



## MAC141-F1GAAA

Int.Servo.AC 134WS1 0.48Nm IP42 Inc

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.Servo.AC 134WS1 0.48Nm IP42 Inc , WxHxL: 59x59x172 mm. 2700 RPM @ 48VDC - 1350 RPM @ 24VDC. 0.48 Nm/1.59 Nm, IP42, Incremental magnetic 8192 CPR , Next Gen MiniMAC: built-in ePLC™ and advanced Ethernet support when using Ex4 and Ex41 modules, 12-48 V nom. Peak 58 V, Ethernet Ready, Color: Black, Ø6.35x20.5 mm D-shape		
<b>Manufacture</b>	JVL	<b>Motor type</b>	Integr. AC-servo - Rotating
<b>Motor power [W]</b>	134	<b>Power Peak [W]</b>	402
<b>Duty Cycle</b>	S1	<b>Max Duty Cycle [%]</b>	100
<b>Continuous Torque</b>	0.48	<b>Peak torque [Nm]</b>	1.59
<b>Main supply [V]</b>	12-48	<b>Voltage type - Main</b>	DC
<b>Speed [Rpm]</b>	2700	<b>Connectivity: Without module</b>	RS232 - 5VDC, Modbus RTU
<b>Encoder type</b>	Abs. Singleturn Encoder	<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



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### General information

<b>PLC no. of AIN</b>	2	<b>PLC no. of DI</b>	-
<b>PLC no. of DIO</b>	-	<b>PLC no. of DO</b>	2
<b>Multifunction IOs</b>	2		
<b>Flange size</b>	NEMA 23 - 58.7x58.7mm	<b>Protection house</b>	IP42
<b>Shaft size - Front [mm]</b>	6.35mm	<b>Protection shaft</b>	IP42
<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>	1.32	<b>Weight gross [kg]</b>	1.49
<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>	0.227	<b>Max inertia factor</b>	20
<b>Encoder type</b>	Abs. Singleturn Encoder	<b>Encoder [Counts/rev]</b>	8192
<b>Precision Motor - Absolute [Deg -/+]</b>	0.065	<b>Precision Motor - Max Load [Deg -/+]</b>	
<b>Precision Motor - Repeatability [Deg -/+]</b>	0.033		
<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>	75	<b>Radial load distance [mm]</b>	20
<b>Axial load [N]</b>	15		
<b>Axial play [mm]</b>	+/-0.05	<b>Axial play force [N]</b>	xxx
<b>Front bearing type</b>	608ZZ	<b>Rear bearing type</b>	607ZZ
<b>Integrated gear</b>	No	<b>Gear ratio</b>	-
<b>Gear efficiency [%]</b>	-	<b>Gear backlash [ArcMin]</b>	-
<b>Motor length [mm]</b>	172.0	<b>Motor width [mm]</b>	59.0
<b>Motor height [mm]</b>	59.0	<b>Protection house</b>	IP42
<b>Customer Sealing</b>	Standard		
<b>Flange size</b>	NEMA 23 - 58.7x58.7mm	<b>Mounting holes front [mm]</b>	5.2
<b>Motor diameter center front [mm]</b>	38.1	<b>Bolt circle diameter front [mm]</b>	66.6
<b>Flange material</b>	Aluminium painted Black	<b>Flange Thickness [mm]</b>	
<b>Shaft Key included</b>	-	<b>Shaft Key Dimension</b>	-
<b>Shaft size - Front [mm]</b>	6.35mm	<b>Protection shaft</b>	IP42
<b>Shaft length Front [mm]</b>	20.5	<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

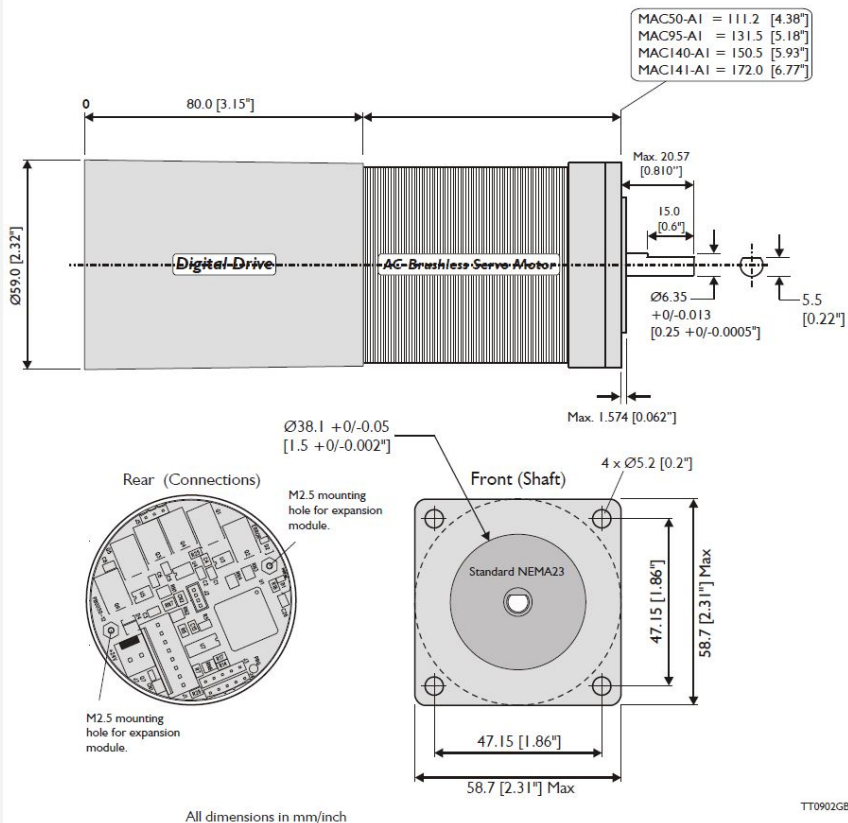


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**Mechanical information**

<b>CAD 3D [EASM]</b>	No	<b>CAD 3D [IGES]</b>	Download
<b>Datasheet - pdf</b>	Yes	<b>User Manual</b>	Download
<b>REACH SVHC document</b>	Download	<b>Low voltage Directive</b>	EU Declarations of Conformity
<b>No Dual Use</b>	-		



**Shaft Seal**

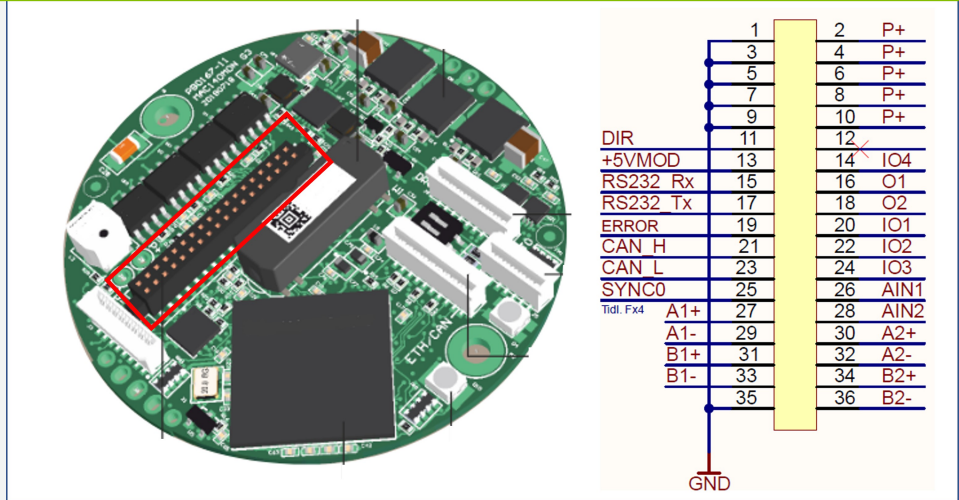


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**Connector information**

**Motor connectors**



<b>Expansion connector</b>	Generation 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>	Molex 2-pin Power	<b>Connector Power Supplier</b>	
<b>Connector Power direction</b>	Straight		
<b>Connector PDO</b>	No	<b>Connector PDO Supplier</b>	
<b>Connector STO</b>	No		
<b>Module connections</b>	Here - Click for module cable connections		

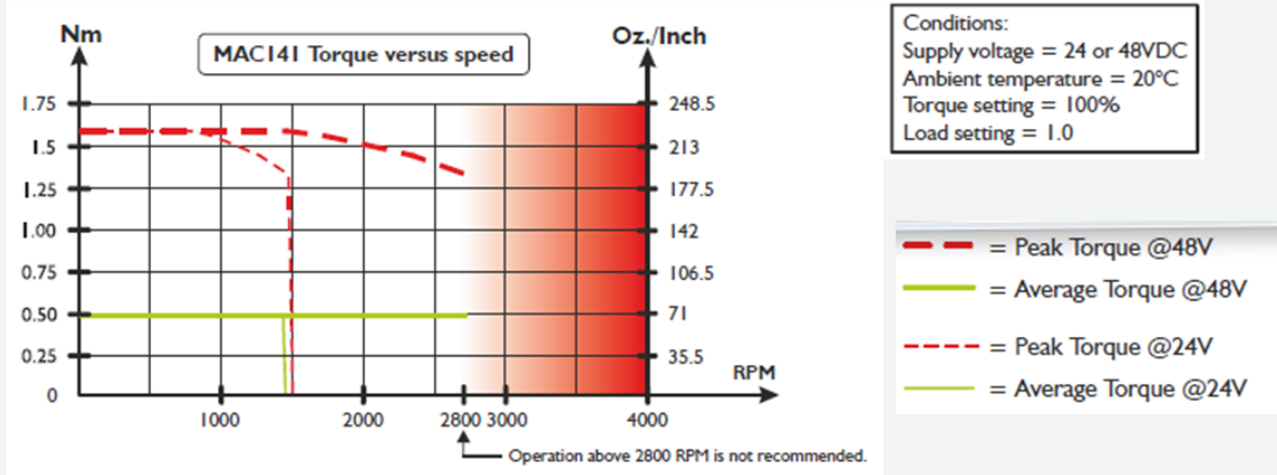


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**Torque, force and Power information**

<b>RMS torque [Nm]</b>	0.48	<b>Peak torque [Nm]</b>	1.59
<b>Supply Volt 1 [V]</b>	12	<b>Supply Volt 2 [V]</b>	24
<b>Supply Volt 3 [V]</b>	48	<b>Supply Volt 4 [V]</b>	-





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**Electrical information**

<b>Control voltage (CVI/O+) [VDC]</b>	12-28	<b>Control Voltage (CVI) Min-Max [VDC]</b>	12-30
<b>Main supply [V]</b>	12-48	<b>Main supply Min-Max [V]</b>	10-58
<b>Voltage type - Main</b>	DC	<b>Main Voltage possible</b>	
<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>		<b>Internal Power-Dump Power [W]</b>	
<b>PD connection - Int/Ext</b>	None		
<b>External Power-Dump Resistance Minimum value [Ohm]</b>		<b>External Power-Dump Max Current [A]</b>	
<b>Inrush current -Main max [A]</b>		<b>Inrush special</b>	No
<b>Recommended fuse</b>	T10A	<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:** RS232 - 5VDC, Modbus RTU **e-PLC Files**  
**Without module**

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



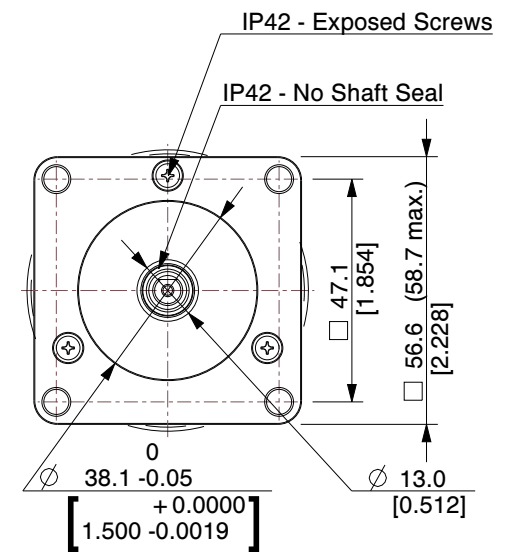
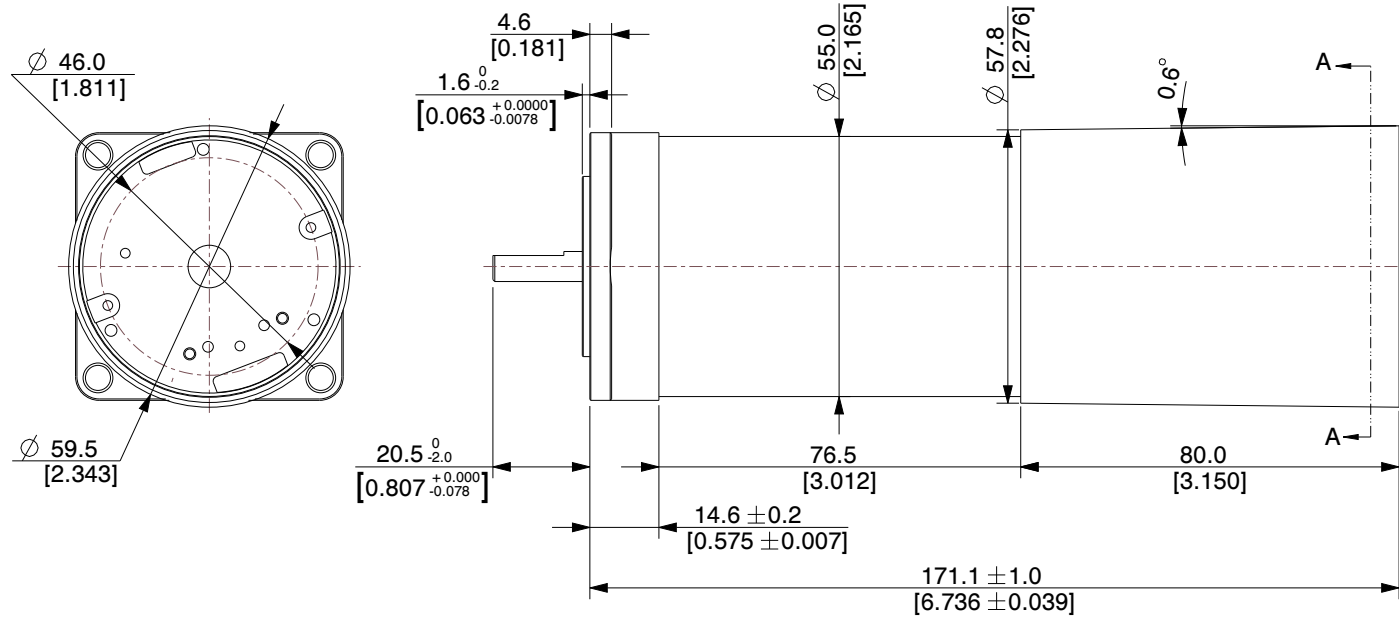
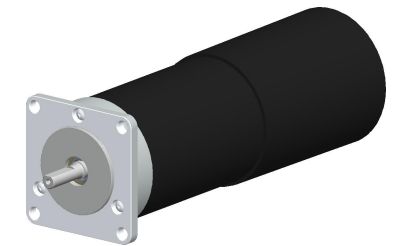
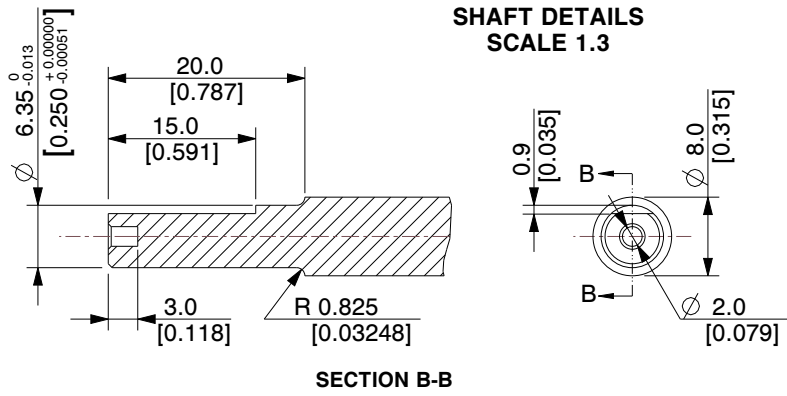
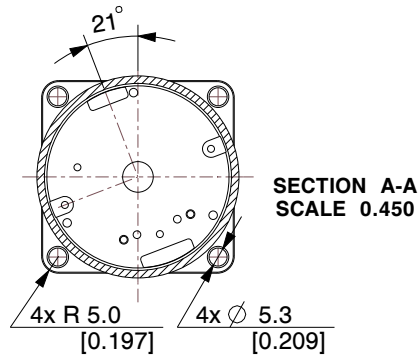


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Cable information

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
WI1000-M12F5V05R	Connector PDO	M12 5-pin female A-coded - 90° Angled	Power/Motor/com		5
M12 Shl Cable 5m 5 pin Fem 90°, Power, 3D		- n/a			No
WI1000-M12M8T20R	Connector PDO	M12 8-pin male A-coded - 180° Straight	Power/Motor/com		20
M12 Shl Cable 20m 8 p Male 0° 2D cable chain		- n/a			No
WI1010-M08M4T1.5P	Connector PDO	M8 4-pin male A-coded - 180° Straight	STO		1.5
M8 STO 4Pin Male 0° Con Shl Yel 1.5 m 1xcon, PA014		- n/a	Standard		No



**NOTES:**  
1. Encoder Type: Incremental magnetic 8192 CPR

**MOTOR SPECIFICATIONS**

Rated Torque	0.48 Nm	Supply Voltage	12-48 VDC	Standards	CE approved / UL Pending	Motor Color	Black
Peak Torque	1.59 Nm	Control circuit voltage	-	Maximum angular acceleration	85300rad/sec <sup>2</sup>	Usage / Storage Temperature	Ambient 0 to +40°C (32-104°F)
Rated Power (watt)	134 W	Electric time constant (motor)	-	Inertia	0.227 kgcm <sup>2</sup>	Housing & Flange	Square flange
Rated power rate. (motor)	-	Peak supply current (worst case)	16A peak	Max. axial shaft load	15N	Protection	IP42 without brake
Speed Range (nominal)	0-2700 RPM	Weight	1.32 kg	Max. radial shaft load	75 N (20mm from flange)	Special Configuration	2. Gen. Connector for Ethernet modules

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

**PART NUMBER:**  
**MAC141-F1GAAA**

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

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

Unless specifically stated otherwise, this drawing is the property of JVL A/S and no feature embodied herein may be disclosed except as previously authorized