

November 2021

# Spence™ Type NLD Free-Floating Lever Drainer



## WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result property damage and personal injury or death.

Type NLD Free-Floating Lever Drainer must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson instructions.

If the valve vents gas or a leak develops in the system, service to the unit may be required. Failure to correct issue could result in a hazardous condition.

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. Only a qualified person shall install or service the Type NLD Free-Floating Lever Drainer.

## Introduction

### Scope of the Manual

This manual provides instructions for the installation, troubleshooting, maintenance and setting of Type NLD Free-Floating Lever Drainer.



Figure 1. Type NLD Free-Floating Lever Drainer

## Product Description

Type NLD free-floating lever drainer is a float type design with all stainless steel components including, sealed body, seat and valve. It is available in NPS 3/4 x 1/2 / DN 20 x 15 connections.

## Principle of Operation

Type NLD removes liquids from a pressurized air/gas system. The float and lever-operated design provides instantaneous and automatic adjustment to variations in flow and pressure. As liquid enters the top of the drainer, it starts to lift the float up and open the valve. When the liquid is removed, it falls back down to close the valve. This cycle repeats as more liquid accumulates in the drainer.

# Type NLD

## Specifications

This section lists the specifications for the Type NLD. Factory specifications are stamped on the nameplate fastened on the drainer at the factory.

|   |   |
|---|---|
| <p><b>Available Configuration</b><br/>Type NLD: Free-float liquid drainer</p> <p><b>Body Size</b><br/>NPS 3/4 x 1/2 / DN 20 x 15</p> <p><b>End Connection Style</b><br/>NPT</p> <p><b>Orifice Size</b><br/>1/8, 3/32 and 5/64 in. / 3.18, 2.38 and 1.98 mm</p> <p><b>Maximum Operating Pressure<sup>(1)</sup></b><br/>See Table 1</p> | <p><b>Maximum Allowable Pressure<sup>(1)</sup></b><br/>400 psig / 27.6 bar</p> <p><b>Maximum Allowable Temperature<sup>(1)</sup></b><br/>500°F / 260°C</p> <p><b>Materials of Construction</b><br/><b>Body, Connectors, Float, Lever and Bracket Clip:</b> 304 Stainless steel<br/><b>Valve and Valve Seat:</b> Hardened chrome steel</p> <p><b>Applications</b><br/>Removes liquid from air or gas systems and storage</p> |
|---|---|

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.

**Table 1. Maximum Operating Pressure**

| ORIFICE SIZE |      | MAXIMUM OPERATING PRESSURE |      |
|--------------|------|----------------------------|------|
| In.          | mm   | psi                        | bar  |
| 1/8          | 3.18 | 175                        | 12.1 |
| 3/32         | 2.38 | 300                        | 20.7 |
| 5/64         | 1.98 | 400                        | 27.6 |

## Installation



### WARNING

Personal injury, property damage, equipment damage or leakage due to escaping steam or bursting of pressure containing parts may result if this drainer is over pressured or is installed where service conditions could exceed the limits given in the specifications or where conditions exceed any ratings of the adjacent piping or piping connections.

To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding those limits.

To avoid personal injury or property damage from sudden release of

pressure, isolate the drainer from the pressure system and release all pressure and steam before performing maintenance operations.



### CAUTION

Do not install Drainers with an open discharge where a malfunction could cause damage.

1. Properly locate Type NLD in the system.
2. Do not exceed the maximum allowable pressure and temperature noted on the label of the Type NLD body. Also, check to see if the liquid drainer has the proper maximum differential pressure for your particular application.
3. Locate Type NLD liquid drainer at the low points in air or gas service system, or on any gas storage or distribution system. Do not locate Type NLD below and close to the unit being drained or as directed by the equipment manufacturer.

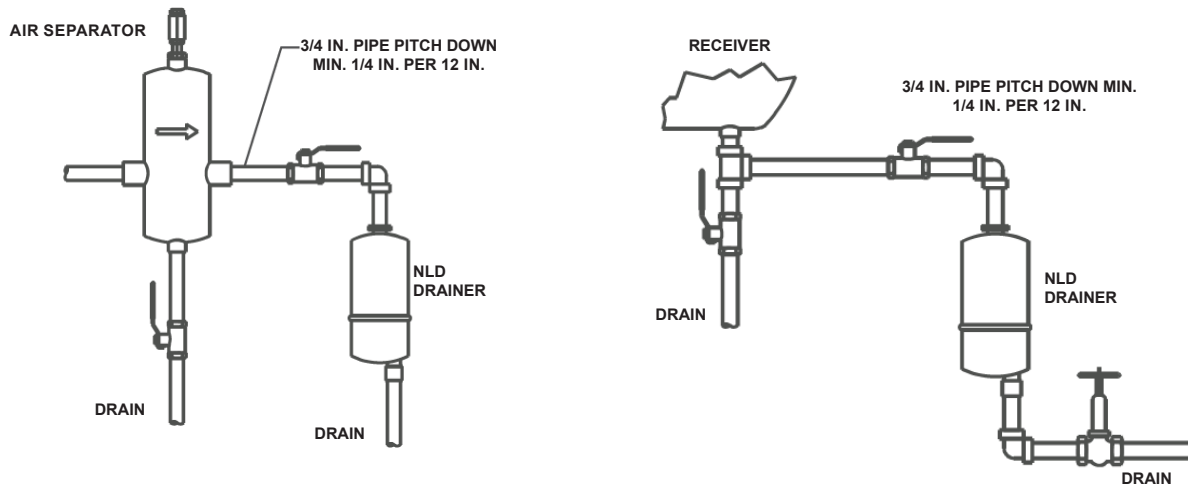


Figure 2. Spence Drainer NLD Series Typical Installation

4. Adhere to good piping practices. Before installing the Type NLD, clean by flushing out the lines to remove loose dirt. A strainer in the line leading to the liquid drainer is recommended for dirty systems. Use pipe dope or piping tape sparingly and on external threads only. Leave the end thread exposed to avoid introducing sealant into the system.
5. Make sure that the Type NLD is mounted in the proper direction with the flow arrow on the body of the valve pointing down. This will allow the float mechanism to work properly.
6. When tightening a pipe into either the inlet or the outlet fittings of a Type NLD, use only the hex-shaped fittings as wrenching surfaces. Do not use drainer body for a wrenching surface to screw the drainer into position.
7. The inlet and outlet piping should be the same size as the Type NLD's connections. Do not reduce the size of the inlet on light loads; however, smaller pipe or tubing may be used on the outlet. Keep the piping as short as possible, with a minimum of valves and fittings. If you are installing a liquid drainer without an equalizing connection, try not to use elbows in the inlet line from the equipment to the liquid drainer.
8. Install gate valves or full ported ball valves (DO NOT USE GLOBE VALVES) so the drainer can be isolated from the system to permit servicing. If the drainer is installed in a closed piping arrangement, install Uniflex Union pipe couplings in each side of the drain trap.

## Maintenance

### WARNING

**To avoid personal injury or property damage from sudden release of pressure, isolate the drainer from the pressure system before performing maintenance operations.**

The Type NLD is a maintenance-free valve, composed of corrosion resistant stainless steel components and tamper proof, sealed welded body which will resist freezing. No gaskets or adjustments are necessary.

1. Type NLD does not discharge:
  - a. Insufficient liquid coming to the drainer to permit discharge. Continue operation.
  - b. Type NLD becomes filled with dirt or sludge – install strainer on inlet side, remove Type NLD from service, and replace with a new Type NLD.
  - c. Differential pressure across Type NLD is too high – check inlet and outlet pressure. If the difference exceeds the maximum pressure stamped on the Type NLD, the drainer will remain closed. Reduce the differential pressure if possible, or install properly sized Type NLD.
  - d. Dirt or scale develops on valve or seat – install strainer on inlet side, remove Type NLD from service, and replace with a new Type NLD.

# Type NLD

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2. Type NLD discharges continuously:
- a. Drainer was sized too small for this application. Replace with a new correctly sized Type NLD.
  - b. Abnormal amounts of liquid coming through Type NLD – replace with a new Type NLD that has a larger capacity and will handle peak loads.
  - c. Worn valve or seat – as the seat becomes worn, the seating area enlarges. Remove the valve from the service and replace with new Type NLD.
  - d. Inlet or outlet line valves closed – open valves.
  - e. Strainer clogged – clean strainer screen.
  - f. Collapsed float – replace with a new Type NLD.

## Parts Ordering

Type NLD is maintenance-free valve, when ordering replacement, contact your local Sales Office.

 [SpenceValve.com](https://www.SpenceValve.com)

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