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

Summary of Test Results

Reference no. : DP-SUMMARY-2016-22

Customer : Gate Way Valves & Fitting Ltd.
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon, H. K.
Sample description : Copper Alloy Swing Check Valves with Thread Ends
Brand : Toyo
Manufacturer : Kitz (Thailand) Ltd.
Origin : Thailand
Sample submitted by : Gate Way Valves & Fitting Ltd.
Test standard : BS 5154 : 1991
Test period : 08 January to 10 May 2016

A) Sample list

Model no.	DN	Inch
Fig. No. 236	15	1/2"
	20	3/4"
	25	1"
	32	1-1/4"
	40	1-1/2"
	50	2"

B) Test Item

1) Dimensions check (BS 5154 : 1991 Clause 8 Table 7 & 8)

DN	Inch	Test results	Castco LRN
15	1/2"	Passed	DP0160419-171 DIM
20	3/4"	Passed	DP0151231-194 DIM
25	1"	Passed	DP0151231-195 DIM
32	1-1/4"	Passed	DP0151231-196 DIM
40	1-1/2"	Passed	DP0151231-197 DIM
50	2"	Passed	DP0151231-198 DIM

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E-mail: castco@netvigator.com Website: www.castco.com.hk

Summary of Test Results

Reference no. : DP-SUMMARY-2016-22

B) Test Item (con't)

2) Hydrostatic strength test (BS EN 12266-1 : 2012 Clause 4 Annex A / BS 5154 : 1991 Clause 11)

DN	Inch	Test results	Castco LRN
15	1/2"	Passed	DP0160419-171 HYD
20	3/4"	Passed	DP0151231-194 HYD
25	1"	Passed	DP0151231-195 HYD
32	1-1/4"	Passed	DP0151231-196 HYD
40	1-1/2"	Passed	DP0151231-197 HYD
50	2"	Passed	DP0151231-198 HYD

3) Chemical Composition (BS EN 1982 : 2008, Table 23b, Grade CC491K)

DN	Inch	Parts of valve	Test results	Castco LRN
15	1/2"	Body	Passed	MS0160421-13
		Seat Ring	Passed	MS0160421-14
32	1-1/4"	Body	Passed	MS0160421-15
		Seat Ring	Passed	MS0160421-16
50	2"	Body	Passed	MS0160421-17
		Seat Ring	Passed	MS0160421-18

Perpared by : FU HO MAN
Assistant Technical Officer
Date : 04 June 2016

Review by : WONG KA MAN
Laboratory Manager
Date : 04 June 2016

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

Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

Date of issue : 22 April 2016

Castco LRN : DP0160419-171 DIM

Details as suppiled by customer

Customer : Gate Way Valve & Fitting Ltd.
Customer's ref. no. : - -
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon, H. K.
Contract no. : - -
Job title : - -
Sample description : Copper Alloy Swing Check Valves with Thread Ends
Manufacturer : Kitz (Thailand) Ltd.
Brand name : Toyo
Nominal pressure (PN) : 16
Body marking : RED WHITE TOYO 125S
Model no. : Fig. No. 236
Origin : Thailand
Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 19 April 2016
Date of test : 20 April 2016

Specimen no.		DP0160419-171
DN		15
Inch		1/2"
Minimum outside diameter of sealing faces (mm)	Measured Mean Value	27.87
	Requirement	min. 26
Wall thickness (mm)	Measured Mean Value	2.63
	Requirement	min. 1.7
Face to face (mm)	Measured Mean Value	55.56

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 8 Table 7 & 8.

Checked by : FU HO MAN, Assistant Technical Officer
Certified by : WONG KA MAN, Laboratory Manager

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E-mail: castco@netvigator.com Website: www.castco.com.hk

Test Report
Hydrostatic Strength Test of Check Valves
(BS 5154 : 1991 Clause 11 / BS EN 12266-1 : 2012 Clause 4 Annex A)

Date of issue : 22 April 2016
 Castco LRN : DP0160419-171 HYD

Details as suppiled by customer

Customer : Gate Way Valve & Fitting Ltd. Customer's ref. no. : - -
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon, H. K. Contract no. : - -
Job title : - -
Sample description : Copper Alloy Swing Check Valves with Thread Ends
Manufacturer : Kitz (Thailand) Ltd.
Brand name : Toyo
Nominal pressure (PN) : 16
Body marking : RED WHITE TOYO 125S
Model no. : Fig. No. 236
Origin : Thailand
Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 19 April 2016 Date of test : 20 April 2016

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

Specimen no.	DN	Apply pressure (bar)	Test duration (s)	Visually detectable leakage	Test results	Requirement
DP0160419-171	15	24	60	No	Passed	Visually detectable leakage is not permitted

B. Seat Tightness (BS EN 12266-1 : 2012 Annex A.4)

Specimen no.	DN	Side	Apply pressure (bar)	Test duration (s)	Visually detectable leakage	Leakage rates (m^3/s)	Test results	Requirement
DP0160419-171	15	A	17.6	60	No	0	Passed	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 EN 12266-1 : 2012 Clause 4 Annex A.

Checked by : FU HO MAN Assistant Technical Officer

Certified by : WONG KA MAN Laboratory Manager

End of Report

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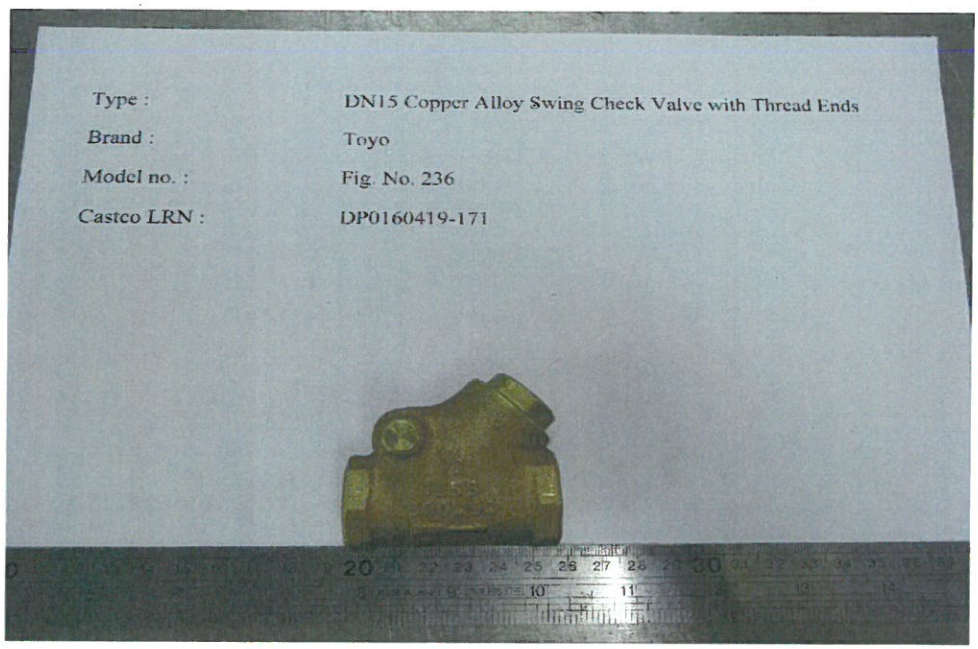
Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

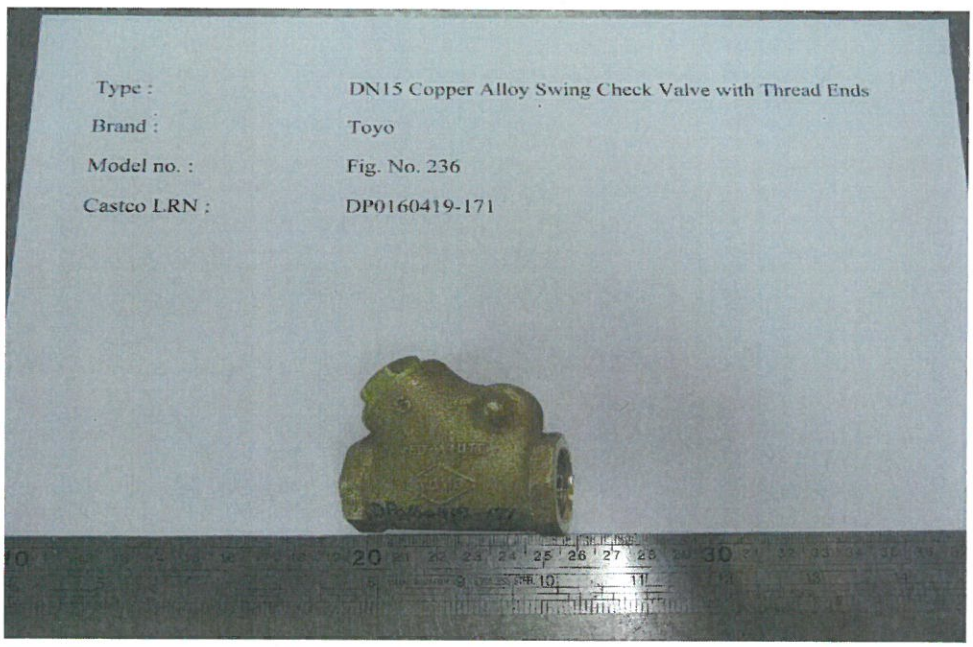
Date of issue : 22 April 2016

Castco LRN : DP0160419-171 DIM

Appendix A



DP0160419-171(1)



DP0160419-171(2)

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CASTCO TESTING CENTRE LTD.

Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

Date of issue : 29 January 2016

Castco LRN : DP0151231-194 to 198 DIM

Details as suppiled by customer

Customer : Gate Way Valve & Fitting Ltd.
Customer's ref. no. : - -
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon, H. K.
Contract no. : - -
Job title : - -
Sample description : Copper Alloy Swing Check Valves with Thread Ends
Manufacturer : Kitz (Thailand) Ltd.
Brand name : Toyo
Nominal pressure (PN) : 16
Body marking : RED WHITE TOYO 125S
Model no. : Fig. No. 236
Origin : Thailand
Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 31 December 2015
Date of test : 08 January 2016

Specimen no.		DP0151231-194	DP0151231-195	DP0151231-196	DP0151231-197	DP0151231-198
DN		20	25	32	40	50
Inch		3/4"	1"	1-1/4"	1-1/2"	2"
Minimum outside diameter of sealing faces (mm)	Measured Mean Value	36.33	43.56	52.77	60.43	74.16
	Requirement	min. 32	min. 39	min. 49	min. 55	min. 68
Wall thickness (mm)	Measured Mean Value	2.81	3.63	2.54	3.18	4.18
	Requirement	min. 1.8	min. 2	min. 2.2	min. 2.3	min. 2.5
Face to face (mm)	Measured Mean Value	70	80	95	110	127

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 8 Table 7 & 8.

Checked by : FU HO MAN, Assistant Technical Officer

Certified by : WONG KA MAN, Laboratory Manager

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Test Report
Hydrostatic Strength Test of Check Valves
(BS 5154 : 1991 Clause 11 / BS EN 12266-1 : 2012 Clause 4 Annex A)

Date of issue : 29 January 2016
 Castco LRN : DP0151231-194 to 198 HYD

Details as suppiled by customer

Customer : Gate Way Valve & Fitting Ltd. Customer's ref. no. : - -
Address : Flat A1, 4/F., Galaxy Factory Building, 25-27 Luk Hop Street, San Po Kong, Kowloon, H. K. Contract no. : - -
Job title : - -
Sample description : Copper Alloy Swing Check Valves with Thread Ends
Manufacturer : Kitz (Thailand) Ltd.
Brand name : Toyo
Nominal pressure (PN) : 16
Body marking : RED WHITE TOYO 125S
Model no. : Fig. No. 236
Origin : Thailand
Sample submitted by : Gate Way Valve & Fitting Ltd.

Laboratory test results

Date of sample received : 31 December 2015 Date of test : 12 January 2016

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

Specimen no.	DN	Apply pressure (bar)	Test duration (s)	Visually detectable leakage	Test results	Requirement
DP0151231-194	20	24	60	No	Passed	Visually detectable leakage is not permitted
DP0151231-195	25	24	60	No	Passed	
DP0151231-196	32	24	60	No	Passed	
DP0151231-197	40	24	60	No	Passed	
DP0151231-198	50	24	60	No	Passed	

B. Seat Tightness (BS EN 12266-1 : 2012 Annex A.4)

Specimen no.	DN	Side	Apply pressure (bar)	Test duration (s)	Visually detectable leakage	Leakage rates (m^3/s)	Test results	Requirement
DP0151231-194	20	A	17.6	60	No	0	Passed	The leakage rate shall not exceed specified in BS EN 12266-1 : 2012 Annex A.4.3 Table A.5
DP0151231-195	25	A	17.6	60	No	0	Passed	
DP0151231-196	32	A	17.6	60	No	0	Passed	
DP0151231-197	40	A	17.6	60	No	0	Passed	
DP0151231-198	50	A	17.6	60	No	0	Passed	

Remark(s) :
1. Test results relate only to the specimen tested.
2. Test results of sample comply with the requirement of BS EN 12266-1 : 2012 Clause 4 Annex A.

Checked by : FU HO MAN, Assistant Technical Officer

Certified by : WONG KA MAN, Laboratory Manager

End of Report

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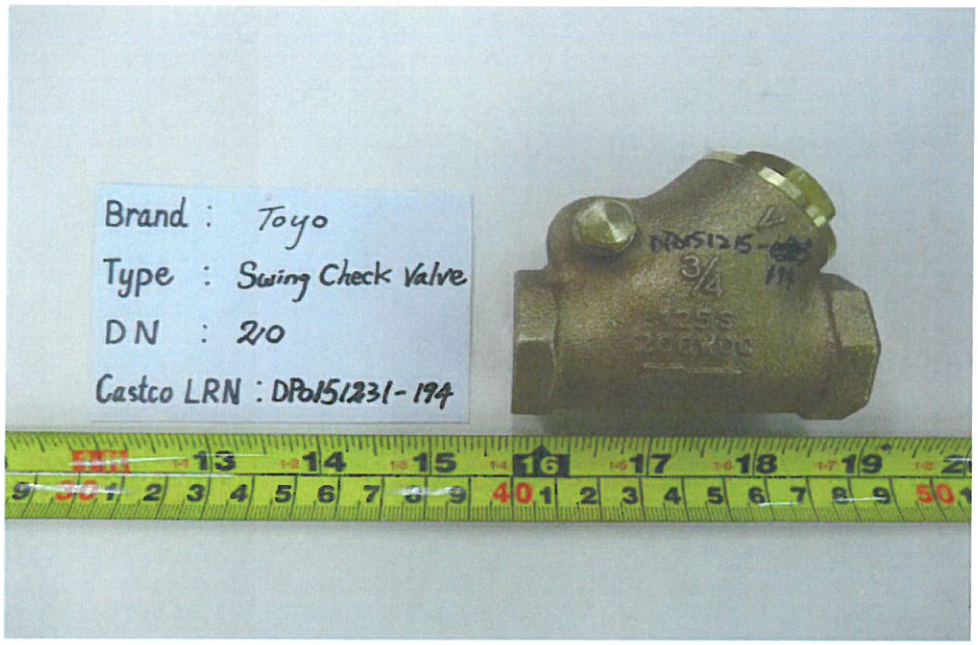
Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

Date of issue : 29 January 2016

Appendix A



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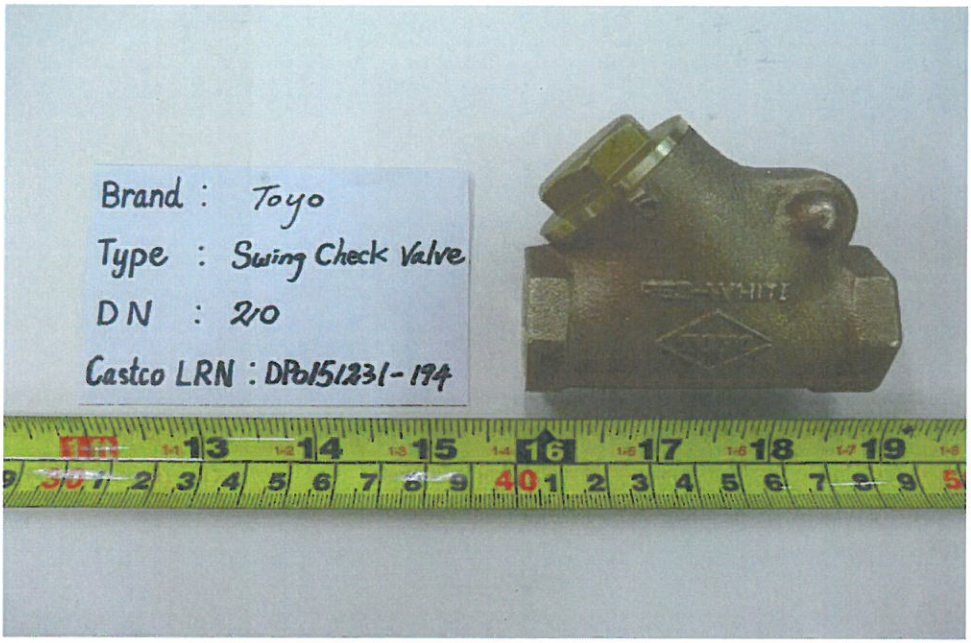

DP0151231-194(2)

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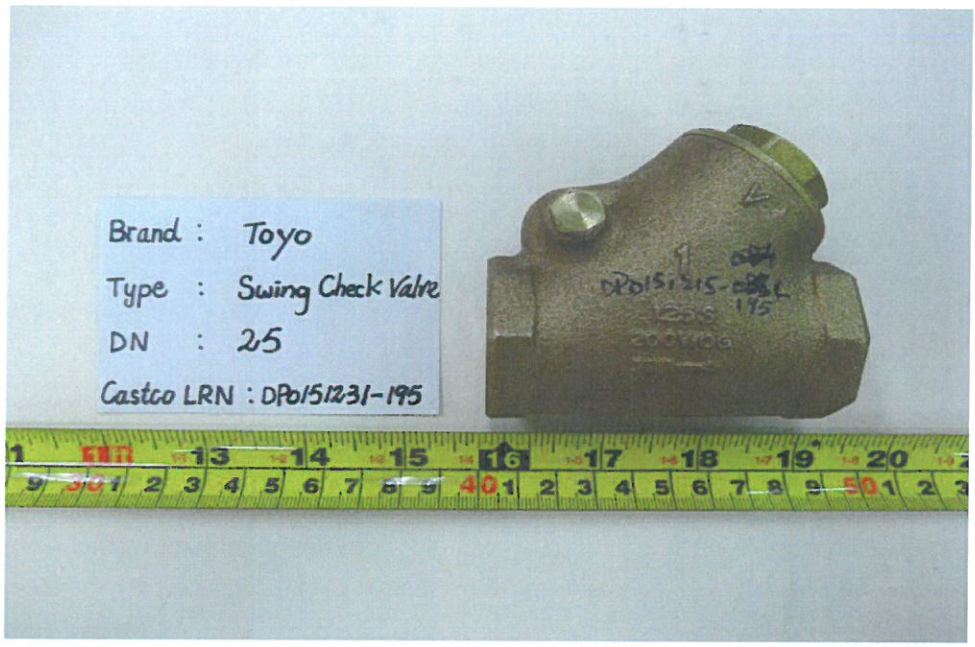
Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

Date of issue : 29 January 2016

Appendix B



DP0151231-195(1)

DP0151231-195(2)

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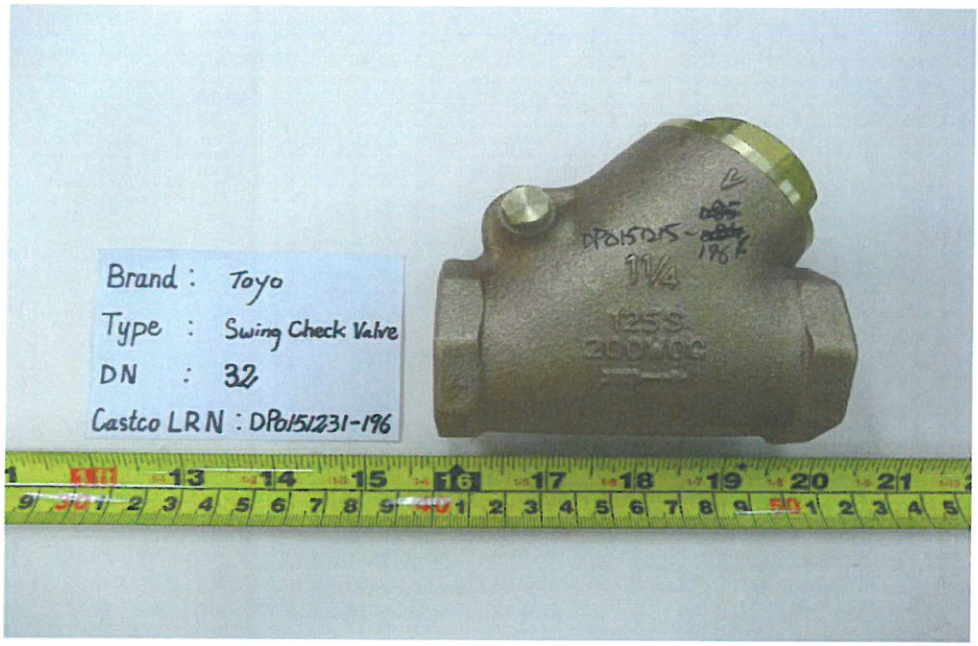
Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

Date of issue : 29 January 2016

Castco LRN : DP0151231-194 to 198 DIM

Appendix C



DP0151231-196(1)

DP0151231-196(2)

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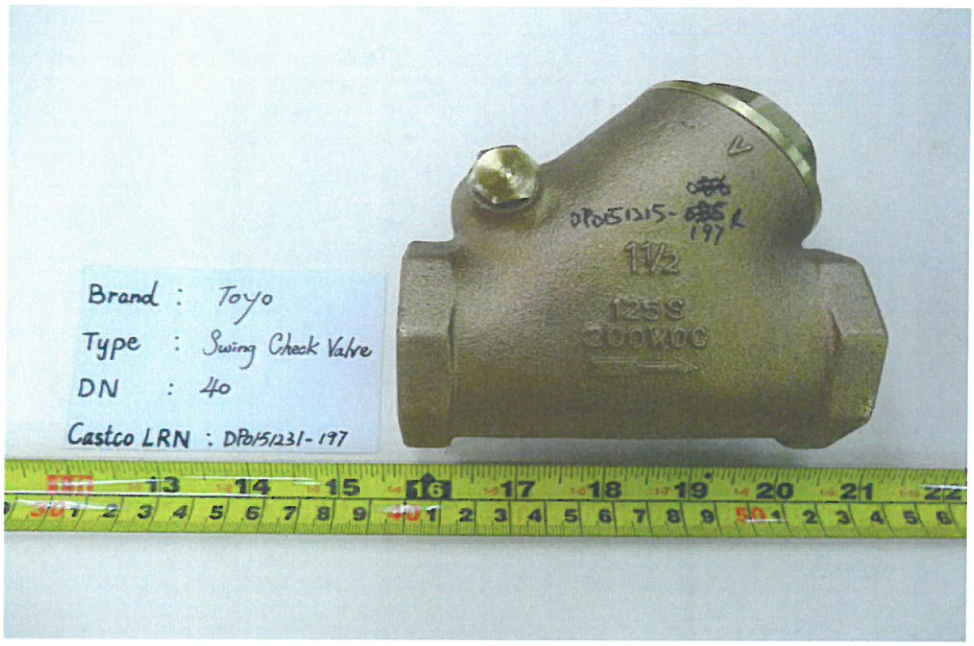
Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

Date of issue : 29 January 2016

Appendix D



DP0151231-197(1)

DP0151231-197(2)

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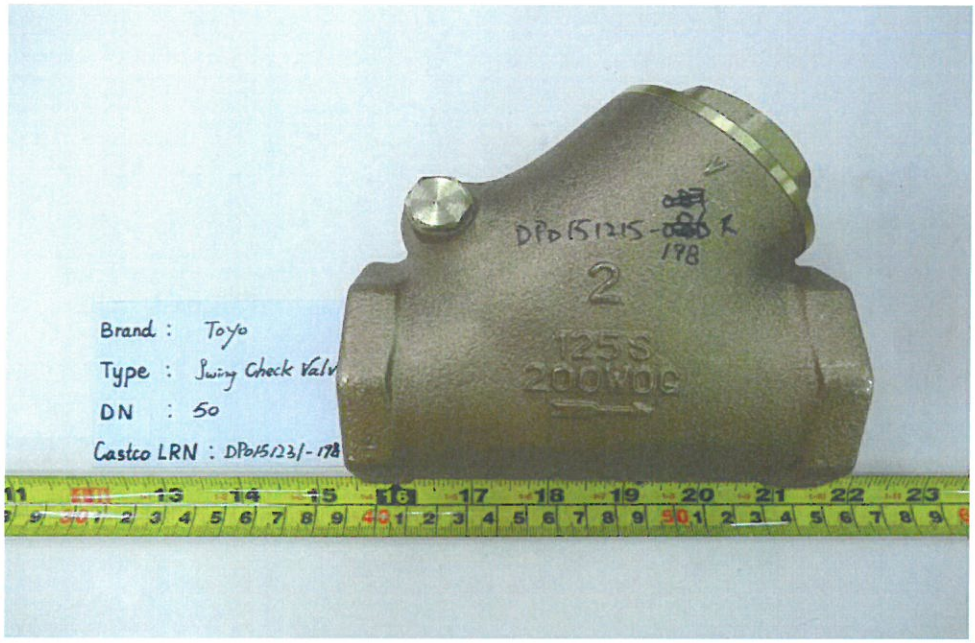
Test Report
Dimensions Check of Check Valves
(BS 5154 : 1991 Clause 8 Table 7 & 8)

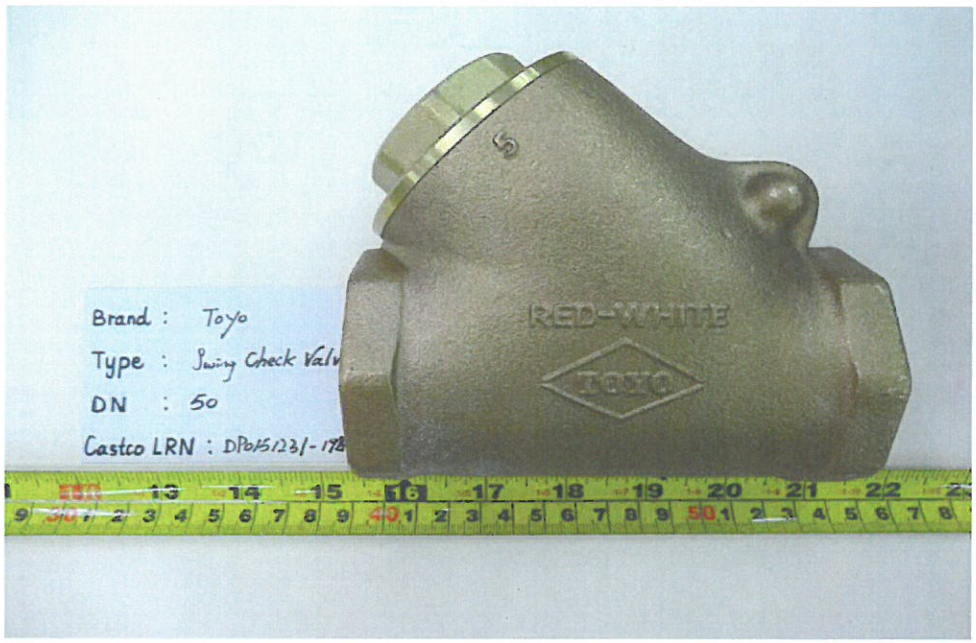
Date of issue : 29 January 2016

Castco LRN : DP0151231-194 to 198 DIM

Appendix E



DP0151231-198(1)



DP0151231-198(2)

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CASTCO TESTING CENTRE LTD.

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-13

Details as supplied by customer

Name of Customer :	Gate Way Valve & Fitting Ltd.
Address :	Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong
Job Title :	"Toyo" Swing Check Valve - Fig. No.236
Contract No. :	--
Customer's Ref. No. :	--

Sample details as supplied by customer

Date of Sample Received :	21-04-2016
Date Sampled :	--
Test Period :	10-05-2016
Sample Description :	DN15 Copper Alloy Swing Check Valve with Thread Ends (Body)
Specification :	BS EN 1982:2008 Grade CC491K
Specimen No.:	DP0160419-171
Manufacturer :	Kitz (Thailand) Ltd.
Model No.:	Fig. No. 236 / Brand Name : Toyo / Origin: Thailand
Body Marking :	RED WHITE TOYO 125S

Test Method(s):-

1) In House Method: ST-Multi-4 (Spark-OES)

Remarks:

I. Test results only relate to the specimen tested.

Checked by : _____
Cheng Chi Fai
Senior Manager

Certified by: _____
LEE Stephen Shu Hang
Ph.D.
Technical Director

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E-mail: castco@netvigator.com Website: www.castco.com.hk

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-13

Chemical Analysis		Result	Specification BS EN 1982:2008, Table 23b, Grade CC491K castings
[1] Aluminium	Al %	<0.003	0.01 max.
[1] Iron	Fe %	0.036	0.3 max.
[1] Nickel	Ni %	0.17	2.0 max.
[1] Phosphorus	P %	0.023	0.10 max.
[1] Lead	Pb %	5.39	4.0 min. 6.0 max.
[1] Sulphur	S %	0.023	0.10 max.
[1] Antimony	Sb %	0.044	0.25 max.
[1] Silicon	Si %	<0.002	0.01 max.
[1] Tin	Sn %	4.90	4.0 min. 6.0 max.
[1] Zinc	Zn %	5.38	4.0 min. 6.0 max.
[1] Copper	Cu %	84.0	83.0 min. 87.0 max.

Executive Summary

Test results of the specimen are compliance / ~~not compliance~~ with the chemical requirement of BS EN 1982:2008, Table 23b, Grade CC491K.

End of Report

香港粉嶺安居街33號 33, On Kui Street, Fanling, Hong Kong. Tel : 2677 2138
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CASTCO TESTING CENTRE LTD.

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-14

Details as supplied by customer

Name of Customer :	Gate Way Valve & Fitting Ltd.
Address :	Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong
Job Title :	"Toyo" Swing Check Valve - Fig. No.236
Contract No. :	--
Customer's Ref. No. :	--

Sample details as supplied by customer

Date of Sample Received :	21-04-2016
Date Sampled :	--
Test Period :	10-05-2016
Sample Description :	DN15 Copper Alloy Swing Check Valve with Thread Ends (Seat Ring)
Specification :	BS EN 1982:2008 Grade CC491K
Specimen No.:	DP0160419-171
Manufacturer :	Kitz (Thailand) Ltd.
Model No.:	Fig. No. 236 / Brand Name : Toyo / Origin: Thailand
Body Marking :	RED WHITE TOYO 125S

Test Method(s):-

1) In House Method: ST-Multi-4 (Spark-OES)

Remarks:

I. Test results only relate to the specimen tested.

Checked by : _____
Cheng Chi Fai
Senior Manager

Certified by: _____
LEE Stephen Shu Hang
Ph.D.
Technical Director

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

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-14

Chemical Analysis		Result	Specification BS EN 1982:2008, Table 23b, Grade CC491K castings
[1] Aluminium	Al %	<0.003	0.01 max.
[1] Iron	Fe %	0.038	0.3 max.
[1] Nickel	Ni %	0.19	2.0 max.
[1] Phosphorus	P %	0.017	0.10 max.
[1] Lead	Pb %	5.46	4.0 min. 6.0 max.
[1] Sulphur	S %	0.025	0.10 max.
[1] Antimony	Sb %	0.038	0.25 max.
[1] Silicon	Si %	<0.002	0.01 max.
[1] Tin	Sn %	4.72	4.0 min. 6.0 max.
[1] Zinc	Zn %	5.49	4.0 min. 6.0 max.
[1] Copper	Cu %	84.0	83.0 min. 87.0 max.

Executive Summary

Test results of the specimen are compliance / ~~not compliance~~ with the chemical requirement of BS EN 1982:2008, Table 23b, Grade CC491K.

End of Report

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

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

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-15

Details as supplied by customer

Name of Customer :	Gate Way Valve & Fitting Ltd.
Address :	Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong
Job Title :	"Toyo" Swing Check Valve - Fig. No.236
Contract No. :	--
Customer's Ref. No. :	--

Sample details as supplied by customer

Date of Sample Received :	21-04-2016
Date Sampled :	--
Test Period :	10-05-2016
Sample Description :	DN32 Copper Alloy Swing Check Valve with Thread Ends (Body)
Specification :	BS EN 1982:2008 Grade CC491K
Specimen No.:	DP0151231-196
Manufacturer :	Kitz (Thailand) Ltd.
Model No.:	Fig. No. 236 / Brand Name : Toyo / Origin: Thailand
Body Marking :	RED WHITE TOYO 125S

Test Method(s):-

1) In House Method: ST-Multi-4 (Spark-OES)

Remarks:

I. Test results only relate to the specimen tested.

Checked by : Cheng Chi Fai
Senior Manager

Certified by: LEE Stephen Shu Hang
Ph.D.
Technical Director

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Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-15

Chemical Analysis		Result	Specification BS EN 1982:2008, Table 23b, Grade CC491K castings
[1] Aluminium	Al %	<0.003	0.01 max.
[1] Iron	Fe %	0.046	0.3 max.
[1] Nickel	Ni %	0.20	2.0 max.
[1] Phosphorus	P %	0.017	0.10 max.
[1] Lead	Pb %	5.25	4.0 min. 6.0 max.
[1] Sulphur	S %	0.025	0.10 max.
[1] Antimony	Sb %	0.053	0.25 max.
[1] Silicon	Si %	<0.002	0.01 max.
[1] Tin	Sn %	4.96	4.0 min. 6.0 max.
[1] Zinc	Zn %	5.25	4.0 min. 6.0 max.
[1] Copper	Cu %	84.1	83.0 min. 87.0 max.

Executive Summary

Test results of the specimen are compliance / ~~not compliance~~ with the chemical requirement of BS EN 1982:2008, Table 23b, Grade CC491K.

End of Report

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Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-16

Details as supplied by customer

Name of Customer :	Gate Way Valve & Fitting Ltd.
Address :	Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong
Job Title :	"Toyo" Swing Check Valve - Fig. No.236
Contract No. :	--
Customer's Ref. No. :	--

Sample details as supplied by customer

Date of Sample Received :	21-04-2016
Date Sampled :	--
Test Period :	10-05-2016
Sample Description :	DN32 Copper Alloy Swing Check Valve with Thread Ends (Seat Ring)
Specification :	BS EN 1982:2008 Grade CC491K
Specimen No.:	DP0151231-196
Manufacturer :	Kitz (Thailand) Ltd.
Model No.:	Fig. No. 236 / Brand Name : Toyo / Origin: Thailand
Body Marking :	RED WHITE TOYO 125S

Test Method(s):-

1) In House Method: ST-Multi-4 (Spark-OES)

Remarks:

I. Test results only relate to the specimen tested.

Checked by : _____
Cheng Chi Fai
Senior Manager

Certified by: _____
LEE Stephen Shu Hang
Ph.D.
Technical Director

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Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-16

Chemical Analysis		Result	Specification BS EN 1982:2008, Table 23b, Grade CC491K castings
1) Aluminium	Al %	<0.003	0.01 max.
1) Iron	Fe %	0.035	0.3 max.
1) Nickel	Ni %	0.19	2.0 max.
1) Phosphorus	P %	0.019	0.10 max.
1) Lead	Pb %	5.41	4.0 min. 6.0 max.
1) Sulphur	S %	0.025	0.10 max.
1) Antimony	Sb %	0.036	0.25 max.
1) Silicon	Si %	<0.002	0.01 max.
1) Tin	Sn %	4.88	4.0 min. 6.0 max.
1) Zinc	Zn %	5.51	4.0 min. 6.0 max.
1) Copper	Cu %	83.8	83.0 min. 87.0 max.

Executive Summary

Test results of the specimen are compliance / ~~not compliance~~ with the chemical requirement of BS EN 1982:2008, Table 23b, Grade CC491K.

End of Report

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CASTCO TESTING CENTRE LTD.

Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-17

Details as supplied by customer

Name of Customer :	Gate Way Valve & Fitting Ltd.
Address :	Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong
Job Title :	"Toyo" Swing Check Valve - Fig. No.236
Contract No. :	--
Customer's Ref. No. :	--

Sample details as supplied by customer

Date of Sample Received :	21-04-2016
Date Sampled :	--
Test Period :	10-05-2016
Sample Description :	DN50 Copper Alloy Swing Check Valve with Thread Ends (Body)
Specification :	BS EN 1982:2008 Grade CC491K
Specimen No.:	DP0151231-198
Manufacturer :	Kitz (Thailand) Ltd.
Model No.:	Fig. No. 236 / Brand Name : Toyo / Origin: Thailand
Body Marking :	RED WHITE TOYO 125S

Test Method(s):-

1) In House Method: ST-Multi-4 (Spark-OES)

Remarks:

I. Test results only relate to the specimen tested.

Checked by : _____
Cheng Chi Fai
Senior Manager

Certified by: _____
LEE Stephen Shu Hang
Ph.D.
Technical Director

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Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-17

Chemical Analysis		Result	Specification BS EN 1982:2008, Table 23b, Grade CC491K castings
1) Aluminium	Al %	<0.003	0.01 max.
1) Iron	Fe %	0.035	0.3 max.
1) Nickel	Ni %	0.20	2.0 max.
1) Phosphorus	P %	0.017	0.10 max.
1) Lead	Pb %	5.31	4.0 min. 6.0 max.
1) Sulphur	S %	0.023	0.10 max.
1) Antimony	Sb %	0.035	0.25 max.
1) Silicon	Si %	<0.002	0.01 max.
1) Tin	Sn %	4.76	4.0 min. 6.0 max.
1) Zinc	Zn %	5.36	4.0 min. 6.0 max.
1) Copper	Cu %	84.2	83.0 min. 87.0 max.

Executive Summary

Test results of the specimen are compliance / ~~not compliance~~ with the chemical requirement of BS EN 1982:2008, Table 23b, Grade CC491K.

End of Report

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Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-18

Details as supplied by customer

Name of Customer :	Gate Way Valve & Fitting Ltd.
Address :	Flat A1, 4/F., Galaxy Factory Bldg., 25-27 Luk Hop Street, San Po Kong, Kowloon, Hong Kong
Job Title :	"Toyo" Swing Check Valve - Fig. No.236
Contract No. :	--
Customer's Ref. No. :	--

Sample details as supplied by customer

Date of Sample Received :	21-04-2016
Date Sampled :	--
Test Period :	10-05-2016
Sample Description :	DN50 Copper Alloy Swing Check Valve with Thread Ends (Seat Ring)
Specification :	BS EN 1982:2008 Grade CC491K
Specimen No.:	DP0151231-198
Manufacturer :	Kitz (Thailand) Ltd.
Model No.:	Fig. No. 236 / Brand Name : Toyo / Origin: Thailand
Body Marking :	RED WHITE TOYO 125S

Test Method(s):-

1) In House Method: ST-Multi-4 (Spark-OES)

Remarks:

I. Test results only relate to the specimen tested.

Checked by : _____
Cheng Chi Fai
Senior Manager

Certified by: _____
LEE Stephen Shu Hang
Ph.D.
Technical Director

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Test Report

Chemical Analysis of Copper and Copper Alloy

Date of issue: 13-05-2016

Castco LRN: MS0160421-18

Chemical Analysis		Result	Specification BS EN 1982:2008, Table 23b, Grade CC491K castings
[1] Aluminium	Al %	<0.003	0.01 max.
[1] Iron	Fe %	0.036	0.3 max.
[1] Nickel	Ni %	0.19	2.0 max.
[1] Phosphorus	P %	0.021	0.10 max.
[1] Lead	Pb %	5.36	4.0 min. 6.0 max.
[1] Sulphur	S %	0.023	0.10 max.
[1] Antimony	Sb %	0.038	0.25 max.
[1] Silicon	Si %	<0.002	0.01 max.
[1] Tin	Sn %	4.89	4.0 min. 6.0 max.
[1] Zinc	Zn %	5.59	4.0 min. 6.0 max.
[1] Copper	Cu %	83.8	83.0 min. 87.0 max.

Executive Summary

Test results of the specimen are compliance / ~~not compliance~~ with the chemical requirement of BS EN 1982:2008, Table 23b, Grade CC491K.

End of Report

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