

MANUAL RXMD INSTALLATION AND OPERATING

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1. General

The operating instructions apply for the RXMD pump range.
This Installation and operating instruction must be read before installing pumps.
Please observe the safety instructions.

Essential parts of this manual can be found in SHORT MANUAL W12018 / m-400rxmd-qs-xx translated to: French – German- Italian – Spanish – Portuguese - Chinese

Product numbers as well as recommended tubing and basic performance data are found in the data sheet, wd-400rxmd-gb-xx.

1.1 Purpose

Peristaltic pumps shall be used with the recommended tubing and within specified electrical, flow and pressure conditions.

Always consult the manufacturer before making any changes to the pump, its components or specifications.

1.2 Functioning principle

Peristaltic pumps are a type of positive displacement pumps used for pumping a variety of fluids. The fluid is contained within a flexible tube fitted inside the pump casing. The liquid being pumped never comes into contact with any moving parts as it is totally contained within the tube. This characteristic turns this kind of pump into a hygienic pumping solution with minimal risk of contamination from the surrounding environment. Maintenance time is also reduced as the tube is the only wearing part. The tube is therefore an important part of the pump and choice of dimension and material will determine the performance in each application.

2. Safety

2.1 Basic safety instructions

Failure to follow these safety instructions may result in damage to property and personal injury. A requirement for safe handling and trouble-free operation of this pump is compliance with the safety instructions. Personnel installing and/or operating pumps shall have received and embraced this information.

2.2 Noise level

The continuous sound level proceeding from the pump is less than 70 dB(A). A higher sound level, with risk for auditory injury, can arise depending upon local conditions. In this case operating personnel shall wear appropriate protective equipment.

2.3 Important safety considerations

Be aware of:

- Danger if the pump is used for handling poisonous or otherwise dangerous fluids
- If you in spite of all precautions get a leak from the tubing, it should be easy to turn off the pump without coming near this infected area
- Use the right power supply and follow all regulation on electrical safety
- The completed machine has to fulfil the EMC directive (electromagnetic compatibility)
- This product must not be used in an explosive atmosphere. The motor supplied is not explosion proof
- Make sure that it is impossible to get in contact with the rotating rotor

2.4 Safety symbols

No symbols are used.

3. Directives

DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT
 - Article 13 Procedure for partly completed machinery

DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT (RoHS)

4. Warranty

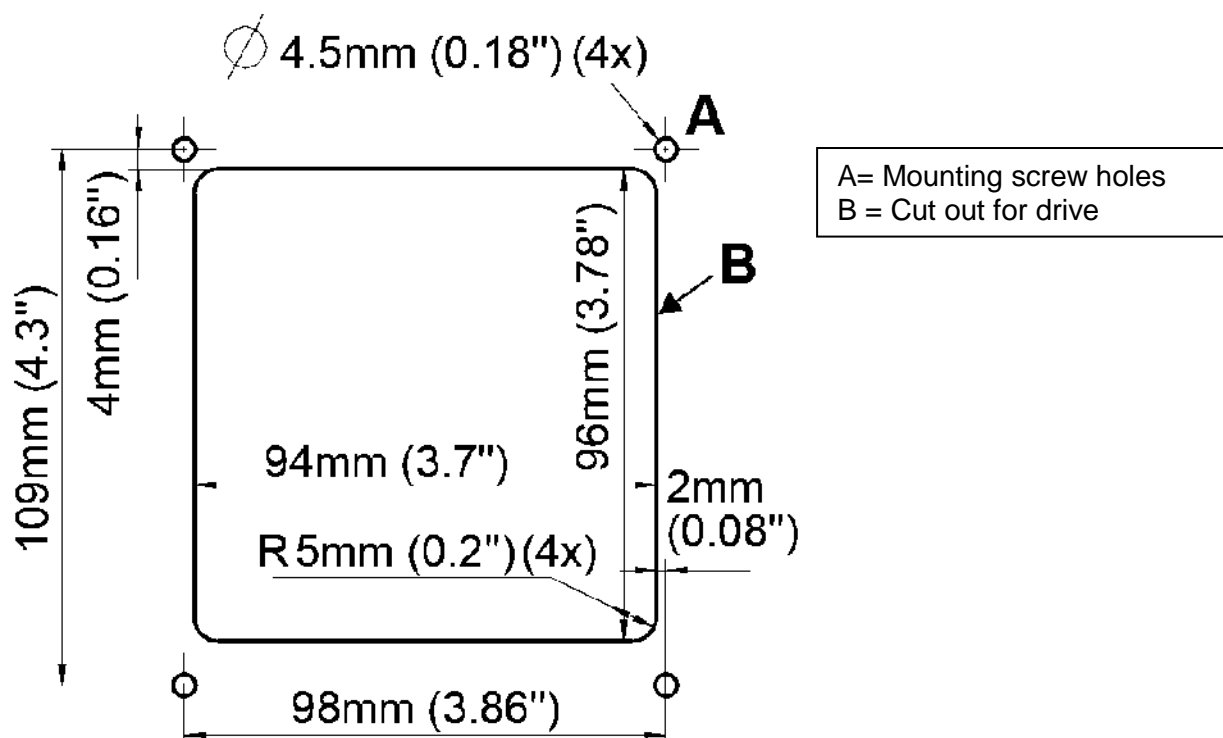
Basically our "General sales and delivery conditions" apply.

Warranty and liability claims are excluded if connected to one or several of the following causes:

- Damaged due to misuse, abuse, negligence, alteration or modification
- Incorrect installation, operation and maintenance of the machine
- Use that the pump is not intended for
- Non-compliance with the instructions regarding storage, installation or operation
- Changes made to the pump
- Insufficient monitoring of operating pump
- Incorrectly performed repairs

5. Installation

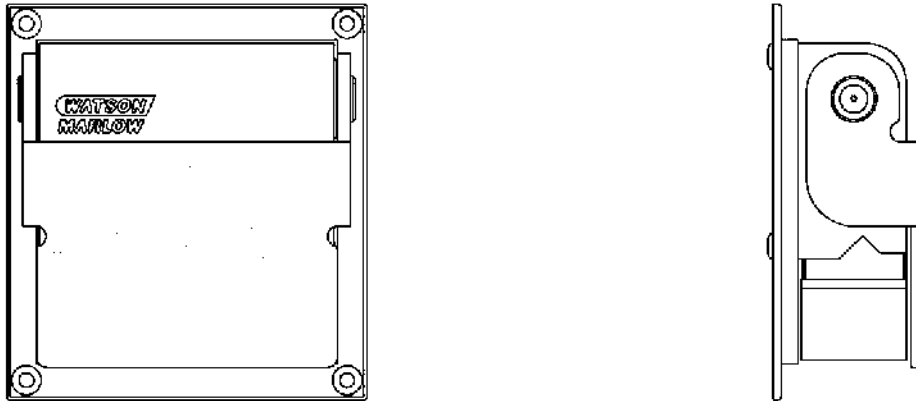
5.1 Standard mounting footprint



5.2 Recommended position

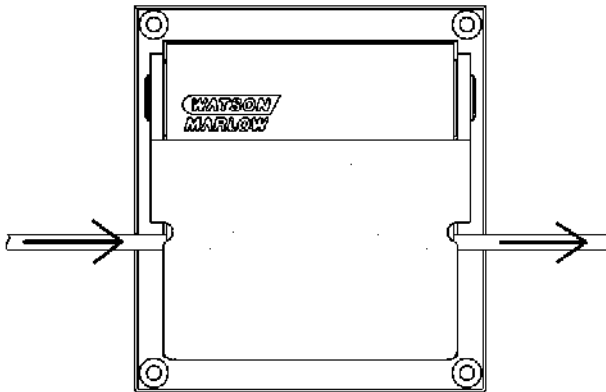
These general guidelines from the factory are meant to give the user a trouble-free installation and operation of the 400RXMD pump. In case of mounting needs contradicting these recommendations, please contact and discuss with your local WMFTG sales representative.

The pump shall be mounted in a vertical position as shown by the following two views .

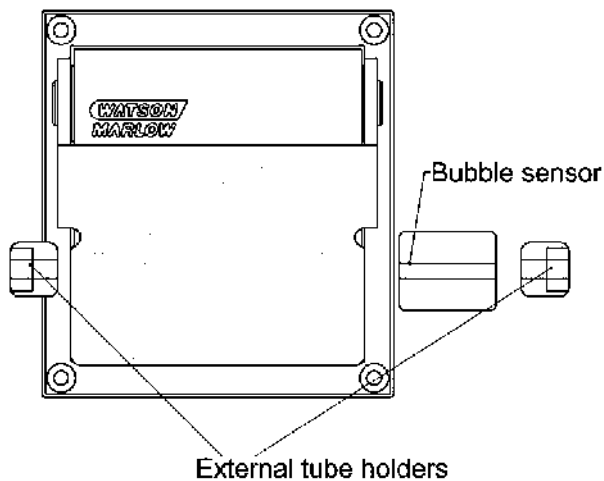


5.3 Recommendation for tube position

The tube should be applied straight into the inlet side and straight out from the outlet side in a horizontal manner. Avoid applying any vertical force to the tube.



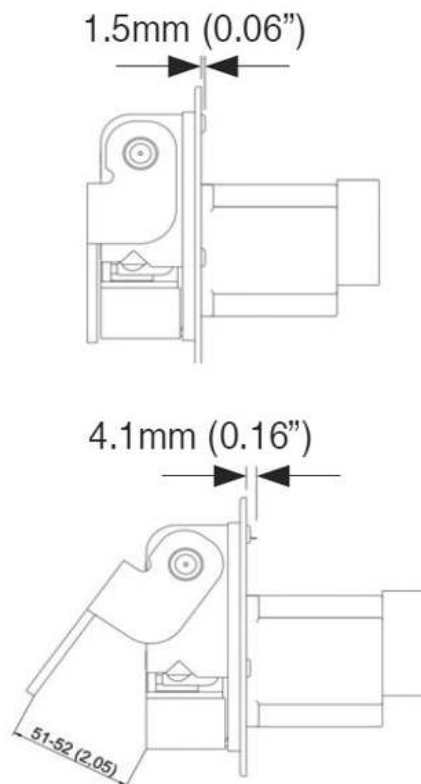
5.4 Recommendation when using bubble sensors



In case of using bubble sensors we recommend external tube holders so that the tube can be pre-stretched in order to avoid tube stacking inside the pump. In this type of installation the pre-stretch is necessary to maintain the proper tube path. The pre-stretch will be different depending on the operating parameters as well as tube type and needs to be tested for each application.

5.5 Safety switch

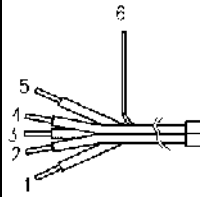
It is possible to control a safety switch from the lever on the back of the pumphead. The use of this lever and a micro-switch makes it possible to ensure that the pump stops when the safety front cover is opened.



5.6 400VDL/RXMD electrical CONNECTION

These motors are delivered without connector

1.Red wire	+24 V DC
2.Black wire	GND
3.White wire	Speed control approximately 0-4 V, Start at 1.0 V, Brake at <0.5 V See also heading "SPEED CONTROL" below
4.Green wire	Tacho, revolution count output
5.Brown wire	Direction control – correct connection per pump model is important 400VDL/RXMD_CCW @ U<1.9V 400VDL/RXMD_CW @ U>4.1V
6.Naked wire	GND chassis



SPEED CONTROL

Due to the tolerance span for the speed control (white wire) this information is important:

- To obtain accurate and load independent speed control, use a tacho control loop.
- For improved speed control without using the tacho signal, calibrate the voltage control individually for each unique motor/pump.



Please note, there is no integrated polarity shift protection.

Improper connections may damage the motor.

MOTOR AND TACHO OUT

Motor data

Parameter	Value
Nominal Max. rpm	600 (RXMD pump Max rating 550 rpm)
Nominal voltage	24 V
Nominal current (max.)	1.25 A
Current limitation	3.4 A
Maximum motor temp.	60°C

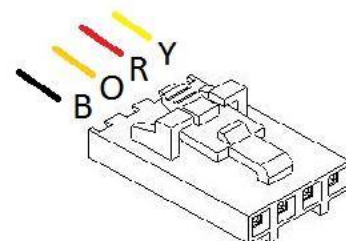
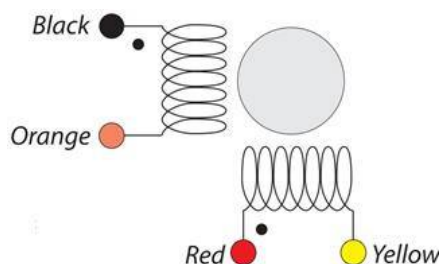
Tacho out data

Green wire for speed monitoring

Parameter	Value
Pulses per revolution	36
Pulse time low	168 μ s
Pulse time high	Speed dependent
Output level low	$\leq 0.2V$
Output level high	$4.5 \pm 0.5V$
Output resistance, typical	4 k Ω
Voltage protection	$\pm 30V$

5.7 400ST/RXMD electrical CONNECTION

These motors are delivered with a 4-pole Molex 50-57-9404 connector



STEPPER MOTOR AND ENCODER NOMINAL DATA

Motor data

24V hybrid type stepping motors with permanent magnetised rotor and 200 steps per revolution. Insulation class B. Motors are fitted with ball bearings.

Parameter	Value
Step angle	1.8°
Number of phases	2
Current per phase	2.4 A
DC resistance	1.0 Ω \pm 10%
Inductance per phase	4.6 mH \pm 20%
Max. temp rise	80°C
Holding torque @ 24V	1.00 Nm
Torque @ 600 rpm approx.	0.25 Nm

Encoder data

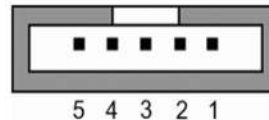
Parameter	Value
Supply Voltage	5 \pm 0.5 V
Supply Current, typical	27 mA
Low-level Output, max	0.5 V
High-level Output, min	2.0 V
Output Current Per Channel	\pm 8 mA
Output Rise Time, typical	110 nS
Output Fall Time, typical	35 nS
Cycles Per Revolution (CPR)	50

Mating cable connector

Female 2.54 mm pitch Molex series 70400
Example part no. 14-60-0052 (5 leads)

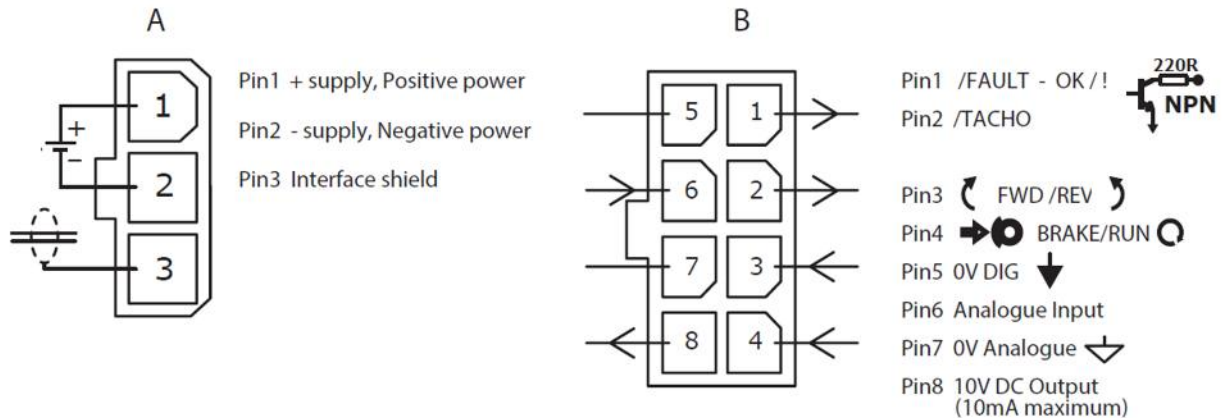


Pin	Description
1	Ground
2	Index
3	A Channel
4	+5V DC
5	B Channel



5.8 400DS/RXMD electrical

Motor over current and stalled rotor protection as well as drive electronics and motor housing over temperature limiting is built in.



External connector MOLEX 39-01-4030
Crimp sockets MOLEX 39-00-0039 18-24 AWG

External connector MOLEX 43025-0800
Crimp sockets MOLEX 43030-0007 20-24 AWG
MOLEX 43030-0010 26-30 AWG

CONNECTION

A1	+24 V DC
A2	GND
A3	GND chassis
B1	Fault indication - Fault Low NPN output (nominal @50µA sinking)
B2	Tacho output
B3	Forward / Reverse – CW / CCW (REV/CCW = 0V)
B4	Run / Brake (Run=0V Brake=5V) - must be used to fully stop rotation
B5	GND
B6	Speed control 0-10V
B7	GND
B8	10V out

MOTOR AND TACHO OUT

Motor data

Parameter	Value
Nominal Max. rpm	408
Nominal voltage	24 V
Nominal current (max.)	3.1 A
Maximum controller temp.	85°C
Maximum gearbox temp.	70°C

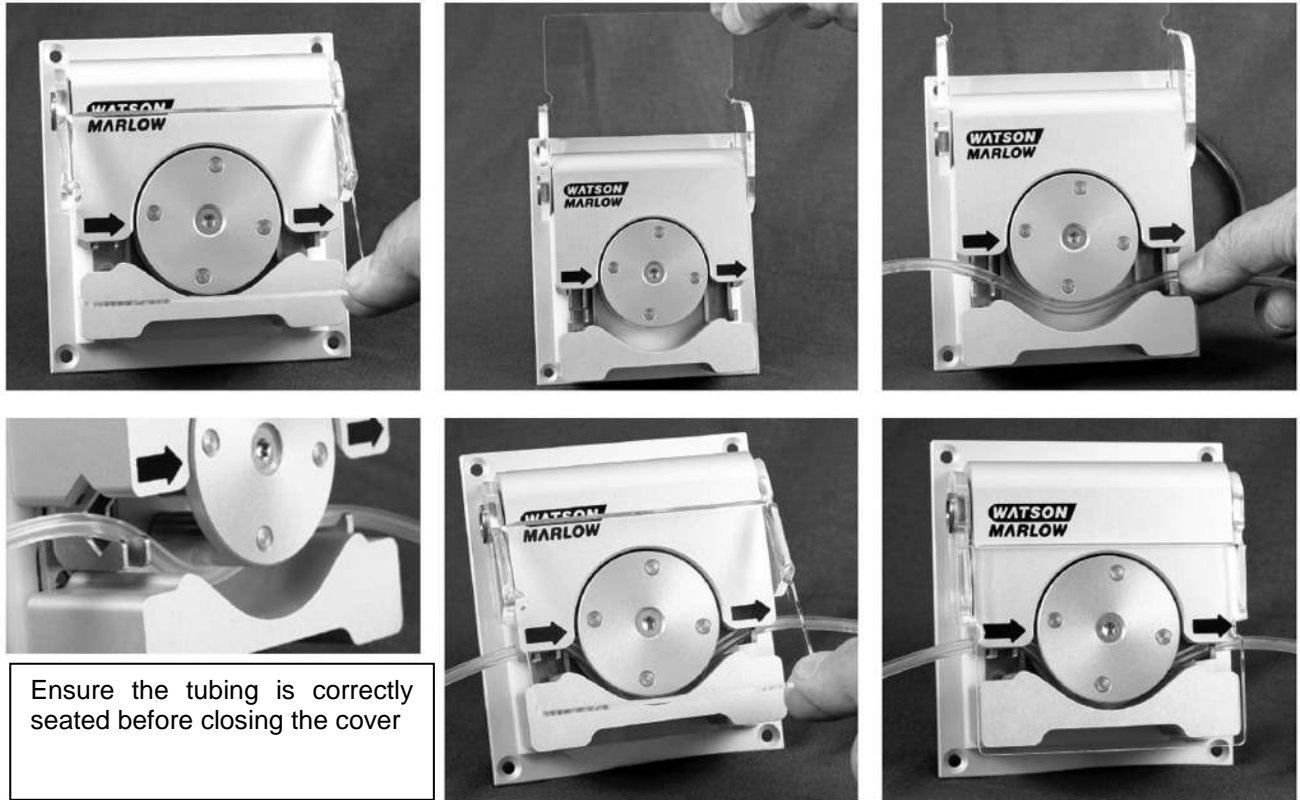
Tacho out data

Green wire for speed monitoring

Parameter	Value
Pulses per revolution	1520
Output level low	≤ 0.2V
Output level high	≥ 4.5 V

6. Operation

6.1 Tube loading



7. Disposal / Recycling

The complete product is considered as electronic scrap.

In case of dismantling the pump it consist of following substantial materials.

PART	MATERIAL / RECYCLING
Drive unit – Motor & Gearbox	Electronics
All plastic parts except front cover	Acetal (POM – Polyoxymethylene)
Front cover	PMMA (Poly methyl methacrylate)
Housing, Track, Rotor & Faceplate	Aluminium
Screws, Washers, Nuts, Rollers, Pins & Bearings	Stainless steel
Internal boomerang shaped linkage	Chromed Brass

8. Declaration of incorporation

EC Machinery Directive 2006/42/EC, Paragraph 13 and Annex II B.

Provided this is possible with respect to the scope of supply concerned

– complies with the following basic requirements of the Machinery Directive 2006/42/EC Appendix I, subchapters 1.1.5, 1.1.6, 1.2.1, 1.3.4, 1.3.7, 1.5.5, 1.7.1, 1.7.3 and 1.7.4.

Commissioning of the incomplete machine is interdicted until the incomplete machine has been incorporated in a machine and the latter complies with the provisions of the EC Machinery Directive and the EC Declaration of Conformity according to Appendix II A is on hand. The declaration is invalidated by every modification to the delivered parts.

Issued by

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