Hi-Force HYDRAULIC TOOLS	HFV42 PILOT OPERATED CHECK VALVE OPERATING INSTRUCTIONS			TDS:- 1137
Prepared by:-	Mark Dalley	Approved by:-	Matthew Hughes	Date:05/12/12
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INTRODUCTION

Hi-Force HFV42 control valves are designed to provide temporary load holding on double acting cylinders in the event of system pressure loss. Cribbing or other mechanical locking means should be used for extended periods of load holding. Do not work under a load supported solely by hydraulic means.

SAFETY NOTES

Sufficient time should be allocated to planning your hydraulic system. Making sure that all system components are adequate for the intended operation.

Always check system components regarding load capacities, pressure ranges and setup requirements.

Ensure that any Hi-Force hydraulic hoses are correctly fitted to the HFV42 pilot operated check valve.

Always wear suitable personal protection when operating hydraulic equipment.

Keep all body parts away from cylinder and work piece/ load.

CAUTION: READ ALL WARNING, CAUTION AND INSTRUCTIONS INCLUDED WITH ALL SYSTEM COMPONENTS

PILOT OPERATED CHECK VALVE INSTALLATION

HFV42 valves are usually mounted directly at the cylinder advance port to reduce the possible leakage paths to a minimum, but system set up may dictate otherwise.
Ports on the HFV42 are marked as follows:

IN – connect to pump. Normally via CF1/CM1 couplers and hoses.
CYL – connect as close as possible to cylinder advance port to eliminate potential leak paths. A HF17 nipple is a common method here.
PILOT – connect to the cylinder retract line by means of a tee connection. Rigid steel pipe or flexible hose may be used here.

All ports are 3/8” NPT

OPERATION

When oil is directed into the “IN” port it will flow freely from the “CYL” port and raise the piston of the cylinder to which it is connected.

To retract the cylinder oil must be directed to the retract port. This will also apply pressure to the “PILOT” port of the HFV42 valve. This will cause the valve to open and allow flow from the advance port of the cylinder to return to the pump.

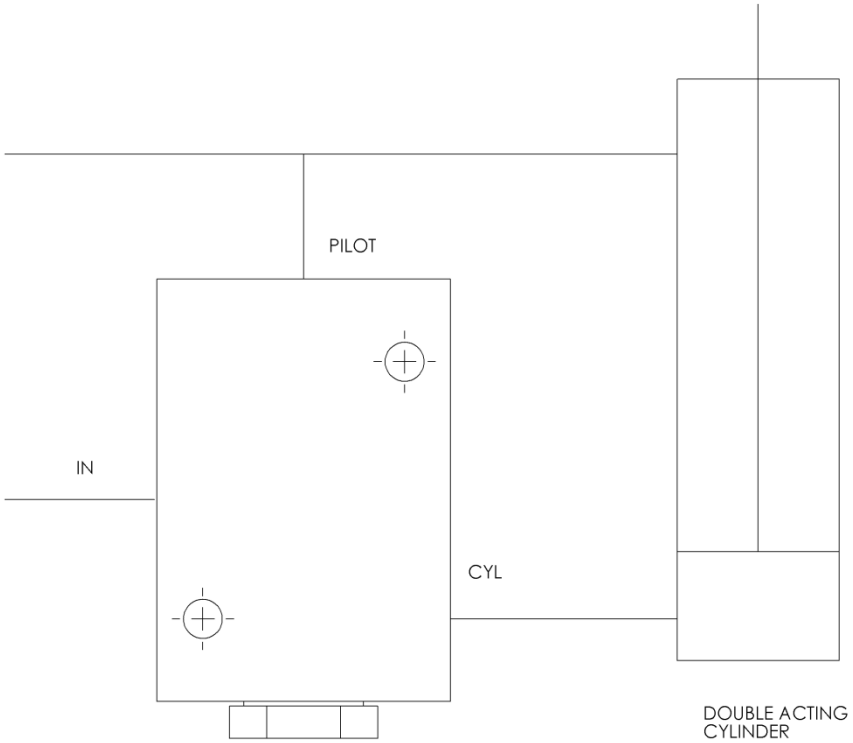
The HFV42 valve has a 6:1 pilot pressure ratio. This means that the pressure in the retract line must be a minimum of 1/6 of the system pressure in order for the valve to operate. For example, if the pressure in the cylinder holding the load was 600 bar, then the pressure in the retract line would need to be a minimum of 100 bar in order for the valve to open.

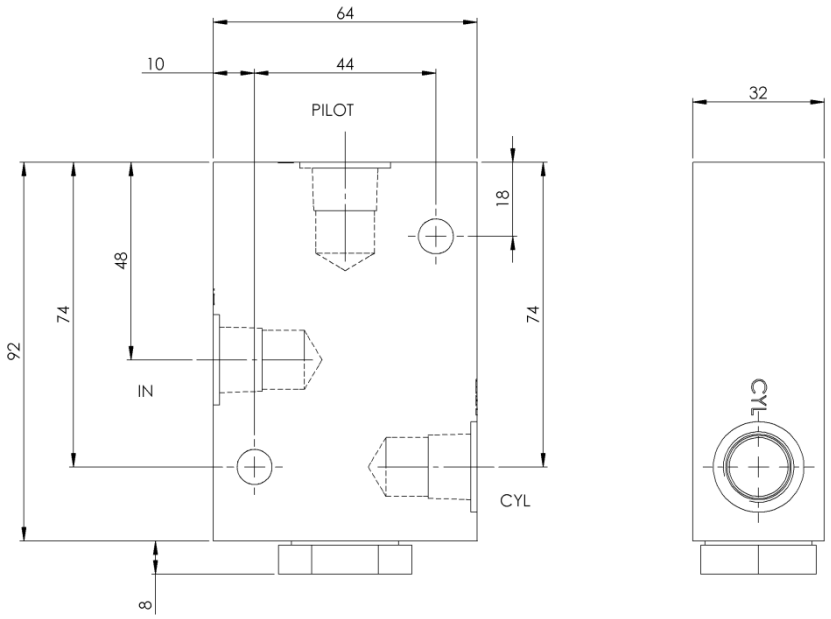
CAUTION

In some cases where system pressure is high, the cylinder is large or the pump in use has a low flow rate, the cylinder may not retract smoothly. This is caused by the pump not being able to maintain the required pilot

pressure to keep the valve open. This situation can be resolved by fitting a HFV66 manual check valve between the HFV42 valve and the pump. This can be used to restrict the return flow to the pump and allow the pilot pressure to be maintained.

When connecting more than one cylinder to a single pump by means of a manifold, great care should be taken in the use of HFV42 valves. If a valve is fitted to each cylinder it is possible for one or more valves to lag slightly behind others in the system, and not allow all the cylinders to retract together. In the worst case, the entire load could be left supported by a single cylinder causing a dangerous overload situation. In the case of multiple cylinders connected to one pump, a single HFV42 valve should be considered.





NOTES:-

UK Head Office:

Hi-Force Limited
Prospect Way
Daventry
Northamptonshire
NN11 8PL
United Kingdom

Tel: + 44 1327 301000
Fax: + 44 1327 706555
Email: daventry@hi-force.com

Hi-Force Regional Offices:

Hi-Force Australia Pty. Ltd **Rockingham** **Australia** **Tel: +61 8 9591 1288** **Email: australia@hi-force.com**	**Hi-Force Caspian** **Baku** **Azerbaijan** **Tel: +994 12 447 4100** **Email: baku@hi-force.com**
Hi-Force Hydraulics (Asia) S.B **Selangor** **Malaysia** **Tel: +603 5569 4209** **Email: malaysia@hi-force.com**	**Hi-Force Nederland BV** **Strijen** **Netherlands** **Tel: +31 78 6745488** **Email: holland@hi-force.com**
Hi-Force Hydraulics (Pty) Ltd **Midrand** **South Africa** **Tel: +27 11 314 0555** **Email: south.africa@hi-force.com**	**Hi-Force FZCO** **Dubai** **United Arab Emirates** **Tel: +971 4 815 0600** **Email: dubai@hi-force.com**
Hi-Force Hydraulics **Abu Dhabi** **United Arab Emirates** **Tel: +971 2 551 3100** **Email: abu.dhabi@hi-force.com**	**Hi-Force Hydraulic Equipment (Shanghai) Ltd. Co.** **Shanghai, China** **Tel: +86 21 6697 3010** **Email: china@hi-force.com**

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