



MAXON SMARTLINK® MRV

INTELLIGENT MICRO-RATIO® VALVE SERIES

TECHNICAL CATALOG



32M-06003-05

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PRODUCT DESCRIPTION

The MAXON SMARTLINK® MICRO-RATIO® Valve (MRV) is an industrial parallel positioning system for combustion applications providing a high degree of precision, repeatability, tamper resistance, and durability. In addition, SMARTLINK® MRV interfaces with all burner management and flame safety systems, simplifying retrofit applications. The system is simple to set-up and does not require a personal computer in the field for commissioning.

SMARTLINK® MRV includes 1, 2, 3, or 4 Valve Actuators directly coupled to flow control valves, and a Control Interface unit which serves as a commissioning interface and “gateway” between the Valve Actuators and the user’s process controller, PLC, or distributed control system (DCS).

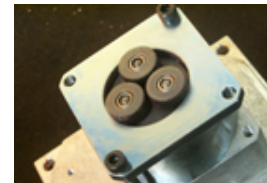
The SMARTLINK® Valve Actuator design is an industrial, factory-calibrated assembly. It incorporates a precision, planetary gear-head with integrated position feedback and a stepper motor for continuous duty control of various

valves. Each valve actuator is powered by 24VDC and includes a digital position control loop and a digital interface that ensures reliable operation even in electrically noisy environments. The small footprint, weatherproof enclosure and Class I, Division 2 approvals, and superior position control performance make this product a high performance, cheaper alternative to pneumatic equipment.

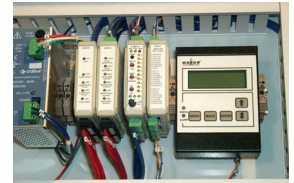
The SMARTLINK® MRV Control Interface is a DIN rail-mounted digital hub that electronically “links” and synchronizes valve movement for precision air/fuel ratio control. Front-mounted switches and indicators are provided for displaying alarms, system configuration, and valve characterization. The Control Interface also provides a precision 4-20 mA firing rate feedback signal. Optional equipment includes MAXON Relay Input and Output Interfaces, a User Display, universal power supply, factory-wired panel assemblies, and several NEMA 4X enclosures.



SMARTLINK® gas butterfly valve (left), air butterfly valve (center) and ball valve (right) assemblies



Inside view of SMARTLINK® Actuator, showing planetary gearheads



Control Interface with optional User Display, Relay Input, Output and Network Interfaces in pre-wired panel assembly

FEATURES AND BENEFITS

- **Precise and repeatable flow control optimizes fuel efficiency, enables accurate temperature control and lowers burner emissions.**
- **SMARTLINK® MRV is an electronic parallel positioning system for air/fuel ratio control; for use in industrial applications providing a high degree of precision, repeatability and durability.**
- **Synchronous control of up to four valves with conventional signal from the user's process controller.**
- **Direct coupled valve and actuator assembly includes weatherproof housing with integrated position feedback and heavy duty planetary gearheads for reliable, long life operation.**
- **Compact, robust design mounts in any orientation.**
- **Each SMARTLINK® Valve is adjustable to 0.1 degrees accuracy.**
- **UL and CE approved electronics and software for air-fuel ratio control.**
- **Stores a 22 point user-customized profile for each valve.**
- **Factory Mutual (FM) approved as non-incendive for Hazardous Locations Class I, Division 2 and ATEX, IEC Ex and KC approval; standard actuator is also NEMA 4X, Class II, Division 2 approved.**
- **Maintenance-free operation; no lubrication required. No valve packing to adjust.**

- **Electronic passcode protection eliminates valve profile tampering.**
- **Simple set-up; no PC required.**
- **Standby, purge and light off positions can be defined independent of valve profiles.**

APPLICATIONS

SMARTLINK® MRV is designed for precision control of industrial combustion systems, boiler combustion systems, and related heating process flows. The rugged industrial package adds value to many heating and manufacturing processes by providing highly accurate, characterizable flow control with enhanced, digital intelligence.

Typical applications include:

- **Simple burner ratio controls**
- **Low NOx and low CO burner controls**
- **Control of combustion systems on processes sensitive to products of combustion**
- **Control of complex burners with staging or flue gas recirculation**
- **Precise control of process flows like feed water, atmosphere gases, and even product feeds**
- **Accurate flow control of metered processes and process heaters for liquids and gases**

APPROVALS

FM	Nonincendive for Class I, Division 2: Groups A,B,C,D,T4 (when provided with specialized NEMA 4X enclosures) (valve actuator also Class II, Division 2; Groups E, F, G)
FM (ATEX)	II 3 G Ex nA nC IIC T4 Ta=-40C to +70C; IP66 when components mounted in enclosure (valve actuator is II 3 G Ex nA nC IIC T4 Ta=-40C to +70C; IP66 and II 3 D Ex tC IIIC T135C Dc IP66). Note: Only the Actuators, Control Interface, Network Interface, User Display, 24V Relay Input Interface, Relay Output Interface are ATEX approved; FM09ATEX0062X.
FM (UKCA)	II 3 G Ex nA nC IIC T4 Ta=-40C to +70C; IP66 when components mounted in enclosure (valve actuator is II 3 G Ex nA nC IIC T4 Ta=-40C to +70C; IP66 and II 3 D Ex tC IIIC T135C Dc IP66). Note: Only the Actuators, Control Interface, Network Interface, User Display, 24V Relay Input Interface, Relay Output Interface are approved; FM21UKEX0098X.
IEC Ex	Ex nA nC IIC T4 -40°C ≤ Ta ≤ 70°C Gc, Ex tC IIIC T135C Dc; Interface - IP54; Actuator - IP65; Meter - IP66; Note: Only the Actuators, Control Interface, Network Interface, User Display, 24V Relay Input Interface, Relay Output Interface are IEC Ex approved.
UL	UL (US & Canadian): Air Fuel Ratio System and Limit Controls (UL353), Class 2 Software (UL 1998) Temperature-Indicating and Regulating Equipment (CSA C22.2 No. 24-93)
CE (GAR)	CE Gas Appliance Directive: Gas-Air Ratio Controller, Class C Software (BS EN 12067-2, BS EN298, ISO 253552-1) CE EMC Directive: Electromagnetic Immunity and Emissions (BS EN61000) CE Low Voltage Directive: Electrical Safety (BS EN61010-1)
KTL/KC	Ex nA nC IIC T4, Ex tC IIIC T135C IP65
CCC Approvals	Actuators: Ex nA nC IIC T4 Gc; Ex tD A22 IP66 T135°C; GB 3836.1, GB 3836.8, GB 12476.1, GB 12476.5; Panel Devices: Ex nA nC IIC T4 Gc; GB 3836.1, GB 3836.8; Certification No: GYB21.1433X
UKCA (GAR)	CE Gas Appliance Directive: Gas-Air Ratio Controller, Class C Software (BS EN 12067-2, ISO 253552-1) CE EMC Directive: Electromagnetic Immunity and Emissions (BS EN61000) CE Low Voltage Directive: Electrical Safety (BS EN61010-1)



MODEL NUMBERS

Butterfly valves

The model number shown on the valve nameplate can accurately identify every MAXON SMARTLINK® MRV Butterfly Valve. The example below shows a typical SMARTLINK® MRV Butterfly Valve model number, along

with the available choices for each item represented in the model number. The first three choices determine the valve's configured item number. The next eight characters in the model number identify valve body and actuator options.

Configured Item Number				Valve Body					Actuator			
Valve Size	Flow Capacity	Series		Body Connection	Body Seals	Body Material	Body Internals		Torque Rating	Software Version	Language	Valve Number
0100	S	SRCV	-	A	A	1	1	-	1	1E	A	0

Size

0100 - 1"
 0125 - 1.25"
 0150 - 1.5"
 0200 - 2"
 0250 - 2.5"
 0300 - 3"
 0400 - 4"
 0600 - 6"
 0800 - 8"
 1000 - 10"
 1200 - 12"
 1400 - 14"
 1600 - 16"

Flow Capacity

S - Standard

Series

SRCV - SMARTLINK® MRV Butterfly Valve

Body Connection

A - ANSI Flange
 M - "M" Style Flange
 X - Special
 * - Actuator Only

Body Seals

A - Buna-N
 B - Viton
 X - Special
 * - Actuator Only

Body Material

1 - Cast Iron
 2 - Carbon Steel
 3 - Brass
 5 - Stainless Steel
 X - Special
 * - Actuator Only

Body Internals

1 - Trim Package 1
 2 - Trim Package 1, Oxy Clean
 5 - Trim Package 2
 6 - Trim Package 2, Oxy Clean
 X - Special
 * - Actuator Only

Torque Rating

1 - 33.9 N.m
 X - Special
 * - Valve Body Only

Software Version [1]

1E - Standard software
 ** - Valve Body Only

Language

A - English
 X - Special
 * - Valve Body Only

Valve Number

0 - Valve 0
 1 - Valve 1
 2 - Valve 2
 3 - Valve 3
 4 - Spare Actuator

[1] The latest version is the default.

Trim Package Options and Typical Materials:

- 1 - 300 Series Stainless Steel stem, 300 Series Stainless Steel disc and Bronze bushings
- 2 - 300 Series Stainless Steel stem, 300 Series Stainless Steel disc and PEEK bushings

Ball valves

The model number shown on the valve nameplate can accurately identify every MAXON SMARTLINK® MRV Ball Valve. The example below shows a typical SMARTLINK®

MRV Ball Valve model number, along with the available choices for each item represented in the model number. The first three choices determine the valve's configured item number. The next eight characters in the model number identify valve body and actuator options.

Configured Item Number				Valve Body					Actuator			
Valve Size	Flow Capacity	Series		Body Connection	Body Seals & Packing	Body Material	Body Internals		Torque Rating	Software Version	Language	Valve Number
0100	7	SRBV	-	B	E	2	1	-	1	1E	A	0

Size

0050 - .5"
0075 - .75"
0100 - 1"
0125 - 1.25"
0150 - 1.5"
0200 - 2"

Flow Capacity

1 - 1/32" Slot
2 - 1/16" Slot
3 - 1/8" Slot
4 - 3/16" Slot
5 - 1/4" Slot
6 - 30° V
7 - 60° V
8 - 90° V
9 - Round Port

Series

SRBV - SMARTLINK® MRV Ball Valve

Body Connection

A - ANSI Flanged 150#
B - ANSI Threaded
X - Special (see note 1)
* - Actuator Only

Body Seals & Packing

E - Teflon
X - Special (see note 1)
* - Actuator Only

Body Material

2 - Carbon Steel
5 - Stainless Steel
X - Special (see note 1)
* - Actuator Only

Body Internals

1 - Trim Package 1
X - Special (see note 1)
* - Actuator Only

Torque Rating

1 - 33.9 N.m
X - Special
* - Valve Body Only

Software Version (see note 2)

1E - Standard software
** - Valve Body Only

Language

A - English
X - Special
* - Valve Body Only

Valve Number

0 - Valve 0
1 - Valve 1
2 - Valve 2
3 - Valve 3
4 - Spare Actuator

Note 1: Please see page 7 for all available ball valve options. These will require a special configuration.

Note 2: The latest version is the default.

Trim Package Options and Typical Materials:

1 - 300 Series Stainless Steel Ball, 300 Series Stainless Steel Stem and Teflon Seat Rings

Additional Ball Valve Options for Special ConfigurationBody Connection

Flat-Faced Flanged
 Butt Weld
 Extended Butt Weld
 Clamp Ends
 Groove Ends
 Socket Weld
 Extended Socket Weld
 Tube Ends
 300# RF Flanged
 600# RF Flanged

Body Seals & Packing

Body Seals
 Graphite
 Kel-F
 Peek
 RPTFE
 Carbon-Filled RPTFE
 UHMWPE
 Viton

 Packing
 Graphite
 RPTFE
 Carbon-Filled RPTFE

 Thrust Washer
 Graphite
 Hostaflon
 Kel-F
 Peek
 RPTFE
 Carbon-Filled RPTFE
 UHMWPE

Body Material

Duplex
 400 SS
 Alloy 20
 Monel
 Bronze
 Hastelloy c
 CF8
 Titanium

Body Internals

Stem & Ball
 Duplex
 400 SS
 Alloy 20
 Monel
 Bronze
 Hastelloy c
 CF8
 Titanium

 Seat Rings
 PFA
 Delrin
 Hostaflon
 Kel-F
 Peek
 RPTFE
 Carbon-Filled RPTFE

Control Actuator

The model number shown on the actuator nameplate can accurately identify every MAXON SMARTLINK® MRV Control Actuator. The example below shows a typical SMARTLINK® MRV Control Actuator model number, along

with the available choices for each item represented in the model number. The first choice determines the actuator's configured item number. The next six choices in the model number identify the connection and actuator options.

Configured Item Number											
Series		Connection		Torque Rating		Software Version		Language		Valve Number	
SR CA		-	K1	-	1	1E		A		0	2

Series
SR CA - SMARTLINK® MRV Control Actuator

Torque Rating
1 - 33.9 N.m
X - Special

Valve Number
0 - Valve 0
1 - Valve 1
2 - Valve 2
3 - Valve 3

Connection
K1 - 1/2" Keyed Output Shaft
L1 - Linkage Arm
S1 - 1/2" Square Output Shaft
S2 - 3/4" Square Output Shaft

Software Version [1]
1E - Standard software

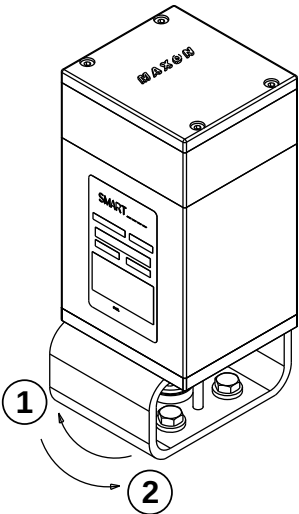
Language
A - English
X - Special

Rotation
1 - Clockwise
2 - Counter-clockwise

[1] The latest version is the default.

Control Actuator Rotation

- 1) Clockwise rotation
- 2) Counter-clockwise rotation



Spare Actuator

The model number shown on the actuator nameplate can accurately identify every MAXON SMARTLINK® MRV Spare Actuator. The example below shows a typical SMARTLINK® MRV Spare Actuator model number, along with the

available choices for each item represented in the model number. The first choice determines the actuator's configured item number. The next five choices in the model number identify the connection and actuator options.

Configured Item Number		Actuator						
Series		Torque Rating	Software Version	Language		Valve Number		Rotation
SR SA	-	1	1E	A	-	4	-	2

Series

SR SA - SMARTLINK® MRV
Spare Actuator

Torque Rating

1 - 33.9 N.m
X - Special

Language

A - English
X - Special

Software Version [2]

1E - Standard software

Valve Number

4 - Spare Actuator

Rotation [1]

1 - Clockwise
2 - Counter-clockwise

[1] The correct rotation must be specified. (See drawing on page 8.)

a. Butterfly Valves are always supplied in a counter-clockwise rotation.

b. Ball Valves are always supplied in a counter-clockwise rotation.

c. Control Actuators are customer-specific and rotation must be obtained from the actuator this spare is intended to replace.

[2] The latest version is the default.

Control Interface

The model number shown on the control interface nameplate can accurately identify every MAXON SMARTLINK® MRV Control Interface. The example below shows a typical SMARTLINK® MRV Control Interface model

number, along with the available choices for each item represented in the model number. The first four characters determine the Control Interface's configured item number. The next 11 characters in the model number identify the assembly options.

Configured Item #	Assembly Options													
Series	Software Version	Language	Enclosure		User Display	Interface Panel/Plate	Power Supply		Network Interface	Relay Input Interface	Relay Output Interface	Rail Assemblies		Valve Count
SR CI	1E	A	2	-	1	A	1	-	1	B	1	1		2

Series

SR CI - SMARTLINK® MRV Control Interface

Software Version [3]

1E - Standard software

Language

A - English
X - Special

Enclosure

0 - None
1 - 24x20x8, NEMA 4, Window
2 - 24x20x8, NEMA 4/4X, SS304 (1.4301), Window
3 - 24x20x8, NEMA 4/4X, SS316, Window
4 - 20x16x8, NEMA 4, Window
5 - 20x16x8, NEMA 4/4X, SS304 (1.4301), Window
6 - 20x16x8, NEMA 4/4X, SS316, Window
7 - 20x16x8, NEMA 4, No Window
8 - 20x16x8, NEMA 4/4X, SS304 (1.4301), No Window
9 - 20x16x8, NEMA 4/4X, SS316, No Window
X - Special

User Display [1]

0 - None
1 - Mounted Inside Enclosure
2 - Mounted Outside Enclosure
3 - Mounted Outside Enclosure w/ dust cover

Interface Panel/Plate

0 - None
A - 24x20 Plate, prewired
B - 24x20 316SS Plate, prewired
C - 20x16 Plate, prewired
D - 20x16 316SS Plate, prewired
X - Special

Power Supply

0 - None
1 - 24VDC
X - Special
* - Included w/Interface Panel

Network Interface

0 - None
1 - Yes
* - Included w/Interface Panel

Relay Input Interface [2]

0 - None
A - 24 VDC
B - 120 VAC
C - 230 VAC

Relay Output Interface

0 - None
1 - Yes
* - Included w/Interface Panel

Rail Assemblies

0 - None
1 - Control Rail Assembly
2 - Control Rail and Terminal Block Assembly
* - Both included w/Interface Panel

Valve Count

2 - Two Valve System
3 - Three Valve System
4 - Four Valve System

[1] Mounting on outside of enclosure can only be chosen for a non-window enclosure

[2] One option must be chosen when an Interface Panel/Plate is specified

[3] The latest version is the default.

User Display

The model number shown on the user display nameplate can accurately identify every MAXON SMARTLINK® MRV User Display. The example below shows a typical SMARTLINK® MRV User Display model number, along with

the available choices for each item represented in the model number. The first choice determines the user display's configured item number. The next two choices in the model number identify the user display options.

Configured Item Number		Options	
Series		Software Version	Language
SR UD	-	1E	A

Series

SR UD - SMARTLINK® MRV
User Display

Software Version [1]

1E - Standard software

Language

A - English
B - Dutch
C - French
D - German
X - Special

[1] The latest version is the default.

DESIGN AND APPLICATION DETAILS

Principle of Operation

The SMARTLINK® MRV System synchronously positions 1, 2, 3, or 4 valves with 0.1-degree precision and repeatability. During ignition sequencing, SMARTLINK® works with the user's burner management system to drive the system to user-defined standby, purge, and light-off positions. After burner ignition, the user's process (or temperature) controller drives SMARTLINK® MRV with a 4-20 mA firing rate command.

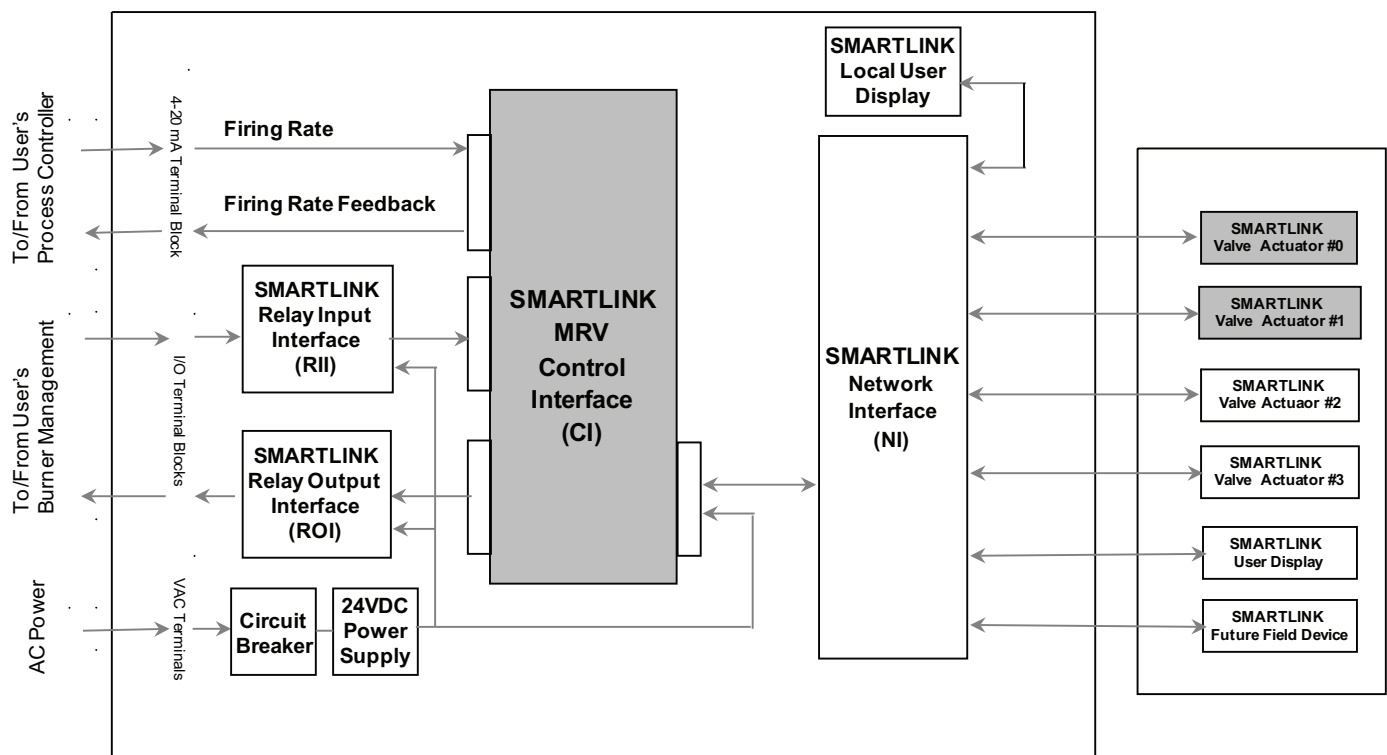
The Valve Actuators perform a high-speed control loop to achieve their position setpoints without overshoot. Valve positions are continuously transmitted digitally by the valve actuator over the communications network to the control interface for verification of proper valve position. The control interface also provides a 4-20 mA output signal that represents actual burner firing rate for process monitoring. This 4-20 mA output is also used to indicate the actual position of the valve selected during the commissioning process.

The Control Interface stores a 22 point, user-commissioned position profile for each valve and translates the firing rate command into synchronized, digital position commands that are sent to the Valve Actuators over a dedicated communications network.

The Control Interface also includes a set of switches and indicators to allow the following functions:

- 1) Customize the position profile and commission each valve for precision burner tuning
- 2) Display the operating mode of the system and indicate alarm/fault codes
- 3) Display and change system operating parameters (such as loss of signal operation and valve speed)
- 4) Electronically lock the device to prevent tampering
- 5) Locally control burner firing rate in a manual mode

An optional User Display with a 4-line x 20-character LCD is available to easily commission the system locally or hundreds of feet away near the burner or field instrumentation. The User Display shows all alarm and fault conditions (as text messages), time stamps the last 6 shutdown events, performs system/valve maintenance functions, stores up to 5 system profiles, and restores the system profile if the Control Interface is replaced.



Notes:

1. Non-shaded blocks indicate optional MAXON-supplied equipment
2. Shaded blocks indicate SMARTLINK® MRV required components

SPECIFICATIONS OF SMARTLINK® MRV

System specifications

SMARTLINK® MRV System Specifications	
(For all Interface Panel configurations with factory-wired relay interface modules and power supply)	
Position Accuracy	0.1 degrees (measured on the valve actuator shaft)
Number of Valves	1, 2, 3, or 4
Valve Commissioning Profile	22 field-adjustable positions for each valve including individual standby, purge and light-off positions
Firing Rate Command	4-20 mA isolated input; 4.8V burden @ 20 mA
Firing Rate Feedback	4-20 mA isolated output; 400 ohm max load
Power	24 VDC universal power supply; provides 24 VDC output to all system components 24 VDC within components 1 valve system: 36 W max 2 valve system: 61 W max 3 valve system: 90 W max 4 valve system: 118 W max Optional power supply 120-230 VAC provides 24 VDC to system
Low to High Fire Modulation Speed	20, 40, or 60 seconds (user-selectable)
Temperature Range (Ambient)	All components (except user display): -40°C to 70°C
Enclosure Ratings	NEMA 4X, IP66 (valve actuator) NEMA 4/4X, IP66 (Optional MAXON-supplied enclosures with rail mounted components. See page 14 for individual component ratings)
Relay Outputs	Form A (N.O.), Dry Contacts Contact Ratings: 250VAC/DC @ 12 A
Relay Inputs	120VAC, 230VAC, or 24VDC solid-state

Component specifications

SMARTLINK® MRV Component Specifications	
Control Interface	
Power Input	24VDC, 0.1 A
Firing Rate Command	4-20 mA isolated input; 4.8V burden @ 20 mA
Spare Current Input	4-20 mA isolated input; 4.8V burden @ 20 mA
Firing Rate Feedback	4-20 mA isolated input; 40 Ohm max load
Relay Driver Outputs	Open collector, 30 VDC & 100 mA (max)
Digital Inputs	5-24VDC @ 10 mA (max)
Wiring Terminals	Keyed, plug-type screw terminals; Terminals accept 14-24 gauge wire
Enclosure	25 mm W x 118 mm H x 97 mm D DIN rail-mounted, NEMA 1, IP20
Relay Output Interface	
Electromechanical Output Relays (6)	Dry Contacts: Form A (normally-open) Max Contact Voltage: 250 VAC/DC Max Contact Current: 12 A (continuous)
Enclosure	25 mm W x 118 mm H x 97 mm D DIN rail-mounted, NEMA 1, IP20
Relay Input Interface	
Solid State Input Relays (6)	Input On-State Voltage: 120VAC, 230VAC or 24VDC depending on model Input on-State Current: 25 mA Input Off-State Leakage Current: 4 mA (max)
Enclosure	25 mm W x 118 mm H x 97 mm D DIN rail-mounted, NEMA 1, IP20
Network Interface	
Network Input Connection (1)	24VDC field device power & common Data communication (polarity insensitive)
Network Output Connections (7)	24VDC field device power & common Data communication (polarity insensitive)
Enclosure	25 mm W x 118 mm H x 97 mm D DIN rail-mounted, NEMA 1, IP20
User Display	
Power Input	24VDC, 0.13 A
Display	4 line x 20 character, back-lit, LCD display
Temperature Range (Ambient)	-29°C to 50°C
Enclosure	139 mm H x 108 mm W x 44 mm D DIN rail-mounted, NEMA 1, IP50
Universal Power Supply	
Power Input	120-230 VAC
Power Output	24VDC, 6 A (max)
Enclosure	127 mm H x 54 mm W x 127 mm D DIN rail-mounted, NEMA 1 IP20
Valve Actuator Assembly	
Power Input	24VDC, 25W max
Torque	300 in-lbs (33.9 N.m)
Maximum Travel Time	14 seconds (open to close)
Enclosure (Actuator)	195 mm H x 112 mm W x 112 mm D, NEMA 4X, IP66

Valve body capacities - butterfly valves

Butterfly Valves - 1" through 4"

Butterfly Valve Body Performance Table - 1" through 4"				
Size	Maximum Cv Rating	Minimum Controllable Cv rating	Maximum Inlet Pressure (bar)	Maximum Body Pressure (bar)
1"	27	0.50	6.89	6.89
1.25"	70	0.60	6.89	6.89
1.5"	105	0.70	6.89	6.89
2"	190	1.30	6.89	6.89
2.5"	260	2.40	6.21	6.89
3"	360	3.00	4.14	6.89
4"	750	5.00	2.07	6.89

Butterfly Valve Body Fluid Table - 1" through 4"						
Fluid	Gas Code	Suggested Material Options			Maximum Fluid Temperature Rating	Maximum Ambient Temperature Rating
		Body Seals	Body Material	Body Internals		
158F/70C Max Air	A	A,B	1,2,3,5	1,5	158°F (70°C)	158°F (70°C)
Butane Gas	D	A,B	1,2,3,5	1,5	158°F (70°C)	158°F (70°C)
Coke Oven Gas	E	B	1,2,5	1,5	158°F (70°C)	158°F (70°C)
Digester Gas	F	B	5	5	158°F (70°C)	158°F (70°C)
Landfill Gas	G	B	5	5	158°F (70°C)	158°F (70°C)
Manufactured Gas	H	B	5	5	158°F (70°C)	158°F (70°C)
Natural Gas	I	A,B	1,2,3,5	1,5	158°F (70°C)	158°F (70°C)
Oxygen	J	B	3,5	2,6	158°F (70°C)	158°F (70°C)
Propane Gas	K	A,B	1,2,3,5	1,5	158°F (70°C)	158°F (70°C)
Propane/Butane Blend Gas	L	A,B	1,2,3,5	1,5	158°F (70°C)	158°F (70°C)
Refinery Gas	M	B	5	5	158°F (70°C)	158°F (70°C)
Sour Natural Gas	N	B	5	5	158°F (70°C)	158°F (70°C)
Town Gas	O	A,B	5	5	158°F (70°C)	158°F (70°C)

Body Seals

A- Buna-N

B- Viton

Body Material

1- Cast Iron

2- Carbon Steel

3- Brass

5- Stainless Steel

Body Internals

1- Trim Package 1

2- Trim Package 1, Oxy Clean

5- Trim Package 2

6- Trim Package 2, Oxy Clean

Butterfly Valves - 6" through 16"

Butterfly Valve Body Performance Table - 6" through 16"			
Size	Maximum Cv Rating	Minimum Controllable Cv Rating	Maximum Inlet Pressure (bar)
6"	1425	12.5	0.34
8"	2500	22	0.34
10"	4500	35	0.34
12"	6400	50	0.34
14"	8800	67	0.34
16"	11700	88	0.34

Butterfly Valve Body Fluid Table - 6" through 16"							
Fluid	Gas Code	Suggested Material Options				Maximum Fluid Temperature Rating	Maximum Ambient Temperature Rating
		Body Seals	Body Material	Body Internals	Gasket Material		
158F/70C Max Air	A	A,B	1	1	NEOP, FIBR	158°F (70°C)	158°F (70°C)
350F/177C Max Air	B	B	1	1	FIBR	350°F (177°C)	158°F (70°C)
400F/204C Max Air	C	B	1	1	FIBR	400°F (204°C)	140°F (60°C)
Natural Gas	I	A,B	1	1	NEOP, FIBR	158°F (70°C)	158°F (70°C)

Body Seals

A- Buna-N
B- Viton

Body Material

1- Cast Iron

Body Internals

1- Trim Package 1

Gasket Material

FIBR - Hi Temp Fiber Gasket
NEOP- Neoprene Gasket

Valve body capacities - ball valves

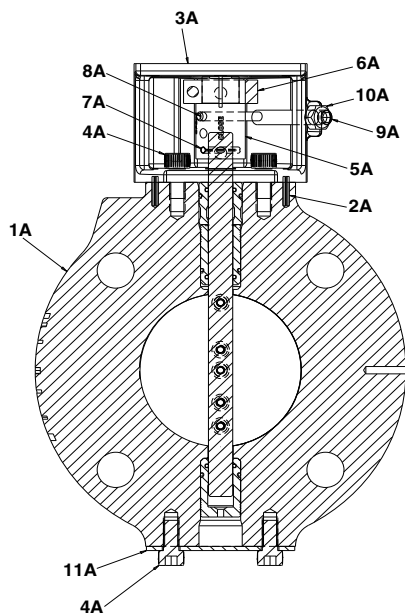
Flow Coefficient - Cv vs. % open											
Size	Insert	0.0%	11.1%	22.2%*	33.3%	44.4%	55.6%	66.7%	77.8%	88.9%	100%
0.5"	1/32" Slot	0.00	0.00	0.03	0.07	0.12	0.16	0.20	0.24	0.28	0.32
	1/16" Slot	0.00	0.01	0.07	0.20	0.33	0.46	0.60	0.73	0.86	1.00
	1/8" Slot	0.00	0.01	0.10	0.36	0.61	0.86	1.10	1.40	1.60	1.80
	30°V	0.00	0.01	0.11	0.24	0.36	0.56	0.84	1.10	1.60	2.10
	60°V	0.00	0.01	0.12	0.33	0.60	0.84	1.40	2.00	3.10	4.40
	Round Port	0.00	0.15	0.29	0.46	0.70	1.10	1.80	2.60	4.30	6.40
0.75"	1/16" Slot	0.00	0.01	0.06	0.24	0.40	0.56	0.73	0.90	1.00	1.20
	1/8" Slot	0.00	0.01	0.14	0.39	0.65	0.90	1.20	1.40	1.70	1.90
	30°V	0.00	0.01	0.11	0.24	0.41	0.67	1.00	1.40	1.90	2.60
	60°V	0.00	0.01	0.13	0.36	0.55	1.00	1.50	2.30	3.60	5.00
	Round Port	0.00	0.21	0.43	0.70	1.10	1.60	2.60	4.00	6.40	9.60
1"	1/16" Slot	0.00	0.03	0.10	0.40	0.67	0.94	1.20	1.50	1.70	1.90
	3/16" Slot	0.00	0.03	0.22	0.82	1.40	1.90	2.50	3.10	3.50	4.00
	30°V	0.00	0.03	0.21	0.56	1.00	1.60	2.40	3.40	4.60	6.20
	60°V	0.00	0.03	0.30	0.78	1.20	2.30	3.60	5.30	8.30	11.60
	90°V	0.00	0.03	0.48	1.20	2.30	3.50	5.40	7.70	10.80	12.10
	Round Port	0.00	0.58	1.20	1.90	2.80	4.30	7.00	10.50	17.00	26.00
1.25"	3/16" Slot	0.00	0.05	0.38	1.40	2.40	3.40	4.40	5.40	6.20	6.90
	30°V	0.00	0.05	0.39	1.00	1.80	2.90	4.40	6.40	8.60	11.40
	60°V	0.00	0.06	0.48	1.30	2.00	3.70	5.80	8.50	13.40	18.70
	90°V	0.00	0.06	0.78	2.00	3.70	5.70	8.80	12.50	17.50	19.70
	Round Port	0.00	0.91	1.80	3.00	4.40	6.70	10.90	16.40	26.60	40.60
1.5"	3/16" Slot	0.00	0.05	0.47	1.80	3.00	4.20	5.40	6.80	7.70	8.60
	30°V	0.00	0.05	0.41	1.20	2.10	3.50	5.20	7.60	10.30	13.70
	60°V	0.00	0.06	0.57	1.70	3.00	5.60	9.10	13.20	19.80	28.40
	90°V	0.00	0.06	1.00	2.80	4.50	8.10	13.40	19.70	30.90	47.10
	Round Port	0.00	1.50	3.00	4.80	7.20	11.00	18.00	27.00	44.00	65.50
2"	1/4" Slot	0.00	0.05	0.75	2.90	4.80	6.80	8.70	10.80	12.30	13.80
	30°V	0.00	0.05	0.55	1.70	3.40	5.70	8.30	12.10	16.60	22.20
	60°V	0.00	0.06	0.70	2.60	4.90	9.30	15.50	22.20	32.10	47.20
	90°V	0.00	0.06	0.88	3.30	6.10	11.70	19.40	27.50	40.10	59.00
	Round Port	0.00	2.20	4.30	7.00	10.50	16.20	26.40	39.60	64.00	96.00

*Select valves for minimum controllable Cv at 22°. Errors may become substantial below this point.

MATERIALS OF CONSTRUCTION

Butterfly valves

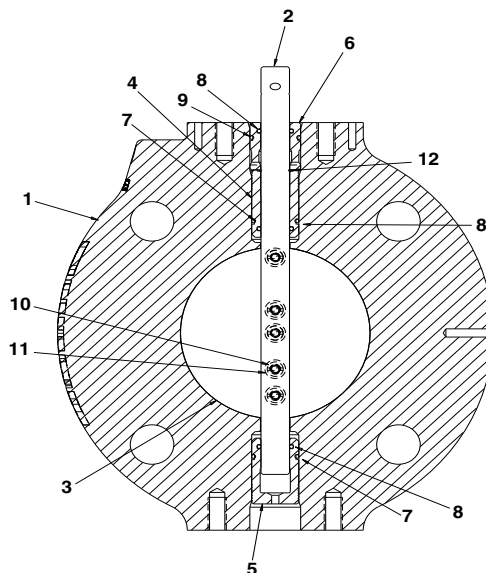
Butterfly valve body assembly - all sizes



SMARTLINK® Valve Body Assembly Material Specifications		
Item No.	Description	SMARTLINK® Component Material Specifications
1A	Valve Body Sub-assembly	Assembly per page 19 and page 20
2A	Locating Spring Pin	Zinc Plated Carbon Steel
3A	Adapter Bracket	ASTM B179 T6 Aluminum
4A*	Socket Head Cap Screw	Zinc Plated Carbon Steel
5A	Coupling	ASTM A582 Type 303 Stainless Steel
6A	Locking Collar	Zinc Plated Alloy Steel
7A	Spring Pin	Zinc Plated Carbon Steel
8A	Dowel Pin	303 Stainless Steel
9A	Hard Stop Screw	18-8 Stainless Steel
10A	Hard Stop Nut	Stainless Steel
11A*	Cover Plate	Aluminum

*These items used only on sizes 1” through 4”

Butterfly valve body sub-assembly - 1" through 4"

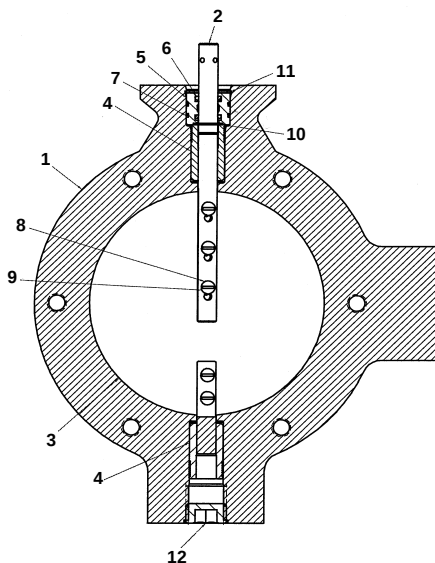


Body Materials					
Item No.	Description	Material Code			
		1	2	3	5
1	Valve Body	Cast Iron ASTM A159 Gr. 3000	Carbon Steel ASTM A216 Gr. WCB	Brass ASTM B62 UNS No. C83600	Stainless Steel ASTM A351 Gr. CF8M

Body Seals		
Item No.	Description	Material
7	O-Ring	Standard material options are Buna-N and Viton
8	O-Ring	
9	O-Ring	

Trim Package Materials			
Item No.	Description	Internal Trim Package	
		1	2
2	Valve Stem	303 Stainless Steel, ASTM A157 Gr. G3000	
3	Butterfly Disc	304 Stainless Steel (1.4301), ASTM A240 Type 304 UNS No. S30400	
4	Top Bushing	Bronze ASTM B271, B505 and B584 UNS No. C93200	PEEK
5	Bottom Bushing		
6	Top Shim Bushing		
10	Screw	18-8 Stainless Steel	
11	Washer	304 Stainless Steel (1.4301)	
12	Retaining Ring	316 Stainless Steel	

Butterfly valve body sub-assembly - 6" through 16"

**Body Materials**

Item No.	Description	Material Code
		1
1	Valve Body	Cast Iron ASTM A159 Gr. 3000

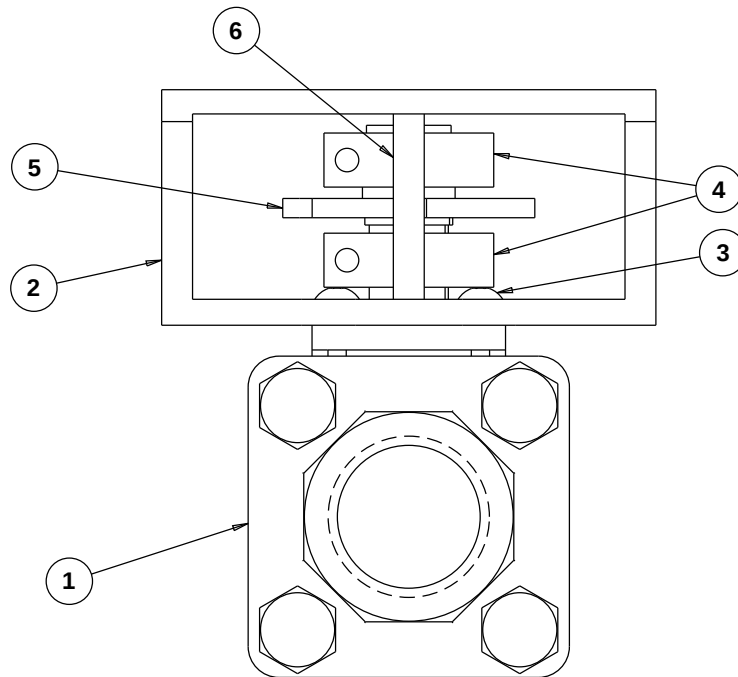
Body Seals

Item No.	Description	Material
6	O-Ring	Standard material options are Buna-N and Viton
7	O-Ring	

Trim Package Materials

Trim Package Materials			
Item No.	Description	Internal Trim Package	
		1	
Valve Size		6" & 8"	10" through 16"
2	Valve Stem	316 Stainless Steel, ASTM A276	
3	Butterfly Disc	304 Stainless Steel (1.4301) ASTM A167 UNS No. S30400	Carbon Steel ASTM A108 UNS No. G10180
4	Top & Bottom Bushing	Bronze ASTM B271, B505 and B584 UNS No. C93200	
5	Shim Bushing		
8	Screw	304 Stainless Steel (1.4301)	Zinc Plated Carbon Steel
9	Washer	316 Stainless Steel	Zinc Plated Carbon Steel
10	Retaining Ring	Carbon Steel SAE 1060-1090 UNS No. G10600-G10900	
11	Retaining Ring		
12	Pipe Plug	Alloy Steel, ASTM A322 UNS G40370	

Ball valves



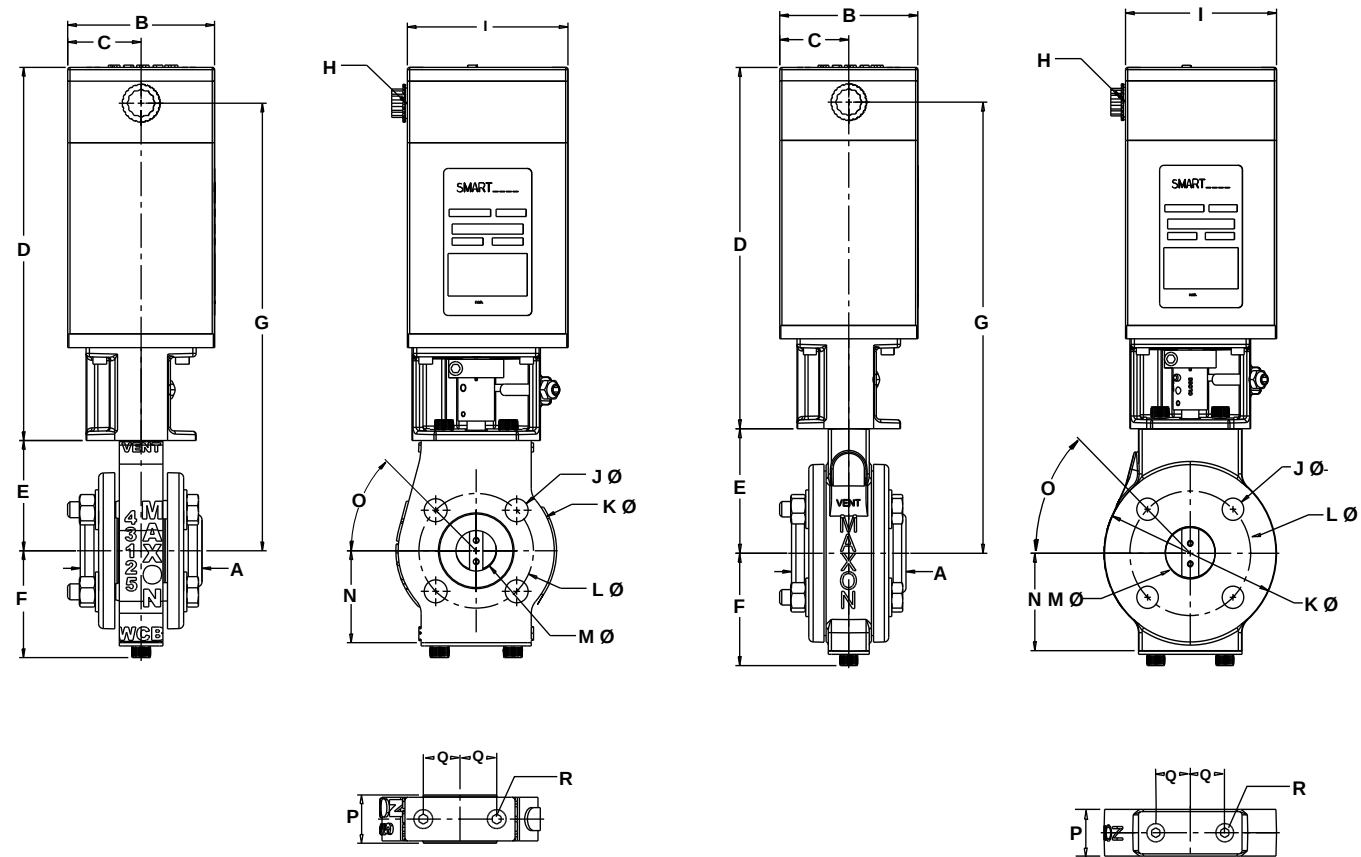
Item Number	Description	Component Material Specifications
1	Valve Body Sub-assembly	Based on selection on page 5
2	Bracket	6063-T6 Aluminum Alloy UNS A96063
3	Button Head Screw	18-8 (type 303) Stainless Steel
4	Coupling Collar	Zinc Plated Alloy Steel
5	Coupling	303 Stainless Steel ASTM A582 UNS No. S30300
6	Hard Stop Pin	420 Stainless Steel

DIMENSIONS

Butterfly valves

1" SMARTLINK® Butterfly Valve

1.25" SMARTLINK® Butterfly Valve



Flange Dimension "A" (in mm)		
Iron	Threaded	72.9
	Socket Welded	72
Steel	Threaded	80
	Socket Welded	72
Stainless steel	Threaded	80
	Socket Welded	72
Brass	Threaded	71

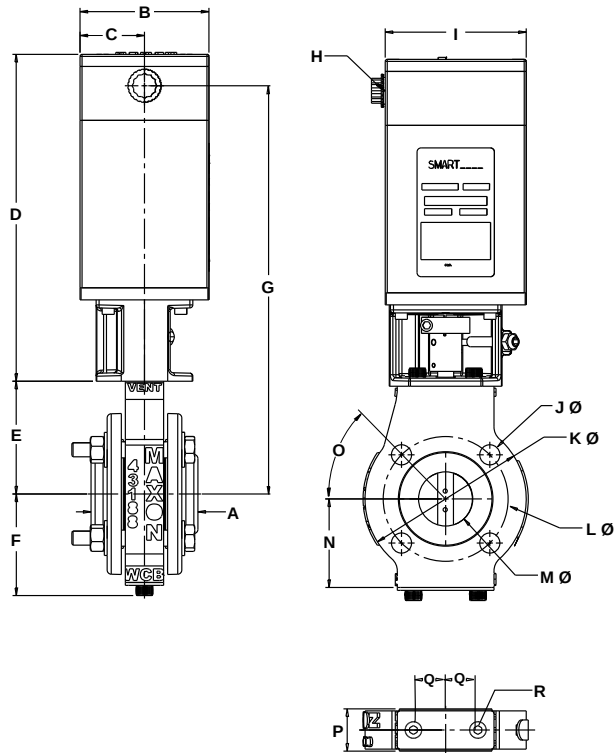
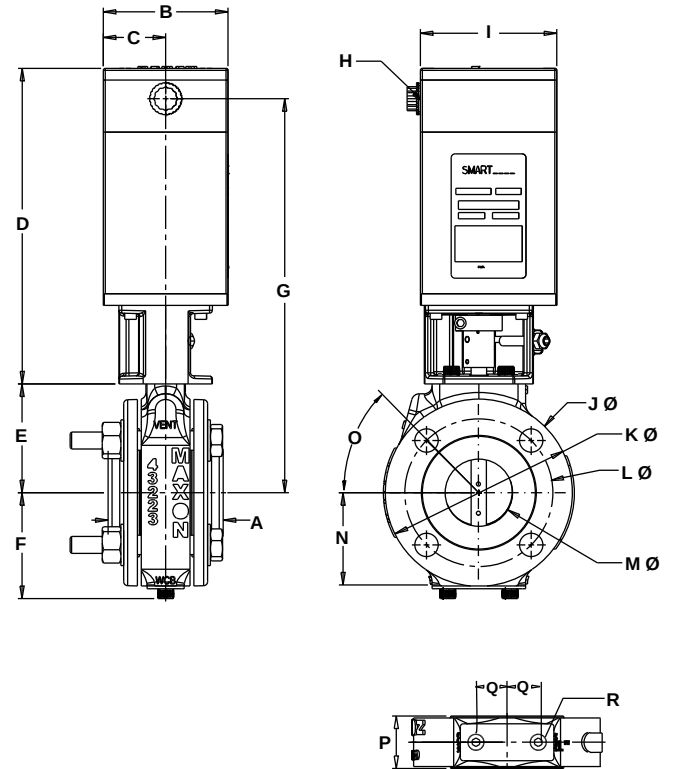
Flange Dimension "A" (in mm)		
Iron	Threaded	77.5
	Socket Welded	77.5
Steel	Threaded	79
	Socket Welded	77.5
Stainless steel	Threaded	79
	Socket Welded	77.5
Brass	Threaded	77.5

Approximate weight: 10 kg; w/flanges 11.8 kg

Approximate weight: 11.3 kg; w/flanges 13 kg

Dimensions in mm unless stated otherwise																	
Size	B	C	D	E	F	G	H NPT	I	J Ø	K Ø	L Ø	M Ø	N	O	P	Q	R [1]
1.0"	102	51	259	76	73.7	310	0.5"	112	15.7	107	78.7	28	63.5	45°	33.3	25.4	15.7
1.25"	102	51	259	89	81.3	323	0.5"	112	15.7	127	89	35.6	68.6	45°	33.3	25.4	15.7

[1] M8 - 1.25 tap, 0.62 deep, 2 holes

1.5" SMARTLINK® Butterfly Valve**2" SMARTLINK® Butterfly Valve**

Flange Dimension "A" (in mm)		
Iron	Threaded	83
Steel	Threaded	82
	Socket Welded	82.3
Stainless steel	Threaded	82
	Socket Welded	82.3
Brass	Threaded	80

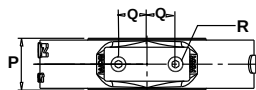
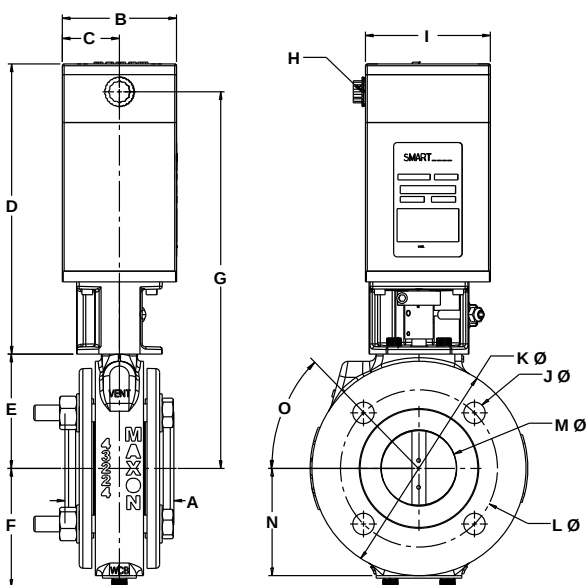
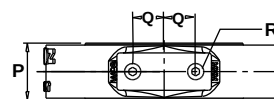
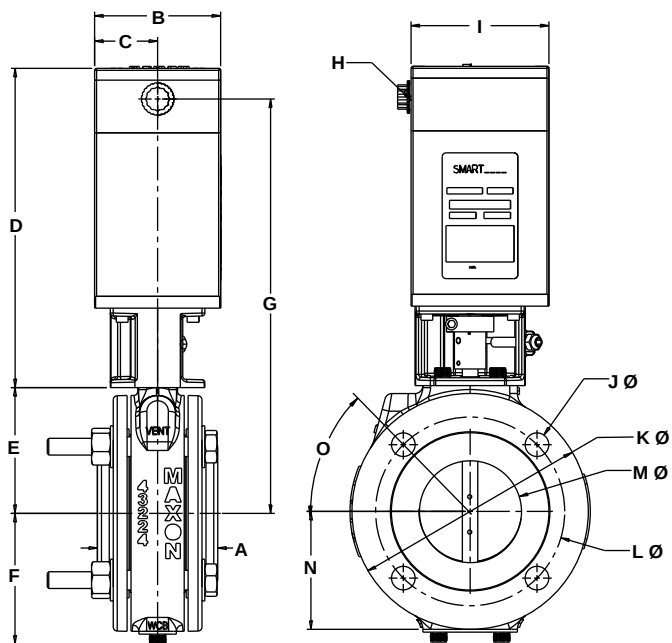
Approximate weight: 12.7 kg; w/flanges 15.4 kg

Flange Dimension "A" (in mm)		
Iron	Threaded	87
Steel	Threaded	90.4
	Socket Welded	89.2
Stainless steel	Threaded	90.4
	Socket Welded	89.2
Brass	Threaded	94.5

Approximate weight: 14 kg; w/flanges 17.7 kg

Dimension in mm unless stated otherwise																	
Size	B	C	D	E	F	G	H NPT	I	J Ø	K Ø	L Ø	M Ø	N	O	P	Q	R [1]
1.5"	101.6	50.8	259	88.9	81.3	322.6	0.5"	112	15.7	127	99	43.2	71.1	45°	33.3	25.4	15.7
2"	101.6	50.8	259	88.9	86.4	322.6	0.5"	112	19	152.4	122	55.9	76.2	45°	42.9	25.4	15.7

[1] M8 - 1.25 tap, 0.62 deep, 2 holes

2.5" SMARTLINK® Butterfly Valve**3" SMARTLINK® Butterfly Valve****Flange Dimension "A" (in mm)**

Iron	Threaded	94.5
Steel	Threaded	93.2
	Socket Welded	96.3
Stainless steel	Threaded	93.2
	Socket Welded	96.3
Brass	Threaded	96.5

Approximate weight: 17.7 kg; w/flanges 26.3 kg

Flange Dimension "A" (in mm)

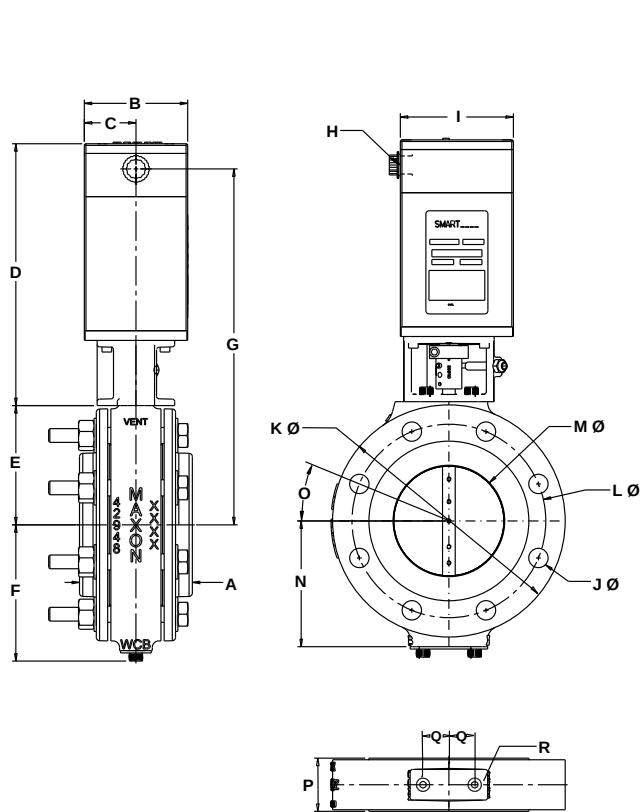
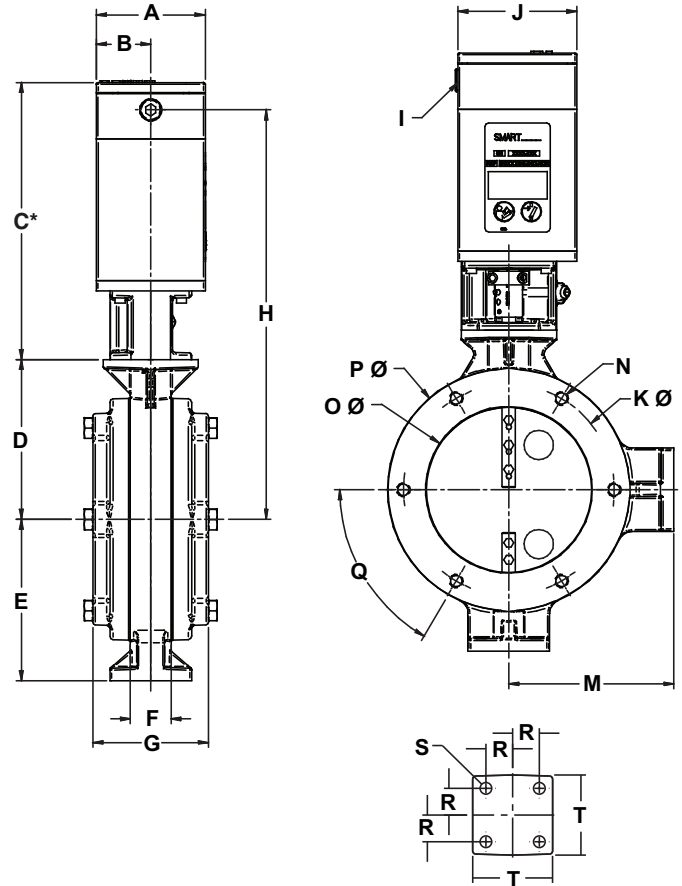
Iron	Threaded	97.3
Steel	Threaded	104.9
	Socket Welded	102.4
Stainless steel	Threaded	104.9
	Socket Welded	102.4
Brass	Threaded	102.1

Approximate weight: 20 kg; w/flanges 28 kg

Dimensions in mm unless stated otherwise

Size	B	C	D	E	F	G	H NPT	I	J Ø	K Ø	L Ø	M Ø	N	O	P	Q	R [1]
2.5"	101.6	50.8	259	101.6	106.7	335.3	0.5"	111.8	19.1	190.5	139.7	66	96.5	45°	46	25.4	15.7
3"	101.6	50.8	259	101.6	106.7	335.3	0.5"	111.8	19.1	190.5	152.4	83.8	96.5	45°	46	25.4	15.7

[1] M8 - 1.25 tap, 0.62 deep, 2 holes

4" SMARTLINK® Butterfly Valve**6" SMARTLINK® Butterfly Valve****Flange Dimension "A" (in mm)**

Iron	Threaded	104.9
	Socket Welded	103.1
Steel	Threaded	103.1
	Socket Welded	103.1
Stainless steel	Threaded	103.1
	Socket Welded	103.1

Approximate weight: 22.2 kg; w/flanges 32.2 kg

Flange Dimension "G" (inmm)

Cast Iron	Threaded	109.2
Carbon Steel	Socket Welded	121.9

Approximate weight: 24.9 kg; w/flanges 32.2 kg

Dimensions in mm unless stated otherwise

Size	B	C	D	E	F	G	H NPT	I	J	K Ø	L Ø	M Ø	N Ø	O	P	Q	R [1]
4"	101.6	50.8	259	116.8	134.6	350.5	0.5"	111.8	19.1	228.6	190.5	109.2	124.5	22.5°	52.3	25.4	15.7

[1] For 4" Valve: M8-1.25 tap, 0.62 deep, 2 holes. For 6" Valve: 1/2-13 UNC, 6 holes

Dimensions in mm unless stated otherwise

Size	A	B	C [3]	D	E	F	G	H [3]	I NPT	J	K Ø	M	N	O Ø	P Ø	Q	R	S Ø	T
6"	101.6	50.8	259	149.8	149.8	38.1	[2]	383.5	0.5"	111.8	196.9	154.9	[1]	154.9	226.1	60°	25.4	11.1	76.2

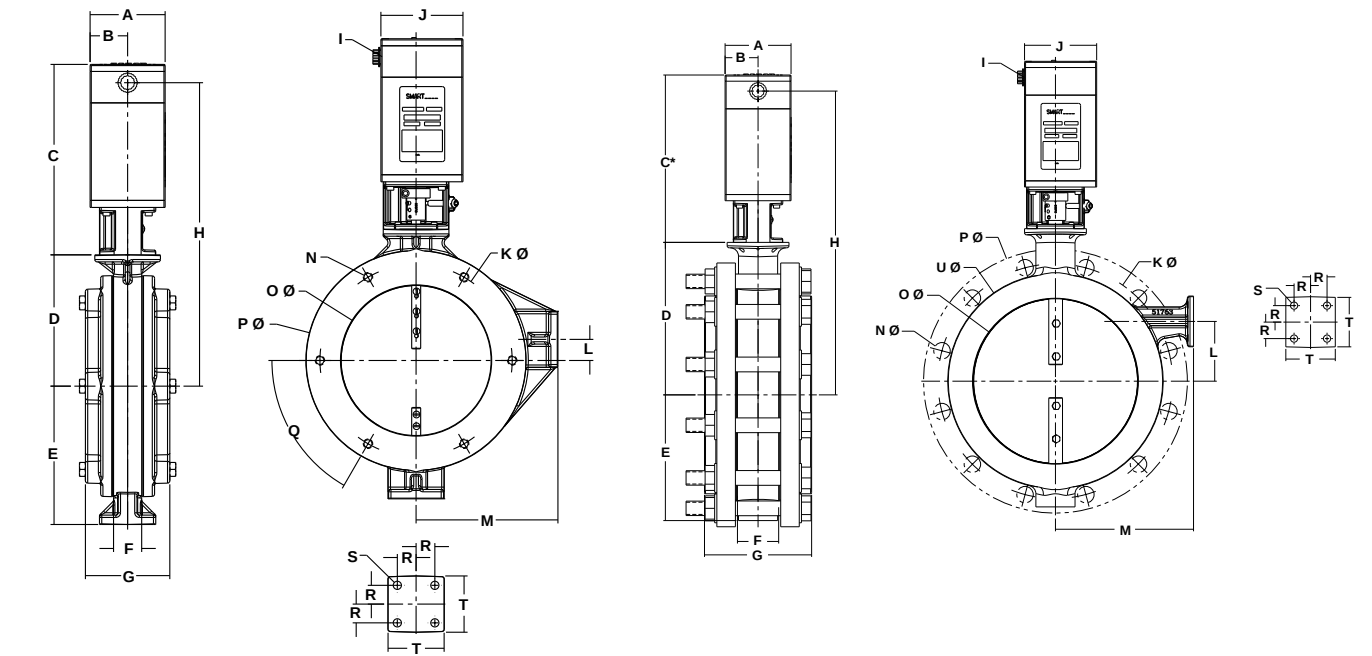
[1] 1/2-13 UNC, 6 holes

[2] See Flange Dimension "G" table

[3] For 6" Valve: Add 63mm for high temperature (>158°F/70°C) configuration

8" SMARTLINK® Butterfly Valve

10" SMARTLINK® Butterfly Valve

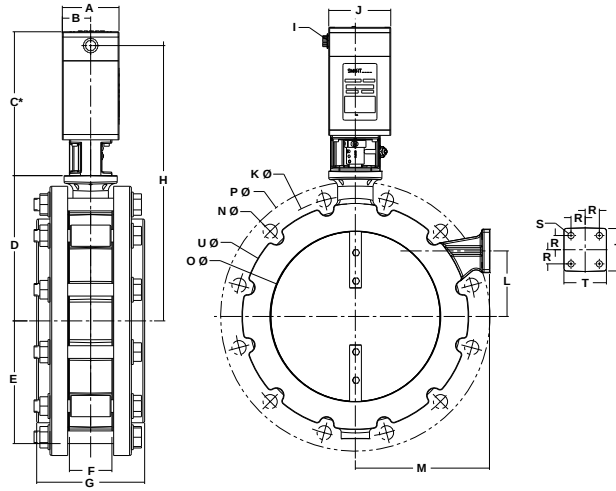


Approximate weight: 27.7 kg; w/flanges 41.3 kg

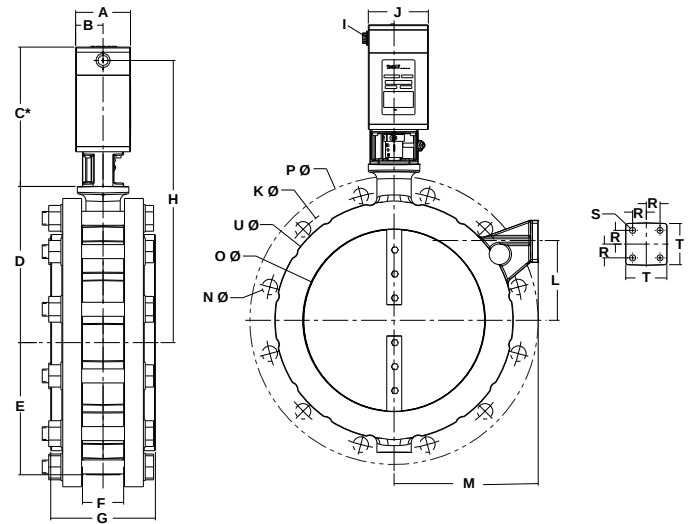
Note: Flanges are shipped loose
Approximate weight: 29.9 kg; w/flanges 63 kg

Dimensions in mm unless stated otherwise																					
Size	A	B	C [4]	D	E	F	G	H [4]	I NPT	J	K Ø	L	M	N	O Ø	P Ø	Q	R	S [3]	T	U Ø
8"	101.6	50.8	259	177.8	188	38.1	111.8	411.5	0.5"	111.8	260.4	27.9	193	[1]	203.2	299.7	60°	25.4	11.1	76.2	---
10"	101.6	50.8	259	233.7	193	63.5	165	467.4	0.5"	111.8	360.7	91.4	213.4	[2]	254	406.4	---	25.4	11.1	76.2	330

[1] 1/2-13 UNC, 6 holes
[2] 1.0 diameter, 12 holes
[3] Through holes
[4] Add 63 mm for high temperature (>158°F/70°C) configuration

12" SMARTLINK® Butterfly Valve

Note: Flanges are shipped loose.
Approximate weight: 34.9 kg; w/flanges 89.4 kg

14" SMARTLINK® Butterfly Valve

Note: Flanges are shipped loose.
Approximate weight: 49.4 kg; w/flanges 120.7 kg

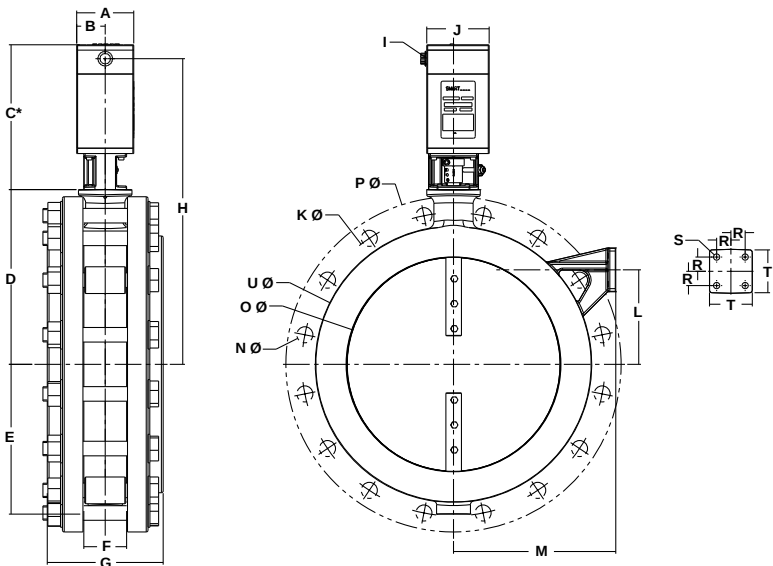
Dimensions in mm unless stated otherwise

Size	A	B	C [2]	D	E	F	G	H [2]	I NPT	J	K Ø	L	M	N Ø	O Ø	P Ø	R	S [1]	T	U Ø
12"	101.6	50.8	259	259	221	76.2	193	492.8	0.5"	111.8	431.8	116.8	241.3	25.4	304.8	482.6	25.4	11.1	76.2	406.4
14"	101.6	50.8	259	289.6	243.8	76.2	193	523.2	0.5"	111.8	477.5	147.3	266.7	27.9	335.3	533.4	25.4	11.1	76.2	442

[1] 4 holes through

[2] Add 63 mm for high temperature (>158°F/70°C) configuration

16" SMARTLINK® Butterfly Valve



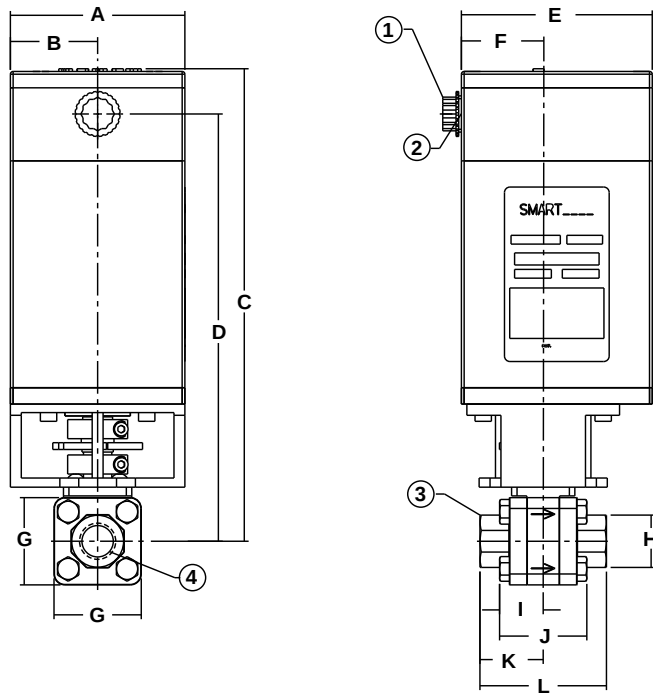
Note: Flanges are shipped loose.
Approximate weight: 60.8 kg; w/flanges 155.6 kg

Dimensions in mm unless stated otherwise																				
Size	A	B	C [2]	D	E	F	G	H [2]	I NPT	J	K Ø	L	M	N Ø	O Ø	P Ø	R	S [1]	T	U Ø
16"	101.6	50.8	259	309.9	266.7	76.2	205.7	543.6	0.5"	111.8	538.5	167.6	289.6	28.4	381	596.9	25.4	11.1	76.2	492.8

[1] 4 holes through
[2] Add 63 mm for high temperature (>158°F/70°C) configuration

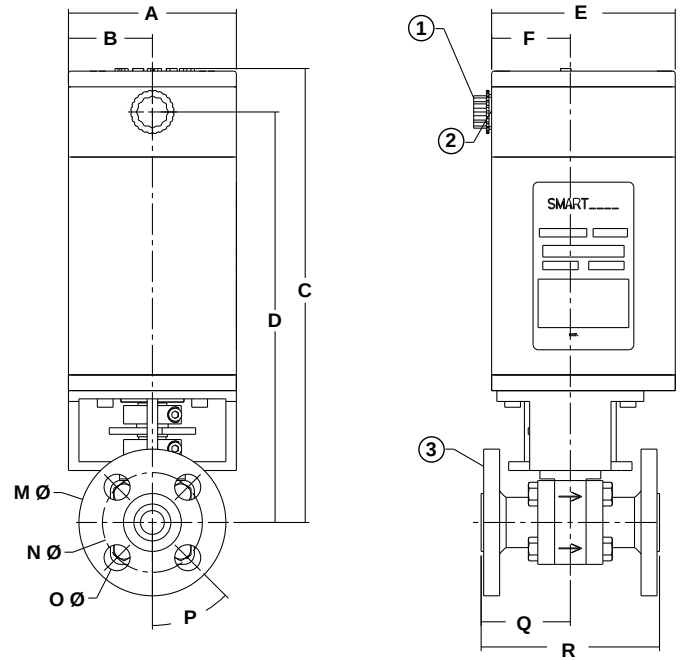
Ball valves

0.5" SMARTLINK® Ball Valve - Threaded



Approximate weight: 5.4 kg

0.5" SMARTLINK® Ball Valve - Flanged



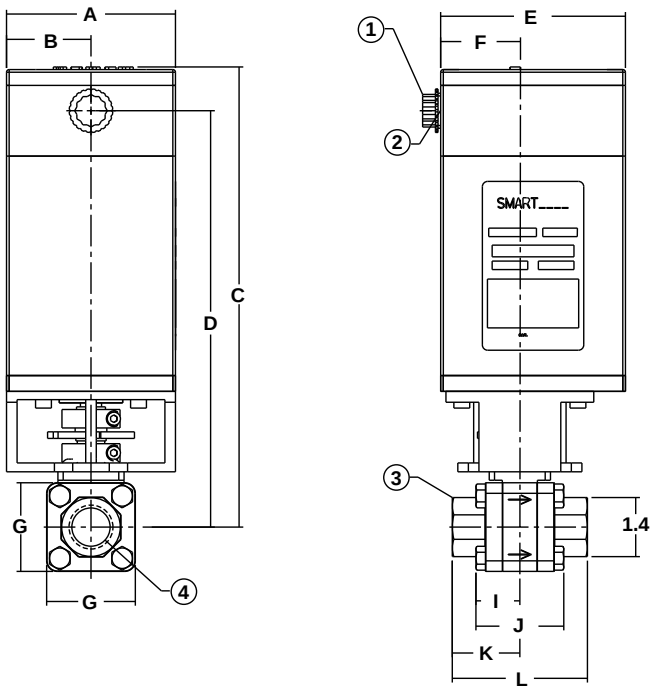
Approximate weight: 6.4 kg

Dimensions in mm unless stated otherwise

Size	A	B	C	D	E	F	G	H oct.	I	J	K	L	M Ø	N Ø	O Ø	P	Q	R
0.5"	101.6	50.8	275	249	111.3	48	50.8	30.5	25.4	50.8	36.8	73.7	88.9	60.5	15.7	45°	53.8	108

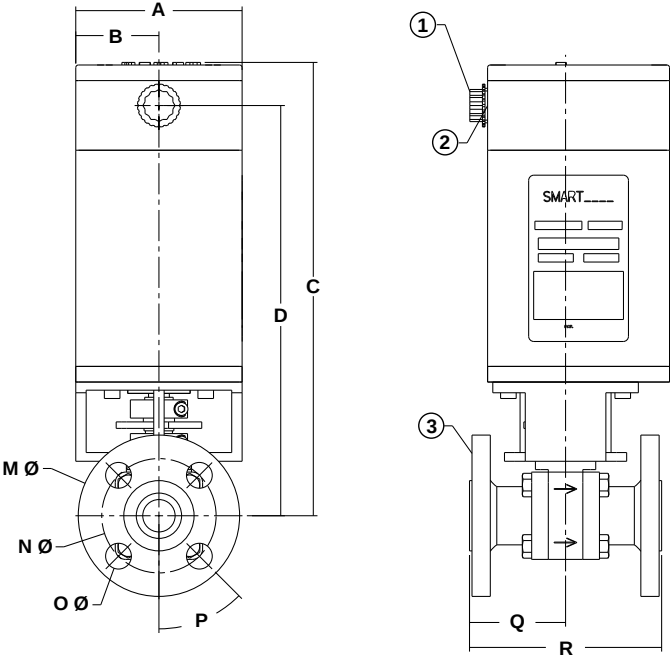
Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	Inlet end
4	1/2" NPT

0.75" SMARTLINK® Ball Valve - Threaded



Approximate weight: 5.89 kg

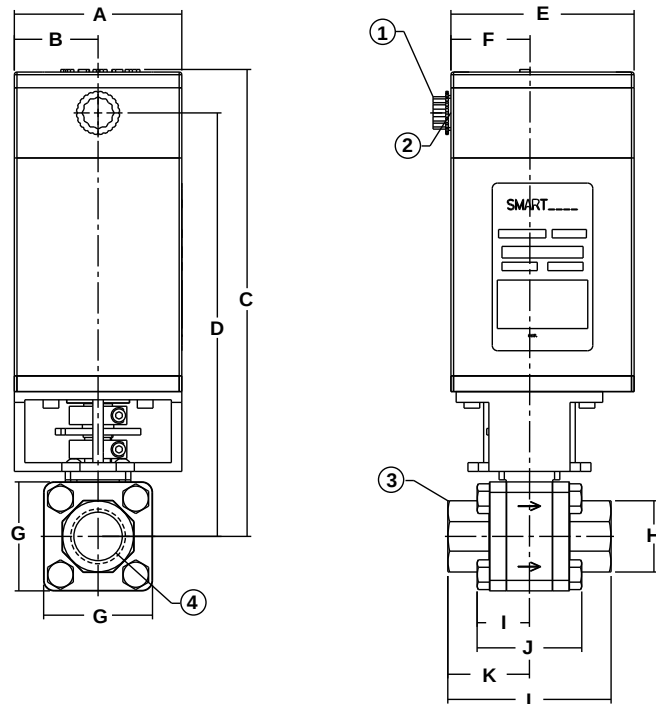
0.75" SMARTLINK® Ball Valve - Flanged



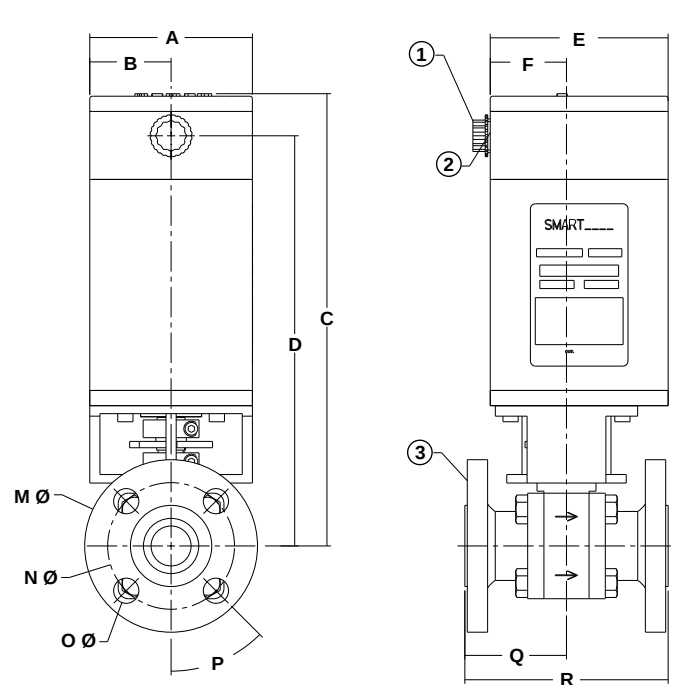
Approximate weight: 7.25 kg

Dimensions in mm unless stated otherwise																			
Size	A	B	C	D	E	F	G	H oct.	I	J	K	L	M Ø	N Ø	O Ø	P	Q	R	
0.75"	101.6	50.8	276.9	250.7	111.3	48	53.3	35.6	26.4	52.8	40.6	81.3	98.6	69.9	15.7	45°	58.7	117.3	

Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	Inlet end
4	3/4" NPT

1" SMARTLINK® Ball Valve - Threaded

Approximate weight: 6.8 kg

1" SMARTLINK® Ball Valve - Flanged

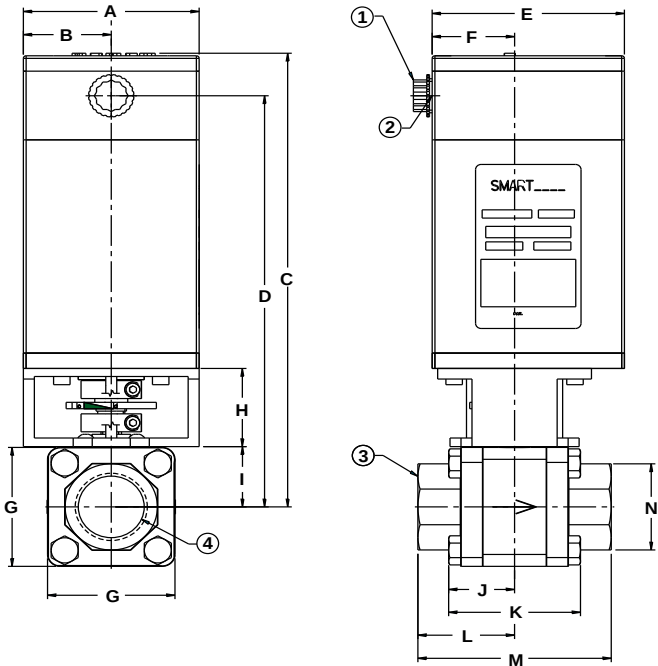
Approximate weight: 8.16 kg

Dimensions in mm unless stated otherwise

Size	A	B	C	D	E	F	G	H oct.	I	J	K	L	M Ø	N Ø	O Ø	P	Q	R
1"	101.6	50.8	283	256.8	111.3	48	66	43.2	31.8	63.5	49.5	99.1	107.9	79.2	15.7	45°	63.5	127

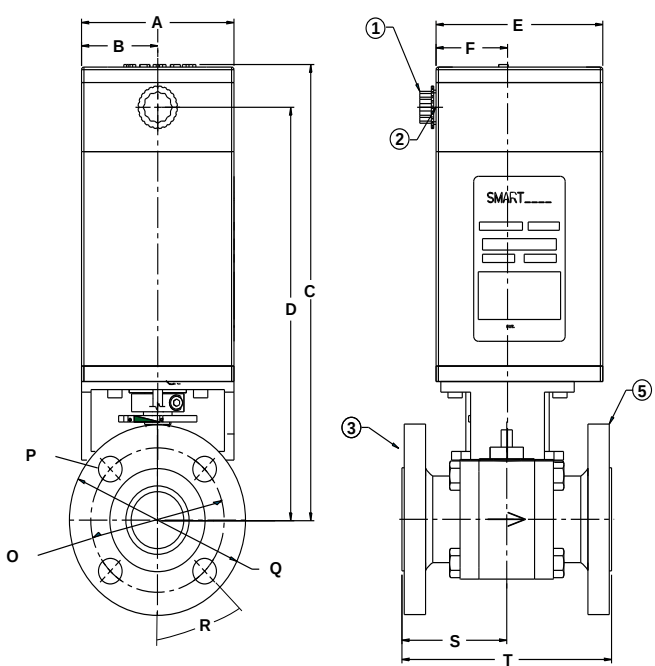
Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	Inlet end
4	1" NPT

1.25" SMARTLINK® Ball Valve - Threaded



Approximate weight: 7.5 kg

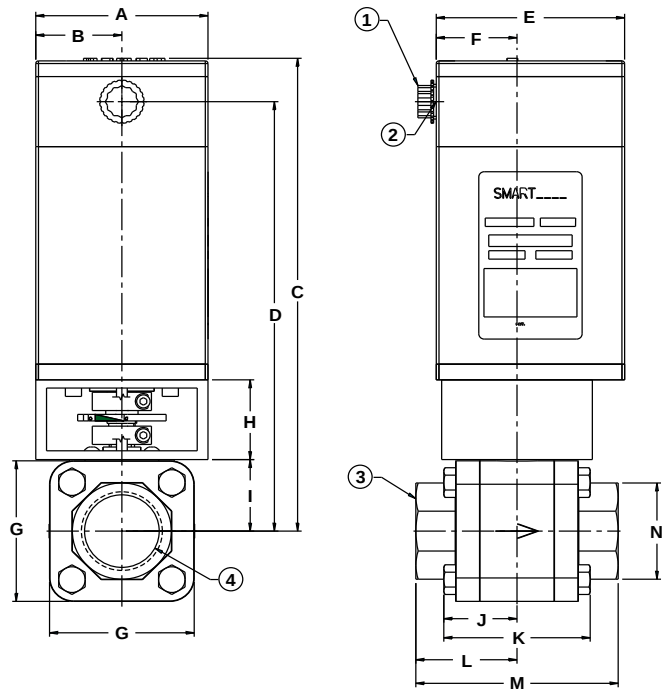
1.25" SMARTLINK® Ball Valve - Flanged



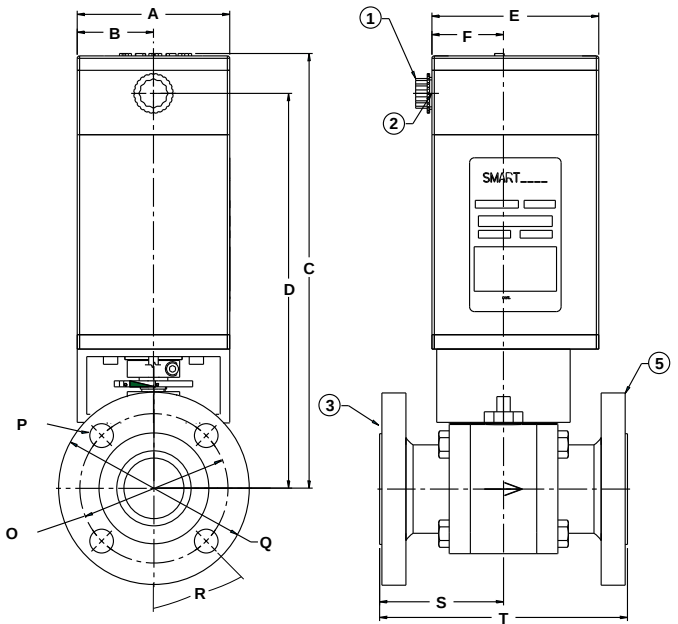
Approximate weight: 9.8 kg

Dimensions in mm unless stated otherwise																				
Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N oct.	O Ø	P Ø	Q Ø	R	S	T
1.25"	101.6	50.8	281	255	111	48	74	49	37	38	76	56	112	53	89	16	117	45°	70	140

Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	Inlet end
4	1-1/4" NPT
5	150# ANSI flange

1.5" SMARTLINK® Ball Valve - Threaded

Approximate weight: 8.6 kg

1.5" SMARTLINK® Ball Valve - Flanged

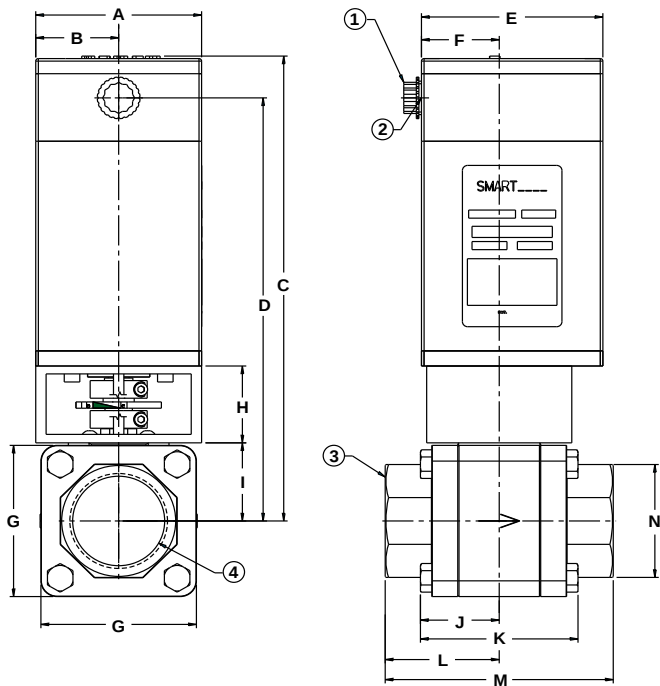
Approximate weight: 11.8 kg

Dimensions in mm unless stated otherwise

Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N oct.	O Ø	P Ø	Q Ø	R	S	T
1.5"	101.6	50.8	287	261	111	48	85	49	43	43	86	60	119	58	99	16	127	45°	83	165

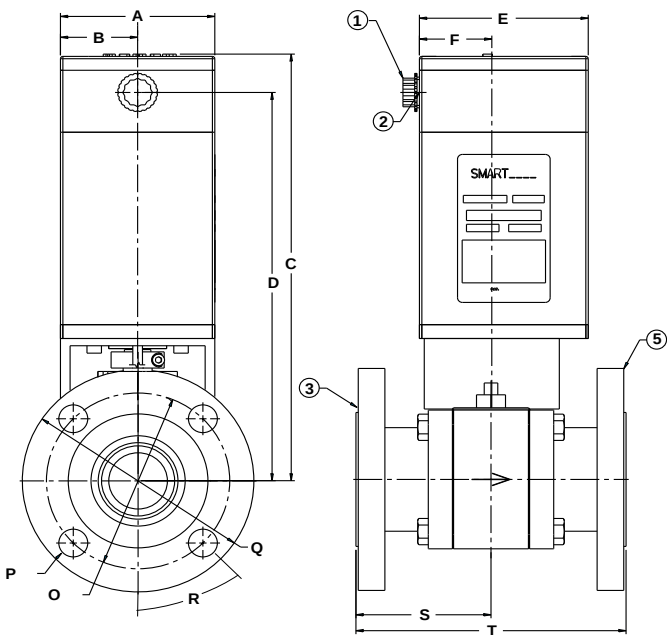
Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	Inlet end
4	1-1/2" NPT
5	150# ANSI flange

2" SMARTLINK® Ball Valve - Threaded



Approximate weight: 10 kg

2" SMARTLINK® Ball Valve - Flanged

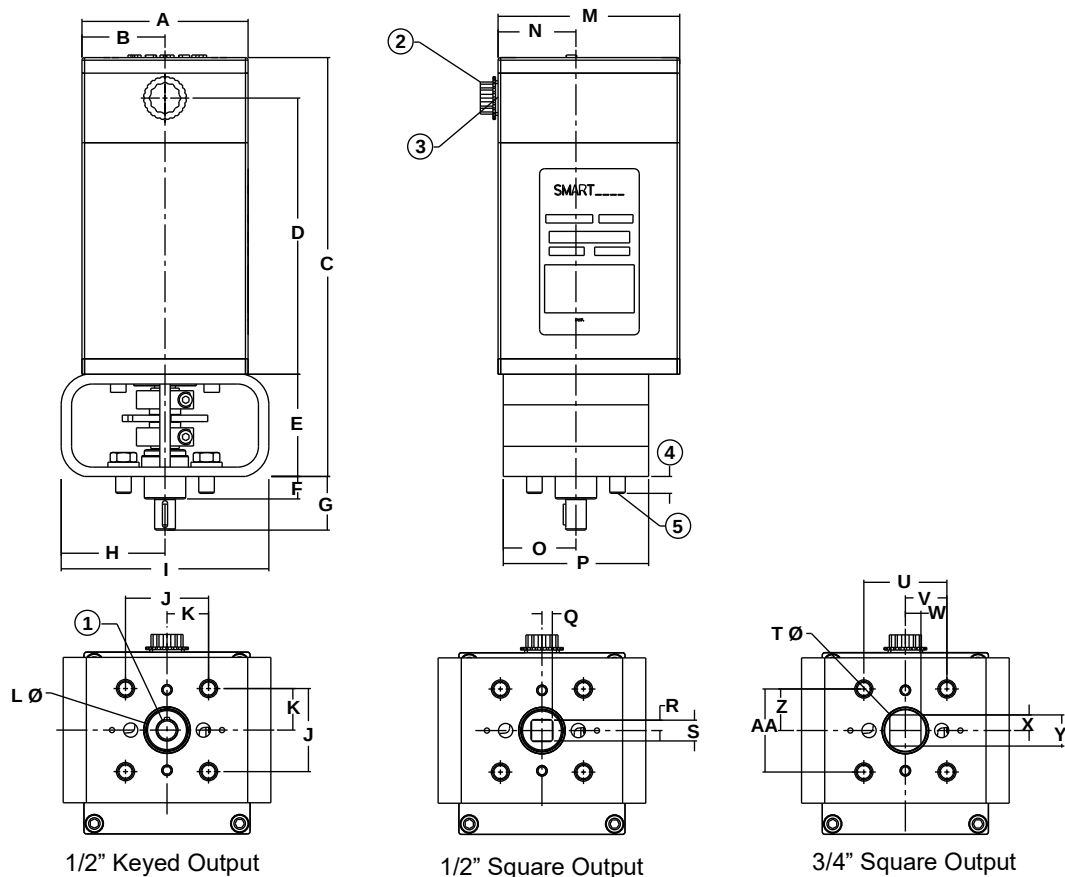


Approximate weight: 14 kg

Dimensions in mm unless stated otherwise																				
Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N oct.	O Ø	P Ø	Q Ø	R	S	T
2"	101.6	50.8	293	266	111	48	95	49	49	48	97	70	140	71	121	19	152	45°	89	178

Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	Inlet end
4	2" NPT
5	150# ANSI flange

Control Actuator



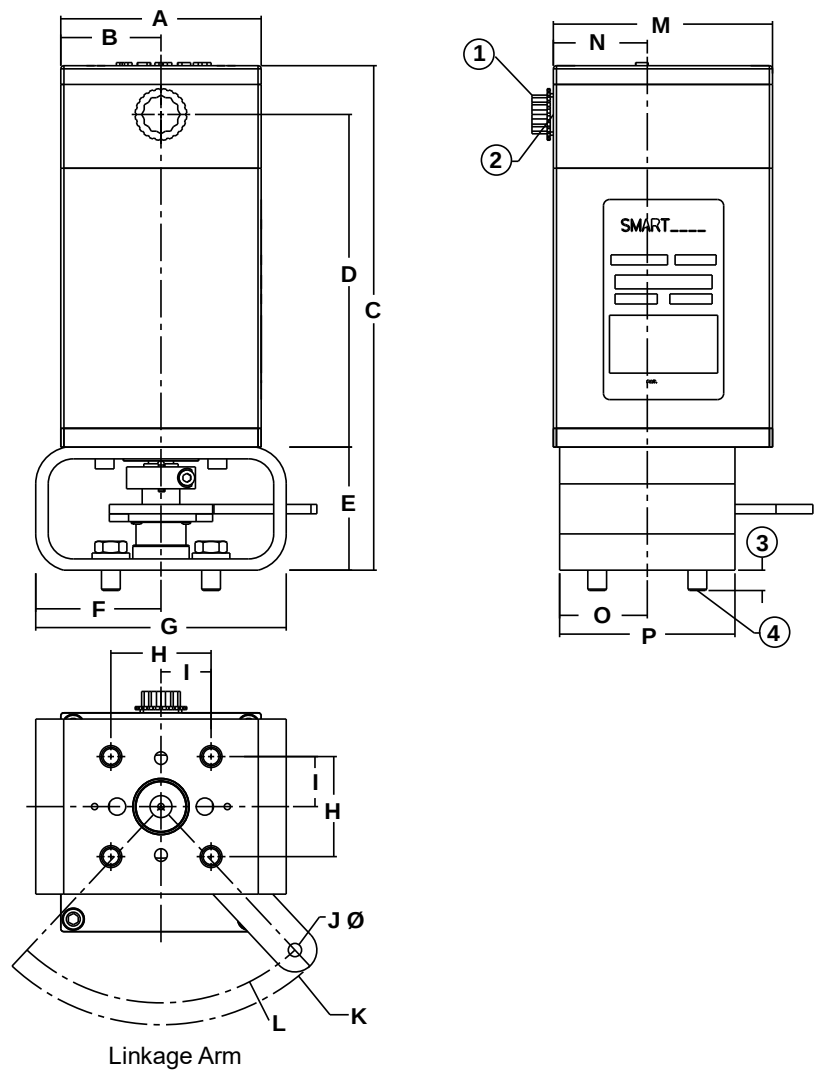
Approximate weight: 6.8 kg

Dimensions in mm unless specified otherwise													
A	B	C	D	E	F	G	H	I	J	K	L Ø	M	N
101.6	50.8	256	168.9	62.5	13.7	32.8	63.5	127	50.8	25.4	25.4	111.3	47.8

Dimensions in mm unless specified otherwise													
O	P	Q	R	S	T Ø	U	V	W	X	Y	Z	AA	
44.5	88.9	6.35	6.35	12.7	25.4	50.8	25.4	9.5	9.5	19.1	25.4	50.8	

Number	Description
1	.5 dia. w/ 1/8" key
2	Temporary shipping plug
3	1/2" NPT threads
4	4 x 4.1
5	4X 3/8-16 UNC

Control Actuator

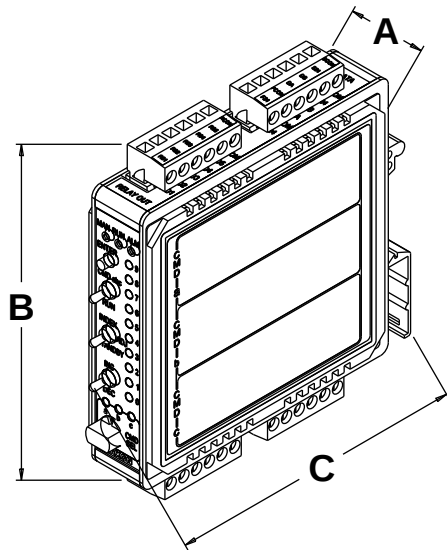


Approximate weight: 6.8 kg

Dimensions inmm unless stated otherwise															
A	B	C	D	E	F	G	H	I	J Ø	K rad.	L rad.	M	N	O	P
101.6	50.8	256	168.9	62.5	63.5	127	50.8	25.4	6.8	110.7	99.6	111.3	47.7	44.5	88.9

Number	Description
1	Temporary shipping plug
2	1/2" NPT threads
3	4X .41
4	4X 3/8-16 UNC

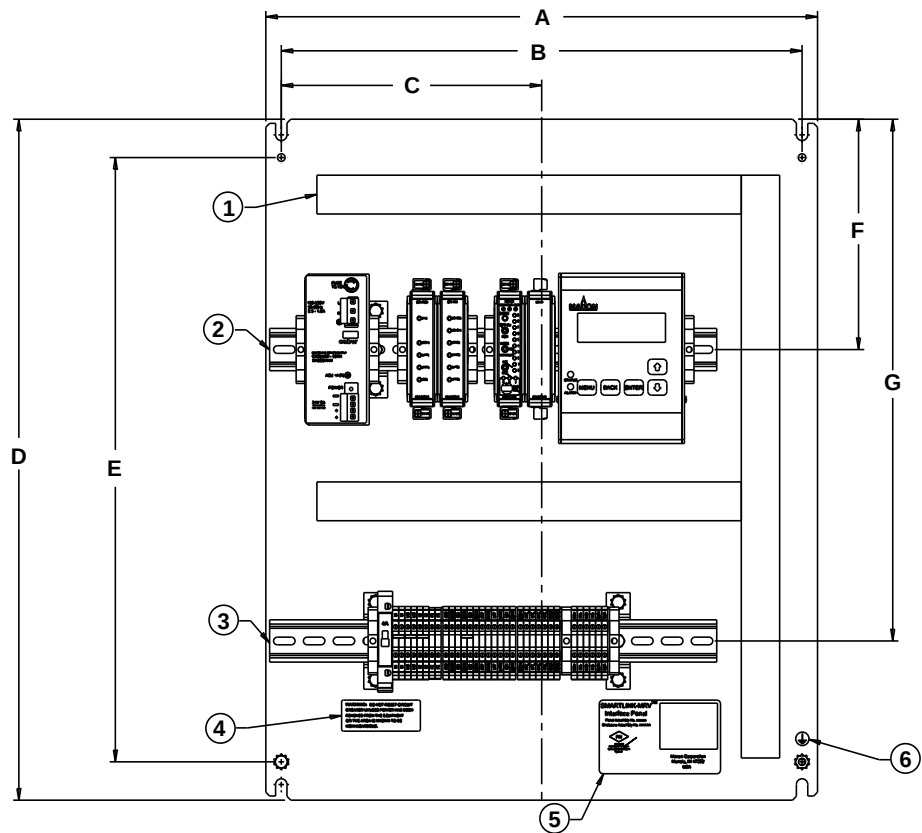
Control Interface



Dimensions in mm unless stated otherwise		
A	B	C
25.4	116.1	115.1

Interface Panels

24" x 20" SMARTLINK® MRV Interface Panel (without enclosure)



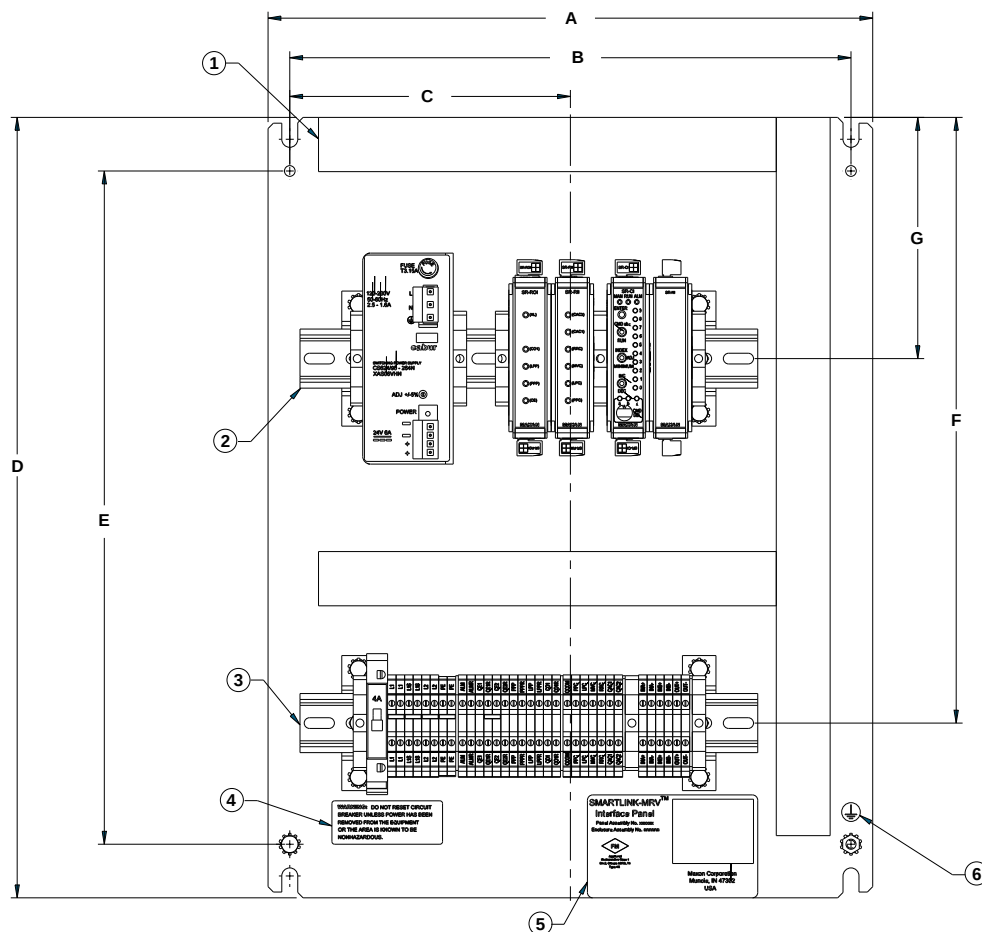
NOTE: Maximum options shown

Dimensions in mm unless stated otherwise						
A	B [1]	C	D	E [1]	F	G
462	436	218	564	500	190	432

[3] Mounting centers

Number	Description
1	25.4 mm wide x 50.8 mm high wire duct (typ.)
2	Control rail assembly
3	Terminal block rail assembly
4	Warning label
5	Interface panel label
6	Ground label

20" x 16" SMARTLINK® MRV Interface Panel (without enclosure)



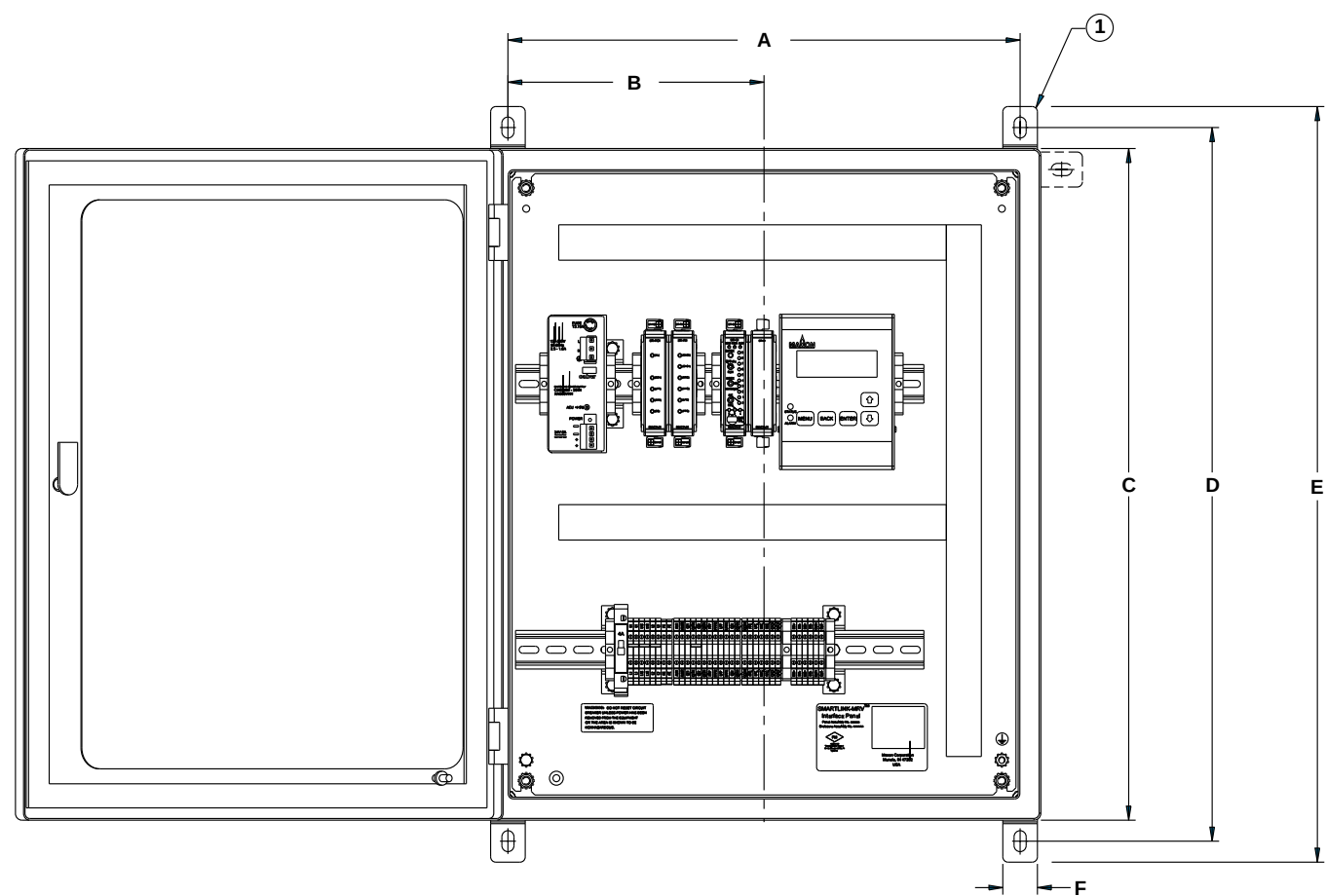
NOTE: Maximum options shown

Dimensions in mm unless specified otherwise						
A	B [1]	C	D	E [1]	F	G
360.7	334.8	167.4	462.3	398.8	358.6	142.7

[4] Mounting centers

Number	Description
1	25.4 mm wide x 50.8 mm high wire duct (typ.)
2	Control rail assembly
3	Terminal block rail assembly
4	Warning label
5	Interface panel label
6	Ground label

24" x 20" SMARTLINK® MRV Interface Panel (with enclosure)



NOTE: Maximum options shown

Dimensions in mm unless stated otherwise					
A	B	C	D	E	F
469.9	234.9	609.6	647.7	685.8	31.7

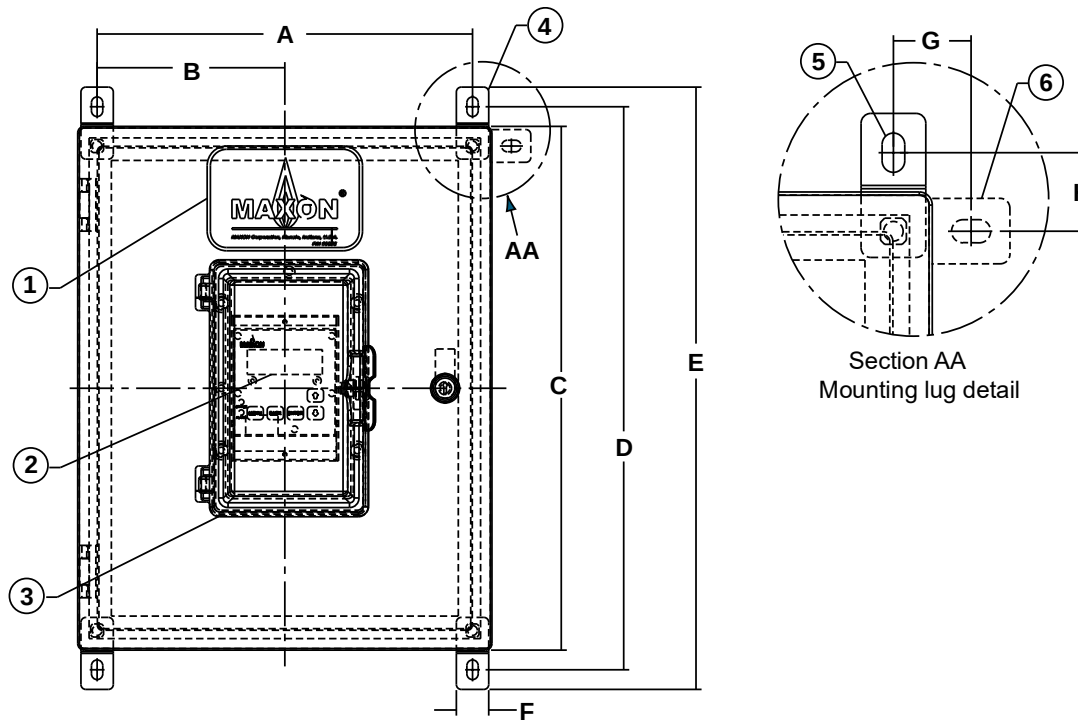
Number	Description
1	Mounting lug

Enclosure options

User display may be door mounted or mounted internally in the panel on a DIN rail. For door mounted selections, a dust cover is available and recommended for most installations. For internally mounted user displays, a window kit is available for monitoring. User display may also be mounted remotely from the interface panel to maintain enclosure ratings.

Note: Selection of door mounted components will alter the enclosure rating of panels. NEMA 4X / IP66 ratings cannot be maintained.

20" x 16" SMARTLINK® MRV Interface Panel (with enclosure)



NOTE: Maximum options shown

Dimensions in mm unless stated otherwise							
A	B	C	D	E	F	G	H
368.3	184.2	508	546.1	584.2	31.75	38.1	38.1

Number	Description
1	Logo label
2	User display (optional, door mounted only)
3	Dust cover (optional)
4	Mounting lug
5	11.2 mm x 19 mm slot
6	Alternate position

Enclosure options

User display may be door mounted or mounted internally in the panel on a DIN rail. For door mounted selections, a dust cover is available and recommended for most installations. For internally mounted user displays, a window kit is available for monitoring. User display may also be mounted remotely from the interface panel to maintain enclosure ratings.

Note: Selection of door mounted components will alter the enclosure rating of panels. NEMA 4X / IP66 rating cannot be maintained.