- Rapid Maintenance
- Anti-cavitation, Erosion-resistant
- Disperse Heat Structure
- HP&LP Steam Line

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Delan 德兰调节阀

DELAN SY4500 SERIES

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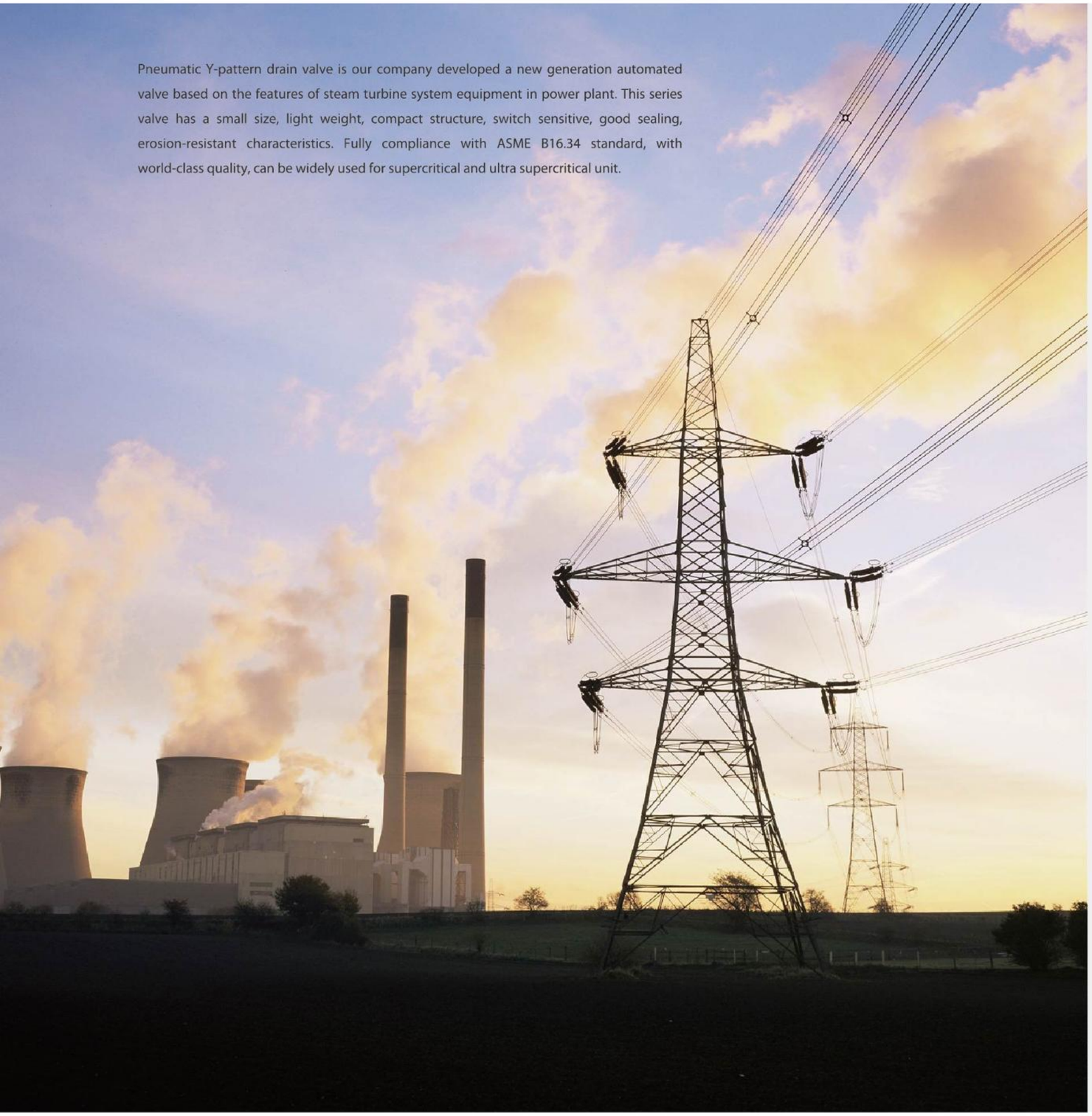
DELAN SY4500 SERIES

Delan®

SY4500 Series

Pneumatic Y-pattern Drain Valve



Pneumatic Y-pattern drain valve is our company developed a new generation automated valve based on the features of steam turbine system equipment in power plant. This series valve has a small size, light weight, compact structure, switch sensitive, good sealing, erosion-resistant characteristics. Fully compliance with ASME B16.34 standard, with world-class quality, can be widely used for supercritical and ultra supercritical unit.

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DELAN SY4500 SERIES

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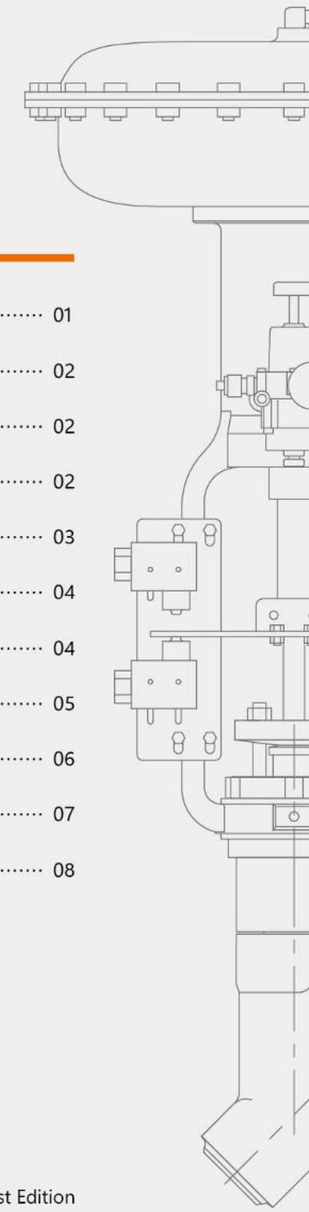

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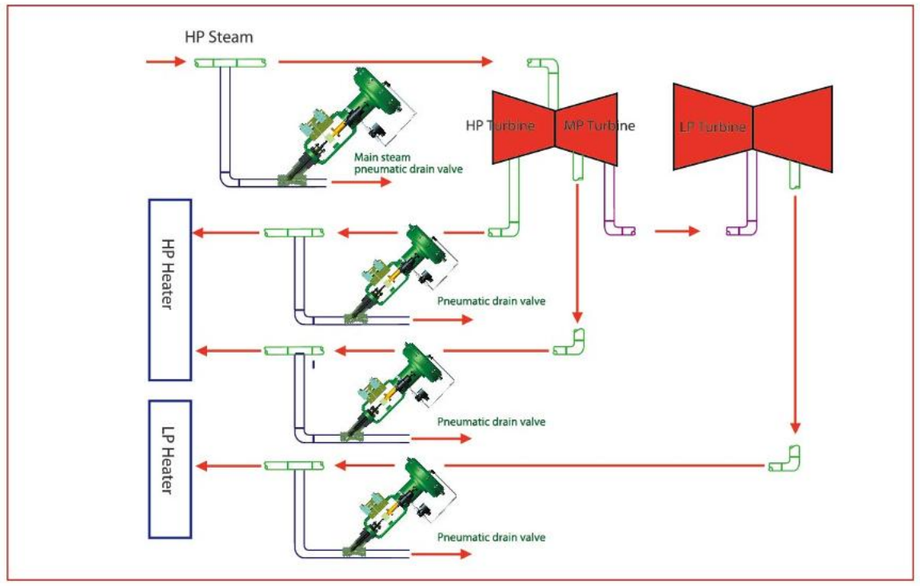
Application

Pneumatic drain valves are installed in steam pipes of thermal power unit. According to their site can be divided into:

- Main Steam Line Drain Valves
- Hot Reheat Line Drain Valves
- Cold Reheat Line Drain Valves
- First stage, second stage, third stage, forth stage, fifth stage and sixth stage extraction steam line drain valves

Drain Valve Working Diagram



- **Function:** At startup of the turbine, the pneumatic drain valves are opened to exhaust steam-water mixture of each stage steam pipe. Also in the steam turbine failure or load rejection, drain valves will be opened to exhaust the steam and water in the pipeline to the container which ensure the security of the system.

Design Standards

- **Design & Manufacture:** ASME B16.34 API 598
- **Inspection & Test:** MSS SP-61 API 598
- **Connection End**
  - Socket Weld: ASME B16.11
  - Butt Weld: ASME B16.25
  - Flange: ASME B16.5
- **Design Class:** Special Class, Limit Class, Standard Class

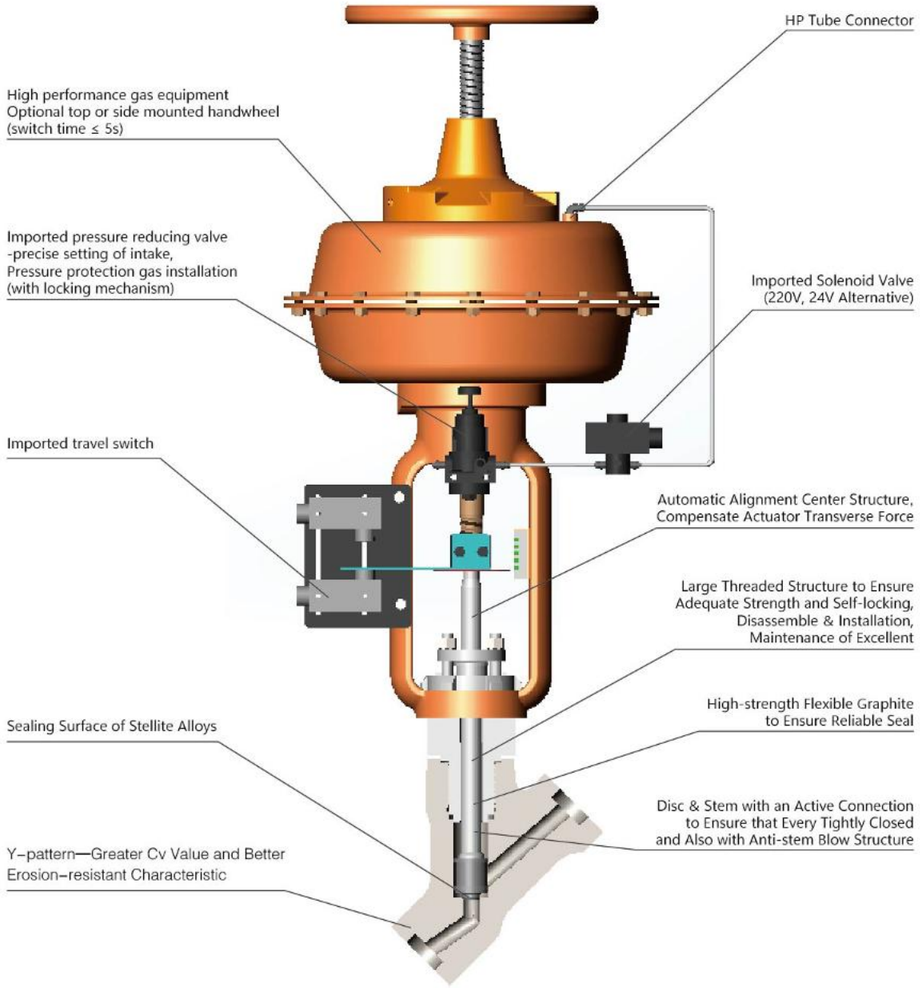
Y-Type Steam Drain Valve Parameters

- **Nominal Diameter:** 3/4" ~ 4"
- **Nominal Pressure:** ANSI 150LB ~ 4500LB
- **Applicable Temperature:** 20℃ ~ 610℃
- **Actuator:** Pneumatic Actuator (Electric Motor Actuator is Optional)
- **Leakage Class:** Zero

Valve Characters

- Y-Type forged valve body, low flow resistance, greater Cv value.
- Disc with throttle piece, effectively protect sealing surface, extend valve service life.
- Disc & Seat sealing surface through special craft processing and machining, anti-cavitation, erosion-resistant.
- Processing two guide rings in disc, stem suffer force balanced, flexible movement.
- Stem packing all of imported U.S. Garlock high-quality flexible graphite packing, good chemical properties and flexibility, low friction, long service life.
- Fast switching-speed, normally 3-5 seconds, effective protection of system security, greatly reducing the time of the sealing surface erosion by media.
- There are disperse heat disks in the bonnet, can fully heat dissipation which protects pneumatic actuator & accessories are not subjected to high temperature and failure. Chamber gasket is clip S.S. wire high mesh flexible graphite with a better sealing and reliability than general type.

Anatomical Drawing



Performance Parameters

- **Valve body type:** Y-pattern 45°Angle
- **Body material:** A105, 12Cr1MoV, F22, F91, F92, F316
- **Bonnet:** Basic type
- **Trim**
  - Integral: Integral welded valve seat
  - Internal replacement type: quick replacement of valve seat, valve disc, and valve cover, with good maintenance performance, achieving internal component updates in half an hour
- **Packing:** Flexible graphite clip stainless steel wire
- **Flow characteristic:** Quick opening
- **Two kinds of actuator can be chosen:**

Pneumatic diaphragm actuator
(single-spring & multi-spring type actuator, top-mounted & side-mounted hand-wheel can be chosen)
Cylinder piston actuator

Accessories

Can be selected according to customer requirements

Air Filter Regulator

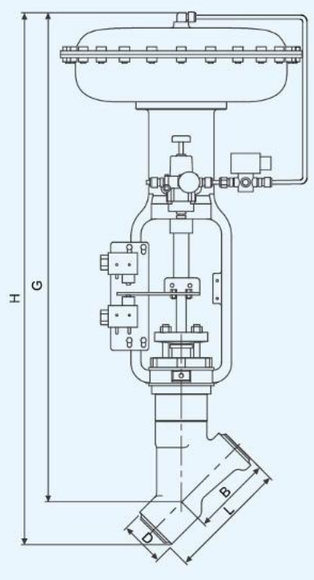
Solenoid Valve

Limit Switch

Material Table

1	2	3	5	6	7
Body	**Seat**	**Disc**	**Stem**	**Stuffing Box**	**Packing**
A105	A105+Stellite	Stellite21	410	A105	Flexible Graphite
F22	F22 +Stellite	Stellite21	660	F22	Flexible Graphite
12Cr1MoV	12Cr1MoV +Stellite	Stellite21	660	12Cr1MoV	Flexible Graphite
F91	F91+Stellite	Stellite21	660	F91	Flexible Graphite
F92	F92+Stellite	Stellite21	660	F92	Flexible Graphite
F316	F316+Stellite	Stellite21	F316	F316	Flexible Graphite

Dimension and Weight



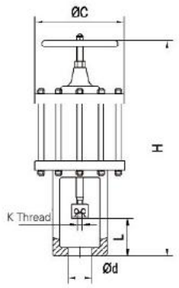
Pressure Rating	Nominal Diameter		L	D	B	H	G	Valve Body WT(Kg)
	Inch	mm	mm					
≤900lb	1/2"	15	152	60	102	675	735	13
	3/4"	20	152	60	102	675	735	13
	1"	25	152	60	102	675	735	13
	1-1/4"	32	152	60	102	840	785	13
	1-1/2"	40	180	81	132	865	805	15.8
	2"	50	180	81	132	865	805	15.8
	2-1/2"	65	272	102	180	1128	1026	37.8
	3"	80	272	102	180	1128	1026	37.8
	4"	100	325	122	224	1158	1042	63
	5"	125	368	150	267	1250	1130	117
1500lb	1/2"	15	152	60	102	675	735	13
	3/4"	20	152	60	102	838	781	13
	1"	25	152	60	102	838	781	13
	1-1/4"	32	180	81	132	865	803	15.8
	1-1/2"	40	180	81	132	1036	974	15.8
	2"	50	272	102	180	1122	1021	37.8
	2-1/2"	65	325	22	224	1151	1037	63
	3"	80	325	122	224	1151	1037	63
	4"	100	325	122	224	1151	1037	63
	5"	125	368	150	267	1250	1130	117
2500lb	1/2"	15	152	60	102	838	781	13
	3/4"	20	152	60	102	838	781	13
	1"	25	152	60	102	838	781	13
	1-1/4"	32	180	81	132	865	803	15.8
	1-1/2"	40	180	81	132	1036	974	15.8
	2"	50	272	102	224	1122	1021	37.8
	2-1/2"	65	325	122	180	-	-	63
	3"	80	325	122	224	-	-	63
	4"	100	325	122	224	-	-	63
	5"	125	368	150	267	-	-	117
3500lb	1/2"	15	152	60	102	838	781	13
	3/4"	20	152	60	102	838	781	13
	1"	25	152	60	102	838	781	13
	1-1/4"	32	180	81	132	865	803	15.8
	1-1/2"	40	180	81	132	1036	974	15.8
	2"	50	272	102	180	1122	1021	37.8
	2-1/2"	65	325	122	224	-	-	63
	3"	80	325	122	224	-	-	63
	4"	100	325	122	224	-	-	63
	5"	125	368	150	267	-	-	117
4500lb	1/2"	15	152	60	102	838	781	13
	3/4"	20	152	60	102	838	781	13
	1"	25	152	60	102	838	781	13
	1-1/4"	32	180	81	132	865	803	15.8
	1-1/2"	40	180	81	132	1036	974	15.8
	2"	50	272	102	180	1122	1021	37.8
	2-1/2"	65	325	122	224	-	-	63
	3"	80	325	122	224	-	-	63
	4"	100	325	122	224	-	-	63
	5"	125	368	150	267	-	-	117

Pneumatic Actuator

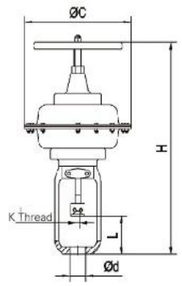
Pneumatic actuator has diaphragm and piston type to be chosen

Diaphragm type actuator

Piston type actuator



GD Piston type actuator



957/967
Diaphragm type actuator

GD Series Actuator Technical Parameters

Model	Max travel (mm)	Effective area of cylinder (mm^2)	ΦC (mm)	L (mm)	Without Handwheel H(mm)	Top-mounted Handwheel H(mm)	Φd (mm)	K Thread	Interface Size
GD20	38	380	285	123	429	579	71	1/2"-20UNF	1/4NPT
GD30	51	706	385	172	528	743	90	3/4"-16UNF	1/2NPT
GD40	76	1385	520	186	845	1110	90	3/4"-16UNF	3/4NPT
GD50	200	2289	660	186	1981	2541	90	3/4"-16UNF	3/4NPT

957/967 Actuator Technical Parameters

Model	Max travel (mm)	Effective area of membrane (cm^2)	Spring range (Kpa)	Temperature range for membrane material use (°C)	L(mm)		Without Handwheel H(mm)		Top-mounted Handwheel H(mm)		Φd (mm)	K Thread	ΦC (mm)	Interface Size
					957	967	957	967	957	967				
20	19	200	20 ~ 100	Nitrile synthetic rubber -40~+82	97	97	298	298	457	457	54	3/8"-24UNF	240	1/4NPT
30	19	350			97	97	420	420	590	590	54	3/8"-24UNF	285	1/4NPT
34	29	560			97	97	440	440	660	660	54	3/8"-24UNF	360	1/2NPT
40	38	560	40 ~ 200	Fluorous rubber -18~+149	123	123	514	514	750	740	71	1/2--20UNF	360	1/2NPT
45	51	900			127	127	574	574	870	870	71	1/2--20UNF	470	1/2NPT
50	51	900			172	172	631	631	930	919	90	3/4"-16UNF	470	1/2NPT
70	76/102	1400			186	186	804	804	1200	1147	90	3/4"-16UNF	590	3/4NPT

Product Model

Size	Product Type	Pressure Class	End Connection	Drive Mode	Body Material
2"	SY	20	F	1	C
Metric: mm	SY: Y-pattern Drain Valve	1=150LB	W: Butt Weld	1: Pneumatic Actuator	C: A105
Imperial: Inch	ST: T-pattern Drain Valve	3=300LB	S: Socket Weld	2: Electric Actuator	V: 12Cr1MoV
		6=600LB	F: Flange		F22: F22
		9=900LB			F91: F91
		20=1690LB			F92: F92
		30=2680LB			R:F316
		45=4500LB			

Selected Model : 2" SY20FIC

How to Order :

Required to provide detailed technical parameters of the valve,
As follows:

Design Pressure, Design Temperature
Working Pressure, Working Temperature
Body Material
End Connection & Pipeline Size
Voltage of Solenoid Valve
Limit Switch

Our engineer will make model selection according to your data

Material
Economic Suitable Valve Body
Pneumatic Actuator
Accessory