

**Seeking a Great Name in Valve Technology**

Please visit our DHV website: [www.dhvindustries.com](http://www.dhvindustries.com) or [www.dhvvalve.com](http://www.dhvvalve.com) for a copy of our API 6D monogram certificate. Customer and Project referrals are available upon request. For certified data and current specifications, please contact us or your local DHV agent. Information provided in this catalog is for general purposes only.

DHV reserves the right to discontinue the manufacture or change and modify our design and construction of any DHV product, in due course of our manufacturing procedure without incurring any obligation to accept for credit, to replace or furnish or install such changes or modifications on products previously or subsequently sold.



**DHV Industries, Inc.**  
3451 Pegasus Drive, Bakersfield, CA 93308 USA  
Call Toll Free: (877) DHV-USA1  
Tel: (661) 392-8948 Fax: (661) 392-8947  
E-mail: [sales@dhvindustries.com](mailto:sales@dhvindustries.com)  
Website: [www.dhvindustries.com](http://www.dhvindustries.com)

**DHV Valve & Foundry Co., Ltd**  
No. 666, Ganquan West Road,  
Wujiang Economic Development Zone,  
Suzhou, Jiangsu,  
215200, China  
Tel: 86-512-82079288  
Fax: 86-512-82079860  
E-mail: [sales@dhvfoundry.com](mailto:sales@dhvfoundry.com)  
Website: [www.dhvfoundry.com](http://www.dhvfoundry.com)

**Your local DHV agent**

**DHV Industries, Inc.**  
3451 Pegasus Drive,  
Bakersfield, CA 93308 USA  
Call Toll Free: (877) DHV-USA1  
Tel: (661) 392-8948  
Fax: (661) 392-8947  
E-mail: [sales@dhvindustries.com](mailto:sales@dhvindustries.com)  
Website: [www.dhvindustries.com](http://www.dhvindustries.com)

**DHV Valve & Foundry Co., Ltd**  
No. 666, Ganquan West Road,  
Wujiang Economic Development Zone,  
Suzhou, Jiangsu,  
215200, China  
Tel: 86-512-82079288  
Fax: 86-512-82079860  
E-mail: [sales@dhvfoundry.com](mailto:sales@dhvfoundry.com)  
Website: [www.dhvfoundry.com](http://www.dhvfoundry.com)

**Cryogenic Cast Steel Valves**  
Gate/Globe/Check



# Table of Contents

## Introduction

**Quality** is our commitment, while competitive price and timely delivery is our promise. **From** the beginning, the DHV name has become associated with quality in every step of our manufacturing process. For the past decades our customers worldwide have trusted us to provide them with consistent and reliable valve products in their most severe and critical service. **We** at DHV are proud of our ability to meet the stringent requirements of Refining, Gas/Oil, Pipeline, Petrochemical and Power Plant.

**DHV** Valves are designed, manufactured and tested to the latest manufacturing specification of the American & International Standards Organizations. We welcome your challenges and look forward to serving your critical project needs.

• Figure Number System	2
• Cryogenic Gate Valves	3
• Cryogenic Globe Valves	8
• Cryogenic Check Valves	13
• Terms & Conditions	17



# DHV Figure Numbers

## Cast Steel GGC Valves

Type	Pressure Class	Body and Bonnet Material	End Connections
1 = OS & Y Gate	1 = Class 150	0 = ASTM A351 CF8M	F = Raised Face Flanged End
2 = Globe	2 = Class 300	1 = ASTM A351 CF8	R = Ring Type Joint Flanged End
3 = Swing Check	3 = Class 600	2 = ASTM A351 CF3M	P = Plain Flat Face Flanged End
4 = API 6D Swing Check	4 = Class 900	3 = ASTM A351 CF3	B = Butt-welding End
5 = Pressure Seal Bonnet Gate	5 = Class 1500	4 = ASTM A890 4A	X = Other Type End Connection
6 = Pressure Seal Bonnet Globe	6 = Class 2500	X = Special	
7 = Pressure Seal Bonnet Check			
8 = Y Pattern			
9 = Angle			
X = Special			

8" OS & Y Cryogenic Gate Valve,  
Class 300, A351 CF8M body &  
bonnet, raised face, flanged end,  
with HF/316SS Trim, Gear  
Operator.

## Example: 8"-LC120F2-GO

### Code

C = Cast Steel Valves  
LC = Cryogenic Cast Steel Valves

### Trim Material

	Seat Seal Face	Disc Seal Face	Stem Material
1 =	316SS	316SS	F316
2 =	HF	316SS	F316
3 =	304SS	304SS	F304
4 =	HF	304SS	F304
5 =	Inconel	Inconel	Inconel
6 =	HF	HF	F316
7 =	Duplex S.S.		
X =	Special		

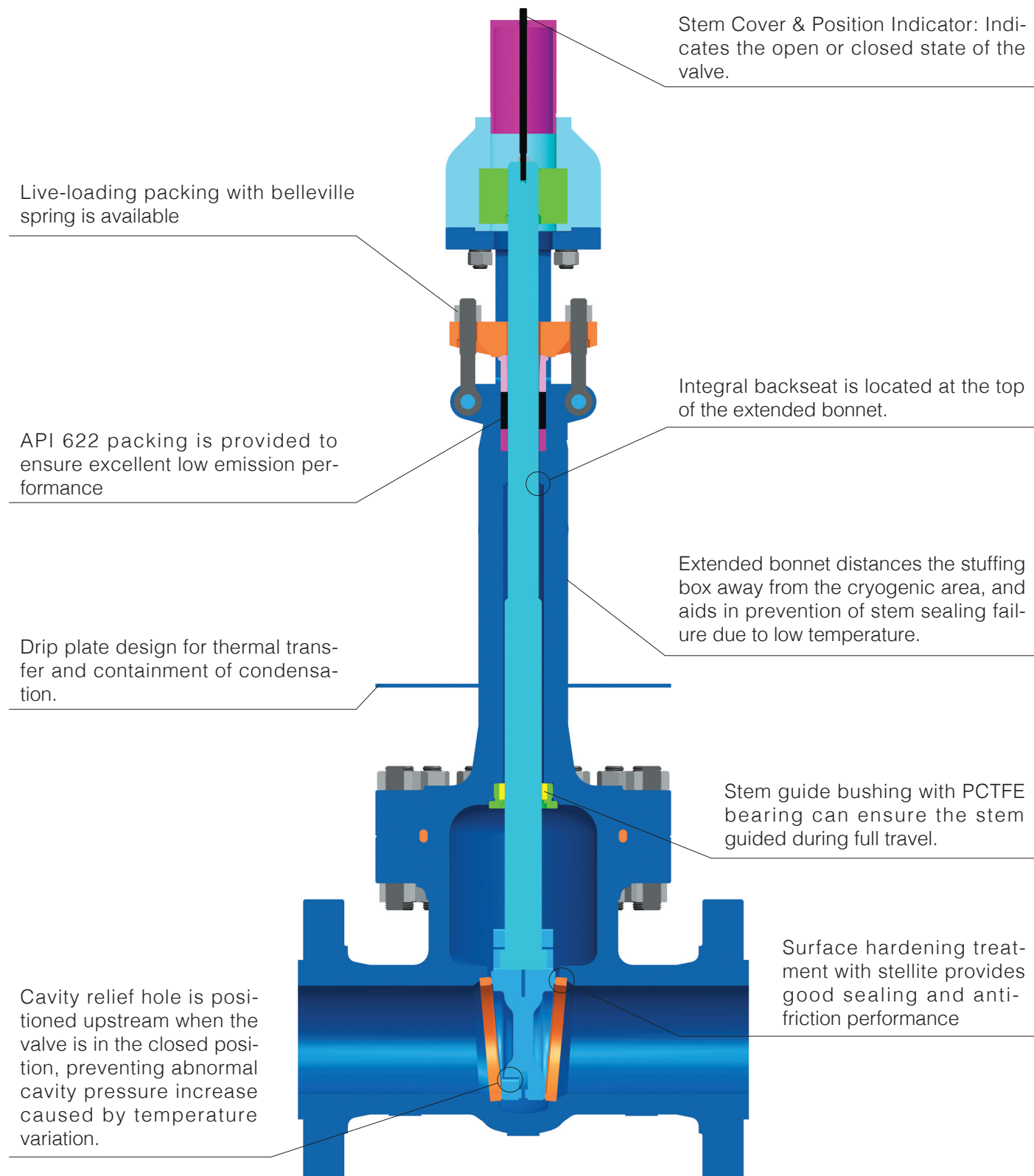
### Operator

None = Lever or Handwheel Operator  
CO = Chain Wheel Operator  
GO = Gear Operator  
BS = Bare Stem  
EM = Electric Motor Operator  
PA = Pneumatic Actuator  
HA = Hydraulic Actuator  
PH = Pneumatic-Hydraulic Actuator



# Cryogenic Gate Valves

## Design Features



General Note: Structure shown in the picture is only typical structure, we can provide a variety of structures according to customer requirements, such as metal seated structure.



# Cryogenic Gate Valves

## Applicable Standards

Basic Design: **API 600, ASME B16.34, MESC SPE 77/200**

Face to Face: **ASME B16.10**

Flange End: **ASME B16.5**

Butt Welding End: **ASME B16.25**

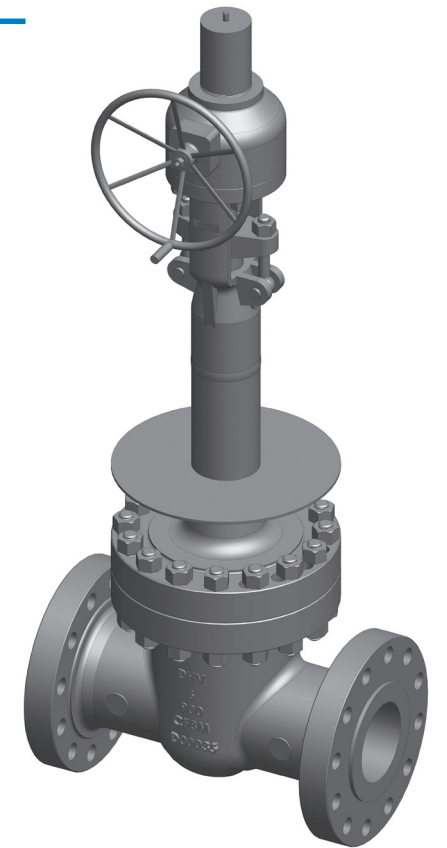
Test and Inspection: **API 598, MESC SPE 77/200**

Fire-safe Test: **API 6FA or API 607**

Manufacturing to NACE latest version on request

BS 6364, MSS SP-134 are also available

CSA Z245.15 latest version compliance is available



## Specifications

Size Range: **2" ~ 30"**

Pressure Range: **150LB ~ 2500LB**

End Connection: **Flanged end / Butt welding end**

Valve Direction: **Uni-directional**

Temperature Range: **Down to -196°C**

Service: **LNG / LN<sub>2</sub> / LO<sub>2</sub> terminals, Air separation plants, LNG / LN<sub>2</sub> / LO<sub>2</sub> transportation, and more**

Operation: **Handwheel, Gearbox, Pneumatic actuator, and more**

Material: **Body: A351 CF8M, and more**

Trim: **HF / HF**



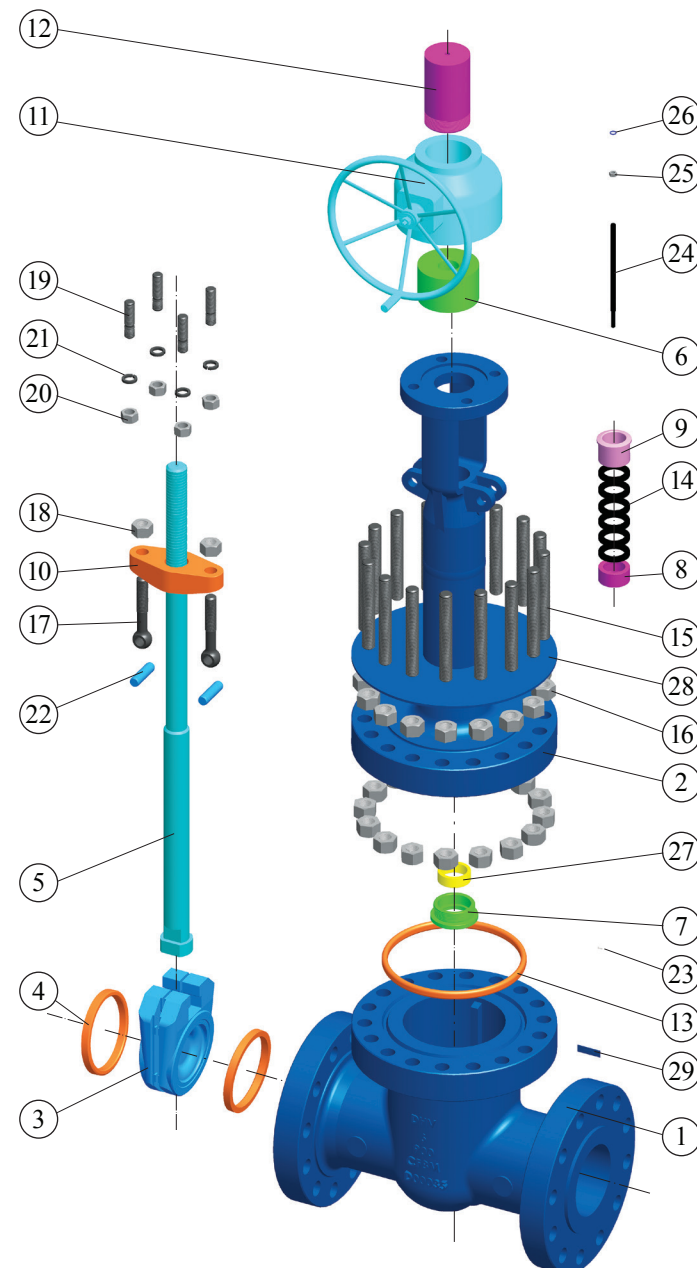
# Cryogenic Gate Valves

## Material List

### Material Specification

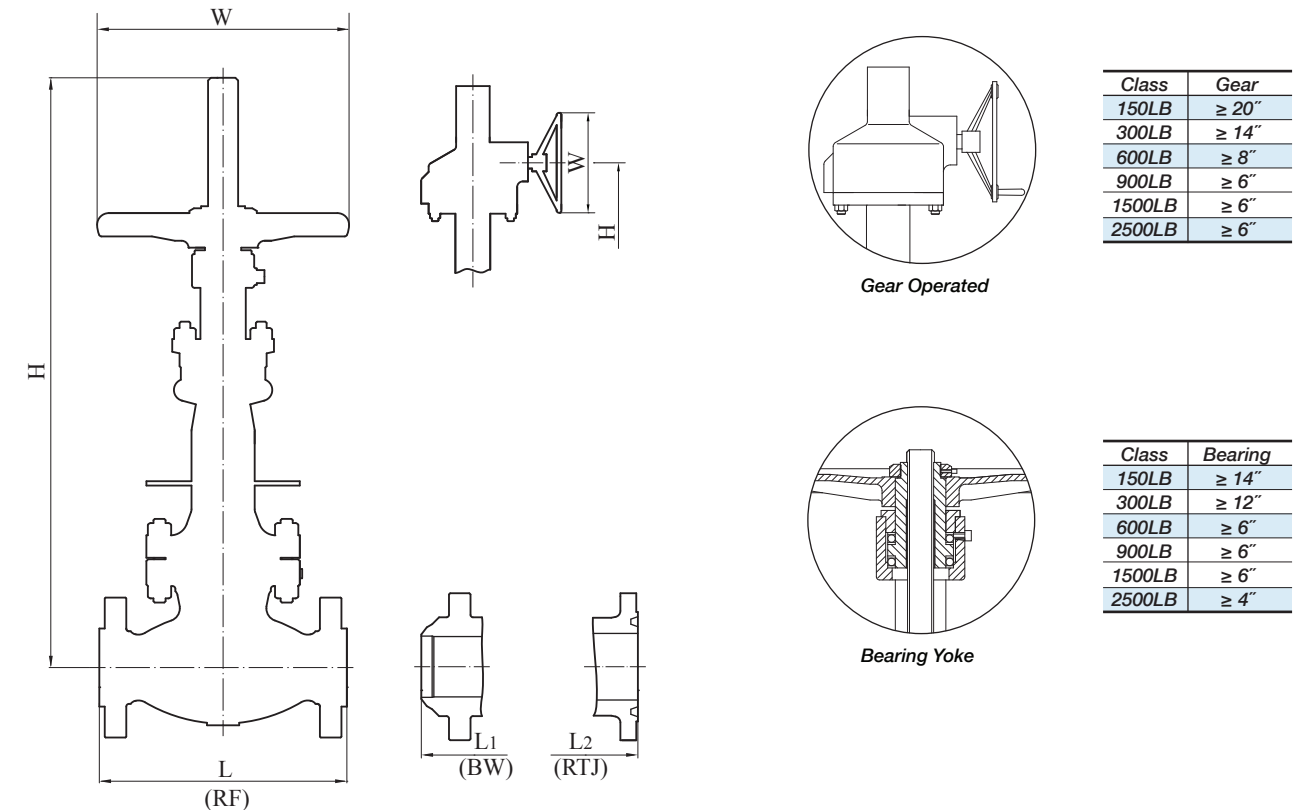
No.	Description	Material
1	Body	ASTM A351 CF8M/CF8/CF3M/CF3
2	Bonnet	ASTM A351 CF8M/CF8/CF3M/CF3
3	Disc	ASTM A351 CF8M/CF8/CF3M/CF3+HF
4	Seat Ring	ASTM A182 F316/F316L/F304/F304L+HF
5	Stem	ASTM A182 F316/F316L/F304/F304L
6	Stem Nut	Aluminum Bronze
7	Stem Guide Bushing	ASTM A182 F316/F316L
8	Packing Ring	ASTM A182 F316/F316L
9	Gland Ring	ASTM A182 F316/F316L
10	Gland Flange	ASTM A351 CF8M/CF8/CF3M/CF3
11	Gear Box	Carbon Steel
12	Stem Protector	Carbon Steel
13	RTJ Seal Ring	ASTM A182 F316/F316L
14	Packing	Graphite
15	Bolt	ASTM A320 B8M/B8
16	Nut	ASTM A194 8M/8
17	Eye Bolt	ASTM A320 B8M/B8
18	Nut	ASTM A194 8M/8
19	Bolt	ASTM A320 B8M/B8
20	Nut	ASTM A194 8M/8
21	Spring Washer	Stainless Steel
22	Pin	Stainless Steel
23	Nameplate	Stainless Steel
24	Indicator	Stainless Steel
25	Nut	ASTM A194 8M/8
26	Dust-proof Ring	PTFE
27	Stem Bearing	PCTFE
28	Drip plate	Stainless Steel
29	Flow Plate	Stainless Steel

General Note: Materials shown in the table are typical configurations, a variety of other material configurations are available according to customer requirements. Please consult a DHV representative for further details.



# Cryogenic Gate Valves

## Dimensions



Class	Gear
150LB	≥ 20"
300LB	≥ 14"
600LB	≥ 8"
900LB	≥ 6"
1500LB	≥ 6"
2500LB	≥ 6"

Class	Bearing
150LB	≥ 14"
300LB	≥ 12"
600LB	≥ 6"
900LB	≥ 6"
1500LB	≥ 6"
2500LB	≥ 4"

### 150LB

Description		Valve Size												
		2	3	4	6	8	10	12	14	16	20	24	28	30
Flanged End L	in	7.00	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	18.00	20.00	24.00	24.00
	mm	178	203	229	267	292	330	356	381	406	457	508	610	610
Weld End L <sub>1</sub>	in	8.50	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	28.00	32.00	36.00	36.00
	mm	216	283	305	403	419	457	502	572	610	711	813	914	914
Height to Open H	in	26.22	31.02	35.43	45.12	52.01	61.57	69.33	76.69	85.63	102.76	120.12	139.76	157.13
	mm	666	788	900	1146	1321	1564	1761	1948	2175	2610	3051	3550	3991
Handwheel Dia W	in	7.90	9.80	11.80	13.80	15.80	17.70	17.70	19.70	23.60	26.80	18.10	24.00	24.00
	mm	200	250	300	350	400	450	450	500	600	680	460	610	610

### 300LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	20	24	30
Flanged End L	in	8.50	11.14	12.00	15.88	16.50	18.00	19.75	30.00	33.00	39.00	45.00	55.00
	mm	216	283	305	403	419	457	502	762	838	991	1143	1397
Weld End L <sub>1</sub>	in	8.50	11.14	12.00	15.88	16.50	18.00	19.75	30.00	33.00	39.00	45.00	55.00
	mm	216	283	305	403	419	457	502	762	838	991	1143	1397
Height to Open H	in	26.85	31.42	35.67	46.93	53.23	63.39	70.55	78.27	86.38	104.57	121.54	150.47
	mm	682	798	906	1192	1352	1610	1792	1988	2194	2656	3087	3822
Handwheel Dia W	in	7.90	9.80	11.80	15.80	17.70	17.70	19.70	23.60	23.60	18.10	24.00	24.00
	mm	200	250	300	400	450	450	500	600	600	460	610	610

Note: Data listed above is for reference only. For detailed product data, please refer to the order confirmation drawing.





# Cryogenic Gate Valves

## Dimensions

600LB													
Description		Valve Size											
		2	3	4	6	8	10	12	14	16	20	24	30
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	47.00	55.00	65.00
	mm	292	356	432	559	660	787	838	889	991	1194	1397	1651
Weld End L <sub>1</sub>	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	47.00	55.00	65.00
	mm	292	356	432	559	660.00	787	838	889	991	1194	1397	1651
RTJ L <sub>2</sub>	in	11.62	14.12	17.12	22.12	26.14	31.14	33.12	35.12	39.12	47.25	55.38	65.50
	mm	295	359	435	562	664	791	841	892	994	1200	1407	1664
Height to Open H	in	26.85	32.87	37.68	48.82	54.45	63.94	70.98	80.87	86.46	105.91	124.65	152.80
	mm	682	835	957	1240	1383	1624	1803	2054	2196	2690	3166	3881
Handwheel Dia W	in	9.80	11.80	13.80	17.70	19.70	23.60	26.80	18.10	24.00	27.60	27.60	39.40
	mm	250	300	350	450	500	600	680	460	610	700	700	1000

900LB													
Description		Valve Size											
		2	3	4	6	8	10	12	14	16	20		
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	52.00		
	mm	368	381	457	610	737	838	965	1029	1130	1321		
Weld End L <sub>1</sub>	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	52.00		
	mm	368	381	457	610	737	838	965	1029	1130	1321		
RTJ L <sub>2</sub>	in	14.62	15.12	18.12	24.12	29.12	33.12	38.12	40.87	44.87	52.50		
	mm	371	384	460	613	740	841	968	1038	1140	1334		
Height to Open H	in	29.88	34.69	37.60	50.51	57.52	65.94	71.18	82.28	86.61	106.77		
	mm	759	881	955	1283	1461	1675	1808	2090	2200	2712		
Handwheel Dia W	in	11.80	13.80	15.80	19.70	23.60	24.00	24.00	24.00	24.00	27.60		
	mm	300	350	400	500	600	610	610	610	610	700		

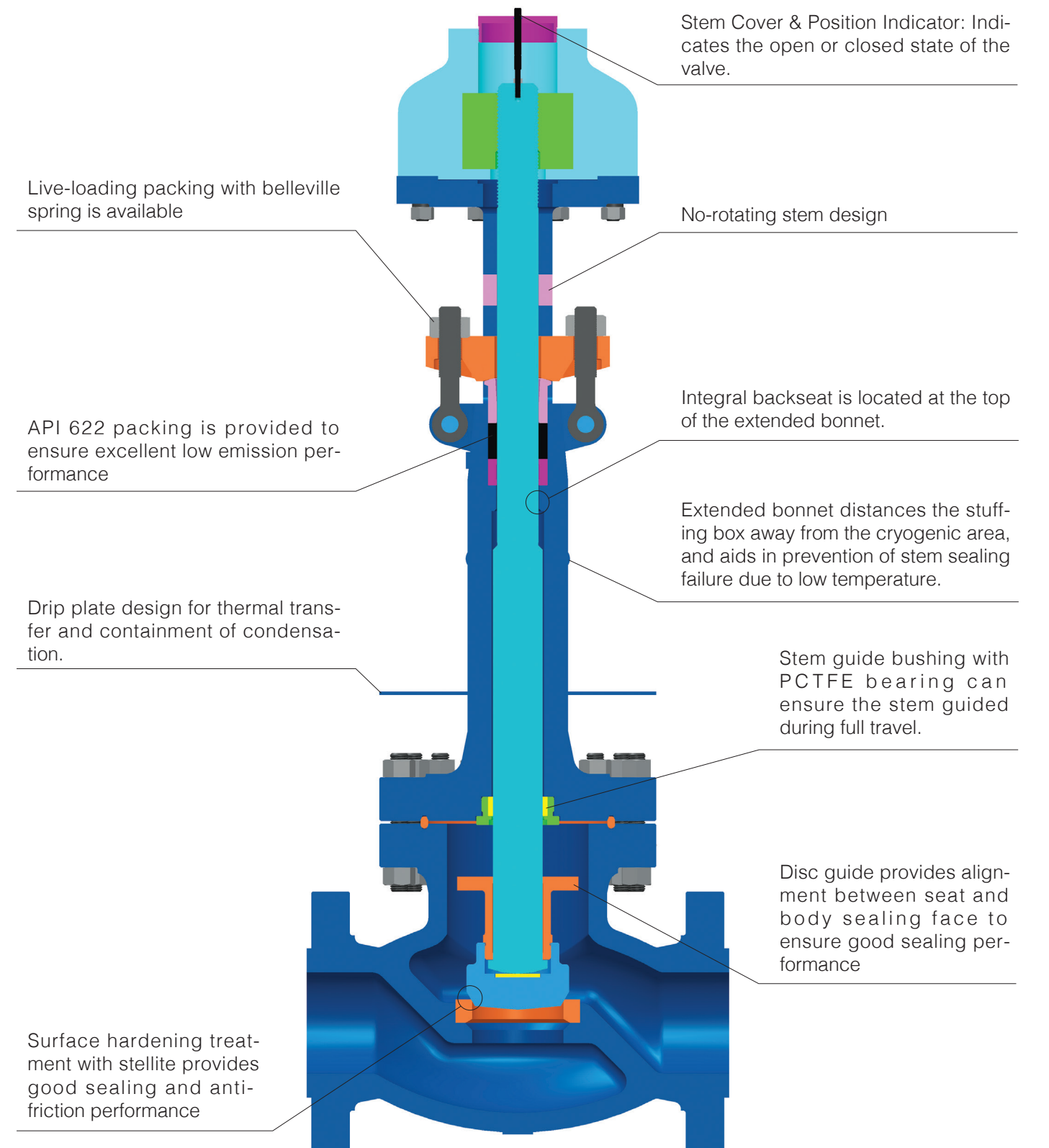
1500LB								2500LB					
Description		Valve Size						Valve Size					
		2	3	4	6	8	10	2	3	4	6	8	10
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.76	22.76	26.50	35.98	50.00
	mm	368	470	546	705	832	991	1130	451	578	673	914	1270
Weld End L <sub>1</sub>	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.76	22.76	26.50	35.98	50.00
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022
RTJ L <sub>2</sub>	in	14.62	18.62	21.62	28.00	33.13	39.38	45.12	17.87	23.00	26.89	36.50	50.87
	mm	371	473	549	711	841	1000	1146	454	584	683	927	1038
Height to Open H	in	29.69	38.15	39.37	52.20	61.06	71.65	78.86	33.46	40.67	46.85	62.99	90.16
	mm	754	969	1000	1326	1551	1820	2003	850	1033	1190	1600	2290
Handwheel Dia W	in	11.80	15.80	17.70	23.60	24.00	24.00	27.60	13.80	15.80	19.70	23.60	27.60
	mm	300	400	450	600	610	610	700	350	400	500	600	700

Note: Data listed above is for reference only. For detailed product data, please refer to the order confirmation drawing.



# Cryogenic Globe Valves

## Design Features



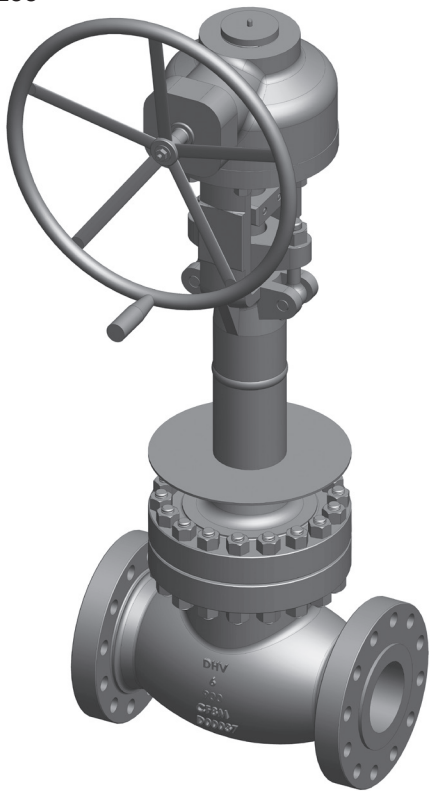
General Note: Structure shown in the picture is only typical structure, we can provide a variety of structures according to customer requirements, such as metal seated structure.



# Cryogenic Globe Valves

### Applicable Standards

- Basic Design: **API 623, ASME B16.34, BS 1873, MESC SPE 77/200**
- Face to Face: **ASME B16.10**
- Flange End: **ASME B16.5**
- Butt Welding End: **ASME B16.25**
- Test and Inspection: **API 598, MESC SPE 77/200**
- Fire-safe Test: **API 6FA or API 607**
- Manufacturing to NACE latest version on request
- BS 6364, MSS SP-134 are also available
- CSA Z245.15 latest version compliance is available



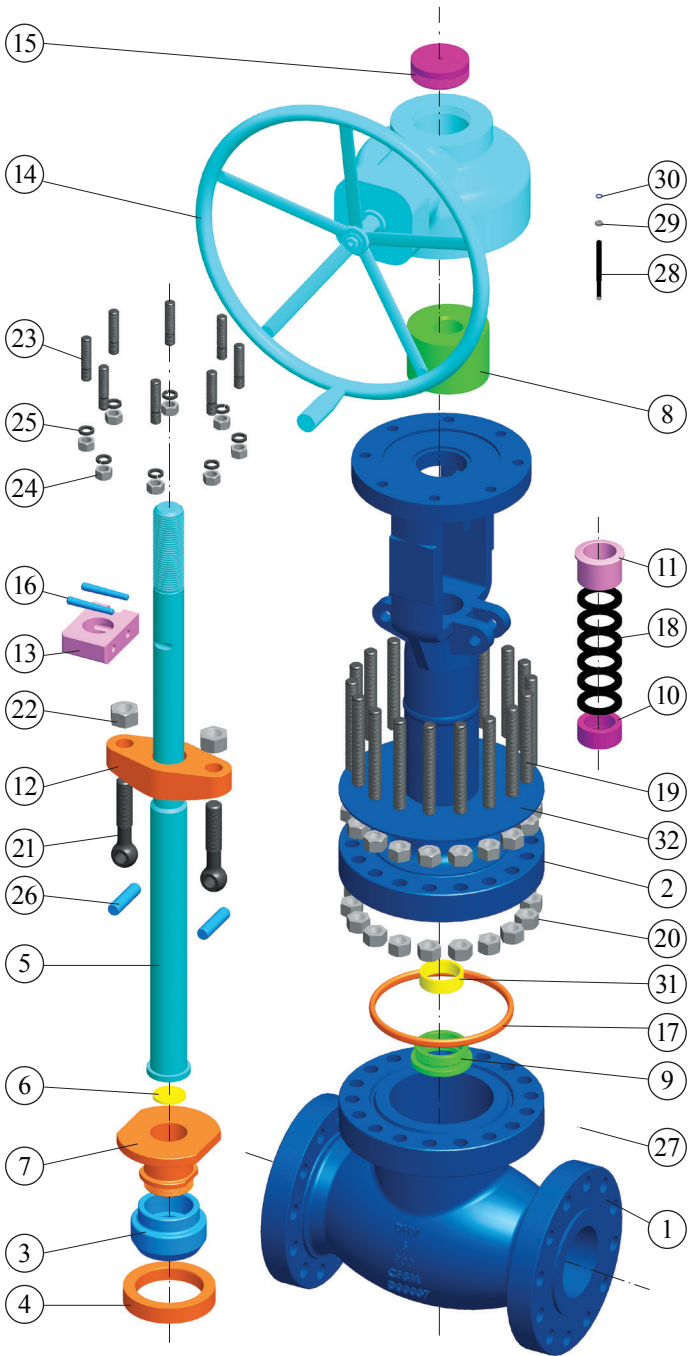
### Specifications

- Size Range: **2" ~ 20"**
- Pressure Range: **150LB ~ 2500LB**
- End Connection: **Flanged end / Butt welding end**
- Valve Direction: **Uni-directional**
- Temperature Range: **Down to -196°C**
- Service: **LNG / LN<sub>2</sub> / LO<sub>2</sub> terminals, Air separation plants, LNG / LN<sub>2</sub> / LO<sub>2</sub> transportation, and more**
- Operation: **Lever, Gearbox, Pneumatic actuator, and more**
- Material: **Body: A351 CF8M, and more**  
**Trim: HF / HF**



# Cryogenic Globe Valves

## Material List



### Material Specification

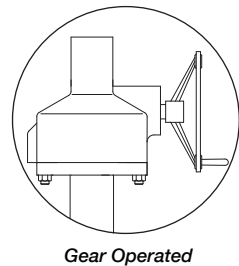
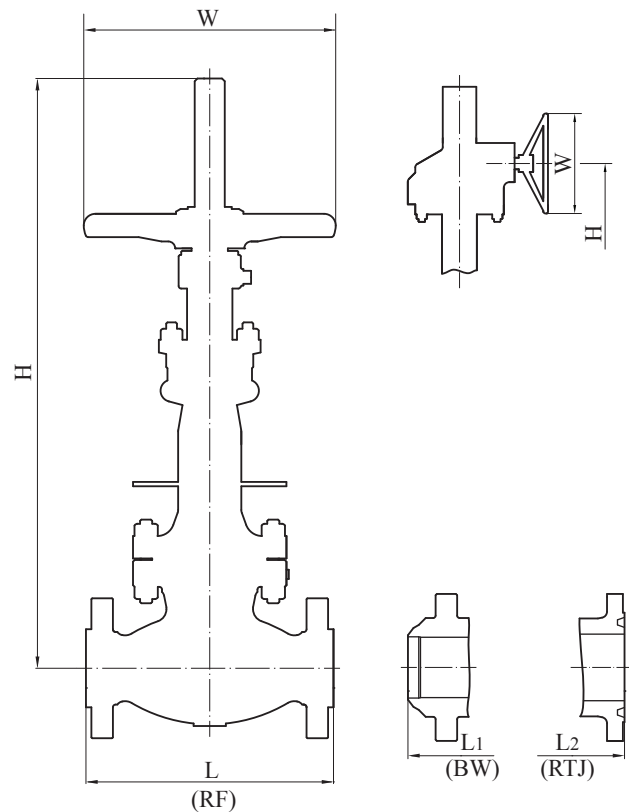
No.	Description	Material
1	Body	ASTM A351 CF8M/CF8/CF3M/CF3
2	Bonnet	ASTM A351 CF8M/CF8/CF3M/CF3
3	Disc	ASTM A182 F316/F316L/F304/F304L+HF
4	Seat Ring	ASTM A182 F316/F316L/F304/F304L+HF
5	Stem	ASTM A182 F316/F316L/F304/F304L
6	Trust Plate	316SS+N
7	Disc Cover	ASTM A182 F316/F316L/F304/F304L
8	Stem Nut	Aluminum Bronze
9	Stem Guide Bushing	ASTM A182 F316/F316L
10	Packing Ring	ASTM A182 F316/F316L
11	Packing Gland	ASTM A182 F316/F316L
12	Gland Flange	ASTM A351 CF8M/CF8/CF3M/CF3
13	Anti Rotation Sleeve	ASTM A182 F316/F316L
14	Gear Box	Carbon Steel
15	Stem Protector	Carbon Steel
16	Taper Pin	Stainless Steel
17	RTJ Seal Ring	ASTM A182 F316/F316L
18	Packing	Graphite
19	Bolt	ASTM A320 B8M/B8
20	Nut	ASTM A194 8M/8
21	Eye Bolt	ASTM A320 B8M/B8
22	Nut	ASTM A194 8M/8
23	Bolt	ASTM A320 B8M/B8
24	Nut	ASTM A194 8M/8
25	Spring Washer	Stainless Steel
26	Pin	Stainless Steel
27	Nameplate	Stainless Steel
28	Indicator	Stainless Steel
29	Nut	ASTM A194 8M/8
30	Dust-proof Ring	PTFE
31	Stem Bearing	PCTFE
32	Flow Plate	Stainless Steel

General Note: Materials shown in the table are typical configurations, a variety of other material configurations are available according to customer requirements. Please consult a DHV representative for further details.

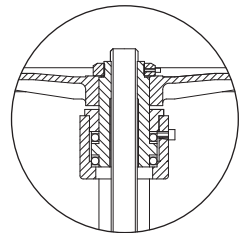


# Cryogenic Globe Valves

## Dimensions



Gear Operated



Bearing Yoke

Class	Gear
150LB	≥ 10"
300LB	≥ 10"
600LB	≥ 6"
900LB	≥ 4"
1500LB	≥ 3"
2500LB	≥ 3"

Class	Bearing
150LB	≥ 10"
300LB	≥ 8"
600LB	≥ 6"
900LB	≥ 6"
1500LB	≥ 6"
2500LB	≥ 4"

### 150LB

Description		Valve Size									
		2	3	4	6	8	10	12	14	16	20
Flanged End L	in	8.00	9.50	11.50	16.00	19.50	24.50	27.50	31.00	36.00	38.50
	mm	203	241	292	406	495	622	698	787	914	978
Weld End L1	in	8.00	9.50	11.50	16.00	19.50	24.50	27.50	31.00	36.00	38.50
	mm	203	241	292	406	495	622	698	787	914	978
Height to Open H	in	24.17	28.19	30.51	34.69	38.58	44.88	53.94	59.84	61.81	75.59
	mm	614	716	775	881	980	1140	1370	1520	1570	1920
Handwheel Dia W	in	7.90	9.80	9.80	13.80	13.80	19.70	23.60	23.60	26.80	24.00
	mm	200	250	250	350	350	500	600	600	680	610

### 300LB

Description		Valve Size									
		2	3	4	6	8	10	12	14	16	
Flanged End L	in	10.50	12.50	14.00	17.50	22.00	24.50	28.00	33.00	34.00	
	mm	267	318	356	445	559	622	711	838	864	
Weld End L1	in	10.50	12.50	14.00	17.50	22.00	24.50	28.00	33.00	34.00	
	mm	267	318	356	445	559	622	711	838	864	
Height to Open H	in	25.12	29.29	31.89	40.47	44.84	51.73	58.78	68.50	70.67	
	mm	638	744	810	1028	1139	1314	1493	1740	1795	
Handwheel Dia W	in	7.90	9.80	13.80	15.80	19.70	23.60	23.60	24.00	24.00	
	mm	200	250	350	400	500	600	600	610	610	

Note: Data listed above is for reference only. For detailed product data, please refer to the order confirmation drawing.



# Cryogenic Globe Valves

## Dimensions

### 600LB

Description		Valve Size							
		2	3	4	6	8	10	12	
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	
	mm	292	356	432	559	660	787	838	
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	
	mm	292	356	432	559	660	787	838	
RTJ L2	in	11.62	14.12	17.12	22.12	26.12	31.12	33.12	
	mm	295	359	435	562	663	790	841	
Height to Open H	in	25.79	32.40	37.09	43.98	48.66	67.01	69.76	
	mm	655	823	942	1117	1236	1702	1772	
Handwheel Dia W	in	9.80	13.80	15.80	19.70	23.60	26.80	24.00	
	mm	250	350	400	500	600	680	610	

### 900LB

Description		Valve Size							
		2	3	4	6	8	10	12	
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	
	mm	368	381	457	610	737	838	965	
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	
	mm	368	381	457	610	737	838	965	
RTJ L2	in	14.62	15.12	18.12	24.12	29.12	33.12	38.12	
	mm	371	384	460	613	740	841	968	
Height to Open H	in	30.79	35.91	38.54	52.95	64.29	72.83	80.71	
	mm	782	912	979	1345	1633	1850	2050	
Handwheel Dia W	in	13.80	13.80	17.70	23.60	24.00	24.00	27.60	
	mm	350	350	450	600	610	610	700	

### 1500LB

Description		Valve Size								2500LB					
		2	3	4	6	8	10	12		2	3	4	6	8	10
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.76	22.76	26.50	35.98	40.24	50.00	
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022	1270	
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.76	22.76	26.50	35.98	40.24	50.00	
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022	1270	
RTJ L2	in	14.62	18.62	21.62	28.00	33.13	39.38	45.12	17.88	23.00	26.89	36.50	40.87	50.87	
	mm	371	473	549	711	841	1000	1146	454	584	683	927	1038	1292	
Height to Open H	in	30.79	40.28	42.01	57.32	66.14	73.35	81.38	38.98	45.94	54.06	67.01	108.90	135.67	
	mm	782	1023	1067	1456	1680	1863	2067	990	1167	1373	1702	2766	3446	
Handwheel Dia W	in	13.80	17.70	19.70	24.00	24.00	27.60	27.60	15.80	21.70	24.00	24.00	24.00	27.60	
	mm	350	450	500	610	610	700	700	400	550	610	610	610	700	

Note: Data listed above is for reference only. For detailed product data, please refer to the order confirmation drawing.



# Cryogenic Check Valves

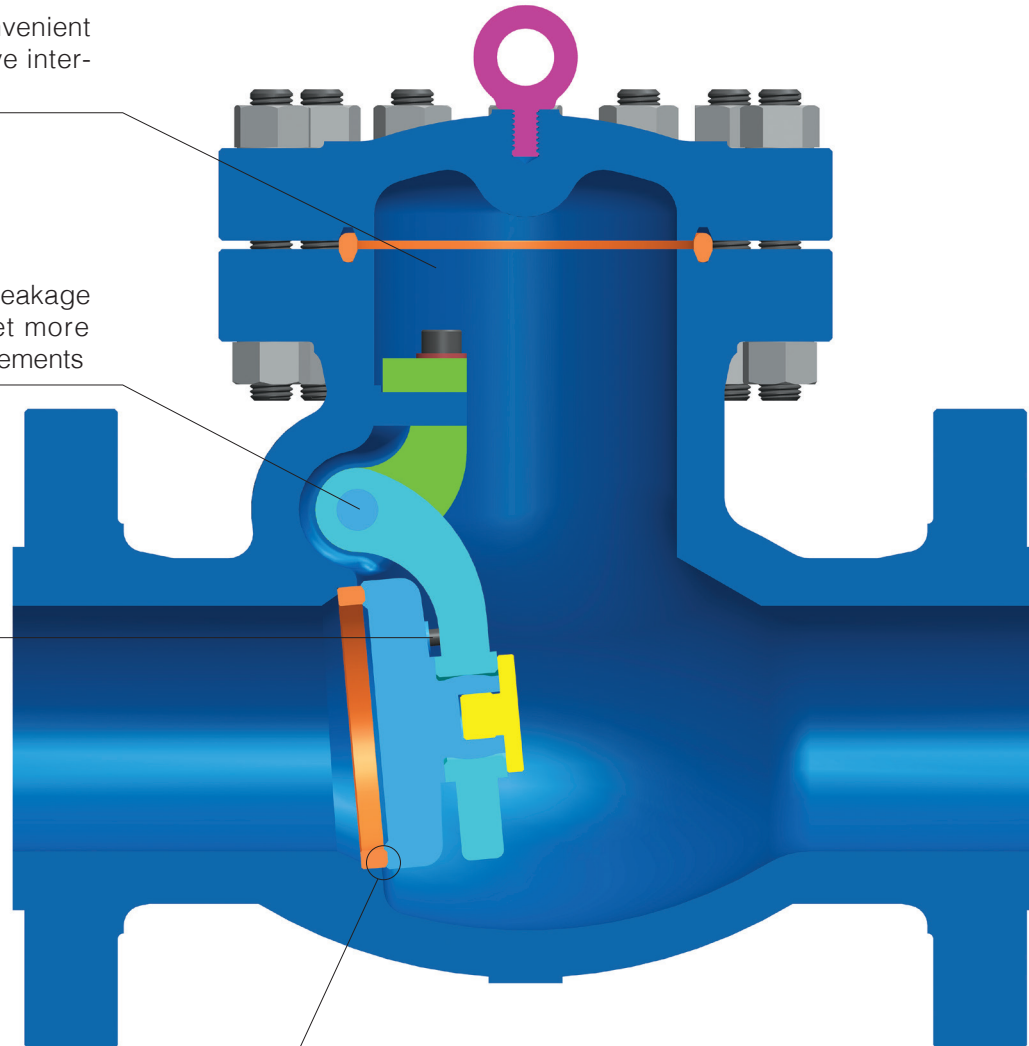
## Design Features

Easy maintenance with convenient top entry access to all valve internals.

Internal hinge pin reduces leakage points of the valve to meet more stringent low leakage requirements

Non-rotating disc prevents excessive wear, noise and vibration due to free rotation of disc

Surface hardening treatment with stellite provides good sealing and anti-friction performance



**General Note:**  
Structure shown in the picture is only typical structure, we can provide a variety of structures according to customer requirements, such as metal seated structure.



# Cryogenic Check Valves

## Applicable Standards

Basic Design: **API 594, ASME B16.34, BS 1868, MESC SPE 77/200**

Face to Face: **ASME B16.10**

Flange End: **ASME B16.5**

Butt Welding End: **ASME B16.25**

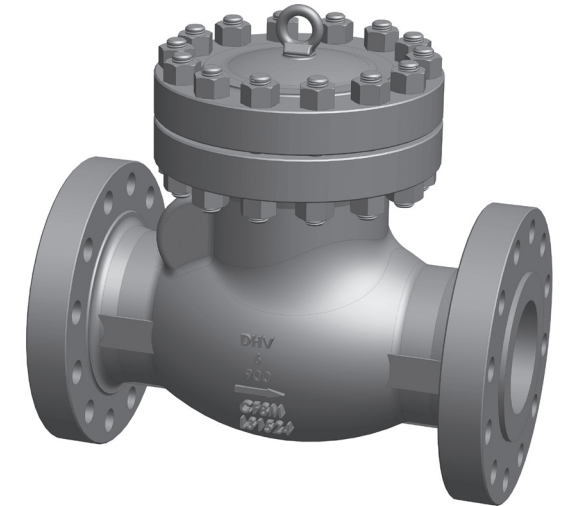
Test and Inspection: **API 598, MESC SPE 77/200**

Fire-safe Test: **API 6FA or API 607**

Manufacturing to NACE latest version on request

BS 6364, MSS SP-134 are also available

CSA Z245.15 latest version compliance is available



## Specifications

Size Range: **2" ~ 30"**

Pressure Range: **150LB ~ 2500LB**

End Connection: **Flanged end / Butt welding end**

Valve Direction: **Uni-directional**

Temperature Range: **Down to -196°C**

Service: **LNG / LN<sub>2</sub> / LO<sub>2</sub> terminals, Air separation plants,  
LNG / LN<sub>2</sub> / LO<sub>2</sub> transportation, and more**

Material: **Body: A351 CF8M, and more**

**Trim: HF / HF**



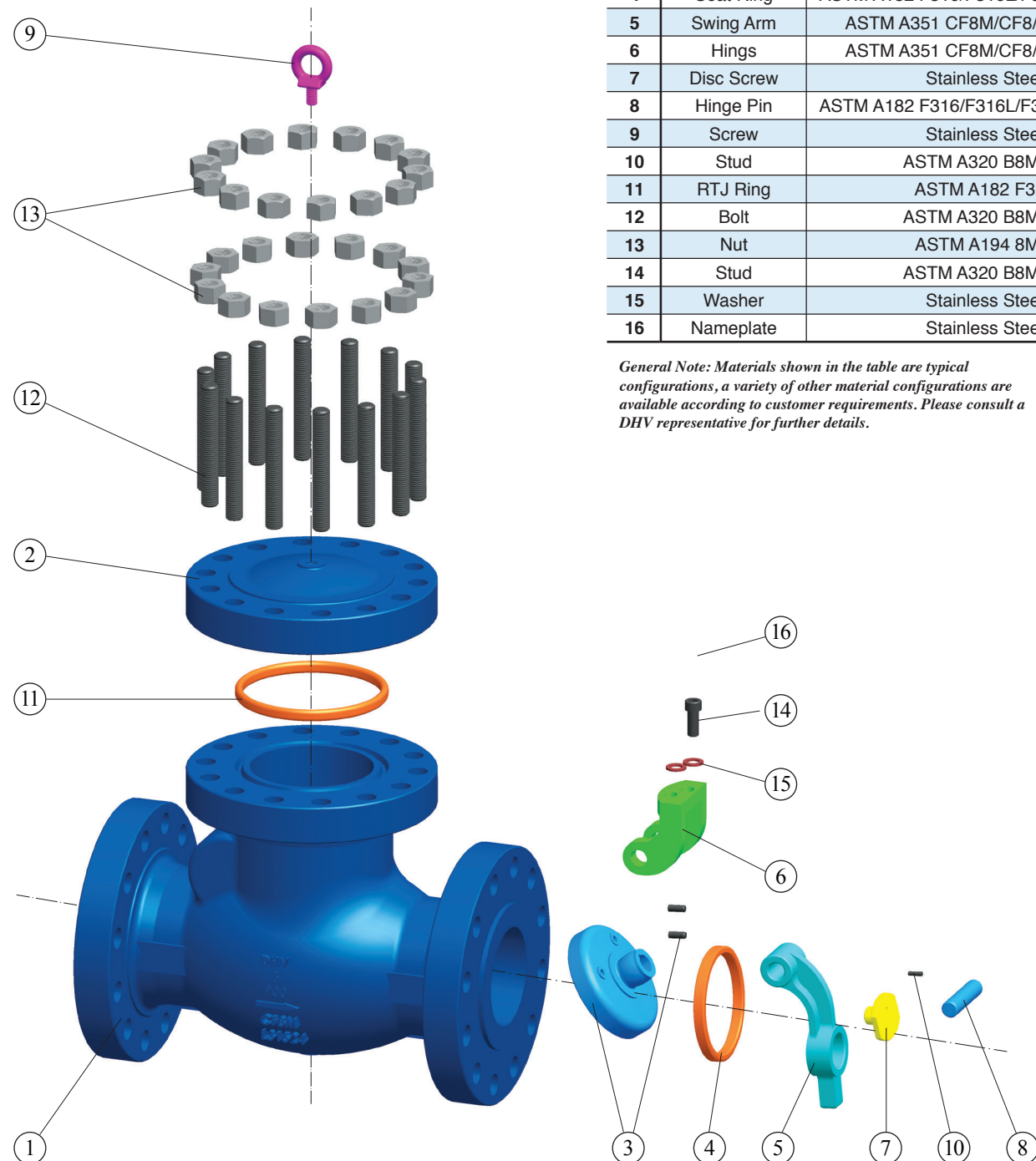


# Cryogenic Check Valves

## Material List

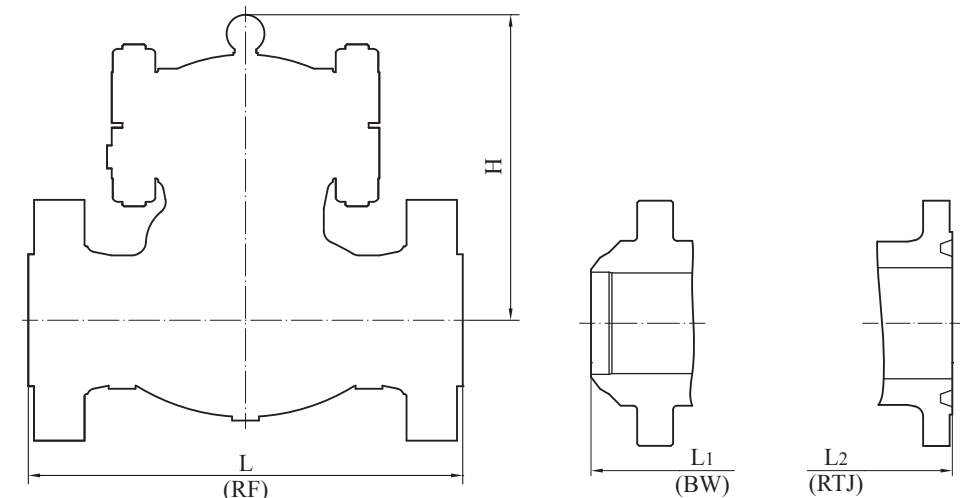
Material Specification		
No.	Description	Material
1	Body	ASTM A351 CF8M/CF8/CF3M/CF3
2	Bonnet	ASTM A351 CF8M/CF8/CF3M/CF3
3	Disc	ASTM A182 F316/F316L/F304/F304L+HF ASTM A351 CF8M/CF8/CF3M+HF
4	Seat Ring	ASTM A182 F316/F316L/F304/F304L+HF
5	Swing Arm	ASTM A351 CF8M/CF8/CF3M/CF3
6	Hings	ASTM A351 CF8M/CF8/CF3M/CF3
7	Disc Screw	Stainless Steel
8	Hinge Pin	ASTM A182 F316/F316L/F304/F304L+HF
9	Screw	Stainless Steel
10	Stud	ASTM A320 B8M/B8
11	RTJ Ring	ASTM A182 F316
12	Bolt	ASTM A320 B8M/B8
13	Nut	ASTM A194 8M/8
14	Stud	ASTM A320 B8M/B8
15	Washer	Stainless Steel
16	Nameplate	Stainless Steel

General Note: Materials shown in the table are typical configurations, a variety of other material configurations are available according to customer requirements. Please consult a DHV representative for further details.



# Cryogenic Check Valves

## Dimensions



150LB													300LB											
Description		Valve Size											Valve Size											
		2	3	4	6	8	10	12	14	16	20	24	30	2	3	4	6	8	10	12	14	16	20	24
Flanged End L	in	8.00	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	51.00	60.00	10.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	40.00	51.00
	mm	203	241	292	356	495	622	699	787	864	978	1295	1524	267	318	356	445	533	622	711	838	864	1016	1346
Weld End L1	in	8.00	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	51.00	60.00	10.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	40.00	51.00
	mm	203	241	292	356	495	622	699	787	864	978	1295	1524	267	318	356	445	533	622	711	838	864	1016	1346
Height H	in	7.05	8.19	9.49	10.79	14.37	15.98	18.11	20.08	22.87	27.56	32.83	38.58	7.87	9.06	9.80	12.40	15.00	17.56	20.31	21.69	23.82	29.02	34.88
	mm	179	208	241	274	365	406	460	510	581	700	834	980	200	230	249	315	381	446	516	551	605	737	886

600LB												900LB							
Description		Valve Size										Valve Size							
		2	3	4	6	8	10	12	14	16	20	2	3	4	6	8	10	12	
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	47.00	14.50	15.00	18.00	24.00	29.00	33.00	38.00	
	mm	292	356	432	559	660	787	838	889	991	1194	368	381	457	610	737	838	965	
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	47.00	14.50	15.00	18.00	24.00	29.00	33.00	38.00	
	mm	292	356	432	559	660	787	838	889	991	1194	368	381	457	610	737	838	965	
RTJ L2	in	11.62	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	47.25	14.62	15.12	18.12	24.12	29.12	33.12	38.12	
	mm	295	359	435	562	663	790	841	892	994	1200	372	384	460	613	740	841	968	
Height H	in	8.19	10.28	11.65	15.55	17.68	19.41	22.05	25.20	28.74	34.45	11.26	11.81	13.62	16.61	21.02	23.98	25.16	
	mm	208	261	296	395	449	493	560	640	730	875	286	300	346	422	534	609	639	

1500LB								2500LB							
Description		Valve Size						Valve Size							
		2	3	4	6	8	10	12	2	3	4	6	8	10	12
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	22.76	26.50	36.00	40.24	50.00	55.98
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	22.76	26.50	36.00	40.24	50.00	55.98
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022	1270	1422
RTJ L2	in	14.62	18.62	21.62	28.00	33.13	39.38	45.12	17.87	23.00	26.88	36.50	40.87	50.87	56.89
	mm	371	473	549	711	841	1000	1146	454	584	683	927	1038	1292	1445
Height H	in	11.26	13.62	15.31	20.08	24.33	28.27	31.50	13.62	18.39	20.16	26.22	30.20	33.46	39.37
	mm	286	346	389	510	618	718	800	346	467	512	666	767	850	1000

Note: Data listed above is for reference only. For detailed product data, please refer to the order confirmation drawing.



# Terms & Conditions

## 1. DEFINITIONS

(a) "The CONTRACT" - The General Conditions of Orders together with COMPANY'S quote and any exhibits, attachments and other documents incorporated by reference.

(b) "The PRODUCT'S" - valves and related products and services as well as their packaging that form the subject-matter of the CONTRACT.

(c) "The COMPANY" – DHV Industries, Inc. or DHV Valve Company, Inc. or alternatively any affiliated company named in COMPANY'S quotation.

(d) "The CUSTOMER" - The individual, firm, partnership, company or other party with whom the Company contracts.

(e) "FORCE MAJEURE" - Any cause or circumstances (including but not limited to, act of God, fire, storm, flood, drought, earthquake, malicious damage, shortage of material, manufacturer's inability to provide the Product, embargo, riot, strike, look-out, trade dispute, civil disturbance, war, compliance with any law or government order, rule or direction or any other event or accident) beyond the reasonable and direct control of COMPANY.

## 2. SCOPE

(a) These General Conditions set out the standard terms on which the COMPANY supplies PRODUCTS to the CUSTOMER. Accordingly, these General Conditions apply to all quotations and sales unless otherwise agreed in writing.

(b) The legality, validity, and enforceability of other clauses in these General Conditions will not be affected if one of the clauses is, or becomes illegal, invalid, or unenforceable.

(c) We reserve the right to institute changes in material, design and specification without notice.

## 3. QUOTATIONS AND ORDERS

(a) Unless otherwise expressly stipulated, all of the COMPANY'S quotations and prices are subject to change without notice, and to availability. Prices are valid only for the duration indicated in the quotation and are subject to change without notice.

(b) Any written or oral purchase order received from the CUSTOMER by the COMPANY ("Order") shall be interpreted as a written acceptance of the COMPANY'S offer to sell, and shall be filled in accordance with the terms and conditions of the sale set forth herein. The terms and conditions of the Company's proposal (if at all any) shall prevail over any conflicting or different terms in CUSTOMER'S orders unless the CUSTOMER notifies the COMPANY in writing of its objections thereto within the earlier of the date of shipment of the Product or fifteen (15) days from receipt of COMPANY'S General Conditions. CUSTOMER'S standard terms of purchase will not be considered as a counter-offer to COMPANY'S terms and conditions of sale. The COMPANY will not be bound by conflicting purchasing conditions or reservations made by the CUSTOMER even if the COMPANY does not explicitly contradict the conditions or reservations.

(c) No order in pursuance of any quotation or otherwise shall be binding on the COMPANY unless and until such an order is accepted by the COMPANY. The COMPANY may reject any order in whole or part. A contract between the COMPANY and CUSTOMER is finalized once the COMPANY issues a telephonic, electronic, or written order confirmation to the CUSTOMER or ships the Product to the CUSTOMER. Except as otherwise specifically provided herein, the Order is the final and complete expression of the agreement between the parties, setting forth the entire agreement between the parties regarding this transaction and including all promises and representations both express and implied. Any matters not contained herein, or otherwise referenced or incorporated herein, are not part of the Order.

(d) Subject to the specific procedures for changes to the Order, none of the terms and conditions contained herein may be added to, modified, superseded, or otherwise altered except by a written instrument specifically referencing the affected provision of the Order signed by the President or Vice President of the COMPANY.

## 4. PRICES

(a) All prices shown are in U.S. dollars and are F.O.B. COMPANY'S shipping point, unless otherwise expressly agreed to by COMPANY.

(b) Prices exclude any duties, federal, state or local taxes or other government charges and delivery costs, which the CUSTOMER must pay unless the law specifically provides that the COMPANY must make such payment in which case the CUSTOMER shall reimburse the COMPANY for such payments as part of the purchase price. All prices include the COMPANY'S

standard packing, but not pallets or crating for export goods.

## 5. PAYMENTS AND LICENSES

(a) Payment must be made in the currency specified in COMPANY'S invoice.

(b) The CUSTOMER must pay the full invoice amount before the shipment from the date of the invoice unless otherwise agreed in writing. The COMPANY is entitled to charge interest on overdue payments at the greater of the following two rates: (a) 1.5% monthly or (b) 2% annually above the current monthly base rate of the COMPANY'S bank. In no event shall the interest rate be higher than the maximum rate permitted by applicable law.

(c) In addition to exercising its rights at common law or under statute, the COMPANY is entitled to terminate the CONTRACT by written notice to the CUSTOMER if the CUSTOMER is in material breach of its obligations under the CONTRACT or any other agreements with the COMPANY. The CUSTOMER is in material breach:

- If it fails to meet its liabilities when they fall due;
- If it seeks a composition with its creditors;
- If all or part of its property is subject to receivership; or
- If a petition for liquidation, winding-up or administration is filed in respect of the CUSTOMER.

(d) The CUSTOMER is not entitled to withhold, set off or deduct claims against the COMPANY from an amount that it owes the COMPANY under the CONTRACT or other agreement with the COMPANY.

(e) The COMPANY is obligated to deliver a PRODUCT only if the CUSTOMER has made due payment of all amounts that it owes to the COMPANY at the date of delivery under the CONTRACT or other agreement with the COMPANY. The COMPANY is entitled to suspend delivery of a PRODUCT if the CUSTOMER is in default without this affecting the COMPANY'S other rights under the CONTRACT or other agreement with the CUSTOMER. The COMPANY is not obligated to resume deliveries until the CUSTOMER has paid all overdue amounts, including all expenses and accrued interest.

(f) It is the CUSTOMER'S exclusive responsibility to obtain all licenses, exchange control documents and other consents needed for the import and use of the PRODUCTS as well as for payment of the PRODUCTS. The CUSTOMER will not be discharged from his obligations under these General Conditions because he fails to obtain a license or other consents.

## 6. DELIVERY AND FORCE MAJEURE

(a) While the COMPANY will endeavor to deliver the PRODUCTS by any date or within any period agreed upon, such dates and periods are estimates only given in good faith and the COMPANY will not be liable for any failure to deliver by such date or within such a period. Time for delivery shall not be of the essence of the CONTRACT.

(b) Should the COMPANY be delayed in or prevented from making the delivery of the PRODUCTS due to Force Majeure, the COMPANY may terminate the CONTRACT or suspend the Order without incurring any liability for any loss or damage arising there from, but without prejudice in any such case to rights accrued to the COMPANY for deliveries already made.

(c) Unless otherwise agreed to in writing by the COMPANY, the COMPANY shall deliver the PRODUCTS by the means most convenient to the COMPANY to the address or addresses specified by the CUSTOMER at the time of placing the Order or (in the event that the CUSTOMER fails so to specify an address) to an address at which the CUSTOMER resided or carries on business. The PRODUCTS are considered to be delivered when they are physically handed over to 1) the CUSTOMER, 2) the CUSTOMER'S agent or a person that the CUSTOMER has authorized to take delivery, or (3) the carrier, regardless of who pays shipping costs. The COMPANY shall be entitled to add to the contract price a reasonable charge for packaging, delivery and insurance. Off-loading will be at CUSTOMER'S expense.

(d) The CUSTOMER is obligated to pay all costs that the COMPANY incurs because of the CUSTOMER'S failure to take delivery either 1) on the date stated in the invoice or the COMPANY'S confirmation, or 2) when the PRODUCTS are ready, if the COMPANY has notified the CUSTOMER in writing of their readiness and the CUSTOMER has not taken delivery within seven days or any period to which the parties agree.

(e) If the COMPANY is responsible for delivery, the CUSTOMER must thoroughly inspect the PRODUCTS sent at the COMPANY'S risk. The CUSTOMER is to notify the COMPANY in writing immediately of loss, damage or shortage of PRODUCTS. If the CUSTOMER does not receive the PRODUCTS on the agreed date of delivery, it is to notify the COMPANY within 48 hours of the agreed date of delivery. The COMPANY disclaims all liability, and the CUSTOMER waives its rights of recovery, under this provision unless the CUSTOMER'S information is sufficient to



# Terms & Conditions

allow the COMPANY to make a valid claim against the carrier of the PRODUCTS for their loss or damage.

(f) If the CUSTOMER is responsible for delivery, the COMPANY will not be responsible for delays or failure to deliver by the carrier set up by the CUSTOMER or due to causes beyond the COMPANY control. Delivery of material to a common carrier shall be considered delivery to the Buyer. Claims for loss or any damage to material in transit shall be filed by the Buyer direct with the carrier. Claims for any shortage, corrections or deductions must be made in writing within 48 hours after receipt of goods.

## 7. PASSING OF RISK AND TITLE, CANCELLATION AND RETURNS

The COMPANY'S liability for the PRODUCTS passes from the COMPANY to the CUSTOMER on the earlier of the following two dates: 1) the date when the PRODUCTS are delivered to the CUSTOMER, the CUSTOMER'S agent, or a person that the CUSTOMER has authorized to accept delivery, or 2) the agreed date of delivery, if the CUSTOMER fails to take delivery as required.

(a) Under the CONTRACT.

(b) The COMPANY remains the owner of the PRODUCTS until it receives full payment for all PRODUCTS whether or not the PRODUCTS are delivered to the CUSTOMER. If the CUSTOMER sells the PRODUCTS to a third party before the COMPANY receives full payment, the proceeds of the sale shall first apply to pay all amounts due to the COMPANY. The COMPANY or its representative is entitled to recover or resell the PRODUCTS and to enter the CUSTOMER'S premises for that purpose, without this affecting its other rights; if the CUSTOMER has not paid the full purchase price or if insolvency proceedings are commenced against the CUSTOMER.

(c) Purchase Orders once placed by CUSTOMER and accepted by COMPANY can be cancelled only with COMPANY'S written consent and upon terms which will save COMPANY from loss. No PRODUCTS may be returned for credit or adjustment without written permission from COMPANY'S officer authorized to issue such permission.

(d) All sales are final. This means that the CUSTOMER is not entitled to credit for returned PRODUCTS whether or not the CUSTOMER has made a complaint or a claim. If the Company expressly agrees in writing that the COMPANY will credit the CUSTOMER for returned PRODUCTS, the CUSTOMER must return the PRODUCTS promptly, carriage-paid, and in the COMPANY'S opinion in good condition to receive the credit. If the COMPANY expressly agrees in writing that the CUSTOMER can return the PRODUCTS, cancel order or change order, the CUSTOMER will be charged for work performed, based on the following schedule. All freight for return or cancelled/changed goods shall be prepaid by CUSTOMER.

- Twenty Five (25%) percent of price on stock items.
- Fifty (50%) percent of price of stock items ordered in quantities which exceed normal inventory levels.
- Twenty Five (25%) percent of price prior to drawing submittal on made to order items.
- Forty (40%) percent on drawing approval, but prior to start of castings.
- Seventy (70%) percent during casting cycle, dependent on the state of completion.
- One Hundred (100%) percent on castings that are not standard materials used by COMPANY in daily sales; i.e. Stainless Steel, Duplex, Nickel, etc.
- Eighty (80%) during machining and assembly operations, this is dependent on the state of completion.
- One Hundred (100%) percent after final assembly and test.
- Special Product Orders: or non standard products are not subject to any schedule level of cancellation, except on such terms as COMPANY may specify on application only.

## 8. WARRANTY AND LIMITATIONS OF LIABILITY

(a) As to all PRODUCTS sold hereunder, the COMPANY expresses no warranties whatsoever but only assigns to CUSTOMER all transferable warranties and remedies granted by the manufacturer of such PRODUCTS to which COMPANY is entitled and CUSTOMER agrees to look solely to such manufacturers with regard to claims and remedies relating to such PRODUCTS. THE COMPANY SPECIFICALLY DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND SATISFACTORY QUALITY. THE COMPANY MAKES NO WARRANTIES AND REPRESENTATIONS, AS TO QUALITY, CAPABILITIES, OPERATIONS, NONINFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS, PERFORMANCE AND SUITABILITY OF THE PRODUCTS.

(b) LIMITATION OF LIABILITY. CUSTOMER'S EXCLUSIVE REMEDY AGAINST COMPANY FOR DEFECTS IN THE PRODUCTS IS THE MANUFACTURER'S WARRANTY SET FORTH IN SECTION 8 (a). THE PARTIES AGREE THAT UNDER NO CIRCUMSTANCE SHALL THE

COMPANY HAVE ANY LIABILITY WHATSOEVER FOR ANY CLAIM ARISING FROM OR RELATING TO THE ORDERS OR THE PRODUCTS FOR AN AGGREGATE AMOUNT IN EXCESS OF THE INVOICED PRICE FOR THE PRODUCTS.

(c) The COMPANY shall not be liable for any damage resulting from delays, failure of the PRODUCTS, loss of profit or revenues, loss of time or loss of use, cost of capital, diminution of goodwill, or claims of CUSTOMER'S customers.

(d) IN NO CIRCUMSTANCES WILL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, PUNITIVE OR INDIRECT LOSS OR DAMAGE WHATSOEVER.

(e) The COMPANY is not liable if the CUSTOMER'S use of the PRODUCTS infringes on a third party's patent rights.

(f) Any exclusions or limitations of liability in this CONTRACT in favor of the COMPANY are agreed to be extended for the benefit of all COMPANY'S and/or individuals within the COMPANY'S group of COMPANIES. The CUSTOMER agrees in the appointment of the COMPANY as its agent or trustee solely for the extension of the benefit of the exclusions and limitations of liability. All duties, liabilities and obligations that would otherwise result from this agency are expressly excluded.

(g) The COMPANY warrants the PRODUCTS provided to the original CUSTOMER, not any third party, for a period of one year after date of shipment, that PRODUCTS will be free from defects in materials and workmanship under proper and normal installation and use. Any claim for defect goods should be by written notice to the COMPANY immediately upon discovery. NO warranty shall apply to PRODUCTS which has been modified or changed in design or function, misused, or improperly maintained. The COMPANY shall be able to inspect claimed defects at original CUSTOMER's facility to determine its obligation. Without written authorization of COMPANY, any repair labor or material is not allowed. No PRODUCTS may be returned without written permission from COMPANY.

## 9. SPECIFICATION, INSTRUCTIONS AND/OR DESIGN

If PRODUCTS are modified to a specification, instruction or design supplied by CUSTOMER or any third party on behalf of CUSTOMER, then:

(a) The suitability and accuracy of that specification, instruction and/or design will be CUSTOMER'S responsibility.

(b) The CUSTOMER will indemnify COMPANY against any infringement or alleged infringement of any third party's intellectual property rights including but not limited to patent, design right, registered design, trademark, trade name or copyright and any loss, damage or expense which it may incur by reason of any such infringement or alleged infringement in any county, and

(c) The CUSTOMER will indemnify COMPANY against any loss, damage or expense in respect of any liability arising in any country by reasons of the PRODUCTS being made to such specification, instruction or design.

## 10. CHOICE OF LAW AND JURISDICTION

(a) The laws of the State of California, including the Uniform Commercial Code, shall govern this CONTRACT. Jurisdiction and venue shall be the Superior Court of Kern County, Bakersfield, California. However, the CUSTOMER expressly agrees that the COMPANY may take action in another jurisdiction to obtain security for the COMPANY'S claims under the CONTRACT.

(b) The CONTRACT constitutes the entire agreement between the COMPANY and the CUSTOMER concerning the supply of the PRODUCTS. The CUSTOMER agrees that he has no other rights of recourse to the COMPANY other than those expressly stated in these General Conditions. The General Conditions apply whether or not the CUSTOMER has a cause of action because the COMPANY or its representative has acted negligently.

## 11. ATTORNEY'S FEES

In the event of any litigation or arbitration or any quasi-judicial or administrative proceeding involving the parties hereto to enforce any provision of this Agreement, to enforce any remedy available upon default hereunder, or seeking a declaration of the rights of either party hereunder, the prevailing party shall be entitled to recover from the other such attorney's fees and costs as may be reasonably incurred, including the costs of reasonable investigation, preparation and professional or expert consultation incurred by reason of such litigation, arbitration or proceeding. Sums actually expended in the prosecution or defense of any litigation, arbitration or proceeding within the meaning of the foregoing sentence shall be prima facie evidence of reasonable attorneys' fees, costs and disbursements.