Instruction Manual
D103501X012
April 2022

Type NH

Pressure Reducing Regulator Manual

Contents

⚠ WARNING

Failure to follow these instructions or properly install and maintain this equipment could result in an explosion, fire, and/or chemical contamination causing property damage and personal injury or death.

Jeon Regulators must be installed, operated and maintained in accordance with federal, state, and local codes, rules and regulations, and Emerson Process Management Asia Pacific Pte Ltd, Regulator Technologies (Regulator Technologies) instructions.

Installation, operation, and maintenance procedures performed by unqualified personnel may result in improper adjustment and unsafe operation. Either condition may result in equipment damage or personal injury. Use qualified personnel when installing, operating and maintaining Type NH Regulator.

NH Pressure Reducing Regulator

1. Introduction

Type NH Regulator is a pilot-operated pressure reducing regulator which is used for controlling gas pressure in high-pressure to high-pressure gas network, high-pressure to medium-pressure gas network, gas stations, CNG stations, industrial, business and consumer applications. It provides economical and accurate pressure control. This regulator type may be used for natural gas, coal gas, LP-Gas, and other non-corrosive gases.

RT J2 - □ / □ - NH

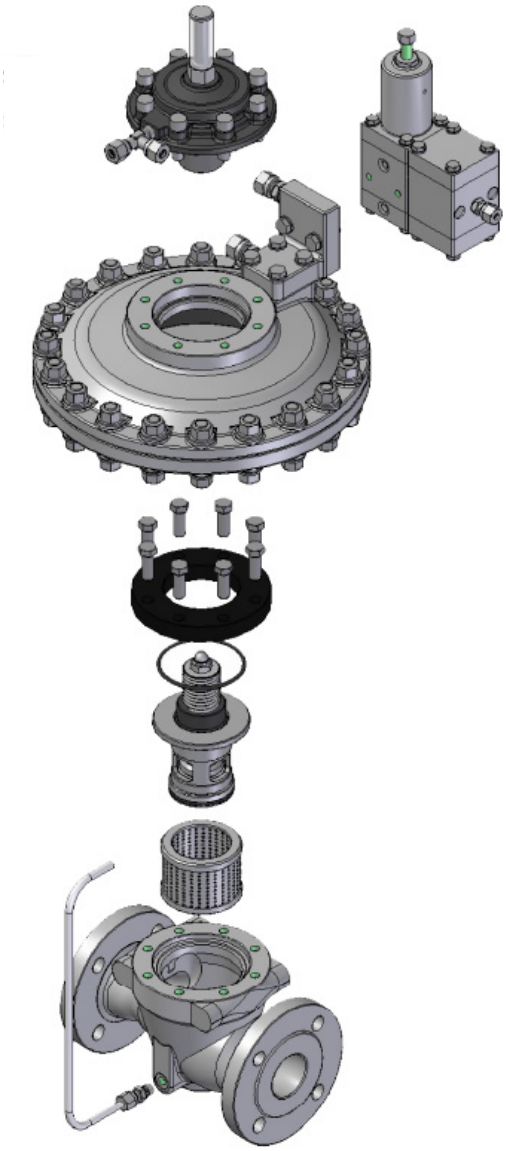
- NH — Model
- □ — Maximum Inlet Pressure
- □ — Nominal size
- J2 — Pilot-operated, Fail close
- RT — Natural Gas Pressure Regulator

Example:

RTJ2-100/1.6-NH, It means that this is a Type NH Pressure regulator, pilot-operated, fail close, with body size DN 100, 1.6 MPa maximum inlet pressure.

2. Technical Data

Inlet Pressure Range:	0.1 to 4.0 MPa / 1 to 40 bar / 14.5 to 580 psig
Outlet Pressure Range:	DN 50, DN 80, DN 100 0.60 to 25 bar / 87 to 362 psig
	DN150 0.06 to 20 bar / 87 to 290 psig
Accuracy Class:	Up to ± 1%
Lockup Pressure Class:	Up to 5%
Operating Temperature:	-10 to 60 °C / 14 to 140°F
End Connections	
Size	DN 50, DN 80, DN 100 and DN 150
Flange Class	PN 16, PN 25, PN 40, ANSI 150, ANSI 300



3. Features

- Modular Structure
- Easy In-Line Maintenance — The actuator and trim assembly can be assembled in the body from the top. This allows the regulator to be maintained easily in-line.
- Two-Stage Pilot design provides better accuracy and makes it easier to set the pressure.
- Monitor and Working Regulator Configurations
- Pilot Options for Fail-to-close or Fail-to-open Capability
- Good Lock-up Capability
- In-Service Travel Indicator

Options

- Noise Reduction System
- Remote loading pilot available (JP40-P with tightness spring cover, used for Remote loading)

4. Principle of Operation

From the inlet supply line to the first stage of the pilot, the inlet pressure (P_1) is reduced. The reduced pressure from the first stage supplies the pressure going into the second stage of the regulator pilot. The pressure is further reduced to act as a loading pressure. It then goes in the underside chamber of the actuator of the main regulator.

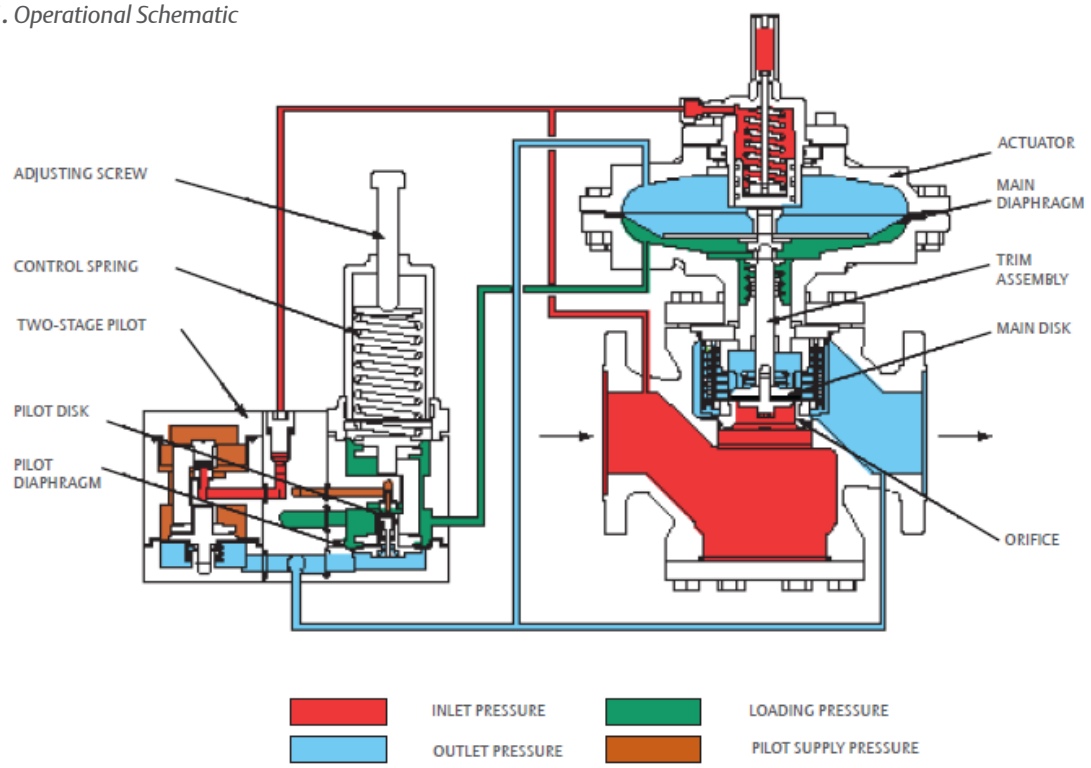
The loading pressure can regulate the outlet pressure by moving the disk to or away from the orifice.

Any change in the outlet pressure (P_2) can disrupt the balance of the loading pressure and the control spring in the second stage pilot. The pilot diaphragm is between the outlet pressure and the spring. When outlet pressure (P_2) decreases, the spring pushes the diaphragm downwards.

The diaphragm moves the pilot disk away from the orifice, then the loading pressure is increased. The loading pressure pushes the main diaphragm up making the distance between the main disk and the main orifice larger. It allows more flow to pass through the main orifice.

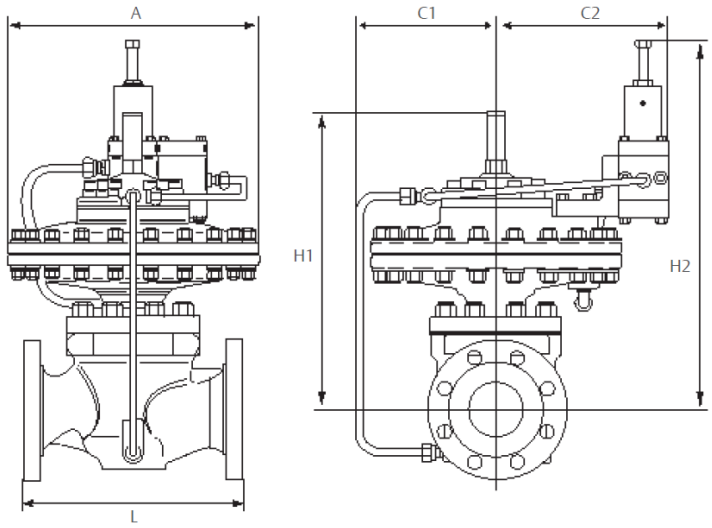
Contrarily, when outlet pressure (P_2) increases, the pilot reduces the loading pressure moving the main disk closer to the orifice. The flow rate passing through the main valve decreases maintaining the outlet pressure (P_2) at the desired value.

Figure 1. *Operational Schematic*



5. Dimensions and Weights

Figure 2. *Dimensional Drawings*



DIMENSIONS, mm / In.	NH50		NH80		NH100		NH150
	PN 16	Others	PN 16	Others	PN 16	Others	PN 16/PN 25/PN 40
L	267 mm / 10.5 In.		318 mm / 12.5 In.		368 mm / 14.5 In.		473 mm / 18.6 In.
A	335 mm / 13.2 In.	360 mm / 14.2 In.	335 mm / 13.2 In.	360 mm / 14.2 In.	335 mm / 13.2 In.	360 mm / 14.2 In.	420 mm / 16.5 In.
C1	188 mm / 8.3 In.	200 mm / 8.7 In.	210 mm / 8.3 In.	220 mm / 8.7 In.	210 mm / 8.3 In.	220 mm / 8.7 In.	250 mm / 9.8 In.
C2	235 mm / 9.4 In.	245 mm / 9.6 In.	240 mm / 9.4 In.	245 mm / 9.6 In.	240 mm / 9.4 In.	245 mm / 9.6 In.	260 mm / 10.2 In.
H1	400 mm / 15.7 In.		425 mm / 16.7 In.		455 mm / 17.9 In.		520 mm / 20.5 In.
H2	500 mm / 19.7 In.		525 mm / 20.7 In.		555 mm / 219 In.		630 mm / 24.8 In.
Approximate Weight, kg / lbs	72 kg / 159 lbs		112 kg / 245 lbs		161 kg / 355 lbs		183 kg / 403 lbs

6. Selection

Choosing a regulator requires determining factors like the maximum flow rate, the maximum and minimum inlet pressure, the outlet pressure, etc. One should choose the regulator pressure class according to the maximum inlet pressure, choose the flange size that can offer the satisfied maximum flow rate when the inlet pressure is at the minimum, and choose the control spring based on the desired outlet pressure.

Calculate flow rate as follows:

When $\frac{Pa}{Pe} < 0.53$, $Q = 10C \times \frac{Pe}{2}$

When $\frac{Pa}{Pe} \geq 0.53$, $Q = 10C \times \sqrt{Pa(Pe-Pa)}$

Where, Q = Natural Gas flow rate in Nm^3/h
C = Flow coefficient, see Table
Pe = Absolute inlet pressure in MPa
Pa = Absolute outlet pressure in MPa

MODEL	C, FLOW COEFFICIENT
50NH	1300
80NH	2700
100NH	4500
150NH	6800

In the formula, Q is the capacity of 0.61 specific gravity natural gas, relative to air, in standard conditions. To determine the equivalent capacities for other gases, multiply the capacity, Q by the appropriate conversion coefficient calculated by the formula below.

$$f = \sqrt{0.61/s} \qquad s = p/1.293$$

Where, s = Relative density of the gas
p = Average density (kg/Nm^3)

The conversion coefficient of common gases are as follows:

1.05 for methane, 0.76 for ethane, 0.63 for propane, 1.17 for coal gas, 0.55 for butane, 0.78 for air, 0.79 for nitrogen, or 0.63 for carbon dioxide.

⚠ WARNING

Overpressuring a regulator or associated equipment may cause leakage, part damage, or personal injury due to bursting of pressure-containing parts or explosion of accumulated gas. Do not install a regulator where service conditions can exceed the specifications listed on the Specifications section and of any applicable local, state or federal codes and regulations.

Additionally, physical damage to the regulator may result in personal injury or property damage due to escaping of accumulated fluid. To avoid such injury and damage, install the regulator in a safe location.

7. Installation

Installation requirement:

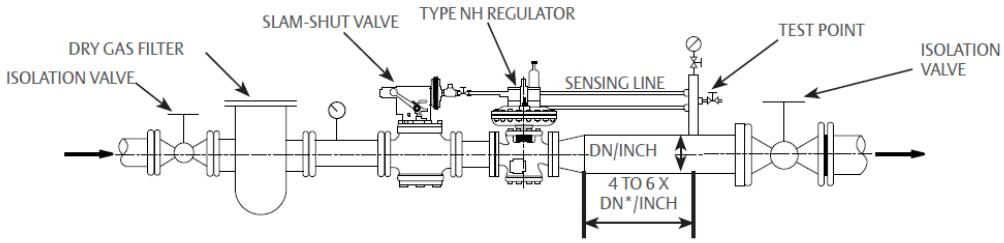
1. Check if the pressure in the pipeline is within the pressure range stated on the regulator nameplate.
2. Make sure that the flow direction of the pipeline matches the arrow stamped on the regulator.
3. Install a dry gas filter and an isolation valve at the inlet pipe of the Type NH Regulator. The test point should be positioned at the outlet pipe of Type NH Regulator at a suitable distance, approximately 4 to 6 times of the diameter of the pipe (DN). This allows the feedback signal to be sent back to the Type NH Regulator for adjustment and regulate the outlet gas velocity at 20 to 25 m/s.

After installation, use soap solution as gas detector to run a leak test to ensure that all connections are well sealed.

Warning:

1. Before installing Type NH, clean the pipeline system.
2. Remove or isolate the regulator when the pipeline is undergoing pressure test or purging to avoid damaging the regulator.

Figure 3. *Type NH Installation Diagram*



8. Operation

1. Startup

1. Make sure that the dry gas filter and the isolation valve are properly installed at the inlet pipe of the Type NH Regulator.
2. Ensure that the slam-shut valve is open.
3. Keep the outlet isolation valve slightly open.
4. Slowly open the inlet isolation Valve.
5. Keep in this position until the flow stabilizes.
6. Fully open the inlet and outlet isolation valve. The loading pressure can regulate the outlet pressure by moving the disk to or away from the orifice.

2. Outlet pressure setup

The regulator control spring is factory set at a set point specified in the order. If no set point is specified, the control spring is set at approximately the midpoint of the spring range, so an initial adjustment may be required to give the desired result. If adjustment of the outlet pressure is required, slightly open the outlet isolation valve, and slowly open the inlet isolation valve. Manually turn the adjusting screw on the pilot to achieve the required outlet pressure. Turning the adjusting screw clockwise will increase outlet pressure setting while turning counterclockwise reduces the outlet pressure setting. If the outlet pressure is adjusted on Remote loading pilot, load or release the pressure to the spring chamber slowly. The remote loading pressure does not exceed 10 Bar.

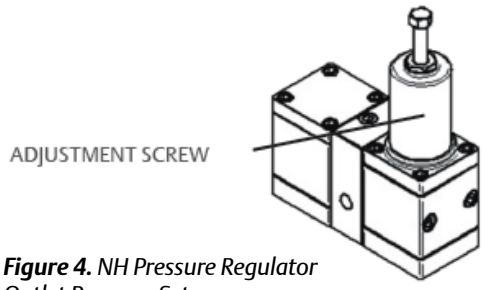


Figure 4. *NH Pressure Regulator Outlet Pressure Setup*

3. Check outlet pressure

Slowly close the outlet isolation valve of the regulator, and then open the pin-like valve that is placed before the gas metering. After testing for 3 minutes, record the pressure reading and counter check if it is within the required specification.

⚠ WARNING

Personal injury, equipment damage, or leakage due to escaping fluid may result if seals are not properly lubricated or maintained. Due to normal part wear or damage that may occur from external source, this regulator should be inspected and maintained periodically. The frequency of inspection, maintenance, and replacement of parts depend upon the severity of service conditions or the requirements of local, state and federal rules and regulations.

9. Maintenance

1. Daily maintenance

1. Use soap solution as gas detector to ensure that there is no leakage on the regulator.
2. Observe the outlet pressure to make sure that the desired outlet pressure is maintained.
3. Ensure the pipeline system is clean, free of foreign materials.

2. Periodic maintenance

Due to normal part wear or damage that may occur from external sources, this regulator should be inspected and maintained periodically. The frequency of inspection, maintenance, and replacement of parts depend upon the severity of service conditions or the requirements of local, state, and federal rules and regulations.

To ensure the smooth operation of the regulator, the operations department should determine the servicing schedule based on the usage condition of the regulator and the inlet gas condition.

1. Run a test on Type NH by closing the Outlet Isolation Valve at least once every 3 months. Under normal circumstances, it is not necessary to disassemble the regulator from the pipeline.
2. Clean the Slam-shut Valve and check on parts such as the disk, diaphragm, O-rings, and change any parts that are worn out or damaged.
3. Check on the rest of the parts of the regulator to ensure that they are in good working condition. Change the worn out parts.

⚠ WARNING

To avoid personal injury or equipment damage from sudden release of pressure or explosion of accumulated gas, do not attempt any disassembly without first isolating the regulator from system pressure and relieving all internal pressure from the regulator.

2. Disassembly

Close the upstream or Inlet Isolation Valve then the downstream or Outlet Isolation Valve. Purge the pressure at the pressure outlet of the pilot, and then remove the sensing lines by unscrewing the connectors. In sequence, disassemble starting with the actuator, main diaphragm and trim assembly. Look for worn out parts and replace them.

1. Balanced Sleeve Maintenance
    1. Loosen up the nuts (key 34) and screws (key 38). Take out the piston (key 15), plates (keys 22 and 26) and the sleeve (key 42).
    2. Clean up any dirt.
    3. Check if O-rings (keys 23, 27, 40, and 41) are worn out or damaged. Replace if necessary.
    4. Lubricate all sealing surface with grease and assemble them carefully. Start assembling with the parts last removed during the disassembly. Ensure movable parts can move freely. Check on the rest of the parts of the regulator to ensure that they are in good working condition. Change the worn out parts.

       Note: When setting up the balanced sleeve, ensure that the distance (M) between the nut and the connector is more than 2 mm (0.08-inch).

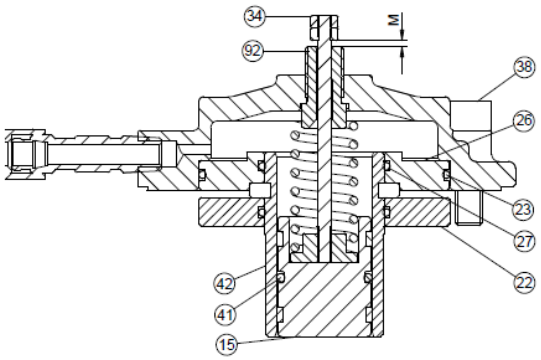


Figure 5. *Type NH Balanced Sleeve Assembly*

2. Balanced Trim Maintenance
    1. Loosen up the orifice (key 5) and check if it is damaged. Clean the orifice if necessary.
    2. Loosen up the screw (key 3). Take out the disk (key 59) and the rubber plate (key 60). Check the rubber plates for wear or damage. Replace parts if necessary.
    3. Check on O-rings (keys 4, 6, 11, 51, 55, and 56). Change damaged O-rings.
    4. Assemble the parts carefully. Start assembling with the parts last removed during the disassembly. Ensure movable parts can move freely.

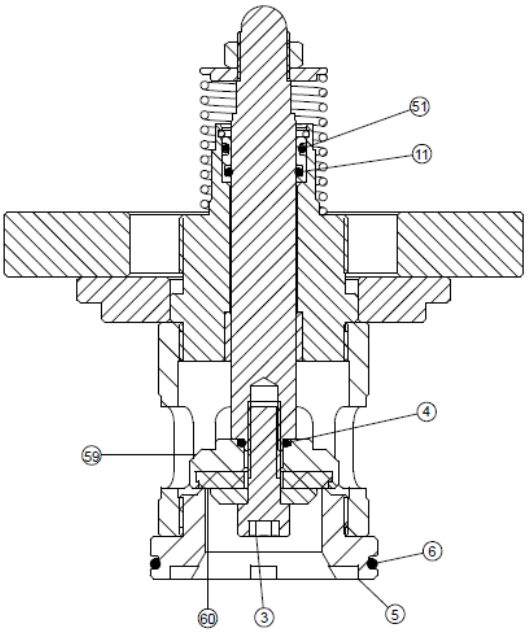


Figure 6. *Type NH Balanced Trim Assembly*

3. Pilot Maintenance

1. Loosen up the screw (key 94) and remove the whole pilot.
2. Loosen up the screw (key 78) and check on the diaphragm (key 63). If damaged or have aged, change the diaphragm.
3. Check on the condition of the O-rings (keys 4 and 74). Change damaged O-rings.
4. Assemble the parts carefully. Start assembling with the parts last removed during the disassembly. Ensure movable parts can move freely.

4. Troubleshooting

PROBLEM	POSSIBLE CAUSES	POSSIBLE CORRECTIVE MEASURES
There is no gas flow through the regulator.	Slam shut valve is closed. Inlet and outlet pressures are too low for regulator to open. The main diaphragm of the regulator is Worn out. The pilot diaphragm is worn out.	Reposition the slam-shut reset button. Raise the inlet pressure. Replace the diaphragm.
The outlet pressure of the regulator drops.	The actual gas flow exceeds the designed capacity of the regulator. The filter is clogged, causing drop in the inlet pressure. The contaminants build up within the regulator body.	Choose the right regulator. Clean or replace the Dry filter. Inspect and clean the regulator trim parts.
The lock-up pressure increases.	The plug in the control pilot leaks. The orifice seat may have deformed, lost its efficacy, or there may be presence of dirt. The o-rings that seal the plug and piston are damaged. The o-ring at the orifice or the rubber plate is damaged. Debris build up at orifice or the orifice is damaged.	Check the control pilot and replace the parts that are worn out. Replace the orifice and the elastomer seat. Replace the o-ring. Replace the o-ring or the rubber. Clean or change orifice.
The regulator response time is slow.	The movable parts within the regulator are malfunctioning.	Service and clean the regulator. Change the damaged or deformed parts.
Outlet pressure is unstable or fluctuating.	The flow is too low or the inlet pressure is very high.	If the inlet pressure is very high, take corrective action.

10. Parts Ordering

When ordering replacement parts, reference the part number of each needed part as found in the following parts list.

Spare Parts Kits for Type NH with JP40 Series Pilot
(Included keys are 4, 6, 11, 12, 23, 27, 29, 40, 41, 48, 51, 55, 56, 60, 63, 66, 68, and 74)

DESCRIPTION	PART NUMBER
DN 50 / 2 In., PN 16 RF with JP40	JJJJ23BX053
DN 50/2 In., PN 16 RF with JP40-P	ERAA51768A0
DN 50 / 2 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40	JJJJ23BX054
DN 50 / 2 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40-P	ERAA51769A0
DN 80 / 3 In., PN 16 RF with JP40	JJJJ24BX053
DN 80 / 3 In., PN 16 RF with JP40-P	ERAA51770A0
DN 80 / 3 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40	JJJJ24BX054
DN 80 / 3 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40-P	ERAA51771A0
DN 100 / 4 In., PN 16 RF with JP40	JJJJ25BX053
DN 100 / 4 In., PN 16 RF with JP40-P	ERAA51772A0
DN 100 / 4 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40	JJJJ25BX054
DN 100 / 4 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40-P	ERAA51773A0
DN 150 / 6 In., PN 16 RF with JP40	JJJJ26BX051
DN 150 / 6 In., PN 16 RF with JP40-P	ERAA51774A0
DN 150 / 6 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40	ERAA51775A0
DN 150 / 6 In., PN 25/40 RF, CL150 RF, CL300 RF with JP40-P	ERAA51776A0

KEY	DESCRIPTION	PART NUMBER
1	Valve Body	
	DN 50 / 2 In.	
	PN 16 Flange	JJJJ23CX248
	PN 25/40 Flange	JJJJ23CX202
	CL150 RF	JJJJ23CX250
	CL300 RF	JJJJ23CX251
	DN 80 / 3 In.	
	PN 16 Flange	JJJJ24CX104
	PN 25/40 Flange	JJJJ24CX103
	CL150 RF	JJJJ24CX150
	CL300 RF	JJJJ24CX151
	DN 100 / 4 In.	
	PN 16 Flange	JJJJ25CX104
	PN 25/40 Flange	JJJJ25CX202
	CL150 RF	JJJJ25CX150
	CL300 RF	JJJJ25CX151
	DN 150 / 6 In.	
	PN 16 Flange	JJJJ26CX043
	PN 25/40 Flange	JJJJ26CX035
	CL150 RF	JJJJ26CX040
	CL300 RF	JJJJ26CX050

KEY	DESCRIPTION	PART NUMBER
2	Plate	
	DN 50 / 2 In.	JJJJ23CX212
	DN 80 / 3 In.	JJJJ24CX212
	DN 100 / 4 In.	JJJJ25CX212
	DN 150 / 6 In.	JJJJ26CX010
3	Screw	
	DN 50 and 80 / 2 and 3 In.	JJJI3810030
	DN 100 and 150 / 4 and 6 In.	JJJI3810035
4*	O-ring	JI311240016
5	Orifice	
	DN 50 / 2 In.	JJJJ23CX208
	DN 80 / 3 In.	JJJJ24CX208
	DN 100 / 4 In.	JJJJ25CX208
	DN 150 / 6 In.	JJJJ26CX209
6*	O-ring	
	DN 50 / 2 In.	JI311310070
	DN 80 / 3 In.	JI311310090
	DN 100 / 4 In.	JI311310110
	DN 150 / 6 In.	JI311310130
7	Silencer	
	DN 50 / 2 In.	ERAA47625A0
	DN 80 / 3 In.	ERAA47626A0
	DN 100 / 4 In.	ERAA47627A0
	DN 150 / 6 In.	ERAA47628A0
8	Stem	
	DN 50 / 2 In.	JJJJ23CX210
	DN 80 / 3 In.	JJJJ24CX210
	DN 100 / 4 In.	JJJJ25CX210
	DN 150 / 6 In.	JJJJ26CX012
9	Connector	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX213
	DN 150 / 6 In.	JJJJ26CX013
10	Plate	
	DN 50 / 2 In.	JJJJ23CX206
	DN 80 / 3 In.	JJJJ24CX206
	DN 100 / 4 In.	JJJJ25CX206
	DN 150 / 6 In.	JJJJ26CX007
11*	O-ring	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JI311240024
	DN 150 / 6 In.	JI311240026
12*	Bushing	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX215
	DN 150 / 6 In.	JJJJ26CX016
13	Circlip for Hole	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJI6700026
	DN 150 / 6 In.	JJJI6500032
14	Spring	
	DN 50, 80 and 100 / 2, 3 AND 4 In.	JJJJ85CXT02
	DN 150 / 6 In.	JJJJ26CXT02

*Recommended spare part

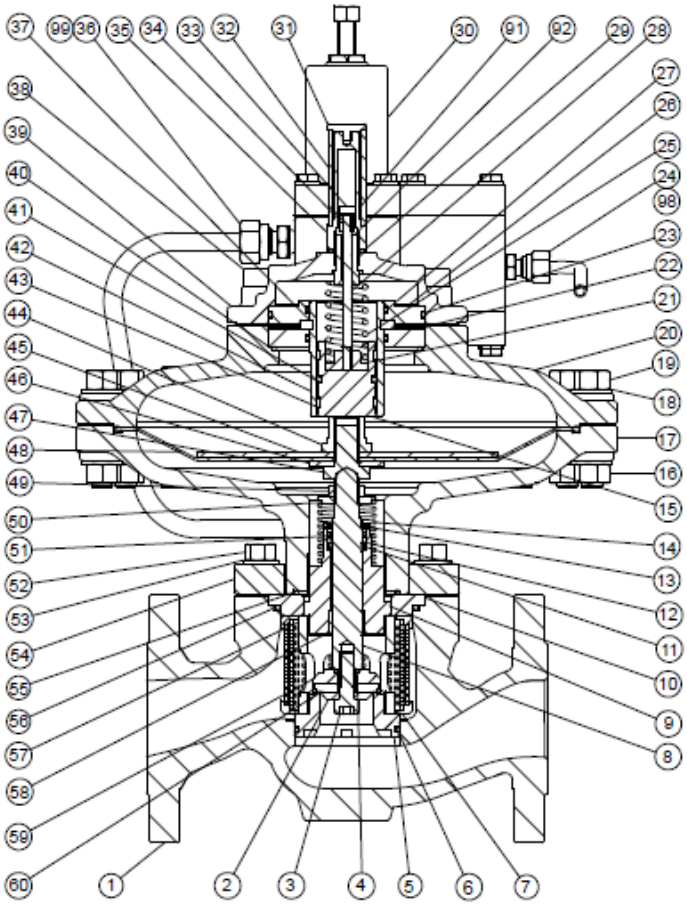


Figure 7. *NH Main Valve Assembly*

KEY	DESCRIPTION	PART NUMBER
15	Piston	
	DN 50 / 2 In.	JJJJ23CX237
	DN 80 / 3 In.	JJJJ24CX237
	DN 100 / 4 In.	JJJJ25CX237
	DN 150 / 6 In.	JJJJ26CX037
16	Nut	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ48000M8
	DN 150 / 6-inch	JJJJ4800M12
	For P1 > 16 bar / 232 psig	
	DN 50, 80,100 and 150 / 2, 3, 4 and 6 In.	JJJJ4800M14
17	Lower Casing	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23BX208
	DN 150 / 6 In.	JJJJ26BX002
	For P1 > 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX232
	DN 150 / 6 In.	JJJJ26BX003
18	Washer	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ6100008
	DN 150 / 6 In.	JJJJ6100012
	For P1 > 16 bar / 232 psig	
	DN 50, 80, 100 and 150 / 2, 3, 4 and 6 In.	JJJJ6100014

KEY	DESCRIPTION	PART NUMBER
19	Screw	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ0608030
	DN 150 / 6 In.	JJJJ0612040
	For P1 > 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ0314065
	DN 150 / 6 In.	JJJJ0314055
20	Upper Casing	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23BX206
	DN 150 / 6 In.	JJJJ26BX005
	For P1 > 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX231
	DN 150 / 6 In.	JJJJ26BX006
21	Spring Seat	
	DN 50 / 2 In.	JJJJ23CX239
	DN 80 / 3 In.	JJJJ24CX239
	DN 100 / 4 In.	JJJJ25CX239
	DN 150 / 6 In.	JJJJ26CX031
22	Plate (For DN 50, 80 and 150 / 2, 3 and 6 In. body sizes only)	
	DN 50 / 2 In.	JJJJ23CX236
	DN 80 / 3 In.	JJJJ24CX236
	DN 150 / 6 In.	JJJJ26CX028

*Recommended spare part

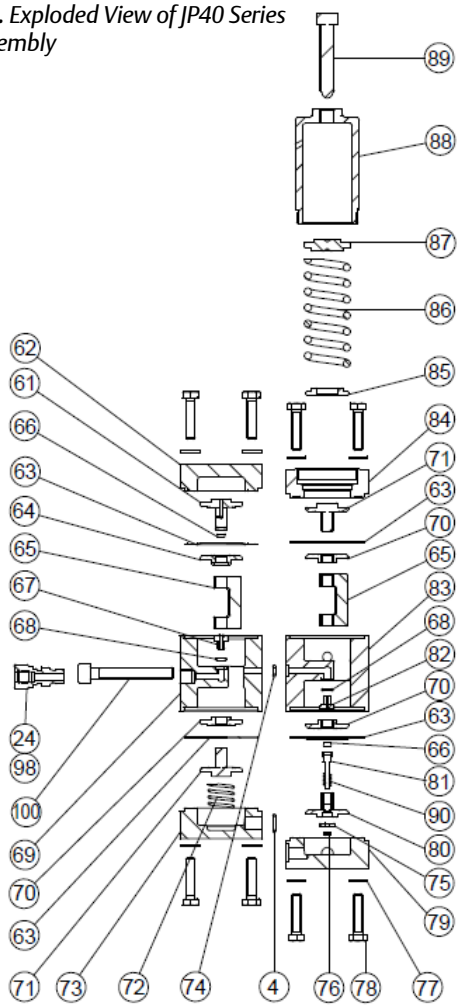
NH Pressure Reducing Regulator

KEY	DESCRIPTION	PART NUMBER
23*	O-ring	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JI311310105
	DN 150 / 6 In.	JI311310155
24	Connector	JJJI9108M12
25	Spring	
	DN 50 / 2 In.	JJJJ23CXT21
	DN 80 / 3 In.	JJJJ25CXT21
	DN 100 / 4 In.	JJJJ25CXT21
	DN 150 / 6 In.	JJJJ26CXT01
26	Plate	
	DN 50 / 2 In.	JJJJ23CX238
	DN 80 / 3 In.	JJJJ24CX238
	DN 100 / 4 In.	JJJJ25CX236
	DN 150 / 6 In.	ERAA51823A0
27	O-ring	
	DN 50 / 2 In.	JI311310055
	DN 80 / 3 In.	JI311310080
	DN 100 / 4 In.	JI311310095
	DN 150 / 6 In.	JI311310095
28	Shaft	
	DN 50 / 2 In.	JJJJ23CX240
	DN 80 and 100 / 3 and 4 In.	JJJJ24CX240
	DN 150 / 6 In.	JJJJ26CX030
29*	O-ring	JI311240024
30	Type JP40 Pilot	JJJJ23BX301
31	Cover	JJJJ23CX246
32	Pipe	JJJJ23CX245
33	Magnet	JJJK9900001
34	Nut	JJJI46000M6
35	Casing	JJJJ23CX244
36	Connector	JJJI9112M16
37	Ring (For DN 50 and 80 / 2 and 3 In. body sizes only)	
	DN 50 / 2 In.	JJJJ23CX242
	DN 80 / 3 In.	JJJJ24CX242
38	Screw	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJI3812040
	DN 150 / 6 In.	JJJI3814055
39	Cover	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	ERAA51520A0
	DN 150 / 6 In.	JJJJ26CX027
	For P1 > 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	ERAA51519A0
	DN 150 / 6 In.	JJJJ26CX027
40*	O-ring	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JI311310100
	DN 150 / 6 In.	JI311310150
41*	O-ring	
	DN 50 / 2 In.	JI311350040
	DN 80 / 3 In.	JI311570063
	DN 100 / 4 In.	JI311570080
	DN 150 / 6 In.	JI311570100

KEY	DESCRIPTION	PART NUMBER
42	Sleeve	
	DN 50 / 2 In.	JJJJ23CX233
	DN 80 / 3 In.	JJJJ24CX233
	DN 100 / 4 In.	JJJJ25CX223
	DN 150 / 6 In.	ERAA51822A0
43	Segment	
	DN 50 / 2 In.	JJJJ23CX238
	DN 80 / 3 In.	JJJJ24CX238
	DN 100 / 4 In.	JJJJ25CX236
	DN 150 / 6 In.	JJJJ26CX052
44	Nut	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX230
	DN 150 / 6 In.	JJJJ26CX025
45	Plate	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX228
	DN 150 / 6 In.	JJJJ26CX024
46	Plate	JJJJ23CX229
47	Screw	JJJJ23CX227
48*	Diaphragm	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	ERAA35936A0
	DN 150 / 6 In.	ERAA45329A0
	For P1 > 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	ERAA33646A0
	DN 150 / 6 In.	ERAA45328A0
49	Nut	JJJJ07CX016
50	Plate	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJJ23CX209
	DN 150 / 6 In.	JJJJ26CX014
51*	O-ring	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JI311240026
	DN 150 / 6 In.	JI311240028
52	Screw	
	DN 50 / 2 In.	JJJI0612035
	DN 80 / 3 In.	JJJI0616040
	DN 100 / 4 In.	JJJI0616040
	DN 150 / 6 In.	JJJI0620050
53	Washer	
	DN 50 / 2 In.	JJJI6100012
	DN 80 and 100 / 3 and 4 In.	JJJI6100016
	DN 150 / 6 In.	JJJI6100020
54	Plate	
	DN 50 / 2 In.	JJJJ23CX205
	DN 80 / 3 In.	JJJJ24CX205
	DN 100 / 4 In.	JJJJ25CX205
	DN 150 / 6 In.	
	For P1 ≤ 16 bar / 232 psig	JJJJ26CX005
	For P1 > 16 bar / 232 psig	JJJJ26CX006

*Recommended spare part

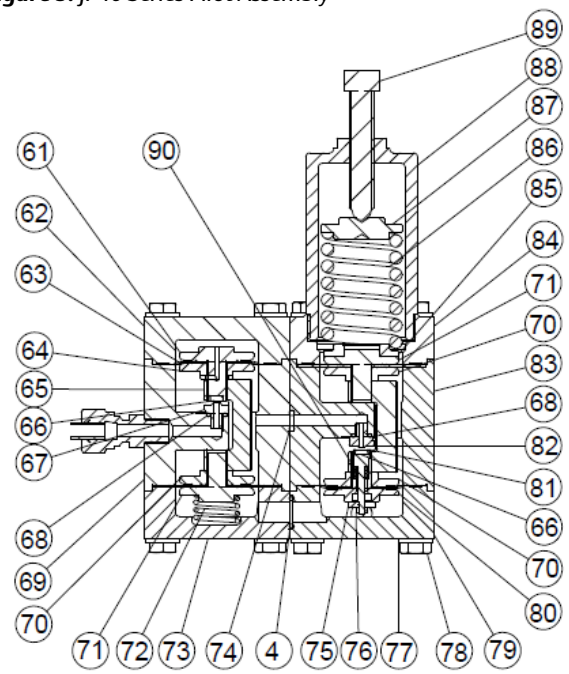
Figure 8. *Exploded View of JP40 Series Pilot Assembly*



KEY	DESCRIPTION	PART NUMBER
55*	O-ring DN 50, 80 and 100 / 2, 3 and 4 In. DN 150 / 6 In.	 JI311310070 JI311310090
56*	O-ring DN 50 / 2 In. DN 80 / 3 In. DN 100 / 4 In. DN 150 / 6 In.	 JI311310095 JI311310125 JI311310150 JI311570180
57	Support DN 50 / 2 In. DN 80 / 3 In. DN 100 / 4 In. DN 150 / 6 In.	 JJJJ23CX207 JJJJ24CX207 JJJJ25CX207 JJJJ26CX008
58	Bushing DN 50, 80 and 100 / 2, 3 and 4 In. DN 150 / 6 In.	 JJJJ23CX214 JJJJ26CX015
59	Disk DN 50 / 2 In. DN 80 / 3 In. DN 100 / 4 In. DN 150 / 6 In.	 JJJJ23CX211 JJJJ24CX211 JJJJ25CX211 JJJJ26CX011
60*	Rubber Plate DN 50 / 2 In. DN 80 / 3 In. DN 100 / 4 In. DN 150 / 6 In.	 ERAA44738A0 ERAA44740A0 ERAA44741A0 ERAA44742A0
61	Plate	JJJJ23CX307
62	Cover	JJJJ23CX301
63*	Diaphragm	ERAA30636A0
64	Plate	JJJJ23CX229
65	Connector	JJJJ23CX305
66*	Rubber Plate	JJJJ23CXM32
67	Orifice	JJJJ23CX303
68*	O-ring	JI311190010
69	Casing	JJJJ23CX302
70	Plate	JJJJ23CX322
71	Plate	JJJJ23CX309
72	Spring	JJJJ23CXT31
73	Cover	JJJJ23CX306
74*	O-ring	JI321265005
75	Plate	JJJJ23CX321
76	Nut	JJJI48000M3
77	Washer	JJJI6100008
78	Screw	JJJI0608035
79	Cover	JJJJ23CX318
80	Screw	JJJJ23CX320
81	Stem	JJJJ23CX319
82	Orifice	JJJJ23CX337
83	Casing	JJJJ23CX317
84	Cover	JJJJ23CX316
85	Spring Seat For springs with wire diameter of 4.0, 4.5 and 5.5.mm / 0.157, 0.177 and 0.197 In. For springs with wire diameter of 6.5 mm / 0.256 In. For springs with wire diameter of 8.0 mm / 0.315 In.	 JJJJ23CX313 JJJJ23CX314 JJJJ23CX315
86	Pilot Spring For 3.0 to 10 bar / 43 to 362 psig pressure range For 6.0 to 16 bar / 87 to 232 psig pressure range For 12 to 25 bar / 174 to 362 psig pressure range For 0.6 to 3.0 bar / 8.7 to 43 psig pressure range For 2.0 to 4.0 bar / 29 to 58 psig pressure range	 JJJJ23CXT32 JJJJ23CXT33 JJJJ23CXT34 JJJJ23CXT35 JJJJ23CXT36

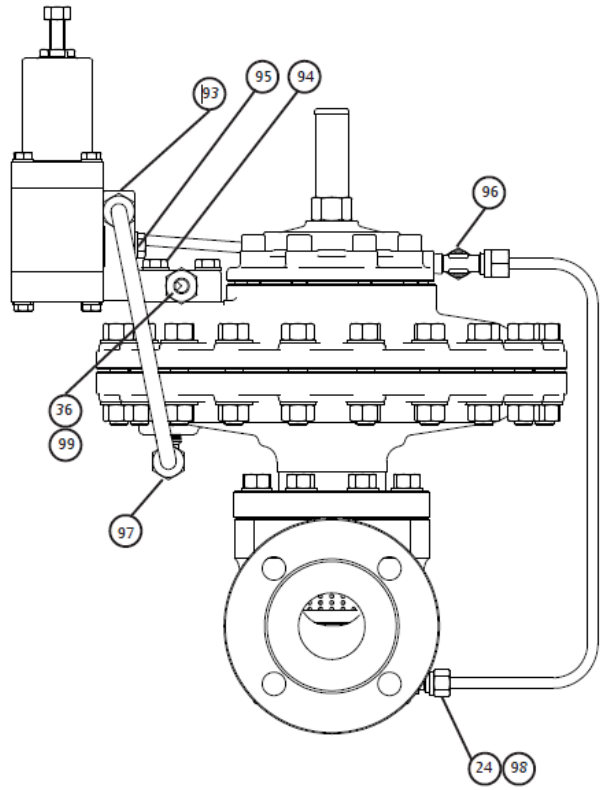
*Recommended spare part

Figure 9. *JP40 Series Pilot Assembly*



KEY	DESCRIPTION	PART NUMBER
87	Spring Seat	JJJJ23CX312
88	Spring Casing	JJJJ23CX311
89	Screw	JJJJ23CX310
90	Spring	JJJJ23CXT39
91	Position Ring	JJJJ23CX247
92	Connector	ERAA49806A0
93	Bracket	JJJJ23CX216
94	Screw	JJJI0610035
95	Washer	JJJI6100010
96	Joint	JJJI9608Z02
97	Joint	JJJI9412Z03
98	Washer	JJJK6000012
99	Washer	JJJK6000016
100	Screw	JJJI3910070
101	Cover	JJJJ23CX217

Figure 10. *External Assembly of Type NH Regulator with JP40 Series Pilot*



KEY	DESCRIPTION	PART NUMBER
102	Screw	
	For P1 ≤ 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJI0608035
	DN 150 / 6 In.	JJJI0612045
	For P1 > 16 bar / 232 psig	
	DN 50, 80 and 100 / 2, 3 and 4 In.	JJJI2714085
	DN 150 / 6 In.	JJJI2714075
103	Support	
	For DN 50, 80 and 100 / 2, 3 and 4 In.	
	P1 ≤ 16 bar / 232 psig	JJJJ23CX219
	P1 > 16 bar / 232 psig	JJJJ23CX218
	For DN 150 / 6 In.	JJJJ26CX051
104	Joint	JJJI9408Z02
105	Joint	4500234
106	Joint	4500289
107	Joint	JJJI9408Z03
108	Joint	JJJG0200067
109	Joint	JJJI9210Z02
110	Joint	JJJI97N1003
111	Joint	JJJG0200056

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