

Summary of Test Results

Reference no. : BC-SUMMARY-2021-117

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 : Copper Alloy Loose Jumper Stop Valve
 Nominal pressure (PN) : 16
 Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd.
 Brand name : VIR
 Body marking : VIR (Inch) ←
 Model no. : Fig. 560
 Origin : PRC
 Sample submitted by : Gate Way Valve & Fitting Ltd.
 Test standard : BS 5154 : 1991 / BS EN 12164 : 2016 / BS EN 12165 : 2016
 Test period : 10 to 24 June 2021

A) Sample List

DN (mm)	Inch	Specimen no.
15	1/2"	210602-2625-001
20	3/4"	210602-2625-002
25	1"	210602-2625-003
32	1-1/4"	210602-2625-004
40	1-1/2"	210602-2625-005

B) Test Item

1) Dimensions Check (BS 5154 : 1991 Clause 8)

DN (mm)	Inch	Test results	Castco LRN
15	1/2"	Passed	210602-2625
20	3/4"	Passed	
25	1"	Passed	
32	1-1/4"	Passed	
40	1-1/2"	Passed	

2) Pressure Test (BS 5154 : 1991 Clause 11)

DN (mm)	Inch	Test results	Castco LRN
15	1/2"	Passed	210602-2625
20	3/4"	Passed	
25	1"	Passed	
32	1-1/4"	Passed	
40	1-1/2"	Passed	

3) Chemical Composition (Body) (BS EN 12165 : 2016 Table 7 Grade CW617N)

DN (mm)	Inch	Test results	Castco LRN
15	1/2"	Passed	210615-2926
25	1"	Passed	210615-2930
40	1-1/2"	Passed	210615-2934

Summary of Test Results

Reference no. : BC-SUMMARY-2021-117

B) Test Item (con't)

4) Chemical Composition (Bonnet) (BS EN 12165 : 2016 Table 7 Grade CW617N)

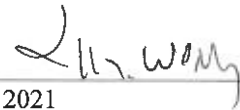
DN (mm)	Inch	Test results	Castco LRN
15	1/2"	Passed	210615-2927
25	1"	Passed	210615-2931
40	1-1/2"	Passed	210615-2935

5) Chemical Composition (Disc) (BS EN 12165 : 2016 Table 7 Grade CW617N)

DN (mm)	Inch	Test results	Castco LRN
15	1/2"	Passed	210615-2928
25	1"	Passed	210615-2932
40	1-1/2"	Passed	210615-2936

6) Chemical Composition (Stem) (BS EN 12164 : 2016 Table 6 Grade CW617N)

DN (mm)	Inch	Test results	Castco LRN
15	1/2"	Passed	210615-2929
25	1"	Passed	210615-2933
40	1-1/2"	Passed	210615-2937


FU HO MAN
Assistant Technical ManagerPrepare by : _____
Date : 30 June 2021
WONG KA MAN
Senior ManagerReview by : _____
Date : 30 June 2021

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Test Report

Copper Alloy Check Valves - Dimensions

(In-house method VAL-COPPER-DIM-BS5154 in conjunction with the following specification(s) : BS 5154 : 1991 Cl. 8 Tables 5, 7 and 8)

Date of issue : 30 June 2021

Page 1 of 5 page(s)

Castco LRN : 210602-2625

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

Contract no. : - -

Job title : - -

Sample description : Copper Alloy Loose Jumper Stop Valve

Nominal pressure (PN) : 16

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd.

Brand name : VIR

Body marking : VIR (Inch) ←

Model no. : Fig. 560

Origin : PRC

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 01 June 2021

Date of test : 10 June 2021

Specimen no.		210602-2625-001	210602-2625-002	210602-2625-003	210602-2625-004	210602-2625-005
DN (mm)		15	20	25	32	40
Inch		1/2"	3/4"	1"	1-1/4"	1-1/2"
Outside diameter of sealing face (mm)	Measured mean value	28.46	35.61	44.77	55.95	62.99
	Requirement	min. 26	min. 32	min. 39	min. 49	min. 55
Stem diameter (mm)	Measured mean value	7.46	8.53	8.56	9.94	10.59
	Requirement	min. 6.5	min. 7.5	min. 8.5	min. 9.5	min. 10.5
Wall thickness of body (mm)	Measured mean value	2.42	3.70	4.08	4.21	3.89
	Requirement	min. 1.7	min. 1.8	min. 2.0	min. 2.2	min. 2.3
Wall thickness of bonnet / cover (mm)	Measured mean value	2.05	2.15	2.60	2.78	2.73
	Requirement	min. 1.7	min. 1.8	min. 2.0	min. 2.2	min. 2.3

Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS 5154 : 1991 Table 5, 7 and 8 (this specification is not covered by the laboratory's HOKLAS accreditation).
3. 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

4. Female thread connection to ISO 228-1 & BS EN 10266 (previously BS21).

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

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



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



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Test Report
Metallic Valves - Shell and Seat Tightness
(BS EN 12266-1 : 2012 Annex A3 and A4)

Date of issue : 30 June 2021

Page 2 of 5 page(s)

Castco LRN : 210602-2625

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

Contract no. : - -

Job title : - -

Sample description : Copper Alloy Loose Jumper Stop Valve

Nominal pressure (PN) : 16

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd.

Brand name : VIR

Body marking : VIR (Inch) ←

Model no. : Fig. 560

Origin : PRC

Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 01 June 2021

Date of test : 10 June 2021

A) Shell Tightness

Specimen no.	210602-2625-001	210602-2625-002	210602-2625-003	210602-2625-004	210602-2625-005
DN (mm)	15	20	25	32	40
Inch	1/2"	3/4"	1"	1-1/4"	1-1/2"
Water temperature (°C)	24.0	24.0	24.0	24.0	24.0
Apply pressure (bar)	24	24	24	24	24
Test duration (s)	60	60	60	60	60
Visually detectable leakage	No	No	No	No	No
Requirement	Visually detectable leakage is not permitted				



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CASTCO TESTING CENTRE LIMITED

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Test Report
Metallic Valves - Shell and Seat Tightness
(BS EN 12266-1 : 2012 Annex A3 and A4)

Date of issue : 30 June 2021

Page 3 of 5 page(s)

Castco LRN : 210602-2625

Laboratory test results (con't)

B) Seat Tightness

Specimen no.	210602-2625-001	210602-2625-002	210602-2625-003	210602-2625-004	210602-2625-005
DN (mm)	15	20	25	32	40
Inch	1/2"	3/4"	1"	1-1/4"	1-1/2"
Water temperature (°C)	24.0	24.0	24.0	24.0	24.0
Apply pressure (bar)	17.6	17.6	17.6	17.6	17.6
Test duration (s)	60	60	60	60	60
Leakage rate (mm ³ /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				

Remark(s) :

1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS 5154 : 1991 Clause 11 (this specification is not covered by the laboratory's HOKLAS accreditation).
3. Effect of measurement uncertainty has not been taken into account.

Checked by :


FU HO MAN
Assistant Technical Manager

Approved Signatory :


WONG KA MAN
Senior Manager

Test Report

Copper Alloy Check Valves - Dimensions

(In-house method VAL-COPPER-DIM-BS5154 in conjunction with the following specification(s) : BS 5154 : 1991 Cl. 8 Tables 5, 7 and 8)

Date of issue : 30 June 2021

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Castco LRN : 210602-2625

Appendix A



210602-2625-001(1)



210602-2625-001(2)



210602-2625-002(1)



210602-2625-002(2)



210602-2625-003(1)



210602-2625-003(2)

Test Report

Copper Alloy Check Valves - Dimensions

(In-house method VAL-COPPER-DIM-BS5154 in conjunction with the following specification(s) : BS 5154 : 1991 Cl. 8 Tables 5, 7 and 8)

Date of issue : 30 June 2021

Page 5 of 5 page(s)

Castco LRN : 210602-2625

Appendix B210602-2625-004(1)210602-2625-004(2)210602-2625-005(1)210602-2625-005(2)

End of Report

Form no. : BC_COPPER ALLOY CHECK VALVES_DIM_BS5154-1991_T_dd_01/06/2021

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Tel: 2597 8333 Fax: 2597 8399 E-mail: info@castco.com.hk Website: www.castco.com.hk

Test Report**Chemical Analysis of Copper and Copper Alloy**Date of issue: 29-06-2021
Page 1 of 3Specimen No.: CHEM-210615-2926-001
Castco LRN: 210615-2926**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

Address : Flat A1, 4/F, Galaxy Pty 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 : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN15 Copper Alloy Loose Jumper Stop Valve (Body)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-001

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

Remark(s):

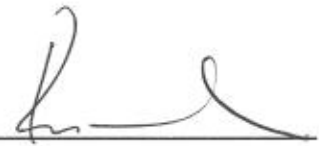
- I. Test results only relate to the specimen tested.

Checked by :


Lau Hin Yat

Assistant Technical Manager

Approved Signatory :


Cheng Chi Fai

Senior Manager

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2926-001

Page 2 of 3

Castco LRN: 210615-2926

Chemical Analysis		Result
1) Aluminium	Al %	<0.003
1) Iron	Fe %	0.26
1) Nickel	Ni %	0.30
1) Lead	Pb %	1.96
1) Tin	Sn %	0.27
1) Zinc	Zn %	39.0
1) Copper	Cu %	58.1

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2926-001

Page 3 of 3

Castco LRN: 210615-2926

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2926-001

Page 1 of 1

Related Castco LRN: 210615-2926

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2926			
Specimen No.:	210602-2625-001			
Sample Description :	DN15 Copper Alloy Loose Jumper Stop Valve (Body)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	<0.003		Within limit	
Iron Fe 0.3 max. %	0.26		Within limit	
Nickel Ni 0.3 max. %	0.30		Within limit	
Lead Pb 1.6 to 2.5 %	1.96		Within limit	
Tin Sn 0.3 max. %	0.27		Within limit	
Zinc Zn Remainder %	39.0		Within limit	
Copper Cu 57.0 to 59.0 %	58.1		Within limit	
Others Total 0.2 max. %	0.1		Within limit	

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**Date of issue: 29-06-2021
Page 1 of 3Specimen No.: CHEM-210615-2927-001
Castco LRN: 210615-2927**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN15 Copper Alloy Loose Jumper Stop Valve (Bonnet)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-001

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2927-001

Page 2 of 3

Castco LRN: 210615-2927

Chemical Analysis		Result
1) Aluminium	Al %	0.004
1) Iron	Fe %	0.29
1) Nickel	Ni %	0.14
1) Lead	Pb %	1.93
1) Tin	Sn %	0.28
1) Zinc	Zn %	40.0
1) Copper	Cu %	57.3

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2927-001

Page 3 of 3

Castco LRN: 210615-2927

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2927-001

Page 1 of 1

Related Castco LRN: 210615-2927

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2927			
Specimen No.:	210602-2625-001			
Sample Description :	DN15 Copper Alloy Loose Jumper Stop Valve (Bonnet)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	0.004		Within limit	
Iron Fe 0.3 max. %	0.29		Within limit	
Nickel Ni 0.3 max. %	0.14		Within limit	
Lead Pb 1.6 to 2.5 %	1.93		Within limit	
Tin Sn 0.3 max. %	0.28		Within limit	
Zinc Zn Remainder %	40.0		Within limit	
Copper Cu 57.0 to 59.0 %	57.3		Within limit	
Others Total 0.2 max. %	0.1		Within limit	

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2928-001

Page 1 of 3

Castco LRN: 210615-2928

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN15 Copper Alloy Loose Jumper Stop Valve (Disc)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-001

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2928-001

Page 2 of 3

Castco LRN: 210615-2928

Chemical Analysis		Result
1) Aluminium	Al %	0.016
1) Iron	Fe %	0.26
1) Nickel	Ni %	0.12
1) Lead	Pb %	2.03
1) Tin	Sn %	0.27
1) Zinc	Zn %	39.7
1) Copper	Cu %	57.5

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2928-001

Page 3 of 3

Castco LRN: 210615-2928

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2928-001

Page 1 of 1

Related Castco LRN: 210615-2928

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2928			
Specimen No.:	210602-2625-001			
Sample Description :	DN15 Copper Alloy Loose Jumper Stop Valve (Disc)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	0.016		Within limit	
Iron Fe 0.3 max. %	0.26		Within limit	
Nickel Ni 0.3 max. %	0.12		Within limit	
Lead Pb 1.6 to 2.5 %	2.03		Within limit	
Tin Sn 0.3 max. %	0.27		Within limit	
Zinc Zn Remainder %	39.7		Within limit	
Copper Cu 57.0 to 59.0 %	57.5		Within limit	
Others Total 0.2 max. %	0.1		Within limit	

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2929-001

Page 1 of 3

Castco LRN: 210615-2929

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN15 Copper Alloy Loose Jumper Stop Valve (Stem)

Specification : BS EN 12164:2016, Table 6, Grade CW617N

Specimen No. : 210602-2625-001

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2929-001

Page 2 of 3

Castco LRN: 210615-2929

Chemical Analysis		Result
1) Aluminium	Al %	0.006
1) Iron	Fe %	0.26
1) Nickel	Ni %	0.15
1) Lead	Pb %	1.88
1) Tin	Sn %	0.28
1) Zinc	Zn %	39.7
1) Copper	Cu %	57.7

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2929-001

Page 3 of 3

Castco LRN: 210615-2929

Chemical Analysis	Result
2) Others Total %	<0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2929-001

Page 1 of 1

Related Castco LRN: 210615-2929

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2929				
Specimen No.:	210602-2625-001				
Sample Description :	DN15 Copper Alloy Loose Jumper Stop Valve (Stem)				
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC				
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR				
Specification: BS EN 12164:2016, Table 6, Grade CW617N				Test Results	Within / Exceed limit
Aluminium	Al	0.05 max.	%	0.006	Within limit
Iron	Fe	0.3 max.	%	0.26	Within limit
Nickel	Ni	0.3 max.	%	0.15	Within limit
Lead	Pb	1.6 to 2.5	%	1.88	Within limit
Tin	Sn	0.3 max.	%	0.28	Within limit
Zinc	Zn	Remainder	%	39.7	Within limit
Copper	Cu	57.0 to 59.0	%	57.7	Within limit
Others Total		0.2 max.	%	<0.1	Within limit

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12164:2016, Table 6, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**Date of issue: 29-06-2021
Page 1 of 3Specimen No.: CHEM-210615-2930-001
Castco LRN: 210615-2930**Details as supplied by customer**

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

Sample details as supplied by customer

Date Sampled : --
Date of Sample Received : 15-06-2021
Test Period : 24-06-2021
Sample Description : DN25 Copper Alloy Loose Jumper Stop Valve (Body)
Specification : BS EN 12165:2016, Table 7, Grade CW617N
Specimen No. : 210602-2625-003
Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC
Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2930-001

Page 2 of 3

Castco LRN: 210615-2930

Chemical Analysis		Result
1) Aluminium	Al %	0.003
1) Iron	Fe %	0.25
1) Nickel	Ni %	0.10
1) Lead	Pb %	1.97
1) Tin	Sn %	0.27
1) Zinc	Zn %	39.7
1) Copper	Cu %	57.6

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2930-001

Page 3 of 3

Castco LRN: 210615-2930

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A

Summary of Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2930-001

Page 1 of 1

Related Castco LRN: 210615-2930

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2930			
Specimen No.:	210602-2625-003			
Sample Description :	DN25 Copper Alloy Loose Jumper Stop Valve (Body)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	0.003		Within limit	
Iron Fe 0.3 max. %	0.25		Within limit	
Nickel Ni 0.3 max. %	0.10		Within limit	
Lead Pb 1.6 to 2.5 %	1.97		Within limit	
Tin Sn 0.3 max. %	0.27		Within limit	
Zinc Zn Remainder %	39.7		Within limit	
Copper Cu 57.0 to 59.0 %	57.6		Within limit	
Others Total 0.2 max. %	0.1		Within limit	

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**Date of issue: 29-06-2021
Page 1 of 3Specimen No.: CHEM-210615-2931-001
Castco LRN: 210615-2931**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN25 Copper Alloy Loose Jumper Stop Valve (Bonnet)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-003

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2931-001

Page 2 of 3

Castco LRN: 210615-2931

Chemical Analysis		Result
1) Aluminium	Al %	0.045
1) Iron	Fe %	0.26
1) Nickel	Ni %	0.12
1) Lead	Pb %	1.62
1) Tin	Sn %	0.24
1) Zinc	Zn %	39.4
1) Copper	Cu %	58.2

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021
Page 3 of 3

Specimen No.: CHEM-210615-2931-001
Castco LRN: 210615-2931

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A

Summary of Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2931-001

Page 1 of 1

Related Castco LRN: 210615-2931

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2931			
Specimen No.:	210602-2625-003			
Sample Description :	DN25 Copper Alloy Loose Jumper Stop Valve (Bonnet)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	0.045		Within limit	
Iron Fe 0.3 max. %	0.26		Within limit	
Nickel Ni 0.3 max. %	0.12		Within limit	
Lead Pb 1.6 to 2.5 %	1.62		Within limit	
Tin Sn 0.3 max. %	0.24		Within limit	
Zinc Zn Remainder %	39.4		Within limit	
Copper Cu 57.0 to 59.0 %	58.2		Within limit	
Others Total 0.2 max. %	0.1		Within limit	

Remark(s):

- a. Test results only relate to the specimen tested.
- b. Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**Date of issue: 29-06-2021
Page 1 of 3Specimen No.: CHEM-210615-2932-001
Castco LRN: 210615-2932**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN25 Copper Alloy Loose Jumper Stop Valve (Disc)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-003

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2932-001

Page 2 of 3

Castco LRN: 210615-2932

Chemical Analysis		Result
1) Aluminium	Al %	<0.003
1) Iron	Fe %	0.25
1) Nickel	Ni %	0.11
1) Lead	Pb %	2.00
1) Tin	Sn %	0.24
1) Zinc	Zn %	39.8
1) Copper	Cu %	57.5

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2932-001

Page 3 of 3

Castco LRN: 210615-2932

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2932-001

Page 1 of 1

Related Castco LRN: 210615-2932

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2932			
Specimen No.:	210602-2625-003			
Sample Description :	DN25 Copper Alloy Loose Jumper Stop Valve (Disc)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	<0.003		Within limit	
Iron Fe 0.3 max. %	0.25		Within limit	
Nickel Ni 0.3 max. %	0.11		Within limit	
Lead Pb 1.6 to 2.5 %	2.00		Within limit	
Tin Sn 0.3 max. %	0.24		Within limit	
Zinc Zn Remainder %	39.8		Within limit	
Copper Cu 57.0 to 59.0 %	57.5		Within limit	
Others Total 0.2 max. %	0.1		Within limit	

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2933-001

Page 1 of 3

Castco LRN: 210615-2933

Details as supplied by customer

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

Sample details as supplied by customer

Date Sampled : --
Date of Sample Received : 15-06-2021
Test Period : 24-06-2021
Sample Description : DN25 Copper Alloy Loose Jumper Stop Valve (Stem)
Specification : BS EN 12164:2016, Table 6, Grade CW617N
Specimen No. : 210602-2625-003
Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC
Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2933-001

Page 2 of 3

Castco LRN: 210615-2933

Chemical Analysis		Result
1) Aluminium	Al %	<0.003
1) Iron	Fe %	0.23
1) Nickel	Ni %	0.11
1) Lead	Pb %	1.97
1) Tin	Sn %	0.26
1) Zinc	Zn %	40.0
1) Copper	Cu %	57.4

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2933-001

Page 3 of 3

Castco LRN: 210615-2933

Chemical Analysis	Result
2) Others Total %	<0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A

Summary of Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2933-001

Page 1 of 1

Related Castco LRN: 210615-2933

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2933				
Specimen No.:	210602-2625-003				
Sample Description :	DN25 Copper Alloy Loose Jumper Stop Valve (Stem)				
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC				
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR				
Specification: BS EN 12164:2016, Table 6, Grade CW617N			Test Results	Within / Exceed limit	
Aluminium	Al	0.05 max.	%	<0.003	Within limit
Iron	Fe	0.3 max.	%	0.23	Within limit
Nickel	Ni	0.3 max.	%	0.11	Within limit
Lead	Pb	1.6 to 2.5	%	1.97	Within limit
Tin	Sn	0.3 max.	%	0.26	Within limit
Zinc	Zn	Remainder	%	40.0	Within limit
Copper	Cu	57.0 to 59.0	%	57.4	Within limit
Others Total		0.2 max.	%	<0.1	Within limit

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12164:2016, Table 6, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2934-001

Page 1 of 3

Castco LRN: 210615-2934

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited
Address : Flat A1, 4/F, Galaxy Pty 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 : 15-06-2021
Test Period : 24-06-2021
Sample Description : DN40 Copper Alloy Loose Jumper Stop Valve (Body)
Specification : BS EN 12165:2016, Table 7, Grade CW617N
Specimen No. : 210602-2625-005
Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC
Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2934-001

Page 2 of 3

Castco LRN: 210615-2934

Chemical Analysis		Result
1) Aluminium	Al %	0.007
1) Iron	Fe %	0.21
1) Nickel	Ni %	0.12
1) Lead	Pb %	1.95
1) Tin	Sn %	0.26
1) Zinc	Zn %	39.9
1) Copper	Cu %	57.5

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2934-001

Page 3 of 3

Castco LRN: 210615-2934

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2934-001

Page 1 of 1

Related Castco LRN: 210615-2934

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2934				
Specimen No.:	210602-2625-005				
Sample Description :	DN40 Copper Alloy Loose Jumper Stop Valve (Body)				
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC				
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR				
Specification: BS EN 12165:2016, Table 7, Grade CW617N			Test Results	Within / Exceed limit	
Aluminium	Al	0.05 max.	%	0.007	Within limit
Iron	Fe	0.3 max.	%	0.21	Within limit
Nickel	Ni	0.3 max.	%	0.12	Within limit
Lead	Pb	1.6 to 2.5	%	1.95	Within limit
Tin	Sn	0.3 max.	%	0.26	Within limit
Zinc	Zn	Remainder	%	39.9	Within limit
Copper	Cu	57.0 to 59.0	%	57.5	Within limit
Others Total		0.2 max.	%	0.1	Within limit

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Page 1 of 3

Specimen No.: CHEM-210615-2935-001

Castco LRN: 210615-2935

Details as supplied by customer

Name of Customer : Gate Way Valve & Fitting Limited

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

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN40 Copper Alloy Loose Jumper Stop Valve (Bonnet)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-005

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2935-001

Page 2 of 3

Castco LRN: 210615-2935

Chemical Analysis		Result
1) Aluminium	Al %	<0.003
1) Iron	Fe %	0.20
1) Nickel	Ni %	0.13
1) Lead	Pb %	1.91
1) Tin	Sn %	0.24
1) Zinc	Zn %	39.7
1) Copper	Cu %	57.8

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2935-001

Page 3 of 3

Castco LRN: 210615-2935

Chemical Analysis	Result
2) Others Total %	<0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A

Summary of Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2935-001

Page 1 of 1

Related Castco LRN: 210615-2935

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2935			
Specimen No.:	210602-2625-005			
Sample Description :	DN40 Copper Alloy Loose Jumper Stop Valve (Bonnet)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	<0.003		Within limit	
Iron Fe 0.3 max. %	0.20		Within limit	
Nickel Ni 0.3 max. %	0.13		Within limit	
Lead Pb 1.6 to 2.5 %	1.91		Within limit	
Tin Sn 0.3 max. %	0.24		Within limit	
Zinc Zn Remainder %	39.7		Within limit	
Copper Cu 57.0 to 59.0 %	57.8		Within limit	
Others Total 0.2 max. %	<0.1		Within limit	

Remark(s):

- a. Test results only relate to the specimen tested.
- b. Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**Date of issue: 29-06-2021
Page 1 of 3Specimen No.: CHEM-210615-2936-001
Castco LRN: 210615-2936**Details as supplied by customer**

Name of Customer : Gate Way Valve & Fitting Limited

Address : Flat A1, 4/F, Galaxy Pty 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 : 15-06-2021

Test Period : 24-06-2021

Sample Description : DN40 Copper Alloy Loose Jumper Stop Valve (Disc)

Specification : BS EN 12165:2016, Table 7, Grade CW617N

Specimen No. : 210602-2625-005

Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC

Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2936-001

Page 2 of 3

Castco LRN: 210615-2936

Chemical Analysis		Result
1) Aluminium	Al %	<0.003
1) Iron	Fe %	0.28
1) Nickel	Ni %	0.14
1) Lead	Pb %	1.90
1) Tin	Sn %	0.30
1) Zinc	Zn %	39.9
1) Copper	Cu %	57.4

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021
Page 3 of 3

Specimen No.: CHEM-210615-2936-001
Castco LRN: 210615-2936

Chemical Analysis	Result
2) Others Total %	0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A**Summary of Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2936-001

Page 1 of 1

Related Castco LRN: 210615-2936

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2936			
Specimen No.:	210602-2625-005			
Sample Description :	DN40 Copper Alloy Loose Jumper Stop Valve (Disc)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12165:2016, Table 7, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al	0.05 max.	%	<0.003	Within limit
Iron Fe	0.3 max.	%	0.28	Within limit
Nickel Ni	0.3 max.	%	0.14	Within limit
Lead Pb	1.6 to 2.5	%	1.90	Within limit
Tin Sn	0.3 max.	%	0.30	Within limit
Zinc Zn	Remainder	%	39.9	Within limit
Copper Cu	57.0 to 59.0	%	57.4	Within limit
Others Total	0.2 max.	%	0.1	Within limit

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12165:2016, Table 7, Grade CW617N.

Test Report**Chemical Analysis of Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2937-001

Page 1 of 3

Castco LRN: 210615-2937

Details as supplied by customer

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

Sample details as supplied by customer

Date Sampled : --
Date of Sample Received : 15-06-2021
Test Period : 24-06-2021
Sample Description : DN40 Copper Alloy Loose Jumper Stop Valve (Stem)
Specification : BS EN 12164:2016, Table 6, Grade CW617N
Specimen No. : 210602-2625-005
Sample Identification No.: -- / Model no.: Fig. 560 / Origin : PRC
Manufacturer : Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR

Test Method(s):-

- 1) In-house ST-Multi-4 (Spark-OES for Brass)
- 2) By Calculation

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 Copper and Copper Alloy**

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2937-001

Page 2 of 3

Castco LRN: 210615-2937

Chemical Analysis		Result
1) Aluminium	Al %	<0.003
1) Iron	Fe %	0.20
1) Nickel	Ni %	0.14
1) Lead	Pb %	1.85
1) Tin	Sn %	0.22
1) Zinc	Zn %	40.2
1) Copper	Cu %	57.4

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2937-001

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Castco LRN: 210615-2937

Chemical Analysis	Result
2) Others Total %	<0.1

End of Report

Form No.: CHM Cu&Cu Alloy-3 T dd 03/02/2016

Appendix A

Summary of Chemical Analysis of Copper and Copper Alloy

Date of issue: 29-06-2021

Specimen No.: CHEM-210615-2937-001

Page 1 of 1

Related Castco LRN: 210615-2937

Name of Customer: Gate Way Valve & Fitting Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 15-06-2021

Testing Period: 24-06-2021

Castco LRN:	210615-2937			
Specimen No.:	210602-2625-005			
Sample Description :	DN40 Copper Alloy Loose Jumper Stop Valve (Stem)			
Sample Identification No.:	-- / Model no.: Fig. 560 / Origin : PRC			
Manufacturer:	Taizhou VIR Valve Manufacturing Co., Ltd. / Brand name : VIR			
Specification: BS EN 12164:2016, Table 6, Grade CW617N	Test Results		Within / Exceed limit	
Aluminium Al 0.05 max. %	<0.003		Within limit	
Iron Fe 0.3 max. %	0.20		Within limit	
Nickel Ni 0.3 max. %	0.14		Within limit	
Lead Pb 1.6 to 2.5 %	1.85		Within limit	
Tin Sn 0.3 max. %	0.22		Within limit	
Zinc Zn Remainder %	40.2		Within limit	
Copper Cu 57.0 to 59.0 %	57.4		Within limit	
Others Total 0.2 max. %	<0.1		Within limit	

Remark(s):

- Test results only relate to the specimen tested.
- Test results of the specimen are in compliance with the chemical requirements of BS EN 12164:2016, Table 6, Grade CW617N.