

Summary of Test Results

Reference no. : BC-SUMMARY-2021-184

Customer : Gate Way Valve & Fitting Ltd.

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

Sample description : Ductile Iron Pressure Reducing Valve

Nominal pressure (PN) : 25

Manufacturer : Cla-Val Pacific Ltd.

Brand name : Cla-Val

Body marking : CLA-VAL (Inch) / (DN) PN25

Model no. : 90G-21

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Ltd.

Test standard : BS EN 1567 : 1999 / WIS 4-52-01 Dec. 1992 : Issue 1 / BS EN 1563 : 2011 / BS EN 10283 : 2010 / BS EN 10088-3 : 2014

Test period : 29 October to 09 November 2021

A) Sample List

DN (mm)	Specimen no.
40	211004-2309-001
80	211004-2309-002
100	211004-2309-003
150	211004-2309-004
200	211004-2309-005

B) Test Item

1) Dimensions Check (BS EN 1567 : 1999 Clause 4)

DN (mm)	Test results	Castco LRN
40	Passed	211004-2309
80	Passed	
100	Passed	
150	Passed	
200	Passed	

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

DN (mm)	Test results	Castco LRN
40	Passed	211004-2309
80	Passed	
100	Passed	
150	Passed	
200	Passed	

3) Pressure Strength and Tightness of the Body (BS EN 1567 : 1999 Clause 8.2.2)

DN (mm)	Test results	Castco LRN
40	Passed	211004-2309
80	Passed	
100	Passed	
150	Passed	
200	Passed	

Summary of Test Results

Reference no. : BC-SUMMARY-2021-184

B) Test Item (con't)**4) Flow Rate and Outlet Pressure (BS EN 1567 : 1999 Clause 8.3.4)**

DN (mm)	Test results	Castco LRN
40	Passed	211004-2309
80	Passed	
100	Passed	
150	Passed	
200	Passed	

5) Tensile Test (BS EN 1563 : 2011 Clause 7.2.1.1 Table 1 (Grade EN-GJS-400-15 and Clause 9.1))

DN (mm)	Test results	Castco LRN
40	Passed	211004-2309
100	Passed	
200	Passed	

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

DN (mm)	Test results	Castco LRN
40	Passed	211101-2321
100	Passed	211101-2323
200	Passed	211101-2325

7) Chemical Composition (Stem) (BS EN 10088-3 : 2014 Table 2 Grade 1.4305)

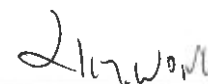
DN (mm)	Test results	Castco LRN
40	Passed	211101-2322
100	Passed	211101-2324
200	Passed	211101-2326

Prepare by :


FU HO MAN
Assistant Technical Manager

Date : 15 November 2021

Review by :


WONG KA MAN
Senior Manager

Date : 15 November 2021

Test Report
Pressure Reducing Valves - Dimensions Check
(BS EN 1567 : 1999 Clause 4)

Date of issue : 15 November 2021

Page 1 of 6 page(s)

Castco LRN : 211004-2309

Details as supplied by customer

Customer : Gate Way Valve & Fitting Limited

Customer's ref. no. : - -

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

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Pressure Reducing Valve

Nominal pressure (PN) : 25

Manufacturer : Cla-Val Pacific Ltd.

Brand name : Cla-Val

Body marking : CLA-VAL (Inch) / (DN) PN25

Model no. : 90G-21

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Limited

Laboratory test results

Date of sample received : 15 September 2021

Date of test : 29 October 2021

Specimen no.		211004-2309-001	211004-2309-002	211004-2309-003	211004-2309-004	211004-2309-005
DN (mm)		40	80	100	150	200
Dimension of End Connection (mm)	Measured mean value	38	78	101	152	204
	Requirement	40	80	100	N/A	N/A

Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1567 : 1999 Table 1 (effect of measurement uncertainty has not been taken into account).

Checked by : _____

FU HO MAN
Assistant Technical Manager

Certified by : _____

WONG KA MAN
Senior Manager

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

Test Report**Valves - Coating Thickness Measurement**

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

Date of issue : 15 November 2021

Page 2 of 6 page(s)

Castco LRN : 211004-2309

Details as supplied by customer

Customer : Gate Way Valve & Fitting Limited

Customer's ref. no. : - -

Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon Contract no. : - -

Job title : - -

Sample description : Ductile Iron Pressure Reducing Valve

Nominal pressure (PN) : 25

Manufacturer : Cla-Val Pacific Ltd.

Brand name : Cla-Val

Body marking : CLA-VAL (Inch) / (DN) PN25

Model no. : 90G-21

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Limited

Laboratory test results

Date of sample received : 15 September 2021

Date of test : 29 October 2021

Specimen no.	211004-2309-001	211004-2309-002	211004-2309-003	211004-2309-004	211004-2309-005	
DN (mm)	40	80	100	150	200	
Ambient temperature (°C)	23.5	23.5	23.5	23.5	23.5	
Measured value of coating thickness at external surface (µm)	1	257	410	216	344	373
	2	268	319	294	397	452
	3	217	317	282	395	450
	4	426	371	255	387	430
	5	292	326	312	451	355
Measured value of coating thickness at internal surface (µm)	6	579	552	239	327	269
	7	560	607	249	383	346
	8	361	614	350	271	319
	9	426	525	473	235	258
	10	461	428	274	342	256
	11	432	580	430	395	276
	12	541	420	357	278	327
	13	607	455	375	351	330
	14	577	441	332	255	325
	15	529	476	425	453	319
Mean	435.5	456.1	324.2	350.9	339.0	
Minimum coating thickness (µm)	217	317	216	235	256	
Maximum coating thickness (µm)	607	614	473	453	452	
Standard deviation (µm)	130.9	101.5	76.8	67.5	64.6	
Manufacturer requirement (µm)	Minimum coating thickness	min. 200				
	Maximum coating thickness	max. 800				

Remark(s) :

1. Test results relate only to the specimen tested.

Checked by :



FU HO MAN
Assistant Technical Manager

Approved Signatory :



WONG KA MAN
Senior Manager

Form no. : BC_VALVES_CT_WIS 4-52-01_T_dd_01/06/2021

Test Report
Pressure Reducing Valves - Pressure Strength and Tightness Test
(BS EN 1567 : 1999 Clause 8.2.2)

Date of issue : 15 November 2021

Page 3 of 6 page(s)

Castco LRN : 211004-2309

Details as supplied by customer

Customer : Gate Way Valve & Fitting Limited

Customer's ref. no. : - -

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

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Pressure Reducing Valve

Nominal pressure (PN) : 25

Manufacturer : Cla-Val Pacific Ltd.

Brand name : Cla-Val

Body marking : CLA-VAL (Inch) / (DN) PN25

Model no. : 90G-21

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Limited

Laboratory test results

Date of sample received : 15 September 2021

Date of test : 29 October 2021

Specimen no.	211004-2309-001	211004-2309-002	211004-2309-003	211004-2309-004	211004-2309-005	
DN (mm)	40	80	100	150	200	
Apply pressure (bar)	to inlet connection	25	25	25	25	25
	to outlet connection	16	16	16	16	16
Maintain period (min)	10	10	10	10	10	
Observation	No leakage was observed	No leakage was observed	No leakage was observed	No leakage was observed	No leakage was observed	
Requirement	No leakage or permanent deformation shall occur					

Remark(s) :

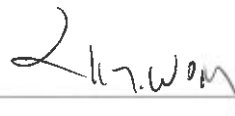
1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1567 : 1999 Clause 8.2.2 (effect of measurement uncertainty has not been taken into account).

Checked by :



FU HO MAN
Assistant Technical Manager

Certified by :



WONG KA MAN
Senior Manager

Test Report
Pressure Reducing Valves - Flow Rate and Outlet Pressure Test
(BS EN 1567 : 1999 Clause 8.3.4)

Date of issue : 15 November 2021

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Castco LRN : 211004-2309

Details as supplied by customer

Customer : Gate Way Valve & Fitting Limited

Customer's ref. no. : - -

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

Contract no. : - -

Job title : - -

Sample description : Ductile Iron Pressure Reducing Valve

Nominal pressure (PN) : 25

Manufacturer : Cla-Val Pacific Ltd.

Brand name : Cla-Val

Body marking : CLA-VAL (Inch) / (DN) PN25

Model no. : 90G-21

Origin : Canada

Sample submitted by : Gate Way Valve & Fitting Limited

Laboratory test results

Date of sample received : 15 September 2021

Date of test : 29 to 30 October 2021

Specimen no.	211004-2309-001	211004-2309-002	211004-2309-003	211004-2309-004	211004-2309-005
DN (mm)	40	80	100	150	200
Nominal flow rate (QN) (L/s)	2.53	10	15.56	15.56	15.56
Measured outlet pressure (bar)	Inlet pressure	8	8	8	8
	Outlet pressure	2.4	2.8	2.8	3.2
	Inlet pressure	6	6	6	6
	Outlet pressure	2.4	2.6	2.7	3.2
	Inlet pressure	16	16	16	16
	Outlet pressure	2.7	3.1	3.0	3.4
Requirement	The outlet pressure shall be within 2.2 to 3.8 bar				

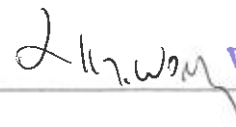
Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 1567 : 1999 Clause 8.3.4 (effect of measurement uncertainty has not been taken into account).
3. Due to the Nominal flow rate (QN) of DN150 & 200 did not specified on BS EN 1567 : 1999 Table 5, the test method and requirement just based on DN100.

Checked by :


FU HO MAN
 Assistant Technical Manager

Certified by :


WONG KA MAN
 Senior Manager

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Test Report Metallic Materials - Tensile Test of Metallic Materials (BS EN ISO 6892-1 : 2009)

Date of issue : 15 November 2021

Page 5 of 6 page(s)

Castco LRN : 211004-2309

Details as supplied by customer

Customer : Gate Way Valve & Fitting Limited Customer's ref. no. : - -
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon Contract no. : - -
Job title : - -
Sample description : Ductile Iron Pressure Reducing Valve
Nominal pressure (PN) : 25
Manufacturer : Cla-Val Pacific Ltd.
Brand name : Cla-Val
Body marking : CLA-VAL (Inch) / (DN) PN25
Model no. : 90G-21
Origin : Canada
Sample submitted by : Gate Way Valve & Fitting Limited
Acceptance standard : BS EN 1563 : 2011 Clause 7.2.1.1 Table 1 Grade EN-GJS-400-15 and Clause 9.1

Laboratory test results

Date of sample received : 15 September 2021

Date of test : 08 November 2021

Tensile Test

Specimen no.	DN (mm)	Type & Prepar'n	Specimen length (mm)	Area (mm ²)	Yield strength (MPa)	Tensile strength (MPa)	Elongation (%)	Position of fracture	Remark
211004-2309-001	40	A, M	195	125.4	361	552	18.5	--	--
211004-2309-003	100	A, M	196	125.3	362	553	18.4	--	--
211004-2309-005	200	A, M	196	125.2	366	555	17.7	--	--

Remark(s) :

1. A - Proportional; B - Non - proportional; M - Machined; N - Unmachined;
+ - This measurement is 'invalid' which relates to the position of fracture only.
2. The yield strength is determined at 0.2% proof strength.
3. Test results relate only to the specimen tested.
4. Test results of sample comply with the requirement of BS EN 1563 : 2011 Table 1 (this specification is not covered by the laboratory's HOKLAS accreditation).
5. The requirement of BS EN 1563 : 2011 Table 1 : 0.2% proof strength = min. 250MPa; Tensile strength = min. 400MPa; Elongation = min. 15%.
6. The acceptance limit is the same as the tolerance limit (simple acceptance, see Figure A). Only test results out of the tolerance/acceptance limit will be concluded as out-of-tolerance.

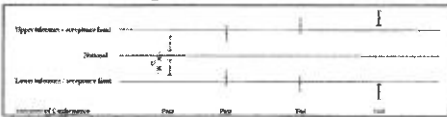


Figure A - Graphical representation of a binary statement - Simple acceptance

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

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

Test Report
Pressure Reducing Valves - Dimensions Check
(BS EN 1567 : 1999 Clause 4)

Date of issue : 15 November 2021

Page 6 of 6 page(s)

Castco LRN : 211004-2309

Appendix A



211004-2309-001



211004-2309-002



211004-2309-003



211004-2309-004



211004-2309-005

End of Report

Test Report**Chemical Analysis of Steel**

Date of issue: 12-11-2021

Page 1 of 2

Specimen No.: CHEM-211101-2321-001

Castco LRN: 211101-2321

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : Ductile Iron Pressure Reducing Valve

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN40 Ductile Iron Pressure Reducing Valve (Seat)

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

Specimen No.: 211004-2309-001

Sample Identification No. : -- / Model no.: 90G-21 / Origin: Canada

Location of Works : --

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


Test Method(s):-

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

Remark(s) :

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

Checked by :


Lau Hiu Yat
Assistant Technical Manager

Approved Signatory :


Cheng Chi Fai
Senior Manager



Test Report
Chemical Analysis of Steel

Date of issue: 12-11-2021
Page 2 of 2

Specimen No.: CHEM-211101-2321-001
Castco LRN: 211101-2321

Laboratory test details

Date of Request Confirmed: 29-10-2021

Date of Received by Lab.: 29-10-2021

Testing Period: 09-11-2021

Chemical Analysis		Result
1) Total Carbon Content	C %	0.042
1) Total Sulfur Content	S %	0.0071
2) Chromium	Cr %	18.41
2) Manganese	Mn %	0.526
2) Molybdenum	Mo %	2.06
2) Nickel	Ni %	9.52
2) Phosphorus	P %	0.029
2) Silicon	Si %	0.836

End of Report

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

Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 12-11-2021

Specimen No.: CHEM-211101-2321-001

Page 1 of 1

Castco LRN: 211101-2321

Name of Customer : Gate Way Valve & Fitting Limited

Job Title : Ductile Iron Pressure Reducing Valve

Contract No. : --

Customer's Ref. No. : --

Date of Received by Lab. : 29-10-2021

Testing Period: 09-11-2021

Castco LRN :	211101-2321				
Sample Description :	DN40 Ductile Iron Pressure Reducing Valve (Seat)				
Specimen No. :	211004-2309-001				
Sample Identification No. :	-- / Model no.: 90G-21 / Origin: Canada				
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: Cla-Val				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.042	Within limit
Sulfur	S	0.030 max.	%	0.0071	Within limit
Chromium	Cr	18.00 to 20.00	%	18.41	Within limit
Manganese	Mn	1.50 max.	%	0.526	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.06	Within limit
Nickel	Ni	9.00 to 12.00	%	9.52	Within limit
Phosphorus	P	0.040 max.	%	0.029	Within limit
Silicon	Si	1.50 max.	%	0.836	Within limit

Remark(s):

I. Test results only relate to the specimen tested.

II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10283:2010, Table 1, Grade 1.4408.

**Test Report
Chemical Analysis of Steel**

Date of issue: 12-11-2021

Page 1 of 2

Specimen No.: CHEM-211101-2322-001

Castco LRN: 211101-2322

Details as supplied by customer

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

Sample details as supplied by customer

Date Sampled : --
Sample Description : DN40 Ductile Iron Pressure Reducing Valve (Stem)
Specification : BS EN 10088-3:2014, Table 2, Grade 1.4305
Specimen No.: 211004-2309-001
Sample Identification No. : -- / Model no.: 90G-21 / Origin: Canada
Location of Works : --
Manufacturer : Cla-Val Pacific Ltd. / Brand name: Cla-Val

Test Method(s):-

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

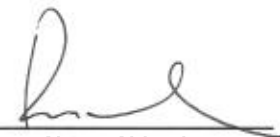
Remark(s) :

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

Checked by :

**Lau Hiu Yat**
Assistant Technical Manager

Approved Signatory :

**Cheng Chi Fai**
Senior Manager

Test Report

Chemical Analysis of Steel

Date of issue: 12-11-2021
Page 2 of 2Specimen No.: CHEM-211101-2322-001
Castco LRN: 211101-2322**Laboratory test details**

Date of Request Confirmed: 29-10-2021

Date of Received by Lab.: 29-10-2021

Testing Period: 08-11-2021 to 09-11-2021

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.059
¹⁾ Total Sulfur Content	S %	0.219
²⁾ Chromium	Cr %	17.77
²⁾ Copper	Cu %	0.436
²⁾ Manganese	Mn %	1.84
²⁾ Nickel	Ni %	8.57
²⁾ Phosphorus	P %	0.036
²⁾ Silicon	Si %	0.387
³⁾ Nitrogen	N %	0.075

End of Report

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

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

Date of issue: 12-11-2021

Specimen No.: CHEM-211101-2322-001

Page 1 of 1

Castco LRN: 211101-2322

Name of Customer : Gate Way Valve & Fitting Limited
Job Title : Ductile Iron Pressure Reducing Valve
Contract No. : --
Customer's Ref. No. : --
Date of Received by Lab. : 29-10-2021

Testing Period: 08-11-2021 to 09-11-2021

Castco LRN :	211101-2322			
Sample Description :	DN40 Ductile Iron Pressure Reducing Valve (Stem)			
Specimen No. :	211004-2309-001			
Sample Identification No. :	-- / Model no.: 90G-21 / Origin: Canada			
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: Cla-Val			
Specification: BS EN 10088-3:2014, Table 2, Grade 1.4305	Test Results		Within / Exceed limit	
Carbon C 0.10 max. %	0.059		Within limit	
Sulfur S 0.15 to 0.35 %	0.219		Within limit	
Chromium Cr 17.0 to 19.0 %	17.77		Within limit	
Copper Cu 1.00 max. %	0.436		Within limit	
Manganese Mn 2.00 max. %	1.84		Within limit	
Nickel Ni 8.0 to 10.0 %	8.57		Within limit	
Phosphorus P 0.045 max. %	0.036		Within limit	
Silicon Si 1.00 max. %	0.387		Within limit	
Nitrogen N 0.10 max. %	0.075		Within limit	

Remark(s):

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-3:2014, Table 2, Grade 1.4305.

Test Report
Chemical Analysis of SteelDate of issue: 12-11-2021
Page 1 of 2Specimen No.: CHEM-211101-2323-001
Castco LRN: 211101-2323**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : Ductile Iron Pressure Reducing Valve

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN100 Ductile Iron Pressure Reducing Valve (Seat)

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

Specimen No.: 211004-2309-003

Sample Identificattion No. : -- / Model no.: 90G-21 / Origin: Canada

Location of Works : --

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

Test Method(s):-

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

Remark(s) :

I. Test results only relate to the specimen tested.

Checked by :

Lau Hiu Yat
Assistant Technical Manager

Approved Signatory :

Cheng Chi Fai
Senior Manager

Test Report
Chemical Analysis of Steel

Date of issue: 12-11-2021
 Page 2 of 2

Specimen No.: CHEM-211101-2323-001
 Castco LRN: 211101-2323

Laboratory test details

Date of Request Confirmed: 29-10-2021

Date of Received by Lab.: 29-10-2021

Testing Period: 09-11-2021

Chemical Analysis		Result
1) Total Carbon Content	C %	0.029
1) Total Sulfur Content	S %	0.0045
2) Chromium	Cr %	19.22
2) Manganese	Mn %	1.02
2) Molybdenum	Mo %	2.26
2) Nickel	Ni %	10.29
2) Phosphorus	P %	0.027
2) Silicon	Si %	0.810

End of Report

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

Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 12-11-2021
Page 1 of 1Specimen No.: CHEM-211101-2323-001
Castco LRN: 211101-2323Name of Customer : Gate Way Valve & Fitting Limited
Job Title : Ductile Iron Pressure Reducing Valve
Contract No. : --
Customer's Ref. No. : --
Date of Received by Lab. : 29-10-2021

Testing Period: 09-11-2021

Castco LRN :	211101-2323				
Sample Description :	DN100 Ductile Iron Pressure Reducing Valve (Seat)				
Specimen No. :	211004-2309-003				
Sample Identification No. :	-- / Model no.: 90G-21 / Origin: Canada				
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: Cla-Val				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.029	Within limit
Sulfur	S	0.030 max.	%	0.0045	Within limit
Chromium	Cr	18.00 to 20.00	%	19.22	Within limit
Manganese	Mn	1.50 max.	%	1.02	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.26	Within limit
Nickel	Ni	9.00 to 12.00	%	10.29	Within limit
Phosphorus	P	0.040 max.	%	0.027	Within limit
Silicon	Si	1.50 max.	%	0.810	Within limit

Remark(s):

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

**Test Report
Chemical Analysis of Steel**

Date of issue: 12-11-2021

Page 1 of 2

Specimen No.: CHEM-211101-2324-001

Castco LRN: 211101-2324

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : Ductile Iron Pressure Reducing Valve

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN100 Ductile Iron Pressure Reducing Valve (Stem)

Specification : BS EN 10088-3:2014, Table 2, Grade 1.4305

Specimen No.: 211004-2309-003

Sample Identification No. : -- / Model no.: 90G-21 / Origin: Canada

Location of Works : --

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

Test Method(s):-

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

Remark(s) :

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


Checked by :



Lau Hiu Yat

Assistant Technical Manager

Approved Signatory :



Cheng Chi Fai

Senior Manager

**Test Report
Chemical Analysis of Steel**Date of issue: 12-11-2021
Page 2 of 2Specimen No.: CHEM-211101-2324-001
Castco LRN: 211101-2324**Laboratory test details**

Date of Request Confirmed: 29-10-2021

Date of Received by Lab.: 29-10-2021

Testing Period: 08-11-2021 to 09-11-2021

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.061
¹⁾ Total Sulfur Content	S %	0.215
²⁾ Chromium	Cr %	18.78
²⁾ Copper	Cu %	0.431
²⁾ Manganese	Mn %	1.90
²⁾ Nickel	Ni %	8.73
²⁾ Phosphorus	P %	0.037
²⁾ Silicon	Si %	0.379
³⁾ Nitrogen	N %	0.095

End of Report

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

Appendix A**Summary of Chemical Analysis of Steel**Date of issue: 12-11-2021
Page 1 of 1Specimen No.: CHEM-211101-2324-001
Castco LRN: 211101-2324Name of Customer : Gate Way Valve & Fitting Limited
Job Title : Ductile Iron Pressure Reducing Valve
Contract No. : --
Customer's Ref. No. : --
Date of Received by Lab. : 29-10-2021

Testing Period: 08-11-2021 to 09-11-2021

Castco LRN :	211101-2324			
Sample Description :	DN100 Ductile Iron Pressure Reducing Valve (Stem)			
Specimen No. :	211004-2309-003			
Sample Identification No. :	-- / Model no.: 90G-21 / Origin: Canada			
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: Cla-Val			
Specification: BS EN 10088-3:2014, Table 2, Grade 1.4305	Test Results		Within / Exceed limit	
Carbon C 0.10 max. %	0.061		Within limit	
Sulfur S 0.15 to 0.35 %	0.215		Within limit	
Chromium Cr 17.0 to 19.0 %	18.78		Within limit	
Copper Cu 1.00 max. %	0.431		Within limit	
Manganese Mn 2.00 max. %	1.90		Within limit	
Nickel Ni 8.0 to 10.0 %	8.73		Within limit	
Phosphorus P 0.045 max. %	0.037		Within limit	
Silicon Si 1.00 max. %	0.379		Within limit	
Nitrogen N 0.10 max. %	0.095		Within limit	

Remark(s):

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-3:2014, Table 2, Grade 1.4305.

**Test Report
Chemical Analysis of Steel**

Date of issue: 12-11-2021

Specimen No.: CHEM-211101-2325-001

Page 1 of 2

Castco LRN: 211101-2325

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : Ductile Iron Pressure Reducing Valve

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN200 Ductile Iron Pressure Reducing Valve (Seat)

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

Specimen No.: 211004-2309-005

Sample Identification No. : -- / Model no.: 90G-21 / Origin: Canada

Location of Works : --

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

Test Method(s):-

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

Remark(s) :

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

Checked by : _____


Lau Hiu Yat
Assistant Technical Manager

Approved Signatory : _____


Cheng Chi Fai
Senior Manager

Test Report
Chemical Analysis of Steel

Date of issue: 12-11-2021

Specimen No.: CHEM-211101-2325-001

Page 2 of 2

Castco LRN: 211101-2325

Laboratory test details

Date of Request Confirmed: 29-10-2021

Date of Received by Lab.: 29-10-2021

Testing Period: 09-11-2021

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.031
¹⁾ Total Sulfur Content	S %	0.0055
²⁾ Chromium	Cr %	19.65
²⁾ Manganese	Mn %	1.22
²⁾ Molybdenum	Mo %	2.39
²⁾ Nickel	Ni %	10.12
²⁾ Phosphorus	P %	0.030
²⁾ Silicon	Si %	0.622

End of Report

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

Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 12-11-2021
Page 1 of 1Specimen No.: CHEM-211101-2325-001
Castco LRN: 211101-2325Name of Customer : Gate Way Valve & Fitting Limited
Job Title : Ductile Iron Pressure Reducing Valve
Contract No. : --
Customer's Ref. No. : --
Date of Received by Lab. : 29-10-2021

Testing Period: 09-11-2021

Castco LRN :	211101-2325				
Sample Description :	DN200 Ductile Iron Pressure Reducing Valve (Seat)				
Specimen No. :	211004-2309-005				
Sample Identification No. :	-- / Model no.: 90G-21 / Origin: Canada				
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: Cla-Val				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.031	Within limit
Sulfur	S	0.030 max.	%	0.0055	Within limit
Chromium	Cr	18.00 to 20.00	%	19.65	Within limit
Manganese	Mn	1.50 max.	%	1.22	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.39	Within limit
Nickel	Ni	9.00 to 12.00	%	10.12	Within limit
Phosphorus	P	0.040 max.	%	0.030	Within limit
Silicon	Si	1.50 max.	%	0.622	Within limit

Remark(s):

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

**Test Report
Chemical Analysis of Steel**

Date of issue: 12-11-2021

Page 1 of 2

Specimen No.: CHEM-211101-2326-001

Castco LRN: 211101-2326

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : Ductile Iron Pressure Reducing Valve

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN200 Ductile Iron Pressure Reducing Valve (Stem)

Specification : BS EN 10088-3:2014, Table 2, Grade 1.4305

Specimen No.: 211004-2309-005

Sample Identification No. : -- / Model no.: 90G-21 / Origin: Canada

Location of Works : --

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

Test Method(s):-

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

Remark(s) :

I. Test results only relate to the specimen tested.

Checked by :



Lau Hiu Yat

Assistant Technical Manager

Approved Signatory :



Cheng Chi Fai

Senior Manager

**Test Report
Chemical Analysis of Steel**Date of issue: 12-11-2021
Page 2 of 2Specimen No.: CHEM-211101-2326-001
Castco LRN: 211101-2326**Laboratory test details**

Date of Request Confirmed: 29-10-2021

Date of Received by Lab.: 29-10-2021

Testing Period: 08-11-2021 to 09-11-2021

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.038
¹⁾ Total Sulfur Content	S %	0.205
²⁾ Chromium	Cr %	18.87
²⁾ Copper	Cu %	0.594
²⁾ Manganese	Mn %	1.84
²⁾ Nickel	Ni %	8.84
²⁾ Phosphorus	P %	0.043
²⁾ Silicon	Si %	0.311
³⁾ Nitrogen	N %	0.075

End of Report

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

Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 12-11-2021
Page 1 of 1

Specimen No.: CHEM-211101-2326-001
Castco LRN: 211101-2326

Name of Customer : Gate Way Valve & Fitting Limited
Job Title : Ductile Iron Pressure Reducing Valve
Contract No. : --
Customer's Ref. No. : --
Date of Received by Lab. : 29-10-2021

Testing Period: 08-11-2021 to 09-11-2021

Castco LRN :	211101-2326	
Sample Description :	DN200 Ductile Iron Pressure Reducing Valve (Stem)	
Specimen No. :	211004-2309-005	
Sample Identification No. :	-- / Model no.: 90G-21 / Origin: Canada	
Manufacturer :	Cla-Val Pacific Ltd. / Brand name: Cla-Val	
Specification: BS EN 10088-3:2014, Table 2, Grade 1.4305	Test Results	Within / Exceed limit
Carbon C 0.10 max. %	0.038	Within limit
Sulfur S 0.15 to 0.35 %	0.205	Within limit
Chromium Cr 17.0 to 19.0 %	18.87	Within limit
Copper Cu 1.00 max. %	0.594	Within limit
Manganese Mn 2.00 max. %	1.84	Within limit
Nickel Ni 8.0 to 10.0 %	8.84	Within limit
Phosphorus P 0.045 max. %	0.043	Within limit
Silicon Si 1.00 max. %	0.311	Within limit
Nitrogen N 0.10 max. %	0.075	Within limit

Remark(s):

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-3:2014, Table 2, Grade 1.4305.