

**HTA SERIES  
PREMIUM EFFICIENCY  
(HIGH AMBIENT TEMPERATURE, HIGH ALTITUDE)**



**VHS/VSS PRICE CATALOG  
TEFC AND WPI**



At BMR USA LLC our goal is simple: to provide high quality, premium electric motors and replacement parts. Most importantly, we strive to provide the best customer service in the nation with diligent responses to all unforeseen problems and inquiries that may occur during daily business transactions. Our channel to the marketplace is driven by our customers' needs, and we will continue to be responsive to those needs as we develop our products and procedures. We are dedicated to excellence-in service, growth, and innovation. When you are ready to deal with a company that is focused on providing premium products along with excellent customer service, please give us a call and we will take care of the rest. We:

- Spare no effort in supplying you the right product at the right time with a commitment to value.
- Provide fast, accurate technical support and pricing with friendly Customer Account Support.
- Provide Instant account facilities available by phone or facsimile.
- Will ensure Quality Control Procedures are in place to guarantee continual improvement in products and services.
- Have the capability for motor modifications and custom builds.
- Pride ourselves on fast delivery and ease of doing business.

## TABLE OF CONTENTS

MOTOR DESIGNATION EXAMPLES _____	3	QUICK REFERENCE GUIDE (LUBRICATION) _____	26
ELECTRIC MOTOR TYPES _____	4	QUICK REFERENCE GUIDE (CRITICAL FRAME DIMENSIONS WP1/TEFC) _____	27
VERTICAL HOLLOW SHAFT CONSTRUCTION (WP1) _____	5	QUICK REFERENCE GUIDE (TEMPERATURE INSULATION SYSTEMS) _____	28
SHAFT GROUNDING PROVISIONS _____	6	QUICK REFERENCE GUIDE (BASE DIAMETER) _____	29
VHS WP1 1800 LOW VOLTAGE MOTOR LIST PRICING _____	7-8	QUICK REFERENCE GUIDE (NOISE) _____	30-31
VHS WP1 1800 MEDIUM VOLTAGE MOTOR LIST PRICING _____	9	QUICK REFERENCE GUIDE (STARTING) _____	32
VSS WP1 1800 LOW VOLTAGE MOTOR LIST PRICING _____	10-11	QUICK REFERENCE GUIDE (TEMPERATURE RISE) _____	33
VSS WP1 1800 MEDIUM VOLTAGE MOTOR LIST PRICING _____	12	QUICK REFERENCE GUIDE (FRACTIONAL DECIMAL METRIC) _____	34
VHS TEFC 1800 LOW VOLTAGE MOTOR LIST PRICING _____	13-14	QUICK REFERENCE GUIDE (PERFORMANCE DATA) _____	35-36
VSS TEFC 1800 LOW VOLTAGE MOTOR LIST PRICING _____	15-16	QUICK REFERENCE GUIDE (WP1 DIMENSIONAL DRAWING) _____	37-38
MODIFIABLE PRICING OPTIONS (COUPLINGS) _____	17-19	QUICK REFERENCE GUIDE (TEFC DIMENSIONAL DRAWING) _____	39-40
MODIFIABLE PRICING OPTIONS (STEADY BUSHING) _____	20-21	LOW VOLTAGE CROSS REFERENCE CHART _____	41
MODIFIABLE PRICING OPTIONS (BASE WP1) _____	22	WARRANTY, SALES POLICES AND PROCEDURES _____	42-44
MODIFIABLE PRICING OPTIONS (EXTERIOR REPLACEMENT PART KITS) _____	23-24	BMR ATLAS SERIES 5800 FRAME _____	45
MODIFIABLE PRICING OPTIONS (THERMAL PROTECTION) _____	25		



## MOTOR DESIGNATION EXAMPLES

### 12-200-4-HS-WP1-HED16 - SAMPLE FOR 230,460,575 WP1 4 POLE HOLLOW SHAFT

HEADING	LEADS	HP	POLE	MOTOR TYPE	ENCLOSURE	EFFICIENCY	THRUST RATING	BASE
MODEL #	12	200	4	HS	WP1	HE	D	16
EXPLANATION	12	200	1800RPM	HOLLOW SHAFT	OPEN DRIP PROOF	HIGH EFFICIENCY	175% EHT	16.5"BD

### 6-40-4-SS-WP1-HE16 - SAMPLE FOR 230,460, 575 WP1 4 POLE SOLID SHAFT

HEADING	LEADS	HP	POLE	MOTOR TYPE	ENCLOSURE	EFFICIENCY	THRUST RATING	BASE
MODEL #	6	40	4	SS	WP1	HE		16
EXPLANATION	6	40	1800RPM	SOLID SHAFT	OPEN DRIP PROOF	HIGH EFFICIENCY	STANDARD	16.5"BD

### 12-500-4-HS-WP1-PE D24M - SAMPLE FOR 2300,4160 WP1 4 POLE HOLLOW SHAFT

HEADING	LEADS	HP	POLE	MOTOR TYPE	ENCLOSURE	EFFICIENCY	THRUST RATING	BASE	VOLTAGE
MODEL #	12	500	4	HS	WP1	PE	D	24	M
EXPLANATION	12	500	1800RPM	HOLLOW SHAFT	WP1	PREMIUM EFFICIENCY	175% EHT	24.5"BD	2300/4160

### 12-500-4-SS-WP1-HE D24M - SAMPLE FOR 2300,4160 WP1 4 POLE SOLID SHAFT

HEADING	LEADS	HP	POLE	MOTOR TYPE	ENCLOSURE	EFFICIENCY	THRUST RATING	BASE	VOLTAGE
MODEL #	12	500	4	SS	WP1	HE	D	24	M
EXPLANATION	12	500	1800RPM	SOLID SHAFT	WP1	HIGH EFFICIENCY	175%EHT	24.5"BD	2300/4160

### 6-125-4-HS-TE-PE D16 - SAMPLE FOR 230,460,575 TEFC 4 POLE HOLLOW SHAFT

HEADING	LEADS	HP	POLE	MOTOR TYPE	ENCLOSURE	EFFICIENCY	THRUST RATING	BASE
MODEL #	6	125	4	HS	TE	PE	D	16
EXPLANATION	6	125	1800RPM	HOLLOW SHAFT	TEFC	PREMIUM EFFICIENCY	175% EHT	16.5"BD

### 12-150-4-SS-TE-HE20 - SAMPLE FOR 230,460,575 TEFC 4 POLE SOLID SHAFT

HEADING	LEADS	HP	POLE	MOTOR TYPE	ENCLOSURE	EFFICIENCY	THRUST RATING	BASE
MODEL #	12	150	4	SS	TE	HE		20
EXPLANATION	12	150	1800RPM	SOLID SHAFT	TEFC	HIGH EFFICIENCY	STANDARD	20" BD

## WEATHER PROTECTED TYPE I (WPI)

Open motors are constructed to minimize the entrance of rain, snow and other natural elements such as particles in the air. BMR USA LLC WP-1 enclosures surpass NEMA standards with an advanced winding protection design to handle harsh outdoor environments throughout the year. BMR USA LLC has designed an internal ventilation system to maximize cooling to the internal winding system and upper thrust bearing to help promote the motors longevity.



BMR Hollowshaft motors available in TEFC  
20-600HP Vertical Hollow Shaft  
20-600HP Vertical Solid Shaft



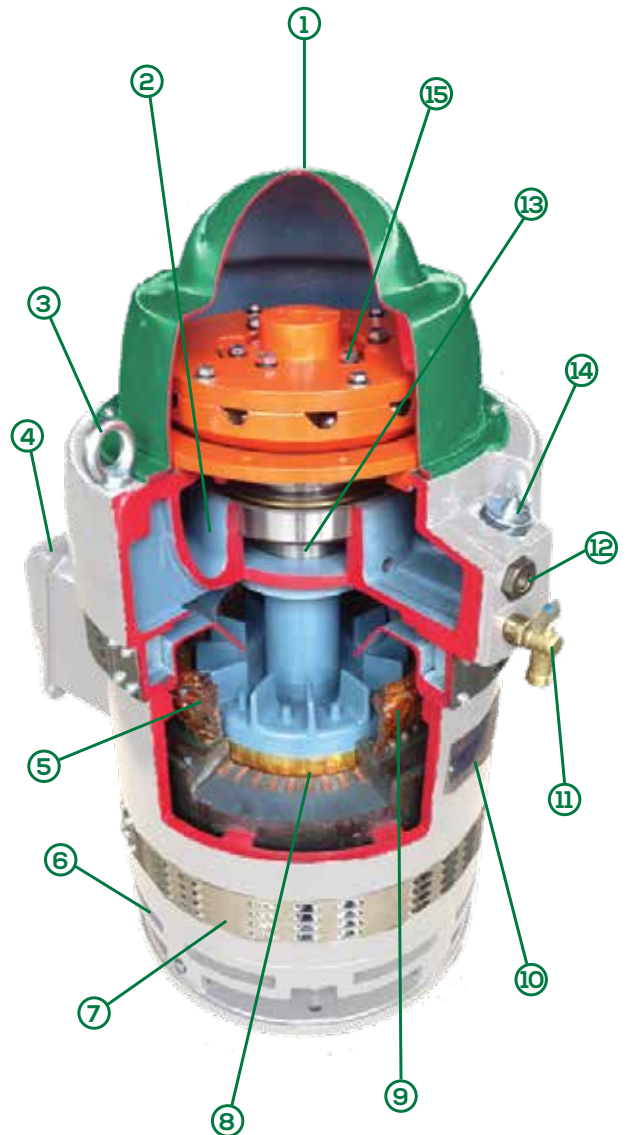
BMR Hollowshaft motors available in WP1  
10-1000HP Vertical Hollow Shaft  
10-1000HP Vertical Solid Shaft

## TOTALLY ENCLOSED FAN COOLED (TEFC)

“TEFC” motors have an externally mounted fan covered by a shroud blowing air across the surface of the motor enclosure. Heat developed in the windings moves by convection outward through the motor case then into the air moving along the surface of the motor case. The motor case is a heat sink drawing heat from the motor interior to the outside. TEFC motors may have fins on the motor case enhancing this heat transfer into the air. BMR TEFC motors have THREE ADVANTAGES. First, air is not drawn into the motor for cooling and therefore the windings stay clean and dry. Two, the windings are protected against direct entry of wind driven rain, directed spray, and splash from the ground. Three, insects and other vermin cannot enter the motor.

## TYPICAL BMR WP-1 VERTICAL HOLLOW SHAFT CONSTRUCTION

- ① Durable light weight Fiberglass Reinforced Plastic top cover
- ② Deep set oil bath lubrication system for 320TP frames and above
- ③ Dual Chrome lifting lugs
- ④ Oversized cast iron conduit box
- ⑤ U.L approved insulation system, NEMA MG-1 Part 31 Inverter Duty, Non Hydroscopic Epoxy Varnish, Double VPI Treatment
- ⑥ Precision cast "P" base design which allows motor to mount without taking off rodent screen
- ⑦ Dual air flow system. Lower bracket has multiple air-ducts which is conducive for superior cooling throughout the motor with non-corrosive rodent screens upper & lower
- ⑧ Precision balanced die cast aluminum rotor with anti-rust paint finish.
- ⑨ Class H insulation with Class B Temp Rise @ 1.15 S.F
- ⑩ All Stainless Steel full data nameplate
- ⑪ Twist spigot oil drain
- ⑫ Oversized one piece sight glass
- ⑬ Upper bracket machined for 175% EHT on 440 frames and above.
- ⑭ Handle grip oil fill plug for ease of removing and reinstalling
- ⑮ 12 ball "Ball Type" Non Reverse Ratchet made from ductile iron for superior rigidity



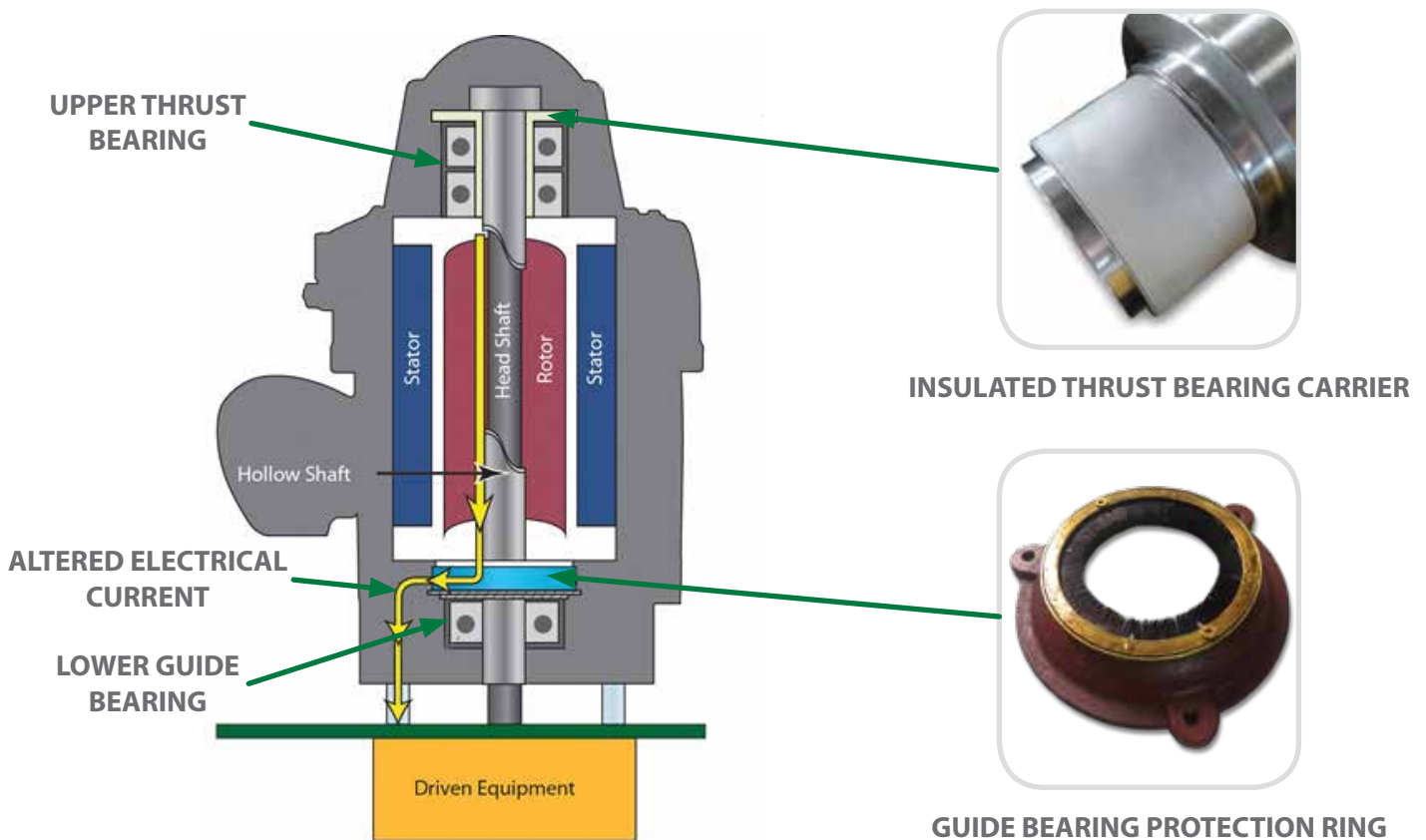
The demand for using variable frequency drives in pumping application is on the rise. Even though there are many advantages and benefits using VFD's with vertical hollow shaft motors, there are also disadvantages such as electrical fluting causes your bearing to have premature failure. In order to prevent this BMR USA LLC offers the options to prevent the electrical current from entering our thrust and guide bearings.

## WHAT IS ELECTRICAL FLUTING?

Electrical fluting occurs when a current is passed through the motor bearing instead of a grounded source. PWM (Pulse Width Modulated) drive switching frequencies result in undesirable motor shaft currents, a side effect that causes bearing damage within the motor through pitting and fluting. The audible noise generated by the damaged bearings is unacceptable and motor failure soon follows.

**1. INSULATED BEARING MOUNT** - By isolating the bearings with insulation, it is possible to prevent motor shaft currents from entering the bearing race and damaging the bearing balls. Some motor manufacturers cover the bearing seats with glass impregnated tape, others coat the entire bearing housing with ceramic material, some even coat the bearings themselves.

**2. SHAFT GROUNDING KIT** - With this method of diverting motor shaft currents away from the bearings, a guide bearing grounding ring is installed that is in contact with the shaft. The guide bearing protection ring conducts shaft currents to the motors ground and doesn't allow the electrical current from entering the lower bearing causing premature bearing failure.





**THREE PHASE MOTORS  
VERTICAL HOLLOW SHAFT  
HIGH THRUST "P" BASE  
WEATHER PROTECTED TYPE I (WPI)  
4 POLE, 1800RPM**

VHS  
WPI  
1800  
LOW  
VOLTAGE

**APPLICATIONS:**

Primarily used for deep well turbine pumps

**GENERAL FEATURES:**

Maximum 50 Deg. C. Ambient, 3300 Feet Altitude  
1.15 S.F.  
Class H Insulation with Class B Temp Rise  
NEMA Design "B"



**200, 230/460, 575 VOLTS**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
10	3333	215TP	230/460/575	12-15-4-HS-WP1-PE10	10	\$5,033.00	1,4
15	3333	254TP	230/460/575	12-15-4-HS-WP1-PE10	10	\$5,155.00	1,4
15	3333	254TP	230/460/575	12-15-4-HS-WP1-PE12	12	\$5,155.00	1,4
15	3333	254TP	230/460/575	12-15-4-HS-WP1-PE16	16	\$5,155.00	1,4
20	3600	256TP	230/460/575	12-20-4-HS-WP1-PE10	10	\$5,873.00	1,4
20	3600	256TP	230/460/575	12-20-4-HS-WP1-PE12	12	\$5,873.00	1,4
20	3600	256TP	230/460/575	12-20-4-HS-WP1-PE16	16	\$5,873.00	1,4
25	3600	284TP	230/460/575	12-25-4-HS-WP1-PE10	10	\$6,552.00	1,4
25	3600	284TP	230/460/575	12-25-4-HS-WP1-PE12	12	\$6,552.00	1,4
25	3600	284TP	230/460/575	12-25-4-HS-WP1-PE16	16	\$6,552.00	1,4
30	3600	286TP	230/460/575	12-30-4-HS-WP1-PE10	10	\$7,364.00	1,4
30	3600	286TP	230/460/575	12-30-4-HS-WP1-PE12	12	\$7,364.00	1,4
30	3600	286TP	230/460/575	12-30-4-HS-WP1-PE16	16	\$7,364.00	1,4
40	5713	324TP	460	6-40-4-HS-WP1-PE12	12	\$8,559.00	2
40	5713	324TP	460	6-40-4-HS-WP1-PE16	16	\$8,559.00	2
40	5713	324TP	230/460/575	12-40-4-HS-WP1-PE12	12	\$8,559.00	1,4
40	5713	324TP	230/460/575	12-40-4-HS-WP1-PE16	16	\$8,559.00	1,4
50	5713	326TP	460	6-50-4-HS-WP1-PE12	12	\$10,156.00	2
50	5713	326TP	460	6-50-4-HS-WP1-PE16	16	\$10,156.00	2
50	5713	326TP	230/460/575	12-50-4-HS-WP1-PE12	12	\$10,156.00	1,4
50	5713	326TP	230/460/575	12-50-4-HS-WP1-PE16	16	\$10,156.00	1,4
60	5713	364TP	460	6-60-4-HS-WP1-PE16	16	\$11,728.00	2
60	5713	364TP	230/460/575	12-60-4-HS-WP1-PE16	16	\$11,728.00	1,4
75	5713	365TP	460	6-75-4-HS-WP1-PE16	16	\$14,729.00	2
75	5713	365TP	230/460/575	12-75-4-HS-WP1-PE16	16	\$14,729.00	1,4
100	6743	404TP	460	6-100-4-HS-WP1-PE16	16	\$18,038.00	2



**THREE PHASE MOTORS  
VERTICAL HOLLOW SHAFT  
HIGH THRUST "P" BASE  
WEATHER PROTECTED TYPE I (WPI)  
4 POLE, 1800RPM**

VHS  
WPI  
1800  
LOW  
VOLTAGE  
(CONTINUED)

**200, 230/460, 575 VOLTS - CONTINUED**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
100	6743	404TP	460	6-100-4-HS-WP1-PE20	20	\$18,038.00	2
100	6743	404TP	230/460/575	12-100-4-HS-WP1-PE16	16	\$18,038.00	1,4
100	6743	404TP	230/460/575	12-100-4-HS-WP1-PE20	20	\$18,038.00	1,4
125	6743	405TP	460	6-125-4-HS-WP1-PE16	16	\$21,793.00	2
125	6743	405TP	460	6-125-4-HS-WP1-PE20	20	\$21,793.00	2
125	6743	405TP	460/575	12-125-4-HS-WP1-PE16	16	\$21,793.00	1,4
125	6743	405TP	460/575	12-125-4-HS-WP1-PE20	20	\$21,793.00	1,4
150	17,200	444TP	460	6-150-4-HS-WP1-PED16	16	\$29,623.00	2,3
150	17,200	444TP	460	6-150-4-HS-WP1-PED20	20	\$29,623.00	2,3
150	17,200	444TP	460/575	12-150-4-HS-WP1-PED16	16	\$29,623.00	1,3,4
150	17,200	444TP	460/575	12-150-4-HS-WP1-PED20	20	\$29,623.00	1,3,4
200	17,200	445TP	460	6-200-4-HS-WP1-PED16	16	\$38,517.00	2,3
200	17,200	445TP	460	6-200-4-HS-WP1-PED20	20	\$38,517.00	2,3
200	17,200	445TP	460/575	12-200-4-HS-WP1-PED16	16	\$38,517.00	1,3,4
200	17,200	445TP	460/575	12-200-4-HS-WP1-PED20	20	\$38,517.00	1,3,4
250	17,200	445TP	460	6-250-4-HS-WP1-PED16	16	\$45,234.00	2,3
250	17,200	445TP	460	6-250-4-HS-WP1-PED20	20	\$45,234.00	2,3
250	17,200	445TP	460/575	12-250-4-HS-WP1-PED16	16	\$45,234.00	1,3,4
250	17,200	445TP	460/575	12-250-4-HS-WP1-PED20	20	\$45,234.00	1,3,4
300	20,000	5804P	460	6-300-4-HS-WP1-PED20	20	\$53,696.00	2,3
350	20,000	5804P	460	6-350-4-HS-WP1-PED20	20	\$61,397.00	2,3
400	20,000	5806P	460	6-400-4-HS-WP1-PED24	24.5	\$75,276.00	2,3
400	20,000	5806P	460	6-400-4-HS-WP1-PED30	30.5	\$75,276.00	2,3
450	20,000	5806P	460	6-450-4-HS-WP1-PED24	24.5	\$84,406.00	2,3
450	20,000	5806P	460	6-450-4-HS-WP1-PED30	30.5	\$84,406.00	2,3
500	20,000	5806P	460	6-500-4-HS-WP1-PED24	24.5	\$90,714.00	2,3
500	20,000	5806P	460	6-500-4-HS-WP1-PED30	30.5	\$90,714.00	2,3
600	20,000	5809P	460	6-600-4-HS-WP1-PED24	24.5	\$116,106.00	2,3
600	20,000	5809P	460	6-600-4-HS-WP1-PED30	30.5	\$116,106.00	2,3

**NOTES:** 1. 12 Lead Part Winding Start on 230V  
2. 6 Lead Part Winding Start on 460V

3. Double Stack Bearings for 175% Extra High Thrust  
4. Wye Delta Connection Capable





**THREE PHASE MOTORS  
VERTICAL HOLLOW SHAFT  
HIGH THRUST "P" BASE  
WEATHER PROTECTED TYPE I (WPI)  
4 POLE, 1800RPM**

VHS  
WPI  
1800  
2300/4000  
VOLTAGE

**APPLICATIONS:**

Primarily used for deep well turbine pumps

**GENERAL FEATURES:**

- Maximum 50 Deg. C. Ambient, 3300 Feet Altitude
- 1.15 S.F.
- Class H Insulation with Class B Temp Rise
- NEMA Design "B"
- Suitable for Wye-Start, Delta-Run or Across the Line Starting for 2300V Operation.



**2300/4000V**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY				NOTES
		FRAME	MODEL #	BD (IN)	LIST W/NRR	
400	20,000	5006P	6-400-4-HS-WP1-PED24M	24.5	\$97,858.00	1,2
400	20,000	5806P	6-400-4-HS-WP1-PED30M	24.5	\$97,858.00	1,2
450	20,000	5006P	6-450-4-HS-WP1-PED24M	24.5	\$109,727.00	1,2
450	20,000	5806P	6-450-4-HS-WP1-PED30M	24.5	\$109,727.00	1,2
500	20,000	5006P	6-500-4-HS-WP1-PED24M	24.5	\$116,896.00	1,2
500	20,000	5806P	6-500-4-HS-WP1-PED30M	24.5	\$116,896.00	1,2
600	20,000	5809P	6-600-4-HS-WP1-PED24M	24.5	\$140,881.00	1,2
600	20,000	5809P	6-600-4-HS-WP1-PED30M	30.5	\$140,881.00	1,2
700	20,000	5810P	6-700-4-HS-WP1-PED24M	24.5	\$160,014.00	1,2
700	20,000	5810P	6-700-4-HS-WP1-PED30M	30.5	\$160,014.00	1,2
800	20,000	5810P	6-800-4-HS-WP1-PED24M	24.5	\$178,907.00	1,2
800	20,000	5810P	6-800-4-HS-WP1-PED30M	30.5	\$178,907.00	1,2
900	20,000	5810P	6-900-4-HS-WP1-PED24M	24.5	\$200,883.00	1,2
900	20,000	5810P	6-900-4-HS-WP1-PED30M	30.5	\$200,883.00	1,2
1000	20,000	5810P	6-1000-4-HS-WP1-PED24M	24.5	\$222,593.00	1,2
1000	20,000	5810P	6-1000-4-HS-WP1-PED30M	30.5	\$222,593.00	1,2

- NOTES:**
1. Motor has double stacked angular contact bearings for 175% EHT
  2. Motor can be ordered with spherical roller bearings with cooling tubes for 300% EHT



**THREE PHASE MOTORS  
VERTICAL SOLID SHAFT  
HIGH THRUST "P" BASE  
WEATHER PROTECTED TYPE I (WPI)  
4 POLE, 1800RPM**

VSS  
WPI  
1800  
LOW  
VOLTAGE

**APPLICATIONS:**

Primarily used for deep well turbine pumps

**GENERAL FEATURES:**

Maximum 50 Deg. C. Ambient, 3300 Feet Altitude  
1.15 S.F.  
Class H Insulation with Class B Temp Rise  
NEMA Design "B"



**200, 230/460, 575 VOLTS**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
10	3333	215VP	230/460/575	12-10-4-SS-WP1-PE10	10	\$5,033.00	1,4
15	3333	254VP	230/460/575	12-15-4-SS-WP1-PE10	10	\$5,155.00	1,4
15	3333	254VP	230/460/575	12-15-4-SS-WP1-PE12	12	\$5,155.00	1,4
15	3333	254VP	230/460/575	12-15-4-SS-WP1-PE16	16	\$5,155.00	1,4
20	3600	256VP	230/460/575	12-20-4-SS-WP1-PE10	10	\$5,873.00	1,4
20	3600	256VP	230/460/575	12-20-4-SS-WP1-PE12	12	\$5,873.00	1,4
20	3600	256VP	230/460/575	12-20-4-SS-WP1-PE16	16	\$5,873.00	1,4
25	3600	284VP	230/460/575	12-25-4-SS-WP1-PE10	10	\$6,552.00	1,4
25	3600	284VP	230/460/575	12-25-4-SS-WP1-PE12	12	\$6,552.00	1,4
25	3600	284VP	230/460/575	12-25-4-SS-WP1-PE16	16	\$6,552.00	1,4
30	3600	286VP	230/460/575	12-30-4-SS-WP1-PE10	10	\$7,364.00	1,4
30	3600	286VP	230/460/575	12-30-4-SS-WP1-PE12	12	\$7,364.00	1,4
30	3600	286VP	230/460/575	12-30-4-SS-WP1-PE16	16	\$7,364.00	1,4
40	5713	324VP	460	6-40-4-SS-WP1-PE12	12	\$8,559.00	2
40	5713	324VP	460	6-40-4-SS-WP1-PE16	16	\$8,559.00	2
40	5713	324VP	230/460/575	12-40-4-SS-WP1-PE12	12	\$8,559.00	1,4
40	5713	324VP	230/460/575	12-40-4-SS-WP1-PE16	16	\$8,559.00	1,4
50	5713	326VP	460	6-50-4-SS-WP1-PE12	12	\$10,156.00	2
50	5713	326VP	460	6-50-4-SS-WP1-PE16	16	\$10,156.00	2
50	5713	326VP	230/460/575	12-50-4-SS-WP1-PE12	12	\$10,156.00	1,4
50	5713	326VP	230/460/575	12-50-4-SS-WP1-PE16	16	\$10,156.00	1,4
60	5713	364VP	460	6-60-4-SS-WP1-PE16	16	\$11,728.00	2
60	5713	364VP	230/460/575	12-60-4-SS-WP1-PE16	16	\$11,728.00	1,4
75	5713	365VP	460	6-75-4-SS-WP1-PE16	16	\$14,729.00	2
75	5713	365VP	230/460/575	12-75-4-SS-WP1-PE16	16	\$14,729.00	1,4
100	6743	404VP	460	6-100-4-SS-WP1-PE16	16	\$18,038.00	2



**THREE PHASE MOTORS  
VERTICAL SOLID SHAFT  
HIGH THRUST "P" BASE  
WEATHER PROTECTED TYPE I (WPI)  
4 POLE, 1800RPM**

VSS  
WPI  
1800  
LOW  
VOLTAGE  
(CONTINUED)

**200, 230/460, 575 VOLTS - CONTINUED**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
100	6743	404VP	460	6-100-4-SS-WP1-PE20	20	\$18,038.00	2
100	6743	404VP	230/460/575	12-100-4-SS-WP1-PE16	16	\$18,038.00	1,4
100	6743	404VP	230/460/575	12-100-4-SS-WP1-PE20	20	\$18,038.00	1,4
125	6743	405VP	460	6-125-4-SS-WP1-PE16	16	\$21,793.00	2
125	6743	405VP	460	6-125-4-SS-WP1-PE20	20	\$21,793.00	2
125	6743	405VP	460/575	12-125-4-SS-WP1-PE16	16	\$21,793.00	1,4
125	6743	405VP	460/575	12-125-4-SS-WP1-PE20	20	\$21,793.00	1,4
150	17,200	444VP	460	6-150-4-SS-WP1-PED16	16	\$29,623.00	2,3
150	17,200	444VP	460	6-150-4-SS-WP1-PED20	20	\$29,623.00	2,3
150	17,200	444VP	460/575	12-150-4-SS-WP1-PE-D16	16	\$29,623.00	1,3,4
150	17,200	444VP	460/575	12-150-4-SS-WP1-PE-D20	20	\$29,623.00	1,3,4
200	17,200	445VP	460	6-200-4-SS-WP1-PED16	16	\$38,517.00	2,3
200	17,200	445VP	460	6-200-4-SS-WP1-PED20	20	\$38,517.00	2,3
200	17,200	445VP	460/575	12-200-4-SS-WP1-PED16	16	\$38,517.00	1,3,4
200	17,200	445VP	460/575	12-200-4-SS-WP1-PED20	20	\$38,517.00	1,3,4
250	17,200	445VP	460	6-250-4-SS-WP1-PED16	16	\$45,234.00	2,3
250	17,200	445VP	460	6-250-4-SS-WP1-PED20	20	\$45,234.00	2,3
250	17,200	445VP	460/575	12-250-4-SS-WP1-PED16	16	\$45,234.00	1,3,4
250	17,200	445VP	460/575	12-250-4-SS-WP1-PED20	20	\$45,234.00	1,3,4
300	20,000	5804VP	460	6-300-4-SS-WP1-PED20	20	\$53,696.00	2,3
350	20,000	5804VP	460	6-350-4-SS-WP1-PE20	20	\$61,397.00	2,3
400	20,000	5804VP	460	6-400-4-SS-WP1-PED24	24.5	\$75,276.00	2,3
400	20,000	5804VP	460	6-400-4-SS-WP1-PED30	30.5	\$75,276.00	2,3
450	20,000	5806VP	460	6-450-4-SS-WP1-PED24	24.5	\$84,406.00	2,3
450	20,000	5806VP	460	6-450-4-SS-WP1-PED30	30.5	\$84,406.00	2,3
500	20,000	5806VP	460	6-500-4-SS-WP1-PED24	24.5	\$90,714.00	2,3
500	20,000	5806VP	460	6-500-4-SS-WP1-PED30	30.5	\$90,714.00	2,3
600	20,000	5809VP	460	6-600-4-SS-WP1-PED24	24.5	\$116,106.00	2,3
600	20,000	5809VP	460	6-600-4-SS-WP1-PED30	30.5	\$116,106.00	2,3



**THREE PHASE MOTORS  
VERTICAL SOLID SHAFT  
HIGH THRUST "P" BASE  
WEATHER PROTECTED TYPE I (WPI)  
4 POLE, 1800RPM**

VSS  
WPI  
1800  
2300/4000  
VOLTAGE

**APPLICATIONS:**

Primarily used for deep well turbine pumps

**GENERAL FEATURES:**

Maximum 50 Deg. C. Ambient, 3300 Feet Altitude  
1.15 S.F.  
Class H Insulation with Class B Temp Rise  
NEMA Design "B"



**2300/4000V**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY				NOTES
		FRAME	MODEL #	BD (IN)	LIST W/NRR	
400	20,000	5006VP	6-400-4-SS-WP1-PED24M	24.5	\$97,858.00	1,2
400	20,000	5806VP	6-400-4-SS-WP1-PED30M	30.5	\$97,858.00	1,2
450	20,000	5006VP	6-450-4-SS-WP1-PED24M	24.5	\$109,727.00	1,2
450	20,000	5806VP	6-450-4-SS-WP1-PED30M	30.5	\$109,727.00	1,2
500	20,000	5006VP	6-500-4-SS-WP1-PED24M	24.5	\$116,896.00	1,2
500	20,000	5806VP	6-500-4-SS-WP1-PED30M	30.5	\$116,896.00	1,2
600	20,000	5809VP	6-600-4-SS-WP1-PED24M	24.5	\$140,881.00	1,2
600	20,000	5809VP	6-600-4-SS-WP1-PED30M	30.5	\$140,881.00	1,2
700	20,000	5810VP	6-700-4-SS-WP1-PED24M	24.5	\$160,014.00	1,2
700	20,000	5810VP	6-700-4-SS-WP1-PED30M	30.5	\$160,014.00	1,2
800	20,000	5810VP	6-800-4-SS-WP1-PED24M	24.5	\$178,907.00	1,2
800	20,000	5810VP	6-800-4-SS-WP1-PED30M	30.5	\$178,907.00	1,2
900	20,000	5810VP	6-900-4-SS-WP1-PED24M	24.5	\$200,883.00	1,2
900	20,000	5810VP	6-900-4-SS-WP1-PED30M	30.5	\$200,883.00	1,2
1000	20,000	5810VP	6-1000-4-SS-WP1-PED24M	24.5	\$222,593.00	1,2
1000	20,000	5810VP	6-1000-4-SS-WP1-PED30M	30.5	\$222,593.00	1,2

- NOTES:** 1. Motor has double stacked angular contact bearings for 175% EHT  
2. Motor can be ordered with spherical roller bearings with cooling tubes for 300% EHT



**THREE PHASE MOTORS  
VERTICAL HOLLOW SHAFT  
HIGH THRUST "P" BASE  
TOTALLY ENCLOSED FAN COOLED (TEFC)  
4 POLE, 1800RPM**

VHS  
TEFC  
1800  
LOW  
VOLTAGE



**APPLICATIONS:**

Primarily used for deep well turbine pumps

**GENERAL FEATURES:**

Maximum 50 Deg. C. Ambient, 3300 Feet Altitude  
1.15 S.F.  
Class H Insulation with Class B Temp Rise  
NEMA Design "B"

**200, 230/460, 575 VOLTS**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
20	3600	256TP	230/460/575	12-20-4-HS-TE-PE10	10	\$6,460.00	1,4
20	3600	256TP	230/460/575	12-20-4-HS-TE-PE12	12	\$6,460.00	1,4
20	3600	256TP	230/460/575	12-20-4-HS-TE-PE16	16	\$6,460.00	1,4
25	3600	284TP	230/460/575	12-25-4-HS-TE-PE10	10	\$7,207.00	1,4
25	3600	284TP	230/460/575	12-25-4-HS-TE-PE12	12	\$7,207.00	1,4
25	3600	284TP	230/460/575	12-25-4-HS-TE-PE16	16	\$7,207.00	1,4
30	3600	286TP	230/460/575	12-30-4-HS-TE-PE10	10	\$9,414.00	1,4
30	3600	286TP	230/460/575	12-30-4-HS-TE-PE12	12	\$9,414.00	1,4
30	3600	286TP	230/460/575	12-30-4-HS-TE-PE16	16	\$9,414.00	1,4
40	5713	324TP	460	6-40-4-HS-TE-PE12	12	\$11,171.00	2
40	5713	324TP	460	6-40-4-HS-TE-PE16	16	\$11,171.00	2
40	5713	324TP	230/460/575	12-40-4-HS-TE-PE12	12	\$11,171.00	1,4
40	5713	324TP	230/460/575	12-40-4-HS-TE-PE16	16	\$11,171.00	1,4
50	5713	326TP	460	6-50-4-HS-TE-PE12	12	\$12,900.00	2
50	5713	326TP	460	6-50-4-HS-TE-PE16	16	\$12,900.00	2
50	5713	326TP	230/460/575	12-50-4-HS-TE-PE12	12	\$12,900.00	1,4
50	5713	326TP	230/460/575	12-50-4-HS-TE-PE16	16	\$12,900.00	1,4
60	5713	364TP	460	6-60-4-HS-TE-PE16	16	\$14,150.00	2
60	5713	364TP	230/460/575	12-60-4-HS-TE-PE16	16	\$14,150.00	1,4
75	5713	365TP	460	6-75-4-HS-TE-PE16	16	\$15,706.00	2
75	5713	365TP	230/460/575	12-75-4-HS-TE-PE16	16	\$15,706.00	1,4
100	6743	404TP	460	6-100-4-HS-TE-PE16	16	\$19,841.00	2
100	6743	404TP	460	6-100-4-HS-TE-PE20	20	\$19,841.00	2
100	6743	404TP	230/460/575	12-100-4-HS-TE-PE16	16	\$19,841.00	1,4
100	6743	404TP	230/460/575	12-100-4-HS-TE-PE20	20	\$19,841.00	1,4
125	6743	405TP	460	6-125-4-HS-TE-PE16	16	\$23,972.00	2



**THREE PHASE MOTORS  
VERTICAL HOLLOW SHAFT  
HIGH THRUST "P" BASE  
TOTALLY ENCLOSED FAN COOLED (TEFC)  
4 POLE, 1800RPM**

VHS  
TEFC  
1800  
LOW  
VOLTAGE  
(CONTINUED)

**200, 230/460, 575 VOLTS - CONTINUED**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
125	6743	405TP	460	6-125-4-HS-TE-PE20	20	\$23,972.00	2
125	6743	405TP	460/575	12-125-4-HS-TE-PE16	16	\$23,972.00	1,4
125	6743	405TP	460/575	12-125-4-HS-TE-PE20	20	\$23,972.00	1,4
150	17,200	444TP	460	6-150-4-HS-TE-PED16	16	\$32,585.00	2,3
150	17,200	444TP	460	6-150-4-HS-TE-PED20	20	\$32,585.00	2,3
150	17,200	444TP	460/575	12-150-4-HS-TE-PED16	16	\$32,585.00	1,3,4
150	17,200	444TP	460/575	12-150-4-HS-TE-PED20	20	\$32,585.00	1,3,4
200	17,200	445TP	460	6-200-4-HS-TE-PED16	16	\$42,368.00	2,3
200	17,200	445TP	460	6-200-4-HS-TE--PED20	20	\$42,368.00	2,3
200	17,200	445TP	460/575	12-200-4-HS-TE-PED16	16	\$42,368.00	1,3,4
200	17,200	445TP	460/575	12-200-4-HS-TE-PED20	20	\$42,368.00	1,3,4
250	17,200	445TP	460	6-250-4-HS-TE-PED16	16	\$49,757.00	2,3
250	17,200	445TP	460	6-250-4-HS-TE-PED20	20	\$49,757.00	2,3
250	17,200	445TP	460/575	12-250-4-HS-TE-PED16	16	\$49,757.00	1,3,4
250	17,200	445TP	460/575	12-250-4-HS-TE-PED20	20	\$49,757.00	1,3,4
300	20,000	5804P	460	6-300-4-HS-TE-PED20	20	\$59,065.00	2,3
350	20,000	5804P	460	6-350-4-HS-TE-PED20	20	\$67,536.00	2,3
400	20,000	5806P	460	6-400-4-HS-TE-PED24	24.5	\$82,803.00	2,3
400	20,000	5806P	460	6-400-4-HS-TE-PED30	30.5	\$82,803.00	2,3
450	20,000	5806P	460	6-450-4-HS-TE-PED24	24.5	\$92,846.00	2,3
450	20,000	5806P	460	6-450-4-HS-TE-PED30	30.5	\$92,846.00	2,3
500	20,000	5806P	460	6-500-4-HS-TE-PED24	24.5	\$99,785.00	2,3
500	20,000	5806P	460	6-500-4-HS-TE-PED30	30.5	\$99,785.00	2,3

- NOTES:**
1. 12 Lead Part Winding Start on 230V,
  2. 6 Lead Part Winding Start on 460V
  3. Double Stack Angular Contact Bearings for 175% Extra High Thrust
  4. Wye Delta Connection Capable



**THREE PHASE MOTORS  
VERTICAL SOLID SHAFT  
HIGH THRUST "P" BASE  
TOTALLY ENCLOSED FAN COOLED (TEFC)  
4 POLE, 1800RPM**

VSS  
TEFC  
1800  
LOW  
VOLTAGE

**APPLICATIONS:**

Primarily used for deep well turbine pumps

**GENERAL FEATURES:**

Maximum 50 Deg. C. Ambient, 3300 Feet Altitude  
1.15 S.F.  
Class H Insulation with Class B Temp Rise  
NEMA Design "B"



**200, 230/460, 575 VOLTS**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
20	3600	256VP	230/460/575	12-20-4-SS-TE-PE10	10	\$6,460.00	1,4
20	3600	256VP	230/460/575	12-20-4-SS-TE-PE12	12	\$6,460.00	1,4
20	3600	256VP	230/460/575	12-20-4-SS-TE-PE16	16	\$6,460.00	1,4
25	3600	284VP	230/460/575	12-25-4-SS-TE-PE10	10	\$7,207.00	1,4
25	3600	284VP	230/460/575	12-25-4-SS-TE-PE12	12	\$7,207.00	1,4
25	3600	284VP	230/460/575	12-25-4-SS-TE-PE16	16	\$7,207.00	1,4
30	3600	286VP	230/460/575	12-30-4-SS-TE-PE10	10	\$9,414.00	1,4
30	3600	286VP	230/460/575	12-30-4-SS-TE-PE12	12	\$9,414.00	1,4
30	3600	286VP	230/460/575	12-30-4-SS-TE-PE16	16	\$9,414.00	1,4
40	5713	324VP	460	6-40-4-SS-TE-PE12	12	\$11,171.00	2
40	5713	324VP	460	6-40-4-SS-TE-PE16	16	\$11,171.00	2
40	5713	324VP	230/460/575	12-40-4-SS-TE-PE12	12	\$11,171.00	1,4
40	5713	324VP	230/460/575	12-40-4-SS-TE-PE16	16	\$11,171.00	1,4
50	5713	326VP	460	6-50-4-SS-TE-PE12	12	\$12,900.00	2
50	5713	326VP	460	6-50-4-SS-TE-PE16	16	\$12,900.00	2
50	5713	326VP	230/460/575	12-50-4-SS-TE-PE12	12	\$12,900.00	1,4
50	5713	326VP	230/460/575	12-50-4-SS-TE-PE16	16	\$12,900.00	1,4
60	5713	364VP	460	6-60-4-SS-TE-PE16	16	\$14,150.00	2
60	5713	364VP	230/460/575	12-60-4-SS-TE-PE16	16	\$14,150.00	1,4
75	5713	365VP	460	6-75-4-SS-TE-PE16	16	\$15,706.00	2
75	5713	365VP	230/460/575	12-75-4-SS-TE-PE16	16	\$15,706.00	1,4
100	6743	404VP	460	6-100-4-SS-TE-PE16	16	\$19,841.00	2
100	6743	404VP	460	6-100-4-SS-TE-PE20	20	\$19,841.00	2
100	6743	404VP	230/460/575	12-100-4-SS-TE-PE16	16	\$19,841.00	1,4
100	6743	404VP	230/460/575	12-100-4-SS-TE-PE20	20	\$19,841.00	1,4
125	6743	405VP	460	6-125-4-SS-TE-PE16	16	\$23,972.00	2



**THREE PHASE MOTORS  
VERTICAL SOLID SHAFT  
HIGH THRUST "P" BASE  
TOTALLY ENCLOSED FAN COOLED (TEFC)  
4 POLE, 1800RPM**

VSS  
TEFC  
1800  
LOW  
VOLTAGE  
(CONTINUED)

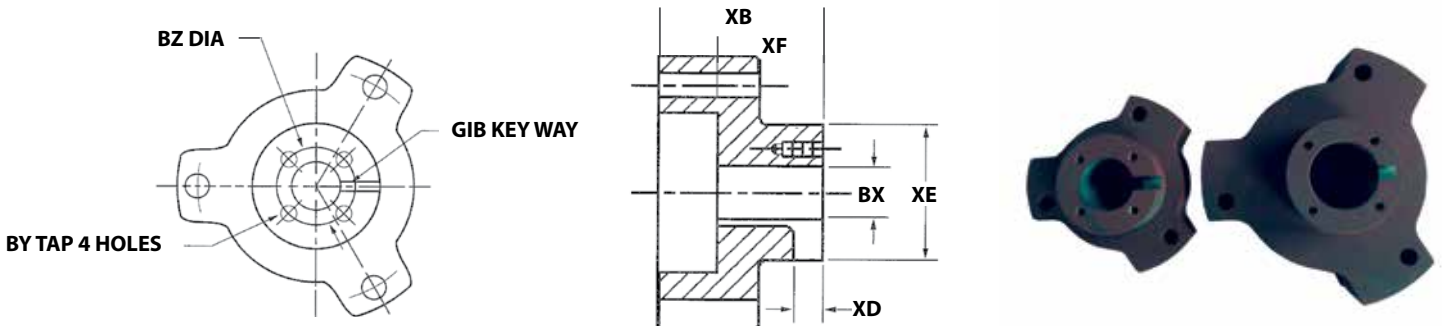
**200, 230/460, 575 VOLTS - CONTINUED**

HP	DOWN THRUST (LBS)	PREMIUM EFFICIENCY					NOTES
		FRAME	VOLTAGE	MODEL #	BD (IN)	LIST W/NRR	
125	6743	405VP	460	6-125-4-SS-TE-PE20	20	\$23,972.00	2
125	6743	405VP	460/575	12-125-4-SS-TE-PE16	16	\$23,972.00	1,4
125	6743	405VP	460/575	12-125-4-SS-TE-PE20	20	\$23,972.00	1,4
150	17,200	444VP	460	6-150-4-SS-TE-PED16	16	\$32,585.00	2,3
150	17,200	444VP	460	6-150-4-SS-TE-PED20	20	\$32,585.00	2,3
150	17,200	444VP	460/575	12-150-4-SS-TE-PED16	16	\$32,585.00	1,3,4
150	17,200	444VP	460/575	12-150-4-SS-TE-PED20	20	\$32,585.00	1,3,4
200	17,200	445VP	460	6-200-4-SS-TE-PED16	16	\$42,368.00	2,3
200	17,200	445VP	460	6-200-4-SS-TE--PED20	20	\$42,368.00	2,3
200	17,200	445VP	460/575	12-200-4-SS-TE-PED16	16	\$42,368.00	1,3,4
200	17,200	445VP	460/575	12-200-4-SS-TE-PED20	20	\$42,368.00	1,3,4
250	17,200	445VP	460	6-250-4-SS-TE-PED16	16	\$49,757.00	2,3
250	17,200	445VP	460	6-250-4-SS-TE-PED20	20	\$49,757.00	2,3
250	17,200	445VP	460/575	12-250-4-SS-TE-PED16	16	\$49,757.00	1,3,4
250	17,200	445VP	460/575	12-250-4-SS-TE-PED20	20	\$49,757.00	1,3,4
300	20,000	5804P	460	6-300-4-SS-TE-PED20	20	\$59,065.00	2,3
350	20,000	5804P	460	6-350-4-SS-TE-PED20	20	\$67,536.00	2,3
400	20,000	5806P	460	6-400-4-SS-TE-PED24	24.5	\$82,803.00	2,3
400	20,000	5806P	460	6-400-4-SS-TE-PED30	30.5	\$82,803.00	2,3
450	20,000	5806P	460	6-450-4-SS-TE-PED24	24.5	\$92,846.00	2,3
450	20,000	5806P	460	6-450-4-SS-TE-PED30	30.5	\$92,846.00	2,3
500	20,000	5806P	460	6-500-4-SS-TE-PED24	24.5	\$99,785.00	2,3
500	20,000	5806P	460	6-500-4-SS-TE-PED30	30.5	\$99,785.00	2,3

- NOTES:**
1. 12 Lead Part Winding Start on 230V,
  2. 6 Lead Part Winding Start on 460V
  3. Double Stack Bearings for 175% Extra High Thrust
  4. Wye Delta Connection Capable



All vertical hollow shaft motors come equipped with a drive coupling (also referred to a clutch) that mount at the top of the motor. The couplings most important dimension is the "BX" dimension which is the bore size of the coupling. Couplings come in a variety of bore sizes that must match the diameter of the pumps shaft. Example: Pump Shaft Size is 1-3/16" a 1-3/16" BX bore is needed for the motor. Each frame size has couplings with a variety of "BX" bore dimensions to meet the variety of different pump diameters in the field. In applications where upthrust conditions may occur a bolted coupling is needed. This is to prevent the coupling from being disconnected from the motor. To prevent the rotor from backspin a Non Reverse Ratchet (NRR) is needed.



OPTIONAL COUPLING SIZES

OPTIONAL COUPLING SIZES					
BORE SIZE					
FRAME	TYPE	PART	NOMINAL	KEY	LIST
210	WP1, TEFC	BX210-034	3/4"	1/5	\$650.00
		BX210-078	7/8"	1/5	\$650.00
		<b>FACTORY STANDARD BX210-01</b>	<b>1"</b>	<b>1/4</b>	<b>\$650.00</b>
250	WP1, TEFC	BX250-034	3/4"	1/5	\$687.00
		BX250-078	7/8"	1/5	\$687.00
		<b>FACTORY STANDARD BX250-01</b>	<b>1"</b>	<b>1/4</b>	<b>\$687.00</b>
		BX250-0115	1-1/5"	1/4	\$687.00
		BX250-01316	1-3/16"	1/4	\$687.00
		BX250-0114	1-1/4"	1/4	\$687.00
280	WP1, TEFC	BX280-034	3/4"	1/5	\$687.00
		BX280-078	7/8"	1/5	\$687.00
		<b>FACTORY STANDARD BX280-01</b>	<b>1"</b>	<b>1/4</b>	<b>\$687.00</b>
		BX280-0115	1-1/5"	1/4	\$687.00
		BX280-01316	1-3/16"	1/4	\$687.00
		BX280-0114	1-1/4"	1/4	\$687.00
320	WP1, TEFC	BX320-0115	1-1/5"	1/4	\$755.00



OPTIONAL COUPLING SIZES - CONTINUED

FRAME	TYPE	BORE SIZE			
		PART	NOMINAL	KEY	LIST
320	FACTORY STANDARD	<b>BX320-01</b>	<b>1"</b>	<b>1/4</b>	<b>\$755.00</b>
		BX320-01316	1-3/16"	1/4	\$755.00
		BX320-0118	1-1/8"	1/4	\$755.00
		BX320-01716	1-7/16"	1/4	\$755.00
		BX320-0114	1-1/4"	1/4	\$755.00
		BX320-0112	1-1/2"	3/8	\$755.00
360	WP1, TEFC	BX360-01	1"	1/4	\$755.00
		BX360-01316	1-3/16"	1/4	\$755.00
		BX360-0118	1-1/8"	1/4	\$755.00
		BX360-01716	1-7/16"	1/4	\$755.00
		<b>BX360-0114</b>	<b>1-1/4"</b>	<b>1/4</b>	<b>\$755.00</b>
	BX360-0112	1-1/2"	3/8	\$755.00	
400	WP1, TEFC	BX400-01316	1-3/16"	1/4	\$790.00
		BX400-0118	1-1/8"	1/4	\$790.00
		BX400-01716	1-7/16"	1/4	\$790.00
		BX400-0114	1-1/4"	1/4	\$790.00
		<b>BX400-0112</b>	<b>1-1/2"</b>	<b>3/8</b>	<b>\$790.00</b>
	BX400-011116	1-11/16"	3/8	\$790.00	
440	WP1	BX440-01516	1-5/16"	3/8	\$850.00
		BX440-01716	1-7/16"	3/8	\$850.00
		BX440-0112	1-1/2"	3/8	\$850.00
		<b>BX440-011116</b>	<b>1-11/16"</b>	<b>3/8</b>	<b>\$850.00</b>
		BX440-0134	1-3/4"	3/8	\$850.00
		BX440-0111516	1-15/16"	3/8	\$850.00
		BX440-02118	2-1/8"	1/2	\$850.00
		BX440-02316	2-3/16"	1/2	\$850.00
		BX440-0214	2 1/4	1/2	\$850.00
	5000	WP1	BX5000-0112	1-1/2"	3/8
BX5000-011116			1-11/16"	3/8	\$980.00
<b>FACTORY STANDARD</b>		<b>BX5000-011516</b>	<b>1-15/16"</b>	<b>3/8</b>	<b>\$980.00</b>

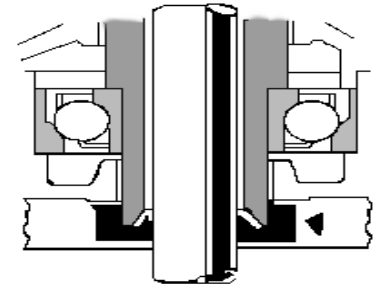


OPTIONAL COUPLING SIZES - CONTINUED

FRAME	TYPE	BORE SIZE			
		PART	NOMINAL	KEY	LIST
5800	WP1	BX5800-011116	1-11/16"	3/8	\$980.00
	<b>FACTORY STANDARD</b>	<b>BX5800-011516</b>	<b>1-15/16"</b>	<b>3/8</b>	<b>\$980.00</b>
		BX5800-0123	1-2/3"	3/8	\$980.00
		BX5800-02	2"	1/2	\$980.00
		BX5800-0218	2-1/8"	1/2	\$980.00
		BX5800-0215	2-1/5"	1/2	\$980.00
		BX5800-0214	2-1/4"	5/8	\$980.00
		BX5800-0238	2-3/8"	5/8	\$980.00
		BX5800-0249	2-4/9"	5/8	\$980.00
		BX5800-0212	2-1/2"	5/8	\$980.00

STEADY BUSHING

Steady bushings are used as a protective device that limits the whip action of the motor rotor that may cause damage to the lower bearing guide bearing or the pump that it is coupled with. They are mounted under the P-Base and will require to have the same size bore diameter as the motor coupling. When using a hollowshaft motor that is connected to a vertical turbine pump, the motor rotor, steady bushing, and pump shaft all spin simultaneously to simulate the mechanical steadiness of a vertical solid shaft motor.



Steady bushings are commonly made from SAE 660 bearing bronze and are stocked as bushing kits for all motors that have grease-lubricated lower guide bearings. BMR USA LLC offers steady bushing kits for 215-5800P frames for WP1 motors and 324TP-445TP frames for TEFC motors.

FRAME	TYPE	KIT PART #	BORE SIZE	LIST PRICE	
320	WP1, TEFC	SB320-01316	1-3/16"	\$450.00	
		<b>MATCHES FACTORY STANDARD COUPLING</b>	<b>SB320-01</b>	<b>1"</b>	<b>\$450.00</b>
		SB320-0114	1-1/4"	\$450.00	
		SB320-01516	1-5/16"	\$450.00	
		SB320-01716	1-7/16"	\$450.00	
		SB320-0112	1-1/2"	\$450.00	
360	WP1, TEFC	SB360-01	1"	\$450.00	
		SB360-01316	1-3/16"	\$450.00	
		<b>MATCHES FACTORY STANDARD COUPLING</b>	<b>SB360-0114</b>	<b>1-1/4"</b>	<b>\$450.00</b>
		SB360-01516	1-5/16"	\$450.00	
		SB360-01716	1-7/16"	\$450.00	
		SB360-0112	1-1/2"	\$450.00	
		SB360-01916	1-9/16"	\$450.00	
		SB360-0158	1-5/8"	\$450.00	
		SB360-0134	1-3/4"	\$450.00	
SB01116	1-11/16"	\$450.00			
400	WP1, TEFC	SB400-01	1"	\$555.00	
		SB400-01316	1-3/16"	\$555.00	
		SB400-0114	1-1/4"	\$555.00	
		SB400-01516	1-5/16"	\$555.00	
		SB400-01716	1-7/16"	\$555.00	
		<b>MATCHES FACTORY STANDARD COUPLING</b>	<b>SB400-0112</b>	<b>1-1/2"</b>	<b>\$555.00</b>
SB400-01916	1-9/16"	\$555.00			



STEADY  
BUSHING

CONTINUED					
FRAME	TYPE	KIT PART #	BORE SIZE	LIST PRICE	
400		SB400-0158	1-5/8"	\$555.00	
		SB400-0134	1-3/4"	\$555.00	
		SB400-0158	1-5/8"	\$555.00	
		SB400-0134	1-3/4"	\$555.00	
		SB400-01116	1-11/16"	\$555.00	
		SB400-0134	1-3/4"	\$555.00	
		SB400-0178	1-7/8"	\$555.00	
		SB400-01516	1-15/16"	\$555.00	
440	WP1, TEFC	SB440-0156	1-5/16"	\$580.00	
		SB440-01716	1-7/16"	\$580.00	
		SB440-0112	1-1/2"	\$580.00	
		<b>MATCHES FACTORY STANDARD COUPLING</b>	<b>SB440-011116</b>	<b>1-11/16"</b>	<b>\$580.00</b>
		SB440-0134	1-3/4"	\$580.00	
		SB440-01516	1-15/16"	\$580.00	
		SB440-0218	2-1/8"	\$580.00	
		SB440-02316	2-3/16"	\$580.00	
	SB440-0214	2-1/4"	\$580.00		
5800	WP1	SB5800-01116	1-11/16"	\$750.00	
		SB5800-01516	1-15/16"	\$750.00	
		<b>MATCHES FACTORY STANDARD COUPLING</b>	<b>SB5800-0218</b>	<b>2-1/8"</b>	<b>\$750.00</b>
		SB5800-02316	2-3/16"	\$750.00	
		SB5800-0214	2-1/4"	\$750.00	
		SB5800-0238	2-3/8"	\$750.00	
		SB5800-02716	2-7/16"	\$750.00	
	SB5800-0212	2-1/2"	\$750.00		

BASE  
DIAMETER

In many applications different base diameters are required for each frame to mount properly with the pump base that it is bolting too. Below are the different motor "P" bases offered to accommodate the different applications you may run across during installation.



**NOTE: THE BASE DIAMETER HIGHLIGHTED IN GREEN COME STANDARD WITH THE MOTOR**

HP	FRAME	MODEL #	ALT. BASE DIAMETER	LIST PRICE
10HP	210	BD210-10	10"	\$750.00
		BD210-12	12"	\$750.00
		BD210-16	16.5"	\$750.00
15-20HP	250	BD250-10	10"	\$810.00
		BD250-12	12"	\$810.00
		BD250-16	16.5'	\$810.00
25-30HP	280	BD280-10	10"	\$877.00
		BD280-12	12"	\$877.00
		BD280-16	16.5"	\$877.00
40-50HP	320	BD320-12	12"	\$1,150.00
		BD320-16	16.5'	\$1,150.00
60-75HP	360	BD360-16	16.5	\$1,244.00
100-125HP	400	BD400-16	16.5"	\$1,300.00
		BD400-20	20'	\$1,300.00
150-250HP	440	BD440-16	16.5"	\$1,498.00
		BD440-20	20"	\$1,498.00
300-350HP	5800	BD5800-16	16.5"	\$1,498.00
		BD5800-20	20"	\$1,498.00
400-1000HP	5800	BD5800-20	20"	\$1,674.00
	5800	BD5800-24	24.5"	\$1,674.00
	5800	BD5800-30	30.5"	\$1,674.00



REPLACEMENT TOP COVER KIT

FRAME	TYPE	KIT PART #	LIST PRICE
210	WP1	TC-210	\$550.00
250	WP1	TC-250	\$722.00
280	WP1	TC-280	\$722.00
320	WP1	TC-320	\$790.00
360	WP1	TC-360	\$790.00
400	WP1	TC-400	\$888.00
440	WP1	TC-440	\$976.00
5000	WP1	TC-5000	\$1,010.00
5800	WP1	TC-5800	\$1,010.00

REPLACEMENT SIGHT GLASS KIT

FRAME	TYPE	KIT PART #	LIST PRICE
210	WP1, TEFC	SGK-210	\$280.00
250	WP1, TEFC	SGK-250	\$280.00
280	WP1, TEFC	SGK-280	\$280.00
320	WP1, TEFC	SGK-320	\$280.00
360	WP1, TEFC	SGK-360	\$280.00
400	WP1, TEFC	SGK-400	\$345.00
440	WP1, TEFC	SGK-440	\$345.00
5000	WP1, TEFC	SGK-5000	\$345.00
5800	WP1, TEFC	SGK-5800	\$345.00



NON REVERSE RATCHET KIT

FRAME	TYPE	KIT PART #	LIST PRICE
210	WP1, TEFC	NRR-210	\$680.00
250	WP1, TEFC	NRR-250	\$888.00
280	WP1, TEFC	NRR-280	\$888.00
320	WP1, TEFC	NRR-320	\$1,010.00
360	WP1, TEFC	NRR-360	\$1,010.00
400	WP1, TEFC	NRR-400	\$1,440.00
440	WP1, TEFC	NRR-440	\$1,440.00
5000	WP1, TEFC	NRR-5000	\$1,980.00
5800	WP1, TEFC	NRR-5800	\$1,980.00

**NOTE:** ALL NON REVERSE RATCHET KITS COME COMPLETE WITH THE FOLLOWING: 12 BALL BEARINGS, ROTATING RATCHET, STATIONARY RATCHET, RETAINING RING, AND ALL BOLTS



**TWIST SPIGOT OIL DRAIN KIT**

FRAME	TYPE	KIT PART #	LIST PRICE
320	WP1, TEFC	OD-320	\$625.00
360	WP1, TEFC	OD-360	\$625.00
400	WP1, TEFC	OD-400	\$625.00
440	WP1, TEFC	OD-440	\$625.00
5000	WP1, TEFC	OD-5000	\$625.00
5800	WP1, TEFC	OD-5800	\$625.00

**CONDUIT BOX KIT**

FRAME	TYPE	KIT PART #	LIST PRICE
210	WP1, TEFC	CB-210	\$420.00
250	WP1, TEFC	CB-250	\$560.00
280	WP1, TEFC	CB-280	\$560.00
320	WP1, TEFC	CB-320	\$640.00
360	WP1, TEFC	CB-360	\$640.00
400	WP1, TEFC	CB-400	\$750.00
440	WP1, TEFC	CB-440	\$750.00
5000	WP1, TEFC	CB-5000	\$1,980.00
5800	WP1, TEFC	CB-5800	\$1,980.00

**STAINLESS STEEL RODENT SCREEN KIT**

FRAME	TYPE	KIT PART #	LIST PRICE
210	WP1	RSK-210	\$280.00
250	WP1	RSK-250	\$350.00
280	WP1	RSK-280	\$398.00
320	WP1	RSK-320	\$410.00
360	WP1	RSK-360	\$440.00
400	WP1	RSK-400	\$520.00
440	WP1	RSK-440	\$550.00
5000	WP1	RSK-5000	\$620.00
5800	WP1	RSK-5800	\$620.00

**NOTE:** ALL CONDUIT BOX KITS COME COMPLETE WITH THE FOLLOWING: FRONT CONDUIT BOX COVER, BACK CONDUIT BOX COVER, GASKETS, AND ALL BOLTS

**NOTE:** ALL STAINLESS STEEL RODENT SCREENS INCLUDE THE FOLLOWING: UPPER RODENT SCREEN, LOWER RODENT SCREEN, AND ALL BOLTS





## BMR THERMAL PROTECTION

### WINDINGS

#### A) PTC (Positive Temperature Coefficient) thermistor leads (Comes Standard)

All BMR USA LLC vertical hollow shaft products are equipped with PTC thermistor leads. Thermistor leads are a nonlinear resistance temperature detector made of semiconductor material and are embedded in the end turns of the motor winding, one for each phase of the motor. The resistance increases non-linearly with the temperature. When the motor winding reaches its critical shutdown point, there is a sharp rise in resistance.

#### B) 120V Space Heater leads (Comes Standard)

All BMR USA LLC vertical hollow shaft products are equipped with 120V space heater leads. Space heaters leads are used to prevent condensation within the motor during idle periods. Space heaters are silicon rubber "strip-type" wrapped around and bonded to the end turns. "Strip-type" heaters are the preferred space heater because they provide even heating 5 degree to 10 degree C temperature rise within the motor and have a superior life expectancy. Space heater leads are brought out through main conduit box on ratings, 600V and below.

- Standard space heaters are single phase 50 or 60 hz available in 115, 230, 460, 575 volt ratings.

**Volt heaters are available by special order**

### BEARINGS AND WINDINGS

#### A) RTDS (Resistance Temperature Detectors)

RTDs are precision, wire-wound resistors with a known temperature resistance characteristic. In operation, the RTD is usually wired into a specific type of circuit. The output of this circuit can be used to drive a meter which has been calibrated in temperature, or to operate a relay to sound an alarm or shut down the motor. The RTDs are installed in the slot portion of form wound motors, and either in the slot (standard) or in the end turns of mush wound motors. Bearing RTD's are also an option for BMR USA LLC Hollow Shafts (Upper thrust bearing or lower guide bearing). The RTDs used in motor windings are either 10 ohm, 100 ohm or 120 ohm. Each type of RTD has its own particular resistance characteristic. The basic detectors are listed below.

Ohms	Elements	# of Leads
10 ohms at 25° C	Copper Wire	3
100 ohms at 0° C	Platinum Wire	3
120 ohms at 0° C	Nickel Wire	2*

### WINDING AND BEARING RESISTANCE TEMPERATURE DETECTORS ( RTDS)

DESCRIPTION	FRAME SIZE						
	210	250	280	320	360	400	440
BEARING RTD	\$2520	\$2520	\$2843	\$2843	\$3010	\$3010	\$3010
WINDING RTD	\$2520	\$2520	\$2843	\$2843	\$3010	\$3010	\$3010

**NOTES:** All standard winding and bearing RTDs offered by BMR USA LLC are platinum wire type

WP 1 FRAME	UPPER BEARING	OIL CAPACITY, QTS	LOWER BEARING	TEFC FRAME	UPPER BEARING	OIL CAPACITY, QTS	LOWER BEARING
215	GREASE	XXX	GREASE				GREASE
254	GREASE	XXX	GREASE				GREASE
256	GREASE	XXX	GREASE	256	GREASE	XXX	GREASE
284	GREASE	XXX	GREASE	284	GREASE	XXX	GREASE
286	GREASE	XXX	GREASE	286	GREASE	XXX	GREASE
324	OIL	3.5	GREASE	324	OIL	3.5	GREASE
326	OIL	3.5	GREASE	326	OIL	3.5	GREASE
364	OIL	3.5	GREASE	364	OIL	3.5	GREASE
365	OIL	3.5	GREASE	365	OIL	3.5	GREASE
404	OIL	6.8	GREASE	404	OIL	6.8	GREASE
405	OIL	6.8	GREASE	405	OIL	6.8	GREASE
444	OIL	8.6	GREASE	444	OIL	8.6	GREASE
445	OIL	8.6	GREASE	445	OIL	8.6	GREASE
5800	OIL	15.5	GREASE	5800	OIL	15.5	GREASE

- NOTES:**
1. All BMR VHS motors have cast iron internal bearing caps for the regreaseable lower bearing
  2. All BMR VHS motors are shipped without oil. Recommended oil must be added before operation OR extended storage.
  3. All BMR VHS motors are shipped prelubricated with polyurea grease in the lower bearing. It is good practice to add 4 to 6 ounces, of a compatible grease, before operation, particularly if the motor has been in extended storage.

**RECOMMENDED OIL** ( Specifically formulated for anti-friction bearings )

Up to 40 degree C ambients:	ISO VG 32	Mineral or Synthetic Turbine Oil
40 to 50 degree C ambients:	ISO VG 68	Synthetic Turbine Oil
Above 50 degree C ambients:	refer to oil manufacturer	

- NOTES:**
1. In outdoor unshaded applications, correct oil should be selected for actual lubrication operating temperature, under load at ambient temperatures.
  2. Lubrication life is proportional to operating temperature and should be changed accordingly. An annual change is recommended for normal operation.



CRITICAL DIMENSIONS FOR EACH FRAME

PREMIUM EFFICIENCY WEATHER PROTECTED 1 (WPI)									
FRAME SIZE	STD. BD	ALTER BD'S	MAX "BX"	WPI CD DIM	MAX WEIGHT PER FRAME	TEFC CD DIM	TEFC MAX WEIGHT	STEADY BUSHING KIT	ALTERNATE COUPLING KIT
215TP-10HP	10	12/16.5	1.00	17.56	375	N/A	375	AVAILABLE	AVAILABLE
254TP-15HP	10	12/16.5	1.00	23.38	463	23.38	463	AVAILABLE	AVAILABLE
256TP-20HP	10	12/16.5	1 1/4	23.38	510	23.38	510	AVAILABLE	AVAILABLE
284TP-25HP	10	12/16.5	1 1/4	24.75	550	24.75	550	AVAILABLE	AVAILABLE
286TP-30HP	10	12/16.5	1 1/4	24.75	566	24.75	560	AVAILABLE	AVAILABLE
324TP-40HP	16.5	12	1 1/2	28.22	814	28.22	750	AVAILABLE	AVAILABLE
326TP-50HP	16.5	12	1 1/2	28.22	867	28.22	820	AVAILABLE	AVAILABLE
364TP-60HP	16.5	12	1 1/2	31.16	1020	31.16	910	AVAILABLE	AVAILABLE
365TP-75HP	16.5	12	1 1/2	31.16	1170	31.16	990	AVAILABLE	AVAILABLE
404TP-100HP	16.5	20	1 2/3	36.94	1365	36.94	1460	AVAILABLE	AVAILABLE
405TP-125HP	16.5	20	1 2/3	36.94	1405	36.94	1545	AVAILABLE	AVAILABLE
444TP-150HP	16.5	20	2 1/4	42.66	1954	42.66	2450	AVAILABLE	AVAILABLE
445TP-200HP	16.5	20	2 1/4	42.66	2046	42.66	2734	AVAILABLE	AVAILABLE
445TP-250HP	16.5	20	2 1/4	42.66	2046	42.66	2883	AVAILABLE	AVAILABLE
5804P	20	24.5, 30.5	2 1/2	58.25	2857	N/A	N/A	AVAILABLE	AVAILABLE
5806P	24.5	30.5	2 1/2	58.25	3295	N/A	N/A	AVAILABLE	AVAILABLE
5809P	24.5	30.5	2 3/4	62.5	3515	N/A	N/A	AVAILABLE	AVAILABLE
5810P	24.5	30.5	2 3/4	62.5	4123	N/A	N/A	AVAILABLE	AVAILABLE

Most electric motors carry the common insulation classes of Class B, F, and H. Each insulation class has a different temperature rating the motor will be expected to run continuously without losing motor industry standard life expectancy.

**NEMA TEMPERATURE CLASSIFICATION OF INSULATION SYSTEMS**

Insulation System		Thermal Threshold of Insulation System	
Class A	Class 105	105 C	221 F
Class E	Class 120	120 C	248 F
Class B	Class 130	130 C	266 F
Class F	Class 155	155 C	311 F
Class H	Class 180	180 C	356 F
Class N	Class 200	200 C	392 F
Class R	Class 200	220 C	428 F
Class S	Class 240	240 C	464 F
Class C	Class 240+	Over 240C	Over 464 F

The temperature classification indicates the maximum (hot-spot) temperature at which the insulation system can operated for normal expected service life.

CLASS	PRODUCT APPLICATION	AMBIENT TEMP	PRICE ADDER
F	CLASS F WITH B RISE @ 1.15 SF	40 DEGREE C	NO ADDER
F	CLASS F WITH B RISE @ 1.0 SF	50 DEGREE C	NO ADDER
H	CLASS H WITH B RISE @ 1.15 SF	50 DEGREE C	NO ADDER
	STANDARD ON ALL WPI AND TEFC VHS MOTORS		
F OR H (VFD RATED)	INVERTER DUTY RATED MOTORS @ 1.0 SF	50 DEGREE C	NO ADDER
	ALL STOCK MOTORS ARE INVETER DUTY RATED		



**BASE DIAMETER AND CRITICAL DIMENSION NOMENCLATURE**

<b>"BD" BASE DIAMETER</b>	<b>"AK" RABBET DIAMETER</b>	<b>"AJ" BOLT CIRCLE</b>	<b>"BF" BOLT HOLE</b>	<b>QTY "BF HOLES</b>
10	8.25	9.125	0.438	4
12	8.25	9.125	0.438	4
16.5	13.5	14.75	0.688	4
20	13.5	14.75	0.688	4
24.5	13.5	14.75	0.688	4
30.5	22	26	0.813	4

For the most part electric motor noise levels are based as dB (A) sound pressure. Normally the users of the product will require certain noise levels that are compliant with OSHA levels.

BMR USA LLC cannot add the equipment the motor is driving into our typical noise levels on the chart below. This is due to the fact we cannot determine how the driven equipment and the environment where the motor is being applied will contribute to the decibel levels. The chart below is typical data and not guaranteed.

NOISE LEVELS: VERTICAL MOTORS 180-5800					
FRAME	RPM	WP-I		TEFC	
		PREMIUM EFFICIENT		PREMIUM EFFICIENT	
		SOUND PRESSURE	SOUND POWER	SOUND PRESSURE	SOUND POWER
180	3600	71	79	76	82
	1800	61	68	59	69
	1200 & SLOWER	56	62	61	69
210	3600	76	79	76	84
	1800	59	69	64	74
	1200 & SLOWER	56	62	61	69
250	3600	74	83	74	84
	1800	71	79	66	74
	1200 & SLOWER	62	69	61	69
280	3600	74	84	81	89
	1800	71	79	71	79
	1200 & SLOWER	62	69	64	74
320	3600	74	83	81	90
	1800	64	73	70	81
	1200 & SLOWER	66	73	65	75
360	3600	76	85	81	90
	1800	64	75	76	85
	1200 & SLOWER	66	75	64	75
400	3600	79	90	81	80
	1800	71	80	74	84
	1200 & SLOWER	64	74	64	75



NOISE LEVELS: VERTICAL MOTORS 180-5800 - CONTINUED

FRAME	RPM	WP-I		TEFC	
		PREMIUM EFFICIENT		PREMIUM EFFICIENT	
		SOUND PRESSURE	SOUND POWER	SOUND PRESSURE	SOUND POWER
440	3600	81	90	81	91
	1800	71	81	74	86
	1200 & SLOWER	71	80	64	76
447	3600	N/A	N/A	86	94
	1800	86	96	76	84
	1200 & SLOWER	79	91	71	79
449	3600	N/A	N/A	93	106
	1800	N/A	N/A	93	104
	1200 & SLOWER	N/A	N/A	88	99
5000	3600	92	102	92	104
	1800	87	97	87	104
	1200 & SLOWER	81	93	81	92
5800	3600	N/A	N/A	96	110
	1800	N/A	N/A	91	105
	1200 & SLOWER	N/A	N/A	91	105

ALLOWABLE NUMBER OF STARTS AND MINIMUM TIME BETWEEN STARTS FOR DESIGN A AND DESIGN B MOTORS

HP	2 POLE			4 POLE			6 POLE		
	A	B	C	A	B	C	A	B	C
1	15	1.2	75	30	5.8	38	34	15	33
1.5	12.9	1.8	76	25.7	8.6	38	29.1	23	34
2	11.5	2.4	77	23	11	39	26.1	30	35
3	9.9	3.5	80	19.8	17	40	22.4	44	36
5	8.1	5.7	83	16.3	27	42	18.4	71	37
7.5	7.0	8.3	88	13.9	39	44	15.8	104	39
10	6.2	11	92	12.5	51	46	14.2	137	41
15	5.4	16	100	10.7	75	50	12.1	200	44
20	4.8	21	110	9.6	99	55	10.9	262	48
25	4.4	26	115	8.8	122	58	10.0	324	51
30	4.1	31	120	8.2	144	60	9.3	384	53
40	3.7	40	130	7.4	189	65	8.4	503	57
50	3.4	49	145	6.8	243	72	7.7	620	64
60	3.2	58	170	6.3	275	85	7.2	735	75
75	2.9	71	180	5.8	338	90	6.6	904	79
100	2.6	92	220	5.2	441	110	5.9	1181	97
125	2.4	113	275	4.8	542	140	5.4	1452	120
150	2.2	133	320	4.5	640	160	5.1	1719	140
200	2.0	172	600	4.0	831	200	4.5	2238	265
250	1.8	200	1000	3.7	1017	250	4.2	2744	440

How to use this table:

- A = Maximum number of starts per hour.
- B = Maximum product of starts per hour times load WK<sup>2</sup>.
- C = Minimum rest or off time between starts in seconds.

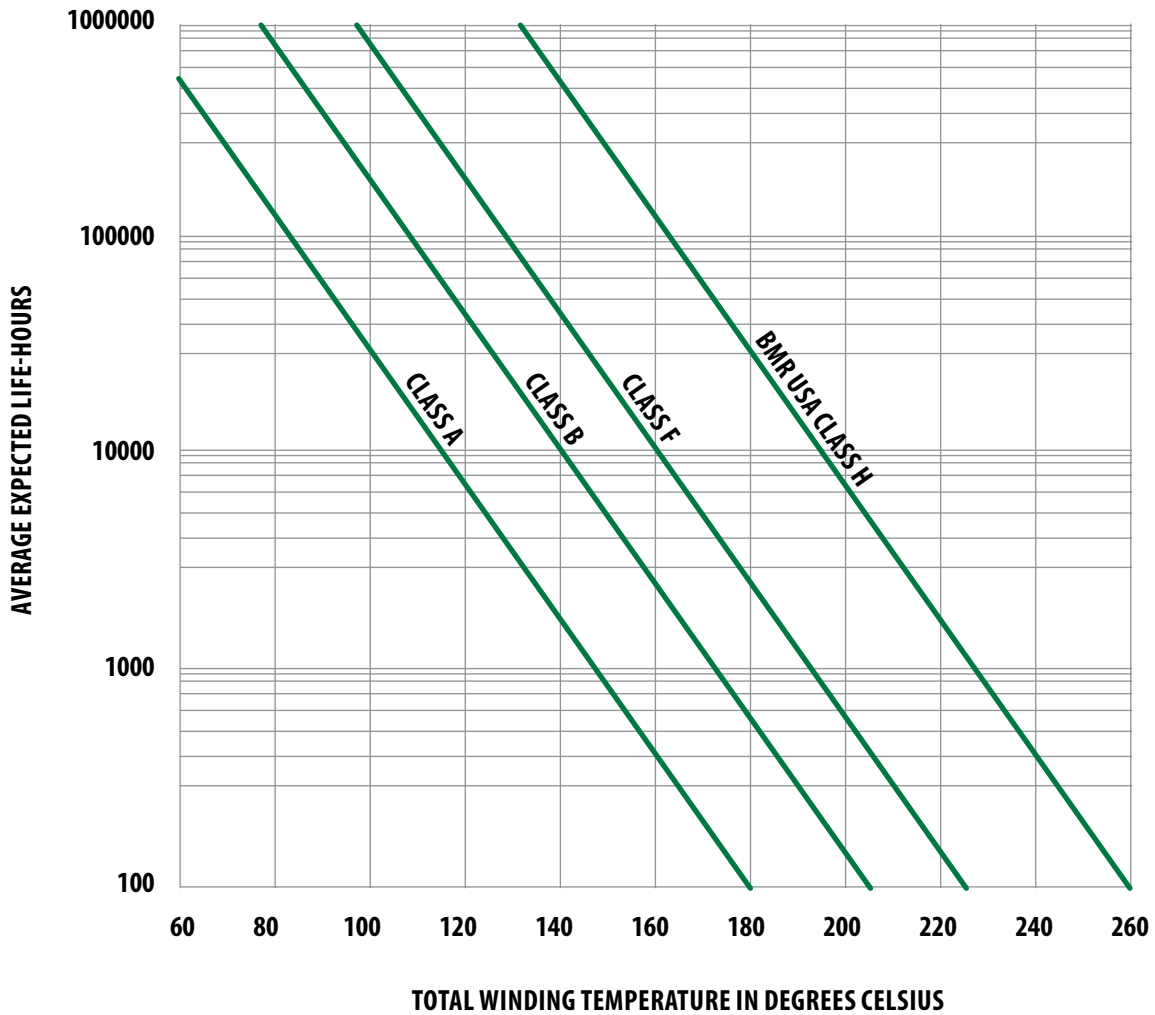
The allowable starts per hour is the lesser of (1) A or (2) B divided by the load WK<sup>2</sup>.

**Note: Excessive start and stops reduces the life of the motor. Reduced starting method is recommended.**

$$\text{Starts per hour} < A < \frac{B}{\text{Load WK}^2}$$



TYPICAL TEMPERATURE VERSUS LIFE CURVES FOR INSULATION SYSTEMS



BMR USA LLC manufactures our vertical hollow shafts with Class H insulation rated at 50 degree ambient. The motors are ideal for high ambient temperature areas or areas that require an application with high altitudes.

FRACTIONAL, DECIMAL AND METRIC EQUIVALENTS

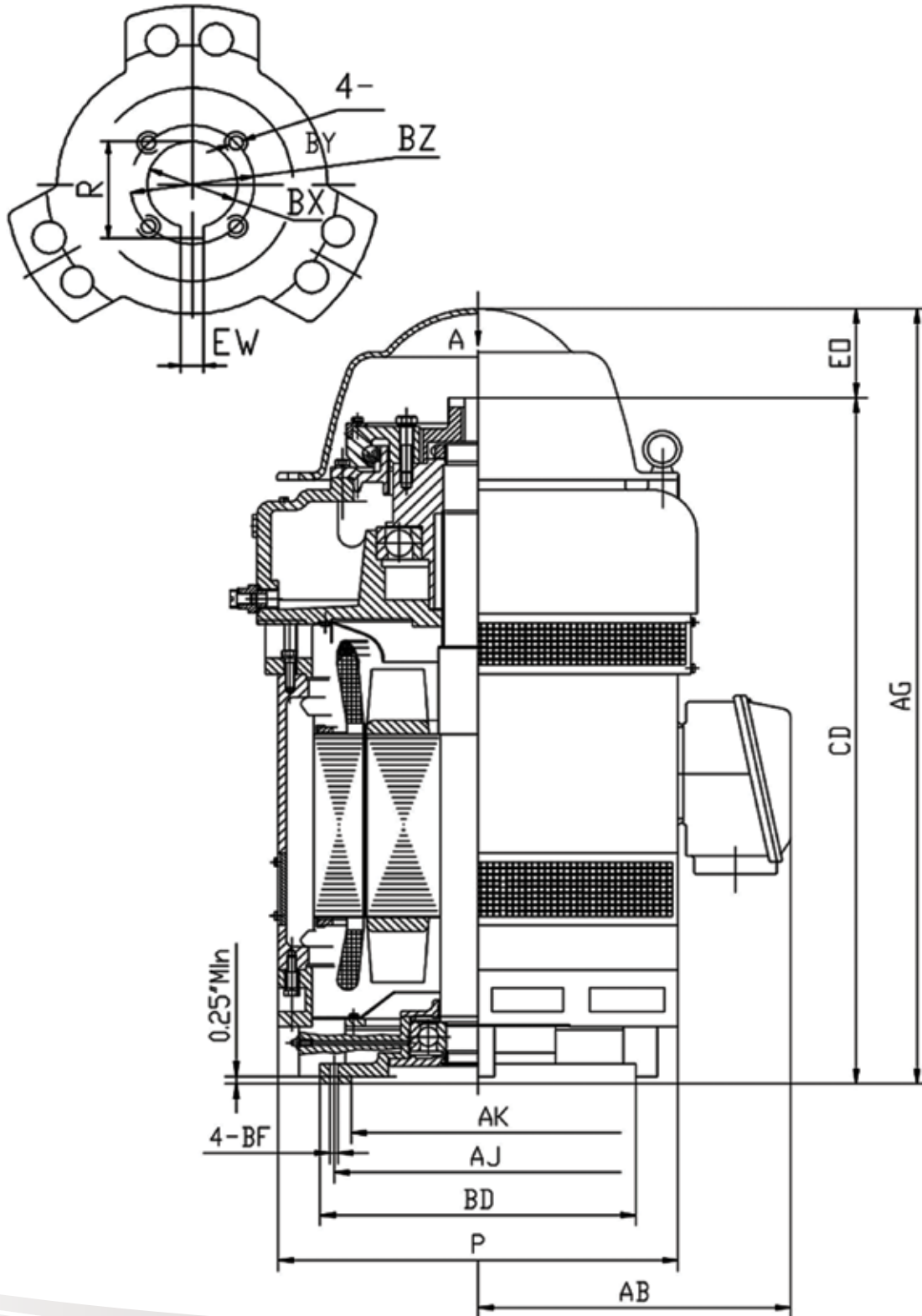
FRACTION	(INCH)	DECIMAL (INCH)	MM	FRACTION	(INCH)	DECIMAL (INCH)	MM
	1/64	0.01562	0.397		33/64	0.51562	13.097
1/32		0.03125	0.794	17/32		0.53125	13.494
	3/64	0.04688	1.191		35/64	0.54688	13.891
1/16		0.06250	1.588	9/16		0.56250	14.288
	5/64	0.07812	1.984		37/64	0.57812	14.684
3/32		0.09375	2.381	19/32		0.59375	15.081
	7/64	0.10938	2.778		39/64	0.60938	15.478
1/8		0.12500	3.175	5/8		0.62500	15.875
	9/64	0.14062	3.572		41/64	0.64062	16.272
5/32		0.15625	3.969	21/32		0.65625	16.669
	11/64	0.17188	4.366		43/64	0.67188	17.066
3/16		0.18750	4.763	11/16		0.68750	17.463
	13/64	0.20312	5.159		45/64	0.70312	17.859
7/32		0.21875	5.556	23/32		0.71875	18.256
	15/64	0.23438	5.953		47/64	0.73438	18.653
1/4		0.25000	6.350	3/4		0.75000	19.050
	17/64	0.26562	6.747		49/64	0.76562	19.447
9/32		0.28125	7.144	25/32		0.78125	19.844
	19/64	0.29688	7.541		51/64	0.79688	20.241
5/16		0.31250	7.938	13/16		0.81250	20.638
	21/64	0.32812	8.334		53/64	0.82812	21.034
11/32		0.34375	8.731	27/32		0.84375	21.431
	23/64	0.35938	9.128		55/64	0.85938	21.828
3/8		0.37500	9.525	7/8		0.87500	22.225
	25/64	0.39062	9.922		57/64	0.89062	22.622
13/32		0.40625	10.319	29/32		0.90625	23.019
	27/64	0.42188	10.716		59/64	0.92188	23.416
7/16		0.43750	11.113	15/16		0.93750	23.813
	29/64	0.45312	11.509		61/64	0.95312	24.209
15/32		0.46875	11.906	31/32		0.96875	24.606
	31/64	0.48438	12.303		63/64	0.98438	25.003
1/2		0.50000	12.700	1/1		1.00000	25.400



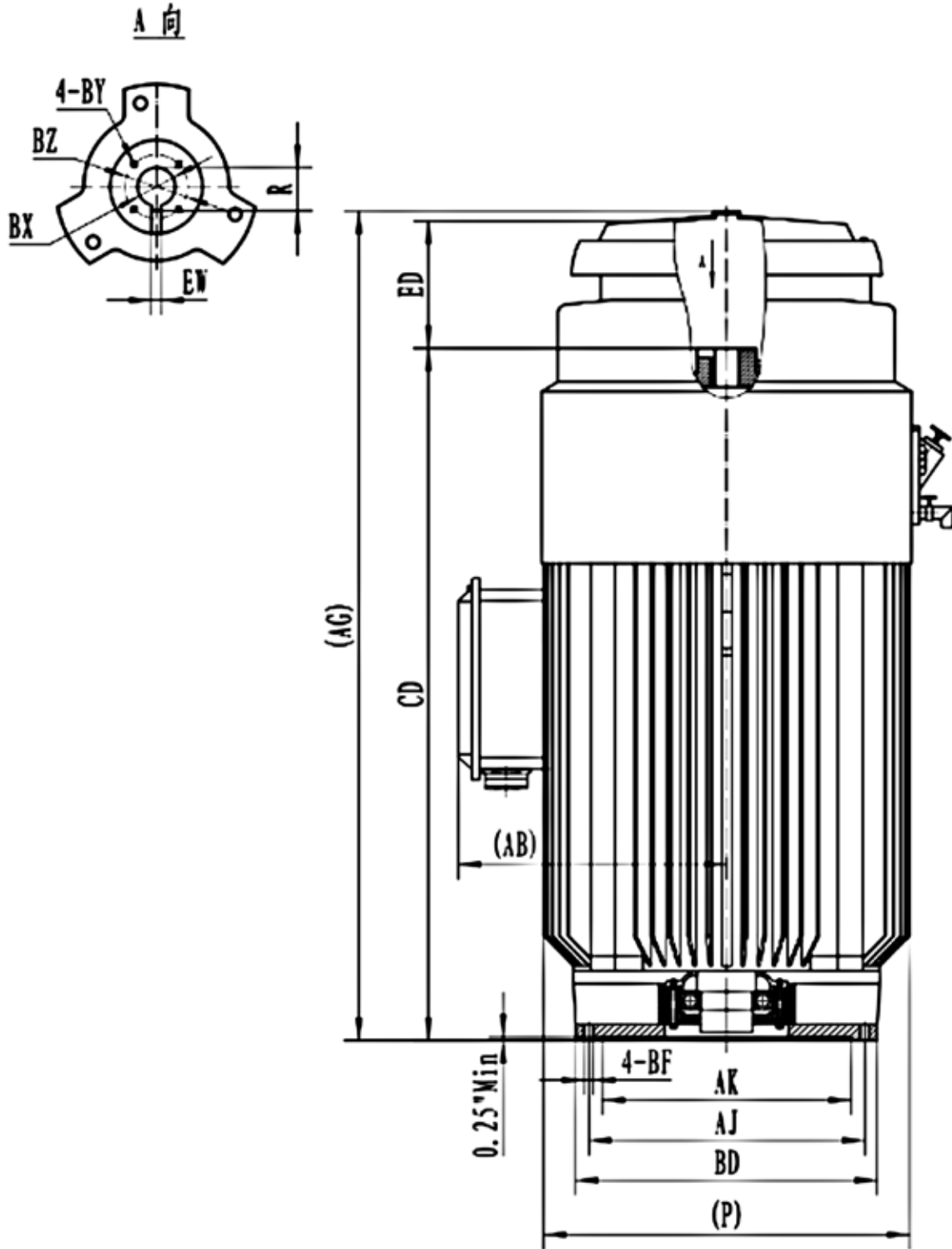
TYPE	READ OUTPUT (HP)	RPM	AT 460 VOLTS		EFFICIENCY (%)	POWER FACTOR	NEMA CODE LETTER	DOWNTHRUST		DEGREE OF PROTECTION
			FULL LOAD CURRENT (A)	LOCKED ROTOR (A)				STANDARD (LB)	EXTRA (LB)	
VHS254TP-4-015P	15	1770	17.4	105	93.0	81	G	3610		WP-1 (IP23)
VHS256TP-4-020P	20	1780	23.3	140	93.0	83.9	G	3610		
VHS284TP-4-025P	25	1780	28	172	93.6	82.7	G	3601		
VHS286TP-4-030P	30	1780	35.4	211	94.1	83.1	G	3610		
VHS324TP-4-040P	40	1780	45.1	281	94.1	86.7	G	5715		
VHS326TP-4-050P	50	1780	56.6	351	94.5	87	G	5715		
VHS364TP-4-060P	60	1782	66.0	430	95.0	86.9	G	5715		
VHS365TP-4-075P	75	1782	85.2	534	95.0	85.5	G	5715		
VHS404TP-4-100P	100	1785	114.1	730	95.4	85.5	G	6745		
VHS405TP-4-125P	125	1785	142	922	95.4	86.5	G	6745		
VHS444TP-4-150P	150	1785	168	1040	95.8	86.5	G	9800	17200	
VHS445TP-4-200P	200	1785	227	1428	95.8	83.5	G	9800	17200	
VHS445TP-4-250P	250	1785	289	1780	95.8	83.5	G	9800	17200	
VHS5804P-4-300P	300	1787	329	2190	96.2	86	G	20000		
VHS5804P-4-350P	350	1787	380	2476	96.2	89.4	G	20000		
VHS5806P-4-400P	400	1787	424	2842	96.2	89.8	G	20000		
VHS5806P-4-450P	450	1787	485	3290	96.2	90.2	G	20000		
VHS5806P-4-500P	500	1787	538	3668	96.2	90.9	G	20000		
VHS5809P-4-600P	600	1787	650	3966	96.2	89.4	G	20000		



TYPE	FRAME	HP	RPM	CURRENT AT 460V		TORQUE FULL LOAD	TORQUE LOCKED ROTOR %	FULL LOAD EFF AT 460V %	POWER FACTOR %	DOWN THRUST(LBS)
				FULL LOAD (A)	LOCKED ROTOR (A)					
6404HSTE-PE	324TP	40	1800	47	280	119	180	94.1	85	5500
6504HSTE-PE	326TP	50	1800	58	362	146	155	94.5	85	5500
6604HSTE-PE	364TP	60	1800	68	435	318	140	95.0	86	8000
6754HSTE-PE	365TP	75	1800	87	540	402	140	95.0	85	8000
6100HSTE-PE	404TP	100	1800	120	728	530	128	95.4	86	9200
61254HSTE-PE	405TP	125	1800	150	905	905	115	95.4	88	9200
61504HSTE-PE	444TP	150	1800	168	1090	1080	120	95.8	87	17,200
62004HSTE-PE	445TP	200	1800	220	1450	1450	100	95.8	89	17,200
62504HSTE-PE	445TP	250	1800	226	1830	1820	85	95.8	88	17,200



TYPE	MOUNTING DIMENSIONS(INCH)													
	BD	AJ	AK	BF	BX	BZ	EW	R	BY	CD	EO>	P	AB	AG
VHS210-4-010P	10	9.125	8.25	0.44	1	1.38	0.2	1.13	10-32	17.76	3.22	15.2	11.1	28.1
VHS254TP-4-015P	10	9.125	8.25	0.44	1	1.38	0.2	1.13	10-32	23.38	3.22	15.2	11.1	28.1
VHS256TP-4-020P	10	9.125	8.25	0.44	1	1.38	0.2	1.13	10-32	23.38	3.22	15.2	11.1	28.1
VHS284TP-4-025P	10	9.125	8.25	0.44	1	1.38	0.2	1.13	10-32	24.75	3.22	15.2	11.1	28.1
VHS286TP-4-030P	10	9.125	8.25	0.44	1	1.38	0.2	1.13	10-32	24.75	3.22	15.2	11.1	28.1
VHS324TP-4-040P	16.5	14.75	13.5	0.69	1.25	1.75	0.2	1.367	1/4-20	28.22	4.22	18.9	12.68	32.7
VHS326TP-4-050P	16.5	14.75	13.5	0.69	1.25	1.75	0.2	1.367	1/4-20	28.22	4.22	18.9	12.68	32.7
VHS364TP-4-060P	16.5	14.75	13.5	0.69	1.25	1.75	0.2	1.367	1/4-20	31.16	4.56	20.8	14.37	36.0
VHS365TP-4-075P	16.5	14.75	13.5	0.69	1.25	1.75	0.2	1.367	1/4-20	31.16	4.56	20.8	14.37	36.0
VHS404TP-4-100P	16.5	14.75	13.5	0.69	1.5	2.125	0.37	1.668	1/4-20	36.94	4.56	22.9	15.24	42.2
VHS405TP-4-125P	16.5	14.75	13.5	0.69	1.5	2.125	0.37	1.668	1/4-20	36.94	4.56	22.9	15.24	42.2
VHS444TP-4-150P	16.5	14.75	13.5	0.69	1.69	2.5	0.375	1.854	1/4-20	42.66	5	25.5	18.13	47.7
VHS445TP-4-200P	16.5	14.75	13.5	0.69	1.69	2.5	0.375	1.854	1/4-20	42.66	5	25.5	18.13	47.7
VHS445TP-4-250P	16.5	14.75	13.5	0.69	1.69	2.5	0.375	1.854	1/4-20	42.66	5	25.5	18.13	47.7
VHS5804P-4-300P	20	14.75	13.5	0.69	1.938	2.5	0.5	2.16	1/4-20	49.78	6	33.8	27.5	60.2
VHS5804P-4-350P	20	14.75	13.5	0.69	1.938	2.5	0.5	2.16	1/4-20	49.78	6	33.8	27.5	60.2
VHS5806P-4-400P	24.5	14.75	13.5	0.69	1.938	2.5	0.5	2.16	1/4-20	58.25	6	33.8	27.5	60.2
VHS5806P-4-450P	24.5	14.75	13.5	0.69	1.938	2.5	0.5	2.16	1/4-20	58.25	6	33.8	27.5	60.2
VHS5806P-4-500P	24.5	14.75	13.5	0.69	1.938	2.5	0.5	2.16	1/4-20	58.25	6	33.8	27.5	60.2





VHS TEFC MOUNTING DIMENSIONS

TYPE	MOUNTING DIMENSIONS(INCH)														
	HP	BD	AJ	AK	BF	BX	BZ	EW	R	BY	CD	ED>	P	AB	AG
VHS320TP	40-50	16.5"	14.75"	13.5"	.069"	1.25"	1.75"	0.2"	1.367"	1/4-20"	28.22"	5"	18.4"	14.9"	36.4"
VHS360TP	60-75	16.5"	14.75"	13.5"	.069"	1.25"	1.75"	0.2"	1.367"	1/4-20"	31.16"	5"	18.4"	14.9"	39.4"
VHS400TP	100-125	16.5"	14.75"	13.5"	.069"	1.5"	2.16"	0.37"	1.668"	1/4-20"	36.94"	5"	22.8"	19.7"	45.7"
VHS440TP	150-200	16.5"	14.75"	13.5"	.069"	1.69"	2.5"	0.375"	1.854"	1/4-20"	42.66"	5"	26.7"	22.8"	54.3"
VHS440TP	250	16.5"	14.75"	13.5"	.069"	1.69"	2.5"	0.375"	1.854"	1/4-20"	42.66"	5"	26.7"	22.8"	66.2"





## LOW VOLTAGE CROSS REFERENCE CHART UP TO 500HP

### VERTICAL HOLLOW SHAFT WP1 12 LEAD PREMIUM EFFICIENCY CROSS REFERENCE CHART

### VERTICAL HOLLOW SHAFT WP1 6 LEAD PREMIUM EFFICIENCY CROSS REFERENCE CHART

230, 460-575V		
HP	BMR MODEL #	USEM PREMIUM EFFICIENCY
10	12-10-4-HS-WP1-PE10	
15	12-15-4-HS-WP1-PE10	H015P2BLE
20	12-20-4-HS-WP1-PE10	H020P2BLF
25	12-25-4-HS-WP1-PE10	H020P2BLF
30	12-30-4-HS-WP1-PE10	H030P2BLF
40	12-40-4-HS-WP1-PE16	H040P2BLF
50	12-50-HS-WP1-PE16	H050P2BLG
60	12-60-4-HS-WP1-PE16	H060P2BLG
75	12-75-4-HS-WP1-PE16	H075P2BLG
100	12-100-4-HS-WP1-PE16	H0100P2BLG
125	12-125-4-HS-WP1-PE16	H0125V2SLG
150	12-150-4-HS-WP1-PE16	H0150V2SLH
200	12-200-4-HS-WP1-PED16	H0200V2SLH
250	12-250-4-HS-WP1-PED16	H0250V2SLH
300	12-300-4-HS-WP1-PED20	H0300V2SLH
350	12-350-4-HS-WP1-PED20	H0350V2SLH
400	12-400-4-HS-WP1-PED24	H0400V2SLH
450	12-450-4-HS-WP1-PED24	H0450V2SLH
500	12-500-4-HS-WP1-PED24	H050VS2SLH

460V		
HP	BMR MODEL #	USEM PREMIUM EFFICIENCY
10		
15		H015V2BLE
20		H020V2BLF
25		H025V2BLF
30		H030V2BLF
40	6-40-4-HS-WP1-PE16	H040P2SLG
50	6-50-HS-WP1-PE16	H050P2SLG
60	6-60-4-HS-WP1-PE16	H060P2SLG
75	6-75-4-HS-WP1-PE16	H075P2SLG
100	6-100-4-HS-WP1-PE16	H0100P2SLG
125	6-125-4-HS-WP1-PE16	H0125P2SLG
150	6-150-4-HS-WP1-PED16	H0150P2SLG
200	6-200-4-HS-WP1-PED16	H0200P2SLG
250	6-250-4-HS-WP1-PED16	H0250P2SLHX
300	6-300-4-HS-WP1-PED20	H0300P2SLHX
350	6-350-4-HS-WP1-PED20	H0350P2SLHX
400	6-400-4-HS-WP1-PED24	H0400P2SLHX
450	6-450-4-HS-WP1-PED24	H0450P2SLHX
500	6-500-4-HS-WP1-PED24	H0500P2SLHX

- NOTES:**
1. 12 Lead motors are only capable of PWS (Part Winding Start) 230V only
  2. For PWS applications please refer to 6 lead motor model numbers
  3. All 12 lead motors are capable of 575V without derating

- NOTES:**
1. 6 Lead motors are capable of PWS (Part Winding Start) 460V only



Sales Policies & Procedures for BMR USA LLC.

BMR USA LLC reserves the right to change this policy as business conditions warrant

### **FREIGHT POLICY**

#### **General**

All electric motor orders are shipped F.O.B shipping point freight prepaid and add or collect unless the customer specifies an alternative shipping arrangement.

#### **Freight Prepaid Policies**

Stainless Steel Motors and Right Angle Worm Gears

BMR USA LLC will agree to pay freight anywhere in the continental United States on any order of \$3000 or more for any assortment of Stainless Steel products

Vertical Hollow Shaft Motors

0-\$2999 (Freight Prepay and Bill or Freight Collect)

\$3000-\$5999 (5% Freight adder to the motor cost)

\$6000-\$9999 (3% Freight adder to the motor cost)

\$10,000 or more (Freight Prepaid) (Fuel Surcharge payment is expected)

**NOTE: All extra charges incurred for additional freight services must be paid by the customer which includes, fuel surcharge, export orders, air freight, expedited freight, shipping outside the continental United States or any other special handling by the carrier**

#### **Motor Return Policy**

Motors sold may be returned within a 30 day period after the day of purchase for a 15% restocking fee and must be unused in its original packaging. In the unlikely event of a motor failure, BMR USA LLC will warrant the motor under the guidelines of BMR USA LLC warranty policy.

### **LIMITED WARRANTY POLICY**

We at BMR USA LLC pride ourselves with manufacturing and innovating premium products on a consistent basis. In the unlikely event of a motor failure we are dedicated to providing excellent and efficient customer service. The warranty policy explains our warranty process and procedures.

#### **Scope of Warranty:**

All BMR USA LLC are warranted against faulty materials, manufacturing processes, and overall defects of the motor. THE WARRANTY SET FORTH IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY THE SELLER WITH RESPECT TO THE GOODS AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO SELLER IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND



WHETHER OR NOT SELLER'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY SELLER FOR BUYER'S USE OR PURPOSE.

This warranty does not extend to any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than Seller's), unauthorized modification or alteration, use beyond rated capacity, unsuitable power sources or environmental conditions, improper installation, repair, handling, maintenance, continued use when a defect is detected or application or any other cause not the fault of Seller. To the extent that Buyer or its agents has supplied specifications, information, representation of operating conditions or other data to Seller in the selection or design of the Goods and the preparation of Seller's quotation, and in the event that actual operating conditions or other conditions differ from those represented by Buyer, any warranties or other provisions contained herein which are affected by such conditions shall be null and void.

If within thirty (30) days after Buyer's discovery of any warranty defects within the warranty period, Buyer notifies Seller thereof in writing, Seller shall, at its option and as Buyer's exclusive remedy, repair, correct or replace or refund the purchase price for, that portion of the Goods found by Seller to be defective. Failure by Buyer to give such written notice within the applicable time period shall be deemed an absolute and unconditional waiver of Buyer's claim for such defects. Seller shall have the right to require the Buyer to deliver the Goods to Seller's designated repair center or manufacturing facility. All costs associated with dismantling, reinstallation and transportation to and from Seller's designated repair center or manufacturing facility and the time and expense of Seller's personnel and representatives for site travel and diagnosis under this warranty shall be borne by the Buyer. Goods repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment, whichever is longer. Buyer assumes all other responsibility for any loss, damage, or injury to persons or property arising out of, connected with, or resulting from the use of goods, either alone or in combination with other products/components.

### **Warranty Period:**

All motors purchased are warranted for 36 months from date of purchase or 24 months from date of installation. All warranty claims must include purchase and start-up date and be submitted to BMR USA LLC prior to expiration of the warranty.

### **Extended Warranty:**

Extended warranties are available for BMR USA LLC various product lines. BMR USA LLC agrees to extend the warranty period to 48 months from date of purchase and 36 months from date of installation for an additional 15% of the original motor cost. **Operation and/or storage information is required.**

### **Procedure to receive warranty service:**

BMR USA LLC allows any authorized EASA electric repair facility to inspect the product in question only with prior written authorization from BMR USA LLC. The electrical repair facility is required to include an explanation of the failure, description in how the motor was used, motor model number, serial number, and all other pertinent data required for that particular motor.



### **BMR USA LLC AUTHORIZED SERVICE CENTER POLICY**

In order to become an BMR USA LLC authorized warranty repair facility we require the following:

The electric repair facility must abide by the BMR USA LLC service center policy procedures

The electric repair facility must abide by and implement EASA standards for repairs and testing practices.

The electrical repair facility must be an AUTHORIZED EASA REPAIR FACILITY.

#### **Service Center Repair Procedures:**

The electrical repair facility must call or write BMR USA LLC prior to performing work or inspecting the motor.

If written authorization has been given, inspect the motor to find cause of failure.

We then require a standard EASA report on cause of failure.

Forward report to BMR USA LLC by either mail or fax.

BMR USA LLC then reserves the right to make a determination to replace or repair the motor.

### **CUSTOM MOTOR ORDER POLICY**

#### **General**

All BMR USA LLC that are considered a "non-stock" item will require a 30% non refundable deposit at the time the order is placed. The remaining 70% will be invoiced on a net 30 after the product has been delivered to the customer location. A 50% cancellation fee will be charged on any and all canceled orders.

#### **Questions?**

If you have any questions or concerns our policy statement may not have addressed please feel free to call us anytime.

We look forward to working with you in the near future.



**INTRODUCING BMR USA LLC HTA ATLAS SERIES  
SUPERIOR PUMPING AND COOLING POWER UP TO  
1000HP  
LOW AND MEDIUM VOLTAGES**



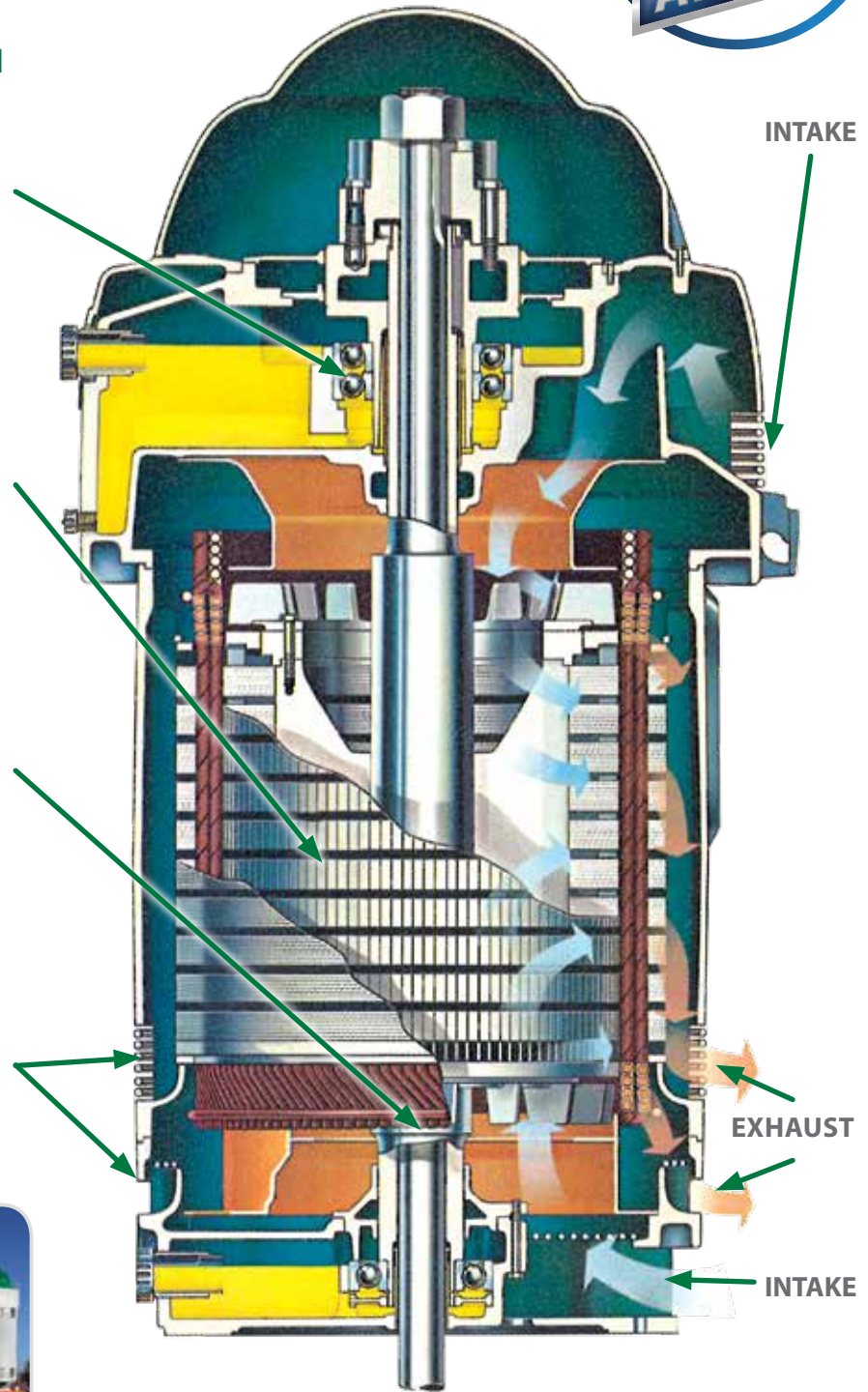
**CLASS H INSULATION SYSTEM**

All **BMR USA LLC 5800 SERIES** models come standard with double stacked 7236B 40 degree angular contact bearings for 175% EHT. Options are available for spherical roller bearings with copper cooling tubes upon order to achieve 300% EHT.

In large frame motors higher heat will be generated, this requires larger air generation and more cooling surface. BMR has designed our larger framed motors to have **VENTILATED ROTOR AND STATORS** to draw air into the hollow rotor core that is air ducted to increase surface space.

**BMR 5800 SERIES** are protected with **BMR INVERTER SHIELD**. Our windings have an all U.L. approved insulation system, are treated with a non hydroscopic epoxy varnish, has double VPI treatment, and is coated with a tropicalization varnish. This combination has proven to provide protection from large electrical stresses, corrosive air particles, and moisture that may cause winding failure.

Anti corrosive rodent screens are externally put on exhaust and intake pathways to protect against reptiles, rodents, and environmental debris that cause failure or damage to the motor



**5800P INTERNAL ILLUSTRATION**





# BMR

U S A

## BMR USA LLC SALES OFFICES:

**CORPORATE  
OFFICE:**  
Scottsdale, AZ 85254

**SALES OFFICE:**  
5803 E Kings Ave  
Scottsdale, AZ 85254  
PH 480-390-4980

**ENGINEERING  
SUPPORT:**  
Mission Viejo, CA

**STOCKING  
LOCATIONS:**  
Phoenix, AZ  
Hayward, CA  
Fresno, CA  
Bakersfield, CA  
Ada, OK  
Pound, VA  
Moses Lake, WA

