OPERATION MANUAL

FOR

Thermodynamic Steam Trap

MODEL:SV-N

MIYAWAKI INC.

SAFETY

The following warnings and cautions are shown at appropriate places in this manual.

WARNING	Failure to observe this type of precaution may lead to serious injury or death.
CAUTION	Failure to follow this type of precaution can lead to injury or damage to equipment and property.

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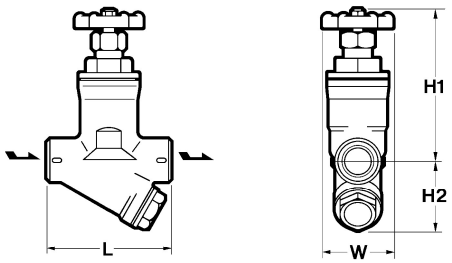
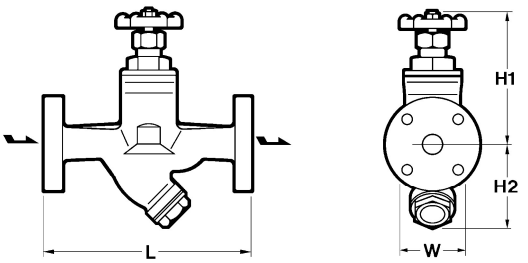
1. Introduction

Model SV-N Series has built-in by-pass valve, it will act as blow off valve upon start up when handle is turned counter clockwise. When handle is turned clockwise until full stop, it will act as thermodynamic steam trap.

2. Dimensions and specifications



Model SV-N



Model SV-NF

Model No.	Connection	Size mm (inch)	Operating Pressure (MPa)	Maximum Temperature ℃(°F)	Material of Body	Dimensions (mm)				Weight (kg)
						L	H1	H2	W	
SV-4N	Screwed	15(1/2)	0.03 to 1.6	220 (428)	Cast Iron (FC250)	110	155	60	65	2.4
SV-6N		20(3/4)				120		65		2.5
SV-8N		25(1)						70		2.7
SV-4NF	Flanged	15(1/2)				220	150	90	65	4.1
SV-6NF		20(3/4)								4.7
SV-8NF		25(1)				230				6.5

3. Installation

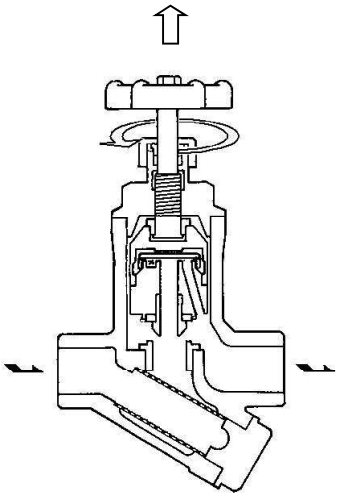
WARNING	Pay very careful attention when working in hazardous environments. There is a risk of explosion and the possibility of dangerous gases leaking. Always check whether the pipeline contains flammable, high pressure or high temperature materials before starting to work.

● Make sure that isolation valves are installed on both the upstream and downstream lines.

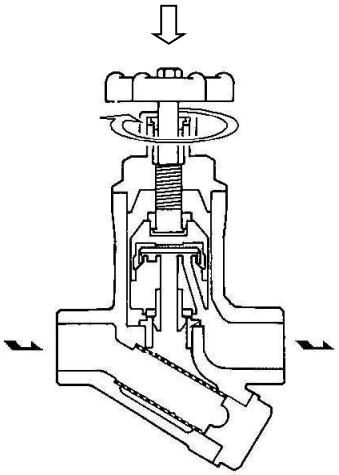
CAUTION	Before installing the product, open both isolation valves and the bypass valve, if one exists, to blow out any debris or dirt inside the pipeline. After blowing out the line, before starting to work, close the isolation valves and allow time for the temperature to drop to a safe working temperature.

1)Install the trap according to the direction of the arrow on the body.
2)Thermodynamic steam traps can be installed either horizontally or vertically.
3)Model SV-N functions as blow off of by-pass valve when handle is turned counter clock-wise, and will function as thermodynamic steam trap when handle is turned clockwise to full stop.

For the Use as ByPass



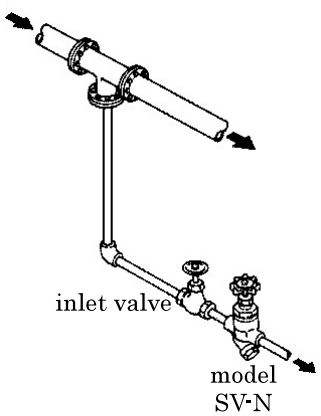
For the Use as Steam Trap



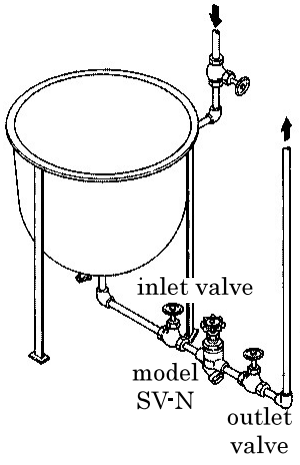
CAUTION	• In normal operation, use the SV-N with the bypass valve closed (with the handle turned fully clockwise). • If the SV-N is used for a long time with the bypass valve open, there is a possibility that parts such as the Disc Valve may be damaged.

4)Install the trap so that the condensate will flow naturally into the trap.
5)The trap should be installed for easy maintenance.

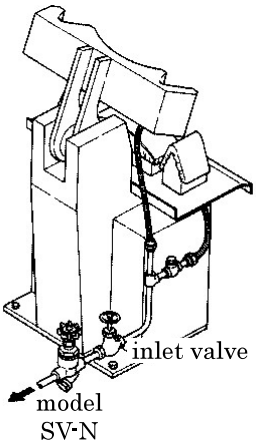
ON STEAM MAIN

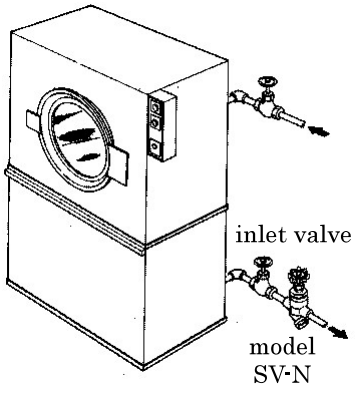


ON RETURN SYSTEM



ON LAUNDRIES AND
DRY CLEANING MACHINES





4. Trouble Shooting

Thermodynamic steam Trap operates intermittently.
It will discharge and stop at certain cycles.

Symptom	Cause	Remedy
Condensate logging	1)Disc(4) sticks to Seat(5) by oil etc..	1)Clean Disc(4) and Seat(5).
	2)Lack of Capacity.	2)Check the operating conditions, replace the trap with larger capacity.
	3)Plugged orifice on Seat(5).	3)Check and clean orifice.
	4)Plugged strainer	4)Check and clean strainer Screen (7).
The disc is moving very quickly ("Chattering")	1)Worn Disc(4) and/or Seat(5).	1)Replace the Trap Unit.
	2)Scale or other dirt are lodged between Disc(4) and Seat (5).	2)Check and clean Disc(4) and Seat(5).
	3)Loose Cap(3).	3)Tighten the Cap(3).
Steam blowing	1)Scales lodged between Disc(4) and Seat(5).	1)Check and clean Disc(4) and Seat(5).
	2)Built-in by-pass valve is not closed.	2)Closed the valve and switch to steam trap.
	3)Back pressure is too high. (higher than 50% of the inlet pressure)	3)Check the operating conditions. If back pressure is too high, decrease the pressure or change the trap to different type which which has higher back pressure capability.
	4)Damaged Disc(4) and/or Seat (5).	4)Replace the Trap Unit.

⚠ CAUTION

- **When replacing parts, make sure the replacement parts are supplied by Miyawaki.**

The performance of steam traps deteriorates gradually over time due to wear, corrosion or dirt accumulating around the valve and the valve seat. Please conduct periodic diagnosis of traps in order to keep steam control systems and equipment working well.

○ Tools for Diagnosis Steam Traps

■ Dr. Trap

It is a diagnostic tool with hardware (diagnostic equipment) that performs automatic diagnosis at high speed (maximum 10 seconds) and exclusive aggregate analysis software from the vibration and temperature information of the trap.
Diagnostic information is recorded in the diagnostic equipment and data can be transferred to the software. As a result, high-speed aggregate analysis, quantitative grasp of steam leakage and loss amount are possible.

■ Dr. Trap Jr.

It is an inexpensive and simple diagnostic tool using hardware (steam trap checker) with vibration sensor, temperature sensor and exclusive aggregate analysis software.
From the vibration and temperature information of the trap, the judgment such as good or fail is made by a diagnostician. By inputting the vibration value detected by the steam trap checker to the aggregate analysis software, it is possible to quantitatively grasp the amount of steam leakage and money loss.

Caution:

Even if both diagnostic tools are used, accurate diagnosis results may not be obtained depending on the location and installation status of the steam trap, or the type and operating condition of the steam trap.
For details, please contact MIYAWAKI, our local authorized agent, or the place where you purchased.

○ Disassebling/Assembling

When a trap fails, it is necessary to clean the internal parts and to replace damaged parts. Take the failed trap apart following the steps below.

WARNING	When disassembling a hot trap be, sure to release the pressure inside to atmospheric pressure, and cool the trap before the opening it.

(1)Replacing the trap unit

1)Unscrew Bonnet(2), the Trap Unit (Seat(5),Bi-Metal(38),Stopper Ring(39), Disc(4) and Cap(3)) Spindle(19), Nut(24) will come apart.

2)Firm Seat(5) in a vice and unscrew Cap(3), Disc(4), Bi-Metal(38) and Stopper Ring(39) will come apart. Check and clean these parts.

3)If these are no defects reassemble in the opposite of disassembling.

4)If Disc(4) and/or Seat(5) is worn or damaged, replace the whole Trap Unit.

5) Gasket(9) is PTFE gasket fitted into a groove.
Replacement is not unless Gasket(9) is damaged.

(2)Replacing or cleaning the strainer

1)Unscrew Plug(8) from Body(1) take out Screen(7) , clean or replace.

2)Insert Screen(7) into Body(1) screw in Plug(8).

3) Gasket(14) is PTFE gasket fitted into a groove.
Replacement is not required unless Gasket(14) is damaged.

(3)Replacing Gland Packing

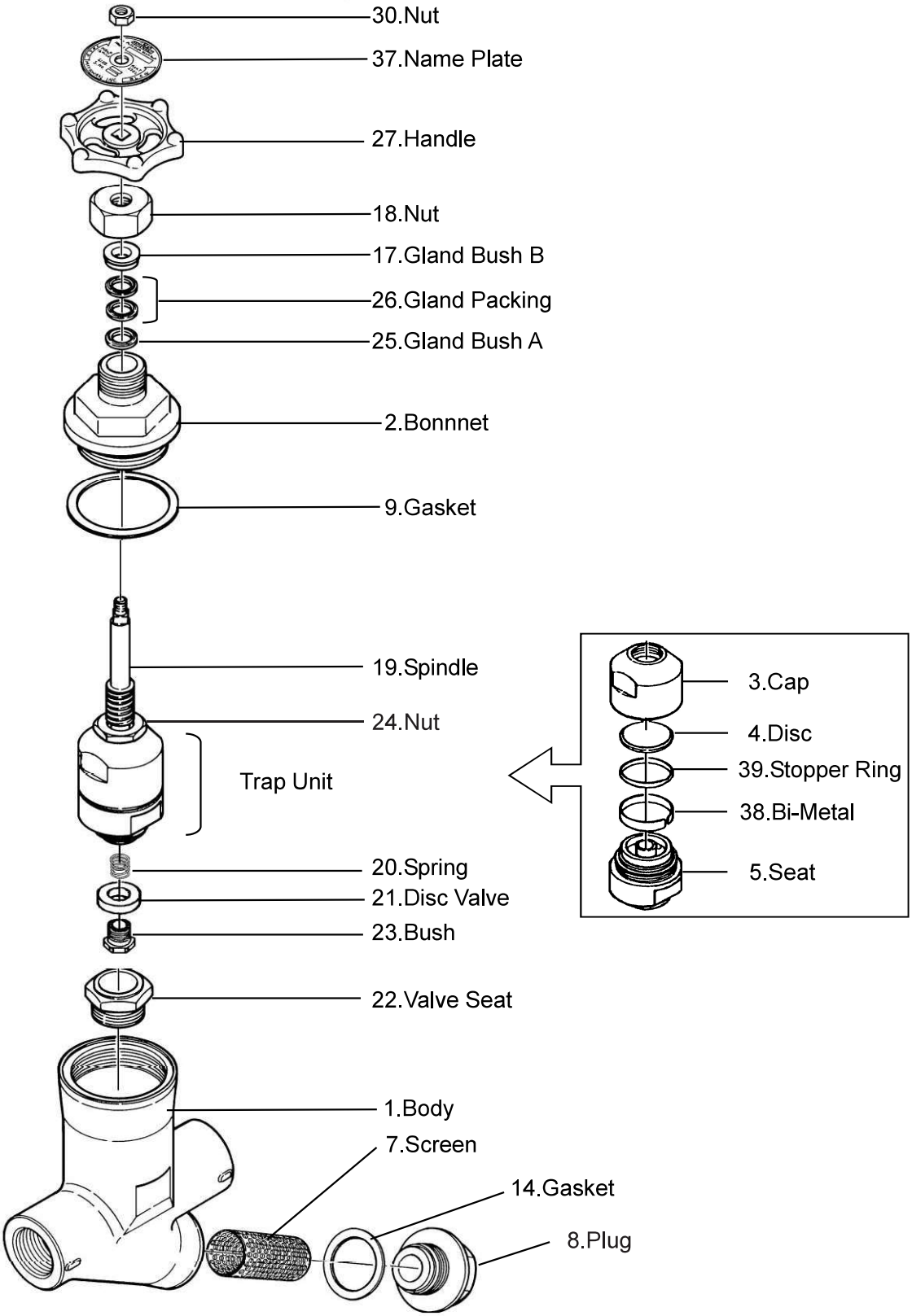
1)Unscrew Nut(30) and take off Name Plate(37) and Handle(27). Unscrew Nut(18), to take off Gland Bush B(17), Gland Bush A(25), and Gland Packing(26).

2)Gland Bush A(25) and Gland Packing(26) are PTFE rings. Required quantity of Gland Packing(26) is two pieces.
First, insert the Gland. Bush A(5) then two Gland Packing(26), the v-groove of Gland Packing(26) should be faced down. Then insert gland Bush B(17) then screw in the Nut(18).

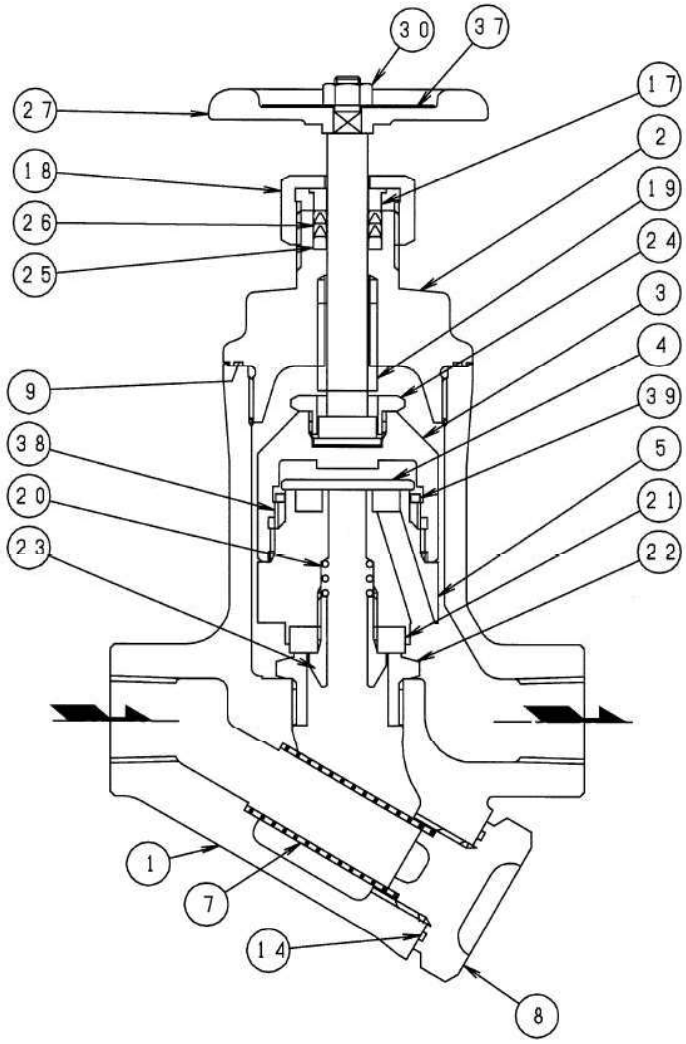
3)Handle(27) and Name Plate(37) are put on Nut(18), and screw Nut(30) into Spindle(19).

Parts No.	Parts	Model No.	Size	Shape	Clamp Torque
2	Bonnet	*	41mm	Hexagon	98N・m
3	Cap	*	38mm	Parallel	98N・m
8	Plug	SV-4N	36mm	Hexagon	69N・m
		SV-4NF,SV-6N(F) SV-8N(F)	32mm	Hexagon	98N・m
18	Nut	*	27mm	Hexagon	25N・m
23	Bush	*	17mm	Hexagon	10N・m
24	Nut	*	23mm	Hexagon	20N・m

*:Common to all SV-N(F)


30.Nut
37.Name Plate
27.Handle
18.Nut
17.Gland Bush B
26.Gland Packing
25.Gland Bush A
2.Bonnnet
9.Gasket
19.Spindle
24.Nut
Trap Unit
20.Spring
21.Disc Valve
23.Bush
22.Valve Seat
1.Body
7.Screen
14.Gasket
8.Plug
3.Cap
4.Disc
39.Stopper Ring
38.Bi-Metal
5.Seat

6.Construction



1.Body	20.Spring
2.Bonnet	21.Disc Valve
3.Cap	22.Valve Seat
4.Disc	23.Bush
5.Seat	24.Nut
7.Screen	25.Gland Bush A
8.Plug	26.Gland Packing
9.Gasket	27.Handle
14.Gasket	30.Nut
17.Gland Bush B	37.Name Plat
18.Nut	38.Bi-Metal
19.Spindle	39.Stopper Ring

7. Warranty

7.1 Warranty period

The warranty period is 18 months after shipment or 12 months after installation, whichever occurs first.

7.2 Details of the warranty

If the product stops working correctly within the warranty period, we will repair or replace the product free of charge if the cause of the trouble is not one of the following items.

1) The precautions described in this manual were not observed
2) User's errors or mistakes such as an inappropriate installation or incorrect handling, or an excessively large impact caused by dropping
3) Problems caused by devices or equipment other than ours, or a disallowed use environment
4) When a repair or modification has been performed by anyone other than us or people who are authorized to make such repairs
5) Intrusion of salt or other substances that promote significant rust or corrosion or problems from fluids that contain the same substances
6) Consumable parts such as Packing, Gasket, O-ring, Diaphragm, etc
7) Attachment or accumulation of foreign matter in the pipe, such as dust and scale
8) Problems from fires, natural disasters, or other force majeure which is not our responsibility

7.3 Warranty limitation

The remedy available under the warranty shall not exceed the sales price of the products delivered, for any cause whatsoever.

8. Serial number (S. No.) designation

The following 4-digit or 9-digit 'S.No.' is displayed on the product.

●For 4-digit display

S.No. □□□□

- Represents the day.
- Represents the month.
- Represents the year. (last two digits of the year according to the Western calendar)

Example of serial number designation
1711 → Jan 1, 2017
29XM → Oct 21, 2029

●For 9-digit display

S.No. □□□□□□□□□

- MIYAWAKI identification number
- Represents the month.
- Represents the year. (last two digits of the year according to the Western calendar)

Example of serial number designation
171120C020 → Jan , 2017
29X05M050 → Oct , 2029

Month designation system

Month	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	1	2	3	4	5	6	7	8	9	X	Y	Z

Day designation system

Day	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	1	2	3	4	5	6	7	8	9	A	B	C

Day	13	14	15	16	17	18	19	20	21	22	23	24
Symbol	D	E	F	G	H	J	K	L	M	N	O	P

Day	25	26	27	28	29	30	31
Symbol	Q	R	S	T	U	V	W

9. Guidance for reading special product name

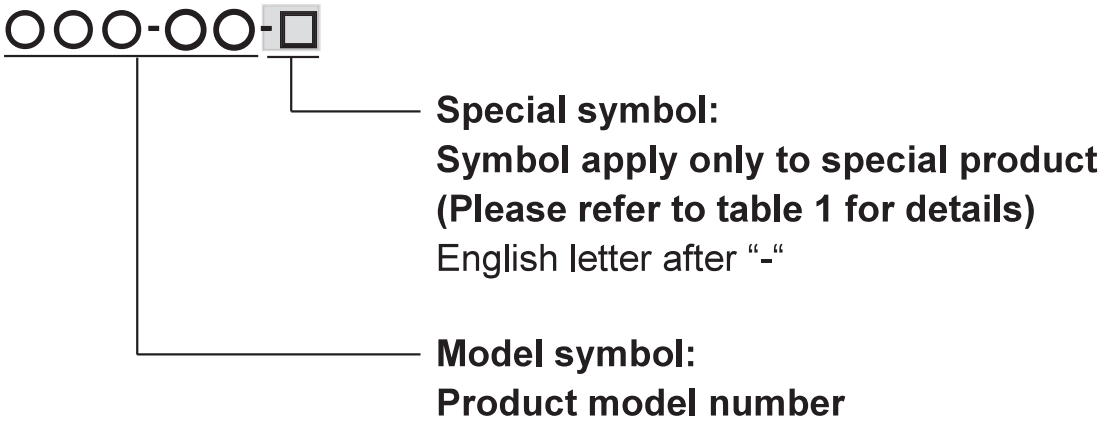


Table 1 Symbol description

Suffix	Special contents
A	Trap for high-pressure gas installed property (only for Gas Trap)
C	Blow valve attached
K	Change of gasket
L	Special face to face dimension
M	Change of parts material
P, T	Change of operating pressure, temperature, condensate capacity, etc
R	Change of screen mesh
V	Change of air vent
X	Other than mentioned above or complex of special contents above

- For any questions about the product that you purchased or about the details in this user’s manual, please contact the following.
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- Some special specifications of the product you have, may found to be different from the ones in the user's manual. If you have any question, please contact MIYAWAKI, our local authorized agent, or the place where you purchased.

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