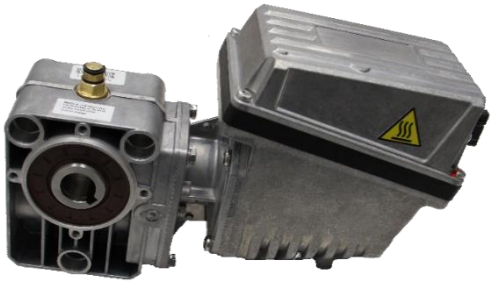
Features

- Designed for 12V agricultural equipment
- 8,75Nm, 100 rpm @ output shaft
- Rugged anti-corrosion aluminum housing
- Slim design (85mm total width to fit the application requirements)
- CANOpen communication (speed and position control)
- Integrated low power DC-motor drive to control small actuator (eg. automatic seed singulator)
- 2 application specific digital inputs (Seed counting and Seed singulator position)
- **ROJ protocol (1406.611) or ROJ X-tend protocol (1406.613) or Arag protocol (1406.614) variants**



Applications

The DMD0A is an application specific brushless motor with integrated orthogonal gearbox and electronic drive. The motor can be used to replace mechanical or hydraulics transmissions in agricultural or other off-highway applications (e.g. variable rate applications).
Application example are:

- Actuation of seeding element in pneumatic precision planting machines
- Actuation of seed distributor in air-drills or small grain planters
- Actuation of fertilizer and microganular spreaders in agricultural machines
- Salt, fertilizer, grain spreaders

Mechanical Specifications

Nominal Torque at output shaft	8,75Nm
Peak Torque at output shaft	19Nm (single pulse, duration 500ms) 12Nm (repetitive, duration 500ms, every 5 second)
Nominal Speed at output shaft	100 rpm
Gear ratio of integrated gear	1:29.71

Environmental Specifications

Operational Temperature:	-10°C…+60°C (full specs) -10°C…+70°C (derated)
Storage Temperature:	-40°C…+105°C
IP grade	IP6K5 / IPX9K according to ISO-20653.
Vibrations	Sinusoidal vibration test: IEC 600-68-2-6 Random vibration test: IEC 600-68-2-64 Temperature change test: IEC 60068-2-14 Shock test: IEC 600-68-2-27

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Electrical Specifications

EMC	The unit fulfills EN ISO 14982: 2009 standard (Agricultural and forestry machinery)
Supply voltage	11-16V Note: Voltage is intended at MD connector input pins. Voltage drop due to cable harness shall be taken into account.
Supply current	19 A (at nominal Torque, nominal Speed and minimum supply voltage)

Input/output and communication

CAN	1 CAN bus line (compliant ISO SO 11898-2 and 5. Up to 1 Mbit/s)
Seed sensor interface	3 pins (8V – 80mA supply, GND, signal)
Seed selector interface (incremental position sensor and low power DC motor drive	Full-bridge PWM output. 300mA max continuous current. 3 pins sensor input (8V – 80mA supply, GND, signal)
Safety switch input	Contact switch input to remove supply to power stage.

Connector pin-out

Motor connector matches with AMPHENOL AT16-18SA, with the following pinning.

1	SEED_POWER (+8V)	3	SEED_SENSOR_CNT	5	SEED_SELECT_CNT
7	CAN_L	9	SEED_SELECT_MOTOR+	11	SEED_POWER (+8V)
13	CAN_H	15	SEED_SELECT_MOTOR-	17	MOTOR_ENABLE_IN
2	GND	4	BAT-	6	BAT+
8	CAN_L	10	BAT-	12	BAT+
14	CAN_H	16	GND	18	MOTOR_ENABLE_OUT

Safety switch

A safety switch shall be connected to signals MOTOR_ENABLE_IN/ MOTOR_ENABLE_OUT. If the contact is open, the DMD0A cannot rotate. The safety switch must be implemented using:

- an electro-mechanical switch with “positive opening” NC contact (condition indicated by the symbol ⊖), or
- an electromagnetic sensor with high reliability (e.g. SICK RE11-SA03 or equivalent)
- In order to ensure the requested safety level (Performance Level = c according to EN ISO 13849-1), it is necessary to provide a safety contact with the following characteristics: $B10_d >= 2 \cdot 10^6$

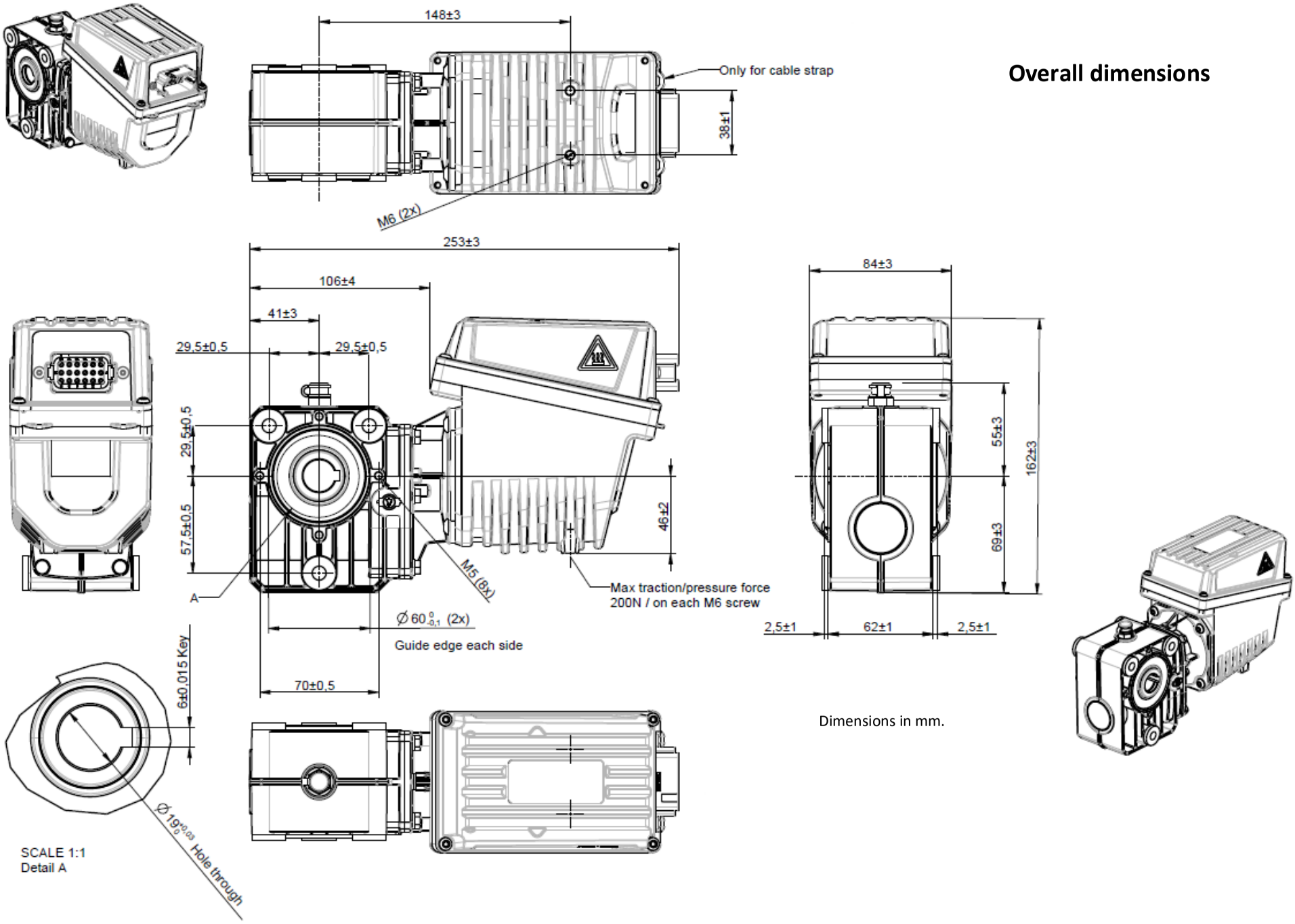
Note: $B10_d$ is the reliability parameter declared by the device Manufacturer that corresponds to the number of switching operations guaranteed without errors.

Disclaimer

The present specifications are intended to be preliminary. Parameters and values indicated in the document might be subjected to changes. For further information, please contact: mechatronics@roj.com

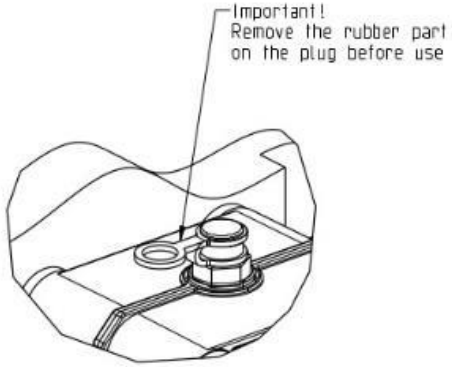
For more details please refer to DMD0A Installation, Operation and Maintenance Manual

Overall dimensions



Dimensions in mm.

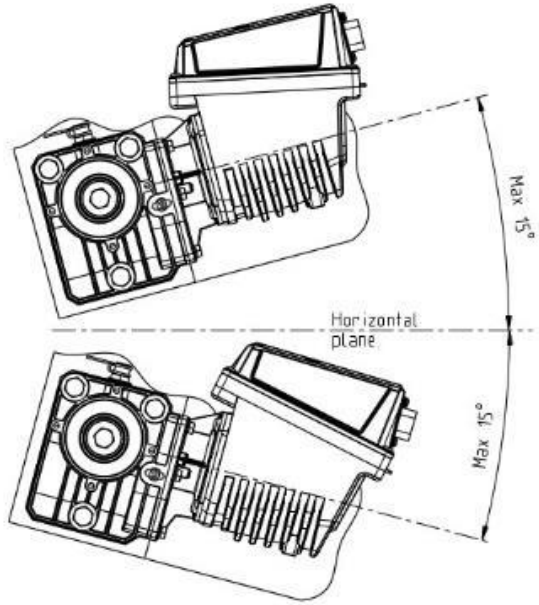
Assembly Instruction



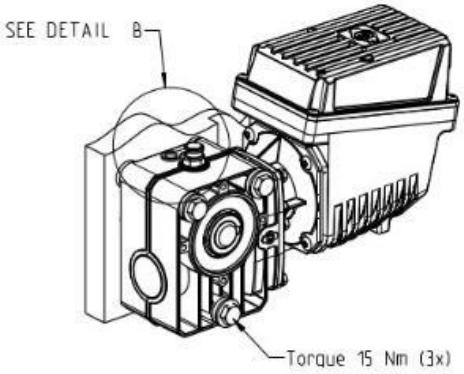
Detail B

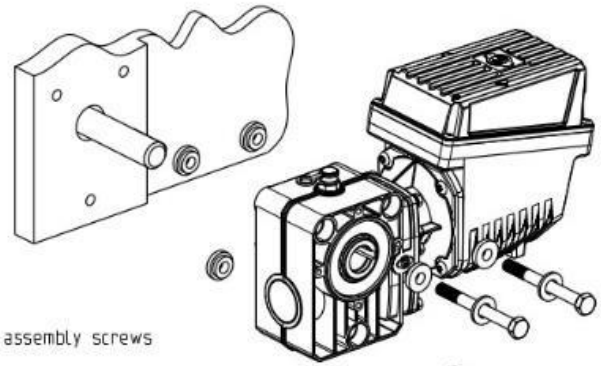
As

Mounted with adapted plugs.
Use standard screws and washers.

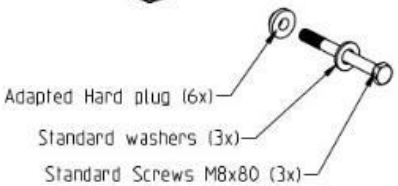


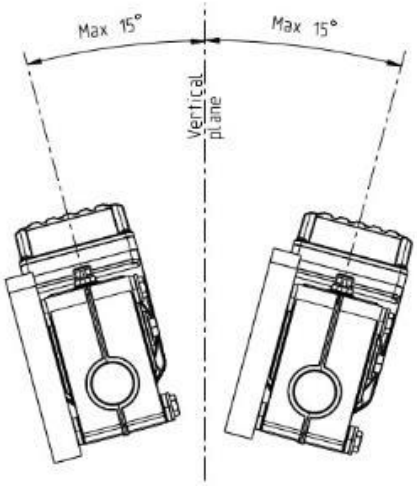
Maximum slope/ angle of the unit
As mounted or during continuous operation

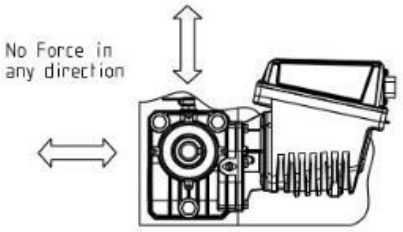


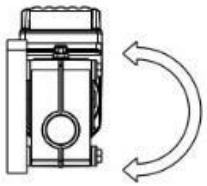


Use screw lock on all assembly screws
(Type Loc-Tite)

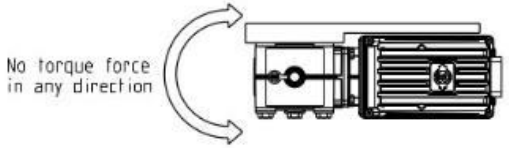








No torque force
in any direction



Important!
Avoid exposure to forces in mounted position.
Improper installation can shorten the life
and lower the efficiency considerably