

February 2009

INSTALLATION AND SERVICE MANUAL

SHUT-OFF VALVE

LVSO-202* Series	Solenoid operated, 14MPa
LVSH-20**	" " , 35MPa
HLS-20*G-*	" " , 70MPa
LVMH-20**	Lever operated, 35MPa
HLM-20*G-*	" " , 70MPa
LVPH-20**	Pilot operated, 35MPa
HLP-20*G-*	" " , 70MPa

FUJI ENGINEERING CO.,LTD.

Tokyo, Japan

(Factory: Ibaraki, Japan)

1. OVERVIEW

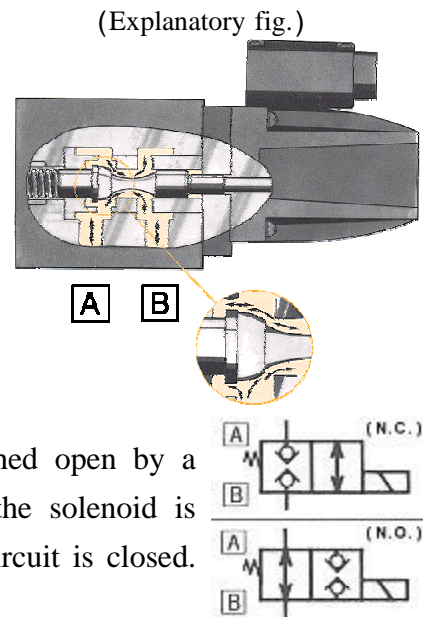
This valve is a "Shut-off Valve" of the "No Leakage", operated by electric power. This valve fits all types of oil hydraulic equipment that requires complete halt of cylinder or pressure holding, since this valve perfectly shuts the oil flow in the circuit. There is no restriction on the flow direction.

2. WORKING PRINCIPLE

This valve can be operated in either directions of "A

B" and "B A" of pressurized oil flow. The pressure-balanced spherical spool in this valve makes it possible for the stress in the axis direction to be eliminated regardless of the pressure and the flow rate. As the spherical spool is also used in the seat, the ideal seating along with excellent durability is realized (seating by only the spring force). In

regard to the normally-open type, the spool is pushed open by a spring, thus the circuit is kept open. As soon as the solenoid is energized, the spool is moved and seated, thus the circuit is closed.

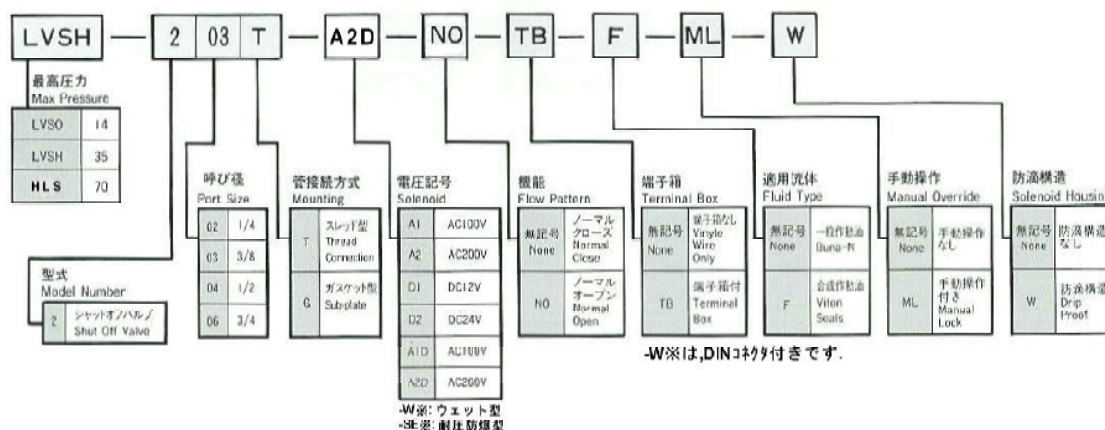


3. SPECIFICATIONS

Model	Port size	Flow rate (Litre/min)	Max.pressure(MPa)
LVSO-202*-W**	02 (1/4)	15	14 (140 kgf/cm ²)
LVSH-202*-**	02 (1/4)	20	35 (350 kgf/cm ²)
LVSH-203*-**	03 (3/8)	50	35 (350 kgf/cm ²)
LVSH-204*-**	04 (1/2)	70	35 (350 kgf/cm ²)
LVSH-206G-**	06 (3/4)	110	35 (350 kgf/cm ²)
HLS-202G-**	02 (1/4)	15	70 (700 kgf/cm ²)
HLS-203G-**	03 (3/8)	30	70 (700 kgf/cm ²)
HLS-204G-**	04 (1/2)	50	70 (700 kgf/cm ²)

(As for LVSH-206G-*, maximum flow rate 180 liter per minute type will be shipped by option.)

■ 型式説明 Ordering Information



(Note)

In regard to the port size of LVSO-2**, only 02 is manufactured. When the port size 03 or greater is required, please use LVSH-20**-* or HLS-20**G-*.

As for LVSO-202**-(maximum pressure 14MPa), only "normally closed type" is manufactured. When "normally open type" is required, please use LVSH-20**-* or HLS-20**G-*.

As for HLS-20**G-*, only sub-plate type is manufactured (Thread connection type is not manufactured).

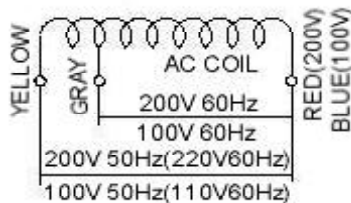
4. HANDING INSTRUCTIONS

(1) Supply electric power as shown below.

LVSO-202*-WA*

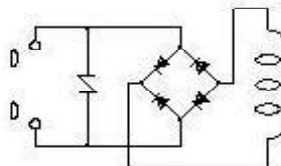


LVSH-20**-A*-*



LVSH-20**-(W)A*D-(-NO)-*

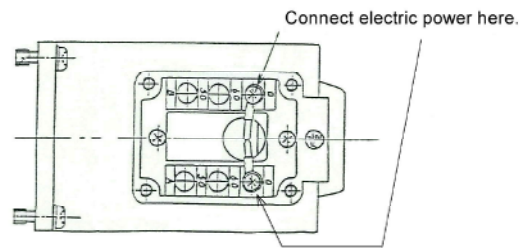
HLS-20**G-*



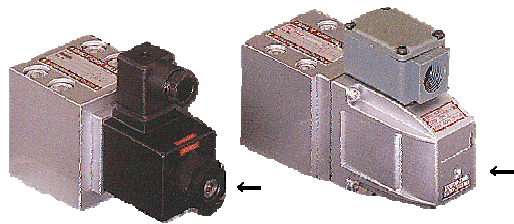
[DC solenoid]

(a) DC solenoid (“ -D* ”) has two terminals which have *no polarity*.

(b) As for "Rectifier built-in type solenoid", supply electric power to the terminals which are marked "0".



(2) In the event of “ electrical power failure ” or when the solenoid is damaged, you can manually move the spool inside the valve by pushing a pin (size: 8) in the solenoid housing. When the valve should be manually locked, place your optional order for “ -ML ” before our shipping.

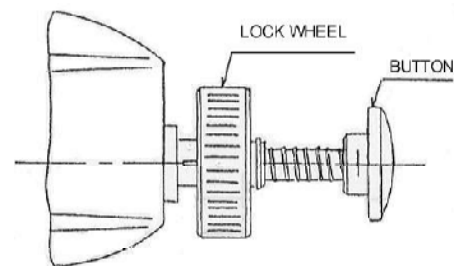


[How to lock the valve manually]

The way how to lock the valve manually differs as follows.

(AC solenoid)

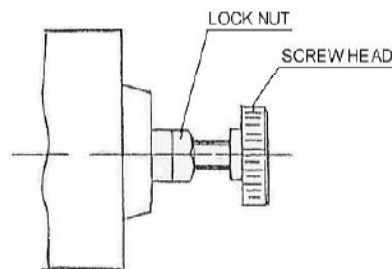
The spool inside the valve is moved when the button is pushed. If the valve should be locked, turn the lock wheel clockwise. Valve Model number:LVSH-20**-A*-TB



(DC solenoid)

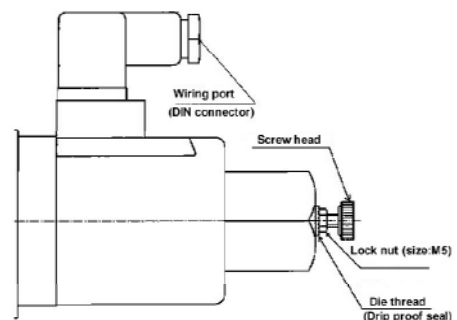
The spool inside the valve is moved when the screw is turned clockwise. By turning the lock nut clockwise, lock the screw when the valve should be locked.

Valve model number:LVSH-206-D*-TB



(When the model number is -WA*, -WD*, WA*D)

When you operate the valve manually, remove the lock nut and the die thread(drip proof seal), then turn the manual lock screw. Set the die thread and the lock nut back when you supply electric power to the solenoid.



5. NOTES ON HANDLING

(1) Keep regular maintenance on fluid and filter in order to avoid malfunction of the shut-off valve which is caused by contamination.

(2) Recommended fluid ISO VG32 or 46, with viscosity between 20 and 400 cSt, temperature between 0 and 60 degrees centigrade. "Viton seal" is required when phosphate ester type fluid is used (Place your order with the optional part number " -F "before our shipping). When other type of fluid is used, consult us.

(3) Pay attention to the voltage, current and frequency of your electric power source.

Avoid water or moisture especially from the solenoid assembly.

Supply electric power of " $\pm 10\%$ " of the rated voltage to the solenoid. Low voltage causes damage. And when the electric wires are too thin or too long, the voltage drops heavily .

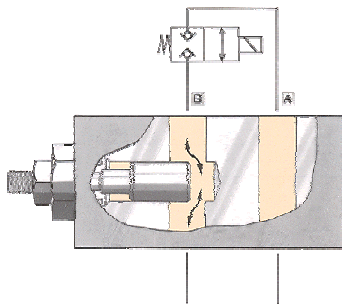
(4) You have no restriction on the posture (horizontal or vertical) when you mount the valve to the hydraulic systems. However, horizontal is recommended.

Before shipping, all valves are tested(internal leakage, external leakage, valve operation etc.), contact your dealer. In the event of troubles, the overhaul at our factory(Fuji Engineering Co.,Ltd.) is recommended since it is favourable that special tools and benches are used

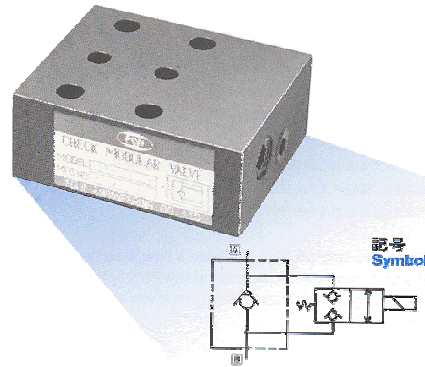
(Related accessories)

The following valves are manufactured by us. You can use them when the valve is gasket (subplate) type.

Modular throttle (Model: MF-02, -03, -04, -06)



Modular check (Model: MC-02, -03, -04)



6. LVMH-20*", HLM-20*G Series (Manual hand lever operated shut-off valve)

LVPH-20**, HLP-20*G Series (Pilot operated shut-off valve)

(1) The working principles are all the same as LVSH series. The difference is the way of operation.

(2) LVPH series differs on the following points. By oil pilot or air pilot, the piston in the pilot cap pushes the piston inside the valve body. Connect pilot port and drain port. Supply the pilot of pressure of the minimum 0.5 [MPa] ~ maximum 10 [MPa]. "The drain port back pressure" should be less than 0.07 [MPa]. When air pilot is used, add the optional “ -AR ” (example: “ *LVPH-203G-AR* ”).

