

## Summary of Test Results

Reference no. : BC-SUMMARY-2020-16

Customer : Gate Way Valve & Fitting Ltd.

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

Sample description : Ductile Iron Modulating Ball Float Valve

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

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

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Test standard : BS 1212 : Part 1 : 1990 / WIS 4-52-01 / BS EN 1563 : 2011 / BS EN 10283 : 2010 / BS EN 10088-1 : 2014

Test period : 20 November 2018 to 13 February 2020

### A) Sample List

DN (mm)	Inch	Model no.	Nominal pressure (PN)	Specimen no.
40	1-1/2"	129-01	25	BC0181110-002-MISL
50	2"			BC0181110-003-MISL
80	3"	629-01	16	BC0181110-004-MISL
100	4"			BC0181110-005-MISL
150	6"			BC0181110-006-MISL

### B) Test Item

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

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	BC0181110-001-MISL
50	2"	Passed	
80	3"	Passed	
100	4"	Passed	
150	6"	Passed	

#### 2) Coating Thickness Test (WIS 4-52-01 Appendix B)

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	BC0181110-001-MISL
50	2"	Passed	
80	3"	Passed	
100	4"	Passed	
150	6"	Passed	

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

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	BC0181110-001-MISL
50	2"	Passed	
80	3"	Passed	
100	4"	Passed	
150	6"	Passed	

### Remark(s) :

- This page no. 1A of this summary supersedes page no. 1 of the previous summary of Reference no. : BC-SUMMARY-2020-16 issued on 20 March 2020.

Summary of Test Results

Reference no. : BC-SUMMARY-2020-16

B) Test Item (con't)

4) Tensile Properties (BS EN 1563 : 2011 Clause 7.2.1.1 & 9.1, Table 1 Grade EN-GJS-450-10)

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	BC0181110-001-MISL
80	3"	Passed	
150	6"	Passed	

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

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	MS0181121-7
80	3"	Passed	MS0181121-10
150	6"	Passed	MS0181121-13

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

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	MS0181121-8
80	3"	Passed	MS0181121-11
150	6"	Passed	MS0181121-14

7) Chemical Composition - Stem (BS EN 10088-1 : 2014, Table 2, Grade 1.4401(316))

DN (mm)	Inch	Test results	Castco LRN
40	1-1/2"	Passed	MS0200203-1
80	3"	Passed	MS0200203-2
150	6"	Passed	MS0200203-3

Remark(s) :

1. This page no. 2A of this summary supersedes page no. 2 of the previous summary of Reference no. : BC-SUMMARY-2020-16 issued on 20 March 2020.

Prepare by : \_\_\_\_\_  
Date : 01 June 2020

  
FU HO MAN  
Assistant Technical Manager

Review by : \_\_\_\_\_  
Date : 01 June 2020

  
WONG KA MAN  
Senior Manager

Test Report

Dimensions Check of Ball Float Valves

(BS 1212-1 : 1990 Section 3 / BS EN 1092-2 : 1997 Clause 5 Table 9)

Date of issue : 01 June 2020

Page 1B of 10 page(s)

Castco LRN : BC0181110-001-MISL

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, Kowloon, Hong Kong

Contract no. : - -

Job title : Cla-Val Ductile Iron Modulating Ball Float Valve

Sample description : Ductile Iron Modulating Ball Float Valve

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

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

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 10 November 2018

Date of test : 20 November 2018

Specimen no.	BC0181110-002-MISL	BC0181110-003-MISL	BC0181110-004-MISL	BC0181110-005-MISL	BC0181110-006-MISL	
DN (mm)	40	50	80	100	150	
Inch	1-1/2"	2"	3"	4"	6"	
Model no.	100GE-CF9 / 129-01		NGE100-CF9 / 629-01			
Nominal pressure (PN)	25		16			
Outside diameter of flange (mm)	Measured mean value	N/A	N/A	194	230	278
	Requirement	N/A	N/A	200	220	285
Diameter of bolt circle (mm)	Measured mean value	N/A	N/A	160	180	240
	Requirement	N/A	N/A	160	180	240
Diameter of bolt hole & Bolts number (mm & no.)	Measured mean value	N/A	N/A	19 - 8	19 - 8	23 - 8
	Requirement	N/A	N/A	19 to 20.5 - 8	19 to 20.5 - 8	23 to 24.5 - 8
Flange thickness (mm)	Measured mean value	N/A	N/A	21.82	25.85	26.64
	Requirement	N/A	N/A	19 to 25	20 to 27	23 to 30

Remark(s) :

1. This page no. 1B of this test report supersedes page no. 1A of the previous test report of Castco LRN : BC0181110-001-MISL issued on 20 March 2020.

Test Report  
Dimensions Check of Ball Float Valves  
(BS 1212-1 : 1990 Section 3 / BS EN 1092-2 : 1997 Clause 5 Table 9)

Date of issue : 01 June 2020

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Castco LRN : BC0181110-001-MISL

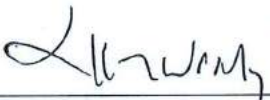
Laboratory test results (con't)

Specimen no.	BC0181110-002-MISL	BC0181110-003-MISL	BC0181110-004-MISL	BC0181110-005-MISL	BC0181110-006-MISL	
DN (mm)	40	50	80	100	150	
Inch	1-1/2"	2"	3"	4"	6"	
Model no.	100GE-CF9 / 129-01		NGE100-CF9 / 629-01			
Nominal pressure (PN)	25		16			
A (mm)	Measured mean value	185	240	262	353	450
B (mm)	Measured mean value	175	207	273	340	410

Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1092-2 : 1997 Table 9.
3. This page no. 2B of this test report supersedes page no. 2A of the previous test report of Castco LRN : BC0181110-001-MISL issued on 20 March 2020.

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

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

Test Report  
Coating Thickness Test of Ball Float Valves  
(WIS 4-52-01 Appendix B)

Date of issue : 04 January 2021

Page 3C of 10 page(s)

Castco LRN : BC0181110-001-MISL

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, Kowloon, Hong Kong

Contract no. : - -

Job title : Cla-Val Ductile Iron Modulating Ball Float Valve

Sample description : Ductile Iron Modulating Ball Float Valve

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

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

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 10 November 2018

Date of test : 20 November 2018

Specimen no.	BC0181110-002-MISL	BC0181110-003-MISL	BC0181110-004-MISL	BC0181110-005-MISL	BC0181110-006-MISL	
DN (mm)	40	50	80	100	150	
Inch	1-1/2"	2"	3"	4"	6"	
Model no.	100GE-CF9 / 129-01		NGE100-CF9 / 629-01			
Nominal pressure (PN)	25		16			
Measured value of coating thickness (µm)	1	457	179	264	211	208
	2	415	351	231	344	316
	3	334	223	291	230	232
	4	275	285	335	268	238
	5	287	242	294	233	240
	6	306	209	204	234	230
	7	260	350	607	214	311
	8	246	247	380	240	239
	9	272	370	419	213	228
	10	221	335	257	387	270
	11	293	204	244	223	274
	12	394	197	288	210	308
	13	215	325	529	265	236
	14	200	305	462	240	298
	15	275	254	669	225	272
	Mean	296.7	271.7	364.9	249.1	260.0
Manufacturer requirement	100 to 1500					

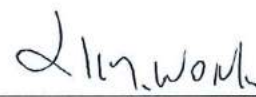
Remark(s) :

1. Test results relate only to the specimen tested.
2. This page no. 3C of this test report supersedes page no. 3B of the previous test report of Castco LRN : BC0181110-001-MISL issued on 01 June 2020.

Checked by :

 **FU HO MAN**  
Assistant Technical Manager

Certified by :

 **WONG KA MAN**  
Senior Manager

Form no. : BC\_CT\_WIS4-52-01\_T\_dd\_21/11/2018

香港粉嶺安居街33號得利中心6樓 • 6/F, Techno Centre, 33, On Kui Street, Fanling, Hong Kong.  
香港粉嶺安居街30號新寧中心1樓 • 1/F, Sun Ling Plaza, 30, On Kui Street, Fanling, Hong Kong.  
香港粉嶺安全街29A號 • 29A, On Chuen Street, Fanling, Hong Kong.  
Tel: 2597 8333 Fax: 2597 8399 E-mail: info@castco.com.hk Website: www.castco.com.hk

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

Date of issue : 01 June 2020  
Page 4B of 10 page(s)

Castco LRN : BC0181110-001-MISL

**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, Kowloon, Hong Kong Contract no. : - -  
Job title : Cla-Val Ductile Iron Modulating Ball Float Valve  
Sample description : Ductile Iron Modulating Ball Float Valve  
Manufacturer : Cla-Val Pacific Ltd.  
Brand name : CLA-VAL  
Body marking : CLA-VAL (Inch) / (DN) (PN)  
Origin : Canada  
Sample submitted by : Gate Way Valve & Fitting Ltd.

**Laboratory test results**

Date of sample received : 10 November 2018

Date of test : 22 to 24 November 2018

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

Specimen no.	BC0181110-002-MISL	BC0181110-003-MISL	BC0181110-004-MISL	BC0181110-005-MISL	BC0181110-006-MISL
DN (mm)	40	50	80	100	150
Inch	1-1/2"	2"	3"	4"	6"
Model no.	100GE-CF9 / 129-01		NGE100-CF9 / 629-01		
Nominal pressure (PN)	25		16		
Apply pressure (bar)	20	20	20	20	20
Maintain period (min)	15	15	15	15	15
Observation	No leakage was observed	No leakage was observed	No leakage was observed	No leakage was observed	No leakage was observed
Requirement	Without leaking or sweating				
Test results	Passed	Passed	Passed	Passed	Passed

**Remark(s) :**

- This page no. 4B of this test report supersedes page no. 4A of the previous test report of Castco LRN : BC0181110-001-MISL issued on 20 March 2020.

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

Date of issue : 01 June 2020  
Page 5B of 10 page(s)

Castco LRN : BC0181110-001-MISL

Laboratory test results (con't)

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

Specimen no.	BC0181110-002-MISL	BC0181110-003-MISL	BC0181110-004-MISL	BC0181110-005-MISL	BC0181110-006-MISL
DN (mm)	40	50	80	100	150
Inch	1-1/2"	2"	3"	4"	6"
Model no.	100GE-CF9 / 129-01		NGE100-CF9 / 629-01		
Nominal pressure (PN)	25		16		
Apply pressure (bar)	14	14	14	14	14
Observation	No leakage was observed	No leakage was observed	No leakage was observed	No leakage was observed	No leakage was observed
Requirement	Shall not leak				
Test results	Passed	Passed	Passed	Passed	Passed


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.
3. This page no. 5B of this test report supersedes page no. 5A of the previous test report of Castco LRN : BC0181110-001-MISL issued on 20 March 2020.

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

  
FU HO MAN  
Assistant Technical Manager

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

  
WONG KA MAN  
Senior Manager

Test Report

Tensile Properties of Spheroidal Graphite Cast Iron  
(BS EN 1563 : 2011 Clause 7.2.1.1 Table 1 and Clause 9.1)

Date of issue : 01 June 2020

Page 6B of 10 page(s)

Castco LRN : BC0181110-001-MISL

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, Kowloon, Hong Kong Contract no. : - -

Job title : Cla-Val Ductile Iron Modulating Ball Float Valve

Sample description : Ductile Iron Modulating Ball Float Valve

Manufacturer : Cla-Val Pacific Ltd.

Brand name : CLA-VAL

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

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 10 November 2018

Date of test : 21 November 2018

Specimen no.	BC0181110-002-MISL	BC0181110-004-MISL	BC0181110-006-MISL	
DN (mm)	40	80	150	
Inch	1-1/2"	3"	6"	
Model no.	100GE-CF9 / 129-01	NGE100-CF9 / 629-01		
Nominal pressure (PN)	25	16		
Steel grade	EN-GJS-450-10			
Total specimen length (mm)	187.9	187.1	186.2	
Area (mm <sup>2</sup> )	125.7	125.1	124.5	
0.2% proof (MPa)	Strength	348	344	339
	Requirement	min. 310		
Tensile (MPa)	Strength	523	517	483
	Requirement	min. 450		
Elongation (%)	Measured value	10.5	13.8	15.8
	Requirement	min. 10		
Test results	Passed	Passed	Passed	

Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1563 : 2011 Table 1.
3. This page no. 6B of this test report supersedes page no. 6A of the previous test report of Castco LRN : BC0181110-001-MISL issued on 20 March 2020.

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

 **FU HO MAN**  
Assistant Technical Manager

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

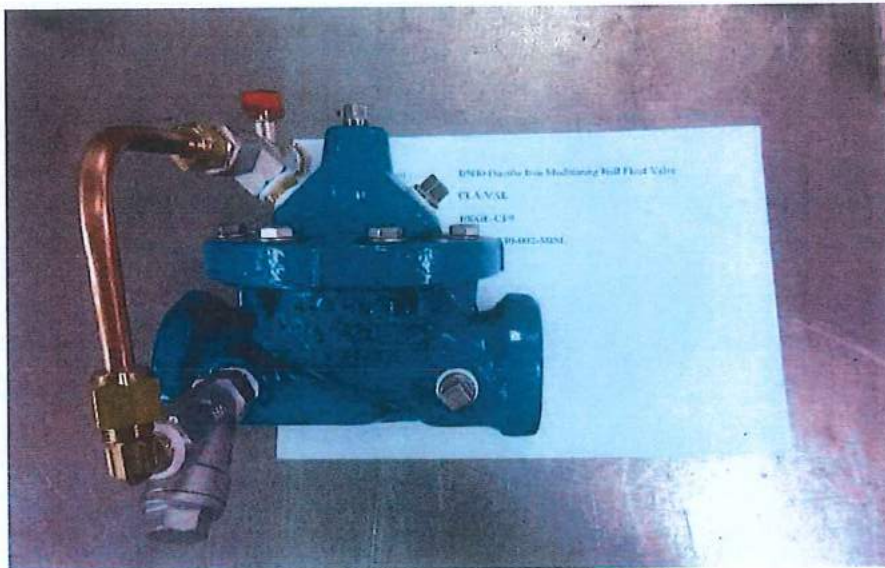
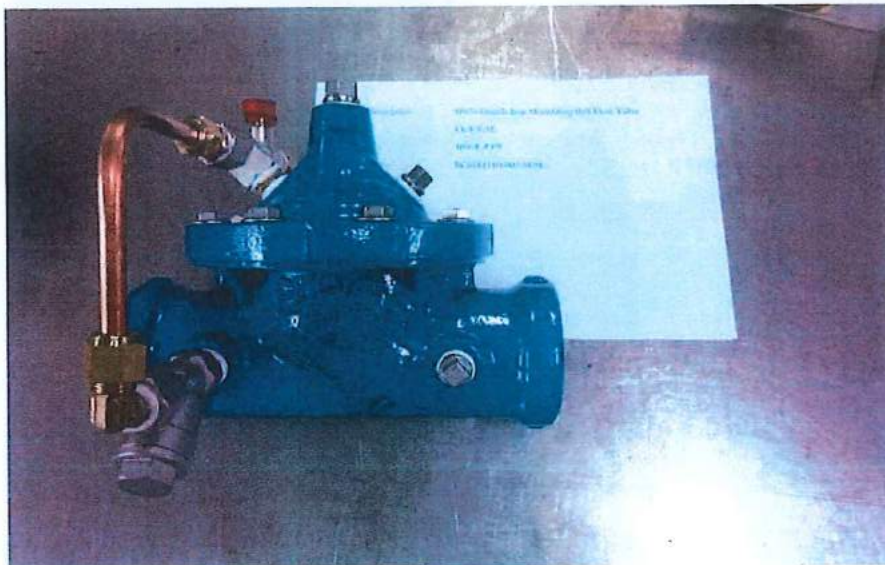
 **WONG KA MAN**  
Senior Manager

Form no. : BC\_TEN\_BSEN1563\_2011\_T\_dd\_21/11/2018



Test Report  
Dimensions Check of Ball Float Valves  
(BS 1212-1 : 1990 Section 3 / BS EN 1092-2 : 1997 Clause 5 Table 9)Date of issue : 01 June 2020  
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Castco LRN : BC0181110-001-MISL

Appendix ABC0181110-002-MISLBC0181110-003-MISL

## Remark(s) :

1. This page no. 7B of this test report supersedes page no. 7 of the previous test report of Castco LRN : BC0181110-001-MISL issued on 04 December 2018.

Test Report  
Dimensions Check of Ball Float Valves  
(BS 1212-1 : 1990 Section 3 / BS EN 1092-2 : 1997 Clause 5 Table 9)

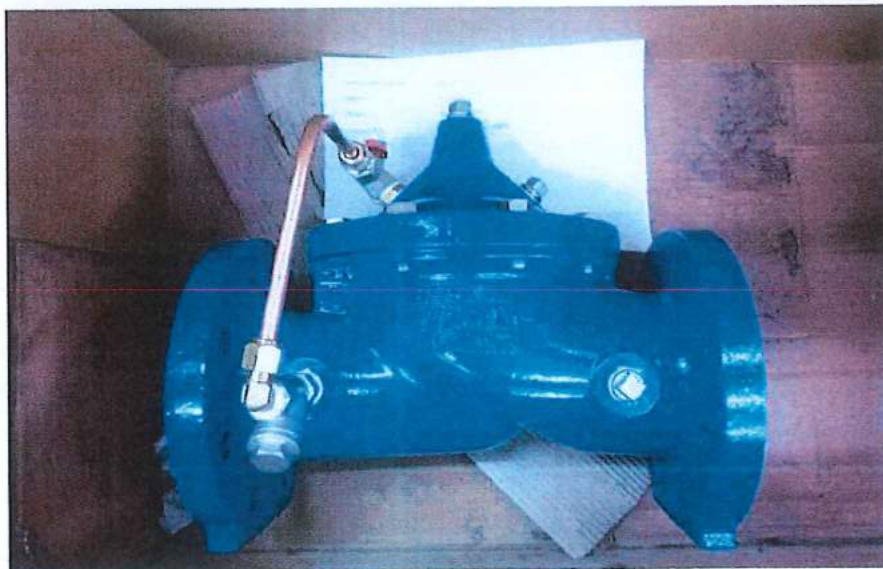
Date of issue : 01 June 2020  
Page 8B of 10 page(s)

Castco LRN : BC0181110-001-MISL

Appendix B



BC0181110-004-MISL



BC0181110-005-MISL

Remark(s) :

1. This page no. 8B of this test report supersedes page no. 8 of the previous test report of Castco LRN : BC0181110-001-MISL issued on 04 December 2018.

Test Report  
Dimensions Check of Ball Float Valves  
(BS 1212-1 : 1990 Section 3 / BS EN 1092-2 : 1997 Clause 5 Table 9)

Date of issue : 01 June 2020  
Page 9B of 10 page(s)

Castco LRN : BC0181110-001-MISL

Appendix C



BC0181110-006-MISL

Remark(s) :

- I. This page no. 9B of this test report supersedes page no. 9 of the previous test report of Castco LRN : BC0181110-001-MISL issued on 04 December 2018.

Test Report  
 Dimensions Check of Ball Float Valves  
 (BS 1212-1 : 1990 Section 3 / BS EN 1092-2 : 1997 Clause 5 Table 9)

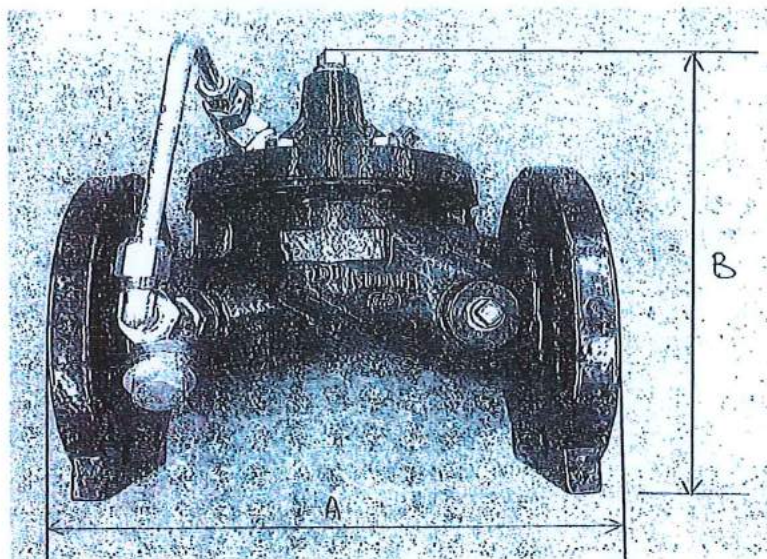
Date of issue : 01 June 2020  
 Page 10B of 10 page(s)

Castco LRN : BC0181110-001-MISL

Appendix D



Dimensions Figure (DN40 to 50)



Dimensions Figure (DN80 to 150)

Remark(s) :

1. This page no. 10B of this test report supersedes page no. 10 of the previous test report of Castco LRN : BC0181110-001-MISL issued on 04 December 2018.

End of Report

**Test Report  
Chemical Analysis of Steel**

Date of issue: 24-03-2020

Page 1A of 2

Castco LRN: MS0181121-7

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong  
Job Title : Cla-Val Ductile Iron Modulating Ball Float Valve  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --  
Date of Sample Received : 21-11-2018  
Test Period : 26-11-2018 to 27-11-2018  
Sample Description : DN40 Ductile Iron Modulating Ball Float Valve (Disc)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-002-MISL  
Location of Work : -- / Brand name: CLA-VAL  
Sample Identification No. : -- / Model no.: 100GE-CF9 / 129-01

**Test Method(s):-**

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

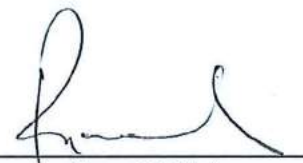
**Remarks:**

- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0181121-7 issued on 29-11-2018.
- III. Refer to the previous test report of Castco LRN MS0181121-7, the sample details were revised in this issue due to the supplementary information of the client.

Checked by :

**Lau Hiu Yat**  
Assistant Technical Manager

Approved Signatory :

**Cheng Chi Fai**  
Senior Manager

**Test Report  
Chemical Analysis of Steel**

Date of issue: 29-11-2018

Page 2 of 2

Castco LRN: MS0181121-7

Chemical Analysis		Result
1) Total Carbon Content	C %	0.040
1) Total Sulfur Content	S %	0.0042
2) Chromium	Cr %	19.12
2) Manganese	Mn %	0.865
2) Molybdenum	Mo %	2.46
2) Nickel	Ni %	9.92
2) Phosphorus	P %	0.030
2) Silicon	Si %	0.646

**End of Report**

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

## Appendix A

## Summary of Chemical Analysis of Steel

Date of issue: 24-03-2020

Castco LRN: MS0181121-7

Page 1A of 1

Name of Customer: Gate Way Valve & Fitting Limited  
 Job Title: Cla-Val Ductile Iron Modulating Ball Float Valve  
 Contract No.: --  
 Customer's Ref. No.: --  
 Date of Received by Lab.: 21-11-2018 Testing Period: 26-11-2018 to 27-11-2018

Castco LRN:	MS0181121-7				
Sample Description :	DN40 Ductile Iron Modulating Ball Float Valve (Disc)				
Specimen No. :	BC0181110-002-MISL				
Location of Work :	-- / Brand name: CLA-VAL				
Sample I.D. No.:	-- / Model no.: 100GE-CF9 / 129-01				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.040	Within limit
Sulfur	S	0.030 max.	%	0.0042	Within limit
Chromium	Cr	18.00 to 20.00	%	19.12	Within limit
Manganese	Mn	1.50 max.	%	0.865	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.46	Within limit
Nickel	Ni	9.00 to 12.00	%	9.92	Within limit
Phosphorus	P	0.040 max.	%	0.030	Within limit
Silicon	Si	1.50 max.	%	0.646	Within limit

## Remarks:

- 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.
- III. This page no. 1A of this Appendix A supersedes page no. 1 of the previous Appendix A of Castco LRN MS0181121-7 issued on 29-11-2018.
- IV. Refer to the previous Appendix A of Castco LRN MS0181121-7, the sample details were revised in this issue due to the supplementary information of the client.

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

Date of issue: 24-03-2020

Page 1A of 2

Castco LRN: MS0181121-8

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : Cla-Val Ductile Iron Modulating Ball Float Valve

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 21-11-2018

Test Period : 26-11-2018 to 27-11-2018

Sample Description : DN40 Ductile Iron Modulating Ball Float Valve (Seat)

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

Specimen No. : BC0181110-002-MISL

Location of Work : -- / Brand name: CLA-VAL

Sample Identification No. : -- / Model no.: 100GE-CF9 / 129-01


**Test Method(s):-**

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

**Remarks:**

- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0181121-8 issued on 29-11-2018.
- III. Refer to the previous test report of Castco LRN MS0181121-8, the sample details were revised in this issue due to the supplementary information of the client.

Checked by :

  
Lau Hiu Yat

Assistant Technical Manager

Approved Signatory :

  
Cheng Chi Fai

Senior Manager





佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED

香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk

33, On Kui Street, Fanling, Hong Kong.  
29A, On Chuen Street, Fanling, Hong Kong.  
Website: www.castco.com.hk

Tel : 2597 8333  
Fax: 2597 8399



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

Date of issue: 29-11-2018

Page 2 of 2

Castco LRN: MS0181121-8

Chemical Analysis		Result
1) Total Carbon Content	C %	0.041
1) Total Sulfur Content	S %	0.0050
2) Chromium	Cr %	18.49
2) Manganese	Mn %	1.14
2) Molybdenum	Mo %	2.35
2) Nickel	Ni %	9.73
2) Phosphorus	P %	0.029
2) Silicon	Si %	0.621

**End of Report**

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

## Appendix A

### Summary of Chemical Analysis of Steel

Date of issue: 24-03-2020

Castco LRN: MS0181121-8

Page 1A of 1

Name of Customer: Gate Way Valve & Fitting Limited  
Job Title: Cla-Val Ductile Iron Modulating Ball Float Valve  
Contract No.: --  
Customer's Ref. No.: --  
Date of Received by Lab.: 21-11-2018

Testing Period: 26-11-2018 to 27-11-2018

Castco LRN:	MS0181121-8				
Sample Description :	DN40 Ductile Iron Modulating Ball Float Valve (Seat)				
Specimen No. :	BC0181110-002-MISL				
Location of Work :	-- / Brand name: CLA-VAL				
Sample I.D. No.:	-- / Model no.: 100GE-CF9 / 129-01				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.041	Within limit
Sulfur	S	0.030 max.	%	0.0050	Within limit
Chromium	Cr	18.00 to 20.00	%	18.49	Within limit
Manganese	Mn	1.50 max.	%	1.14	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.35	Within limit
Nickel	Ni	9.00 to 12.00	%	9.73	Within limit
Phosphorus	P	0.040 max.	%	0.029	Within limit
Silicon	Si	1.50 max.	%	0.621	Within limit

Remarks:

- 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.
- III. This page no. 1A of this Appendix A supersedes page no. 1 of the previous Appendix A of Castco LRN MS0181121-8 issued on 29-11-2018.
- IV. Refer to the previous Appendix A of Castco LRN MS0181121-8, the sample details were revised in this issue due to the supplementary information of the client.



佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED



香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk

33, On Kui Street, Fanling, Hong Kong. Tel: 2597 8333  
29A, On Chuen Street, Fanling, Hong Kong. Fax: 2597 8399  
Website: www.castco.com.hk

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

Date of issue: 17-02-2020

Page 1 of 2

Castco LRN: MS0200203-1

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F, 25 Luk Hop Street, San Po Kong, Kowloon  
Job Title : --  
Contract No. : --  
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --  
Date of Sample Received : 03-02-2020  
Test Period : 10-02-2020 to 13-02-2020  
Sample Description : DN40 Ductile Iron Modulating Ball Float Valve (Stem)  
Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401 (316)  
Location of Work : -- / Brand Name: CLA-VAL  
Specimen No. : BC0181110-002-MISL / Origin: Canada  
Sample Identification No. : -- / Model No.: 129-01  
Manufacturer : Cla-Val Pacific Limited

Test Method(s):-

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

**Remark:**

- 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: 17-02-2020  
Page 2 of 2

Castco LRN: MS0200203-1

Chemical Analysis		Result
1) Total Carbon Content	C %	0.008
1) Total Sulfur Content	S %	0.0053
2) Chromium	Cr %	16.75
2) Manganese	Mn %	1.11
2) Molybdenum	Mo %	2.06
2) Nickel	Ni %	10.08
2) Phosphorus	P %	0.040
2) Silicon	Si %	0.357
3) Nitrogen	N %	0.027

**End of Report**

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

## Appendix A

## Summary of Chemical Analysis of Steel

Date of issue: 17-02-2020

Page 1 of 1

Castco LRN: MS0200203-1

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

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 03-02-2020

Testing Period: 10-02-2020 to 13-02-2020

Castco LRN:	MS0200203-1				
Sample I.D. No.:	-- / Model No.: 129-01				
Sample Description :	DN40 Ductile Iron Modulating Ball Float Valve (Stem)				
Location of Work :	-- / Brand Name: CLA-VAL				
Specimen No. :	BC0181110-002-MISL / Origin: Canada				
Manufacturer :	Cla-Val Pacific Limited				
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401(316)			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.008	Within limit
Sulfur	S	0.015 max.	%	0.0053	Within limit
Chromium	Cr	16.5 to 18.5	%	16.75	Within limit
Manganese	Mn	2.00 max.	%	1.11	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.06	Within limit
Nickel	Ni	10.0 to 13.0	%	10.08	Within limit
Phosphorus	P	0.045 max.	%	0.040	Within limit
Silicon	Si	1.00 max.	%	0.357	Within limit
Nitrogen	N	0.10 max.	%	0.027	Within limit

## Remarks:

- 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 10088-1:2014, Table 2, Grade 1.4401(316).

**Test Report  
Chemical Analysis of Steel**

Date of issue: 24-03-2020

Page 1A of 2

Castco LRN: MS0181121-10

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong  
Job Title : Cla-Val Ductile Iron Modulating Ball Float Valve  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --  
Date of Sample Received : 21-11-2018  
Test Period : 26-11-2018 to 27-11-2018  
Sample Description : DN80 Ductile Iron Modulating Ball Float Valve (Disc)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-004-MISL  
Location of Work : -- / Brand name: CLA-VAL  
Sample Identification No. : -- / Model no.: NGE100-CF9 / 629-01


**Test Method(s):-**

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

**Remarks:**


- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0181121-10 issued on 29-11-2018.
- III. Refer to the previous test report of Castco LRN MS0181121-10, the sample details were revised in this issue due to the supplementary information of the client.

Checked by :

  
Lau Hiu Yat

Assistant Technical Manager

Approved Signatory :

  
Cheng Chi Fai

Senior Manager

**Test Report  
Chemical Analysis of Steel**

Date of issue: 29-11-2018

Page 2 of 2

Castco LRN: MS0181121-10

Chemical Analysis		Result
1) Total Carbon Content	C %	0.038
1) Total Sulfur Content	S %	0.0041
2) Chromium	Cr %	18.00
2) Manganese	Mn %	0.846
2) Molybdenum	Mo %	2.12
2) Nickel	Ni %	11.92
2) Phosphorus	P %	0.029
2) Silicon	Si %	0.615

**End of Report**

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

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

Date of issue: 24-03-2020

Castco LRN: MS0181121-10

Page 1A of 1

Name of Customer: Gate Way Valve & Fitting Limited  
 Job Title: Cla-Val Ductile Iron Modulating Ball Float Valve  
 Contract No.: --  
 Customer's Ref. No.: --  
 Date of Received by Lab.: 21-11-2018

Testing Period: 26-11-2018 to 27-11-2018

Castco LRN:	MS0181121-10				
Sample Description :	DN80 Ductile Iron Modulating Ball Float Valve (Disc)				
Specimen No. :	BC0181110-004-MISL				
Location of Work :	-- / Brand name: CLA-VAL				
Sample I.D. No.:	-- / Model no.: NGE100-CF9 / 629-01				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.038	Within limit
Sulfur	S	0.030 max.	%	0.0041	Within limit
Chromium	Cr	18.00 to 20.00	%	18.00	Within limit
Manganese	Mn	1.50 max.	%	0.846	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.12	Within limit
Nickel	Ni	9.00 to 12.00	%	11.92	Within limit
Phosphorus	P	0.040 max.	%	0.029	Within limit
Silicon	Si	1.50 max.	%	0.615	Within limit

## Remarks:

- 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.
- III. This page no. 1A of this Appendix A supersedes page no. 1 of the previous Appendix A of Castco LRN MS0181121-10 issued on 29-11-2018.
- IV. Refer to the previous Appendix A of Castco LRN MS0181121-10, the sample details were revised in this issue due to the supplementary information of the client.





香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk

佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED

33, On Kui Street, Fanling, Hong Kong. Tel : 2597 8333  
29A, On Chuen Street, Fanling, Hong Kong. Fax: 2597 8399  
Website: www.castco.com.hk



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

Date of issue: 24-03-2020

Page 1A of 2

Castco LRN: MS0181121-11

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong  
Job Title : Cla-Val Ductile Iron Modulating Ball Float Valve  
Contract No. : --  
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --  
Date of Sample Received : 21-11-2018  
Test Period : 26-11-2018 to 27-11-2018  
Sample Description : DN80 Ductile Iron Modulating Ball Float Valve (Seat)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-004-MISL  
Location of Work : -- / Brand name: CLA-VAL  
Sample Identification No. : -- / Model no.: NGE100-CF9 / 629-01

Test Method(s):-

- 1) BS EN ISO 15350 : 2010
- 2) In House Method: ST-Multi-I(ICP-OES)

**Remarks:**

- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0181121-11 issued on 29-11-2018.
- III. Refer to the previous test report of Castco LRN MS0181121-11, the sample details were revised in this issue due to the supplementary information of the client.

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

  
Lau Hui Yat  
Assistant Technical Manager

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

  
Cheng Chi Fai  
Senior Manager

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



佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED



香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk

33, On Kui Street, Fanling, Hong Kong. Tel: 2597 8333  
29A, On Chuen Street, Fanling, Hong Kong. Fax: 2597 8399  
Website: www.castco.com.hk

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

Date of issue: 29-11-2018

Page 2 of 2

Castco LRN: MS0181121-11

Chemical Analysis		Result
1) Total Carbon Content	C %	0.040
1) Total Sulfur Content	S %	0.0046
2) Chromium	Cr %	18.33
2) Manganese	Mn %	1.23
2) Molybdenum	Mo %	2.25
2) Nickel	Ni %	9.76
2) Phosphorus	P %	0.030
2) Silicon	Si %	0.624

**End of Report**

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

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

Date of issue: 24-03-2020

Page 1A of 1

Castco LRN: MS0181121-11

Name of Customer: Gate Way Valve & Fitting Limited  
 Job Title: Cla-Val Ductile Iron Modulating Ball Float Valve  
 Contract No.: --  
 Customer's Ref. No.: --  
 Date of Received by Lab.: 21-11-2018

Testing Period: 26-11-2018 to 27-11-2018

Castco LRN:	MS0181121-11			
Sample Description :	DN80 Ductile Iron Modulating Ball Float Valve (Seat)			
Specimen No. :	BC0181110-004-MISL			
Location of Work :	-- / Brand name: CLA-VAL			
Sample I.D. No.:	-- / Model no.: NGE100-CF9 / 629-01			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit
Carbon C	0.07 max.	%	0.040	Within limit
Sulfur S	0.030 max.	%	0.0046	Within limit
Chromium Cr	18.00 to 20.00	%	18.33	Within limit
Manganese Mn	1.50 max.	%	1.23	Within limit
Molybdenum Mo	2.00 to 2.50	%	2.25	Within limit
Nickel Ni	9.00 to 12.00	%	9.76	Within limit
Phosphorus P	0.040 max.	%	0.030	Within limit
Silicon Si	1.50 max.	%	0.624	Within limit

## Remarks:

- 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.
- III. This page no. 1A of this Appendix A supersedes page no. 1 of the previous Appendix A of Castco LRN MS0181121-11 issued on 29-11-2018.
- IV. Refer to the previous Appendix A of Castco LRN MS0181121-11, the sample details were revised in this issue due to the supplementary information of the client.

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

Date of issue: 17-02-2020

Page 1 of 2

Castco LRN: MS0200203-2

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F, 25 Luk Hop Street, San Po Kong, Kowloon  
Job Title : --  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --  
Date of Sample Received : 03-02-2020  
Test Period : 10-02-2020 to 13-02-2020  
Sample Description : DN80 Ductile Iron Modulating Ball Float Valve (Stem)  
Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401 (316)  
Location of Work : -- / Brand Name: CLA-VAL  
Specimen No. : BC0181110-004-MISL / Origin: Canada  
Sample Identification No. : -- / Model No.: 629-01  
Manufacturer : Cla-Val Pacific Limited

**Test Method(s):-**

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

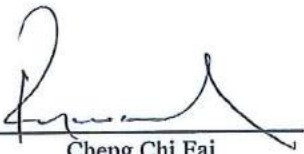
**Remark:**

- 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: 17-02-2020  
Page 2 of 2

Castco LRN: MS0200203-2

Chemical Analysis		Result
1) Total Carbon Content	C %	0.010
1) Total Sulfur Content	S %	0.0061
2) Chromium	Cr %	16.75
2) Manganese	Mn %	1.13
2) Molybdenum	Mo %	2.07
2) Nickel	Ni %	10.21
2) Phosphorus	P %	0.042
2) Silicon	Si %	0.360
3) Nitrogen	N %	0.028

**End of Report**

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

## Appendix A

## Summary of Chemical Analysis of Steel

Date of issue: 17-02-2020

Page 1 of 1

Castco LRN: MS0200203-2

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

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 03-02-2020

Testing Period: 10-02-2020 to 13-02-2020

Castco LRN:	MS0200203-2		
Sample I.D. No.:	-- / Model No.: 629-01		
Sample Description :	DN80 Ductile Iron Modulating Ball Float Valve (Stem)		
Location of Work :	-- / Brand Name: CLA-VAL		
Specimen No.:	BC0181110-004-MISL / Origin: Canada		
Manufacturer :	Cla-Val Pacific Limited		
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401(316)	Test Results		Within / Exceed limit
Carbon C	0.07 max.	%	0.010 Within limit
Sulfur S	0.015 max.	%	0.0061 Within limit
Chromium Cr	16.5 to 18.5	%	16.75 Within limit
Manganese Mn	2.00 max.	%	1.13 Within limit
Molybdenum Mo	2.00 to 2.50	%	2.07 Within limit
Nickel Ni	10.0 to 13.0	%	10.21 Within limit
Phosphorus P	0.045 max.	%	0.042 Within limit
Silicon Si	1.00 max.	%	0.360 Within limit
Nitrogen N	0.10 max.	%	0.028 Within limit

## Remarks:

- 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 10088-1:2014, Table 2, Grade 1.4401(316).

**Test Report  
Chemical Analysis of Steel**

Date of issue: 24-03-2020

Page 1A of 2

Castco LRN: MS0181121-13

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong  
Job Title : Cla-Val Ductile Iron Modulating Ball Float Valve  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --  
Date of Sample Received : 21-11-2018  
Test Period : 26-11-2018 to 27-11-2018  
Sample Description : DN150 Ductile Iron Modulating Ball Float Valve (Disc)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-006-MISL  
Location of Work : -- / Brand name: CLA-VAL  
Sample Identification No. : -- / Model no.: NGE100-CF9 / 629-01

**Test Method(s):-**

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

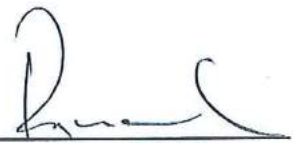
**Remarks:**

- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0181121-13 issued on 29-11-2018.
- III. Refer to the previous test report of Castco LRN MS0181121-13, the sample details were revised in this issue due to the supplementary information of the client.

Checked by :

**Lau Hiu Yat**  
Assistant Technical Manager

Approved Signatory :

**Cheng Chi Fai**  
Senior Manager

**CASTCO****佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED**香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk33, On Kui Street, Fanling, Hong Kong.  
29A, On Chuen Street, Fanling, Hong Kong.  
Website: www.castco.com.hkTel : 2597 8333  
Fax: 2597 8399**Test Report  
Chemical Analysis of Steel**

Date of issue: 29-11-2018

Castco LRN: MS0181121-13

Page 2 of 2

Chemical Analysis		Result
1) Total Carbon Content	C %	0.033
1) Total Sulfur Content	S %	0.0029
2) Chromium	Cr %	18.85
2) Manganese	Mn %	0.827
2) Molybdenum	Mo %	2.37
2) Nickel	Ni %	9.58
2) Phosphorus	P %	0.028
2) Silicon	Si %	0.594

**End of Report**

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



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

Date of issue: 24-03-2020

Castco LRN: MS0181121-13

Page 1A of 1

Name of Customer: Gate Way Valve & Fitting Limited  
 Job Title: Cla-Val Ductile Iron Modulating Ball Float Valve  
 Contract No.: --  
 Customer's Ref. No.: --  
 Date of Received by Lab.: 21-11-2018

Testing Period: 26-11-2018 to 27-11-2018

Castco LRN:	MS0181121-13			
Sample Description :	DN150 Ductile Iron Modulating Ball Float Valve (Disc)			
Specimen No. :	BC0181110-006-MISL			
Location of Work :	-- / Brand name: CLA-VAL			
Sample I.D. No.:	-- / Model no.: NGE100-CF9 / 629-01			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit
Carbon C	0.07 max.	%	0.033	Within limit
Sulfur S	0.030 max.	%	0.0029	Within limit
Chromium Cr	18.00 to 20.00	%	18.85	Within limit
Manganese Mn	1.50 max.	%	0.827	Within limit
Molybdenum Mo	2.00 to 2.50	%	2.37	Within limit
Nickel Ni	9.00 to 12.00	%	9.58	Within limit
Phosphorus P	0.040 max.	%	0.028	Within limit
Silicon Si	1.50 max.	%	0.594	Within limit

## Remarks:

- 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.
- III. This page no. 1A of this Appendix A supersedes page no. 1 of the previous Appendix A of Castco LRN MS0181121-13 issued on 29-11-2018.
- IV. Refer to the previous Appendix A of Castco LRN MS0181121-13, the sample details were revised in this issue due to the supplementary information of the client.



佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED



香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk

33, On Kui Street, Fanling, Hong Kong. Tel : 2597 8333  
29A, On Chuen Street, Fanling, Hong Kong. Fax: 2597 8399  
Website: www.castco.com.hk

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

Date of issue: 24-03-2020

Page 1A of 2

Castco LRN: MS0181121-14

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong  
Job Title : Cla-Val Ductile Iron Modulating Ball Float Valve  
Contract No. : --  
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --  
Date of Sample Received : 21-11-2018  
Test Period : 26-11-2018 to 27-11-2018  
Sample Description : DN150 Ductile Iron Modulating Ball Float Valve (Seat)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-006-MISL  
Location of Work : -- / Brand name: CLA-VAL  
Sample Identification No. : -- / Model no.: NGE100-CF9 / 629-01


Test Method(s):-

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

**Remarks:**

- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0181121-14 issued on 29-11-2018.
- III. Refer to the previous test report of Castco LRN MS0181121-14, the sample details were revised in this issue due to the supplementary information of the client.

Checked by :   
Lau Hiu Yat  
Assistant Technical Manager

Approved Signatory :   
Cheng Chi Fai  
Senior Manager

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



佳力高試驗中心有限公司  
CASTCO TESTING CENTRE LIMITED

香港粉嶺安居街33號  
香港粉嶺安全街29A號  
E-mail: info@castco.com.hk

33, On Kui Street, Fanling, Hong Kong. Tel: 2597 8333  
29A, On Chuen Street, Fanling, Hong Kong. Fax: 2597 8399  
Website: www.castco.com.hk



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

Date of issue: 29-11-2018

Castco LRN: MS0181121-14

Page 2 of 2

Chemical Analysis		Result
1) Total Carbon Content	C %	0.038
1) Total Sulfur Content	S %	0.0049
2) Chromium	Cr %	18.23
2) Manganese	Mn %	1.28
2) Molybdenum	Mo %	2.37
2) Nickel	Ni %	9.69
2) Phosphorus	P %	0.027
2) Silicon	Si %	0.649

**End of Report**

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

## Appendix A

### Summary of Chemical Analysis of Steel

Date of issue: 24-03-2020

Castco LRN: MS0181121-14

Page 1A of 1

Name of Customer: Gate Way Valve & Fitting Limited  
 Job Title: Cla-Val Ductile Iron Modulating Ball Float Valve  
 Contract No.: --  
 Customer's Ref. No.: --  
 Date of Received by Lab.: 21-11-2018      Testing Period: 26-11-2018 to 27-11-2018

Castco LRN:	MS0181121-14				
Sample Description :	DN150 Ductile Iron Modulating Ball Float Valve (Seat)				
Specimen No. :	BC0181110-006-MISL				
Location of Work :	-- / Brand name: CLA-VAL				
Sample I.D. No.:	-- / Model no.: NGE100-CF9 / 629-01				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408				Test Results	Within / Exceed limit
Carbon	C	0.07 max.	%	0.038	Within limit
Sulfur	S	0.030 max.	%	0.0049	Within limit
Chromium	Cr	18.00 to 20.00	%	18.23	Within limit
Manganese	Mn	1.50 max.	%	1.28	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.37	Within limit
Nickel	Ni	9.00 to 12.00	%	9.69	Within limit
Phosphorus	P	0.040 max.	%	0.027	Within limit
Silicon	Si	1.50 max.	%	0.649	Within limit

Remarks:

- 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.
- III. This page no. 1A of this Appendix A supersedes page no. 1 of the previous Appendix A of Castco LRN MS0181121-14 issued on 29-11-2018.
- IV. Refer to the previous Appendix A of Castco LRN MS0181121-14, the sample details were revised in this issue due to the supplementary information of the client.

**Test Report  
Chemical Analysis of Steel**

Date of issue: 03-03-2022

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Castco LRN: MS0200203-3

**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited  
Address : Flat A1, 4/F, 25 Luk Hop Street, San Po Kong, Kowloon  
Job Title : --  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**


Date Sampled : --  
Date of Sample Received : 03-02-2020  
Test Period : 10-02-2020 to 13-02-2020  
Sample Description : DN150 Ductile Iron Modulating Ball Float Valve (Stem)  
Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401 (316)  
Location of Work : -- / Brand Name: CLA-VAL  
Specimen No. : BC0181110-006-MISL / Origin: Canada  
Sample Identification No. : -- / Model No.: 629-01  
Manufacturer : Cla-Val Pacific Limited


**Test Method(s):-**

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

**Remark:**

- I. Test results only relate to the specimen tested.
- II. This page no. 1A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0200203-1 issued on 17-02-2020.  
Refer to the previous test report of Castco LRN MS0200203-1, this page was revised in this issue due to the amendment of the summary.

Checked by :   
Kwan Kim Shing  
Senior Chemist

Approved Signatory :   
Cheng Chi Fai  
Senior Manager

**Test Report  
Chemical Analysis of Steel**Date of issue: 03-03-2022  
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Castco LRN: MS0200203-3

Chemical Analysis	Result
<sup>1)</sup> Total Carbon Content C %	0.026
<sup>1)</sup> Total Sulfur Content S %	0.028
<sup>2)</sup> Chromium Cr %	16.74
<sup>2)</sup> Manganese Mn %	0.986
<sup>2)</sup> Molybdenum Mo %	2.01
<sup>2)</sup> Nickel Ni %	10.14
<sup>2)</sup> Phosphorus P %	0.044
<sup>2)</sup> Silicon Si %	0.364
<sup>3)</sup> Nitrogen N %	0.035

**End of Report****Remark:**

- I. This page no. 2A of this test report supersedes page no. 1 of the previous test report of Castco LRN MS0200203-1 issued on 17-02-2020.  
Refer to the previous test report of Castco LRN MS0200203-1, this page was revised in this issue due to the amendment of the summary.

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

## Appendix A

## Summary of Chemical Analysis of Steel

Date of issue: 03-03-2022

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Castco LRN: MS0200203-3

Castco LRN:	MS0200203-3			
Sample I.D. No.:	-- / Model No.: 629-01			
Sample Description :	DN150 Ductile Iron Modulating Ball Float Valve (Stem)			
Location of Work :	-- / Brand Name: CLA-VAL			
Specimen No.:	BC0181110-006-MISL / Origin: Canada			
Manufacturer :	Cla-Val Pacific Limited			
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401(316)	Test Results		Within / Exceed limit	
Carbon C 0.07 max. %	0.026		Within limit	
Sulfur S 0.015 max. <sup>(III)</sup> %	0.028		Within limit	
Chromium Cr 16.5 to 18.5 %	16.74		Within limit	
Manganese Mn 2.00 max. %	0.986		Within limit	
Molybdenum Mo 2.00 to 2.50 %	2.01		Within limit	
Nickel Ni 10.0 to 13.0 %	10.14		Within limit	
Phosphorus P 0.045 max. %	0.044		Within limit	
Silicon Si 1.00 max. %	0.364		Within limit	
Nitrogen N 0.10 max. %	0.035		Within limit	

## Remarks:

- 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 10088-1:2014, Table 2, Grade 1.4401(316).
- III. For bars, rods, wire, sections, bright products and the relevant semi-finished products, a maximum content of 0,030 % S applies. Particular ranges of sulfur content may provide improvement of particular properties. For machinability a controlled sulfur content of 0,015 % to 0,030 % is recommended and permitted. For weldability, a controlled sulfur content of 0,008 % to 0,030 % is recommended and permitted. For polishability, a controlled sulfur content of 0,015 % max. is recommended.
- IV. This page no. 1A of this summary supersedes page no. 1 of the previous summary of Castco LRN MS0200203-1 issued on 17-
- V. Refer to the previous summary of Castco LRN MS0200203-1, the remark III was added in this issue due to the supplementary information of the laboratory.