

OMNI[™]
POWERTRAIN TECHNOLOGIES

V E R T I C A L
**HOLLOW
SHAFT**
M O T O R S



APRIL 10, 2024

 **OMNIGEAR**[®]

VERTICAL HOLLOW SHAFT MOTORS

AN INTRODUCTION TO OMNI™/ OMNIGEAR® VERTICAL HOLLOW SHAFT MOTORS

OMNI Powertrain Technologies™ Vertical Hollow Shaft Motors are designed to play a crucial role in the following markets: agricultural irrigation, fire emergency, mining, urban water supply, and others due to its specific design features, which make it well-suited for your applications.

These features include efficiency, reliability, space-saving design, ease of maintenance, adaptability, power output, and longevity. Our VHSM Series offers an intelligent solution suitable for conventional and high-thrust setups.

FEATURES / BENEFITS:

- **OMNI™** VHS motors are directly coupled to the pump shaft, eliminating the need for couplings or a gearbox.
- Our VHS motors; vertical orientation allows them to be installed in a compact footprint, making them ideal for applications where space is limited.
- **OMNI™** VHS motors are designed to operate in harsh environments: their robust construction and sealed housing protect them from moisture, dust, and debris.
- Our VHS motors are available in a wide range of power ratings, allowing them to drive pumps of various capacities. Whether it is a small-scale drip irrigation system or a large-scale agricultural operation, **OMNI™** VHS motors can deliver the necessary power to meet the water demand efficiently.



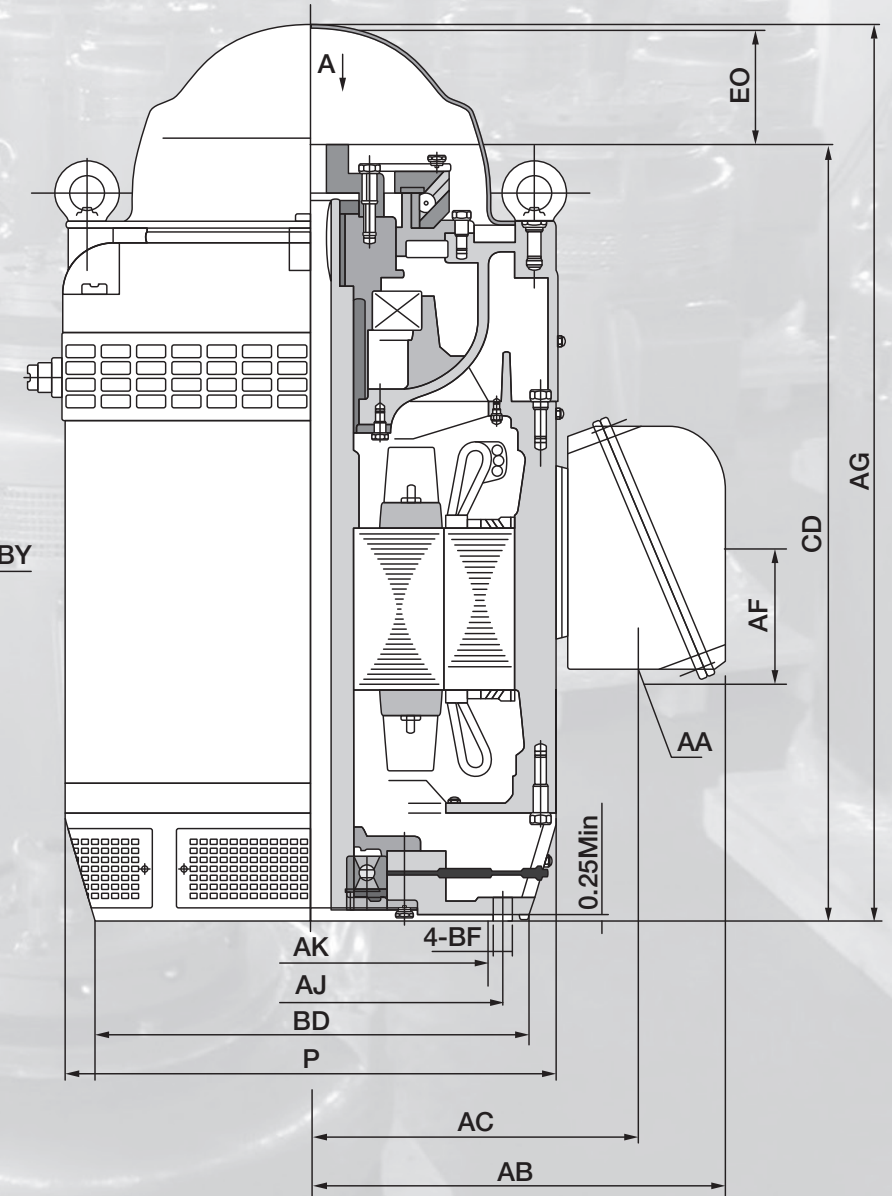
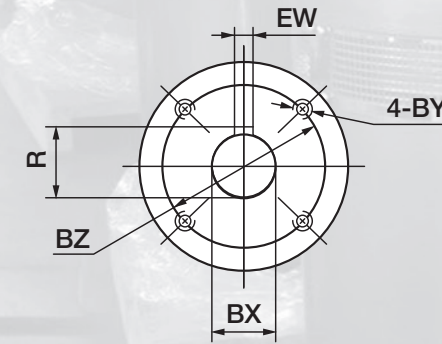
VHS MOTOR PERFORMANCE

	MODEL NUMBER	HP	Synchronous RPM	Asynchronous RPM	POWER FACTOR			Full Load Torque Ft-Lb	Locked Rotor Torque (%)	Break Down Torque (%)	Down Thrust	NEMA Design	NEMA Code (60Hz)	Rating	IP Rating
					100%	75%	50%								
VERTICAL HOLLOW SHAFT MOTOR PERFORMANCE	VHS10-215TP-10	10	1800	1780	0.84	0.79	0.70	29.00	220	366	2500	B	H	S1	23
	VHS15-254TP-10	15	1800	1785	0.86	0.81	0.71	44.00	226	514	3200	B	H	S1	23
	VHS20-254TP-10	20	1800	1785	0.86	0.82	0.72	58.00	235	527	3200	B	H	S1	23
	VHS25-284TP-12	25	1800	1785	0.86	0.82	0.72	73.00	238	571	3200	B	H	S1	23
	VHS30-286TP-12	30	1800	1785	0.86	0.83	0.74	88.00	236	591	3200	B	H	S1	23
	VHS40-324TP-16.5	40	1800	1785	0.87	0.84	0.77	117.00	211	761	5500	B	H	S1	23
	VHS50-326TP-16.5	50	1800	1785	0.87	0.84	0.76	146.00	235	825	5500	B	H	S1	23
	VHS60-364TP-16.5	60	1800	1787	0.87	0.84	0.76	175.00	230	983	5600	B	H	S1	23
	VHS75-365TP-16.5	75	1800	1787	0.87	0.85	0.79	219.00	235	1034	5600	B	H	S1	23
	VHS100-404TP-16.5	100	1800	1785	0.88	0.87	0.83	292.00	238	1455	13400	B	H	S1	23
	VHS125-405TP-16.5	125	1800	1785	0.88	0.87	0.84	365.00	242	1505	13400	B	H	S1	23
	VHS150-444TP-16.5	150	1800	1788	0.88	0.88	0.82	438.00	196	1984	14400	B	H	S1	23
	VHS200-445TP-16.5	200	1800	1788	0.88	0.88	0.83	584.00	166	2099	14400	B	G	S1	23
	VHS250-445TP-20	250	1800	1788	0.88	0.87	0.81	730.00	168	2206	14400	B	G	S1	23
	VHS300-5006P-24.5	300	1800	1790	0.90	0.85	0.80	876.00	188	3693	24000	B	G	S1	23
	VHS350-5006P-24.5	350	1800	1790	0.90	0.88	0.85	1022.00	178	3693	24000	B	G	S1	23
	VHS400-5008P-24.5	400	1800	1790	0.90	0.88	0.86	1168.00	164	3955	24000	B	G	S1	23
	VHS450-5008P-24.5	450	1800	1790	0.90	0.88	0.85	1314.00	176	4193	24000	B	G	S1	23
	VHS500-5008P-24.5	500	1800	1790	0.90	0.88	0.83	1460.00	168	4449	24000	B	G	S1	23
	VHS600-5808P-24.5	600	1800	1790	0.9	0.88	0.84	1772.00	170	4736	29000	B	H	S1	23
VHS650-5808P-24.5	650	1800	1790	0.9	0.88	0.85	1920.00	165	4914	29000	B	H	S1	23	
VHS700-5809P-24.5	700	1800	1790	0.9	0.88	0.85	2067.00	165	5560	29000	B	H	S1	23	
VHS750-5809P-24.5	750	1800	1790	0.9	0.88	0.86	2215.00	165	5670	29000	B	H	S1	23	

WHETHER IT'S A SMALL-SCALE DRIP IRRIGATION SYSTEM OR A LARGE-SCALE AGRICULTURAL OPERATION OMNI™ VHS MOTORS CAN DELIVER THE NECESSARY POWER TO MEET THE WATER DEMAND EFFICIENTLY.

VHS MOTOR MOUNTING DIMENSIONS

MODEL NUMBER	FRAME	HP	BD	Motor Mounting Dimensions (cm)												Overall Dimensions (cm)			Angular Contact Bearing	Radial Ball Bearing	
				AJ	AK	BF	BX	BZ	EW	R	BY	CD	EO	AC	AA	AF	P	AB			AG
VHS10-215TP-10	215TP	10	10.0	9.125	8.25	0.44	1	1 3/8	1/4	1.130	10-32	17.56	3.96	10.6	NPT 1"	5.83	15.20	14.06	21.52	7310B	6210
VHS15-254TP-10	254TP	15	10.0	9.125	8.25	0.44	1	1 3/8	1/4	1.130	10-32	23.38	3.22	10.6	NPT 3"	5.83	15.24	14.39	26.80	7312B	6212
VHS20-254TP-10	256TP	20	10.0	9.125	8.25	0.44	1	1 3/8	1/4	1.130	10-32	23.38	3.22	10.6	NPT 3"	5.83	15.24	14.39	26.80	7312B	6212
VHS25-284TP-12	284TP	25	12.0	9.125	8.25	0.44	1	1 3/8	1/4	1.130	10-32	24.75	3.22	10.6	NPT 3"	5.83	15.24	14.39	28.20	7312B	6212
VHS30-286TP-12	286TP	30	12.0	9.125	8.25	0.44	1	1 3/8	1/4	1.130	10-32	24.75	3.22	10.6	NPT 3"	5.83	15.24	14.39	28.20	7312B	6212
VHS40-324TP-16.5	324TP	40	16.5	14.75	13.5	0.69	1 1/4	1 3/4	1/4	1.367	1/4-20	28.22	4.22	11.65	NPT 3"	5.83	17.32	15.44	32.70	7221B	6213
VHS50-326TP-16.5	326TP	50	16.5	14.75	13.5	0.69	1 1/4	1 3/4	1/4	1.367	1/4-20	28.22	4.22	11.65	NPT 3"	5.83	17.32	15.44	32.70	7221B	6213
VHS60-364TP-16.5	364TP	60	16.5	14.75	13.5	0.69	1 1/4	1 3/4	1/4	1.367	1/4-20	31.16	4.56	12.56	NPT 3"	5.83	19.1	16.32	36.00	7224B	6314
VHS75-365TP-16.5	365TP	75	16.5	14.75	13.5	0.69	1 1/4	1 3/4	1/4	1.367	1/4-20	31.16	4.56	12.56	NPT 3"	5.83	19.1	16.32	36.00	7224B	6314
VHS100-404TP-16.5	404TP	100	16.5	14.75	13.5	0.69	1 1/2	2 1/8	3/8	1.668	1/4-20	36.94	4.56	13.68	NPT 3"	5.83	21.00	17.30	42.20	7230B/DT	6317
VHS125-405TP-16.5	405TP	125	16.5	14.75	13.5	0.69	1 1/2	2 1/8	3/8	1.668	1/4-20	36.94	4.56	13.68	NPT 3"	5.83	21.00	17.30	42.20	7230B/DT	6317
VHS150-444TP-16.5	444TP	150	16.5	14.75	13.5	0.69	1 11/16	2 1/2	3/8	1.854	1/4-20	44.78	5.40	16.18	NPT 3"	7.56	23.30	20.70	50.18	7232B/DT	6318
VHS200-445TP-16.5	445TP	200	16.5	14.75	13.5	0.69	1 11/16	2 1/2	3/8	1.854	1/4-20	44.78	5.40	16.18	NPT 3"	7.56	23.30	20.70	50.18	7232B/DT	6318
VHS250-445TP-20	445TP	250	20.0	14.75	13.5	0.69	1 11/16	2 1/2	3/8	1.854	1/4-20	44.78	5.40	16.18	NPT 3"	7.56	23.30	20.70	50.18	7232B/DT	6318
VHS300-5006P-24.5	5006P	300	24.5	14.75	13.5	0.69	1 11/16	2 1/2	3/8	1.854	1/4-20	49.75	8.10	21.54	2-NPT 3"	7.87	28.98	27.38	57.85	7236B/DT	6322
VHS350-5006P-24.5	5006P	350	24.5	14.75	13.5	0.69	1 11/16	2 1/2	3/8	1.854	1/4-20	49.75	8.10	21.54	2-NPT 3"	7.87	28.98	27.38	57.85	7236B/DT	6322
VHS400-5008P-24.5	5008P	400	24.5	14.75	13.5	0.69	1 15/16	2 1/2	1/2	2.162	1/4-20	53.88	8.10	21.54	2-NPT 3"	7.87	28.98	27.38	61.98	7236B/DT	6322
VHS450-5008P-24.5	5008P	450	24.5	14.75	13.5	0.69	2 3/16	3 1/4	1/2	2.412	3/8-16	53.88	8.10	21.54	2-NPT 3"	7.87	28.98	27.38	61.98	7236B/DT	6322
VHS500-5008P-24.5	5008P	500	24.5	14.75	13.5	0.69	2 3/16	3 1/4	1/2	2.412	3/8-16	53.88	8.10	21.54	2-NPT 3"	7.87	28.98	27.38	61.98	7236B/DT	6322
VHS600-5808P-24.5	5808P	600	24.5	22	13.5	0.69	2 15/79	3 1/4	1/2	2.336	3/8-16	58.25	6.50	21.34	2-NPT 3"	9.55	31.29	26.91	64.75	7238B/DT	6220
VHS650-5808P-24.5	5808P	650	24.5	22	13.5	0.69	2 15/79	3 1/4	1/2	2.336	3/8-16	58.25	6.50	21.34	2-NPT 3"	9.55	31.29	26.91	64.75	7238B/DT	6220
VHS700-5809P-24.5	5809P	700	24.5	22	13.5	0.69	2 15/79	3 1/4	1/2	2.336	3/8-16	62.75	8.00	21.34	2-NPT 3"	9.55	31.29	26.91	70.75	7238B/DT	6220
VHS750-5809P-24.5	5809P	750	24.5	22	13.5	0.69	2 15/79	3 1/4	1/2	2.336	3/8-16	62.75	8.00	21.34	2-NPT 3"	9.55	31.29	26.91	70.75	7238B/DT	6220



OMNI™ VHS MOTORS ARE DESIGNED TO OPERATE IN HARSH ENVIRONMENTS, THEIR ROBUST CONSTRUCTION AND SEALED HOUSING PROTECT THEM FROM MOISTURE, DUST, AND DEBRIS.

VHS MOTOR POWER

MODEL NUMBER	Voltage	Frequency (Hz)	No. of Phases	Full Load Service Factor	Amps as they appear on the Nameplate	Full Load Amps @ 230V	Full Load Amps @ 460V	Locked Rotor Amps @ 460V	Nom. Efficiency 100%	Minimum Efficiency 100%	Efficiency 75%	Efficiency 75%
VHS10-215TP-10	230/460	60	3	1.15	24.4/12.2	24.4	12.2	85.0	1.15	90.2	91.8	91.8
VHS15-254TP-10	230/460	60	3	1.15	34.6/17.3	34.6	17.3	137.0	1.15	91.7	92.5	92.5
VHS20-254TP-10	230/460	60	3	1.15	47/23.5	47.0	23.5	174.0	1.15	91.7	92.8	92.8
VHS25-284TP-12	230/460	60	3	1.15	57.6/28.8	57.6	28.8	227.0	1.15	92.4	93.2	93.2
VHS30-286TP-12	230/460	60	3	1.15	68.2/34.1	68.2	34.1	246.0	1.15	93.0	93.9	93.9
VHS40-324TP-16.5	230/460	60	3	1.15	92/46	92.0	46.0	333.0	1.15	93.0	93.9	93.9
VHS50-326TP-16.5	230/460	60	3	1.15	112.8/56.4	112.8	56.4	446.0	1.15	93.6	94.2	94.2
VHS60-364TP-16.5	230/460	60	3	1.15	136.6/68.3	136.6	68.3	530.0	1.15	94.1	94.8	94.8
VHS75-365TP-16.5	230/460	60	3	1.15	170/85	170.0	85.0	665.0	1.15	94.1	94.7	94.7
VHS100-404TP-16.5	460	60	3	1.15	112.0	224.0	112.0	812.0	1.15	94.5	95.2	95.2
VHS125-405TP-16.5	460	60	3	1.15	139.0	278.0	139.0	1015.0	1.15	94.5	95.4	95.4
VHS150-444TP-16.5	460	60	3	1.15	165.0	330.0	165.0	1188.0	1.15	95.0	93.8	93.8
VHS200-445TP-16.5	460	60	3	1.15	221.0	442.0	221.0	1462.0	1.15	95.0	94.8	94.8
VHS250-445TP-20	460	60	3	1.15	276.0	552.0	276.0	1849.0	1.15	95.0	94.5	94.5
VHS300-5006P-24.5	460	60	3	1.15	328.0	656.0	328.0	2328.0	1.15	95.0	94.9	94.9
VHS350-5006P-24.5	460	60	3	1.15	379.0	758.0	379.0	2672.0	1.15	95.0	94.2	94.2
VHS400-5008P-24.5	460	60	3	1.15	437.0	874.0	437.0	2840.0	1.15	95.0	95.8	95.8
VHS450-5008P-24.5	460	60	3	1.15	489.0	978.0	489.0	3375.0	1.15	95.4	95.8	95.8
VHS500-5008P-24.5	460	60	3	1.15	544.0	1088.0	544.0	3645.0	1.15	95.4	95.8	95.8
VHS600-5808P-24.5	460	60	3	1.15	653.0	1306.0	653.0	4893.0	1.15	95.4	95.8	95.8
VHS650-5808P-24.5	460	60	3	1.15	707.0	1414.0	707.0	5300.0	1.15	95.4	95.8	95.8
VHS700-5809P-24.5	460	60	3	1.15	761.0	1522.0	761.0	5780.0	1.15	95.4	95.8	95.8
VHS750-5809P-24.5	460	60	3	1.15	816.0	1632.0	816.0	6116.0	1.15	95.4	95.8	95.8

VHS MOTOR SPECIFICATIONS

MODEL NUMBER	Frame	Insulation Class	Slip (%)	Max. Ambient	Upper Bearing	Bottom Bearing	Weight (lbs.)	Lubrication	Connection
VHS10-215TP-10	215TP	F	1.11	40° C	6210	7310B	366	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS15-254TP-10	254TP	F	0.94	40° C	6212	7312B	514	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS20-254TP-10	256TP	F	1.08	40° C	6212	7312B	527	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS25-284TP-12	284TP	F	0.96	40° C	6212	7312B	571	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS30-286TP-12	286TP	F	1.15	40° C	6212	7312B	591	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS40-324TP-16.5	324TP	F	0.93	40° C	7221B	6213	761	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS50-326TP-16.5	326TP	F	0.83	40° C	7221B	6213	825	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS60-364TP-16.5	364TP	F	0.81	40° C	7224B	6314	983	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS75-365TP-16.5	365TP	F	0.79	40° C	7224B	6314	1034	Mobil Polyrex EM	12 Lead 2Δ/Δ
VHS100-404TP-16.5	404TP	F	0.54	40° C	7230B/DT	6317	1455	Mobil Polyrex EM	12 Lead Δ
VHS125-405TP-16.5	405TP	F	0.63	40° C	7230B/DT	6317	1505	Mobil Polyrex EM	12 Lead Δ
VHS150-444TP-16.5	444TP	F	0.67	40° C	7232B/DT	6318	1984	Mobil Polyrex EM	12 Lead Δ
VHS200-445TP-16.5	445TP	F	0.67	40° C	7232B/DT	6318	2099	Mobil Polyrex EM	12 Lead Δ
VHS250-445TP-20	445TP	F	0.67	40° C	7232B/DT	6318	2206	Mobil Polyrex EM	12 Lead Δ
VHS300-5006P-24.5	5006P	F	0.56	40° C	7236B/DT	6322	3693	Mobil Polyrex EM	12 Lead Δ
VHS350-5006P-24.5	5006P	F	0.56	40° C	7236B/DT	6322	3693	Mobil Polyrex EM	12 Lead Δ
VHS400-5008P-24.5	5008P	F	0.56	40° C	7236B/DT	6322	3955	Mobil Polyrex EM	12 Lead Δ
VHS450-5008P-24.5	5008P	F	0.56	40° C	7236B/DT	6322	4193	Mobil Polyrex EM	12 Lead Δ
VHS500-5008P-24.5	5008P	F	0.56	40° C	7236B/DT	6322	4449	Mobil Polyrex EM	12 Lead Δ
VHS600-5808P-24.5	5808P	F	0.55	40° C	7238B/DT	6220	4736	Mobil Polyrex EM	12 Lead Δ
VHS650-5808P-24.5	5808P	F	0.55	40° C	7238B/DT	6220	4914	Mobil Polyrex EM	12 Lead Δ
VHS700-5809P-24.5	5809P	F	0.54	40° C	7238B/DT	6220	5560	Mobil Polyrex EM	12 Lead Δ
VHS750-5809P-24.5	5809P	F	0.53	40° C	7238B/DT	6220	5670	Mobil Polyrex EM	12 Lead Δ

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SHIFTING THE BALANCE OF POWER

INNOVATORS AND GLOBAL MANUFACTURERS OF POWERTRAIN SOLUTIONS

OMNI Powertrain Solutions™ has created the most compact, powerful, light-weight axial flux electric motor powertrain systems on earth. Innovation is our core value, and whether we are manufacturing mechanical drivelines for agricultural equipment, hydrostatic powertrain systems for off-highway equipment or state-of-the-art electric powertrain systems for commercial vehicles and motorsports, we strive to exceed the power and quality demanded by our clients no matter their industry.

REGGIO EMILIA
I T A L Y

SHANGHAI
C H I N A

HOUSTON
T E X A S

Our diverse family of manufacturing firms ensure that **OMNI™** always provides unparalleled service, distribution and support. From conception through development we have a single objective: to provide the highest performance electric, hydrostatic and mechanical powertrain systems that meet the objectives of our clients.

OMNI™

POWERTRAIN TECHNOLOGIES

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