



STANDARD SPECIFICATION

DWS 2510 SUPPLY OF VALVES

PARTICULAR VALVE SPECIFICATION

AIR RELEASE AND VACUUM CONTROL VALVES

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



INDEX

	PAGE
1. GENERAL.....	2
1.1 TYPE.....	2
2. CONSTRUCTION AND OPERATIONAL REQUIREMENTS	2
2.1 BODY.....	2
2.2 FLOAT.....	2
2.3 SEAT	3
2.4 DRAINING FACILITY	3
2.5 WEATHER COVERS	3
3. VALVE MATERIAL SPECIFICATION.....	3
3.1 CYLINDER FLOAT TYPE (DN 25-50)	4
3.2 CYLINDER FLOAT TYPE (DN 80-200)	4
3.3 DUAL PURPOSE BALL FLOAT TYPE (DN 50-200)	5
3.4 AUTOMATIC FLOAT TYPE (DN 50 –200)	6
3.5 KINETIC BALL TYPE (DN 50 –200).....	6



1. GENERAL

1.1 TYPE

Air valves shall not exhibit the characteristics of dynamic closure in exhaust and vacuum mode. The valves shall, unless otherwise specified, be dual acting and suitably sized to allow and control the intake and release of air under negative and high-pressure conditions, without creating shock or pressure surges in the piping network.

The valve shall be capable of controlling the release of entrapped air and large volumes of air during a pipeline filling operation. Similarly, should a vacuum condition occur, the valve shall be capable of allowing a controlled intake of air into the system to minimise surge.

Air valves shall have intake and exhaust orifice equal to the nominal size of the valve e.g. a 200mm valve shall have a 200mm inlet and outlet orifice. The valve should have an integral anti-shock orifice mechanism which shall operate automatically to limit transient pressure rise or shock induced by closure. An inherent feature of the valve design must be to ensure that the ball does not close before all the air has been released.

Care shall be taken where air valves are mounted on sloping pipes that the air valves is mounted level.

All air valves shall be hydraulically drop tight when full of water and under pressures of between 1 metre (10 kPa) to 1,5 times the maximum operating pressure of the valve.

Auxiliary valves required to isolate an air release valve shall comply with the Valve Material Specification for a specific category of valve acceptable for use.

2. CONSTRUCTION AND OPERATIONAL REQUIREMENTS

2.1 BODY

The valve body shall be of a compact single or dual chamber design. The control float(s) shall be easily accessible for maintenance purposes.

Air valves shall be so constructed as to contain no internal or moving parts, other than floats, which may become loose or break free during normal operation and obstruct the operation of the valve.

2.2 FLOAT

Valve control float guides shall be designed to prevent the float(s) from being wedged between the internal body parts.

Cylindrical and ball type floats shall preferably be manufactured from polypropylene or similar polymer type material. Water absorption shall be less than 0,01%. Floats shall not be able to adhere to the orifice sealing arrangement nor be affected by deposits on the float surface.

Floats shall not distort or suffer mechanical damage in any form when subjected to structural strength test or conditions of frequent use.



2.3 SEAT

The seat and guides shall be so designed as to have sufficient clearance to prevent any abrasion of the float(s) when subjected to frequent operation.

2.4 DRAINING FACILITY

Provision shall be made for the drainage of a valve prior to removal or servicing and for the fitting of pressure gauges for testing purposes. If a specific bleeding apparatus is required to bleed an air valve, one shall be supplied with each valve. When receiving a large order for valves, the contractor shall consult the Engineer on the quantity of bleeding apparatus required.

2.5 WEATHER COVERS

All air valves shall be supplied with weather covers that will allow free discharge or intake of air but shall exclude the ingress of objects that may cause damage or malfunction of the valves. The covers shall be easily removable, shall be corrosion resistant, and shall have corrosion resistant securing elements.

3. VALVE MATERIAL SPECIFICATION

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

**3.1 CYLINDER FLOAT TYPE (DN 25-50)**

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
25 - 50	1 000 / 1 600 2 500 / 4 000	STRUCTURAL 1 500 / 2 400 3 750 / 6 000	SEAT 1 000 / 1 600 2 500 / 4 000
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
UPPER BODY FLANGE	MILD STEEL / STAINLESS STEEL	SABS 1431 Gr 300W, BS 970 Part 4 Gr 304 S15	
LOWER BODY FLANGE	MILD STEEL / STAINLESS STEEL	SABS 1431 Gr 300W, BS 970 Part 4 Gr 304 S15	
BARREL	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
BARREL SEALS	COMPRESSED FIBRE GASKET	BS 1832 Gr A	
INTERNAL SEALS	O RING	NITRILE / VITON	
TOP COVER	ALUMINIUM / STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
ANTI SHOCK ORIFICE	PLASTIC	HIGH DENSITY POLYETHYLENE	
FLOATS	PLASTIC	HIGH DENSITY POLYETHYLENE	
BAFFLE SPACERS	PVC		
NOZZLES	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
NOZZLE SEATS	ELASTOMER	NITRILE / VITON	
BAFFLE PLATES	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
TIE RODS	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	

3.2 CYLINDER FLOAT TYPE (DN 80-200)

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
80 – 200	1600 / 2500 / 4000	STRUCTURAL 2400 / 3750 / 6000	SEAT 1600 / 2500 / 4000
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
UPPER BODY FLANGE	MILD STEEL / STAINLESS STEEL	SABS 1431 Gr 300W, BS 970 Part 4 Gr 304 S15	
LOWER BODY FLANGE	MILD STEEL / STAINLESS STEEL	SABS 1431 Gr 300W, BS 970 Part 4 Gr 304 S15	
BARREL	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
BARREL SEALS	COMPRESSED FIBRE GASKET	BS 1832 Gr A	



SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
80 – 200	1600 / 2500 / 4000	STRUCTURAL 2400 / 3750 / 6000	SEAT 1600 / 2500 / 4000
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
INTERNAL SEALS	O RING	NITRILE / VITON	
TOP COVER	ALUMINIUM / STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
ANTI SHOCK ORIFICE	PLASTIC	HIGH DENSITY POLYETHYLENE	
FLOATS	PLASTIC	HIGH DENSITY POLYETHYLENE	
BAFFLE SPACERS	PVC		
NOZZLES	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
NOZZLE SEATS	ELASTOMER	NITRILE / VITON	
NOZZLE RETAINING RING	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
BAFFLE PLATES	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
TIE RODS	STAINLESS STEEL	BS 970 Part 4 Gr 304 S15	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	

3.3 DUAL PURPOSE BALL FLOAT TYPE (DN 50-200)

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
50 – 200	1 000 / 1 600 2 500 / 4 000	STRUCTURAL 1 500 / 2 400 3 750 / 6 000	SEAT 1 000 / 1 600 2 500 / 4 000
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
BODY	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
COVER	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
COWL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
LOW PRESSURE BALL	POLYPROPYLENE	PP/PVDF	
HIGH PRESSURE BALL	POLYPROPYLENE	PP/PVDF	
SEAL RINGS	ELASTOMER	NITRILE/NEOPRENE	
STEM AND GUIDE COMPONENTS	STAINLESS STEEL	BS 970 Part 4 Gr 431 S29	
INTEGRAL VALVE (Were applicable)			
THREADED BUSH	PHOSPHOR BRONZE/BRASS	BS 1400 PB1C, BS 2874 CZ 116	
HAND WHEEL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	

**3.4 AUTOMATIC FLOAT TYPE (DN 50 –200)**

SIZE DN	PRESSURE RATING Kpa	HYDRAULIC TEST PRESSURE IN kPa	
50 – 200	1 000 / 1 600	STRUCTURAL 1 500 / 2 400	SEAT 1 000 / 1 600
MATERIALS :			
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
BODY	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
COVER	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
COWL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
BALL	POLYPROPYLENE	PP/PVDF	
SEAL RING	ELASTOMER	NITRILE/NEOPRENE	
GUIDE COMPONENTS	STAINLESS STEEL	BS 970 Part 4 Gr 431 S29	
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	

3.5 KINETIC BALL TYPE (DN 50 –200)

SIZE DN	PRESSURE RATING KPa	HYDRAULIC TEST PRESSURE IN kPa	
50 – 200	1 000 / 1 600 / 2 500	STRUCTURAL 1 500 / 2 400 / 3 750	SEAT 1 000 / 1 600 / 2 500
MATERIALS :			
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION	
BODY	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
COVER	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
COWL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
BALL	POLYPROPYLENE	PP/PVDF	
SEAL RING	ELASTOMER	NITRILE/NEOPRENE	
INTEGRAL VALVE (Were applicable)			
THREADED BUSH	PHOSPHOR BRONZE/BRASS	BS 1400 PB1C, BS 2874 CZ116	
HAND WHEEL	SG IRON	BS 2789 Gr 420/12, SABS 936 SG 42	
SHAFT	STAINLESS STEEL	BS 970 Part 4 Gr 431 S29	
PACKING	ASBESTOS FREE		
INTERNAL FASTENERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2	
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANISED)	SABS 163 Gr 8.8	