

**MODEL 161S/161S-LF**  
BRONZE DISC SWING CHECK



**FEATURES**

- Y-Pattern
- Solder Ends
- Bronze Seat
- 200 CWP
- Lead Free Option (NSF 372)

**STANDARDS**

- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)



MODEL NUMBER	LF MODEL NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-093-01	61YLF-093-01	1/2	2.53	1.65	0.62
61Y-094-01	61YLF-094-01	3/4	3.36	1.90	0.91
61Y-095-01	61YLF-095-01	1	4.07	2.26	1.70
61Y-096-01	61YLF-096-01	1 1/4	4.68	2.65	2.00
61Y-097-01	61YLF-097-01	1 1/2	5.28	2.99	2.70
61Y-098-01	61YLF-098-01	2	6.50	3.74	4.90
61Y-099-01	-	2 1/2	8.30	5.11	9.70
61Y-090-01	-	3	9.58	6.05	15.00

Height is measured from centerline to top of unit.

**MODEL 161T/161T-LF**  
CLASS 125 BRONZE DISC SWING CHECK



**FEATURES**

- Y-Pattern
- NPT
- Bronze Seat
- 200 CWP
- 125 SWP
- Lead Free Option (NSF 372)

**STANDARDS**

- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)



MODEL NUMBER	LF MODEL NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-191-01	61YLF-191-01	1/4	2.14	1.51	0.64
61Y-192-01	61YLF-192-01	3/8	2.14	1.51	0.62
61Y-193-01	61YLF-193-01	1/2	2.48	1.65	0.73
61Y-194-01	61YLF-194-01	3/4	2.94	1.90	1.06
61Y-195-01	61YLF-195-01	1	3.57	2.26	1.70
61Y-196-01	61YLF-196-01	1 1/4	4.50	2.99	3.30
61Y-197-01	61YLF-197-01	1 1/2	4.50	2.99	3.10
61Y-198-01	61YLF-198-01	2	5.25	3.74	5.50
61Y-199-01	-	2 1/2	8.00	5.11	11.70
61Y-190-01	-	3	9.24	6.05	17.80

Height is measured from centerline to top of unit.

**MODEL 162T**  
VITON® DISC SWING CHECK

**FEATURES**

- Y-Pattern
- NPT
- Viton Elastomer Seat
- 200 CWP
- 125 SWP

**STANDARDS**

- MSS SP-80 Standard
- ASTM B62 Bronze



MODEL NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-201-V1	1/4	2.14	1.51	0.64
61Y-202-V1	3/8	2.14	1.51	0.62
61Y-203-V1	1/2	2.48	1.65	0.73
61Y-204-V1	3/4	2.94	1.90	1.06
61Y-205-V1	1	3.57	2.26	1.70
61Y-206-V1	1 1/4	4.50	2.99	3.30
61Y-207-V1	1 1/2	4.50	2.99	3.10
61Y-208-V1	2	5.25	3.74	5.40

Height is measured from centerline to top of unit.

**MODEL 163S/163S-LF**  
200 CWP PTFE DISC SWING CHECK



**FEATURES**

- Y-Pattern
- Solder
- PTFE Soft Seat
- 200 CWP
- Lead Free Option (NSF 372)

**STANDARDS**

- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)



PART NUMBER	LF PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-103-T1	61YLF-103-T1	1/2	2.53	1.65	0.62
61Y-104-T1	61YLF-104-T1	3/4	3.36	1.90	0.91
61Y-105-T1	61YLF-105-T1	1	4.07	2.26	1.70
61Y-106-T1	61YLF-106-T1	1 1/4	5.28	2.99	3.20
61Y-107-T1	61YLF-107-T1	1 1/2	5.28	2.99	2.70
61Y-108-T1	61YLF-108-T1	2	6.50	3.74	4.90

Height is measured from centerline to top of unit.



**MODEL 163T/163T-LF**  
CLASS 125 PTFE DISC SWING CHECK



**FEATURES**

- Y-Pattern
- NPT
- PTFE Soft Seat
- 200 CWP
- 125 SWP
- Lead Free Option (NSF 372)

**STANDARDS**

- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)



PART NUMBER	LF PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-201-T1	-	1/4	2.14	1.51	0.64
61Y-202-T1	-	3/8	2.15	1.51	0.62
61Y-203-T1	61YLF-203-T1	1/2	2.48	1.65	0.73
61Y-204-T1	61YLF-204-T1	3/4	2.94	1.90	1.06
61Y-205-T1	61YLF-205-T1	1	3.57	2.26	1.70
61Y-206-T1	61YLF-206-T1	1 1/4	4.50	2.99	3.30
61Y-207-T1	61YLF-207-T1	1 1/2	4.50	2.99	3.10
61Y-208-T1	61YLF-208-T1	2	5.25	3.74	5.40

Height is measured from centerline to top of unit.

**MODEL 164T**  
CLASS 150 BRONZE DISC SWING CHECK

**FEATURES**

- Y-Pattern
- NPT
- Bronze Seat
- 300 CWP
- 150 SWP

**STANDARDS**

- MSS SP-80 Standard
- ASTM B62 Bronze



PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-211-01	1/4	2.14	1.51	0.64
61Y-212-01	3/8	2.14	1.51	0.62
61Y-213-01	1/2	2.48	1.65	0.73
61Y-214-01	3/4	2.94	1.90	1.06
61Y-215-01	1	3.57	2.26	1.70
61Y-216-01	1 1/4	4.50	2.99	3.30
61Y-217-01	1 1/2	4.50	2.99	3.10
61Y-218-01	2	5.25	3.74	5.50
61Y-219-01	2 1/2	8.00	5.11	11.70
61Y-210-01	3	9.24	6.05	17.80

Height is measured from centerline to top of unit.

**MODEL 168T**  
CLASS 300 BRONZE DISC SWING CHECK

**FEATURES**

- Y-Pattern
- NPT
- Bronze Seat
- 600 CWP
- 300 SWP

**STANDARDS**

- MSS SP-80 Standard
- ASTM B61 Bronze



PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-753-01	1/2	2.50	1.65	.75
61Y-754-01	3/4	2.95	1.90	1.20
61Y-755-01	1	3.57	2.27	1.80
61Y-756-01	1 1/4	4.50	3.00	3.50
61Y-757-01	1 1/2	4.50	3.00	3.20
61Y-758-01	2	5.25	3.75	5.60

Height is measured from centerline to top of unit.

**MODEL 169T**  
CLASS 300 PTFE DISC SWING CHECK

**FEATURES**

- Y-Pattern
- NPT
- PTFE Soft Seat
- 600 CWP
- 300 SWP

**STANDARDS**

- MSS SP-80 Standard
- ASTM B61 Bronze



PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
61Y-753-T1	1/2	2.5	1.65	.75
61Y-754-T1	3/4	2.95	1.90	1.20
61Y-755-T1	1	3.57	2.27	1.80
61Y-756-T1	1 1/4	4.50	3.00	3.50
61Y-757-T1	1 1/2	4.50	3.00	3.20
61Y-758-T1	2	5.25	3.75	5.60

Height is measured from centerline to top of unit.



**MODEL 910F**

**CLASS 125 FLANGED SWING CHECK**



**PERFORMANCE RATING STANDARD**

- Saturated Steam:
  - 125 psi (8.6 Bar) at 353° F (2"-12")
  - 100 psi (6.9 Bar) at 338° F (14"-20")
- Cold Working Pressure:
  - 200 psi (13.8 Bar) at 100° F (2"-12")
  - 150 psi (10.3 Bar) at 100° F (14"-20")
- Temperature Range: -20° to 406° F max

**LEAD FREE (-LF)**

- Cold Working Pressure:
  - 200 psi (13.8 Bar) at 100° F (2"-12")
  - 150 psi (10.3 Bar) at 100° F (14"-20")
- Temperature Range: -20° to- 180° F max

**FEATURES**

- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Flanged Connection
- Bolted Bonnet
- Integral Bronze Seat

**APPROVALS**

**(LEAD FREE ONLY)**

- NSF/ANSI 372 Lead Free
- NSF/AND 61 Water Quality

**STANDARDS**

- MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

STANDARD PART # (STEAM RATED)	-LF PART # (NOT FOR STEAM)	-LFA PART # (STEAM RATED)	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
6SC-108-B1	-	6SC-108-B1-LFA	2	8.00	4.41	26.0
-	6SC-109-B1-LF	6SC-109-B1-LFA	2 1/2	8.50	5.24	39.0
-	-	6SC-100-B1-LFA	3	9.50	5.67	47.0
-	6SC-10A-B1-LF	6SC-10A-B1-LFA	4	11.50	6.61	82.0
6SC-10B-B1	-	6SC-10B-B1-LFA	5	13.00	7.80	124
6SC-10C-B1	6SC-10C-B1-LF	6SC-10C-B1-LFA	6	14.00	8.54	160
-	-	6SC-10E-01-LFA	8	19.50	10.28	271
6SC-10G-01	6SC-10G-01-LF	6SC-10G-01-LFA	10	24.50	11.30	437
6SC-10H-01	-	6SC-10H-01-LFA	12	27.50	12.56	644
6SC-10J-01	-	6SC-10J-01-LFA	14	31.00	17.50	950
6SC-10K-01	6SC-10K-01-LF	6SC-10K-01-LFA	16	36.00	23.45	1160
6SC-10M-01	-	6SC-10M-01-LFA	18	36.00	27.50	1720
6SC-10N-01	-	6SC-10N-01-LFA	20	40.00	29.25	2094

Height is measured from centerline to top of unit.

**MODEL 910FLW**

**CLASS 125 FLANGED SWING CHECK**



**PERFORMANCE RATING STANDARD**

- Saturated Steam:
  - 125 psi (8.6 Bar) at 353° F (2"-12")
- Cold Working Pressure:
  - 200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 406° F max

**LEAD FREE (-LF)**

- Cold Working Pressure:
  - 200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 180° F max

**FEATURES**

- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Flanged Connection
- Bolted Bonnet
- Integral Seat
- Lever & Weight Design

**STANDARDS**

- MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

**APPROVALS**

**(LEAD FREE ONLY)**

- NSF/ANSI 372 Lead Free
- NSF/AND 61 Water Quality

STANDARD PART # (STEAM RATED)	-LF PART # (NOT FOR STEAM)	-LFA PART # (STEAM RATED)	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
-	6SC-108-B1L-LF	6SC-108-B1L-LFA	2	8.00	4.41	38.8
6SC-109-B1L	-	6SC-109-B1L-LFA	2 1/2	8.50	5.24	45.2
-	6SC-100-B1L-LF	6SC-100-B1L-LFA	3	9.50	5.67	61.7
-	6SC-10A-B1L-LF	6SC-10A-B1L-LFA	4	11.50	6.61	99.2
6SC-10B-B1L	6SC-10B-B1L-LF	6SC-10B-B1L-LFA	5	13.00	7.80	132
-	-	6SC-10C-B1L-LFA	6	14.00	8.54	170
-	-	6SC-10E-01L-LFA	8	19.50	10.28	282
6SC-10G-01L	-	6SC-10G-01L-LFA	10	24.50	11.30	439
6SC-10H-01L	-	6SC-10H-01L-LFA	12	27.50	12.56	672

Height is measured from centerline to top of unit.

NOTE: Flat face mating flanges and full face gaskets must be installed to avoid damage to the cast iron body.



**MODEL 920F**

CLASS 250 FLANGED SWING CHECK



**PERFORMANCE RATING STANDARD**

- Saturated Steam:  
125 psi (8.6 Bar) at 353° F (2"-8")
- Cold Working Pressure:  
500 psi (34.4 Bar) at 100° F (2"-8")
- Temperature Range: -20° to 406° F max

**LEAD FREE (-LF)**

- Cold Working Pressure:  
500 psi (34.4 Bar) at 100° F (2"-8")
- Temperature Range: -20° to 180° F max

**FEATURES**

- Compatible with ANSI 250# & 300# Flanges
- Full Port
- Minimal Pressure Drop
- Flanged Connection
- Bolted Bonnet
- Integral Seat

**STANDARDS**

- MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves
- ASME B1.1 - Unified Inch Screw Threads

**APPROVALS**

**(LEAD FREE ONLY)**

- NSF/ANSI 372 Lead Free
- NSF/AND 61 Water Quality

STANDARD PART # (STEAM RATED)	-LF PART # (NOT FOR STEAM)	-LFA PART # (STEAM RATED)	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
6SC-208-BI	-	6SC-208-BI-LFA	2	10.51	4.41	30.0
6SC-209-BI	-	6SC-209-BI-LFA	2 1/2	11.50	5.24	44.0
6SC-200-BI	-	6SC-200-BI-LFA	3	12.50	5.67	55.0
-	-	6SC-20A-BI-LFA	4	14.00	6.61	90.0
6SC-20C-BI	6SC-20C-BI-LF	6SC-20C-BI-LFA	6	17.50	8.54	172
6SC-20E-01	-	6SC-20E-01-LFA	8	21.00	10.28	289

*Height is measured from centerline to top of unit.*

*NOTE: Class 250 flanges and flanged fittings have a 0.06 inch raised face in accordance with MSS SP-6.*



**MODEL 910WB**

CLASS 125 WAFER CHECK - NITRILE (BUNA-N)



**FEATURES**

- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Light Weight
- Spring Assisted Closing for Quicker Response

**PERFORMANCE RATING**

- **2"-12"**:  
250 psi (17.2 Bar) Non-Shock Cold Working Pressure  
Maximum Temperature to 180°F (82°C)
- **14"-24"**:  
150 psi (10.3 Bar) Non-Shock Cold Working Pressure  
Maximum Temperature to 180°F (82°C)
- **Not For Steam Use**

PART NUMBER	LF PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
6WC-108-NI	6WC-108-NI-LF	2	2.12	4.00	5.0
-	6WC-109-NI-LF	2 1/2	2.38	4.75	7.0
-	6WC-100-NI-LF	3	2.62	5.25	10.0
6WC-10A-NI	6WC-10A-NI-LF	4	2.62	6.75	12.0
-	6WC-10B-NI-LF	5	3.25	7.50	15.0
-	6WC-10C-NI-LF	6	3.75	8.50	22.0
-	6WC-10E-NI-LF	8	5.00	11.00	35.0
6WC-10G-NI	6WC-10G-NI-LF	10	5.50	13.25	66.0
6WC-10H-NI	6WC-10H-NI-LF	12	7.12	16.00	108
-	6WC-10J-NI-LF	14	7.25	17.75	172
-	6WC-10K-NI-LF	16	7.50	20.00	132
-	6WC-10M-NI-LF	18	8.00	21.50	223
6WC-10N-NI	6WC-10N-NI-LF	20	8.38	23.75	333
-	6WC-10P-NI-LF	24	8.75	28.00	474

**MODEL 910WE**

CLASS 125 WAFER CHECK - EPDM



**FEATURES**

- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Light Weight
- Spring Assisted Closing for Quicker Response

**PERFORMANCE RATING**

- Cold Working Pressure:  
200 psi (13.8 Bar) at 100°F
- Temperature Range: -20°F to 180°F
- **Not For Steam Use**

**APPROVALS**

- CSA B51-CRN Certified

PART NUMBER	LF PART NUMBER	NPS	LENGTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
6WC-108-EI	6WC-108-EI-LF	2	2.12	4.00	5.0
-	6WC-109-EI-LF	2 1/2	2.38	4.75	7.0
6WC-100-EI	6WC-100-EI-LF	3	2.62	5.25	10.0
-	6WC-10A-EI-LF	4	2.62	6.75	12.0
6WC-10B-EI	6WC-10B-EI-LF	5	3.25	7.50	15.0
-	6WC-10C-EI-LF	6	3.75	8.50	22.0
-	6WC-10E-EI-LF	8	5.00	11.00	35.0
6WC-10G-EI	6WC-10G-EI-LF	10	5.50	13.25	66.0
-	6WC-10H-EI-LF	12	7.12	16.00	108



**CV COEFFICIENTS**  
FOR FLOW ESTIMATION ONLY

SIZE	BRONZE GATE	BRONZE GLOBE	BRONZE SWING CHECK	CI GATE	CI GLOBE	CI SWING CHECK	CI WAFER CHECK
1/4	3.0	1.4	2.6	-	-	-	-
3/8	6.0	2.6	4.5	-	-	-	-
1/2	12.5	4.4	7.0	-	-	-	-
3/4	24.0	7.4	12.0	-	-	-	-
1	72.3	12.1	28.6	-	-	-	-
1-1/4	80	29	39	-	-	-	-
1-1/2	119	30	56	-	-	-	-
2	338	49	152	328	52	132	75
2-1/2	395	74	198	482	76	192	95
3	435	112	242	744	116	298	191
4	-	-	-	1316	204	526	377
5	-	-	-	2130	328	852	483
6	-	-	-	3176	488	1272	821
8	-	-	-	5692	874	2278	1590
10	-	-	-	8972	1376	3588	2920
12	-	-	-	13352	-	5342	4470
14	-	-	-	16278	-	6512	5870
16	-	-	-	21564	-	8626	8690
18	-	-	-	28716	-	11488	10940
20	-	-	-	35762	-	14304	14290
24	-	-	-	52166	-	-	23000



**BRONZE GATE VALVE  
CROSS REFERENCE CHART**

APOLLO MODEL	101S	101S-LF	101T	101T-LF	102S	102S-LF
APOLLO P/N	30-08X-01	30LF-08X-01	30-00X-01	30LF-00X-01	30-04X-01	30LF-04X-01
SIZE RANGE	1/2" TO 3"	1/2" TO 3"	1/4" TO 3"	1/4" TO 3"	1/2" TO 3"	1/2" TO 3"
DESCRIPTION	200 CWP Gate Valve Bronze Threaded Bonnet Solid Disc Rising Stem Solder Ends	200 CWP Gate Valve LF-Bronze Threaded Bonnet Solid Disc Rising Stem Solder Ends	Class 125 (200 CWP, 125 SWP) Gate Valve Bronze Threaded Bonnet Solid Disc Rising Stem NPT	Class 125 (200 CWP, 125 SWP) Gate Valve LF-Bronze Threaded Bonnet Solid Disc Rising Stem NPT	200 CWP Gate Valve Bronze Threaded Bonnet Solid Disc NRS Solder Ends	200 CWP Gate Valve LF-Bronze Threaded Bonnet Solid Disc NRS Solder Ends
DESIGN STANDARD	MSS SP-80	MSS SP-139 MSS SP-80	MSS SP-80	MSS SP-139 MSS SP-80	MSS SP-80	MSS SP-139 MSS SP-80
CRANE MODEL	1334		428		1320	
HAMMOND MODEL	IB635		IB640	UP640	IB647	
KITZ MODEL	444		24		41	
MILWAUKEE MODEL	149	UP149	148	UP148	115	UP115
NIBCO MODEL	S111		T111		S113	S113-LF
STOCKHAM MODEL	B108K		B100K		B104K	
WALWORTH MODEL	55SJ		55		4SJ	

APOLLO MODEL	102T	102T-LF	102T-K	103T	106T	107T	111T	116T
APOLLO P/N	30-03X-01	30LF-03X-01	30-03X-01K	30-05X-01	30-28X-01	30-20X-01	30-44X-01	30-45X-01
SIZE RANGE	1/4" TO 3"	1/4" TO 3"	1/4" TO 3"	1/4" TO 3"	1/4" TO 3"	1/4" TO 3"	1/2" TO 2"	1/2" TO 2"
DESCRIPTION	Class 125 (200 CWP, 125 SWP) Gate Valve Bronze Threaded Bonnet Solid Disc NRS NPT	Class 125 (200 CWP, 125 SWP) Gate Valve LF-Bronze Threaded Bonnet Solid Disc NRS NPT	Class 125 (200 CWP, 125 SWP) Gate Valve Bronze Threaded Bonnet Solid Disc NRS NPT	Class 125 (200 CWP, 125 SWP) Gate Valve Bronze Union Bonnet Solid Disc Rising Stem NPT	Class 150 (300 CWP, 150 SWP) Gate Valve Bronze Threaded Bonnet Solid Disc NRS NPT	Class 150 (300 CWP, 150 SWP) Gate Valve Bronze Union Bonnet Solid Disc Rising Stem NPT	Class 300 (1000 CWP, 300 SWP) Gate Valve Bronze Union Bonnet Solid Disc Rising Stem NPT	Class 300 (1000 CWP, 300 SWP) Gate Valve Bronze Union Bonnet Solid Disc, SS Seats Rising Stem NPT
DESIGN STANDARD	MSS SP-80	MSS SP-139 MSS SP-80	MSS SP-80	MSS SP-80	MSS SP-80	MSS SP-80	MSS SP-80	MSS SP-80
CRANE MODEL	438			428UB	437	431UB	622E	634E
HAMMOND MODEL	IB645			IB617	IB646	IB629	IB652	IB654
KITZ MODEL	40				46	42	37	
MILWAUKEE MODEL	105	UP105		1152	1140	1151	1182	1184
NIBCO MODEL	T113	T113-LF	T113-K	T124	T133	T134	T174A	T174SS
STOCKHAM MODEL	B103K			B105K	B128K	B120K	B144K	B145K
WALWORTH MODEL	4			2	14	11	3048	

GATE, GLOBE & CHECK VALVES





**BRONZE CHECK VALVE  
CROSS REFERENCE CHART**

APOLLO MODEL	161S	161S-LF	161T	161T-LF	162T
APOLLO P/N	61Y-09X-01	61YLF-09X-01	61Y-19X-01	61YLF-19X-01	61Y-20X-VI
SIZE RANGE	1/2" to 3"	1/2" to 2"	1/4" to 3"	1/4" to 2"	1/4" to 2"
DESCRIPTION	200 CWP Swing Check Bronze Y-Pattern Bronze Disc Solder Ends	200 CWP Swing Check LF-Bronze Y-Pattern Bronze Disc Solder Ends	Class 125 (200 CWP, 125 SWP) Swing Check Bronze Y-Pattern Bronze Disc NPT	Class 125 (200 CWP, 125 SWP) Swing Check LF-Bronze Y-Pattern Bronze Disc NPT	Class 125 (200 CWP, 125 SWP) Swing Check Bronze Y-Pattern Viton® Disc NPT
DESIGN STANDARD	MSS SP-80	MSS SP-139	MSS SP-80	MSS SP-139	MSS SP-80
CRANE MODEL	I340		37		
HAMMOND MODEL	IB912		IB904		
KITZ MODEL			22		
MILWAUKEE MODEL	1509	UP1509	509	UP509	
NIBCO MODEL	S413B		T413B		T413V
STOCKHAM MODEL	B309YK		B319YK		B320BYK
WALWORTH MODEL	3406SJ		3406		

APOLLO MODEL	163S	163S-LF	163T	163T-LF	164T	168T	169T
APOLLO P/N	61Y-10X-T1	61YLF-10X-T1	61Y-20X-T1	61YLF-20X-T1	61Y-21X-01	61Y-75X-01	61Y-75X-T1
SIZE RANGE	1/2" to 2"	1/2" to 2"	1/4" to 2"	1/2" to 2"	1/4" to 3"	1/2" to 2"	1/2" to 2"
DESCRIPTION	200 CWP Swing Check Bronze Y-Pattern PTFE Disc Solder Ends	200 CWP Swing Check LF-Bronze Y-Pattern PTFE Disc Solder Ends	Class 125 (200 CWP, 125 SWP) Swing Check Bronze Y-Pattern PTFE Disc NPT	Class 125 (200 CWP, 125 SWP) Swing Check LF-Bronze Y-Pattern PTFE Disc NPT	Class 150 (300 CWP, 150 SWP) Swing Check Bronze Y-Pattern Bronze Disc NPT	Class 300 (600 CWP, 300 SWP) Swing Check Bronze Y-Pattern Bronze Disc NPT	Class 300 (600 CWP, 300 SWP) Swing Check Bronze Y-Pattern PTFE Disc NPT
DESIGN STANDARD	MSS SP-80	MSS SP-139	MSS SP-80	MSS SP-139	MSS SP-80	MSS SP-80	MSS SP-80
CRANE MODEL			41TF		137	76E	
HAMMOND MODEL	IB423		IB940			IB949	
KITZ MODEL	23T	823T	22T	822T	29	19	
MILWAUKEE MODEL	1509T		509T		510	507	
NIBCO MODEL	S413Y	S413Y-LF	T413Y	T413Y-LF	T433b	T473B	T473Y
STOCKHAM MODEL	B310TY		B320TYK		B321K	B375K	
WALWORTH MODEL	3095SJ					3428	

GATE, GLOBE  
& CHECK VALVES





**BRONZE GLOBE VALVE**  
CROSS REFERENCE CHART

APOLLO MODEL	120S	120S-LF	120T	120T-LF	121T	121T-LF	122T	127T	128T
APOLLO P/N	33-14X-01	33LF-14X-01	33-13X-01	33LF-13X-01	33-16X-01	33LF-16X-01	33-22X-01	33-66X-01	33-74X-01
SIZE RANGE	1/2" to 2"	1/2" to 2"	3/8" to 2"	3/8" to 2"	1/4" to 2"	1/4" to 2"	1/4" to 3"	1/2" to 2"	1/2" to 2"
DESCRIPTION	200 CWP Globe Valve Bronze Threaded Bonnet PTFE Disc Solder Ends	200 CWP Globe Valve LF-Bronze Threaded Bonnet PTFE Disc Solder Ends	Class 125 (200 CWP, 125 SWP) Globe Valve Bronze Threaded Bonnet PTFE Disc NPT	Class 125 (200 CWP, 125 SWP) Globe Valve LF-Bronze Threaded Bonnet PTFE Disc NPT	Class 125 (200 CWP, 125 SWP) Globe Valve Bronze Threaded Bonnet Bronze Disc NPT	Class 125 (200 CWP, 125 SWP) Globe Valve LF-Bronze Threaded Bonnet Bronze Disc NPT	Class 150 (300 CWP, 150 SWP) Globe Valve Bronze Union Bonnet PTFE Disc NPT	Class 300 (1000 CWP, 300 SWP) Globe Valve Bronze Union Bonnet Bronze Disc NPT	Class 300 (1000 CWP, 300 SWP) Globe Valve Bronze Union Bonnet SS Disc NPT
DESIGN STANDARD	MSS SP-80	MSS SP-80	MSS SP-80	MSS SP-139	MSS SP-80	MSS SP-139 MSS SP-80	MSS SP-80	MSS SP-80	MSS SP-80
CRANE MODEL			5TF		1		7TF		382P
HAMMOND MODEL					IB440		IB413T	IB412	IB444
KITZ MODEL					11		9	17	17S
MILWAUKEE MODEL		UP1502			502	UP502	590T	572	593A
NIBCO MODEL	S211Y		T211Y		T211b		T235Y	T275B	T276-AP
STOCKHAM MODEL	B14TK		B13TK		B16K		B22TK	B66K	B74K
WALWORTH MODEL	3095SJ				3058		3095	3205	

**IRON GLOBE VALVE**  
CROSS REFERENCE CHART

APOLLO MODEL	711F	721F
APOLLO P/N	6GB-11X-B1	6GB-21X-B1
SIZE RANGE	2" to 10"	2" to 8"
DESCRIPTION	Class 125 Flanged Globe Valve Cast Iron OS&Y IBBM	Class 250 Flanged Globe Valve Cast Iron OS&Y IBBM
DESIGN STANDARD	MSS SP-85	MSS SP-85
CRANE MODEL	351	21E
HAMMOND MODEL	IR116	IR313
KITZ MODEL		
MILWAUKEE MODEL	2981M	2983M
NIBCO MODEL	F718B	F768B
STOCKHAM MODEL	G512	F532
WALWORTH MODEL	W906F	W955F



**IRON GATE VALVE  
CROSS REFERENCE CHART**

APOLLO MODEL	610F	620F	611F	621F
APOLLO P/N	6GA-10X-B1	6GA-20X-B1	6GA-11X-B1	6GA-21X-B1
SIZE RANGE	2" to 24"	2" to 12"	2" to 24"	2" to 12"
DESCRIPTION	Class 125 Flanged Gate Valve Cast Iron NRS IBBM	Class 250 Flanged Gate Valve Cast Iron NRS IBBM	Class 125 Flanged Gate Valve Cast Iron OS&Y IBBM	Class 250 Flanged Gate Valve Cast Iron OS&Y IBBM
DESIGN STANDARD	MSS SP-70	MSS SP-70	MSS SP-70	MSS SP-70
CRANE MODEL	461		465 1/2	7 1/2E
HAMMOND MODEL	IR1138		IR1140	IR330
KITZ MODEL				
MILWAUKEE MODEL	2882M		2885M	2894M
NIBCO MODEL	F619	F669	F617-0	F667-0
STOCKHAM MODEL	G612	F661	G623	F667
WALWORTH MODEL	W719F		W726F	W786F

**IRON CHECK VALVE  
CROSS REFERENCE CHART**

APOLLO MODEL	910F	910FLW	920F	910WB	910WE
APOLLO P/N	6SC-10X-B1	6SC-10X-B1L	6SC-20X-B1	6WC-10X-N1	6WC-10X-E1
SIZE RANGE	2" to 24"	2" to 12"	2" to 8"	2" to 24"	2" to 12"
DESCRIPTION	Class 125 Flanged Swing Check Cast Iron IBBM	Class 125 Flanged Swing Check Cast Iron IBBM w/ lever & weight	Class 250 Flanged Swing Check Cast Iron IBBM	Class 125 Wafer Check Buna Cast Iron IBBM	Class 125 Wafer Check EPDM Cast Iron IBBM
DESIGN STANDARD	MSS SP-71	MSS SP-71	MSS SP-71		
CRANE MODEL	373	383	39E		
HAMMOND MODEL	IR1124		IR322	IR9253	
KITZ MODEL					
MILWAUKEE MODEL	2974M	C2974MLW	2970M	1400	
NIBCO MODEL	F918B	F918BLW	F968B	W910B	
STOCKHAM MODEL	G931	G931W	F947	WG970	WG961
WALWORTH MODEL	W928F		W8970F		

GATE, GLOBE, & CHECK VALVES



## STANDARDS (GATE, GLOBE, SWING & WAFER CHECKS ONLY)

### BRONZE STANDARDS COMPLIANCE:

ASME B1.20.1 - Pipe Threads, General Purpose (Inch)  
 ASME B16.18 - Cast Copper Solder Joint Pressure Fittings  
 ASTM B61 - Standard Specification for Steam or Valve Bronze Castings  
 ASTM B62 - Composition Bronze or Ounce Metal Castings  
 ASTM B371 - Standard Specification for Copper-Zinc-Silicon Alloy Rod  
 ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications\*  
 MSS SP-25 - Standard Marking System for Valves, Fittings and Flanges  
 MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves  
 MSS SP-139 - Copper Alloy Globe, Angle, and Check Valves for Low Pressure/Low Temperature Plumbing Applications\*  
 CRN-OC14467.5C (gates and globes) and CRN-OC11218.5C (swing checks) (see [www.apollovalves.com](http://www.apollovalves.com) for specific provinces)  
 Canadian Registration Number in accordance with CSA B51 Boiler, Pressure Vessel and Pressure Piping Code  
 NSF/ANSI 61 Water Quality, 3rd party certified (lead free versions only)  
 NSF/ANSI 372 Lead Free, 3rd party certified (lead free versions only)

### CAST IRON STANDARDS COMPLIANCE:

ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings (Class 125 - flat faced flanged, Class 250 - 0.06 inch raised faced in accordance with MSS SP-6)  
 ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves  
 ASME A126 - Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings  
 ASTM A307 - Specification for Carbon Steel Bolts and Studs, 60000 psi Tensile Strength  
 MSS SP-25 - Standard Marking System for Valves, Fittings and Flanges and Unions  
 MSS SP-70 - Gray Iron Gate Valves Flanged and Threaded Ends  
 MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends  
 MSS SP-85 - Gray Iron Globe and Angle Valves Flanged and Threaded Ends  
 CRN-OC14467.xx (see [www.apollovalves.com](http://www.apollovalves.com) for specific provinces)  
 Canadian Registration Number in accordance with CSA B51 Boiler, Pressure Vessel and Pressure Piping Code.  
 NSF/ANSI 61 Water Quality, 3rd party certified (lead free versions only)  
 NSF/ANSI 372 Lead Free, 3rd party certified (lead free versions only)

### CAUTIONS:

Bubble tight shut-off should not be expected on metal seated check valves. MSS Standards for Bronze (MSS SP-80) and for Cast Iron (MSS SP-71) define acceptable leakage rates as 40 ml of water per hour per inch of Nominal Pipe Size (NPS) for valves 1" and larger or 0.4 Standard Cubic Foot (SCF) air per hour per inch of NPS. For valves smaller than 1" the allowable leak rate is 40 ml of water per hour or 0.4 SCF of air per hour.

Bubble tight shut-off should not be expected on metal to metal seated gate or globe valves. MSS Standards for Bronze (MSS SP-80) and for Cast Iron (MSS SP-70 and MSS SP-85) define acceptable leakage rates as 10 ml of water per hour per inch of Nominal Pipe Size (NPS) for valves 1" and larger or 0.1 SCF of air per hour per inch of NPS. For valves smaller than 1" the allowable leak rate is 10 ml of water per hour or 0.1 SCF of air per hour.

Gate valves are not recommended for throttling service and should only be used in the fully open or fully closed positions to minimize vibration and chatter which may damage the seat or wedge. For throttling applications refer to Apollo's globe valve offering.

Safe working pressures and temperatures for solder end valve depends not only on the valve and tubing strength, but also on the composition of the solder used to produce the joints. It is the responsibility of the user to choose a solder that is compatible with the service conditions.

Properly sized swing check valves frequently are smaller than the pipe in which they are used. This practice keeps velocities up so the valve operates near full open, minimizing noise and vibration while maximizing valve life.



**IN-LINE CHECK VALVES**

Series 61 and lead free (61LF) check valves feature bronze body construction and are available in sizes 1/4" to 3" for use with water, steam, oil, air and inert gases. Series 62 model in stainless steel with investment cast body are sized from 1/4" to 2" for use in more severe applications and corrosive environments.

61 and 62 Series check valves are available with either RPTFE ball cone or elastomer soft seats. They come equipped with 316 stainless steel springs. All wetted parts are bronze/brass (61 Series) or stainless steel (62 Series).

**SPRING ASSISTED CLOSING**

Apollo's 61 and 62 Series feature short check travel and spring assisted closing. This ensures the valve closes quickly, before reversal of flow, helping to eliminate water hammer, its associated noise, and damage to piping and machinery.

**LOW CRACKING PRESSURE**

Apollo's standard 61 and 62 Series checks operate at a low 1/2 psi cracking pressure. An extra-light-spring version of the valve is available as an option. A 5-pound or 10-pound cracking pressure spring is also available on models through 1".

**TIGHT...OR BUBBLE TIGHT**

Patented Apollo® Ball Cone® check valves (61-100, 61-200 and 62-100) feature a tight-sealing RPTFE ball-shaped check which seats against the conical interior face of the valve's metal retainer. This simple design provides exceptional resistance to wear and corrosion. But, where even tighter sealing is required, choose the 61-500 or 61-600, featuring EPDM (elastomer) seat or 62-500, featuring a Fluorocarbon (Viton®) seat, for a bubble-tight seal. A Nitrile seat is optional.

**CHECK VALVES EXTEND SYSTEM LIFE**

In any liquid or gas system where reverse flow cannot be tolerated, a quick-responding check valve is a necessity. Check valves that close slowly permit flow reversal to occur in the line which can cause severe mechanical shock. As the valve finally seats, high peak pressure pulses and shock waves are generated on the downstream side due to the media being forced to a sudden stop. Upstream, the momentum is not restricted which can create voids in the flow, filling with air or vapor to cause additional, lower frequency shock waves. These shock waves added together are known as water hammer. It can cause extensive damage or failure to pipelines, gaskets, supports, hardware and equipment. The result can be expensive, troublesome; even dangerous.

With Apollo® check valves, the potential for water hammer is greatly reduced since the check returns to its seat before flow velocity reaches zero. Apollo's check valves set the standard for compact, economical protection against reverse flow. They provide reliable service in liquids or gases at various temperature and pressure combinations. Because of their simple design, they're versatile and easy to maintain.

**USE IN ANY POSITION**

Horizontal, vertical or upside down; liquid, air and gases; Apollo's in-line checks operate in any orientation. Where frequent opening and closing cycles occur, vertical orientation with upward flow is best. This saves time and money, eliminating the need to stock separate vertical and horizontal-operating valves. It also makes new or replacement installation less of a headache.

\*Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve failure.

**BROAD RANGE OF APPLICATIONS**

Apollo® check valves are at home in applications from residential boilers to tough process systems, including:

Industries where Apollo's check valves are used include Pulp & Paper, Chemical Processing, Agrichemical, Rubber, Petroleum, Primary Metals, Mining, Power Generation, Textiles, Food and Beverage, Building Construction and Maintenance.

- Evaporators
- Boiler Feed
- Water Lines
- Steam Lines
- Cookers
- Chiller Systems
- Steam Tracer Lines
- Salt Water Injection
- Rubber/Plastic Presses
- Autoclaves
- Sterilizers
- Air and Gas Lines
- Metering Pumps
- Casing Vents
- Condensate Return Lines
- Chemical Lines

GATE, GLOBE & CHECK VALVES



**CVB (61-100 & 61-200) SERIES  
IN-LINE BALL CONE® CHECK VALVE**



**61-100  
FEMALE X FEMALE THREADED  
1/4" THROUGH 3"**



**61-200  
MALE X FEMALE THREADED  
1/4" THROUGH 2"**

**STANDARD MATERIALS LIST**

<b>BODY</b>	Bronze, ASTM B584, UNS C84400 or Lead Free Bronze, C89836
<b>RETAINER</b>	(1/4" - 1") Brass, ASTM B16 or C27451 (1-1/4" - 3") Bronze, ASTM B584 or C89836
<b>BALL CHECK</b>	RPTFE
<b>GUIDE</b>	Brass, ASTM B16 or LF Brass, C27451
<b>SPRING</b>	Stainless Steel

**FLOW RATE (C<sub>v</sub>)**

SIZE	GPM
1/4"	0.85
3/8"	1.21
1/2"	1.4
3/4"	3.53
1"	6
1-1/4"	44
1-1/2"	65
2"	81
2-1/2"	175
3"	265

**PRESSURE TEMPERATURE RATING**

DEGREE (F)	PSIG
-20 TO 100	400
200	200
250	160
275	150
300	140
325	130
353	125

GPM=gallons per minute at 1 psi pressure differential

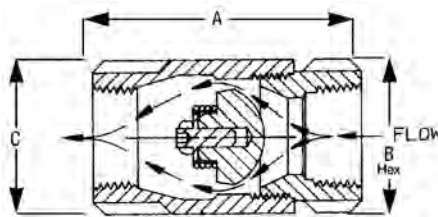
The Apollo® Model CVB check valve with rugged bronze body and patented design (U.S. Pat. No. 4,172,465) RPTFE ball-cone check provides reliable protection against reverse flow. It is spring-loaded for fast seating and center guided for optimum alignment.

**FEATURES**

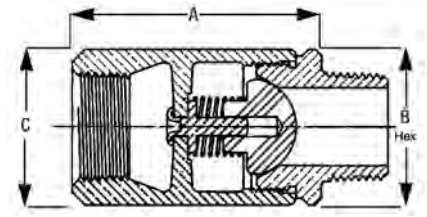
- Standard 1/2 psi Cracking Pressure
- Tight Shut-Off with Liquid Media
- Male and Female NPT Inlet Options
- 400 psig CWP @ 100°F
- 125 psig Steam Rating @ 350°F max
- Straight-Through Flow Minimizes Pressure Loss
- ASTM B584 Bronze
- Lead Free Option 61LF (NSF 61/NSF 372)
- **MADE IN USA**

**DIMENSIONS**

BRONZE FNPT X FNPT	LF BRONZE FNPT X FNPT	BRONZE MNPT X FNPT	SIZE	DIMENSIONS (IN.)			61-100 SERIES WT./100	61-200 SERIES WT./100
				A	B	C		
61-101-01	61LF-101-01	61-201-01	1/4"	2.06	1.12	1.12	38	38
61-102-01	61LF-102-01	61-202-01	3/8"	2.12	1.12	1.12	37	37
61-103-01	61LF-103-01	61-203-01	1/2"	2.31	1.12	1.12	36	36
61-104-01	61LF-104-01	61-204-01	3/4"	2.87	1.37	1.50	75	76
61-105-01	61LF-105-01	61-205-01	1"	3.50	1.75	1.93	145	145
61-106-01	61LF-106-01	61-206-01	1-1/4"	4.18	2.12	2.37	275	237
61-107-01	61LF-107-01	61-207-01	1-1/2"	4.93	2.50	2.81	394	381
61-108-01	61LF-108-01	61-208-01	2"	6.00	3.00	3.68	630	636
61-109-01	61LF-109-01	-	2-1/2"	7.00	3.50	4.50	1400	-
61-100-01	61LF-100-01	-	3"	8.12	4.12	5.31	1665	-



61-100



61-200

**NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve failure.**

**PART NO. MATRIX**

6 x	- X	X	X	- XX
TYPE	CHECK	SPRING TYPE	SIZE (IN.)	OPTIONS
1 - BRONZE	1 - BALL CONE (NPT-F X F)	0 - .5 PSIG CRACKING PRESSURE	1 - 1/4"	01 - STANDARD
1LF - LEAD FREE BRONZE	2 - BALL CONE (NPT-M X F)	2 - .2 PSIG CRACKING PRESSURE	2 - 3/8"	PO1 - BSPP THREAD**
2 - STAINLESS STEEL	0 - BALL CONE REPAIR KIT		3 - 1/2"	TO1 - BSPT THREAD**
			4 - 3/4"	17 - SATIN CHROME PLATED
			5 - 1"	57 - OXYGEN CLEANED
			6 - 1-1/4"	A1 - LESS SPRING
			7 - 1-1/2"	E05 - 5 PSIG OPENING PRESSURE*
			8 - 2"	E10 - 10 PSIG OPENING PRESSURE*
			9 - 2-1/2"	
			0 - 3"	

\*Available in 1/4" through 1" only. | \*\*Minimums apply  
(Note: Not all combinations are available. Contact Customer Service for verification.)



**CVS (62-100) SERIES**

**STAINLESS STEEL BALL CONE® CHECK VALVE**



**62-100**  
FEMALE X FEMALE THREADED  
1/4" THROUGH 2"

The Apollo® Model CVS is uniquely suited for applications in corrosive environments, including chemical processing, pulp and paper and other process industries. The rugged stainless steel body and RPTFE ball cone check provide reliable, patented protection against reverse flow.

**FEATURES**

- Standard 1/2 psi Cracking Pressure
- Unique Design (U.S. Patent # 4,172,465)
- Spring-Loaded For Fast Seating Action
- Center Guided; Radial Alignment Never Needed
- Straight-Through Flow Minimizes Pressure Loss
- 400 psig CWP Non-Shock @ 100°F
- 125 psig SWP @ 350°F
- RoHS Compliant
- ASTM A351, CF8M

**STANDARD MATERIALS LIST**

<b>BODY</b>	SS, ASTM A351, CF8M
<b>RETAINER</b>	SS, ASTM A276, 316 (1/4" - 1") SS, ASTM A351, CF8M (1-1/4" - 2")
<b>BALL CHECK</b>	RPTFE
<b>GUIDE</b>	SS, ASTM A276, 316
<b>SPRING</b>	Stainless Steel

**DIMENSIONS**

PART NO. FNPT X FNPT	SIZE	DIMENSIONS (IN.)			WT./100
		A	B	C	
62-101-01	1/4"	2.06	1.12	1.12	38
62-102-01	3/8"	2.12	1.12	1.12	37
62-103-01	1/2"	2.31	1.12	1.12	36
62-104-01	3/4"	2.87	1.37	1.50	75
62-105-01	1"	3.50	1.75	1.93	145
62-106-01	1-1/4"	4.18	2.12	2.37	237
62-107-01	1-1/2"	4.93	2.50	2.81	381
62-108-01	2"	6.00	3.00	3.68	636

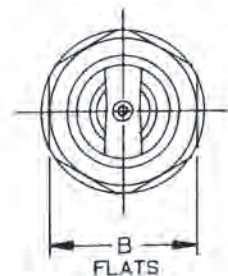
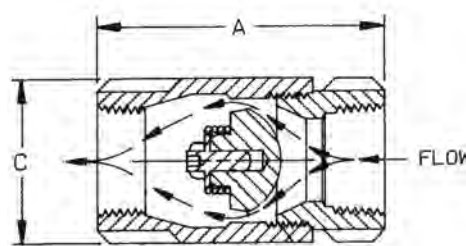
**FLOW RATE (C<sub>v</sub>)**

SIZE	GPM
1/4"	0.85
3/8"	1.21
1/2"	1.4
3/4"	3.53
1"	6
1-1/4"	44
1-1/2"	65
2"	81

GPM=gallons per minute at 1 psi pressure differential

**PRESSURE TEMPERATURE RATING**

DEGREE (F)	PSIG
-20 TO 100	400
200	200
250	160
275	150
300	140
325	130
353	125



**NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve failure.**

**PART NO. MATRIX**

62	- X	X	X	- XX
TYPE	CHECK	SPRING TYPE	SIZE (IN.)	OPTIONS
62 - STAINLESS STEEL	1 - BALL CONE (NPT-F X F)	0 - .5 PSIG CRACKING PRESSURE	1 - 1/4"	01 - STANDARD
	2 - BALL CONE (NPT-M X F)	2 - .2 PSIG CRACKING PRESSURE	2 - 3/8"	P01 - BSPP THREAD**
	0 - BALL CONE REPAIR KIT		3 - 1/2"	T01 - BSPT THREAD**
			4 - 3/4"	17 - SATIN CHROME PLATED
			5 - 1"	57 - OXYGEN CLEANED
			6 - 1-1/4"	A1 - LESS SPRING
			7 - 1-1/2"	E05 - 5 PSIG OPENING PRESSURE*
			8 - 2"	E10 - 10 PSIG OPENING PRESSURE*
			9 - 2-1/2"	
			0 - 3"	

\*Available in 1/4" through 1" only.

\*\*Minimums apply

(Note: Not all combinations are available. Contact Customer Service for verification.)



**CVBE (61-500 & 61-600) SERIES  
IN-LINE SOFT SEAT CHECK VALVE**



**61-500  
FEMALE X FEMALE THREADED  
1/4" THROUGH 2"**



**61-600  
FEMALE X FEMALE SWEAT  
1/2" THROUGH 2"**



The Apollo® Model CVBE check valve is ideally suited for hydronic heating and other low flow applications. The rugged bronze body and check provide reliable protection against reverse flow.

**FEATURES**

- Female NPT Sizes: 1/4" to 2"
- Stainless Steel Sizes: 1/4" to 1" (62-500)
- Bubble-Tight Shut-Off, Ideally Suited for Gaseous Service
- NPT Threaded; 400 psig CWP Non-Shock @ 100°F

- EPDM Check Disc (61-500)
- Viton® Check Disc (62-500)
- Straight-Through Flow Minimizes Pressure Loss
- 1/2 psi Cracking Pressure
- RoHS Compliant (61LF and 62 Series)
- NSF/ANSI 61 Water Quality (Lead Free Models)
- NSF/ANSI 372 Lead Free (Lead Free Models)

**STANDARD MATERIALS LIST**

<b>BODY</b>	Bronze, ASTM B584, UNS C84400 or Lead Free Bronze, C89836
<b>RETAINER</b>	(1/4" - 1") Brass, ASTM B16 or C27451 (1-1/4" - 3") Bronze, ASTM B584 or C89836
<b>SEAT</b>	EPDM
<b>GUIDE PIN</b>	Stainless Steel
<b>SPRING</b>	Stainless Steel
<b>CHECK</b>	Brass, ASTM B16
<b>GUIDE</b>	Brass, ASTM B16

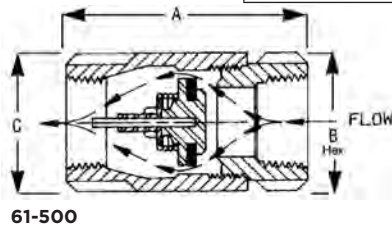
**FLOW RATE (C<sub>v</sub>)**

SIZE	GPM	
	61-500	61-600
1/4"	0.85	-
3/8"	1.21	-
1/2"	1.4	2.20
3/4"	3.53	4.78
1"	6	6
1-1/4"	44	44
1-1/2"	65	65
2"	81	81

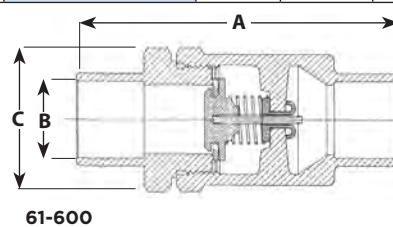
GPM=gallons per minute at 1 psi pressure differential

**DIMENSIONS**

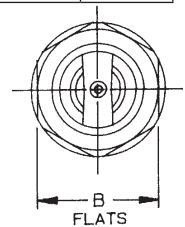
PART NO.	LF PART NO.	SIZE	DIMENSIONS (IN.)			WT./100
			A	B	C	
<b>61-500 (FNPT)</b>						
61-501-01	61LF-501-01	1/4"	2.31	1.12	1.12	38
61-502-01	61LF-502-01	3/8"	2.31	1.12	1.12	37
61-503-01	61LF-503-01	1/2"	2.31	1.12	1.12	36
61-504-01	61LF-504-01	3/4"	2.87	1.37	1.50	75
61-505-01	61LF-505-01	1"	3.50	1.75	1.93	145
61-506-01	61LF-506-01	1-1/4"	4.18	2.12	2.37	275
61-507-01	61LF-507-01	1-1/2"	4.93	2.50	2.81	394
61-508-01	61LF-508-01	2"	6.00	3.00	3.68	630
<b>61-600 (SOLDER)</b>						
61-603-01	61LF-603-01	1/2"	2.75	1.12	1.25	38
61-604-01	61LF-604-01	3/4"	3.68	1.50	1.62	75
61-605-01	61LF-605-01	1"	4.50	1.93	2.12	145
61-606-01	61LF-606-01	1-1/4"	6.11	2.13	2.38	330
61-607-01	61LF-607-01	1-1/2"	6.87	2.50	2.81	610
61-608-01	61LF-608-01	2"	7.46	3.38	3.75	1010



61-500



61-600



B FLATS

**NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve failure.**

**PART NO. MATRIX**

61 xx	- X	X	X	- XX
TYPE	CHECK	SPRING TYPE	SIZE (IN.)	OPTIONS
61 - BRONZE	5 - SOFT SEAT (NPT-F X F)	0 - .5 PSIG CRACKING PRESSURE	1 - 1/4"	01 - STANDARD (EPDM SEAT)
61LF - LEAD FREE BRONZE	6 - SOFT SEAT (SOLDER)	2 - .2 PSIG CRACKING PRESSURE	2 - 3/8"	PO1 - BSPPT THREAD (ISO 228)**
	9 - SOFT SEAT REPAIR KIT (EPR ONLY)		3 - 1/2"	TO1 - BSPT THREAD (EN 10226)**
			4 - 3/4"	17 - SATIN CHROME PLATED
			5 - 1"	57 - OXYGEN CLEANED
				A1 - LESS SPRING
				BI - NITRILE SEAT
				VI - VITON SEAT
				E05 - 5 PSIG OPENING PRESSURE*
				E10 - 10 PSIG OPENING PRESSURE*

\*Available in 1/4" through 1" only. | \*\*Minimums apply (Note: Not all combinations are available. Contact Customer Service for verification.)





**CVSE (62-500) SERIES**  
IN-LINE SOFT SEAT CHECK VALVE



**62-500**  
FEMALE X FEMALE THREADED  
1/4" THROUGH 1"

The Apollo® Model CVSE is ideal for fluid flow applications in tough industrial environments. The stainless steel body and check provide lasting protection against reverse flow.

**FEATURES**

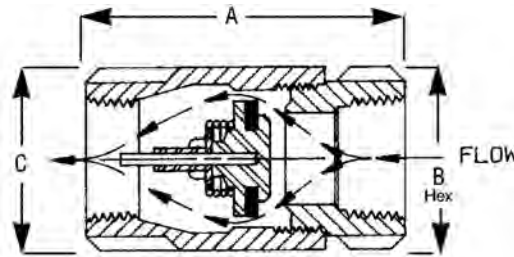
- Bubble-Tight Shut-Off, Ideally Suited for Gaseous Service
- 400 psig CWP non-shock
- Viton® Check Disc
- Approximate Opening Pressure 1/2 psi
- RoHS Compliant
- CRN OC 11218.5C

**STANDARD MATERIALS LIST**

<b>BODY</b>	Stainless Steel, ASTM A351,CF8M
<b>RETAINER</b>	Stainless Steel, ASTM A276, 316
<b>SEAT</b>	Viton®
<b>SPRING</b>	Stainless Steel, 316
<b>CHECK</b>	Stainless Steel, ASTM A276, 316

**DIMENSIONS**

PART NO. FNPT X FNPT	SIZE	DIMENSIONS (IN.)			WT./100
		A	B	C	
62-501-01	1/4"	2.312	1.125	1.125	38
62-502-01	3/8"	2.312	1.125	1.125	37
62-503-01	1/2"	2.312	1.125	1.125	36
62-504-01	3/4"	2.875	1.375	1.500	75
62-505-01	1"	3.500	1.750	1.937	150



**FLOW RATE (C<sub>v</sub>)**

SIZE	GPM
1/4"	0.47
3/8"	1.57
1/2"	2.20
3/4"	4.78
1"	6

GPM=gallons per minute at 1 psi pressure differential

**NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve failure.**

**PART NO. MATRIX**

62	- X	X	X	- XX
TYPE	CHECK	SPRING TYPE	SIZE (IN.)	OPTIONS
62 - STAINLESS STEEL	5 - SOFT SEAT (NPT-F X F)	0 - .5 PSIG CRACKING PRESSURE	1 - 1/4"	01 - STANDARD (VITON SEAT)
	9 - SOFT SEAT REPAIR KIT (VITON ONLY)	2 - .2 PSIG CRACKING PRESSURE	2 - 3/8"	PO1 - BSPP THREAD (ISO 228)**
			3 - 1/2"	TO1 - BSPT THREAD (EN 10226)**
			4 - 3/4"	57 - OXYGEN CLEANED
			5 - 1"	A1 - LESS SPRING
				B1 - NITRILE SEAT
				F1 - EPDM SEAT
				E05 - 5 PSIG OPENING PRESSURE*
				E10 - 10 PSIG OPENING PRESSURE*

\*Available in 1/4" through 1" only.

\*\*Minimums apply

(Note: Not all combinations are available. Contact Customer Service for verification.)

GATE, GLOBE & CHECK VALVES

**CV (61-700) SERIES  
MINI CHECK VALVE**



**61-700  
FEMALE X FEMALE PIPE THREAD  
1/4" THROUGH 1"**

The Apollo® Model CV check valve is ideally suited for cold water, and air applications for prevention of reverse flow. The modular check cartridge provides superior leak-tight performance with low pressure loss. It is rated at 230 PSIG with a maximum temperature of 200°F.

**FEATURES**

- Sizes: 1/4" to 1"
- FNPT x FNPT
- Acetyl Check Valve Body
- Nitrile (Buna-N) Check Seals
- ASTM B16 Brass Housing
- Check Opening Pressure: .5 psi

**STANDARD MATERIALS LIST**

<b>BODY</b>	Brass, ASTM B16"
<b>CHECK</b>	Acetal/Brass/Silicone/Buna-N
<b>SPRING</b>	Stainless Steel 302

*\*Not intended for use in potable water applications.*

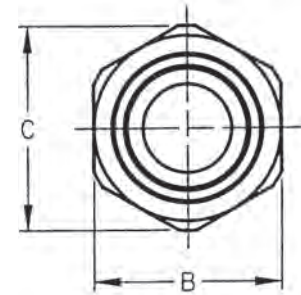
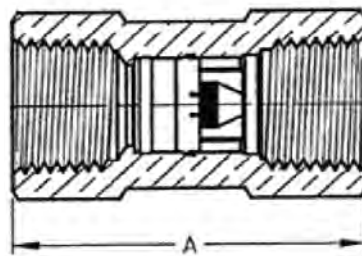
**FLOW RATE (C<sub>v</sub>)**

SIZE	GPM
1/4"	0.78
3/8"	1.81
1/2"	6.00
3/4"	11.50
1"	17.50

*GPM=gallons per minute at 1 psi pressure differential*

**DIMENSIONS**

PART NUMBER	SIZE	DIMENSIONS (IN.)			WT./100
		A	B	C	
61-701-01	1/4"	1.72	0.81	0.92	22
61-702-01	3/8"	1.79	0.93	1.05	29
61-703-01	1/2"	2.02	1.06	1.17	38
61-704-01	3/4"	2.50	1.25	1.40	54
61-705-01	1"	2.95	1.62	1.76	110





**70-100-BC SERIES**  
BALL VALVE WITH INTEGRAL CHECK



**70-100-BC**  
FEMALE X FEMALE THREADED  
1/2" THROUGH 2"

**STANDARD MATERIALS LIST**

1	BODY	B584-C84400
2	RETAINER	B16 (1/2" - 1") B584-C84400 (1-1/4" - 2")
3	BALL	Brass, B16 (Chrome Plated)
4	CHECK INSERT	Acetal
5	STEM	Brass, B16
6	GLAND NUT	Brass, B16
7	LEVER/GRIP	Steel, Zinc-Plated w/ Vinyl
8	LEVER NUT	Steel, Zinc-Plated
9	O-RING	Buna-N
10	SEATS	RPTFE
11	BODY SEAL	TFE (1-1/4" - 2")
12	STEM PACKING	RPTFE
13	STEM BEARING	RPTFE
14	SEAL	EPDM (1/2")
15	RETAINING RING	Spring Steel (1/2")

\*Not intended for use in potable water applications.

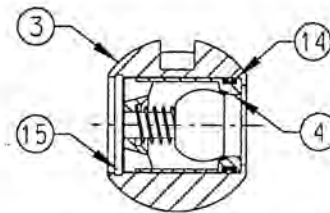
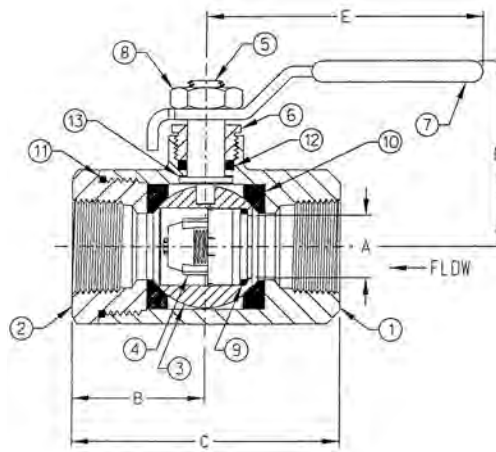
The 70-100-BC Series ball valve combines two functions in a single design: positive shut-off and bubble-tight check capabilities. The BC Series is a unidirectional version of the industry-standard Apollo® 70 Series ball valve. An easy flow design and superior check valve make these valves a smart choice for water or air in mechanical systems or OEM applications. Rated at 250 psi CWP and maximum temperature of 200°F.

**FEATURES**

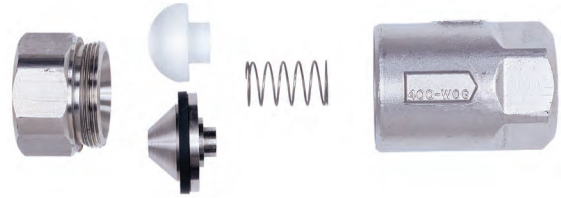
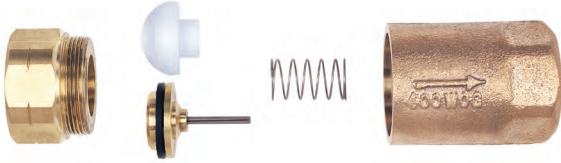
- Blowout-Proof Stem
- RPTFE Seats and Stuffing Box Ring
- Adjustable Packing Gland
- Chromium-Plated Ball
- Positive Shut-Off and Bubble-Tight Check Capability

**DIMENSIONS**

PART NUMBER	SIZE	DIMENSIONS (IN.)					WT./100
		A	B	C	D	E	
70-103-BC	1/2"	0.50	1.12	2.25	1.80	3.87	0.63
70-104-BC	3/4"	0.68	4.50	3.00	2.12	4.87	1.33
70-105-BC	1"	0.87	1.68	3.37	2.25	4.87	1.77
70-106-BC	1-1/4"	1.00	2.00	4.00	2.73	5.50	3.29
70-107-BC	1-1/2"	1.25	2.18	4.37	3.09	8.00	4.63
70-108-BC	2"	1.50	2.34	4.68	3.28	8.00	6.01



**REPAIR KITS**  
IN-LINE CHECK VALVES



**61-100/61LF-100 REPAIR KITS INCLUDE:**  
SPRING, BALL CONE CHECK & INSTRUCTIONS

SIZE (IN.)	CHECK VALVE PART NO.	LF CHECK VALVE PART NO.	REPAIR KIT PART NO.
1/4"	61-101-01	61LF-101-01	61-001-01
3/8"	61-102-01	61LF-102-01	61-002-01
1/2"	61-103-01	61LF-103-01	61-003-01
3/4"	61-104-01	61LF-104-01	61-004-01
1"	61-105-01	61LF-105-01	61-005-01
1-1/4"	61-106-01	61LF-106-01	61-006-01
1-1/2"	61-107-01	61LF-107-01	61-007-01
2"	61-108-01	61LF-108-01	61-008-01
2-1/2"	61-109-01	61LF-109-01	61-009-01
3"	61-100-01	61LF-100-01	61-010-01

**61-600 REPAIR KITS INCLUDE:**  
SPRING, CHECK ASSEMBLY & INSTRUCTIONS

SIZE (IN.)	CHECK VALVE PART NO.	REPAIR KIT PART NO.
1/2"	61-603-01	61-903-01
3/4"	61-604-01	61-904-01
1"	61-605-01	61-905-01
1-1/4"	61-606-01	61-906-01
1-1/2"	61-607-01	61-907-01
2"	61-608-01	61-908-01

**61-200 REPAIR KITS INCLUDE:**  
SPRING, BALL CONE CHECK & INSTRUCTIONS

SIZE (IN.)	CHECK VALVE PART NO.	REPAIR KIT PART NO.
1/4"	61-201-01	61-001-01
3/8"	61-202-01	61-002-01
1/2"	61-203-01	61-003-01
3/4"	61-204-01	61-004-01
1"	61-205-01	61-005-01
1-1/4"	61-206-01	61-006-01
1-1/2"	61-207-01	61-007-01
2"	61-208-01	61-008-01

**62-100 REPAIR KITS INCLUDE:**  
SPRING, BALL CONE CHECK & INSTRUCTIONS

SIZE (IN.)	CHECK VALVE PART NO.	REPAIR KIT PART NO.
1/4"	62-101-01	62-001-01
3/8"	62-102-01	62-002-01
1/2"	62-103-01	62-003-01
3/4"	62-104-01	62-004-01
1"	62-105-01	62-005-01
1-1/4"	62-106-01	62-006-01
1-1/2"	62-107-01	62-007-01
2"	62-108-01	62-008-01

**62-500 REPAIR KITS INCLUDE:**  
SPRING, CHECK ASSEMBLY & INSTRUCTIONS

SIZE (IN.)	CHECK VALVE PART NO.	REPAIR KIT PART NO.
1/4"	62-501-01	62-901-01
3/8"	62-502-01	62-902-01
1/2"	62-503-01	62-903-01
3/4"	62-504-01	62-904-01
1"	62-505-01	62-905-01

**61-500/61LF-500 REPAIR KITS INCLUDE:**  
SPRING, CHECK ASSEMBLY & INSTRUCTIONS

SIZE (IN.)	CHECK VALVE PART NO.	LF CHECK VALVE PART NO.	REPAIR KIT PART NO.
1/4"	61-501-01	61LF-501-01	61-901-01
3/8"	61-502-01	61LF-502-01	61-902-01
1/2"	61-503-01	61LF-503-01	61-903-01
3/4"	61-504-01	61LF-504-01	61-904-01
1"	61-505-01	61LF-505-01	61-905-01
1-1/4"	61-506-01	-	61-906-01
1-1/2"	61-507-01	-	61-907-01
2"	61-508-01	-	61-908-01

GATE, GLOBE & CHECK VALVES



**CV COEFFICIENTS**  
FOR FLOW ESTIMATION ONLY

**FLOW OF LIQUID**

$$Q = \sqrt{\frac{\Delta P}{SG}}$$

$$\text{or } \Delta P = \frac{(Q)^2 (SG)}{(Cv)^2}$$

**WHERE:**

Q = flow rate (gpm)  
Cv = device flow coefficient  
ΔP = change in fluid pressure across the device (psi)  
SG = Specific Gravity of fluid

**FLOW OF GAS**

$$Q = 1360 Cv \sqrt{\frac{\Delta P (P_2)}{(SG) (T)}}$$

$$\text{or } \Delta P = \frac{5.4 \times 10^{-7} (SG) (T) (Q)^2}{(Cv)^2 (P_2)}$$

**WHERE:**

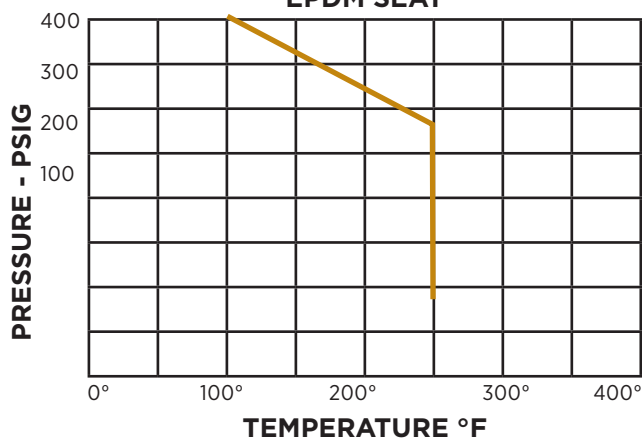
Q = flow rate (SCFH)  
ΔP = change in fluid pressure across the device (psi)  
SG = Specific Gravity (Air - 1.0)  
P<sub>2</sub> = outlet pressure - psia (psig + 14.7)  
T = (temp. °F + 460)  
Cv = valve constant

*Note: The Cv (Valve Constant) is the gallons of water per minute that the valve will pass with a 1 PSIG pressure drop across the valve.*

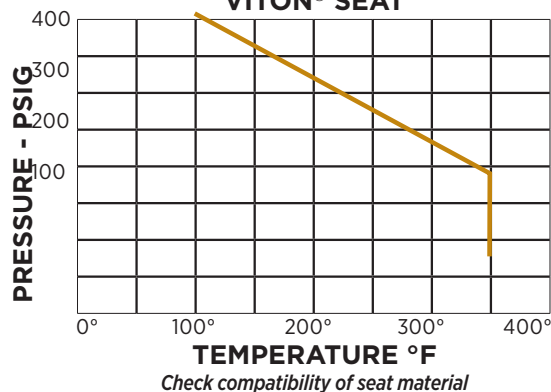
**NOTE:**

**Not recommended for use with reciprocating pumps and similar applications which may induce repetitious vibrations. Low flow rates which do not fully open the valve, may result in undesirable noise and premature valve failure. Upstream flow disturbances, which create turbulence, may also result in rapid wear. Therefore, it is recommended that a minimum of 10 diameters of straight pipe be provided between the check valve and any upstream flow disturbances such as pumps, control valves, elbows, etc.**

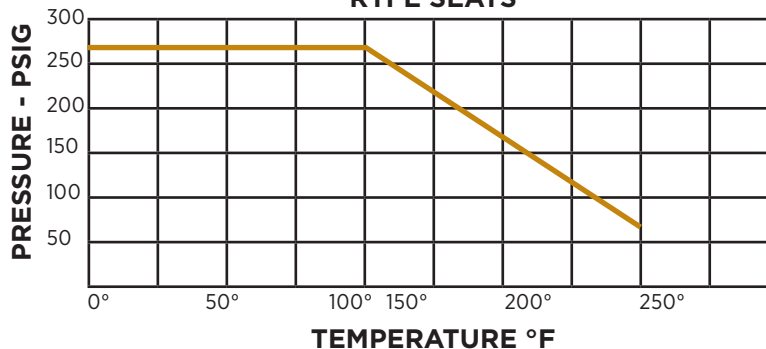
**EPDM SEAT**



**VITON® SEAT**



**RTFE SEATS**



GATE, GLOBE & CHECK VALVES