

DOROT S500 series



Advanced hydraulic solutions for optimal management
of liquid conveyance systems

 **Aquestia**

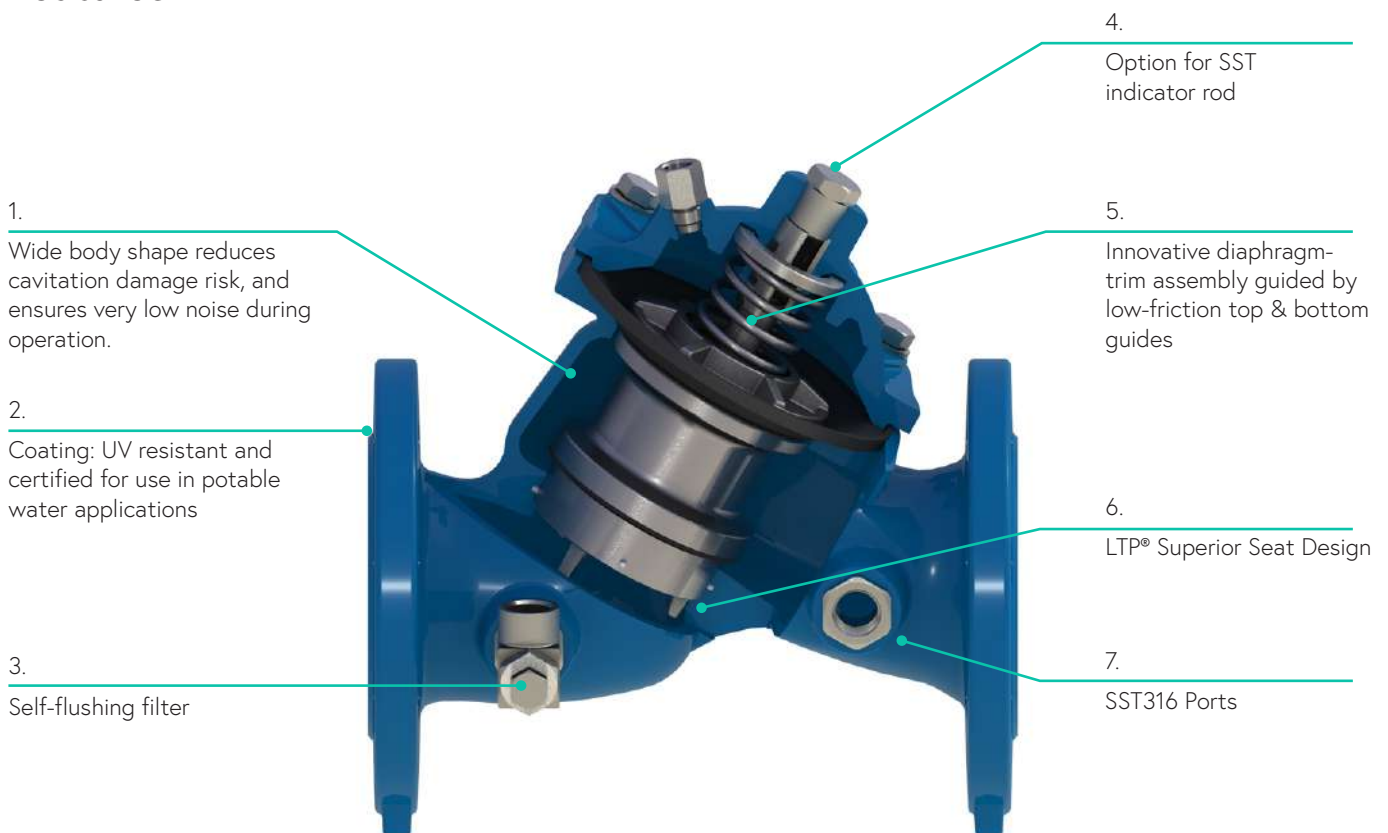
Directing the Flow

General Information

The Dorot Series 500 is a unique, cost effective control valve for the commercial market. It is designed for superb regulation capabilities, combined with low pressure loss in the fully open position. The experts at Dorot developed this technically-advanced product line with capabilities far beyond most other valves.

This guide will assist you in the selection of the optimal DOROT Series 500 valve.

Features



1. The capability to regulate at "near zero" flow, as a standard feature on all sizes, achieved by the LTP® ("Linear Throttling Plug") device, completely eliminates the need for a low flow bypass valve, or internal throttling device such as U-port or V-port.
2. The unique bottom guide together with the hydrodynamically designed structure enable very low head loss in the "fully-open" position.
3. A standard valve model fits a wide variety of control applications using Dorot Pilot Valves.
4. An especially short face-to-face dimension, ensures maximal savings in installation space.
5. An innovative internal trim ensures frictionless operation, easy maintenance and high reliability.
6. During closure, the pace slows down to prevent slamming or water hammer / surges.
7. The series includes a position indication rod, as an optional feature, attached by a floating connection, enabling smooth movement of the indicator.
8. Very quiet and stable operation makes the valves especially suitable for housing and residential applications.
9. All materials are WRAS & NSF approved for potable water.

Engineering Data

Technical Specifications

Diameter	40mm (1½")		50mm (2")		65mm (2½")		80mm (3")		100mm (4")		150mm (6")	
	m³/h	gpm	m³/h	gpm	m³/h	gpm	m³/h	gpm	m³/h	gpm	m³/h	gpm
Nominal flow	11	50	20	80	20	80	40	180	75	325	160	705
Max. continuous flow	25	110	40	175	40	175	100	440	160	705	350	1540
Max. intermittent flow	35	160	55	250	55	250	145	640	225	995	510	2240
Minimal flow	< 1 m³/h / gpm											
Kv [m³/h@1bar]	45		45		45		110		175		400	
Cv [gpm@1psi]	53		53		53		128		204		467	
K [dimensionless]	2		4.9		14.1		5.4		5.2		5	

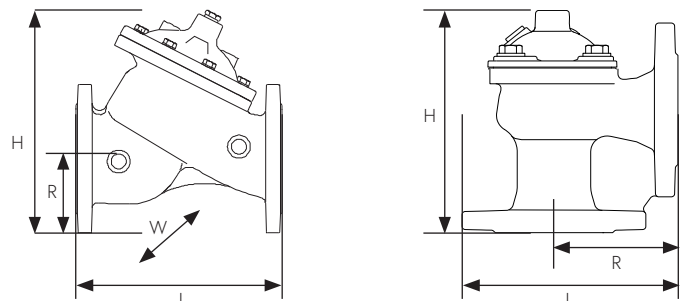
Dimensions and Weights

Valve Size	40 Th. (1½")		50 Th. (2")		50A Th. (2")		50A F (2")		50 F (2")		50 V (2")	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	202	7 ¹⁵ / ₁₆	202	7 ¹⁵ / ₁₆	156	6 ¹ / ₈	193.5	7 ⁵ / ₈	200	7 ⁷ / ₈	210	8 ³ / ₁₆
H	169	6 ⁵ / ₈	169	6 ⁵ / ₈	185	7 ¹ / ₄	211	8 ⁵ / ₁₆	214	8 ³ / ₁₆	15	5 ⁵ / ₈
W	116	4 ³ / ₁₆	116	4 ³ / ₁₆	115	4 ¹ / ₂	165	6 ¹ / ₂	165	6 ¹ / ₈	120	4 ¹¹ / ₁₆
R	38	1 ¹ / ₂	38	1 ¹ / ₂	117	4 ⁵ / ₈	111	4 ³ / ₈	82.5	3 ¹ / ₄	35	1 ⁵ / ₁₆
Weight *	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs
	4.8	10.7	4.6	10.2	5.2	11.5	9.8	21.8	9.5	21.1	7	15.4

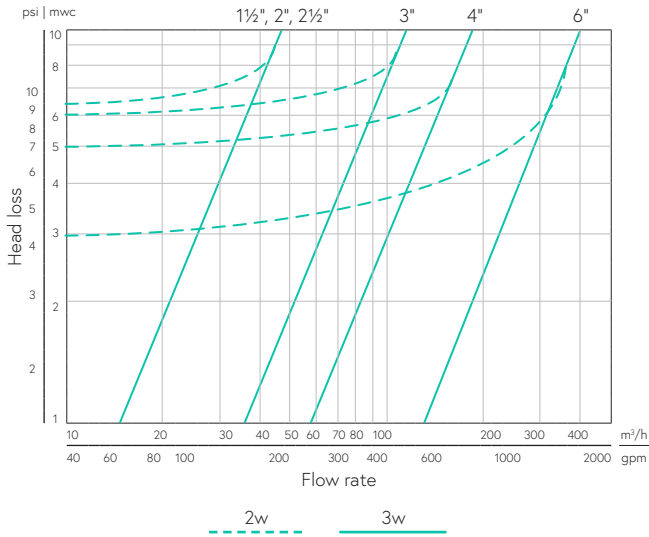
Valve Size	65 F (2½")		80 F (3")		80 V (3")		100 F (4")		100 V (4")		150 F (6")	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	210	8 ¹ / ₄	285	11 ¹ / ₄	344	13 ¹ / ₂	305	12	368	14 ¹ / ₂	390	15 ³ / ₈
H	224	8 ¹³ / ₁₆	293	11 ⁵ / ₁₆	26.5	1	330	13	30	1 ¹ / ₈	450	17 ³ / ₄
W	185	7 ¹ / ₄	200	7 ⁷ / ₈	175	6 ⁷ / ₈	220	8 ¹¹ / ₁₆	220	8 ⁵ / ₈	285	11 ¹ / ₄
R	92.5	3 ⁵ / ₈	100	3 ¹⁵ / ₁₆	52	2	110	4 ¹ / ₈	75	2 ⁷ / ₈	142.5	5 ⁵ / ₈
Weight *	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs
	12	26.6	21	46.6	15	33	26	57.7	22	48.5	60	133.2

* Approximate Shipping Weight

F - Flanged
 Th - Threaded
 A - Angle
 V - Victaulic



Head Loss Chart



Technical Specifications

Available sizes	40 to 150 mm (1½" to 6")
Operating pressure	0.5 to 16 bar (7 to 250 psi)
Temperature range	60°C (140°F)
End connections	Valve diameters 50-150 mm (2" - 6") supplied in the following international flange standards: ISO 7005; ANSI B16; AS10; JIS B22. Other standards are available upon request. Valve diameters 40-50 mm (1½" - 2") supplied also in the following thread standards: F-BSP; F-NPT
Coating	Electrostatically applied, oven baked Fusion Bonded Epoxy

Materials

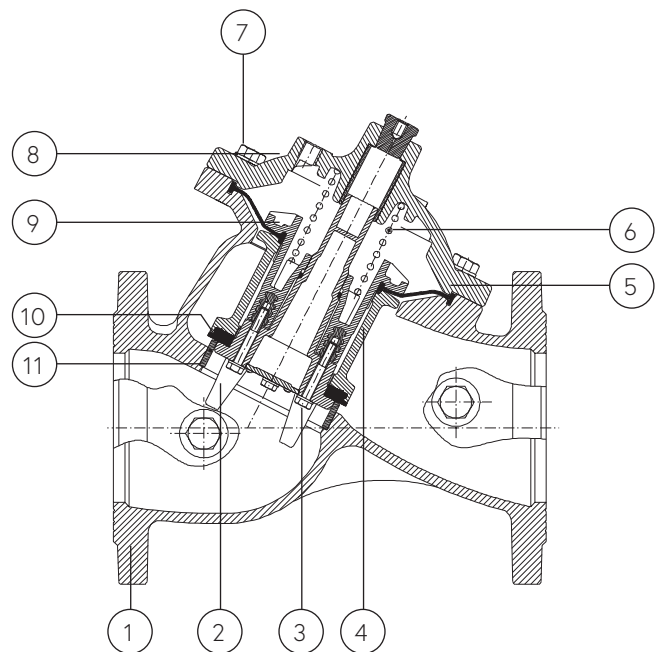
#	Description	Materials
1	Body	Ductile Iron
2	Trim: LTP, guides and top diaphragm retainer	Composite Materials (WRAS & NSF approved GRP)
3	Trim bolts	SST
4	Trim cylinder	40-65mm / 1½"-2½"- SST 80-150mm/3"-6"- Ductile Iron
5	Cover	Ductile Iron
6	Spring	SST
7	Cover bolts	SST
8	Washer	SST
9	Diaphragm	Reinforced EPDM Rubber
10	Plug seal	NBR Rubber
11	Seat	SST

GRP: Glass Reinforced Polyamide

SST: Stainless Steel

* Coating: Complying with European coating standard EN 14901-2014

Components



Download the complete DOROT S500 CATALOG from our website www.aquestia.com or contact your Aquestia representative.

EL - Solenoid Controlled Valve

A 3-way solenoid valve, activated by an electric current or an electric pulse, opens or closes the main valve. The standard valve is "normally closed". The "normally open" is optional. Electric activation can be added to other control applications on request.



CV - Hydraulic Check Valve

The valve is in the "open" position when the upstream pressure is higher than the downstream pressure. Should the upstream pressure drop below the downstream pressure, the valve will instantly close, preventing return flow. Opening and closing speeds are adjustable.



RC - Hydraulic Remote Control Valve

A hydraulic relay opens or closes the valve, in response to a pressure command, carried by a control tube from a remote control center.

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PR - Pressure Reducing Valve

The valve maintains a preset downstream pressure, regardless of upstream pressure or flow rate fluctuation. The main valve is controlled by either a 3-way pilot valve (allowing full opening when downstream pressure drops below the set-point), or by a 2-way pilot valve (creating minimal pressure differential in the open position).



PR/EL - Electrically Operated Pressure Reducing Valve

The valve is a Pressure Reducing Valve which maintains a preset downstream pressure, regardless of upstream pressure or flow rate fluctuation. The valve's opening is controlled by an electric solenoid valve. This either causes the valve to open (and regulate) or to close.



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PS - Pressure Sustaining Valve PS(R) - Pressure Relief Valve

The valve maintains upstream pressure, regardless of flow rate variations. The valve will be in the "closed" position if the upstream pressure drops below the set-point and will be "fully-opened" when the upstream pressure exceeds the set-point.



DI - Pressure Differential Sustaining Valve

The valve maintains a preset pressure differential between the upstream and downstream pressures. The valve controls booster pumps discharge, heating and cooling systems, bypass configurations and more.

QR - Quick-Relief Safety Valve

The valve opens instantly when the pressure in the pipeline exceeds the safe level, thus relieving excessive pressure from the network. When the pressure returns to normal, the valve closes slowly, at an adjustable pace.



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FR - Flow Rate Control Valve

The valve limits the flow rate in the network to a preset value, regardless of pressure variations. The valve opens fully when the flow rate drops below the set-point.



FE - Excessive Flow Shut-Off Valve

The valve closes when the flow rate exceeds the normal value (due to pipeline rupture for example). Reopening is by manual reset only.



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FL - Modulating Float Controlled Valve

The main valve is controlled by a float valve, located in the tank or reservoir and set at the required maximum water level. The valve maintains the maximum level continuously. Optional addition: Surge-Preventing Closure (SP).



FLDI - Differential Float Controlled Valve

Float Valve (model 70-550) controls the main valve, closing it when the water reaches maximum level, and opening it when the water drops to its preset minimum level. The differential between the maximum and the minimum levels is adjustable, at a wide range. Optional addition: Surge-Preventing Closure (SP).



FLEL - Electric Float-Controlled Valve

An automatic, Level Control Valve, activated by an electric float that operates the main valve by a solenoid. Enabling adjustable differential of the max / min levels. Optional addition: Surge-Preventing Closure (SP)



AL - Altitude Control Valve

The main valve is controlled by a highly sensitive pilot, located outside the tank. The pilot opens or closes the valve in response to the static pressure of the water. The pilot allows for differential adjustments between the maximum and minimum level. Optional addition: Surge-Preventing Closure (SP).



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SP - Surge-Preventing Closure

The device automatically adjusts the closing speed of a valve that is located at the end of a long pipeline, preventing pressure surges. Please consult DOROT, or your local distributor for details.

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Mini Pilot Valves

For valve sizes 20mm to 150mm - ¾" to 6"
Pressure rating: 25 bar / 360 psi

- 68-410 2-way Pressure reducing pilot valve
- 68-510 2-way Pressure sustaining pilot valve
- 31-10X 3-way (pressure rating 16bar / 230psi) Multi-purpose (pressure reducing and sustaining) pilot valves



31-10X



68-510



68-410

Pilot Valves

For valve sizes 40mm to 600mm - 1½" to 24"
Pressure rating: 25 bar / 360 psi

- CXPS 2-way Pressure sustaining pilot valve (CXSD differential pressure sustaining)
- CXPR 2-way Pressure reducing pilot valve
- 31-310 3-way Multi-purpose (pressure reducing and sustaining) pilot valve
- 76-200 3 way Differential multi-purpose (flow control, differential pressure sustaining)
- 68-41M 2-way, Pneumatically modulated, pressure reducing pilot valve



68-41M



31-310



CXPR



CXPS

High Sensitivity Pilot Valves

For valve sizes 40mm to 600mm - 1½" to 24"
Pressure rating: 25 bar / 360 psi

- 31-10A 3 way Differential multi-purpose (flow control altitude control and differential pressure sustaining) with adjustable differential



31-10A

Float Pilot-Valves

For valve sizes 40mm to 600mm - 1½" to 24"
Pressure rating: 25 bar / 360 psi

- 70-200 Electric float
- 70-400 Modulating, 2-way metal float pilot
- 70-610 Horizontal, differential, 3-way metal float pilot
- 70-550 Vertical, differential, 3 and 4-way metal float pilot



70-400

70-610

70-550

70-200

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Relay Valves

For valve sizes 40mm to 600mm - 1½" to 24"
Pressure rating: 25 bar / 360 psi

- 66-21X 3-way / 2 positions NO (66-213: NC) hydraulic relay
- 66-310 3-way adjustable hydraulic relay
- 28-200 2-way / 2 position hydraulic relay



66-21X



66-310



28-200

Heavy-duty Solenoid Valves

For valve sizes 20mm to 600mm - ¾" to 24"
Pressure rating: According to the selected orifice and solenoid type.

Operating voltage (others available upon request):

- AC: 24V, 110V or 220V
- DC: 12V or 24V
- Latch 9V, 12V, 24V
- B2 2-way NC or NO solenoid valve
- B3 3-way NC or NO solenoid valve
- S80 3-way NC or NO solenoid valve



S80



B2



B3

Control Filters

Self-flushing, inline stainless steel screen filter, located within the main valve, and rinsed continuously by the stream

Sizes: ¼", ½", 1

- External, "Y" type - Stainless steel screen installed in a "Y" shaped body on the pressure source.
- Sizes: ¾", 1"
- External, large - A large volume external filter



Large Filter



"Y Filter"



Self-flushing Filter

Ordering Guide

Ordering data		Ordering code					Ordering data	
Series	50	□	□	□□	□□	□□		
Type								
Straight flow	→	-						
Angle	→	A						
Indicator Rod							Control Functions	
No	→	-					00 None (basic valve only)	
Yes	→	I					M Manual Control	
Diameter							EL Electric Solenoid Control *	
1½" / 40mm	→		15				RC Hydraulic Relay Control *	
2" / 50mm	→		02				PR Pressure Reducing	
2½" / 65mm	→		25				PS Pressure Sustaining / Relief	
3" / 80mm	→		03				QR Quick Pressure Relief	
4" / 100mm	→		04				DI Differential P. Sustaining	
6" / 150mm	→		06				FR Flow Limiting	
End Connections							FE Excessive Flow Shutoff	
Flange	ISO16	→		I1			FL Level-float Pilot Controlled	
	ANSI 125 / 150	→		A1			AL Level-Hydrostatic Pilot Controlled	
	BS TD / AS TD	→		BD			TO Two-stage Opening	
	JIS-10	→		J1			SP Surge Preventing Closure (upstream)	
	Un-drilled	→		UN			CV Hydraulic Non Return	
Thread	BSP	→		BS			EC PLC Controlled	
	NPT	→		NP			XX Other (specify)	
	Other (specify)	→		XX			* Please specify N.O or N.C	

Ordering example:

50	A	I	02	A1	PR/ PS/ EL(N.C)
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An angle-pattern, with an indication rod, 50mm / 2" size, flanged to ANSI 150, pressure reducing and sustaining, opened by an electric command



Directing the Flow

Advanced hydraulic solutions for optimal management of liquid conveyance systems

Aquestia is a world leader in providing optimal solutions for surge protection, water loss reduction and pressure management, by integrating uniquely developed products with innovatively designed software. Bringing together three strong brands - A.R.I., DOROT and OCV – we combine decades of experience, a wealth of knowledge and expertise, and a wide range of solutions and services. We are where liquid flows, serving customers in segments that include waterworks and wastewater systems, irrigation, fire protection, mining, ballast water, desalination, commercial plumbing, aviation fueling, oil & gas, and more.

Aquestia – high-quality, reliable products and committed service - for your peace of mind.