INSTALLATION, OPERATION and MAINTENANCE MANUAL

Balanced Pressure Thermostatic Steam Trap

MODEL: DL1

MIYAWAKI INC.

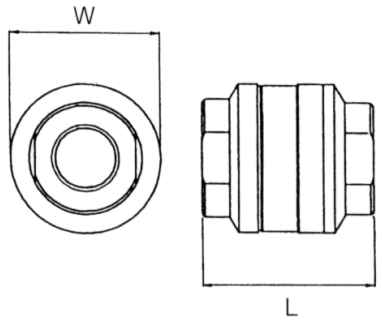
Osaka, Japan

SAFETY INSTRUCTION

Prior to using the DL1 steam trap, read this manual thoroughly to understand the correct handling and operating procedure.
The manual should be used by experienced personnel as a guide to the installation and maintenance of the Steam Traps.
We ask you to contact MIYAWAKI or its local representative if further information is required.

1. Dimensions and Technical Specification

The balanced pressure thermostatic steam trap DL 1 is a stainless steel steam trap equipped with a membrane capsule. It can be used up-to an operating pressure of 2,1 MPa/305 psig (type DL1-21) or up-to 1,0 MPa/145 psig (type DL1-10). The steam trap discharges the condensate automatically at a temperature 5°C/9°F (capsule H and C) or 15 °C/27°F (capsule L) below saturation temperature.



Model	Connection	Size	Max. Operating Pressure		Max. Operating Temperature		Dimension mm (inch)			Weight	
			MPa	psig	°C	°F	L - Rc	L - NPT	W	kg	lb
DL1-21H DL1-21L	screwed Rc, NPT	¼“	2,1	305	220	428	60 (2.4)	60 (2.4)	48 (1.9)	0,7	1.5
		3/8“									
		½”									
		¾”									
		1”						70 (2.8)			
DL1-10C	screwed Rc, NPT	¼“	1,0	145			60 (2.4)	60 (2.4)	48 (1.9)	0,7	1.5
		3/8“									
		½”									
		¾”									
		1”						70 (2.8)			

2. Installation

CAUTION	Before installing the trap, always blow down the piping that leads to the trap's inlet.

1. Install the trap according to the direction of the arrow on the body.
2. The steam trap DL 1 can be installed either horizontally or vertically.
3. Install the trap at the lowest point of the steam using equipment to be drained.
4. Install the trap so that the condensate will flow naturally into the trap.
5. The trap is equipped with an integral strainer. But in case of dirty steam it is recommended to install additionally a strainer upstream the trap.

3. Trouble-shooting

The steam trap should be checked for proper operation at least once a year.

The thermostatic steam trap DL1 is discharging the condensate intermittently.

Problem	Reason
Steam is leaking or blowing through	- Too high operating pressure - Scale is lodged between the membrane capsule and the seat. - The membrane capsule and/or the seat are worn or damaged.
No discharge	- The seat is plugged. - The strainer is plugged. - Damaged membrane capsule.
The requested temperature level of the equipment which should be drained cannot be reached	- Wrong installation (inlet / outlet) of the steam trap - The steam inlet pressure is too low. - Air cannot be vented from the equipment - Discharge capacity of the trap is too low.

4. Maintenance, Disassembling and Assembling

WARNING	Before disassembling a steam trap be sure to close the valves in both supply and discharge lines, reduce the pressure inside the trap to atmospheric pressure, and allow the trap to cool before opening it.

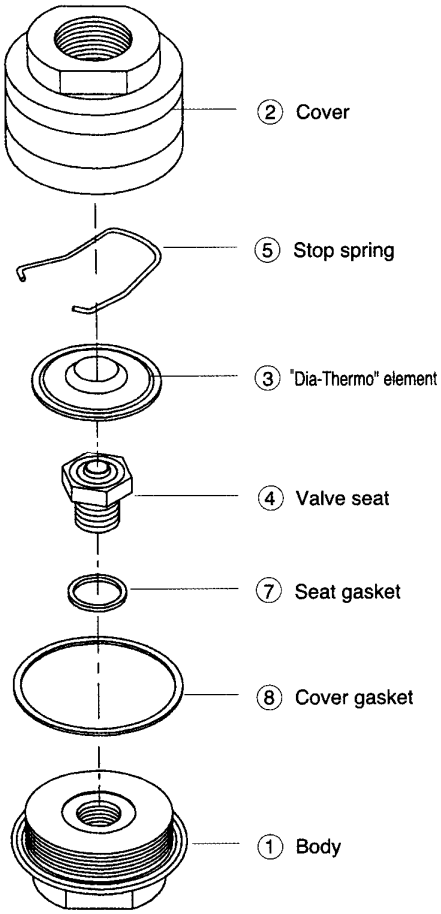
For cleaning purposes or for changing parts perform the following steps:

1.1. Untighten the cover (2) and remove it. Now the stop spring (5) and the membrane capsule can be taken out.
1.2. Untighten the seat (4) and unscrew it. Remove the seat (4) and the seat gasket (7).
1.3. Clean and check the body (1), the cover (2), the screen (spot welded to the cover) and the internal parts.
1.4. Replace worn or damaged ones.
1.5. Assemble the trap in the opposite way.
1.6. At first put in the seat (torque: 220 kgf·cm / 22 Nm) and tighten it. Don't forget the seat gasket (7) !
1.7. Put the membrane capsule on the seat and put the stop ring (5) into the cover. Put a new cover gasket (8) on the body and tighten the cover (torque: 1000 kgf·cm / 100 Nm).

Wrench Sizes and Torques

Parts Number	Parts Name	Size	Wrench Size	Torque
2	Cover	¼" – ¾"	32 mm	1000 kgf·cm 100 Nm
		1"	41 mm	
4	Valve Seat	¼" – 1"	17 mm	220 kgf·cm 22 Nm

5. Details and Spare Parts List



Spare parts

3	Membrane capsule H, C or L
4	Valve seat
7	Seat gasket
8	Cover gasket

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