



STANDARD SPECIFICATION

DWS 2510 SUPPLY OF VALVES

PARTICULAR VALVE SPECIFICATION

GATE VALVES

TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATION
AND
SECTION DWS 2510/01 – GENERAL TECHNICAL SPECIFICATION



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1 GENERAL

1.1 TYPE

Gate valves shall be doubled flanged and be of the resilient seal or wedge-gate type, the gates of which shall be completely clear of the waterway in the fully open position. Unless otherwise specified, the gate valves shall be of the non-rising spindle type. The valves shall be capable of withstanding the nominal pressure (PN) and specified test pressures from both sides. The gate shall operate satisfactorily under the specified conditions.

Where the specification calls for the supply of 1 000 kPa rated gate valves and the manufacturer manufactures these valves identical to the 1 600 kPa rated valves, these valves can be supplied with the casted pressure rating stating 1 600 kPa and drilled to the 1 600 kPa specification, thus supplying a 1 600 kPa valve. The contractor shall, however, confirm this in writing at the tendering stage.

In specific circumstances the valves have to be drilled to suit existing equipment and details thereof will be supplied in the Project Specification.

1.2 SPECIFICATIONS

The valves shall generally be manufactured in accordance to SABS 664 and SABS 191.

1.3 BODY

The body shall be of rugged design with substantial ribs to minimise distortion under pressure. Bodies shall be designed and manufactured to withstand any additional gearing related stresses.

1.4 GEARBOX

The valve gearbox, where applicable, shall not be mounted directly onto the stuffing box but shall be mounted on suitable supporting brackets.

1.5 OPERATION

The valve shall be able to open and close satisfactorily under the specified flow rate and pressures.

1.6 POSITION INDICATOR

Preference shall be given to mechanical linear indicator system mounted on the valve stem.

1.7 STEM AND THRUST BEARING

The stem thrust collar shall bear against a ball thrust bearing of approved design, details of which shall be furnished by the Contractor with his offer.

All gate valves shall be fitted with a back seal to permit the replacement of the stem seals under pressure.



2 CONSTRUCTION AND OPERATIONAL REQUIREMENTS

2.1 RESILIENT SEAL GATE VALVES

2.1.1 Body and guides

The valve body shall incorporate a straight unobstructed body passage without pockets and shall have inclined seats and prominent gate guides to eliminate deposits in the valve body. The guides shall be as deep and as long as possible, but not protruding into the flow path to offer support in all gate positions.

The rubber coated gate shoes shall accurately fit the body guide profile to allow smooth operation of the gate with minimal shudder.

2.1.2 Gate

The gate shall be accurately moulded and completely encapsulated in rubber to ensure drop tightness over the valve pressure range. The rubber coated gate shall be designed to offer an equal distribution of sealing pressure in all directions with a capacity to accept foreign matter up to 1mm in particle size.

2.1.3 Stem

A corrosion resistant stem seal arrangement shall include a scraper ring to prevent the ingress of foreign matter. A stem thrust collar shall be installed between anti-friction materials to ensure low operating forces.

2.1.4 Corrosion protection

RSV gate valves shall comply with the Standard Specification DWS 9900 Section C3 . Damage to the corrosion protection or the rubber-coated gate during testing or normal operation will not be acceptable.

2.2 WEDGE GATE VALVES

2.2.1 Body and guides

Channel guides on the body and the shoes on the gate shall be as deep and as long as necessary to support and minimise shudder of the gate in any position during its travel.

Shoes shall be accurately fitted in the guides so as to ensure that sealing rings do not make contact before the gate is seated and that the gate is centralised when seated.

The sliding surfaces between the shoe and the channel shall be constructed from acceptable dissimilar materials.

With the valve fully open, at least half of the shoe shall be supported by the guides.

Jacking screws shall be provided to prevent over travel of the gate when closed.

2.2.2 Stems

The stem thrust collar shall bear against a ball thrust bearing of approved design, details of which shall be furnished at tendering stage.



2.2.3 Sealing faces

Body and gate seals shall be of such design and construction that will prevent seals becoming loose and prevent water passing behind seals under all conditions of operation and test. This feature must be proven at tendering stage by suitable drawings and documentation.

The leading edges of the sealing rings shall be slightly chamfered.

2.2.4 Position indicators

All valves of DN 300 and larger shall, except where otherwise specified, be fitted with mechanical indicators to show the position of the gate.

2.2.5 Gate and body marks

One face of the gate shall be marked, corresponding to a similar mark on the body, to ensure correct replacement after dismantling. The marks shall be visible and clear after coating.

3 MATERIAL

Valve components shall be constructed of the material specified in the following tables unless otherwise specified in the Project specification.

3.1 RESILIENT SEAL GATE VALVE (DN 50-300)

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
50 – 300	1000/1600/2500	STRUCTURAL 1500/2400/3750	SEAT 1000/1600/2500
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
BODY	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
GATE	SG IRON, COATED	BS 2789 Gr 420/12, SABS 936 SG 42, Vulcanized EPDM	
BONNET AND STUFFING BOX	SG IRON, COATED	BS 2789 Gr 420/12, SABS 936 SG 42, Vulcanized EPDM	
STEM	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
STEM NUT	BRONZE (GUNMETAL)	BS 1400 LG2	
STEM BUSH	PLASTIC		
BUSH / STEM/ STUFFING BOX SEAL S	O RING	NITRILE / VITON	
PROFILE / SCRAPER RING	O RING	NITRILE / VITON	
FRICTION RING	PLASTIC		
HAND WHEEL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	

**3.2 WEDGE GATE VALVE (DN 350-1200)**

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
350-1200 350-1000	1000 1600	STRUCTURAL	SEAT 1500 2400
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
BODY	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
GATE	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
SEAT AND GATE RING	BRONZE (GUNMETAL)	BS 1400 LG2	
BONNET AND STUFFING BOX	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
STEM	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
STEM AND YOKE NUT	BRONZE (GUNMETAL)	BS 1400 LG2	
GLAND	CAST STEEL	BS 1504-161 Gr 480, SABS 1465 Part 1	
PEDESTAL PLATE	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
GATE NUT	BRONZE (GUNMETAL)	BS 1400 LG 2	
THRUST BEARINGS	CAST STEEL	BS 1504-161 Gr 480, SABS 1465 Part 1	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
HAND WHEEL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
SEALS	O RING	NITRILE / VITON	
PACKING	GRAPHITE FIBRE	NOTE : NO ASBESTOS	
OPERATION ARRANGEMENT	LEVER	SEE AUXILIARY DRIVE SPECIFICATION	
	GEARBOX	SEE AUXILIARY DRIVE SPECIFICATION	
	ELECTRIC ACTUATOR	SEE AUXILIARY DRIVE SPECIFICATION	
	HYDRAULIC ACTUATOR	SEE AUXILIARY DRIVE SPECIFICATION	

**3.3 WEDGE GATE VALVE (DN 50-500)**

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
50-500 200-500	2 500 / 4 000 6 000 / 8 000 / 10 000	STRUCTURAL 3750 / 6000 9 000 / 12 000 / 15 000	SEAT 2500 / 4000 6 000 / 8 000 / 10 000
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
BODY	CAST STEEL SG IRON	BS 1504-161 Gr 480, SABS 1465 Part 1 BS 2789 Gr 420/12, SABS 936 SG42	
GATE	CAST STEEL SG IRON	BS 1504-161 Gr 480, SABS 1465 Part 1 BS 2789 Gr 420/12, SABS 936 SG42	
SEAT AND GATE RING	BRONZE (GUNMETAL)	BS 1400 LG2	
BONNET AND STUFFING BOX	CAST STEEL SG IRON	BS 1504-161 Gr 480, SABS 1465 Part 1 BS 2789 Gr 420/12, SABS 936 SG42	
STEM	STAINLESS STEEL	BS 970 Part 4 Gr 431 S29	
STEM AND YOKE NUT	BRONZE (GUNMETAL)	BS 1400 LG2	
GLAND	CAST STEEL	BS 1504 -161 Gr 480, SABS 1465 Part 1	
PEDESTAL PLATE	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
GATE NUT	STAINLESS STEEL	BS 970 Part 4 Gr 316 S15	
THRUST BEARINGS	CAST STEEL	BS 1504 -161 Gr 480, SABS 1465 Part 1	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
SEALS	O RING	NITRILE / VITON	
PACKING	GRAPHITE FIBRE	NOTE : NO ASBESTOS	
OPERATION ARRANGEMENT (✓)	GEARBOX	SEE AUXILIARY DRIVE SPECIFICATION	
	ELECTRIC ACTUATOR	SEE AUXILIARY DRIVE SPECIFICATION	
	HYDRAULIC ACTUATOR	SEE AUXILIARY DRIVE SPECIFICATION	