



TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214A-1

DESCRIPTION OF SAMPLE : 50mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Valve & Fitting Ltd.
Flat F, 22/F., Luk Hóp Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS : GG
AVK
DN50
PN16 CI

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS: -

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	50	/
Diameter of handwheel	181.3	/
Maximum overall height of valve, open	273	≤ 395
Face to face dimension	178.5	178 ± 2
Minimum stem diameter	21.7	/
Flange	outside diameter	165
	pitch circle diameter	125
	thickness	20.2
	bolt hole diameter	18
	number of bolt hole	4



TEST REPORT

OUR REFERENCE NO. J6214A-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	30	Pass	18	10	Pass
BS Requirement	16	24	30	/	18	10	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 12

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	180	12	Pass
BS Requirement	16	180 min.	12	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	180	12	Pass
BS Requirement	16	180 min.	12	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	60	Pass	18	30	Pass
BS Requirement	16	24	60	/	18	30	/

Note : no leakage was detected during the above test.



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TEST REPORT

OUR REFERENCE NO. J6214A-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	12	< 60	12	< 60
BS Requirement	12	≤ 60	12	≤ 60

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-- Satisfactory
Hydraulic pressure tests	-- Satisfactory
Strength tests	-- Satisfactory
Functional tests	-- Satisfactory
Chemical composition	-- Satisfactory

Date : 8th November 2001 Authorized signature : _____

Samson W.K. Yiu

(Director)

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TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214B-1

DESCRIPTION OF SAMPLE : 65mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Way Valve & Fitting Ltd.
Flat F, 22/F., Luk Hop Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS : CI

AVK
DN65
PN16

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS: -

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	65	/
Diameter of handwheel	225.7	/
Maximum overall height of valve, open	301	≤ 420
Face to face dimension	191.2	190 ± 2
Minimum stem diameter	21.7	/
Flange	outside diameter	185
	pitch circle diameter	145
	thickness	22.0
	bolt hole diameter	18
	number of bolt hole	4



TEST REPORT

OUR REFERENCE NO. J6214B-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	30	Pass	18	10	Pass
BS Requirement	16	24	30	/	18	10	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 14.25

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	225	14.25	Pass
BS Requirement	16	225 min.	14.25	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	225	14.25	Pass
BS Requirement	16	225 min.	14.25	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	60	Pass	18	30	Pass
BS Requirement	16	24	60	/	18	30	/

Note : no leakage was detected during the above test.



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TEST REPORT

OUR REFERENCE NO. J6214B-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	14.25	< 75	14.25	< 75
BS Requirement	14.25	≤ 75	14.25	≤ 75

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-- Satisfactory
Hydraulic pressure tests	-- Satisfactory
Strength tests	-- Satisfactory
Functional tests	-- Satisfactory
Chemical composition	-- Satisfactory

Date : 8th November 2001 Authorized signature : _____

Samson W.K. Yiu

(Director)

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TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214C-1

DESCRIPTION OF SAMPLE : 80mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Way Valve & Fitting Ltd.
Flat F, 22/F., Luk H6p Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS :
AVK
DN80
PN16
GG
CI

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS: -

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	80	/
Diameter of handwheel	226	/
Maximum overall height of valve, open	327	≤ 465
Face to face dimension	204	203 ± 2
Minimum stem diameter	24.5	/
Flange	outside diameter	200
	pitch circle diameter	160
	thickness	22.2 22 +4.5
	bolt hole diameter	18.5 19 -1
	number of bolt hole	8 8



TEST REPORT

OUR REFERENCE NO. J6214C-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	30	Pass	18	10	Pass
BS Requirement	16	24	30	/	18	10	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 18

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	225	18	Pass
BS Requirement	16	225 min.	18	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	225	18	Pass
BS Requirement	16	225 min.	18	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	60	Pass	18	30	Pass
BS Requirement	16	24	60	/	18	30	/

Note : no leakage was detected during the above test.



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TEST REPORT

OUR REFERENCE NO. J6214C-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	18	< 75	18	< 75
BS Requirement	18	≤ 75	18	≤ 75

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-- Satisfactory
Hydraulic pressure tests	-- Satisfactory
Strength tests	-- Satisfactory
Functional tests	-- Satisfactory
Chemical composition	-- Satisfactory

Date : 8th November 2001 Authorized signature : _____

Samson W.K. Yiu

(Director)

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TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214D-1

DESCRIPTION OF SAMPLE : 100mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Way Valve & Fitting Ltd.
Flat F, 22/F., Luk Hop Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS :
AVK
DN100
PN16
GG
CI

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS: -

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	100	/
Diameter of handwheel	280.5	/
Maximum overall height of valve, open	363	≤ 530
Face to face dimension	232	229 ± 2
Minimum stem diameter	24.7	/
Flange	outside diameter	220
	pitch circle diameter	180
	thickness	24 +4.5
	bolt hole diameter	18.4 19 -1
	number of bolt hole	8 8



TEST REPORT

OUR REFERENCE NO. J6214D-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	30	Pass	18	10	Pass
BS Requirement	16	24	30	/	18	10	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 21.8

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	300	21.8	Pass
BS Requirement	16	300 min.	21.8	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	300	21.8	Pass
BS Requirement	16	300 min.	21.8	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	60	Pass	18	30	Pass
BS Requirement	16	24	60	/	18	30	/

Note : no leakage was detected during the above test.



TEST REPORT

OUR REFERENCE NO. J6214D-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	21.8	< 100	21.8	< 100
BS Requirement	21.8	≤ 100	21.8	≤ 100

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions -- Satisfactory
Hydraulic pressure tests -- Satisfactory
Strength tests -- Satisfactory
Functional tests -- Satisfactory
Chemical composition -- Satisfactory

Date : 8th November 2001 Authorized signature : _____


Samson W.K. Yiu

(Director)

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TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214E-1

DESCRIPTION OF SAMPLE : 150mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Way Valve & Fitting Ltd.
Flat F, 22/F., Luk Hop Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS :
AVK
DN150
PN16
GG
CI

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS:-

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	150	/
Diameter of handwheel	320.5	/
Maximum overall height of valve, open	478	≤ 630
Face to face dimension	268	267 ± 3
Minimum stem diameter	31.6	/
Flange	outside diameter	285
	pitch circle diameter	240
	thickness	26 +4.5
	bolt hole diameter	22.1 23 -1
	number of bolt hole	8 8



TEST REPORT

OUR REFERENCE NO. J6214E-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	30	Pass	18	10	Pass
BS Requirement	16	24	30	/	18	10	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 26

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	450	26	Pass
BS Requirement	16	450 min.	26	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	450	26	Pass
BS Requirement	16	450 min.	26	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	60	Pass	18	30	Pass
BS Requirement	16	24	60	/	18	30	/

Note : no leakage was detected during the above test.



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TEST REPORT

OUR REFERENCE NO. J6214E-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	26	< 150	26	< 150
BS Requirement	26	≤ 150	26	≤ 150

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-- Satisfactory
Hydraulic pressure tests	-- Satisfactory
Strength tests	-- Satisfactory
Functional tests	-- Satisfactory
Chemical composition	-- Satisfactory

Date : 8th November 2001 Authorized signature : _____


Samson W.K. Yiu

(Director)

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TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214F-1

DESCRIPTION OF SAMPLE : 200mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Way Valve & Fitting Ltd.
Flat F, 22/F., Luk Hop Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS :
AVK
DN200
PN16
GG
CI

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS: -

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	200	/
Diameter of handwheel	359	/
Maximum overall height of valve, open	594	≤ 770
Face to face dimension	294	292 ± 3
Minimum stem diameter	35.7	/
Flange	outside diameter	340
	pitch circle diameter	295
	thickness	30 +4.5
	bolt hole diameter	23 -1
	number of bolt hole	12



TEST REPORT

OUR REFERENCE NO. J6214F-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	30	Pass	18	10	Pass
BS Requirement	16	24	30	/	18	10	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 34.8

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	600	34.8	Pass
BS Requirement	16	600 min.	34.8	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	600	34.8	Pass
BS Requirement	16	600 min.	34.8	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	60	Pass	18	30	Pass
BS Requirement	16	24	60	/	18	30	/

Note : no leakage was detected during the above test.



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TEST REPORT

OUR REFERENCE NO. J6214F-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	34.8	< 200	34.8	< 200
BS Requirement	34.8	≤ 200	34.8	≤ 200

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-- Satisfactory
Hydraulic pressure tests	-- Satisfactory
Strength tests	-- Satisfactory
Functional tests	-- Satisfactory
Chemical composition	-- Satisfactory

Date : 8th November 2001 Authorized signature : _____

Nutek Systems is a testing agency, approved by the Water Authority and Government Supplies Department, for testing water supply fittings.

Samson W.K. Yiu

(Director)



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TEST REPORT

TITLE : Testing of valve

OUR REFERENCE : J6214G-1

DESCRIPTION OF SAMPLE : 250mm cast iron gate valve to BS5163 type A; complete with handwheel for on/off operation; flange to BS4504 PN16; pressure rating : 16 Bar; internally and externally coated with epoxy; valve wedge fully encapsulated in EPDM rubber ; for salt water and sea water application

SAMPLE SUBMITTED BY : Gate Way Valve & Fitting Ltd.
Flat F, 22/F., Luk Hôp Industrial Bldg.,
8 Luk Hop Street, San Po Kong,
Kowloon, Hong Kong.

BRAND : AVK

MANUFACTURER : AVK International A/S

COUNTRY OF ORIGIN : Denmark

MODEL : 02-40

BODY MARKINGS :
AVK
DN250
PN16
GG
CI

TEST REQUIRED : BS5163 : 1986 Type A;
BS6755: Part 1: 1986; BS4504: Section 3.2: 1989

PERIOD OF TESTS : 16th to 24th May 2000

RESULTS: -

1. DIMENSIONS (in millimetres)

	Sample	BS Requirement
Nominal size	250	/
Diameter of handwheel	497	/
Maximum overall height of valve, open	687	≤ 880
Face to face dimension	333	330 ± 3
Minimum stem diameter	39.5	/
Flange	outside diameter	405
	pitch circle diameter	355
	thickness	33
	bolt hole diameter	26.4
	number of bolt hole	12



TEST REPORT

OUR REFERENCE NO. J6214G-1 (P.2)

2. HYDRAULIC PRESSURE TEST (BS5163 Cl.18.2)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (min)	Remark	Test pressure (bar)	Duration (min)	Remark
Sample	16	24	60	Pass	18	15	Pass
BS Requirement	16	24	60	/	18	15	/

Note : no leakage was detected during the above test.

3. STRENGTH TESTS (BS5163 Cl.18.3)

Number of turns of stem to accomplish full obturator travel before test = 37

(i) valve in closed position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	750	37	Pass
BS Requirement	16	750 min.	37	/

Note : no leakage was detected during the above test.

(ii) valve in fully open position – apply hydraulic pressure, then gradually apply test torque to the stem.

	Test pressure (bar)	Test torque applied to the top end of valve stem (N.m)	No. of turns of stem to accomplish full obturator travel after the test	Remark
Sample	16	750	37	Pass
BS Requirement	16	750 min.	37	/

Note : no leakage was detected during the above test.

(iii) Hydraulic pressure tests after the above (i) and (ii) strength tests (BS5163 Cl.19)

	Nominal pressure PN (bar)	Body test (1.5 PN)			Seat test (1.1 PN)		
		Test pressure (bar)	Duration (s)	Remark	Test pressure (bar)	Duration (s)	Remark
Sample	16	24	100	Pass	18	60	Pass
BS Requirement	16	24	100	/	18	60	/

Note : no leakage was detected during the above test.



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TEST REPORT

OUR REFERENCE NO. J6214G-1 (P.3)

4. FUNCTIONAL TESTS (after strength tests)

	Open the valve		Close the valve	
	no. of turns of the stem to open the valve	torque applied to the stem to open the valve (N.m)	no. of turns of the stem to close the valve	torque applied to the stem to close the valve (N.m)
Sample	37	< 250	37	< 250
BS Requirement	37	≤ 250	37	≤ 250

Remark : Pass

5. CHEMICAL COMPOSITIONS

Component	Element compositions (%)							Designation to BS970 : Part 1 : 1996
	C	Si	Mn	Ni	Cr	S	P	
Stem	0.15	0.5	0.8	0.2	13.3	0.02	0.02	420S29

Note: A further tensile test showed that the stainless steel stem material, having a tensile strength of 890 N/mm² and an elongation of 13.5%, can comply with the mechanical requirement for stem material grade "431S29" (tensile strength 850-1000 N/mm², minimum elongation 11%) recommended by BS5163.

6. SUMMARY OF RESULTS (apply only to the sample tested)

Dimensions	-- Satisfactory
Hydraulic pressure tests	-- Satisfactory
Strength tests	-- Satisfactory
Functional tests	-- Satisfactory
Chemical composition	-- Satisfactory

Date : 10th November 2001 Authorized signature : _____

Samson W.K. Yiu

(Director)

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