

VELAN

API 603 CAST STAINLESS STEEL GATE, GLOBE & CHECK VALVES

ASME Classes 150–300
1/2–24" (15–600 mm)

Class 800
1/2–1 1/2" (15–40 mm)



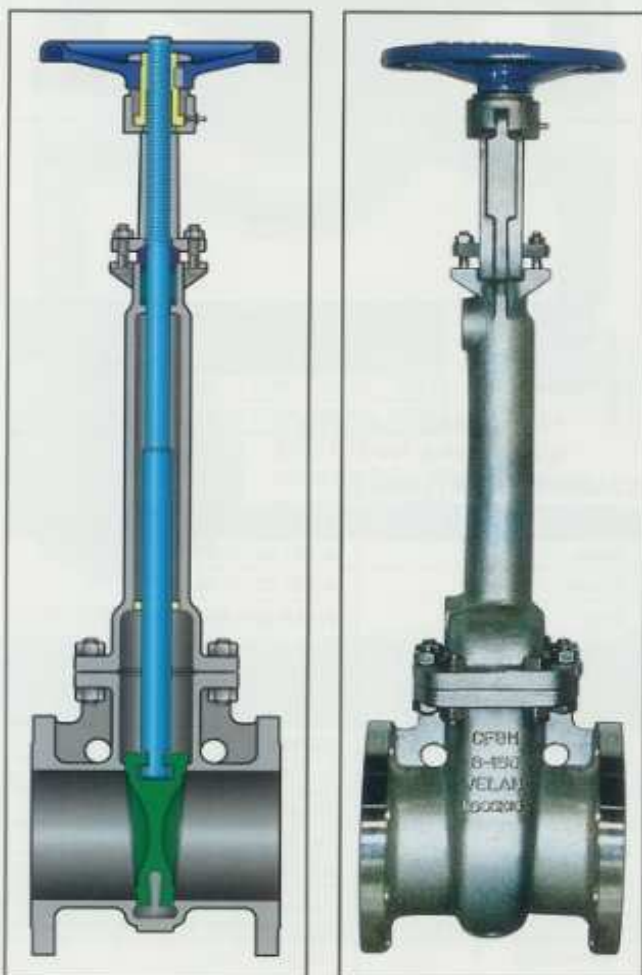


CAST STAINLESS STEEL CRYOGENIC GATE, GLOBE & CHECK VALVES API 603, INTEGRAL SEAT 1/2–24" (15–600 mm) ASME CLASSES 150, 300

The production, transport and storage of liquified gases such as oxygen, nitrogen, argon, natural gas, hydrogen or helium (down to -425°F), presents several technical problems. Velan specially-adapted extended bonnet cast valves offer safe and efficient service.

MATERIALS:

- **Body and bonnet:** Austenitic stainless steel castings used for bodies and bonnets offer excellent impact strength, minimal heat loss and protection against corrosion.
- **Stem:** Austenitic stainless steel. To reduce galling, stems are also offered in Nitronic 50 (A479 grade XM-19).



- **Wetted parts:** All Austenitic stainless steel and/or Stellite 6. Bronze wedges available.
- **Stem nut/yoke bushing:** Austenitic ductile iron Gr. D-2C (2" and up), Gr. 416 Nickel plated (1/2 to 1 1/2").
- **Packing:** Teflon or graphite packing protected from low temperatures by a column of insulating gas.
- **Seating faces:** Stellite 6 seats are available, 2" and larger. When 0-tight shutoff is required, globe and check valves can be supplied with soft inserts (Teflon or Neoflon).
- **Bolting:** Strain-hardened Austenitic stainless steel.
- **Lubrication of stem nut:** Exxon Nebula Lubriplate No. 930-AA, Shell Darina EPI or equivalent.

DESIGN FEATURES:

- **Extended bonnets** with sufficient gas column length, usually specified by customer, are supplied for all valves to keep stem packing at sufficient distance away from the cold fluid to remain functional.
- **Flexible wedges.**
- **Resilient inserts** are available for globe, piston and swing check discs.
- **Cleaning:** All cryogenic valves are thoroughly degreased and cleaned and pipe ends are sealed to prevent contamination.

TABLE OF LIQUIFIED GASES

Type	Boiling Point		Liquid Density lb/ft ³
	°C	°F	
Natural gas (LNG)	-168	-270	26
Methane (CH ₄)	-161.5	-258	26.20
Oxygen (O ₂)	-182.9	-296	71.20
Argon (A)	-185.9	-303	87.40
Carbon Dioxide (CO ₂)	-78.5	-109	50.60
Air	-194.4	-318	57.87
Nitrogen (N ₂)	-195.8	-320	50.45
Hydrogen(H ₂)	-252.7	-423	4.43
Helium (He)	-268.9	-452	7.82
Absolute zero	-273.16	-460	-

MANUFACTURING PROGRAM

API 603 CLASS 150 & 300 CAST STAINLESS STEEL GATE, GLOBE & CHECK VALVES⁽¹⁾

FLANGED

VALVE TYPE & CLASS	FIGURE NUMBER	SIZE (in, mm)																
		½ 15	¾ 20	1 25	1½ 40	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600
GATE	150	0064C-13SX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	300	1064C-13SX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GLOBE	150	0074C-13SX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	300	1074C-13SX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CHECK	150	0114C-13SX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	300	1114C-13SX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

(1) Also available in 13GX, SY and GY.

API 603 CLASS 800 CAST STAINLESS STEEL GATE, GLOBE & CHECK VALVES⁽²⁾

THREADED & SOCKET WELD

VALVE TYPE & CLASS	FIGURE NUMBER	½ 15	¾ 20	1 25	1½ 40	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600
Gate	2064C-13GX	✓	✓	✓	✓													
Globe	2074C-13GX	✓	✓	✓	✓													
Swing	2114C-13GX	✓	✓	✓	✓													

(2) Threaded end and socket weld end Class 800 valves are supplied with CF3M body to ASTM A 351. Please verify pressure-temperature rating.

HOW TO ORDER

Type of Connection	Size of Connection	Class	Type	Body/Bonnet Style	Body Material	Trim Material
A	B	C	D	E	F	G
e.g.: F	1 0	— 0	0 6	4 C	— 1 3	S X

(Flanged 3" 150 class cast stainless steel full bore gate valve.)

The figure numbers shown on this key are designed to cover essential features of Velan valves. Please use figure numbers to ensure prompt and accurate processing of your order. A detailed description must accompany any special orders.

You may specify valve size of connection separately or as part (B) of the figure number.

Examples:

F10-0064C-13SX (valve size is part of figure number)
3"F-0064C-13SX (valve size is shown separately)

A TYPE OF CONNECTION

- | | | |
|---------------|------------------|---------------------|
| A Special | F Flanged, B16.5 | U Undrilled flanged |
| C Combination | S Threaded | W Socket weld |

B SIZE OF CONNECTION (SEE EXPLANATION ABOVE)

03 ½"	08 2"	12 4"	16 10"	21 18"
04 ¾"	09 2½"	13 5"	18 12"	22 20"
05 1"	10 3"	14 6"	19 14"	23 22"
07 1½"	11 3½"	15 8"	20 16"	24 24"

C CLASS

0 150 1 300 2 800

D VALVE TYPE

- | | | |
|-------------------|---------------|----------------|
| 06 Full port gate | 08 Stop check | 11 Swing check |
| 07 Stop (globe) | 09 Needle | 99 Special |

E BODY/BONNET STYLE

- 4C Vertical bolted bonnet
4E Extended bonnet for cryogenic service

F BODY MATERIAL

- | | |
|--------------------------|--------------------------|
| 01 Special | 14 Stainless steel, CF3M |
| 11 Stainless steel, CF8 | 15 Stainless steel, CF8C |
| 12 Stainless steel, CF3 | 23 Alloy 20 |
| 13 Stainless steel, CF8M | 28 Stainless steel, CG8M |

G TRIM MATERIAL

Code	Wedge/Disc Seating Surface	Seat Surface	Stem ⁽³⁾	Packing Gasket
SX	Same as body	Integral	SS 316	Teflon
GX	Same as body	Integral	SS 316	Graphite
SY	Same as body	Stellite	SS 316	Teflon
GY	Same as body	Stellite	SS 316	Graphite
AA	Special	Special	Special	Special

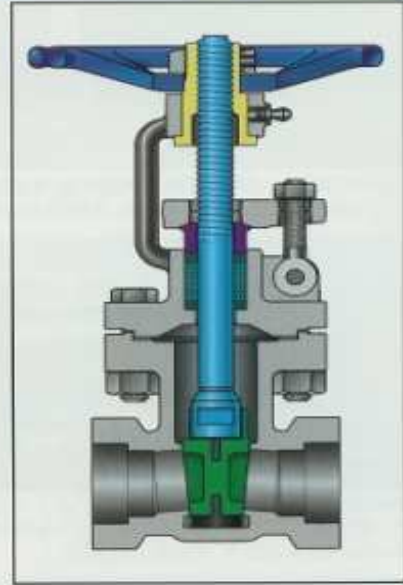
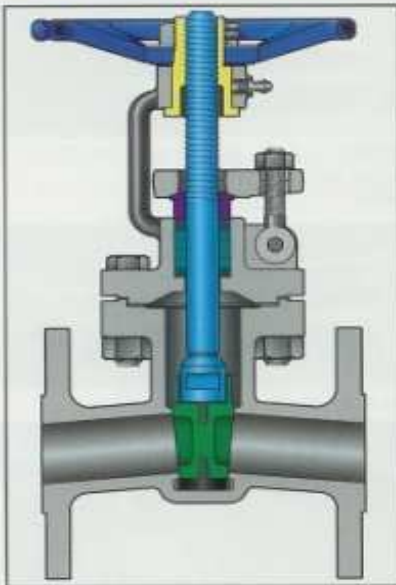
3) Stem material is SS 316 or other material equivalent to body at manufacturers option.



**CAST STAINLESS STEEL GATE VALVES API 603
INTEGRAL SEAT, 1/2-1 1/2", (15-40 mm)**

FLANGED, ASME CLASSES 150, 300, WALL THICKNESS TO B16.34

CLASS 800 GATE VALVES FULL PORT 1/2-1 1/2", (15-40 mm)
THREADED OR SOCKET WELD, ASME CLASS 800



**Precision High Quality
Investment Castings**

Gate Valves with unique flexible wedge

FLANGED

CLASS	FIGURE NUMBERS
150	0064C-13SX or GX
300	1064C-13SX or GX



THREADED-SOCKET WELD

CLASS	FIGURE NUMBERS
800	2064C-13SX or GX

STANDARD MATERIALS

PART	MATERIAL
Body	A 351 Gr. CF8M
Bonnet	A 351 Gr. CF8M
Wedge	A 351 Gr. CF8M
Stem	Gr. 316
Gland	Gr. 316
Gland flange	A 351 Gr. CF8M
Handwheel	Malleable iron (painted)
Handwheel nut	Stainless steel
Body/Bonnet cap screw	Gr. B8M
Body/Bonnet nut	Gr. 8M
Gland stud	Gr. 304
Gland nut	Gr. 8M
Gland packing	SX GX
	Teflon Graphite
Gasket	SX GX
	Teflon with stainless Graphite with stainless
Name plate	Stainless steel
Stem nut	Gr. 416 nickel plated

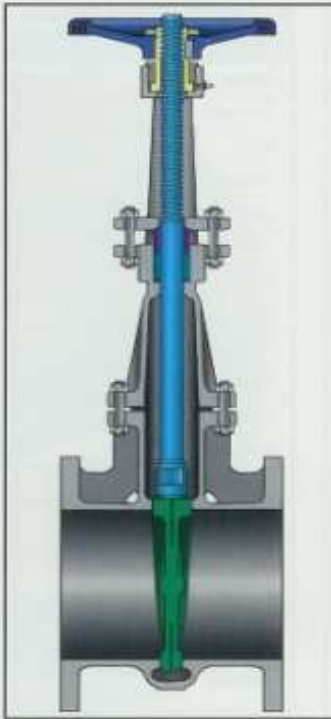
DIMENSIONS AND WEIGHTS

SIZE in mm	FLANGED, ASME 150 (PN 20)					FLANGED, ASME 300 (PN 50)					THREADED - SOCKET WELD, ASME 800				
	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)
1/2 15	4.25 108	8.06 205	4.75 121	0.62 15.7	8 3.6	5.50 140	8.11 206	4.75 121	0.62 15.7	10 4.5	2.88 73	7.97 202	4.75 121	0.62 15.7	6 2.7
3/4 20	4.63 118	8.07 205	4.75 121	0.75 19	9 4.1	6.00 152	8.14 207	4.75 121	0.75 19	11 5.0	3.25 83	7.95 202	4.75 121	0.75 19	7 3.2
1 25	5.00 127	8.67 220	4.75 121	1.00 25.4	10 4.5	6.50 165	8.73 222	4.75 121	1.00 25.4	14 6.4	3.50 89	8.55 217	4.75 121	1.00 25.4	8 3.6
1 1/2 40	6.50 165	11.91 303	8.00 203	1.50 38.1	23 10.4	7.50 191	11.95 304	8.00 203	1.50 38.1	25 11.3	5.00 127	11.79 300	8.00 203	1.50 38.1	20 9.1

VELAN

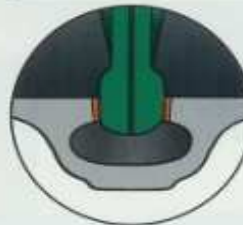
CAST STAINLESS STEEL GATE VALVES API 603 INTEGRAL SEAT, 2-24", (50-600 mm)

FLANGED, ASME CLASSES 150, 300, WALL THICKNESS TO B16.34
WITH FLEXIBLE WEDGE



STANDARD MATERIALS

PART	MATERIAL
Body	A 351 Gr. CF8M
Bonnet	A 351 Gr. CF8M
Wedge	A 351 Gr. CF8M
Stem	Gr. 316
Gland	Gr. 316
Gland flange	A 351 Gr. CF8M
Yoke bushing	Gr. 316
Handwheel	Malleable iron (painted)
Handwheel nut	Carbon steel
Body/bonnet stud	Gr. B8M
Body/Bonnet nut	Gr. 8M
Gland stud	Gr. 304
Gland nut	Gr. 8M
Spring pin	Stainless steel
Gland packing	SX or SY Teflon GX or GY Graphite
Gasket	SX or SY Teflon with stainless wire mesh GX or GY Graphite with stainless steel foil
Name plate	Stainless steel
Stem nut	Ni-resist type D-2C



*Optional integral
Stellited seat face
available for longer
service life.*

DIMENSIONS AND WEIGHTS

SIZE in mm	FLANGED, ASME 150 (PN 20)					FLANGED, ASME 300 (PN 50)				
	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)
2	7.00	13.00	8.00	2.00	30	8.50	14.00	8.00	2.00	44
50	178	330	203	51	13.6	216	356	203	51	20.0
2½	7.50	16.75	8.00	2.50	46	9.50	16.75	8.00	2.50	60
65	191	400	203	64	20.9	241	425	203	64	27.2
3	8.00	17.75	8.00	3.00	52	11.13	18.50	8.00	3.00	86
80	203	451	203	76	23.6	283	470	203	76	39.0
4	9.00	21.50	10.00	4.00	80	12.00	22.63	10.00	4.00	134
100	229	546	254	102	36.4	305	575	254	102	60.8
6	10.50	28.25	10.00	6.00	135	15.88	29.75	10.00	6.00	247
150	267	718	254	152	61.2	403	756	254	152	112.07
8	11.50	36.50	14.00	8.00	222	16.50	39.19	14.00	8.00	390
200	292	927	356	203	100.9	419	995	356	203	177.3
10	13.00	45.00	18.00	10.00	324	18.00	45.50	18.00	10.00	630
250	330	1143	457	254	147.3	457	1150	457	254	285.8
12	14.00	60.25	18.00	12.00	472	19.75	65.38	18.00	12.00	880
300	356	1530	457	305	214.1	502	1661	457	305	400.0
14	15.00	65.00	21.83	13.25	685					
350	381	1651	549	337	310.7					
16	16.00	75.00	23.63	15.25	1000					
400	406	1905	600	387	453.5					
18	17.00	81.00	29.50	17.25	1300					
450	432	2057	749	438	589.6					
20	18.00	93.00	29.50	19.25	1500					
500	457	2362	749	489	680.3					
24	20.00	107.00	31.50	23.25	2000					
600	508	2718	800	591	907.0					



B = Center to Top, Open

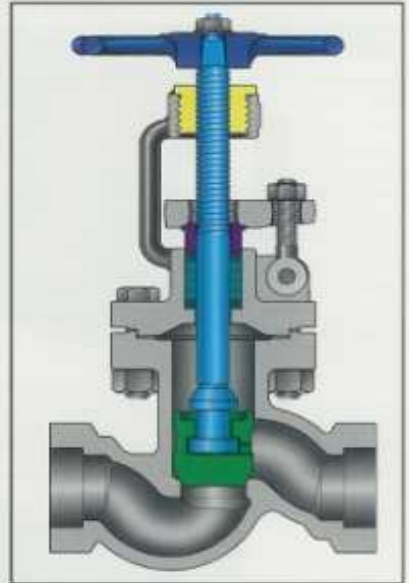
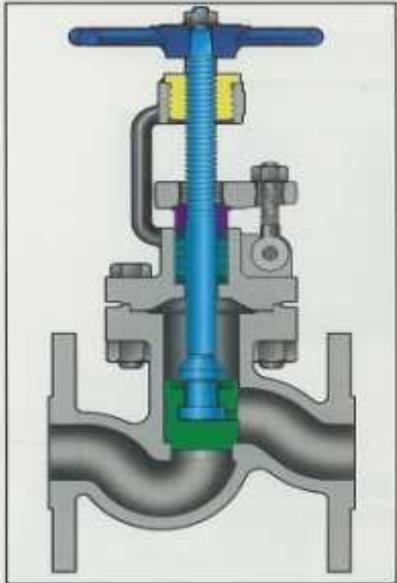
CLASS	FIGURE NUMBERS	
	STAINLESS SEAT	STELLITE SEAT
150	0064C-13SX or GX	0064C-13SY or GY
300	1064C-13SX or GX	1064C-13SY or GY

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**CAST STAINLESS STEEL GLOBE VALVES API 603
INTEGRAL SEAT, 1/2-1 1/2", (15-40 mm)**

FLANGED, ASME CLASSES 150, 300, WALL THICKNESS TO B16.34

**CLASS 800 GLOBE VALVES FULL PORT 1/2-1 1/2", (15-40 mm)
THREADED OR SOCKET WELD, ASME CLASS 800**

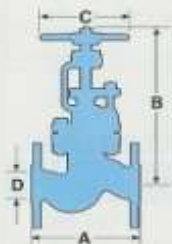


**Precision High Quality
Investment Castings**

Globe Valves with fully guided disc

FLANGED

CLASS	FIGURE NUMBERS
150	0074C-13SX or GX
300	1074C-13SX or GX



THREADED-SOCKET WELD

CLASS	FIGURE NUMBERS
800	2074C-13SX or GX

DIMENSIONS AND WEIGHTS

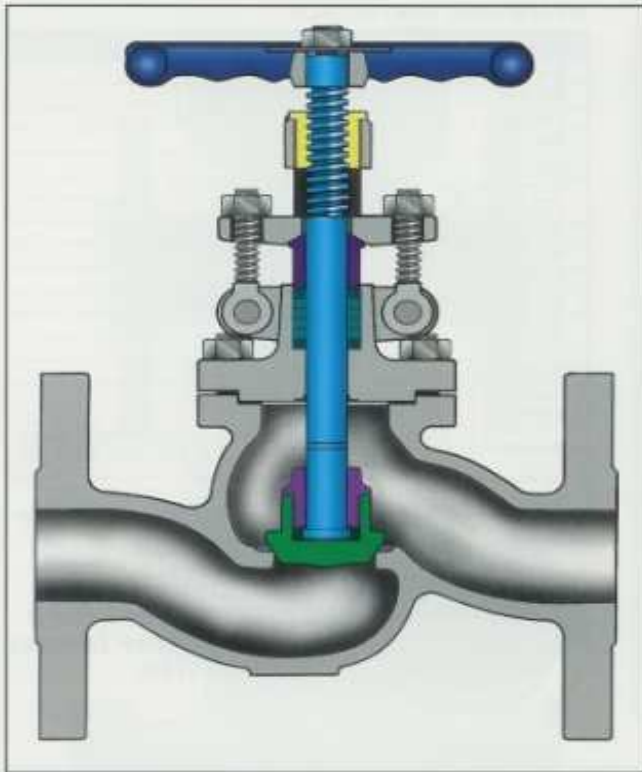
SIZE in mm	FLANGED, ASME 150 (PN 20)					FLANGED, ASME 300 (PN 50)					THREADED - SOCKET WELD, ASME 800				
	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)
1/2	4.25	8.31	4.00	0.50	7	6.00	8.31	4.00	0.50	9	3.75	8.31	4.00	0.50	6
15	108	211	102	13	3.2	152	211	102	13	4.1	95	211	102	13	2.7
3/4	4.63	8.31	4.00	0.75	8	7.00	8.31	4.00	0.75	10	4.25	8.31	4.00	0.75	7
20	118	211	102	19	3.6	178	211	102	19	4.5	108	211	102	19	3.2
1	5.00	9.08	4.00	1.00	10	8.00	9.08	4.00	1.00	12	5.00	9.08	4.00	1.00	8
25	127	230	102	25.4	4.5	203	230	102	25	5.4	127	230	102	25	3.6
1 1/2	6.50	11.28	8.00	1.50	22	9.00	11.28	8.00	1.50	29	6.00	11.28	8.00	1.50	18
40	165	286	203	38.1	10.0	229	286	203	38	13.2	152	286	203	38	8.2

STANDARD MATERIALS

PART	MATERIAL
Body	A 351 Gr. CFBM
Bonnet	A 351 Gr. CFBM
Disc	A 351 Gr. CFBM
Stem	Gr. 316
Gland	Gr. 316
Gland flange	A 351 Gr. CFBM
Yoke bushing	Gr. 416 nickel plated
Handwheel	Malleable iron (painted)
Handwheel nut	Stainless steel
Body/Bonnet cap screw	Gr. B8M
Body/Bonnet nut	Gr. 8M
Gland stud	Gr. 304
Gland nut	Gr. 8M
Gland packing	SX Teflon GX Graphite
Gasket	SX Teflon with stainless GX Graphite with stainless
Name plate	Stainless steel

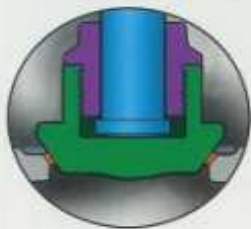


**CAST STAINLESS STEEL GLOBE VALVES API 603
INTEGRAL SEAT, 2-6" (50-150 mm)
FLANGED, ASME CLASSES 150, 300, WALL THICKNESS TO B16.34**



STANDARD MATERIALS

PART		MATERIAL
Body		A 351 Gr. CF8M
Bonnet		A 351 Gr. CF8M
Disc		A 351 Gr. CF8M
Stem		Gr. 316
Disc nut		A 351 Gr. CF8M
Gland pin		Gr. 316
Gland		Gr. 316
Gland flange		A 351 Gr. CF8M
Yoke bushing		Austenitic ductile iron Gr. D-2C
Handwheel		Malleable iron
Handwheel nut		Carbon steel
Name plate		Stainless steel
Bonnet stud		Gr. B8M
Bonnet nut		Gr. 8M
Gland stud		Gr. 304
Gland nut		Gr. 8M
Gland pecking	SX or SY	Teflon
	GX or GY	Graphite
Gasket	SX or SY	Teflon with stainless wire mesh
	GX or GY	Graphite with stainless steel foil



*Optional integral
Stellited seat face
available for longer
service life.*



B = Center to Top, Open

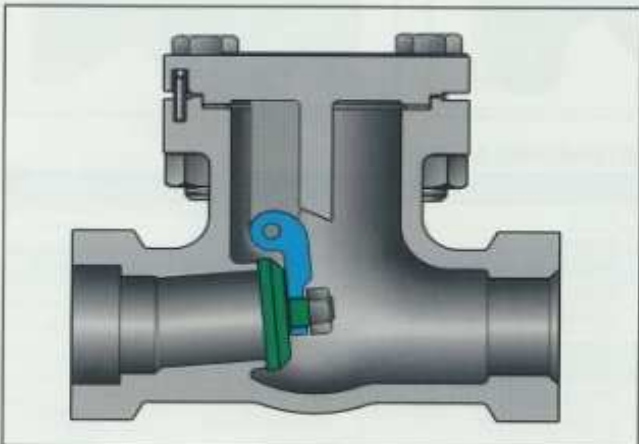
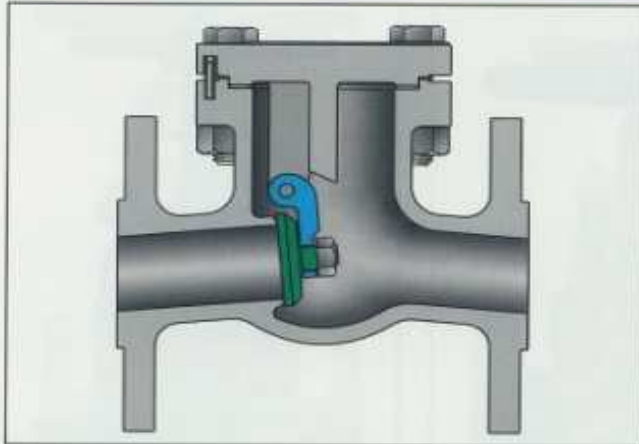
CLASS	FIGURE NUMBERS	
	STAINLESS SEAT	STELLITE SEAT
150	0074C-13SX or GX	0074C-13SY or GY
300	1074C-13SX or GX	1074C-13SY or GY

DIMENSIONS AND WEIGHTS

SIZE in mm	FLANGED, ASME 150 (PN 20)					FLANGED, ASME 300 (PN 50)				
	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)
2 50	8.00 203	9.50 241	8.00 203	2.00 51	27 12.3	10.50 267	11.06 281	8.00 203	2.00 51	45 20.4
2½ 65	8.50 216	10.44 265	10.00 254	2.50 64	40 18.2	11.50 292	12.25 311	10.00 254	2.50 64	70 31.7
3 80	9.50 241	12.19 310	10.00 254	3.00 76	50 22.7	12.50 318	13.75 349	10.00 254	3.00 76	87 39.5
4 100	11.50 292	14.81 376	10.00 254	4.00 102	83 37.6	14.00 356	16.44 418	10.00 254	4.00 102	130 59.0
6 150	16.00 406	19.19 487	10.00 254	6.00 152	154 69.9	17.50 445	21.38 543	14.00 356	6.00 152	252 114.3



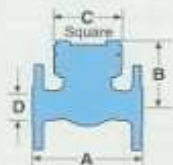
**CAST STAINLESS STEEL SWING CHECK VALVES API 603
INTEGRAL SEAT, 1/2-1 1/2", (15-40 mm)
FLANGED, ASME CLASSES 150, 300, WALL THICKNESS TO B16.34
CLASS 800 VALVES FULL PORT 1/2-1 1/2", (15-40 mm)
THREADED OR SOCKET WELD, ASME CLASS 800**



**Precision High Quality
Investment Castings**

STANDARD MATERIALS

PART	MATERIAL
Body	A 351 Gr. CF8M
Cover	A 351 Gr. CF8M
Disc	A 351 Gr. CF8M
Hinge	A 351 Gr. CF8M
Pin	Gr. 316
Disc nut	Gr. 8M
Cap screw	Gr. B8M
Cover nut	Gr. 8M
Gasket	SX GX
	Teflon with stainless Graphite with stainless
Name plate	Stainless steel



FLANGED

CLASS	FIGURE NUMBERS
150	0114C-13SX or GX
300	1114C-13SX or GX

THREADED-SOCKET WELD

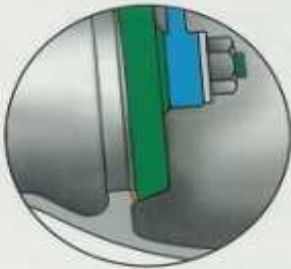
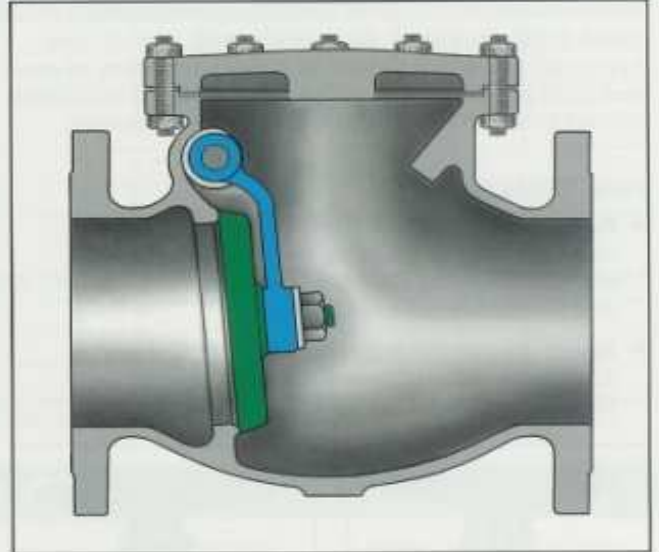
CLASS	FIGURE NUMBERS
800	2114C-13SX or GX

DIMENSIONS AND WEIGHTS

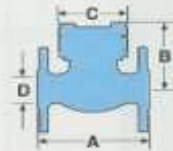
SIZE in mm	FLANGED, ASME 150 (PN 20)					FLANGED, ASME 300 (PN 50)					THREADED - SOCKET WELD, ASME 800				
	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)	A	B	C	D	WEIGHT lb (kg)
1/2 15	4.25 108	3.08 78	2.87 73	0.62 15.7	5 2.3	6.00 152	3.16 80	2.87 73	0.62 15.7	7 3.2	3.75 95	3.03 77	2.87 73	0.62 15.7	4 1.8
3/4 20	4.62 117	3.10 79	2.87 73	0.75 19	6 2.7	7.00 178	3.20 81	2.87 73	0.75 19	8 3.6	3.75 95	3.01 76	2.87 73	0.75 19	5 2.3
1 25	5.00 127	3.31 84	3.12 79	1.00 25.4	8 3.6	8.50 216	3.47 88	3.12 79	1.00 25.4	12 5.4	5.00 127	3.26 83	3.12 79	1.00 25.4	7 3.2
1 1/2 40	6.00 152	4.56 116	4.00 102	1.50 38.1	16 7.3	9.50 241	4.69 119	4.00 102	1.50 38.1	24 10.9	6.00 152	4.48 114	4.00 102	1.50 38.1	12 5.4

VELAN

**CAST STAINLESS STEEL SWING CHECK VALVES API 603
INTEGRAL SEAT, 2–12" (50–300 mm)
FLANGED, ASME CLASSES 150, 300, WALL THICKNESS TO B16.34**



*Optional integral
Stellite seat face
available for longer
service life.*



CLASS	FIGURE NUMBERS	
	STAINLESS SEAT	STELLITE SEAT
150	0114C-13SX or GX	0114C-13SY or GY
300	1114C-13SX or GX	1114C-13SY or GY

DIMENSIONS AND WEIGHTS

SIZE	FLANGED, ASME 150 (PN 20)				FLANGED, ASME 300 (PN 50)			
	A	B	C	D	A	B	C	D
2	8.00	4.00	4.00 ⁽¹⁾	2.00	10.50	4.75	5.00 ⁽¹⁾	2.00
50	203	102	102	51	267	121	127	51
2½	8.50	4.50	5.50	2.50	11.50	5.50	6.50	2.50
65	216	114	140	64	292	140	165	64
3	9.50	5.00	6.75	3.00	12.50	6.25	8.00	3.00
80	241	127	172	76	318	159	203	76
4	11.50	5.75	8.00	4.00	14.00	7.00	9.00	4.00
100	292	146	203	102	309	156	229	102
6	14.00	7.56	10.00	6.00	17.50	8.63	11.00	6.00
150	356	192	254	152	445	219	279	152
8	19.50	9.50	13.25	8.00	22.6	10.63	13.00	8.00
200	495	241	337	203	533	270	330	203
10	24.50	10.75	16.00	10.00	317	24.50	17.00	10.00
250	622	273	406	254	802	305	432	254
12	27.50	13.00	19.00	12.00	350	27.50	20.00	12.00
300	699	330	482	305	881	350	508	305

(1) Square

STANDARD MATERIALS

PART	MATERIAL
Body	A 351 Gr. CF8M
Cover	A 351 Gr. CF8M
Disc	A 351 Gr. CF8M
Hinge	A 351 Gr. CF8M
Pin	Gr. 316
Plug	Gr. 316
Disc nut	Gr. 8M
Washer	Gr. 316
Cotter pin	Gr. 316
Cover stud	Gr. B8M
Cover nut	Gr. 8M
Gasket	SX or SY GX or GY Teflon with stainless wire mesh Graphite with stainless steel foil
Nameplate	Stainless steel