

# 400, 480, 600 Volt, Three Phase Wye Ratings & Connections

CONNECTION:	"LINE"			"BOOST"		"STEP UP"	
	Input Volts: Output Volts: Frequency:	400 0-400 50/60	480 0-480 50/60	600 0-600 60	400 0-467 50/60	480 0-560 60	240 0-560 60
TERMINALS Input: Output -3Y Only: -6Y Thru -27Y:	4 - 4 - 4  3 - 3 - 3 H2 - H2 - H2			2 - 2 - 2  3 - 3 - 3 H2 - H2 - H2		5 - 5 - 5  3 - 3 - 3 H2-H2-H2	

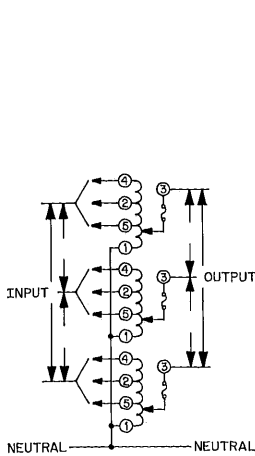
On units with synchronous motor drives, the model number is prefixed with one of the available nominal motor travel times (seconds) as follows:

120 V, 60 Hz Motor. Example: 5MB1296D-3Y						
****	5	15	30	60		
***	NA	15	30	60		
**	NA	NA	30	60		
240 V, 50 Hz Motor. Example: 18MB1296DUX-9Y						
####	6	18	36	72		
###	NA	18	36	72		
##	NA	NA	36	72		

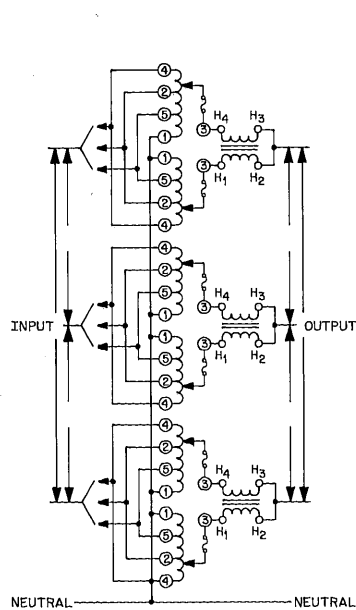
Constant Current Load		Constant Impedance Load			Constant Current Load		Constant Current		Model Number			Conn Diag
Max. Amps	Max. KVA At	Max. Amps	Max. KVA At	Max. Amps	Max. KVA At	Max. Amps	KVA At	Manually Operated	Synchronous Motor Drive	Digital Motor Drive		
	400 480 600		400 480 600		467 560		560					
35	24.3 29 36.4	39	27 32.4 40.5	35	28.3 34	14.7	14.3	1296DU-3Y 1296D-3Y 1296DT-3Y	**** MB1296DU-3Y **** MB1296D-3Y **** MB1296DT-3Y #### MB1296DUX-3Y #### MB1296DX-3Y #### MB1296DTX-3Y	DM1296DU-3Y DM1296D-3Y DM1296DT-3Y DM1296DUX-3Y DM1296DX-3Y DM1296DTX-3Y	10	
70	49 58 73	78	54 65 81	70	57 68	29	29	1296DU-6Y	*** MB1296DU-6Y ### MB1296DUX-6Y	DM1296DU-6Y DM1296DUX-6Y	11	
105	73 87 109	117	87 97 122	105	85 102	44	43	1296DU-9Y	** MB1296DU-9Y ## MB1296DUX-9Y		12	
140	97 116 146	156	108 130 162	140	113 136	59	57		** MB1296DU-12Y ## MB1296DUX-12Y		12	
175	122 145 182	195	135 162 203	175	142 170	74	72		60MB1296DU-15Y 72MB1296DUX-15Y		12	
210	146 174 218	234	162 194 243	210	170 204	88	86		60MB1296DU-18Y 72MB1296DUX-18Y		12	
245	170 203 255	273	189 227 284	245	198 238	103	100		60MB1296DU-21Y 72MB1296DUX-21Y		12	
280	194 232 291	312	216 259 324	280	226 272	118	114		60MB1296DU-24Y 72MB1296DUX-24Y		12	
315	219 261 328	351	243 292 365	315	255 306	132	129		60MB1296DU-27Y 72MB1296DUX-27Y		12	

Units are supplied with all required jumpers. Units with -12Y through -27Y suffixes utilize bus bar jumpers and are shipped with the input bus bar jumper connected for "Boost" operation (connected to input terminal 2). If "Line" or "Step-Up" operations is required, the input bus bar jumper must be moved to terminal 4 or 5 as required.

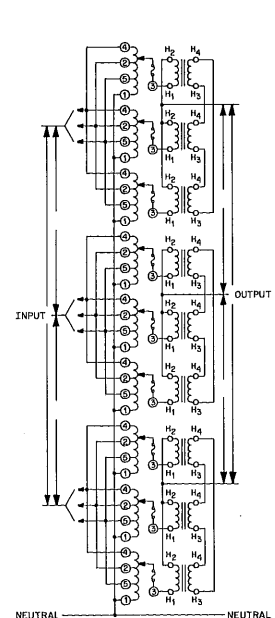
All output fuses (40 A, 600V) and paralleling chokes (T5587) shown in connection diagrams are provided.



Connection 10



Connection 11



Connection 12

# Specifications

## Electrical

Input Voltage (max. nominal per deck)		
	@ 60 Hz	@ 50 Hz
Line Connection	346 V	277 V
Boost Connection	277 V	240 V
Step-Up Connection	138 V	120 V
Output Voltage (percent of input voltage)		
Line Connection	0 to 100%	
Boost Connection	0 to 117%	
Step-Up Connection	0 to 233%	
Tolerance All Connections	± 1.5%	
Load Current (max. per deck)		
Line Connection		
Constant Impedance	39 A	
Constant Current	35 A	
Boost Connection		
Constant Current	35 A	
Step-Up Connection		
Constant Current	14.7 A	
Load Capacity (limited by output fuse)		
See page 7 for complete curve.		
100% Load	Continuous	
300% Load	6 Sec On, 50 Sec Off	
500% Load	0.5 Sec On, 12 Sec Off	
Efficiency (varies with brush setting)		
At Full Load	98% Typical	
Exciting Current (each deck)	190 mA Typical	
Exciting Power (per deck)	46 W Typical	
BTU Produced	512 BTU/Hr Each Coil Typical	
Leakage Resistance		
Minimum resistance winding to frame and shaft, at a potential of 500 volts DC, temperature between 20°C - 30°C, and relative humidity less than 50%	100 Meg Ohms	
Inrush Current	900 A Max.	
Peak current, one deck at maximum nominal voltage		
Distortion (added)		
Total Harmonic Distortion	0.25% Max.	
Load Regulation (worst position)		
See page 7 for complete curve.	3% Typical	
Output Fuse (Each Deck)	40 A, 600 V	
Coil Resistance (per deck at 20°C)	0.265 Ohms ± 10%	
Commutator Bars	376	

## Independent Certification

UL Recognition and CSA Certification of all basic 1296D Series units with any options. When ordered in the NEMA I enclosure, only the POWERSTAT unit is approved.

## Replacement Brush

RB1296D

## Mechanical

Weight	(Page 17)
Weight Per Deck	75 Lbs Typical
Driving Torque Per Deck	125 Oz-In Typical 250 Oz-In Max.
Moment of Inertia Per Deck	21 lb. In. <sup>2</sup>
Mechanical Life	
All units are designed to meet a minimum mechanical life of 250,000 cycles while operating at rated voltage and current, and without brush replacement.	

## Environmental

Operating Temperature			
Enclosed or Screened Units:			
Average ambient temperature for any 24 hour period not to exceed 30°C, and the maximum temperature not to exceed 40°C.			
Open Construction Units:			
Average ambient temperature for any 24 hour period not to exceed 40°C, and the maximum temperature not to exceed 50°C			
When operation is required in maximum ambient temperatures higher than 40°C for enclosed units or 50°C for open construction units, the output current must be reduced as follows. See page 3 for temperature curve.			
Maximum Ambient	50°C	60°C	70°C
Open Units (% Rated Load)	100%	90%	75%
Enclosed Units (Rated Load)	90%	75%	52%
Minimum Operating Temperature -20°C			
Storage Temperature: -40° to +70°C			
Humidity, Operating and Storage:			
7 day average relative humidity 20 to 75%			
Maximum (non-condensing) 95%			
Altitude			
Operating: 6,600 ft (2,000 meters) max - no derating			
When operation is required at higher altitudes, the load current and maximum ambient temperature must be derated as follows:			
MAXIMUM ALTITUDE DERATING			
10,000 ft. (3,000 meters)	Load to 95% Max. Ambient 30°C		
15,000 ft. (4,500 meters)	Load to 90% Max. Ambient 20°C		
Storage: 50,000 ft (15,000 meters) max.			

# Weights

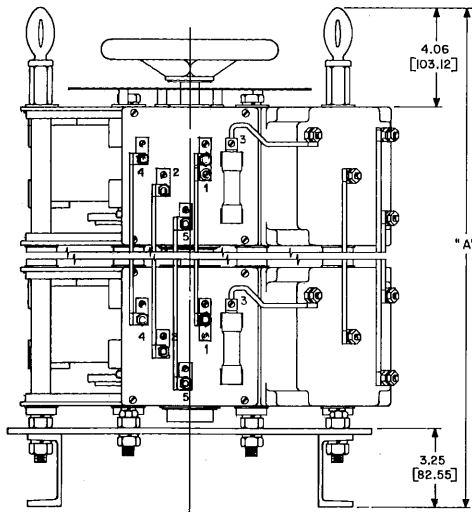
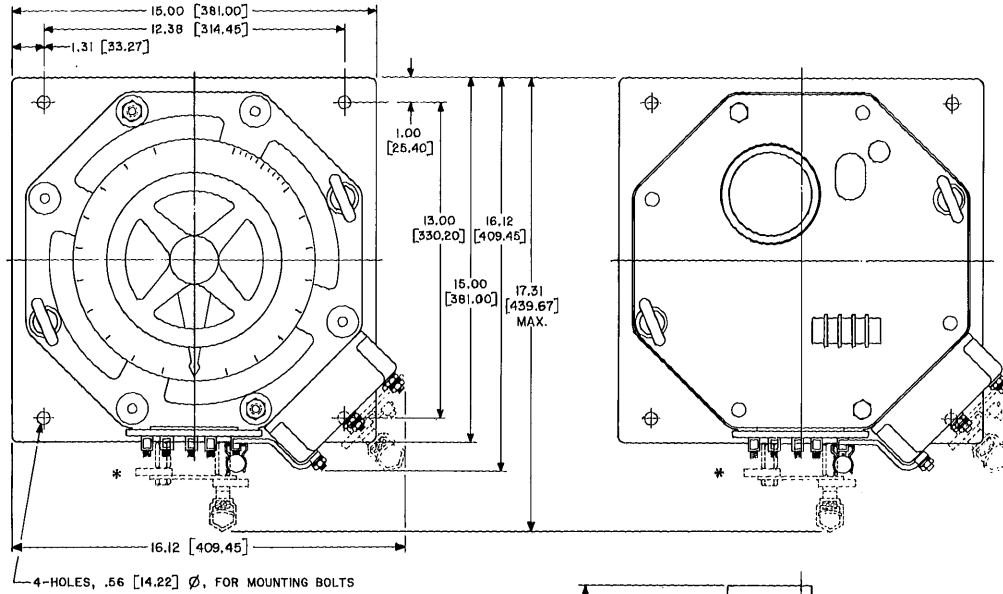
## MANUAL UNITS

Decks	Open, Screened & Terminal Enclosure Construction				POWERSTAT Unit In NEMA I Enclosure (N01 Suffix)				
	Net Lbs Kg		Shipping Lbs Kg		Enclosure Type No.	Net Lbs Kg		Shipping Lbs Kg	
1	82	37	92	42	PBA50-N01-A	180	83	230	110
2	170	77	190	86	PBA50-N01-B	300	140	350	160
3	250	110	280	130	PBA50-N01-C	410	190	460	210
4	370	170	420	190	PBA50-N01-D	540	240	590	270
5	460	210	510	230	PBA50-N01-D	620	280	670	310
6	550	250	600	270	PBA50-N01-E	740	340	790	360
7	630	290	680	310					
8	720	330	770	350					
9	800	360	850	390					

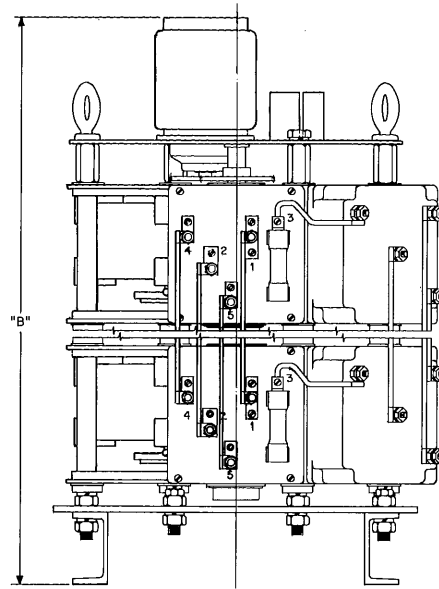
## MOTORIZED UNITS

Decks/ Connection	Open, Screened & Terminal Enclosure Construction				POWERSTAT Unit In NEMA I Enclosure (N01 Suffix)				
	Net Lbs Kg		Shipping Lbs Kg		Enclosure Type No.	Net Lbs Kg		Shipping Lbs Kg	
1	100	45	110	50	PBA50-N01-B	230	100	280	130
2	190	86	210	95	PBA50-N01-C	350	160	400	180
3	270	120	300	140	PBA50-N01-D	460	210	510	230
4	390	180	440	200	PBA50-N01-D	560	250	610	280
5	480	220	530	240	PBA50-N01-E	670	300	720	330
6	570	260	620	280	PBA50-N01-E	760	350	810	370
7	650	300	700	320	PBA50-N01-F	900	410	950	430
8	740	340	790	360	PBA50-N01-F	980	450	1,030	470
9	820	370	870	400	PBA50-N01-F	1,070	490	1,120	510
10	960	440	1,060	480	PBA50-N01-EE	1,450	660	1,550	700
12 D & PS	1,150	520	1,250	570	PBA50-N01-EE	1,650	750	1,750	790
12 Y	1,200	540	1,300	590	PBA50-N01-DD	1,600	730	1,700	770
14	1,300	590	1,400	640	PBA50-N01-FF	1,900	860	2,000	910
15	1,450	660	1,550	700	PBA50-N01-EE	1,900	860	2,000	910
16	1,500	680	1,600	730	PBA50-N01-FF	2,100	950	2,200	1,000
18 D & PS	1,650	750	1,750	800	PBA50-N01-GG	2,300	1,050	2,400	1,100
18 Y	1,700	770	1,800	820	PBA50-N01-EE	2,150	980	2,250	1,000
21	1,950	890	2,050	930	PBA50-N01-FF	2,500	1,150	2,600	1,200
24	2,200	1,000	2,300	1,050	PBA50-N01-FF	2,750	1,250	2,850	1,300
27	2,450	1,100	2,550	1,150	PBA50-N01-GG	3,100	1,400	3,200	1,450

## Outline Dimensions 4-Deck to 9-Deck Manually Operated and Motor-Driven Types



4- to 9-Deck Manual



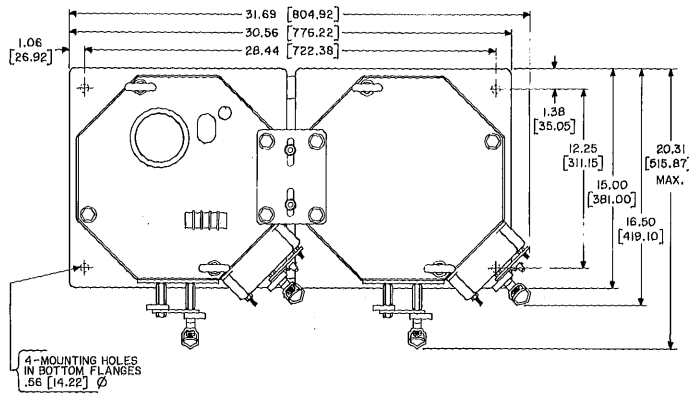
4- to 9-Deck Motor-Driven

\* Interconnections are by bus bars for Types 4P, 5P, 6P, 7P, 8D, 8PS, 8P and 9P as illustrated.

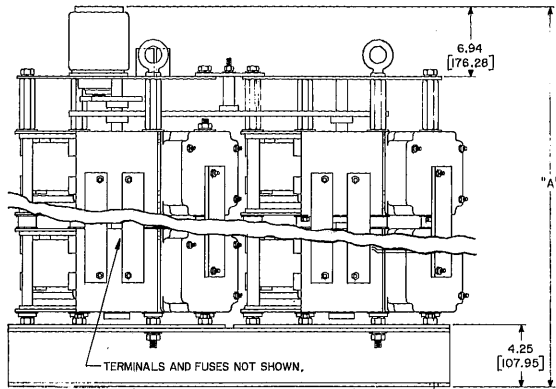
Type	"A"	"B"
4D, 4PS	34.00 [863.60]	38.56 [979.42]
4P	34.00 [863.60]	38.56 [979.42]
5P	40.62 [1031.75]	45.19 [1147.83]
6D, 6PS 6Y	47.25 [1200.15]	51.82 [1316.23]
6P	47.25 [1200.15]	51.82 [1316.23]
7P	53.88 [1368.55]	58.44 [1484.38]
8D, 8PS	60.50 [1536.70]	65.07 [1652.78]
8P	60.50 [1536.70]	65.07 [1652.78]
9P	67.12 [1704.85]	71.69 [1820.93]
9Y	67.12 [1704.85]	71.69 [1820.93]

All dimensions are in inches (millimeters).

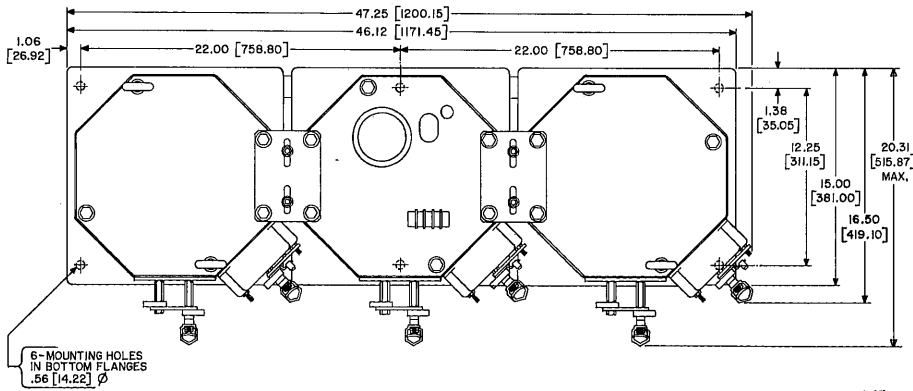
## Outline Dimensions 10-Deck to 27-Deck Motor-Driven Types



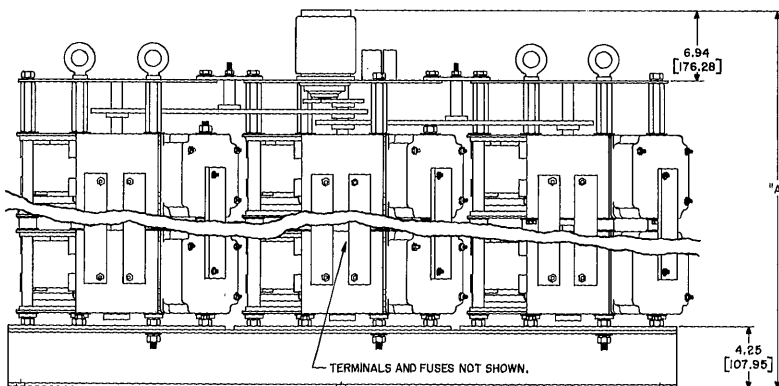
Type	"A"
10D, 10PS	49.44 (1255.78)
12D, 12PS	56.06 (1423.92)
14D, 14PS	62.69 (1592.33)
16D, 16PS	69.31 (1760.47)
18D, 18PS	75.94 (1928.88)



10- to 18-Deck Open Delta and Series-Parallel Types



Type	"A"
12Y	42.82 (1087.63)
15Y	49.44 (1255.78)
18Y	56.06 (1423.92)
21Y	62.69 (1592.33)
24Y	69.31 (1760.47)
27Y	75.94 (1928.88)



12- to 27-Deck Wye Types

All dimensions are in inches (millimeters).