

**Test Report
Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 1 of 2Specimen No.: CHEM-230605-2842-001
Castco LRN: 230605-2842**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 : WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Sample Description : DN50 Ductile Iron Wafer Type Silent Check Valve (Seat)
Specification : BS EN 10283:2010, Table 1, Grade 1.4408 (316)
Specimen No. : 230601-2575-001
Sample Identification No. : -- / Model No. : 580PHS-RS / Origin : New Zealand
Manufacturer : Cla-Val Pacific Limited / 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 Hin Yat
Technical Manager

Approved Signatory :


Cheng Chi Fai
Senior Manager

**Test Report
Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 2 of 2Specimen No.: CHEM-230605-2842-001
Castco LRN: 230605-2842**Laboratory test details**

Date of Request Confirmed: 02-06-2023

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.030
¹⁾ Total Sulfur Content	S %	0.0053
²⁾ Chromium	Cr %	18.18
²⁾ Manganese	Mn %	1.21
²⁾ Molybdenum	Mo %	2.34
²⁾ Nickel	Ni %	9.39
²⁾ Phosphorus	P %	0.026
²⁾ Silicon	Si %	1.31

End of Report

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

Date of issue: 21-06-2023

Specimen No.: CHEM-230605-2842-001

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Castco LRN: 230605-2842

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Castco LRN:	230605-2842			
Sample Description :	DN50 Ductile Iron Wafer Type Silent Check Valve (Seat)			
Specimen No. :	230601-2575-001			
Sample Identification No.:	-- / Model No. : 580PHS-RS / Origin : New Zealand			
Manufacturer :	Cla-Val Pacific Limited / Brand name: Cla-Val			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408	Test Results		Within / Exceed limit	
Carbon C	0.07 max.	%	0.030	Within limit
Sulfur S	0.030 max.	%	0.0053	Within limit
Chromium Cr	18.00 to 20.00	%	18.18	Within limit
Manganese Mn	1.50 max.	%	1.21	Within limit
Molybdenum Mo	2.00 to 2.50	%	2.34	Within limit
Nickel Ni	9.00 to 12.00	%	9.39	Within limit
Phosphorus P	0.040 max.	%	0.026	Within limit
Silicon Si	1.50 max.	%	1.31	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: 21-06-2023
Page 1 of 2Specimen No.: CHEM-230605-2843-001
Castco LRN: 230605-2843**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 : WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN50 Ductile Iron Wafer Type Silent Check Valve (Disc)

Specification : BS EN 10283:2010, Table 1, Grade 1.4408 (316)

Specimen No. : 230601-2575-001

Sample Identification No. : -- / Model No. : 580PHS-RS / Origin : New Zealand

Manufacturer : Cla-Val Pacific Limited / 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
Technical Manager

Approved Signatory :


Cheng Chi Fai
Senior Manager

Test Report**Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 2 of 2Specimen No.: CHEM-230605-2843-001
Castco LRN: 230605-2843**Laboratory test details**

Date of Request Confirmed: 02-06-2023

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.030
¹⁾ Total Sulfur Content	S %	0.0043
²⁾ Chromium	Cr %	18.30
²⁾ Manganese	Mn %	1.03
²⁾ Molybdenum	Mo %	2.50
²⁾ Nickel	Ni %	9.34
²⁾ Phosphorus	P %	0.027
²⁾ Silicon	Si %	1.27

End of Report

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

Date of issue: 21-06-2023

Specimen No.: CHEM-230605-2843-001

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Castco LRN: 230605-2843

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Castco LRN:	230605-2843			
Sample Description :	DN50 Ductile Iron Wafer Type Silent Check Valve (Disc)			
Specimen No. :	230601-2575-001			
Sample Identification No.:	-- / Model No. : 580PHS-RS / Origin : New Zealand			
Manufacturer :	Cla-Val Pacific Limited / Brand name: Cla-Val			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408	Test Results		Within / Exceed limit	
Carbon C	0.07 max.	%	0.030	Within limit
Sulfur S	0.030 max.	%	0.0043	Within limit
Chromium Cr	18.00 to 20.00	%	18.30	Within limit
Manganese Mn	1.50 max.	%	1.03	Within limit
Molybdenum Mo	2.00 to 2.50	%	2.50	Within limit
Nickel Ni	9.00 to 12.00	%	9.34	Within limit
Phosphorus P	0.040 max.	%	0.027	Within limit
Silicon Si	1.50 max.	%	1.27	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: 21-06-2023
Page 1 of 2Specimen No.: CHEM-230605-2844-001
Castco LRN: 230605-2844**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 : WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Sample Description : DN80 Ductile Iron Wafer Type Silent Check Valve (Seat)
Specification : BS EN 10283:2010, Table 1, Grade 1.4408 (316)
Specimen No. : 230601-2575-003
Sample Identification No. : -- / Model No. : 580PHS-RS / Origin : New Zealand
Manufacturer : Cla-Val Pacific Limited / 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**
Technical Manager

Approved Signatory :

**Cheng Chi Fai**
Senior Manager

**Test Report
Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 2 of 2Specimen No.: CHEM-230605-2844-001
Castco LRN: 230605-2844**Laboratory test details**

Date of Request Confirmed: 02-06-2023

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.028
¹⁾ Total Sulfur Content	S %	0.0045
²⁾ Chromium	Cr %	18.07
²⁾ Manganese	Mn %	1.18
²⁾ Molybdenum	Mo %	2.42
²⁾ Nickel	Ni %	9.26
²⁾ Phosphorus	P %	0.023
²⁾ Silicon	Si %	1.41

End of Report

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Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 21-06-2023
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Specimen No.: CHEM-230605-2844-001
Castco LRN: 230605-2844

Name of Customer: Gate Way Valve & Fitting Limited
Job Title: WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS
Contract No.: --
Customer's Ref. No.: --
Date of Received by Lab.: 02-06-2023
Testing Period: 14-06-2023 to 15-06-2023

Castco LRN:	230605-2844				
Sample Description :	DN80 Ductile Iron Wafer Type Silent Check Valve (Seat)				
Specimen No. :	230601-2575-003				
Sample Identification No.:	-- / Model No. : 580PHS-RS / Origin : New Zealand				
Manufacturer :	Cla-Val Pacific Limited / Brand name: Cla-Val				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.028	Within limit
Sulfur	S	0.030 max.	%	0.0045	Within limit
Chromium	Cr	18.00 to 20.00	%	18.07	Within limit
Manganese	Mn	1.50 max.	%	1.18	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.42	Within limit
Nickel	Ni	9.00 to 12.00	%	9.26	Within limit
Phosphorus	P	0.040 max.	%	0.023	Within limit
Silicon	Si	1.50 max.	%	1.41	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: 21-06-2023
Page 1 of 2Specimen No.: CHEM-230605-2845-001
Castco LRN: 230605-2845**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 : WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Sample Description : DN80 Ductile Iron Wafer Type Silent Check Valve (Disc)

Specification : BS EN 10283:2010, Table 1, Grade 1.4408 (316)

Specimen No. : 230601-2575-003

Sample Identification No. : -- / Model No. : 580PHS-RS / Origin : New Zealand

Manufacturer : Cla-Val Pacific Limited / 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**
Technical Manager

Approved Signatory :

**Cheng Chi Fai**
Senior Manager

**Test Report
Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 2 of 2Specimen No.: CHEM-230605-2845-001
Castco LRN: 230605-2845**Laboratory test details**Date of Request Confirmed: 02-06-2023 Date of Received by Lab.: 02-06-2023
Testing Period: 14-06-2023 to 15-06-2023

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.029
¹⁾ Total Sulfur Content	S %	0.0042
²⁾ Chromium	Cr %	18.25
²⁾ Manganese	Mn %	1.04
²⁾ Molybdenum	Mo %	2.31
²⁾ Nickel	Ni %	9.25
²⁾ Phosphorus	P %	0.026
²⁾ Silicon	Si %	1.39

End of Report

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Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 21-06-2023
Page 1 of 1Specimen No.: CHEM-230605-2845-001
Castco LRN: 230605-2845

Name of Customer: Gate Way Valve & Fitting Limited
 Job Title: WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS
 Contract No.: --
 Customer's Ref. No.: --
 Date of Received by Lab.: 02-06-2023 Testing Period: 14-06-2023 to 15-06-2023

Castco LRN:	230605-2845				
Sample Description :	DN80 Ductile Iron Wafer Type Silent Check Valve (Disc)				
Specimen No. :	230601-2575-003				
Sample Identification No.:	-- / Model No. : 580PHS-RS / Origin : New Zealand				
Manufacturer :	Cla-Val Pacific Limited / 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.	%	0.0042	Within limit
Chromium	Cr	18.00 to 20.00	%	18.25	Within limit
Manganese	Mn	1.50 max.	%	1.04	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.31	Within limit
Nickel	Ni	9.00 to 12.00	%	9.25	Within limit
Phosphorus	P	0.040 max.	%	0.026	Within limit
Silicon	Si	1.50 max.	%	1.39	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: 21-06-2023
Page 1 of 2Specimen No.: CHEM-230605-2846-001
Castco LRN: 230605-2846**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 : WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Sample Description : DN200 Ductile Iron Wafer Type Silent Check Valve (Seat)
Specification : BS EN 10283:2010, Table 1, Grade 1.4408 (316)
Specimen No. : 230601-2575-006
Sample Identification No. : -- / Model No. : 580PHS-RS / Origin : New Zealand
Manufacturer : Cla-Val Pacific Limited / 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
Technical Manager

Approved Signatory :


Cheng Chi Fai
Senior Manager

Test Report**Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 2 of 2Specimen No.: CHEM-230605-2846-001
Castco LRN: 230605-2846**Laboratory test details**

Date of Request Confirmed: 02-06-2023

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.030
¹⁾ Total Sulfur Content	S %	0.0048
²⁾ Chromium	Cr %	18.20
²⁾ Manganese	Mn %	1.19
²⁾ Molybdenum	Mo %	2.47
²⁾ Nickel	Ni %	9.35
²⁾ Phosphorus	P %	0.025
²⁾ Silicon	Si %	1.39

End of Report

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Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 21-06-2023

Specimen No.: CHEM-230605-2846-001

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Castco LRN: 230605-2846

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Castco LRN:	230605-2846				
Sample Description :	DN200 Ductile Iron Wafer Type Silent Check Valve (Seat)				
Specimen No. :	230601-2575-006				
Sample Identification No.:	-- / Model No. : 580PHS-RS / Origin : New Zealand				
Manufacturer :	Cla-Val Pacific Limited / Brand name: Cla-Val				
Specification: BS EN 10283:2010, Table 1, Grade 1.4408			Test Results	Within / Exceed limit	
Carbon	C	0.07 max.	%	0.030	Within limit
Sulfur	S	0.030 max.	%	0.0048	Within limit
Chromium	Cr	18.00 to 20.00	%	18.20	Within limit
Manganese	Mn	1.50 max.	%	1.19	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.47	Within limit
Nickel	Ni	9.00 to 12.00	%	9.35	Within limit
Phosphorus	P	0.040 max.	%	0.025	Within limit
Silicon	Si	1.50 max.	%	1.39	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: 21-06-2023
Page 1 of 2Specimen No.: CHEM-230605-2847-001
Castco LRN: 230605-2847**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 : WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Sample Description : DN200 Ductile Iron Wafer Type Silent Check Valve (Disc)
Specification : BS EN 10283:2010, Table 1, Grade 1.4408 (316)
Specimen No. : 230601-2575-006
Sample Identification No. : -- / Model No. : 580PHS-RS / Origin : New Zealand
Manufacturer : Cla-Val Pacific Limited / 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
Technical Manager

Approved Signatory : _____


Cheng Chi Fai
Senior Manager

**Test Report
Chemical Analysis of Steel**Date of issue: 21-06-2023
Page 2 of 2Specimen No.: CHEM-230605-2847-001
Castco LRN: 230605-2847**Laboratory test details**Date of Request Confirmed: 02-06-2023 Date of Received by Lab.: 02-06-2023
Testing Period: 14-06-2023 to 15-06-2023

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.030
¹⁾ Total Sulfur Content	S %	0.0043
²⁾ Chromium	Cr %	18.16
²⁾ Manganese	Mn %	1.03
²⁾ Molybdenum	Mo %	2.35
²⁾ Nickel	Ni %	9.26
²⁾ Phosphorus	P %	0.026
²⁾ Silicon	Si %	1.16

End of Report

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

Date of issue: 21-06-2023

Specimen No.: CHEM-230605-2847-001

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Castco LRN: 230605-2847

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: WSD GA renew of Cla-Val Silent Check Valve Model 580PHS-RS

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 02-06-2023

Testing Period: 14-06-2023 to 15-06-2023

Castco LRN:	230605-2847			
Sample Description :	DN200 Ductile Iron Wafer Type Silent Check Valve (Disc)			
Specimen No. :	230601-2575-006			
Sample Identification No.:	-- / Model No. : 580PHS-RS / Origin : New Zealand			
Manufacturer :	Cla-Val Pacific Limited / Brand name: Cla-Val			
Specification: BS EN 10283:2010, Table 1, Grade 1.4408	Test Results		Within / Exceed limit	
Carbon C 0.07 max. %	0.030		Within limit	
Sulfur S 0.030 max. %	0.0043		Within limit	
Chromium Cr 18.00 to 20.00 %	18.16		Within limit	
Manganese Mn 1.50 max. %	1.03		Within limit	
Molybdenum Mo 2.00 to 2.50 %	2.35		Within limit	
Nickel Ni 9.00 to 12.00 %	9.26		Within limit	
Phosphorus P 0.040 max. %	0.026		Within limit	
Silicon Si 1.50 max. %	1.16		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.