

## Summary of Test Results

Reference no. : BC-SUMMARY-2021-206

Customer : Gate Way Valve & Fitting Ltd.

Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, H. K.

Sample description : Ductile Iron Modulating Ball Float Valve

Nominal pressure (PN) : 16

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

Body marking : CLA-VAL (Inch) / (DN) (PN)

Model no. : 629-01

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Test standard : BS 1212-1 : 1990 / WIS 4-52-01 Dec. 1992 : Issue 1 / BS EN 1563 : 2011 / BS EN 10283 : 2010 / BS EN 10088-3 : 2014

Test period : 09 August to 16 December 2021

### A) Sample List

DN (mm)	Inch	Specimen no.
200	8"	210802-2067

### B) Test Item

#### 1) Dimensions Check (BS 1212-1 : 1990 Section 3)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2067

#### 2) Coating Thickness Test (WIS 4-52-01 Dec. 1992 : Issue 1 Appendix B)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2067

#### 3) Hydraulic Pressure and Shut-off Test (BS 1212-1 : 1990 Clause 24)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2067

#### 4) Tensile Test (BS EN 1563 : 2011 Clause 7.2.1.1 Table 1 (Grade EN-GJS-450-10) and Clause 9.1)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2067

#### 5) Chemical Composition (Disc) (BS EN 10283 : 2010 Table 1 Grade 1.4408)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2119

## Summary of Test Results

Reference no. : BC-SUMMARY-2021-206

## B) Test Item (con't)

## 6) Chemical Composition (Seat) (BS EN 10283 : 2010 Table 1 Grade 1.4408)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2120

## 7) Chemical Composition (Stem) (BS EN 10088-3 : 2014 Table 2 Grade 1.4401)

DN (mm)	Inch	Test results	Castco LRN
200	8"	Passed	210802-2121

Prepare by : \_\_\_\_\_

Date : 16 December 2021



**FU HO MAN**  
Assistant Technical Manager

Review by : \_\_\_\_\_

Date : 16 December 2021



**WONG KA MAN**  
Senior Manager



Test Report  
Float Operated Valves - Dimensions Check  
(BS 1212 : Part 1 : 1990 Section 3)

Date of issue : 16 December 2021

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Castco LRN : 210802-2067

Details as supplied by customer

Customer : Gate Way Valve & Fitting Ltd.

Customer's ref. no. : - -

Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, H. K.

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Modulating Ball Float Valve

Nominal pressure (PN) : 16

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

Body marking : CLA-VAL (Inch) / (DN) (PN)

Model no. : 629-01

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 14 December 2021

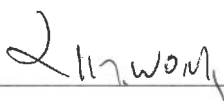
Date of test : 15 December 2021

Specimen no.	210802-2067	
DN (mm)	200	
Inch	8"	
Outside diameter of flange (mm)	Measured mean value	342
	Requirement	340
Diameter of bolt circle (mm)	Measured mean value	298
	Requirement	295
Diameter of bolt hole & Bolts number (mm & no.)	Measured mean value	23.77 & 12
	Requirement	23 to 24.5 & 12
Flange thickness (mm)	Measured mean value	30.51
	Requirement	26 to 33

Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS 1212 : Part 1 : 1990 Section 3 (effect of measurement uncertainty has not been taken into account).

Checked by :  **FU HO MAN**  
Assistant Technical Manager

Certified by :  **WONG KA MAN**  
Senior Manager



Test Report

Valves - Coating Thickness Measurement

(WIS 4-52-01 Dec. 1992 : Issue 1 Appendix B in conjunction with the following specification(s) : WIS 4-52-01 Dec. 1992 : Issue 1 Cl. 12.7.1)

Date of issue : 16 December 2021

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Castco LRN : 210802-2067

Details as supplied by customer

Customer : Gate Way Valve & Fitting Ltd.

Customer's ref. no. : - -

Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, H. K.

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Modulating Ball Float Valve

Nominal pressure (PN) : 16

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

Body marking : CLA-VAL (Inch) / (DN) (PN)

Model no. : 629-01

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 14 December 2021

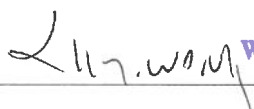
Date of test : 15 December 2021

Specimen no.	210802-2067	
DN (mm)	200	
Inch	8"	
Ambient temperature (°C)	21.5	
Measured value of coating thickness at external surface (µm)	1	157
	2	180
	3	120
	4	108
	5	121
Measured value of coating thickness at internal surface (µm)	6	326
	7	268
	8	364
	9	300
	10	281
	11	272
	12	277
	13	254
	14	223
	15	250
Mean	233.4	
Minimum coating thickness (µm)	108	
Maximum coating thickness (µm)	364	
Standard deviation (µm)	79.1	
Manufacturer requirement (µm)	Minimum coating thickness	min. 100
	Maximum coating thickness	max. 500

Remark(s) :

1. Test results relate only to the specimen tested.

Checked by :  **FU HO MAN**  
Assistant Technical Manager

Approved Signatory :  **WONG KA MAN**  
Senior Manager



Test Report

Float Operated Valves - Hydraulic Pressure and Shut-off Pressure Test  
(BS 1212 : Part 1 : 1990 Clause 24 and Appendix A)

Date of issue : 16 December 2021

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Castco LRN : 210802-2067

Details as supplied by customer

Customer : Gate Way Valve & Fitting Ltd.

Customer's ref. no. : - -

Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, H. K.

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Modulating Ball Float Valve

Nominal pressure (PN) : 16

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

Body marking : CLA-VAL (Inch) / (DN) (PN)

Model no. : 629-01

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 14 December 2021

Date of test : 15 December 2021

Specimen no.	210802-2067
DN (mm)	200
Inch	8"

A. Hydraulic Pressure Test (BS 1212 : Part 1 : 1990 Clause 24.1)

Apply pressure (bar)	20
Maintain period (min)	15
Observation	No leakage was observed
Requirement	Without leaking or sweating

B. Shut-off Pressure Test (BS 1212 : Part 1 : 1990 Clause 24.2)

Apply pressure (bar)	14
Observation	No leakage was observed
Requirement	Shall not leak

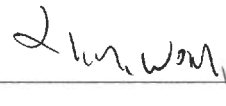
Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS 1212 : Part 1 : 1990 Clause 24 (effect of measurement uncertainty has not been taken into account).

Checked by : \_\_\_\_\_

 **FU HO MAN**  
Assistant Technical Manager

Certified by : \_\_\_\_\_

 **WONG KA MAN**  
Senior Manager



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29A, On Chuen Street, Fanling, Hong Kong. Fax: 2597 8399  
Website: www.castco.com.hk**Test Report**  
**Metallic Materials - Tensile Test of Metallic Materials**  
**(BS EN ISO 6892-1 : 2009)**

Date of issue : 16 December 2021

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Castco LRN : 210802-2067

**Details as supplied by customer**

Customer : Gate Way Valve &amp; Fitting Ltd.

Customer's ref. no. : - -

Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, H. K.

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Modulating Ball Float Valve

Nominal pressure (PN) : 16

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

Body marking : CLA-VAL (Inch) / (DN) (PN)

Model no. : 629-01

Origin : Canada

Sample submitted by : Gate Way Valve &amp; Fitting Ltd.

Acceptance standard : BS EN 1563 : 2011 Clause 7.2.1.1 Table 1 (Grade EN-GJS-450-10) and Clause 9.1

**Laboratory test results**

Date of sample received : 17 August 2021

Date of test : 16 December 2021

**Tensile Test**

Specimen no.	DN (mm)	Type & Prepar'n	Specimen length (mm)	Area (mm <sup>2</sup> )	Yield strength (MPa)	Tensile strength (MPa)	Elongation (%)	Position of fracture	Remark
210802-2067	200	A, M	195	125.1	355	554	14.7	--	--

**Remark(s) :**

1. A - Proportional; B - Non - proportional; M - Machined; N - Unmachined;

+ - This measurement is 'invalid' which relates to the position of fracture only.

2. The yield strength is determined at 0.2% proof strength.

3. Test results relate only to the specimen tested.

4. Test results of sample comply with the requirement of BS EN 1563 : 2011 Table 1 (this specification is not covered by the laboratory's HOKLAS accreditation).

5. The requirement of BS EN 1563 : 2011 Table 1 : 0.2% proof strength = min. 310MPa; Tensile strength = min. 450MPa; Elongation = min. 10%.

6. The acceptance limit is the same as the tolerance limit (simple acceptance, see Figure A). Only test results out of the tolerance/acceptance limit will be concluded as out-of-tolerance.

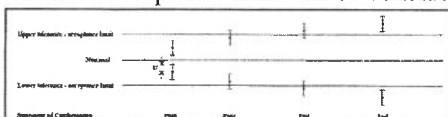


Figure A - Graphical representation of a binary statement - Simple acceptance

Checked by : \_\_\_\_\_

  
**FU HO MAN**  
 Assistant Technical Manager

Approved Signatory : \_\_\_\_\_

  
**WONG KA MAN**  
 Senior Manager

Test Report  
Float Operated Valves - Dimensions Check  
(BS 1212 : Part 1 : 1990 Section 3)

Date of issue : 16 December 2021

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Castco LRN : 210802-2067

Appendix A



210802-2067

End of Report

Form no. : BC\_FLOAT VALVE\_DIM\_BS1212-1-1990\_T\_dd\_20/06/2020

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**Test Report**  
**Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2119-001

Page 1 of 2

Castco LRN: 210802-2119

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

Address : Flat A1, 4/F, Galaxy Fty Bldg, 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong

Job Title : --

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 02-08-2021

Test Period : 09-08-2021 to 10-08-2021

Sample Description : DN200 Ductile Iron Modulating Ball Float Valve (Disc)

Specification : BS EN 10283:2010, Table 1, Grade 1.4408

Specimen No. : 210802-2067

Sample Identification No. : -- / Model No. : 629-01 / Origin : Canada

Manufacturer : Cla-Val Pacific Ltd. / Brand name: CLA-VAL

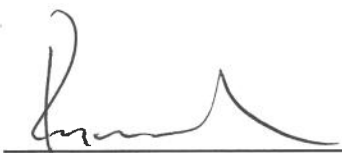
**Test Method(s):-**

- 1) BS EN ISO 15350 : 2010
- 2) ST-Multi-1(ICP-OES)

**Remark(s):**

I. Test results only relate to the specimen tested.

Checked by :   
Lau Hiu Yat  
Assistant Technical Manager

Approved Signatory :   
Cheng Chi Fai  
Senior Manager



**Test Report****Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2119-001

Page 2 of 2

Castco LRN: 210802-2119

Chemical Analysis		Result
1) Total Carbon Content	C %	0.028
1) Total Sulfur Content	S %	0.0044
2) Chromium	Cr %	18.57
2) Manganese	Mn %	0.947
2) Molybdenum	Mo %	2.03
2) Nickel	Ni %	9.91
2) Phosphorus	P %	0.025
2) Silicon	Si %	0.626

**End of Report**

Form No.: CHM Steel-1 T dd 16/12/2015

**Appendix A****Summary of Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2119-001

Page 1 of 1

Castco LRN: 210802-2119

Name of Customer: Gate Way Valve &amp; Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-08-2021

Testing Period: 09-08-2021 to 10-08-2021

Castco LRN:	210802-2119			
Specimen No. :	210802-2067			
Sample Description :	DN200 Ductile Iron Modulating Ball Float Valve (Disc)			
Sample Identification No.:	-- / Model No. : 629-01 / Origin : Canada			
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: CLA-VAL			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408	Test Results		Within / Exceed limit	
Carbon C	0.07 max.	%	0.028	Within limit
Sulfur S	0.030 max.	%	0.0044	Within limit
Chromium Cr	18.00 to 20.00	%	18.57	Within limit
Manganese Mn	1.50 max.	%	0.947	Within limit
Molybdenum Mo	2.00 to 2.50	%	2.03	Within limit
Nickel Ni	9.00 to 12.00	%	9.91	Within limit
Phosphorus P	0.040 max.	%	0.025	Within limit
Silicon Si	1.50 max.	%	0.626	Within limit

**Remark(s):**

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10283:2010, Table 1, Grade 1.4408.

**Test Report**  
**Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2120-001

Page 1 of 2

Castco LRN: 210802-2120

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

Address : Flat A1, 4/F, Galaxy Fty Bldg, 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong

Job Title : --

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 02-08-2021

Test Period : 09-08-2021 to 10-08-2021

Sample Description : DN200 Ductile Iron Modulating Ball Float Valve (Seat)

Specification : BS EN 10283:2010, Table 1, Grade 1.4408

Specimen No. : 210802-2067

Sample Identification No. : -- / Model No. : 629-01 / Origin : Canada

Manufacturer : Cla-Val Pacific Ltd. / Brand name: CLA-VAL

**Test Method(s):-**

- 1) BS EN ISO 15350 : 2010
- 2) ST-Multi-1(ICP-OES)

**Remark(s):**

- I. Test results only relate to the specimen tested.

Checked by :

Lau Hiu Yat  
Assistant Technical Manager

Approved Signatory :

Cheng Chi Fai  
Senior Manager



**Test Report**  
**Chemical Analysis of Steel**

Date of issue: 13-08-2021  
Page 2 of 2

Specimen No.: CHEM-210802-2120-001  
Castco LRN: 210802-2120

Chemical Analysis		Result
1) Total Carbon Content	C %	0.069
1) Total Sulfur Content	S %	0.013
2) Chromium	Cr %	18.98
2) Manganese	Mn %	0.769
2) Molybdenum	Mo %	2.00
2) Nickel	Ni %	10.20
2) Phosphorus	P %	0.026
2) Silicon	Si %	0.807

**End of Report**

Form No.: CHM Steel-1 T dd 16/12/2015

**Appendix A****Summary of Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2120-001

Page 1 of 1

Castco LRN: 210802-2120

Name of Customer: Gate Way Valve &amp; Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-08-2021

Testing Period: 09-08-2021 to 10-08-2021

Castco LRN:	210802-2120			
Specimen No. :	210802-2067			
Sample Description :	DN200 Ductile Iron Modulating Ball Float Valve (Seat)			
Sample Identification No.:	-- / Model No. : 629-01 / Origin : Canada			
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: CLA-VAL			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408	Test Results		Within / Exceed limit	
Carbon C 0.07 max. %	0.069		Within limit	
Sulfur S 0.030 max. %	0.013		Within limit	
Chromium Cr 18.00 to 20.00 %	18.98		Within limit	
Manganese Mn 1.50 max. %	0.769		Within limit	
Molybdenum Mo 2.00 to 2.50 %	2.00		Within limit	
Nickel Ni 9.00 to 12.00 %	10.20		Within limit	
Phosphorus P 0.040 max. %	0.026		Within limit	
Silicon Si 1.50 max. %	0.807		Within limit	

**Remark(s):**

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10283:2010, Table 1, Grade 1.4408.



**Test Report**  
**Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2121-001

Page 1 of 2

Castco LRN: 210802-2121

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

Address : Flat A1, 4/F, Galaxy Fty Bldg, 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong

Job Title : --

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 02-08-2021

Test Period : 09-08-2021 to 10-08-2021

Sample Description : DN200 Ductile Iron Modulating Ball Float Valve (Stem)

Specification : BS EN 10088-3:2014, Table 2, Grade 1.4401

Specimen No. : 210802-2067

Sample Identification No. : -- / Model No. : 629-01 / Origin : Canada

Manufacturer : Cla-Val Pacific Ltd. / Brand name: CLA-VAL

**Test Method(s):-**

- 1) BS EN ISO 15350 : 2010
- 2) ST-Multi-1(ICP-OES)
- 3) BS EN ISO 15351: 2010

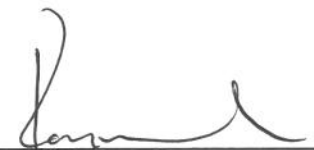
**Remark(s):**

- I. Test results only relate to the specimen tested.

Checked by :

Lau Hiu Yat  
Assistant Technical Manager

Approved Signatory :

Cheng Chi Fai  
Senior Manager



**Test Report**  
**Chemical Analysis of Steel**

Date of issue: 13-08-2021  
Page 2 of 2

Specimen No.: CHEM-210802-2121-001  
Castco LRN: 210802-2121

Chemical Analysis		Result
1) Total Carbon Content	C %	0.021
1) Total Sulfur Content	S %	0.022
2) Chromium	Cr %	17.47
2) Manganese	Mn %	1.55
2) Molybdenum	Mo %	2.00
2) Nickel	Ni %	10.22
2) Phosphorus	P %	0.030
2) Silicon	Si %	0.412
3) Nitrogen	N %	0.083

**End of Report**

Form No.: CHM Steel-1 T dd 16/12/2015

**Appendix A****Summary of Chemical Analysis of Steel**

Date of issue: 13-08-2021

Specimen No.: CHEM-210802-2121-001

Page 1 of 1

Castco LRN: 210802-2121

Name of Customer: Gate Way Valve &amp; Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-08-2021

Testing Period: 09-08-2021 to 10-08-2021

Castco LRN:	210802-2121			
Specimen No. :	210802-2067			
Sample Description :	DN200 Ductile Iron Modulating Ball Float Valve (Stem)			
Sample Identification No.:	-- / Model No. : 629-01 / Origin : Canada			
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: CLA-VAL			
Specification: BS EN 10088-3:2014, Table 2, Grade 1.4401	Test Results		Within / Exceed limit	
Carbon C	0.07 max.	%	0.021	Within limit
Sulfur S	0.030 max.	%	0.022	Within limit
Chromium Cr	16.5 to 18.5	%	17.47	Within limit
Manganese Mn	2.00 max.	%	1.55	Within limit
Molybdenum Mo	2.00 to 2.50	%	2.00	Within limit
Nickel Ni	10.0 to 13.0	%	10.22	Within limit
Phosphorus P	0.045 max.	%	0.030	Within limit
Silicon Si	1.00 max.	%	0.412	Within limit
Nitrogen N	0.10 max.	%	0.083	Within limit

**Remark(s):**

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-3:2014, Table 2, Grade 1.4401.