



VALVES & ACTUATORS



RuB, Inc.

ACTUATION CATALOG



RuB, Inc. is the North American headquarter for **RuB** brass shut-off valves and actuators.

Our new facility, built in 2014 in **Shakopee**, MN, features a 50,000 sq. ft. warehouse with 5-tier racking and state of the art wireless inventory management system controlled by an **SAP ERP system**.

All brass ball valves are 100% manufactured in Italy at our plant in Brescia. We are a family owned company that has been expanding its global presence and high-quality reputation as a premier ball valve manufacturer for more than 65 years exceeding customer expectations in quality, service and reliability.

Our manufacturing operation is highly automated and every product is tested according to the most rigorous standards, such as our 100% 24-hour dual seal test, and then shipped to **RuB, Inc.** in Shakopee, MN, USA, to serve the **North American markets**.

We offer forged brass ball valves from **1/8" to 4"** in both **standard** and **custom** configurations for Oil, Water, Gas, and Industrial applications. We also stock stainless steel ball valves up to 8" and a complete electric and pneumatic actuation line for all of our actuatable brass and **stainless-steel products**.

All standard **RuB** branded Italian made brass ball valves have a limited lifetime warranty from defects in material and workmanship. For other products, we offer a 2-year limited warranty.

For more information about our complete product offering, certifications, warranties and technical documents, please visit our website at: www.rubinc.com.





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Index

- **RuB, Inc.** History.....5
- Quality.....9
- Actuators.....
 - Compact Power.....11
 - C-Tork Electric Actuator - Compact lightweight electric actuator.....12
 - CH Electric Actuator - High torque electric actuator.....24
 - E-Tork Electric Actuator.....30
 - EA Pneumatic Actuator.....33
- Valves.....
 - s.31 NPT Mini Valve.....38
 - s.6439 NPT.....40
 - s.6439 LT NPT.....42
 - s.6441 NPT.....44
 - s.6541 NPT.....46
 - s.95 NPT.....48
 - Puri-T 264 NPT.....50
 - s.7341 NPT 3-way 4 seats T-port.....52
 - s.7641 NPT 3-way 2 seats L-port (diverting).....54
 - s.134 NPT stainless steel.....56
 - s.135 stainless steel.....58
 - s.136 stainless steel.....60

RuB, Inc. History

1993: **RuB** products enter full force into the North American market with a local warehouse in Massachusetts to support major nationwide distributors to the industrial and commercial plumbing markets.

1994: **RuB, Inc.** is incorporated as a wholly owned subsidiary in the State of Minnesota setting in place our long-term strategy for **RuB** valve business in North America.

1997: **RuB** shifts from using sales agents to hiring direct **RuB, Inc.** employees.

2000: **RuB, Inc.** begins sales into Canada.

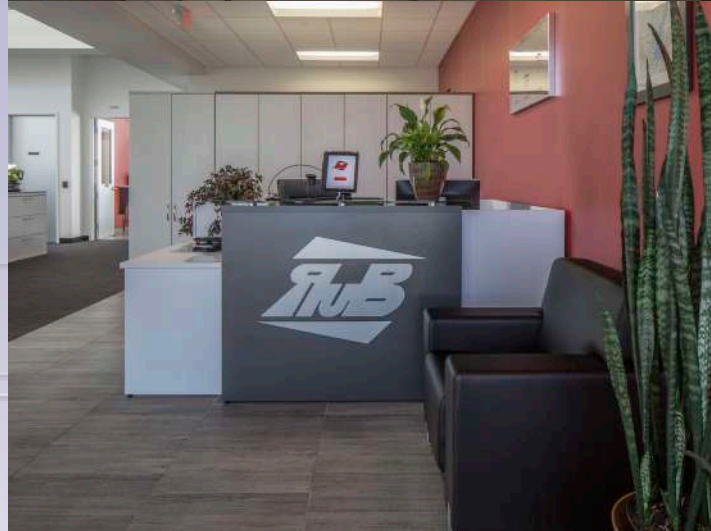
2006: **RuB, Inc.** continues to expand its work force including Regional Managers and independent sales rep organizations to lead the sales efforts. The inventory in Massachusetts is transferred to a 17,000-ft² 5 tier racking warehouse in Shakopee, MN, and consigned stock warehouses are established in California and Toronto, Canada.

2008: Pneumatic actuation and stainless-steel ball valves are added to the product offering.

2014: **RuB, Inc.** builds a new 50,000-ft² office/warehouse in Shakopee, MN, USA, and continues expanding the stainless-steel ball valve offering.

2015: Official Grand Opening of **RuB, Inc.** North American Headquarters in Shakopee, MN, USA.

2019: **RuB, Inc.** Quality Management System is certified by LRQA to the standards ISO 9001:2015.



RuB Inc. TERMS & CONDITIONS OF SALES

PAYMENT TERMS

Net 30 days (subject to approval) from invoice date by wire or ACH; checks accepted in some cases. A 1½ % service charge per month will be added to any A/R paid beyond stated term.

FREIGHT POLICY

PPD shipment dependent on total net dollar value of invoice and Freight Zone from **RuB** Inc. shipping point. All other orders are EXW **RuB** Inc. Service Warehouse. Contact your **RuB** Inc. representative for details. PPD shipment based on single destination. **RuB** Inc. will ship best way unless of specific agreement with customer at time of order concerning timing, special routing instructions, or specific carrier.

ORDER ACCEPTANCE

All orders are subject to acceptance by **RuB** Inc. List prices, terms and conditions of sale, and products are subject to change without notice. Any item may be modified or discontinued without notice. Minimum acceptable net order value is \$250. All orders should be sent to purchaseorder@rubinc.com.

ORDER QUANTITIES

Unless otherwise agreed in writing by **RuB** Inc., orders must be in multiples of full box quantities as published in the price book. Orders for "broken" box quantities will be invoiced with a non-refundable "broken box" service fee of US \$30.00 per line item.

ORDER CANCELLATION

Order cancellations or modifications must reach **RuB** Inc. in writing and become valid only if acknowledged in writing by **RuB** Inc. If an order has been placed and staged for delivery, customer must pay 15% restocking fee.

SHORTAGES OR VARIANCE

Claims of shortage or variance due to mis-shipment or damage en route must be reported in writing to **RuB** Inc. within 5 working days of delivery/receipt of goods. Broken/damaged packages shall be notified in writing immediately to courier's driver and documented with pictures sent to **RuB** Inc. along with claim.

RETURNED GOODS

Customer may return material for reasons other than material defect within 6 months of purchase order date. **RuB** Inc will issue a Return Material Authorization only for goods in marketable condition and in original packaging. Customer will be credited, against future orders, value of returned material less 15% restocking fee, and any applicable freight charges.

PERFORMANCE GUARANTEE

RuB Inc. guarantees to the original purchaser that its original non-modified products will perform at rated capacity as stated in **RuB**'s catalog only when

(1) properly applied, installed, serviced, and used in accordance with **RuB** Inc. Installation, Maintenance and Operating Instructions or, if no such instructions are available, prevailing industry standards, as revised from time to time, and

(2) used in environments as specified or as limited by the Installation, Maintenance and Operating Instructions or the **RuB** catalog.

If **RuB** Inc. products are part of a greater system, **RuB** Inc. accepts responsibility only for the products manufactured by it. **RuB** INC. PRODUCTS MUST BE APPLIED, INSTALLED, SERVICED, AND USED IN ACCORDANCE WITH **RuB** INC. INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS OR, IF NO SUCH INSTRUCTIONS ARE AVAILABLE, PREVAILING INDUSTRY STANDARDS, as revised from time to time. Failure of the purchaser to apply, install, service and use **RuB** Inc. products in accordance with relevant instructions or prevailing industry standards, as applicable, will void this performance guarantee.

THE FOREGOING WARRANTY IS EXCLUSIVE AND EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON ITS PART, AND IT NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF **RuB** INC. PRODUCTS.

The foregoing warranty is void if the customer fails to apply, install, service and use **RuB** Inc. products in accordance with relevant instructions or prevailing industry standards, as applicable, or if any modification is made to the warranted products by or for the customer subsequent the dispatch of the products from **RuB**. The customer indemnifies and holds **RuB** Inc. harmless from all claims or causes of action arising from any and all customer modifications, even though groundless, as well as from any damage suffered by **RuB** Inc. arising in whole or in part from such modification. If customer modifies and resells **RuB** Inc. products, customer agrees to inform end-user that **RuB** Inc. makes no express or implied warranties regarding such modification(s). The foregoing warranty is also void in the event that product failure results from acts or omissions of persons other than **RuB** Inc., or from accident or abuse, misuse or misapplication of the products.

Most **RuB** Inc. products are covered by a LIMITED LIFE-TIME WARRANTY to be free of defects in materials and workmanship, with exception of a few products covered for a period of five (5) or two (2) years after date of manufacture. Please refer to the specific product and specific certificate of warranty to see which warranty applies and relevant details and conditions of such warranty.

DISCLAIMER

Except as expressly set forth herein, **RuB** Inc. makes no representation and extends no warranties of any kind, either express or implied, including any warranties of quality, merchantability, title, or fitness for any particular purpose, whether alleged to arise by law, by reason of custom or usage in the trade, or by course of dealing.

LIMITATIONS OF LIABILITY

In no event shall **RuB** Inc., or its affiliates, officers, directors, employees, agents or attorneys, be liable for any CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR SPECIAL DAMAGES ARISING OUT OF OR CONNECTED WITH THE PURCHASE OF **RuB** INC. PRODUCTS regardless of liability, breach of warranties, failure of essential purpose or otherwise, even if advised of the possibility of such damages.

AGREEMENT OF SALE

No agreement of sale shall be in effect until **RuB** Inc. forwards to the customer an invoice detailing the customer's purchase of **RuB** Inc. products. Any agreement of sale hereunder shall be deemed to take place in the State of Minnesota (**RuB** Inc. headquarters) and shall be subject to the terms and conditions of sales set forth herein. These terms and conditions shall supersede any and all terms and conditions of sale of any customer purchase order. In case of discrepancy between any term in this document and the quote, the latter shall prevail. Unless otherwise stated, any undated reference to a code or standard shall be interpreted as referring to the latest edition.

GOVERNING LAW

The terms and conditions of sale set forth herein shall be governed by, and construed and enforced in accordance with the laws of the State of Minnesota (without regard to conflicts of law principles for such state). Each customer, by entering into an agreement of sale hereunder, irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the State of Minnesota and of the United States of America, for any claim arising out of or relating in any manner (whether in contract, tort or otherwise) to such agreement of sale (and agrees not to commence any claim relating thereto except in such courts).

POTABLE WATER BRASS VALVES

For LOCALITIES that require "LEAD FREE" (0.25% or less Pb) brass valves for potable water applications, **RuB** Inc. offers specific models certified to NSF/ANSI 61-G and/ or NSF/ANSI 372. These products are identified as such on the handle. **RuB** Inc. PRODUCTS, WHICH ARE NOT IDENTIFIED AS COMPLIANT WITH ABOVE SPECIFICATIONS ARE NOT TO BE USED IN DRINKING WATER SYSTEMS. **RuB** Inc. cannot accept responsibility for mis-application of PRODUCTS TO DRINKING WATER SYSTEMS.

CALIFORNIA PROPOSITION 65

FOR BRASS VALVES SOLD IN CALIFORNIA: ⚠️ WARNING: Brass valves can expose you to chemicals including lead which are known to the state of California to cause cancer and birth defects or other reproductive harms. For more information: www.P65Warnings.ca.gov.

MAJOR FORCE

In no event shall **RuB** Inc. be responsible or liable for any failure or delay in performance of its obligation arising out of or caused, directly or indirectly, by circumstances beyond its reasonable control, including, without limitation: explosions, floods, fires, storms or earthquakes, epidemics, pandemics, war or threat of war, sabotage, insurrection, shortage of raw materials, refusal or impediment of any authority to issue any license or authorization for import and export, strikes or labor disputes, prohibitions and other events that in any way prevent **RuB** Inc. from purchasing or importing raw materials and / or components or the production, transport or export of the Products. In such cases, customer will have the possibility to cancel the open orders, if the cause of force majeure continues for a period of more than six months, without any other right to claim any compensations or damages.



Quality you can **Trust** proven through generations of experience



Approvals

	OSHA Compliant	
	Factory Mutual Research Corporation	
	Underwriter Laboratories Inc.	
	CSA International for Drinking Water to NSF/ANSI 61- NSF/ANSI 372	
	CSA - Canadian Standards Association	
	CRN-TSSA	
	Deutsche Vereinigung des Gas und Wasserfaches e.V. Technisch-wissenschaftlicher Verein	
	Deutsche Vereinigung des Gas und Wasserfaches	
	ARGB-KVBG	
	Schweizerischer Verein des Gas und Wasserfaches	
	Attestation de Conformité Sanitaire	
	Система сертификации ГОСТ Р Госстандарт России	
	Декларация соответствия	
	Water Regulations Advisory Scheme	
	British Standards Institution	
	Kiwa - Swedcert	
	The Australian Gas Association	
	KSFD -Kuwait Fire Service Directorate	
	LIA - L.P Gas Instruments Inspections Association	
Compliances		
	ROHS	
	Reach declaration	
	PED 2014/68/UE by ICIM (0425)	
	DCL021- Declaration of Conformity to 2012-19 - EU WEEE directive	
	DCL004 - Conflict Minerals	

Quality

We are very proud of our 100% made in Italy brass ball valves manufactured in our **ISO 9001:2015** certified Corporate Headquarters in Brescia, Italy. We implemented this rigorous quality management and assurance system since 1995 monitored by the **Lloyd's ISO 9001** certification process, helping us improve quality and reliability.

Besides Lloyd's and PED compliance, we offer a verified package of quality assurance based on testing services, state of the art technology and approvals released by main laboratories and quality agencies from all over the world such as:



For more information, please visit our website at <https://www.rubinc.com/approvals> to learn which approvals apply to specific valves and specific configurations.



COMPACT POWER

electric actuator



The CP series Electric actuator provide an output torque of 44 inch-pound and it's available in AC and DC voltage. They have a small footprint directly mounted on valves and they enable installation in confined spaces.

Technical features:

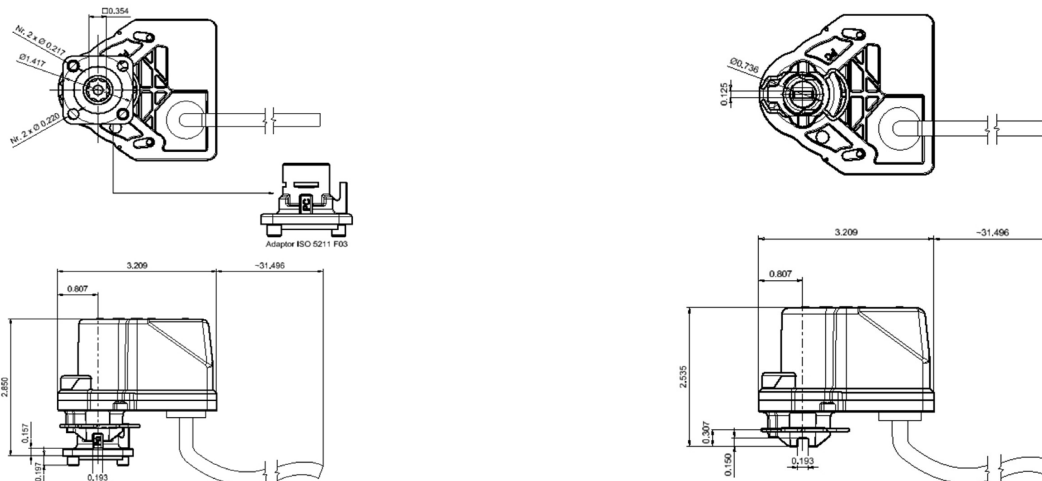
- Suitable for **RUB** actuatable valves up to 1 ¼" size (only for s.64 LT, s.65 and s.76 up to 1")
- Compact package to fit in restricted spaces
- Motor power consumption:
 - 4W for 24V DC, 6W for 230V AC
 - 8W for 24V AC and 110-120V AC
- Torque output up to 44 in-lb
- Operation time:
 - 5sec for 12 V DC, 24V DC
 - 15 sec for 24V AC, 110-120 V AC and 230 V AC at 60Hz
- Working temperature -4°F +180°F
- Protection class IP65 comparable to NEMA 4X
- Micro-switches for open-close signals
- Micro-switches can pass up to 1A
- Reversing motor
- Direct mount on valve for perfect shaft alignment
- Positive orientation between ball valve and actuator
- Actuator easily removable for manual operating
- Visual position indicator
- Corrosion resistant plastic housing
- Actuator has successfully passed 100,000 cycle life tests
- Duty cycle 60%

Options:

- Power supply:
 - 12 V DC, 24V DC
 - 110-120V AC 50/60Hz
 - 230V AC 50/60Hz
 - 24V AC 50/60Hz
- Adaptor F03 square 0.354 inch

Model	Torque (In/LB)	Seconds 90°	Power
CP5A2	44	15s	230V AC, 2 wires
CP5A3	44	15s	230V AC, 3 wires
CP5B2	44	15s	110V AC, 2 wires
CP5B3	44	15s	110V AC, 3 wires
CP5C2	44	15s	24 V AC, 2 wires
CP5C3	44	15s	24 V AC, 3 wires
CP5D2A	44	5s	24 V DC, 2 wires
CP5E2A	44	5s	12 V DC, 2 wires

Dimensions inches



C-Tork Actuator

Compact lightweight electric actuator

The CT electric actuators are designed to drive ball and butterfly valves with ISO5211 mounting pad, providing a quarter turn motion. In combination with **RUB** valves are used in wastewater treatment plants, power plants, refineries, mining processes, food factories and in the fluid automated control in HVAC.



The CT family provides the following output torques:

Model	Nominal Torque
CT1	70.8 lb-in (8 Nm)
CT2	97.3 lb-in (11 Nm)
CT3	194.7 lb-in (22 Nm)
CT4	354 lb-in (40 Nm)



Technical features & benefits:

- Direct ISO 5211 mount on valves.**
 Requires no separate linkage because the CT Series Actuators are ready for direct attachment to ISO5211 mounting pad.
- Compact package with perfect shaft alignment.**
 Smaller actuator footprint enables installation in confined spaces; direct mount on ball valves reduces the mounting space requirement.
- Several voltage ratings available.**
 Available with the most common power supplies around the globe.
- Fire retardant plastic with high IP ratings enclosure.**
 Provides a high degree of protection from dust, splashing water, rough handling and tough environments.
- Auxiliary Switches.**
 Provides line voltage capable switch up to 1 A Resistive.
- Special models available.**
 The CT family fits the customer needs extending the application coverage on request.

Key Codes:

CT	X	X	X	X	X	X		
							Option:	R = Anti-condensation Resistance
								FO = Failsafe Valve Open
								FC = Failsafe Valve Close
							Auxiliary Switches:	0 = No Micro
								1 = 1 Aux. Switch
								2 = 2 Aux. Switches
							Manual Override:	M = Manual Override
								N = No Manual
							Control Type:	A = 2 wires
								B = 3 wires
								C = 2 and 3 wires
								D = Prop. 0 - 10 Vdc
								E = Prop. 2 - 10 Vdc
								F = Prop. 0 - 20 mA
								G = Prop. 4 - 20 mA
							Power Supply:	A = 230Vac 50/60 Hz *
								B = 110Vac 50/60 Hz *
								C = 24Vac 50/60 Hz *
								D = 24Vdc
								E = 12Vdc
F = 24Vac/dc								
G = 48 - 240Vac								
H = 230Vac 60 Hz **								
I = 110Vac 60Hz **								
L = 24Vac 60Hz **								
Model:	CT1 = 70.8 lb-in (8Nm)							
	CT2 = 97.3 lb-in (11Nm)							
	CT3 = 194.7 lb-in (22Nm)							
	CT4 = 354 lb-in (40Nm)							

Note: * Not valid for CT4 (50 Hz only), ** Valid for CT4 only

Ask for additional information on the whole range of **RuB, Inc.** products and consult with your supplier for special applications.

CT1 - 70.8 lb-in (8 Nm)



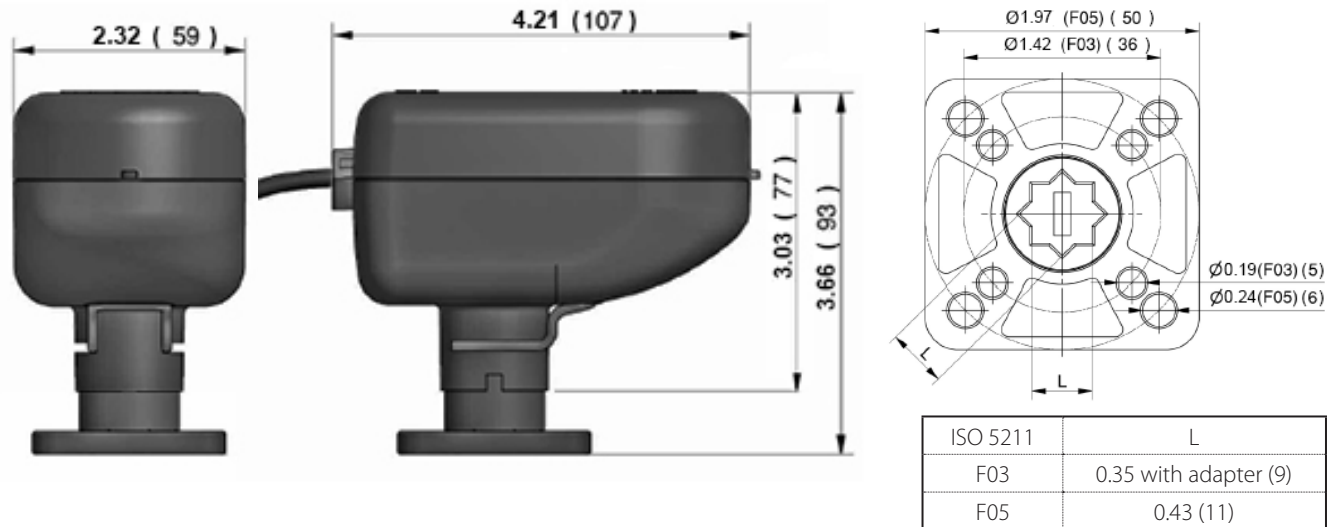
Ordering Codes

Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT1AAN1	230 Vac 50/60 Hz	2 wires	45 sec @ 50Hz 38 sec @ 60Hz	1 microswitch & 1 output phase
CT1BAN1	110 Vac 50/60 Hz	2 wires	45 sec @ 50Hz 38 sec @ 60Hz	
CT1CAN1	24 Vac 50/60 Hz	2 wires	45 sec @ 50Hz 38 sec @ 60Hz	
CT1ABN1	230 Vac 50/60 Hz	3 wires	35 sec @ 50Hz 30 sec @ 60Hz	
CT1BBN1	110 Vac 50/60 Hz	3 wires	35 sec @ 50Hz 30 sec @ 60Hz	
CT1CBN1	24 Vac 50/60 Hz	3 wires	35 sec @ 50Hz 30 sec @ 60Hz	
CT1DCN0	24V DC	2/3 wires	60 sec.	2 output phases
CT1FDN0	24V DC / AC ± 20% 50/60 Hz	Modulating 0-10Vdc	60 sec.	2 -10 Vdc

Optional models on request:

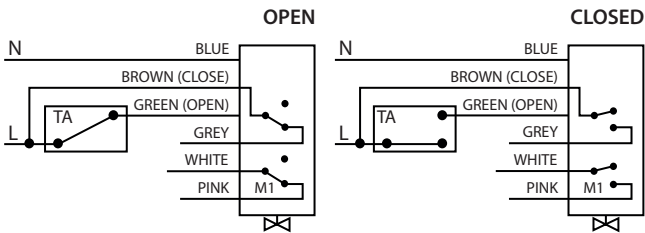
- 44.2 lb-in with 15 sec running time, Vac only
- Vdc 2/3 wires 30 sec running time
- 12 Vdc power supply, 2/3 wires 60 secs running time
- Different Input signal on modulating: 0(2)-10 Vdc, 0(4)-20 mA
- Modbus Communication
- On/Off 3 positions (0°, 45° and 90°)

Dimensions inches (mm)

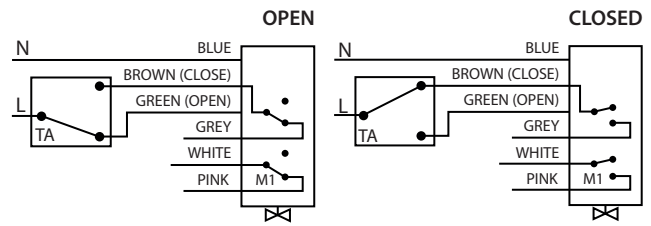


Wiring diagrams

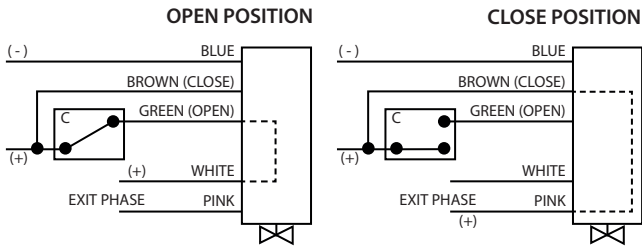
Vac models 2 wires control



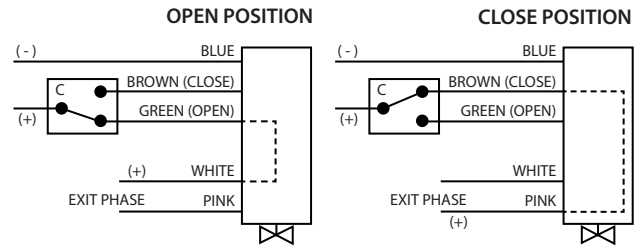
Vac models 3 wires control



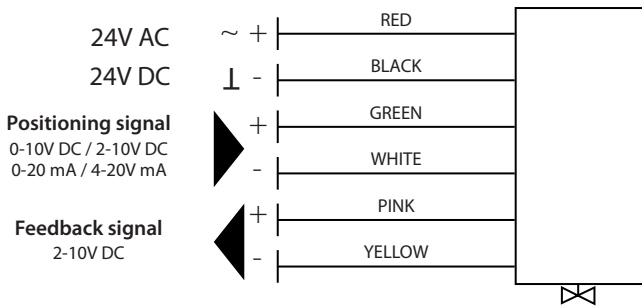
Vdc models 2 wires control



Vdc models 3 wires control



Proportional models



Technical specification

	2 wires Vac	3 wires Vac	2/3 wires Vdc	Modulating
Position indicator	Rotating arrow, indicating the position of the sphere			
Power supply	230 V - 50/60 Hz		24Vdc	24V DC / AC \pm 20% 50/60 Hz
	24 V - 50/60 Hz		12Vdc	
	110 V - 50/60 Hz			
Power cable length	31.5 inches (80 cm) (other sizes on request)			
Operating time (90°)	45 sec @ 50Hz	35 sec @ 50Hz	60 sec	60 sec
	38 sec @ 60Hz	30 sec @ 60Hz		
Absorbed power	3.9 VA		2 VA	3.5 W
Electrical capacity of the additional microswitch	1 A resistive - 250V		Not available	
Maximum noise (1 meter away)	40 dB (A)			
Operating ambient temperature	41°F to 122°F (+5 °C to +50°C)			
Degree of protection	IP 54 (Equivalent to NEMA3)			
Insulation class	II - double insulation □			
Outer shell material	Polyamide PA 6 - 30% glass fibers			
Certification	CE			

CT2 - 97.3 lb-in (11 Nm)



Ordering Codes

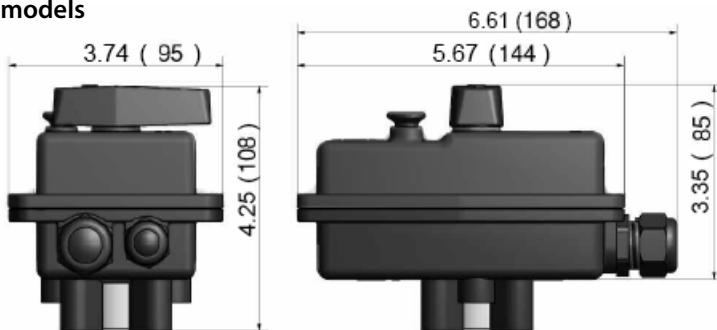
Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT2ACM2	230 Vac - 50/60 Hz	2/3 wires	35 sec @ 50Hz 30 sec @ 60Hz	2 x Free auxiliary switches
CT2BCM2	110 Vac - 50/60 Hz	2/3 wires	35 sec @ 50Hz 30 sec @ 60Hz	
CT2CCM2	24 Vac - 50/60 Hz	2/3 wires	35 sec @ 50Hz 30 sec @ 60Hz	
CT2DCN2	24V DC	2/3 wires	12 sec.	

Optional models on request:

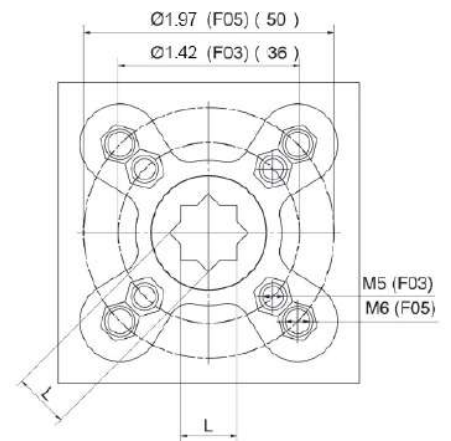
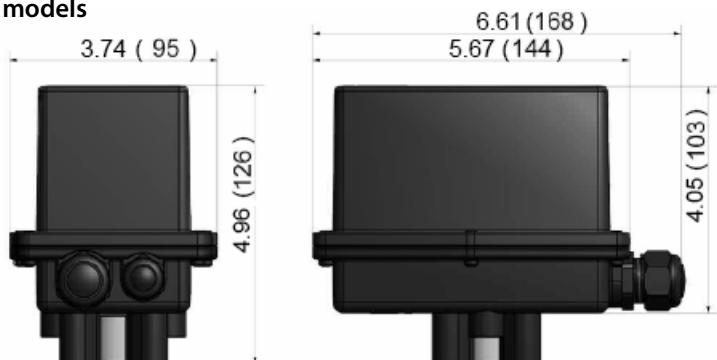
- 12 Vdc power supply
- Optional speed:
 - Vac only : 12 sec or 4 sec (44.2 lb-in)
 - Vdc only : 8 sec and 5 sec (97.3 lb-in);
3 sec (70.8 lb-in); 1 sec (44.2 lb-in)
- Proportional models: 0(2)-10 Vdc, 0(4)-20 mA, Modbus
- Electronic fail safe (see page 22)

Dimensions inches (mm)

Vac models



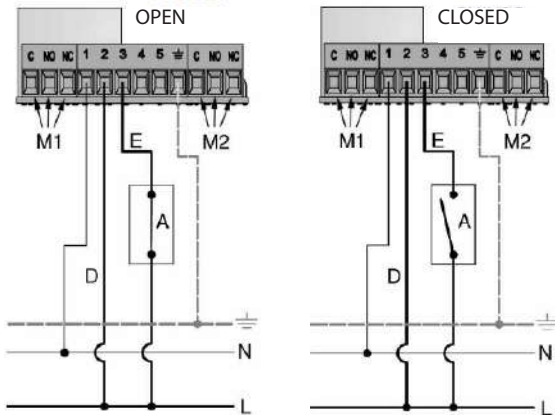
Vdc models



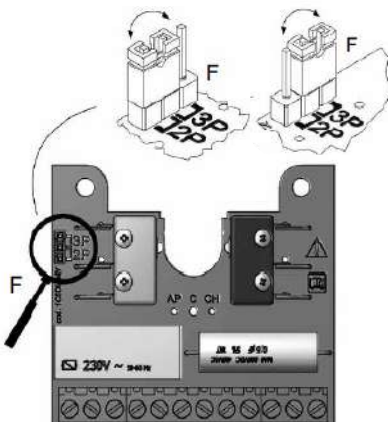
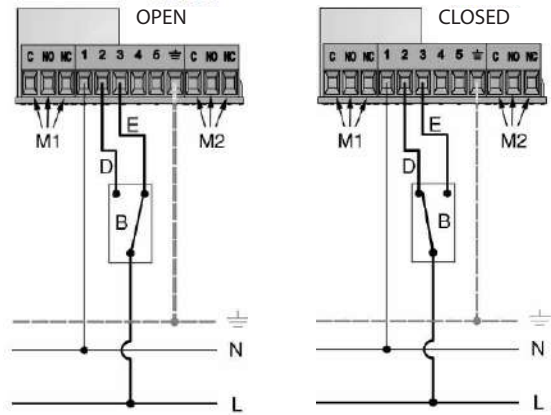
ISO 5211	L
F03	0.35 with adapter (9)
F05	0.43 (11)

Wiring diagrams

2 wires control



3 wires control

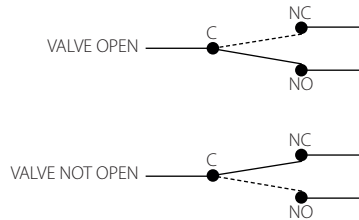


Vac models: Move the jumper to have the desired electrical connection.

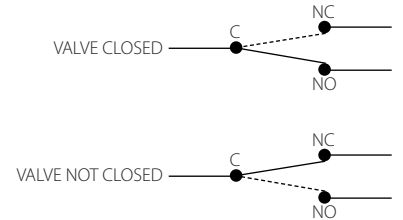
Vdc models: No jumper change is needed

Auxiliary switches

M1 (additional opening microswitch)



M2 (additional closing microswitch)



Technical specification

	ALL IN ONE - 2/3 wires Vac	ALL IN ONE - 2/3 wires Vdc
Position indicator and manual override	Manual lever with arrow indicating the position of the sphere	Not available
Power supply	230 V - 50/60 Hz	24Vdc
	110 V - 50/60 Hz	12Vdc
	24 V - 50/60 Hz	
Electric connections	Via terminal board inside the actuator	
Operating time (90°)	35 sec @ 50Hz 30 sec @ 60Hz	12 sec
Absorbed power	6 VA (230 V)	0.3A (24Vdc)
	6 VA (110 V)	
	7.5 VA (24 V)	0.5A (12 Vdc)
Maximum current supported by the additional microswitches	1 A resistive	Not available
Maximum noise (1 meter away)	35 dB (A) standard version	47 dB (A) standard version
Operating ambient temperature	14°F to 122°F (-10 °C to +50°C)	
Degree of protection	IP 67 (Equivalent to NEMA6)	
Outer casing	Characterized by a ribbed shape made of glass-filled "polyarylamide" technopolymer, particularly robust and impermeable to humidity	
Certification	CE	

CT3 - 194.7 lb-in (22 Nm)



Ordering Codes

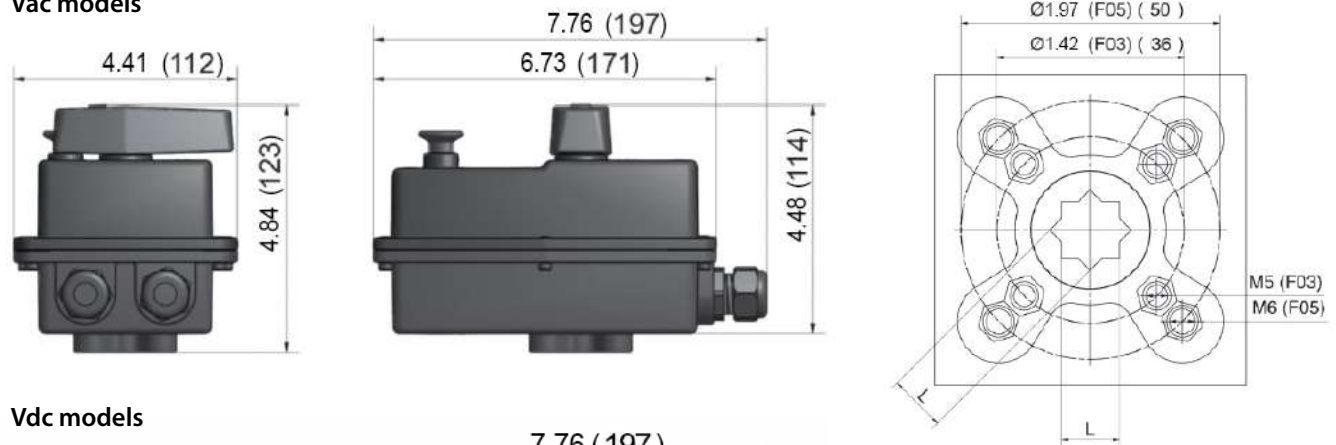
Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT3ACM2	230 Vac - 50/60 Hz	2/3 wires	45 sec @ 50Hz 38 sec @ 60Hz	2 x Free auxiliary switches
CT3BCM2	110 Vac - 50/60 Hz	2/3 wires	45 sec @ 50Hz 38 sec @ 60Hz	
CT3CCM2	24 Vac - 50/60 Hz	2/3 wires	45 sec @ 50Hz 38 sec @ 60Hz	
CT3DCN2	24V DC	2/3 wires	30 sec.	

Optional models on request:

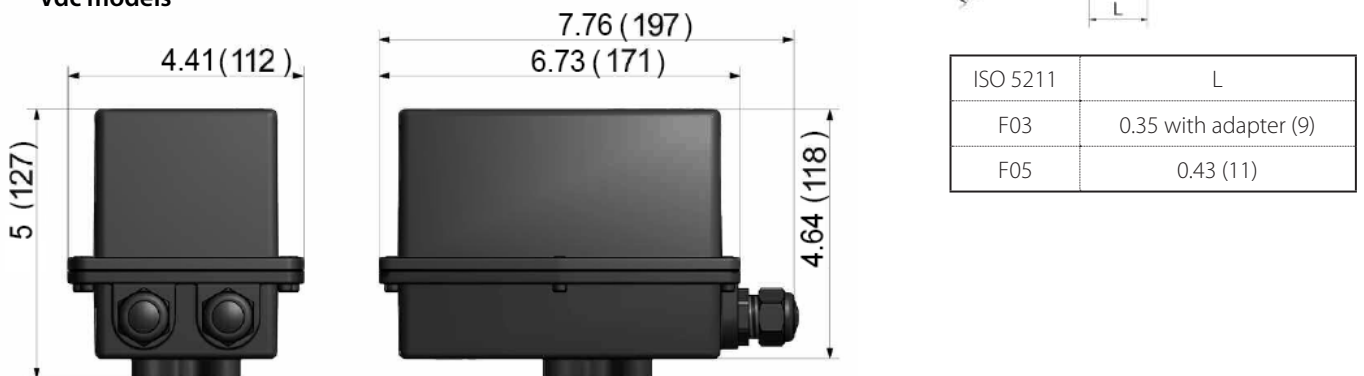
- 12 Vdc power supply
- Proportional models: 0(2)-10 Vdc, 0(4)-20 mA, Modbus
- Optional speed: - Vac only : 9 sec
- Electronic fail safe (see page 22)
- - Vdc only: 10 sec

Dimensions inches (mm)

Vac models



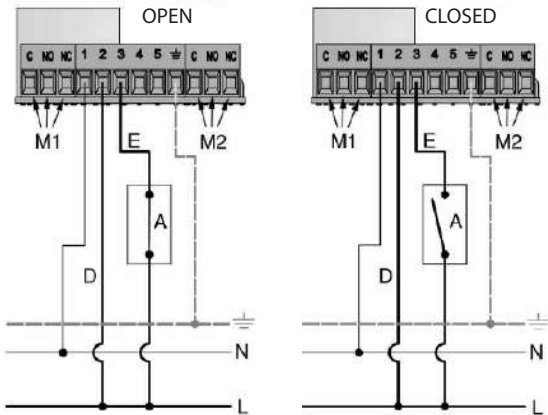
Vdc models



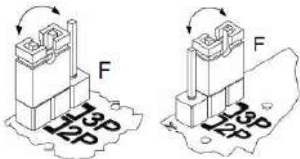
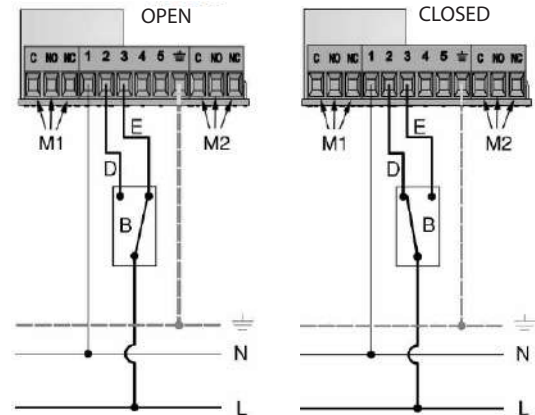
ISO 5211	L
F03	0.35 with adapter (9)
F05	0.43 (11)

Wiring diagrams

2 wires control



3 wires control

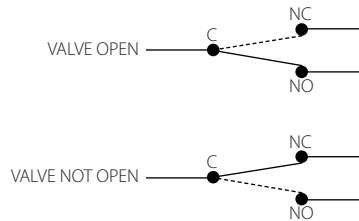


Vac models: Move the jumper to have the desired electrical connection.

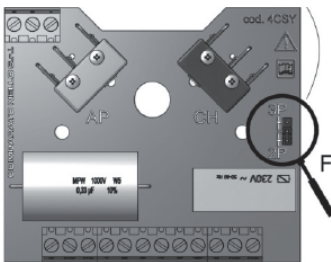
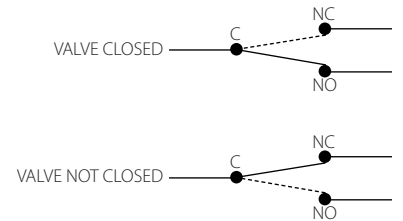
Vdc models: No jumper change is needed

Auxiliary switches

M1 (additional opening microswitch)



M2 (additional closing microswitch)



Technical specification

	ALL IN ONE - 2/3 wires Vac	ALL IN ONE - 2/3 wires Vdc
Position indicator and manual override	Manual lever with arrow indicating the position of the sphere	Not available
Power supply	230 V - 50/60 Hz	24Vdc
	110 V - 50/60 Hz	
	24 V - 50/60 Hz	12Vdc
Electric connections	Via terminal board inside the actuator	
Operating time (90°)	45 sec	30 sec
Absorbed power	5 VA (230 V)	0.25 A (24Vdc)
	5 VA (110 V)	
	6 VA (24 V)	0.4 A (12 Vdc)
Maximum current supported by the additional microswitches	1 A resistive	
Maximum noise (1 meter away)	42 dB (A) standard version	52 dB (A) standard version
Operating ambient temperature	14°F to 122°F (-10 °C to +50°C)	
Degree of protection	IP 67 (Equivalent to NEMA6)	
Outer casing	Characterized by a ribbed shape made of glass-filled "polyarylamide" technopolymer, particularly robust and impermeable to humidity	
Certification	CE	

CT4 - 354 lb-in (40 Nm)



Ordering Codes

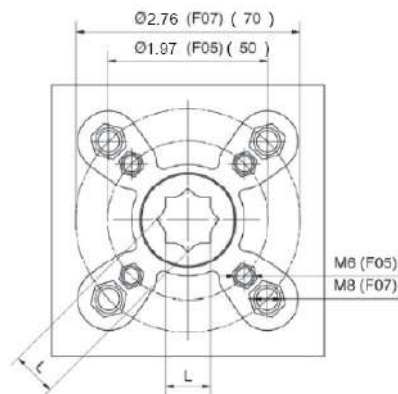
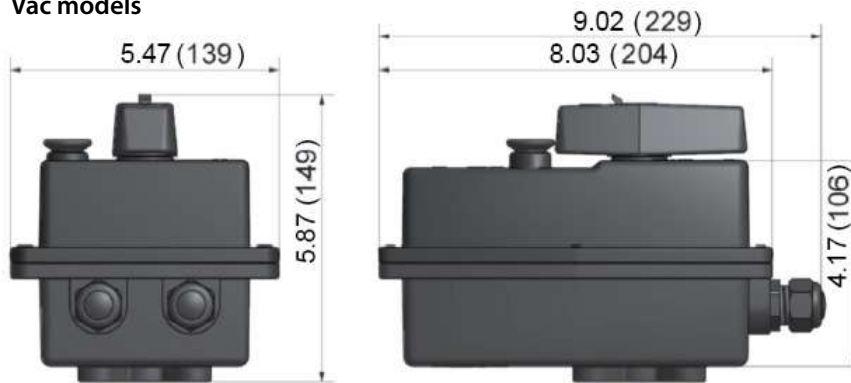
Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT4ACM2	230 Vac 50 Hz	2/3 wires	55 sec.	2 x Free auxiliary switches
CT4BCM2	110 Vac 50 Hz	2/3 wires	55 sec.	
CT4CCM2	24 Vac 50 Hz	2/3 wires	55 sec.	
CT4HCM2	230 Vac 60Hz	2/3 wires	45 sec.	
CT4ICM2	110 Vac 60Hz	2/3 wires	45 sec.	
CT4LCM2	24 Vac 60Hz	2/3 wires	45 sec.	

Optional models on request:

- 24Vdc and 12 Vdc power supply
- Optional speed: - Vac only : 14 sec and 32 sec
- Proportional models: 0(2)-10 Vdc, 0(4)-20 mA, Modbus
- Electronic fail safe (see page 22)

Dimensions inches (mm)

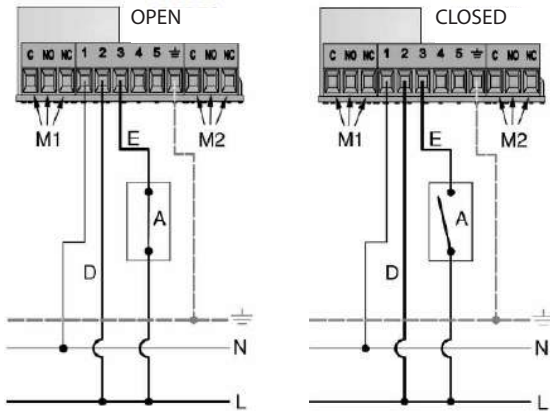
Vac models



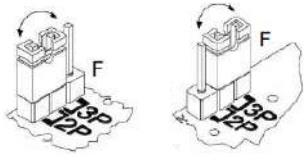
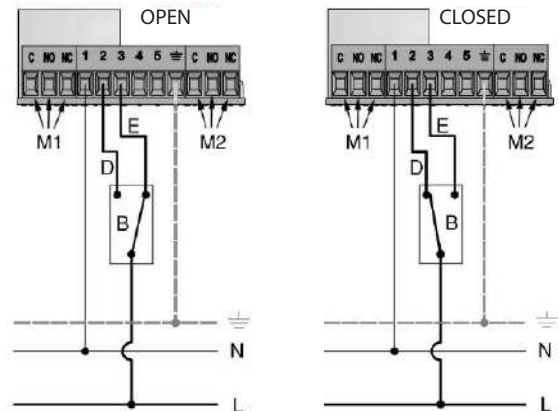
ISO 5211	L
F05	0.43 with adapter (11)
F07	0.55 (14)

Wiring diagrams

2 wires control



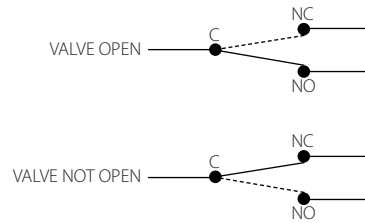
3 wires control



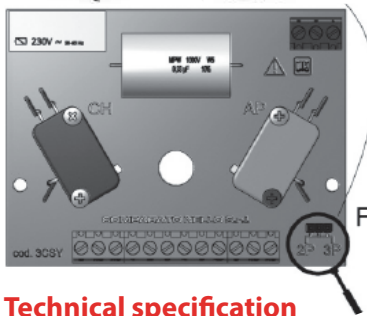
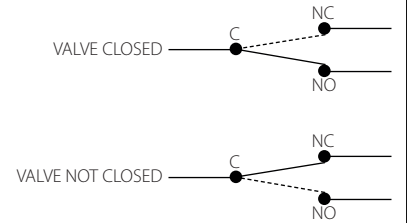
Vac models: Move the jumper to have the desired electrical connection.

Auxiliary switches

M1 (additional opening microswitch)



M2 (additional closing microswitch)



Technical specification

	ALL IN ONE - 2/3 wires
Position indicator and manual override	Manual lever with arrow indicating the position of the sphere
Power supply	230 V - 50 Hz
	110 V - 50 Hz
	24 V - 50 Hz
Electric connections	Via terminal board inside the actuator
Operating time (90°)	55 sec @ 50Hz
	45 sec @ 60 Hz
Maximum absorbed power (standard version 55sec)	13 VA (230 V)
	11 VA (110 V)
	12 VA (24 V)
Maximum current on the output phase at terminals 4 and 5	1 A resistive
Maximum current supported by the additional microswitches	1 A resistive
Maximum noise (1 meter away)	50 dB (A) standard version
Operating ambient temperature	14°F to 122°F (-10 °C to +50°C)
Degree of protection	IP 67 (Equivalent to NEMA6)
Outer casing	Characterized by a ribbed shape made of glass-filled "polyarylamide" technopolymer, particularly robust and impermeable to humidity
Certification	CE

Super capacitors electronic Fail Safe actuators

Using the SuperCaps technology the CT2, CT3 and CT4 actuators can store the necessary energy to drive open or close the valve in a safety position during an electrical power supply interruption. Fail safe open or close position in valves is crucial to prevent serious damages in critical applications such as coils freezing or steam exchangers overpressure. By default they are all provided with a 2-10 Vdc feedback, two auxiliary switches and 1m cable length.

Ordering Codes

Code	Torque (in/lb)	Power supply
CT2FCM2Fx	97.4	24Vdc - 24V 50/60 Hz
CT2GCM2Fx	97.4	100...240V 50/60 Hz
CT3FCM2Fx	194.7	24Vdc - 24V 50/60 Hz
CT3GCM2Fx	194.7	100...240V 50/60 Hz
CT4FCM2Fx	354	24Vdc - 24V 50/60 Hz
CT4GCM2Fx	354	100...240V 50/60 Hz

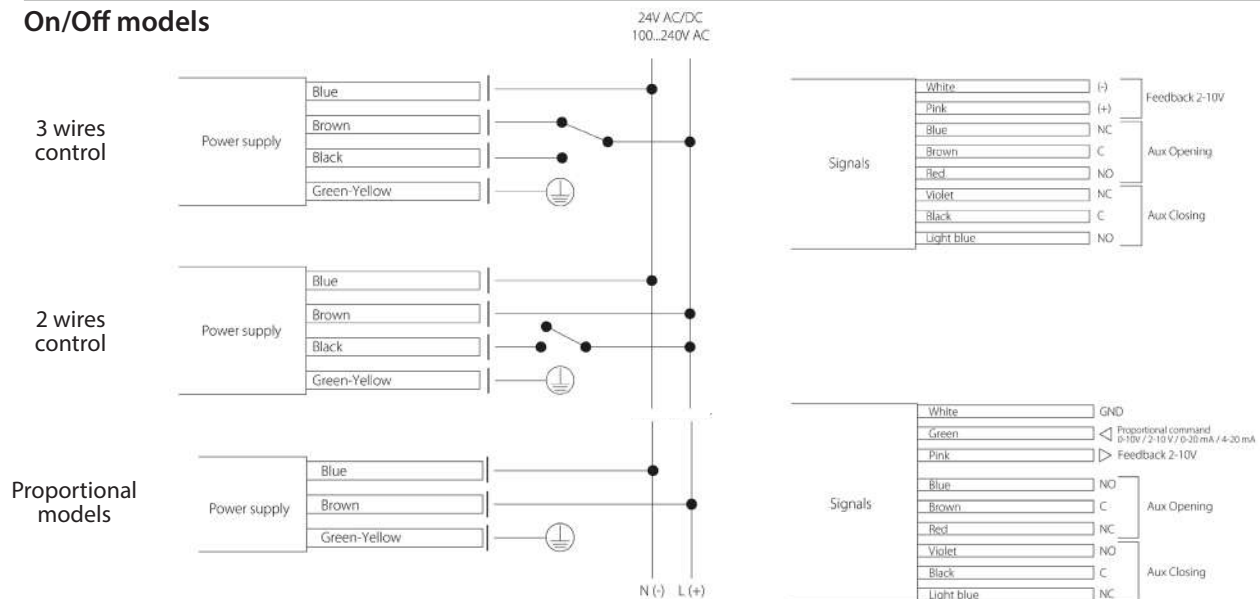
Note: X=O for Fail safe valve open; C for Fail Safe valve close X

Technical specification - Fail safe Models

	CT2	CT3	CT4
Available power supply	24Vdc - 24V 50/60 Hz - 100...240V 50/60Hz		
Max. Running power consumption	10W	25W	25W
Power supply cable	40 in. (1 m) length AWG20		
Signal cable	40 in. (1 m) length AWG24		
Auxiliary switches rating	max 30V DC - 0.1 A	max 30V DC - 0.1 A	max 30V DC - 0.1 A
Nominal Torque	97.3 lb-in	194.7 lb-in	354 lb-in
Available control type	On/off 2&3 wires - proportional		
Valve position feedback	2 -10V DC		
Manual Override	Manual lever with arrow indicating the position of the sphere		
Running Speed (90°)	30s		
Fail safe speed(90°)	20 s	26 s	30 s
Max Noise	45 dB (A)	60 dB (A)	65 dB (A)
Degree of protection	IP67		
SuperCaps recharging time	15 min (90°)	15 min (90°)	50 min (90°)
Operating ambient temperature	14°F to 122°F (-10°C to 50°C)		
Certification	CE		

Wiring diagrams

On/Off models





CH Actuator

High Torque electric actuator



The CH valve actuators are used on ball or butterfly valves. This quarter turn actuators are available from 443 lb-in to 3540 lb-in. As standard, this actuator offers an IP67 ABS housing, dome position indicator, end of travel limit switches, manual override and an internal heater. The new Series offers multi-voltage capability and failsafe functionality utilizing a super-capacitor back-up system.



The CH family provides the following output running torques:

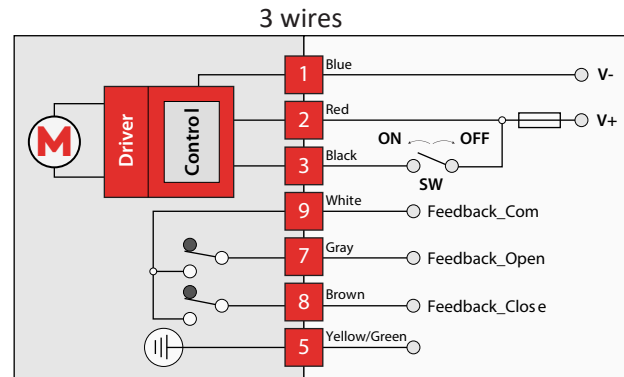
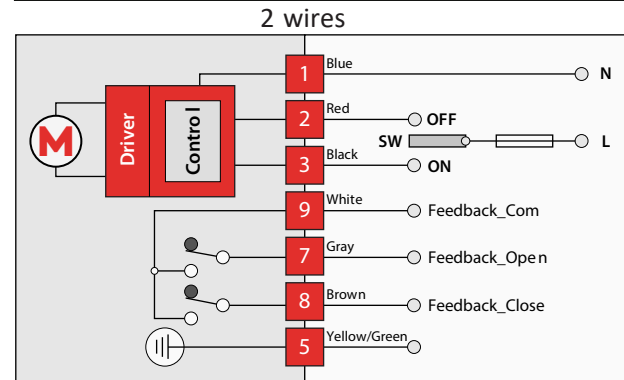
Model	Nominal Torque
CH1	443 lb-in (50 Nm)
CH2	708 lb-in (80 Nm)
CH3	974 lb-in (110 Nm)
CH4	1770 lb-in (200 Nm)
CH5	3540 lb-in (400 Nm)



Technical features & benefits:

- Multiple ISO 5211 mountings.**
 The CH Series Actuators are ready for direct attachment on valves providing two size ISO 5211 and an octagonal female drive output.
- Dome style local visual indicator.**
 A clearly visible indicator allows intuitive indication of the valve position.
- Hand operation.**
 by hexagonal wrench, supplied in clip under the actuator, it's possible to do open/close operation when no power is being applied.
- Fully weatherproof to IP67.**
 Enhances the range of application environments.
- End of travel confirmation switches.**
 Provides line voltage capable switch up to 1 A Resistive.
- Special models available.**
 The CH family fits the customer needs extending the application coverage on request.

Wiring diagrams - On/Off models



CH1 - 443 lb-in (50 Nm)

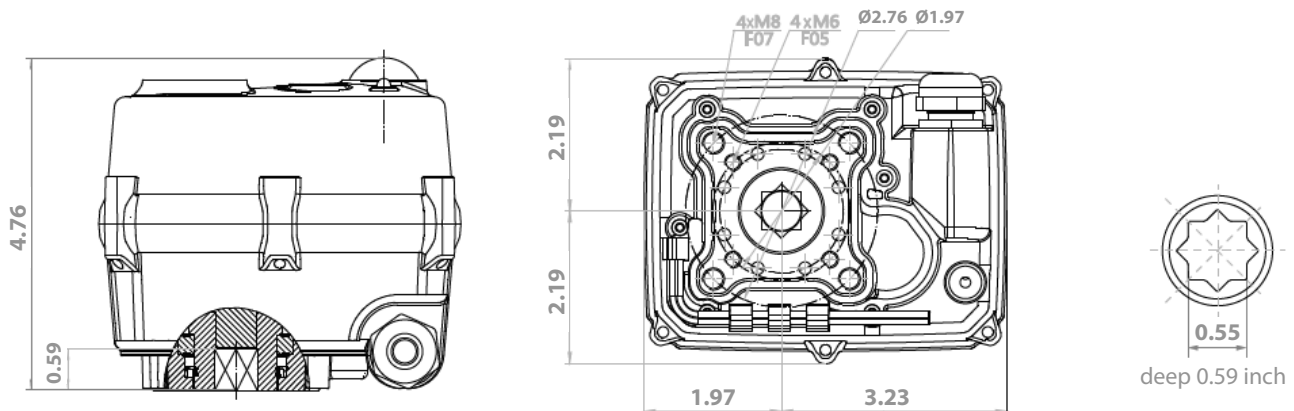


Technical specification

	ON-OFF ELECTRIC ACTUATOR		ON-OFF FAILSAFE ELECTRIC ACTUATOR	
Ordering code	CH1GCM2	CH1FCM2	CH1GCM2Fx*	CH1GCM2Fx*
Rated voltage	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)
Voltage range	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V
Consumption	25 W	25 W	40 W	40 W
Peak current	6.25 A	6.25 A	6.25 A	6.25 A
Fuse	2 A	4 A	4 A	4 A
Maximum break Torque lb-in	531.04 lb-in		531.04 lb-in	
Manual operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied.			
Run time	≈ 10 sec			
Operating frequency	Not continuous, allow ≥ 1 minute between cycles			
Position confirmation	Mechanically driven dome style visual 2 colour indicator			
Mounting restriction	Do not install underslung/upside down. Can install upright horizontally or vertically.			
End position indication	Micro-switches operated by adjustable internal cams , set slightly ahead of the final motor stop position.			
ISO 5211	F05 & F07			
Working angle	Factory set at $90^{\circ} \pm 2^{\circ}$, maximum angle of rotation 360° unless multi turn series.			
Female drive	0.55 inch x 0.59 inch deep			
Ingress protection	IP67			
Max media temperature	≤ 176° F			
Ambient temperature	-4° F to 140° F			
Non-operating temperature	-40° F to 176° F			
Ambient humidity	5-95% RH non-condensing			
Housing	Plastic (ABS) cover			

*Note: x = O Failsafe Valve Open; C Failsafe Valve Closed

Dimensions inches



CH2 - 708 lb-in (80 Nm)

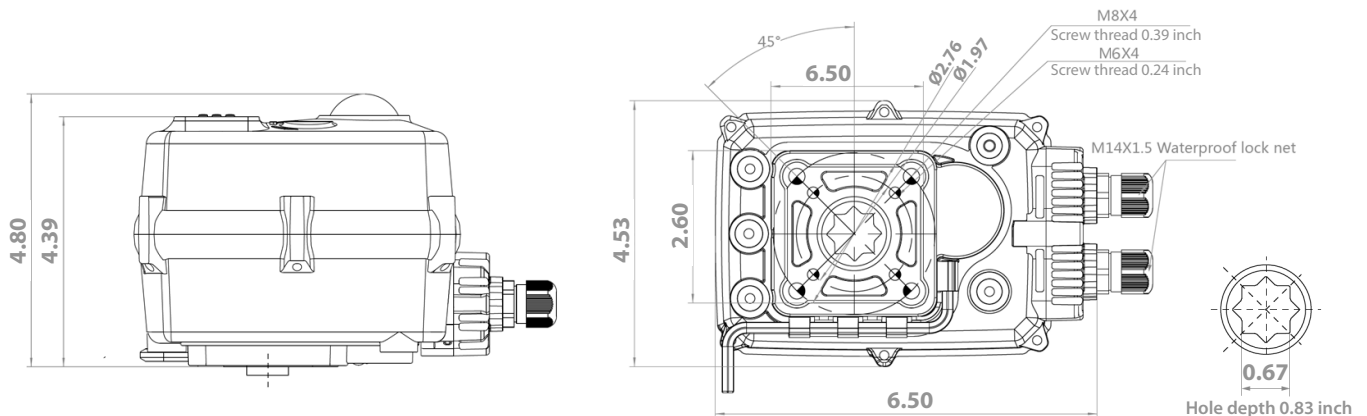


Technical specification

	ON-OFF ELECTRIC ACTUATOR		ON-OFF FAILSAFE ELECTRIC ACTUATOR	
	CH2GCM2	CH2FCM2	CH2GCM2Fx*	CH2FCM2Fx*
Ordering code	CH2GCM2	CH2FCM2	CH2GCM2Fx*	CH2FCM2Fx*
Rated voltage	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)
Voltage range	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V
Consumption	60 W	60 W	60 W	60 W
Peak current	3.75 A	3.75 A	3.75 A	3.75 A
Fuse	4 A	4 A	4 A	4 A
Maximum break Torque lb-in	796.57 lb-in	796.57 lb-in	796.57 lb-in	796.57 lb-in
Manual operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied.			
Run time	≈ 10 sec			
Operating frequency	Not continuous, allow ≥ 1 minute between cycles			
Position confirmation	Mechanically driven dome style visual 2 colour indicator			
Mounting restriction	Do not install underslung/upside down. Can install upright horizontally or vertically.			
End position indication	Micro-switches operated by adjustable internal cams , set slightly ahead of the final motor stop position.			
ISO 5211	F05 & F07			
Working angle	Factory set at 90° ± 2°, maximum angle of rotation 360° unless multi turn series.			
Female drive	0.67 inch x 0.83 inch deep			
Ingress protection	IP67			
Max media temperature	≤ 176° F			
Ambient temperature	-4° F to 140° F			
Non-operating temperature	-40° F to 176° F			
Ambient humidity	5-95% RH non-condensing			
Housing	Plastic (ABS) cover			

*Note: x=O Failsafe Valve Open; C Failsafe Valve Closed

Dimensions inches



CH3 - 974 lb-in (110 Nm)

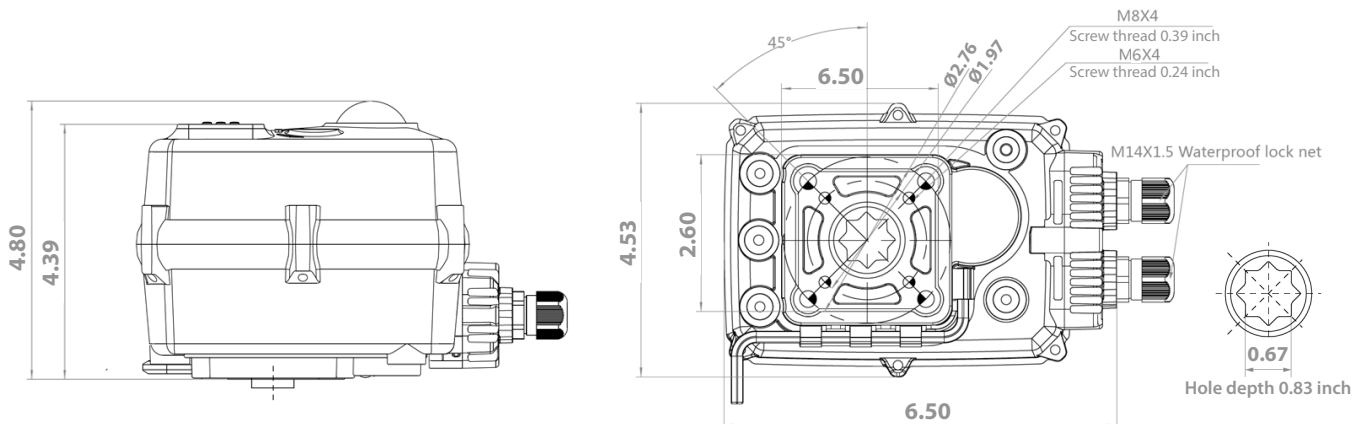


Technical specification

	ON-OFF ELECTRIC ACTUATOR		ON-OFF FAILSAFE ELECTRIC ACTUATOR	
	CH3GCM2	CH3FCM2	CH3GCM2Fx*	CH3FCM2Fx*
Ordering code	CH3GCM2	CH3FCM2	CH3GCM2Fx*	CH3FCM2Fx*
Rated voltage	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)
Voltage range	AC 95-265V / DC 100-300V	AC 20-28 / DC 22-32V	AC 95-265V / DC 100-300V	AC 20-28 / DC 22-32V
Consumption	100 W	100 W	100 W	100 W
Peak current	6.25 A	6.25 A	6.25 A	6.25 A
Fuse	2 A	10 A	2 A	10 A
Maximum break Torque lb-in	1239.11 lb-in		1239.11 lb-in	
Manual operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied Run time			
Run time	≈ 10 sec			
Operating frequency	AC not continuous, 75% duty cycle but recommend allowing ≥1 min between cycles. DC is continuous.			
Position confirmation	Mechanically driven dome style visual 2 color indicator			
Mounting restriction	None, it can be mounted at any angle. Leave space for manual operation and electrical connection.			
End position indication	Micro-switches operated by adjustable internal cams , set slightly ahead of the final motor stop position.			
ISO 5211	F05 & F07			
Working angle	Factory set at 90° ± 2°			
Female drive	0.67 inch octagon x 0.83 inch deep			
Ingress protection	IP67			
Max media temperature	≤ 176° F			
Ambient temperature	-4° F to 140° F			
Non-operating temperature	-40° F to 176° F			
Ambient humidity	5-95% RH non-condensing			
Housing	Plastic (ABS) cover			

*Note: x=O Failsafe Valve Open; C Failsafe Valve Closed

Dimensions inches



CH4 - 1770 lb-in (200 Nm)

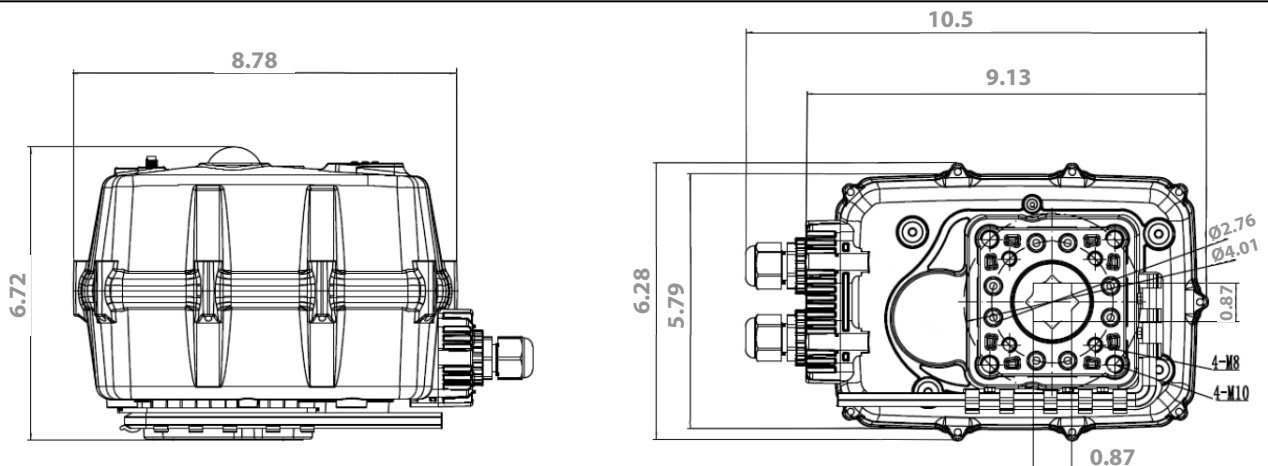


Technical specification

	ON-OFF ELECTRIC ACTUATOR		ON-OFF FAILSAFE ELECTRIC ACTUATOR	
Ordering code	CH4GCM2	CH4FCM2	CH4GCM2Fx*	CH4FCM2Fx*
Rated voltage	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)
Voltage range	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V
Consumption	120 W	120 W	150 W	150 W
Peak current	7.5 A	7.5 A	7.5 A	7.5 A
Fuse	10 A	10 A	10 A	10 A
Maximum break Torque lb-in	2124.18 lb-in		2124.18 lb-in	
Manual operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied. Must engage declutch button on cover first.			
Run time	≈ 25 sec			
Operating frequency	Not continuous, allow ≥ 1 minute between cycles			
Position confirmation	Mechanically driven dome style visual 2 colour indicator			
Mounting restriction	Do not install underslung/upside down. Can install upright horizontally or vertically.			
End position indication	Micro-switches operated by adjustable internal cams , set slightly ahead of the final motor stop position.			
ISO 5211	F07 & F10			
Working angle	Factory set at 90° ± 2°, maximum angle of rotation 360° unless multi turn series.			
Female drive	0.87 inch x 1.06 inch deep			
Ingress protection	IP67			
Max media temperature	≤ 176° F			
Ambient temperature	-4° F to 140° F			
Non-operating temperature	-40° F to 176° F			
Ambient humidity	5-95% RH non-condensing			
Housing	Plastic (ABS) cover			

*Note: x=O Failsafe Valve Open; C Failsafe Valve Closed

Dimensions inches



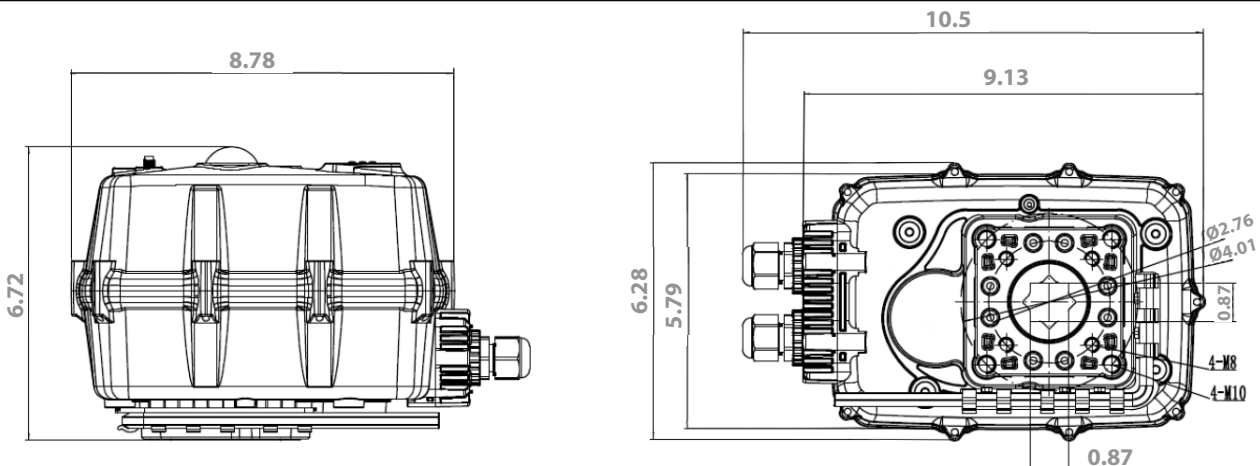


CH5 - 3540 lb-in (400 Nm)

Technical specification

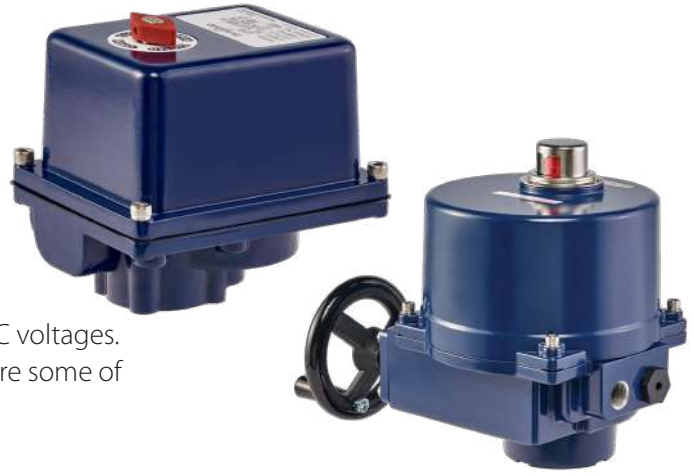
	ON-OFF ELECTRIC ACTUATOR		ON-OFF FAILSAFE ELECTRIC ACTUATOR	
Ordering code	CH5GCM2	CH5FCM2	NA	NA
Rated voltage	95-265VAC/DC (50/60Hz)	24VAC/DC (50/60Hz)		
Voltage range	AC: 95-265V DC: 100-300V	AC: 18-26V DC: 22-28V		
Consumption	150 W	150 W		
Peak current	9.3 A	9.3 A		
Fuse	15 A	15 A		
Maximum break Torque lb-in	450 Nm			
Manual operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied. Must engage declutch button on cover first			
Run time	≈ 25 sec			
Operating frequency	Not continuous, allow ≥ 1 minute between cycles			
Position confirmation	Mechanically driven dome style visual 2 colour indicator			
Mounting restriction	Do not install underslung/upside down. Can install upright horizontally or vertically			
End position indication	Micro-switches operated by adjustable internal cams , set slightly ahead of the final motor stop position			
ISO 5211	F07 & F10			
Working angle	Factory set at 90° ± 2°, maximum angle of rotation 360° unless multi turn series			
Female drive	22mm x 27mm deep			
Ingress protection	IP67			
Max media temperature	≤ 176° F			
Ambient temperature	-4° F to 140° F			
Non-operating temperature	-40° F to 176° F			
Ambient humidity	5-95% RH non-condensing			
Housing	Plastic (ABS) cover			

Dimensions inches



E-Tork

150 And 8850 In-Lb Heavy Duty Electric Actuators



The ET Series Electric Actuators are available in AC and DC voltages. With output torques from 150 to 8850 inch-pound they are some of the most compact, high-output design in the market.

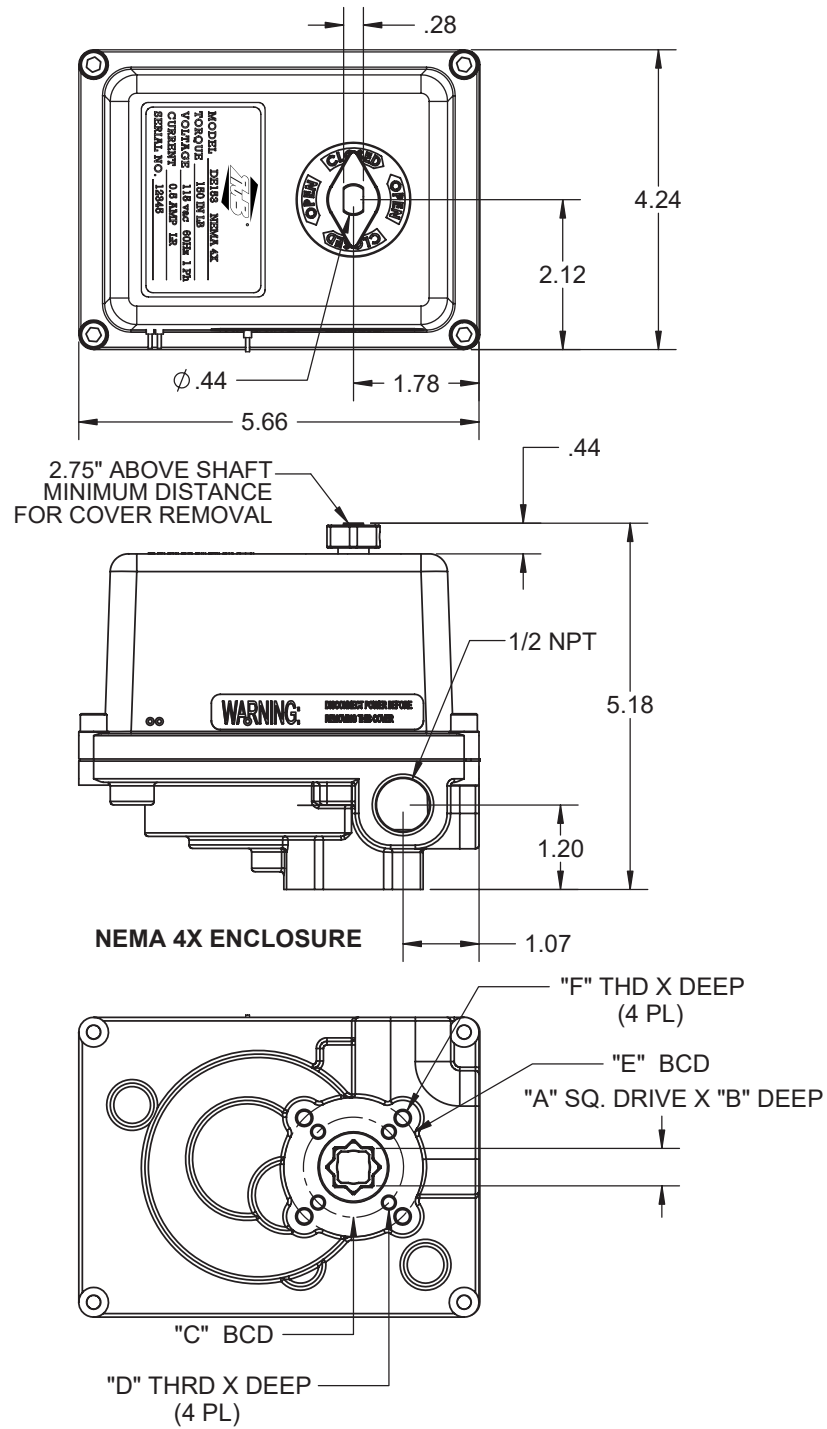
Technical Features:

- Direct mount on **RuB** ball valves, for a compact package and perfect shaft alignment
- 50% rated duty cycle reversing motor with thermal overload protection
- Rugged corrosion resistant construction with aluminum housing, durable epoxy/polyurethane
- Coating, 316 stainless shaft and fasteners
- Manual override shaft - stainless steel type 316
- Can be wired in parallel with other E-Torks – separate circuits not required
- ISO 5211 mounting
- Fast, simple travel adjustments
- 2 limit switches for travel indication
- Heat treated steel gearing, lubricated for life
- 180° travel capability
- NEMA 4 and 4X enclosure

Price list:

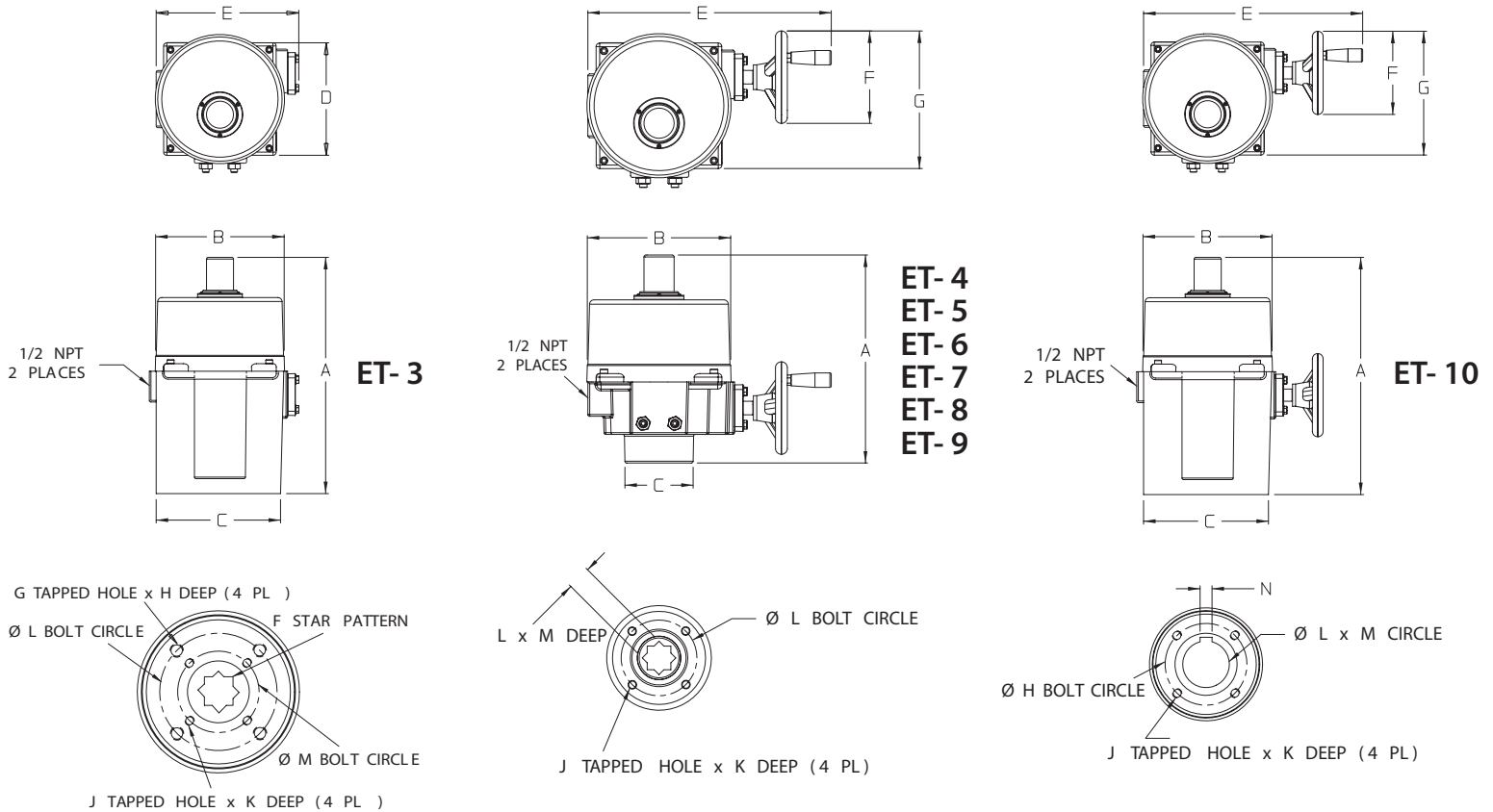
Model	Code	Torque (In/LB)	Seconds 90°	Power
ET-1	BAA1019N	150	2.5s	110VAC
	BAA1019C	150	2.5s	24 VAC/VDC
	BAA1019A	150	2.5s	220VAC
ET-2	BAA1020N	300	6s	110VAC
	BAA1020C	300	6s	24 VAC/VDC
	BAA1020A	300	6s	220VAC
ET-3	BAA1021N	443	20s	110VAC
	BAA1021C	443	20s	24 VAC
	BAA1021D	443	20s	24 VDC
	BAA1021A	443	20s	220VAC
ET-4	BAA1022N	795	15s	110VAC
	BAA1022C	795	15s	24 VAC
	BAA1022D	795	15s	24 VDC
	BAA1022A	795	15s	220VAC
ET-5	BAA1023N	1.325	22s	110VAC
	BAA1023C	1.325	22s	24 VAC
	BAA1023D	1.325	22s	24 VDC
	BAA1023A	1.325	22s	220VAC
	BAA1024N	2.000	26s	110VAC
ET-6	BAA1024C	2.000	26s	24 VAC
	BAA1024D	2.000	26s	24 VDC
	BAA1024A	2.000	26s	220VAC
	BAA1025N	3.540	16s	110VAC
ET-7	BAA1025C	3.540	16s	24 VAC
	BAA1025D	3.540	16s	24 VDC
	BAA1025A	3.540	16s	220VAC
	BAA1026N	4.425	28s	110VAC
ET-8	BAA1026C	4.425	28s	24 VAC
	BAA1026D	4.425	28s	24 VDC
	BAA1026A	4.425	28s	220VAC
	BAA1027N	5.750	35s	110VAC
ET-9	BAA1027C	5.750	35s	24 VAC
	BAA1027D	5.750	35s	24 VDC
	BAA1027A	5.750	35s	220VAC
	BAA1028N	8.850	46s	110VAC
ET-10	BAA1028C	8.850	46s	24 VAC
	BAA1028D	8.850	46s	24 VDC
	BAA1028A	8.850	46s	220VAC

Dimensions inches



Model	Torque In-lb	Speed sec/90°	A	B	C	D	E	F	AMPS LOCKED ROTOR		WT. LBS
									AC	12-24 DC/AC	
ET-1	150	2.5	.354 (9 mm)	.53	1417 (F03)	M5 .44 DP	1969 (F05)	M6 .46 DP	.5	3.0	4.0
ET-2	300	6	.551 (14 mm)	.68	1417 (F03)	M5 .46 DP	1969 (F05)	M6 .46 DP	.5	3.0	4.0

Dimensions inches



Model	Torque In-lb	Cycle Time	A	B	C	D	E	F	G	H	J	K	L	M	N
ET-3	443	20 sec	7.730 (196)	4.490 (114)	3.839 (98)	4.185 (106)	5.101 (130)	0.664 (17)	M6	0.590 (15)	M8	0.750 (19)	2.750 (70)	1.969 (50)	--
ET-4	795	15 sec													
ET-5	1325	22 sec	10.04 (255)	7.87 (200)	3.55 (90.1)	--	13 (330)	4.92 (125)	7.87 (200)	2.76 (70)	M8	.75 (19)	.866 (22)	1.18 (30)	--
ET-6	2000	26 sec													
ET-7	3540	16 sec													
ET-8	4425	28 sec	12.40 (315)	9.21 (234)	4.92 (125)	--	14.96 (380)	7.68 (195)	11.81 (300)	4.02 (102)	M10	.63 (16)	1.417 (36)	1.57 (40)	--
ET-9	5750	35 sec													
ET-10	8850	46 sec	23.23 (590)	10.24 (260)	7.09 (180)	--	17.72 (450)	11.61 (295)	13.39 (340)	5.51 (140)	M16	1.14 (29)	1.378 (35)	2.36 (60)	.39 (10)



The **EA actuators** series is designed for quarter turn applications on **RuB** ball valves in a compact and lightweight design. They can be supplied single (spring return) or double acting with a wide range of output torques offering a complete valve automation solution.

EA actuator has a patented guide bar which keeps the rack and pinion gear teeth in perfect engagement in all directions of operations. The contact between the teeth is pure rolling contact – no rubbing or friction which means minimum wear and long cycle life.

Superior appearance and better corrosion resistance. It has a dense jet black anodized finish which makes the EA line suitable for indoor and outdoor applications.

Actuators are designed in compliance with the following standards:

- ISO 5211 - Actuator to Valve Interface Standard
- DIN 3337 - 45° Orientation of the Square Drive Shaft
- VDI/VDE 3845 - Standard for Namur mounting of accessories (switchboxes, solenoid valves, positioners)
- ATEX - Explosive Atmosphere Directive (94/9/CE)
- PED - Pressure Equipment Directive (97/23/CE)

Technical features

- ISO 5211 direct mount on valve
- Indoor or outdoor installation
- Pilot ring for perfect alignment of shaft and stem
- Nickel plated steel shaft
- Stainless steel fasteners
- High tensile long life return springs
- Visual position indicator
- Fast field conversion between double acting and spring return, fail open or fail closed
- Minimum ambient temperature while actuator is at rest: -31°F (-35°C)
- NAMUR pads for direct mount of solenoid and limit switch
- Extruded aluminum body hard anodized cylinder bore rock hard and glass smooth

Price list:

Model	ISO5211 Flange	Square shaft (Inch)
EA4-1	F03	0.35
EA4-2	F03/F05	0.35
EA4-3	F05/F07	0.55
EA4-4	F05/F07	0.55
EA4-5	F05/F07	0.67
EA4-6	F07/F10	0.67
EA4-7	F07/F10	0.87
EA4-9	F10/F12	1.06
EA4-10	F14	1.42
EA4-12	F16	1.81

Note: The prices refer to the double acting actuators. For single acting ask to your **RuB, Inc.** representative.

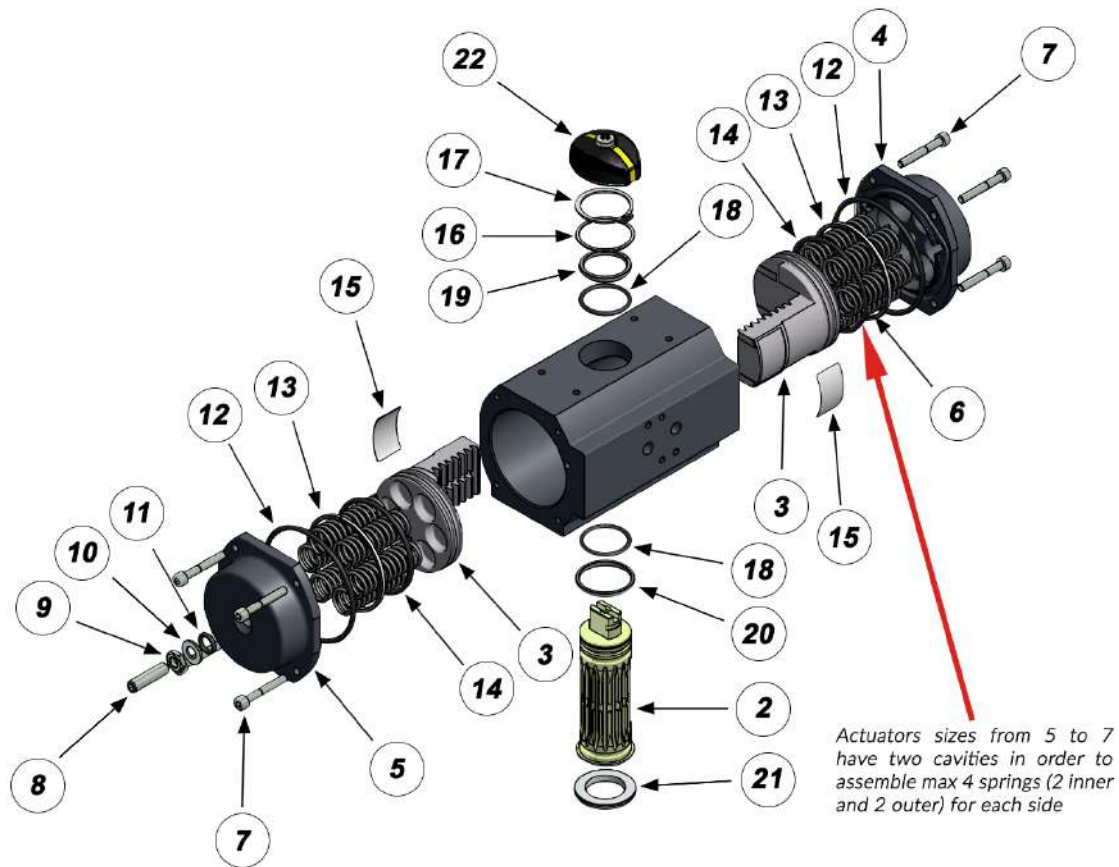


Solenoid Valve Code	Description
AD-00001	AD-1 (UCI) COMPLETE
AD-00002	AD-1 DUAL COIL 120 VAC SOLENOID
AD-00003	SOLENOID VLV AD-1 5/2 3/2 110 VAC
AD-00009	COILS 12 DC (28)
AD-00012	COILS 24AC (16)
AD-00013	COILS 24 DC (12)
AD-00015	SINGLE PILOT SOLENOID
AD-00016	AD-1 DUAL COIL 24 AC SOLENOID
AD-00017	AD-1 (UCI) COMPLETE COIL 24 DC
AD-00018	AD-1 (UCI) COMPLETE COIL 24 AC
AD-00019	SOLENOID VLV AD-1 5/2 3/2 24 VAC
AD-00020	COILS 220 VAC



Auxiliary switches Code	Description
EA2-LS	Auxiliary switches box

Construction and materials:



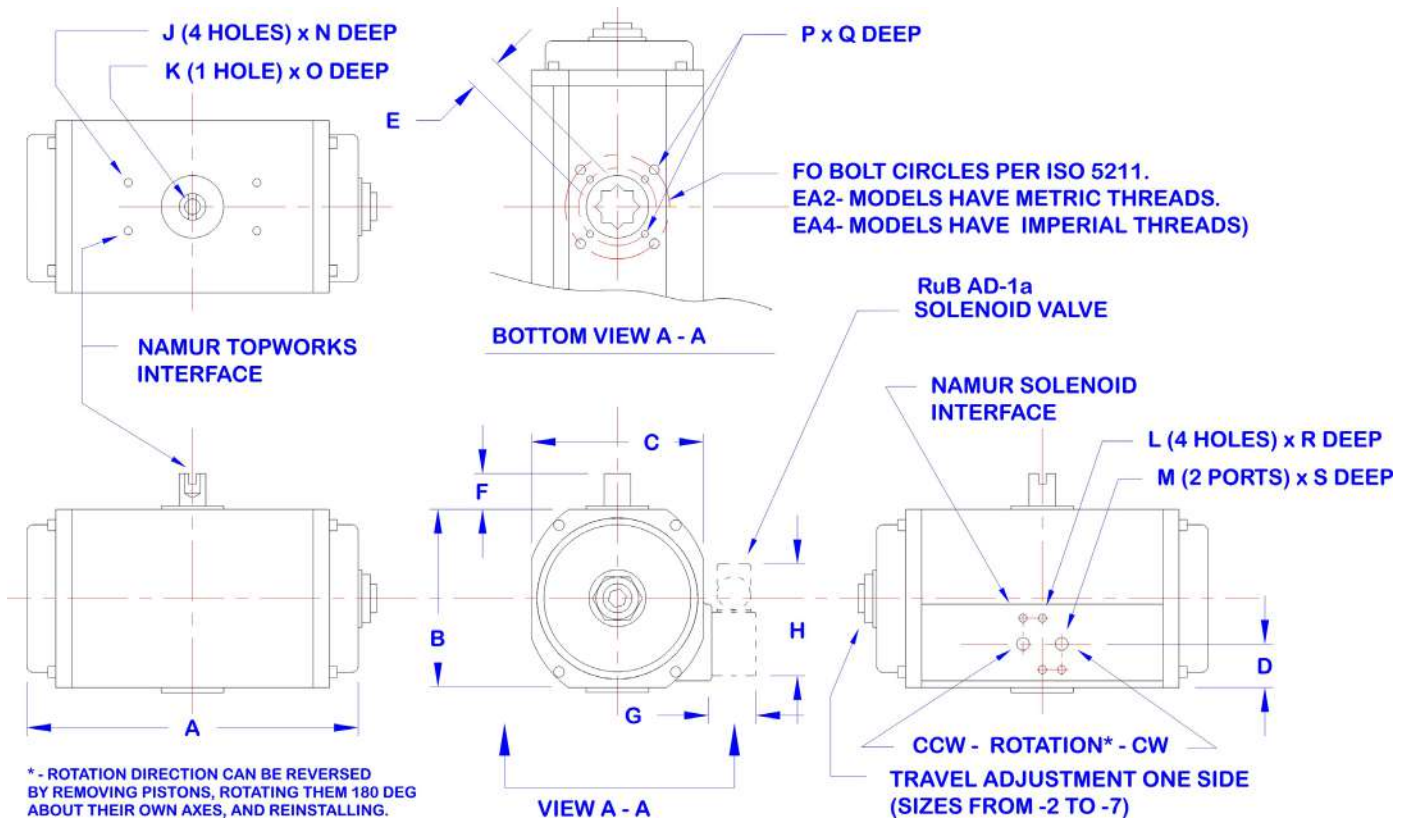
Bill of materials

EA-4 is shown. Smaller sizes have similar construction except EA-1 that has Nylon endcaps and pistons

Item	Description	Qty	Material
1	Body	1	Anod, aluminum
2	Shaft	1	Steel - zinc plated
3	Piston	2	Aluminum
4	End-cap	1	Anod, aluminum
5	End-cap (stop bolt)	1	Anod, aluminum
6	Spring	12 Max	Cr-Si steel
7	Cap bolt	8	St steel
8	Stop bolt	1	Hi tensile steel
9	Stop bolt nut	1	Hi tensile steel
10	Washer	1	Polyethylene
11	O-ring (end stop)	1	NBR
12	O-ring (end cover)	2	NBR
13	Piston ring	2	POM**
14	Piston ring	2	NBR
15	Wear pad	2	POM**
16	Shaft washer	1	Polyethylene
17	Snap ring	1	Steel
18	O-ring (drive shaft)	2	NBR
19	Shaft bearing upper	1	POM**
20	Shaft bearing lower	1	POM**
21	Alignment ring	1	POM**
22	Indicator	1	Nylon

** Polyoxymethylene commonly "Delrin"

Dimensions:



Size	Imperial system - inch																		
	ISO5211	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
1	F03	4.06	1.77	2.01	0.89	0.35	0.79	1.02	2.64	10-32	M6	10-32	1/8 NPT	0.20	0.47	10-32	0.31	0.31	0.28
2	F03/05	5.91	2.76	2.76	0.91	0.35	0.79	1.02	2.64	10-32	M6	10-32	1/8 NPT	0.31	0.47	10-32 / 1/4"-20	0.31 / 0.39	0.31	0.39
3	F05/07	7.36	3.43	3.58	1.36	0.55	0.79	1.02	2.64	10-32	M6	10-32	1/8 NPT	0.31	0.47	1/4"-20 / 5/16"-18	0.39 / 0.51	0.31	0.39
4	F05/07	8.11	4.65	4.45	1.16	0.55	0.79	1.02	2.64	10-32	M6	10-32	1/8 NPT	0.31	0.47	1/4"-20 / 5/16"-18	0.39 / 0.51	0.31	0.39
5	F05/07	7.64	4.67	4.76	1.16	0.67	0.79	1.02	2.64	10-32	M6	10-32	1/4 NPT	0.20	0.47	1/4"-20 / 5/16"-18	0.47 / 0.47	0.31	0.50
6	F07/10	8.58	5.53	5.37	1.16	0.67	0.79	1.02	2.64	10-32	M6	10-32	1/4 NPT	0.20	0.47	5/16"-18 / 3/8"-16	0.51 / 0.63	0.31	0.50
7	F07/10	10.47	6.56	6.14	1.18	0.87	0.79	1.02	2.64	10-32	M6	10-32	1/4 NPT	0.20	0.47	5/16"-18 / 3/8"-16	0.51 / 0.63	0.31	0.50
9	F10/F12	13.39	8.17	7.52	1.65	1.06	1.18	1.02	2.64	10-32	M6	10-32	1/4 NPT	0.20	0.47	1/2	0.79	0.31	0.50
10	F14	14.21	9.84	8.94	2.4	1.42	1.18	1.02	2.64	10-32	M6	10-32	1/4 NPT	0.20	0.47	3/4	0.98	0.31	0.50
12	F16	19.52	13.31	11.81	-	1.81	1.18	1.02	2.64	10-32	M6	10-32	1/4 NPT	0.47	0.47	3/4	1.26	0.31	0.50

s.31 NPT Mini Valve

1/4" - 3/4"



Technical data:

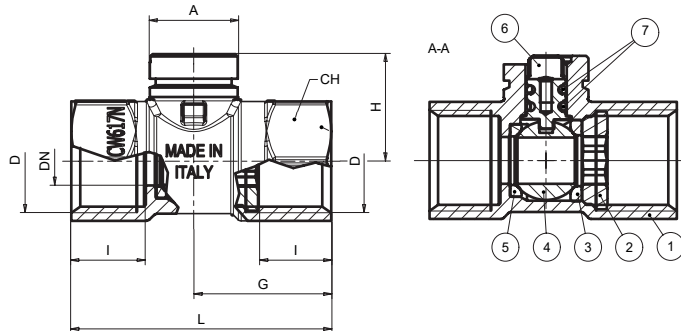
Working Pressure: 600 PSI non-shocking cold working pressure

Working Temperature: -4°F / +250°F

Threads: NPT taper ANSI B.1.20.1 threads

Dimensions inches

Size	1/4"	3/8"	1/2"	3/4"
A	3.209	3.209	3.209	3.209
B	0.807	0.807	0.807	0.807
C	2.929	2.929	2.929	2.929
D	3.346	3.346	3.346	3.583
E	2.854	2.854	2.854	2.972
F	1.799	1.799	2.106	2.417
G	0.472	0.472	0.610	0.669
H	1/4" NPT	3/8" NPT	1/2" NPT	3/4" NPT
I	0.315	0.394	0.394	0.500
L	31.496	31.496	31.496	31.496
Threads standard	ANSI B1.20.1			

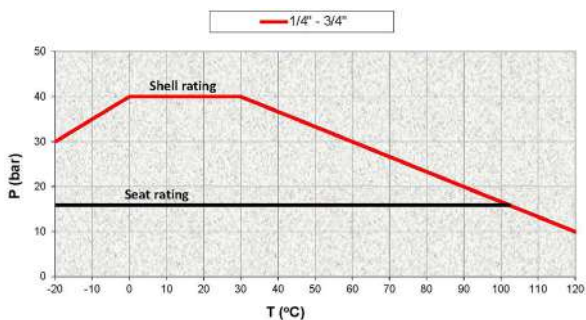


Features:

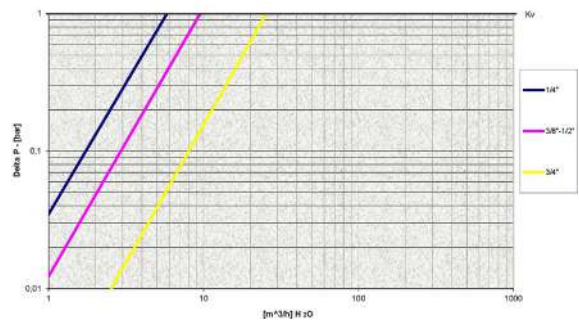
- 100% seal test guaranteed in according to EN12266-1 RATE A in either direction
- Compatible with most industrial fluids including those too viscous for pilot operated valves
- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant
- Chrome plated ball for longer life
- Can operate also in vacuum line

	Part description	Qty	Material
1	Unplated body	1	CW617N
2	Unplated retainer nut	1	CW617N
3	Retainer seat	1	PTFE
4	Chrome plated ball	1	CW617N
5	Body seat	1	PTFE
6	Unplated stem O-Ring design	1	CW617N
7	O-Ring	2	FPM
8	Compact power electric actuator (VDC or VAC models)	1	---
9	Spring clip	1	AISI304

Pressure-temperature chart



Pressure drop chart



Valve	AV31BX3	AV31CX3	AV31DX3	AV31EX3
Valve Size	1/4"	3/8"	1/2"	3/4"

CP Electric Actuator	Actuation kit	CP5xy-31BX3	CP5xy-31CX3	CP5xy-31DX3	CP5xy-31EX3

Note for ordering code:

x = A for 230 VAC 50 Hz; B = for 110 VAC 60 Hz; C = for 24 VAC 50/60 Hz; D for 24 Vdc
 y = 2 for 2 wires electrical connection; 3 for 3 wires electrical connection

Torque for actuator sizing

Delta P →	0 - 16 Bar
Valve size	Nm
1/4" to 1/2"	1.8
3/4"	2.5

Torque correction factors

Valve torque can vary according to operating frequency, temperatre and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.6439 NPT

1/2" - 2", SS trim, ISO 5211



Technical data:

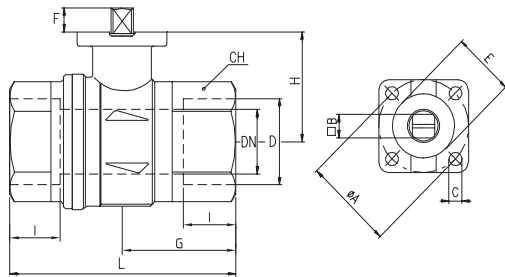
Working Pressure: 600 PSI non-shocking cold working pressure

Working Temperature: -4°F / +350°F

Threads: NPT taper ANSI B.1.20.1 female by female threads

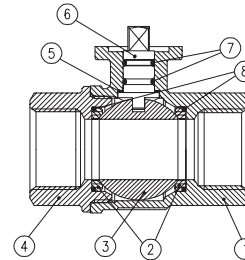
Dimensions inches

Code	S64D39	S64E39	S64F39	S64G39	S64H39	S64I39
D	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
DN	0.590	0.787	0.984	1.259	1.575	1.968
I	0.610	0.708	0.826	0.905	0.964	1.043
L	2.598	2.933	3.562	4.094	4.606	5.314
G	1.201	1.456	1.791	2.047	2.322	2.657
H	1.220	1.515	1.673	2.185	2.441	2.716
CH	1.063	1.259	1.614	1.968	2.165	2.756
ØA	1.417	1.417	1.417	1.968	1.968	1.968
B	0.354	0.354	0.354	0.551	0.551	0.551
C	0.220	0.220	0.220	0.259	0.259	0.259
E	0.984	0.984	0.984	1.378	1.378	1.378
F	0.295	0.334	0.334	0.570	0.570	0.570
Flange connection DIN ISO 5211 DIN 3337	F03	F03	F03	F05	F05	F05



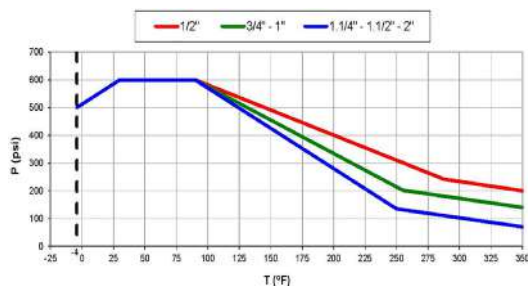
Features:

- 24h 100% seal test guaranteed
- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Stainless steel ball for longer life
- Two FPM O-rings at the stem for maximum safety
- Blowout-proof stainless steel stem
- Reinforced PTFE self-lubricating seats with flexible-lip and wear compensation design

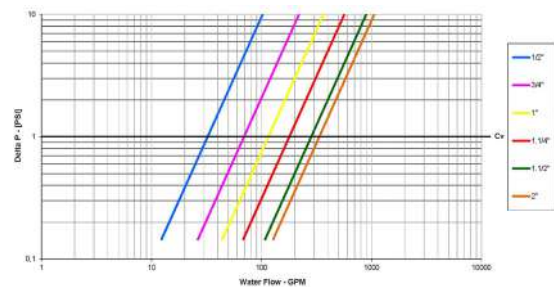


Part description	Qty	Material
1 Unplated body	1	CW617N
2 Ball seat	2	PTFE graphite filled 15%
3 Stainless steel ball	1	AISI316
4 Unplated end-cap	1	CW617N
5 Washer	1	PTFE carbon filled 25%
6 Stainless steel stem O-ring design	1	AISI316
7 O-Ring	2	FPM
8 O-Ring	2	FPM

Pressure-temperature chart



Pressure drop chart



Valve	S64D39	S64E39	S64F39	S64G39	S64H39	S64I39
Valve Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1			EA4-3		
	Actuation kit	EA1D64D39	EA1D64E39	EA1D64F39	EA3D64G39	EA3D64H39	EA3D64I39
Spring return pneumatic actuator	Actuator	EA4-2			EA4-3		EA4-4
	Actuation kit	EA2R64D39	EA2R64E39	EA2R64F39	EA3R64G39	EA3R64H39	EA4R64I39

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1			ET-2		
	Actuation kit	ET1B64D39	ET1B64E39	ET1B64F39	ET2B64G39	ET2B64H39	ET2B64I39
24 VAC, On/Off	Actuator	ET-1			ET-2		
	Actuation kit	ET1C64D39	ET1C64E39	ET1C64F39	ET2C64G39	ET2C64H39	ET2C64I39

CP

electric actuator

CP Electric Actuator	Actuation kit	CP5xy-64D39	CP5xy-64E39	-	-	-	-

note for code:

x = A for 230 VAC 50 Hz; B = for 110 VAC ac 60 Hz; C = for 24 VAC 50/60 Hz; D for 24 Vdc
y = 2 for 2 wires electrical connection; 3 for 3 wires electrical connection

CT

electric actuator

120 VAC, On/Off	Actuator	CT1 - 8Nm			CT4 - 40Nm		
	Actuation kit	CT1BAN164D39	CT1BAN164E39	CT1BAN164F39	CT4ICM264G39	CT4ICM264H39	CT4ICM264I39
24 VAC, On/Off	Actuator	CT1 - 8Nm			CT4 - 40Nm		
	Actuation kit	CT1CAN164D39	CT1CAN164E39	CT1CAN164F39	CT4LCM264G39	CT4LCM264H39	CT4LCM264I39

note for code:

All the selection are made for delta P 0 - 200 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 200 PSI		600 PSI	
	to open	to close	to open	to close
Valve Size				
1/2"	25	15	25	15
3/4"	33	20	33	20
1"	62	37	62	37
1 1/4"	104	111	121	111
1 1/2"	220	180	273	180
2"	262	222	327	222

Torque correction factors

Valve torque can vary according to operating frequency, temperatre and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.6439 LT NPT

1" - 2", SS trim, ISO 5211, low torque



Technical data:

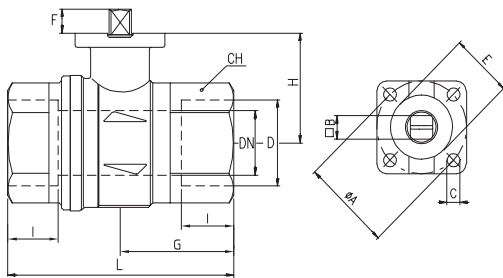
Working Pressure: Shell rating: 600 PSI | Seat rating: Delta P max permissible 230 PSI non-shock cold working pressure

Working Temperature: -4°F / +350°F

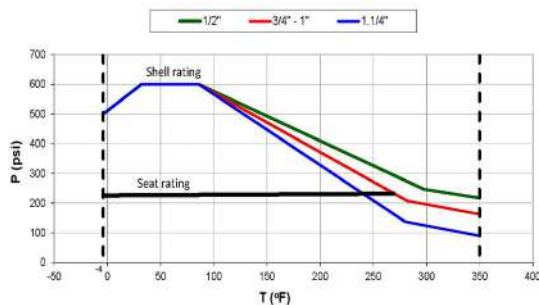
Threads: NPT taper ANSI B.1.20.1 female by female threads

Dimensions inches

Code	S64F39A	S64G39A	S64H39A	S64I39A
D	1"	1 1/4"	1 1/2"	2"
DN	0.984	1.259	1.575	1.968
I	0.826	0.905	0.964	1.043
L	3.562	4.094	4.606	5.314
G	1.791	2.047	2.322	2.657
H	1.673	1.949	2.441	2.716
CH	1.614	1.968	2.165	2.756
ØA	1.417	1.417	1.968	1.968
B	0.354	0.354	0.551	0.551
C	0.220	0.220	0.259	0.259
E	0.984	0.984	1.378	1.378
F	0.334	0.570	0.570	0.570
Flange connection DIN ISO 5211 DIN 3337	F03	F03	F05	F05

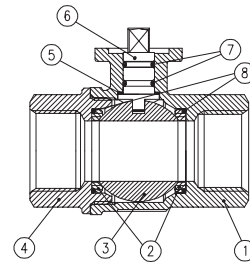


Pressure-temperature chart



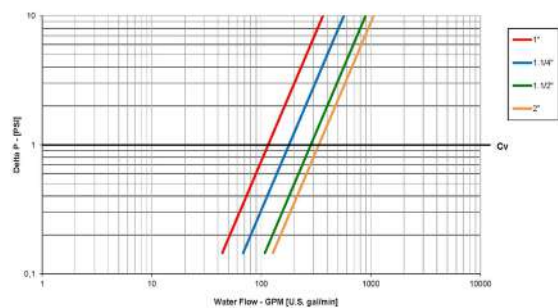
Features:

- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Stainless steel ball for longer life
- 100% seal test guaranteed in according to EN 12266-1 RATE A



Part description	Qty	Material
1 Unplated body	1	CW617N
2 Ball seat	2	PTFE graphite filled
3 Stainless steel ball	1	AISI316
4 Unplated end-cap	1	CW617N
5 Washer	1	PTFE carbon filled 25%
6 Stainless steel stem O-ring design	1	AISI316
7 O-Ring	2	FPM
8 O-Ring	2	FPM

Pressure drop chart



Valve	S64F39A	S64G39A	S64H39A	S64I39A
Valve Size	1"	1 ¼"	1 ½"	2"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1		EA4-3	
	Actuation kit	EA1D64F39A	EA1D64G39A	EA3D64H39A	EA3D64I39A
Spring return pneumatic actuator Delta P < 90 PSI	Actuator	EA4-2		EA4-3	
	Actuation kit	EA2R64F39A	EA2R64G39A	EA3R64H39A	EA3R64I39A
Spring return pneumatic actuator Delta P 91 to 230 PSI	Actuator	EA4-2		EA4-3	
	Actuation kit	EA2R64F39A	EA2R64G39A	EA3R64H39A	EA3R64I39A

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1		ET-2	
	Actuation kit	ET1B64F39A	ET1B64G39A	ET2B64H39A	ET2B64I39A
24 VAC, On/Off	Actuator	ET-1		ET-2	
	Actuation kit	ET1C64F39A	ET1C64G39A	ET2C64H39A	ET2C64I39A

CP

electric actuator

CP Electric Actuator	Actuation kit	CP5xy-64F39A	CP5xy-64G39A	-	-
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note for code:

x = A for 230 VAC 50 Hz; B = for 110 VAC ac 60 Hz; C = for 24 VAC 50/60 Hz; D for 24 Vdc
y = 2 for 2 wires electrical connection; 3 for 3 wires electrical connection

CT

electric actuator

120 VAC, On/Off	Actuator	CT1 - 8Nm		CT4 - 40Nm	
	Actuation kit	CT1BAN164F39A	CT1BAN164G39A	CT4ICM264H39A	CT4ICM264I39A
24 VAC, On/Off	Actuator	CT1 - 8Nm		CT4 - 40Nm	
	Actuation kit	CT1CAN164F39A	CT1CAN164G39A	CT4LCM264H39A	CT4LCM264I39A

note for code:

All the selection are made for delta P 0 - 200 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 90 PSI		> 90 - 230 PSI	
	to open	to close	to open	to close
1"	19	19	31	31
1 ¼"	22	22	35	35
1 ½"	51	51	84	84
2"	70	70	115	115

Torque correction factors

Valve torque can vary according to operating frequency, temperatre and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.6441 NPT

1/2" - 4" brass trim, ISO 5211



Technical data:

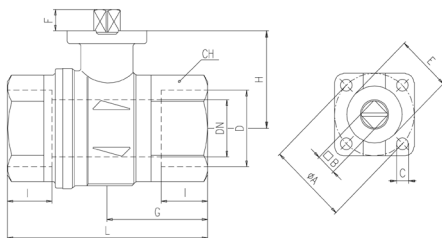
Working Pressure: 600 PSI up to 2", 450 PSI over 2" non-shock cold working pressure

Working Temperature: -4°F / +350°F

Threads: NPT taper ANSI B.1.20.1 female by female threads

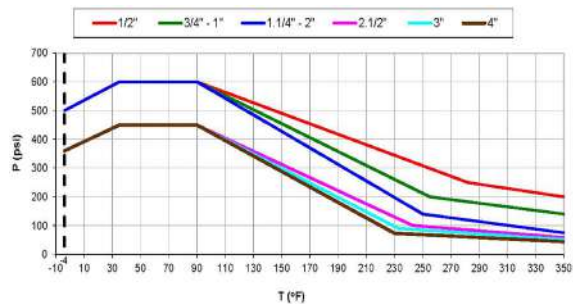
Dimensions inches

Code	S64D41	S64E41	S64F41	S64G41	S64H41	S64I41
D	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
DN	0.590	0.787	0.984	1.259	1.575	1.968
I	0.610	0.708	0.826	0.905	0.964	1.043
L	2.598	2.933	3.562	4.094	4.606	5.314
G	1.201	1.456	1.791	2.047	2.322	2.657
H	1.220	1.515	1.673	2.185	2.441	2.716
CH	1.063	1.259	1.614	1.968	2.165	2.756
ØA	1.417	1.417	1.417	1.968	1.968	1.968
B	0.354	0.354	0.354	0.551	0.551	0.551
C	0.220	0.220	0.220	0.259	0.259	0.259
E	0.984	0.984	0.984	1.378	1.378	1.378
F	0.295	0.334	0.334	0.570	0.570	0.570
Flange connection DIN ISO 5211 DIN 3337	F03	F03	F03	F05	F05	F05



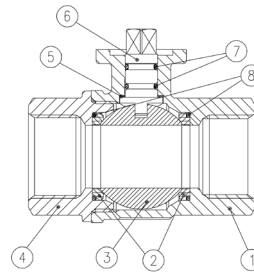
Ball seats and stem configuration of valves over 2" is different.

Pressure-temperature chart



Features:

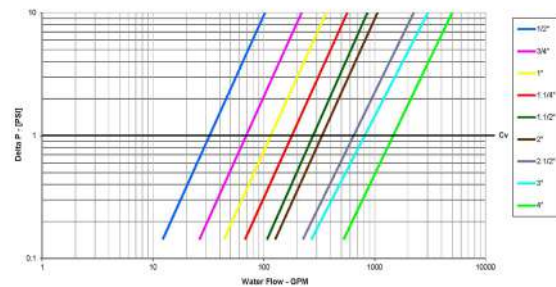
- 24h 100% seal test guaranteed
- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Chrome plated brass ball for longer life



Valves configuration up to 2"

Part description	Qty	Material
1	1	CW617N
Unplated body		
2	2	PTFE graphite filled 15%
Ball seat		
3	1	CW617N
Chrome plated ball		
4	1	CW617N
Unplated end-cap		
5	1	PTFE carbon filled 25%
Washer		
6	1	CW617N
Nickel plated stem O-ring design		
7	2	FPM
O-Ring		
8	2	FPM
O-Ring		

Pressure drop chart



Valve	S64D41	S64E41	S64F41	S64G41	S64H41	S64I41
Valve Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1			EA4-3		
	Actuation kit	EA1D64D41	EA1D64E41	EA1D64F41	EA3D64G41	EA3D64H41	EA3D64I41
Spring return pneumatic actuator	Actuator	EA4-2			EA4-3		EA4-4
	Actuation kit	EA2R64D41	EA2R64E41	EA2R64F41	EA3R64G41	EA3R64H41	EA4R64I41

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1			ET-2		
	Actuation kit	ET1B64D41	ET1B64E41	ET1B64F41	ET2B64G41	ET2B64H41	ET2B64I41
24 VAC, On/Off	Actuator	ET-1			ET-2		
	Actuation kit	ET1C64D41	ET1C64E41	ET1C64F41	ET2C64G41	ET2C64H41	ET2C64I41

CT

electric actuator

120 VAC, On/Off	Actuator	CT1 - 8Nm			CT4 - 40Nm		
	Actuation kit	CT1BAN164D41	CT1BAN164E41	CT1BAN164F41	CT4ICM264G41	CT4ICM264H41	CT4ICM264I41
24 VAC, On/Off	Actuator	CT1 - 8Nm			CT4 - 40Nm		
	Actuation kit	CT1CAN164D41	CT1CAN164E41	CT1CAN164F41	CT4LCM264G41	CT4LCM264H41	CT4LCM264I41

note for code:

All the selection are made for delta P 0 - 200 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 200 PSI		600 PSI (450 PSI over 2")	
	to open	to close	to open	to close
1/2"	25	15	25	15
3/4"	33	20	33	20
1"	62	37	62	37
1 1/4"	104	111	121	111
1 1/2"	220	180	273	180
2"	262	222	327	222

Torque correction factors

Valve torque can vary according to operating frequency, temperature and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.6541 NPT

1/2" - 1 1/4" hot forged brass ball valve



Technical data:

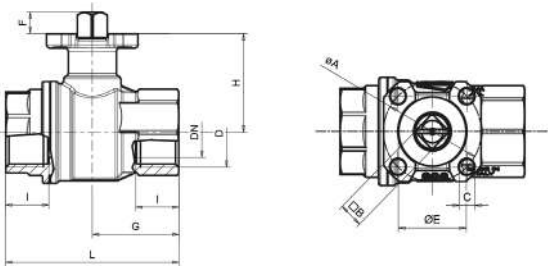
Working Pressure: 600 PSI non-shock cold working pressure

Working Temperature: -4°F / +302°F

Threads: NPT taper ANSI B.1.20.1 female by female threads

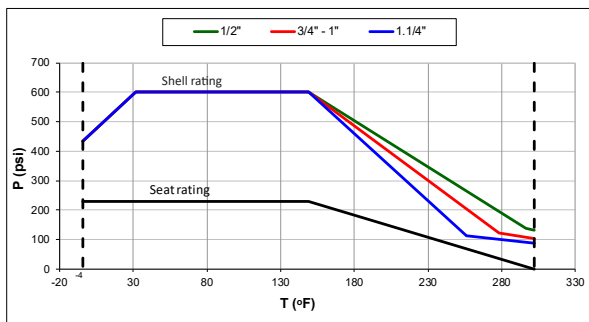
Dimensions inches

Code	S65D41	S65E41	S65F41	S65G41
D	1/2"	3/4"	1"	1 1/4"
DN	0.591	0.748	0.945	1.181
I	0.610	0.669	0.827	0.906
L	2.500	2.677	3.346	3.819
G	1.240	1.339	1.673	1.909
H	1.220	1.496	1.626	1.890
CH	0.984	1.220	1.575	1.929
ØA	1.417	1.417	1.417	1.417
B	0.354	0.354	0.354	0.354
C	0.220	0.220	0.220	0.220
ØE	0.984	0.984	0.984	0.984
F	0.287	0.327	0.327	0.327
Flange connection DIN ISO 5211 DIN 3337	F03	F03	F03	F03



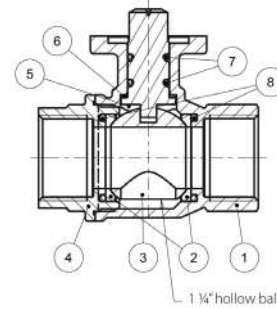
DN shows the nominal flow diameter. Actual flow diameter complies with full port DIN 3357 part 4.

Pressure-temperature chart



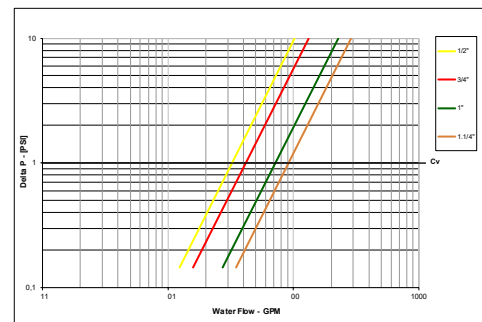
Features:

- 24h 100% seal test guaranteed in according to EN 12266-1 RATE A
- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Chrome plated brass ball for longer life



	Part description	Qty	Material
1	Sand blasted unplated body	1	CW617N
2	Seat	2	PTFE
3	Chrome plated ball with rinse hole (rinse hole on sizes from 3/4" up to 1 1/4")	1	CW617N
4	Sand blasted unplated end cap	1	CW617N
5	Washer	1	PTFE carbon filled 25%
6	Nickel plated stem O-ring design	1	CW617N
7	O-Ring	2	EPDM
8	O-Ring	2	EPDM

Pressure drop chart



Valve	S65D41	S65E41	S65F41	S65G41
Valve Size	1/2"	3/4"	1"	1 1/4"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1			
	Actuation kit	EA1D65D41	EA1D65E41	EA1D65F41	EA1D65G41
Spring return pneumatic actuator	Actuator	EA4-2			
	Actuation kit	EA2R65D41	EA2R65E41	EA2R65F41	EA2R65G41

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1			
	Actuation kit	ET1B65D41	ET1B65E41	ET1B65F41	ET1B65G41
24 VAC, On/Off	Actuator	ET-1			
	Actuation kit	ET1C65D41	ET1C65F41	ET1C65F41	ET1C65G41

CP

electric actuator

CP Electric Actuator	Actuation kit	CP5xy65D41	CP5xy65E41	CP5xy65F41	CP5xy65G41
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note for code:

x = A for 230 VAC 50 Hz; B = for 110 VAC ac 60 Hz; C = for 24 VAC 50/60 Hz; D for 24 Vdc
y = 2 for 2 wires electrical connection; 3 for 3 wires electrical connection

CT

electric actuator

120 VAC, On/Off	Actuator	CT1			
	Actuation kit	CT1BAN65D41	CT1BAN65E41	CT1BAN65F41	CT1BAN65G41
24 VAC, On/Off	Actuator	CT1			
	Actuation kit	CT1CAN65D41	CT1CAN65E41	CT1CAN65F41	CT1CAN65G41

note for code:

All the selection are made for delta P 0 - 230 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 200 PSI	
	to open	to close
1/2"	31	27
3/4"	37.5	33
1"	40	35.5
1 1/4"	44.5	40

Torque correction factors

Valve torque can vary according to operating frequency, temperatre and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.95 NPT

2 1/2" - 4" brass trim, ISO 5211



Technical data:

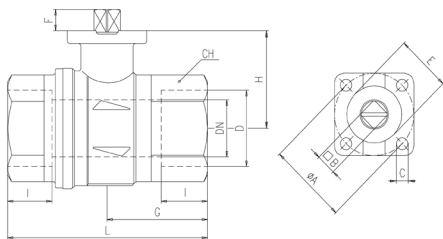
Working Pressure: 450 PSI non-shock cold working pressure

Working Temperature: -40°F/+350°F

Threads: NPT taper ANSI B.1.20.1 female by female threads

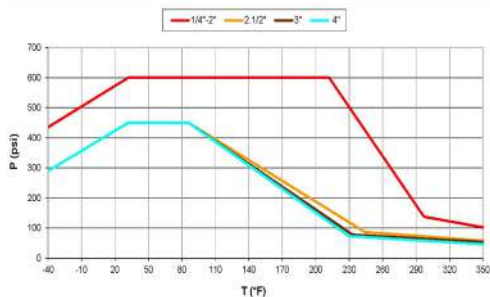
Dimensions inches

Code	S95L41AM	S95M41AM	S95N41AM
D	2 1/2"	3"	4"
DN	2.559	3.150	3.937
I	1.260	1.378	1.634
L	6.142	6.969	8.504
G	3.071	3.484	4.252
H	3.502	3.779	4.366
CH	3.346	3.898	4.921
ØA	2.756	2.756	2.756
B	0.669	0.669	0.669
C	0.335	0.335	0.335
E	2.165	2.165	2.165
F	0.709	0.709	0.709
Flange connection DIN ISO 5211 DIN 3337	F07	F07	F07



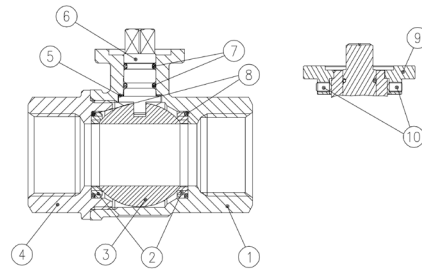
Ball seats and stem configuration of valves over DN shows the nominal flow diameter. Actual flow diameter complies with full port DIN 3357 part 4.

Pressure-temperature chart



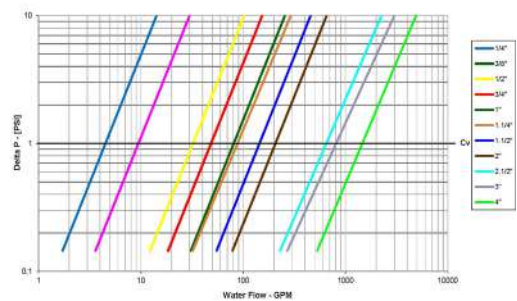
Features:

- 24h 100% seal test guaranteed
- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- Silicone-free lubricant on all seals
- Chrome plated brass ball for longer life
- No maintenance ever required



	Part description	Qty	Material
1	Unplated body	1	CW617N
2	Ball seat	2	PTFE graphite filled 15%
3	Chrome plated ball	1	CW617N
4	Unplated end-cap	1	CW617N
5	Washer	1	PTFE carbon filled 25%
6	Nickel plated stem O-ring design	1	CW617N
7	O-Ring	2	FPM
8	O-Ring	2	FPM
9	Black anodized flange	1	Aluminum
10	Grub screw	2	CB4FF

Pressure drop chart



Valve	S95L41AM	S95M41AM	S95N41AM
Valve Size	2 1/2"	3"	4"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-5		EA4-7
	Actuation kit	EA5D95L41AM	EA5D95M41AM	EA7D95N41AM
Spring return pneumatic actuator	Actuator	EA4-5	EA4-6	EA4-7
	Actuation kit	EA5R95L41AM	EA6R95M41AM	EA7R95N41AM

ET

electric actuator

120 VAC, On/Off	Actuator	ET-3	ET-5	ET-6
	Actuation kit	ET3B95L41AM	ET5B95M41AM	ET6B95N41AM
24 VAC, On/Off	Actuator	ET-3	ET-5	ET-6
	Actuation kit	ET3C95L41AM	ET5C95M41AM	ET6C95N41AM

CH

electric actuator

ΔP 0 - 200 PSI	Actuator	CH1	CH3	CH4
	Actuation kit	S95L41AM	S95M41AM	S95N41AM
ΔP 200 - 450 PSI	Actuator	CH3	CH4	CH5
	Actuation kit	S95L41AM	S95M41AM	S95N41AM

Torque for actuator sizing in-lb

Delta P -->	0 - 200 PSI		600 PSI (450 PSI over 2")	
	to open	to close	to open	to close
2 1/2"	372	372	929	929
3"	902	902	1062	1062
4"	1646	1646	1991	1991

Torque correction factors

Valve torque can vary according to operating frequency, temperature and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

Puri-T 264 NPT

1/2" - 1 1/2" Lead Free, ISO 5211



All surfaces of this product in contact with drinking water contain less than 0.25% of lead in compliance with U.S. law

Technical data:

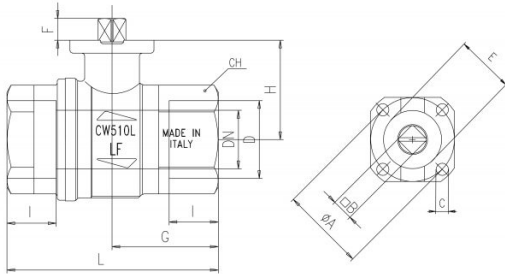
Working Pressure: 600 PSI up to 3/4" size,
For 1" size up to 1 1/2" size:
- Seat rating: Delta P max permissible 230 PSI
- Shell rating: 600 PSI
non-shock cold working pressure

Working Temperature: -4°F/+350°F

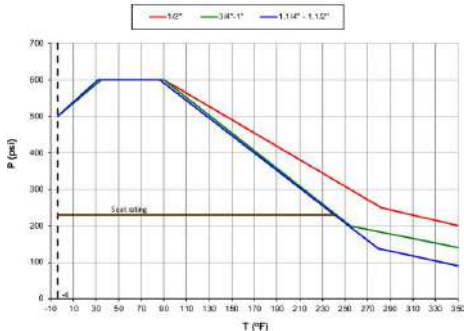
Threads: NPT taper ANSI B.1.20.1 female by female threads

Dimensions inches

Code	T264D41	T264E41	T264F41	T264G41	T264H41
D	1/2"	3/4"	1"	1 1/4"	1 1/2"
DN	0.590	0.787	0.984	1.259	1.575
I	0.610	0.708	0.826	0.905	0.964
L	2.598	2.933	3.562	4.094	4.606
G	1.201	1.456	1.791	2.047	2.322
H	1.220	1.515	1.673	1.941	2.441
CH	1.063	1.259	1.614	1.968	2.165
ØA	1.417	1.417	1.417	1.417	1.968
B	0.354	0.354	0.354	0.354	0.551
C	0.220	0.220	0.220	0.220	0.259
E	0.984	0.984	0.984	0.984	1.378
F	0.295	0.334	0.334	0.334	0.570
Flange connection DIN ISO 5211 DIN 3337	F03	F03	F03	F03	F05

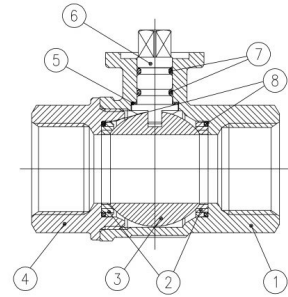


Pressure-temperature chart



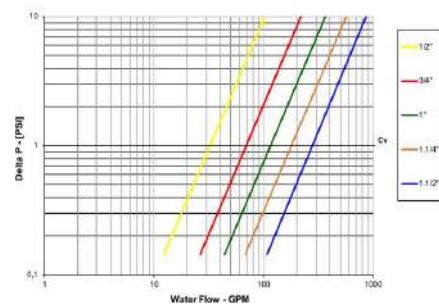
Features:

- Certified by CSA International to comply with U.S. s3874, California AB1953, and similar laws of other states for the safe handling of drinking water
- 24h 100% seal test guaranteed
- Dual sealing system allows valve to be operated in either direction making installation easier
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Chrome plated lead free brass ball for longer life



Part description	Qty	Material
1 Unplated NPT body	1	CW510L
2 Ball seat	2	PTFE graphite filled 15% up to 3/4" size, PTFE carbographe filled over 3/4" size
3 Chrome plated ball	1	CW510L
4 Unplated NPT endcap	1	CW510L
5 Washer	1	PTFE carbon filled 25%
6 Nickel plated stem O-ring design	1	CW510L
7 O-Ring	2	FPM
8 O-Ring	2	FPM

Pressure drop chart



Valve	T264D41	T264E41	T264F41	T264G41	T264H41
Valve Size	1/2"	3/4"	1"	1 ¼"	1 ½"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1				EA4-3
	Actuation kit	EA1D264D41	EA1D264E41	EA1D264F41	EA1D264G41	EA3D264H41
Spring return pneumatic actuator	Actuator	EA4-2				EA4-3
	Actuation kit	EA2R264D41	EA2R264E41	EA2R264F41	EA2R264G41	EA3R264H41

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1				
	Actuation kit	ET1B264D41	ET1B264E41	ET1B264F41	ET1B264G41	ET1B264H41
24 VAC, On/Off	Actuator	ET-1				
	Actuation kit	ET1C264D41	ET1C264E41	ET1C264F41	ET1C264G41	ET1C264H41

CP

electric actuator

CP Electric Actuator	Actuation kit	CP5xy-264D41	CP5xy-264E41	CP5xy-264F41	CP5xy-264G41	-
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note for code:

x = A for 230 VAC 50 Hz; B = for 110 VAC ac 60 Hz; C = for 24 VAC 50/60 Hz; D for 24 Vdc
y = 2 for 2 wires electrical connection; 3 for 3 wires electrical connection

CT

electric actuator

120 VAC, On/Off	Actuator	CT1 - 8Nm				CT4 - 40Nm
	Actuation kit	CT1BAN1264D41	CT1BAN1264E41	CT1BAN1264F41	CT1BAN1264G41	CT4ICM2264H41
24 VAC, On/Off	Actuator	CT1 - 8Nm				CT4 - 40Nm
	Actuation kit	CT1CAN1264D41	CT1CAN1264E41	CT1CAN1264F41	CT1CAN1264G41	CT4LCM2264H41

note for code:

All the selection are made for delta P 0 - 230 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 200 PSI		600 PSI	
	to open	to close	to open	to close
Valve Size				
1/2"	25	15	25	15
3/4"	33	20	33	20

Delta P -->	0 - 90 PSI		> 90 - 230 PSI	
	to open	to close	to open	to close
Valve Size				
1"	19	19	31	31
1 ¼"	22	22	35	35
1 ½"	51	51	84	84

Water flow ratings

Size	T264D41	T264E41	T264F41	T264G41	T264H41
CV	32.3	69.3	115.5	179.1	283.1

Torque correction factors

Valve torque can vary according to operating frequency, temperature and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.7341 NPT 3-way 4 seats T-port

1/2" - 2" ISO 5211



Technical data:

Working Pressure: 300 PSI non-shock cold working pressure

Working Temperature: -4°F / +302°F

Threads: NPT taper ANSI B.1.20.1 female by female threads

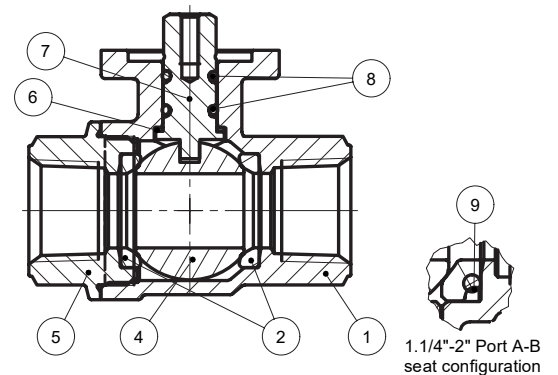
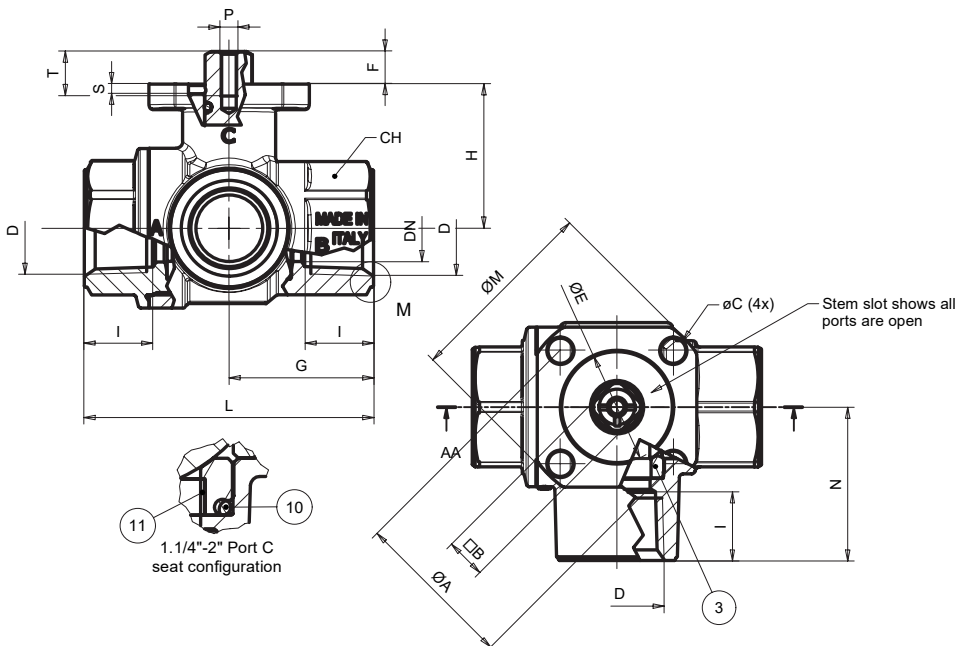
Dimensions inches

Code	S73D41	S73E41	S73F41	S73G41	S73H41	S73I41
Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
DN	0.591	0.787	0.984	1.197	1.496	1.890
I	0.610	0.709	0.827	0.906	0.965	1.043
L	2.559	3.110	3.642	4.311	4.961	5.906
G	1.280	1.555	1.831	2.165	2.480	2.953
H	1.280	1.555	1.673	2.205	2.500	2.854
N	1.358	1.654	1.949	2.362	2.717	3.228
ØA	1.417	1.417	1.417	1.969	1.969	1.969
ØC	Ø 0.22	Ø 0.22	Ø 0.22	Ø 0.26	Ø 0.26	Ø 0.26
ØE	0.984	0.984	0.984	1.378	1.378	1.378
□B	0.354	0.354	0.354	0.551	0.551	0.551
ØM	1.709	1.709	1.709	2.394	2.394	2.394
S	0.087	0.087	0.087	0.126	0.126	0.126
T	0.394	0.394	0.394	0.551	0.551	0.551
F	0.287	0.327	0.327	0.571	0.571	0.571
CH	1.063	1.260	1.614	1.969	2.165	2.756

Features:

- Electronic 100% seal test guaranteed
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Chrome plated brass ball for longer life
- Each valve is seal tested for maximum safety
- Performs well in any orientation
- Strong configuration

	Part description	Qty	Material
1	Sand blasted unplated body	1	CW617N
2	Seat	2	PTFE
3	Seat	2	PTFE
4	Chrome plated ball	1	CW617N
5	Sand blasted unplated end-cap	1	CW617N
6	Washer	1	PTFE carbon filled 25%
7	Nickel plated stem O-ring design	1	CW617N
8	Green O-Ring	2	FPM
9	O-Ring	2	FPM
10	O-Ring	2	FPM
11	Unplated O-Ring	2	CW617N



Valve	S73D41	S73E41	S73F41	S73G41	S73H41	S73I41
Valve Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-2		EA4-3			
	Actuation kit	EA2D73D41	EA2D73E41	EA3D73F41	EA3D73G41	EA3D73H41	EA3D73I41
Spring return pneumatic actuator	Actuator	EA4-3		EA4-4	EA4-3	EA4-4	
	Actuation kit	EA3R73D41	EA3R73E41	EA4R73F41	EA3R73G41	EA4R73H41	EA4R73I41

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1		ET-2			ET-3
	Actuation kit	ET1B73D41	ET1B73E41	ET2B73F41	ET2B73G41	ET2B73H41	ET3B73I41
24 VAC, On/Off	Actuator	ET-1		ET-2			ET-3
	Actuation kit	ET1C73D41	ET1C73E41	ET2C73F41	ET2C73G41	ET2C73H41	ET3C73I41

CT

electric actuator

120 VAC, On/Off	Actuator	CT2	CT3		CT4		
	Actuation kit	CT2BCM273D41	CT3BCM273E41	CT3ICM273F41 (LK9 is required)	CT4ICM273G41	CT4ICM273H41	CT4ICM273I41
24 VAC, On/Off	Actuator	CT2	CT3		CT4		
	Actuation kit	CT2CCM273D41	CT3CCM273E41	CT3LCM273F41 (LK9 is required)	CT4LCM273G41	CT4LCM273H41	CT4LCM273I41

note for code:

All the selection are made for delta P 0 - 230 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 230 PSI	
	to open	to close
1/2"	93	93
3/4"	115	115
1"	195	195
1 1/4"	124	124
1 1/2"	204	204
2"	336	336

Torque correction factors

Valve torque can vary according to operating frequency, temperatre and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.7641 NPT 3-way 2 seats L-port (diverting)

1/2" - 2" ISO 5211



Technical data:

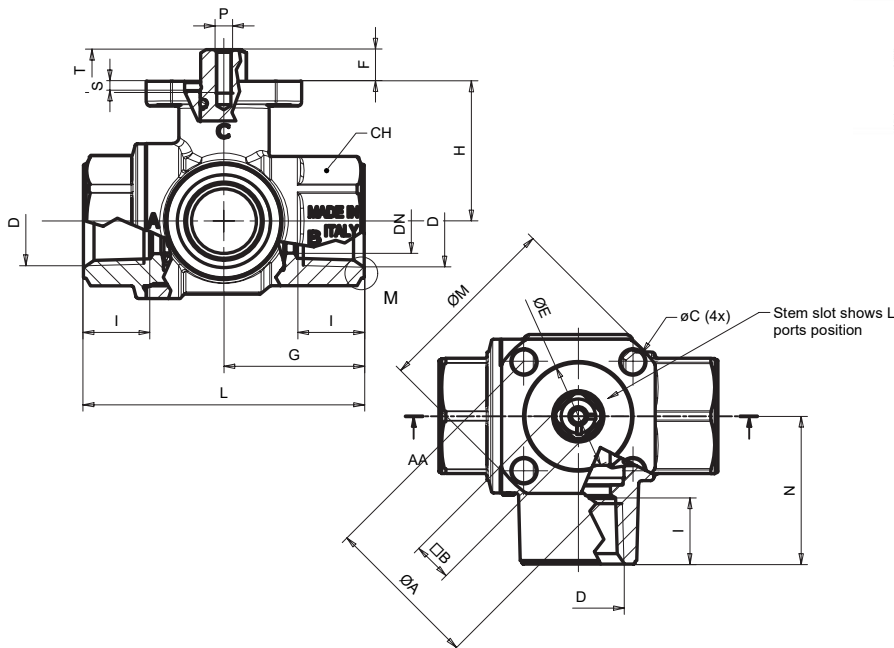
Working Pressure: 450 PSI non-shock cold working pressure

Working Temperature: -4°F / +302°F

Threads: NPT taper ANSI B.1.20.1 female threads

Dimensions inches

Code	S76D41	S76E41	S76F41	S76G41	S76H41	S76I41
Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
DN	0.591	0.787	0.984	1.197	1.496	1.890
I	0.610	0.709	0.827	0.906	0.965	1.043
L	2.559	3.110	3.642	4.311	4.961	5.906
G	1.280	1.555	1.831	2.165	2.480	2.953
H	1.820	1.555	1.673	2.205	2.500	2.854
N	1.358	1.654	1.949	2.362	2.717	3.228
ØA	1.417	1.417	1.417	1.969	1.969	1.969
ØC	Ø 0.22	Ø 0.22	Ø 0.22	Ø 0.26	Ø 0.26	Ø 0.26
ØE	0.984	0.984	0.984	1.378	1.378	1.378
Square B	0.354	0.354	0.354	0.551	0.551	0.551
ØM	1.709	1.709	1.709	2.394	2.394	2.394
S	0.087	0.087	0.087	0.126	0.126	0.126
T	0.394	0.394	0.394	0.551	0.551	0.551
F	0.287	0.327	0.327	0.571	0.571	0.571
CH	1.063	1.260	1.614	1.969	2.165	2.756

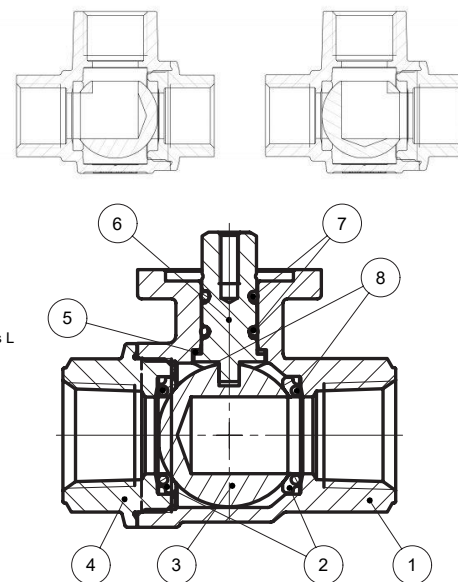


Features:

- Electronic 100% seal test guaranteed
- No metal-to-metal moving parts
- No maintenance ever required
- Silicone-free lubricant on all seals
- Chrome plated brass ball for longer life
- Each valve is seal tested for maximum safety
- Performs well in any orientation
- Strong configuration

	Part description	Qty	Material
1	Sand blasted unplated body	1	CW617N
2	Seat	2	PTFE 15% GRF up to 1", PTFE over 1"
3	Chrome plated ball	1	CW617N
4	Sand blasted unplated end-cap	1	CW617N
5	Washer	1	PTFE carbon filled 25%
6	Nickel plated stem O-ring design	1	CW617N
7	Green O-Ring	2	FPM
8	O-Ring	2	FPM

S.76 3-way "L" operating positions



Valve	S76D41	S76E41	S76F41	S76G41	S76H41	S76I41
Valve Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1			EA4-3		
	Actuation kit	EA1D76D41	EA1D76E41	EA1D76F41	EA3D76G41	EA3D76H41	EA3D76I41
Spring return pneumatic actuator	Actuator	EA4-2			EA4-3		EA4-4
	Actuation kit	EA2R76D41	EA2R76E41	EA2R76F41	EA3R76G41	EA3R76H41	EA4R76I41

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1			ET-2		ET-3
	Actuation kit	ET1B76D41	ET1B76E41	ET1B76F41	ET2B76G41	ET2B76H41	ET3B76I41
24 VAC, On/Off	Actuator	ET-1			ET-2		ET-3
	Actuation kit	ET1C76D41	ET1C76E41	ET1C76F41	ET2C76G41	ET2C76H41	ET3C76I41

CP

electric actuator

CP Electric Actuator	Actuation kit	CP5xy-76D41	CP5xy-76E41	CP5xy-76F41	-	-	-
note for code: x = A for 230 VAC 50 Hz; B = for 110 VAC ac 60 Hz; C = for 24 VAC 50/60 Hz; D for 24 Vdc y = 2 for 2 wires electrical connection; 3 for 3 wires electrical connection							

CT

electric actuator

120 VAC, On/Off	Actuator	CT1			CT4		
	Actuation kit	CT1BAN176D41	CT1BAN176E41	CT1BAN176F41	CT4IAN176G41	CT4IAN176H41	CT4IAN176I41
24 VAC, On/Off	Actuator	CT1			CT4		
	Actuation kit	CT1CAN176D41	CT1CAN176E41	CT1CAN176F41	CT4LAN176G41	-	-

note for code:
All the selection are made for delta P 0 - 200 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 450 PSI	
	to open	to close
1/2"	31	31
3/4"	36	36
1"	40	40
1 1/2"	104	104
1 1/4"	190	190
2"	248	248

Torque correction factors

Valve torque can vary according to operating frequency, temperatre and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.134 NPT stainless steel

1/2" - 2" ISO 5211



Technical data:

Working Pressure: 1000 PSI cold working pressure | 150 PSI WSP steam rating | 2×10^{-2} torr vacuum rating | *150 psig non-shock working steam pressure. Not suitable for throttling steam.

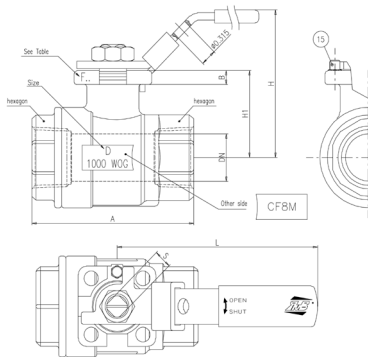
Working Temperature: -50°F/ +450°F

Threads: NPT taper ANSI B.1.20.1 female by female threads

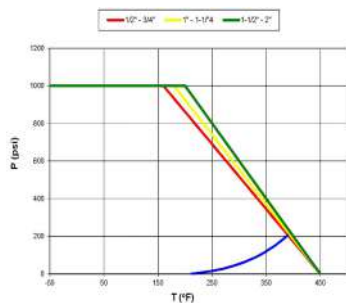
Dimensions inches

Code	134D41	134E41	134F41	134G41	134H41	134I41
D	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
DN	0.56	0.81	1	1.25	1.5	1.97
H1	1.40	1.56	1.84	2	2.3	2.8
A	2.60	2.99	3.54	3.94	4.41	5
B	0.26	0.28	0.319	0.319	0.319	0.382
S	0.35	0.35	0.43	0.43	0.43	0.55
Flange connection DIN ISO 5211 DIN 3337	F03	F03	F04/F05	F04/F05	F04/F05	F05

Code	134D41L*	134E41L*	134F41L*	134G41L*	134H41L*	134I41L*
L	4.40	4.40	5.87	5.87	5.87	7.5
H	2.50	2.66	3.14	3.3	3.6	4.5



Pressure-temperature chart

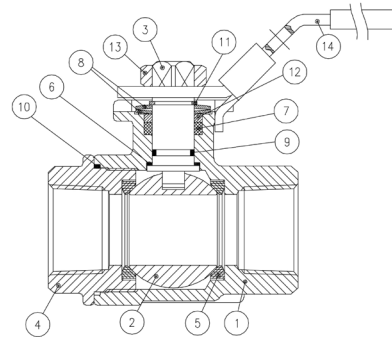


*Ball valves fitted with stainless steel lock lever handle



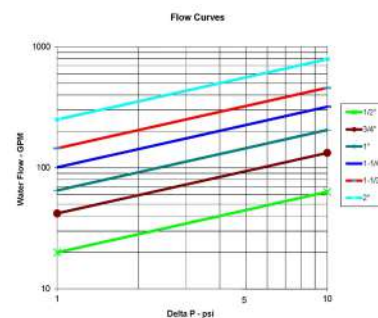
Features:

- Dual sealing system allows valve to be operated in either direction making installation easier
- Silicone-free lubricant on all seals
- NACE compliance MR-01-75



Part description	Qty	Material
1 Body	1	A351-CF8M
2 Ball	1	A351-CF8M
3 Stem	1	AISI316
4 Cap	1	A351-CF8M
5 Seat	2	RTFE
6 Seat	1	RTFE
7 Packing		TFE
8 Bellville	2	SK5
9 O-Ring	1	FPM
10 Gasket	1	RTFE
11 Snapping	1	AISI304
12 Follower	1	AISI316
13 Nut	1	AISI304
14 Lockable handle	1	A240 SS304
15 Stop pin	1	AISI304

Pressure drop chart



Valve	134D41	134E41	134F41	134G41	134H41	134I41
Valve Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-1	EA4-2	EA4-3			
	Actuation kit	EA1D134D41	EA2D134E41	EA3D134F41	EA3D134G41	EA3D134H41	EA3D134I41
Spring return pneumatic actuator	Actuator	EA4-2		EA4-3			EA4-4
	Actuation kit	EA2R134D41	EA2R134E41	EA3R134F41	EA3R134G41	EA3R134H41	EA4R134I41

ET

electric actuator

120 VAC, On/Off	Actuator	ET-1		ET-2			ET-3
	Actuation kit	ET1B134D41	ET1B134E41	ET2B134F41	ET2B134G41	ET2B134H41	ET3B134I41
24 VAC, On/Off	Actuator	ET-1		ET-2			ET-3
	Actuation kit	ET1C134D41	ET1C134E41	ET2C134F41	ET2C134G41	ET2C134H41	ET3C134I41

CT

electric actuator

120 VAC, On/Off	Actuator	CT-1		CT-3		CT-4	
	Actuation kit	CT1BAN1134D41	CT1BAN1134E41	CT3BCM2134F41	CT3BCM2134G41	CT4ICM2134H41	CT4ICM2134I41
24 VAC, On/Off	Actuator	CT-1		CT-3		CT-4	
	Actuation kit	CT1CAN1134D41	CT1CAN1134E41	CT3CCM2134F41	CT3CCM2134G41	CT4LCM2134H41	CT4LCM2134I41

note for code:

All the selection are made for delta P 0 - 200 PSI

Torque for actuator sizing in-lb

Delta P -->	0 - 200 PSI	
	to open	to close
1/2"	49	41
3/4"	78	59
1"	123	66
1 1/4"	156	109
1 1/2"	250	144
2"	317	211

Water flow ratings

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
CV	20	42	65	101	145	250

s.135 stainless steel

2" - 3" - 4" ANSI B16.5 flange, ISO 5211



Technical data:

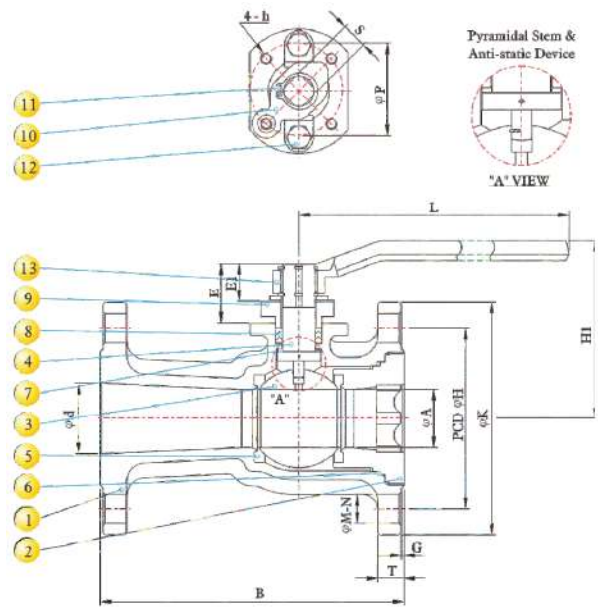
Working Pressure: General use: 750 PSI (see chart on reverse) | 275 PSI for ASME 150 CF8M (see chart on reverse) | Steam rating: 150 PSI WSP
Working Temperature: -50°F/+475°F
Threads: ANSI B16.5, B16.10 and B16.34 full compliance

Dimensions inches

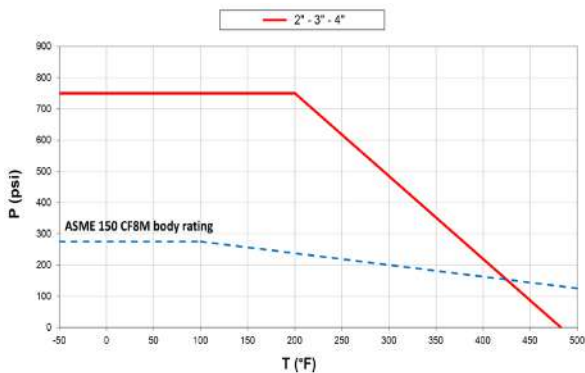
Code	135IF0	135MF0	135NF0
Size	2"	3"	4"
A	1.50	2.56	3.15
B	7.0	8.0	9.0
E	1.65	2.20	2.20
E1	1.02	1.44	1.44
d	1.97	3.15	3.94
G	0.06	0.06	0.06
H	4.75	6.00	7.50
K	6.00	7.50	9.00
T	0.62	0.75	0.94
M	0.75	0.75	0.75
N	4	4	8
P	2.76	4.02	4.02
S	0.67	0.87	0.87
L	9.13	12.87	12.87
H1	4.96	5.98	6.30
h	M8*P1.25	M10*P1.5	M10*P1.5

Features:

- Anti-static device
- Locking device
- Long cycle life
- Test standard: API 598
- API 607 4th edition fire safe approval
- Vacuum service to 29" Hg



Pressure-temperature chart



*ME-PTFE is Molecular Enhanced PTFE

Part description	Qty	Material
1 Body	1	ASTM A351-CF8M
2 Cap	1	ASTM A351-CF8M
3 Ball	1	ASTM A351-CF8M
4 Stem	1	ASTM A276 Gr.316
5 Seat	2	ME-PTFE*
6 Gasket	1	ME-PTFE*
7 Thrust washer	1	ME-PTFE*
8 Packing	1	ME-PTFE*
9 Gland	1	ASTM A351-CF8
10 Stopper	1	SS304
11 Snap ring	2	SS304
12 Gland bolt	2	ASTM A193 Gr.B8
13 Handle	1	ASTM A536 Gr.65-45-12

Valve	135IF0	135MF0	135NF0
Valve Size	2"	3"	4"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-3	EA4-4	EA4-5
	Actuation kit	EA3D135IF0	EA4D135MF0	EA5D135NF0
Spring return pneumatic actuator	Actuator	EA4-6	EA4-7	
	Actuation kit	EA6R135IF0	EA7R135MF0	EA7R135NF0

ET

electric actuator

120 VAC, On/Off	Actuator	ET-3	ET-4	ET-5
	Actuation kit	ET3B135IF0	ET4B135MF0	ET5B135NF0
24 VAC, On/Off	Actuator	ET-3	ET-4	ET-5
	Actuation kit	ET3C135IF0	ET4C135MF0	ET5C135NF0

Water flow ratings

Size	2"	3"	4"
CV	170	430	565

Torque for actuator sizing in-lb

Delta P -->	Valve torque	
	to open	to close
Valve Size		
2"	376.15	376.15
3"	678.9	678.9
4"	909	909

Torque correction factors

Valve torque can vary according to operating frequency, temperature and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5

s.136 stainless steel

6" - 8" ANSI B16.5 flange, ISO 5211



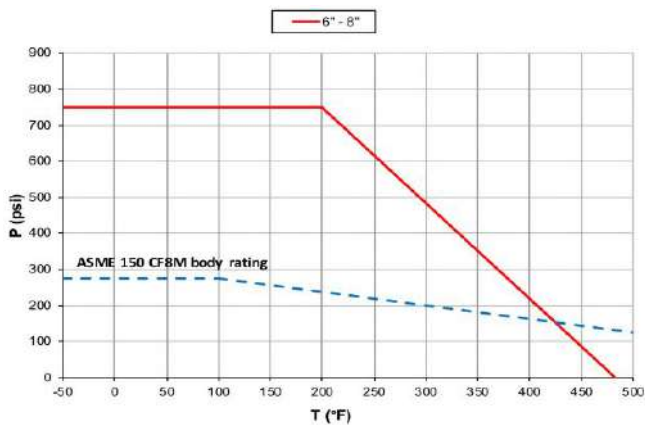
Technical data:

Working Pressure: General use: 750 PSI (see chart on reverse) | 275 PSI for ASME 150 CF8M (see chart on reverse) | Steam rating: 150 PSI WSP
Working Temperature: -50°F/+475°F
Threads: ANSI B16.5, B16.10 and B16.34 full compliance

Dimensions inches

Code	136PF0	136QF0
Size	6"	8"
A	5.91	7.87
B	15.50	18.00
E	2.65	2.86
E1	8.50	10.62
D	1.48	1.88
G	0.06	0.06
H	9.50	11.75
K	11.00	13.50
T	1.00	1.12
M	0.88	0.88
N	8	8
P	4.92	5.51
S	0.79	1.30
L	40.63	12.87
H1	10.37	12.00
h	M12x1.75	M16x2.0
CV (GPM)	5100	9400

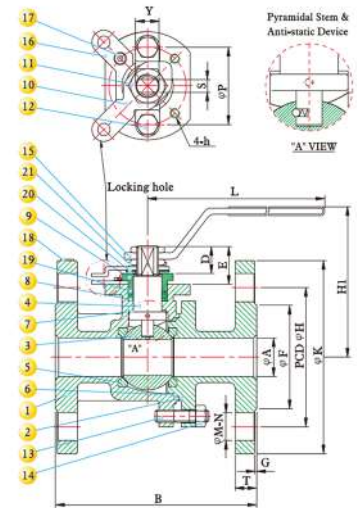
Pressure-temperature chart



*ME-PTFE is Molecular Enhanced PTFE

Features:

- API 607 4th edition fire safe approval
- Vacuum service to 29" Hg
- Locking device
- Long cycle life
- Test standard: API 598
- Anti-static device



Part description	Qty	Material
1 Body	1	ASTM A351-CF8M
2 Cap	1	ASTM A351-CF8M
3 Ball	1	ASTM A351-CF8M
4 Stem	1	ASTM A276 Gr. 316
5 Seat	2	ME-PTFE*
6 Gasket	1	GRAFOIL
7 Thrust washer	1	ME-PTFE*
8 Packing	1	GRAFOIL
9 Gland	1	ASTM A351- Gr. CF8
10 Stopper	1	SS304
11 Handle nut	2	SS304
12 Gland bolt	2	ASTM A193 Gr.B8
13 Stud bolt - Qty 4-10		ASTM A193 Gr.B8
14 Set nut - Qty 4-10		ASTM A194 Gr. 8
15 Handle	1	SS304
16 Locking plate	1	SS304
17 Set Bolt	2	SS304
18 Name plate	1	SS304
19 Ring	1	SS304
20 Bearing	1	NYLON
21 Lock washer	1	SS304

Valve	136PF0	136QF0
Valve Size	6"	8"

EA

pneumatic actuator

Double acting pneumatic actuator	Actuator	EA4-7	EA4-9
	Actuation kit	EA7D136PF0	EA9D136QF0
Spring return pneumatic actuator	Actuator	EA4-10	EA4-12
	Actuation kit	EA10R136PF0	EA12R136QF0

ET

electric actuator

120 VAC, On/Off	Actuator	ET-7	ET-9
	Actuation kit	ET7B136PF0	ET9B136QF0
24 VAC, On/Off	Actuator	ET-7	ET-9
	Actuation kit	ET7C136PF0	ET9C136QF0

Water flow ratings

Size	6"	8"
CV	5100	9400

Torque for actuator sizing in-lb

Delta P -->	Valve torque	
	to open	to close
6"	2531.4	2531.4
8"	5753	5753

Torque correction factors

Valve torque can vary according to operating frequency, temperature and friction characteristics of the media.

If media has more or less friction than water, multiply torque by the following factors.

Lubricating oils or liquids	0.8
Dry gases, natural gas	1.5
Slurries or liquids bearing abrasive particles	1.5 to 2.5



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