

599 Series 2-Way Ball Valves

Description

The 599 Series 2-Way Ball Valves are coupled with OpenAir™ actuators to provide equal percentage flow control. The Ball Valves are 1/4-turn rotary control valves.


Product Numbers

Use the product numbers in Table 1 through Table 11 to order a valve and actuator assembly. The product number consists of a 4-character actuator prefix code, a hyphen, and a 5-digit valve body suffix code. Stainless steel product numbers have an "S" suffix in Table 6 through Table 11.

Features


- 200 psi close-off with ANSI Class IV leakage for all line sizes and actuators.
- Available with chrome-plated brass ball and brass stem or stainless steel ball and stem.
- Blow-out proof stem withstands high pressure.
- Universal mounting plate.
- Actuator and plate can be rotated (90 degree increments).
- Standoffs provide a thermal barrier between the actuator and the mounting plate.
- Operating handle for manual operation.

Table 1. Fail-In-Place Assemblies: Chrome-Plated Ball with Brass Stem (1/2-Inch and 3/4-Inch)

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-Off ΔP in psi (kPa) | Fail-in-Place | | | |
|-----------------------------|------------------------|--------------------|---------------------------|---|---------------------------------------|--------------------|---------------------------------------|
| | | | |  | | | |
| | | | | Floating | | 0 to 10 Vdc | |
| | | | | GDE 131.1P | GDE 131.1Q | GDE 161.1P | GDE 161.1Q |
| | | | | 3 foot (.9m) Wires | Conduit Adapter & 6-foot (1.8m) Wires | 3 foot (.9m) Wires | Conduit Adapter & 6-foot (1.8m) Wires |
| | | | | Actuator Prefix Code | | | |
| 171A | 173A | 171C | 173C | | | | |
| 599-10300 | 1/2 (15) | 0.4 (0.34) | 200 (1379) | 171A-10300 | 173A-10300 | 171C-10300 | 173C-10300 |
| 599-10301 | | 0.63 (0.54) | | 171A-10301 | 173A-10301 | 171C-10301 | 173C-10301 |
| 599-10302 | | 1.0 (0.9) | | 171A-10302 | 173A-10302 | 171C-10302 | 173C-10302 |
| 599-10303 | | 1.6 (1.4) | | 171A-10303 | 173A-10303 | 171C-10303 | 173C-10303 |
| 599-10304 | | 2.5 (2.2) | | 171A-10304 | 173A-10304 | 171C-10304 | 173C-10304 |
| 599-10305 | | 4.0 (3.4) | | 171A-10305 | 173A-10305 | 171C-10305 | 173C-10305 |
| 599-10306 | | 6.3 (5.4) | | 171A-10306 | 173A-10306 | 171C-10306 | 173C-10306 |
| 599-10307* | | 10 (8.6) | | 171A-10307* | 173A-10307* | 171C-10307* | 173C-10307* |
| 599-10308 | 3/4 (20) | 6.3 (5.4) | | 171A-10308 | 173A-10308 | 171C-10308 | 173C-10308 |
| 599-10309 | | 10 (8.6) | | 171A-10309 | 173A-10309 | 171C-10309 | 173C-10309 |
| 599-10310 | | 16 (14) | | 171A-10310 | 173A-10310 | 171C-10310 | 173C-10310 |
| 599-10311* | | 25 (22) | | 171A-10311* | 173A-10311* | 171C-10311* | 173C-10311* |

*Denotes a full-port valve without flow characterizers insert.

Table 2. Fail-In-Place Assemblies: Chrome-Plated Ball with Brass Stem (1-Inch to 2-Inch)

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-Off ΔP in psi (kPa) | Fail-in-Place | | | | | | | | | | | |
|-----------------------------|------------------------|--------------------|---------------------------|--|-------------|---------------------------------------|-------------|--------------------|-------------|---------------------------------------|-------------|------|--|------|--|
| | | | |  | | | | | | | | | | | |
| | | | | Floating | | | | 0 to 10 Vdc | | | | | | | |
| | | | | GDE 131.1P | GLB 131.1P | GDE 131.1Q | GLB 131.1Q | GDE 161.1P | GLB 161.1P | GDE 161.1Q | GLB 161.1Q | | | | |
| | | | | 3 foot (.9m) Wires | | Conduit Adapter & 6-foot (1.8m) Wires | | 3 foot (.9m) Wires | | Conduit Adapter & 6-foot (1.8m) Wires | | | | | |
| Actuator Prefix Code | | | | | | | | | | | | | | | |
| 171A | | 171B | | 173A | | 173B | | 171C | | 171D | | 173C | | 173D | |
| 599-10312 | 1 (25) | 10 (9.0) | 200 (1379) | 171A-10312 | | 173A-10312 | | 171C-10312 | | 173C-10312 | | | | | |
| 599-10313 | | 16 (14) | | 171A-10313 | | 173A-10313 | | 171C-10313 | | 173C-10313 | | | | | |
| 599-10314 | | 25 (22) | | 171A-10314 | | 173A-10314 | | 171C-10314 | | 173C-10314 | | | | | |
| 599-10315 | | 40 (34) | | 171A-10315 | | 173A-10315 | | 171C-10315 | | 173C-10315 | | | | | |
| 599-10316* | | 63 (54) | | 171A-10316* | | 173A-10316* | | 171C-10316* | | 173C-10316* | | | | | |
| 599-10317 | 1 1/4 (32) | 16 (14) | | 171A-10317 | | 173A-10317 | | 171C-10317 | | 173C-10317 | | | | | |
| 599-10318 | | 25 (22) | | 171A-10318 | | 173A-10318 | | 171C-10318 | | 173C-10318 | | | | | |
| 599-10319 | | 40 (34) | | 171A-10319 | | 173A-10319 | | 171C-10319 | | 173C-10319 | | | | | |
| 599-10320 | | 63 (54) | | 171A-10320 | | 173A-10320 | | 171C-10320 | | 173C-10320 | | | | | |
| 599-10321* | | 100 (90) | | 171A-10321* | | 173A-10321* | | 171C-10321* | | 173C-10321* | | | | | |
| 599-10322 | 1 1/2 (40) | 25 (22) | | 171B-10322 | | 173B-10322 | | 171D-10322 | | 173D-10322 | | | | | |
| 599-10323 | | 40 (34) | | 171B-10323 | | 173B-10323 | | 171D-10323 | | 173D-10323 | | | | | |
| 599-10324* | | 63 (54) | | 171B-10324* | | 173B-10324* | | 171D-10324* | | 173D-10324* | | | | | |
| 599-10325 | | 100 (90) | | 171B-10325 | | 173B-10325 | | 171D-10325 | | 173D-10325 | | | | | |
| 599-10326* | | 160 (140) | | 171B-10326* | | 173B-10326* | | 171D-10326* | | 173D-10326* | | | | | |
| 599-10327 | 2 (50) | 40 (34) | | 171B-10327 | | 173B-10327 | | 171D-10327 | | 173D-10327 | | | | | |
| 599-10328 | | 63 (54) | | 171B-10328 | | 173B-10328 | | 171D-10328 | | 173D-10328 | | | | | |
| 599-10329* | | 100 (90) | | 171B-10329* | | 173B-10329* | | 171D-10329* | | 173D-10329* | | | | | |
| 599-10330* | | 160 (140) | | 171B-10330* | | 173B-10330* | | 171D-10330* | | 173D-10330* | | | | | |
| 599-10330* | | | | | 171B-10330* | | 173B-10330* | | 171D-10330* | | 173D-10330* | | | | |


*Denotes a full-port valve without flow characterizers insert.

Table 3. Fail-Safe Assemblies: Chrome-Plated Ball with Brass Stem (1/2-Inch and 3/4-Inch).

| Valve Body Product Number* | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔP in psi (kPa) | Fail-Safe | | | | | | | | | | | |
|----------------------------|------------------------|--------------------|---------------------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | |  | | | | | | | | | | | |
| | | | | 2-Position | | Floating | | 2 to 10 Vdc | | | | | | | |
| | | | | GQD121.1P | | GQD131.1P | | GQD151.1P | | | | | | | |
| | | | | N.O. | N.C. | N.O. | N.C. | N.O. | N.C. | | | | | | |
| Actuator Prefix Code | | | | | | | | | | | | | | | |
| 171H | | 172H | | 171J | | 172J | | 171K | | 172K | | | | | |
| 599-10300 | 1/2 (15) | 0.4 (0.34) | 200 (1379) | 171H-10300 | | 172H-10300 | | 171J-10300 | | 172J-10300 | | 171K-10300 | | 172K-10300 | |
| 599-10301 | | 0.63 (0.54) | | 171H-10301 | | 172H-10301 | | 171J-10301 | | 172J-10301 | | 171K-10301 | | 172K-10301 | |
| 599-10302 | | 1.0 (0.9) | | 171H-10302 | | 172H-10302 | | 171J-10302 | | 172J-10302 | | 171K-10302 | | 172K-10302 | |
| 599-10303 | | 1.6 (1.4) | | 171H-10303 | | 172H-10303 | | 171J-10303 | | 172J-10303 | | 171K-10303 | | 172K-10303 | |
| 599-10304 | | 2.5 (2.2) | | 171H-10304 | | 172H-10304 | | 171J-10304 | | 172J-10304 | | 171K-10304 | | 172K-10304 | |
| 599-10305 | | 4.0 (3.4) | | 171H-10305 | | 172H-10305 | | 171J-10305 | | 172J-10305 | | 171K-10305 | | 172K-10305 | |
| 599-10306 | | 6.3 (5.4) | | 171H-10306 | | 172H-10306 | | 171J-10306 | | 172J-10306 | | 171K-10306 | | 172K-10306 | |
| 599-10307* | | 10 (8.6) | | 171H-10307* | | 172H-10307* | | 171J-10307* | | 172J-10307* | | 171K-10307* | | 172K-10307* | |
| 599-10308 | | 3/4 (20) | | 6.3 (5.4) | 171H-10308 | | 172H-10308 | | 171J-10308 | | 172J-10308 | | 171K-10308 | | 172K-10308 |
| 599-10309 | 10 (8.6) | | | 171H-10309 | | 172H-10309 | | 171J-10309 | | 172J-10309 | | 171K-10309 | | 172K-10309 | |
| 599-10310 | 16 (14) | | | 171H-10310 | | 172H-10310 | | 171J-10310 | | 172J-10310 | | 171K-10310 | | 172K-10310 | |
| 599-10311* | 25 (22) | | | 171H-10311* | | 172H-10311* | | 171J-10311* | | 172J-10311* | | 171K-10311* | | 172K-10311* | |
| 599-10311* | | | | | 171H-10311* | | 172H-10311* | | 171J-10311* | | 172J-10311* | | 171K-10311* | | 172K-10311* |



*Denotes a full-port valve without flow characterizer insert.

Table 4. Fail-Safe Assemblies: Chrome-Plated Ball and Brass Stem (1-Inch to 2-Inch).

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔP in psi (kPa) | Fail-Safe | | | | | |
|-----------------------------|------------------------|--------------------|---------------------------|---|-------------|-------------|-------------|-------------|-------------|
| | | | |  | | | | | |
| | | | | 2-Position | | Floating | | 0 to 10 Vdc | |
| | | | | GMA121.1P | | GMA131.1P | | GMA161.1P | |
| | | | | N.O. | N.C. | N.O. | N.C. | N.O. | N.C. |
| | | | | Actuator Prefix Code | | | | | |
| 171E | 172E | 171F | 172F | 171G | 172G | | | | |
| 599-10312 | 1 (25) | 10 (9.0) | 200 (1379) | 171E-10312 | 172E-10312 | 171F-10312 | 172F-10312 | 171G-10312 | 172G-10312 |
| 599-10313 | | 16 (14) | | 171E-10313 | 172E-10313 | 171F-10313 | 172F-10313 | 171G-10313 | 172G-10313 |
| 599-10314 | | 25 (22) | | 171E-10314 | 172E-10314 | 171F-10314 | 172F-10314 | 171G-10314 | 172G-10314 |
| 599-10315 | | 40 (34) | | 171E-10315 | 172E-10315 | 171F-10315 | 172F-10315 | 171G-10315 | 172G-10315 |
| 599-10316* | | 63 (54) | | 171E-10316* | 172E-10316* | 171F-10316* | 172F-10316* | 171G-10316* | 172G-10316* |
| 599-10317 | 1 1/4 (32) | 16 (14) | | 171E-10317 | 172E-10317 | 171F-10317 | 172F-10317 | 171G-10317 | 172G-10317 |
| 599-10318 | | 25 (22) | | 171E-10318 | 172E-10318 | 171F-10318 | 172F-10318 | 171G-10318 | 172G-10318 |
| 599-10319 | | 40 (34) | | 171E-10319 | 172E-10319 | 171F-10319 | 172F-10319 | 171G-10319 | 172G-10319 |
| 599-10320 | | 63 (54) | | 171E-10320 | 172E-10320 | 171F-10320 | 172F-10320 | 171G-10320 | 172G-10320 |
| 599-10321* | | 100 (90) | | 171E-10321* | 172E-10321* | 171F-10321* | 172F-10321* | 171G-10321* | 172G-10321* |
| 599-10322 | 1 1/2 (40) | 25 (22) | | 171E-10322 | 172E-10322 | 171F-10322 | 172F-10322 | 171G-10322 | 172G-10322 |
| 599-10323 | | 40 (34) | | 171E-10323 | 172E-10323 | 171F-10323 | 172F-10323 | 171G-10323 | 172G-10323 |
| 599-10324* | | 63 (54) | | 171E-10324* | 172E-10324* | 171F-10324* | 172F-10324* | 171G-10324* | 172G-10324* |
| 599-10325 | | 100 (90) | | 171E-10325 | 172E-10325 | 171F-10325 | 172F-10325 | 171G-10325 | 172G-10325 |
| 599-10326* | | 160 (140) | | 171E-10326* | 172E-10326* | 171F-10326* | 172F-10326* | 171G-10326* | 172G-10326* |
| 599-10327 | 2 (50) | 40 (34) | | 171E-10327 | 172E-10327 | 171F-10327 | 172F-10327 | 171G-10327 | 172G-10327 |
| 599-10328 | | 63 (54) | | 171E-10328 | 172E-10328 | 171F-10328 | 172F-10328 | 171G-10328 | 172G-10328 |
| 599-10329* | | 100 (90) | | 171E-10329* | 172E-10329* | 171F-10329* | 172F-10329* | 171G-10329* | 172G-10329* |
| 599-10330* | | 160 (140) | | 171E-10330* | 172E-10330* | 171F-10330* | 172F-10330* | 171G-10330* | 172G-10330* |


* Denotes a full-port valve without flow characterizer insert.

Table 5. Fail-Safe Assemblies: Full-Port, Chrome-Plated Ball and Brass Stem, 120V.

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔP in psi (kPa) | Fail-Safe, 120V | | | |
|-----------------------------|------------------------|--------------------|---------------------------|--|-------------|-------------|-------------|
| | | | |   | | | |
| | | | | 2-Position | | | |
| | | | | GQD221.1U | | GMA221.1U | |
| | | | | N.O. | N.C. | N.O. | N.C. |
| | | | | Actuator Prefix Code | | | |
| 171L | 172L | 171M | 172M | | | | |
| 599-10307* | 1/2 (15) | 10 (9) | 200 (1379) | 171L-10307* | 172L-10307* | — | — |
| 599-10311* | 3/4 (20) | 25 (22) | | 171L-10311* | 172L-10311* | — | — |
| 599-10316* | 1 (25) | 63 (54) | | — | — | 171M-10316* | 172M-10316* |
| 599-10321* | 1-1/4 (32) | 100 (90) | | — | — | 171M-10321* | 172M-10321* |
| 599-10326* | 1-1/2 (40) | 160 (140) | | — | — | 171M-10326* | 172M-10326* |
| 599-10330* | 2 (50) | — | | — | — | 171M-10330* | 172M-10330* |


* Denotes a full-port valve without flow characterizers insert.

Table 6. Fail-In-Place Assemblies: Stainless Steel Ball and Stem (1/2-Inch and 3/4-Inch).

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-Off ΔP in psi (kPa) | Fail-in-Place | | | |
|-----------------------------|------------------------|--------------------|---------------------------|--|---------------------------------------|--------------------|---------------------------------------|
| | | | |  | | | |
| | | | | Floating | | 0 to 10 Vdc | |
| | | | | GDE 131.1P | GDE 131.1Q | GDE 161.1P | GDE 161.1Q |
| | | | | 3 foot (.9m) Wires | Conduit Adapter & 6-foot (1.8m) Wires | 3 foot (.9m) Wires | Conduit Adapter & 6-foot (1.8m) Wires |
| | | | | Actuator Prefix Code | | | |
| 171A | | 173A | | 171C | | 173C | |
| 599-10300S | 1/2 (15) | 0.4 (0.34) | 200 (1379) | 171A-10300S | 173A-10300S | 171C-10300S | 173C-10300S |
| 599-10301S | | 0.63 (0.54) | | 171A-10301S | 173A-10301S | 171C-10301S | 173C-10301S |
| 599-10302S | | 1.0 (0.9) | | 171A-10302S | 173A-10302S | 171C-10302S | 173C-10302S |
| 599-10303S | | 1.6 (1.4) | | 171A-10303S | 173A-10303S | 171C-10303S | 173C-10303S |
| 599-10304S | | 2.5 (2.2) | | 171A-10304S | 173A-10304S | 171C-10304S | 173C-10304S |
| 599-10305S | | 4.0 (3.4) | | 171A-10305S | 173A-10305S | 171C-10305S | 173C-10305S |
| 599-10306S | | 6.3 (5.4) | | 171A-10306S | 173A-10306S | 171C-10306S | 173C-10306S |
| 599-10307S* | | 10 (8.6) | | 171A-10307S* | 173A-10307S* | 171C-10307S* | 173C-10307S* |
| 599-10308S | 3/4 (20) | 6.3 (5.4) | | 171A-10308S | 173A-10308S | 171C-10308S | 173C-10308S |
| 599-10309S | | 10 (8.6) | | 171A-10309S | 173A-10309S | 171C-10309S | 173C-10309S |
| 599-10310S | | 16 (14) | | 171A-10310S | 173A-10310S | 171C-10310S | 173C-10310S |
| 599-10311S* | | 25 (22) | | 171A-10311S* | 173A-10311S* | 171C-10311S* | 173C-10311S* |


*Denotes a full-port valve without flow characterizer insert.

Table 7. Fail-In-Place Assemblies: Stainless Steel Ball and Stem (1-Inch to 2-Inch).

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-Off ΔP in psi (kPa) | Fail-in-Place | | | | | | | | | | | |
|-----------------------------|------------------------|--------------------|---------------------------|--|--------------|---------------------------------------|--------------|--------------------|------------|---------------------------------------|------------|------|--|------|--|
| | | | |  | | | | | | | | | | | |
| | | | | Floating | | | | 0 to 10 Vdc | | | | | | | |
| | | | | GDE 131.1P | GLB 131.1P | GDE 131.1Q | GLB 131.1Q | GDE 161.1P | GLB 161.1P | GDE 161.1Q | GLB 161.1Q | | | | |
| | | | | 3 foot (.9m) Wires | | Conduit Adapter & 6-foot (1.8m) Wires | | 3 foot (.9m) Wires | | Conduit Adapter & 6-foot (1.8m) Wires | | | | | |
| | | | | Actuator Prefix Code | | | | | | | | | | | |
| 171A | | 171B | | 173A | | 173B | | 171C | | 171D | | 173C | | 173D | |
| 599-10312S | 1 (25) | 10 (9.0) | 200 (1379) | 171A-10312S | 173A-10312S | 171C-10312S | 173C-10312S | | | | | | | | |
| 599-10313S | | 16 (14) | | 171A-10313S | 173A-10313S | 171C-10313S | 173C-10313S | | | | | | | | |
| 599-10314S | | 25 (22) | | 171A-10314S | 173A-10314S | 171C-10314S | 173C-10314S | | | | | | | | |
| 599-10315S | | 40 (34) | | 171A-10315S | 173A-10315S | 171C-10315S | 173C-10315S | | | | | | | | |
| 599-10316S* | | 63 (54) | | 171A-10316S* | 173A-10316S* | 171C-10316S* | 173C-10316S* | | | | | | | | |
| 599-10317S | 1-1/4 (32) | 16 (14) | | 171A-10317S | 173A-10317S | 171C-10317S | 173C-10317S | | | | | | | | |
| 599-10318S | | 25 (22) | | 171A-10318S | 173A-10318S | 171C-10318S | 173C-10318S | | | | | | | | |
| 599-10319S | | 40 (34) | | 171A-10319S | 173A-10319S | 171C-10319S | 173C-10319S | | | | | | | | |
| 599-10320S | | 63 (54) | | 171A-10320S | 173A-10320S | 171C-10320S | 173C-10320S | | | | | | | | |
| 599-10321S* | | 100 (90) | | 171A-10321S* | 173A-10321S* | 171C-10321S* | 173C-10321S* | | | | | | | | |
| 599-10322S | 1-1/2 (40) | 25 (22) | | 171B-10322S | 173B-10322S | 171D-10322S | 173D-10322S | | | | | | | | |
| 599-10323S | | 40 (34) | | 171B-10323S | 173B-10323S | 171D-10323S | 173D-10323S | | | | | | | | |
| 599-10324S* | | 63 (54) | | 171B-10324S* | 173B-10324S* | 171D-10324S* | 173D-10324S* | | | | | | | | |
| 599-10325S | | 100 (90) | | 171B-10325S | 173B-10325S | 171D-10325S | 173D-10325S | | | | | | | | |
| 599-10326S* | | 160 (140) | | 171B-10326S* | 173B-10326S* | 171D-10326S* | 173D-10326S* | | | | | | | | |
| 599-10327S | 2 (50) | 40 (34) | | 171B-10327S | 173B-10327S | 171D-10327S | 173D-10327S | | | | | | | | |
| 599-10328S | | 63 (54) | 171B-10328S | 173B-10328S | 171D-10328S | 173D-10328S | | | | | | | | | |
| 599-10329S* | | 100 (90) | 171B-10329S* | 173B-10329S* | 171D-10329S* | 173D-10329S* | | | | | | | | | |
| 599-10330S* | | 160 (140) | 171B-10330S* | 173B-10330S* | 171D-10330S* | 173D-10330S* | | | | | | | | | |

*Denotes a full-port valve without flow characterizer insert.

Table 8. Fail-Safe Assemblies: Stainless Steel Ball and Stem (1/2-Inch and 3/4-Inch).

| Valve Body Product Number* | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔP in psi (kPa) | Fail-Safe | | | | | |
|----------------------------|------------------------|--------------------|---------------------------|--|--------------|--------------|--------------|--------------|--------------|
| | | | |  | | | | | |
| | | | | 2-Position | | Floating | | 2 to 10 Vdc | |
| | | | | GQD121.1P | | GQD131.1P | | GQD151.1P | |
| | | | | N.O. | N.C. | N.O. | N.C. | N.O. | N.C. |
| | | | | Actuator Prefix Code | | | | | |
| 171H | 172H | 171J | 172J | 171K | 172K | | | | |
| 599-10300S | 1/2 (15) | 0.4 (0.34) | 200 (1379) | 171H-10300S | 172H-10300S | 171J-10300S | 172J-10300S | 171K-10300S | 172K-10300S |
| 599-10301S | | 0.63 (0.54) | | 171H-10301S | 172H-10301S | 171J-10301S | 172J-10301S | 171K-10301S | 172K-10301S |
| 599-10302S | | 1.0 (0.9) | | 171H-10302S | 172H-10302S | 171J-10302S | 172J-10302S | 171K-10302S | 172K-10302S |
| 599-10303S | | 1.6 (1.4) | | 171H-10303S | 172H-10303S | 171J-10303S | 172J-10303S | 171K-10303S | 172K-10303S |
| 599-10304S | | 2.5 (2.2) | | 171H-10304S | 172H-10304S | 171J-10304S | 172J-10304S | 171K-10304S | 172K-10304S |
| 599-10305S | | 4.0 (3.4) | | 171H-10305S | 172H-10305S | 171J-10305S | 172J-10305S | 171K-10305S | 172K-10305S |
| 599-10306S | | 6.3 (5.4) | | 171H-10306S | 172H-10306S | 171J-10306S | 172J-10306S | 171K-10306S | 172K-10306S |
| 599-10307S* | | 10 (8.6) | | 171H-10307S* | 172H-10307S* | 171J-10307S* | 172J-10307S* | 171K-10307S* | 172K-10307S* |
| 599-10308S | 3/4 (20) | 6.3 (5.4) | | 171H-10308S | 172H-10308S | 171J-10308S | 172J-10308S | 171K-10308S | 172K-10308S |
| 599-10309S | | 10 (8.6) | | 171H-10309S | 172H-10309S | 171J-10309S | 172J-10309S | 171K-10309S | 172K-10309S |
| 599-10310S | | 16 (14) | | 171H-10310S | 172H-10310S | 171J-10310S | 172J-10310S | 171K-10310S | 172K-10310S |
| 599-10311S* | | 25 (22) | | 171H-10311S* | 172H-10311S* | 171J-10311S* | 172J-10311S* | 171K-10311S* | 172K-10311S* |

*Denotes a full-port valve without flow characterizer insert.

Table 9. Fail-Safe Assemblies: Stainless Steel Ball and Stem (1-Inch to 2-Inch).

| Valve Body Product Number * | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔPin psi (kPa) | Fail-Safe | | | | | |
|-----------------------------|------------------------|--------------------|--------------------------|--|--------------|--------------|--------------|--------------|--------------|
| | | | |  | | | | | |
| | | | | 2-Position | | Floating | | 0 to 10 Vdc | |
| | | | | GMA121.1P | | GMA131.1P | | GMA161.1P | |
| | | | | N.O. | N.C. | N.O. | N.C. | N.O. | N.C. |
| | | | | Actuator Prefix Code | | | | | |
| 171E | 172E | 171F | 172F | 171G | 172G | | | | |
| 599-10312S | 1 (25) | 10 (9.0) | 200 (1379) | 171E-10312S | 172E-10312S | 171F-10312S | 172F-10312S | 171G-10312S | 172G-10312S |
| 599-10313S | | 16 (14) | | 171E-10313S | 172E-10313S | 171F-10313S | 172F-10313S | 171G-10313S | 172G-10313S |
| 599-10314S | | 25 (22) | | 171E-10314S | 172E-10314S | 171F-10314S | 172F-10314S | 171G-10314S | 172G-10314S |
| 599-10315S | | 40 (34) | | 171E-10315S | 172E-10315S | 171F-10315S | 172F-10315S | 171G-10315S | 172G-10315S |
| 599-10316S* | | 63 (54) | | 171E-10316S* | 172E-10316S* | 171F-10316S* | 172F-10316S* | 171G-10316S* | 172G-10316S* |
| 599-10317S | 1-1/4 (32) | 16 (14) | | 171E-10317S | 172E-10317S | 171F-10317S | 172F-10317S | 171G-10317S | 172G-10317S |
| 599-10318S | | 25 (22) | | 171E-10318S | 172E-10318S | 171F-10318S | 172F-10318S | 171G-10318S | 172G-10318S |
| 599-10319S | | 40 (34) | | 171E-10319S | 172E-10319S | 171F-10319S | 172F-10319S | 171G-10319S | 172G-10319S |
| 599-10320S | | 63 (54) | | 171E-10320S | 172E-10320S | 171F-10320S | 172F-10320S | 171G-10320S | 172G-10320S |
| 599-10321S* | | 100 (90) | | 171E-10321S* | 172E-10321S* | 171F-10321S* | 172F-10321S* | 171G-10321S* | 172G-10321S* |
| 599-10322S | 1-1/2 (40) | 25 (22) | | 171E-10322S | 172E-10322S | 171F-10322S | 172F-10322S | 171G-10322S | 172G-10322S |
| 599-10323S | | 40 (34) | | 171E-10323S | 172E-10323S | 171F-10323S | 172F-10323S | 171G-10323S | 172G-10323S |
| 599-10324S* | | 63 (54) | | 171E-10324S* | 172E-10324S* | 171F-10324S* | 172F-10324S* | 171G-10324S* | 172G-10324S* |
| 599-10325S | | 100 (90) | | 171E-10325S | 172E-10325S | 171F-10325S | 172F-10325S | 171G-10325S | 172G-10325S |
| 599-10326S* | | 160 (140) | | 171E-10326S* | 172E-10326S* | 171F-10326S* | 172F-10326S* | 171G-10326S* | 172G-10326S* |
| 599-10327S | 2 (50) | 40 (34) | | 171E-10327S | 172E-10327S | 171F-10327S | 172F-10327S | 171G-10327S | 172G-10327S |
| 599-10328S | | 63 (54) | | 171E-10328S | 172E-10328S | 171F-10328S | 172F-10328S | 171G-10328S | 172G-10328S |
| 599-10329S* | | 100 (90) | | 171E-10329S* | 172E-10329S* | 171F-10329S* | 172F-10329S* | 171G-10329S* | 172G-10329S* |
| 599-10330S* | | 160 (140) | | 171E-10330S* | 172E-10330S* | 171F-10330S* | 172F-10330S* | 171G-10330S* | 172G-10330S* |



* Denotes a full-port valve without flow characterizer insert.

Table 10. Fail-Safe Assemblies: Full-Port, Stainless Steel Ball and Stem, 120V.

| Valve Body Product Number* | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔP in psi (kPa) | Fail-Safe, 120V | | | |
|----------------------------|------------------------|--------------------|---------------------------|---|--------------|---|--------------|
| | | | |  | |  | |
| | | | | 2-Position | | | |
| | | | | GQD221.1U | | GMA221.1U | |
| N.O. | | N.C. | | N.O. | | N.C. | |
| | | | | Actuator Prefix Code | | | |
| 171L | | 172L | | 171M | | 172M | |
| 599-10307S* | 1/2 (15) | 10 (9) | 200 (1379) | 171L-10307S* | 172L-10307S* | — | — |
| 599-10311S* | 3/4 (20) | 25 (22) | | 171L-10311S* | 172L-10311S* | — | — |
| 599-10316S* | 1 (25) | 63 (54) | | — | — | 171M-10316S* | 172M-10316S* |
| 599-10321S* | 1-1/4 (32) | 100 (90) | | — | — | 171M-10321S* | 172M-10321S* |
| 599-10326S* | 1-1/2 (40) | 160 (140) | | — | — | 171M-10326S* | 172M-10326S* |
| 599-10330S* | 2 (50) | | | — | — | 171M-10330S* | 172M-10330S* |

* Denotes a full-port valve without flow characterizer insert.

Table 11. Fail-Safe Assemblies: Full-Port, Stainless Steel Ball and Stem, 24V with Dual Auxiliary Switches.

| Valve Body Product Number* | Valve Size Inches (mm) | Flow Rate Cv (Kvs) | Close-off ΔP in psi (kPa) | Fail-Safe, 24V | | | |
|----------------------------|------------------------|--------------------|---------------------------|--|--------------|--|--------------|
| | | | |  | |  | |
| | | | | 2-Position | | | |
| | | | | GQD126.1P | | GMA126.1P | |
| N.O. | | N.C. | | N.O. | | N.C. | |
| | | | | Actuator Prefix Code | | | |
| 171N | | 172N | | 171P | | 172P | |
| 599-10307S* | 1/2 (15) | 10 (9) | 200 (1379) | 171N-10307S* | 172N-10307S* | — | — |
| 599-10311S* | 3/4 (20) | 25 (22) | | 171N-10311S* | 172N-10311S* | — | — |
| 599-10316S* | 1 (25) | 63 (54) | | — | — | 171P-10316S* | 172P-10316S* |
| 599-10321S* | 1-1/4 (32) | 100 (90) | | — | — | 171P-10321S* | 172P-10321S* |
| 599-10326S* | 1-1/2 (40) | 160 (140) | | — | — | 171P-10326S* | 172P-10326S* |
| 599-10330S* | 2 (50) | | | — | — | 171P-10330S* | 172P-10330S* |

* Denotes a full-port valve without flow characterizer insert.

Typical Specifications

Ball valves shall have female NPT type fittings and shall be 1/2-inch to 2-inch (15 mm to 50 mm) line and ball sizes. The valves shall have a forged brass body; chrome-plated brass ball with brass stem or stainless steel ball and stem; and EPDM O-ring seals. Valves shall contain glass-filled PTFE ball valve seals or integral seals and flow characterizers to provide an equal percentage control characteristic where required. Ball valves shall utilize a 90-degree rotation for control. They shall provide automated flow control of hot or chilled water and up to 50% water-glycol solution for HVAC control applications.

Technical Data

| | | | |
|---------------------------|---|--------------------------|-------------------------------------|
| Pressure Rating | 600 WOG/ANSI 250 | Ball Seals | Glass-filled PTFE with EPDM O-rings |
| Media Temperature | 35°F to 250°F (2°C to 120°C) | End Connections | Female NPT |
| Controlled Medium | Water, 50% water-glycol solution | Stem | Brass or stainless steel |
| Body | Brass: ASTM B283, C37700 | Stem Seals | EPDM O-rings |
| Ball | Chrome-plated brass or Stainless steel | Angle of Rotation | 0° to 90° |
| Flow Characterizer | Glass-filled PTFE | | |

Table 12. Full-Port (No Flow Characterizer) Ball Valve Product Numbers and Flow Coefficients.

| Valve Product Number | Valve Line Size in Inches (mm) | Effective (Installed) Cv (Kvs) | | | | | | | | | | |
|-------------------------------|--------------------------------|---------------------------------|------------------|------------------|-------------------|--------------------|-------------------|------------------|------------------|---------|---------|---------|
| | | Supply Line Size in Inches (mm) | | | | | | | | | | |
| | | 1/2 (13) | 3/4 (20) | 1 (25) | 1-1/4 (32) | 1-1/2 (38) | 2 (51) | 2-1/2 (63) | 3 (76) | 4 (102) | 5 (127) | 6 (152) |
| 599-10307 or 599-10307S | 1/2 (15) | 10.00 (8.62) | 6.94 (5.93) | 6.19 (5.29) | — | — | — | — | — | — | — | — |
| 599-10311 or 599-10311S | 3/4 (20) | — | 25.00 (21.55) | 18.66 (15.95) | 15.35 (13.12) | — | — | — | — | — | — | — |
| 599-10316 or 599-10316S | 1 (25) | — | — | 63.00 (54.31) | 39.78 (34.00) | 33.56 (28.69) | — | — | — | — | — | — |
| 599-10321 or 599-10321S | 1-1/4 (32) | — | — | — | 100.00 (86.21) | 69.19 (59.13) | 51.45 (43.98) | — | — | — | — | — |
| 599-10324 or 599-10324S | 1-1/2 (40) | — | — | — | — | 63.00 (54.31) | 55.34 (47.30) | 51.00 (43.59) | — | — | — | — |
| 599-10326 or 599-10326S | | — | — | — | — | 160.00 (137.93) | 93.80 (80.17) | 76.34 (65.25) | — | — | — | — |
| 599-10329 or 599-10329S | 2 (50) | — | — | — | — | — | 100.00 (86.21) | 94.30 (80.60) | 86.12 (73.61) | — | — | — |

■ = Valve may be oversized.

□ = Optimal valve size.

▨ = Valve may be undersized



Figure 1. Two-Way Ball Valve and Low Profile Bracket with Actuator Dimensions in Inches (Millimeters).

| Line Size Inches (mm) | Cv Range | A Length | B Height | C Length Actuator Codes | | | D Width | E Height | Valve and Bracket Weight lbs (kg) |
|-----------------------------|-----------|-------------|-------------|----------------------------|-------------|------------------|------------|---------------|---|
| | | | | GDE | | GQD | | | |
| | | | | 171A-D | 173A-D | 171H, J, K, L, N | | | |
| 1/2 (15) | 0.4 to 10 | 2-7/16 (61) | 2-1/4 (57) | 5-1/4 (133) | 5-3/4 (146) | 5-1/4 (133) | 2-3/4 (70) | 4-13/16 (123) | 1 (0.45) |
| 3/4 (20) | 6.3 to 25 | 2-3/4 (70) | 2-5/8 (67) | 5-3/8 (136) | 6 (153) | 5-3/8 (136) | | 5-1/4 (133) | 1.3 (0.60) |

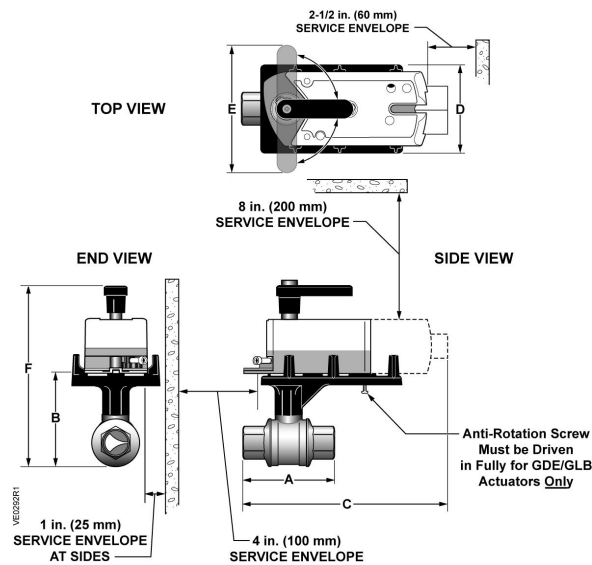


Figure 2. 2-Way Ball Valves.

- All dimensions are in inches (mm).
- Dimension “D”, Depth, is 3.7 inches (94.5) “E”, Handle, is 5.3 inches (135.9).
- Dimension weights are in pounds (kg).

Table 13. Two-Way Ball Valve and Bracket with Actuator Dimensions in Inches (Millimeters).

| Line Size Inch (mm) | Cv Range | A Length | C Length * Actuator Codes 171A-D, 173A-D GDE/GLB | C Length * Actuator Codes 171H,J,K GQD | C Length* Actuator Codes 171E,F 172E,F Fail Safe GMA | F Height | Valve and Bracket Weight lbs (kg) |
|---------------------------|--------------|---------------|--|---|---|---------------|---|
| 1 (25) | 10 | 3 (77) | 6-11/16 (170) | — | 8 (203) | 8 (203) | 1.6 (0.73) |
| | 16, 40, 63 | 3-1/4 (82) | | — | 8-3/8 (213) | 8-5/16 (212) | 1.8 (0.82) |
| | 25 | 3-7/8 (98) | 7 (178) | — | 8-11/16 (221) | 8-13/16 (223) | |
| 1-1/4 (32) | 16 | 3-3/8(86) | 6-11/16 (170) | — | 8-7/16 (214) | 8-3/8 (213) | 2.0 (0.91) |
| | 25 to 100 | 3-11/16 (94) | 6-15/16 (176) | — | 8-11/16 (221) | 8-13/16 (223) | 2.5 (1.1) |
| 1-1/2 (40) | 25, 63 | 3-5/8 (92) | | 7-1/16 (180) | — | 8-7/16 (214) | 8-13/16 (223) |
| | 40, 100, 160 | 3-15/16 (100) | — | | 8-3/4 (223) | 9-1/4 (235) | 3.3 (1.50) |
| 2 (50) | 40, 100 | 4 (102) | 7-1/2 (190) | — | 9-1/8 (223) | 9-3/8 (238) | 3.1 (1.41) |
| | 63 | 4-5/8 (118) | | — | | 10-1/16 (255) | 5.25 (2.38) |
| | 160 | | — | — | — | 5.3 (2.40) | |

*Dimension C is the maximum length, measured from actuator, end fitting, or mounting plate, whichever extends the furthest.

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