

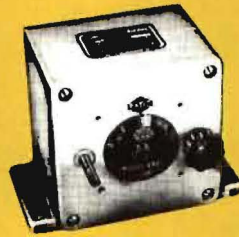
INDEX

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BODINE FRACTIONAL H.P. GEARMOTORS AND MOTORS

TECHNICAL INFO, DIMENSIONS, WIRING



SUPERIOR SLO-SYN MOTORS

B & B SYNCHRONOUS MOTORS

GENERAL ELECTRIC MOTORS

GEARTRONICS APCOR MULTI-SPEED GEARMOTORS AND REDUCERS

ZERO-MAX MECHANICAL VARIABLE SPEED DRIVES



HELLAND MECHANICAL OVERLOAD COUPLINGS

MILLER RECTIFIERS AND TRANSFORMERS

A.T.C. TIMERS AND COUNTERS

CHRONOMETRIC SPEED COUNTERS

VIS-COUNT TACHOMETER SPEED INDICATING SYSTEMS



HELLER VARIABLE SPEED MOTOR CONTROLS



B & B

**B & B MOTOR AND CONTROL CORP.
96 SPRING STREET, N.Y. 10012
TELEPHONE (212) 966-5777**

WARRANTY

ALL EQUIPMENT IS SOLD WITH A WARRANTY AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP. WE SHALL REPLACE OR REPAIR ANY PARTS WHICH PROVE DEFECTIVE IN MATERIAL OR WORKMANSHIP WITHIN 12 MONTHS AFTER SHIPMENT FROM OUR PLANT. SUCH RETURNS MUST HAVE OUR WRITTEN PERMISSION AND BE SHIPPED FREIGHT PREPAID TO OUR SERVICE DEPARTMENT. BODINE MOTORS, DIRECTRON PRODUCTS AND A.T.C. TIMERS MUST BE RE-SHIPED BY US TO THE RESPECTIVE FACTORIES FOR APPRAISAL.

ABBREVIATIONS

AC—Alternating Current
AC/DC—Alternating or direct current, series wound
CAP-REV—Capacitor run, reversible rotation
CW—Clockwise rotation, facing into shaft
CCW—Counter clockwise rotation, facing into shaft
DC—Direct current
DB—Dynamic braking (by shorting out capacitor)
HYS. SYN—Hysteresis synchronous
KCI—Capacitor run, reversible, non-synchronous

KYC—Capacitor run, reversible, synchronous
NCH—Capacitor run, reversible, hysteresis synchronous
NCI—Capacitor run, reversible
NPP—Polyphase (3 phase)
NSE—Series wound, AC or DC
NSH—Shunt wound, D.C.
NSI—Split-phase
NSY—Reluctance start, synchronous
NYC—Capacitor run, reversible, synchronous
OBB—Open ventilation, ball bearing motor
OSB—Open ventilation, sleeve bearing motor

Poly Phase—3 phase motor
REV—Reversible rotation
SYN—Synchronous
TE—Totally enclosed motor
TEBB—Totally enclosed motor with ball bearings
TESB—Totally enclosed motor with sleeve bearings
USI—Split-phase
V—Series wound AC/DC
XP—Explosion-proof motor
60/1—60 cycle A.C., 1 phase
60/3—60 cycle A.C., 3 phase
50/1—50 cycle A.C., 1 phase
115V—115 volts
230V—230 volts
220/440V—220 or 440 volt

B & B GIVES SERVICE

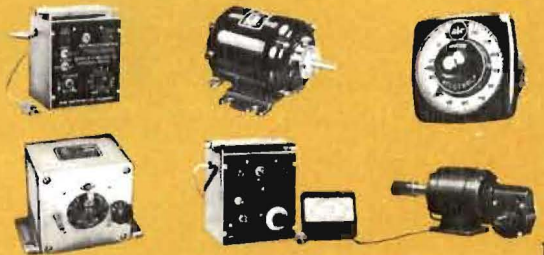
Only from B&B can you get the complete attention to details and service that has been the prime reason for our rapid growth since our founding 46 years ago. Our service entails the extensive stocking of tens of hundreds of motors and all other catalogued items. All these items are available for immediate delivery locally, nationally, and worldwide. Our service program also includes complete technical and engineering assistance, complete motor repair and modification facilities, and latest office equipment to insure trouble-free handling of all aspects of your order.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING		CAT. NO.	PRICE
							DATA			
1/2000 TO 1/500 HORSEPOWER INSTRUMENT MOTORS										
1/2000 TO 1/500 H.P. INSTRUMENT MOTORS	0.7	110"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-1800C	\$33.22
	0.7	120"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	108	B8262E-1800M	\$37.72
	0.9	110"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-1800C	\$33.22
	0.9	120"	oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	108	B8192E-1800M	\$37.72
	1.0	110"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	108	B8122E-1800C	\$33.22
	1.0	120"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RM	BODINE	108	B8122E-1800M	\$37.72
	1.1	105"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-1200C	\$33.22
	1.4	95"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-900C	\$33.22
	1.4	100"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	108	B8262E-900M	\$37.72
	1.4	105"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-1200C	\$33.22
	1.5	105"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	108	B8122E-1200C	\$33.22
	1.9	95"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-900C	\$33.22
	1.9	100"	oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	108	B8192E-900M	\$37.72
	2.0	95"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	108	B8122E-900C	\$33.22
	2.0	100"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RM	BODINE	108	B8122E-900M	\$37.72
	2.1	85"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-600C	\$33.22
	2.1	95"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	108	B8262E-600M	\$37.72
	2.8	95"	oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	108	B8192E-600M	\$37.72
	3.0	85"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-600C	\$33.22
	3.0	95"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RM	BODINE	108	B8122E-600M	\$37.72
	4.1	75"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-300C	\$33.22
	4.1	81"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	28	B8262E-300M	\$37.72
	5.7	75"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	28	B8192E-300C	\$33.22
	5.7	95"	oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	28	B8192E-300M	\$37.72
	6.0	54"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-300C	\$33.22
	6.0	95"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-300M	\$39.97
	7.0	49"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-180C	\$33.22
	7.0	65"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RM	BODINE	28	B8264E-180M	\$37.72
9.3	70"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	28	B8192E-180C	\$33.22	
9.3	93"	oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	28	B8194E-180M	\$37.72	
10	32"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-120C	\$33.22	
10	32"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-180C	\$33.22	
10	43"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RM	BODINE	28	B8264E-120M	\$37.72	
10	65"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-180M	\$39.97	
14	46"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	28	B8192E-120C	\$33.22	
14	62"	oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	28	B8194E-120M	\$37.72	
15	21"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-180C	\$33.22	
15	43"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-120M	\$39.97	
17	18"	oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8232E-72C	\$33.22	
23	26"	oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-72C	\$33.22	
23	37"	oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	28	B8194E-72M	\$37.72	

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.



BODINE MOTORS

1/2000 TO 1/500 H.P. INSTRUMENT MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
25	12"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-72C	\$33.22
25	26"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-72M	\$39.97
40	10"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RB	BODINE	28	B8264E-30B	\$28.38
40	12"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RM	BODINE	108	B8264E-30M	\$37.72
56	14"	oz.	115V AC Cap-Rev. TEBB	KCI	23RB	BODINE	28	B8194E-30B	\$28.38
56	18"	oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	108	B8194E-30M	\$37.72
60	6.6"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	23RB	BODINE	28	B8124E-30B	\$28.38
60	10"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RB	BODINE	28	B8130E-30B	\$40.00
67	6"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RB	BODINE	28	B8264E-18B	\$28.38
67	14"	oz.	115V AC Cap-Rev. TEBB	KCI	26RM	BODINE	108	B8270E-18M	\$39.97
93	8.6"	oz.	115V AC Cap-Rev. TEBB	KCI	23RB	BODINE	28	B8194E-18B	\$28.38
93	16"	oz.	115V AC Cap-Rev. TEBB	KCI	26RM	BODINE	108	B8200E-18M	\$39.97
100	4.0"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RB	BODINE	28	B8264E-12B	\$28.38
100	4.0"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	23RB	BODINE	28	B8124E-18B	\$28.38
140	5.7"	oz.	115V AC Cap-Rev. TEBB	KCI	23RB	BODINE	28	B8194E-12B	\$28.38
140	10"	oz.	115V AC Cap-Rev. TEBB	KCI	26RM	BODINE	28	B8200E-12M	\$39.97
150	2.6"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	23RB	BODINE	28	B8124E-12B	\$28.38
200	2.0"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23RB	BODINE	28	B8264E-06B	\$28.38
200	2.0"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	23RB	BODINE	28	B8124E-09B	\$28.37
200	5.2"	oz.	115V AC Cap-Rev. TEBB	KCI	26RM	BODINE	28	B8270E-06M	\$39.97
280	2.8"	oz.	115V AC Cap-Rev. TEBB	KCI	23RB	BODINE	28	B8194E-06B	\$28.38
280	5.7"	oz.	115V AC Cap-Rev. TEBB	KCI	26RM	BODINE	28	B8200E-06M	\$39.97
300	1.3"	oz.	115V AC Cap-Rev. TEBB	KYC	23RB	BODINE	28	B8124E-06B	\$28.38
1200	1.1"	oz.	115V AC Cap-Rev. TEBB DB	KCI	23	BODINE	28	B8264E	\$20.83
1200	1.8"	oz.	115V AC Cap-Rev. TEBB DB	KCI	26	BODINE	28	B8270E	\$23.08
1550	1.4"	oz.	115V AC Cap-Rev. TEBB	KCI	23	BODINE	28	B8194E	\$20.83
1550	2.4"	oz.	115V AC Cap-Rev. TEBB	KCI	26	BODINE	28	B8200E	\$23.08
1800	.35"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	23	BODINE	28	B8124E	\$20.83
1800	.6"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26	BODINE	28	B8130E	\$23.08
3600	.18"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	23	BODINE	28	B8138E	\$24.66
3600	.3"	oz.	115V AC Cap-Rev. TEBB SYN	KYC	26	BODINE	28	B8144E	\$26.91

1/150 HORSEPOWER

1/150	1.3	37"	lbs.	115V AC 60/1 Split Phase OBB Rev	NSI	12RG	BODINE	25	B-7094-1350G	\$ 74.29
1/150	1.3	37"	lbs.	230V AC 60/1 Split Phase OBB Rev	NSI	12RG	BODINE	25	B-7095-1350G	\$ 83.90
1/150	1.3	37"	lbs.	115V AC 60/1 Cap OBB Rev	NCI	12RG	BODINE	29	B-7112-1350G	\$ 80.40
1/150	1.3	37"	lbs.	115V DC Shunt Wound OBB Rev	NSH	12RG	BODINE	21	B-7096-1350G	\$ 80.50
1/150	1.3	37"	lbs.	220V AC 60/3 Poly Phase OBB Rev	NPP	12RG	BODINE	27	B-7099-1350G	\$ 97.60
1/150	1.33	37"	lbs.	220V AC 60/3 Poly Phase OBB Rev Syn	NYP	12RG	BODINE	27	B-7087-1350G	\$108.00
1/150	1.6	40"	lbs.	115V AC 60/1 Split Phase OBB Rev	NSI	12RG	BODINE	25	B-7094-1080G	\$ 46.71
1/150	1.6	40"	lbs.	230V AC 60/1 Split Phase OBB Rev	NSI	12RG	BODINE	25	B-7095-1080G	\$ 81.87
1/150	1.6	40"	lbs.	115V AC 60/1 Cap OBB Rev	NCI	12RG	BODINE	29	B-7112-1080G	\$ 52.23
1/150	1.6	40"	lbs.	115V DC Shunt Wound OBB Rev	NSH	12RG	BODINE	21	B-7096-1080G	\$ 65.00

AC—Alternating Current	HYS. SYN—Hysteresis synchronous	NSI—Split-phase	TEBB—Totally enclosed motor with ball bearings
AC/DC—Alternating or direct current, series wound	KCI—Capacitor run, reversible, non-synchronous	NSY—Reluctance start, synchronous	TESB—Totally enclosed motor with sleeve bearings
CAP-REV—Capacitor run, reversible rotation	KYC—Capacitor run, reversible, synchronous	NYC—Capacitor run, reversible, synchronous	USI—Split-phase
CW—Clockwise rotation, facing into shaft	NCH—Capacitor run, reversible, hysteresis synchronous	OBB—Open ventilation, ball bearing motor	V—Series wound AC/DC
CCW—Counter clockwise rotation, facing into shaft	NCI—Capacitor run, reversible	OSB—Open ventilation, sleeve bearing motor	XP—Explosion-proof motor
DC—Direct current	NPP—Polyphase (3 phase)	Poly Phase—3 phase motor	60/1—60 cycle A.C., 1 phase
DB—Dynamic braking (by shorting out capacitor)	NSE—Series wound, AC or DC	REV—Reversible rotation	60/3—60 cycle A.C., 3 phase
	NSH—Shunt wound, D.C.	SYN—Synchronous	50/1—50 cycle A.C., 1 phase
		TE—Totally enclosed motor	115V—115 volts
			230V—230 volts
			220/440V—220 or 440 volt

**BODINE MOTORS**

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/150	1.6	40" lbs.	220V AC 60/3 Poly Phase OBB Rev	NPP	12RG	BODINE	27	B-7099-1080G	\$ 87.73
1/150	1.66	38" lbs.	220V AC 60/3 Poly Phase OBB Rev Syn	NYP	12RG	BODINE	27	B-7087-1080G	\$102.42
1/150	1.9	35" lbs.	115V DC Shunt Wound OBB Rev	NSH	12RG	BODINE	21	B-7096-900G	\$ 80.50
1/150	1.9	35" lbs.	220V AC 60/3 Poly Phase OBB Rev	NPP	12RG	BODINE	27	B-7099-900G	\$ 97.60
1/150	2.0	34" lbs.	220V AC 60/3 Poly Phase OBB Rev Syn	NYP	12RG	BODINE	27	B-7087-900G	\$102.42
1/150	2.1	32" lbs.	115V AC 60/1 Split Phase OBB Rev	NSI	12RG	BODINE	25	B-7094-810G	\$ 74.29
1/150	2.1	32" lbs.	115V DC Shunt Wound OBB Rev	NSH	12RG	BODINE	21	B-7096-810G	\$ 80.50

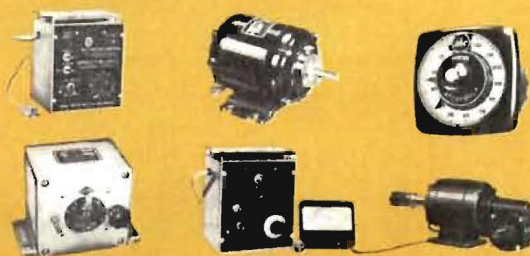
1/125 HORSEPOWER

1/125	1.66	37" lbs.	115V AC 60/1 Split Phase OBB Rev Syn	NSY	12RG	BODINE	25	B-7078-1350G	\$ 90.80
1/125	1.66	42" lbs.	115V AC 60/1 Split Phase OBB Rev Syn	NSY	12RG	BODINE	25	B-7078-1080G	\$ 81.31
1/125	2	2.1" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-900	\$ 43.56
1/125	2	2.1" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-900	\$ 50.95●
1/125	2	2.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-900	\$ 90.82
1/125	2	40" lbs.	115V AC Split-Phase Rev Syn	NSY	12RG	BODINE	25	B-7078-900G	\$ 81.31
1/125	10	7" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-180	\$ 45.43
1/125	10	7" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-180	\$ 50.95●
1/125	10	7" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-180	\$ 90.82
1/125	25	6.7" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-72	\$ 43.56
1/125	25	6.7" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-72	\$ 83.49●
1/125	25	6.7" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-72	\$ 90.82
1/125	30	7.2" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-60	\$ 43.56
1/125	30	7.2" lbs.	115C AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-60	\$ 76.32●
1/125	30	7.2" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-60	\$ 90.82
1/125	50	4.9" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-36	\$ 67.41
1/125	50	4.9" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-36	\$ 83.49●
1/125	50	4.9" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-36	\$ 90.82
1/125	60	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-30	\$ 42.94
1/125	60	3.5" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-30	\$ 48.46●
1/125	60	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-30	\$ 87.93
1/125	75	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-24	\$ 73.90
1/125	75	3.5" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-24	\$ 79.19●
1/125	75	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-24	\$ 87.93
1/125	100	2.9" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-18	\$ 42.94
1/125	100	2.9" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-18	\$ 48.46
1/125	100	2.9" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-18	\$ 87.93
1/125	150	2.1" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-12	\$ 42.94
1/125	150	2.1" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-12	\$ 79.19●
1/125	150	2.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-12	\$ 87.93
1/125	180	1.9" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-10	\$ 42.94
1/125	180	1.9" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-10	\$ 75.60●
1/125	180	1.9" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-10	\$ 87.93
1/125	300	1.2" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-06	\$ 42.94

● Price of Motor Includes 2.5 Mfd. Capacitor; Part #N-3203

NOTE

For all 11R and 12R frames with gear ratios of 6 to 1, 10 to 1, 12 to 1, 18 to 1, and 30 to 1, see single reduction group 1 dimensions on page 25. For 36 to 1 ratio and higher, see double reduction group 1. Ratios are the digits after the dash, example: B2222E-18 is a 18 to 1 ratio and is a single reduction, group 1.





BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/125	300	1.2" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-06	\$ 48.46●
1/125	300	1.2" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-06	\$ 87.93
1/125	1800	4.6" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12	BODINE	25	B-2246E	\$ 29.40
1/125	1800	4.6" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12	BODINE	29	B-2270E	\$ 45.30●
1/125	1800	4.6" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12	BODINE	27	B-2127E	\$ 62.50
1/100 HORSEPOWER									
1/100	20	64" oz.	115V AC-DC Series Wound OSB CW	V	10R	BODINE	20	1610-432	\$ 23.18
1/100	52	45" oz.	115V AC-DC Series Wound OSB CW	V	10R	BODINE	20	1610-144	\$ 23.18
1/100	62	59" oz.	115V AC-DC Series Wound OSB CCW	V	10R	BODINE	20	1610-100	\$ 23.18
1/100	210	25" oz.	115V AC-DC Series Wound OSB CCW	V	10R	BODINE	20	1610-24	\$ 19.93
1/100	500	14" oz.	115V AC-DC Series Wound OSB CCW	V	10R	BODINE	20	1610-10	\$ 19.93
1/100	5000	2.01"oz.	115V AC-DC Series Wound OSB CW	V	10	BODINE	20	1611	\$ 14.00
1/100	5000	2.01oz.	115V AC-DC Series Wound OSB CCW	V	10	BODINE	20	1612	\$ 14.00
1/75 HORSEPOWER									
1/75	2.5	48" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-720G	\$ 90.80
1/75	2.5	48" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-720G	\$ 96.09★
1/75	2.5	48" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-720G	\$108.00
1/75	3.0	50" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-600G	\$ 52.75
1/75	3.0	50" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-600G	\$ 58.27★
1/75	3.0	50" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-600G	\$108.00
1/75	3.75	47" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-480G	\$ 90.80
1/75	3.75	47" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-480G	\$ 96.09★
1/75	3.75	47" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-480G	\$108.00
1/75	5	39" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-360G	\$ 90.80
1/75	5	39" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-360G	\$ 96.09★
1/75	5	39" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-360G	\$108.00
1/75	6	35" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-300G	\$ 90.80
1/75	6	35" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-300G	\$ 96.09★
1/75	6	35" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-300G	\$108.00
1/75	7.5	30" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-240G	\$ 90.80
1/75	7.5	30" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-240G	\$ 96.09★
1/75	7.5	30" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-240G	\$108.00
1/75	10	25" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-180G	\$ 90.80
1/75	10	25" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-180G	\$ 96.09★
1/75	10	25" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-180G	\$108.00
1/75	12	24" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-150G	\$ 90.80
1/75	12	24" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-150G	\$ 96.09★
1/75	12	24" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-150G	\$108.00
1/75	15	20" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-120G	\$ 90.80
1/75	15	20" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-120G	\$ 96.09★
1/75	15	20" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-120G	\$108.00

CW indicates clockwise rotation when looking into shaft

● Price of Motor Includes 2.5 Mfd. Capacitor; Part #N-3203

CCW indicates counter clockwise rotation when looking into shaft

★ Price Includes 3.75 Mfd. Capacitor; Part #N-3204

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/75	20	17" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-90G	\$ 90.80
1/75	20	17" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-90G	\$ 96.09★
1/75	20	17" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-90G	\$108.00
1/75	30	13" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-60G	\$ 52.75
1/75	30	13" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-60G	\$ 58.27★
1/75	30	13" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-60G	\$108.00
1/75	30	8.4" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-60H	\$ 84.00
1/75	30	8.4" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-60H	\$ 95.68
1/75	33.33	7.6" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-54H	\$ 84.00
1/75	33.33	7.6" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-54H	\$ 95.68
1/75	45	7.5" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-40H	\$ 84.00
1/75	45	7.5" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-40H	\$ 95.68
1/75	60	5.6" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-30H	\$ 84.00
1/75	60	5.6" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-30H	\$ 95.68
1/75	90	4.7" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-20H	\$ 84.00
1/75	90	4.7" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-20H	\$ 95.68
1/75	120	4.0" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-15H	\$ 84.00
1/75	120	4.0" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-15H	\$ 95.68
1/75	180	3.5" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-10H	\$ 84.00
1/75	180	3.5" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-10H	\$ 95.68
1/75	300	2.80" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-06H	\$102.00
1/75	300	2.80" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-06H	\$111.90
1/75	300	1.75" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-05H	\$115.60
1/75	360	1.75" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-05H	\$125.50
1/75	450	1.55" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-04H	\$115.60
1/75	450	1.55" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-04H	\$125.50
1/75	600	1.40" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-03H	\$102.00
1/75	600	1.40" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-03H	\$111.90
1/75	720	.88" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-02-1/2H	\$115.60
1/75	720	.88" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-02-1/2H	\$125.50
1/75	1800	7.4" oz.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12	BODINE	25	B-2246	\$ 29.40
1/75	1800	7.4" oz.	115V AC 60/1 Cap Rev OBB Syn	NYC	12	BODINE	29	B-2270	\$ 34.92★
1/75	1800	7.4" oz.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12	BODINE	27	B-2127	\$ 62.50

1/70 HORSEPOWER

1/70	1.5	2.2" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-1120	\$ 46.24
1/70	1.9	2.1" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-900	\$ 39.39
1/70	1.9	2.1" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-900	\$ 65.91★
1/70	1.9	2.1" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-900	\$ 71.30
1/70	1.9	2.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-900	\$ 79.23
1/70	2.0	48" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7054-720G	\$ 63.01
1/70	2.4	48" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7050-720G	\$ 46.71
1/70	2.4	48" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-7052-720G	\$ 80.50

★ Price Includes 3.75 Mfd. Capacitor; Part #N-3204

AC—Alternating Current	HYS. SYN—Hysteresis synchronous	NSI—Split-phase	TEBB—Totally enclosed motor with ball bearings
AC/DC—Alternating or direct current, series wound	KCI—Capacitor run, reversible, non-synchronous	NSY—Reluctance start, synchronous	TESB—Totally enclosed motor with sleeve bearings
CAP-REV—Capacitor run, reversible rotation	KYC—Capacitor run, reversible, synchronous	NYC—Capacitor run, reversible, synchronous	USI—Split-phase
CW—Clockwise rotation, facing into shaft	NCH—Capacitor run, reversible, hysteresis synchronous	OBB—Open ventilation, ball bearing motor	V—Series wound AC/DC
CCW—Counter clockwise rotation, facing into shaft	NCI—Capacitor run, reversible	OSB—Open ventilation, sleeve bearing motor	XP—Explosion-proof motor
DC—Direct current	NPP—Polyphase (3 phase)	Poly Phase—3 phase motor	60/1—60 cycle A.C., 1 phase
DB—Dynamic braking (by shorting out capacitor)	NSE—Series wound, AC or DC	REV—Reversible rotation	60/3—60 cycle A.C., 3 phase
	NSH—Shunt wound, D.C.	SYN—Synchronous	50/1—50 cycle A.C., 1 phase
		TE—Totally enclosed motor	115V—115 volts
			230V—230 volts
			220/440V—220 or 440 volt

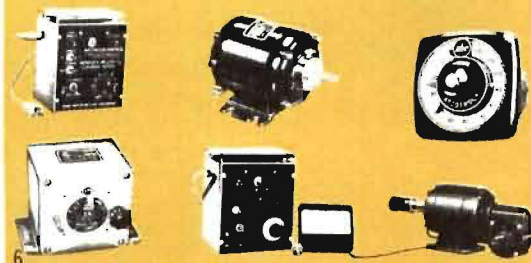
BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/70	2.4	48" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7051-720G	\$ 81.87
1/70	2.4	48" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-7059-720G	\$ 87.73
1/70	2.9	3.4" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-222E-600	\$ 39.39
1/70	2.9	3.4" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-600	\$ 44.91★
1/70	2.9	3.4" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-600	\$ 71.30
1/70	2.9	3.4" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-600	\$ 79.23
1/70	3.6	52" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7050-480G	\$ 46.71
1/70	3.6	52" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-7072-480G	\$ 52.23★
1/70	3.6	52" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-7052-480G	\$ 67.00
1/70	3.6	52" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7051-480G	\$ 81.87
1/70	3.6	52" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-7059-480G	\$ 87.73
1/70	4.0	5.7" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-432	\$ 39.39
1/70	4.0	5.7" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-432	\$ 65.91★
1/70	4.0	5.7" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-432	\$ 43.35
1/70	4.0	5.7" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-432	\$ 71.30
1/70	4.0	5.7" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-432	\$ 79.23
1/70	4.8	44" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7050-360G	\$ 46.71
1/70	4.8	44" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-7052-360G	\$ 80.50
1/70	4.8	44" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7051-360G	\$ 81.87
1/70	4.8	44" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RC	BODINE	27	B-7059-360G	\$ 87.73
1/70	5.3	6.6" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-324	\$ 43.35
1/70	5.7	39" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7050-300G	\$ 80.40
1/70	5.7	39" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-7052-300G	\$ 80.50
1/70	5.7	39" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7051-300G	\$ 81.87
1/70	5.7	39" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-7059-300G	\$ 87.73
1/70	5.7	6.1" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-300	\$ 49.33
1/70	6.0	5.1" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-288	\$ 39.39
1/70	6.0	5.1" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-288	\$ 65.91★
1/70	6.0	5.1" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-288	\$ 71.30
1/70	6.0	4.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-288	\$ 79.23
1/70	9.6	7" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-180	\$ 39.39
1/70	9.6	7" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-180	\$ 44.91★
1/70	9.6	7" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-180	\$ 43.35
1/70	9.6	7" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-180	\$ 71.30
1/70	9.6	7" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-180	\$ 79.23
1/70	17	5.6" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-100	\$ 39.39
1/70	17	5.6" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-100	\$ 65.91★
1/70	17	5.6" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-100	\$ 43.35
1/70	17	5.6" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-100	\$ 71.30
1/70	17	5.6" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-100	\$ 79.23
1/70	21	13" lbs.	115V AC—DC Series Wound CW OBB	NSE	11RG	BODINE	20	B-7070-240G	\$ 43.23
1/70	24	6.7" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-72	\$ 39.39
1/70	24	6.7" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-72	\$ 44.91★
1/70	24	6.7" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-72	\$ 67.80

CW indicates clockwise rotation when looking into shaft

CCW indicates counter clockwise rotation when looking into shaft

★ Price Includes 3.75 Mfd. Capacitor; Part #N-3204



NOTE

For all 11R and 12R frames with gear ratios of 6 to 1, 10 to 1, 12 to 1, 18 to 1, and 30 to 1, see single reduction group 1 dimensions on page 25. For 36 to 1 ratio and higher, see double reduction group 1. Ratios are the digits after the dash, example: B2222E-18 is a 18 to 1 ratio and is a single reduction, group 1.

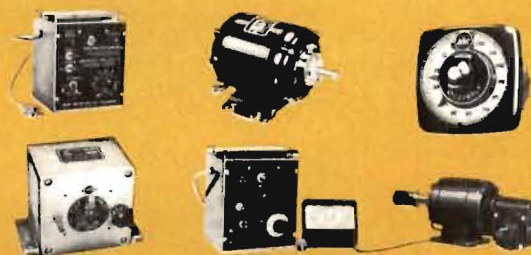


BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA *	CAT. NO.	PRICE
1/70	24	6.7" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-72	\$ 71.30
1/70	24	6.7" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-72	\$ 79.23
1/70	29	8" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-60	\$ 39.39
1/70	29	8" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-60	\$ 65.91
1/70	29	8" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-60	\$ 74.12
1/70	29	8" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-60	\$ 71.30
1/70	29	8" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-60	\$ 79.23
1/70	48	7.1" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-36	\$ 39.39
1/70	48	7.1" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-36	\$ 44.91★
1/70	48	7.1" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-36	\$ 43.35
1/70	48	7.1" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-36	\$ 71.30
1/70	48	7.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-36	\$ 79.23
1/70	58	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-30	\$ 36.89
1/70	58	3.5" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-30	\$ 63.28★
1/70	58	3.5" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-30	\$ 64.63
1/70	58	3.5" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-30	\$ 67.00
1/70	58	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-30	\$ 76.33
1/70	72	6.5" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-24	\$ 36.89
1/70	72	6.5" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-24	\$ 63.28★
1/70	72	6.5" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-24	\$ 64.63
1/70	72	6.5" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-24	\$ 67.00
1/70	72	6.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-24	\$ 76.33
1/70	96	5.4" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-18	\$ 36.89
1/70	96	5.4" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-18	\$ 42.41★
1/70	96	5.4" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-18	\$ 40.93
1/70	96	5.4" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-18	\$ 67.00
1/70	96	5.4" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-18	\$ 76.33
1/70	144	4" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-12	\$ 36.89
1/70	144	4" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-12	\$ 42.41★
1/70	144	4" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-12	\$ 64.63
1/70	144	4" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-12	\$ 67.00
1/70	144	4" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-12	\$ 76.33
1/70	173	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-10	\$ 36.89
1/70	173	3.5" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-10	\$ 63.28★
1/70	173	3.5" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-10	\$ 64.63
1/70	173	3.5" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-10	\$ 67.00
1/70	173	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-10	\$ 76.33
1/70	288	2.2" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-06	\$ 36.89
1/70	288	2.2" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-06	\$ 42.41
1/70	288	2.2" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-06	\$ 40.93
1/70	288	2.2" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-06	\$ 67.00
1/70	288	2.2" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-06	\$ 76.33
1/70	1725	8" oz.	115V AC 60/1 Split Phase Rev TEBB	NSI	12	BODINE	25	B-2222E	\$ 23.36

★ Price Includes 3.75 Mfd. Capacitor, Part #N-3204

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.





BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/70	1725	8" oz.	115V AC 60/1 Cap Rev TEBB	NCI	12	BODINE	29	B-2258E	\$ 40.19
1/70	1725	8" oz.	115V DC Shunt Wound Rev TEBB	NSH	12	BODINE	21	B-2150E	\$ 50.40
1/70	1725	8" oz.	230V AC 60/1 Split Phase Rev TEBB	NSI	12	BODINE	25	B-2223E	\$ 38.40
1/70	1725	8" oz.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12	BODINE	27	B-2139E	\$ 52.10

1/60 HORSEPOWER

1/60	3.0	52" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2186-480G	\$ 63.01
1/60	4.0	44" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2186-360G	\$ 63.01
1/60	13	1.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	11R	BODINE	20	B-2080-768	\$ 31.43
1/60	27	4" lbs.	115V AC/DC Series Wound OBB CW	NSE	11R	BODINE	20	B-2080-324	\$ 31.43
1/60	40	3.8" lbs.	115V AC/DC Series Wound OBB CW	NSE	11R	BODINE	20	B-2080-216	\$ 31.43
1/60	44	4.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	11R	BODINE	20	B-2080-180	\$ 31.43
1/60	96	4" lbs.	115V AC/DC Series Wound OBB CW	NSE	11R	BODINE	20	B-2080-72	\$ 31.43
1/60	140	3.8" lbs.	115V AC/DC Series Wound OBB CW	NSE	11R	BODINE	20	B-2080-36	\$ 31.43
1/60	210	2.7" lbs.	115V AC/DC Series Wound OBB CCW	NSE	11R	BODINE	20	B-2080-24	\$ 28.41
1/60	280	2.2" lbs.	115V AC/DC Series Wound OBB CCW	NSE	11R	BODINE	20	B-2080-18	\$ 28.41
1/60	415	1.6" lbs.	115V AC/DC Series Wound OBB CCW	NSE	11R	BODINE	20	B-2080-12	\$ 28.41
1/60	500	1.4" lbs.	115V AC/DC Series Wound OBB CCW	NSE	11R	BODINE	20	B-2080-10	\$ 28.41
1/60	835	.9" lbs.	115V AC/DC Series Wound OBB CCW	NSE	11R	BODINE	20	B-2080-06	\$ 28.41
1/60	1725	9.3" oz.	115V AC Split Phase Rev TEBB	NSI	13	BODINE	25	B-2224E	\$ 23.88

1/50 HORSEPOWER

1/50	7.2	47" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-240G	\$ 46.71
1/50	7.2	47" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-2258-240G	\$ 85.59★
1/50	7.2	47" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-240G	\$ 50.44
1/50	7.2	47" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-240G	\$ 81.87
1/50	7.2	47" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-240G	\$ 87.73
1/50	9.6	41" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-180G	\$ 46.71
1/50	9.6	41" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-2258-180G	\$ 52.23★
1/50	9.6	41" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-180G	\$ 80.50
1/50	9.6	41" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-180G	\$ 83.90
1/50	9.6	41" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-180G	\$ 97.60
1/50	11.5	37" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-150G	\$ 46.71
1/50	11.5	37" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-2258-150G	\$ 85.59★
1/50	11.5	37" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-150G	\$ 80.50
1/50	11.5	37" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-150G	\$ 81.87
1/50	11.5	37" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-150G	\$ 87.73
1/50	14.4	32" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-120G	\$ 46.71
1/50	14.4	32" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RC	BODINE	39	B-2258-120G	\$ 52.23★
1/50	14.4	32" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-120G	\$ 50.44
1/50	14.4	32" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-120G	\$ 81.87
1/50	14.4	32" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-120G	\$ 87.73
1/50	19.2	26" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-90G	\$ 46.71
1/50	19.2	26" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-2258-90G	\$ 52.23★

CW indicates clockwise rotation when looking into shaft

CCW indicates counter clockwise rotation when looking into shaft

• Price Includes 3.75 Mfd. Capacitor; Part #N-3204

B & B GIVES SERVICE

Only from B&B can you get the complete attention to details and service that has been the prime reason for our rapid growth since our founding 46 years ago. Our service entails the extensive stocking of tens of hundreds of motors and all other catalogued items. All these items are available for immediate delivery locally, nationally, and worldwide. Our service program also includes complete technical and engineering assistance, complete motor repair and modification facilities, and latest office equipment to insure trouble-free handling of all aspects of your order.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/50	19.2	26" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-90G	\$ 50.44
1/50	19.2	26" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-90G	\$ 81.87
1/50	19.2	26" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-90G	\$ 87.73
1/50	29	20" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-60G	\$ 46.71
1/50	29	20" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-2258-60G	\$ 52.23★
1/50	29	20" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-60G	\$ 50.44
1/50	29	20" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-60G	\$ 81.87
1/50	29	20" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-60G	\$ 87.73
1/50	29	13" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-60H	\$ 42.76
1/50	29	13" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-60H	\$ 73.60★
1/50	29	13" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-60H	\$ 46.62
1/50	29	13" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-60H	\$ 75.27
1/50	29	13" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-60H	\$ 83.14
1/50	32	11.8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-54H	\$ 42.76
1/50	32	11.8" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-54H	\$ 73.60★
1/50	32	11.8" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-54H	\$ 73.02
1/50	32	11.8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-54H	\$ 75.27
1/50	32	11.8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-54H	\$ 83.14
1/50	43	11.7" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-40H	\$ 42.76
1/50	43	11.7" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-40H	\$ 73.60★
1/50	43	11.7" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-40H	\$ 73.02
1/50	43	11.7" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-40H	\$ 75.27
1/50	43	11.7" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-40H	\$ 83.14
1/50	57	8.8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-30H	\$ 42.76
1/50	57	8.8" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-30H	\$ 73.60★
1/50	57	8.8" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-30H	\$ 46.62
1/50	57	8.8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-30H	\$ 75.27
1/50	57	8.8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-30H	\$ 83.14
1/50	86	7.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-20H	\$ 42.76
1/50	86	7.3" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-20H	\$ 73.60★
1/50	86	7.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-20H	\$ 46.62
1/50	86	7.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-20H	\$ 75.27
1/50	86	7.3" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-20H	\$ 83.14
1/50	115	6.0" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-15H	\$ 42.76
1/50	115	6.0" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-15H	\$ 73.60★
1/50	115	6.0" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-15H	\$ 46.62
1/50	115	6.0" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-15H	\$ 75.27
1/50	115	6.0" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-15H	\$ 83.14
1/50	173	4.8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-10H	\$ 42.76
1/50	173	4.8" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-10H	\$ 73.60★
1/50	173	4.8" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-10H	\$ 54.00
1/50	173	4.8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-10H	\$ 75.27
1/50	173	4.8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-10H	\$ 83.14

• Price Includes 3.75 Mfd. Capacitor; Part #N-3204

AC—Alternating Current
 AC/DC—Alternating or direct current, series wound
 CAP-REV—Capacitor run, reversible rotation
 CW—Clockwise rotation, facing into shaft
 CCW—Counter clockwise rotation, facing into shaft
 DC—Direct current
 DB—Dynamic braking (by shorting out capacitor)

HYS. SYN—Hysteresis synchronous
 KCI—Capacitor run, reversible, non-synchronous
 KYC—Capacitor run, reversible, synchronous
 NCH—Capacitor run, reversible, hysteresis synchronous
 NCI—Capacitor run, reversible
 NPP—Polyphase (3 phase)
 NSE—Series wound, AC or DC
 NSH—Shunt wound, D.C.

NSI—Split-phase
 NSY—Reluctance start, synchronous
 NYC—Capacitor run, reversible, synchronous
 OBB—Open ventilation, ball bearing motor
 OSB—Open ventilation, sleeve bearing motor
 Poly Phase—3 phase motor
 REV—Reversible rotation
 SYN—Synchronous
 TE—Totally enclosed motor

TEBB—Totally enclosed motor with ball bearings
 TESB—Totally enclosed motor with sleeve bearings
 USI—Split-phase
 V—Series wound AC/DC
 XP—Explosion-proof motor
 60/1—60 cycle A.C., 1 phase
 60/3—60 cycle A.C., 3 phase
 50/1—50 cycle A.C., 1 phase
 115V—115 volts
 230V—230 volts
 220/440V—220 or 440 volt

BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/50	345	2.4" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222X-05H	\$ 88.00
1/50	345	2.4" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258X-05H	\$109.52★
1/50	345	2.4" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150X-05H	\$ 91.36
1/50	345	2.4" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223X-05H	\$107.10
1/50	345	2.4" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139X-05H	\$112.96
1/50	690	1.2" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222X-02-½H	\$ 88.00
1/50	690	1.2" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258X-02-½H	\$109.52★
1/50	690	1.2" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150X-02-½H	\$ 91.36
1/50	690	1.2" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223X-02-½H	\$107.10
1/50	690	1.2" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139X-02-½H	\$112.96
1/50	1725	11.3" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	12	BODINE	25	B-2222	\$ 23.36
1/50	1725	11.3" oz.	115V AC 60/1 Cap Rev OBB	NCI	12	BODINE	29	B-2258	\$ 28.88★
1/50	1725	11.3" oz.	115V DC Shunt Wound Rev OBB	NSH	12	BODINE	21	B-2150	\$ 27.81
1/50	3450	6.0" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	12	BODINE	25	B-2228	\$ 28.70
1/50	3600	6.0" oz.	115V AC 60/1 Cap Rev OBB HY-SYN	NCH	13	BODINE	29	B-7346	\$ 47.97★

1/40 HORSEPOWER

1/40	1725	14" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	13	BODINE	25	B-2224	\$ 22.89
1/40	1725	14" oz.	115V AC 60/1 Cap Rev OBB	NCI	13	BODINE	29	B-2260	\$ 28.18★
1/40	1725	14" oz.	115V DC Shunt Wound Rev OBB	NSH	13	BODINE	21	B-2152	\$ 33.32
1/40	3450	8" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	13	BODINE	25	B-2230	\$ 28.02
1/40	3450	8" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	13	BODINE	27	B-2147	\$ 55.00

1/30 HORSEPOWER

1/30	1125	28" oz.	115V AC 60/1 Split Phase Rev OSB	USI	34	BODINE	25	9002	\$ 29.50
1/30	1125	28" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-4160	\$ 39.50
1/30	1200	28" oz.	115V AC 60/1 Cap Rev OBB HY-SYN	NCH	34	BODINE	29	B-7360	\$ 51.13

1/25 HORSEPOWER

1/25	24	17" lbs.	115V AC 60/1 Cap Rev OBB SYN	NYC	34RH	BODINE	29	B-6210X-75H	\$137.05▶
1/25	30	25" lbs.	115V AC 60/1 Cap Rev OBB SYN	NYC	34RH	BODINE	29	B-6210-60H	\$100.03▶
1/25	42	24" lbs.	115V AC DC Series Wound CW OBB	NSE	11RG	BODINE	20	B-2168-120G	\$ 41.44
1/25	45	25" lbs.	115V AC 60/1 Cap Rev OBB SYN	NYC	34RH	BODINE	29	B-6210-40H	\$100.03▶
1/25	83	15" lbs.	115V AC DC Series Wound CW OBB	NSE	11RG	BODINE	20	B-2168-60G	\$ 41.44
1/25	1800	23" oz.	115V AC 60/1 Cap Rev OBB SYN	NYC	34	BODINE	29	B-6210	\$ 42.39▶
1/25	5000	8.5" oz.	115V AC DC Series Wound CW OSB	NSE	11	BODINE	20	2168	\$ 14.93

• Price Includes 3.75 Mfd. Capacitor, Part #N-3204

For special shaft position options see Diagram No. 2 on page 22

WARRANTY

ALL EQUIPMENT IS SOLD WITH A WARRANTY AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP. WE SHALL REPLACE OR REPAIR ANY PARTS WHICH PROVE DEFECTIVE IN MATERIAL OR WORKMANSHIP WITHIN 12 MONTHS AFTER SHIPMENT FROM OUR PLANT. SUCH RETURNS MUST HAVE OUR WRITTEN PERMISSION AND BE SHIPPED FREIGHT PREPAID TO OUR SERVICE DEPARTMENT. BODINE MOTORS, DIRECTRON PRODUCTS AND A.T.C. TIMERS MUST BE RE-SHIPED BY US TO THE RESPECTIVE FACTORIES FOR APPRAISAL.

**BODINE MOTORS**

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/20 HORSEPOWER									
1/20	1.2	350"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-1440J	\$152.50
1/20	1.6	345"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-1080J	\$152.50
1/20	1.8	330"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-960J	\$152.50
1/20	1.9	325"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-900J	\$152.50
1/20	2.4	263"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-720J	\$152.50
1/20	2.9	219"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-600J	\$152.50
1/20	3.2	246"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-540J	\$152.50
1/20	3.6	219"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-480J	\$152.50
1/20	4.8	164"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-360J	\$152.50
1/20	23	13"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508X-60	\$ 73.71
1/20	29	13"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208X-60	\$ 73.38
1/20	29	13"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808X-60	\$ 80.18▶
1/20	29	13"	lbs. 115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408X-60	\$ 74.00
1/20	29	13"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209X-60	\$ 91.90
1/20	29	13"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809X-60	\$ 99.45
1/20	30	31.5"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	34RH	BODINE	25	B-4610-60H	\$ 94.48
1/20	35.5	20"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-40	\$ 62.23
1/20	43	20"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-40	\$ 45.96
1/20	43	20"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-40	\$ 53.05▶
1/20	43	20"	lbs. 115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-40	\$ 56.69
1/20	43	20"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-40	\$ 80.43
1/20	43	20"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-40	\$ 87.97
1/20	45	32"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	34RH	BODINE	25	B-4610-40H	\$ 94.48
1/20	47.5	21"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-30	\$ 62.23
1/20	57	21"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-30	\$ 45.96
1/20	57	21"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-30	\$ 53.05▶
1/20	57	21"	lbs. 115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-30	\$ 56.69
1/20	57	21"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-30	\$ 80.43
1/20	57	21"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-30	\$ 87.97
1/20	60	21"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610-30	\$ 82.50
1/20	71.3	18.3"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-20	\$ 62.23
1/20	86	18.3"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-20	\$ 45.96
1/20	86	18.3"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-20	\$ 53.05▶
1/20	86	18.3"	lbs. 115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-20	\$ 56.69
1/20	86	18.3"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-20	\$ 80.43
1/20	86	18.3"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-20	\$ 87.97
1/20	90	17.5"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610-20	\$ 82.50

CW indicates clockwise rotation when looking into shaft

CCW indicates counter clockwise rotation when looking into shaft

AC—Alternating Current
 AC/DC—Alternating or direct current, series wound
 CAP-REV—Capacitor run, reversible rotation
 CW—Clockwise rotation, facing into shaft
 CCW—Counter clockwise rotation, facing into shaft
 DC—Direct current
 DB—Dynamic braking (by shorting out capacitor)

HYS. SYN—Hysteresis synchronous
 KCI—Capacitor run, reversible, non-synchronous
 KYC—Capacitor run, reversible, synchronous
 NCH—Capacitor run, reversible, hysteresis synchronous
 NCI—Capacitor run, reversible
 NPP—Polyphase (3 phase)
 NSE—Series wound, AC or DC
 NSH—Shunt wound, D.C.

NSI—Split-phase
 NSY—Reluctance start, synchronous
 NYC—Capacitor run, reversible, synchronous
 OBB—Open ventilation, ball bearing motor
 OSB—Open ventilation, sleeve bearing motor
 Poly Phase—3 phase motor
 REV—Reversible rotation
 SYN—Synchronous
 TE—Totally enclosed motor

TEBB—Totally enclosed motor with ball bearings
 TESB—Totally enclosed motor with sleeve bearings
 USI—Split-phase
 V—Series wound AC/DC
 XP—Explosion-proof motor
 60/1—60 cycle A.C., 1 phase
 60/3—60 cycle A.C., 3 phase
 50/1—50 cycle A.C., 1 phase
 115V—115 volts
 230V—230 volts
 220/440V—220 or 440 volt

BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/20	95	15" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-15	\$ 62.23
1/20	115	15" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-15	\$ 45.96
1/20	115	15" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-15	\$ 80.18▶
1/20	115	15" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-15	\$ 87.96
1/20	115	15" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-15	\$ 80.43
1/20	115	15" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-15	\$ 87.97
1/20	120	14.5" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610-15	\$ 82.50
1/20	142.5	11.9" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-10	\$ 62.23
1/20	173	11.9" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-10	\$ 45.96
1/20	173	11.9" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-10	\$ 53.05▶
1/20	173	11.9" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-10	\$ 56.69
1/20	173	11.9" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-10	\$ 80.43
1/20	173	11.9" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-10	\$ 87.97
1/20	180	11.4" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610-10	\$ 82.50
1/20	285	6" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508X-05	\$ 92.05
1/20	345	6" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208X-05	\$ 91.72
1/20	345	6" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808X-05	\$ 98.52▶
1/20	345	6" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408X-05	\$106.30
1/20	345	6" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209X-05	\$110.25
1/20	345	6" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809X-05	\$110.25
1/20	360	5.5" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610X-05	\$100.84
1/20	570	3" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508X-02-½H	\$ 92.05
1/20	690	3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208X-02-½H	\$ 91.72
1/20	690	3" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808X-02-½H	\$ 98.52▶
1/20	690	3" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408X-02-½H	\$106.30
1/20	690	3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209X-02-½H	\$110.25
1/20	690	3" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809X-02-½H	\$110.25
1/20	720	2.8" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610X-02-½H	\$100.84
1/20	1125	42" oz.	115V DC Shunt Wound Rev OBB	NSH	53	BODINE	25	B-2368	\$ 56.00
1/20	1425	30" oz.	115V AC 50/1 Split Phase Rev OBB	NSI	33	BODINE	25	B-5508	\$ 39.47
1/20	1725	27.9" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	33	BODINE	25	B-4208	\$ 26.38
1/20	1725	27.9" oz.	115V AC 60/1 Cap Rev OBB	NCI	33	BODINE	29	B-3808	\$ 33.47▶
1/20	1725	27.9" oz.	115V DC Shunt Wound Rev OBB	NSH	33	BODINE	21	B-2408	\$ 37.72
1/20	1725	27.9" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	33	BODINE	25	B-4209	\$ 51.80
1/20	1725	27.9" oz.	220/440V AC 60/3 Poly Phase Rev TEBB	NPP	34	BODINE	58	B-7170E	\$ 44.62
1/20	1800	27.9" oz.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34	BODINE	25	B-4610	\$ 37.13
1/20	1800	27.9" oz.	115V AC 60/1 Cap Rev OBB HYS. SYN	NCH	34	BODINE	29	B-7410	\$ 50.16▶
1/20	2850	14" oz.	115V AC 50/1 Split Phase Rev OBB	NSI	33	BODINE	25	B-5610	\$ 45.68
1/20	3450	14" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	33	BODINE	25	B-4258	\$ 31.72
1/20	3600	14" oz.	115V AC 60/1 Cap Rev OBB HYS SYN	NCH	34	BODINE	29	B-7460	\$ 53.71▶
1/20	7500	6.7" oz.	115V AC/DC Series Wound OBB CW	NSE	11	BODINE	20	B-2190	\$ 19.06

CW indicates clockwise rotation when looking into shaft

▶ Price Includes 5.0 Mfd. Capacitor; Part #N-3205



SEE ALSO: Heller Variable Speed Motor Controls, Vis-count Tachometer Speed Indicating Systems, Chronometric Speed Counters, Vis-count Tachometer Feedback Speed Control Systems, Geartronics Apcor Multi-Speed Gearmotors and Reducers Superior Slo-Syn Motors, A.T.C. Timers and Counters, Miller Rectifiers and Transformers, Helland Mechanical Overload Couplings, Zero-Max Mechanical Variable Speed Drives.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/18 HORSEPOWER									
1/18	83	4.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170X-60H	\$ 65.61
1/18	125	11.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-40H	\$ 39.28
1/18	167	8.4" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-30H	\$ 65.61
1/18	250	7.0" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-20H	\$ 39.28
1/18	333	5.7" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-15H	\$ 65.61
1/18	500	4.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-10H	\$ 39.28
1/18	1000	2.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170X-05H	\$ 83.95
1/18	2000	1.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170X-02-1/2H	\$ 83.95
1/18	5000	11.5" oz.	115V AC/DC Series Wound OBB CW	NSE	12	BODINE	20	2170	\$ 17.37

1/16 HORSEPOWER									
1/16	5000	16" oz.	115V AC/DC Series Wound OSB CW	NSE	13	BODINE	20	2172	\$ 18.19
1/16	5000	16" oz.	115V AC/DC Series Wound OBB CW	NSE	13	BODINE	20	B-2172	\$ 31.00

1/15 HORSEPOWER									
1/15	4.6	219" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-300J	\$112.45
1/15	5.7	219" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-300J	\$ 89.18
1/15	5.7	219" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-300J	\$153.50▶
1/15	5.7	219" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-300J	\$125.00
1/15	5.7	219" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-300J	\$131.10
1/15	5.7	219" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-300J	\$138.94
1/15	6.8	184" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-216J	\$149.90
1/15	8	184" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-216J	\$141.86
1/15	8	184" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-216J	\$153.50▶
1/15	8	184" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-216J	\$177.20
1/15	8	184" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-216J	\$168.65
1/15	8	184" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-216J	\$171.00
1/15	8	154" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-180J	\$149.90

CW indicates clockwise rotation when looking into shaft

▶ Price Includes 5.0 Mfd. Capacitor; Part #N-3205

AC—Alternating Current
 AC/DC—Alternating or direct current, series wound
 CAP-REV—Capacitor run, reversible rotation
 CW—Clockwise rotation, facing into shaft
 CCW—Counter clockwise rotation, facing into shaft
 DC—Direct current
 DB—Dynamic braking (by shorting out capacitor)

HYS. SYN—Hysteresis synchronous
 KCI—Capacitor run, reversible, non-synchronous
 KYC—Capacitor run, reversible, synchronous
 NCH—Capacitor run, reversible, hysteresis synchronous
 NCI—Capacitor run, reversible
 NPP—Polyphase (3 phase)
 NSE—Series wound, AC or DC
 NSH—Shunt wound, D.C.

NSI—Split-phase
 NSY—Reluctance start, synchronous
 NYC—Capacitor run, reversible, synchronous
 OBB—Open ventilation, ball bearing motor
 OSB—Open ventilation, sleeve bearing motor
 Poly Phase—3 phase motor
 REV—Reversible rotation
 SYN—Synchronous
 TE—Totally enclosed motor

TEBB—Totally enclosed motor with ball bearings
 TESB—Totally enclosed motor with sleeve bearings
 USI—Split-phase
 V—Series wound AC/DC
 XP—Explosion-proof motor
 60/1—60 cycle A.C., 1 phase
 60/3—60 cycle A.C., 3 phase
 50/1—50 cycle A.C., 1 phase
 115V—115 volts
 230V—230 volts
 220/440V—220 or 440 volt



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/15	9.6	154" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-180J	\$141.86
1/15	9.6	154" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-180J	\$153.50▶
1/15	9.6	154" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-180J	\$177.20
1/15	9.6	154" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-180J	\$168.65
1/15	9.6	154" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-180J	\$171.00
1/15	9.9	140" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-144J	\$112.45
1/15	12	140" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-144J	\$ 89.18
1/15	12	140" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-144J	\$153.50▶
1/15	12	140" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-144J	\$125.00
1/15	12	140" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-144J	\$131.10
1/15	12	140" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-144J	\$138.94
1/15	14.4	117" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-120J	\$141.80
1/15	14.4	117" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-120J	\$153.50▶
1/15	14.4	117" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-120J	\$177.20
1/15	14.4	117" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-120J	\$168.65
1/15	14.4	117" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-120J	\$171.00
1/15	16	118" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-108J	\$141.86
1/15	16	118" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-108J	\$153.50▶
1/15	16	118" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-108J	\$177.20
1/15	16	118" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-108J	\$168.65
1/15	16	118" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-108J	\$171.00
1/15	17.3	110" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-100J	\$141.86
1/15	17.3	110" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-100J	\$153.50▶
1/15	17.3	110" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-100J	\$177.20
1/15	17.3	110" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-100J	\$168.65
1/15	17.3	110" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-100J	\$171.00
1/15	21.6	88" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-80J	\$141.86
1/15	21.6	88" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-80J	\$153.50▶
1/15	21.6	88" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-80J	\$177.20
1/15	21.6	88" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-80J	\$168.65
1/15	21.6	88" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-80J	\$171.00
1/15	24	88" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-72J	\$ 89.18
1/15	24	88" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-72J	\$153.50▶
1/15	24	88" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-72J	\$125.00
1/15	24	88" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-72J	\$131.10
1/15	24	88" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-72J	\$138.94
1/15	29	33" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-60H	\$ 40.95
1/15	29	33" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-60H	\$ 58.04
1/15	29	33" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-60H	\$ 99.45
1/15	29	33" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-60H	\$ 86.68
1/15	29	33" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-60H	\$ 94.53
1/15	35.5	44" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-40H	\$ 68.04
1/15	43	44" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-40H	\$ 50.95

▶ Price Includes 5.0 Mfd. Capacitor ; Part #N-3205



SPECIAL OR MODIFIED MOTORS

B&B maintains a complete and fully equipped department devoted to the modification of standard motors to suit your particular needs. We can alter for different operating voltages, make special mounting arrangements, change shaft sizes and lengths, and add various controls and indicators. Examples of this would be the addition of motor speed control and speed indicator unit to a motor.

**BODINE MOTORS**

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/15	43	44" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-40H	\$ 58.04▶
1/15	43	44" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-40H	\$ 62.72
1/15	43	44" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-40H	\$ 86.68
1/15	43	44" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-40H	\$ 94.53
1/15	47.5	37" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-30H	\$ 83.78
1/15	57	37" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-30H	\$ 63.00
1/15	57	37" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-30H	\$ 87.70▶
1/15	57	37" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-30H	\$ 62.72
1/15	57	37" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-30H	\$ 91.70
1/15	57	37" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-30H	\$105.40
1/15	71.3	29" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-20H	\$ 68.04
1/15	86	29" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-20H	\$ 50.95
1/15	86	29" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-20H	\$ 58.04▶
1/15	86	29" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-20H	\$ 62.72
1/15	86	29" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-20H	\$ 86.68
1/15	86	29" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-20H	\$ 94.53
1/15	95	22" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510X-15H	\$ 90.82
1/15	115	22" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210X-15H	\$ 90.49
1/15	115	22" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810X-15H	\$ 97.29▶
1/15	115	22" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410X-15H	\$106.48
1/15	115	22" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211X-15H	\$117.31
1/15	115	22" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-15H	\$109.81
1/15	142.5	17" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-10H	\$ 68.04
1/15	173	17" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-10H	\$ 50.95
1/15	173	17" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-10H	\$ 58.04▶
1/15	173	17" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-10H	\$ 62.72
1/15	173	17" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-10H	\$ 86.68
1/15	173	17" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-10H	\$ 94.53
1/15	285	8.5" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510X-05H	\$ 90.82
1/15	345	8.5" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210X-05H	\$ 90.49
1/15	345	8.5" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810X-05H	\$ 97.29▶
1/15	345	8.5" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410X-05H	\$106.48
1/15	345	8.5" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211X-05H	\$109.47
1/15	345	8.5" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-05H	\$109.81
1/15	570	4.3" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510X-02-½H	\$110.82
1/15	690	4.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210X-02-½H	\$110.48
1/15	690	4.3" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810X-02-½H	\$117.28▶
1/15	690	4.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410X-02-½H	\$126.98
1/15	690	4.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211X-02-½H	\$129.46
1/15	690	4.3" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109X-02-½H	\$137.31
1/15	1200	56" oz.	115V AC 60/1 Cap Rev OBB HYS SYN	NCH	55	BODINE	29	B-7372	\$ 66.71†
1/15	1425	38" oz.	115V AC 50/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-5510	\$ 40.15
1/15	1725	38" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-4210	\$ 26.96

▶Price Includes 5.0 Mfd. Capacitor; Part #N-3205

† Price Includes 7.5 Mfd. Capacitor; Part #N-3206

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery, 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/15	1725	38" oz.	115V AC 60/1 Cap Rev OBB	NCI	34	BODINE	29	B-3810	\$ 32.64▶
1/15	1725	38" oz.	115V DC Shunt Wound Rev OBB	NSH	34	BODINE	21	B-2410	\$ 39.05
1/15	1725	38" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-4211	\$ 52.80
1/15	1725	38" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	34	BODINE	27	B-4811	\$ 66.40
1/15	2850	18" oz.	115V AC 50/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-5612	\$ 51.40
1/15	3450	18" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-4260	\$ 30.97
1/15	3450	18" oz.	115V AC 60/1 Cap Rev OBB	NCI	34	BODINE	29	B-3860	\$ 57.90▶
1/15	3450	18" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-4261	\$ 56.97
1/15	3450	18" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	33	BODINE	27	B-4859	\$ 64.80
1/15	10,000	7" oz.	115V AC DC Series Wound CW Rot OBB	NSE	11	BODINE	20	B-2206	\$ 18.27

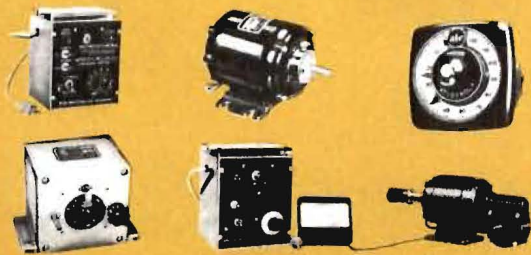
1/12 HORSEPOWER

1/12	23	38" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-75	\$113.32
1/12	23	38" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-75	\$126.54
1/12	23	38" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-75	\$133.57
1/12	23	38" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-75	\$141.42
1/12	24	36" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620X-75	\$124.81
1/12	29	44" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-60	\$ 86.29
1/12	29	44" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-60	\$ 99.50
1/12	29	44" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-60	\$106.54
1/12	29	44" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-60	\$107.00
1/12	30	42" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620X-60	\$ 97.78
1/12	35.5	55" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512-40	\$ 72.10
1/12	43	55" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218-40	\$ 53.39
1/12	43	55" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418-40	\$ 70.00
1/12	43	55" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219-40	\$ 90.79
1/12	43	55" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819-40	\$ 98.64
1/12	45	53" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620-40	\$ 97.78
1/12	47.5	46" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512-30	\$ 95.40
1/12	57	46" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218-30	\$ 86.29
1/12	57	46" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418-30	\$ 70.00
1/12	57	46" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219-30	\$ 96.00
1/12	57	46" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819-30	\$ 98.64
1/12	60	44" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620-30	\$ 97.78
1/12	71.3	37" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512-20	\$ 72.10
1/12	86	37" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218-20	\$ 53.39
1/12	86	37" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418-20	\$ 70.00
1/12	86	37" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219-20	\$ 90.79
1/12	86	37" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819-20	\$ 98.64
1/12	90	35" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620-20	\$ 97.78
1/12	95	30" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512X-15	\$ 93.15
1/12	115	30" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-15	\$ 93.33
1/12	115	30" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-15	\$106.54

CW indicates clockwise rotation when looking into shaft

▶Price Includes 5.0 Mfd. Capacitor; Part #N-3205

CCW indicates counter clockwise rotation when looking into shaft



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**BODINE MOTORS**

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/12	115	30" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-15	\$113.58
1/12	115	30" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-15	\$121.42
1/12	120	28" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620X-15	\$106.54
1/12	142.5	21" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512-10	\$ 72.10
1/12	173	21" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218-10	\$ 53.39
1/12	173	21" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418-10	\$ 73.00
1/12	173	21" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219-10	\$ 90.79
1/12	173	21" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819-10	\$ 98.64
1/12	180	20.6" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620-10	\$ 97.78
1/12	285	10.5" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512X-05	\$ 93.15
1/12	345	10.5" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-05	\$ 93.33
1/12	345	10.5" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-05	\$106.54
1/12	345	10.5" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-05	\$113.58
1/12	345	10.5" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-05	\$121.42
1/12	360	10.3" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620X-05	\$104.82
1/12	570	5.3" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512X-02-½H	\$114.05
1/12	690	5.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-02-½H	\$113.32
1/12	690	5.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-02-½H	\$126.54
1/12	690	5.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-02-½H	\$134.57
1/12	690	5.3" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-02-½H	\$141.42
1/12	720	5.2" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620X-02-½H	\$124.81
1/12	1725	47" oz.	115V AC 60/1 Split Phase CCW OSB	USI	34	BODINE	20	9006XZ	\$ 19.00
1/12	1725	47" oz.	115V DC Shunt Wound Rev OBB	NSH	53	BODINE	21	B-2418	\$ 53.00
1/12	1725	47" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	53	BODINE	25	B-4219	\$ 54.00
1/12	1725	47" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	34	BODINE	27	B-4861	\$ 59.80
1/12	3450	24.4" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	34	BODINE	27	B-5139EZ	\$ 59.80
1/12	7500	11.5" oz.	115V AC DC Series Wound CW OBB	NSE	12	BODINE	20	B-2192	\$ 20.86

1/10 HORSEPOWER

1/10	83	7.6" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-60	\$ 76.08
1/10	125	19.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-40	\$ 76.08
1/10	167	15.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-30	\$ 76.08
1/10	250	12.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258-20	\$ 48.28
1/10	333	10.4" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258-15	\$ 48.28
1/10	500	8.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258-10	\$ 48.28
1/10	1000	4.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-05	\$ 94.42
1/10	2000	2.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-02-½	\$ 94.42
1/10	5000	20" oz.	115V AC/DC Series Wound OBB CW	NSE	33	BODINE	20	5258	\$ 20.68
1/10	7500	13.4" oz.	115V AC/DC Series Wound OBB CW	NSE	13	BODINE	20	B-2194	\$ 21.67
1/10	10000	10" oz.	115V AC/DC Series Wound OBB CW	NSE	12	BODINE	20	B-2208	\$ 20.86

CW indicates clockwise rotation when looking into shaft

CCW indicates counter clockwise rotation when looking into shaft

B & B GIVES SERVICE

Only from B&B can you get the complete attention to details and service that has been the prime reason for our rapid growth since our founding 46 years ago. Our service entails the extensive stocking of tens of hundreds of motors and all other catalogued items. All these items are available for immediate delivery locally, nationally, and worldwide. Our service program also includes complete technical and engineering assistance, complete motor repair and modification facilities, and latest office equipment to insure trouble-free handling of all aspects of your order.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/8 HORSEPOWER									
1/8	19	43"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-75L	\$119.78
1/8	23	43"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-75L	\$119.46
1/8	23	43"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-75L	\$137.95
1/8	23	43"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-75L	\$125.17
1/8	23	43"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-75L	\$130.53
1/8	29	40"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-60L	\$ 94.17
1/8	29	40"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-60L	\$ 93.84
1/8	29	40"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-60L	\$112.33
1/8	29	40"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-60L	\$114.55
1/8	29	40"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-60L	\$122.53
1/8	30	211"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622X-60H	\$166.60
1/8	35.5	73"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514-40L	\$ 77.01
1/8	37.5	143"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-48H	\$153.48
1/8	43	73"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220-40L	\$ 58.68
1/8	43	73"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420-40L	\$ 72.29
1/8	43	73"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221-40L	\$ 97.39
1/8	43	73"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821-40L	\$105.77
1/8	47.5	66"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-30L	\$ 77.01
1/8	50	115"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-36H	\$153.48
1/8	57	66"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220-30L	\$ 58.68
1/8	57	66"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420-30L	\$ 72.29
1/8	57	66"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221-30L	\$ 97.39
1/8	57	66"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821-30L	\$105.77
1/8	60	95"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-30H	\$153.48
1/8	66	24"	lbs. 115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260X-75H	\$115.27
1/8	71.3	54"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514-20L	\$ 77.01
1/8	75	85"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-24H	\$153.48
1/8	83	25"	lbs. 115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260X-60H	\$ 88.24
1/8	86	54"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220-20L	\$ 58.68
1/8	86	54"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420-20L	\$ 72.29
1/8	86	54"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221-20L	\$ 97.39
1/8	86	54"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821-20L	\$105.77
1/8	95	40"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-15L	\$102.27
1/8	100	62"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-18H	\$153.48
1/8	115	40"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-15L	\$101.94
1/8	115	40"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-15L	\$120.43
1/8	115	40"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-15L	\$122.65
1/8	115	40"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-15L	\$130.53
1/8	125	28.4"	lbs. 115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260-40H	\$ 55.08
1/8	142.5	32"	lbs. 115V AC 50/1 Split Phase OBB	NSI	54RL	BODINE	25	B-5514-10L	\$ 77.01
1/8	150	45"	lbs. 115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-12H	\$166.60
1/8	167	23.5"	lbs. 115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260X-30H	\$ 88.24
1/8	173	32"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220-10L	\$ 58.68
1/8	173	32"	lbs. 115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420-10L	\$ 72.29

<p>AC—Alternating Current AC/DC—Alternating or direct current, series wound CAP-REV—Capacitor run, reversible rotation CW—Clockwise rotation, facing into shaft CCW—Counter clockwise rotation, facing into shaft DC—Direct current DB—Dynamic braking (by shorting out capacitor)</p>	<p>HYS. SYN—Hysteresis synchronous KCI—Capacitor run, reversible, non-synchronous KYC—Capacitor run, reversible, synchronous NCH—Capacitor run, reversible, hysteresis synchronous NCI—Capacitor run, reversible NPP—Polyphase (3 phase) NSE—Series wound, AC or DC NSH—Shunt wound, D.C.</p>	<p>NSI—Split-phase NSY—Reluctance start, synchronous NYC—Capacitor run, reversible, synchronous OBB—Open ventilation, ball bearing motor OSB—Open ventilation, sleeve bearing motor Poly Phase—3 phase motor REV—Reversible rotation SYN—Synchronous TE—Totally enclosed motor</p>	<p>TEBB—Totally enclosed motor with ball bearings TESB—Totally enclosed motor with sleeve bearings USI—Split-phase V—Series wound AC/DC XP—Explosion-proof motor 60/1—60 cycle A.C., 1 phase 60/3—60 cycle A.C., 3 phase 50/1—50 cycle A.C., 1 phase 115V—115 volts 230V—230 volts 220/440V—220 or 440 volt</p>
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BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/8	173	32" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221-10L	\$ 97.39
1/8	173	32" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821-10L	\$105.77
1/8	180	36" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-10H	\$153.48
1/8	216	28" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-08L	\$101.94
1/8	216	28" lbs.	115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-08L	\$120.43
1/8	216	28" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-08L	\$122.65
1/8	216	28" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-08L	\$130.53
1/8	225	30" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622X-08H	\$166.60
1/8	250	19" lbs.	115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260-20H	\$ 55.08
1/8	285	16" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-05L	\$102.27
1/8	333	15" lbs.	115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260X-15H	\$ 94.80
1/8	345	16" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-05L	\$101.94
1/8	345	16" lbs.	115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-05L	\$120.43
1/8	345	16" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-05L	\$122.65
1/8	345	16" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-05L	\$130.53
1/8	500	11" lbs.	115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260-10H	\$ 55.08
1/8	570	8" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-02-1/2L	\$119.78
1/8	690	8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-02-1/2L	\$119.46
1/8	690	8" lbs.	115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-02-1/2L	\$137.95
1/8	690	8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-02-1/2L	\$125.17
1/8	690	8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-02-1/2L	\$148.05
1/8	1000	6" lbs.	115V AC/DC Series Wound CW OBB	NSE	34RH	BODINE	20	B-5260X-05H	\$ 94.80
1/8	1725	70" oz.	115V DC Shunt Wound Rev OBB	NSH	54	BODINE	21	B-2420	\$ 44.76
1/8	1725	70" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	54	BODINE	25	B-4221	\$ 52.50
1/8	1725	70" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	54	BODINE	27	B-5121	\$ 69.30
1/8	1800	70" oz.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	55	BODINE	25	B-4622	\$ 43.46
1/8	2000	70" oz.	115V AC/DC Series Wound CW	NSE	34RH	BODINE	20	B-5260X-02-1/2H	\$115.27
1/8	5000	25.17" oz.	115V AC/DC Series Wound CW OSB	NSE	34	BODINE	20	B-5260	\$ 22.37

1/7 HORSEPOWER

1/7	10000	14.6" oz.	115V AC/DC Series Wound CW OBB	NSE	13	BODINE	20	B-2110	\$ 21.67
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1/6 HORSEPOWER

1/6	23.6	211" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516X-60H	\$148.70
1/6	29	211" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222X-60H	\$145.20
1/6	29	211" lbs.	115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822X-60H	\$149.40
1/6	29	211" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223X-60H	\$149.40
1/6	29.7	198" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-48H	\$113.34
1/6	36	198" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-48H	\$ 84.36
1/6	36	198" lbs.	115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-48H	\$145.20
1/6	36	198" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-48H	\$129.47
1/6	39.5	160" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-36H	\$113.34
1/6	47.5	131" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-30H	\$113.34
1/6	48	160" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-36H	\$ 85.36

CW indicates clockwise rotation when looking into shaft

► Price Includes 5.0 Mfd. Capacitor; Part #N-3205

CCW indicates counter clockwise rotation when looking into shaft

† Price Includes 7.5 Mfd. Capacitor; Part #N-3206



Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.

**BODINE MOTORS**

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/6	48	160"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-36H	\$145.20*
1/6	48	160"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-36H	\$129.47
1/6	57	131"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-30H	\$ 84.36
1/6	57	131"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-30H	\$145.20*
1/6	57	131"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-30H	\$129.47
1/6	59.3	118"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-24H	\$113.34
1/6	72	118"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-24H	\$ 84.36
1/6	72	118"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-24H	\$145.20*
1/6	72	118"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-24H	\$129.47
1/6	79.3	86"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-18H	\$113.34
1/6	96	86"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-18H	\$ 84.36
1/6	96	86"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-18H	\$145.20
1/6	96	86"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-18H	\$129.47
1/6	118	62"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-12H	\$148.70
1/6	142.5	50"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-10H	\$113.34
1/6	144	62"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-12H	\$145.20
1/6	144	62"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-12H	\$145.20*
1/6	144	62"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-12H	\$149.40
1/6	173	50"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-10H	\$ 84.36
1/6	173	50"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-10H	\$145.20*
1/6	173	50"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-10H	\$129.47
1/6	178	42"	lbs. 115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-08H	\$148.76
1/6	216	42"	lbs. 115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-08H	\$145.20
1/6	216	42"	lbs. 115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-08H	\$149.40*
1/6	216	42"	lbs. 230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	29	B-4223-08H	\$149.40
1/6	1725	93"	oz. 220/440V AC 60/3 Poly Phase Rev TEBB	NPP	55	BODINE	58	B7172E	\$ 45.61

1/4 HORSEPOWER

1/4	29	211"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422ZX-60H	\$171.80
1/4	29	211"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823X-60H	\$174.78
1/4	36	298"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422Z-48H	\$127.00
1/4	36	298"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-48H	\$137.54
1/4	48	240"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422Z-36H	\$127.00
1/4	48	240"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-36H	\$137.54
1/4	57	197"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-30H	\$137.54
1/4	72	177"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-24H	\$137.54
1/4	72	177"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422Z-24H	\$127.00
1/4	96	130"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-18H	\$137.54
1/4	96	130"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422Z-18H	\$127.00
1/4	144	93"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-12H	\$159.10
1/4	144	93"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422ZX-18H	\$171.80
1/4	173	76"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-10H	\$137.54
1/4	173	76"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422Z-10H	\$127.00
1/4	216	64"	lbs. 220V AC 60/3 Poly Phase Rev OBB	NPP	55RH	BODINE	27	B4823-08H	\$159.10
1/4	216	64"	lbs. 115V DC Shunt Wound Rev OBB	NSH	55RH	BODINE	21	B2422ZX-08H	\$171.80

B & B GIVES SERVICE

Only from B&B can you get the complete attention to details and service that has been the prime reason for our rapid growth since our founding 46 years ago. Our service entails the extensive stocking of tens of hundreds of motors and all other catalogued items. All these items are available for immediate delivery locally, nationally, and worldwide. Our service program also includes complete technical and engineering assistance, complete motor repair and modification facilities, and latest office equipment to insure trouble-free handling of all aspects of your order.



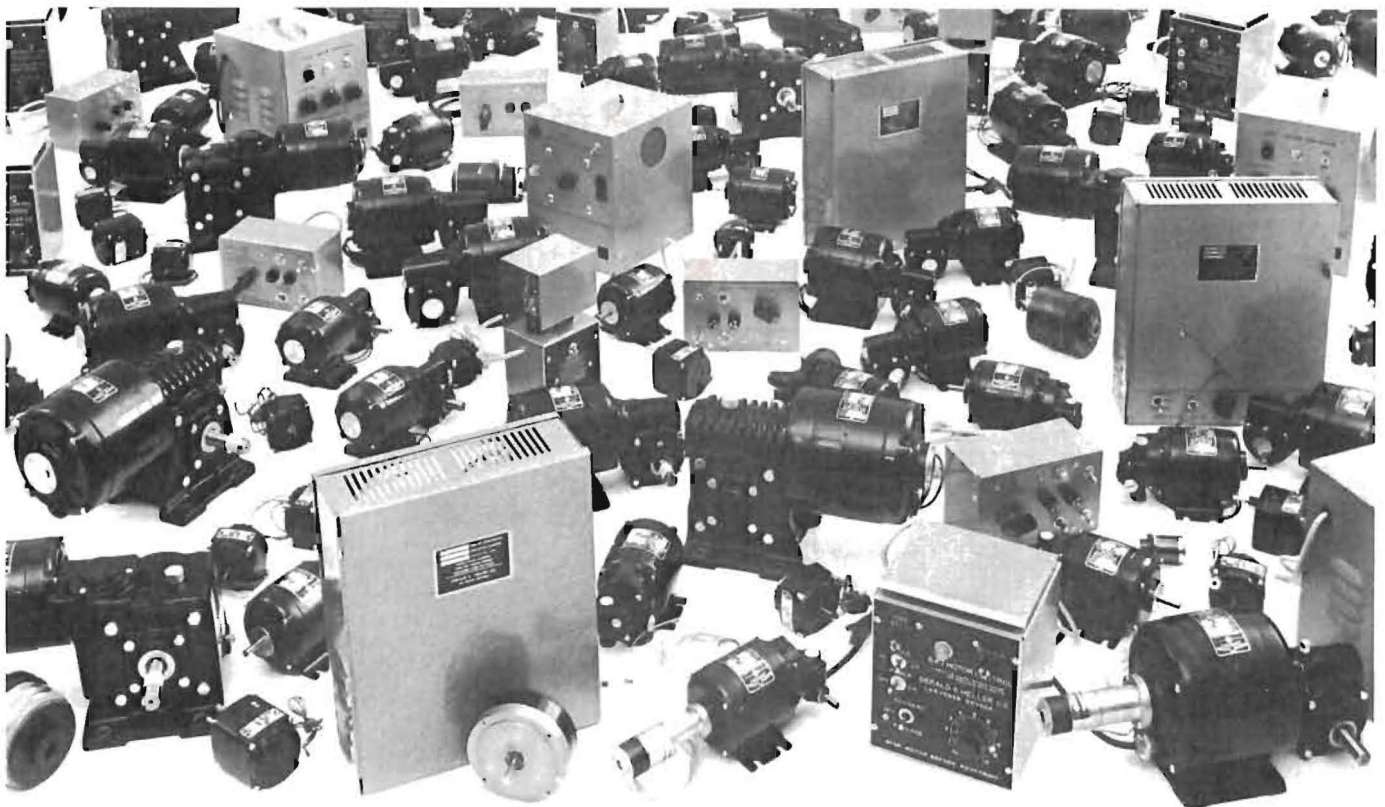
**Specialist in modifying, rebuilding,
and redesigning stock motors to fit your exact needs.**

- **Special Shafts**
- **Rewiring for any voltage or for different frequencies**
- **Special mountings**
- **Engineered enclosures of all types**
- **Special speeds**

B & B Motor and Control Corp. can make you any special motor that you might need. Starting with our extensive stocks of standard and not-so-standard motors, B & B's engineers and technicians can create a motor to match **any** specifications and requirements.

For just a beginning, we can enlarge, reduce, add to, remove, key or otherwise alter shafts. We can rewind or wire motors to run on any vol-

tage . . . or frequency. We can give you motors that can mount in any position . . . or all positions. We'll give you water-proof, gas-tight, explosion-proof, or vacuum-tight motor enclosures. We'll give you motors that will give you any output speed you want . . . to accuracies of 1% (even under varying loads) . . . and we'll even give you variable speed motors from 1/2 RPM to 10,000 RPM . . . with 1% regulation under load.



MOTORS AND SPEED CONTROLS

We can give you immediate, factory priced delivery on any motor you need . . . in any quantity . . . standard designs or special with any gearing, winding, mounting, or any other modification you can possibly need.

B & B is your Authorized Bodine Distributor for fractional H.P. motors from 1/2000 to 1/4 H.P. and GE, Master, PMI and their motors on up to 2 H.P.

We also have a full line of Heller motor speed controls, Apco Multi-Ratio Speed Reducers, Slo-Syn Motors, tachometer feedback regulators, clutches, brakes, couplings, ATC timers, and speed reducers.

Our 64 page catalog and technical handbook is your one-stop source for all your motor, speed control, and accessory needs.

FORMULAE—CHARTS—TABLES

Ohms Law:
 Amperes = $\frac{\text{Volts}}{\text{Ohms}}$; Ohms = $\frac{\text{Volts}}{\text{Amperes}}$; Volts = Amperes x Ohms
 Power in D.C. Circuits: Watts = Volts x Amperes;
 Horsepower = $\frac{\text{Volts x Amperes}}{746}$; Kilowatts = $\frac{\text{Volts x Amperes}}{1000}$
 Kilowatt-Hours = $\frac{\text{Volts x Amperes x Hours}}{1000}$
 Power in A.C. Circuits: Kilovolt-Amperes (Kva) = $\frac{\text{Volts x Amperes}}{1000}$
 Kilowatt (Kw) = $\frac{\text{Volts x Amperes x Power Factor}}{1000}$
 Power Factor = $\frac{\text{Kilowatts}}{\text{Kilovolts x Amperes}}$
 Two-Phase Kw = $\frac{\text{Volts x Amperes x Power Factor x 1.42}}{1000}$
 Three-Phase Kw = $\frac{\text{Volts x Amperes x Power Factor x 1.73}}{1000}$
 T = torque or twisting moment
 = 3.1416
 N = revolutions per minute
 HP = horsepower (33,000 ft.-lbs. per min.)
 R = radius of pulley, in feet
 E = input voltage
 I = current in amperes
 P = power input in watts
 W = weight, lbs.

$HP = \frac{2-R \times N \times W}{33,000} = \frac{T \text{ (in.-lb.)} \times N}{63,025}$
 $HP = T \text{ (in.-oz.)} \times 9.93 \times N \times 10^{-7} \text{ (approx.)} = T \text{ (in.-oz.)} \times N \times 10^{-9}$
 $P = EI \times \text{power factor} = \frac{HP \times 746}{\text{motor efficiency}}$
POWER TO DRIVE PUMPS:
 $HP = \frac{\text{Gal. per min.} \times \text{Total Head (inc. friction)}}{3,960 \times \text{eff. of pump}}$
 Where:
 Approx. friction head (ft.) = $\frac{\text{pipe length (ft.)} \times [\text{velocity of flow (fms)}]^2}{5,367 \times \text{diameter (in.)}}$
 Eff. Approx. 0.50 to 0.85
TIME TO CHANGE SPEED OF ROTATING MASS:
 Time (sec.) = $\frac{WR^2 \times \text{change in rpm}}{308 \times \text{torque (ft.-lb.)}}$
 Where: $WR^2 \text{ (disc)} = \frac{\text{Weight (lbs.)} \times [\text{radius (ft.)}]^2}{2}$
 $WR^2 \text{ (rim)} = \frac{\text{Wt. (lbs.)} \times [\text{outer radius in ft.}]^2 + (\text{inner radius in ft.})^2}{2}$
 INERTIA I (lb ft sec²) = $\frac{WR^2}{32}$; I (kg m sec²) = 6 x WR² (lb ft)

POWER TO DRIVE FANS:
 $HP = \frac{\text{Cu. ft. air per min.} \times \text{water gage pressure (in.)}}{6,350 \text{ Eff}}$

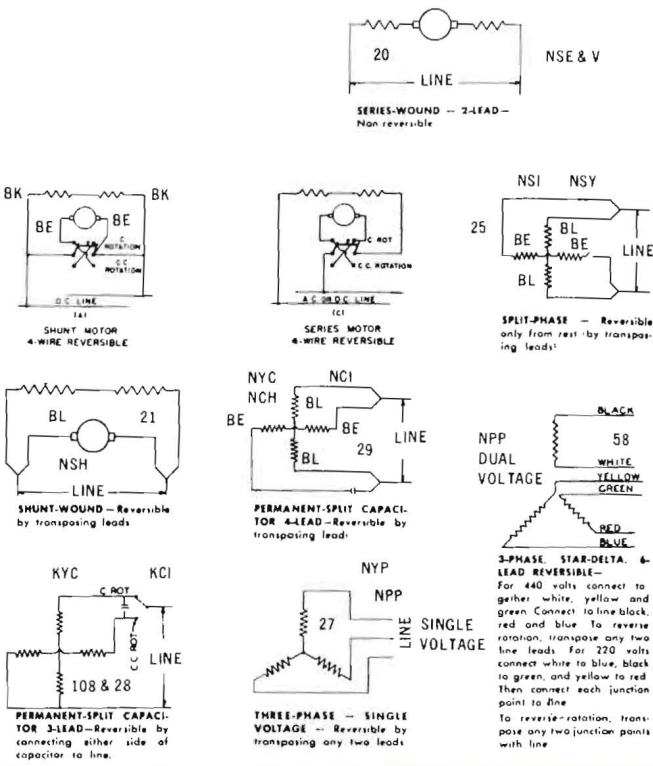
12.4-TORQUE AND WATT OUTPUT RATINGS

HORSEPOWER	WATTS				FULL LOAD TORQUES IN. OZ.								
	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	1/25 RPM	1/25 RPM	1/25 RPM	1/25 RPM	1/25 RPM	1/25 RPM	1/25 RPM	1/25 RPM	1/25 RPM
1/200	.005	5.34	3.73	2.79	1.86	4.47	2.91	1.45	1.26	1.01	11.83		
1/150	.006	7.65	5.10	3.82	2.55	5.97	3.89	1.94	1.68	1.34	11.13		
1/100	.010	11.19	7.46	5.59	3.73	8.86	5.84	2.92	2.52	2.01	10.71		
1/75	.013	14.91	10.04	7.45	4.97	11.95	7.84	3.84	3.37	2.68	10.28		
1/50	.018	20.34	13.36	10.17	6.78	15.29	10.62	5.31	4.58	3.66	10.11		
1/30	.027	29.29	19.82	14.92	9.16	20.32	13.89	7.04	6.04	4.82	10.04		
1/25	.033	37.29	25.42	19.24	12.23	26.08	17.47	9.23	7.80	6.25	10.00		
1/20	.040	44.76	29.54	22.34	14.92	31.85	20.37	10.68	9.04	7.10	10.00		
1/15	.053	59.95	39.37	29.27	19.88	42.82	27.18	13.61	11.61	9.08	10.00		
1/12	.066	74.39	49.73	37.10	25.88	56.76	36.95	17.70	14.44	11.45	10.00		
1/10	.080	89.24	59.13	44.62	31.08	74.76	48.64	24.34	21.00	16.80	10.00		
1/8	.100	111.90	74.60	55.95	37.30	98.84	64.46	31.73	27.21	20.17	10.00		
1/6	.133	149.87	99.43	74.93	49.73	131.00	86.96	42.31	36.24	27.54	10.00		
1/5	.166	188.55	124.30	92.92	62.12	169.10	107.26	52.64	45.01	33.63	10.00		
1/4	.200	237.80	149.20	111.80	74.60	197.28	126.91	62.35	53.42	40.34	10.00		
1/3	.266	317.75	198.30	149.37	99.43	261.04	168.16	82.08	69.02	52.12	10.00		
1/2	.333	397.90	248.60	188.43	124.30	329.32	214.76	107.38	88.03	67.23	10.00		

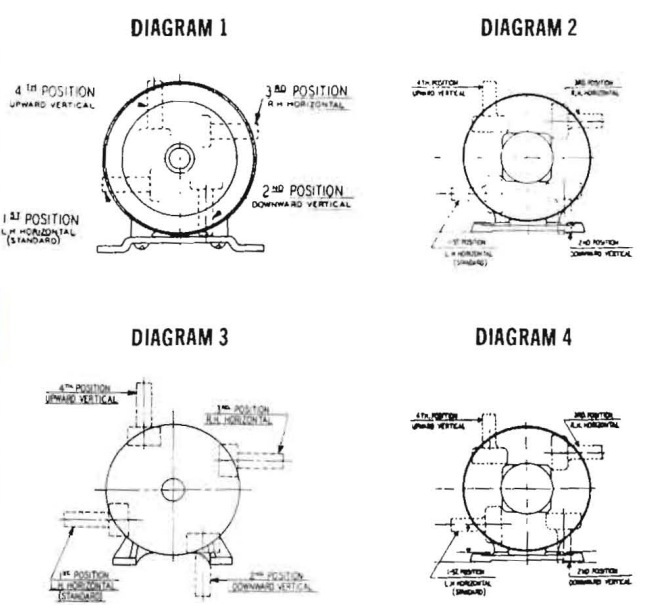
WATTS (INPUT POWER) = $\frac{\text{WATTS (OUT)}}{\text{EFFICIENCY}}$

Reprinted from the Bodine Motor Handbook, 2nd Ed. This 113 page book is full of useful information. Copies are available from B & B Motor and Control Corp. at \$1.00 or free with orders over \$100 upon request.

CONNECTION DIAGRAMS BE:BLUE BL:BLACK



**SPECIAL SHAFT POSITION
ADD \$5.00 TO MOTOR PRICE**



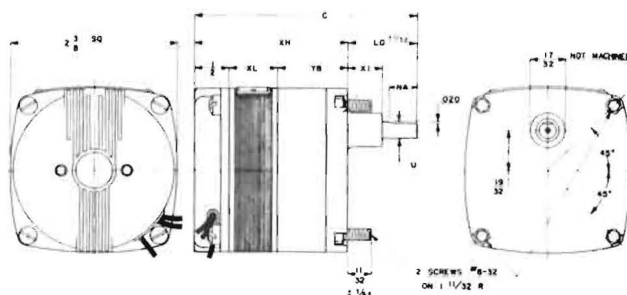
See pages 24 & 25 for complete dimensions



DIMENSIONS ARE FOR ESTIMATING PURPOSES ONLY

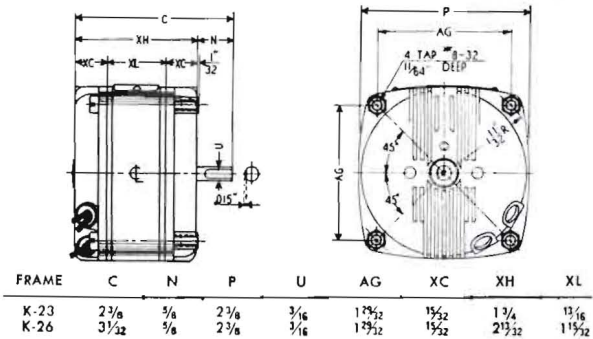
FRAME	C	XI	U	XH	XL	YB	NA
K-23RB	3 11/32	1 2	.250	2 11 32	13 16	1 1 32	3 8
K-22RC	3 11/32	1 2	.250	2 11 32	11 16	1 5 32	3 8
K-22RM	3 5 8	1 4	.250	2 5 8	11 16	1 7 16	5 8
K-23RM	3 3/4	1 4	.250	2 3 4	13 16	1 7 16	5/8
K-26RM	4 13 32	1 4	.250	3 13 32	1 15 32	1 7 16	5/8

Diameter of Shaft subject to a maximum variation of minus .0003 inch.

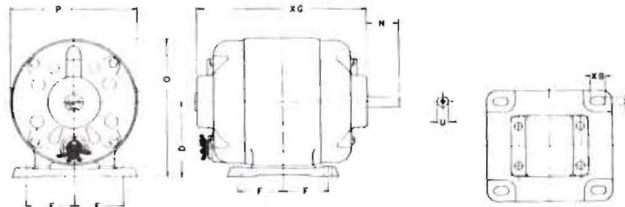


FRAME K-23RB, R2RC, 22RM, 23RM, 26RM

FRAME K-23, 26



FRAME	C	N	P	U	AG	XC	XH	XL
K-23	2 7/8	3/8	2 3/8	3/16	1 7 32	1 5 32	1 3/4	1 3/8
K-26	3 1/32	3/8	2 3/8	3/16	1 7 32	1 5 32	2 13 32	1 1 5 32

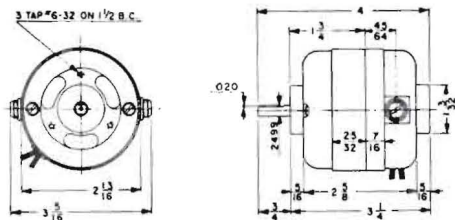


FRAME N33, 34

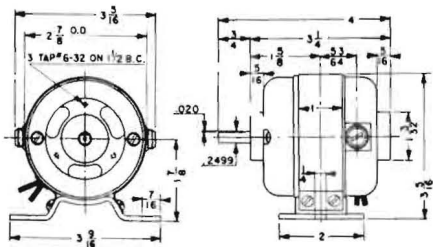
FRAME	D	E	F	H	N	O	P	U	XB	XG	XG*
N 33	2 5/8	1 1 1/16	1 3/16	1/4	1 1/8	4 2 1/2	4 13 32	.3745	1/2	5 1/2	5 3/8
N 34	2 5/8	1 1 1/16	1 3/16	1/4	1 1/8	4 2 1/2	4 13 32	.3745	1/2	6	5 7/8

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
 † Sleeve bearing motors only.
 * Ball bearing motors only.

FRAME V10

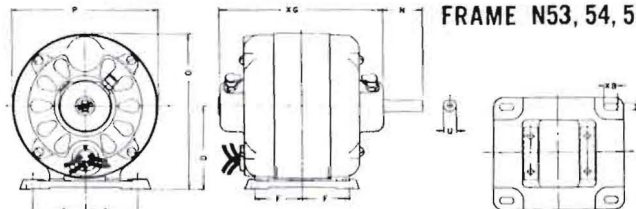


The dimensional diagram above represents a round body motor without the conventional type of base mounting. It will be noted that there are three holes in the end shield tapped for three 6-32 machine screws, which provides a means for end mounting. A base is also supplied which is attached to a steel strap that fastens around the motor body.



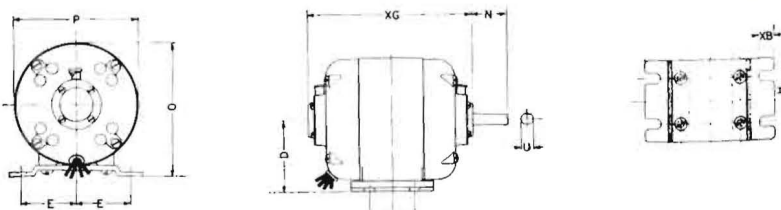
shaft height (1 7/8") subject to variation of plus or minus 1/32".

FRAME N53, 54, 55



FRAME	D	E	F	H	N	O	P	U	XB	XG	XG*
N 53	3 7/32	2	1 13 16	1/4	1 1/2	6 2 1/2	5 1 32	.4095	1 7/32	6 1/4	5 7 32
N 54	3 7/32	2	1 13 16	1/4	1 1/2	6 2 1/2	5 1 32	.4095	1 7/32	6 3 16	6 1 32
N 55	3 7/32	2	2 1 32	1/4	1 1/2	6 2 1/2	5 1 32	.4095	3/16	7 3/8	6 7 32

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
 † Sleeve bearing motors only.
 * Ball bearing motors only.



FRAME N11, 12, 13

FRAME	D	E	F	H	N	O	P	U	XB	XG	XG*
N 11	2	1 15 32	3/8	1/4	1 5 16	3 21 32	3 2 1/2	.3122	7/16	4 1/2	4 1/4
N 12	2	1 15 32	3/8	1/4	1 5 16	3 21 32	3 2 1/2	.3122	7/16	4 3/4	4 1/2
N 13	2	1 15 32	3/8	1/4	1 5 16	3 21 32	3 2 1/2	.3122	7/16	5 3/8	4 7/8

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
 † Sleeve bearing motors only.
 * Ball bearing motors only.

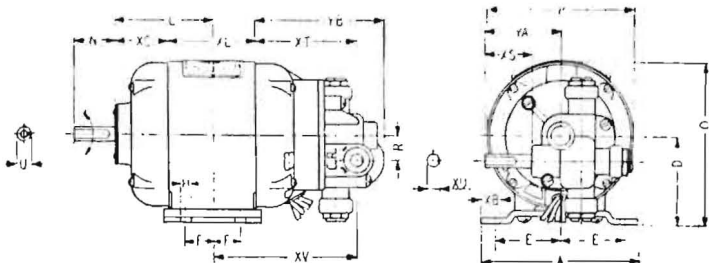
BODINE MOTOR DIMENSIONS

TECHNICAL INFORMATION ON MOTORS ON PAGE 22 AND 23

BODINE

Double reduction — group I

For special shaft position options see Diagram No. 1 on page 22



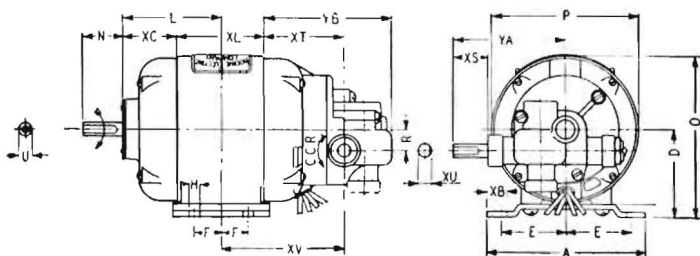
FRAMES V-10R, N-11R, N-12R

Frame	A	D	E	F	H	L	N	O	P	R
V-10R	3 ⁹ / ₁₆	2	1 ¹³ / ₃₂	5 ⁵ / ₈	1 ¹ / ₄	2 ¹⁵ / ₃₂	...	3 ¹³ / ₃₂	2 ¹³ / ₁₆	3 ¹ / ₁₆
N-11R	3 ¹⁹ / ₃₂	2	1 ¹⁵ / ₃₂	5 ⁵ / ₈	1 ¹ / ₄	2 ¹ / ₈	1 ⁵ / ₁₆	3 ²³ / ₃₂	3 ³ / ₁₆	3 ¹ / ₁₆
N-12R	3 ¹⁹ / ₃₂	2	1 ¹⁵ / ₃₂	5 ⁵ / ₈	1 ¹ / ₄	2 ¹ / ₄	1 ⁵ / ₁₆	3 ²³ / ₃₂	3 ³ / ₁₆	3 ¹ / ₁₆

Frame	U	XB	XC	XL	XS	XT	XU	XV	YA	YB
V-10R	...	3 ³ / ₈	1 ¹ / ₂	...	3 ⁵ / ₃₂	...	.312	1 ¹³ / ₃₂	1 ⁵ / ₈	3 ³ / ₁₆
N-11R	.3122	7 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	3 ⁵ / ₃₂	2 ⁹ / ₃₂	.312	3 ⁵ / ₃₂	1 ⁵ / ₈	2 ²⁹ / ₃₂
N-12R	.3122	7 ¹ / ₁₆	1 ¹ / ₄	2	3 ⁵ / ₃₂	2 ⁹ / ₃₂	.312	3 ⁵ / ₃₂	1 ⁵ / ₈	2 ²⁹ / ₃₂

Single reduction — group I

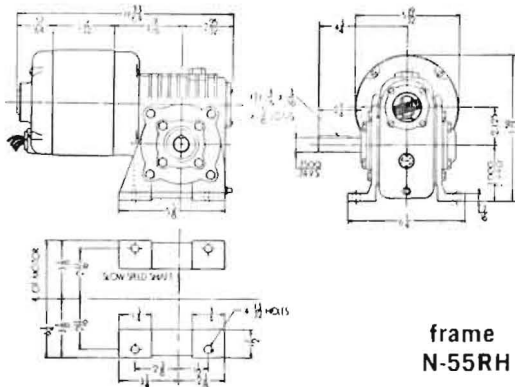
For special shaft position options see Diagram No. 1 on page 22



FRAMES V-10R, N-11R, N-12R

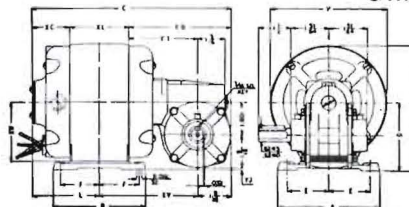
Frame	A	D	E	F	H	L	N	O	P	R
V-10R	3 ⁹ / ₁₆	2	1 ¹³ / ₃₂	5 ⁵ / ₈	1 ¹ / ₄	2 ¹⁵ / ₃₂	...	3 ¹³ / ₃₂	2 ¹³ / ₁₆	1 ⁵ / ₃₂
N-11R	3 ¹⁹ / ₃₂	2	1 ¹⁵ / ₃₂	5 ⁵ / ₈	1 ¹ / ₄	2 ¹ / ₈	1 ⁵ / ₁₆	3 ²³ / ₃₂	3 ³ / ₁₆	1 ⁵ / ₃₂
N-12R	3 ¹⁹ / ₃₂	2	1 ¹⁵ / ₃₂	5 ⁵ / ₈	1 ¹ / ₄	2 ¹ / ₄	1 ⁵ / ₁₆	3 ²³ / ₃₂	3 ³ / ₁₆	1 ⁵ / ₃₂

Frame	U	XB	XC	XL	XS	XT	XU	XV	YA	YB
V-10R	...	3 ³ / ₈	1 ¹ / ₂	...	1 ³ / ₁₆	...	.312	1 ¹ / ₂	2 ³ / ₁₆	3 ³ / ₁₆
N-11R	.3122	7 ¹ / ₁₆	1 ¹ / ₄	1 ³ / ₄	1 ³ / ₁₆	1 ¹³ / ₁₆	.312	2 ¹¹ / ₁₆	2 ³ / ₁₆	2 ²⁹ / ₃₂
N-12R	.3122	7 ¹ / ₁₆	1 ¹ / ₄	2	1 ³ / ₁₆	1 ¹³ / ₁₆	.312	2 ¹¹ / ₁₆	2 ³ / ₁₆	2 ²⁹ / ₃₂



frame N-55RH

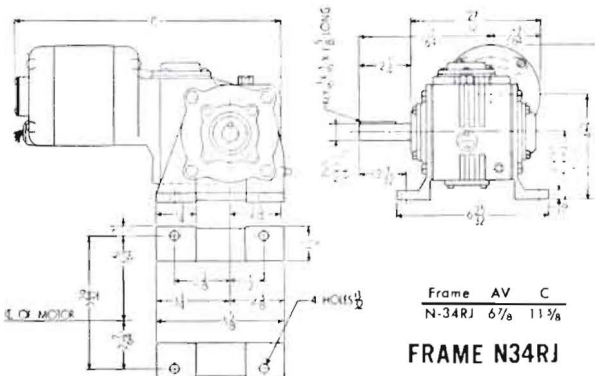
34RH, 53R, 54RL



Frame	A	B	C	D	E	F	L	O
N 34RH	4 ³ / ₈	3 ⁷ / ₈	9 ¹ / ₁₆	3 ¹ / ₄	1 ¹¹ / ₁₆	1 ³ / ₁₆	2 ¹⁵ / ₁₆	5 ¹¹ / ₁₆
N 53R	5 ¹ / ₃₂	4 ⁷ / ₈	8 ²³ / ₃₂	3 ⁷ / ₃₂	2	1 ¹³ / ₁₆	2 ¹¹ / ₁₆	6 ³ / ₁₆
N 54RL	5 ¹ / ₃₂	4 ⁷ / ₈	9 ¹ / ₁₆	3 ⁷ / ₃₂	2	1 ¹³ / ₁₆	3 ¹¹ / ₁₆	6 ³ / ₁₆

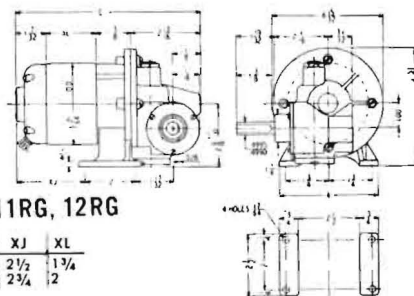
Frame	P	XC	XL	XT	XV	XW	YB	YJ
N 34RH	4 ¹⁹ / ₃₂	1 ⁵ / ₈	2 ³ / ₈	3 ¹ / ₄	4 ³ / ₁₆	2 ⁷ / ₈	4 ¹³ / ₁₆	8 ¹ / ₁₆
N 53R	5 ¹⁹ / ₃₂	1 ¹³ / ₁₆	2 ³ / ₈	3 ¹ / ₄	4 ³ / ₁₆	2 ⁷ / ₈	4 ⁷ / ₈	8 ¹ / ₁₆
N 54RL	5 ¹⁹ / ₃₂	1 ¹³ / ₁₆	2 ³ / ₈	3 ¹ / ₄	4 ³ / ₁₆	2 ⁷ / ₈	4 ⁷ / ₈	8 ¹ / ₁₆

For special shaft position options see Diagram No. 4 on page 22



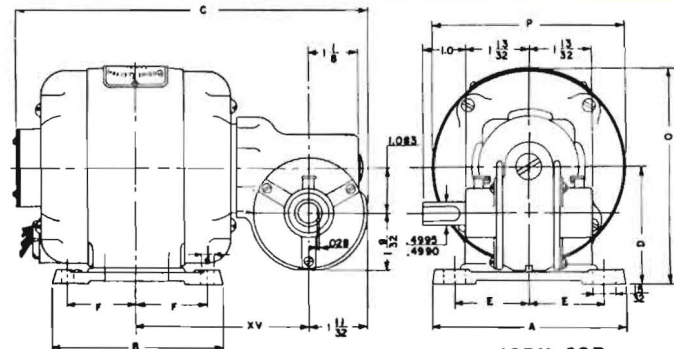
Frame AV C
N-34RJ 6⁷/₈ 11³/₈
FRAME N34RJ

For special shaft position options see Diagram No. 3 on page 22



FRAME 11RG, 12RG

Frame	C	XJ	XL
N11RG	7 ¹ / ₃₂	2 ¹ / ₂	1 ¹ / ₄
N12RG	7 ¹ / ₃₂	2 ¹ / ₄	1 ¹ / ₂



FRAME 12RH, 33R

FRAME	A	B	C	D	E	F	O	P	XV
N-12RH	3 ³ / ₈	2 ¹ / ₂	7 ¹¹ / ₃₂	2 ⁷ / ₁₆	1 ¹³ / ₃₂	5 ⁵ / ₈	4 ¹ / ₁₆	3 ¹¹ / ₁₆	3 ¹ / ₁₆
N-33R	4 ³ / ₈	3 ³ / ₈	7 ²³ / ₃₂	2 ⁵ / ₈	1 ¹¹ / ₁₆	1 ⁵ / ₈	4 ¹ / ₁₆	4 ¹³ / ₃₂	3 ¹ / ₁₆

For special shaft position options see Diagram No. 2 on page 22

MASTER RIGHT ANGLE GEARMOTORS

TABLE A

FRAME	A	B	C	D	E	F	H	L	M	O	Q	R	U	V	KEY		BA	BB	QD	QN	QP	XC	XL	XO
															Sq.	Lgt.								
5217RW	6 $\frac{1}{16}$	2 $\frac{3}{8}$	10 $\frac{3}{8}$	4 $\frac{3}{8}$	2 $\frac{3}{16}$	1 $\frac{5}{16}$	$\frac{3}{8}$	3 $\frac{3}{4}$	6 $\frac{5}{8}$	6 $\frac{3}{8}$	$\frac{1}{8}$	5 $\frac{5}{8}$	$\frac{3}{8}$	1 $\frac{7}{8}$	$\frac{3}{16}$	1 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	6 $\frac{1}{8}$	1 $\frac{1}{2}$	2	3 $\frac{11}{16}$	2 $\frac{3}{16}$	$\frac{3}{16}$
F56RW	6 $\frac{3}{4}$	3 $\frac{3}{8}$	11 $\frac{7}{8}$	5 $\frac{1}{2}$	3	3 $\frac{11}{16}$	2 $\frac{5}{8}$	4 $\frac{1}{2}$	7 $\frac{3}{4}$	7 $\frac{7}{8}$	$\frac{1}{8}$	5 $\frac{7}{8}$	$\frac{3}{4}$	2 $\frac{1}{4}$	$\frac{3}{16}$	1 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	8 $\frac{1}{8}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	4 $\frac{11}{16}$	2 $\frac{1}{16}$	$\frac{1}{2}$
G56RW	6 $\frac{7}{8}$	2 $\frac{15}{16}$	12 $\frac{1}{16}$	5 $\frac{1}{2}$	3	1 $\frac{3}{8}$	2 $\frac{5}{8}$	4 $\frac{13}{16}$	8 $\frac{1}{2}$	7 $\frac{7}{8}$	$\frac{1}{8}$	5 $\frac{7}{8}$	$\frac{3}{4}$	2 $\frac{1}{4}$	$\frac{3}{16}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	8 $\frac{1}{8}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	4 $\frac{1}{8}$	2 $\frac{1}{16}$	$\frac{1}{2}$	
H56RW	6 $\frac{7}{8}$	4 $\frac{11}{16}$	13 $\frac{1}{16}$	5 $\frac{1}{2}$	3	2	2 $\frac{5}{8}$	4 $\frac{25}{16}$	8 $\frac{13}{16}$	7 $\frac{3}{8}$	$\frac{1}{8}$	5 $\frac{7}{8}$	$\frac{3}{4}$	2 $\frac{1}{4}$	$\frac{3}{16}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	8 $\frac{3}{8}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	4 $\frac{1}{8}$	2 $\frac{1}{16}$	$\frac{1}{2}$	

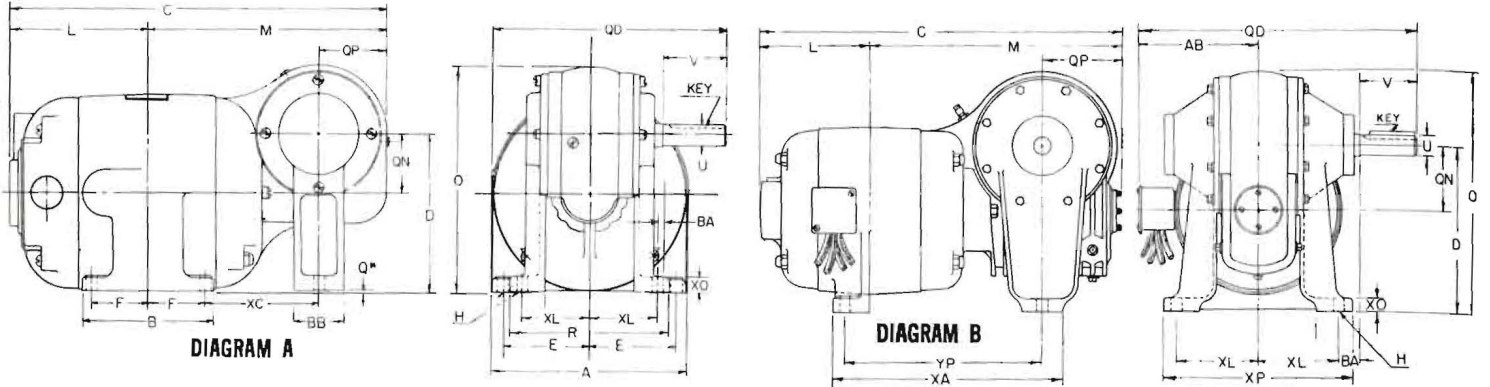
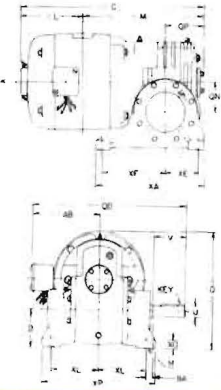


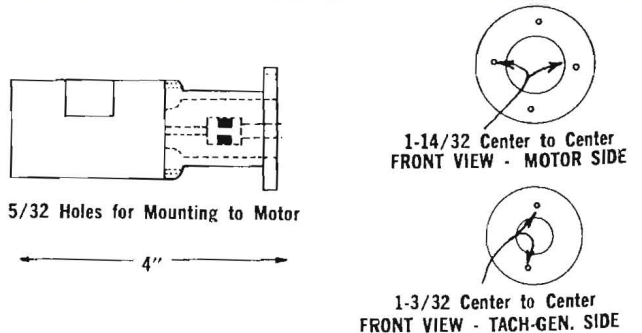
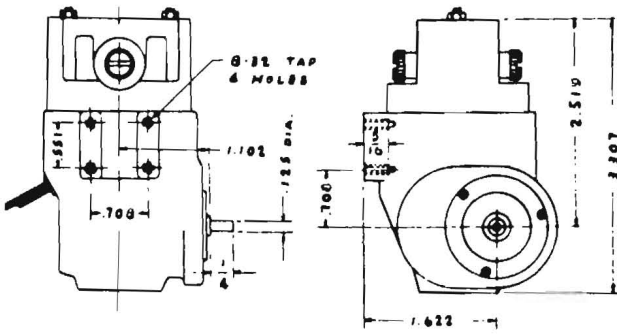
TABLE B

FRAMES	C	D	H	L	M	O	U	KEY		V	AB	BA	QD	QN	QP	XA	XL	XO	XP	YP
								Sq.	Lgt.											
7412RW Thru 7420RW	16 $\frac{1}{16}$	8 $\frac{3}{16}$	1 $\frac{3}{16}$	5 $\frac{3}{8}$	10 $\frac{11}{16}$	11 $\frac{3}{8}$	1	$\frac{1}{4}$	2 $\frac{1}{4}$	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{11}{16}$	3 $\frac{1}{16}$	10 $\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$	8 $\frac{3}{4}$
7422RW Thru 7430RW	17 $\frac{1}{16}$	8 $\frac{3}{16}$	1 $\frac{3}{16}$	5 $\frac{7}{8}$	11 $\frac{3}{16}$	11 $\frac{3}{8}$	1	$\frac{1}{4}$	2 $\frac{1}{4}$	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{11}{16}$	3 $\frac{1}{16}$	10 $\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$	8 $\frac{3}{4}$
203RW	17 $\frac{1}{16}$	8 $\frac{3}{16}$	1 $\frac{3}{16}$	5 $\frac{7}{8}$	11 $\frac{3}{16}$	11 $\frac{3}{8}$	1	$\frac{1}{4}$	2 $\frac{1}{4}$	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{11}{16}$	3 $\frac{1}{16}$	10 $\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$	8 $\frac{3}{4}$
204RW	18 $\frac{1}{16}$			6 $\frac{3}{8}$	11 $\frac{11}{16}$											11 $\frac{1}{2}$				10 $\frac{1}{2}$	8$\frac{1}{4}$	11$\frac{1}{2}$	8$\frac{3}{4}$
224RW	22 $\frac{1}{8}$	10 $\frac{1}{4}$	1 $\frac{3}{16}$	6 $\frac{3}{4}$	15 $\frac{3}{8}$	14 $\frac{7}{8}$	1 $\frac{1}{4}$	$\frac{1}{4}$	2 $\frac{3}{4}$	3 $\frac{1}{2}$	7 $\frac{3}{16}$	1 $\frac{1}{16}$	16 $\frac{7}{8}$	4	4 $\frac{1}{4}$	14 $\frac{1}{2}$	5	$\frac{7}{8}$	11 $\frac{3}{4}$	12 $\frac{1}{8}$
225RW	22 $\frac{7}{8}$			7 $\frac{3}{8}$	15 $\frac{3}{4}$											15 $\frac{3}{4}$				12 $\frac{1}{8}$



FRAME	C	D	H	L	M	O	KEY		U	V	AB	BA	QD	QN	QP	XA	XE	XF	XL	XO	XP
							Sq.	Lgt.													
F56 RW	13 $\frac{1}{8}$	3	$\frac{7}{16}$	4 $\frac{1}{2}$	7 $\frac{3}{4}$	8 $\frac{13}{16}$	$\frac{3}{16}$	1 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{1}{4}$	No Conduit	$\frac{7}{8}$	9 $\frac{3}{4}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	7 $\frac{3}{4}$	3	3	3	$\frac{3}{16}$	7 $\frac{1}{4}$
G56 RW	13 $\frac{11}{16}$	3	$\frac{7}{16}$	4 $\frac{13}{16}$	8 $\frac{1}{8}$	8 $\frac{13}{16}$	$\frac{3}{16}$	1 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{1}{4}$		$\frac{7}{8}$	9 $\frac{3}{4}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	7 $\frac{3}{4}$	3	3	3	$\frac{3}{16}$	7 $\frac{1}{4}$
H56 RW	14 $\frac{1}{8}$	3	$\frac{7}{16}$	4 $\frac{25}{16}$	8 $\frac{13}{16}$	8 $\frac{13}{16}$	$\frac{3}{16}$	1 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{1}{4}$		$\frac{7}{8}$	9 $\frac{3}{4}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	7 $\frac{3}{4}$	3	3	3	$\frac{3}{16}$	7 $\frac{1}{4}$
J56	15 $\frac{1}{8}$	3	$\frac{7}{16}$	5 $\frac{1}{16}$	8 $\frac{13}{16}$	8 $\frac{13}{16}$	$\frac{3}{16}$	1 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{1}{4}$		$\frac{7}{8}$	9 $\frac{3}{4}$	2 $\frac{1}{16}$	2 $\frac{3}{8}$	7 $\frac{3}{4}$	3	3	3	$\frac{3}{16}$	7 $\frac{1}{4}$
7412 to 7420RW	16 $\frac{3}{16}$	3 $\frac{3}{8}$	1 $\frac{3}{16}$	5 $\frac{3}{8}$	10 $\frac{11}{16}$	10 $\frac{3}{8}$	$\frac{1}{4}$	2 $\frac{1}{4}$	1	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{1}{16}$	3 $\frac{11}{16}$	10 $\frac{1}{4}$	3	6	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$
7422 to 7430RW	17 $\frac{1}{16}$	3 $\frac{3}{8}$	1 $\frac{3}{16}$	5 $\frac{13}{16}$	11 $\frac{3}{16}$	10 $\frac{3}{8}$	$\frac{1}{4}$	2 $\frac{1}{4}$	1	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{11}{16}$	3 $\frac{1}{16}$	10 $\frac{1}{4}$	3	6	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$
7432 to 7440RW	18 $\frac{1}{16}$	3 $\frac{3}{8}$	1 $\frac{3}{16}$	6 $\frac{1}{8}$	11 $\frac{11}{16}$	10 $\frac{3}{8}$	$\frac{1}{4}$	2 $\frac{1}{4}$	1	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{11}{16}$	3 $\frac{1}{16}$	10 $\frac{1}{4}$	3	6	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$
N203RW	17 $\frac{1}{16}$	3 $\frac{3}{8}$	1 $\frac{3}{16}$	5 $\frac{13}{16}$	11 $\frac{3}{16}$	10 $\frac{3}{8}$	$\frac{1}{4}$	2 $\frac{1}{4}$	1	3	6 $\frac{3}{8}$	$\frac{3}{8}$	14 $\frac{1}{2}$	2 $\frac{11}{16}$	3 $\frac{1}{16}$	10 $\frac{1}{4}$	3	6	4 $\frac{1}{2}$	$\frac{7}{8}$	10 $\frac{3}{4}$
N204RW	18 $\frac{1}{16}$			6 $\frac{3}{16}$	11 $\frac{11}{16}$																
224RW	22 $\frac{3}{8}$	5	1 $\frac{7}{16}$	6 $\frac{3}{4}$	15 $\frac{3}{8}$	14 $\frac{1}{2}$	$\frac{1}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	3 $\frac{1}{2}$	7 $\frac{3}{16}$	1 $\frac{3}{16}$	16 $\frac{7}{8}$	4	4 $\frac{3}{4}$	13 $\frac{1}{2}$	4 $\frac{1}{2}$	7 $\frac{1}{2}$	5	$\frac{7}{8}$	10 $\frac{3}{4}$
225RW	23 $\frac{3}{8}$			7 $\frac{3}{8}$	15 $\frac{3}{4}$																

M107D6, D7, D9 MOTORS



TACHOMETER GENERATOR

The B.B. Motor and Control Corp. Tachometer Generator provides a D.C. output voltage that is directly proportional to the speed of the motor, thus permitting the speed of the motor to be read from a calibrated voltmeter. The above dimension should be added to the overall length of the motor used.

MASTER PARALLEL DRIVE GEARMOTORS

DIMENSIONS ARE FOR ESTIMATING PURPOSES ONLY

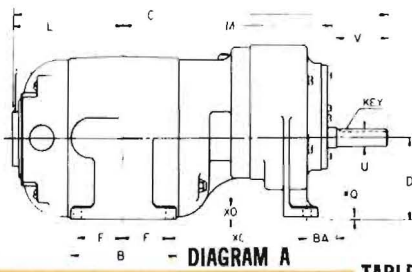


DIAGRAM A

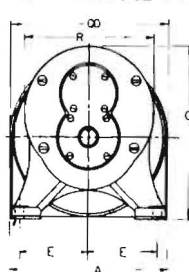


DIAGRAM B

NEW AND OLD NEMA FRAMES

NON-GEARED

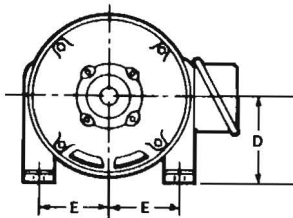
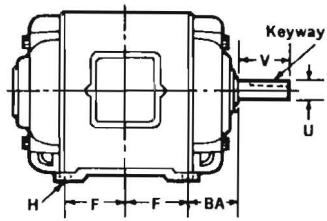


TABLE A

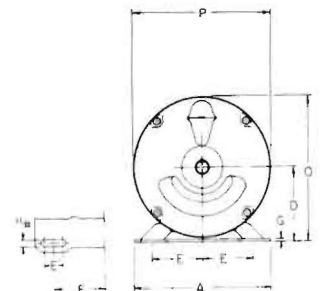
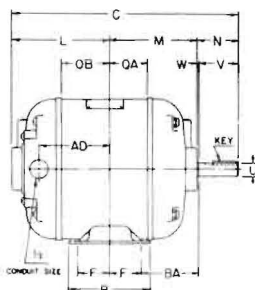
FRAME	A	B	C	D	E	F	H	L	M	O	Q	R	U	V	KEY					
															Sq.	Lgt.	BA	QD	XC	XO
F561D	6 7/8	3 1/4	14 1/2	3 3/8	3	1 1/2	2 1/4	4 1/2	11 1/2	7 1/2	1 1/2	5 3/4	3/4	2 1/4	1 1/4	1 1/4	1 1/4	6 1/2	6 1/2	3/4
G561D	6 7/8	3 1/4	15 1/2	3 3/8	3	1 1/2	2 1/4	4 1/2	11 1/2	7 1/2	1 1/2	5 3/4	3/4	2 1/4	1 1/4	1 1/4	1 1/4	6 1/2	6	3/4
H561D	6 7/8	4 1/4	16 1/2	3 3/8	3	2	2 1/4	4 1/2	9 1/2	7 1/2	1 1/2	5 3/4	3/4	2 1/4	1 1/4	1 1/4	1 1/4	6 1/2	6	3/4
J561D	6 7/8	4 1/4	17 1/2	3 3/8	3	2	2 1/4	5 1/2	9 1/2	7 1/2	1 1/2	5 3/4	3/4	2 1/4	1 1/4	1 1/4	1 1/4	6 1/2	6	3/4

TABLE B

FRAME	A	B	C	D	E	F	H	L	M	O	O'	R	U	V	KEY		AB	BA	DD	QD	QN	QS	QV	XO
															Sq.	Lgt.								
5210SP Thru 5217SP	6 1/4	2 3/4	11 1/4	4 1/4	2 1/4	1 1/4	3 3/4	3 3/4	5 3/4	6 3/4	5 3/4	4 3/4	3/4	1 3/4	1 1/4	1 1/4	No Conduit	4 3/4	2 3/4	6 1/4	1 1/4	1 1/4	1/4	1/4
5220SP 5222SP	6 1/4	2 3/4	11 1/4	4 1/4	2 1/4	1 1/4	3 3/4	4 1/4	5 3/4	6 3/4	5 3/4	4 3/4	3/4	1 3/4	1 1/4	1 1/4		4 3/4	2 3/4	6 1/4	1 1/4	1 1/4	1/4	1/4
F56SP	6 3/4	3 1/4	12 1/4	5 1/4	3	1 1/4	2 1/4	4 1/4	6 1/4	7 1/4	6 1/4	5 1/4	3/4	2 1/4	1 3/4	1 3/4		5 1/4	3 1/4	6 3/4	1 1/4	2	1 1/4	3/4
G56SP	6 3/4	3 1/4	13 1/4	5 1/4	3	1 1/4	2 1/4	4 1/4	6 1/4	7 1/4	6 1/4	5 1/4	3/4	2 1/4	1 3/4	1 3/4		5 1/4	3 1/4	6 3/4	1 1/4	2	1 1/4	3/4
H56SP	6 3/4	4 1/4	14 1/4	5 1/4	3	2	2 1/4	4 1/4	7 1/4	7 1/4	6 1/4	5 1/4	3/4	2 1/4	1 3/4	1 3/4	5 1/4	3 1/4	6 3/4	1 1/4	2	1 1/4	3/4	
J56SP	6 3/4	4 1/4	15 1/4	5 1/4	3	2	2 1/4	5 1/4	7 1/4	7 1/4	6 1/4	5 1/4	3/4	2 1/4	1 3/4	1 3/4	5 1/4	3 1/4	6 3/4	1 1/4	2	1 1/4	3/4	
7412SP Thru 7420SP	8 1/4	5	16 1/4	7 1/4	3 3/4	1 3/4	2 3/4	5 1/4	8 1/4	10 1/4	8 1/4	8 1/4	1	3	1 1/4	2 1/4	6 3/4	6 1/4	4 3/4	10 1/4	2 3/4	2 1/4	1 1/4	1 1/4
7422SP Thru 7430SP	8 1/4	5	17 1/4	7 1/4	3 3/4	2 3/4	2 3/4	5 1/4	8 1/4	10 1/4	8 1/4	8 1/4	1	3	1 1/4	2 1/4	6 3/4	6 1/4	4 3/4	10 1/4	2 3/4	2 1/4	1 1/4	1 1/4
7432SP Thru 7440SP	8 1/4	5	18 1/4	7 1/4	3 3/4	2 3/4	2 3/4	5 1/4	8 1/4	10 1/4	8 1/4	8 1/4	1	3	1 1/4	2 1/4	6 3/4	6 1/4	4 3/4	10 1/4	2 3/4	2 1/4	1 1/4	1 1/4
203SP	9 1/4	6 1/4	17 1/4	7 3/4	4	2 3/4	1 1/4	5 3/4	8 1/4	10 3/4	9 1/4	8 1/4	1	3	1 1/4	2 1/4	6 3/4	5 1/4	5	11	2 3/4	2 1/4	1 1/4	1 1/4
204SP	9 1/4	7 3/4	18 1/4	7 3/4	4	3 1/4	1 1/4	6 1/4	9 1/4	10 3/4	9 1/4	8 1/4	1	3	1 1/4	2 1/4	6 3/4	5 1/4	5	11	2 3/4	2 1/4	1 1/4	1 1/4
224SP	10 1/4	8	20 1/4	8 1/4	4 1/4	3 1/4	1 1/4	6 3/4	10 1/4	12 3/4	10 1/4	1 1/4	3 1/4	1 1/4	2 1/4	2 1/4	7 1/4	7 1/4	5 1/4	12 3/4	3 1/4	3 1/4	1 1/4	1 1/4
225SP	10 1/4	8 1/4	21 1/4	8 1/4	4 1/4	3 1/4	1 1/4	7 3/4	10 1/4	12 3/4	10 1/4	1 1/4	3 1/4	1 1/4	2 1/4	2 1/4	7 1/4	7 1/4	5 1/4	12 3/4	3 1/4	3 1/4	1 1/4	1 1/4
254SP	12 1/4	10	25 1/4	10	5	4 3/4	1 1/4	8 1/4	12 1/4	14 1/4	12 1/4	11 1/4	1 1/4	4 3/4	3 1/4	3 1/4	8 1/4	8 1/4	6 1/4	14 1/4	3 1/4	4 3/4	1 1/4	1 1/4

STANDARD NEMA FRAMES

FRACTIONAL HORSEPOWER, NON-GEARED MOTOR DIMENSIONS



Frame	Keyway	BA	D	E	F	H	U	V
48	3/16 Flat	2 1/2	3	2 1/4	1 3/8	1 1/2 x 1 1/2 (Slot)	1/2	1 1/2
56	3/16 x 3/32	2 1/4	3 1/2	2 1/8	1 1/2	1 1/2 x 1 1/2 (Slot)	3/8	1 1/4
56Z	3/16 Flat	2 1/4	3 1/2	2 1/8	1 1/2	1 1/2 x 1 1/2 (Slot)	1/2	1 1/2
66	3/16 x 3/32	3-1/8	4-1/8	2 1/2 x 2-3/4	1 1/2 x 1 1/2	1 1/2	3/4	2 1/2 x 3/2
182	3/16 x 3/32	2 1/4	4 1/2	3 3/4	2 1/4	1 3/2	3/8	2
184	3/16 x 3/32	2 1/4	4 1/2	3 3/4	2 1/4	1 3/2	3/8	2
203	3/16 x 3/32	3 1/8	5	4	2 1/4	1 3/2	3/4	2
204	3/16 x 3/32	3 1/8	5	4	2 1/4	1 3/2	3/4	2
213	1/4 x 1/8	3 1/2	5 1/4	4 1/4	2 3/4	1 3/2	1 1/4	2 1/4
215	1/4 x 1/8	3 1/2	5 1/4	4 1/4	2 3/4	1 3/2	1 1/4	2 1/4
224	1/4 x 1/8	3 1/2	5 1/2	4 1/2	3 3/4	1 3/2	1	2 1/4
225	1/4 x 1/8	3 1/2	5 1/2	4 1/2	3 3/4	1 3/2	1	2 1/4
254	1/4 x 1/8	4 1/4	6 1/4	5	4 1/4	1 3/2	1 1/4	3 1/4
254U	3/16 x 3/32	4 1/4	6 1/4	5	4 1/4	1 3/2	1 1/4	3 1/4
256U	3/16 x 3/32	4 1/4	6 1/4	5	4 1/4	1 3/2	1 1/4	3 1/4
284	1/4 x 1/8	4 1/4	7	5 1/2	4 3/4	1 3/2	1 1/4	3 1/4
284U	3/16 x 3/32	4 1/4	7	5 1/2	4 3/4	1 3/2	1 1/4	4 3/8
286U	3/16 x 3/32	4 1/4	7	5 1/2	4 3/4	1 3/2	1 1/4	4 3/8
324	3/8 x 3/16	5 1/4	8	6 1/4	5 1/4	2 1/2	1 1/4	4 3/8
324S	3/8 x 3/16	5 1/4	8	6 1/4	5 1/4	2 1/2	1 1/4	4 3/8
324U	1/2 x 1/4	5 1/4	8	6 1/4	5 1/4	2 1/2	1 1/4	5 3/8
326	3/8 x 3/16	5 1/4	8	6 1/4	6	2 1/2	1 1/4	4 3/8
326S	3/8 x 3/16	5 1/4	8	6 1/4	6	2 1/2	1 1/4	4 3/8
326U	1/2 x 1/4	5 1/4	8	6 1/4	6	2 1/2	1 1/4	5 3/8
364	1/2 x 1/4	5 3/8	9	7	5 3/4	2 1/2	1 1/4	5 3/8
364S	1/2 x 1/4	5 3/8	9	7	5 3/4	2 1/2	1 1/4	5 3/8
364U	1/2 x 1/4	5 3/8	9	7	5 3/4	2 1/2	2 1/4	6 3/8
364US	1/2 x 1/4	5 3/8	9	7	5 3/4	2 1/2	2 1/4	6 3/8
364Z	3/8 x 3/16	5 3/8	9	7	5 3/4	2 1/2	2 1/4	6 3/8
365ZS	1/2 x 1/2	5 3/8	9	7	5 3/4	2 1/2	2 1/4	4
365	1/2 x 1/4	5 3/8	9	7	6 1/4	2 1/2	1 1/4	5 3/8
365S	3/8 x 3/16	5 3/8	9	7	6 1/4	2 1/2	1 1/4	5 3/8
365U	1/2 x 1/4	5 3/8	9	7	6 1/4	2 1/2	2 1/4	6 3/8
365US	1/2 x 1/4	5 3/8	9	7	6 1/4	2 1/2	2 1/4	6 3/8
365Z	3/8 x 3/16	5 3/8	9	7	6 1/4	2 1/2	2 1/4	6 3/8
365ZS	1/2 x 1/2	5 3/8	9	7	6 1/4	2 1/2	2 1/4	4
404	1/2 x 1/4	5 3/8	10	8	6 3/4	1 3/4	2 1/4	6 3/8
404S	1/2 x 1/4	5 3/8	10	8	6 3/4	1 3/4	2 1/4	6 3/8
73	3/16 x 3/32	3-1/8	4-5/8	3-1/4	2-1/2	1-1/2 x 1-1/2	3/4	2-1/4

FRAMES	A	B	C	D	E	F	G	P	U	V	W	QB
RE 316	6 3/4	4	9 1/2	3 1/2	2 3/4	1 1/2		5 1/4	.5000	1 3/8		
G56	6 3/8	3 3/8	10 3/4	3 1/2	2 1/4	1 1/2	3/8	6 1/4	.6250	1 3/8	1/8	2 1/4
H56			11 1/2									3
J56			12 1/2									4
G66	8 3/8	6 1/4	13 1/4	4 1/4	2 1/4	2 3/4	5/8	7 1/4	.7500	2 3/4	3/8	2 3/4
H66			14 1/4									3 3/8
J66			15 3/4									4 1/2

B & B Stocks *slo-syn* SYNCHRONOUS MOTORS

Now, you can get fast delivery of the SLO-SYN Motors from the major motor and control supplier — B & B

SYNCHRONOUS MOTORS

- For "On-Off" A-C, Servo and Phase-Switched D-C Stepping Operation
- Torque Ratings from 25 to 1800 ounce-inches available

TRANSLATORS

- Precision Stepping of Slo-Syn Synchronous Motors from Low Power Pulses

PRESET INDEXERS

- Control Indexing Operations using Slo-Syn Synchronous Motors for Positioning

slo-syn Synchronous Motors — AC OPERATION

SLO-SYN Synchronous Motors are permanent magnet a-c motors having extremely rapid starting, stopping and reversing characteristics and a slow basic shaft speed of 72 RPM synchronous with a line frequency of 60 cycles. Standard three-lead types require only a single-pole, three-position switch for complete forward, reverse and "off" control. Starting and operating current are nearly identical, so there is no excessive inrush current when a SLO-SYN motor is energized. The motors can be completely stalled without overheating and with no harmful effects on the components. Starting or stopping is accomplished in less than 5° of shaft rotation, eliminating the need for any mechanical or electrical braking. In applications incorporating an auxiliary high speed motor for use when an intermittent faster speed is necessary, the SLO-SYN motor can remain coupled to the load and may be overdriven without risk of damage.

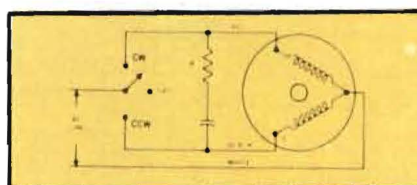
PHASE-SHIFTING NETWORK

A phase-shifting network consisting of a resistor

and a capacitor must be used when operating from a single-phase source. Values of the phase-shifting components are given in the ratings and specifications charts. Unless otherwise specified, the resistor and capacitor values given will provide satisfactory operation at any frequency between 50 and 60 cycles.

TEMPERATURE

All standard motors are rated for continuous duty at a maximum ambient temperature of 40°C. SS150 and SS152 types use Class A insulation; all others have Class B insulation.



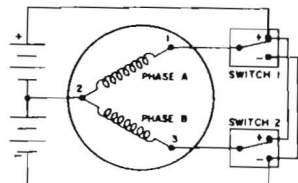
slo-syn Synchronous Motors — DC STEPPING — 200 Steps per Revolution

With the wiring and the switching sequence shown in Figure 1, a SLO-SYN Synchronous Motor will take 200 steps to make one revolution of the rotor shaft. In effect, each switching operation acts in the same manner as does 1/4 cycle of a-c excitation, advancing the rotor shaft one step of 1.8°. Accuracy of the steps is ±.09° non-accumulative. The motor can step at varying speeds, start, stop and reverse direction without losing any steps. Switching can be accomplished mechanically with SPDT switches or mercury wetted relays or through a commutator-brush arrange-

ment. Mercury wetted relays, if used, must be of the break-before-make type. Electronically, switching can be performed by transistors or tubes.

Torque vs. speed curves for three- and four-lead SLO-SYN Synchronous Motors are shown in Figure 2. The torque decreases with increased stepping speeds because of the inductive impedance of the windings. As the speed approaches maximum, the torque producing current drops off until there is no torque output. However, it is possible to extend the curve by reducing the L/R time constant.

FIGURE 1

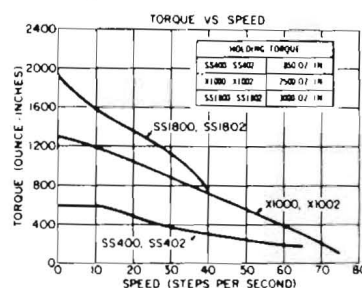
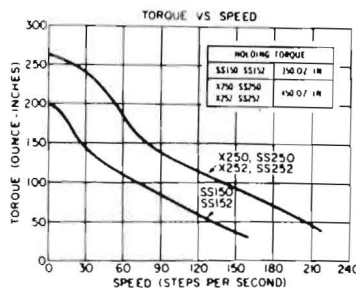
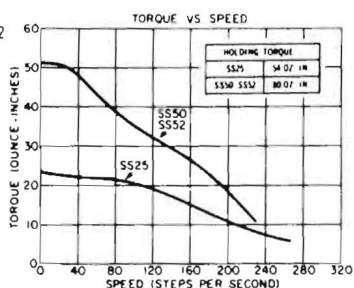


SWITCHING SEQUENCE*

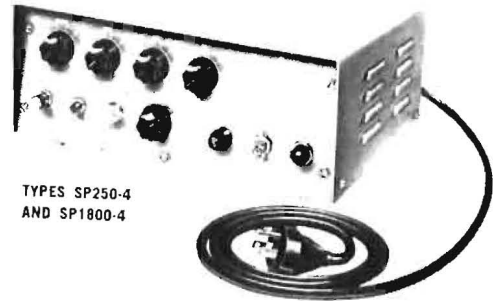
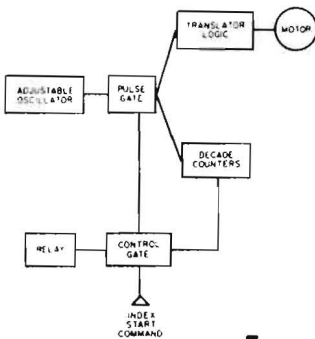
STEP	SWITCH #1	SWITCH #2
1	+	+
2	-	+
3	-	-
4	+	-
1	+	+

* To reverse direction, read chart up from bottom.

FIGURE 2

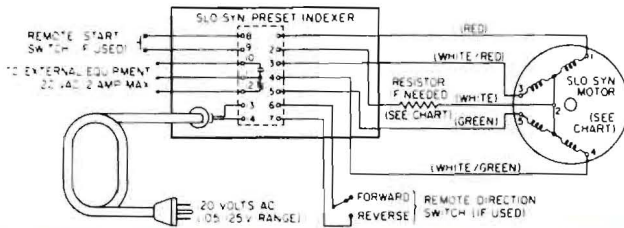


SLO-SYN Preset Indexers of the SP250 and SP1800 Series are used for control of indexing operations in applications utilizing appropriate bifilar SLO-SYN Synchronous Motors for positioning. They automatically provide the correct switching sequence needed to drive a SLO-SYN motor the required number of 1.8° steps and have provisions for actuating and external equipment needed to perform related operations. The index cycle can be initiated manually from the control panel or from an external switch. With proper external switching, a SLO-SYN Preset Indexer can be made to cycle automatically. Models are available to control indexing movements up to 99,999 steps. The chart in Figure 2 shows the counting range for specific models.



slo-syn Preset Indexers

FIGURE 2

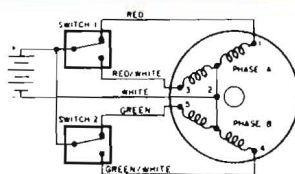


PRESET INDEXER TYPE	COUNTING RANGE	INPUT AMPS	USED WITH BIFILAR MOTOR TYPE		DROPPING RESISTOR REQUIRED	
			DESCRIPTION	TYPE	DESCRIPTION	TYPE
SP250 3 SP250 4 SP250 5	1-999 1-9,999 1-99,999	0.75	SS25 1001	3 OHM 5% 25 WATT	BP262020	
			SS50 1008	7 OHM 5% 25 WATT	BP262019	
			SS150 1010 SS250 1002 SS500 1002			
SP1800 3 SP1800 4 SP1800 5	1-999 1-9,999 1-99,999	1.25	SS250 1007 SS400 1003 SS1000 1007	1 OHM 5% 50 WATT	BM1020805	

slo-syn Bifilar Synchronous Motors

Bifilar SLO-SYN Synchronous Motors are used for stepping applications where the use of push-pull circuitry and a center-tapped power supply is not possible or where increased torque at high stepping speeds is required. As shown in Figure 7, bifilar motors are stepped by switching from one half of the winding to the other half which is wound in the opposite direction.

Since bifilar types have twice as many winding turns in the same space as standard wound types, they have more resistance per winding and lower current ratings. This reduces the low speed torque but raises the high speed torque since the L/R time constant is reduced.

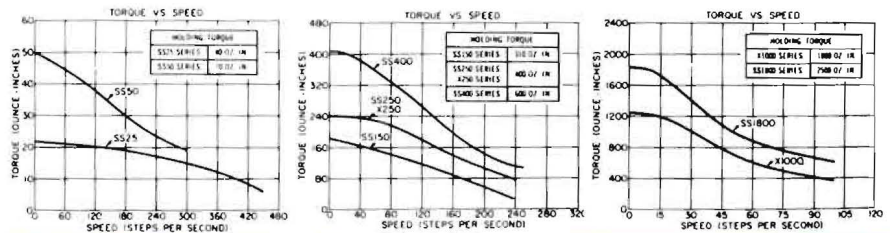


SWITCHING SEQUENCE*

STEP	SWITCH #1	SWITCH #2
1	1	5
2	1	4
3	3	4
4	3	5
1	1	5

* To reverse direction, read chart up from bottom.

FIGURE 7



slo-syn Translators Types ST250B and ST1800

PRINCIPLES of OPERATION

A SLO-SYN Translator translates into motor steps, information received as pulses from an external source or from an external shorting contact. For each element of stimulus, the motor shaft advances one step of 1.8°. Each step is made accurately at a rate compatible with the input pulse rate and at a one-to-one correspondence with the input signal. As shown in Figure 1, input signals entering the SLO-SYN Translator are shaped in monostable circuits before going to the logic elements, which consist of diodes and flip-flops connected to provide the desired switching sequence.

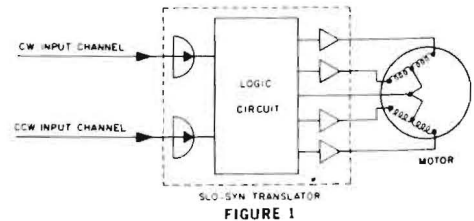
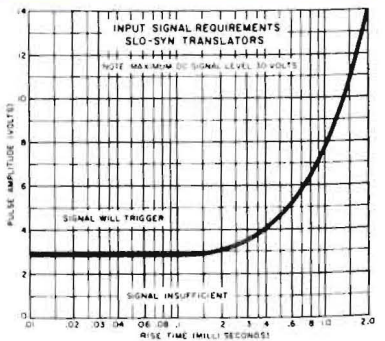
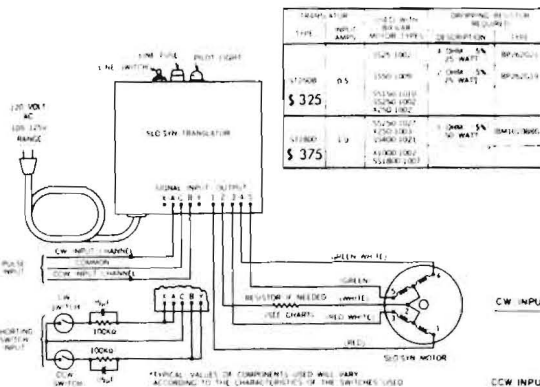


FIGURE 1



slo-syn[®] SYNCHRONOUS MOTORS

RATINGS

RATINGS AND SPECIFICATIONS FOR A-C APPLICATIONS

TYPE	MAXIMUM AMPERES	TORQUE (Oz-In)	MAXIMUM MOMENT OF INERTIA OF A RIGIDLY ATTACHED LOAD (Lb-In ²)	PHASE-SHIFTING COMPONENTS*						
				PRICE	RESISTOR	RESISTOR PART NUMBER	PRICE	CAPACITOR	CAPACITOR PART NUMBER	PRICE
120 Volts, 50/60 Cycles, 1 Phase, 72 RPM at 60 Cycles										
SS25	0.1	25	0.25	\$ 40.00	500 ohm ±5%, 5 watt	R-SS25	\$ 1.00	0.75 mfd ±6%, 330 VAC	C-SS25	\$ 3.00
SS50	0.3	50	0.5	36.00	250 ohm ±5%, 25 watt	R-SS50/150	1.25	2.6 mfd ±6%, 330 VAC	C-SS50	4.50
SS50M†	0.3	50	0.5	55.00	250 ohm ±5%, 25 watt	R-SS50M/150M	4.00	2.6 mfd ±6%, 330 VAC	C-SS50M	6.00
SS150	0.4	150	1.5	45.00	250 ohm ±5%, 25 watt	R-SS50/150	1.25	3.75 mfd ±6%, 330 VAC	C-SS150	3.50
SS150M†	0.4	150	1.5	64.00	250 ohm ±5%, 25 watt	R-SS50M/150M	4.00	3.75 mfd ±6%, 330 VAC	C-SS150M	6.50
SS250	0.6	250	3	65.00	150 ohm ±5%, 50 watt	R-SS250/400	2.50	6.5 mfd ±6%, 330 VAC	C-SS250/400	4.50
SS250M†	0.6	250	3	84.00	150 ohm ±5%, 50 watt	R-SS250M	5.00	6.5 mfd ±6%, 330 VAC	C-SS250M	9.50
X250‡	0.6	250	3	90.00	150 ohm ±5%, 50 watt	R-SS250/400	2.50	6.5 mfd ±6%, 330 VAC	C-SS250/400	4.50
SS400	0.6	400	4.5	100.00	150 ohm ±5%, 50 watt	R-SS250/400	2.50	6.5 mfd ±6%, 330 VAC	C-SS250/400	4.50
X1000‡§	3.0	1000	9	195.00	65 ohm ±5%, 160 watt	R-X1000	3.50	30 mfd ±5%, 330 VAC	C-X1000	19.50
SS1800§	4.0	1800	16	265.00	40 ohm ±5%, 300 watt	R-SS1800	6.50	60 mfd ±6%, 330 VAC	C-SS1800	28.00
240 Volts, 50/60 Cycles, 1 Phase, 72 RPM at 60 Cycles										
SS52§	0.2	50	0.5	36.00	1000 ohm ±5%, 10 watt	R-SS52	1.25	0.67 mfd ±6%, 660 VAC	C-SS52	4.50
SS152	0.2	150	1.5	45.00	1200 ohm ±5%, 25 watt	R-SS152	2.50	1.0 mfd ±6%, 660 VAC	C-SS152	4.50
SS252	0.3	250	3	65.00	500 ohm ±5%, 50 watt	R-SS252/402	2.50	1.75 mfd ±6%, 660 VAC	C-SS252/402	4.50
X252‡	0.3	250	3	90.00	500 ohm ±5%, 50 watt	R-SS252/402	2.50	1.75 mfd ±6%, 660 VAC	C-SS252/402	4.50
SS402	0.3	400	4.5	100.00	500 ohm ±5%, 50 watt	R-SS252/402	2.50	1.75 mfd ±6%, 660 VAC	C-SS252/402	4.50
X1002‡§	1.5	1000	9	195.00	250 ohm ±5%, 200 watt	R-X1002	4.00	8 mfd ±6%, 660 VAC	C-X1002	18.00
SS1802	2.0	1800	16	265.00	130 ohm ±5%, 320 watt	R-SS1802	6.50	15 mfd ±6%, 660 VAC	C-SS1802	24.00

*External resistor and capacitor must be ordered separately. †Militarized. ‡Explosion-proof §For 60 cycles. Other phase-shifting components required for 50 cycles.

THREE-LEAD SLO-SYN SYNCHRONOUS MOTORS — RATINGS FOR STEPPING APPLICATIONS

MOTOR TYPE	SS25	SS50 SS50M	SS52	SS150 SS150M	SS152	SS250 SS250M X250	SS252 X252	SS400	SS402	X1000	X1002	SS1800	SS1802
D-C VOLTS	80	50	100	35	70	32	64	30	60	11.5	23	9.5	19
AMPERES PER WINDING	0.07	0.15	0.08	0.35	0.18	0.50	0.25	0.60	0.30	3.2	1.6	4.7	2.4

FOUR-LEAD SLO-SYN SYNCHRONOUS MOTORS RATINGS FOR STEPPING APPLICATIONS

TYPES	D-C INPUT VOLTS PER WINDING	AMPERES PER WINDING	PRICE
SS25-1014	16	0.35	\$ 60.00
SS25-1012	40	0.14	60.00
SS25-1013	80	0.07	60.00
SS50-1012	2.5	3.1	56.00
SS50-1011	10	0.75	56.00
SS50-1002	25	0.30	56.00
SS50-1014	50	0.15	56.00
SS150-1007	2	6.3	65.00
SS150-1018	7	1.75	65.00
SS150-1015	17.5	0.70	65.00
SS150-1025	35	0.35	65.00
SS250-1010	3	5.3	85.00
SS250-1009	8	2.0	85.00
SS250-1008	16	1.0	85.00
SS250-1007	32	0.50	85.00
SS400-1005	15	1.2	120.00
SS400-1007	30	0.6	120.00
X1000-1005	11.5	3.2	215.00
X1000-1008	23	1.6	215.00
SS1800-1004	9.5	4.7	285.00
SS1800-1005	19	2.4	285.00

BIFILAR SLO-SYN SYNCHRONOUS MOTORS RATINGS FOR STEPPING APPLICATIONS

TYPE	D-C VOLTS	AMPERES PER WINDING	PRICE
SS25-1002	5.9	0.88	\$ 65.00
SS25-1001	11.8	0.44	65.00
SS25-1011	23.6	0.22	65.00
SS50-1010	2	3.3	61.00
SS50-1009	5.5	1.3	61.00
SS50-1008	8	0.85	61.00
SS50-1001	14	0.53	61.00
SS50-1007	35	0.21	61.00
SS150-1023	1.4	8.5	70.00
SS150-1009	2.5	4.0	70.00
SS150-1010	10	1.25	70.00
SS150-1017	25	0.5	70.00
SS250-1006	2.5	5.0	90.00
SS250-1027	4.6	3.1	90.00
SS250-1007	9	1.55	90.00
SS250-1004	22.5	0.61	90.00
X250-1003	4.6	3.1	115.00
X250-1002	9	1.55	115.00
SS400-1021	5.3	3.4	125.00
SS400-1002	8.3	2.2	125.00
SS400-1006	21.2	0.85	125.00
X1000-1002	10	3.6	220.00
X1000-1007	25.4	1.42	220.00
SS1800-1007	11.5	3.9	290.00
SS1800-1002	14.4	3.1	290.00
SS1800-1006	23	2.0	290.00

RATINGS AND SPECIFICATIONS — PLANETARY GEAR ASSEMBLIES

PLANETARY GEAR ASSEMBLY	ADD TO MOTOR PRICE	RATIO	APPROXIMATE SPEED (RPM)††	OUTPUT TORQUE (OZ-IN)				
				SS50† SS50M SS52†	SS150† SS150M SS152†	SS250 SS250M SS252	X250 X252	SS400 SS402
P1	\$ 10.00	4½	16.6	120	400	650	650	1000
P2	10.00	21½	3.32	600	2000	—	2000	—
P3	20.00	108½	0.665	2000	2000	—	2000	—
P4	30.00	541½	0.133	2000	2000	—	2000	—
P5	40.00	2708½	0.027	2000	2000	—	2000	—

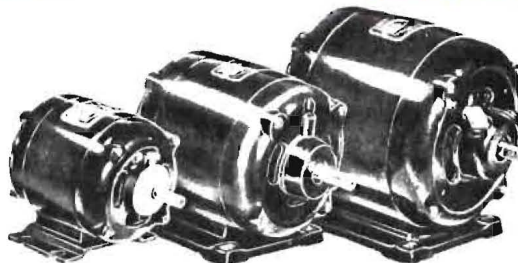
†Includes equivalent RC types ††Exact speed may be calculated from basic motor speed (72 RPM) and given ratio.



SYNCHRONOUS MOTORS

These motors (usually wound permanent-split capacitor) are suitable for operations only on alternating current, and have standard windings designed for continuous duty. Reversing may be accomplished either at standstill or while rotating under favorable conditions.

Speed characteristics are the same as for reluctance synchronous motors except that the pull-in and pull-out torques are very similar in value. Starting torque is about 100% of full-load torque. Starting current is low. High inertia loads can be accelerated to synchronous speed, and inherent vibration is lower than for reluctance synchronous motors. The rotor may pull into synchronism in any angular position at random. Since the positions of rotor poles are not fixed,



but are developed each time the motor starts and pulls into synchronism, their locations cannot be predicted nor maintained.

BODINE SINGLE SPEED HYSTERSEIS TYPE MOTORS

Speed R.P.M.	H.P.	Torq. in oz.	Sleeve Bearing & Ball Bearing*		Price (incl. cap)	Net Wt. Lbs.
			Type—Frame Size	Sl. Brg. Cat. #		
600	1/250	6.7	NCH-33	7298	\$120.00	11
900	1/60	18.7	NCH-34	7314	\$120.00	13½
1200	1/40	21	NCH-33	7358	\$115.00	11
1200	1/30	28	NCH-34	B7360★	\$ 51.85	13½
1200	1/15	56	NCH-55	B7372★	\$ 66.71	21¾
1800	1/60	9.3	NCH-12	7336	\$100.00	3¾
1800	1/20	28	NCH-34	B7410★	\$ 50.16	13½
3600	1/50	5.6	NCH-13	B7346★	\$ 47.97	5½
3600	1/20	14	NCH-34	B7460	\$ 53.71	13½

Self-Ventilated 50°C Rise

All above motors are supplied with proper capacitor

BODINE DUAL SPEED HYSTERSEIS TYPE MOTORS

Speed R.P.M.	H.P.	Torq. in oz.	Type—Fr. Size	Sl. Brg. Cat. #	Price (inc. cap)	Net Wt. Lbs.
600/1200	1/200-1/70	8.4-12	NCH-34	7136	\$130.00	13½
900/1800	1/70-1/40	16-14	NCH-34	7140	\$140.00	13¾
1800/3600	.075-.040	—	NCH-14	—	\$125.00	6

All above motors are supplied with proper capacitor.

RELUCTANCE SYNCHRONOUS MOTORS

These motors (split-phase, capacitor and polyphase) are suitable for operating only on alternating current, and have standard windings designed for continuous duty. Reversing and starting characteristics are similar to those of their non-synchronous counterparts, except that they are more sensitive to accelerating inertia loads to full running speed. Efficiency is much lower. Speed is absolutely constant, and is determined by the frequency of the power source and the number of motor poles. They will run at this one speed regardless of load variations from no-load to full-load, at normal voltage. The salient-pole feature of these motors produces more inherent vibration than is present in non-synchronous types. It also causes their rotors to pull into step with their rotating magnetic fields in definite angular positions.

B&B SINGLE SPEED SYNCHRONOUS MOTORS

	1200 RPM	1800 RPM	3600 RPM
1/6 HP			
1 Ph	120.00	108.00	88.50
3 Ph	115.50	103.50	93.50
Frame	56	56	48
1/4 HP			
1 Ph	136.50	111.00	97.50
3 Ph	132.00	106.50	102.00
Frame	56	56	48
1/3 HP			
1 Ph	184.50	118.50	102.00
3 Ph	147.00	121.50	111.00
Frame	182	56	56
1/2 HP			
1 Ph	214.50	132.00	129.00
3 Ph	150.00	133.50	117.00
Frame	184	56	56
3/4 HP			
1 Ph	279.00	156.00	147.00
3 Ph	156.00	135.75	120.75
Frame	184	184	182
1 HP			
1 Ph	339.00	178.50	170.25
3 Ph	171.75	140.25	151.50
Frame	213	213	184
1-1/2 HP			
1 Ph	448.50	232.50	219.00
3 Ph	195.00	158.25	165.00
Frame	215	★Frame 215 ●Frame 213	213

10% for enclosing
10% for flange mount

See pages 26 for dimensions

Get Fast Delivery... Better Service

Order  Motors from **B&B**

**"Off-the-Shelf" shipment from our complete stock, 1/20 hp to 3 hp
Including the all-new Form G2 Motors**



Base-mounted Open Motors

OPEN SPLIT-PHASE, TYPE XB (FORM G₂)* AND KH (FORM G), 60-CYCLE

FEATURES—Open (dripproof) construction, continuous duty, quiet all-angle sleeve bearings, attractive blue-gray enamel finish, detachable base.

Hp	Rpm	Volts	NEMA Frame	Model No.		List	Model No.		List
				Solid Base	Resilient Base				
1/8	3450	115	48	5KH328G282		\$ 24.50	5KH228G293		\$ 25.50
	1725	115	48	5XBFO0D		23.40	5XBFO0C		24.40
	1725	230	48				5XBFO0S		26.40
1/6	1725	115	48	5XBFO0F		23.50	5XBFO0E		24.50
	1725	230	48	5XBFO0P		25.50	5XBFO0T		26.50
	1140	115	48	5KH38PG223		37.00	5KH38PG242		38.00
	1140	230	48	5KH38PG241		39.00	5KH38PG243		40.00
1/4	1725	115	48	5XBG00F		25.50	5XBG00G		26.50
	1725	230	48	5XBG01B		27.50	5XBG01G		28.50
1/3	3450	115	48	5KH36FG252		26.00	5KH36FG274		27.00
	1725	230	48	5KH36FG273		28.00	5KH36FG275		29.00
	1725	115	48						
1/2	1725	115	56						
	1725	230	56						



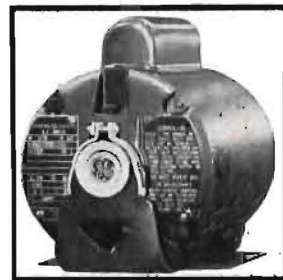
NEW FORM G₂ MOTOR

* Form G₂ motors are identified by the first two letters (XB) in the model number.

Deduct 20% from these list prices to get your net prices. Prices subject to change without notice.

OPEN CAPACITOR-START, TYPE KC, 60-CYCLE

Hp	Rpm	Volts	NEMA Frame	General-purpose					
				Model No.		List	Model No.		
				Solid Base			Resilient Base		
1/6	1725	115	48	5KC33GG101		\$ 32.50	5KC33GG103		\$ 33.50
	1725	115/230	48	5KC33GG106		34.50	5KC33GG168		35.50
1/4	1725	115	48	5KC35KG145		34.50	5KC35KG147		35.50
	1725	115/230	48	5KC35KG156		35.50	5KC35KG198		37.50
	1140	115	56	5KC43MG17		60.00	5KC43MG19		61.00
	1140	115/230	56	5KC43MG362		62.00	5KC43MG58		63.00
1/3	3450	115/230	48	5KC36FG172 ^φ		31.00	5KC36FG173 ^φ		32.00
	1725	115	56	5KC42JG25		43.00	5KC42JG24		44.00
	1725	115/230	56	5KC42JG1		45.00	5KC42JG2		46.00
	1140	115/230	56	5KC48PG6		71.00	5KC48PG2		72.00
1/2	3450	115/230	48	5KC37JG150 ^φ		35.00	5KC37JG151 ^φ		36.00
	1725	115/230	56	5KC43MG1		54.00	5KC43MG3		55.00
	1140	115/230	56	5KC49UG35		90.00	5KC49UG36		91.00
3/4	3450	115/230	56	5KC43HG220 ^φ		46.50	5KC43HG221 ^φ		47.50
	1725	115/230	56	5KC45PG1		67.50	5KC45PG4		68.50
	1140 [‡]	115/230	56	5KC49WG350 ^Δ ‡		122.00	5KC49WG352 ^Δ		123.00
1	3450	115/230	56	5KC47KG119 ^φ		54.50	5KC47KG120 ^φ		55.50
	1725 [‡]	115/230	56	5KC47SG635 ^Δ		81.00	5KC47SG636 ^Δ		82.00
	1140 [‡]	115/230	66	5KC49QG349 ^Δ ‡		151.00	5KC49QG353 ^Δ		152.00
1 1/4	3450	115/230	56	5KC49SG71 ^φ ‡		77.50	5KC49SG320 ^φ ‡		78.50
	1725 [‡]	115/230	66	5KC49WG324 ^Δ ‡		100.00	5KC49WG354 ^Δ		101.00
2	3450 [‡]	115/230	56	5KC49TG422 ^φ ‡		96.50	5KC49TG423 ^φ ‡		97.50
	1725 [‡]	115/230	66	5KC49QG336 ^Δ ‡		122.50	5KC49QG355 ^Δ		123.50
3	3450 [‡]	115/230	66	5KC49ZG329 ^φ ‡		130.00	5KC49ZG356 ^φ ‡		131.00



- φ These motors have moderate starting torque.
- ‡ This motor has a totally enclosed switch-end flange and no ventilation holes in the switch end of the shell.
- * This motor is NEMA 48-frame.
- Δ These motors have ball bearings.
- ‡ These motors have two capacitor cases.
- ‡ These motors have Class B insulation and temperature rise.
- § These motors have Class B insulation and temperature rise and 1.0 service factor.
- ‡ These motors have welded-on base.



Base-mounted Open Motors

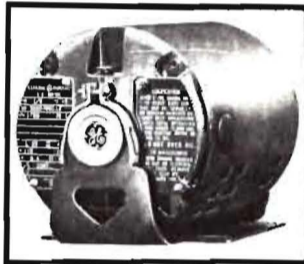
OPEN THREE-PHASE, TYPE K, 60/50-CYCLE

Hp	Rpm	Volts	NEMA Frame	Model No.		List	Model No.	List	Hp	Rpm	Volts	NEMA Frame	Model No.		List	Model No.	List
				All-angle Sleeve-bearing	Ball-bearing								All-angle Sleeve-bearing	Ball-bearing			
1/4	1725/1425	208-220	48	5K33GG101	36.50		5K33GG202	42.50	3/4	3450/2850	208-220/440	56	5K43HG136	46.50	5K43HG148	50.50	
	1725/1425	208-220/440	48	5K33GG102	38.50					1725/1425	208-220/440	56	5K43MG3	62.00	5K43MG52	66.00	
	1725/1425	220, 380	48	5K33GG108	38.50					1725/1425	220, 380	56	5K43MG1159	62.00	5K43MG489	66.00	
	1140/950	550	48	5K33GG204	38.50					1140/950	550	56	5K43MG66	62.00	5K43MG384	66.00	
	1140/950	208-220	56	5K42FG6	57.00		5K42FG85	63.00		1140/950	208-220/440	56			5K49SG425		
1/3	3450/2850	208-220	48	5K36FG114	31.00		5K36FG205	37.00	1	3450/2850	208-220/440	56	5K45KG713	51.50	5K45KG714	55.50	
	3450/2850	208-220/440	48	5K36FG115	33.00					3450/2850	550	56			5K45KG721	55.50	
	1725/1425	208-220	56	5K42FG5	43.00					1725/1425	208-220/440	56			5K45PG464	70.50	
	1725/1425	208-220/440	56	5K42FG7	45.00		5K42FG36	49.00		1140	208-220/440	66			5K49UG426††	88.00	
	1140/950	220/380	56	5K42FG485	45.00												
1/2	3450/2850	208-220	48	5K37JG101	35.00		5K37JG118	41.00	1 1/2	3450/2850	208-220/440	56			5K48PG64	71.00	
	3450/2850	208-220/440	48	5K37JG102	37.00		5K42JG50	55.50		1725	208-220/440	66			5K48PG393††	80.00	
	1725/1425	208-220, 440	56	5K42JG2	51.50					3450/2850	208-220/440	56			5K49SG87	86.50	
	1725/1425	220, 380	56	5K42JG115	51.50					1725	208-220/440	66			5K49UG601††	86.50	
	1140/950	550	56	5K42JG46	51.50		5K42JG60	55.50		3	3450	208-220/440	66			5K49TG428††	108.00
	1140/950	208-220/440	56	5K43MG4	76.50		5K43MG64	80.50									



Base-mounted Enclosed Motors

FEATURES - Continuous duty; 40'50 C rise. Open (dripproof) construction. Attractive blue-gray enamel finish. Large built-in easy-to-connect conduit box, strong steel base rigidly clamped to bearing housing. All-angle sleeve bearings for moderate-thrust loads; precision ball bearings for heavy-thrust loads. Conforms to NEMA standards.



APPLICATIONS - For general applications that require continuous duty. These motors have normal starting torque, smooth pull-up torque for high-inertia loads, and high break-down torque for peak load condition. Suitable for driving pumps, compressors, fans, blowers, and similar devices.

Deduct 20% from these list prices to get your net prices. Prices subject to change without notice.

Totally Enclosed THREE-PHASE, TYPE K, 60/50-CYCLE

Hp	Speed Rpm	Volts	NEMA Frame	Model No.	List	
1/4	1725/1425	208-220	56	5K42DG943	50.50	
		208-220/440	56	5K42DG944	52.50	
		550	56	5K42DG945	52.50	
	1140/950	208-220	56	5K42FG780	67.00	
		208-220/440	56	5K42FG781	69.00	
550		56	5K42FG782	69.00		
850/715	208-220/440	56	5K43MG1058	94.50		
1/3	3450/2850	208-220	56	5K42DG948	45.00	
		208-220/440	56	5K42DG949	47.00	
	1725/1425	208-220	56	5K42FG795	53.00	
		208-220/440	56	5K42FG796	55.00	
		220/380	56	5K42FG797	55.00	
1140/950	208-220/440	56	5K42JG788	74.50		
	550	56	5K42JG789	74.50		
1/2	3450/2850	208-220	56	5K43FG1196	49.00	
		208-220/440	56	5K43FG1197	51.00	
		550	56	5K43FG1198	51.00	
	1725/1425	208-220/440	56	5K42JG813	61.50	
		220/380	56	5K42JG814	61.50	
		550	56	5K42JG815	61.50	
	1140/950	208-220/440	56	5K43PG1062	86.50	
		550	56	5K43PG1063	86.50	
	3/4	3450/2850	208-220/440	56	5K43HG1082	56.50
			550	56	5K43HG1083	56.50
1725/1425		208-220/440	56	5K43MG1074	72.00	
		220/380	56	5K43MG1075	72.00	
		550	56	5K43MG1076	72.00	
1	1140/950	208-220/440	56	5K45SG750†	93.00	
		3450/2850	208-220/440	56	5K43KG1724	61.50
			550	56	5K43KG1725	61.50
	1725/1425	208-220/440	56	5K43PG1628	81.00	
		550	56	5K43PG1633	81.00	
	1140	208-220/440	66	5K43PG1634	81.00	
				5K48UG399††	101.00	

Totally Enclosed CAPACITOR-START, TYPE KC, 60-CYCLE

TYPE KC, BALL BEARINGS, WELDED-ON BASE

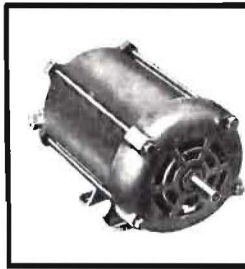
Hp	Speed Rpm	Volts	NEMA Frame	Model No.	List
1/6	1725	115	56	5KC42DG278	46.50
	1725	115/230	56	5KC42DG279	48.50
	850	115/230	56	5KC43PG631	93.50
1/4	1725	115	56	5KC42FG282	48.50
	1725	115/230	56	5KC42FG283	50.50
	1140	115	56	5KC43MG632	70.00
	1140	115/230	56	5KC43MG633	72.00
1/3	3450	115/230	56	5KC42DG290	45.00
	1725	113/230	56	5KC42JG248	55.00
	1140	115/230	56	5KC43PG634	81.00
1/2	3450	115/230	56	5KC43FG722	49.00
	1725	113/230	56	5KC43MG635	64.00
	1140	115/230	56	5KC47UG383	100.00
3/4	3450	115/230	56	5KC43HG636	56.50
	1725	115/230	56	5KC43PG637	77.50
	1140	115/230	56	5KC48WG311†	128.00
1	3450	115/230	56	5KC45NG441	64.50
	1725	115/230	56	5KC47UG694†	94.00
1 1/2	3450	115, 230	56	5KC48SG275†	83.50
	1725	115/230	66	5KC49ZG331†	113.50

For Complete Catalog Ask for GEC-1041E



Base-Mounted Explosion-Proof Motors

SINGLE PHASE and THREE PHASE EXPLOSION-, DUST-IGNITION-PROOF, FAN-COOLED



FEATURES--Continuous duty; 55 C rise. Types KH, split-phase, KC, capacitor-start and K, three-phase. Heavy-duty ball bearings. Formed steel base rigidly welded to stator shell. 24-inch leads brought out through a swivel conduit connector on the end opposite the shaft extension can be connected for either rotation.

APPLICATIONS--For general applications and fan duty where motors are required for operation in Class I, Group D and Class II, Groups E, F, and G atmospheres. These motors have been tested and labeled by Underwriters' Laboratories, Inc., for operation in these atmospheres.

TYPE KH, SPLIT-PHASE, 60 CYCLES

Hp	Speed Rpm	Volts	NEMA Frame	Model No.	List
1/12	1725	115	48	5KH32EG224*	\$ 63.40
	1140	115	48	5KH37NG342*	72.50
	1140	230	48	5KH37NG343*	74.50
1/6	1725	115	48	5KH35KG428*	63.50
	1725	230	48	5KH35KG429*	65.50
	1140	115	48	5KH37PG334	77.00
1/4	1140	230	48	5KH37PG344	79.00
	1725	115	48	5KH35KG430	65.50
	1725	230	48	5KH35KG431	67.50
1/3	3450	115	48	5KH35FG432	66.00
	3450	230	48	5KH35FG433	68.00

TYPE KC, CAPACITOR-START, 60 CYCLES

Hp	Speed Rpm	Volts	NEMA Frame	Model No.	List
1/4	1140	115	56	5KC45MG40	\$106.00
	1140	115/230	56	5KC45MG490	108.00
1/3	1725	115/230	56	5KC45JG38	91.00
	1140	115/230	56	5KC47PG38	117.00
1/2	3450	115/230	48	5KC38JG309 ϕ	77.00
	1725	115/230	56	5KC45MG39	100.00
	1140	115/230	56	5KC49UG38	136.00
3/4	3450	115/230	56	5KC45HG326 ϕ	92.50
	1725	115/230	56	5KC47PG37	113.50
1	3450	115/230	56	5KC47NG455 ϕ	100.50
	1725	115/230	56	5KC49UG461	127.00

TYPE K, THREE-PHASE, 60/50 CYCLES

Hp	Speed Rpm	Volts	NEMA Frame	Model No.	List
1/4	1725/1425	208-220	48	5K39GG149*	\$ 76.50
		208-220/440	48	5K39GG150*	78.50
1/3	1725/1425	208-220	56	5K49FG53	87.00
		208-220/440	56	5K49FG54	89.00
		550	56	5K49FG55	89.00
1/2	3450/2850	208-220/440	56	5K49JG57	108.50
		208-220	48	5K39JG151	75.00
		208-220/440	48	5K39JG152	77.00
1/2	1725/1425	208-220/440	48	5K39JG153	77.00
		550	48	5K39JG153	77.00
		208-220/440	56	5K49JG58	95.50
1/2	1140/950	208-220/440	56	5K49JG59	95.50
		550	56	5K42PG21	120.50
		550	56	5K42PG22	120.50
3/4	3450/2850	208-220/440	56	5K49HG61	90.50
		550	56	5K49HG62	90.50
		208-220/440	56	5K49MG64	106.00
3/4	1725/1425	208-220/440	56	5K49MG65	106.00
		550	56	5K49MG65	106.00
		208-220/440	56	5K49MG65	106.00
1	3450/2850	208-220/440	56	5K49KG392	95.50
		550	56	5K49KG393	95.50
		208-220/440	56	5K42PG1905	115.00
1	1725/1425	208-220/440	56	5K42PG1972	115.00

ϕ These motors have moderate starting torque.
* Explosion-proof, nonventilated.

GENERAL ELECTRIC

Deduct 20% from these list prices to get your net prices. Prices subject to change without notice.

Dimensions

(For Estimating Only)

DIMENSIONS CONTINUED ON FOLLOWING PAGE

BASE-MOUNTED OPEN MOTORS—NEW FORM G2, SPLIT-PHASE

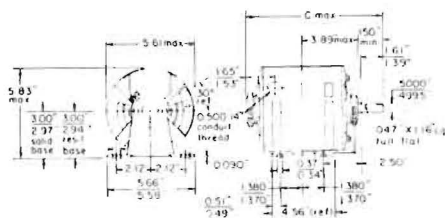


Fig. 1. G-E Size 4; NEMA 48-frame motors

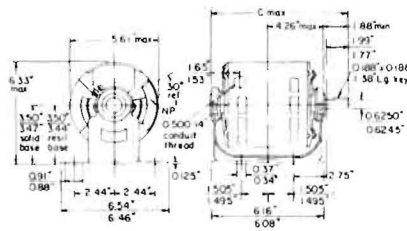


Fig. 2. G-E size 4; NEMA 56-frame motors

Dimensions in Inches		
G-E Motor Size †	Fig. No.	"C" Dim.
F4	1	8.13
G4	1	8.33
H4	1	8.63
K4	2	9.71
L4	2	10.01

† Letter is fourth character in Form G2 model number.



Dimensions

(CONT.)

BASE-MOUNTED OPEN MOTORS—CAPACITOR-START, SPLIT-PHASE, AND THREE-PHASE

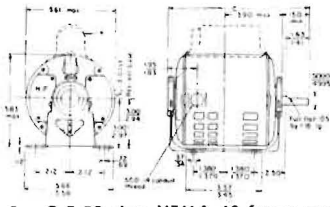


Fig. 1. G-E 30-size; NEMA 48-frame motors

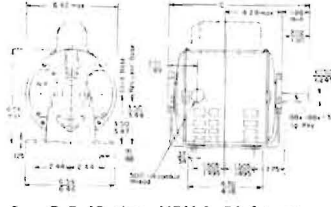


Fig. 2. G-E 40-size; NEMA 56-frame motors

Dimensions in Inches		
G-E Motor Size	Fig. No.	"C" Dim.
32	1	8.93
33	1	9.18
35	1	9.56
36	1	9.99
37	1	10.39
38	1	10.99
42	2	9.98
43	2	10.88
45	2	11.36
47	2	11.88
48 P	2	12.69
48 S	4	13.06
49 Q	3	15.28
49 Q	4	15.34
49 S, T, U	2	13.25
49 S, T	4	13.62
49 U	4	14.76

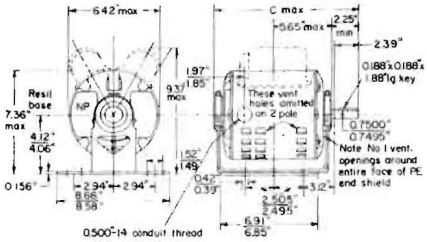


Fig. 3. G-E 40-size; NEMA 66-frame motors (cradle base)

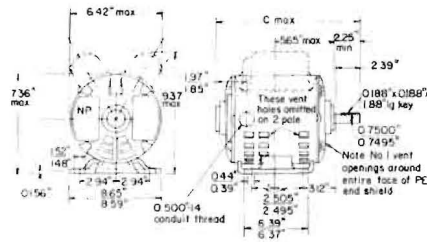


Fig. 4. G-E 40-size; NEMA 66-frame motors (welded base)

Dotted line indicates capacitor on capacitor-start models in normal position—motors may be rotated in base.

BASE-MOUNTED ENCLOSED MOTORS

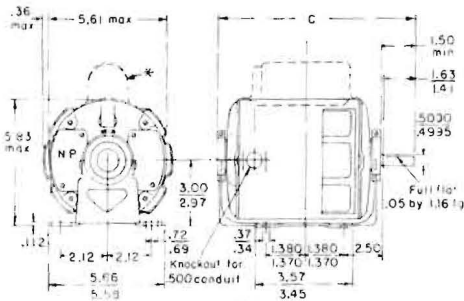


Fig. 1. G-E 30-size; NEMA 48-frame motors

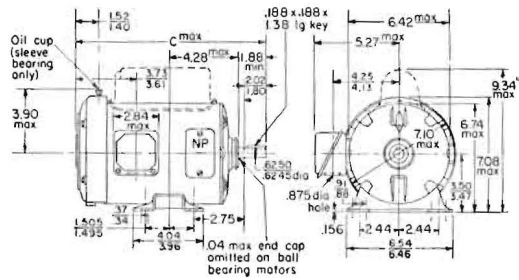


Fig. 2. G-E 40-size; NEMA 56-frame motors

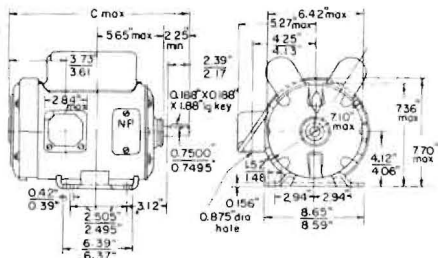


Fig. 3. G-E 40-size; NEMA 66-frame motors

Dimensions in Inches		
G-E Motor Size	Fig. No.	"C" Dim.
36	1	9.99
37	1	10.39
38	1	10.99
42	2	10.70
43	2	11.60
45	2	12.08
47	2	12.60
48 S, T, W	2	13.41
48 U	3	13.75
49	3	14.82

BASE-MOUNTED EXPLOSION-PROOF MOTORS

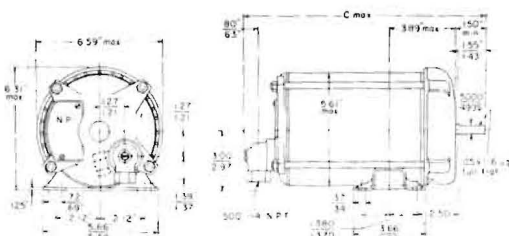


Fig. 1. G-E 30-size; NEMA 48-frame motors

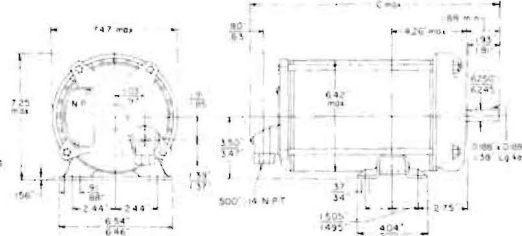


Fig. 2. G-E 40-size; NEMA 56-frame motors

Dimensions in Inches	
G-E Motor Size	"C" Dim.
32	10.16
35	11.78
36	12.21
37	12.61
39 (K)	10.62
39 (K&KH)	13.59
42	12.21
45	13.59
47	14.11
48	14.92
49 (KC)	15.48
49 (K)	11.24



Deduct 20% from these list prices to get your net prices. Prices subject to change without notice.

Nominal Output Speed, Rpm *	Gear Ratio	Single-phase † Type KC		Three-phase ‡ Type K		Output Torque (In.-Lb.)	Output Hp Δ	Max Overhung Load (Lb.)	Min Splt Dia (In.) ○
		Frame No.		Frame No.					
		Open	TEFC *	Open	TEFC *				

1/3 HP

197	8.75:1	042711	042711	042711	042711	90	0.286	390	1 1/2
148	11.67:1	042711	042711	042711	042711	115	.269	387	1 1/2
99	17.5:1	042711	042711	042711	042711	161	.249	385	1 1/2
74	23.5:1	042711	042711	042711	042711	204	.236	383	1 1/2
58	30:1	042712	042712	042712	042712	245	.213	568	1 3/4
48	36:1	042712	042712	042712	042712	280	.203	562	1 3/4
41	42:1	042712	042712	042712	042712	306	.193	561	1 3/4
36	48:1	042712	042712	042712	042712	327	.186	555	1 3/4
32.9	52.5:1	042812	042812	042812	042812	515	.256	548	1 3/4
29	60:1	042713	042713	042713	042713	369	.169	1010	2 1/4
24.6	70:1	042812	042812	042812	042812	647	.240	491	2 3/4
24	72:1	042713	042713	042713	042713	404	.160	1000	2 1/4
16.4	105:1	042822	042822	042822	042822	910	.223	1180	2 1/2
12.2	141:1	042822	042822	042822	042822	1162	.210	1305	2 1/2
9.6	180:1	042822	042822	042822	042822	1395	.190	1410	2 1/2
8	216:1	042822	042822	042822	042822	1586	.180	1352	2 1/2
6.8	252:1	042822	042822	042822	042822	1730	.171	1300	2 1/4
6	288:1	042822	042822	042822	042822	1835	.166	1260	3

1/2 HP

197	8.75:1	043711	043711	042711	042711	134	0.430	387	1 1/2
148	11.67:1	043711	043711	042711	042711	172	.405	385	1 1/2
99	17.5:1	043712	043712	042712	042712	242	.375	537	1 3/4
74	23.5:1	043712	043712	042712	042712	306	.355	559	1 3/4
58	30:1	043712	043712	042712	042712	370	.320	546	1 3/4
48	36:1	043712	043712	042712	042712	420	.305	533	1 3/4
41	42:1	043713	043713	042713	042713	460	.290	1003	2 1/4
36	48:1	043713	043713	042713	042713	490	.280	1000	2 1/4
32.9	52.5:1	043812	043812	042812	042812	772	.385	416	3 3/4
29	60:1	043713	043713	042713	042713	554	.255	951	2 1/4
24.6	70:1	043822	043822	042822	042822	972	.360	1030	2 1/2
24	72:1	043713	043713	042713	042713	606	.240	985	2 1/4
16.4	105:1	043822	043822	042822	042822	1364	.335	1180	2 1/2
12.2	141:1	043822	043822	042822	042822	1744	.315	1298	2 1/2
9.6	180:1	043822	043822	042822	042822	2096	.285	1133	3 1/4

3/4 HP

197	8.75:1	045712	043712	043712	043712	201	0.645	421	1 3/4
148	11.67:1	045712	043712	043712	043712	258	.607	460	1 3/4
99	17.5:1	045712	043712	043712	043712	363	.562	526	1 3/4
74	23.5:1	045712	043712	043712	043712	459	.532	524	1 3/4
58	30:1	045713	043713	043713	043713	555	.480	594	2 1/4
48	36:1	045713	043713	043713	043713	630	.457	980	2 1/4
41	42:1	045713	043713	043713	043713	690	.435	978	2 1/4
32.9	52.5:1	045822	043822	043822	043822	1160	.577	938	2 1/2
24.6	70:1	045822	043822	043822	043822	1458	.540	1030	2 1/2
16.4	105:1	045822	043822	043822	043822	2046	.502	1060	3 3/4

Nominal Output Speed, Rpm *	Single-phase, Type KC		Three-phase, Type K	
	List Price, GO-23A Class B			
	Open	TEFC †	Open	TEFC †

1/3 HP

197	\$162.05	\$168.05	\$166.85	\$172.85
148	162.05	168.05	166.85	172.85
99	162.05	168.05	166.85	172.85
74	162.05	168.05	166.85	172.85
58	162.05	168.05	166.85	172.85
48	162.05	168.05	166.85	172.85
41	162.05	168.05	166.85	172.85
36	162.05	168.05	166.85	172.85
32.9	204.20	210.20	209.00	215.00
29	181.50	187.50	186.30	192.30
24.6	204.20	210.20	209.00	215.00
24	204.20	210.20	209.00	215.00
16.4	204.20	210.20	209.00	215.00
12.2	204.20	210.20	209.00	215.00
9.6	204.20	210.20	209.00	215.00
8	276.00	282.00	280.80	286.80
6.8	276.00	282.00	280.80	286.80
6	276.00	282.00	280.80	286.80

1/2 HP

197	\$191.80	\$197.80	\$191.80	\$197.80
148	191.80	197.80	191.80	197.80
99	191.80	197.80	191.80	197.80
74	191.80	197.80	191.80	197.80
58	191.80	197.80	191.80	197.80
48	191.80	197.80	191.80	197.80
41	191.80	197.80	191.80	197.80
36	191.80	197.80	191.80	197.80
32.9	242.90	248.90	242.90	248.90
29	191.80	197.80	191.80	197.80
24.6	242.90	248.90	242.90	248.90
24	242.90	248.90	242.90	248.90
16.4	242.90	248.90	242.90	248.90
12.2	242.90	248.90	242.90	248.90
9.6	242.90	248.90	242.90	248.90

3/4 HP

197	\$217.00	\$223.00	\$217.00	\$223.00
148	217.00	223.00	217.00	223.00
99	217.00	223.00	217.00	223.00
74	217.00	223.00	217.00	223.00
58	217.00	223.00	217.00	223.00
48	217.00	223.00	217.00	223.00
41	217.00	223.00	217.00	223.00
32.9	276.65	282.65	276.65	282.65
24.6	276.65	282.65	276.65	282.65
16.4	276.65	282.65	276.65	282.65

† These listings are for *standard* totally enclosed gear-motors. Where totally enclosed *explosion-proof* gear-motors are required, the following applies:

- A. 1/8 and 1/2 hp not offered.
- B. 1/4 through 1/2 hp available. Add \$46.00 to open price.
- C. 1/4 hp gear-motors will be furnished with 40-frame motors. Refer to Company for motor frames.

* 115 volts, 60 cycles.
 † 208-220/440 or 550 volts, 60 cycles.
 ‡ 115/230 volts, 60 cycles.

Prices subject to change without notice.

6 EXACTLY REPEATABLE SPEEDS

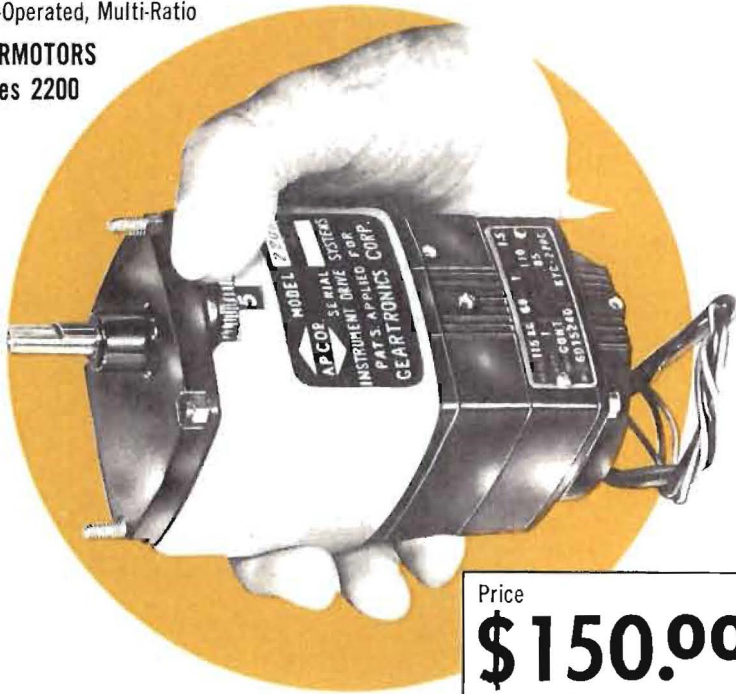
By Just the Turn of a Dial

- Speeds from 1/60 rpm to 300 rpm
- Torques up to 50" oz.
- Change speeds while motor is running

APCOR

Dial-Operated, Multi-Ratio

GEARMOTORS
Series 2200

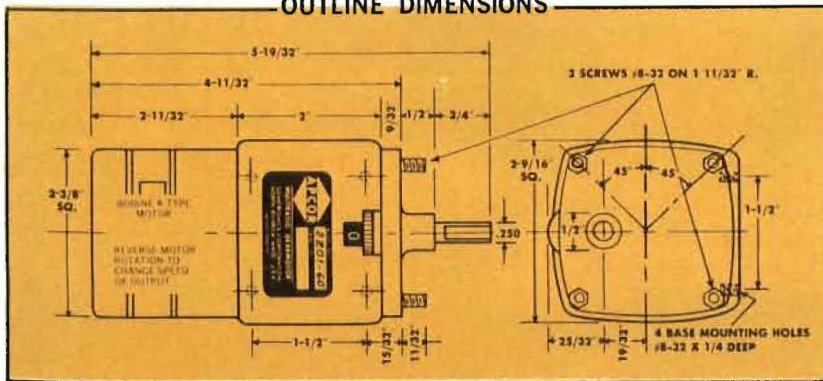


Price
\$150.00

- Simple finger operation. Dial turns easily—in either direction.
- Equipped with Bodine 115 volt A.C. synchronous motors, providing six exactly repeatable speeds from A.C. lines. Standard synchronous motors are reversible.
- Induction motors can be supplied on request. Multi-ratio section is limited to 50" oz. max. output torque.
- All bearings are wick-oiled or ball bearings.
- Selector dial is a spur gear which can be meshed with a remote control take-off. Bottom of multi-ratio section (2-9/16" sq. x 2" long) is flat for direct base mounting
- Extra detents provide a neutral position between each of the 6 ratios.

Front of Panel Shift Mounting Kit . . . \$10.00
For dimensions of front of Panel Shift
Mounting Arrangement ask for Apcor Form #A65-113 data sheet.

OUTLINE DIMENSIONS



RATIOS and OUTPUT SPEEDS

Model 2201-A	Motor Speed (RPM)	Output Torque* (in. oz.) at 1:1 Ratio	Output Speeds (RPM) at Reduction Ratio:					
			1:1	2:1	5:1	10:1	20:1	50:1
-1	1	50	1	1/2	1/5	1/10	1/20	1/50
-1 1/2	1 1/2	50	1 1/2	3/4	3/10	3/20	3/40	3/100
-2	2	50	2	1	2/5	1/5	1/10	1/25
-3	3	50	3	1 1/2	3/5	3/10	3/20	3/50
-6	6	50	6	3	1 1/5	3/5	3/10	3/25
-10	10	32	10	5	2	1	1/2	1/5
-15	15	21	15	7 1/2	3	1 1/2	3/4	3/10
-25	25	12	25	12 1/2	5	2 1/2	1 1/4	1/2
-60	60	6.6	60	30	12	6	3	1 1/5
-100	100	4	100	50	20	10	5	2
-150	150	2.6	150	75	30	15	7 1/2	3
-200	200	2	200	100	40	20	10	4
-300	300	1.3	300	150	60	30	15	6

Model 2202-A	Motor Speed (RPM)	Output Torque* (in. oz.) at 1:1 Ratio	Output Speeds (RPM) at Reduction Ratio:					
			1:1	2:1	4:1	8:1	16:1	32:1
-1	1	50	1	1/2	1/4	1/8	1/16	1/32
-1 1/2	1 1/2	50	1 1/2	3/4	3/8	3/16	3/32	3/64
-2	2	50	2	1	1/2	1/4	1/8	1/16
-3	3	50	3	1 1/2	3/4	3/8	3/16	3/32
-6	6	50	6	3	1 1/2	3/4	3/8	3/16
-10	10	32	10	5	2 1/2	1 1/4	5/8	5/16
-15	15	21	15	7 1/2	3 3/4	1 7/8	15/16	15/32
-25	25	12	25	12 1/2	6 1/4	3 1/8	1 9/16	25/32
-60	60	6.6	60	30	15	7 1/2	3 3/4	1 7/8
-100	100	4	100	50	25	12 1/2	6 1/4	3 1/8
-150	150	2.6	150	75	37 1/2	18 3/4	9 3/8	4 11/16
-200	200	2	200	100	50	25	12 1/2	6 1/4
-300	300	1.3	300	150	75	37 1/2	18 3/4	9 3/8

Model 2203-A	Motor Speed (RPM)	Output Torque* (in. oz.) at 1:1 Ratio	Output Speeds (RPM) at Reduction Ratio:					
			1:1	2:1	5:1	15:1	30:1	60:1
-1	1	50	1	1/2	1/5	1/15	1/30	1/60
-1 1/2	1 1/2	50	1 1/2	3/4	3/10	1/10	1/20	1/40
-2	2	50	2	1	2/5	2/15	1/15	1/30
-3	3	50	3	1 1/2	3/5	1/5	1/10	1/20
-6	6	50	6	3	1 1/5	2/5	1/5	1/10
-10	10	32	10	5	2	2/3	1/3	1/6
-15	15	21	15	7 1/2	3	1	1/2	1/4
-25	25	12	25	12 1/2	5	1 2/3	5/6	5/12
-60	60	6.6	60	30	12	4	2	1
-100	100	4	100	50	20	6 2/3	3 1/3	1 2/3
-150	150	2.6	150	75	30	10	5	2 1/2
-200	200	2	200	100	40	13 1/3	6 2/3	3 1/3
-300	300	1.3	300	150	60	20	10	5

Model 2204-A	Motor Speed (RPM)	Output Torque* (in. oz.) at 1:1 Ratio	Output Speeds (RPM) at Reduction Ratio:					
			1:1	2:1	5:1	10:1	15:1	30:1
-1	1	50	1	1/2	1/5	1/10	1/15	1/30
-1 1/2	1 1/2	50	1 1/2	3/4	3/10	3/20	1/10	1/20
-2	2	50	2	1	2/5	1/5	2/15	1/15
-3	3	50	3	1 1/2	3/5	3/10	1/5	1/10
-6	6	50	6	3	1 1/5	3/5	2/5	1/5
-10	10	32	10	5	2	1	2/3	1/3
-15	15	21	15	7 1/2	3	1 1/2	1	1/2
-25	25	12	25	12 1/2	5	2 1/2	1 1/3	5/6
-60	60	6.6	60	30	12	6	4	2
-100	100	4	100	50	20	10	6 2/3	3 1/3
-150	150	2.6	150	75	30	15	10	5
-200	200	2	200	100	40	20	13 1/3	6 2/3
-300	300	1.3	300	150	60	30	20	10

10 SELECTABLE AND EXACTLY REPEATABLE SPEEDS

DIAL THE RATIO YOU NEED From 1:1 up to 1000:1

With Torques up to 100" oz. continuous duty



APCOR Ten-Ratio SPEED REDUCER Series 2400

4 1/2" sq. x 3 1/2" deep

when used with synchronous motor

Used with any motor up to 1200 rpm. Divide by ratios of the APCOR Reducer selected to determine the 10 speeds available on the output shaft.

- 7 models, each with different combination of ratios provide exactly repeatable speed ranges previously almost impossible.
- Easily adapted to mechanical or electrical remote control. Can be front, back or base mounted.
- Recommended maximums: 1000 rpm input; 100" oz. output torque. Under intermittent or low-speed torque may be increased.

Price \$125.00 ea. (All Models)

APCOR GEARMOTORS

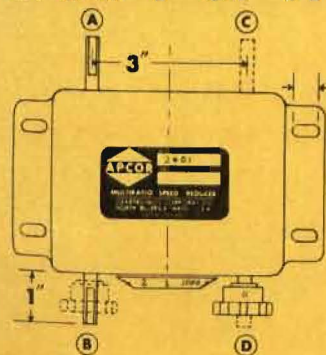
Model No.	Ratios									
2401	1,	2,	5,	10,	20,	50,	100,	200,	500,	& 1000 to 1
2402	1,	2.5,	5,	10,	25,	50,	100,	250,	500,	& 1000 to 1
2403	1,	2,	4,	8,	16,	32,	64,	128,	256,	& 512 to 1
2404	1,	2,	3,	5,	10,	20,	30,	50,	100,	& 200 to 1
2405	1,	2,	3,	4,	5,	10,	20,	30,	40,	& 50 to 1
2406	1,	2,	3,	4,	5,	6,	7,	8,	9,	& 10 to 1
2407	1,	0.9,	0.8,	0.7,	0.6,	0.5,	0.4,	0.3,	0.2,	& 0.1 to 1

PRICE

\$125.00

- **Load Conditions:** The recommended maximum torque of the multiratio gear train is 100 inch ounces under continuous load. However, under intermittent or low speed load conditions the allowable torque may be safely increased. On these and other high inertia and/or high impact load installations, we suggest you contact our engineering department.
- **Anti-Backlash:** A special electrically operated reversing unit, which will eliminate all backlash, is available for attachment either directly to the APCOR Multiratio Speed Reducer or to the driven shaft somewhere between the Speed Reducer and its driven load.
- **Special Ratios:** Other ratios to meet your particular requirements can be provided on special order.
- **Motor Attachment:** Standard models above are not provided with motor attached. However, provision has been made for motor mounting, which can be provided on special order.
- **Without Housing:** Standard or special units are also available without the housing, in production quantity on special order, for installation in your existing system.

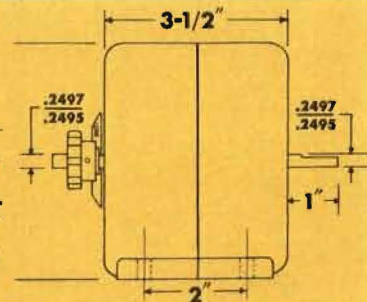
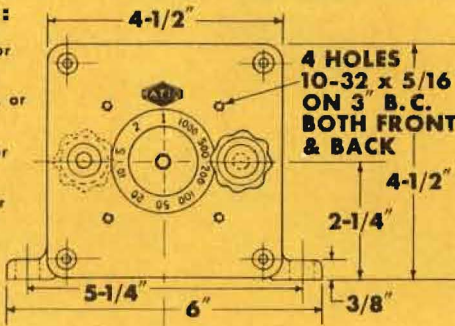
SHAFT OPTIONS



OPTIONS:

- (A) Standard Input, or Optional Output
- (B) Standard Output, or Optional Shift
- (C) Optional Input, or Optional Output
- (D) Standard Shift, or Optional Output

DIMENSIONS



Options must be specified by letter location when ordering, because shafts cannot be relocated in the field. Unless otherwise specified, the standard in-line shaft model will be shipped.



25,000 to 1 RATIO RANGE NOW AVAILABLE

With This Reducer and Motor Control Combination

This unique range is possible because the Controller electronically gives infinitely variable speed ranges up to 25 to 1 and the Apcor Reducer provides 1000:1 range mechanically.

Some of the interesting combinations which are possible are shown by the chart below. You may use any of the motors up to 1/8 h. p. (shown on page 3) with any Apcor Reducer. For continuous duty we do not recom-

ment input speed into the Apcor of more than 1200 rpm.

The maximum continuous torque of the Apcor Reducer is 100" oz. Motors of as much as 200" oz. torque may be used, but the output shaft torque will still deliver 100 oz.

If you wish 25,000 to 1 speed ratio with 1% regulation accuracy, we recommend replacement of the S-12 Control by the S50T-10 Tach systems.

HERE'S HOW YOU CAN USE THE APCOR 2400 10-RATIO SPEED REDUCER

1 Use with any synchronous or constant speed motor or gear - motor to obtain 10 discrete, exactly reproducible output speeds.

2 Use any combination of motor and Heller control to provide infinitely variable speed control within each of the 10 Apcor ratios or any speed within a 30,000 to 1 speed range.

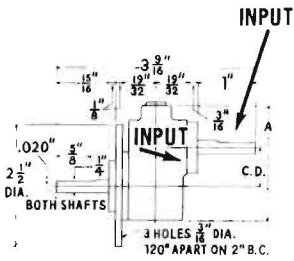
APCOR REDUCER WITH BODINE MOTOR AND VARIABLE SPEED CONTROL

H.P.	Speed Range (in rpm) using S-12 Control Without APCOR REDUCER	Torque	Speed Range (in rpm) using S-12 and APCOR Any speed between:	To secure the range shown in Column D, order 1 ea. of items in Cols. E, F & G.			
				Control	Motor	APCOR	Total
A	B	C	D	E	F	G	H
1/20	150-1500	42" oz.	.15 to 1500	S-12A \$52.00	B2368C \$57.00	2401-A \$125.00	\$234.00
1/8	150-2400	70" oz.	.15 to 2400	S-12A \$52.00	B2420C \$55.00	2402-A \$125.00	\$232.00
1/12	150-1500	70" oz.	.15 to 1500	S-12A \$52.00	B2370C \$63.00	2401-A \$125.00	\$240.00
1/50	11.7-270	4.8" lbs.	.05 to 270	S-12A \$52.00	B2150C-10H \$57.00	2404-A \$125.00	\$234.00
1/20	30-470	5.5" lbs.	.6 to 470	S-12A \$52.00	B2408XC-05 \$106.30	2405-A \$125.00	\$283.30
1/70	28-432	2.2" lbs.	.05 to 432	S-12A \$52.00	B2150EC-06 \$53.00	2403-A \$125.00	\$230.00
1/70	.4 to 6	5.7" lbs.	.04 to 6	S-12A \$52.00	B2150EC-432 \$53.00	2406-A \$125.00	\$230.00
1/15	60-900	4.3" lbs.	.03 to 900	S-12A \$52.00	B2410XC-2-1/2 H \$116.48	2402-A \$125.00	\$293.48
1/20	150-2400	28" oz.	7.5 to 2400	S-12A \$52.00	B2408C \$48.00	2404-A \$125.00	\$225.00
1/8	60-900	8" lbs.	.06 to 900	S-12A \$52.00	B2420XC-2-1/2 L \$127.95	2401-A \$125.00	\$304.95
1/50	8.6 to 134	7.3" lbs.	.043 to 134	S-12A \$52.00	B2150C-20 H \$57.00	2404-A \$125.00	\$234.00
1/70	9.6 to 144	5.4" lbs.	.96 to 144	S-12A \$52.00	B2150EC-18 \$53.00	2406-A \$125.00	\$230.00



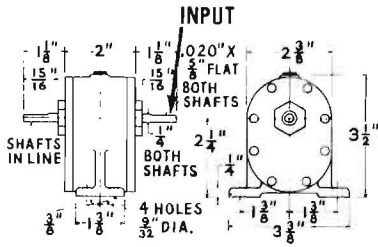
FIG. 1
SINGLE RATIO
SPEED REDUCER,
MODELS 4242
AND 4245

MODELS	DIM. A	C.D.
4242	2 5/8"	105"
4245	3 1/4"	120"



Companion units to the
APCOR Series 2200
Multiratio Gearmotors
and Series 2400
Multiratio
Speed
Reducers.

FIG. 2
SINGLE RATIO
SPEED REDUCER,
MODEL 4296



STRAIGHT SPEED REDUCERS

MODEL NO.	REDUCTION RATIO	PART NO.	PRICE
4242	1-1/2-1	4242015	\$17.80
(Fig. 1)	2-1	4242002	17.80
4245	3-1	4245003	\$22.50
(Fig. 1)	4-1	4245004	22.50
4296	5-1	4296005	\$45.90
(Fig. 2)	10-1	4296010	45.90

NOTE: Two 4296 models can be coupled to
gether on special order, to provide additional
reduction ratios of 25:1, 50:1 and 100:1.

RIGHT ANGLE DRIVES

MODEL NO.	REDUCTION RATIO	PART NO.	PRICE
4265	1-1	4265001	\$23.50
(Fig. 3)	1-1/2-1	4265015	23.50
	2-1	4265002	23.50

Torque rating on all models is 100 oz. in. except
models 4265 and 4296 which are rated at 200 oz. in.

Geartronics — Introduces NEW Straight and Right Angle Single Ratio SPEED REDUCERS

MODELS — REDUCTION RATIOS — PART NUMBERS

**RIGHT ANGLE SPEED REDUCERS
(SINGLE TAKE-OFF)**

Model No.	Reduction Ratio	Part No.	Price
4200 (Fig. 4)	1-1	420001	\$16.80
	1-1/2-1	4200015	16.80
	2-1	4200002	16.80
	3-1	4200003	16.80
	4-1	4200004	16.80
	5-1	4200005	16.80
10-1	4200010	16.80	
4210 (Fig. 4)	20-1	4210020	\$19.70
	30-1	4210030	19.70
	40-1	4210040	19.70
4220 (Fig. 4)	50-1	4220050	\$23.50
	60-1	4220060	23.50
	80-1	4220080	23.50
	100-1	4220100	23.50

**RIGHT ANGLE SPEED REDUCERS
(DUAL TAKE-OFF)**

Model No.	Reduction Ratio	Part No.	Price
4205 (Fig. 5)	1-1	4205001	\$18.40
	1-1/2-1	4205015	18.40
	2-1	4205002	18.40
	3-1	4205003	18.40
	4-1	4205004	18.40
	5-1	4205005	18.40
10-1	4205010	18.40	
4215 (Fig. 5)	20-1	4215020	\$21.00
	30-1	4215030	21.00
	40-1	4215040	21.00
4225 (Fig. 5)	50-1	4225050	\$24.70
	60-1	4225060	24.70
	80-1	4225080	24.70
	100-1	4225100	24.70

APCOR

FIG. 3
RIGHT ANGLE DRIVE
MODEL 4265

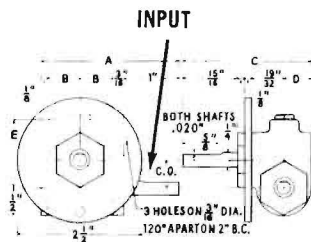
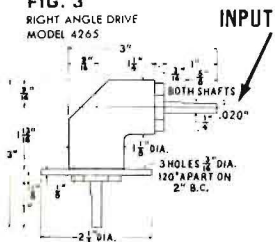


FIG. 4
RIGHT ANGLE SPEED REDUCER,
SINGLE TAKE-OFF
MODELS 4200, 4210 AND 4220

MODELS	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	C.D.
4200	2 5/8"	1 1/8"	7 5/8"	5 1/8"	1 1/8"	500"
4210	2 1/4"	1 1/8"	3 1/8"	2 5/8"	1 1/8"	700"
4220	2 5/8"	1 1/8"	3 1/8"	2 5/8"	2 1/8"	1070"

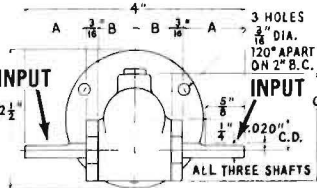


FIG. 5
RIGHT ANGLE SPEED REDUCER,
DUAL TAKE-OFF
MODELS 4205, 4215 and 4225
NOTE: See Fig. 4 for
dimensions not shown

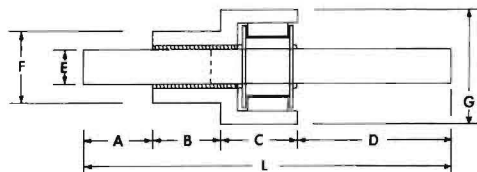
MODELS	DIM. A	DIM. B	DIM. C	C.D.
4205	1 3/4"	1 1/8"	1 1/8"	500"
4215	1 1/4"	1 1/8"	2 1/8"	700"
4225	1"	1 1/8"	2 1/8"	1070"

APCOR One-Direction Clutch Assemblies are
available from stock in the following four sleeve
bearing and two ball bearing models. Each model

is available with either a hardened and ground
housing for heavy duty, or unhardened steel
housing for general use.

MODEL SA:
HOUSING UNHARDENED STEEL
FOR GENERAL USE

MODEL SAH:
HOUSING HARDENED AND
GROUND FOR
HEAVY DUTY USE

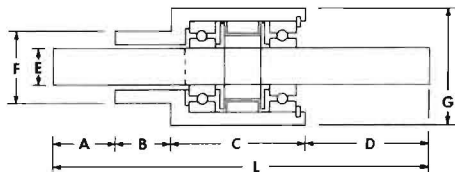


APCOR CLUTCH — COMPLETE ASSEMBLY SLEEVE BEARING TYPES SA & SAH

MODEL	A	B	C	D	E	F	G	L	TORQUE IN. LBS.	PRICE
154-SA	1/2	1/2	1/4	1 1/4	2497 2495	501 500	1 1/8	2 1/16	5	\$ 7.50
155-SA	1/2	1/2	1/4	1 1/4	3122 3120	626 625	1 1/8	2 1/8	8	8.90
156-SA	1/2	1/2	3/32	1 1/2	3747 3745	6885 6875	1 1/8	3 1/16	13	11.20
158-SA	1/2	1/2	1/16	1 1/2	4997 4995	876 875	1 1/8	4 1/8	31	16.30

MODEL SB:
HOUSING UNHARDENED STEEL
FOR GENERAL USE

MODEL SBH:
HOUSING HARDENED AND
GROUND FOR
HEAVY DUTY USE



APCOR CLUTCH — COMPLETE ASSEMBLY BALL BEARING TYPES SB & SBH

MODEL	A	B	C	D	E	F	G	L	TORQUE IN. LBS.	PRICE
154-SB	1/4	1/4	1/16	1 1/4	2497 2495	501 500	1 1/8	2 1/16	5	12.70
156-SB	1/32	1/4	1 1/32	1 1/4	3747 3745	6885 6875	1 1/8	3 1/16	13	17.00

Not available for 155S and 158S clutches

Note: When ordering any of the above assemblies with hardened and ground housings, add "H" to the model numbers shown in the tables above.

COMPLETE ONE-DIRECTION CLUTCH ASSEMBLIES

RIGHT OR LEFT HAND

All models are symmetrical. To change from a
right hand drive to a left hand drive, simply re-
move the shaft-and-clutch assembly and re-insert
opposite end in housing. Thus it is not necessary
to stock both "right hand" and "left hand" models.

CLUTCH COUPLINGS

These units may also be converted into clutch
couplings by cutting the shaft off at the broken
line (see drawings on next page) and securing the
housing to your drive shaft.

CUSTOM ASSEMBLIES

Special shaft lengths or components with shaft
projections can be made to order, or Geartronics
can design and/or manufacture special housings
integral with an outer configuration in the form of a
gear, cam, actuator arm or other component. We
invite you to contact Geartronics for design
suggestions and prices.

The new APCOR One-Direction Clutch has unique
design principles which make it the most accurate,
durable and trouble-free clutch of this type now
available from stock. The APCOR One-Direction
Clutch is precision built to close tolerances,
insuring maximum load pickup accuracy and long
life.

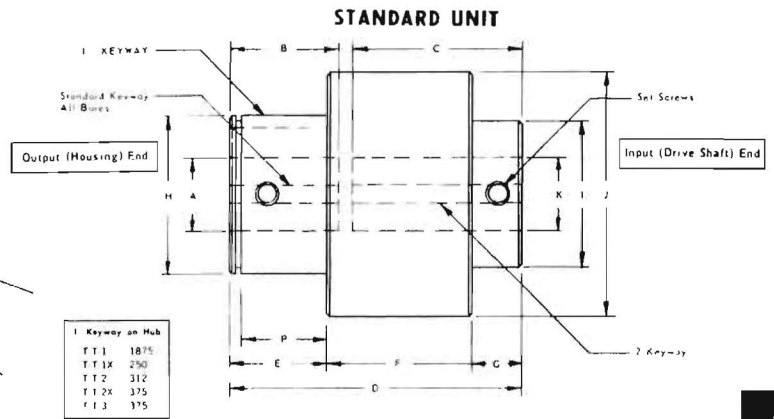
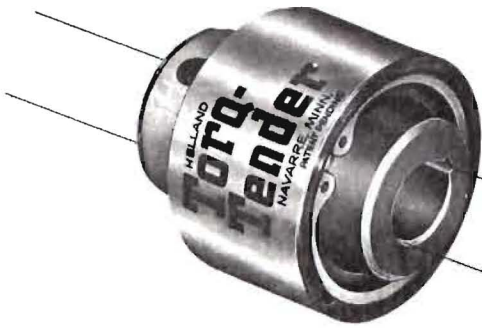
The APCOR One-Direction Clutch, when assembled
between a shaft or shaft projection and a housing of
specific inside diameter and optional external
configuration, allows either shaft or housing to rotate
free of the other in one direction and provides
instant integration of the components in the
opposite direction.

The APCOR One-Direction Clutch is an ideal
component to accomplish:

- Intermittent motions where accuracy and repeatability of pickup is necessary.
- Motions requiring infinite indexing.
- Selectivity between dual or multiple drives.
- Safe overrunning of a load where the cessation of drive will be instant or braked.
- Free rotation of the driver in the counterdrive direction.



ACCURATE TORQUE CONTROL AUTOMATICALLY RE-ENGAGES AT SAME INDEX POINT AND SAME TORQUE VALUE! A POSITIVE DRIVE - NOT A FRICTION UNIT



A VERSATILE OVERLOAD COUPLING

- 1 Accurate trip release
- 2 Torq-Tenders will solve most overload problems
- 3 No adjustments required as torque setting remains constant
- 4 Will last for years
- 5 No lubrication required
- 6 Small diameter - strong torque
- 7 Easy to install -
- 8 Easy to mount gear, pulley or sprocket
- 9 Functions in temperatures up to 350°
- 10 Serves as a flexible coupling - 1/2° angular misalignment and .005° to .030° parallel misalignment, depending upon the size of the unit
- 11 Will function in a vertical or horizontal position
- 12 Can be used as an indirect coupling as well as a direct coupling
- 13 Torq-Tender will function in both clockwise and counter clockwise direction
- 14 Can be water and dust proofed for small additional charge
- 15 Standard bore sizes of Torq-Tenders will fit most shaft diameters
- 16 The bore size on the drive shaft (input) end can be increased by means of an adaptor.
- 17 An optional actuating pin assembly which strikes a switch and activates a warning signal or shuts off the motor can be provided at small additional cost

**Complete
12 page Catalog
on this Helland
Product available
on request**

HELLAND ZERO-MAX

Size	Standard Bores						Torque Ranges
	.125	.187	.250	.312	.437	.500	
T-T-1	.125	.187	.250	.312			1 to 20 inch lbs.
T-T-1X	.187	.250	.312	.375	.437	.500	2 to 70 inch lbs.
T-T-2	.250	.312	.375	.437	.500	.625	4 to 140 inch lbs.
T-T-2X	.500		.625	.750			18 to 350 inch lbs.
T-T-3	.750		.875	1.000	1.125		18 to 500 inch lbs.
Tandem	.750		.875	1.000	1.125		36 to 1000 inch lbs.

2. STANDARD KEYWAYS

Bore Size	Width
1/2 to 3/8"	1/8"
5/8 to 7/8"	3/8"
1 1/8 to 1 1/4"	1/4"
1 3/8 to 1 3/4"	3/8"
1 7/8 to 1 3/4"	3/8"

Bores 1/2" and larger will have standard keyways Bore under 1/2" will have no keyways unless specified.

STANDARD DIMENSIONS

Size	B Housing Shaft Engagement	C Drive Shaft Engagement	D Over-all Length	E Flange Length	F Body Length	G Hub Proj.	H Flange Dia.	I Hub Dia.	J Body Dia.	P	Weight	Prices
T-T-1	.562	.875	1.465	.500	.750	.210	.625	.625	1.000	.437	2.5 oz.	\$34.00
T-T-1X	.625	1.125	1.790	.600	.985	.205	1.000	.875	1.562	.500	8 oz.	34.00
T-T-2	.812	1.500	2.450	.750	1.300	.325	1.375	1.250	2.062	.625	1.25 lb.	45.00
T-T-2X	1.125	1.750	2.975	1.000	1.500	.450	1.625	1.500	2.500	.875	2.25 lb.	56.00
T-T-3	1.312	2.000	3.475	1.187	1.812	.500	1.750	1.750	3.000	1.062	3.25 lb.	70.00



SILICON RECTIFIERS

FEATURES

- High operating temperature, 190°C (Up to 120°C ambient)
- High operating voltage (Up to 600 p.i.v.)
- High efficiency (99% compared to about 75% for selenium)
- Excellent regulation (4% compared to about 15% for selenium)

Stack No.	Type	AC Input Volts up to	DC Output Volts up to	Max. Amps Self Cooled	Max. Amps Fan Cooled	Size And Weight	User Net Price
SI-CT-A	Center-Tap	18-0-18	16	40	80	B	\$ 15.00
SI-CT-B	Center-Tap	36-0-36	32	40	80	B	20.00
SL-CT-A	Center-Tap	18-0-18	16	50	100	B	17.50
SL-CT-B	Center-Tap	36-0-36	32	50	100	B	22.50
SL-CT-D	Center-Tap	72-0-72	64	50	100	B	36.00
SL-CT-F	Center-Tap	140-0-140	125	50	100	B	44.00
SK-CT-A	Center-Tap	18-0-18	16	100	200	C	30.00
SK-CT-B	Center-Tap	36-0-36	32	100	200	C	34.00
SK-CT-D	Center-Tap	72-0-72	64	100	200	C	37.00
SK-CT-F	Center-Tap	140-0-140	125	100	200	C	48.00
SM-CT-A	Center-Tap	18-0-18	16	200	400	D	45.00
SM-CT-B	Center-Tap	36-0-36	32	200	400	D	60.00
SM-CT-D	Center-Tap	72-0-72	64	200	400	D	62.00
SM-CT-F	Center-Tap	140-0-140	125	200	400	D	76.00
SO-CT-B	Center-Tap	36-0-36	32	400	800	E	100.00
SA-BR-D	1φ Bridge	140	125	1	•	—	9.00
SA-BR-F	1φ Bridge	280	250	1	•	—	10.50
SC-BR-D	1φ Bridge	140	125	2	•	—	10.50
SC-BR-F	1φ Bridge	280	250	2	•	—	12.00
SD-BR-A	1φ Bridge	36	32	6	12	F	18.00
SD-BR-D	1φ Bridge	140	125	6	12	F	30.00
SD-BR-F	1φ Bridge	280	250	6	12	F	39.00
SE-BR-A	1φ Bridge	36	32	10	20	G	21.00
SE-BR-D	1φ Bridge	140	125	10	20	G	36.00
SE-BR-F	1φ Bridge	280	250	10	20	G	44.00
SF-BR-A	1φ Bridge	36	32	20	40	H	24.00
SF-BR-D	1φ Bridge	140	125	20	40	H	40.00
SF-BR-F	1φ Bridge	280	250	20	40	H	48.00
SI-BR-A	1φ Bridge	36	32	40	80	J	30.00
SI-BR-B	1φ Bridge	72	64	40	80	J	36.00
SI-BR-D	1φ Bridge	140	125	40	80	J	63.00
SI-BR-F	1φ Bridge	280	250	40	80	J	95.00
SL-BR-A	1φ Bridge	36	32	50	100	J	33.00
SL-BR-B	1φ Bridge	72	64	50	100	J	39.00
SL-BR-D	1φ Bridge	140	125	50	100	J	70.00
SL-BR-F	1φ Bridge	280	250	50	100	J	110.00
SG-BR-A	1φ Bridge	36	32	70	140	J	40.00
SG-BR-B	1φ Bridge	72	64	70	140	J	50.00
SG-BR-D	1φ Bridge	140	125	70	140	J	80.00
SG-BR-F	1φ Bridge	280	250	70	140	J	130.00
SK-BR-A	1φ Bridge	36	32	100	200	K	60.00
SK-BR-B	1φ Bridge	72	64	100	200	K	68.00
SK-BR-D	1φ Bridge	140	125	100	200	K	90.00
SK-BR-F	1φ Bridge	280	250	100	200	K	150.00
SM-BR-A	1φ Bridge	36	32	200	400	L	100.00
SM-BR-B	1φ Bridge	72	64	200	400	L	120.00
SM-BR-D	1φ Bridge	140	125	200	400	L	180.00
SM-BR-F	1φ Bridge	280	250	200	400	L	260.00
SO-BR-B	1φ Bridge	72	64	400	800	M	270.00
SO-BR-F	1φ Bridge	280	250	400	800	M	480.00
SL-PH-A	3φ Bridge	36	48	75	150	N	60.00
SL-PH-B	3φ Bridge	72	96	75	150	N	85.00
SL-PH-C	3φ Bridge	105	144	75	150	N	120.00
SL-PH-D	3φ Bridge	140	188	75	150	N	180.00
SL-PH-E	3φ Bridge	220	290	75	150	M	220.00
SK-PH-E	3φ Bridge	220	290	100	200	M	240.00
SM-PH-E	3φ Bridge	220	290	200	400	M	300.00
SD-PH-E	3φ Bridge	220	290	400	800	M	375.00

All above ratings based on 30°C ambient. Fan-cooled ratings based on air velocity of 1000 linear ft/minute. For resistive or inductive loads, as rated. For capacitive or battery loads, derate amperage 20%. Doublers, triplers, 3 phase half wave and 3 phase center-tap also available. Custom-built stacks, 24 hour service.

DIMENSIONS WITH BRACKETS

Size	Length	Height	Width	Weight
B	3"	6"	5"	12 oz
C	3"	6"	6"	1 lb
D	4"	8"	7"	2 lbs
E	4"	9"	8"	6 lbs
F	6"	5"	5"	1 1/4 lbs
G	6"	6"	5"	1 1/2 lbs
H	6"	6"	6"	2 lbs
J	6"	6"	5"	1 1/2 lbs
K	7"	8"	7"	1 lbs
L	8"	9"	8"	6 lbs
M	8"	11"	10"	6 lbs
N	8"	6"	5"	1 lb

*Not suitable for fan-cooling

SELENIUM RECTIFIERS

FULL WAVE BRIDGE RECTIFIERS, SINGLE PHASE, RESISTIVE-INDUCTIVE LOADS

Max. Amps.	18v. in—14v. out	36v. in—28v. out	54v. in—42v. out	130v. in—100v. out	
No.	Price	No.	Price	No.	Price
1/2.....	A 18.....	\$ 1.05	A 36... \$ 1.50	A 54..... \$ 2.50	A 130... \$ 5.00
1.....	B 18.....	1.20	B 36... 2.20	B 54..... 3.20	B 130... 8.00
2.....	C 18.....	2.10	C 36... 3.00	C 54..... 4.50	C 130... 10.00
3.....	D 18.....	2.70	D 36... 4.00	D 54..... 6.00	D 130... 14.00
4.....	E 18.....	3.60	E 36... 7.50	E 54..... 10.00	E 130... 24.00
6.....	F 18.....	4.50	F 36... 9.00	F 54..... 12.00	F 130... 32.00
10.....	G 18.....	6.60	G 36... 12.00	G 54..... 18.00	G 130... 39.00
12.....	H 18.....	8.20	H 36... 16.00	H 54..... 22.00	H 130... 44.00
15.....	J 18.....	10.50	J 36... 20.00	J 54..... 27.00	J 130... 54.00
20.....	K 18.....	12.50	K 36... 25.00	K 54..... 36.00	K 130... 77.00
24.....	L 18.....	15.00	L 36... 30.00	L 54..... 42.00	L 130... 82.00
30.....	M 18.....	19.10	M 36... 37.00	M 54..... 55.00	
36.....	P 18.....	24.00	P 36... 48.00		
50.....	R 18.....	30.00	R 36... 60.00		

220 v. Single Phase available . . . up to 1000 amps.
 HALF-WAVE, CENTER-TAP, DOUBLER, TRIPLER or 3-PHASE
 Quotations on request

TRANSFORMERS AND CHOKES

TRANSFORMERS with 2 18 volt windings

Catalogue #	Amps	User Net Price
18T1	1	\$ 5.75
18T2	2	7.90
18T4	4	9.50
18T8	8	16.50
18T12	12	18.00
18T24	24	39.00
18T30	30	48.00
18T50	50	58.00

TRANSFORMERS with 2 28 volt windings

Catalogue #	Amps	User Net Price
28T2	2	\$ 9.25
28T4	4	13.75
28T6	6	25.50
28T12	12	33.00
28T24	24	72.00

HIGH CURRENT CHOKES

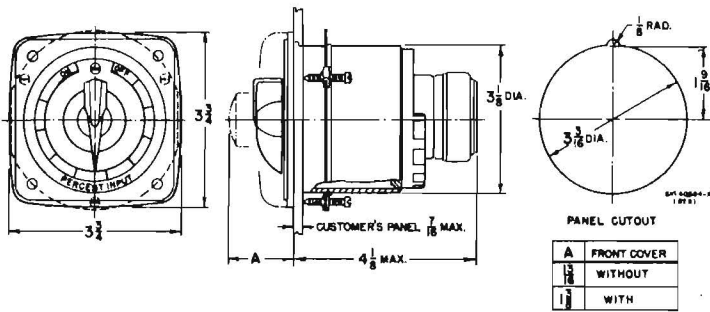
Catalogue #	Amps	User Net Price
CK1	1	\$ 5.45
CK2	2	6.50
CK4	4	8.50
CK8	8	13.25
CK12	12	15.75
CK20	20	19.50
CK24	24	28.50
CK30	30	39.00
CK50	50	49.50
CK100	100	58.50

STEP-UP TRANSFORMERS

Catalogue #	Amps	User Net Price
SU10	10	\$ 70.00
SU15	15	85.00
SU20	20	112.50
SU25	25	128.00
SU30	30	160.00
SU35	35	185.00

ATC PERCENTAGE INPUT CONTROLLERS

ATC SERIES 304



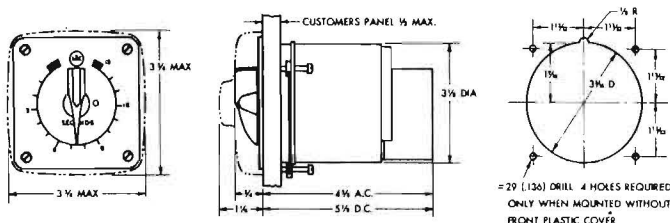
ATC SERIES 304—Controls load interruptions (1,000,000 at full 25 amp rated load). Heavy duty load contacts rated 25 amps at 115 VAC; ideal for controlling input current to electrically heated devices. Choice of 15, 30 or 60 sec. cycle. UL approval.

Controls load interruptions (1,000,000 at full 25 amp rated load). Heavy duty load contacts rated 25 amps at 115 VAC; ideal for controlling input current to electrically heated devices. Choice of 15, 30 or 60 sec. cycle. UL approval.

\$32.50

TRANSISTORIZED TIMER & PULSE GENERATOR

ATC SERIES 308



ATC SERIES 308—Transistorized timer for accurate control of short time intervals. Controls ac or dc loads with repeat accuracy of $\pm 1.0\%$. Dial adjustable; dial may be remotely located. One DPDT delayed relay with heavy duty contacts rated 15 amps at 115 VAC. Optional mercury-wetted relay with life expectancy in excess of 100,000,000 operations. Dial ranges: 1.5 to 150 sec.

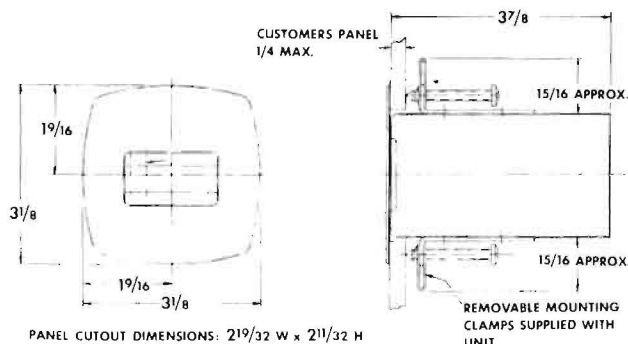
AVAILABLE STYLES	ELECTRICAL RATING	TIMING RANGES (seconds)		
		1.5; 6; 15; 30	60	150
TIMER WITH BLACK PLASTIC DIAL	30 V. 50/60 Cy.	\$82.50	\$83.50	\$84.50
	115 V. 50/60 Cy.	\$85.00	\$86.00	\$87.00
	230 V. 50/60 Cy.	\$87.00	\$88.00	\$89.00
	48 V. DC	\$90.50	\$91.50	\$92.50
	125 or 250 V. DC	\$93.50	\$94.50	\$95.50

Also available in 220V, additional \$1.

A.T.C. TIMERS & COUNTERS
RECTIFIERS & TRANSFORMERS

ELAPSED TIME INDICATOR

ATC SERIES 5701

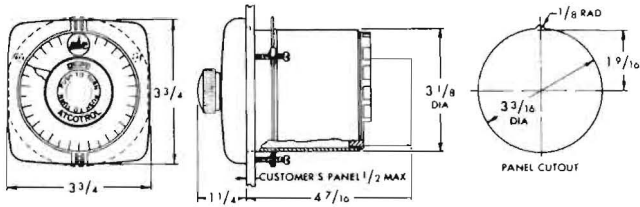


ATC SERIES 5701—Elapsed time indicator with reset: knurled wheel returns all digits to zero at any time. Easily read five-digit display for time ranges of 9,999.9 hours or minutes or 99,999 seconds. Available for 24, 115 or 230 VAC standard; for top, bottom, back or front-mounting, with or without bezel. UL approval.

	RANGE	VOLTAGE & FREQUENCY		
RESET 5701	0- 9,999.9 Min.	\$18.00	\$18.50	\$19.00
	0- 9,999.9 Hrs.	\$18.00	\$18.50	\$19.00
	0-99,999 Sec.	\$18.50	\$19.00	\$19.50


ATC IMPULSE COUNTERS

ATC SERIES 310



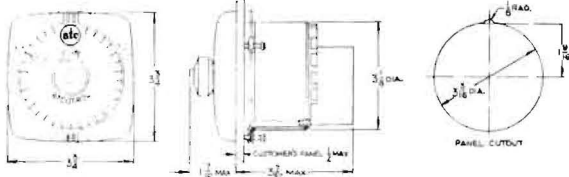
ATC SERIES 310—Counts pulses as short as 50 milliseconds duration at rates up to 500/minute; operates load circuits after preset number of pulses. Repeat count accuracy: between ± 0 at 40 and 120-count ranges and ± 2 at 480 and 960-count ranges. Full scale reset in $\frac{1}{4}$ second with minimum

pointer rebound. Cycle progress indication. Plug-in and non plug-in models, both with transparent housings. Two heavy-duty SPDT instantaneous and two SPDT delayed load switches with contacts rated 10 amps at 115 VAC. Dial ranges: 0-40 up to 0-960 counts.

Count Range	310 (PLUG IN ADD \$3.50) 311		SHIPPING WEIGHT 2½ LBS.
	115 Volts 60 Cycles	230 Volts 60 Cycles	
40	\$59.50	\$60.50	
120	\$59.50	\$60.50	
240	\$63.50	\$64.50	
480	\$63.50	\$64.50	
960	\$63.50	\$64.50	

Add \$1.50 for extra switch

OUTLINE & MOUNTING DIMENSIONS



ATC SERIES 311—Pushbutton-started impulse counter opens or closes a circuit for a preset number of pulses; pointer returns automatically at end of cycle. Start button is integral with knob. Functional specs: min. pulse duration 50 milliseconds; count rates up to

500/minute; repeat accuracy of ± 0 to ± 2 depending on range; cycle progress indication; plug-in and non plug-in models. Two SPDT switches with contacts rated 10 amps at 115 VAC. Dial ranges: 0-40 up to 0-960 counts.



ATC SERIES 311

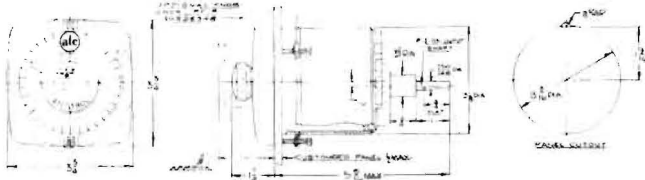
COUNT RANGE	1 SWITCH	
	115/60	230/60
40	\$45.00	\$46.00
120	\$45.00	\$46.00
240	\$49.00	\$50.00
480	\$49.00	\$50.00
960	\$49.00	\$50.00

Add \$1.50 for 2 switches
PLUG IN ADD \$3.50

ATC REVOLUTION COUNTERS

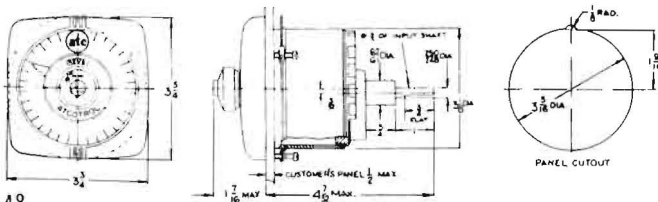
ATC SERIES 307—Counts shaft revolutions and operates load circuits after counting pre-set number. Pointer resets in less than $\frac{1}{4}$ sec. Repeat accuracy: $\pm 0.2\%$ of range; retains accuracy at

speeds up to 2000 rpm. Requires only $\frac{1}{4}$ oz. in. driving torque. Two instantaneous and two delayed SPDT switches; load contacts rated 10 amps at 115 VAC. Dial ranges: 0-12 to 0-240,000 rev.

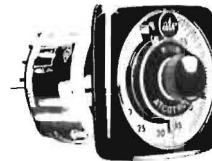


ATC SERIES 312—Pushbutton-started, this revolution counter opens or closes a circuit for a preset number of shaft revolutions; pointer resets automatically. Start button is integral with setting knob. No more than $\frac{1}{4}$ oz. in. of

driving torque is required. Cycle progress indicator. Repeat accuracy: $\pm 0.25\%$; retains accuracy at speeds up to 2000 rpm. Two SPDT switches with contacts rated 10 amps at 115 VAC. Standard dial ranges: 0-12 to 0-240,000 rev.



48



ATC SERIES 307

DIAL RANGE (REVOLUTIONS)★	PRICE
0-12 to 0-6000	\$66.00
0-15,000 to 0-240,000	\$71.00



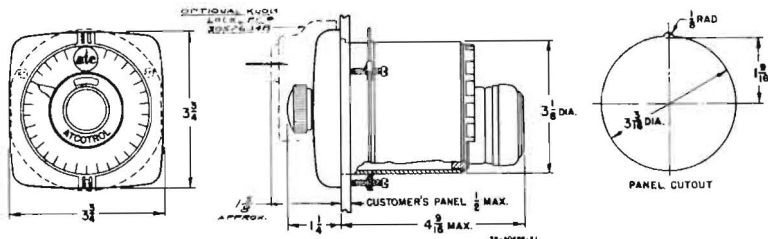
ATC SERIES 312

Count Range	1 Control Switch	2 Control Switches
0-12- to 0-6000 revs.	\$50.50	\$52.00
0-15,000 to 0-240,000 revs.	\$55.50	\$57.00

ATC TIMERS

ATC SERIES 305

AUTOMATIC RESET DIAL TIMER



ATC SERIES 305—Delay or interval timing with repeat accuracy of $\pm 0.2\%$. Resets in less than $1/4$ sec. Dial-adjustable with cycle progress indication. Two heavy-duty SPDT instantaneous and two SPDT delayed switches with contacts rated 10 amps at 115 VAC. Fourteen point terminal block. Field convertible on delay and off delay operation. Plug-in and non plug-in models, both with transparent housing. Mechanical life of 10,000,000 operations. FM approval. Dial ranges: 6 sec. to 60 hrs.

	305B						
	115V		230V		DC Models 28,48,125 250V. D.C.	Minimum Setting	Gradua- tions
	60cy.	50cy.	60cy.	50cy.			
6 Sec.	\$44.00	\$45.50	\$45.00	\$46.50	\$ —	0/00 Sec.	60
15 Sec.	44.00	45.50	45.00	46.50	—	1/4 Sec.	60
30 Sec.	43.00	44.50	44.00	45.50	86.50	1/2 Sec.	60
60 Sec.	43.00	44.50	44.00	45.50	86.50	1 Sec.	120
120 Sec.	43.00	44.50	44.00	45.00	86.50	2 Sec.	120
240 Sec.	43.00	44.50	44.00	45.50	86.50	4 Sec.	120
6 Min.	43.00	44.50	44.00	45.00	—	6 Sec.	60
15 Min.	43.00	44.50	44.00	45.50	86.50	15 Sec.	60
30 Min.	45.00	46.50	46.00	47.50	90.50	30 Sec.	60
60 Min.	45.00	46.50	46.00	47.50	90.50	60 Sec.	120
120 Min.	45.00	46.50	46.00	47.50	97.50	120 Sec.	120
240 Min.	45.00	46.50	46.00	47.50	97.50	240 Sec.	120
6 Hrs.	45.00	46.50	46.00	47.50	—	1/10 Hr.	60
15 Hrs.	46.00	48.00	47.00	49.00	—	1/4 Hr.	60
30 Hrs.	46.00	48.00	47.00	49.00	—	1/2 Hr.	60
60 Hrs.	46.00	48.00	47.00	49.00	—	1 Hr.	120

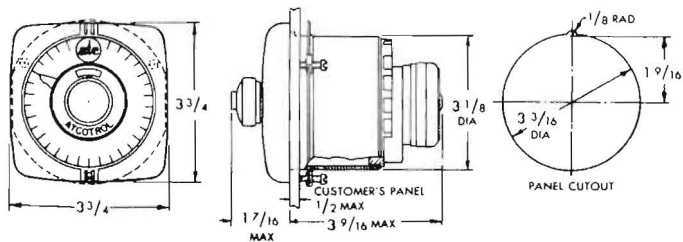
* Plug-in units up to 6 hrs., add 1.00
 ** Plug-in units for 15 hrs., 30 hrs., and 60 hrs. 50 Cycle & 25 Cycle, and over 28 V. DC on application.

SERIES 309			
115 Volt, 60 Cycle		28, 48, 125 or 250 VDC	
Single Switch	Two Switches	Single Switch	Two Switches
\$28.00	\$29.50	\$ —	\$ —
28.00	29.50	—	—
27.00	28.50	69.50	71.00
27.00	28.00	69.00	71.00
27.00	28.50	69.50	71.00
27.00	28.50	69.50	71.00
27.00	28.50	—	—
27.00	28.50	69.50	71.00
29.00	30.50	73.50	75.00
29.00	30.50	73.50	75.00
29.00	30.50	80.50	82.00
29.00	30.50	80.50	82.00
29.00	30.50	—	—
31.00	32.50	—	—
31.00	32.50	—	—
31.00	32.50	—	—

A.T.C. TIMERS & COUNTERS

ATC SERIES 309

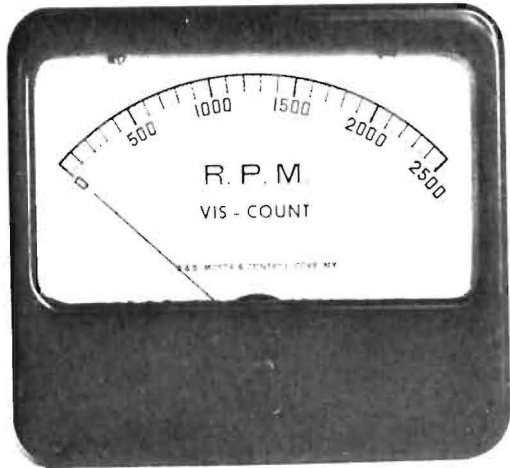
PUSHBUTTON START INTERVAL DIAL TIMER



ATC SERIES 309—Pushbutton-started interval timer controls ac or dc loads with repeat accuracy of $\pm 1/4\%$; pointer returns automatically at end of cycle. Dial adjustable with cycle progress indication. Average life expectancy: 2,000,000 operations. Two SPDT switches with contacts rated 10 amps at 115 VAC. Plug-in and non plug-in models, both with transparent housing. Dial ranges: 15 sec. to 60 hrs.

B & B IMPROVED VIS-COUNT TACHOMETER SPEED INDICATING SYSTEMS

for simple and precise continuous remote measurement of surface speed



B & B VIS-COUNT SPEED INDICATING SYSTEM

A high quality, rugged 1% accuracy system for continuous visual indication of rotating speeds.

Briefly:

The Vis-Count speed indicator is a factory calibrated system consisting of a precision-built tachometer generator, and a 4½" meter. This tachometer-generator is connected to the rotating shaft whose speed is to be measured. The meter then indicates the speed. A shaft coupling and a tachometer mounting clamp are included.

Specifications:

The tachometer generator, since it is the heart of the system, is most important. The Vis-count tach-generator is a ball bearing precision instrument. Its stabilized ceramic magnets can't be damaged by short circuits or overloads. Silver graphite brushes assure accurate signal. The voltage output is linear within $\pm 0.05\%$. (See graph.) Recent self-heating tests report the following: "With a 50 milliamper load at 3000 RPM after 2 hours, a temperature rise of 17 degrees C was recorded, and during the two-hour period, there was no appreciable voltage change. (That is, no voltage change that a $\pm 1\%$ indicating meter could detect.) For ambient temperature change from 25°C to 95°C the M176T1 will maintain its voltage output within 1% at any given load. Life tests on M176 tach-generators at various speeds up to 10,000 RPM with 5 milliamper load have consistently resulted in brush life equivalent to 100,000 hours at 3000 RPM. For most applications an average brush life of 10^{10} revolutions may be expected.

Speed Indicator:

The precision 4½" meter is custom made to our specifications.

D'Arsonval movement is standard. All meters are damped and are accurate to within $\pm 1\%$ of full scale reading. A calibrating potentiometer is located at rear of meter so that re-calibration can be made in the field if necessary. See figure 2.

Connections:

The tach-generator is connected to a two-conductor, 20-foot jacketed cable which is wired to the indicating meter. No connections are made by you. If the tach-generator is being driven by a shaft that will be reversed, please specify and an instrument rectifier is connected inside the meter box allowing for bi-directional operation.

Mounting:

A cadmium plated beryllium copper mounting bracket is supplied for mounting the tach-generator to any surface. (See figure 3). The 4½" meter is supplied in an aluminum meter box for use on a bench. (See figure 4). For use in a panel, please state so on order.

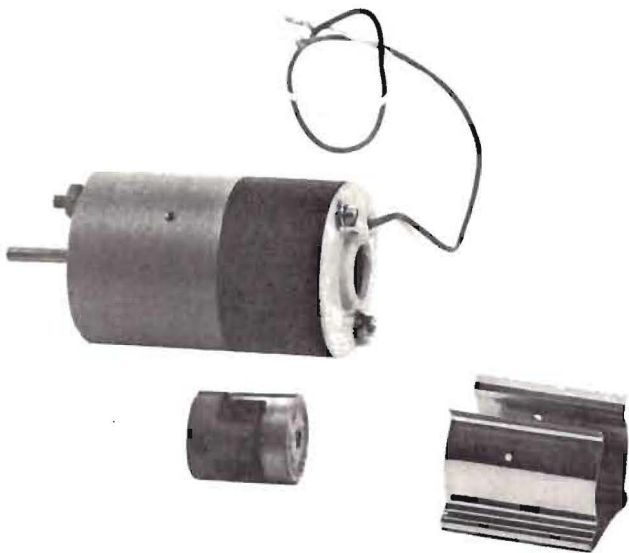
Tachometer Generator models available:

- M176T1—2.5 volts per/1000 RPM for direct connection to shafts rotating up to 7500 RPM.
- M176T2—5.0 volts per/1000 RPM for direct connection to shafts rotating up to 2000 RPM.
- M176T3—12.0 volts per/1000 RPM for direct connection to shafts rotating up to 1000 RPM.
- M176T4—20.0 volts per/1000 RPM for direct connection to shafts rotating up to 500 RPM.
- M176T5—1.25 volts per/1000 RPM for direct connection to shafts rotating up to 10,000 RPM.



TACHOMETER

of units, strokes, R.P.M., and



Meters available:

0-5, 0-10, 0-50, 0-100, 0-250, 0-500, 0-1000, 0-1500, 0-2000, 0-2500, 0-5000, 0-10000, RPM. Any meter can be made to your specifications within 48 hours; such as inches/minute, feet/hour, pieces/hour, 0-100% etc. Consult our sales department.

Prices:

The complete system including a M176 tachometer generator with 20 feet of 2 conductor cable, 4 1/2" indicating meter housed in meter box, beryllium copper mounting plate and coupling:

with M176T1	\$87.50 each system
M176T2	\$87.50 each system
M176T3	\$89.50 each system
M176T4	\$94.50 each system
M176T5	\$87.50 each system

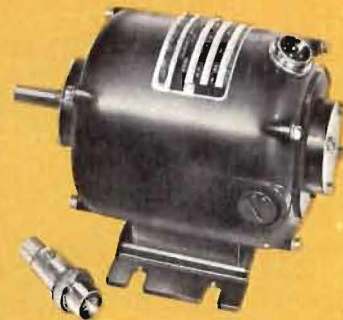
For reversible rotation, add "R" to tach-generator model and add \$5.00 to price of system. Cable lengths up to 500 feet can be supplied; add 5c per foot. Deduct the following prices if you wish to delete any of the following:

Coupling—deduct \$2.00	Mounting plate—deduct \$2.50
	Meter box—deduct \$3.50

Important:

Before ordering.—The coupling is supplied with one side to fit the tach-generator. Please specify if the other side is to be 3/16", 1/4", 5/16", or 3/8" bore. Do you want reversing? What is speed of your driver shaft to compare to on indicating meter?

INDUSTRIAL HEAVY DUTY TACHOMETER



BASE MOUNT

- ★ High output models ideal for slow speed industrial applications
- ★ All new barium ferrite flexible magnet system
- ★ Rugged long life, accurate, low cost

The new P.M. DC Tach Generator was created to meet the increasing need for a high output DC model for commercial and industrial slow speed applications. A new magnet material of barium ferrite is flexible, simplifying construction and reducing cost. Rugged in design and performance, these new Tachs deliver output up to 60 volts per/1000 RMP! Direct meter readings at very slow shaft speeds are now possible.

When the P.M. DC Tach is coupled directly to the drive motor, there is no need to increase shaft speed with belts or gearing to obtain sufficient output voltage. Gear backlash and accumulated drive errors are eliminated. Self powered magnet system requires no batteries, transistors or external excitation power. Excellent inherent reliability for long, trouble-free service. Tach Generator output can be connected directly to DC meter that is calibrated to read RPM, FPM, GPH, or any rotational, surface speed or volume measurement you require.

OUTSTANDING FEATURES:

Features that contribute to the outstanding quality performance include: sealed precision ball bearings that require no lubrication, exclusive Line-O-Life silver graphite brush grades, stabilized, barium ferrite magnet, diamond finished commutators, die cast frame and end brackets with steel sleeved bearing inserts machined to close tolerances. Totally enclosed, Carter Classic Tach Generators will help you measure and control your product quality and performance . . . accurately, dependably, and, at low cost.

Classic P.M. DC Tachometer Generator

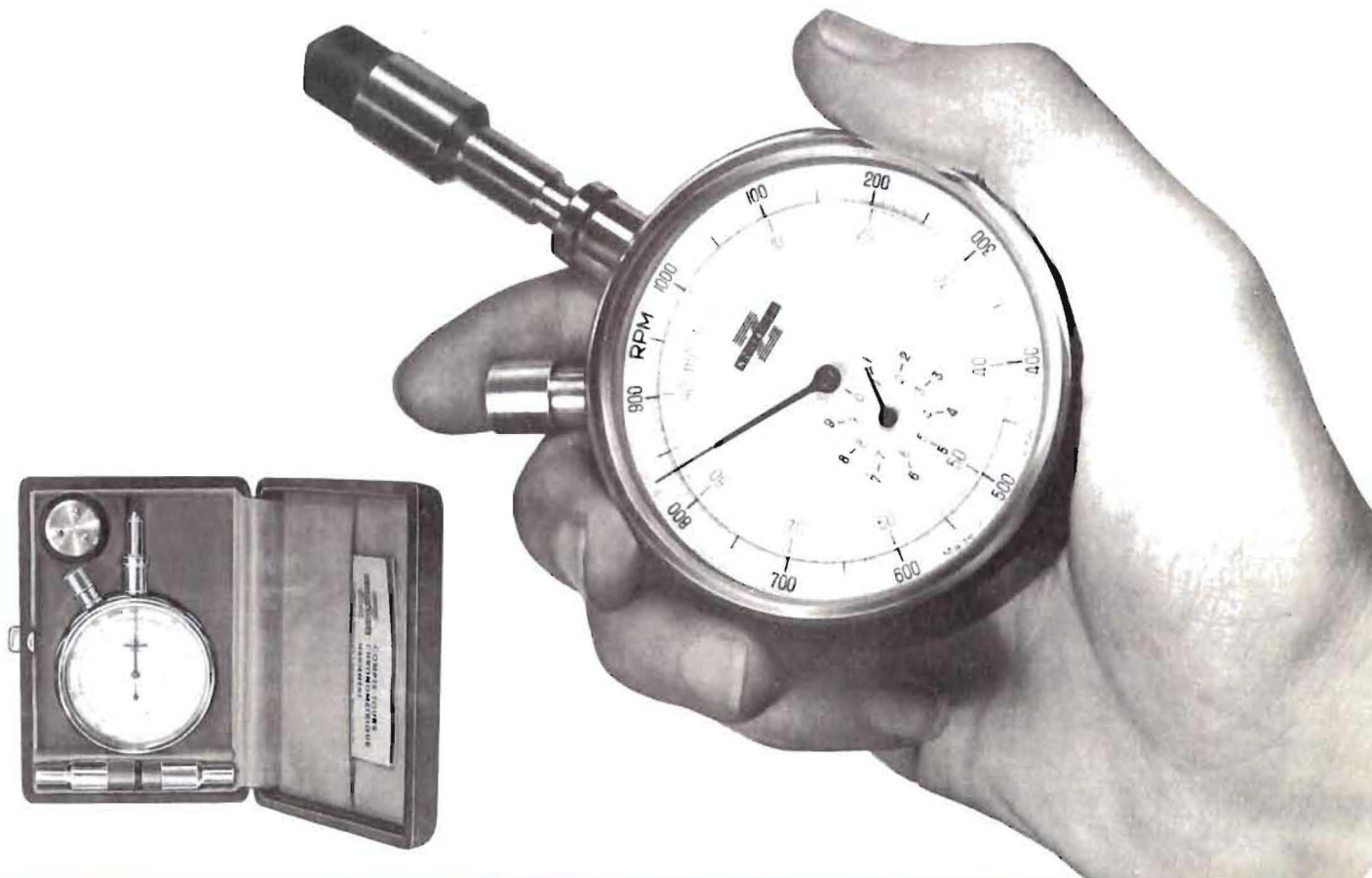
2 lead reversible, sealed ball bearings, maximum speed 10,000 RPM or 300 volts whichever comes first. Maximum output up to 15 watts capacity. Continuous duty, totally enclosed. Barium ferrite magnet, shaft diameter 5/16" max. 1" long with flat, linearity at 25°C, 1 direction, 1%, either direction, 3%. Ripple, 3% filtered, 5% unfiltered. Line-O-Life silver graphite brush grades deliver over 10,000 hours life. Breakdown voltage, 1250 volts AC, 1 minute. Temperature range, -40°C to +75°C. Male and female connector furnished on all models. Weight, 3 1/2 lbs. Finish, black gloss. Other colors available on order.

Code No.	DC output Volts per/1000	Mounting	Max. Speed RPM	Price
CTA60AA	60	base	5000	\$110.00
CTA60BA	60	face	5000	\$110.00
CTA60CA	60	flange	5000	\$115.00
CTA50AA	50	base	6000	\$109.00
CTA50BA	50	face	6000	\$109.00
CTA50CA	50	flange	6000	\$112.00
CTA25AA	25	base	10000	\$108.00
CTA25BA	25	face	10000	\$108.00
CTA25CA	25	flange	10000	\$111.00

Models rated less than 4000 RPM maximum speed supplied with built-in capacitor filter to assure ripple of less than 3%. Unfiltered models will average 5% or less AC ripple.

TACHOMETER
SPEED INDICATING
SYSTEMS

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CHRONOMETRIC SPEED COUNTER ZIVY

High precision speed indicator for automatic, accurate measurement of rotary, peripheral and cutting speeds.

Principle:

The ZIVY speed indicator is intended to furnish exceptional accurate measurement of constant speeds, revolutions or feet (meters) per minute in a few seconds' time.

It is based on the positive measurement principle, registering the result of directly measured rotary and surface speeds, divided by directly measured time.

Three major elements constitute the mechanism, a precise timing movement, an accurate revolution counter and an automatic synchronizing system.

Advanced design and construction:

A directional converter causes the indicating hands to rotate clockwise regardless of the direction of the spindle. Knife edge indicating

hands. Shatterproof, chip-proof dial with finely graduated scale. Shock-proof case — die cast from Duralinox with deep knurling provide a firm grip. Ball bearings at the spindle minimize friction and insure continued dependability. Only one button. Makes instrument easier, more convenient to handle more nearly automatic.

Protectively packaged in a pocket fit sized carrying case, weight: 380 gr.

Dial:

ϕ (diameter) 2-3/16" with two divisions:
black scale = RPM
red scale = rotary, periphery or cutting speed in FPM or MPM

Reading:

The large hand (outer scale) indicates both revolutions per minute and feet (meters) per minute.

The small hand counts the revolutions of the large hand. One division of the small inner scale represents one whole revolution of the large hand. If the speed attained exceeds the dial range the hands move around the dial

again, registering the speed. The overspeed allowance is 100%.

	RPM		PRICE
TYPE A	0-10,000,	0-3,000 FPM	\$70.00
TYPE B	0- 1,000,	0- 300 FPM	\$70.00
TYPE C	0- 100,	0- 30 FPM	\$80.00
TYPE D	0- 10,	0- 3 FPM	\$90.00
	ACCURACY 0.5%		

Operation:

Bring the spindle, fitted with the most suitable tip, in contact with the center of the rotating object and as nearly parallel to its axis as possible. Very little pressure is required, a light even contact is preferable.

Press the button gently, then release it quickly. Allow the tip on the spindle to remain in contact with the rotating object until the indicating hands stop, at which time the result may be read.

Since the hands remain in the position at which they stopped until the button is again pressed and quickly released, full opportunity is provided to the operator for an unhurried and precise reading of the exact result.

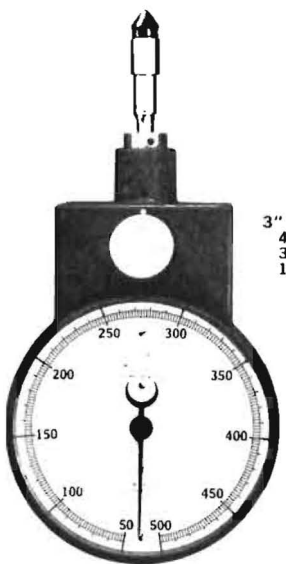
JONES CENTRIFUGAL TACHOMETERS

RUN EQUIPMENT AT OPTIMUM SPEEDS • CONTROL COSTS
 INCREASE PRODUCTION • IMPROVE QUALITY • REDUCE DOWNTIME
 INSURE SAFETY WITH • • • • •

Jones precision tachometers operate on the centrifugal-mechanical principle. A simple, rugged fly-ball governor responds only to changes in speed and actuates the patented pointer mechanism. Basically superior to other types of mechanical or electrical tachometers, Jones centrifugal tachometers are unaffected by temperature change, high humidity or close proximity to electrical currents or magnetic fields. They operate in either direction of rotation without adjustment — respond instantly to changes in speed. All revolving parts are on ball bearings for maintenance-free, heavy duty use.

For almost 50 years Jones Tachometers have been used throughout industry and government. They are **GUARANTEED TO MEET APPLICABLE U.S. MILITARY SPECIFICATIONS** for accuracy, mechanical performance and resistance to shock and vibration.

As the largest U.S. manufacturer of centrifugal tachometers, Jones has an extensive organization available to give prompt and complete service on your speed measurement requirements.



3" DIAL
 4800
 3200
 1600

JONES HAND TACHOMETERS

TRIPLE - DOUBLE - SINGLE RANGE • 3" DIAMETER DIALS

ORDER BY
 MODEL NUMBER

For portable, accurate speed measurement in general industry, laboratories, repair shops, mills, automotive service stations. These precision, centrifugal tachometers are available in a variety of models with speed ranges and accessories to meet the requirements of every application. Periodic checking with Jones Hand Tachometers can often prevent damage or breakdowns in power machinery by detecting overloading or need for adjustment or minor repairs. RPM easily read to 1/2% of full scale. FPM indicated at 1/2 dial indication using 1/2 ft. circum. wheel; at full dial indication with 1 ft. wheel. Operate in either direction of rotation **without adjustment**, respond instantly to speed changes, and measure continuously. Perform in any position. Heavy duty construction withstands shock and vibration. Unaffected by temperature changes, humidity, stray electrical currents or magnetic fields.

HOLD BUTTON feature on Jones 3" Hand Tachometers **LOCKS DIAL READING** until released, particularly useful for obscured, hard-to-reach locations.

1600, 3200, 4800	3 HT	1 HT	ACCESSORIES	Unit Price
•	•	•	● STANDARD ACCESSORIES — Included Without Extra Charge	
•	•	•	B-21 Triangular Steel Tip	\$1.50
•	•	•	B-22 Convex Rubber Tip, Complete	1.25
•	•	•	B-23 Concave Rubber Tip, Complete	1.25
•	•	•	B-24 Measuring Wheel — 1 ft. Circum.	2.50
•	•	•	B-25 Extension Shaft — 4" Long	1.50
•	•	•	B-26 Small Convex Rubber Tip, Complete	1.25
•	•	•	B-27 Carrying Case — 4" dial models	5.00
•	•	•	B-28 Measuring Wheel — 1/2 ft. Circum.	2.50
•	•	•	B-29 Carrying Case — 3" dial models	5.00

OPTIONAL ACCESSORIES — Not Included

B-22A	Rubber Tip only for B-22	\$.50
B-23A	Rubber Tip only for B-23	.50
B-24A	Rubber Wheel only for B-24	1.75
B-26A	Rubber Tip only for B-26	.50
B-30	Measuring Wheel — 1/4 ft. Circum.	3.50
B-31	Extension Shaft — 18" Long	6.75
B-32	Extension Shaft — 12" Long	6.75
B-33	Extension Shaft — 30" Long	6.75
B-34	Right Angle Section. Fits tachometer drive shaft and accommodates all tips	20.00
B-35	3 ft. Flexible Shaft Extension. Fits tachometer drive shaft and accommodates all tips	10.00

Prices subject to change without notice.

SPECIFICATIONS

Type	Model No.	Ranges in RPM	Dial Div.	● Price
Triple 3"	4800 ⁿ	50-500	2	\$82.00
		500-5000	20	
		5000-50000	200	
Double 3"	3200	50-500	2	66.00
		500-5000	20	
Single 3"	1600-1	50-500	2	50.00
	1600-2	100-1000	5	55.00
	1600-3	200-2000	10	55.00
	1600-4	300-3000	20	55.00
	1600-5	400-4000	20	55.00
	1600-6	500-5000	20	55.00
	1600-7	1000-10000	50	55.00

CONTROLS FOR VARIABLE SPEED MOTORS

To assist you in selecting the proper control for the motor you require, we have briefly described here the types of variable speed motor controllers. Since the descriptions are quite brief, we suggest you contact our sales staff for the answer to your particular problem, if you do not find a standard combination on the next pages.

1. Thyatron Controllers

CX25 handles up to 1/4 H.P. 2T60 handles up to 1/50 H.P.

Tried and true. Back E.M.F. speed correction about 8%. Correction better at lower speeds than high. Half-wave rectification with filtering. Tube life approximately 8000 hours. Proven to be dependable. Chief disadvantage is 30 second delay required for tubes to warm up. Being replaced slowly by solid state controls. Speed range of approximately 20 to 1. Reversible.

2. Silicon/Autotransformer

S12 handles up to 1/8 H.P. S30 handles up to 1/3 H.P.

Rugged, simple control for continuous duty. No feedback, therefore changes in motor speed will occur as either load or input voltages change. No maintenance problem due to solid state silicon diodes. Circuit-breaker protection of armature circuit. No aging of parts. Internal ventilation not required. Solid state silicon rectifiers utilized. Speed controlled by variable transformer. Controls motor through better than 15 to 1 speed range. Reversible.

3. SCR Controllers—(Silicon Controlled Rectifier)

S10 handles up to 1/20 H.P. S47 handles up to 1/3 H.P. S250 handles up to 1 H.P. S800 handles up to 2 H.P.

Silicon controlled rectifier fired by unijunction transistor. All circuitry is solid state. Full wave rectification with filtering assures you of long

motor life by minimizing brush sparking and motor heating at low speeds. Zener diode reference circuit provides not only for correction of motor speeds due to fluctuating AC input voltages but also speed correction for changes in loading. Regulation is good. Smaller and lighter in weight than any other type of control. Reversible. Speed range approximately 20 to 1.

4. SCR Controllers with Tachometer Generator Feedback

S50T handles up to 1/3 H.P. S250T handles up to 1 H.P.

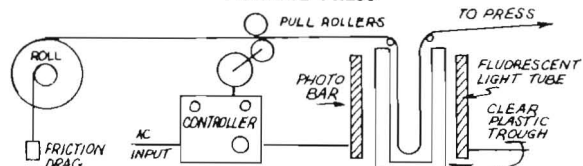
The ultimate in speed regulation. Approximately 1% control assured by Tach-Generator which signals controller if motor deviates from pre-set speed. Otherwise similar to SCR controllers described under #3. Speed range better than 25 to 1 (conservatively) can be expected.

NOTE: It is worthwhile noting that all Heller Controls are designed for operation with either 115 or 230 standard voltage DC motors. A cheaper control can be built by using odd voltage motors, however, this usually puts the prospective purchaser in a position where he doesn't have as wide a choice of motors to select from. In addition, reduced voltage motors require higher currents to produce the same power which results in lower efficiency, increased heating and shorter brush life. We have not sacrificed quality to build a cheaper control.

5. PM Controllers for PMI Printed Motors. Extremely wide ranges of speeds can be obtained by using these SCR controllers especially designed to match the low voltage PMI Printed Motors. Line voltage and load correction are standard; greater accuracy and extended speed ranges may be obtained by adding the VIS-COUNT tach-generator feedback system.

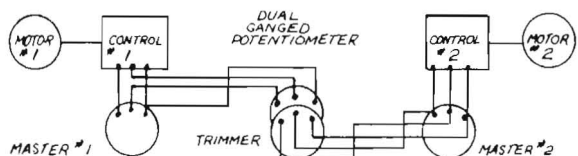
Here are a few applications of Heller motor controllers. You will note that simple circuit changes can accomplish complicated programs for automation.

AUTOMATIC TENSIONLESS FEEDER FROM PAPER ROLL TO PRINTING PRESS



As the tape to press is pulled to press, the loop of tape hanging between light tube and photo-bar is pulled up, exposing a greater area of photo-bar to fluorescent light tube. This will increase the motor speed (proportionately) as a greater area of the photo-bar is exposed to the light tube.

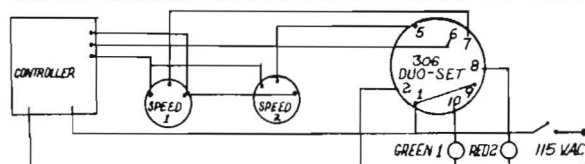
The more light falling on the photobar, the faster the motor will run. As paper is pulled from the trough the motor increases speed to replace the loop. The press does not have to pull the paper off the roll.



SPEED CONTROL FOR 2-MOTORS

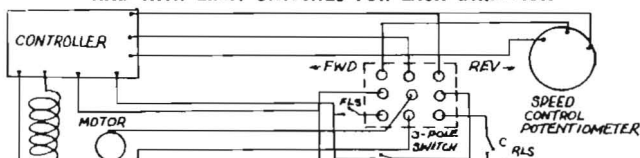
With "trimmer" tuned up to full, maximum desired speeds are set on Master #1 and Master #2. Then trimmer may be adjusted as desired and the ratio of speeds of Motor #1 to Motor #2 will remain constant. Both motors will vary up and down together. Best results with this type of system are obtained by using tachometer-generator feedback systems

2-SPEED OPERATION USING ATC MODEL 306 DUO-SET TIMER

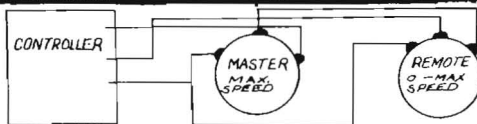


The motor will run at the speed set on control potentiometer #1 for the time set on the green pointer of the timer. Green pilot light is on. After expiration of the pre-set interval, speed changes to the speed set on control #2, green light goes out and red light comes on. This condition is maintained for the time set on the red pointer of timer. At end of this interval cycle is repeated as mentioned above.

SLOW FORWARD, FAST REVERSE USING MANUAL REVERSING SWITCH AND WITH LIMIT SWITCHES FOR EACH DIRECTION



When reversing switch is thrown to "FWD" motor runs at speed set on control potentiometer until switch is returned to neutral or limit switch "FLS" is operated. Moving switch to "REV" position causes motor to run at full speed until switch is returned to neutral or limit switch "RLS" is operated.



CASCADE POTENTIOMETER ARRANGEMENT—The master is set to a maximum speed; then the remote control can be adjusted to cause the motor to run at any speed from zero up to the maximum



GT 21 UTILITY AND LAB STIRRER



Motor: Quiet running, special series wound motor, enclosed, ball bearing, 1/40th horsepower, 0-6000 rpm armature shaft speed, right angle gear shaft speed 0-333 rpm at 6" lbs. torque, reversible. With regular motor base and support stand mounting bracket with 1/2" rod, 5 ft. vinyl jacketed cable with attachment plug Jones P304CCT. Both motor shafts are 5/16" diameter with milled flats.

Controller: Solid state type on printed circuit board, mounted on an aluminum panel, enclosed in a steel box 4" wide x 5" high x 3" deep finished with silver hammertone enamel. Line cord gray vinyl 6' long with standard grounding plug. The GT21 controller circuit corrects for line voltage variation from 95 to 145 volts A.C., that is, if the input line voltage varies from 95 to 145 the motor speed does not change. The motor regulation (from no load to full load) is about 10%. No warm-up time is required—motor will operate when switch is actuated and the motor may be started at any pre-selected speed setting, in either forward or reverse rotation. The front panel also has a pilot light to show that the line voltage is on.

Attachments supplied: Motor mounting bracket with 1/2" x 8" aluminum rod, regular motor mounting base made of pressed steel, chuck with adjustment from 0 to 3/8" mounted on arbor that fits either shaft, one 8" stainless steel shaft with coupling to fit shaft and 1/2" diameter three-bladed propeller, one stainless steel shaft same as above except with 2 1/2" paddle for use on gear shaft to stir heavy paste, polishes, etc., and one three-step brass nickel plated pulley to fit either shaft. Net weight of motor 5 pounds, controller 4 pounds, and attachments 1 pound. Shipping weight complete 12 pounds. Packed one to a carton. List price of complete motor, controller and attachments \$90.00.

2T-60 MOTOR CONTROLLER

Rating: Infinitely Variable Speed Control — for DC motors up to 1/50 H.P. from 115 Volt AC—50/60 cycle lines.

Speed Range: Automatic Field Control Rectifier — allows operation of armature at speeds up to 4000 RPM.

Specifications: Reversible—by means of reversing switch on front panel. Motor is off when potentiometer is turned full left. Controller consists of two Thyatron tubes set up as half wave rectifiers. Standard NEMA three-pin grounded plug and six feet line cord. Mounting holes in back plate. Motor stop switch connected to control knob. Motor plugs into controller with locking-type connector. Motor comes complete with five feet of cable and Amphenol connector. Line fuse protects control overload by motor. Self regulating circuit supplies more armature voltage to motor to assist motor maintain speed. Full torque available over speed range listed. Silver hammertone steel cabinet with canopy to protect tubes, overall size 9" x 4" x 3 1/2". Net weight 2 lbs.

Price: For Control Only . . . \$40.00.

THYRATRON TYPE FOR MOTORS UP TO 1/50 H.P.



HP	SPEED RANGE	TORQUE	TYPE	CAT. NO.	PRICE motor & control
1/50	200-4000	12" OZ.	N-12	2T60-1	\$72.00
1/50	30-666	2.2"LBS.	N-12R	2T60-06	\$90.00
1/50	20-400	4.0"LBS.	N-12R	2T60-10	\$90.00
1/50	10-200	5.4"LBS.	N-12R	2T60-18	\$90.00
1/50	6-133	4.0"LBS.	N-12R	2T60-30	\$90.00
1/50	5-100	7.0"LBS.	N-12R	2T60-36	\$93.00
1/50	3-66	8.0"LBS.	N-12R	2T60-60	\$93.00
1/50	2-40	5.6"LBS.	N-12R	2T60-100	\$93.00
1/50	6-13	6.1"LBS.	N-12R	2T60-300	\$93.00
1/50	35-7.5	5.0"LBS.	N-12R	2T60-540	\$93.00
1/50	2-4.5	3.5"LBS.	N-12R	2T60-900	\$93.00
1/50	16-3.5	2.2"LBS.	N-12R	2T60-1110	\$93.00

S-10 MOTOR CONTROLLER

SCR / POTENTIOMETER FOR MOTORS UP TO 1/20 H.P.



DIAL THE SPEED YOU NEED

MOTORS FOR USE WITH S-10 CONTROLLER

Base Speed RPM	Speed Range	Torque	Frame	Catalog No.	Net Price
1/20 HP					
3200	200-4160	15 "oz.	N-13	6576C	\$ 42.00
1725 *	172-2240	29 "oz.	N-33	B2408C	49.00
1125 *	150-1462	45 "oz.	N-53	B2368C	60.00
690 *	69-897	3 "Lbs.	N-33R	B2408XC-2½	109.30
345 *	34-448	5.9" Lbs.	N-33R	B2408XC-05	109.30
173 *	17-224	11.9" Lbs.	N-33R	B2408C-10	72.00
86 *	8.6-112	18.3" Lbs.	N-33R	B2408C-20	72.00
57 *	5.7-74	21 "Lbs.	N-33R	B2408C-30	72.00
43 *	4.3-55	20 "Lbs.	N-33R	B2408C-40	72.00
29 *	2.9-37	13 "Lbs.	N-33R	B2408C-60	78.00
1/40 HP					
1725	172-2240	14 "oz.	N-13	B2152C	\$ 41.00
1/50 HP					
1725	172-2240	11 "oz.	N-12	B2150C	\$ 39.00
690 *	69-897	1.2" Lbs.	N-12RH	B2150XC-2½ H	91.36
345 *	34-448	2.4" Lbs.	N-12RH	B2150XC-05H	91.36
172 *	17-224	4.8" Lbs.	N-12RH	B2150XC-10H	57.00
86 *	8.6-112	7.3" Lbs.	N-12RH	B2150C-20H	57.00
57 *	5.7-74	8.8" Lbs.	N-12RH	B2150C-30H	57.00
43 *	4.3-55	11.7" Lbs.	N-12RH	B2150C-40H	57.00
29 *	2.9-37	13 "Lbs.	N-12RH	B2150C-60H	57.00
29 *	2.9-37	20 "Lbs.	N-12RG	B2150C-60G	65.00
19 *	1.9-24.7	26 "Lbs.	N-12RG	B2150C-90G	65.00
14 *	1.4-18.2	32 "Lbs.	N-12RG	B2150C-120G	65.00
7.2 *	.72-9.3	47 "Lbs.	N-12RG	B2150C-240G	65.00
1/70 HP					
2850	285-3705	4.8" oz.	32	6469C	\$ 37.00
288 TE	28-374	2.2" Lbs.	N-12R	B2150EC-06	54.00
96 TE	9.6-124	5.4" Lbs.	N-12R	B2150EC-18	54.00
58 TE	5.8-75	3.5" Lbs.	N-12R	B2150EC-30	54.00
48 TE	4.8-62	7.1" Lbs.	N-12R	B2150EC-36	57.00
17 TE	1.7-22	5.6" Lbs.	N-12R	B2150EC-100	57.00
9.6 TE	.96-12.4	7 "Lbs.	N-12R	B2150EC-180	57.00
5.7 TE	.57-7.4	6.6" Lbs.	N-12R	B2150EC-300	57.00

*Available in totally enclosed, non-ventilated.

Rating: Single phase, 115 volt, 50/60 cycles input, for use with 115 volt DC motors up to 1/20 H.P., or series wound AC-DC motors up to .6 amperes.

Speed Range: Infinitely variable through speed ranges mentioned on table below. Full torque is available throughout the entire range.

Specifications: The S10 is a solid state silicon motor control using a silicon controlled rectifier. Constant field voltage and variable armature voltage are supplied to the motor by a silicon diode bridge rectifier. A transistor self regulating circuit and full wave filtered rectification assure dependable, trouble-free motor service. A female Amphenol connector is at the side of the control. All motors are supplied with 5 feet of vinyl covered cable attached to a mating male Amphenol locking connector. You do no wiring. The line cord is grey vinyl six feet long with ground-ing plug.

Features: Dynamic braking and reversing are accomplished by the three position switches on front of cabinet. The motor may be started and stopped with the same speed setting and may be stopped with or without dynamic braking. Do not use the power on/off switch for starting and stopping motor. The S10 is built into an attractive steel hammer-tone box which measures 4" x 5" x 3½" deep and weighs 2 pounds. The front panel is etched black aluminum. Two holes are located on back panel for ease of mounting.

Price: Control Only \$48.00.



S-20 MOTOR CONTROLLER

SCR / POTENTIOMETER CLOSED LOOP FEEDBACK FOR MOTORS UP TO 1/8 H.P

Similar to S-10

Rating: Single phase, 115 volt, 50/60 cycles input, for use with 115 volt DC motors up to 1/8 H.P., or series wound AC-DC motors up to 1.5 amperes.

Speed Range: Infinitely variable through speed ranges mentioned on table on following page. Full torque is available throughout the entire range.

Specifications: The S-20 is a solid state silicon motor control using a silicon controlled rectifier. Constant field voltage and variable armature voltage are supplied to the motor by a silicon diode bridge rectifier. A transistor self regulating circuit and full wave filtered rectification assure dependable, trouble-free motor service. A female connector is at the side of the control. All motors are supplied with 5 feet of vinyl covered cable attached to a mating male connector. You do no wiring. The line cord is grey vinyl six feet long with grounding plug.

Features: Dynamic braking and Reversing is accomplished by the three position switches on front of cabinet. The motor may be started and stopped with the same speed setting and may be stopped with or without dynamic braking. Do not use the power on/off switch for starting and stopping motor. The S-20 is built into an attractive steel hammertone box which measures 6-1/2" x 4" x 3-1/2" deep and weighs 2 pounds. The front panel is etched black aluminum. Circuit breaker protected.

Price: Control Only \$60.00.

S-12 MOTOR CONTROL SILICON/AUTOTRANSFORMER FOR MOTORS UP TO 1/8 H.P.



Rating: The S-12 Heller Control will operate shunt or compound-wound, standard voltage DC motors up to 1/8 H.P.; or series wound AC-DC motors up to 1.5 amperes. Speeds are dialed by turning a knob on the front panel of control.

Speed Range: Infinitely variable from approximately 10% of motor speed to 30% above motor speed. A range of 20 to 1 is available at the low setting with full torque ratings. When the hi-lo switch is set at high, a 25 to 1 speed range is obtained with a slight decrease in available torque.

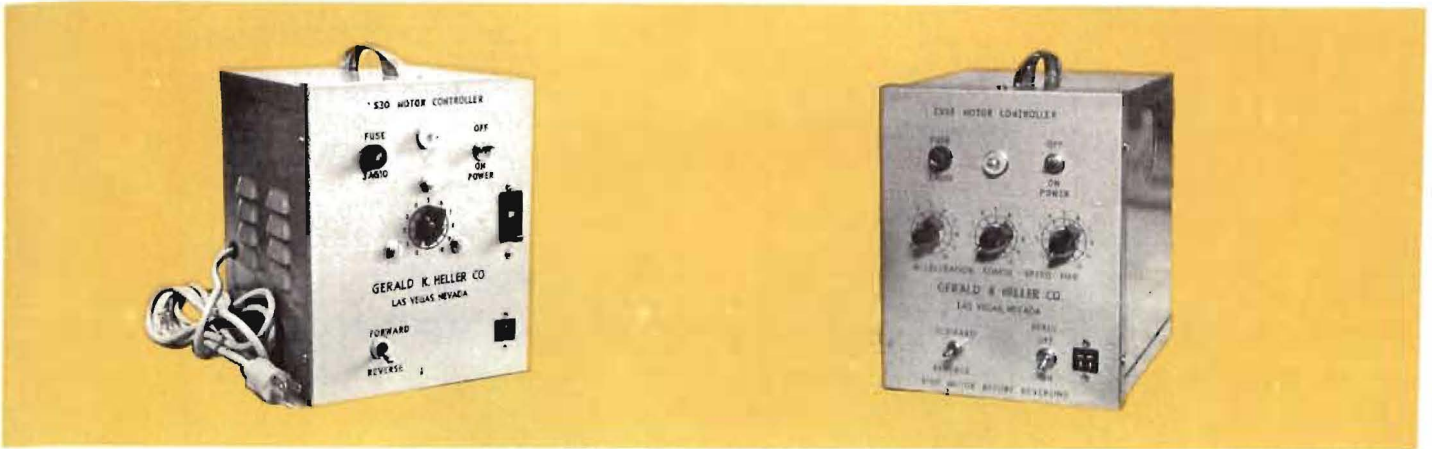
Specifications: A solid-state, silicon bridge rectifier, varied by an adjustable transformer, controls the armature of the motor. The field is supplied with 115 volts DC through a silicon bridge rectifier. At the high speed setting, a resistor is put in series with the field, which allows for a speed increase of approximately 30% above the top speed indicated.

The input to the control is 115 Volt, AC, 50/60 cycles. A three prong grounding plug and 6 feet of cord are supplied. The output is a Cinch Jones female plug at the back of control. Any motor supplied will have six feet of vinyl cable and a male plug to fit. You do no wiring. Reversing is accomplished by means of three position switch with center off. No warm-up time is required. The Armature circuit is protected by thermal circuit breaker. Pilot light, power on/off switch and main line fuse are provided. The S-12 control is furnished in steel cabinet with bright silver hammertone finish. Cabinet size is 6 1/2" wide, 4" high, 3" deep. Total weight is only 4 1/2 pounds.

PRICE CONTROLLER ONLY \$ 52.00

Base Speed RPM	Speed	Torque	Frame	Catalog No.	Net Price
1/8 HP					
1725 *	172-2415	73 "oz.	N-54	B2420C	\$ 60.00
1725 *	172-2415	73 "oz.	56Z	65118C	34.00
690 *	69-966	8 "Lbs.	N-54RL	B2420XC-2 1/2 L	137.95
345 *	34-483	16 "Lbs.	N-54RL	B2420C-05L	120.43
173 *	17-242	32 "Lbs.	N-54RL	B2420C-10L	85.00
86 *	8.6-120	54 "Lbs.	N-54RL	B2420C-20L	85.00
57 *	5.7-80	66 "Lbs.	N-54RL	B2420C-30L	85.00
43 *	4.3-60	77 "Lbs.	N-54RL	B2420C-40L	85.00
1/12 HP					
1725 *	172-2415	48 "oz.	N-53	B2418C	\$ 54.00
1125 *	112-1575	74 "oz.	N-54	B2370C	63.00
690 *	69-966	5.5 "Lbs.	N-53R	B2418XC-2 1/2	126.54
345 *	34-483	11 "Lbs.	N-54R	B2418XC-05	106.54
173 *	17-242	21 "Lbs.	N-53R	B2418C-10	78.50
86 *	8.6-120	37 "Lbs.	N-53R	B2418C-10	78.50
43 *	4.3-60	55 "Lbs.	N-53R	B2418C-40	78.50
1/15 HP					
1725 *	172-2415	39 "oz.	N-34	B2410C	\$ 50.00
690 *	69-966	4.3 "Lbs.	N-34RH	B2410XC-2 1/2	129.48
345 *	34-483	8.5 "Lbs.	N-34RH	B2410XC-05H	109.48
173 *	17-242	17 "Lbs.	N-34RH	B2410C-10H	75.00
86 *	8.6-120	29 "Lbs.	N-34RH	B2410C-20H	75.00
57 *	5.7-80	37 "Lbs.	N-34RH	B2410C-30H	75.00
43 *	4.3-60	44 "Lbs.	N-34RH	B2410C-40H	75.00
24 *	2.4-34	88 "Lbs.	N-34RJ	B2410C-72J	125.00
12 *	1.2-17	140 "Lbs.	N-34RJ	B2410C-144J	125.00
5.7 *	.57-8	219 "Lbs.	N-34RJ	B2410C-300J	125.00
1/20 HP					
3200	320-4480	15 "Lbs.	N-13	6576C	\$ 42.00
1725 *	172-2415	29 "oz.	N-33	B2408C	49.00
1125 *	150-1575	45 "oz.	N-53	B2368C	60.00
690 *	69-966	3 "Lbs.	N-33R	B2408XC-2 1/2	109.30
345 *	34.5-483	5.9 "Lbs.	N-33R	B2408XC-05	109.30
173 *	17.2-242	11.9 "Lbs.	N-33R	B2408C-10	72.00
86 *	8.6-120	18.3 "Lbs.	N-33R	B2408C-20	72.00
57 *	5.7-80	21 "Lbs.	N-33R	B2408C-30	72.00
43 *	4.3-60	20 "Lbs.	N-33R	B2408C-40	72.00
29 *	2.9-40	13 "Lbs.	N-33R	B2408C-60	78.00
1/40 HP					
1725	172-2415	14 "oz.	N-13	B2152C	\$ 41.00
1/50 HP					
1725	172-2415	11 "oz.	N-12	B2150C	\$ 39.00
690 *	69-966	1.2 "Lbs.	N-12RH	B2150XC-2 1/2 H	91.36
345 *	34.5-483	2.4 "Lbs.	N-12RH	B2150XC-05H	91.36
172 *	17.2-242	4.8 "Lbs.	N-12RH	B2150XC-10H	57.00
86 *	8.6-120	7.3 "Lbs.	N-12RH	B2150C-20H	57.00
57 *	5.7-80	8.8 "Lbs.	N-12RH	B2150C-30H	57.00
43 *	4.3-60	11.7 "Lbs.	N-12RH	B2150C-40H	57.00
29 *	2.9-40	13 "Lbs.	N-12RH	B2150C-60H	57.00
29 *	2.9-40	20 "Lbs.	N-12RG	B2150C-60G	65.00
19 *	1.9-25.6	26 "Lbs.	N-12RG	B2150C-90G	65.00
14 *	1.4-19.6	32 "Lbs.	N-12RG	B2150C-120G	65.00
7.2 *	.72-10.1	47 "Lbs.	N-12RG	B2150C-240G	65.00
1/70 HP					
2850	285-3990	4.8 "oz.	32	6469C	\$ 37.00
288 TE	28-403	2.2 "Lbs.	N-12R	B2150EC-06	54.00
96 TE	9.6-134	5.4 "Lbs.	N-12R	B2150EC-18	54.00
58 TE	5.8-81	3.5 "Lbs.	N-12R	B2150EC-30	54.00
48 TE	4.8-67	7.1 "Lbs.	N-12R	B2150EC-36	57.00
17 TE	1.7-23.8	5.6 "Lbs.	N-12R	B2150EC-100	57.00
9.6 TE	.96-13.4	7 "Lbs.	N-12R	B2150EC-180	57.00
5.7 TE	.57-8.0	6.6 "Lbs.	N-12R	B2150EC-300	57.00
4.1 TE	.40-5.6	5.7 "Lbs.	N-12R	B2150EC-432	57.00
3.6	.36-5.0	5.2 "Lbs.	N-12RG	B7052C-480G	67.00
1.6 TE	.16-2.2	2.2 "Lbs.	N-12R	B2150EC-1120	57.00
1/100 HP					
3300	330-4640	3 "oz.	N-13	6457C	\$ 30.00
1/150 HP					
1.6	.16-2.2	40 "Lbs.	N-12RG	B7096C-1080G	\$ 67.00

* Available in totally enclosed, non-ventilated.



CX 25 CONTROLLER

THYRATRON TYPE FOR MOTOR UP TO 1/4 H.P.

Rating: This controller operates motors up to 1/4 H.P. 115V D.C. and is powered from 115 volts AC through a standard NEMA three-pin grounding plug.

Speed Range: Both coarse and fine speed adjustments are provided, the fine adjustment giving about 10% variation about the point set on the coarse adjustment. In addition, an acceleration control allows the rate of buildup to the preset speed to be varied from zero to 20 seconds. This is most useful for winding applications.

Specifications: A three-position switch gives forward-stop-reverse operation and a brake switch controls the dynamic braking circuit which will stop the motor quickly if desired. Other standard equipment includes a line switch and fuse, pilot light, carrying handle and four-pin motor connector.

This unit uses the patented Heller self-correcting speed control circuit and includes a time delay to allow for proper tube warmup when the unit is first turned on.

It is contained in a steel cabinet 9" high x 7" wide x 7" high. You dial the speed you need. **PRICE CONTROLLER ONLY \$144.00**

S-30 CONTROLLER

SILICON/AUTOTRANSFORMER FOR MOTORS UP TO 1/2 H.P.

Rating: The S30 controller will operate 115V D.C. motors up to 1/2 H.P. from 115 volt AC lines.

Speed Range: Solid State Controller permits you to dial the speed you need with full torque over the entire speed range of 15 to 1.

Specifications: Conveniently mounted on the panel are a three position forward-stop-reverse switch and speed control knob. A special circuit allows the reversing switch to be thrown from forward to reverse without damaging the motor, as dynamic braking will be applied automatically during the reversal. Standard equipment for the S30 includes: line switch, fuse, carrying handle pilot light and motor circuit breaker, which will open if motor current exceeds 5 amperes for 15 seconds. A four pin connector is used. No warmup time is required due to solid state circuitry. The S30 is housed in a steel cabinet 9" high x 7" wide x 7" deep and is furnished complete with a standard NEMA three pin grounding plug and line cord.

PRICE CONTROLLER ONLY \$126.00

MOTORS FOR USE WITH CX25 AND S-30 CONTROLLERS

Base Speed RPM	Speed Range	Torque	Frame	Catalog No.	Net Price
1/3 HP					
3450 TE	345-4830	5 "Lbs.	56	D13-3450-1EM	\$ 95.00
1725 XP	172-2415	11.5 "Lbs.	H56	D13-1725-1XG	130.00
1725	172-2415	11.5 "Lbs.	H56	D13-1725-1DA	80.00
1725 TE	172-2415	11.5 "Lbs.	56	D13-1725-1EG	96.54
1125 TE	200-1575	18.5 "Lbs.	56	D13-1140-1EG	115.00
780 TE	78-1092	19 "Lbs.	G56SP	D13-780-1EM	174.50
420 XP	42-588	47 "Lbs.	H56SP	D13-420-1EM	220.50
420 TE	42-588	47 "Lbs.	H56SP	D13-420-1EM	191.90
420	42-588	47 "Lbs.	H56SP	D13-420-10M	186.50
190	19-266	103 "Lbs.	H56DP	D13-190-1EM	215.50
173 TE	17-242	89 "Lbs.	H56RW	D13-173-1EM	183.50
86 XP	8.6-120	154 "Lbs.	H56RW	D13-86-1XM	228.50
72 TE	7.2-100	172 "Lbs.	H56RW	D13-72-1EM	191.50
36 TE	3.6-50	256 "Lbs.	H56RW	D13-36-1EM	197.50
1/4 HP					
3300	330-4620	69 "oz.	RE-316	65199C	\$ 70.00
3300 TE	330-4620	69 "oz.	RE-316	65199-1C	80.00
1725 ★	172-2415	139 "oz.	N-55	B2422ZC	75.00
1725 TE	172-2415	139 "oz.	56	D14-1725-1EG	87.45
1725 XP	172-2415	139 "oz.	G-56	D14-1725-1XM	124.92
1125 TE	200-1575	14 "Lbs.	56	D14-1140-1EG	99.25
600	100-840	26 "Lbs.	66	65219-2C	95.00
780 TE	78-1092	19 "Lbs.	G56SP	D14-780-1EM	163.10
420	42-588	35 "Lbs.	G56SP	D14-420-10M	172.00
420 TE	42-588	35 "Lbs.	G56SP	D14-420-1EM	177.50
420 XP	42-588	35 "Lbs.	G56SP	D14-420-1XM	192.80
345	34-489	33 "Lbs.	G56RW	D14-345-10M	181.50
190 TE	19-226	78 "Lbs.	G56DP	D14-190-1EM	199.10
173 XP	17-242	66 "Lbs.	G56RW	D14-173-1XM	223.10
173 TE	17-242	66 "Lbs.	G56RW	D14-173-1EM	183.40
173 ★	17-224	75 "Lbs.	N-55RH	B2422ZC-10H	132.00
96 ★	9.6-134	115 "Lbs.	N-55RH	B2422ZC-18H	132.00
72 ★	7.2-100	177 "Lbs.	N-55RH	B2422ZC-24H	132.00
48 ★	4.8-67	254 "Lbs.	N-55RH	B2422ZC-36H	132.00
36 ★	3.6-50	254 "Lbs.	N-55RH	B2422ZC-48H	132.00
17 TE	1.7-23	588 "Lbs.	Print	65152C	165.00
Available					
13 TE	1.3-18.9	536 "Lbs.	G56RC	D14-13.5-1EM	241.02
9 TE	.9-12.6	717 "Lbs.	G56RC	D14-9-1EM	215.90
1/6 HP					
3450 ★	345-4830	49 "oz.	RE-316	65199-2C	\$ 65.00
1/8 HP					
1725 ★	172-2415	73 "oz.	N-54	B2420C	\$ 60.00
1725	172-2415	73 "oz.	56Z	65118C	34.00
690 ★	69-966	8 "Lbs.	N-54RL	B2420XC-2HL	137.95
345 ★	34-483	16 "Lbs.	N-54RL	B2420C-05L	120.43
173 ★	17-242	32 "Lbs.	N-54RL	B2420C-10L	85.00
86 ★	8.6-120	54 "Lbs.	N-54RL	B2420C-20L	85.00
57 ★	5.7-80	66 "Lbs.	N-54RL	B2420C-30L	85.00
43 ★	4.3-60	77 "Lbs.	N-54RL	B2420C-40L	85.00

TE = TOTALLY ENCLOSED XP = EXPLOSION PROOF
★ = CAN BE SUPPLIED T.E.

S-47 MOTOR CONTROLLER



S-47 MOTOR DIAL THE SPEEDS YOU WANT WITH THIS SOLID STATE MOTOR CONTROLLER

(For Motors up to 1/3 H.P.)

S-47A Motor Control

- Self-regulating variable speed motor controller
- No warm-up time required
- Dynamic Braking — Reversing

Selection of Motors for the S-47A will be found on page 61.

Rating: Infinitely Variable Speed Control for motors up to 1/3 H.P. 115V D.C. from 115 volt, A.C. lines.

Specifications: Solid State Silicon controlled rectifier solid state circuitry requires no warmup time. A Zener diode circuit controls a transistor which corrects speed for load changes and line voltage fluctuations. Full Rated Torque available over the entire speed range. Full Wave Filtered Rectification. Constant field voltage and variable armature voltage is supplied to motor by a silicon diode bridge rectifier, a silicon controlled rectifier and a transistor circuit which is self-correcting. The filter smooths the armature current minimizing motor heating and brush sparking. Reversible by means of three position toggle reversing switch. Dynamic braking is applied to the motor in the off position. Motor plugs into controller—no wiring needed... Operates on 115 volts, 50-60 cycles.

Three position switch (forward, Off, Reverse). Power ON-OFF switch... Standard NEMA 3-pin grounded plug and 6 foot cord. Pilot light... Line fuse... Motor fuse. **Speed Range:** Speed adjustments Dial permits speed to be adjusted over 20 to 1 speed range with no jumping and with stability. Extended Speed Range: Hi-Lo range switch lowers the field voltage to give higher speeds at reduced torque.

PRICE CONTROLLER S-47A ONLY . . . \$126.00



Foot operated speed control. Heavy duty model. This controller can operate the S47, S10, SX10-11 and SX10RB motor controllers. Price wired to controller \$65.00.

For 220 V AC operation, use Step-Down Transformer, Model SD-11 . . . \$30.00

MOTORS FOR S47 AND S50T CONTROLLERS

Base Speed RPM	Speed Range with S50T-10 System	Speed Range with S47A or S12A Control	Torque	Frame	Catalog No.	Net Price
1/3 HP						
3450 TE	200-4485	345-4830	5 "Lbs.	56	D13-3450-1EM	\$ 95.00
1725 XP	172-2240	172-2415	11.5" Lbs.	H56	D13-1725-NG	130.00
1725	172-2240	172-2415	11.5" Lbs.	H56	D13-1725-10A	80.00
1725 TE	172-2240	172-2415	11.5" Lbs.	56	D13-1725-1EG	96.54
1125 TE	112-1462	200-1575	18.5" Lbs.	56	D13-1140-1E	115.00
780 TE	78-1014	78-1092	19 "Lbs.	G56SP	D13-780-1EM	174.50
420 XP	42-546	42-588	47 "Lbs.	H56SP	D13-420-1EM	220.50
420 TE	42-546	42-588	47 "Lbs.	H56SP	D13-420-1EM	191.90
420	42-546	42-588	47 "Lbs.	H56SP	D13-420-IDM	186.50
190	19-247	19-266	103 "Lbs.	H56DP	D13-190-1EM	215.50
173 TE	17-224	17-242	89 "Lbs.	H56RW	D13-173-1EM	183.50
86 XP	8.6-112	8.6-120	154 "Lbs.	H56RW	D13-86-1XM	228.50
72 TE	7.2-93	7.2-100	172 "Lbs.	H56RW	D13-72-1EM	191.50
36 TE	3.6-46.8	3.6-50	256 "Lbs.	H56RW	D13-36-1EM	197.50
1/4 HP						
3300	200-4290	330-4620	69 "oz.	RE-316	65199C	\$ 70.00
3300 TE	200-4290	330-4620	69 "oz.	RE-316	65199-1C	80.00
1725 *	172-2240	172-2415	139 "oz.	N-55	B24222C	75.00
1725 TE	172-2240	172-2415	139 "oz.	56	D14-1725-1EG	87.45
1725 XP	172-2240	172-2415	139 "oz.	G-56	D14-1725-1XM	124.92
1125 TE	150-1462	200-1575	14 "Lbs.	56	D14-1140-1EG	99.25
600	100-780	100-840	26 "Lbs.	66	65219-2C	95.00
780 TE	78-1014	78-1092	19 "Lbs.	G56SP	D14-780-1EM	163.10
420	42-546	42-588	35 "Lbs.	G56SP	D14-420-IDM	172.00
420 TE	42-546	42-588	35 "Lbs.	G56SP	D14-420-1EM	177.50
420 XP	42-546	42-588	35 "Lbs.	G56SP	D14-420-1XM	192.80
345	34-449	34-489	33 "Lbs.	G56RW	D14-345-10M	181.50
190 TE	19-247	19-226	78 "Lbs.	G56DP	D14-190-1EM	199.10
173 XP	17-224	17-242	66 "Lbs.	G56RW	D14-173-1XM	223.10
173 TE	17-224	17-242	66 "Lbs.	G56RW	D14-173-1EM	183.40
173 *	17-224	17-224	75 "Lbs.	N-55RH	B24222C-10H	132.00
96 *	9.6-124	9.6-134	115 "Lbs.	N-55RH	B24222C-18H	132.00
72 *	7.2-93	7.2-100	177 "Lbs.	N-55RH	B24222C-24H	132.00
48 *	4.8-62	4.8-67	254 "Lbs.	N-55RH	B24222C-36H	132.00
36 *	3.6-46	3.6-50	254 "Lbs.	N-55RH	B24222C-48H	132.00
17 TE	1.7-22'	1.7-23	588 "Lbs.	Print Available	65152C	165.00
13 TE	1.3-16.9	1.3-18.9	536 "Lbs.	G56RC	D14-13.5-1EM	241.02
9 TE	.9-11.7	.9-12.6	717 "Lbs.	G56RC	D14-9-1EM	215.90
1/6 HP						
3450 *	200-4485	345-4830	49 "oz.	RE-316	65199-2C	\$ 65.00
1/8 HP						
1725 *	172-2240	172-2415	73 "oz.	N-54	B2420C	\$ 60.00
1725	172-2250	172-2415	73 "oz.	56Z	65118C	34.00
690 *	69-897	69-966	8 "Lbs.	N-54RL	B2420XC-2½L	137.95
345 *	34-897	34-483	16 "Lbs.	N-54RL	B2420C-05L	120.43
173 *	17-224	17-242	32 "Lbs.	N-54RL	B2420C-10L	85.00
86 *	8.6-112	8.6-120	54 "Lbs.	N-54RL	B2420C-20L	85.00
57 *	5.7-74	5.7-80	66 "Lbs.	N-54RL	B2420C-30L	85.00
43 *	4.3-55	4.3-60	77 "Lbs.	N-54RL	B2420C-40L	85.00
1/12 HP						
1725 *	200-2240	172-2415	48 "oz.	N-53	B2418C	\$ 54.00
1125 *	150-1462	112-1575	74 "oz.	N-54	B2370C	63.00
690 *	69-897	69-966	5.5" Lbs.	N-53R	B2418XC-2½	126.54
345 *	34-448	34-483	11 "Lbs.	N-54R	B2418XC-05	106.54
173 *	17-224	17-242	21 "Lbs.	N-53R	B2418C-10	78.50
86 *	8.6-112	8.6-120	37 "Lbs.	N-53R	B2418C-10	78.50
43 *	4.3-55	4.3-60	55 "Lbs.	N-53R	B2418C-40	78.50

* Available in totally enclosed, non-ventilated.

Base Speed RPM	Speed Range with S50T-10 System	Speed Range with S47A or S12A Control	Torque	Frame	Catalog No.	Net Price
1/15 HP						
1725 *	172-2240	172-2415	39 "oz.	N-34	B2410C	\$ 50.00
690 *	69-897	69-966	4.3" Lbs.	N-34RH	B2410XC-2½	129.48
345 *	34-448	34-483	8.5" Lbs.	N-34RH	B2410XC-05H	109.48
173 *	17-224	17-242	17 "Lbs.	N-34RH	B2410C-10H	75.00
86 *	8.6-112	8.6-120	29 "Lbs.	N-34RH	B2410C-20H	75.00
57 *	5.7-74	5.7-80	37 "Lbs.	N-34RH	B2410C-30H	75.00
43 *	4.3-55	4.3-60	44 "Lbs.	N-34RH	B2410C-40H	75.00
24 *	2.4-31	2.4-34	88 "Lbs.	N-34RJ	B2410C-72J	125.00
12 *	1.2-15.6	1.2-17	140 "Lbs.	N-34RJ	B2410C-144J	125.00
5.7 *	.57-7.4	.57-8	219 "Lbs.	N-34RJ	B2410C-300J	125.00
1/20 HP						
3200	200-4160	320-4480	15 "oz.	N-13	6576C	\$ 42.00
1725 *	172-2240	172-2415	29 "oz.	N-33	B2408C	49.00
1125 *	150-1462	150-1575	45 "oz.	N-53	B2368C	60.00
690 *	69-897	69-966	3 "Lbs.	N-33R	B2408XC-2½	109.30
345 *	34-448	34.5-483	5.9" Lbs.	N-33R	B2408XC-05	109.30
173 *	17-224	17.2-242	11.9" Lbs.	N-33R	B2408C-10	72.00
86 *	8.6-112	8.6-120	18.3" Lbs.	N-33R	B2408C-20	72.00
57 *	5.7-74	5.7-80	21 "Lbs.	N-33R	B2408C-30	72.00
43 *	4.3-55	4.3-60	20 "Lbs.	N-33R	B2408C-40	72.00
29 *	2.9-37	2.9-40	13 "Lbs.	N-33R	B2408C-60	78.00
1/40 HP						
1725	172-2240	172-2415	14 "oz.	N-13	B2152C	\$ 41.00
1/50 HP						
1725	172-2240	172-2415	11 "oz.	N-12	B2150C	\$ 39.00
690 *	69-897	69-966	1.2" Lbs.	N-12RH	B2150XC-2½H	91.36
345 *	34-448	34.5-483	2.4" Lbs.	N-12RH	B2150XC-05H	91.36
172 *	17-224	17.2-242	4.8" Lbs.	N-12RH	B2150XC-10H	57.00
86 *	8.6-112	8.6-120	7.3" Lbs.	N-12RH	B2150C-20H	57.00
57 *	5.7-74	5.7-80	8.8" Lbs.	N-12RH	B2150C-30H	57.00
43 *	4.3-55	4.3-60	11.7" Lbs.	N-12RH	B2150C-40H	57.00
29 *	2.9-37	2.9-40	13 "Lbs.	N-12RH	B2150C-60H	57.00
29 *	2.9-37	2.9-40	20 "Lbs.	N-12RG	B2150C-60G	65.00
19 *	1.9-24.7	1.9-26.6	26 "Lbs.	N-12RG	B2150C-90G	65.00
14 *	1.4-18.2	1.4-19.6	32 "Lbs.	N-12RG	B2150C-120G	65.00
7.2 *	.72-9.3	.72-10.1	47 "Lbs.	N-12RG	B2150C-240G	65.00
1/70 HP						
2850	285-3705	285-3990	4.8" oz.	32	6469C	\$ 37.00
288 TE	28-374	28-403	2.2" Lbs.	N-12R	B2150EC-06	54.00
96 TE	9.6-124	9.6-134	5.4" Lbs.	N-12R	B2150EC-18	54.00
58 TE	5.8-75	5.8-81	3.5" Lbs.	N-12R	B2150EC-30	54.00
48 TE	4.8-62	4.8-67	7.1" Lbs.	N-12R	B2150EC-36	57.00
17 TE	1.7-22	1.7-23.8	5.6" Lbs.	N-12R	B2150EC-100	57.00
9.6 TE	.96-12.4	.96-13.4	7 "Lbs.	N-12R	B2150EC-180	57.00
5.7 TE	.57-7.4	.57-8.0	6.6" Lbs.	N-12R	B2150EC-300	57.00
4.1 TE	.40-5.2	.40-5.6	5.7" Lbs.	N-12R	B2150EC-432	57.00
3.6	.36-4.6	.36-5.0	5.2" Lbs.	N-12RG	B7052C-480G	67.00
1.6 TE	.16-2.0	.16-2.2	2.2" Lbs.	N-12R	B2150EC-1120	57.00
1/100 HP						
3300	200-4290	330-4640	3 "oz.	N-13	6457C	\$ 30.00
1/150 HP						
1.6	.16-2.0	.16-2.2	40 "Lbs.	N-12RG	B7096C-1080G	\$ 67.00

TE - TOTALLY ENCLOSED - XP - EXPLOSION PROOF

All motors on this page may be used in conjunction with the S50T-10 system and S47A control. However the S-12 control can be used only with 1/8, 1/12, 1/15, 1/20, 1/40, 1/50, 1/70, 1/100 and 1/150 motors.

HELLER MOTOR CONTROLS

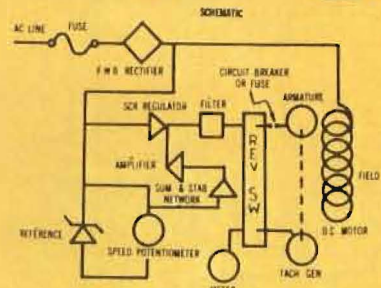
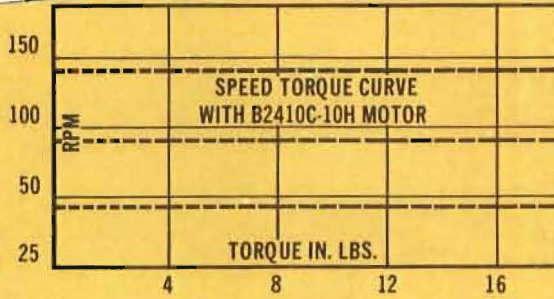


VARIABLE SPEED MOTOR CONTROL ($\pm 1\%$ Accuracy)

with the VIS-COUNT TACHOMETER GENERATOR FEEDBACK SYSTEM

- For Motors up to 1/3 H.P.
- No wiring necessary
- Speed Read-Out on 4 1/2" Meter (which can be remotely located)
- Sensitivity Control for Optimum Matching of Load Characteristics of the System
- 10 Turn Vernier Calibrated Precision Potentiometer

S50T-10 SYSTEM



For selection of motors which can be used with this system, see page 62

Rating: The S50T-10 tachometer-generator feedback system is a closed-loop, precision system for controlling the speed of 115 volt, DC shunt motors rated up to 1/3 H.P., from 115 VAC.

Speed Range: A 25 to 1 speed range is easily obtained with $\pm 1\%$ regulation. Full torque is available at all speeds.

Specifications: A transistor amplifier and stabilization circuit controls the silicon controlled rectifier so that full wave filtered DC voltage is supplied to the motor armature in the amount required by the particular load in order to hold the speed at the pre-set R.P.M. The precision B & B Tachometer Generator furnishes a signal which is compared to the command signal set on the coarse and fine speed 10 turn calibrated adjusting potentiometer in the Zener Diode reference circuit. Voltage changes in the A.C. supply lines, as well as load changes, have negligible effect on the system. An accuracy of $\pm 1\%$ is to be expected. A sensitivity control is provided to match the load characteristics to the system.

Tachometer-Generator: A precision tachometer-generator is used to assure accurate readings and regulation.

The Vis-count tach-generator is a ball bearing precision instrument. The stabilized ceramic magnets can't be damaged by short circuits or overloads. Silver graphite brushes assure accurate signal. The voltage output is linear within $\pm 0.05\%$.

Life tests on M176 tach-generators at various speeds up to 10,000 RPM with 5 milliamper load have consistently resulted in brush life equivalent to 100,000 hours at 3000 RPM. For most applications an average brush life of 10^{10} revolutions may be expected. If a gearmotor is ordered, we calibrate the indicating

meter to the proper gear shaft output speed.

Features: A six-foot vinyl covered cord and a three prong grounding plug accept the AC input. The motor is connected to the control unit by means of a four conductor, vinyl covered cable with a Cinch Jones plug. The control has a female connector. In addition, 20 feet of wire is supplied for remote location of the indicating meter which is a standard 4 1/2" instrument furnished in a black wrinkle finished meter cabinet. A four pin Amphenol connector is provided for the tachometer-generator and meter leads. **You do no wiring.**

Reversing is provided for by means of a three-pole, center off switch. Dynamic braking is applied to the motor in the "off" position. No warm-up time is required because of solid state circuitry. Pilot light and fuses for both armature circuit and AC lines are standard features. Power on/off switch is also located on front panel.

The S50T control measures 6 1/4" wide, 7" high, 5" deep. A fan cools the interior of the control. Net weight of control only is 6 1/2 lbs. The steel drip proof cabinet is a blue green hammer-tone finish with an etched aluminum front panel.

Speed Indicator: The precision 4 1/2" meter is custom made to our specifications. D'Arsonval movement is standard. All meters are damped and are accurate to within $\pm 1\%$ of full scale reading. A calibrating potentiometer is located at rear of meter so that re-calibration can be made in the field if necessary.

Complete System, Less Motor, \$361.00
Controller Only \$170.00

For selection of motors which can be used with this system, see page 62

For 220 V. AC operation, use Step-Down Transformer, Model SD-11 ... \$30.00

HELLER OPEN-CHASSIS CONTROLS

TYPE

HELLER SX10-34B

For motors up to 1/20 HP; complete controller on printed circuit board 3" by 4" with mounting brackets. AC line and motor connections by means of wire leads. Speed control potentiometer and knob supplied for mounting on customer's panel wired to controller with 12" leads.



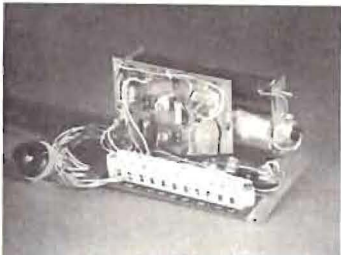
HELLER GT21X

Complete controller for series wound motors rated approximately 1/4-ampere full load; constructed on printed circuit board 3" x 4" with mounting brackets. AC input and motor output leads furnished. Speed control potentiometer supplied with knob for mounting on customer's panel, wired to controller with 12" leads.



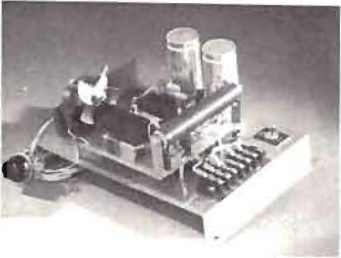
HELLER SX10-11

Open frame controller for DC shunt-wound or permanent-magnet motors up to 1/6 HP. Printed circuit board construction with terminal strip connections mounted on steel panel 4" x 6".



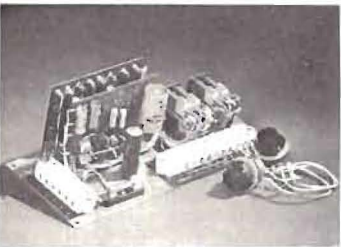
HELLER S47X

Open frame controller for use with 115 volt DC shunt wound, compound-wound or permanent-magnet motors up to 1/6 HP. Controller mounted on steel chassis. Connections by means of terminal strips. Speed control potentiometer supplied for customer's panel and connected to controller through terminal strip.



OTHER OEM CONTROLLERS

Many controllers have been developed for specialized applications and are now standard items. For example, the SX10RB controller for automated operations and the SX10T/S50TX series of precision controllers are available from stock. If you have a special problem, a slight modification of one of our standard controllers may well provide the answer.



SPECIFICATION

100-130 volts, 50-60 cps AC input; output for standard 115-volt DC shunt-wound or permanent-magnet motor with full-wave filtered armature voltage. Infinitely variable speed maintained at preset value regardless of load variations or line voltage changes by self-correcting zener diode SCR circuit. Pilot light, reversing switch, circuit breaker, fuses, etc., can be supplied as accessories. Matching plain and gearhead motors in stock for use with this controller.

100-130 volts, 50-60 cps AC input; output to supply full-wave filtered DC voltage to series wound motors with infinitely variable speed adjustment up to maximum rating of motor. Controller will correct for changes in load and line voltage in order to compensate the normally poor speed regulation of series wound motors. The self-regulating zener diode SCR circuit, use of full-wave filtered DC voltage, and the feedback network used in this controller allow series (universal) motors to be employed in applications which have heretofore required much more expensive systems. Fuses, circuit breakers, switches, pilot lights, etc. can be supplied as optional accessories, and matching series-wound motors are also available. The GT21 1/40 HP 5000 RPM motor with high-speed shaft extension and 18:1 gearhead having rated torque of 5.4 in.-lbs is in stock and can be supplied for use with this controller.

100-130 volts 50-60 cps AC input through terminal strip; AC line fuse included. 110 volts DC field supply and variable full-wave filtered DC armature supply to motor through terminal strip. Speed control potentiometer and knob with 36" leads supplied for mounting on customer's panel. Infinitely variable pre-set speed as set on control potentiometer will be maintained by the zener diode SCR self-correcting feedback-type circuit, regardless of load or line voltage changes. A pair of contacts is provided on the terminal strip for a high-speed return or positioning operation. Opening the circuit between these contacts enables speeds up to 150% of base speed to be attained (without line voltage correction). Matching plain and gearhead motors of various ratios in 1/40, 1/20 and 1/6 HP ratings are in stock for shipment with these controllers, although any standard 115 volt DC motor will operate satisfactorily from this controller.

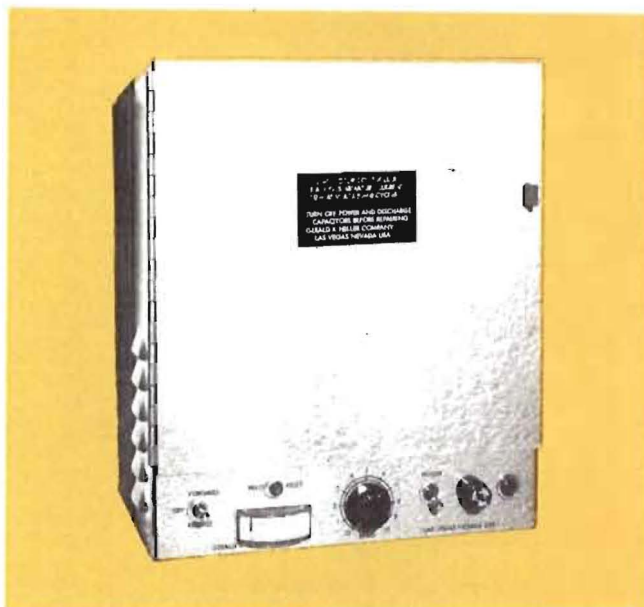
100-130 volt 50-60 cps AC input: 110 volt field supply and 0 to 115 volt full-wave filtered DC armature supply through terminal strip connections. Setting of speed control potentiometer will determine motor operating speed and a self-correcting zener-diode SCR circuit maintains this preset speed, compensating for line or load changes. Heavy filtering of armature circuit gives smooth operation over the entire useful range of motor. Reversing switches, fuses, circuit breakers, pilot lights, provision for limit switches or fast return operations can be supplied as accessories. Matching DC motors with and without gearheads up to 1/6 HP are in stock, although this controller can be used to advantage with any standard 115 volt DC motor. Special voltage windings are not required, and frame sizes need not be increased inordinately, as is the case with half-wave controllers. Heavy-duty diodes and SCR allow for starting surges; transient protection is incorporated to protect against voltage spikes.

Typical of Heller special designs, the SX10RB controller (left) is similar to the SX10-11 except that it includes plug-in relays for reversing, dynamic braking, automatic traversing, and push-button or foot-switch control. Two speed-control potentiometers provide different forward and reverse speeds. Terminal strip connections are provided for AC line, motor, potentiometer, relaying and sequencing.

4 page complete catalog is available on these open chassis speed controls.

S-250 MOTOR CONTROLLER

SCR/POTENTIOMETER FOR MOTORS UP TO 1/2 H.P. ON 115 VAC AND UP TO 1H.P. ON 230 VAC



Input: Single phase 208/230 volt AC 50/60 cycles when motors up to 1 H.P. 230 volts DC are used, or 115 volt AC 50/60 cycles when motors up to 1/2 H.P. 115 volts DC are used. Series wound 115 volt AC-DC motors up to 4 amperes may also be used. Field output is either 200 volts or 100 volts DC according to line voltage

Speed Range: Infinitely Variable from 10% to 110% of motor speed by potentiometer on front panel of control. Below 10% of base speed armature cogging may be encountered.

Specifications: All of the components are solid state. The armature of the motor is in series with a silicon controlled rectifier connected across a heavy silicon diode, full-wave bridge rectifier. The rectified current is filtered so that motor heating and brush sparking is minimized. The field of motor is energized by the same full-wave rectifier. The silicon controlled rectifier is pulsed by a unijunction transistor which is fired by an RC circuit. A feedback loop from the speed control fires the unijunction early if the motor is loaded giving very good speed regulation. Speed correction (regulation) of 10% or better is standard. A terminal strip with Quik-lock connections is incorporated. The motor supplied is equipped with a 6 foot vinyl covered 4-conductor cable which is color coded to the terminal strip. You do no wiring.

Reversing is accomplished by three pole switch with center position off. No warmup time is required. The controller is protected with a fuse and in addition there is also a circuit breaker in the armature circuit to protect the motor. Pilot light is furnished, as is a meter which tells at a glance the amount of current the motor is drawing. Also, there is incorporated in the circuit a slight time delay for the armature so that the field of the motor will be energized before the armature current is drawn. A main line switch is provided.

This controller is housed in a steel cabinet 10" wide x 12" high x 3 1/2" deep, enameled silver hammertone. The front cover is hinged and swings to the left of the cabinet allowing easy accessibility to components and terminal strip. Weight 10 1/2 lbs.

PRICE CONTROLLER ONLY \$178.00

MOTORS FOR USE WITH S250 CONTROLLER

FOR 115 VDC MOTORS

HP	BASE SPEED	SPEED RANGE	TORQUE	TYPE	CAT. NO.	PRICE
1/2	72	7.80	258" LBS	7418RW	65262(A)C	\$199.00
1/2	173	17.198	133" LBS	7418RW	65264(A)C	\$199.00
1/2	280	28.310	109" LBS	7418SP	65266(A)C	\$181.00
1/2	420	42.460	70" LBS	7418SP	65268C	\$160.00
1/2	860	86.1000	34" LBS	93	65272.1C	\$175.00
1/2	1750	175.2000	17" LBS	56	65285C	\$94.00
1/2	3450	345.4000	8.7" LBS	56	65298C	\$95.00
1/3	860	86.1000	26" LBS	56	65221.1C	\$120.00

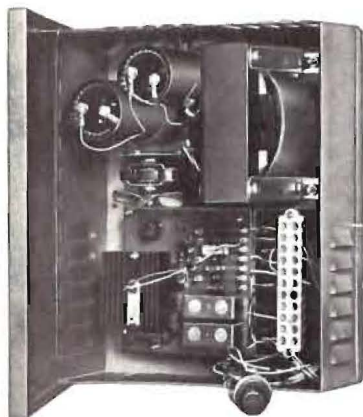
FOR 230 VDC MOTORS

1/4	58	5.8.64	147" LBS	H56RW	65159C	\$115.00
1/3	72	7.80	172" LBS	G56RW	65208(A)C	\$163.00
1/3	173	17.200	89" LBS	G56RW	65215(A)C	\$163.00
1/3 FL MT.	1750	175.2000	11.5" LBS	H56	65240C	\$69.00
1/3	1750	175.2000	11.5" LBS	H56	65241C	\$82.00
1/3	3450	345.4000	5.6" LBS	56	65252C	\$90.00
1/2	48	4.95	355" LBS	7420RW	65259(A)C	\$245.00
1/2	72	7.80	258" LBS	7418RW	65263(A)C	\$203.00
1/2	173	17.200	133" LBS	7418RW	65265(A)C	\$203.00
1/2	280	28.310	109" LBS	7418SP	65267(A)C	\$183.00
1/2	420	42.460	70" LBS	7418SP	65270(A)C	\$179.00
1/2TE	420	42.460	70" LBS	7418SP	65269C	\$189.00
1/2TE	780	78.858	39" LBS	7418SP	65271.1C	\$183.00
1/2	1150	115.1300	26.2" LBS	224	65275C	\$125.00
1/2	1750	175.2000	17.5" LBS	56	65288C	\$94.00
1/2	1750	175.2000	17.5" LBS	66	65290C	\$93.00
1/2 FL MT.	1750	175.2000	17.5" LBS	66	65289C	\$90.00
1/2	3450	345.4000	8.7" LBS	56	65299C	\$100.00
1/2	6000	600.7000	4.5" LBS	RE 316	RE 316.7C	\$135.00
3/4	48	4.8.53	531" LBS	7425RW	65300.1C	\$240.00
3/4	72	7.80	492" LBS	7425RW	65304(A)C	\$240.00
3/4	125	12.140	355" LBS	7418SP	65307	\$205.00
3/4	172	17.200	199" LBS	7425RW	65309(A)C	\$230.00
3/4	420	42.460	109" LBS	7425SP	65313(A)C	\$240.00
3/4	860	86.1000	26" LBS	204	65317C	\$150.00
3/4	1140	115.1300	39" LBS	203	65320C	\$135.00
3/4	1750	175.2000	26" LBS	56	65333C	\$102.00
3/4	1750	175.2000	26" LBS	66	65335C	\$104.00
3/4	1750	175.2000	26" LBS	203	65336C	\$110.00
3/4	1750	175.2000	26" LBS	204	65337(D)C	\$120.00
3/4	3450	300.4000	8.7" LBS	66	65341C	\$110.00
1	48	4.8.53	460" LBS	186A/W200A	65AREA.1	\$550.00
1	96	9.106	460" LBS	203RW 186A/W200A	65345C	\$550.00
1	173	17.200	280" LBS	186A/W200A	65AREA.2	\$550.00
1	420	42.460	145" LBS	186A/A010	65AREA.3	\$585.00
1	860	86.1000	68" LBS	224	65348(W)C	\$199.00
1	1150	115.1300	53" LBS	224	65350C	\$145.00
1 TESB	1750	175.2000	35" LBS	73	65360C	\$140.00
1	1750	175.2000	35" LBS	73	65316C	\$190.00
1	3450	345.4000	34" LBS	74	65364C	\$160.00



PRINTED MOTORS PLUS HELLER SPEED CONTROL

300 TO 1 SPEED RANGE 10 TO 3300 RPM FOR 368 AND 488, 9 TO 2700 RPM FOR 668



OPTIONAL
10 Turn Potentiometer with
Vernier, Counting Down Dial \$40 Extra
Installed

Now, for the first time, a unique motor control system adds precise speed control to the versatility of the compact PMI Printed Motor. In a single Heller/Printed Motor system, you are afforded a controlled speed range wide enough for virtually every application.

The precision-built printed motor eliminates the iron rotor and coils found in ordinary motors. Instead, the printed motor features a thin, disc-type armature made of sturdy epoxy-glass on which conductors are printed. This unique design makes the armature inductance negligible, thereby greatly extending motor life under start-stop conditions by elimination of sparking damage to the commutator and brushes. The motor is reversible up to several hundred times a second.

The uninsulated conductor pattern of the thin, flat armature produces broad cooling surfaces which allow for high current pulses and, in turn, extremely high pulse torque values.

And because the flat rotor has conductors printed directly on it, no separate commutator is needed. The epoxy-glass armature contains about 100 commutator segments, eliminating cogging even at extremely low speeds. Minimal cogging permits a speed drive, allowing you to use the motor in a variety of situations, adapting it to new functions as they arise.

This Heller Controller-Printed Motor System provides a stepless full range of speeds from 10 to 3300 RPM, **without motor cogging**. Minimal cogging also results in unusually smooth torque over the entire speed range—torque so smooth that gearless low speed drives are now possible.

The Heller Controller is a self-regulating solid-state device that converts AC to DC power for the direct-drive Printed Motor. Speed regulation from no load to full load is 7% or better, even with AC line voltage changes of $\pm 15\%$.

PRINTED MOTOR SPECIFICATIONS

MODEL

Rated Torque (continuous duty)	12 ounce-inches
Maximum Pulse Torque Capability (intermittent)	150 ounce-inches
Armature Inertia (including hub and shaft)	.004 oz.-in-sec ²
Armature Inductance	Less than 100 micro-henries
Rated Speed (continuous duty)	3300 RPM
Rated Current for 70°C rise (continuous)	7.0 amps
Maximum Stall Current (continuous)	5 amps
Rated Voltage	12 volts dc
Power Output at 3300 rpm	1/25 H.P.
Magnetic Field	8 pole Alnico
Number of Commutation segments	97
Armature Resistance	.63 ohms
Maximum Friction Torque	1.5 ounce-inches
Weight	3 pounds

MODEL

Rated Torque (continuous duty)	42.5 ounce-inches
Maximum Pulse Torque Capability (intermittent)	375 ounce-inches
Armature Inertia (including hub and shaft)	.018 oz.-in-sec ²
Armature Inductance	Less than 100 micro-henries
Rated Speed (continuous duty)	3300 RPM
Rated Current for 70°C rise (continuous)	7.5 amps
Maximum Stall Current (continuous)	6 amps
Rated Voltage	24 volts dc
Power Output at 3300 rpm	1/7 H.P.
Magnetic Field	8 pole Alnico
Number of commutation segments	121
Armature Resistance	.600 ohms
Maximum Friction Torque	2.0 ounce-inches
Weight	6.5 pounds

MODEL 668

Rated Torque (continuous duty)	140 ounce-inches
Maximum Pulse Torque Capability (intermittent)	1175 ounce-inches
Armature Inertia (including hub and shaft)	.088 oz.-in-sec ²
Armature Inductance	Less than 100 micro-henries
Rated Speed (continuous duty)	2700RPM
Rated Current for 70°C rise (continuous)	10 amps
Maximum Stall Current (continuous)	8 amps
Rated Voltage	36 volts dc
Power Output at 2700 rpm	3/8 H.P.
Magnetic Field	8 pole Alnico
Number of commutation segments	145
Armature Resistance	.40 ohms
Maximum Friction Torque	8 ounce-inches
Weight	13 pounds

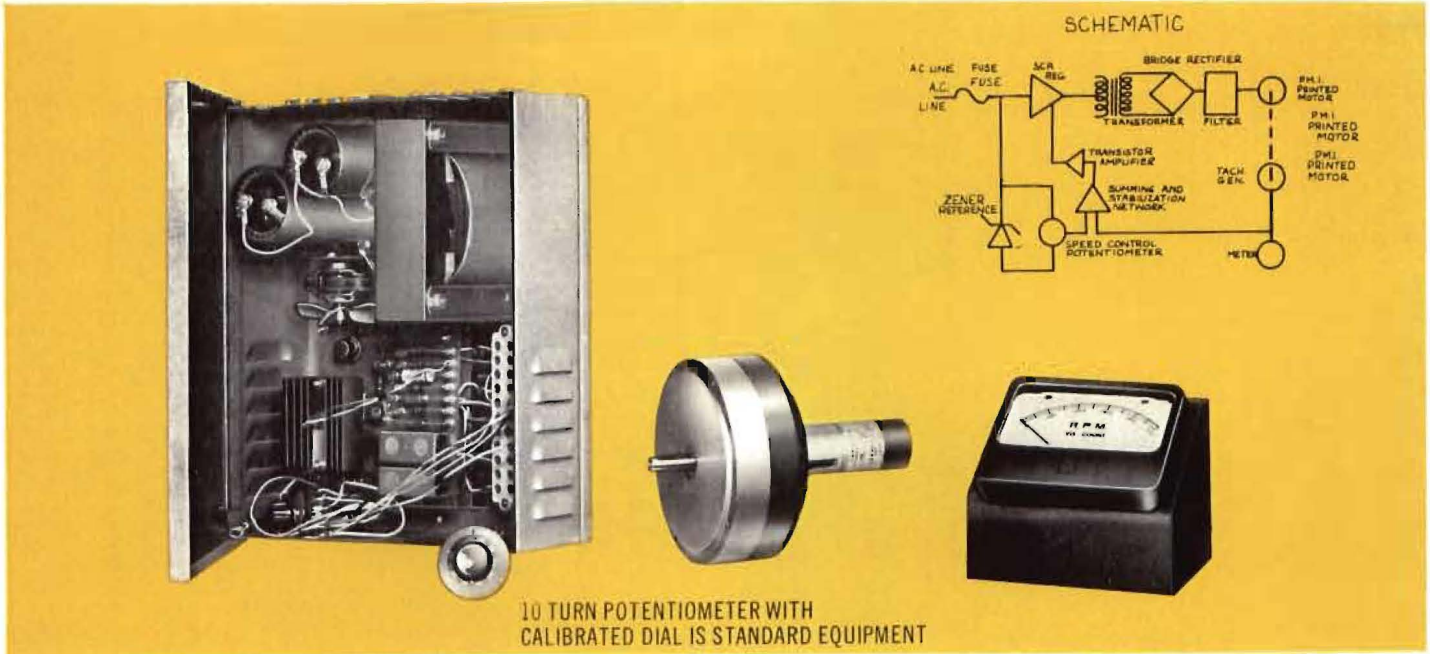
PM 75 - 368 MOTOR AND CONTROL \$285.00

PM 75 - 488 MOTOR AND CONTROL \$309.00

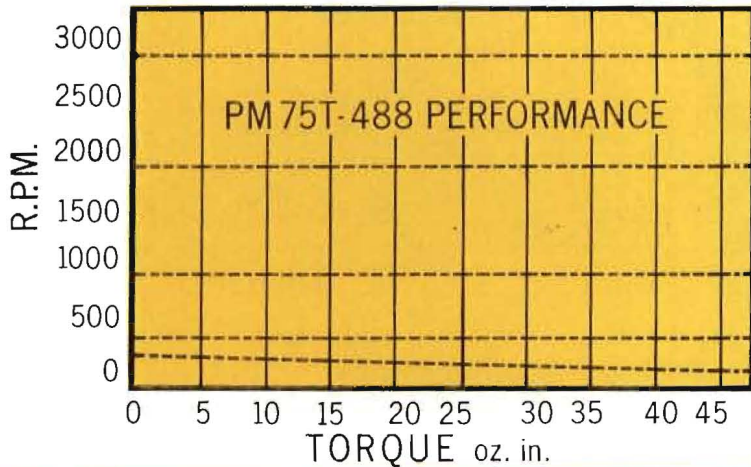
PM 100 • 668 MOTOR AND CONTROL \$445.00

NEW HELLER / PRINTED MOTOR

THE VARIABLE SPEED DRIVE WITH A 1000 TO 1 SPEED RANGE



10 TURN POTENTIOMETER WITH CALIBRATED DIAL IS STANDARD EQUIPMENT



Characteristics:

Basically incorporating the 368, 488 and 668 motors described previously, the addition of a Vis-count M176T2 tachometer-generator allows better than 1% regulation through a 1000 to 1 speed range, with line voltage correction. Overall speed range is 3300 to 3.3 RPM.

Operation:

The M176T2 tach-generator is mounted on the appropriate PM motor and will signal the PM75T control a voltage that is compared to a standard in the control circuit. Any deviation from the standard automatically and instantly signals the motor to increase or reduce speed. Input voltage of 115 volt AC single phase is standard. Rotation: Reversible.

368 MOTOR

★Add 4" to length for Tachometer

PM-75T-368 TACHOMETER SYSTEM, MOTOR, AND CONTROL \$609.00
 PM-75T-488 TACHOMETER SYSTEM, MOTOR, AND CONTROL \$634.00
 PM-75T-668 TACHOMETER SYSTEM, MOTOR, AND CONTROL \$789.00

488 MOTOR

668 MOTOR

QUANTITY DISCOUNTS AVAILABLE