



## MAC3000-D2-FAAL

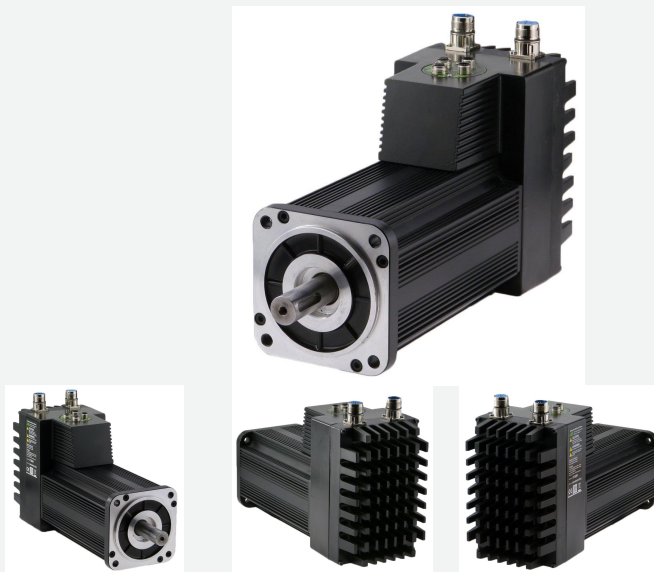
Int.ServoAC 3000WS3 9.55Nm IP55L Abs

MAC motor® is a series of integrated (all-in-one) servo motors with shaft power from 46 W to 4500 W. +400 W and new F-series (50..140 W) are programmable through ePLC (embedded-PLC). Choose between a large number of control modules.

Options include:

- Absolute Multiturn Encoder (incremental encoder is standard)
- Built-in Brake or Brake module (MABxx)
- Ethernet module w/built-in Switch for easy daisy-chaining and all protocols (Profinet, EtherNet/IP, EtherCAT, SERCOS, ModbusTCP/UDP, Powerlink)
- Wireless modules are also available: WLAN or BlueTooth
- CANopen, Devicenet or Profibus or ePLC modules
- Serial communication modules, RS232 and/or RS485
- High IP versions are also available (IP 65..66..67)
- Food or Medico types in Stainless Steel IP69K

Unique Ethernet functionality: use MacTalk® (PC software) to change freely between all the different Ethernet protocols, you don't need several different types on stock – ONE is enough.



### General information

<b>Description</b>	Int.ServoAC 3000WS3 9.55Nm IP55L Abs , WxHxL: 132x205x301 mm. 3x 400-480 VAC and 24 VDC. Power cable WP340x. 3000 RPM. 9.55 Nm RMS / 28.7 Nm Peak, IP55, Single 8192 CPR / Absolute multiturn ±8178 revs, Color: Black, Ø24x58 mm keyway 8x35 mm		
<b>Manufacture</b>	JVL	<b>Motor type</b>	Integr. AC-servo - Rotating
<b>Motor power [W]</b>	3000	<b>Power Peak [W]</b>	9000
<b>Duty Cycle</b>	S3	<b>Max Duty Cycle [%]</b>	67
<b>Continuous Torque</b>	9.55	<b>Peak torque [Nm]</b>	28.7
<b>Main supply [V]</b>	3x400	<b>Voltage type - Main</b>	AC
<b>Speed [Rpm]</b>	3000	<b>Connectivity: Without module</b>	RS232 - 5VDC, Modbus RTU
<b>Encoder type</b>	Abs. Multiturn Encoder +/- 8178 rev.	<b>Encoder [Counts/rev]</b>	8192
<b>Integrated PLC</b>	Yes	<b>Brake</b>	No
<b>STO connector</b>	No	<b>Fan mounted</b>	No
<b>Integrated gear</b>	No	<b>Gear ratio</b>	-
<b>Approval - UL</b>	No	<b>Approval TÜV - STO</b>	No
<b>PLC no. of AIN</b>	2	<b>PLC no. of DI</b>	-



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<b>PLC no. of DIO</b>	-	<b>PLC no. of DO</b>	2
<b>Multifunction IOs</b>	2		
<b>Flange size</b>	132x132	<b>Protection house</b>	IP55
<b>Shaft size - Front [mm]</b>	24.00mm	<b>Protection shaft</b>	IP55
<b>Color</b>	Black	<b>Paint type</b>	
<b>Ambient Temperature range:</b>		<b>Max. Amb. Temperature range - Torque derating:</b>	
<b>Maximum Installation Altitude:</b>		<b>Max. Installation Altitude - Power Derating every 1000m:</b>	
<b>Weight net [kg]</b>	15.25	<b>Weight gross [kg]</b>	16.00
<b>Tariff no</b>	85015100	<b>Country Of Origin</b>	DK



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### Mechanical information

<b>Motor type</b>	Integr. AC-servo - Rotating	<b>Color</b>	Black
<b>Rotor inertia [kgcm<sup>2</sup>]</b>	26.35	<b>Max inertia factor</b>	20
<b>Encoder type</b>	Abs. Multiturn Encoder +/- 8178 rev.	<b>Encoder [Counts/rev]</b>	8192
<b>Precision Motor - Absolute [Deg -/+]</b>	0.04	<b>Precision Motor - Max Load [Deg -/+]</b>	
<b>Precision Motor - Repeatability [Deg -/+]</b>	0.04		
<b>Brake</b>	No	<b>Brake - Go ON time [ms]</b>	-
<b>Brake Holding torque [Nm]</b>	-	<b>Brake - Go OFF time [ms]</b>	-
<b>Radial load [N]</b>	900	<b>Radial load distance [mm]</b>	
<b>Axial load [N]</b>	450		
<b>Axial play [mm]</b>	+/-0.05	<b>Axial play force [N]</b>	xxx
<b>Front bearing type</b>	xxx	<b>Rear bearing type</b>	xxx
<b>Integrated gear</b>	No	<b>Gear ratio</b>	-
<b>Gear efficiency [%]</b>	-	<b>Gear backlash [ArcMin]</b>	-
<b>Motor length [mm]</b>	301.0	<b>Motor width [mm]</b>	134.0
<b>Motor height [mm]</b>	204.5	<b>Protection house</b>	IP55
<b>Customer Sealing</b>	Standard		
<b>Flange size</b>	132x132	<b>Mounting holes front [mm]</b>	9.0
<b>Motor diameter center front [mm]</b>	110.0	<b>Bolt circle diameter front [mm]</b>	145.0
<b>Flange material</b>	Aluminium	<b>Flange Thickness [mm]</b>	
<b>Shaft Key included</b>	Key included on shaft	<b>Shaft Key Dimension</b>	8x8x35
<b>Shaft size - Front [mm]</b>	24.00mm	<b>Protection shaft</b>	IP55
<b>Shaft length Front [mm]</b>	58.0	<b>Shaft material</b>	Steel
<b>Approval - ROHS-3</b>	Yes	<b>Approval - UL</b>	No
<b>Approval TÜV - STO</b>	No	<b>Approval - ATEX</b>	No
<b>CAD 2D [PDF]</b>	Download	<b>CAD 3D [STEP]</b>	Download
<b>CAD 2D [DWG]</b>	No	<b>CAD 3D [DWG]</b>	No



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### Mechanical information

**CAD 3D [EASM]**

No

**CAD 3D [IGES]**

Download

**Datasheet - pdf**

Yes

**User Manual**

Download

**REACH SVHC document**

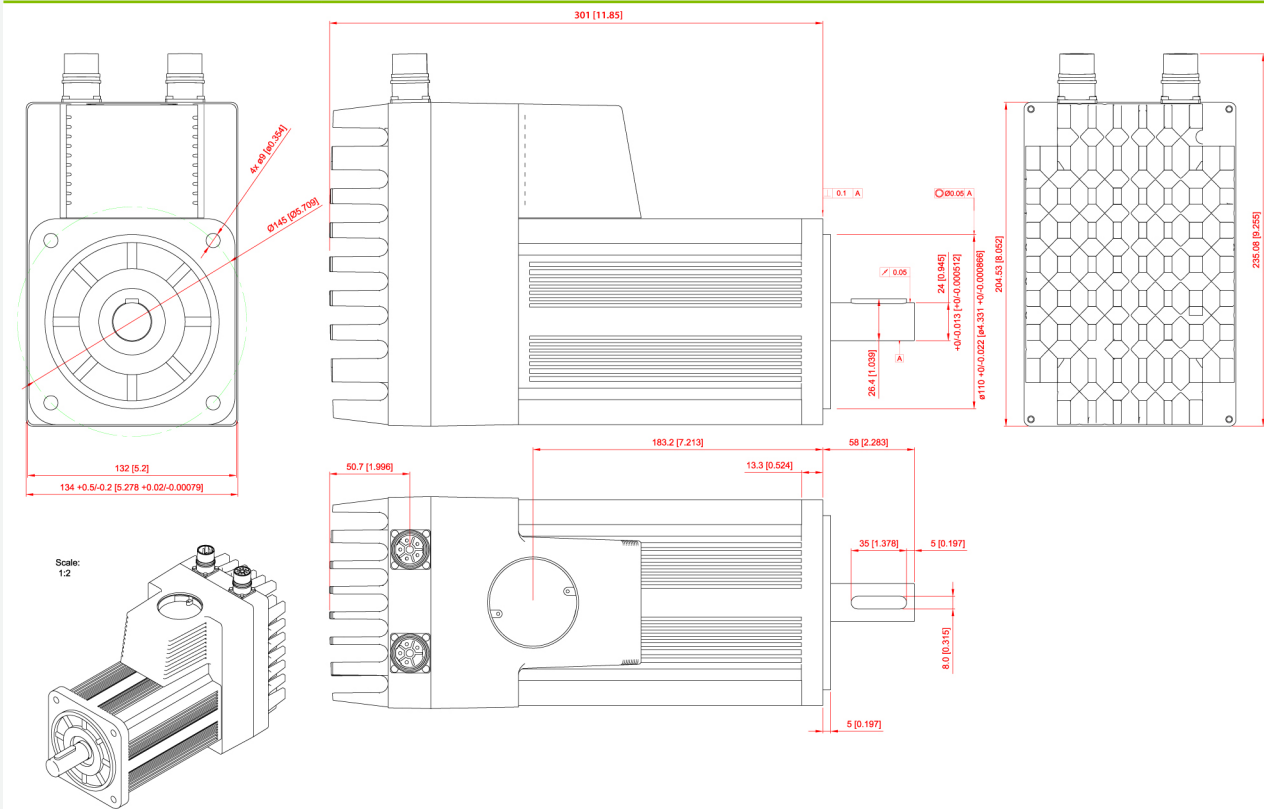
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**Low voltage Directive**

LVD conformity with EU standard: EN 61800-3

**No Dual Use**

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### Shaft Seal

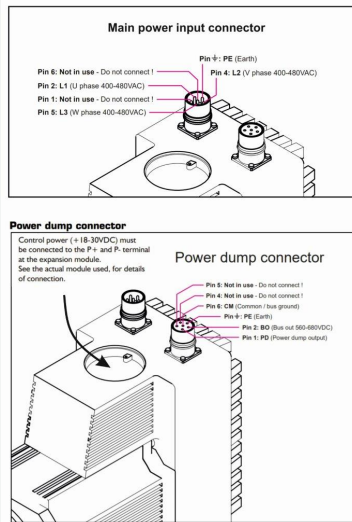


## MAC3000-D2-FAAL

Int.ServoAC 3000WS3 9.55Nm IP55L Abs

### Connector information

#### Motor connectors



<b>Expansion connector</b>	Generation 1 and 2		
<b>PLC no. of DI</b>	-	<b>PLC no. of DO</b>	2
<b>PLC no. of DIO</b>	-	<b>PLC no. of AIN</b>	2
<b>Multifunction IOs</b>	2		
<b>Connector Power</b>	M23 6-pin male	<b>Connector Power Supplier</b>	
<b>Connector Power direction</b>	Straight		
<b>Connector PDO</b>	M23 6-pin female	<b>Connector PDO Supplier</b>	
<b>Connector STO</b>	No		
<b>Module connections</b>	Here - Click for module cable connections		



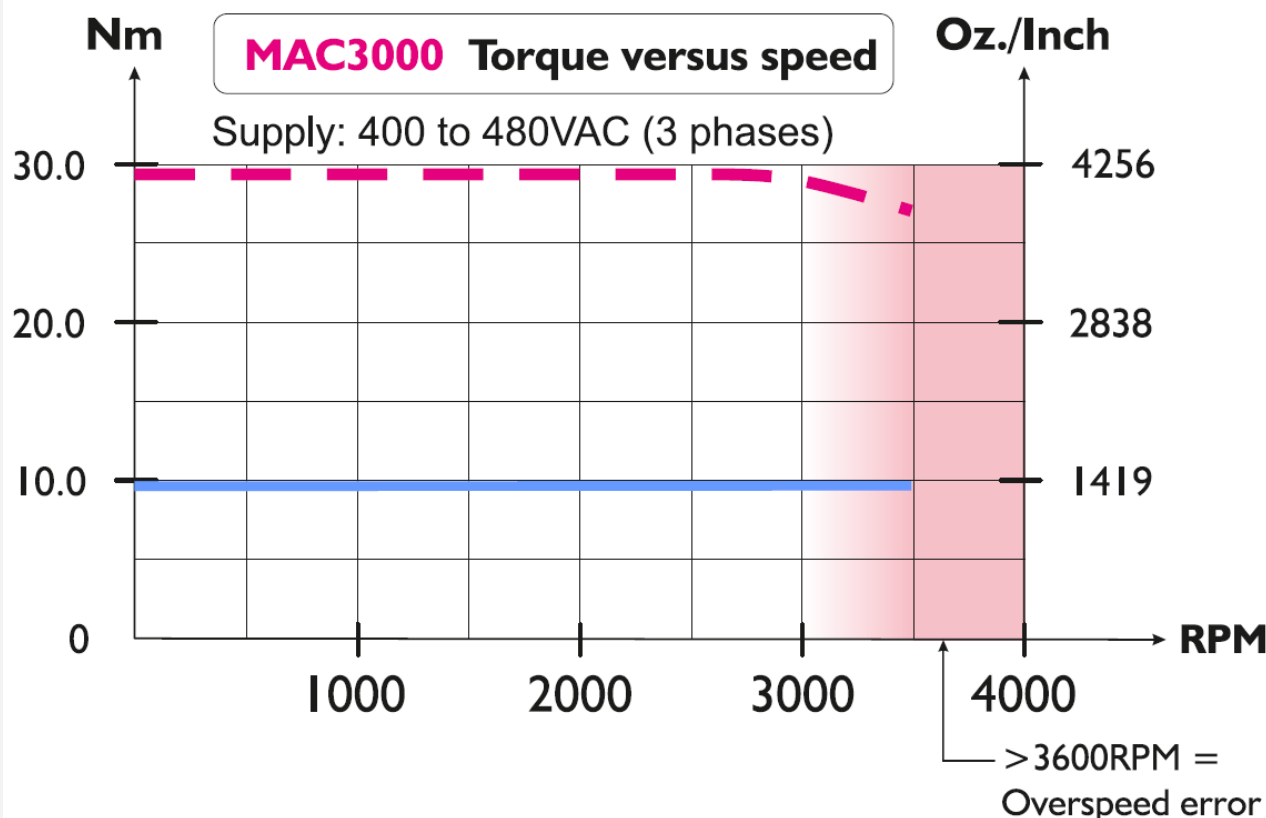
**MAC3000-D2-FAAL**

Int.ServoAC 3000WS3 9.55Nm IP55L Abs

**Torque, force and Power information**

<b>RMS torque [Nm]</b>	9.55	<b>Peak torque [Nm]</b>	28.7
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<b>Supply Volt 1 [V]</b>		<b>Supply Volt 2 [V]</b>	
<b>Supply Volt 3 [V]</b>	3x400	<b>Supply Volt 4 [V]</b>	-





**MAC3000-D2-FAAL**

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**Electrical information**

<b>Control voltage (CVI/O+) [VDC]</b>	18-28	<b>Control Voltage (CVI) Min-Max [VDC]</b>	18-30
<b>Main supply [V]</b>	3x400	<b>Main supply Min-Max [V]</b>	400-550
<b>Voltage type - Main</b>	AC	<b>Main Voltage possible</b>	1x230VAC, 3x200VAC, 3x400VAC
<b>PLC no. of DI</b>	-	<b>PLC no. of DO</b>	2
<b>PLC no. of DIO</b>	-		
<b>PLC no. of AIN</b>	2	<b>Analogue voltage</b>	-/+10VDC, -/+11bit
<b>Multifunction IOs</b>	2		
<b>MTBF 30% [Year]</b>	-	<b>MTBF 100% [Year]</b>	-
<b>Internal Power-Dump Resistance [Ohm]</b>	150	<b>Internal Power-Dump Power [W]</b>	200
<b>PD connection - Int/Ext</b>	Int/Ext PD in Parallel		
<b>External Power-Dump Resistance Minimum value [Ohm]</b>	40	<b>External Power-Dump Max Current [A]</b>	25
<b>Inrush current -Main max [A]</b>		<b>Inrush special</b>	No
<b>Recommended fuse</b>	FRN-R-15 Cooper Bussmann inc.	<b>P- isolated from Earth ( Low Voltage ground (P-) isolated from housing)</b>	No
<b>Resistance [Ohm]</b>		<b>Induction [mH]</b>	
<b>Analogue Output [V]</b>		<b>Analogue Output [mA]</b>	
<b>Analogue Isolated Output Voltage [V]</b>			



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### Communication information

**Software** MacTalk

**Connectivity:  
Without module** RS232 - 5VDC, Modbus RTU **e-PLC Files**

**Connectivity:  
1 modules** **Gen.** Yes

**Connectivity:  
2 modules** **Gen.** Yes



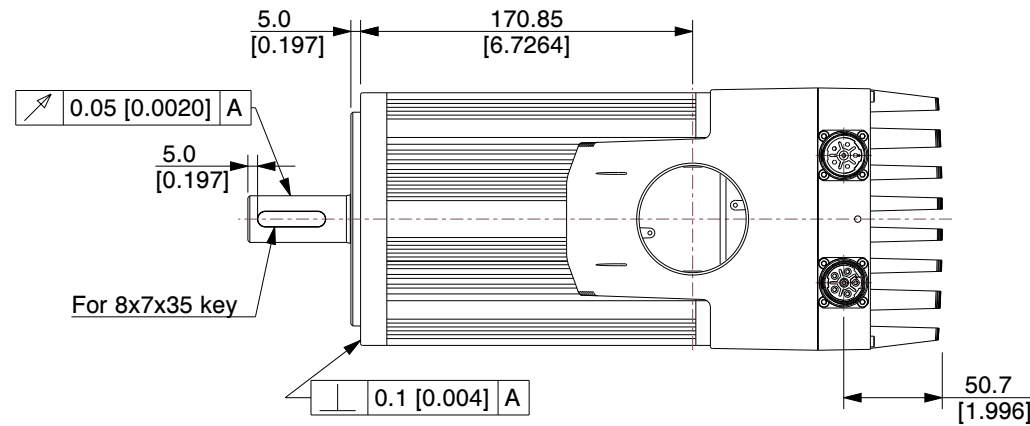
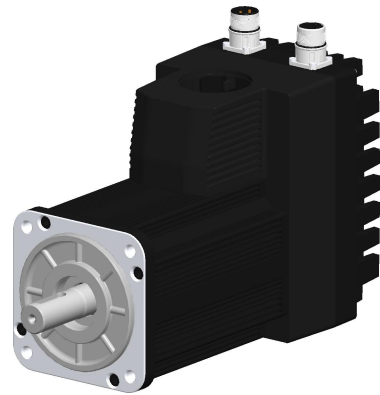
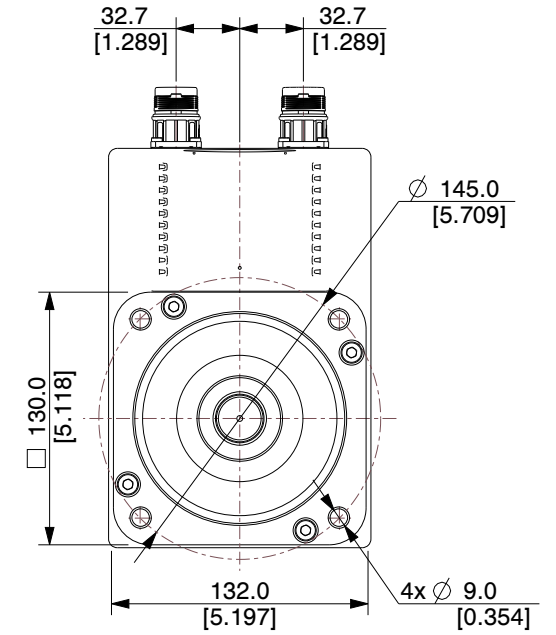
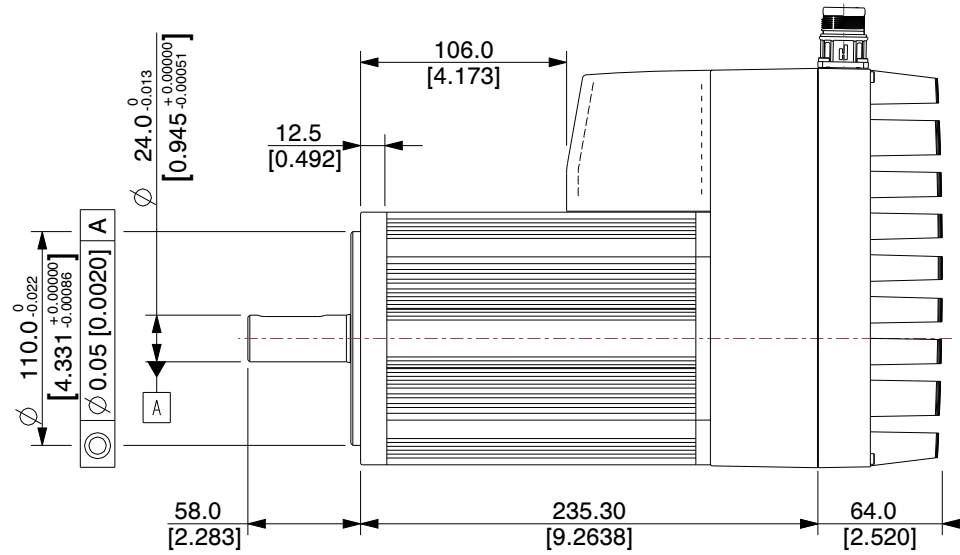
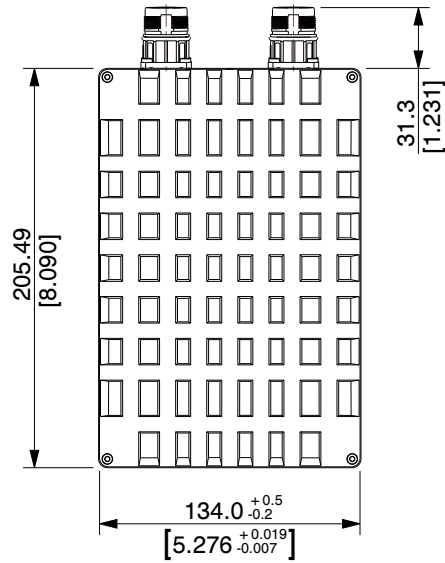


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### Cable information

Item number	Mount on	Cable con 1 +Con 1 angle	Cable application	Wires no totally	Cable length [m]
Item description		Cable con 2 +Con 2 angle	Cable flexibility	Wire [mm2]	Connector 1 LED
MAC1530-CONKIT1-DCPD	Connector PDO	- 0° Straight			Connector
DCbus+PD connector kit M23 for MAC1k5/3k		- n/a			n/a
WP4102	Connector PDO	M23 6-pin male - 0° Straight	Power Dump	4	2
MAC1500/3000 DC-bus/PD 2m 0°		Open Ended - n/a	Standard	0.75	n/a
WP4102-S	Connector PDO	M23 6-pin male - 0° Straight	Power Dump	4	2
MAC1500/3000 DC-bus/PD 2m 0°, 2D+UL		Open Ended - n/a	Cable chains - 2D	0.75	n/a
WP4105	Connector PDO	M23 6-pin male - 0° Straight	Power Dump	4	5
MAC1500/3000 DC-bus/PD 5m 0°		Open Ended - n/a	Standard	0.75	n/a
WP4105-S	Connector PDO	M23 6-pin male - 0° Straight	Power Dump	4	5
MAC1500/3000 DC-bus/PD 5m 0°, 2D+UL		Open Ended - n/a	Cable chains - 2D	0.75	n/a
WP4120	Connector PDO	M23 6-pin male - 0° Straight	Power Dump	4	20
MAC1500/3000 DC-bus/PD 20m 0°		Open Ended - n/a	Standard	0.75	n/a
WP4120-S	Connector PDO	M23 6-pin male - 0° Straight	Power Dump	4	20
MAC1500/3000 DC-bus/PD 20m 0°, 2D+UL		Open Ended - n/a	Cable chains - 2D	0.75	n/a
MAC1530-CONKIT1-PWR	Connector Power	- 0° Straight			Connector
Power supply con kit M23 for MAC1k5/3k		- n/a			n/a
WP3402	Connector Power	M23 6-pin female - 0° Straight	Power	4	2
MAC1K5/3k0 3x400 VAC Power 2m 0°		Open Ended - n/a	Standard	1.50	n/a
WP3405	Connector Power	M23 6-pin female - 0° Straight	Power	4	5
MAC1K5/3k0 3x400 VAC Power 5m 0°		Open Ended - n/a	Standard	1.50	n/a
WP3405-W	Connector Power	M23 6-pin female - 0° Straight	Power	4	5
MAC1K5/3k0 3x400VAC Power 5m 0°, 3D+UL Robot		Open Ended - n/a	Robotic - 3D	1.50	n/a
WP3410	Connector Power	M23 6-pin female - 0° Straight	Power	4	10
MAC1K5/3k0 3x400VAC Power 10m 0°		Open Ended - n/a	Standard	1.50	n/a
WP3410-W	Connector Power	M23 6-pin female - 0° Straight	Power	4	10
MAC1K5/3k0 3x400VAC Power 10m 0°, 3D+UL Robot		Open Ended - n/a	Robotic - 3D	1.50	n/a
WP3420	Connector Power	M23 6-pin female - 0° Straight	Power	4	20
MAC1K5/3k0 3x400VAC Power 20m 0°		Open Ended - n/a	Standard	1.50	n/a
WP3420-W	Connector Power	M23 6-pin female - 0° Straight	Power	4	20
MAC1K5/3k0 3x400VAC Power 20m 0°, 3D+UL Robot		Open Ended - n/a	Robotic - 3D	1.50	n/a



**NOTES:**  
 1. Encoder Type: Absolute multiturn 4096 Rev. Single 8192 CPR

### MOTOR SPECIFICATIONS

Running Torque	9.55 Nm	Supply Voltage	3 phase supply 400 to 480AC	Standards	CE approved / UL recognized - Pending (file number E254947)	Motor Color	BLACK
Peak Torque	28.7 Nm	Control circuit voltage	18-32VDC	Acceleration range	250 - 444.675 RPM/sec	Operating Temperature	Ambient 0 to +40°C (32-104°F)
Rated Power (watt)	3000 W	Electrical time constant (motor)	-	Inertia	27.83 kgcm <sup>2</sup>	Housing & Flange	Square flange
Leakage current to earth	Less than 3 mA @ 50 Hz	Mechanical time constant (motor)	-	Max. axial shaft force	-	Protection	IP55
Speed (range)	0-3000RPM	Weight	13.2 kg	Max. radial shaft force	-	Special Configuration	-

**JVL A/S**  
 Bregnerødvej 127  
 DK-3460 Birkerød  
 Denmark

**PART NUMBER:**  
**MAC3000-D2-FAAL**

**PART DESCRIPTION:**  
**Integrated Stepper Motor**

	<b>A4</b>	SCALE	NTS
		UNIT	MM [Inch]

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