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IDMHDV-120

Lever Operated Diaphragm Valve

User Manual

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Thank you for purchasing the IDMHDV-120 Lever Operated Diaphragm Valve.

For optimum performance and results, please read this manual carefully. Ensure that all operators and personnel are adequately trained for use with this product.

This document is based on information available and correct at the time of publication. The statements, technical information and recommendations contained herein are based on knowledge we believe to be reliable but they are not to be construed in any manner as warrantees expressed or implied. The user shall determine the suitability of the product for his intended use and the user assumes all risk and liability whatsoever in connection therewith.

For any queries regarding this product, please contact Intertronics directly.

Table of Contents

Note: Throughout this manual, numbers denoted in brackets refer to the corresponding parts labelled in Diagram #IDMHDV-120

Theory of Operation

The IDMHDV-120 is an all-plastic handheld dispense valve that uses a unique "floating diaphragm" design. This valve is designed with a wand-style body to make it ergonomic for a variety of handheld applications. The all-plastic construction allows adhesives such as cyanoacrylates and anaerobic materials to be dispensed through the valve along with a variety of other low to medium viscosity fluids. Applications can include potting and the dispensing of dots and beads.

The IDMHDV-120 body comprises:

1) Piston and lever section (aluminium top cap with spring loaded lever)
2) Fluid section (acetal body with PTFE diaphragm and polyethylene luer adapter)

The diaphragm is clamped in between the piston and lever section and fluid section, separating the two sections. The piston and lever section is an aluminium top cap that houses a spring-loaded piston, which presses against the diaphragm to keep the valve in the closed position. When the lever is depressed, it will raise the piston off the diaphragm allowing it to float upward to dispense fluid through the wand-style body to the dispense tip.

Wetted parts on the IDMHDV-120 include:

- Acetal
- PTFE
- Polyethylene

Safety

Due to material contents being under pressure, eye protection is recommended for operators. Refer to the SDS for the material being dispensed for other precautions.

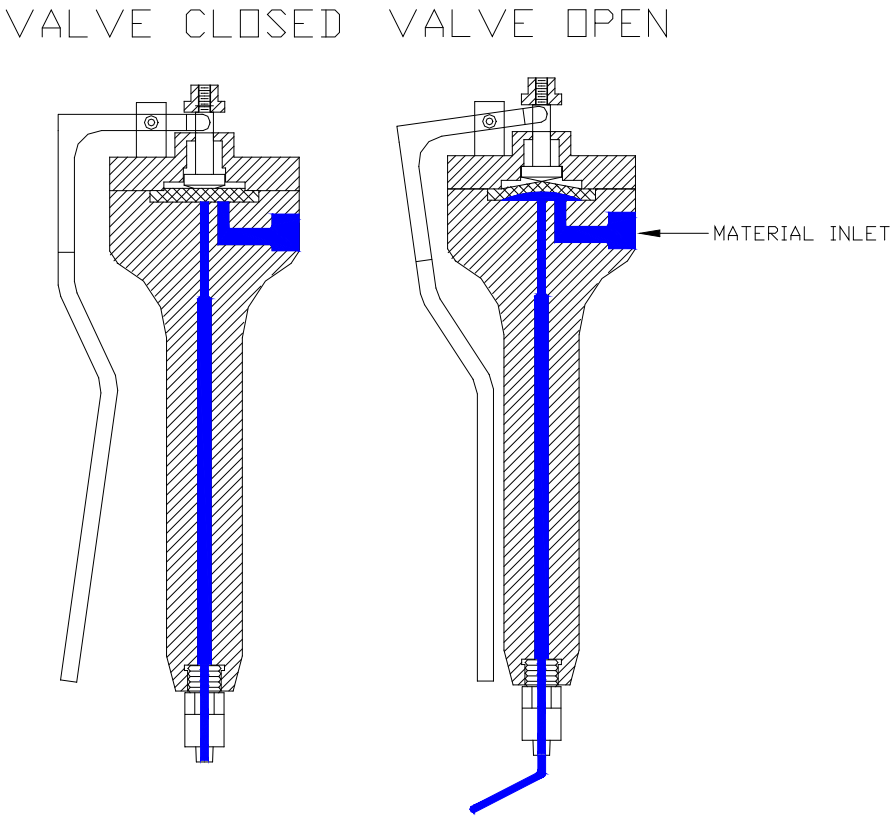
Set Up

The IDMHDV-120 does not require an air source for actuation, but relies only on the operator to depress a lever to actuate the valve. Constant material pressure is applied to the diaphragm of the valve, which is held in place with the spring-loaded piston. When the lever of the valve is depressed, the plunger lifts off the diaphragm and fluid is allowed to dispense. When the lever is released, the spring will again force the plunger into the diaphragm to return the valve to the closed position. Note that the valve is normally in the closed position.

Fluid is supplied to the IDMHDV-120 through the 1/8" NPT port located on the acetal fluid section of the valve.

Diaphragm Actuation

When the lever is depressed to lift the plunger, the diaphragm will flex under fluid pressure to allow the valve to open and dispense.

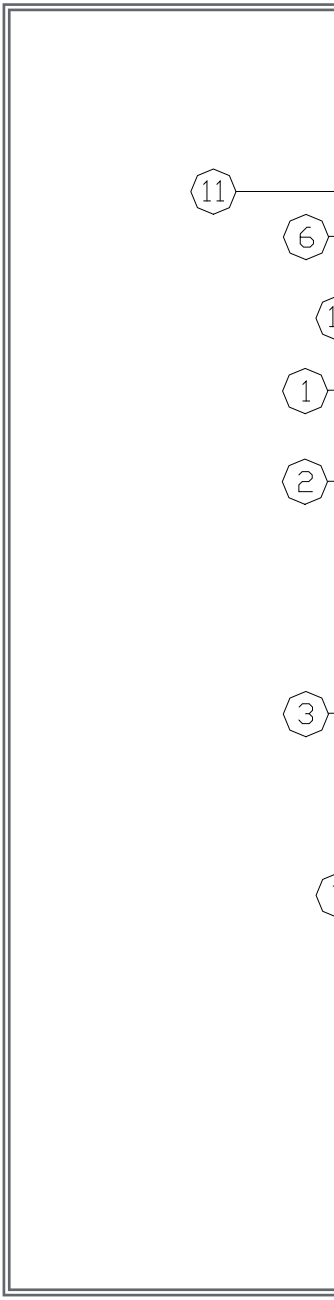


Starting Up the Valve

At the beginning of the day or a shift, set up the IDMHDV-120 to resume normal operation.

1) Remove the luer lock tip cap from the luer lock adapter (9) and discard.
2) Place a new dispense tip onto the luer lock adapter (9).
3) Apply fluid pressure to the valve by turning on the pressure to the fluid reservoir.
4) Cycle the valve to the open position to bleed air that may have become trapped.

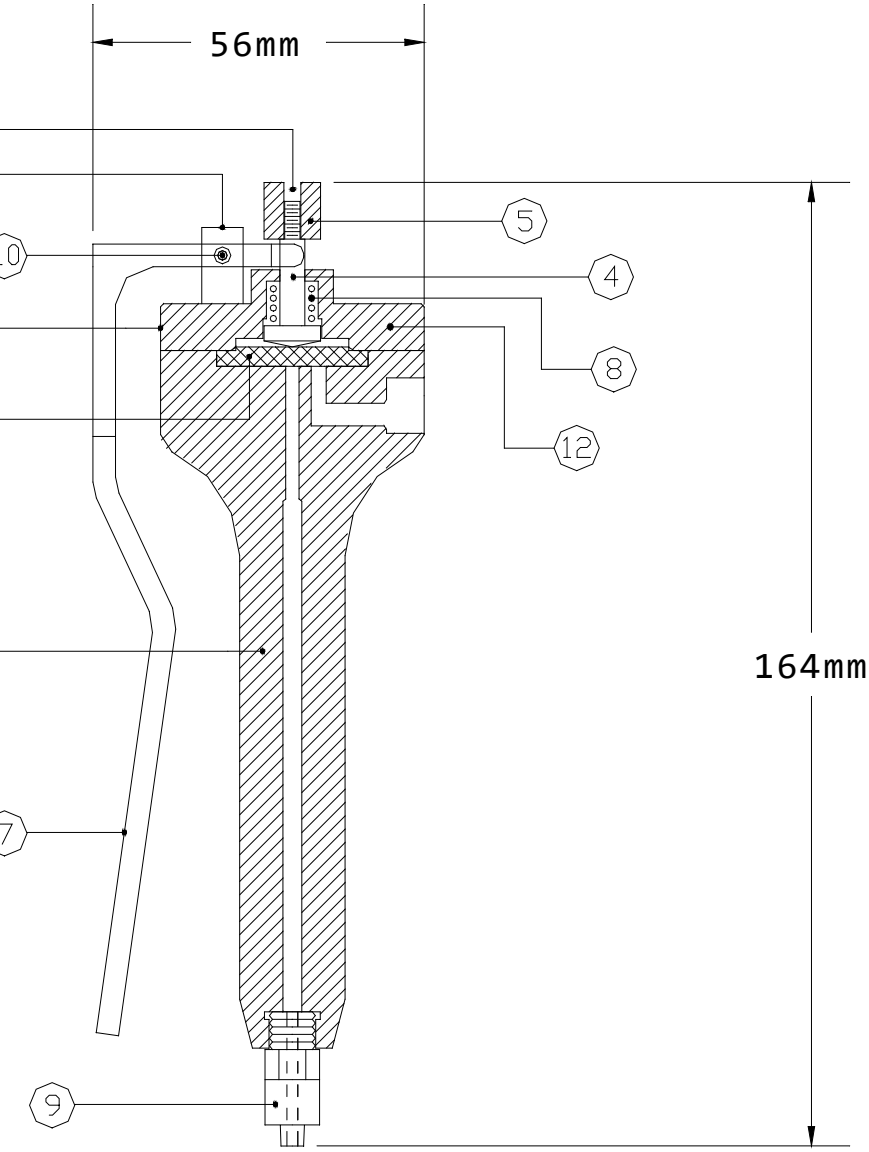
Diagram #IDMHDV-120



Note: Throughout this manual, numbers denoted in brackets refer to the corresponding parts labelled in Diagram IDMHDV-120

Item	Description	Part Number	Qty
1	Valve Top Cap	IDMHDV-120-V351	1
2	Diaphragm*	IDMHDV-120-V323	1
3	Fluid Section	IDMHDV-120-V333-NPT	1
4	Plunger, stainless steel	IDMHDV-120-214-14855	1
5	Stroke Adjust Nut	IDMHDV-120-V348	1
6	Standoff	IDMHDV-120-V352	2
7	Handle	IDMHDV-120-614-5898-1	1
8	Spring	IDMHDV-120-V059	1
9	Plastic Luer Adapter*	IDMHDV-120-V300-UV	1
10	Dowel Pin	IDMHDV-120-V061	1
11	Set Screw	IDMHDV-120-V060	3
12	Socket Head Cap Screw	IDMHDV-120-SH8-32X0.5	4

* These parts are included in the **IDMHDV-120-SP Spare Parts Kit** (10 x Diaphragm (IDMHDV-120-V323), 1 x Plastic Luer adapter (IDMHDV-120-V300-UV)). Contact Intertronics to order.


56mm
5
4
8
12
164mm
7
9

Shutting Down the Valve

At the end of the day or shift, shut down the IDMHDV-120 dispense system in order to keep material from curing inside the valve.

1) Remove the disposable dispense tip from the luer adapter (9) and discard.
2) Thread a luer lock tip cap onto the luer adapter (9)
3) Relieve fluid pressure on the valve by turning off air pressure from the fluid reservoir.

Operation

1) Set up the valve as outlined in **Starting up the Valve** (page 3).
2) Be sure the valve is not aimed toward anyone. Pressurise the fluid delivery system. Note: The fluid pressure must be set to a minimum of 15psi to flex the diaphragm to the open position.
3) Cycle the valve to the open position by depressing the lever (7) to purge. Fluid should begin to dispense from the tip of the valve. Continue dispensing until all air is removed.
4) Check fluid connection for leaks. If the valve is leaking or dripping, refer to the **Troubleshooting** section (page 9).
5) Fine-tune the flow rate with the stroke adjustment nut (5). First loosen the set screw (11) with a .050" Allen® key then turn the stroke adjustment clockwise to increase flow and counter-clockwise to decrease the flow rate. If the stroke is loosened too far out, the valve will not open.
6) Once the stroke adjustment setting is determined, retighten the set screw (11) using a .050" Allen key.

Note: Refer to **Troubleshooting** section (page 9) for any problems.

Routine Cleaning: Disassembly

Cleaning and rebuilding the valve will be required from time to time. A **spare parts kit (IDMHDV-120-SP)** is available with all the normal wear parts included (10 x Diaphragm, 1 x Luer adapter). Contact Intertronics to order.

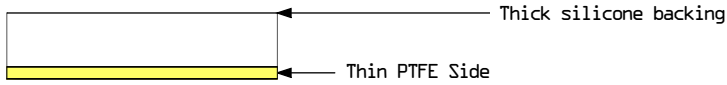
1) Flush the valve thoroughly with an appropriate solvent before disassembly. (Refer to SDS of fluid for suggested solvent).
2) Remove fluid pressure from the system, and then remove all fluid delivery fittings, hoses, etc. from the valve.
3) Using the tip of a 9/64" Allen key, remove the four machine screws (12) that hold the top cap (1) to the fluid section (3).
4) Lift off the top cap assembly and remove diaphragm (2).
5) Using a spanner, unthread and remove the plastic luer adapter (9) from the fluid section (3).
6) Clean all of the wetted parts thoroughly with an appropriate solvent.
7) Using a .050" Allen key, unthread and remove the set screw (11) that threads into the stroke adjustment nut (3).

8) Unthread and remove the stroke adjustment nut (3) from the piston (4) which will allow the piston and spring (8) to slide out through the bottom of the top cap (1).
9) Using a .050" Allen key, unthread and remove the two set screws (11) that thread into the standoffs (6).
10) Slide the dowel pin (10) out of the standoffs (6) and lever (7) to separate them from the top cap (1).

Replace components with spares provided in the spare parts kit, if necessary.

Reassembling the Valve

The diaphragm must be assembled into the valve with the PTFE side facing the fluid. Note: The PTFE side is the thinner, smooth side.



1) Slide the standoffs (6) through the bottom of the top cap (1) and rotate the threaded sides outward.
2) Place the lever (7) in between the standoffs (6) and insert the dowel pin (10) to hold in place.
3) Using a .050" Allen key, thread the two set screws (11) into the standoffs (6) to hold the dowel pin (10) in place but leave loose until the valve is assembled.
4) Place the spring (8) over the plunger (4) and insert the assembly through the bottom of the top cap (1) and through the cut-out in the lever (7).
5) Thread the stroke adjustment nut (5) onto the plunger (4) to hold the piston and lever assembly together.
6) Using a .050" Allen key thread the set screw (11) into the stroke adjustment (11).
7) Place the diaphragm (2) onto the groove of the fluid section (3) with the thin PTFE side down, against the fluid.
8) Mount the top cap (1) over the diaphragm (2) and assemble to the fluid section (3) using the four socket head cap screws (12), tightening them down evenly with a 9/64" Allen key.
9) Tighten the two set screws (11) that thread into the standoffs (6) using a .050" Allen key.
10) Thread the plastic luer adapter (9) into the bottom of the fluid section (3) and tighten using a spanner.

Note: Be sure not to over-tighten the luer adapter (4).

Troubleshooting

Problem	Possible Cause	Corrective Action
Valve does not cycle	• Fluid pressure too low • Worn diaphragm	• Increase fluid pressure above 15psi • Replace diaphragm
Material leaks from valve tip	• Worn diaphragm • Air bubble trapped in fluid body or in dispense needle	• Replace diaphragm • Flip valve upside down and cycle until air bubbles are removed
Valve does not dispense anything	• Fluid pressure is too low • Material cured in fluid section • Worn diaphragm	• Increase fluid pressure above 15psi • Disassemble and clean valve • Replace diaphragm
Air bubbles in fluid	• Valve not properly purged • Problem with fluid delivery system	• Flip valve upside down and cycle until air bubbles are removed • Diagnose and repair
Dispense rate too fast	• Fluid pressure set too high • Stroke adjustment set too high • Dispense tip gauge too large	• Decrease fluid pressure • Turn stroke adjust counter-clockwise • Replace dispense tip with smaller size
Dispense rate too slow	• Fluid pressure set too low • Stroke adjustment set too low • Dispense tip gauge too small	• Increase fluid pressure • Turn stroke adjust clockwise • Replace dispense tip with larger size

For assistance and enquiries, please contact one of our technical specialists:

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Version 1.3
August 2019

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