	285	145	170	452	765	370	400	80	286	35	8	4.5	10	18	228
10				205	422	285	155	190	460	847	390	440	80	310	35	8	4.5	10	18	276
15				235	454	316	160	210	530	955	420	480	90	340	42	8	4.5	12	19	375
20				280	560	316	205	270	660	1141	550	600	105	490	48	8	4.5	12	24	480
25				280	560	371	205	270	660	1218.5	550	600	105	490	48	8	4.5	12	24	530
30				280	560	371	205	270	660	1218.5	550	600	105	490	48	8	4.5	12	24	560
40				320	620	391	235	320	745	1354.5	600	700	140	540	55	10	5	15	24	810
50				320	650	441	235	320	765	1439	600	700	140	540	55	10	5	15	24	940



CONTROL UNITS



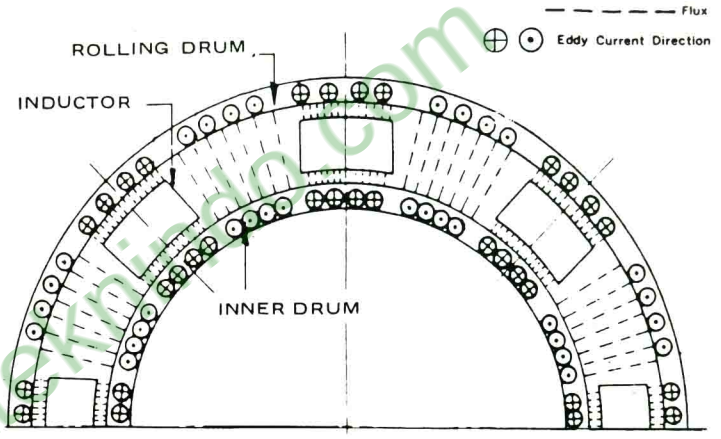
CONTROL ROX ECB-ICI



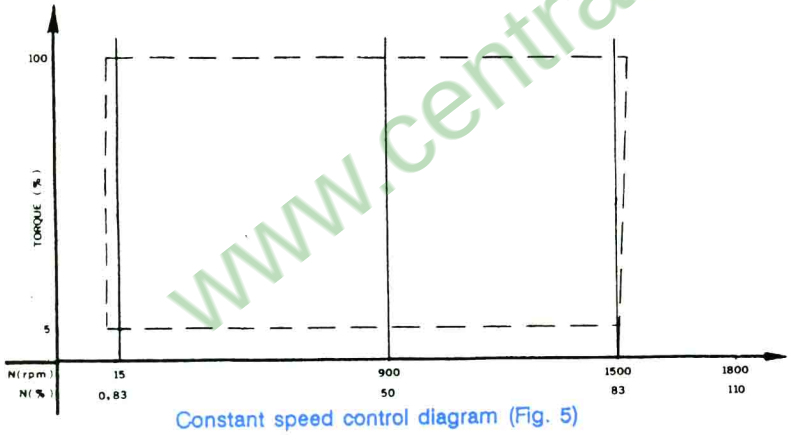
Separable Panel

PRINCIPLES OF OPERATION

1. By exciting field coil with D.C. voltage from S.C.R. output, a magnetic field is developed.
2. Magnetic lines of flux pass from field coil, through inductor, to rolling drum.
3. The amount of flux in inductor changes as relative speed occurs between rolling drum and inductor.
4. This changing flux in turn produces eddy currents and an associated magnetic field, and the latter is attracted to the original field.
5. Thus the inductor is magnetically attracted to the rolling drum.
6. The torque created is a function of D.C. voltage and the relative speed between inductor and rolling drum.
7. Therefore, the output speed is produced. (Fig. 3)



Flux distribution diagram (Fig. 3)



Constant speed control diagram (Fig. 5)

$$\text{Torque (\%)} = \frac{\text{Load torque (kg-m)}}{\text{Rated torque (kg-m)}} \times 100\%$$

$$\text{N (\%)} = \frac{\text{Output speed (rpm)}}{\text{Rated speed (rpm)}} \times 100\%$$

CHARACTERISTICS OF E.C. MOTOR

* Utilization of an A.C. power source to achieve continuous speed variation within the range of 100 to 1.
* Speed regulation is less than 1%.
  Speed regulation (%) =
  $$\frac{\text{Speed(rpm) at 10\% load} - \text{Speed(rpm) at 100\% load}}{\text{Rated speed(rpm)}} \times 100\%$$
  (Rated speed is 1500 rpm for 60 Hz, or
* Constant torque output
  Power output is proportional to output speed.
* Construction simplified and maintenance facilitated.
* Good ventilation.
* Easy care and installation. (Table 1, Fig. 6)

MODEL	DRIVE MOTOR (4P)		SPEED CONTROL RANGE (rpm)		MAX. OUTPUT TORQUE (kg-m)		CONTROL UNITS	
	HP	FRAME #	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
EC-4021	1/2	71	120 ~ 1200	150 ~ 1500	0.24	0.20	ECB-IC1	
EC-4001	1	80			0.48	0.40		
EC-4002	2	90L			0.96	0.80		
EC-4003	3	100L			1.44	1.20		
EC-4005	5	112M			2.40	2.00		
EC-4007	7 1/2	132S			3.60	3.00		
EC-4010	10	132M			4.80	4.00		
EC-4015	15	160M			7.20	6.00		
EC-4020	20	160L			9.60	8.00		
EC-4025	25	180M			12.00	10.00		
EC-4030	30	180L			14.40	12.00		
EC-4040	40	200M			19.20	16.00		
EC-4050	50	200L			24.00	20.00		

(Table 1)

APPLICATION OF E.C. MOTORS

1. Industrial operation
   Speed adjustment by one E.C. Motor.

2. Parallel operation
   Two or more E.C. Motors operate on a common signal.

3. Proportional operation
   Two or more E.C. Motors keep a constant speed ratio among several operations.

4. Continuous operation
   Controlling speed of master machine, thus controlling auxiliary machine.

5. Torque control
   Torque conrolled inversely proportional to speed

6. Displacement control
   By transforming mechanical displacement to electrical signal, it keeps speed at a constant value.

UTILIZATION OF E.C. MOTORS IN AUTOMATIC CONTROLS

* Rubber and plastic machines
  Extruding machine, calender and tuber.
* Cargo handling equipment
  Conveyors and winches.
* Paper making machines
  Paper machine, winder, rewinder, rotary cutter, corrugated paper machine and processed paper machine.
* Electric wire machines
  Winder and insulation wire machine.
* Printing machines
  Bookbinding machine, printing press and blinder.
* Iron making machines
  Slitter, reel winder and conveyors.
* Cement plant machines
  Kiln, feeder and conveyors.
* Textile machines
  Chemical fiber setting machine and winder.
* Machine tools
  Grinder, plate and feed drive.
* Food processing machines
  Bread backing machine and can printing machine
* Testing machines
  Various testing machine requiring speed chage and constant speed control
* Chemical machines
  Machines for controlling flow, liquid level and mixing ratio.
* Others
  As stated previously, the E.C. Motor is a variable speed motor. It is best suited when the following applications are required. Its features are fully utilized:
  (a) To start operation without applying shock to a load.
  (b) To preform high-speed oparation after low-speed operation.
  (c) To absorb shock loads during operation.
  (d) To start an A.C. motor under non-load

TATUNG

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DEALER