

# **Y43H Serials**

## **Piston Steam Pressure Reducing Valve**



## **Operation Instruction**

## I . General Description

This series of the valve falls within the category of pilot-piston operated pressure reducing valve. It is composed of main valve and auxiliary part. The main valve includes: valve seat, main valve disk, piston, piston springs and others. The pilot part includes valve seat, valve disk, diaphragm, spring, adjusting screws and others. The valve throttles through the adjusting spring, and reduces the inlet pressure to a needed outlet pressure. It makes use of the energy of the medium itself so that the outlet pressure automatically meets the predetermined requirement to achieve the function of pressure relief.

This product is applied in steam pipe line, but the difference of the inlet pressure and outlet pressure must be  $\geq 0.2\text{MPa}$ .

### Y43H/F-16

PN (MP a)	Test Pressure (MP a)		Pressure Adjusting Range (MP a)			Applicable Temperature ( $^{\circ}\text{C}$ )
	Strength	Seal	Inlet Pressure	Outlet Pressure	Deviation of Outlet Pressure	
1.6	2.4	1.76	0.25-1.6	0.1-1	$\leq \pm 0.05$	$\leq 220$

### Y43H/F-25

PN (MP a)	Test Pressure (MP a)		Pressure Adjusting Range (MP a)			Applicable Temperature ( $^{\circ}\text{C}$ )	
	Strength	Seal	Inlet Pressure	Outlet Pressure	Deviation of Outlet Pressure	Y43H	Y43F
2.5	3.8	2.5	2.5	0.1-1.6	$\leq \pm 0.07$	200	$\leq 200$
			2.3			250	
			1.8			350	

### Y43H/F-40

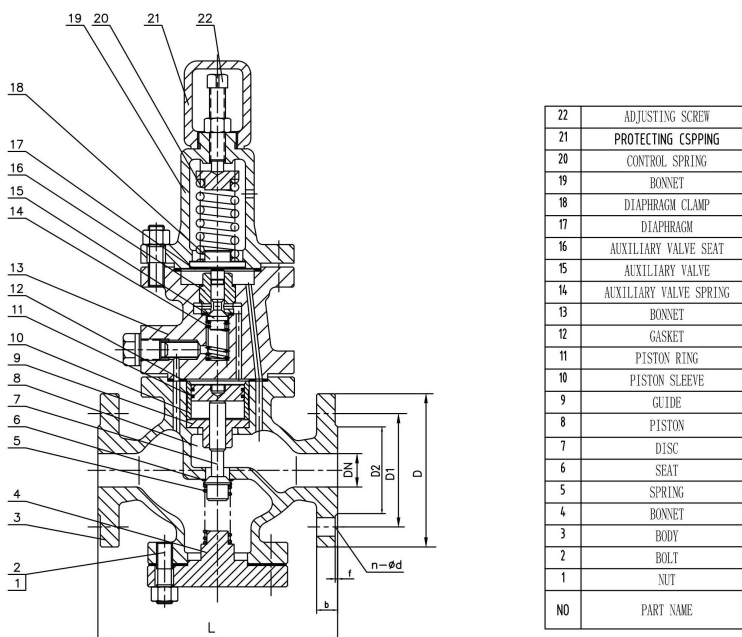
PN	Test Pressure	Pressure Adjusting Range	Applicable
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(MP a)	(MP a)		(MP a)			Temperature (°C)	
4.0	Strength	Seal	Inlet Pressure	Outlet Pressure	Deviation of Outlet Pressure	Y43H	Y43F
	6	4.4	4	0.1-2.5	≤±0.07	200	≤200
			3.3			300	
2.8	400						

### Y43H/F-64

PN (MP a)	Test Pressure (MP a)		Pressure Adjusting Range (MP a)			Applicable Temperature (°C)	
6.4	Strength	Seal	Applicable temperature	Applicable temperature	Deviation of Outlet Pressure	Y43H	Y43F
	9.6	7.04	Applicable temperature	Applicable temperature	≤±0.07	200	≤200

## II. Working Principle And Structure



When the pressure reducing valve is out of the factory, the adjusting spring is in an uncompressed state, and both the disks of the main valve and the auxiliary valve are all closed

at this time. In use, the screw should be rotated in the clockwise direction, and the adjusting spring is compressed so that the diaphragm is moved to the top of the auxiliary valve.

The medium flows through the the auxiliary valve seat into A hole then into the B hole last to the above of the piston.

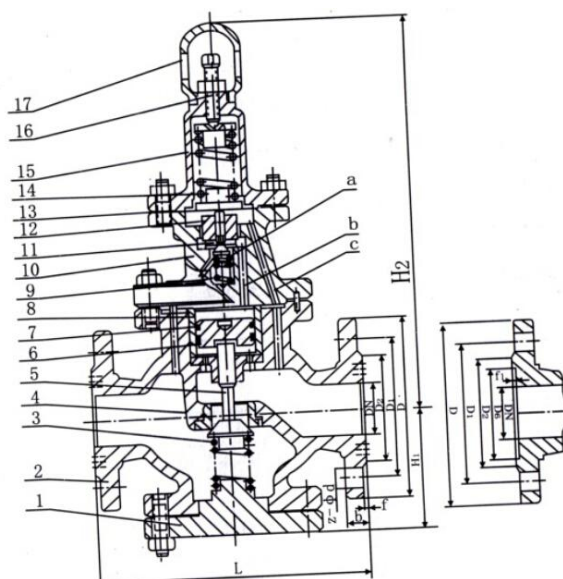
Under the action of the medium pressure, the piston moves downward and drives the main valve disk to leave the main valve seat to make the medium flow to the valve.

At the same time, the medium is under the diaphragm from the C hole. When the outlet pressure exceeds the setting pressure, the medium moves up the diaphragm to compress the adjusting spring. Then the auxiliary valve disk is moved to the closed direction, and the medium above the piston is reduced and the pressure decreases. At this time, the main valve disk moves upward under the push of the main valve spring force, so that the clearance between the main valve and main valve seat decreases. The flow of the medium also decreases, which reduces the outlet pressure to a new balance. Conversely, when the outlet pressure is lower than the setting pressure, the clearance between the main valve and main valve seat increases. The flow of the medium increases so that the outlet pressure increases to a new balance.

### III. Material Of Main Component

Name of component	Material of component
Body, Bonnet, lower cap	WCB
Seat, disk	2Cr13
Cylinder liner	2Cr13/25(Hard chromium plating )
Piston	2Cr13/Copper alloy
Piston ring	Cast alloy iron
Auxiliary valve seat, auxiliary	2Cr13
Diaphragm	1Cr18Ni9Ti
Main valve spring	50CrVA
Auxiliary valve spring	50CrVA
Adjusting	60Si2Mn

### IV. Connection Dimension



### Y43H/F-16

DN	L	D	D1	D2	D3	b	f	H1	H2	Z-φ	Weight (KG)
	mm										
20	160	105	75	55	100	16	2	89	312	4-14	11.5
25	180	115	85	65	115	16	2	101	315	4-14	15.5
32	200	135	100	78	130	18	2	107	320	4-18	18.7
40	220	145	110	85	145	18	3	113	325	4-18	22.7
50	250	160	125	100	155	20	3	120	335	4-18	26.5
65	280	180	145	120	170	20	3	140	340	4-18	30
80	310	195	160	135	200	22	3	150	360	8-18	40
100	350	215	180	155	200	24	3	150	390	8-18	48
125	400	245	210	185	245	28	3	180	415	8-18	80
150	450	280	240	210	245	28	3	180	440	<b>8-23</b>	95
200	500	335	295	265	335	30	3	225	475	<b>12-23</b>	125
250	600	405	355	320	420	34	4	250	545	12-25	270
300	750	460	410	375	425	36	4	265	575	12-25	445
350	850	520	470	435	510	40	4	390	650	16-25	680
400	900	580	525	485	580	44	4	430	705	16-30	850

### Y43H/F-25

DN	L	D	D1	D2	D3	b	f	H1	H2	Z-φ	Weight (KG)
	mm										
25	200	115	85	65	115	16	2	101	315	4-14	17
32	200	135	100	78	125	18	2	107	320	4-18	20
40	220	145	110	85	140	18	3	113	325	4-18	22.8
50	250	160	125	100	140	20	3	120	335	4-18	26
65	280	180	145	120	160	22	3	125	340	4-18	27.5
80	310	195	160	135	180	22	3	140	360	8-18	42.5
100	350	230	190	160	200	24	3	150	390	8-18	52
125	400	270	220	188	260	28	3	190	425	8-23	90

150	450	300	250	218	275	30	3	210	445	8-25	103
200	500	360	310	278	340	34	3	245	485	12-25	144
250	600	425	370	332	420	36	3	270	545	12-30	305
300	800	485	430	390	425	40	4	335	575	16-30	498
350	850	550	490	448	510	44	4	390	660	16-34	720
400	900	610	550	505	580	48	4	430	710	16-334	890

#### Y43H/F-40

DN	L	D	D1	D2	D3	D6	b	f	f 1	H1	H2	Z- $\phi$	Weight (KG)
	mm												
25	200	115	85	65	115	58	16	2	4	101	315	4-14	19
32	220	135	100	78	130	66	18	2	4	107	320	4-18	22
40	240	145	110	85	145	76	18	3	4	113	325	4-18	26
50	270	160	125	100	155	88	20	3	4	120	335	4-18	31
65	280	180	145	120	170	110	22	3	4	140	365	8-18	40
80	330	195	160	135	200	121	22	3	4	150	385	8-18	58
100	380	230	190	160	200	150	24	3	4.5	150	390	8-23	64
125	440	270	220	188	247	176	28	3	4.5	185	425	8-25	100
150	500	300	250	218	275	204	30	3	4.5	210	445	8-25	122
200	560	375	320	282	340	260	38	3	4.5	245	485	12-30	190

#### Y43H/F-64

DN	L	D	D1	D2	D3	D6	b	f	f 1	H1	H2	Z- $\phi$	Weight (KG)
	mm												
25	200	135	100	78	130	58	22	2	4	110	370	4-18	16
32	220	150	110	82	135	66	24	2	4	125	380	4-23	26
40	240	165	125	95	150	76	24	3	4	130	395	4-23	32
50	270	175	135	105	160	88	26	3	4	135	405	4-23	42
65	280	200	160	130	180	110	28	3	4	145	410	8-23	56
80	330	210	170	140	208	121	30	3	4	170	445	8-23	71
100	380	250	200	168	208	150	32	3	4.5	175	455	8-25	80
125	440	295	240	202	295	176	36	3	4.5	245	504	8-30	130
150	500	340	280	240	350	204	38	3	4.5	280	555	8-34	165
200	560	405	345	300	408	260	44	3	4.5	310	581	12-34	220

## V. Installation and use

When installation, the following work should be carried out:

1. Flushing and cleaning must be on the pipeline system before installing the valve, to prevent dirt, such as the welding slag, oxide skin and other goods logistics into the valve, affecting normal operation of valves.
2. The pressure reducing valve should be installed in a convenient place for operation and maintenance. The valve should be installed in the horizontal pipeline, and the arrow on the valve body should be consistent with the flow direction.
3. There should be a straight pipe both before and after the pressure reducing valve, and their length respectively should be above 600MM and 1000MM
4. A filter must be installed before the pressure reducing valve to prevent impurities from the

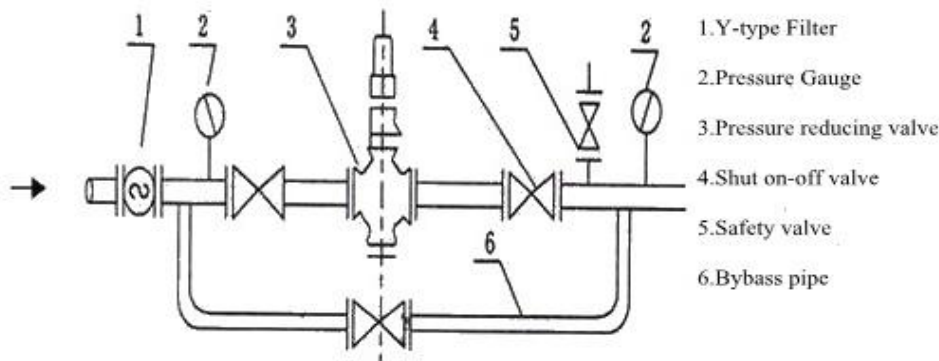
medium into the pressure reducing valve and affect its performance.

5. when installing and using, the shut-off valve on the bypass pipe should be opened first, and the mixture of condensate and steam and water in the pipeline should be excluded, so as to prevent water hammer from damaging the pressure reducing valve.

When there is no abnormalities, rotate slowly the adjusting screw in a clockwise direction so that the outlet pressure will be adjusted to the required pressure (gauge pressure to the valve after the date), after there, lock the nut and screw the protective cover.

**Typical installation as shown below:**

**Typical Installation**



**VI. Maintenance and Overhaul**

1. The pressure reducing valve should be stored in a dry room. The two ends of the valve must be blocked with blind plate.

2. The long-term storage pressure reducing valve should be checked regularly, cleaning the dirt, and should be coated on the moving parts and surface, so as to prevent rust.

**Fault and Solution**

Fault Content	Fault Causes	Solution
Pressure reducing valve without decompression or straight through	1. There is dirt on the sealing surface of the main valve and pilot valve 2. There is damage in the the sealing surface of the main valve and pilot valve 3. The spring of the main valve and pilot valve fatigues or breaks 4. Feedback channel C hole is blocked 5. Diaphragm fatigues or damaged 6. The piston cylinder is worn or corroded 7. The piston ring groove and the piston ring are stuck by the dirt 8. The cavity of the valve body is filled with condensate	1. Clean the dirt 2. Grind and repair the sealing or replace 3. Replace the spring 4. Clean up the dirt in the channel 5. Replace the diaphragm 6. Replace the piston ring 7. Remove and clean the piston 8. Loosen the screw to exclude condensate

Non ventilation	<ol style="list-style-type: none"> <li>1.Valve cover dislocated in the process of cleaning</li> <li>2.Displacement of upper gasket blocks the in-and out-channel .</li> <li>3.The in-and-out channel of the pilot valve is blocked.</li> </ol>	<ol style="list-style-type: none"> <li>1.Dismantle the cover of the valve and re-fix it</li> <li>2. Make the hole of the gasket aligned with the inlet-and-outlet hole.</li> <li>3. Remove the valve cover and clean up the dirt from channel</li> </ol>
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## VII.Ordering Notices

When ordering,the following should be stated.

- 1.Model
- 2.Nominal diameter
- 3.Nominal Pressure
- 4.The inlet pressure and the outlet pressure
- 5.Medium name
- 6.Medium temperate and specific gravity
- 7.Materials of body,trims, surface hardening requirements
- 8.Normal flow rate and required maximum flow
- 9.Flange connection types.