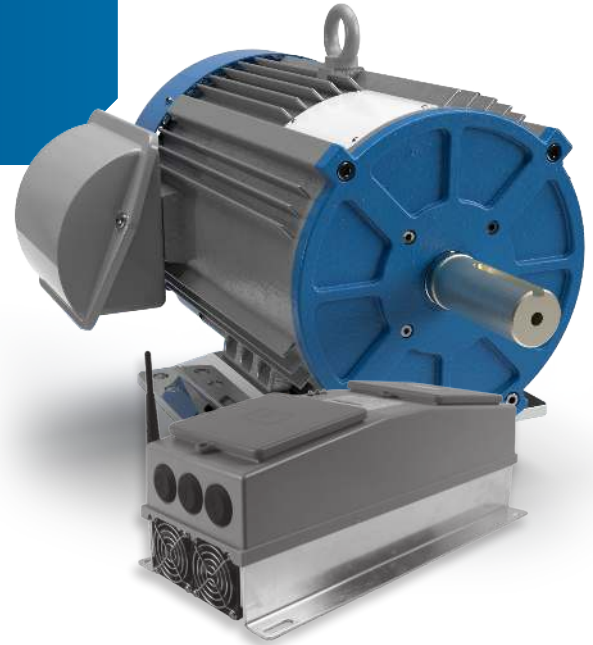


# Turntide Smart Motor System™: V02 IEC (4 kW)



The Turntide Smart Motor System delivers unprecedented energy efficiency in a highly reliable switched reluctance design. This software-driven motor solution includes the Turntide Smart Motor and the Turntide Motor Controller, complete with networking and connection capabilities to Turntide Cloud. The patented Turntide Motor System is proven to significantly reduce energy consumption, dramatically reducing energy costs and carbon footprint resulting from electric motor operation. The Turntide V02 IEC motors are suitable for a range of new and retrofit HVAC, refrigeration, and pumping applications in both fixed and variable speed.

## Turntide Smart Motor System

FEATURES	TURNTIDE SMART MOTOR SYSTEM BENEFITS
Turntide Cascade® - PC graphic-based programming tool, part of the Turntide Controls Platform	Provides for customization to assure your motor control sequences can be accomplished for every application.
Configurable sequence of operation based on internal and external sensor feedback using up to 16 integrated I/O points	Reduces hardware needed to control HVAC and other equipment, reducing overall cost of system implementation.
Safe DC bus discharge	Ensures internal voltages of the Turntide Motor Controller are rapidly discharged for safe service and maintenance immediately after power down
Turntide Cloud	Provides monitoring and remote reporting, enabling extended data logging and alerts and alarms based on selectable parameters, protecting equipment and assuring the most efficient operation.
Built-in soft start and brownout protection	Eliminates nuisance service calls and interruptions to building operation due to inadvertent circuit breaker trips, reducing maintenance costs.

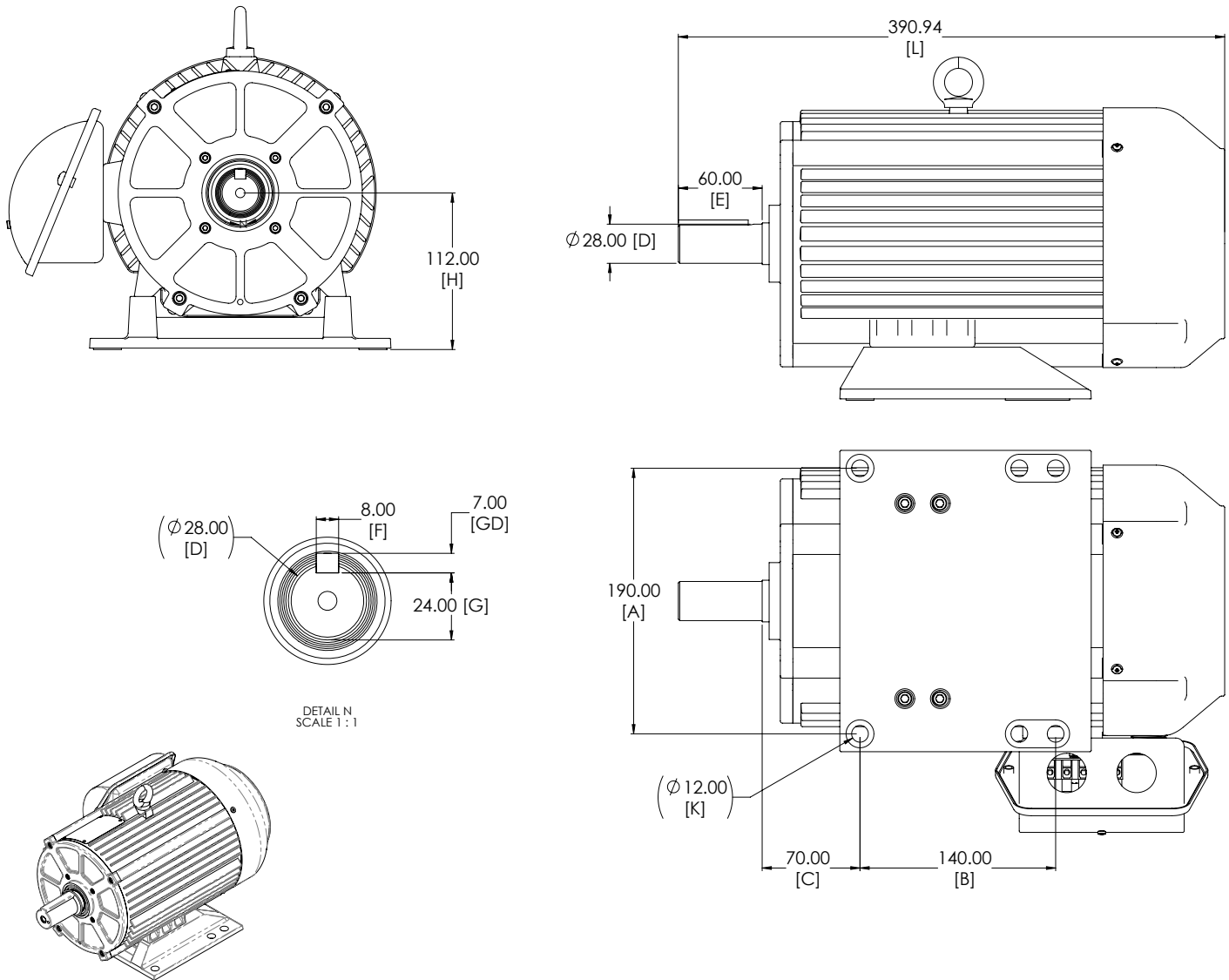
## Motor System Characteristics

Motor Model SKU	V02-0500-2-IG00	Supply Voltage/Frequency	200-240VAC
	V02-0500-4-IG00		380-415VAC
Motor Controller Model	P05	Supply Frequency	50 Hz
Rated Power	4.0 kW / 5.4 HP	Motor Duty Rating	Continuous
Rated RPM	1500 RPM	Motor Ingress Protection	IP20 Rating
Rated Service Factor	1.00	Motor Controller Ingress Protection	IP55 Rating
Operating RPM	300-3000 RPM	Rotor Inertia	0.164 lb-ft² (0.0068 kg-m²)
Peak System Efficiency	88.0%	Motor to Controller Power Wire	12 AWG
Peak Motor Efficiency	91.3%	Insulation Class	F
Supply Phase	3-Phase	Ambient Temperature Range	-10°C to +40°C
Power Factor	0.55-0.72 across operating range	Relative Humidity	95%, non-condensing
Motor Enclosure	TEFC	Motor Controller Weight	4.8 kg (10.5 lb)
IEC Motor Frame Sizes	112M	Motor Weight	32.7 kg (72 lb)



Certified to IEC 60204-1, IEC 60034-1, IEC 61800-5-1, IEC 61800-5-2, IEC 61800-3, and IEC 61000-4-5

## Motor Dimensions



## Dimension Table (in millimeters)

IEC Frame	A	B	H	K	D	E	C	L
112M	190	140	112	M12	28	60	70	390.94

A - distance between foot holes side-to-side

B - distance between foot holes front to back

H - height of shaft

K - foot hole size

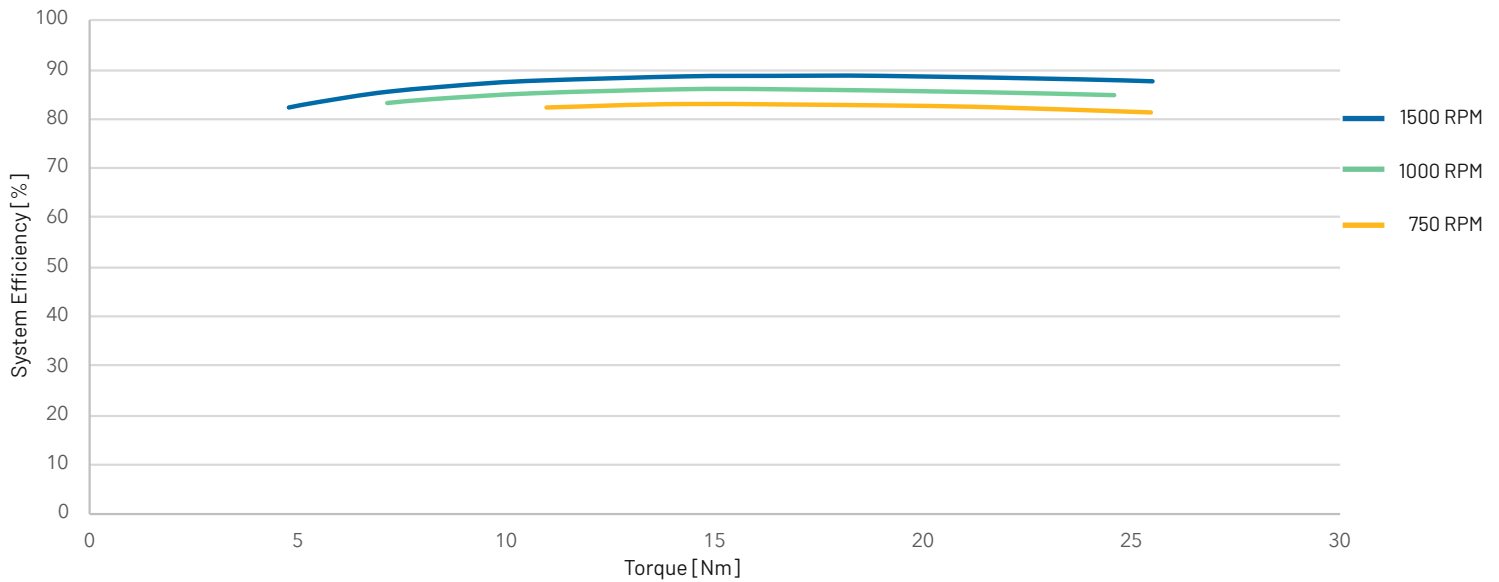
D - shaft diameter

E - shaft length

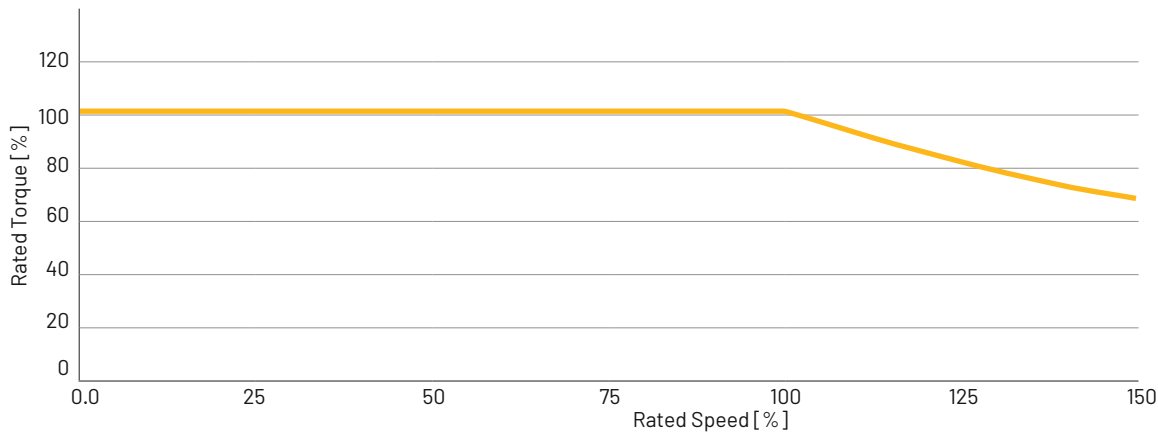
C - distance from front foot hole to back of shaft horizontally

L - Overall length



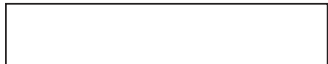
## System Efficiency vs Torque at Various Speeds



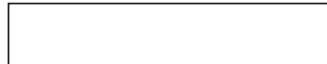


## Torque-Speed Curve



## Motor Nameplates

 <b>TURNTIDE™</b>		<b>Turntide Smart Motor</b> <b>HR-SRM Motors</b> <a href="http://www.turntide.com">www.turntide.com</a>	
OUTPUT.....4.0kW/5.4hp at 1500 RPM			
MODEL.....V02-0500-2-IG00	AMPS.....14.0A	Made in China 	
VOLTAGE.....280-340 VDC	ENCLOSURE...TEFC		
SERVICE FACTOR.....1.00			
PEAK EFFICIENCY.....91.0%			
FRAME......112M			
MAX AMB......40°C	U.S. Pat. Nos. at <a href="https://turntide.com/patents">https://turntide.com/patents</a>		
INSULATION CLASS.....F	WARNING: This motor may only be operated using supplied Turntide Motor Controller.		
DUTY.....Continuous	AVERTISSEMENT: Ce moteur doit être utilisé avec le contrôleur de moteur Turntide fourni. On Peut pas utiliser un autre contrôleur.		
			

 <b>TURNTIDE™</b>		<b>Turntide Smart Motor</b> <b>HR-SRM Motors</b> <a href="http://www.turntide.com">www.turntide.com</a>	
OUTPUT.....4.0kW/5.4hp at 1500 RPM			
MODEL.....V02-0500-4-IG00	AMPS.....9.5A	Made in China 	
VOLTAGE.....535-565 VDC	ENCLOSURE...TEFC		
SERVICE FACTOR.....1.00			
PEAK EFFICIENCY.....91.3%			
FRAME......112M			
MAX AMB......40°C	U.S. Pat. Nos. at <a href="https://turntide.com/patents">https://turntide.com/patents</a>		
INSULATION CLASS.....F	WARNING: This motor may only be operated using supplied Turntide Motor Controller.		
DUTY.....Continuous	AVERTISSEMENT: Ce moteur doit être utilisé avec le contrôleur de moteur Turntide fourni. On Peut pas utiliser un autre contrôleur.		
			

## Turntide Motor Controller

The Turntide Motor Controller controls all operations of the Turntide Smart Motor and is required for motor operation. Its internal program assures that the motor is operating at the highest efficiency at any speed in any application. It does this by monitoring the internal sensors and feedback from the Smart motor and adjusting control signals for optimization. The Motor Controller provides physical connection for 16 sensors and relay output connections for control and monitoring of associated equipment such as RTUs, AHUs and pumps. The Motor Controller can be configured with Turntide Cascade software to operate under an infinite number of control scenarios. When connected with the Turntide supervisor, remote configuration, updates, alerts, alarms, and system data logging can be delivered through Turntide Cloud or a BMS system.

## Motor Controller Nameplate

<b>TURNTIDE™</b>		<b>P05 Motor Controller</b> <b>HR-SRM Motors</b> <a href="http://www.turntide.com">www.turntide.com</a>	Made in India																	
<b>MODEL</b> P05 <b>MOTOR</b> V01 / V02 / V03	<div style="border: 1px solid black; width: 100%; height: 30px;"></div>																			
<b>INPUT</b>	<table border="1"> <thead> <tr> <th rowspan="2">VOLTS 3PH</th> <th colspan="2">Current (A)</th> </tr> <tr> <th>60HZ</th> <th>50HZ</th> </tr> </thead> <tbody> <tr> <td>208-230V</td> <td>3.2-16</td> <td></td> </tr> <tr> <td>460V</td> <td>3.8-16</td> <td></td> </tr> <tr> <td>200-240V</td> <td></td> <td>13.9-17.9</td> </tr> <tr> <td>380-415V</td> <td></td> <td>7.8-16.7</td> </tr> </tbody> </table>		VOLTS 3PH	Current (A)		60HZ	50HZ	208-230V	3.2-16		460V	3.8-16		200-240V		13.9-17.9	380-415V		7.8-16.7	Conforms to UL STD 508C Certified to CSA STD C22.2#274  <b>WARNING:</b> This Turntide Motor Controller will only operate stated Turntide Smart Motor.  <b>AVERTISSEMENT:</b> Ce contrôleur de moteur Turntide doit être utilisé qu'avec moteur de la série de intelligent Turntide.
	VOLTS 3PH	Current (A)																		
60HZ		50HZ																		
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<b>OUTPUT</b> 3PH 280-680VDC MAX HP 10.0	   <b>Intertek</b> 5018288																			

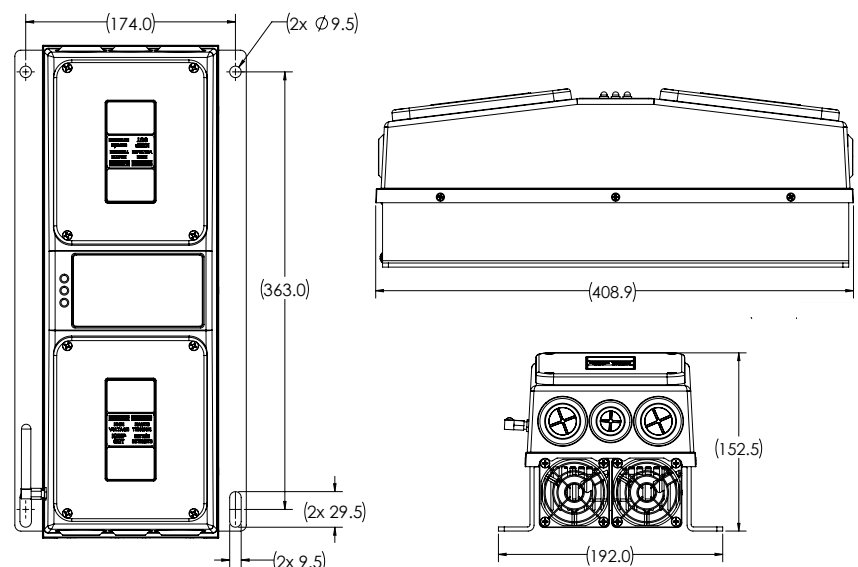
## Motor Controller I/O

QTY	Description
7	Programmable digital inputs
1	Programmable voltage output: 0-10V, 20mA limit
4	Relay outputs: 1A, 125VAC limit
4	Universal inputs, individually selectable as: <ul style="list-style-type: none"> <li>Voltage Mode: 0-10V</li> <li>Current Mode: 0-20mA; or 4-20mA</li> <li>Resistive Mode</li> <li>External Logic Mode</li> </ul>

### Meeting IEC EMC Standards

To meet IEC 61800-3 and IEC 61000-4-5 standards it is mandatory to follow the installation guidelines for EMI/RFI Filter, Surge Arrester, Shielded enclosure (for P05), and appropriate shielded conduit as detailed in the Turntide Meeting IEC EMC Standards document.

## Motor Controller Dimensions (in millimeters)



## TURNTIDE TECHNOLOGY FOR SUSTAINABLE OPERATIONS

Our breakthrough technologies accelerate electrification and sustainable operations for energy-intensive industries.