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PRODUCT BROCHURE

VERTICAL HOLLOW SHAFT MOTORS

US DOE Compliant



- NEMA Premium efficient cast iron motors
- Designed for deep well vertical turbine pumps

**ENGINEERED
TO OUTRUN**

ABB's Vertical Hollow Shaft (VHS) motors are purpose-built for vertical turbine pump applications where performance, reliability and longevity are non-negotiable. Engineered with a compact, robust design and optimized for deep well pumping, these motors deliver smooth, efficient power transmission and minimal maintenance in the harshest environments.

With decades of innovation behind every unit, ABB VHS motors combine trusted durability with advanced engineering—driving water, energy and industry forward with confidence.

ABB VHS MOTORS

Efficient, reliable, easy-to-maintain performance

ABB is a trusted global supplier of NEMA Premium® efficiency vertical hollow shaft pump motors, serving OEMs, electric motor distributors, well drillers and municipalities. These inverter-duty motors are built for long-lasting performance, offering low vibration and dependable operation in demanding environments.



Fit for purpose

- Designed for deep well vertical turbine applications, the coupling is at the top of the motor, which allows for easy access to shaft and impeller maintenance
- Machined for 175% extra high thrust capacity on 360 frames and above



Drop-in design

- Drops into standard NEMA frame vertical hollow shaft motors



Reliability

- UL listed
- Non-reverse ratchet (NRR) design that prohibits a motor and pump from spinning in opposite directions
- Double-stacked bearing for extra high thrust capacity on 440 frames and above



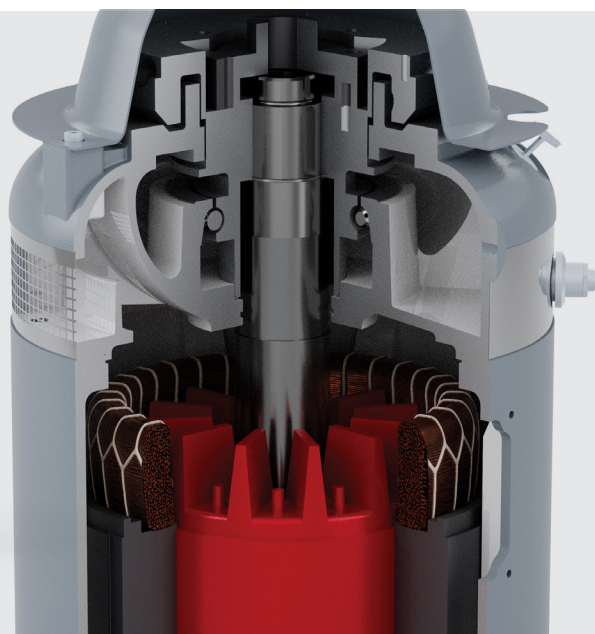
Durability

- Heavy duty cast iron construction
- Class F insulation, Class B rise at full load
- Space heater for harsh environments



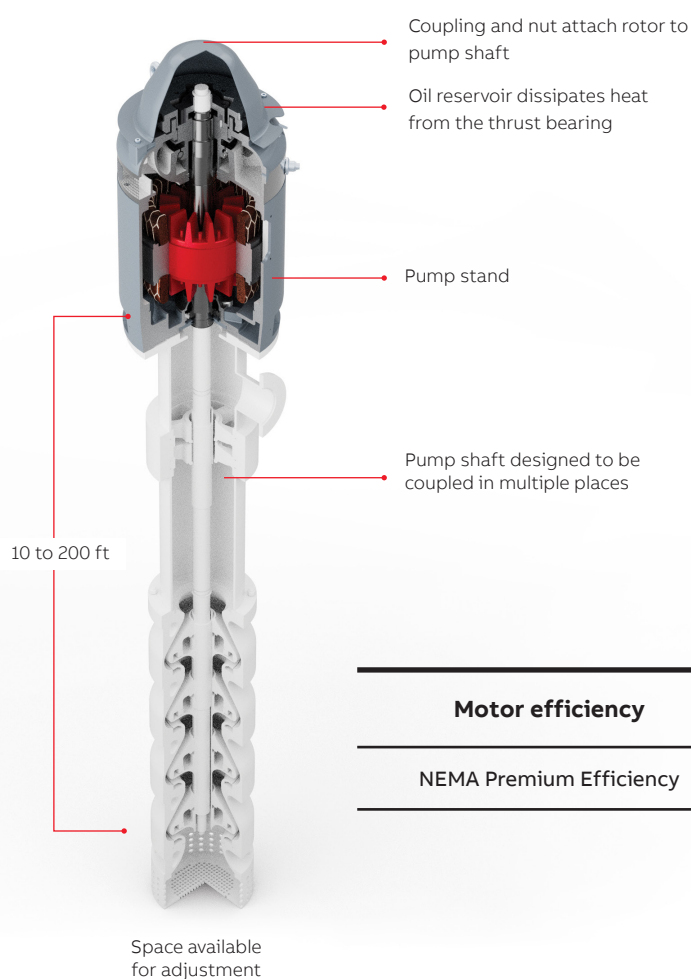
User-friendly

- Motors suitable for part winding start or Wye-Delta start
- Lightweight top cover for easy maintenance
- Oversized conduit box
- Inverter duty per NEMA MG1



A NEW ABB SOLUTION

Elevating your operations



ABB's Vertical Hollow Shaft (VHS) pump motors are engineered for high-performance, reliability and energy efficiency in demanding deep well pumping applications. Designed to meet the rigorous requirements of the water and wastewater, agricultural irrigation and industrial sectors, ABB VHS motors feature a robust construction with precision-balanced rotors and optimized ventilation for extended service life and reduced maintenance. The hollow shaft design allows for easy coupling with vertical turbine pumps, ensuring seamless power transmission and smooth operation.

With our commitment to sustainability and advanced motor technology, VHS motors deliver consistent torque, superior performance and energy savings in even the most challenging operating environments.

UL Listed Vertical Pump Motors

Our commitment to continual innovation and growth is reflected in our products.

Motor efficiency	Configuration	Hp range available	
		6-Lead	12-Lead
NEMA Premium Efficiency	4-Pole	Single volt 460 40 – 500Hp	Dual volt 208-230/460 15 – 300Hp

DESIGNED WITH YOUR BUSINESS IN MIND

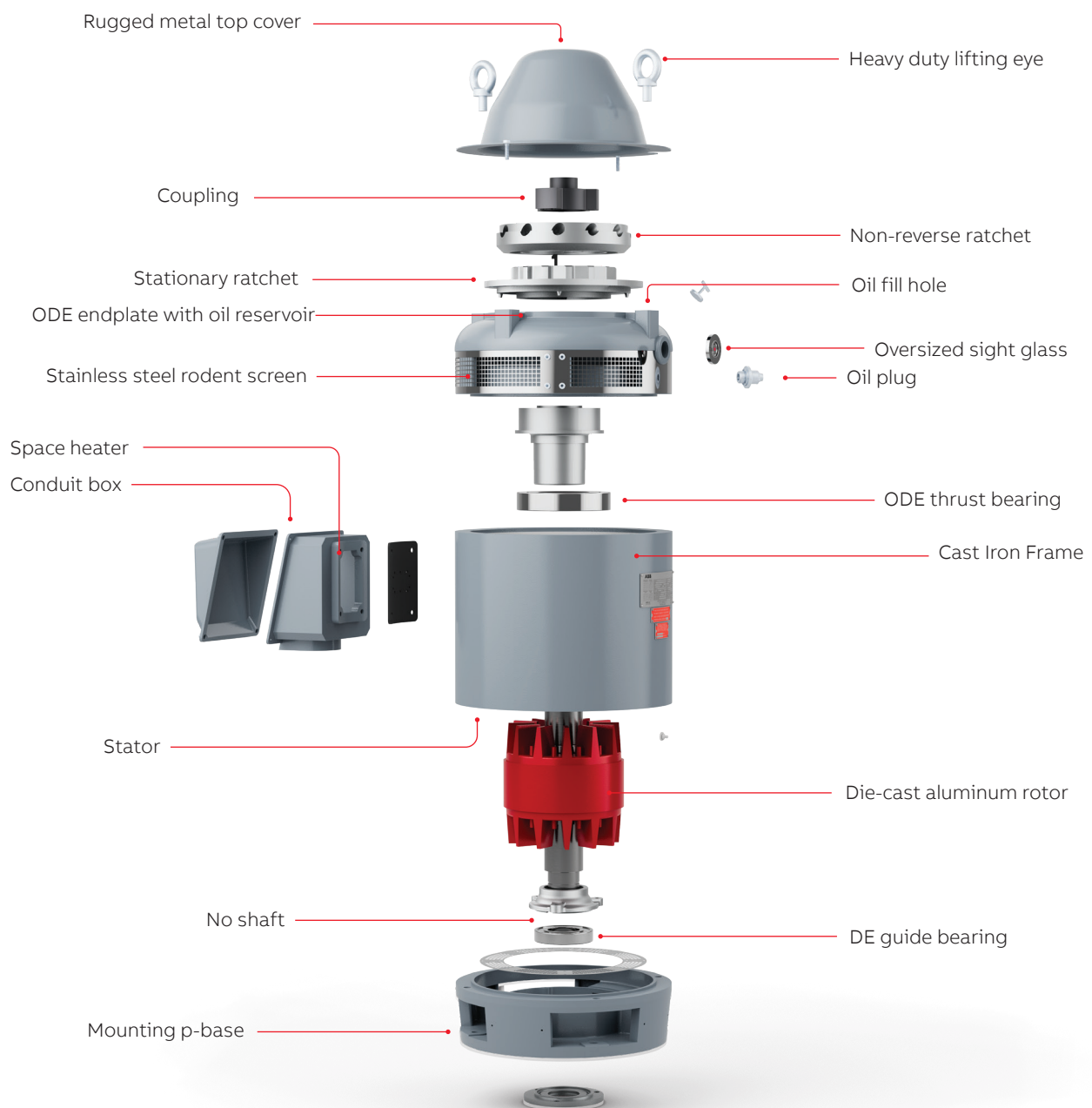
Used in various vertical pumping applications



BUILT FOR POWER

Engineered to perform

Put your trust in a better-built motor. Demand quality construction, lower total cost of ownership and optimum efficiency from the motors that drive your business.



RATINGS AND PERFORMANCE

WP1 Premium efficient, three phase



Standard features

- NEMA Premium efficient design
- Class F insulation, Class B rise at full load
- 1.15 service factor (sine wave power)
- Maximum 40°C ambient, 3300ft altitude
- Motors suitable for part winding start or Wye-Delta start
- NEMA Design B parameters with special balance
- Non-reverse ratchet (NRR)
- Polyurea grease drive end (DE) bearing
- PTC thermistors
- 120V space heaters

Weather Protected Type 1 (WP1)

- 4-Pole
- 15-500 Hp
- 250 - 5000 NEMA frame
- 60 Hz

Options:

- Modified P-Base
- Modified coupling
- Steady bushing
- 50 Hz

Hp	RPM	Frame	Catalog Number	List Price (USD)	Aprx. Wt. (lb)	Full Load Eff.	Full Load Amps	Down-thrust (lbf)	P-base BD (in.)	CD Dim. (in.)	Cplg BX
230/460 volts, 60 Hz											
15	1800	254TP	4WPHS015PE25AA42	4,385	485	93.0	18.5	3300	10.00	23.38	1.00
		254TP	4WPHS015PE25AB42	4,385	485	93.0	18.5	3300	12.00	23.38	1.00
		254TP	4WPHS015PE25AC42	4,385	485	93.0	18.5	3300	16.50	23.38	1.00
20	1800	256TP	4WPHS020PE25AA42	4,821	507	93.3	24.5	3300	10.00	23.38	1.00
		256TP	4WPHS020PE25AB42	4,821	507	93.3	24.5	3300	12.00	23.38	1.00
		256TP	4WPHS020PE25AC42	4,821	507	93.3	24.5	3300	16.50	23.38	1.00
25	1800	284TP	4WPHS025PE28AA42	5,477	546	93.7	29.8	3300	10.00	24.75	1.00
		284TP	4WPHS025PE28AB42	5,477	546	93.7	29.8	3300	12.00	24.75	1.00
		284TP	4WPHS025PE28AC42	5,477	546	93.7	29.8	3300	16.50	24.75	1.00
30	1800	286TP	4WPHS030PE28AA42	6,007	573	94.2	35.4	3300	10.00	24.75	1.00
		286TP	4WPHS030PE28AB42	6,007	573	94.2	35.4	3300	12.00	24.75	1.00
		286TP	4WPHS030PE28AC42	6,007	573	94.2	35.4	3300	16.50	24.75	1.00
40	1800	324TP	4WPHS040PE32AB42	6,665	725	94.2	48.4	5700	12.00	28.22	1.25
		324TP	4WPHS040PE32AC42	6,665	725	94.2	48.4	5700	16.50	28.22	1.25
50	1800	326TP	4WPHS050PE32AB42	7,795	793	94.7	57.3	5700	12.00	28.22	1.25
		326TP	4WPHS050PE32AC42	7,795	793	94.7	57.3	5700	16.50	28.22	1.25
60	1800	364TP	4WPHS060PE36AC42	9,094	926	95.1	67.8	5700	16.50	31.16	1.25
75	1800	365TP	4WPHS075PE36AC42	10,883	1010	95.3	85.1	5700	16.50	31.16	1.25
100	1800	404TP	4WPHS100PE40AC42	13,988	1422	95.5	113.8	6700	16.50	36.94	1.50

Cast iron frame

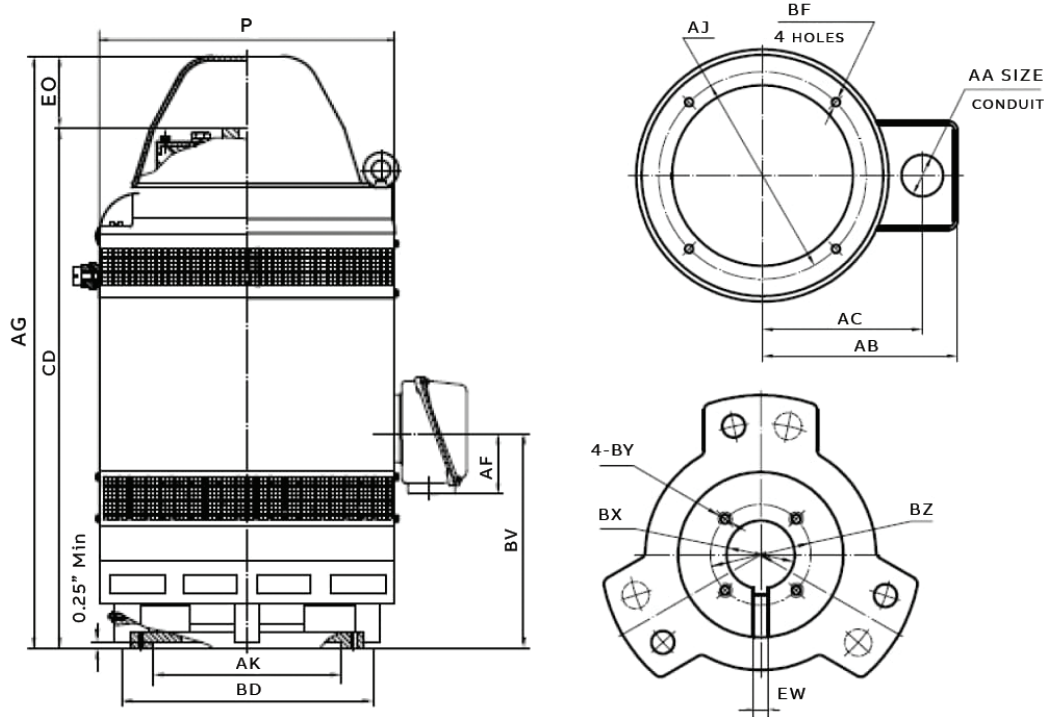
Red catalog number indicates **NEW** product

Hp	RPM	Frame	Catalog Number	List Price (USD)	Aprx. Wt. (lb)	Full Load Eff.	Full Load Amps	Down-thrust (lb ^f)	P-base BD (in.)	CD Dim. (in.)	Cplg BX
230/460 volts, 60 Hz											
125	1800	405TP	4WPHS125PE40AC42	17,290	1488	95.5	138.1	6700	16.50	36.94	1.50
150	1800	444TP	4WPHS150PE44AC42	22,565	1978	96.0	168.4	15680	16.50	42.66	1.69
		444TP	4WPHS150PE44AD42	22,565	1978	96.0	168.4	15680	20.00	42.66	1.69
200	1800	445TP	4WPHS200PE44AC42	27,706	2038	96.2	220.6	15680	16.50	42.66	1.69
		445TP	4WPHS200PE44AD42	27,706	2038	96.2	220.6	15680	20.00	42.66	1.69
250	1800	445TP	4WPHS250PE44AC42	33,948	2038	96.3	274.0	15680	16.50	42.66	1.69
		445TP	4WPHS250PE44AD42	33,948	2038	96.3	274.0	15680	20.00	42.66	1.69
300	1800	447TP	4WPHS300PE44AC42	39,049	2468	96.5	341.6	15680	16.50	49.75	1.94
		447TP	4WPHS300PE44AD42	39,049	2468	96.5	341.6	15680	20.00	49.75	1.94
460 volts, 60 Hz											
40	1800	324TP	4WPHS040PE32AB46	6,665	725	94.2	48.4	5700	12.00	28.22	1.25
		324TP	4WPHS040PE32AC46	6,665	725	94.2	48.4	5700	16.50	28.22	1.25
50	1800	326TP	4WPHS050PE32AB46	7,795	793	94.7	57.3	5700	12.00	28.22	1.25
		326TP	4WPHS050PE32AC46	7,795	793	94.7	57.3	5700	16.50	28.22	1.25
60	1800	364TP	4WPHS060PE36AC46	9,094	926	95.1	67.8	5700	16.50	31.16	1.25
75	1800	365TP	4WPHS075PE36AC46	10,883	1010	95.3	85.1	5700	16.50	31.16	1.25
100	1800	404TP	4WPHS100PE40AC46	13,988	1422	95.5	113.8	6700	16.50	36.94	1.50
125	1800	405TP	4WPHS125PE40AC46	17,290	1488	95.5	138.1	6700	16.50	36.94	1.50
150	1800	444TP	4WPHS150PE44AC46	22,565	1978	96.0	168.4	15680	16.50	42.66	1.69
		444TP	4WPHS150PE44AD46	22,565	1978	96.0	168.4	15680	20.00	42.66	1.69
200	1800	445TP	4WPHS200PE44AC46	27,706	2038	96.2	220.6	15680	16.50	42.66	1.69
		445TP	4WPHS200PE44AD46	27,706	2038	96.2	220.6	15680	20.00	42.66	1.69
250	1800	445TP	4WPHS250PE44AC46	33,948	2038	96.3	274.0	15680	16.50	42.66	1.69
		445TP	4WPHS250PE44AD46	33,948	2038	96.3	274.0	15680	20.00	42.66	1.69
300	1800	447TP	4WPHS300PE44AC46	39,049	2468	96.5	341.6	15680	16.50	49.75	1.94
		447TP	4WPHS300PE44AD46	39,049	2468	96.5	341.6	15680	20.00	49.75	1.94
		5006P	4WPHS300PE50AD46	41,398	3638	95.9	328.3	16480	20.00	49.75	1.94
		5006P	4WPHS300PE50AE46	41,398	3638	95.9	328.3	16480	24.50	49.75	1.94
350	1800	5006P	4WPHS350PE50AD46	43,747	3638	96.1	379.1	16480	20.00	49.75	1.94
		5006P	4WPHS350PE50AE46	43,747	3638	96.1	379.1	16480	24.50	49.75	1.94
400	1800	5008P	4WPHS400PE50AE46	53,731	4648	96.2	436.2	16480	24.50	53.88	2.19
450	1800	5008P	4WPHS450PE50AE46	58,174	4648	96.4	487.5	16480	24.50	53.88	2.19
500	1800	5008P	4WPHS500PE50AE46	66,464	4648	96.4	537.7	16480	24.50	53.88	2.19

Cast iron frame Red catalog number indicates **NEW** product

DIMENSIONS

WP1 Premium efficient, three phase



Hp	Frame	Mounting dimensions (in)												Overall dimensions (in)				
		BD	AJ	AK	BF	BV	AF	BX	BZ	EW	BY	CD	EO	AA	P	AB	AC	AG
15	254TP	10	9.125	8.25	0.44	12.7	5.2	1	1.375	0.25	#10 - 32	23.38	3.22	1.5	16.1	14.1	11.2	28.1
20	256TP	10	9.125	8.25	0.44	12.7	5.2	1	1.375	0.25	#10 - 32	23.38	3.22	1.5	16.1	14.1	11.2	28.1
25	284TP	10	9.125	8.25	0.44	14.1	5.2	1	1.375	0.25	#10 - 32	24.75	3.22	1.5	16.1	14.1	11.2	29.5
30	286TP	10	9.125	8.25	0.44	14.1	5.2	1	1.375	0.25	#10 - 32	24.75	3.22	1.5	16.1	14.1	11.2	29.5
40	324TP	16.5	14.75	13.5	0.69	13.5	5.2	1.25	1.75	0.25	1/4 - 20	28.22	4.22	3	17.3	14.8	11.8	32.7
50	326TP	16.5	14.75	13.5	0.69	13.5	5.2	1.25	1.75	0.25	1/4 - 20	28.22	4.22	3	17.3	14.8	11.8	32.7
60	364TP	16.5	14.75	13.5	0.69	15.3	5.2	1.25	1.75	0.25	1/4 - 20	31.16	4.56	3	19.1	15.6	12.6	36.0
75	365TP	16.5	14.75	13.5	0.69	15.3	5.2	1.25	1.75	0.25	1/4 - 20	31.16	4.56	3	19.1	15.6	12.6	36.0
100	404TP	16.5	14.75	13.5	0.69	19.5	5.2	1.5	2.125	0.375	1/4 - 20	36.94	4.56	3	21.0	16.9	13.6	42.2
125	405TP	16.5	14.75	13.5	0.69	19.5	5.2	1.5	2.125	0.375	1/4 - 20	36.94	4.56	3	21.0	16.9	13.6	42.2
150	444TP	16.5	14.75	13.5	0.69	22.6	7.2	1.69	2.50	0.375	1/4 - 20	42.66	5	3	23.2	20.6	15.6	47.7
200	445TP	16.5	14.75	13.5	0.69	22.6	7.2	1.69	2.50	0.375	1/4 - 20	42.66	5	3	23.2	20.6	15.6	47.7
250	445TP	16.5	14.75	13.5	0.69	22.6	7.2	1.69	2.50	0.375	1/4 - 20	42.66	5	3	23.2	20.6	15.6	47.7
300	447TP	16.5	14.75	13.5	0.69	29.7	7.2	1.94	2.50	0.50	1/4 - 20	49.75	5	3.5	23.2	20.6	15.6	54.8
300	5006P	24.5	14.75	13.5	0.69	26.3	10.6	1.94	2.50	0.50	1/4 - 20	49.75	6	3.5	26.8	22.2	18.5	56.1
350	5006P	24.5	14.75	13.5	0.69	26.3	10.6	1.94	2.50	0.50	1/4 - 20	49.75	6	3.5	26.8	22.2	18.5	56.1
400	5008P	24.5	14.75	13.5	0.69	30.4	10.6	2.188	3.25	0.50	3/8 - 16	53.88	6	3.5	26.8	22.2	18.5	60.2
450	5008P	24.5	14.75	13.5	0.69	30.4	10.6	2.188	3.25	0.50	3/8 - 16	53.88	6	3.5	26.8	22.2	18.5	60.2
500	5008P	24.5	14.75	13.5	0.69	30.4	10.6	2.188	3.25	0.50	3/8 - 16	53.88	6	3.5	26.8	22.2	18.5	60.2

P-BASE OPTIONS

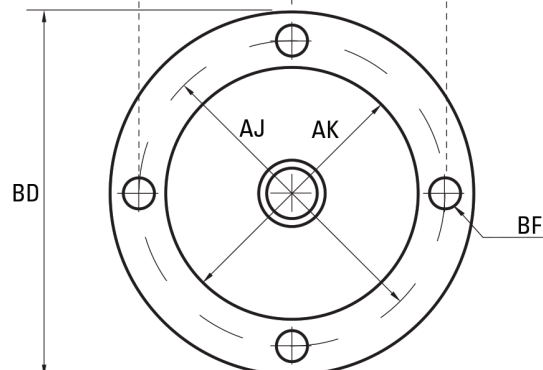
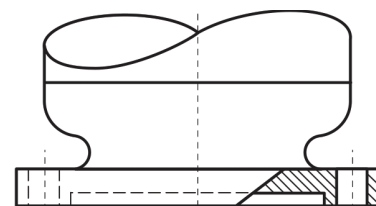
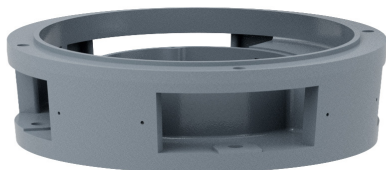
WP1 flange

The following table shows the bases that fit each of the Hp/frame sizes. Proper alignment of pump flange and motor flange is critical. Small errors in alignment are magnified by the distance from the flange to the top of the motor, resulting in vibration, electrical noise, premature bearing wear and oil leakage.

P-base options for WP1 Std				P-Base Dimensions (in)			
Hp	Frame	Base Size	Catalog number	BD	AJ	AK	BF
15 - 30	250/280	10	PBWP250/280-10	10	9.125	8.25	0.44
		12	PBWP250/280-12	12	9.125	8.25	0.44
		16.5	PBWP250/280-16.5	16.5	14.75	13.5	0.69
40 - 50	320	12	PBWP320-12	12	9.125	8.25	0.44
		16.5	PBWP320-16.5	16.5	14.75	13.5	0.69
60 - 75	360	16.5	PBWP360-16.5	16.5	14.75	13.5	0.69
100 - 125	400	16.5	PBWP400-16.5	16.5	14.75	13.5	0.69
150 - 350	440	16.5	PBWP440-16.5	16.5	14.75	13.5	0.69
		20	PBWP440-20	20	14.75	13.5	0.69
300 - 500	5000	20	PBWP5000-20	24.5	14.75	13.5	0.69
		24.5	PBWP5000-24.5	24.5	14.75	13.5	0.69

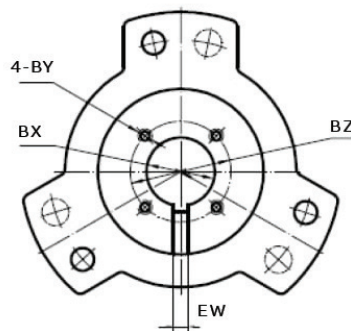
Indicates standard flange size

Red catalog number indicates **NEW** product



COUPLING

WP1 Coupling option



Coupling options for WP1				Coupling dimensions (in)			
Hp	Frame	Bore size (BX nom)	Catalog number	BX (Actual)	BY (Bolt size)	BZ	Sq. Key
15 - 30	250/280	1	C250/280-1	1.001	#10 - 32	1 - 3/8	1/4
		1-3/16	C250/280-1316	1.188	1/4 - 20	1 - 3/4	1/4
		1-1/4	C250/280-114	1.251	1/4 - 20	1 - 3/4	1/4
40 - 75	320/360	1	C320/360-1	1.001	#10 - 32	1 - 3/8	1/4
		1-3/16	C320/360-1316	1.188	1/4 - 20	1 - 3/4	1/4
		1-1/4	C320/360-114	1.251	1/4 - 20	1 - 3/4	1/4
		1-1/2	C320/360-112	1.501	1/4 - 20	2 - 1/8	3/8
100 - 125	400	1-3/16	C400-1316	1.188	1/4 - 20	1 - 3/4	1/4
		1-1/4	C400-114	1.251	1/4 - 20	1 - 3/4	1/4
		1-1/2	C400-112	1.501	1/4 - 20	2 - 1/8	3/8
		1-11/16	C400-11116	1.688	1/4 - 20	2 - 1/2	3/8
		1-15/16	C400-11516	1.938	1/4 - 20	2 - 1/2	1/2
150 - 250	440	1-3/16	C440-1316	1.188	1/4 - 20	1 - 3/4	1/4
		1-1/4	C440-114	1.251	1/4 - 20	1 - 3/4	1/4
		1-1/2	C440-112	1.501	1/4 - 20	2 - 1/8	3/8
		1-11/16	C440-11116	1.688	1/4 - 20	2 - 1/2	3/8
		1-15/16	C440-11516	1.938	1/4 - 20	2 - 1/2	1/2
		1-3/16	C440-1316	1.188	1/4 - 20	1 - 3/4	1-4
300 - 350	440	1-1/4	C440-114	1.251	1/4 - 20	1 - 3/4	1/4
		1-1/2	C440-112	1.501	1/4 - 20	1 - 3/4	3/8
		1-11/16	C440-11116	1.688	1/4 - 20	2 - 1/2	3/8
		1-15/16	C440-11516	1.938	1/4 - 20	2 - 1/2	1/2
		1-11/16	C5000-11116	1.688	1/4 - 20	2 - 1/2	3/8
300 - 350	5000	1-15/16	C5000-11516	1.938	1/4 - 20	2 - 1/2	1/2
		2-3/16	C5000-2316	2.188	3/8 - 16	3 - 1/4	1/2
		1-11/16	C5000-11116	1.688	1/4 - 20	2 - 1/2	3/8
400 - 500	5000	1-15/16	C5000-11516	1.938	1/4 - 20	2 - 1/2	1/2
		2-3/16	C5000-2316	2.188	3/8 - 16	3 - 1/4	1/2

Hp	Frame	Downthrust (lbs.)
15	254TP	3,300
20	256TP	3,300
25	284TP	3,300
30	286TP	3,300
40	324TP	5,700
50	326TP	5,700
60	364TP	5,700
75	365TP	5,700
100	404TP	6,700
125	405TP	6,700
150	444TP	15,680
200	445TP	15,680
250	445TP	15,680
300	447TP	15,680
350	449TP	15,680
300	5006P	16,480
350	5006P	16,480
400	5008P	16,480
450	5008P	16,480
500	5008P	16,480

Indicates standard flange size Red catalog number indicates **NEW** product

REPLACEMENT PARTS

WP1 Premium efficient, three phase

Bearings

HP	Frame	Description	Catalog Number
15 - 20	250TP	Thrust (Top)	7312BM
		Guided (Bottom)	6212
25 - 30	280TP	Thrust (Top)	7312BM
		Guided (Bottom)	6212
40 - 50	320TP	Guided (Bottom)	6213
		Thrust (Top)	7221BM
60 - 75	360TP	Guided (Bottom)	6314
		Thrust (Top)	7224BM
100 - 125	400TP	Guided (Bottom)	6317
		Thrust (Top)	7230BM
150 - 350	440TP	Guided (Bottom)	6318
		Double thrust (Top)	7232BM / DT
300 - 500	5000P	Guided (Bottom)	6322
		Double thrust (Top)	7236BM / DT

Steady bushings

HP	Frame	Bore size (in)	Catalog number
15 - 30	250/280	1	SB250/280-1
		1.1875	SB250/280-1316
		1.25	SB250/280-114
40 - 50	320	1	SB320-1
		1.1875	SB320-1316
		1.25	SB320-114
		1.5	SB320-112
60-75	360	1	SB360-1
		1.875	SB360-1316
		1.25	SB400-114
		1.5	SB400-112
100-125	400	1.875	SB400-1316
		1.25	SB400-114
		1.5	SB400-112
		1.6875	SB400-11116
		1.9375	SB400-11516
150-350	440	1.875	SB440-1316
		1.25	SB440-114
		1.5	SB440-112
		1.6875	SB440-11116
		1.9375	SB440-11516
300-500	5000	1.6875	SB5000-11116
		1.9375	SB5000-11516
		2.1875	SB5000-2316

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<https://new.abb.com/motors-generators>