

Periodic discharge valve



DZ

DIN PN 64 - 250 — DN 25 - 50 mm
ANSI 400 - 1500 — 1" - 2"

DZ 41, 45, 71, 75

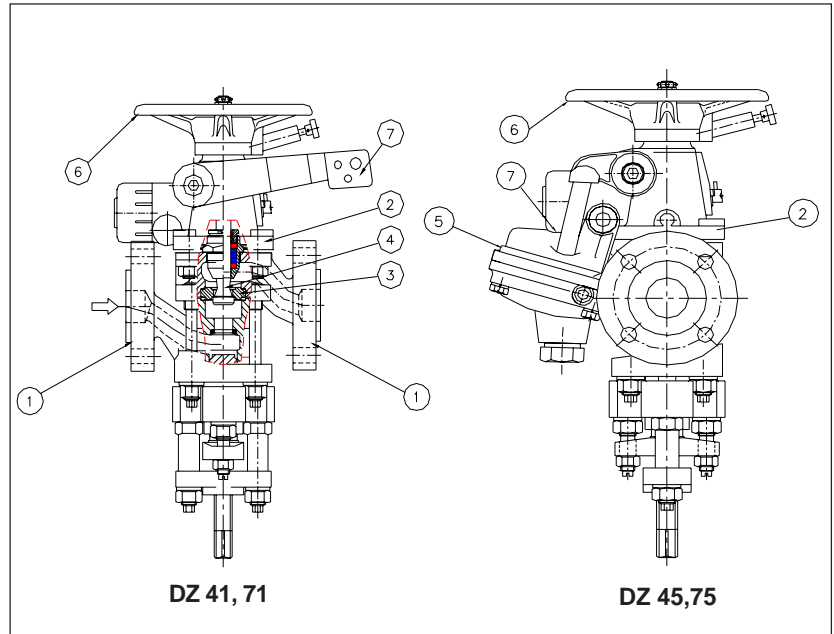
Application

Fast discharge valves for periodic desludging and desalting of steam boilers, pressurized vessels and similar equipments, including maritime installations. They are applicable in liquids, gases and steam always that the instantaneous closing and opening are required. (see Technical information 0401-Steam boilers-desludging).

They are indispensable for the economic and safe performance of steam boilers, according to the recommendation of the manufacturers.

Main characteristics

- Instantaneous closing and opening of the full passage section produce the maximum effect desludging and minimum pressure and hot water loss;
- Total closing force of 4000 Kgf assures absolute tightness of the valve;
- Economy and security in the performance of the steam boilers;
- Double function: Fast discharge for desludging and continuous opening for emptying of the boiler;
- Auxiliar blocking device allows disassembling of the main valve without disabling the boiler;
- Angular straight passage flow for the sides;
- In the DZ 41, 71: positioning of the lever in the direction of the longitudinal or tranverse flow and arm of the lever in vertical or horizontal position.



Nº	Denomination	DZ 41, 71	DZ 45, 75
1	Body (lower + upper)	1+1	1+1
2	Frame	1	1
3	Seat	1	1
4	Shutter	1	1
5	Pneumatic actuator	-	1
6	Wheel	1	1
7	Lever	1	1

Technical competence, materials and connections

Models		DZ 41		DZ 45		DZ 71		DZ 75	
Nominal pressure		DIN PN 64 - ANSI 400				DIN PN 250 - ANSI 1500			
Nominal diameter (mm) (pol)		40 1.1/2"		50 2"		25 1"			
Max. service press. (bar)		64	45	40	32	250	150	125	90
Max. correspondent temperature (°C)		120	250	300	400	120	300	400	500
Materials	1	Two-piece body		ASTM A 216 WCB				ASTM A 217 WC6	
	2	Common frame		ASTM A126 Gr. B		ASTM A126 Gr. B		ASTM A126 B	
		Frame/diaphragm		ASTM A126 Gr. B		ASTM A126 Gr. B		ASTM A126 B	
	3	Seat		Stainless steel AISI 420 thermally treated					
	4	Shutter		Stainless steel AISI 440 thermally treated					
	—	Membrane		Buna-N		Buna-N		Buna-N	
	—	Auxiliar blocker		ASTM A 216 WCB					
—	Packing		Graphyted fiber						
Connections: flanged		DIN PN 40 or PN 64 ANSI 300 or 400				DIN PN 250 ANSI 900 or 1500			

Discharge

Presentation

Hand-operated valves DZ 41,71

Flanged valves, composed basically of main valve, wheel, driving system with spring, hand lever and auxiliar blocking device. In its standard execution, the DZ 41 and DZ 71 valves are supplied with the upper body located for straight passage and the lever assembled in the direction of the flow, in the horizontal position. For other assembly positions, see item special executions.



Pneumatic operation valves DZ 45, 75

Flanged valves, with the same basic elements of the DZ 41 and 71, but the driving lever is replaced by a pneumatic actuator that, combined with the automatic programmer ASCA AT 03N (see prospect PR-06.70.10-P) controls the driving of the valve, according to pre established programm. In its standard execution the DZ 45 and DZ 75 valves are supplied with the upper body located for straight passage. For other assembly positions, see item Special executions.

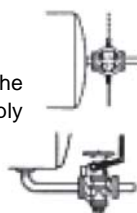
Special executions

Upper body dislocated for angular passage to the left or right. When they are specified in the order, these special executions are supplied without price addition. If it is necessary, these positions can be assembled by the user, according to the orientation of the Instructions for installation and maintenance, that follow the valves.



Optional

Pedal for lever driving on the DZ41 and DZ 71 valves. Supply by means of price increasing.



Installation

Is not necessary installation of a blocking valve to upstream in the discharge valves of the series DZ because if its auxiliar blocking device is closed, the main valve and the driving system can be assembled without need of disabling the boiler. The flow must obey the direction indicated by the arrow on the body. For more details, see Instructions for installation and maintenance, that follow the devices.

Operation

The fast discharge valves of the DZ series,

Measures and weights

Models	DZ 41		DZ 45		DZ 71	DZ 75	
DN (mm) (pol)	40 1.1/2"		50 2"		25 1"		
Measures (in mm)							
H ₁	217						
H ₂	275						
C ₁	145	_____		145	_____		
C ₃	690	215		690	215		
A	300	_____		300	_____		
L	_____		260		_____		
Approximated weights (kg)							
	35	35	42,5	43	41	52	

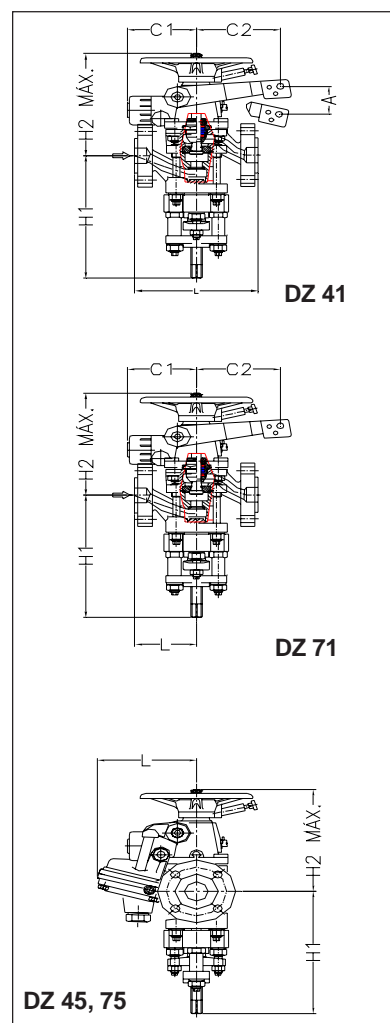
when driven, liberate instantaneously the full section of the passage and close automatically, by the spring effect, with the same speed. The integral and immediate liberation of the passage is decisive to get the brusque acceleration of the discharge, what optimizes the desludging extraction, decreasing the hot water and pressure loss. The closing total force is 4000Kgf/m, assuring the absolute tightness of the valve. Part of this force is automatically produced by the mechanism of spring (2.2) and the remaining, by the closing of the hand wheel (1.4), when necessary. The wheel is also used for keeping the valve closed to avoid the improper driving or open it to empty the boiler, when in maintenance. In the lower part of the body (3.1) of the DZ valves an auxiliar blocking device is found (3), what allows disassembly the upper part of the main valve (1) and the driving system (2), even with the boiler under pressure. (See Technical information 0401- Boilers-Desludging).

Sizing

To determine the intervals between the discharges is necessary to know the amount of water to be discharged from the boiler, specially, if there is not a continuous disalting valves (DB series from ASCA - Prospects PR-04.10.10-I, PR-04.10.20-I and Technical Information 0402 - continuous disalting steam boilers). That would keep the solids concentration in raising within the admissible limits.

The chart 1 indicates the amount of water, in Kg/h, to be unloaded because of content salt of the feeding water, of the maximum admissible density in the water from the boiler and of the generator capacity of the boiler.

The chart 2 Indicates the flow capacity in Kg/s of the respectives valves. The duration of necessary opening, results from the division of the amount found on the chart 1 by the flow found on the chart 2. Each discharge must be limited in 3 seconds.



Example

Following the sketched line on the chart 1, we find:

Content salt of the feeding water
 S = 150 mg/l.....
 Admissible density of the water in the boiler
 K = 5000 mg/l.....
 Generator capacity of the boiler
 Q = 1600 Kg/h.....

and, finally, the amount of water to be unloaded A = 50 kg/h
 Noticing the sketched line on the chart 2 we find:

Pressure of the boiler 10 bar (142 psi)
 Nominal diameter of the outlet of the background of the boiler DN 40 (1.1/2") and, therefore, the correspondent flow of the valve DZ 41 or DZ 45 DN 40 (1.1/2") is of 12 Kg/s.

Determination of the duration of total opening and of the extension of the intervals.

Dividing the partial result found on the chart 1 by the partial result found on the chart 2 we obtain the duration of the necessary total opening in the period of one hour:

$$\frac{50}{12} = 4 \text{ seconds per hour}$$

Considering that the duration of each discharge must be fixed in 3 seconds, we use a simple rule of three to determine the intervals between discharges:

$$\frac{4}{3} = \frac{60}{x} \quad X = \frac{3 \times 60}{4} = 45 \text{ minutes}$$

Automatic discharge

The electronic timer ASCA AT03N emits electric impulses at intervals previously set by means of the set timer with digital switch. These impulses open the solenoid valve during the programmed time admitting the compressed air, that drives the pneumatic actuator of the discharge valve, keeping it open.

Passed the setted time for purge, the solenoid valve comes back to the initial position, blocking the inlet of the compressed air and closing the exhaust to despressurize the actuator.

The decompression also is done by the fast exhaust valve, installed together to the chamber of the membrane alleviating it by its automatism and closing consequently the discharge valve.

Datas for sizing

In the order, ASCA can size the proper valve for your equipment. In this case, please, indicated the valve model, pressure and service temperature, backpressure (if there is), nominal diameter, fluid, such as type and characteristics of the equipment, for example: boiler model, number of discharge points, etc...

Chart 1

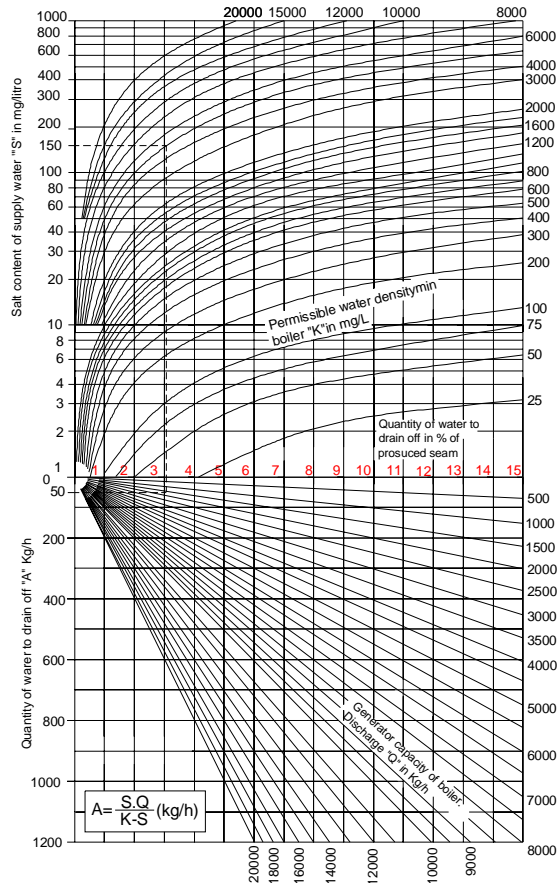
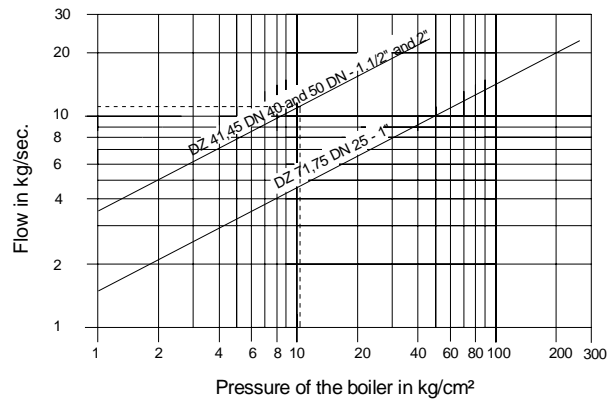


Chart 2



Standard specification

- Periodic discharge valve for desludging from the boiler background:
- Model DZ from ASCA
- According to prospect PR-04.20.20-I
- Flanged connections as per norm.....
- Pressure class.....
- Nominal diameter.....
- Special execution.....
- Optional.....



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