

Summary of Test Results

Reference no. : BC-SUMMARY-2018-153

Customer : Gate Way Valve & Fitting Ltd.  
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon, H. K.  
Sample description : Wafer Type Silent Check Valve  
Nominal pressure (PN) : 25  
Manufacturer : Val-Matic Valve & Manufacturing Corp.  
Brand name : Valmatic  
Body marking : VAL MATIC (MODEL NO.) (CLASS) (SIZE)  
Origin : USA  
Sample submitted by : Gate Way Valve & Fitting Ltd.  
Test standard : BS EN 12334 : 2001 / WIS 4-52-01 / BS EN 12266-1 : 2012 / BS EN 1561 : 2011  
Test period : 20 November 2018 to 04 March 2019

A) Sample List

| DN (mm) | Inch   | Model no. | Specimen no.       |
|---------|--------|-----------|--------------------|
| 50      | 2"     | 1402A.3XF | BC0181110-008-MISL |
| 65      | 2-1/2" | 1425A.3XF | BC0181110-009-MISL |
| 80      | 3"     | 1403AX006 | BC0181110-010-MISL |
| 100     | 4"     | 1404AX004 | BC0181110-011-MISL |
| 150     | 6"     | 1406A.3XF | BC0181110-012-MISL |

B) Test Item

1) Dimensions Check (BS EN 12334 : 2001 Clause 4.1.3)

| DN (mm) | Inch   | Test results | Castco LRN         |
|---------|--------|--------------|--------------------|
| 50      | 2"     | Passed       | BC0181110-007-MISL |
| 65      | 2-1/2" | 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         |
|---------|--------|--------------|--------------------|
| 50      | 2"     | Passed       | BC0181110-007-MISL |
| 65      | 2-1/2" | Passed       |                    |
| 80      | 3"     | Passed       |                    |
| 100     | 4"     | Passed       |                    |
| 150     | 6"     | Passed       |                    |

3) Hydrostatic Strength Test (BS EN 12334 : 2001 Clause 4.2 / BS EN 12266-1 : 2012 Clause 4 Annex A)

| DN (mm) | Inch   | Test results | Castco LRN         |
|---------|--------|--------------|--------------------|
| 50      | 2"     | Passed       | BC0181110-007-MISL |
| 65      | 2-1/2" | Passed       |                    |
| 80      | 3"     | Passed       |                    |
| 100     | 4"     | Passed       |                    |
| 150     | 6"     | Passed       |                    |

Remark(s) :

1. This page no. 1A of summary supersedes page no. 1 of the previous summary of Reference no. : BC-SUMMARY-2018-153 issued on 19 December 2018.

Summary of Test Results

Reference no. : BC-SUMMARY-2018-153

B) Test Item (con't)

4) Tensile Test (BS EN 1561 : 2011 Clause 7.2 and 9.1 Table 1 Grade EN-GJL-250)

| DN (mm) | Inch   | Test results | Castco LRN         |
|---------|--------|--------------|--------------------|
| 50      | 2"     | Passed       | BC0181110-007-MISL |
| 65      | 2-1/2" | Passed       |                    |
| 80      | 3"     | Passed       |                    |
| 100     | 4"     | Passed       |                    |
| 150     | 6"     | Passed       |                    |

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

| DN (mm) | Inch   | Test results | Castco LRN  |
|---------|--------|--------------|-------------|
| 50      | 2"     | Passed       | MS0181121-1 |
| 65      | 2-1/2" | Passed       | MS0190214-8 |
| 80      | 3"     | Passed       | MS0181121-2 |
| 100     | 4"     | Passed       | MS0190214-9 |
| 150     | 6"     | Passed       | MS0181121-3 |

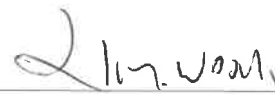
Remark(s) :

1. This page no. 2A of summary supersedes page no. 2 of the previous summary of Reference no. : BC-SUMMARY-2018-153 issued on 19 December 2018.

Prepare by : \_\_\_\_\_  
Date : 11 March 2019

 **FU HO MAN**  
Assistant Technical Manager

Review by : \_\_\_\_\_  
Date : 11 March 2019

 **WONG KA MAN**  
Senior Manager

Test Report  
Dimensions Check of Check Valves  
(BS EN 12334 : 2001 Clause 4.1.3)

Date of issue : 11 March 2019

Page 1A of 10 page(s)

Castco LRN : BC0181110-007-MISL

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, Kowloon, H. K. Contract no. : - -

Job title : - -

Sample description : Wafer Type Silent Check Valve

Nominal pressure (PN) : 25

Manufacturer : Val-Matic Valve &amp; Manufacturing Corp.

Brand name : Valmatic

Body marking : VAL MATIC (MODEL NO.) (CLASS) (SIZE)

Origin : USA

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

Laboratory test results

Date of sample received : 10 November 2018

Date of test : 20 November 2018

| Specimen no.          | BC0181110-008-MISL       | BC0181110-009-MISL | BC0181110-010-MISL | BC0181110-011-MISL | BC0181110-012-MISL |        |
|-----------------------|--------------------------|--------------------|--------------------|--------------------|--------------------|--------|
| DN (mm)               | 50                       | 65                 | 80                 | 100                | 150                |        |
| Inch                  | 2"                       | 2-1/2"             | 3"                 | 4"                 | 6"                 |        |
| Model no.             | 1402A.3XF                | 1425A.3XF          | 1403AX006          | 1404AX004          | 1406A.3XF          |        |
| Face-to-face (B) (mm) | Measured mean value      | 69                 | 75                 | 81                 | 103                | 142    |
|                       | Manufacturer requirement | 66.8               | 73.15              | 79.50              | 101.60             | 139.70 |
| A (mm)                | Measured mean value      | 108                | 127                | 147                | 178                | 245    |
|                       | Manufacturer requirement | 107.95             | 127.00             | 146.05             | 177.80             | 247.65 |

## Remark(s) :

1. Test results relate only to the specimen tested.
2. This page no. 1A of test report supersedes page no. 1 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

Checked by :



**FU HO MAN**  
Assistant Technical Manager

Certified by :



**WONG KA MAN**  
Senior Manager

Test Report  
Coating Thickness Test of Check Valves  
(WIS 4-52-01 Appendix B)Date of issue : 06 April 2022  
Page 2B of 10 page(s)

Castco LRN : BC0181110-007-MISL

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, Kowloon, H. K.

Contract no. : - -

Job title : - -

Sample description : Wafer Type Silent Check Valve

Nominal pressure (PN) : 25

Manufacturer : Val-Matic Valve &amp; Manufacturing Corp.

Brand name : Valmatic

Body marking : VAL MATIC (MODEL NO.) (CLASS) (SIZE)

Origin : USA

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

Laboratory test results

Date of sample received : 10 November 2018

Date of test : 20 November 2018

| Specimen no.                             | BC0181110-008-MISL | BC0181110-009-MISL | BC0181110-010-MISL | BC0181110-011-MISL | BC0181110-012-MISL |       |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|-------|
| DN (mm)                                  | 50                 | 65                 | 80                 | 100                | 150                |       |
| Inch                                     | 2"                 | 2-1/2"             | 3"                 | 4"                 | 6"                 |       |
| Model no.                                | 1402A.3XF          | 1425A.3XF          | 1403AX006          | 1404AX004          | 1406A.3XF          |       |
| Measured value of coating thickness (µm) | 1                  | 443                | 388                | 264                | 601                | 406   |
|  | 2                  | 309                | 414                | 223                | 632                | 334   |
|  | 3                  | 321                | 420                | 202                | 669                | 483   |
|  | 4                  | 368                | 361                | 264                | 444                | 550   |
|  | 5                  | 421                | 383                | 229                | 308                | 348   |
|  | 6                  | 332                | 395                | 286                | 488                | 392   |
|  | 7                  | 387                | 366                | 245                | 270                | 289   |
|  | 8                  | 495                | 381                | 278                | 351                | 484   |
|  | 9                  | 215                | 308                | 291                | 338                | 405   |
|  | 10                 | 244                | 335                | 177                | 340                | 351   |
|  | 11                 | 212                | 285                | 237                | 344                | 282   |
|  | 12                 | 251                | 353                | 214                | 430                | 466   |
|  | 13                 | 201                | 288                | 250                | 399                | 435   |
|  | 14                 | 442                | 309                | 297                | 442                | 383   |
|  | 15                 | 264                | 374                | 309                | 329                | 284   |
|  | Mean               | 327.0              | 357.3              | 251.1              | 425.7              | 392.8 |
| Manufacturer requirement                 | 150 to 1500        |                    |                    |                    |                    |       |

## Remark(s) :

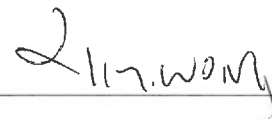
- Test results relate only to the specimen tested.
- This page no. 2B of test report supersedes page no. 2A of the previous test report of Castco LRN : BC0181110-007-MISL issued on 11 March 2019 with amendment : "Manufacturer requirement" was added due to customer request.

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



**FU HO MAN**  
Assistant Technical Manager

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



**WONG KA MAN**  
Senior Manager

Test Report  
Hydrostatic Strength Test of Check Valves  
(BS EN 12334 : 2001 Clause 5.1)

Date of issue : 11 March 2019

Page 3A of 10 page(s)

Castco LRN : BC0181110-007-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, H. K.

Contract no. : - -

Job title : - -

Sample description : Wafer Type Silent Check Valve

Nominal pressure (PN) : 25

Manufacturer : Val-Matic Valve & Manufacturing Corp.

Brand name : Valmatic

Body marking : VAL MATIC (MODEL NO.) (CLASS) (SIZE)

Origin : USA

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 10 November 2018

Date of test : 20 to 21 November 2018

A) Shell Tightness (BS EN 12266-1 : 2012 Annex A.3)

| Specimen no.                | BC0181110-008-MISL                           | BC0181110-009-MISL | BC0181110-010-MISL | BC0181110-011-MISL | BC0181110-012-MISL |
|-----------------------------|--|--------------------|--------------------|--------------------|--------------------|
| DN (mm)                     | 50   | 65                 | 80                 | 100                | 150                |
| Inch                        | 2"   | 2-1/2"             | 3"                 | 4"                 | 6"                 |
| Model no.                   | 1402A.3XF                                    | 1425A.3XF          | 1403AX006          | 1404AX004          | 1406A.3XF          |
| Apply pressure (bar)        | 37.5   | 37.5               | 37.5               | 37.5               | 37.5               |
| Test duration (s)           | 60   | 60                 | 60                 | 60                 | 60                 |
| Visually detectable leakage | No   | No                 | No                 | No                 | No                 |
| Requirement                 | Visually detectable leakage is not permitted |                    |                    |                    |                    |
| Test results                | Passed                                       | Passed             | Passed             | Passed             | Passed             |

Remark(s) :

1. This page no. 3A of test report supersedes page no. 3 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

**Test Report  
Hydrostatic Strength Test of Check Valves  
(BS EN 12334 : 2001 Clause 5.1)**

Date of issue : 11 March 2019

Page 4A of 10 page(s)

Castco LRN : BC0181110-007-MISL

**Laboratory test results (con't)****B) Seat Tightness (BS EN 12266-1 : 2012 Annex A.4)**

| Specimen no.                     | BC0181110-008-MISL  | BC0181110-009-MISL | BC0181110-010-MISL | BC0181110-011-MISL | BC0181110-012-MISL |
|----------------------------------|---|--------------------|--------------------|--------------------|--------------------|
| DN (mm)                          | 50  | 65                 | 80                 | 100                | 150                |
| Inch                             | 2"  | 2-1/2"             | 3"                 | 4"                 | 6"                 |
| Model no.                        | 1402A.3XF   | 1425A.3XF          | 1403AX006          | 1404AX004          | 1406A.3XF          |
| Side                             | A   | A                  | A                  | A                  | A                  |
| Apply pressure (bar)             | 27.5  | 27.5               | 27.5               | 27.5               | 27.5               |
| Test duration (s)                | 60  | 60                 | 60                 | 60                 | 60                 |
| Leakage rate (m <sup>3</sup> /s) | 0   | 0                  | 0                  | 0                  | 0                  |
| Requirement                      | The leakage rate shall not exceed specified in BS EN 12266-1 : 2012 Annex A.4.3 Table A.5 |                    |                    |                    |                    |
| 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 EN 12266-1 : 2012 Clause 4 Annex A.
3. This page no. 4A of test report supersedes page no. 4 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

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 1561 : 2011 Clause 7.2 and 9.1 Table 1)**

Date of issue : 11 March 2019

Page 5A of 10 page(s)

Castco LRN : BC0181110-007-MISL

**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, Kowloon, H. K.

Contract no. : - -

Job title : - -

Sample description : Wafer Type Silent Check Valve

Nominal pressure (PN) : 25

Manufacturer : Val-Matic Valve &amp; Manufacturing Corp.

Brand name : Valmatic

Body marking : VAL MATIC (MODEL NO.) (CLASS) (SIZE)

Origin : USA

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

**Laboratory test results**

Date of sample received : 10 November 2018

Date of test : 17 December 2018

| Specimen no.               | BC0181110-008-MISL | BC0181110-010-MISL | BC0181110-012-MISL |
|----------------------------|--------------------|--------------------|--------------------|
| DN (mm)                    | 50                 | 80                 | 150                |
| Inch                       | 2"                 | 3"                 | 6"                 |
| Model no.                  | 1402A.3XF          | 1403AX006          | 1406A.3XF          |
| Steel grade                | EN-GJL-250         |                    |                    |
| Total specimen length (mm) | 140                | 141                | 140                |
| Area (mm <sup>2</sup> )    | 201.8              | 201.8              | 203.6              |
| Tensile (MPa)              | Strength           | 317                | 293                |
|                            | Requirement        | 250 to 350         |                    |
| Test results               | Passed             | Passed             | Passed             |

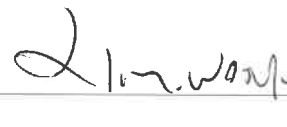
**Remark(s) :**

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1561 : 2011 Table 1.
2. This page no. 5A of test report supersedes page no. 5 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

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 1561 : 2011 Clause 7.2 and 9.1 Table 1)

Date of issue : 11 March 2019

Page 6A of 10 page(s)

Castco LRN : BC0181110-007-MISL

**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, Kowloon, H. K. Contract no. : - -

Job title : - -

Sample description : Wafer Type Silent Check Valve

Nominal pressure (PN) : 25

Manufacturer : Val-Matic Valve &amp; Manufacturing Corp.

Brand name : Valmatic

Body marking : VAL MATIC (MODEL NO.) (CLASS) (SIZE)

Origin : USA

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

**Laboratory test results**

Date of sample received : 14 February 2019

Date of test : 16 February 2019

|                            |                    |                    |
|----------------------------|--------------------|--------------------|
| Specimen no.               | BC0181110-009-MISL | BC0181110-011-MISL |
| DN (mm)                    | 65                 | 100                |
| Inch                       | 2-1/2"             | 4"                 |
| Model no.                  | 1425A.3XF          | 1404AX004          |
| Steel grade                | EN-GJL-250         |                    |
| Total specimen length (mm) | 142                | 140                |
| Area (mm <sup>2</sup> )    | 201.8              | 203.3              |
| Tensile (MPa)              | Strength           | 304                |
|                            | Requirement        | 250 to 350         |
| Test results               | Passed             | Passed             |

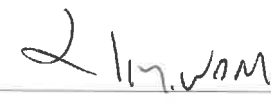
## Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1561 : 2011 Table 1.
3. This page no. 6A of test report of Castco LRN : BC0181110-007-MISL is a New Page added after test report issued.

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


**FU HO MAN**  
Assistant Technical Manager

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


**WONG KA MAN**  
Senior Manager



Test Report  
Dimensions Check of Check Valves  
(BS EN 12334 : 2001 Clause 4.1.3)

Date of issue : 11 March 2019  
Page 7A of 10 page(s)

Castco LRN : BC0181110-007-MISL

Appendix A



BC0181110-008-MISL



BC0181110-009-MISL

Remark(s) :

1. This page no. 7A of test report supersedes page no. 6 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

**Test Report  
Dimensions Check of Check Valves  
(BS EN 12334 : 2001 Clause 4.1.3)**

Date of issue : 11 March 2019

Page 8A of 10 page(s)

Castco LRN : BC0181110-007-MISL

Appendix BBC0181110-010-MISLBC0181110-011-MISL

## Remark(s) :

1. This page no. 8A of test report supersedes page no. 7 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

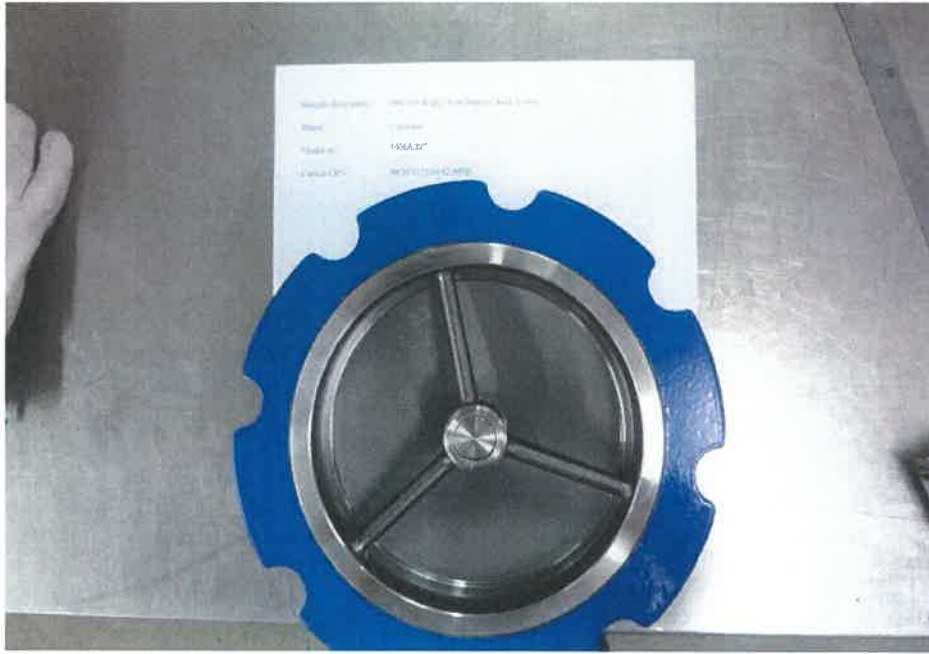
Test Report  
Dimensions Check of Check Valves  
(BS EN 12334 : 2001 Clause 4.1.3)

Date of issue : 11 March 2019

Page 9A of 10 page(s)

Castco LRN : BC0181110-007-MISL

Appendix C



BC0181110-012-MISL

Remark(s) :

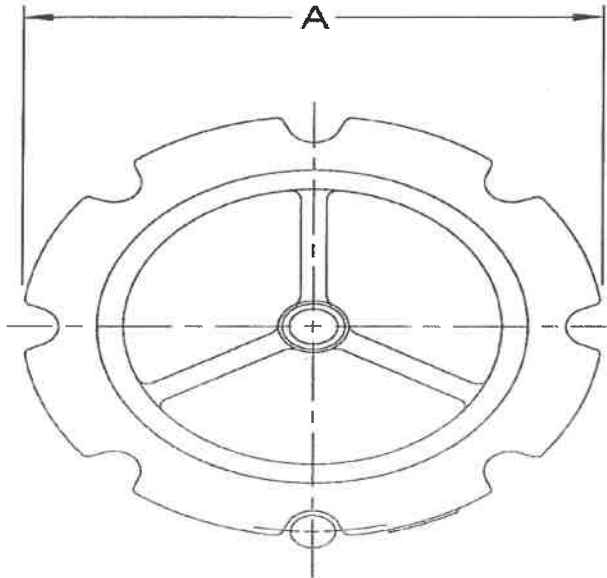
1. This page no. 9A of test report supersedes page no. 8 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

Test Report  
Dimensions Check of Check Valves  
(BS EN 12334 : 2001 Clause 4.1.3)

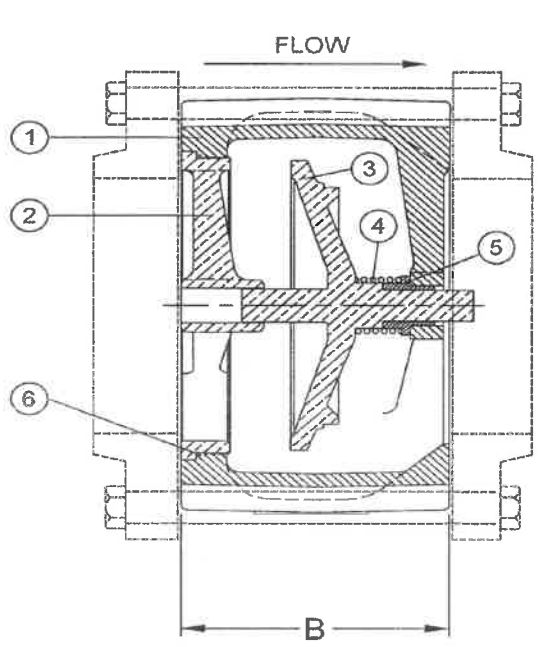
Date of issue : 11 March 2019  
Page 10A of 10 page(s)

Castco LRN : BC0181110-007-MISL

Appendix C



Dimensions Figure-1



Dimensions Figure-2

Remark(s) :

1. This page no. 10A of test report supersedes page no. 9 of the previous test report of Castco LRN : BC0181110-007-MISL issued on 19 December 2018.

End of Report

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

Date of issue: 29-11-2018

Page 1 of 2

Castco LRN: MS0181121-1

**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 : Valmatic Series 1400 Wafer Silent Check Valve  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --  
Date of Sample Received : 21-11-2018  
Test Period : 23-11-2018 to 26-11-2018  
Sample Description : DN50 Wafer Type Silent Check Valve (Seat)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-008-MISL  
Location of Work : -- / Brand Name: Valmatic  
Sample Identification No. : -- / Model no.: 1402A.3XF

**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.

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

  
Lau Hin Yat  
Assistant Technical Manager

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

  
Cheng Chi Fai  
Senior Manager



佳力高試驗中心有限公司  
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**Test Report**  
**Chemical Analysis of Steel**

Date of issue: 29-11-2018

Page 2 of 2

Castco LRN: MS0181121-1

| Chemical Analysis       |      | Result |
|-------------------------|------|--------|
| 1) Total Carbon Content | C %  | 0.066  |
| 1) Total Sulfur Content | S %  | 0.0067 |
| 2) Chromium             | Cr % | 18.42  |
| 2) Manganese            | Mn % | 1.06   |
| 2) Molybdenum           | Mo % | 2.36   |
| 2) Nickel               | Ni % | 9.33   |
| 2) Phosphorus           | P %  | 0.034  |
| 2) Silicon              | Si % | 1.41   |

**End of Report**

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



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

Date of issue: 29-11-2018

Page 1 of 1

Castco LRN: MS0181121-1

Name of Customer: Gate Way Valve & Fitting Limited  
Job Title: Valmatic Series 1400 Wafer Silent Check Valve  
Contract No.: --  
Customer's Ref. No.: --  
Date of Received by Lab.: 21-11-2018

Testing Period: 23-11-2018 to 26-11-2018

|   |  |                |              |                          |              |
|---|--|----------------|--------------|--------------------------|--------------|
| Castco LRN:   | MS0181121-1                                  |                |              |                          |              |
| Sample Description :                                      | DN50 Wafer Type Silent Check Valve<br>(Seat) |                |              |                          |              |
| Specimen No. :  | BC0181110-008-MISL                           |                |              |                          |              |
| Location of Work :  | -- / Brand Name: Valmatic                    |                |              |                          |              |
| Sample I.D. No.:  | -- / Model no.: 1402A.3XF                    |                |              |                          |              |
| Specification: BS EN 10283:2010, Table 1,<br>Grade 1.4408 |  |                | Test Results | Within / Exceed<br>limit |              |
| Carbon  | C  | 0.07 max.      | %            | 0.066                    | Within limit |
| Sulfur  | S  | 0.030 max.     | %            | 0.0067                   | Within limit |
| Chromium  | Cr   | 18.00 to 20.00 | %            | 18.42                    | Within limit |
| Manganese   | Mn   | 1.50 max.      | %            | 1.06                     | Within limit |
| Molybdenum  | Mo   | 2.00 to 2.50   | %            | 2.36                     | Within limit |
| Nickel  | Ni   | 9.00 to 12.00  | %            | 9.33                     | Within limit |
| Phosphorus  | P  | 0.040 max.     | %            | 0.034                    | Within limit |
| Silicon   | Si   | 1.50 max.      | %            | 1.41                     | Within limit |

## Remark:

- 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: 07-03-2019

Page 1 of 2

Castco LRN: MS0190214-8

**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 : --

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 14-02-2019

Test Period : 28-02-2019 to 04-03-2019

Sample Description : DN65 Wafer Type Silent Check Valve (Seat)

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

Specimen No. : BC0181110-009-MISL

Location of Work : -- / Brand Name : Valmatic

Sample Identification No. : -- / Model no.: 1425A.3XF

Manufacturer : Val-Matic Valve & Manufacturing Corp. / Origin : USA

**Test Method(s):-**

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

**Remark:**

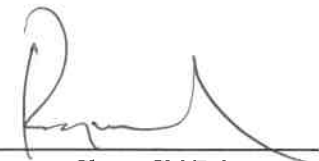
I. Test results only relate to the specimen tested.

Checked by :



Lau Hiu Yat  
Assistant Technical Manager

Approved Signatory :



Cheng Chi Fai  
Senior Manager



### Test Report

#### Chemical Analysis of Steel

Date of issue: 07-03-2019

Page 2 of 2

Castco LRN: MS0190214-8

| Chemical Analysis                  |      | Result |
|------------------------------------|------|--------|
| <sup>1)</sup> Total Carbon Content | C %  | 0.040  |
| <sup>1)</sup> Total Sulfur Content | S %  | 0.0065 |
| <sup>2)</sup> Chromium             | Cr % | 18.65  |
| <sup>2)</sup> Manganese            | Mn % | 1.37   |
| <sup>2)</sup> Molybdenum           | Mo % | 2.29   |
| <sup>2)</sup> Nickel               | Ni % | 11.22  |
| <sup>2)</sup> Phosphorus           | P %  | 0.032  |
| <sup>2)</sup> Silicon              | Si % | 0.591  |

**End of Report**

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

## Appendix A

### Summary of Chemical Analysis of Steel

Date of issue: 07-03-2019

Page 1 of 1

Castco LRN: MS0190214-8

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 14-02-2019

Testing Period: 28-02-2019 to 04-03-2019

|  |   |                |   |              |                       |
|--|---|----------------|---|--------------|-----------------------|
| Castco LRN:  | MS0190214-8   |                |   |              |                       |
| Sample Description :                                   | DN65 Wafer Type Silent Check Valve (Seat)               |                |   |              |                       |
| Specimen No. :   | BC0181110-009-MISL                                      |                |   |              |                       |
| Location of Work :                                     | -- / Brand Name : Valmatic                              |                |   |              |                       |
| Sample I.D. No.:                                       | -- / Model no.: 1425A.3XF                               |                |   |              |                       |
| Manufacturer :   | Val-Matic Valve & Manufacturing Corp. /<br>Origin : USA |                |   |              |                       |
| 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.     | % | 0.0065       | Within limit          |
| Chromium   | Cr  | 18.00 to 20.00 | % | 18.65        | Within limit          |
| Manganese  | Mn  | 1.50 max.      | % | 1.37         | Within limit          |
| Molybdenum   | Mo  | 2.00 to 2.50   | % | 2.29         | Within limit          |
| Nickel   | Ni  | 9.00 to 12.00  | % | 11.22        | Within limit          |
| Phosphorus   | P   | 0.040 max.     | % | 0.032        | Within limit          |
| Silicon  | Si  | 1.50 max.      | % | 0.591        | 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.

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

Date of issue: 29-11-2018

Page 1 of 2

Castco LRN: MS0181121-2

**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 : Valmatic Series 1400 Wafer Silent Check Valve

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 21-11-2018

Test Period : 23-11-2018 to 26-11-2018

Sample Description : DN80 Wafer Type Silent Check Valve (Seat)

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

Specimen No. : BC0181110-010-MISL

Location of Work : -- / Brand Name: Valmatic

Sample Identification No. : -- / Model no.: 1403AX006

**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.

Checked by :

  
Lau Hiu Ya  
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: MS0181121-2

| Chemical Analysis       |      | Result |
|-------------------------|------|--------|
| 1) Total Carbon Content | C %  | 0.022  |
| 1) Total Sulfur Content | S %  | 0.0057 |
| 2) Chromium             | Cr % | 18.11  |
| 2) Manganese            | Mn % | 0.860  |
| 2) Molybdenum           | Mo % | 2.07   |
| 2) Nickel               | Ni % | 9.84   |
| 2) Phosphorus           | P %  | 0.028  |
| 2) Silicon              | Si % | 1.06   |

**End of Report**

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

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

Date of issue: 29-11-2018

Page 1 of 1

Castco LRN: MS0181121-2

Name of Customer: Gate Way Valve & Fitting Limited  
Job Title: Valmatic Series 1400 Wafer Silent Check Valve  
Contract No.: --  
Customer's Ref. No.: --  
Date of Received by Lab.: 21-11-2018

Testing Period: 23-11-2018 to 26-11-2018

|   |  |   |              |                          |
|---|--|---|--------------|--------------------------|
| Castco LRN:   | MS0181121-2                                  |   |              |                          |
| Sample Description :                                      | DN80 Wafer Type Silent Check Valve<br>(Seat) |   |              |                          |
| Specimen No. :  | BC0181110-010-MISL                           |   |              |                          |
| Location of Work :  | -- / Brand Name: Valmatic                    |   |              |                          |
| Sample I.D. No.:  | -- / Model no.: 1403AX006                    |   |              |                          |
| Specification: BS EN 10283:2010, Table 1,<br>Grade 1.4408 |  |   | Test Results | Within / Exceed<br>limit |
| Carbon C  | 0.07 max.                                    | % | 0.022        | Within limit             |
| Sulfur S  | 0.030 max.                                   | % | 0.0057       | Within limit             |
| Chromium Cr   | 18.00 to 20.00                               | % | 18.11        | Within limit             |
| Manganese Mn  | 1.50 max.                                    | % | 0.860        | Within limit             |
| Molybdenum Mo   | 2.00 to 2.50                                 | % | 2.07         | Within limit             |
| Nickel Ni   | 9.00 to 12.00                                | % | 9.84         | Within limit             |
| Phosphorus P  | 0.040 max.                                   | % | 0.028        | Within limit             |
| Silicon Si  | 1.50 max.                                    | % | 1.06         | Within limit             |

## Remark:

- 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: 07-03-2019

Page 1 of 2

Castco LRN: MS0190214-9

**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 : --  
Contract No. : --  
Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --  
Date of Sample Received : 14-02-2019  
Test Period : 28-02-2019 to 04-03-2019  
Sample Description : DN100 Wafer Type Silent Check Valve (Seat)  
Specification : BS EN 10283:2010, Table 1, Grade 1.4408  
Specimen No. : BC0181110-011-MISL  
Location of Work : -- / Brand Name : Valmatic  
Sample Identification No. : -- / Model no.: 1404AX004  
Manufacturer : Val-Matic Valve & Manufacturing Corp. / Origin : USA

**Test Method(s):-**

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

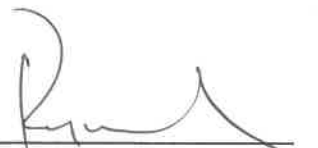
**Remark:**

- 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: 07-03-2019

Page 2 of 2

Castco LRN: MS0190214-9

| <b>Chemical Analysis</b>            |      | <b>Result</b> |
|-------------------------------------|------|---------------|
| 1 <sup>)</sup> Total Carbon Content | C %  | 0.041         |
| 1 <sup>)</sup> Total Sulfur Content | S %  | 0.0065        |
| 2 <sup>)</sup> Chromium             | Cr % | 18.20         |
| 2 <sup>)</sup> Manganese            | Mn % | 1.34          |
| 2 <sup>)</sup> Molybdenum           | Mo % | 2.19          |
| 2 <sup>)</sup> Nickel               | Ni % | 10.92         |
| 2 <sup>)</sup> Phosphorus           | P %  | 0.032         |
| 2 <sup>)</sup> Silicon              | Si % | 0.589         |

**End of Report**

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

## Appendix A

### Summary of Chemical Analysis of Steel

Date of issue: 07-03-2019

Page 1 of 1

Castco LRN: MS0190214-9

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 14-02-2019

Testing Period: 28-02-2019 to 04-03-2019

|  |  |                |   |              |                       |
|--|--|----------------|---|--------------|-----------------------|
| Castco LRN:  | MS0190214-9  |                |   |              |                       |
| Sample Description :                                   | DN100 Wafer Type Silent Check Valve (Seat)           |                |   |              |                       |
| Specimen No. :   | BC0181110-011-MISL                                   |                |   |              |                       |
| Location of Work :                                     | -- / Brand Name : Valmatic                           |                |   |              |                       |
| Sample I.D. No.:                                       | -- / Model no.: 1404AX004                            |                |   |              |                       |
| Manufacturer :   | Val-Matic Valve & Manufacturing Corp. / Origin : USA |                |   |              |                       |
| 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.     | % | 0.0065       | Within limit          |
| Chromium   | Cr   | 18.00 to 20.00 | % | 18.20        | Within limit          |
| Manganese  | Mn   | 1.50 max.      | % | 1.34         | Within limit          |
| Molybdenum   | Mo   | 2.00 to 2.50   | % | 2.19         | Within limit          |
| Nickel   | Ni   | 9.00 to 12.00  | % | 10.92        | Within limit          |
| Phosphorus   | P  | 0.040 max.     | % | 0.032        | Within limit          |
| Silicon  | Si   | 1.50 max.      | % | 0.589        | 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.

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

Date of issue: 29-11-2018

Page 1 of 2

Castco LRN: MS0181121-3

**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 : Valmatic Series 1400 Wafer Silent Check Valve

Contract No. : --

Customer's Ref. No. : --

**Sample details as supplied by customer**

Date Sampled : --

Date of Sample Received : 21-11-2018

Test Period : 23-11-2018 to 26-11-2018

Sample Description : DN150 Wafer Type Silent Check Valve (Seat)

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

Specimen No. : BC0181110-012-MISL

Location of Work : -- / Brand Name: Valmatic

Sample Identification No. : -- / Model no.: 1406A.3XF

**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.

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: MS0181121-3

| Chemical Analysis                  |      | Result |
|------------------------------------|------|--------|
| <sup>1)</sup> Total Carbon Content | C %  | 0.023  |
| <sup>1)</sup> Total Sulfur Content | S %  | 0.0049 |
| <sup>2)</sup> Chromium             | Cr % | 18.17  |
| <sup>2)</sup> Manganese            | Mn % | 0.818  |
| <sup>2)</sup> Molybdenum           | Mo % | 2.21   |
| <sup>2)</sup> Nickel               | Ni % | 9.76   |
| <sup>2)</sup> Phosphorus           | P %  | 0.029  |
| <sup>2)</sup> Silicon              | Si % | 1.41   |

**End of Report**

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

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

Date of issue: 29-11-2018

Page 1 of 1

Castco LRN: MS0181121-3

Name of Customer: Gate Way Valve & Fitting Limited  
Job Title: Valmatic Series 1400 Wafer Silent Check Valve  
Contract No.: --  
Customer's Ref. No.: --  
Date of Received by Lab.: 21-11-2018

Testing Period: 23-11-2018 to 26-11-2018

|  |  |                |              |                       |              |
|--|--|----------------|--------------|-----------------------|--------------|
| Castco LRN:  | MS0181121-3                                |                |              |                       |              |
| Sample Description :                                   | DN150 Wafer Type Silent Check Valve (Seat) |                |              |                       |              |
| Specimen No. :   | BC0181110-012-MISL                         |                |              |                       |              |
| Location of Work :                                     | -- / Brand Name: Valmatic                  |                |              |                       |              |
| Sample I.D. No.:                                       | -- / Model no.: 1406A.3XF                  |                |              |                       |              |
| Specification: BS EN 10283:2010, Table 1, Grade 1.4408 |  |                | Test Results | Within / Exceed limit |              |
| Carbon   | C  | 0.07 max.      | %            | 0.023                 | Within limit |
| Sulfur   | S  | 0.030 max.     | %            | 0.0049                | Within limit |
| Chromium   | Cr   | 18.00 to 20.00 | %            | 18.17                 | Within limit |
| Manganese  | Mn   | 1.50 max.      | %            | 0.818                 | Within limit |
| Molybdenum   | Mo   | 2.00 to 2.50   | %            | 2.21                  | Within limit |
| Nickel   | Ni   | 9.00 to 12.00  | %            | 9.76                  | Within limit |
| Phosphorus   | P  | 0.040 max.     | %            | 0.029                 | Within limit |
| Silicon  | Si   | 1.50 max.      | %            | 1.41                  | Within limit |

## Remark:

- 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.