CEMEC ENGINEERING CO., LTD.

TESTING SERVICES

22, KINGLET IND. BLDG.,
21-23 SHING WAN ROAD,
TAI WAI, SHATIN, N.T.,
HONG KONG.

TEL: 0-6055736

TEST REPORT

TITLE	:	Valve Testing
OUR REFERENCE	:	J182A/A127A
SAMPLE SUBMITTED BY	:	Arnhold & Co., Ltd. Victoria Centre, 6/F 15 Watson Road Hong Kong
DESCRIPTION OF SAMPLE	:	C.I. globe valve; rising stem; bronze trim; flanged body ends to BS4504 PN16
MANUFACTURER	:	Toyo Valve Co., Ltd. (Japan)
MODEL	:	Fig 400A
BODY MARKING	:	RED - WHITE TOYO 2½ 125 S 200 WOG
METHOD OF TESTS	:	BS5152 : 1974; BS4504 : Part 1 : 1974
PERIOD OF TESTS	:	23/11/1984 to 29/11/1984

RESULTS : -

(1) DIMENSIONS

Nominal Size (mm)		65
Height of valve, in open position (mm)		317.5
Diameter of handwheel (mm)		178
Face to face dimension (mm)	Sample	216
	BS Requirement	214 to 218
Flange outside diameter, (mm)	Sample	186
	BS Requirement	183 to 187
Flange thickness at the bolt hole (mm)	Sample	18.2
	BS Requirement	17.0 to 19.0

(2) HYDRAULIC PRESSURE TEST

	Nominal Pressure PN (bar)	Body Test			Seat Test		
		Test Pressure (bar)	Duration (sec)	Remark	Test Pressure (bar)	Duration (sec)	Remark
Sample	16	24	60	Pass	16	60	Pass
BS Requirement	16	24	60	/	16	60	/

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Our reference J182A/A127A (p.2)

(3) CHEMICAL COMPOSITION

Part	Elements Compositions (%)								Designation to BS1400 : 1973
	Copper	Zinc	Lead	Tin	Nickel	Iron	Manganese	Other Impurities	
Body seat ring	83.2	5.3	5.7	5.0	0.1	--	---	0.7	LG2
Disk facing ring	83.1	5.9	5.4	4.8	0.1	--	---	0.7	LG2
Stem	59.2	36.4	*0.4	0.4	---	0.3	2.0	1.3	BS 2874 CZ 114

*0.1% below B.S. limit

(4) SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions - Satisfactory

Hydraulic Pressure Tests - Satisfactory

Chemical Composition - The slight deviation will not affect the performance of the valve. The stem material is ($\alpha + \beta$) high tensile brass for which the manufacturers are allowed considerable latitude as to composition

DATE : 1st December 1984 CERTIFIED BY : E. a. Bruges

E.A. Bruges

BSc PhD CEng FIMarE
FIMechE FHKIE MASME
MASHRAE

Director & General Manager

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TEST REPORT

TITLE	:	Valve Testing
OUR REFERENCE	:	J182B/A127B
SAMPLE SUBMITTED BY	:	Arnhold & Co., Ltd. Victoria Centre, 6/F 15 Watson Road Hong Kong
DESCRIPTION OF SAMPLE	:	C.I. globe valve; rising stem; bronze trim; flanged body ends to BS4504 PN16
MANUFACTURER	:	Toyo Valve Co., Ltd. (Japan)
MODEL	:	Fig 400A
BODY MARKING	:	RED - WHITE TOYO 3 125 S 200WOG →
METHOD OF TESTS	:	BS5152 : 1974; BS4504 : Part 1 : 1974
PERIOD OF TESTS	:	23/11/1984 to 29/11/1984

RESULTS : -

(1) DIMENSIONS

Nominal Size (mm)		80
Height of valve, in open position (mm)		354
Diameter of handwheel (mm)		228
Face to face dimension (mm)	Sample	242
	BS Requirement	239 to 243
Flange outside diameter, (mm)	Sample	202
	BS Requirement	188 to 202
Flange thickness at the bolt hole (mm)	Sample	20.0
	BS Requirement	19.0 to 21.0

(2) HYDRAULIC PRESSURE TEST

	Nominal Pressure PN (bar)	Body Test			Seat Test		
		Test Pressure (bar)	Duration (sec)	Remark	Test Pressure (bar)	Duration (sec)	Remark
Sample	16	24	60	Pass	16	60	Pass
BS Requirement	16	24	60	/	16	60	/

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Our reference J182B/A127B (p.2)

(3) CHEMICAL COMPOSITION

Part	Elements Compositions (%)								Designation to BS1400 : 1973
	Copper	Zinc	Lead	Tin	Nickel	Iron	Manganese	Other Impurities	
Body seat ring	84.5	5.9	4.5	4.2	0.2	--	---	0.7	LG2
Disk facing ring	84.7	5.2	4.7	4.7	0.1	--	---	0.6	LG2
Stem	58.6	39.1	*0.2	0.2	---	0.4	0.8	0.7	BS 2874 CZ 114

* 0.3% below B.S. limit

(4) SUMMARY OF RESULTS (apply only to the sample)

Dimensions - Satisfactory

Hydraulic Pressure Tests - Satisfactory

Chemical Composition - The deviation on composition noted above should not affect the performance of the valve. The stem material is ($\alpha + \beta$) high tensile brass for which the manufacturers are allowed considerable latitude as to compositions

DATE : 1st December 1984 CERTIFIED BY : E.A. Bruges

E.A. Bruges

BSc PhD CEng FIMarE
FIMechE FHKIE MASME
MASHRAE

Director & General Manager

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TEST REPORT

TITLE	:	Valve Testing
OUR REFERENCE	:	J266B
SAMPLE SUBMITTED BY	:	Arnhold & Co Ltd Victoria Centre, 6/F 15 Watson Road Hong Kong
DESCRIPTION OF SAMPLE	:	80mm C.I. glove valve; bronze trim; rising stem; flanged body ends to BS4504 PN16
MANUFACTURER	:	TOYO VALVE CO LTD. (Japna)
MODEL	:	TOYO Fig. 400A
BODY MARKING	:	RED-WHITE 3 TOYO 125 S 200 WOG
METHOD OF TESTS	:	Pressure Testing Method of BS5152 : 1974
PERIOD OF TESTS	:	26-6-85

RESULTS :-

(1) HYDRAULIC PRESSURE TESTS

	Body Test			Seat Test		
	Test Pressure (bar)	Duration (sec)	Remark	Test Pressure (bar)	Duration (sec)	Remark
Sample	25.88	60	Pass	17.25	60	Pass

(2) SUMMARY OF RESULTS (apply only to the sample tested)

Hydraulic Pressure tests - Satisfactory

TEST PERFORMED BY : _____
Mr Li Man Yin
Mechanical Engineer

CERTIFIED BY : _____
E.A. Bruges
BSc PhD CEng FIMarE
FIMechE FHKIE MASME
MASHRAE

Director & General Manager

DATE : 1st July 1985

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TEST REPORT

TITLE : Valve Testing

OUR REFERENCE : J100B

SAMPLE SUBMITTED BY : Arnhold & Co., Ltd.
Victoria Centre
6th Floor
15 Watson Road
Hong Kong

DESCRIPTION OF SAMPLES : Cast Iron Globe Valve; Flanged body ends; Bronzed trimmed.

MANUFACTURER : Toyo Valve Co., Ltd. (Japan)

MODEL NUMBER : Fig. 400

BODY MARKING : RED WHITE TOYO 4 125 S 200 WOG

METHOD OF TESTS : BS5152 : 1974

PERIOD OF TESTS : 11 May 1984 to 23 May 1984

RESULTS : -

(1) DIMENSIONS

Nominal size (in)		4
Height of valve, in open position (mm)		404
Diameter of handwheel (mm)		279
Flange outside diameter (mm)	Sample	220
	BS Requirement	229
Minimum flange thickness (mm)	Sample	24.9
	BS Requirement	23.8 to 26.8
Face to face dimension (mm)	Sample	293
	BS Requirement	291 to 293

(2) HYDRAULIC PRESSURE TESTS

	Nominal Pressure PN (bar)	Body Test (1.5PN)		Seat Test (1.0PN)	
		Test Pressure (bar)	Duration (sec)	Test Pressure (bar)	Duration (sec)
Sample	16	24	60	16	60
BS Requirement	16	24	60	16	60

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Report ref.: J100B

(3) CHEMICAL COMPOSITION

Component	Elements Compositions (%)						Designation according to BS 1400
	Copper	Zinc	Lead	Tin	Nickel	Other Impurities	
Body seat ring	83.7	5.3	5.1	4.8	0.3	0.8	LG2
Disc facing ring	85.1	4.0	4.9	5.1	0.2	0.7	LG2

Component	Elments Compositions (%)								Designation according to BS 2874
	Copper	Zinc	Lead	Tin	Iron	Aluminium	Manganese	Other Impurities	
Stem*	59.3	37.6	0.3	0.8	0.8	0.5	0.1	0.6	CZ114

(4) SUMMARY OF RESULTS (apply only to the sample tested)

Dimension - Satisfactory

Hydraulic Pressure Test - Satisfactory

Chemical Composition - Satisfactory

DATE : 5th June 1984 CERTIFIED BY : E. A. Bruges

E.A. Bruges

BSc PhD CEng FIMarE
FIMechE FHKIE MASME
MASHRAE

Director & General Manager

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* Nearest to BS2874, CZ114, high tensile brass (lead free grade) except that the manganese is 0.2% less than the BS specification.

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TEL: 0-6055736

TEST REPORT

TITLE	:	Valve Testing
OUR REFERENCE	:	J182C/A127C
SAMPLE SUBMITTED BY	:	Arnhold & Co., Ltd. Victoria Centre, 6/F 15 Watson Road Hong Kong
DESCRIPTION OF SAMPLE	:	C.I. globe valve; rising stem; bronze trim; flanged body ends to BS4504 PN16
MANUFACTURER	:	Toyo Valve Co., Ltd. (Japan)
MODEL	:	Fig 400A
BODY MARKING	:	RED - WHITE TOYO 5 125S 200WOG
METHOD OF TESTS	:	BS5152 : 1974; BS4504 : Part 1 : 1974
PERIOD OF TESTS	:	23/11/1984 to 29/11/1984

RESULTS : -

(1) DIMENSIONS

Nominal Size (mm)		125
Height of valve, in open position (mm)		461.5
Diameter of handwheel (mm)		300
Face to face dimension (mm)	Sample	331
	BS Requirement	328 to 332
Flange outside diameter, (mm)	Sample	251
	BS Requirement	248 to 252
Flange thickness at the bolt hole (mm)	Sample	25.5
	BS Requirement	23.0 to 25.5

(2) HYDRAULIC PRESSURE TEST

	Nominal Pressure PN (bar)	Body Test			Seat Test		
		Test Pressure (bar)	Duration (sec)	Remark	Test Pressure (bar)	Duration (sec)	Remark
Sample	16	24	60	Pass	16	60	Pass
BS Requirement	16	24	60	/	16	60	/

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Our reference J182C/A127C (p.2)

(3) CHEMICAL COMPOSITION

Part	Elements Compositions (%)								Designation to BS1400 : 1973
	Copper	Zinc	Lead	Tin	Nickel	Iron	Manganese	Other Impurities	
Body seat ring	83.3	*6.8	4.9	4.3	0.1	--	---	0.6	LG2
Disk facing ring	81.0	△7.6	5.4	5.2	0.1	--	---	0.7	LG2
Stem	57.6	°39.0	°0.4	0.4	---	0.6	0.8	1.2	BS 2874 CZ 114

* 0.8% above B.S. limit
△ 1.6% above B.S. limit
° 0.1% below B.S. limit

(4) SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions - Satisfactory

Hydraulic Pressure Tests - Satisfactory

Chemical Composition - The deviation in composition noted above should probably not affect the performance of the valve. The stem material is ($\alpha + \beta$) high tensile brass for which the manufacturers are allowed considerable latitude as to compositions.

DATE : 1st December 1984 CERTIFIED BY : E.A. Bruges

E.A. Bruges

BSc PhD CEng FIMarE
FIMechE FHKIE MASME
MASHRAE

Director & General Manager

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HONG KONG.

TEL: 0-6055736

CEMEC ENGINEERING CO., LTD.

TESTING SERVICES

TEST REPORT

TITLE	:	Valve Testing
OUR REFERENCE	:	J182D/A127D
SAMPLE SUBMITTED BY	:	Arnhold & Co., Ltd. Victoria Centre, 6/F 15 Watson Road Hong Kong
DESCRIPTION OF SAMPLE	:	C.I. globe valve; rising stem; bronze trim; flanged body ends to BS4504 PN16
MANUFACTURER	:	Toyo Valve Co., Ltd. (Japan)
MODEL	:	Fig 400A
BODY MARKING	:	RED - WHITE 6 TOYO 125 S 200 WOG
METHOD OF TESTS	:	BS5152 : 1974; BS4504 : Part 1 : 1974
PERIOD OF TESTS	:	23/11/1984 to 29/11/1984

RESULTS : -

(1) DIMENSIONS

Nominal Size (mm)		150
Height of valve, in open position (mm)		535
Diameter of handwheel (mm)		356
Face to face dimension (mm)	Sample	357
	BS Requirement	354 to 358
Flange outside diameter, (mm)	Sample	286
	BS Requirement	284 to 288
Flange thickness at the bolt hole (mm)	Sample	* 26.5
	BS Requirement	23.0 to 25.5

* Slight deviation from BS specification

(2) HYDRAULIC PRESSURE TEST

	Nominal Pressure PN (bar)	Body Test			Seat Test		
		Test Pressure (bar)	Duration (sec)	Remark	Test Pressure (bar)	Duration (sec)	Remark
Sample	16	24	60	Pass	16	60	Pass
BS Requirement	16	24	60	/	16	60	/

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TEL: 0-6055736

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Our reference J182D/A127D (p.2)

(3) CHEMICAL COMPOSITION

Part	Elements Compositions (%)								Designation to BS1400 : 1973
	Copper	Zinc	Lead	Tin	Nickel	Iron	Manganese	Other Impurities	
Body seat ring	83.0	*6.4	5.1	4.9	0.1	--	---	0.5	LG2
Disk facing ring	84.5	5.2	4.9	4.6	0.1	--	---	0.7	LG2
Stem	58.6	38.3	Δ0.1	0.7	--	0.9	0.0	1.4	BS 2874 CZ 114

* 0.4% above B.S. limit
Δ 0.4% below B.S. limit

(4) SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions - Satisfactory except that the flange thickness at the bolt hole is slightly larger than the BS specification

Hydraulic Pressure Tests - Satisfactory

Chemical Composition - The deviation in composition noted above should not affect the performance of the valve. The stem material is ($\alpha+\beta$) high tensile brass for which the manufacturers are allowed considerable latitude as to composition

DATE : 1st December 1984 CERTIFIED BY : E.A. Bruges

E.A. Bruges
BSc PhD CEng FIMarE
FIMechE FHKIE MASME
MASHRAE

Director & General Manager

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TEL: 0-6055736

TEST REPORT

TITLE	:	Valve Testing
OUR REFERENCE	:	J182E/A127E
SAMPLE SUBMITTED BY	:	Arnhold & Co., Ltd. Victoria Centre, 6/F 15 Watson Road Hong Kong
DESCRIPTION OF SAMPLE	:	C.I. globe valve; rising stem; bronze trim; flanged body ends to BS4504 PN16
MANUFACTURER	:	Toyo Valve Co., Ltd. (Japan)
MODEL	:	Fig 400A
BODY MARKING	:	RED - WHITE 8 TOYO 125 S 200 WOG →
METHOD OF TESTS	:	BS5152 : 1974; BS4504 : Part 1 : 1974
PERIOD OF TESTS	:	23/11/1984 to 29/11/1984

RESULTS : -

(1) DIMENSIONS

Nominal Size (mm)		200
Height of valve, in open position (mm)		636.5
Diameter of handwheel (mm)		400
Face to face dimension (mm)	Sample	495
	BS Requirement	492 to 498
Flange outside diameter, (mm)	Sample	343
	BS Requirement	337 to 343
Flange thickness at the bolt hole (mm)	Sample	30
	BS Requirement	27.0 to 30.0

(2) HYDRAULIC PRESSURE TEST

	Nominal Pressure PN (bar)	Body Test			Seat Test		
		Test Pressure (bar)	Duration (sec)	Remark	Test Pressure (bar)	Duration (sec)	Remark
Sample	16	24	120	Pass	16	120	Pass
BS Requirement	16	24	120	/	16	120	/

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Our reference J182E/A127E (p.2)

(3) CHEMICAL COMPOSITION

Part	Elements Compositions (%)								Designation to BS1400 : 1973
	Copper	Zinc	Lead	Tin	Nickel	Iron	Manganese	Other Impurities	
Body seat ring	80.7	*7.0	5.8	5.7	0.2	--	---	0.6	LG2
Disk facing ring	82.7	△6.9	4.7	5.0	0.2	--	---	0.5	LG2
Stem	58.2	38.6	°0.2	0.5	---	0.5	0.8	1.2	BS 2874 CZ 114

* 1.0% above B.S. limit
△ 0.9% above B.S. limit
° 0.3% below B.S. limit

(4) SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-	Satisfactory
Hydraulic Pressure Tests	-	Satisfactory
Chemical Composition	-	The deviations in composition noted above should not affect the performance of the valve. The stem material is ($\alpha+\beta$) high tensile brass for which the manufacturers are allowed considerable latitude as to composition

DATE : 1st December 1984 CERTIFIED BY : E. A. Bruges

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FIMechE FHKIE MASME
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