H L-O-X® Series
Hydraulic Lockout Valves

Operating Instructions

PRODUCT KEY IDENTIFICATION

HLOX	08	A	F	1	1	1	1	G	M	X	A*

Series

Port Size	
1/2	08
3/4	12
1-1/4	20

Port Thread/Type
SAE-ORB

Ball Pattern
X-Bore 90

Body Material
Carbon Steel

Ball & Spindle Material
Carbon Steel

Ball Seal Material
Delrin

O-Ring Material
Nitrile Rubber (Buna-N)

Pressure Measuring Device
Analog Gauge

Actuation
Manual

Limit Switch (OFF position)
None

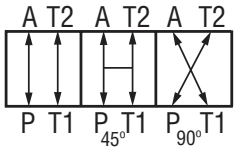
Revision Level

*Subject to change.

PRODUCT LABEL IDENTIFICATION

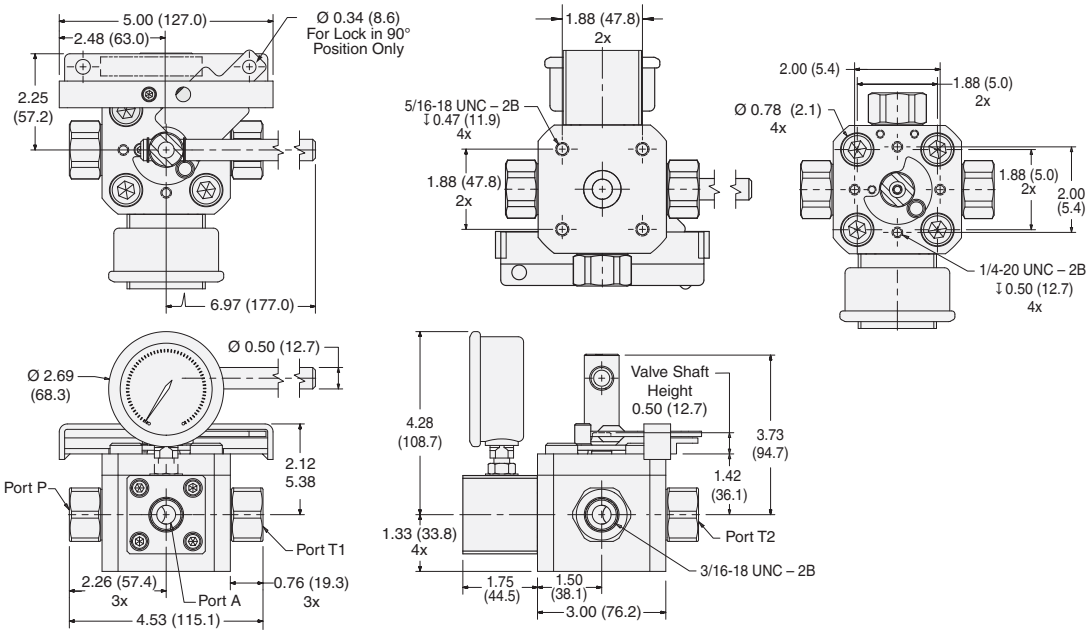
ROSS
HLOX08AF1111GMXA

VALVE SCHEMATIC



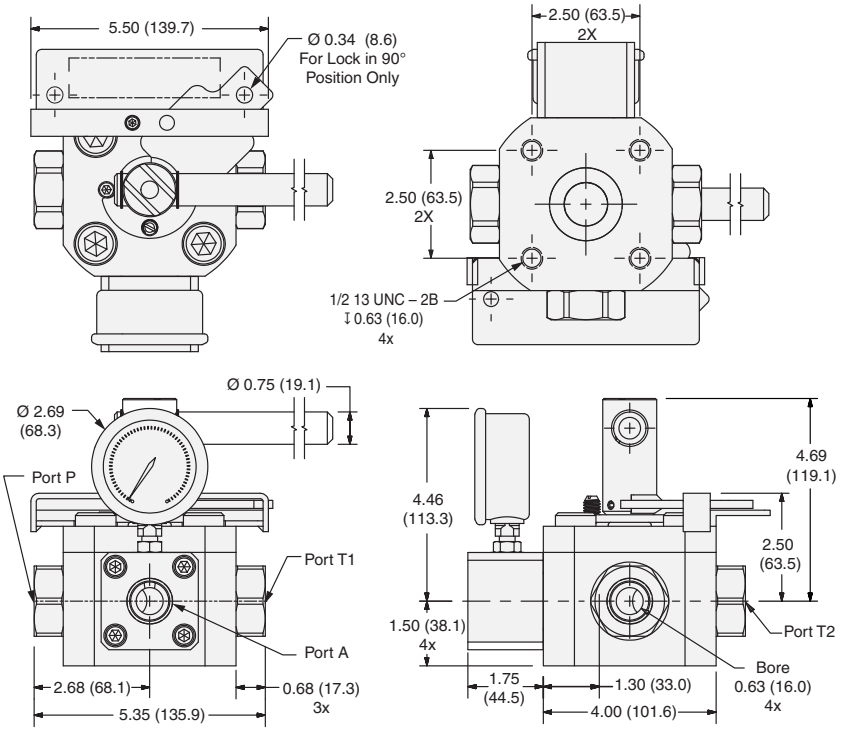
MOUNTING INFORMATION AND OVERALL DIMENSIONS (inches/mm)

Port Size 1/2

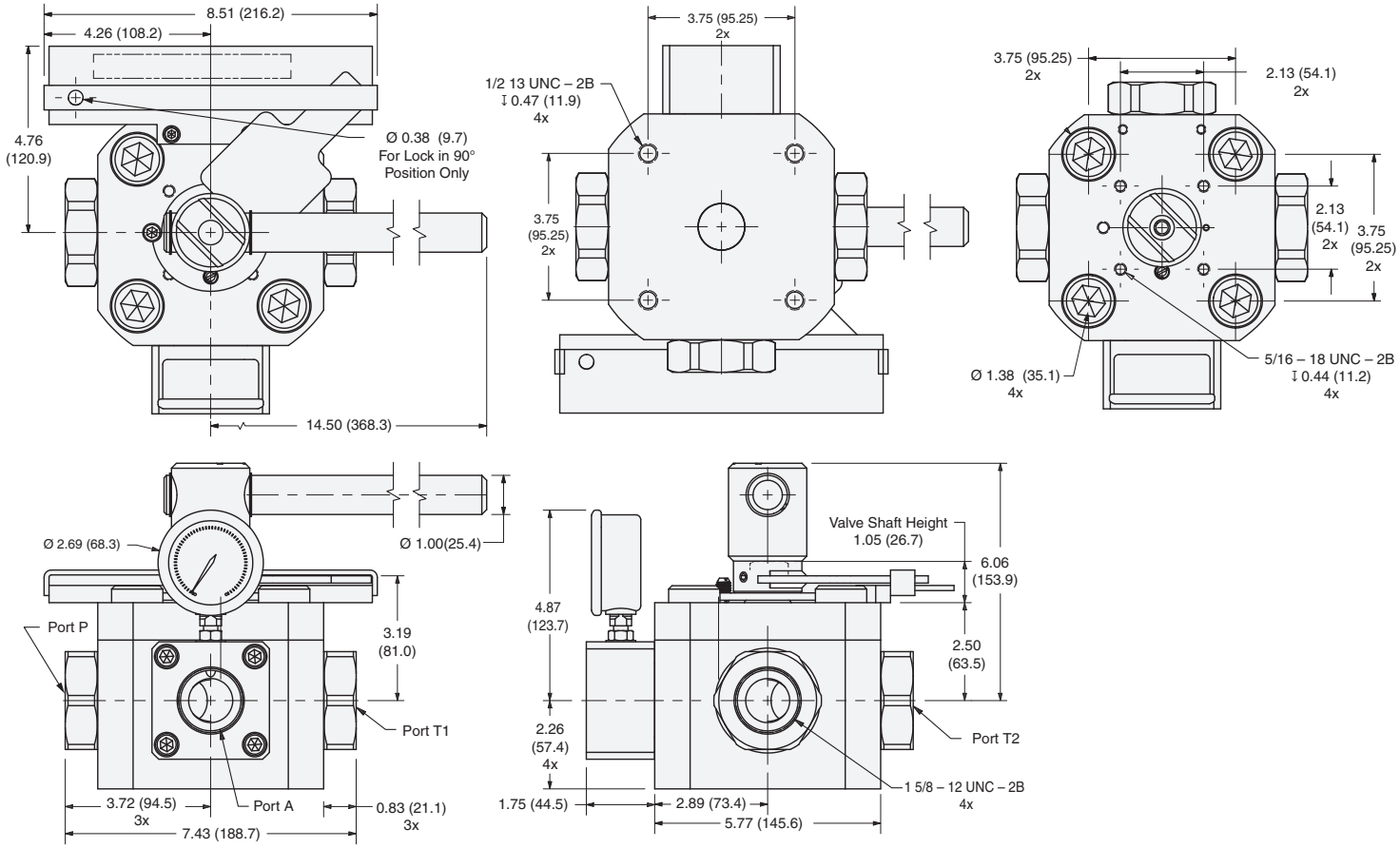


MOUNTING INFORMATION AND OVERALL DIMENSIONS (inches/mm)

Port Size 3/4



Body Size 1-1/4



1. About this Documentation

These instructions contain important information for the safe and appropriate assembly and commissioning of the product.

- ► Read these instructions all the way through, particularly section 6 “Notes on Safety,” before working with the product.

  For more information see last page for contact information, or visit www.rosscontrols.com.

- ► In addition, observe all applicable local and national regulations on accident prevention and on environmental protection.

1.1. Warning Notices in these Operating Instructions

In these operating instructions, warning notices precede sections with handling requirements which incur risks of personal injury or material damage. Warnings are structured as follows:

⚠ SIGNAL WORD
Type or source of hazard! Consequences ► Measures to avert danger

- **Warning triangle:** Indicates a risk of fatal or severe injuries.
- **Signal word:** Indicates the severity of the danger.
- **Type or source of hazard:** States the type of danger or the source of the hazard.
- **Consequences:** Describes possible consequences of ignoring the warning.
- **Measures to avert danger:** Indicates how to avoid the danger. It is essential that the measures to avert danger are complied with.

⚠ DANGER	Indicates an imminent and serious danger that will result in severe or even fatal injury if you fail to avoid it.
⚠ WARNING	Indicates a possible danger that could result in severe or even fatal injury if you fail to avoid it.
⚠ CAUTION	Indicates a danger that may result in minor to moderate injuries if you fail to avoid it.
ATTENTION	Indicates potential property damage that may be incurred by the product or its surroundings if you fail to avoid it.

2. Product Identification

The valve assembly is marked with Model Number, Revision level, and a serial number which can be used to identify date of manufacture and location. Please contact ROSS Controls for further information.

Product label identification & product key identification example, see page 2.

3. Prerequisites for Use of the Product

- ► Make these operating instructions available to the engineer and assembly technician of the machine/system in which the product will be used.
- ► Keep these operating instructions for the entire product life cycle.

3.1. Qualified Personnel

Assembly, installation, commissioning, maintenance, and decommissioning should only be carried out by qualified personnel that have the required knowledge of and experience in dealing with electrical and hydraulic control technology.

All work may be performed only by properly trained and qualified individuals who have been specifically instructed for the tasks assigned to them. The levels of responsibility of personnel are to be clearly delineated by the owner/operator. Protective clothing and gear is to be worn when performing all work. The relevant safety and accident prevention regulations are to be adhered to. Any special safety requirements specified in the documentation for the unit/system are to be complied with.

4. Package Contents

Items included:

- H L-O-X® Lockout Valve
- ROSS Information Sheet

5. Service, Repair, and Maintenance

- ► In case of technical problems or a required repair, please contact your local ROSS® representative.
- ► Checks should be conducted once a month to ensure valves are in functioning order.

5.1. Maintenance

⚠ WARNING
- All activities of maintenance must be conducted by competent and qualified staff - Always depressurize the relevant part of the system before any maintenance operation on the hydraulic system.

Supply Clean Oil. Foreign material lodging in valves is a major cause of breakdowns. The use of a 5-micron rated oil filter located close to the valve is strongly recommended

IMPORTANT NOTE:

To service downstream equipment, the handle of the H L-O-X® Valve must be turned counter-clockwise to cut off the oil supply. The valve should then be padlocked in this position to ensure that supply oil is not inadvertently turned on.

Valves Padlocked in Closed Position.

H L-O-X® Valves can only be padlocked in one location. Follow correct lockout procedure as prescribed by industry or your company’s lockout/tagout standards.

Observe the following general guidelines for the care and maintenance of the H L-O-X® Valve.

When/if a valve is replaced; a basic functional test should be performed (see 8.1 Test Procedure).

It is important that all the check-up operations, even if simple, are programmed and reported on specific maintenance program schedules.

Before the inspection, cleaning should be undertaken if necessary.

⚠ WARNING
- Always ensure cleanliness when working on the H L-O-X® Valve. - Do not perform maintenance with the equipment functioning! - Penetrating dirt and liquids will cause faults! - Safe function of the H L-O-X® valve is not ensured when operated with contaminated fluid. - Certain solvents and aggressive cleaning agents or detergents may damage the seals on the H L-O-X® valve and make them age faster. - Never use solvents or aggressive detergents as these can cause damage to the hydraulic system and seals! - The water pressure of a high-pressure cleaner can damage the seals of the H L-O-X® valve. - Do not use a high-pressure cleaner. - Pay attention to prevent detergent penetration into the H L-O-X® valve. - Check that all seals and connections are firmly fitted to prevent the penetration of detergents.

6. Notes on Safety

The product has been manufactured according to the accepted rules of current technology. There is risk of injury or damage if the following safety instructions and warnings given in this instruction manual are not observed.

6.1. Intended Use

The H L-O-X® Series Valves are safety components designed and manufactured in accordance with Machinery Directive 2006/42/EC.

H L-O-X® Valves can be installed in the main or a branch line of a hydraulic system.

H L-O-X® Valve: Turning the RED handle counter-clockwise cuts off the supply of oil to downstream components, and at the same time exhausts the oil in the downstream lines to the next obstruction.

The H L-O-X® valve is NOT an emergency stop device, but simply an energy isolation device. When the red operating handle is fully rotated clockwise, supply oil is again allowed to flow into the downstream lines.

Valve Inlet (Port P): Be sure that the supply line is of adequate size and does not restrict the oil supply.

Valve Outlet (Port A): For quick pressurizing and exhausting of downstream components, the downstream lines must be of adequate size and be free of crimps and sharp bends.

Valve Exhaust (Port T1 & T2): Do not restrict the oil flow from the exhaust port as this can adversely affect the speed with which downstream lines and components can be exhausted.

H L-O-X® Sensing Port: A pressure guage is installed on Port A to indicate that pressure is released.

Operating Pressures and Temperatures: Allowable ranges for pressure and temperatures are given in the Valve Specifications on page 2. Exceeding these values can shorten valve life.

IMPORTANT NOTE: To service downstream equipment, the handle of the H L-O-X® Valve must be turned counter-clockwise to cut off the oil supply. The valve should then be padlocked in this position to ensure that supply oil is not inadvertently turned on.

The unit cannot be used by itself. It is designed for installation in a machine. ROSS and its suppliers will assume no liability in the event that the system or parts thereof are not used in accordance with their designated use or if modifications are made in a non-authorized manner.

Any drawings, hydraulic or electric circuit diagrams, parts lists and acceptance certificates (inspection reports) supplied do not form a part of these operating instructions. They are supplied for the purpose of illustrating the unit or procuring parts.

6.1.1. Safety Function According to ISO 13849 and EN 692

The Machinery Directive has a dual objective: to permit the free movement of machinery within the internal market while ensuring a high level of protection of health and safety. A hydraulic valve system designed and specified as being capable of performing a safety function as well as normal production use is a “safety component” where other parts of the definition are met. However, a similar valve where the manufacturer markets it only for normal production use would not be considered a safety component.

6.1.2. Foreseeable Misuse

⚠ WARNING

Risk of Injury!
Misuse may result in injury or damage.
► The product must be used exclusively as intended.

Foreseeable misuse includes:

- Bypassing the safety function or diagnostics.
- Replacing the safety valves with unauthorized valves.
- Tampering with the position switches.
- Failing to utilize the position switches to verify valve operation on every cycle - when energizing and de-energizing.
- Allowing continued operation of the valve when one or both valve shifted signals (from position switches) are not confirmed.
- Operating at pressures above maximum operating pressure.

6.2. Responsibilities of the System Owner

Observation of general requirements pertaining to hazards:

- Unusual noises, vibration, defects or damage is to be remedied immediately as it may point to potential hazards.
- Generally speaking, no maintenance work may be done on the hydraulic system and power units as long as they are under hydraulic pressure or the power supply has not been switched off.
- Prior to performing any maintenance work, pressure accumulators are to be depressurized.
- The hydraulic system has to be depressurized at any time work is done on the gas side of an accumulator.
- Note the load pressures present. Also note any loads applied. If necessary, make sure that the loads are secured or properly supported.
- Hydraulic systems may only be operated by properly trained and instructed personnel.
- All safety devices and equipment are to be checked to see that they function properly.
- The setting of pressure relief valves featuring a tamper-resistant seal may not be changed.
- Safety devices and equipment may not be removed, deactivated or circumvented owing to the accident hazard posed by this action.
- General safety and accident prevention regulations pertaining to operating the unit/system are to be adhered to.
- Check the valve at least once a month to ensure its proper operation.
- Make sure that the fundamental and proven safety principles in accordance with ISO 13849 for implementation and operation of the component are complied with.
- Selection and installation of replacement valves must take place in accordance with the manufacturer’s specifications.

6.3. Safety Instructions

Reliable and safe operation cannot be ensured unless all the instructions, settings and output limits applicable to the unit supplied are adhered to.

The systems involved are pressure-generating systems whose components feature pressurized liquid; consequently, the systems may pose a hazard if not dealt with properly.

7. Assembly and Installation

⚠ CAUTIONS

Risk of injury due to installation while pressurized or with live parts!

Installation while pressurized or with electrical power switched on can result in injuries due to sudden pressure build-up or electric shock.

► Installation while pressurized or with electrical power switched on can result in injuries due to sudden pressure build-up or electric shock.
► De-energize and de-pressurize the relevant system parts before installing the valves.
► Secure the system to prevent it from being switched back on again.

ATTENTION

Destruction of components!

Chemical substances can damage the surface, the markings and the seals of the device.
► Install the valve such that it is protected against the effects of chemicals.

Damage to the device through storage at incorrect temperatures!

The storage temperature represents the permissible ambient temperature and depends on the type of valve in question.
► Observe the temperature information in chapter 10 “Technical Data.”

7.1. Installation Instructions

Pipe Installation: To install pipe in valve ports, engage pipe one turn, apply pipe thread sealant (tape not recommended), and tighten pipe. This procedure will prevent sealant from entering and contaminating the valve.

7.1.1. Component Inspection: Prior to use, a careful examination of the H L-O-X® valve must be performed. The H L-O-X® valve must be checked for correct style, size, catalog number and external condition, and must be examined for cleanliness, absence of external defects or gouges or otherwise deformed parts or other imperfections. DO NOT use any item that displays any signs of nonconformance. Any accessory including, but not limited to, flanges, fittings, bolt kits, must be subjected to the same examination.

7.1.2. Filtration: Fluid cleanliness is a necessity in any hydraulic system. Fluid filters need to be installed and maintained in the system to provide the required level of cleanliness. Filters can be placed in the inlets.

7.1.3. Accessory Ratings: All accessories used in combination with the selected or intended H L-O-X® valve must be used in accordance with the H L-O-X® specifications.

8. Commissioning and Operation

⚠ CAUTIONS

Damage to health due to loud noise!
Levels above 70 dB(A) may lead to damage to health!
- ▶ Always wear ear protectors when working on the product.

Before commissioning, the installation must be carefully inspected by a qualified, trained professional.

Make sure that the technical specifications match the operating criteria of the machine and/or the hydraulic system.

⚠ WARNING

Fully shift and lock valve to ensure proper function. Incomplete shifting or unlocking may cause failure.

Do Not Exceed the Maximum Service Pressure Stamped on the Side of Valve Body. Completely Relieve the Internal Pressures of both Upstream and Downstream Ports of the Valve BEFORE Attempting to Service or Remove the Valve.

8.1. Test Procedure for Valve Operation

VALVE OPEN

When the red handle is rotated clockwise (In-Line with the T1 Port) supply oil flows freely from inlet to outlet and flow to exhaust is blocked.

VALVE CLOSED

When the red handle is rotated counter-clockwise (In-Line with the T2 Port), the flow of oil is blocked and exhausted from Port P to Port T2, to tank and downstream oil is exhausted from Port A to Port Ta to tank. The H L-O-X® Valve should be padlocked in this position to prevent the handle from being rotated clockwise where potential for human injury exists.

8.2. Limitations Due to System Leakage

It is important to periodically test for leakage within the H L-O-X® valve and the system it controls, as any leak within the H L-O-X® valve itself, interconnecting hoses, connectors, cylinders or other actuators, or even other valves in the circuit may cause unexpected movement.

⚠ WARNING

If any leakage is discovered within the system, measures should be taken to eliminate the leak(s) as failing to do so could limit the ability of the safety system to safely stop motion when required.

⚠ WARNING

Continued operation of the system without periodic leakage inspections can lead to unexpected movement.

9. Disconnecting and Removal

⚠ CAUTIONS

Risk of injury due to installation while pressurized or with live parts!
- ▶ Disconnecting a hydraulic component while the system is pressurized or while electrical power is supplied can result in injury or death due to sudden pressure release, unexpected movement, or electric shock.
- ▶ Isolate and lock out the electrical and hydraulic systems before disconnecting the unit.

10. Technical Specifications

Construction Design	Ball	
Actuation	Manual 90° rotation	
Mounting	Type	In-line
	Orientation	Any, preferably horizontal
Connection (hydraulic)	Threaded Ports	SAE-ORB
Minimum Operation Frequency	Once per month, to ensure proper function	
Temperature Range (recommended)	Ambient	-4° to 160°F (-20° to 71°C)
	Media	-4° to 250°F (-20° to 121°C)
Flow Media	Hydraulic Fluids: Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VDMA 24568	
Max Fluid Contamination Level	ISO 4406 class 20/18/15 NAS 1638 class 9	
Flow	Size 1/2	10 GPM @ 5 psid
	Size 3/4	20 GPM @ 5 psid
	Size 1-1/4"	50 GPM @ 5 psid
Operating Pressure	6000 psi (413 bar) maximum	
Construction Material	Valve Body	Cast Steel
	Manifold	Ductile Iron
	Spool	Steel
	Seals	Nitrile Rubber (Buna-N)

11. Disposal

Dispose of the valve in accordance with the applicable statutory regulations in your country.

950 Woodward Heights, Ferndale, Michigan 48220 US

Global Locations

Americas	USA	**ROSS** CONTROLS	Tel: +1-248-764-1800	www.rosscontrols.com
	Canada	**ROSS** CANADA	Tel: +1-416-251-7677	www.rosscanada.com
	Brazil	**ROSS** BRASIL	Tel: +55-11-4335-2200	www.rosscontrols.com.br
Europe	Germany	**ROSS** EUROPA	Tel: +49 (0)6103-7597-100	www.rosseuropa.com
	France	**ROSS** FRANCE	Tel: +33-(0)1-49-45-65-65	www.rossfrance.com
	United Kingdom	**ROSS** UK	Tel: +44 (0)1254 872277	www.rossuk.co.uk
Asia & Pacific	India	**ROSS** CONTROLS INDIA	Tel: +91-44-2624-9040	www.rosscontrolsindia.com
	China	**ROSS** CONTROLS CHINA	Tel: +86-21-6915-7961	www.rosscontrolschina.com
	Japan	**ROSS** ASIA	Tel: +81-42-778-7251	www.rossasia.co.jp

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