rotork®

Keeping the World Flowing
for Future Generations

M / R Range

Compact electric actuators
for precision valve control

Delivering Intelligent Flow Control Solutions

Helping customers to improve efficiency, reduce emissions, minimise their environmental impact and assure safety.

Keeping the World Flowing through...

- Automation
- Efficiency
- Electrification
- Digitalisation

3 End Markets

- Oil and Gas
- Water and Power
- Chemical, Process and Industrial

60+ years of innovation and industry knowledge

Leaders in Sustainability

Committed to achieving net-zero by 2035 for scopes 1 & 2 and by 2045 for scope 3

- **64** Offices
- **17** Manufacturing Sites
- Serving **170** Countries
- **3,500+** Employees

Rotork Group

Rotork is a market-leading global provider of mission-critical flow control and instrumentation solutions for the industrial actuation and flow control markets. These include oil and gas, water and wastewater, power, chemical, process and industrial applications.

Customers rely on us for innovative, high quality and dependable solutions for managing the flow of liquids, gases and powders. We help customers around the world to improve efficiency, reduce emissions, minimise their environmental impact and assure safety.

Our reliability record is second to none. Our products are designed with safety and performance at their core and are put through vigorous testing and certified to international standards. Our products are certified for use in the world's most dangerous and hazardous areas.

Partnering with us provides the following:

- Assured safety and reliability
- Industry leading accuracy and efficiency
- Proven technology that works with all network control systems
- Product range with solutions to suit every application
- Assistance with plant planning, development and maintenance through our local support services
- We have innovative research and development centers throughout the world

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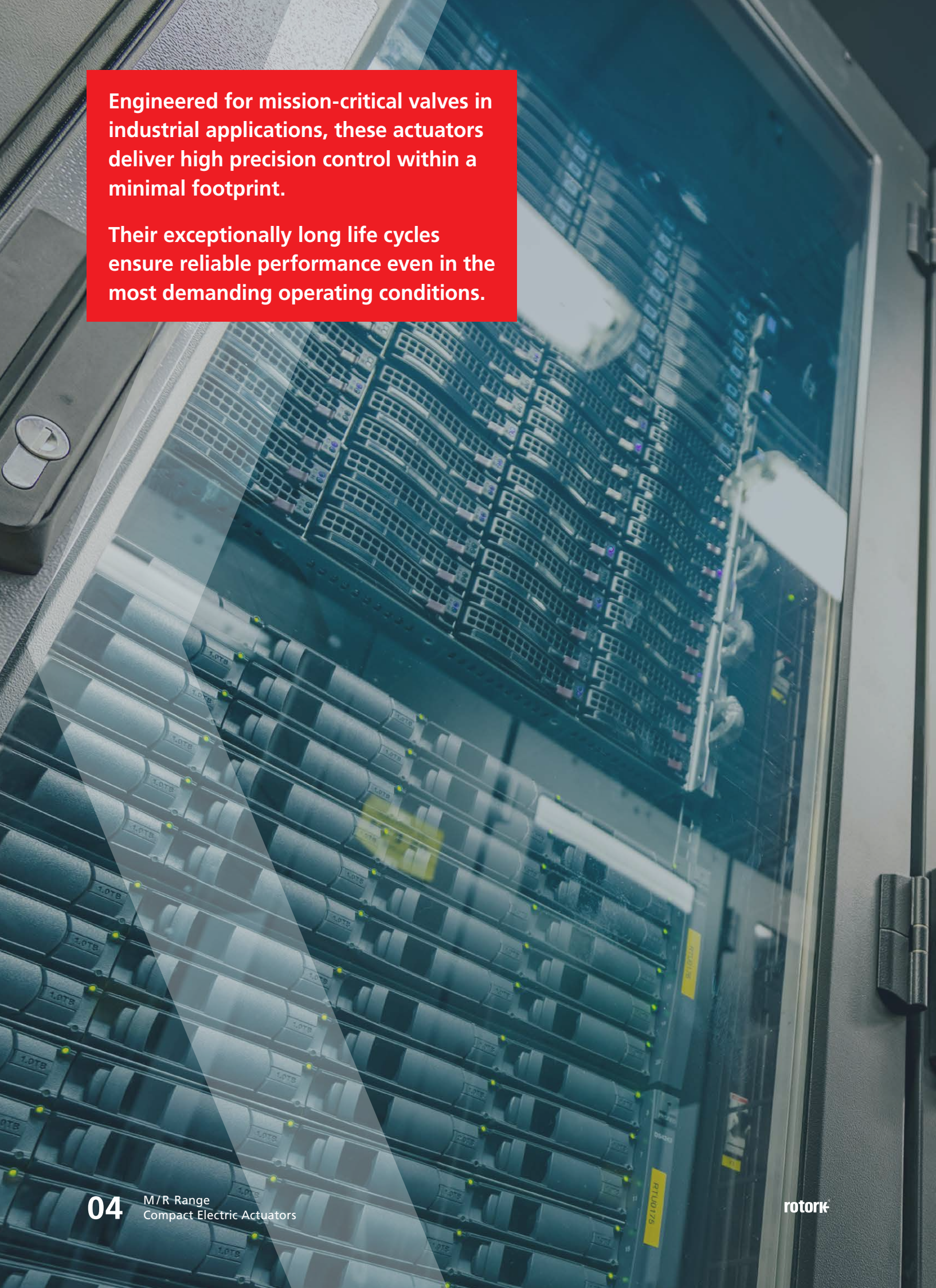


Engineered for mission-critical valves in industrial applications, these actuators deliver high precision control within a minimal footprint.

Their exceptionally long life cycles ensure reliable performance even in the most demanding operating conditions.

Rotork M and R range actuators are versatile solutions for all types of linear, open-close or multi-turn valve applications, paired with a wide variety of instrument valves such as needle, metering, globe, linear, ball, butterfly and many others.

M range offers high output torque in a compact enclosure for limited space applications, while the rugged R range is available in a certified explosionproof enclosure.

Built to last

M and R range actuators are built with the highest grade materials and components. Utilising a long-lasting brushless DC motor enables the actuator to run reliably for an extended period of time. M range also have the option to be built pre-wired with a Turck® connector.*

**R range explosionproof actuators are not pre-wired.*

M and R range features

Key differentiators

- Precise control
- Compatible with any valve under four inches
- 250,000-cycle life expectancy under specified conditions
- Low maintenance
- Low power consumption
- High torque in a compact size
- Multiple control options
- Easy recalibration, adjustable speed and torque settings
- Available with North American, European and International explosionproof certification

Applications

Customised automation

- Green hydrogen technology
- Pharmaceutical industries
- Aerospace industries
- Marine fuel systems
- Data center cooling systems
- Oil & Gas - upstream, midstream, downstream
- Propane handling
- Semiconductor manufacturing
- Automotive manufacturing
- Marine water filtration systems
- Laboratory research and biotech environments

Compact precision actuator

Specifications

Enclosure:	IP66 aluminium die cast E-coating, stainless
Temperature range:	0 to +65 °C (+32 to +149 °F) internal (derate duty cycle at high temp.)
Ext. temp. range:	-40 to +60 °C (-40 to +140 °F) (with heater option)
Stall protection:	Electronic position and motion detection
Feedback:	TTL, 4-20 mA, Modbus®
Manual override:	Optional
Gears and bearings:	Metal and bronze, oiled/greased for life
External fasteners:	Stainless steel
Life expectance:	250,000 cycles in specified conditions
Motor:	Brushless DC motor, computer control
Voltages/current:	12-24 VDC / Max 3 A, 110/220 VAC / Max 1.5 A @ 50/60 Hz
Positioning precision:	+/– 3 deg for ¼ and ½ turn; +/– 0.25 deg for multi-turn
Positioning resolution:	+/– 0.15 deg max. adjusting to electronic signal resolution of 12-bit, additional signal filters available
Range/speed setting:	DIP switches inside enclosure
Control options:	Analog (4-20 mA, 1-5 V, 1-10 V), Modbus®, TTL (on/off - 3 or 4 position control)
End travel detection:	For needle valve, by motion detection
Power setting:	Adjustable
Mechanical shock:	Repeated ≤ 130 g – force no effect, occasional ≤ 150 g – force no effect > 150 g – force not tolerated
Mechanical vibration:	Random SAE J1211, chassis, exterior
Thermal shock:	-20 to +60 °C (-4 to +140 °F) 10 min
Failsafe battery:	LiPo rechargeable battery, will position the actuator to predetermined desired position
Weight:	MxJ, MxL, MxM: 650 g; MxH, MxF: 1300 g

Multi-turn models

Isolated signals [AI and AF models only]:
Optical isolation 1,000 V min

Feedback 4-20 mA [AF model only]:
For sensing resistor of max. 250 Ω. Floats +6 VDC / -2 VDC from power Gnd

Position power loss:
Standard: "remembers" position before shut down, will reseat valve based on torque setting when the signal is between 3 and 4 mA

¼ turn and ½ turn models

MDx-xxxDx24
TTL signals in (control): Float at 24 V, < 1 mA to pull to 0 V
TTL signals out (feedback): 24 V at 0.5 A max.

Performance Data

MCx multi-turn models

Model	Torque range (Nm)	Torque range (lbf.in)	Speed range (1 turn in sec)
MCJ	0.5 to 1.8	4 to 16	1 to 7*
MCL	1.3 to 5.4	12 to 48	1 to 7
MCM	4 to 16	35 to 145	4 to 23
MCH	13 to 56	120 to 497	18 to 90
MCF	26 to 103	230 to 915	38 to 186

MDx ¼ and ¾ turn models

Model	Torque range (Nm)	Torque range (lbf.in)	Speed range (¼ turn in sec)
MDL	7.9 to 9.3	70 to 82	1 to 3
MDM	24 to 28	212 to 247	1 to 3
MDH	48 to 60	430 to 532	3 to 9
MDF	80 to 118	710 to 1050	5 to 15

* De-rate the duty cyde to 25% for the highest torque values.
Note: Speed and torque depend on settings by dip switch of actuator.
Consult user manuals of individual units. Actuators are set for optimum speed.

Product Code

M C M - 0 - 0 5 0 AB - 0

Positioning
C = Continuous D = Discrete

Gear Stage *(see table on Page 06)*
J = Very low torque (C: 0.45 to 1.81 Nm D: not applicable)
L = Low torque (C: 1.36 to 5.42 Nm D: 7.91 to 9.27 Nm)
M = Medium (C: 3.95 to 16.38 Nm D: 23.95 to 27.91 Nm)
H = High (C: 13.56 to 56.16 D: 48.59 to 60.11 Nm)
F = Highest (C: 25.99 to 103.39 D: 80.22 to 118.64 Nm)

Special Options
0 = Required if no special options picked
AC = 110 to 240 VAC power supply
B = Battery Backup 24 VDC min requirement (not compatible with H-,G-)
BS = Bottom Stop (not compatible with H-,F-)
G = G-Stage Gate Valve (with MCM or MCL) (not compatible with J-,H-,F-,BS-)
HT = High Temperature mounting kit (not compatible with H-,F-,BS-,G-,L1-,L2-)
L1 = 1" Stroke Linear 16 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L2 = 1" Stroke Linear 8 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L3 = 2" Stroke Linear 16 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L4 = 2" Stroke Linear 8 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L5 = 4" Stroke Linear 16 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L6 = 4" Stroke Linear 8 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
M = Manual Override (not compatible with F-,AC-,L1-,L6-)
P = Position Indicator (¼ Turn) (not compatible with C,H-,F-,AC-,G-,L1-,L2-,M-)
QS = Quarter Turn/Quarter Stop (not compatible with DL1-,L6-,BS-)

Enclosure
0 = Standard Red Alloy N = Black Alloy S = Stainless Steel

Wiring
0 = Cable Gland
4 = (A/C Only) Custom Dual Gauge Cable, 10 ft
5 = TURCK 5 position Connector with 20' Cable and Plug (not compatible with D,AC-)
6 = TURCK 6 position Connector with 20' Cable and Plug (not compatible with D,AC-)
7 = TURCK 5 position Connector Only (not compatible with D,AC-)
9 = TURCK 6 position Connector Only (not compatible with D,AC-)

Heaters
0 = No Thermal Controls
F = External Fan (not compatible with H-,F-,8-,B-)
H = Internal Heater

PCB
AB- = Analog Signal Board (not compatible with D,6,9)
AF- = Analog Signal Board isolated with Feedback (not compatible with D,6,9)
AI- = Analog Signal Board Isolated Input (not compatible with D,6,9)
AS- = Modbus Control with Feedback (not compatible with D,5,7)
DC-= Continuous TTL Board, 0V Input / 24V Feedback signal (not compatible with D,5,7)
DT- = Discrete TTL Board, 0V Input / 24V Feedback signal (not compatible with C,5,7)

Mounting
0 = No Valve or Mounting Kits (not compatible with G-)
1 = ¼ turn or ½" Stroke with Mounting Kit
2 = ¼ turn or ½" Stroke on Received Valve
3 = ¼ turn or ½" Stroke full Assembly Provided
4 = Up to 1" Stroke Actuator Only
5 = Up to 1" Stroke with Mounting Kit
6 = Up to 1" Stroke on Received Valve
7 = Up to 1" Stroke full Assembly Provided
8 = Up to 1-½" Stroke Actuator Only
9 = Up to 1-½" Stroke with Mounting Kit
A = Up to 1-½" Stroke on Received Valve
B = Up to 1-½" Stroke full Assembly Provided

Compact explosionproof precision actuator

Specifications

Enclosure:	IP66/67 aluminium die cast anodised, stainless. IP68 on North American certified units
Temperature range:	0 to +65 °C (+32 to +149 °F) internal (derate duty cycle at high temp.)
Ext. temp. range:	-40 to +60 °C (-40 to +140 °F) (with heater option)
Stall protection:	Electronic position and motion detection
Feedback:	TTL, 4-20 mA, Modbus®
Manual override:	Optional
Gears and bearings:	Metal and bronze, oiled/greased for life
External fasteners:	Stainless steel
Life expectance:	250,000 cycles in specified conditions
Motor:	Brushless DC motor, computer control
Voltages/current:	12-24 VDC/Max 3 A, 110/220 VAC/Max 1.5 A @ 50/60 Hz
Positioning precision:	+/– 3 deg for ¼ and ½ turn; +/– 0.25 deg for multi-turn
Positioning resolution:	+/– 0.15 deg max.
Range/speed setting:	DIP switches inside enclosure
Control options:	Analog (4-20 mA, 1-5 V, 1-10 V), Modbus®, TTL (on/off - 3 or 4 position control)
End travel detection:	For needle valve, by motion detection
Power setting:	Adjustable
Mechanical shock:	Repeated ≤ 130 g – force no effect, occasional ≤ 150 g – force no effect > 150 g – force not tolerated
Mechanical vibration:	Random SAE J1211, chassis, exterior
Thermal shock:	-20 to +60 °C (-4 to +140 °F) 10 min
Failsafe battery:	LiPo rechargeable battery
Weight:	RxJ, RxL, RxM: 980 g RxH, RxF: 1700 g

Multi-turn models

Isolated signals [AI and AF models only]:
Optical isolation 1,000 V min

Feedback 4-20 mA [AF model only]:
For sensing resistor of max. 250 Ω. Floats +6 VDC/-2 VDC from power Gnd

Position power loss:
Standard: "remembers" position before shut down, will reseat valve based on torque setting when the signal is between 3 and 4 mA

¼ turn and ½ turn models

RDx-xxxDx24
TTL signals in (control): Float at 24 V, < 1 mA to pull to 0 V
TTL signals out (feedback): 24 V at 0.5 A max.

Certifications

Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups E, F and G

ATEX II 2 G Ex db IIB + H2 T6 Gb or II 2 D tb IIIC T85°C Db

IECEx Certified

Performance Data

RCx multi-turn models

Model	Torque range (Nm)	Torque range (lbf.in)	Speed range (1 turn in sec)
RCJ	0.5 to 1.8	4 to 16	1 to 7*
RCL	1.3 to 5.4	12 to 48	1 to 7
RCM	4 to 16	35 to 145	4 to 23
RCH	13 to 56	120 to 497	18 to 90
RCF	26 to 103	230 to 915	38 to 186

RDx ¼ and ½ turn models

Model	Torque range (Nm)	Torque range (lbf.in)	Speed range (¼ turn in sec)
RDL	7.9 to 9.3	70 to 82	1 to 3
RDM	24 to 28	212 to 247	1 to 3
RDH	48 to 60	430 to 532	3 to 9
RDF	80 to 118	710 to 1050	5 to 15

* De-rate the duty cyde to 25% for the highest torque values.
Note: Speed and torque depend on settings by dip switch of actuator.
Consult user manuals of individual units. Actuators are set for optimum speed.

Product Code

R C M - 0 - B 0 0 AB - 0

Positioning
C = Continuous D = Discrete

Gear Stage *(see table on Page 08)*
J = Very low torque (C: 0.45 to 1.81 Nm D: not applicable)
L = Low torque (C: 1.36 to 5.42 Nm D: 7.91 to 9.27 Nm)
M = Medium (C: 3.95 to 16.38 Nm D: 23.95 to 27.91 Nm)
H = High (C: 13.56 to 56.16 D: 48.59 to 60.11 Nm)
F = Highest (C: 25.99 to 103.39 D: 80.22 to 118.64 Nm)

Special Options
0 = Required if no special options picked
AC = 110 to 240 VAC power supply
B = Battery Backup 24 VDC min requirement
BS = Bottom Stop (not compatible with H-,G-)
G = G-Stage Gate Valve (with MCM or MCL) (not compatible with J-,H-,F-,BS-)
HT = High Temperature mounting kit (not compatible with H-,F-,BS-,G-)
L1 = 1" Stroke Linear 16 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L2 = 1" Stroke Linear 8 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L3 = 2" Stroke Linear 16 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L4 = 2" Stroke Linear 8 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L5 = 4" Stroke Linear 16 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
L6 = 4" Stroke Linear 8 threads per inch (not compatible with H-,F-,BS-,G-,HT-)
QS = Quarter Turn/Quarter Stop (not compatible with DL1-,L6-,BS-)
RS = Reverse Spring Return (not compatible with H-,F-,BS-,G-,HT-,L1-,L2-,P-,C-)
S = Spring Return (not compatible with H-,F-,BS-,G-,L1-,L2-,RS-,C-)

Enclosure
B = Standard Anodized HazLoc E = Stainless Steel HazLoc

Wiring
0 = Conduit Entry

Heaters
0 = No Thermal Controls
H = Internal Heater

PCB
AB- = Analog Signal Board (not compatible with D,6,9)
AF- = Analog Signal Board isolated with Feedback (not compatible with D,6,9)
AI- = Analog Signal Board Isolated Input (not compatible with D,6,9)
AS- = Modbus Control with Feedback (not compatible with D,5,7)
DC-= Continuous TTL Board, 0V Input / 24V Feedback signal (not compatible with D,5,7)
DT- = Discrete TTL Board, 0V Input / 24V Feedback signal (not compatible with C,5,7)
PT- = Spring Return, Limit Switches, Thermal Cut Off (not compatible with C,5,7)

Mounting
0 = No Valve or Mounting Kits (not compatible with G-)
1 = ¼ turn or ½" Stroke with Mounting Kit
2 = ¼ turn or ½" Stroke on Received Valve
3 = ¼ turn or ½" Stroke full Assembly Provided
4 = Up to 1" Stroke Actuator Only
5 = Up to 1" Stroke with Mounting Kit
6 = Up to 1" Stroke on Received Valve
7 = Up to 1" Stroke full Assembly Provided
8 = Up to 1-½" Stroke Actuator Only
9 = Up to 1-½" Stroke with Mounting Kit
A = Up to 1-½" Stroke on Received Valve
B = Up to 1-½" Stroke full Assembly Provided

Spring-return failsafe actuator

Specifications

Enclosure:	IP66/67 Aluminium die cast anodized, stainless IP68 on North American certified units
Temperature range:	-40 to +65 °C (-40 to +149 °F)
Duty cycle:	25%
Max. hold time:	Internal/ESV Valves: 30 mins Ball valves: Unlimited
Stall protection:	Electronic position and motion detection
Feedback:	Limit switches
Gears and bearings:	Metal and bronze, oiled/greased for life
Life expectance:	250,000 cycles in specified conditions
Motor:	Brushless DC motor, computer control
Voltages/current:	12-24 VDC/Max 3 A 110-240 VAC/Max 1.5 A @ 50/60 Hz
Positioning precision:	+/– 3 deg
Motor control:	By current sense and motion detection
Mechanical shock:	1m drop test no damage to function Random SAE J1211, chassis, exterior
Mechanical vibration:	Random SAE J1211, chassis, exterior

Certifications

Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups E, F and G

ATEX II 2 G Ex db IIB + H2 T6 Gb or II 2 D tb IIIC T85°C Db

IECEx Certified

Performance Data

Model	Torque range (Nm)	(lbf.in)	Speed range (time to open in sec)	Speed range (time to close in sec)
RDM (internal valves)	15.8	140	4	2
RDM (ball valves	4.5	40	4	2

Use signal-off instead of power-off whenever possible.
Actuators for both fail-close and fail-open applications are available.

Failsafe quarter-turn and multi-turn actuators

Fail-safe Position

Modulating actuator: Fail-safe position for loss of signal and loss of power is set using DIP switches on the PCB. To set the position for loss of signal, change the analogue input signal to the desired value. When the actuator has reached its final position, switch DIP 9 ON. When the signal is lost, the actuator will return to this same position. To re-set fail-safe position, switch DIP 9 OFF and repeat above procedure.

In the case of loss of power, the actuator can only go to the fully open or fully closed positions. This is selected via DIP switch 3, ON = OPEN and OFF = CLOSED.

Discrete position actuator: When power is lost, actuator will move to its default, "centre" position. Typically the valve will be installed so as to make this the fully closed position. Other positions are available.

Using the Actuator

Actuator is to remain powered at all times. If actuator is left unpowered, the battery will degrade over time. The battery backup is intended for emergency use only. The actuator should not be used with the intention of employing the battery backup.

Battery Properties

Voltage required:	24 to 28 VDC
Fail-safe duration:	60 seconds of continuous use
Recharge time:	2 hours
Battery type:	Lithium polymer
Lifetime:	250 uses at room temperature. If used at 45 °C (113 °F), the capacity is cut in half
Maintenance:	Battery functionality should be tested every 2 months

Note: Battery backup option is not compatible with some actuator optional extras. Please contact Rotork for details.

Certifications

RCx and RDx Models:

Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups E, F and G

ATEX II 2 G Ex db IIB + H2 T6 Gb or II 2 D tb IIIC T85°C Db

IECEx Certified

Performance Data

Torque and speed

Model	Torque range		Speed range
	Nm	(lbf.in)	
MCx Multi-turn models			**(1 turn in sec)**
MCL	1 to 5	12 to 48	1 to 7
MCM	4 to 16	35 to 145	4 to 23
MCF	26 to 103	230 to 915	38 to 186
MDx ¼ and ½ turn models			**(¼ turn in sec)**
MDL	7 to 9	63 to 83	0.5 to 1
MDM	24 to 28	212 to 247	1 to 3
MDF	80 to 119	710 to 1050	5 to 15
RCx Multi-turn models			**(1 turn in sec)**
RCL	1 to 5	12 to 48	1 to 7
RCM	4 to 16	35 to 145	4 to 23
RCH	14 to 56	120 to 497	18 to 90
RCF	26 to 103	230 to 915	38 to 186
RDx ¼ and ½ turn models			**(¼ turn in sec)**
RDL	7 to 9	63 to 83	0.5 to 1
RDM	24 to 27	212 to 247	1 to 3
RDH	49 to 60	430 to 532	3 to 9
RDF	80 to 119	710 to 1050	5 to 15

Linear valve adaption for M and R range

Specifications

Enclosure:

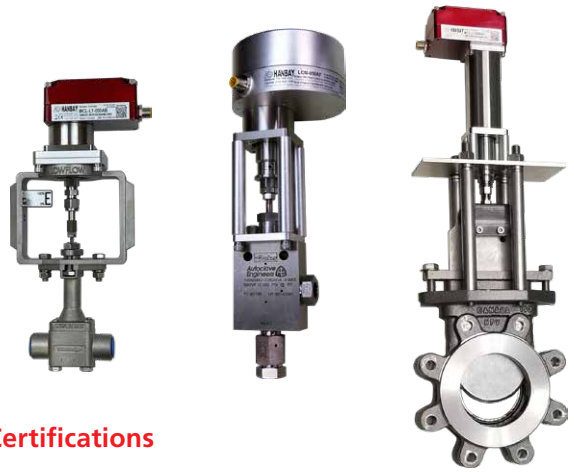
Mxx-L model:	IP66 Aluminium die cast E-coating, stainless
Rxx-L Model:	IP66/67 Aluminium die cast anodised, stainless. IP68 on North American certified units
Temperature range:	0 to +65 °C (+32 to +149 °F) internal (derate duty cycle at high temp.)
Ext. temp. range:	-40 to +60 °C (-40 to +140 °F) (with heater option)
Stall protection:	Electronic position and motion detection
Feedback:	TTL, 4-20 mA, Modbus
Gears and bearings:	Metal and bronze, oiled/greased for life
External fasteners:	Stainless Steel
Life expectance:	250,000 cycles in specified conditions
Motor:	Brushless DC motor, computer control
Voltages/current:	12-24 VDC / Max 3 A @ 24 VDC 110-240 VAC / Max 1.5 A @ 110/220 VAC
Positioning precision:	0.025 mm (+/– 0.001'')
Positioning resolution:	0.0013 mm (+/– 0.00005'')
Range/speed setting:	Dip switches inside enclosure
Control options:	Analog (4-20 mA, 1-5 V, 1-10 V), Modbus, TTL (on/off)
End travel detection:	For needle valve, by motion detection
Power setting:	Adjustable
Mechanical shock:	Repeated ≤ 130 g – force no effect, occasional ≤ 150 g – force no effect > 150 g – force not tolerated
Mechanical vibration:	Random SAE J1211, Chassis, Exterior
Thermal shock:	-20 to +70 °C (-4 to +158 °F) 10 min
Failsafe battery:	LiPo rechargeable battery, will position the actuator to predetermined desired position (Rxx Range only)
Weight:	Mxx-L: 1300 g, Rxx-L: 1600 g (weight of linear assembly included)

Isolated signals [AI and AF models only]:
Optical isolation 1,000 V min

Feedback 4-20 mA [AF model only]: For sensing resistor of max. 250 Ω. Floats +6 VDC / -2 VDC from power Gnd

Position power loss: Standard: "remembers" position before shut down, will reseat valve based on torque setting when the signal is between 3 and 4 mA

Stroke length: Regular 1'' (25.4 mm)
Extended: 2" (60 mm) or 4" (120 mm)



Certifications

RCx and RDx Models:

Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups E, F and G

ATEX II 2 G Ex db IIB + H2 T6 Gb or II 2 D tb IIIC T85°C Db

IECEx Certified

Performance Data

Linear models

Size xCJ

Model	Max Stroke	Seating force range (N)	Seating force range (lbf)	Running force (N)	Running force (lbf)	Speed range (time for 1 inch)
xCJ - L1 (16)	1"	22 to 205	5 to 46	258	58	26 to 120
xCJ - L2 (8)	1"	53 to 267	12 to 60	298	67	13 to 64
xCJ - L3 (16)	2"	22 to 205	5 to 46	258	58	26 to 120
xCJ - L4 (8)	2"	53 to 267	12 to 60	298	67	13 to 64
xCJ - L5 (16)	4"	22 to 205	5 to 46	258	58	26 to 120
xCJ - L6 (8)	4"	53 to 267	12 to 60	298	67	13 to 64

Size xCL

Model	Max Stroke	Seating force range (N)	Seating force range (lbf)	Running force (N)	Running force (lbf)	Speed range (time for 1 inch)
xCL - L1 (16)	1"	58 to 614	13 to 138	778	175	26 to 120
xCL - L2 (8)	1"	165 to 801	36 to 180	890	200	13 to 64
xCL - L3 (16)	2"	58 to 614	13 to 138	778	175	26 to 120
xCL - L4 (8)	2"	165 to 801	36 to 180	890	200	13 to 64
xCL - L5 (16)	4"	58 to 614	13 to 138	778	175	26 to 120
xCL - L6 (8)	4"	165 to 801	36 to 180	890	200	13 to 64

Size xCM

Model	Max Stroke	Seating force range (N)	Seating force range (lbf)	Running force (N)	Running force (lbf)	Speed range (time for 1 inch)
xCM - L1 (16)	1"	156 to 1779	35 to 400	2300	517	78 to 360
xCM - L2 (8)	1"	489 to 2380	110 to 535	2669	600	40 to 189
xCM - L3 (16)	2"	156 to 1779	35 to 400	2300	517	78 to 360
xCM - L4 (8)	2"	489 to 2380	110 to 535	2669	600	40 to 189
xCM - L5 (16)	4"	156 to 1779	35 to 400	2300	517	78 to 360
xCM - L6 (8)	4"	489 to 2380	110 to 535	2669	600	40 to 189

* De-rate the duty cycle to 25% for the highest Thrust Values
Note: Speed and torque depend on settings by the dip switch of the actuator.
Consult user manuals of individual units. Actuators are set for optimum speed..

Electric actuators

Specifications

Enclosure:

Mxx-L model:	IP66 Aluminium die cast E-coating, stainless
Rxx-L Model:	IP66/67 Aluminium die cast anodised, stainless. IP68 on North American certified units
Temperature range:	0 to +65 °C (+32 to +149 °F) internal (derate duty cycle at high temp.)
Ext. temp. range:	-40 to +60 °C (-40 to +140 °F) (option heater)
Stall protection:	Electronic position and motion detection
Feedback:	TTL, 4-20 mA
Gears and bearings:	Metal and bronze, oiled/greased for life
Life expectance:	250,000 cycles in specified conditions
Motor:	Brushless DC motor, computer control
Voltages/current:	12-24 VDC / Max 3 A @ 24 VDC 110/220 VAC / Max 1.5A @ 110/220 VAC
Control options:	Analog (4-20 mA, 1-5 V, 1-10 V), Modbus, TTL (on/off)

Performance

Torque: Up to 60 Nm (532 lbf.in)

Certifications

RCx and RDx Models:

Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups E, F and G

ATEX II 2 G Ex db IIB + H2 T6 Gb or II 2 D tb IIIC T85°C Db

IECEx Certified

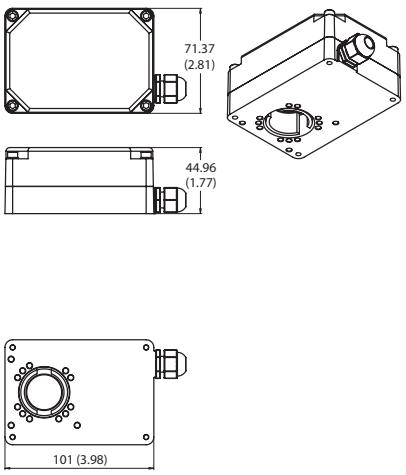
Applications

Industrial and commercial	Potable water filtration, cooling tower water control, building systems, fire suppression and irrigation control.
Municipal water treatment	Drinking water, residential water treament and wastewater treatment
High and low viscuous fluids	Oil, gas, air, hydrocarbon, lubrication, petroleum, slurry, powder product and more.

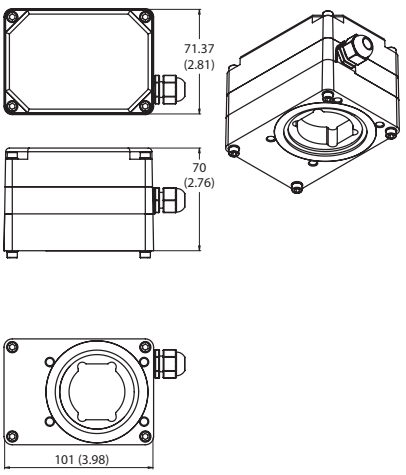
Dimensional Data

M Range

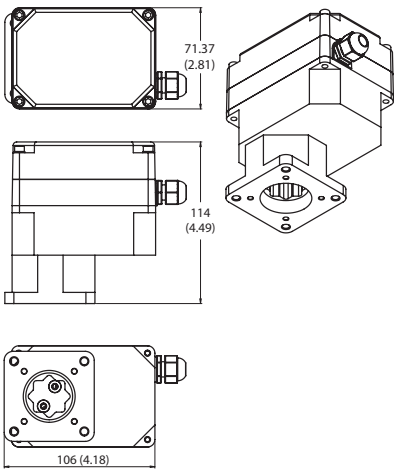
MxJ / MxL / MxM



MxH

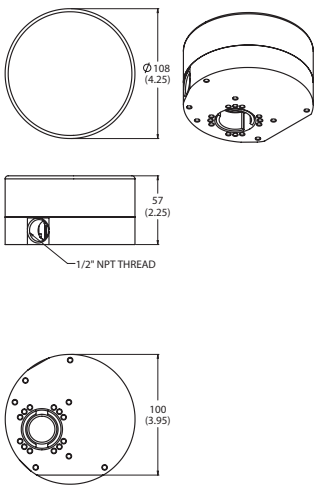


MxF

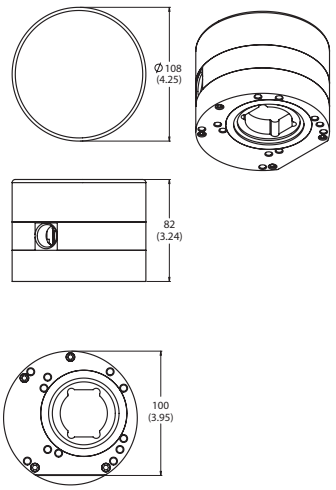


R Range

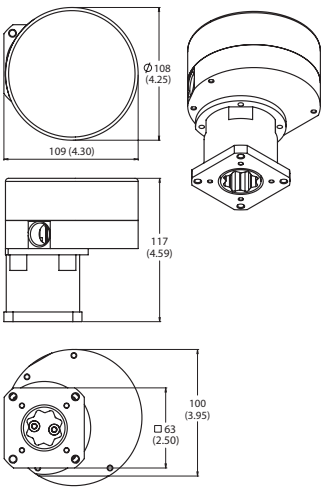
RxJ / RxL / RxM



RxH

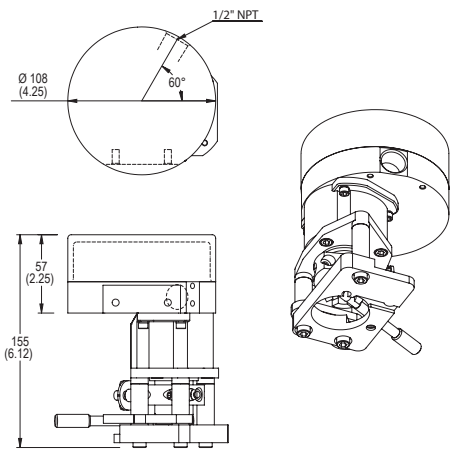


RxF

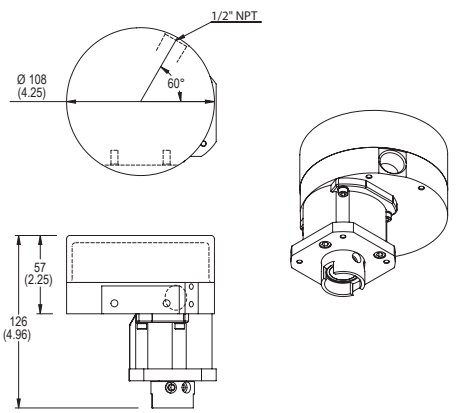


R Range Spring-return

RDM w. internal / ESV



RDM w. ball valve

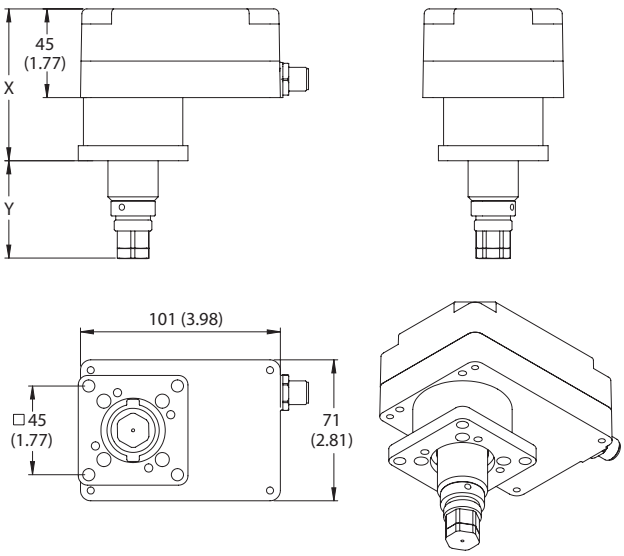


Dimensions in mm (inches)

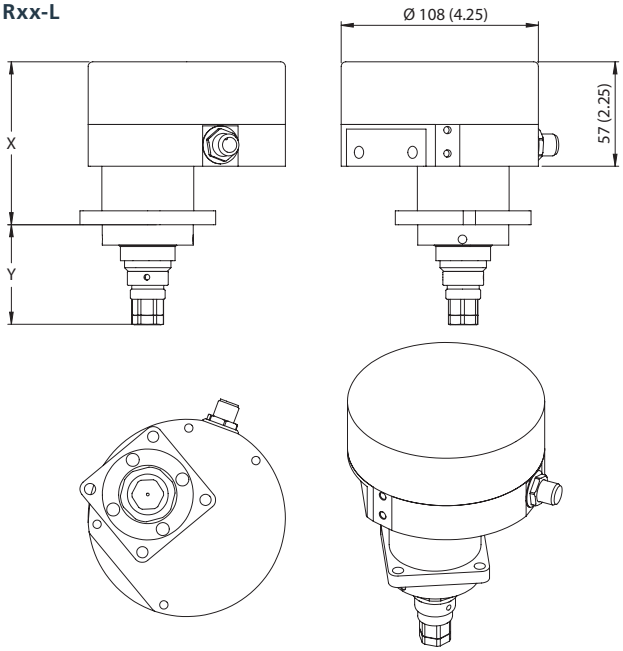
Dimensional Data

L Range

Mxx-L



Rxx-L

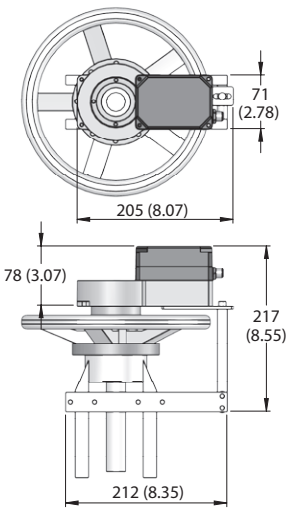


M Range		
Actuator	X mm (in)	Y mm (in)
L1 / L2	77 (3.03)	49 (1.94)
L3 / L4	115 (4.53)	80 (3.15)
L5 / L6	166 (6.53)	130.5 (5.14)

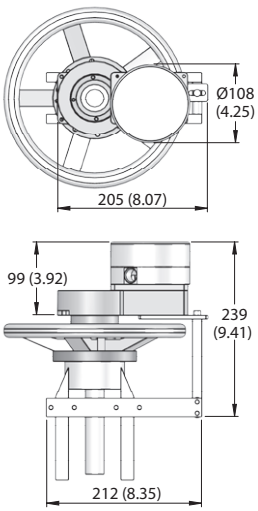
R Range		
Actuator	X mm (in)	Y mm (in)
L1 / L2	89 (3.51)	55 (2.15)
L3 / L4	127.5 (5.0)	80 (3.15)
L5 / L6	178 (7.0)	130.5 (5.14)

Gate Valve

Mxx



Rxx



Dimensions in mm (inches)

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PUB193-027-00
Issue 09/25