





Oszillierventile

PLOUGH OVERTURNING VALVES

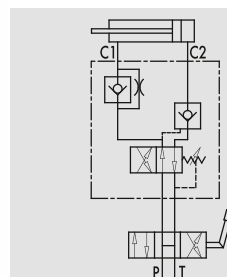
PLOUGH OVERTURNING VALVES INTRODUCTION

Since its patent in 1986, the plough overturning valve has underwent many changes. The 30 years experience in the field and the careful customer service allowed us to adapt it to the many market's requirements. In this way we have created new types of valves with many functionalities, suitable for different powered machinery and for all different soil cultivability. To make the choice of the right type for your own requirements easier, following a list of the many models with the concerning technical specifications, assembling scheme and a short explicative note.

Oszillier Ventil für einfachwirkende Zylinder

TYPE
VRA SE

HYDRAULIC DIAGRAM



SINGLE ACTING PLOUGH OVERTURNING VALVES

USE AND OPERATION:

This valve has been realised for use on cylinders for reversible plough to obtain the automatic oil backflow and therefore the reversal of the motion of the hydraulic cylinder that makes the plough rotating. It is provided with a single pilot check valve which guarantees safety just on the block side, whilst on the stem side it must be leaned on the plough mechanical locks.

Assembly on plough with rotation with up mouldboard.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard

Poppet type: any leakage

These valves are supplied with exchange pressure at 130

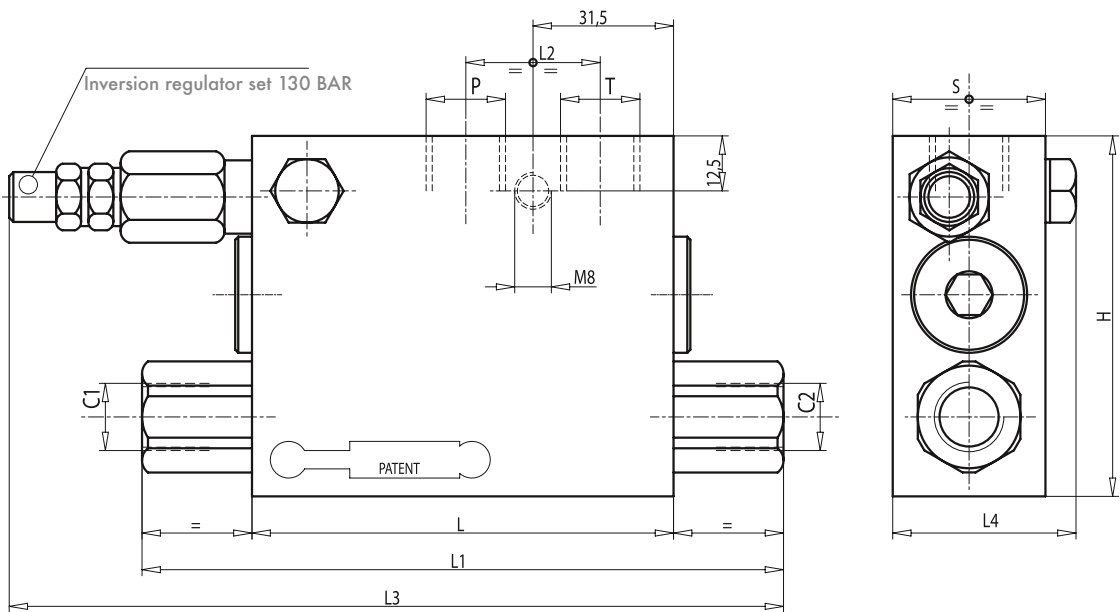
Bar: according to your requirements, pressure setting can be modified by acting on the pressure regulator.

APPLICATIONS:

Connect C1 to the cylinder's stem, C2 to the block, P and T to the machine inlet. Thanks to its shape, it can be in-line assembled on a hydraulic cylinder or directly fixed on the plough through the threaded hole made on the body.

CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0278	VRA 40/50 SE	200	400
V0280	VRA 60/80 SE	200	400

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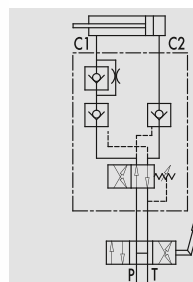
CODE	TYPE	C1 - C2 P - T GAS	L mm	L1 mm	L2 mm	L3 mm	L4 mm	H mm	S mm	WEIGHT Kg.
V0278	VRA 40/50 SE	G 3/8"	94	142	30	177	42	80	35	1,990
V0280	VRA 60/80 SE	G 3/8"	94	142	30	177	42	80	35	1,990

Oszillier Ventil für doppelwirkende Zylinder

TYPE
VRAP DE



HYDRAULIC DIAGRAM



DOUBLE ACTING PLOUGH OVERTURNING VALVES

USE AND OPERATION:

This valve has been realised for use on cylinders for reversible plough to obtain the automatic oil backflow and therefore the motion reversal of the hydraulic cylinder that makes the plough rotating. It is provided with a double pilot check valve which guarantees high safety and enables to put and block the cylinder in any position.

The motion reversal of the piston is made through a compensated type relief valve exactly in the dead point of the plough, generating more power and speed. It can be assembled on heavy and unbalanced plough with the following internal diameters: 40/50, 60/80, 80/100, 100/110, 110/130 mm.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard

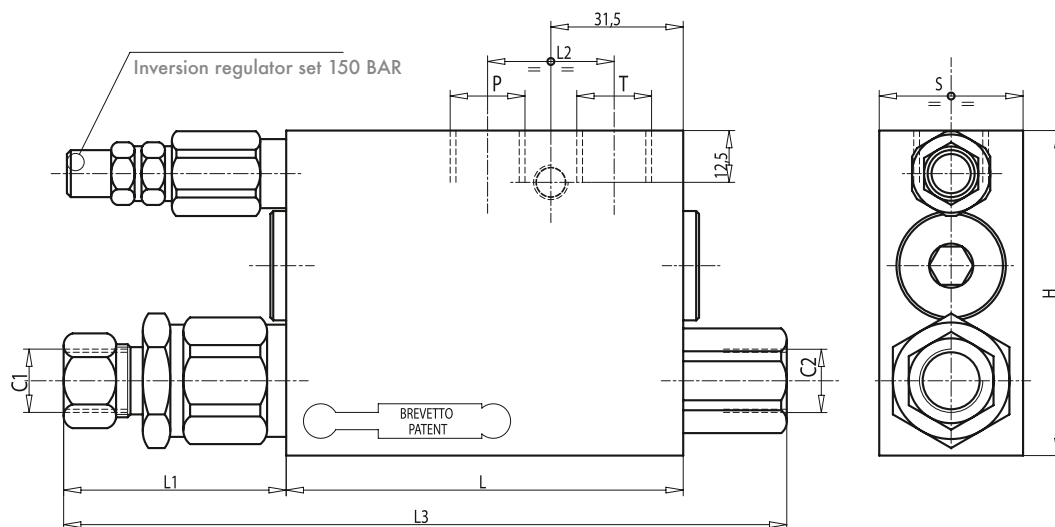
Poppet type: any leakage

These valves are supplied with exchange pressure at about 150 Bar: according to your requirements, pressure setting can be modified by acting on the pressure regulator.

APPLICATIONS:

Connect C1 to the cylinder's stem, C2 to the block, P and T to the machine inlet. Thanks to its shape, it can be in-line assembled on a hydraulic cylinder or directly fixed on the plough through the threaded hole made on the body.

CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0282	VRAP 40/50 DE	250	400
V0290	VRAP 60/80 DE	250	400
V0300	VRAP 80/100 DE	250	400
V0302	VRAP 100/110 DE	250	400
V0320	VRAP 110/130 DE	250	400



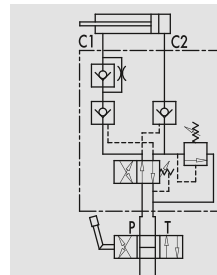
CODE	TYPE	C2 P - T GAS	C1 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	S mm	WEIGHT Kg.
V0282	VRAP 40/50 DE	G 3/8"	Ø12	94	58	30	176	80	35	2,130
V0290	VRAP 60/80 DE	G 3/8"	Ø12	94	58	30	176	80	35	2,140
V0300	VRAP 80/100 DE	G 3/8"	Ø12	94	58	30	176	80	35	2,140
V0302	VRAP 100/110 DE	G 3/8"	Ø12	94	58	30	176	80	35	2,140
V0320	VRAP 110/130 DE	G 3/8"	Ø12	94	58	30	176	80	35	2,130

Oszillier Ventil für doppelwirkende Zylinder mit Druckbegrenzungsventil



TYPE
VRAP DE + VMP

HYDRAULIC DIAGRAM



DOUBLE ACTING PLOUGH OVERTURNING VALVES WITH RELIEF VALVE

USE AND OPERATION:

This valve has been realised for use on cylinders for reversible plough to obtain the automatic oil backflow and therefore the motion reversal of the hydraulic cylinder that makes the plough rotating. It is provided with a double pilot check valve and with a relief valve that enables to reduce the thrust pressure (block side) in order not to damage the mechanical locks and the plough's head. The motion reversal of the piston is made through a compensated type relief valve exactly in the dead point of the plough, generating more power and speed. It's ideal for assembly on heavy and unbalanced plough with the following internal diameters: 60/80, 80/100, 100/110, 110/130 mm.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard

Poppet type: any leakage

These valves are supplied with exchange pressure at about 150

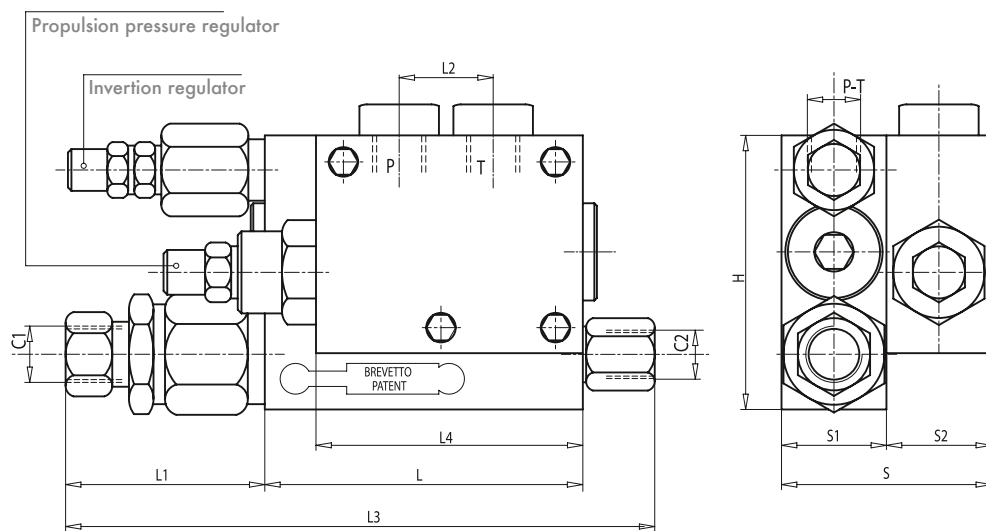
Bar: according to your requirements, pressure setting can be modified by acting on the pressure regulator. Relief valve is set at 90 Bar.

APPLICATIONS:

Connect C1 to the cylinder's stem, C2 to the block, P and T to the machine inlet. Thanks to its shape, it can be in-line assembled on a hydraulic cylinder or directly fixed on the plough through the threaded hole made on the body.

CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0350	VRAP 60/80 DE + VMP	250	400
V0360	VRAP 80/100 DE + VMP	250	400
V0376	VRAP 100/110 DE + VMP	250	400
V0380	VRAP 110/130 DE + VMP	250	400

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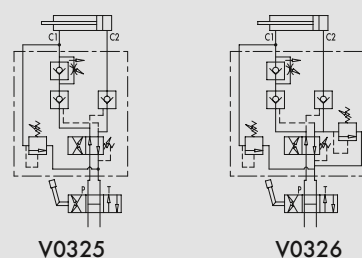


CODE	TYPE	C2 P - T GAS	C1 mm	L mm	L1 mm	L2 mm	L3 mm	L4 mm	H mm	S1 mm	S2 mm	S mm	WEIGHT Kg.
V0350	VRAP 60/80 DE + VMP	G 3/8"	Ø12	94	58	30	176	72	80	35	30	65	3,200
V0360	VRAP 80/100 DE + VMP	G 3/8"	Ø12	94	58	30	176	72	80	35	30	65	3,190
V0376	VRAP 100/110 DE + VMP	G 3/8"	Ø12	94	58	30	176	72	80	35	30	65	3,190
V0380	VRAP 110/130 DE + VMP	G 3/8"	Ø12	94	58	30	176	72	80	35	30	65	3,160

Oszillier Ventil für doppelwirkende Zylinder mit Druckbegrenzungsventil

TYPE
VRAP FSCM

HYDRAULIC DIAGRAM



DOUBLE ACTING PLOUGH OUTSIDE DRILLS OVERTURNING VALVES FOR CYLINDER WITH MEMORY AND WITHOUT MEMORY

USE AND OPERATION:

Valves for actuators with memory (V0325): realized for use on cylinders with memory for outside drills reversible ploughs, it's provided with a dual cross relief valve which provides protection against tear's shocks when the plough exceeds the dead point.

Valves for actuators without memory (V0326): realised for use on cylinders without memory for outside drills reversible ploughs, it is provided with a dual cross relief valve and with a relief valve: this enables to reduce the thrust pressure (block side) in order not to damage the mechanical locks and the plough's head.

Both systems are provided with a fixed compensated flow control valve which allows to keep a constant speed whether the plough works inside the drills or outside.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard

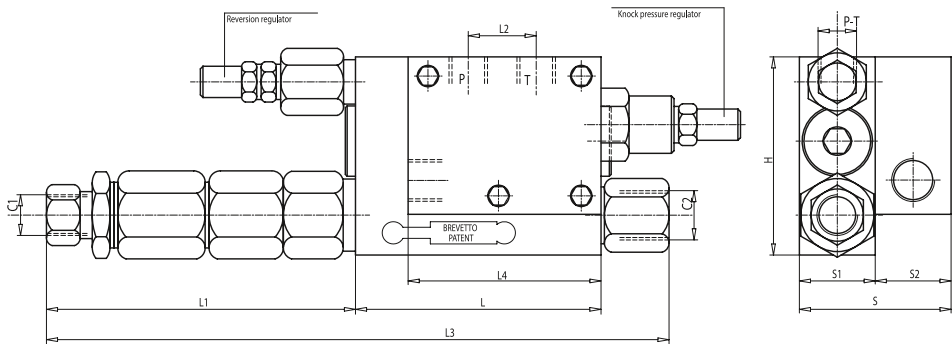
Poppet type: any leakage

These valves are supplied with exchange pressure at about 150 Bar, the relief valve is set at 90 Bar and the dual cross relief valve at 210 Bar. According to your requirements, pressure settings can be modified.

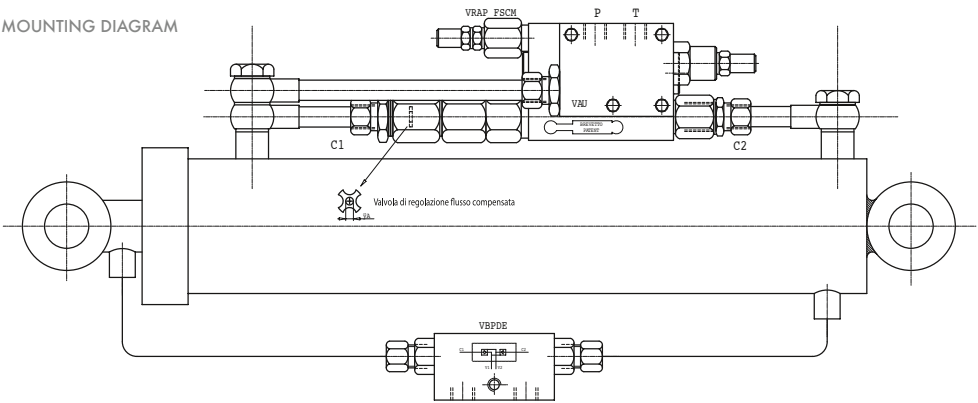
APPLICATIONS:

Connect C1 and the dual cross relief valve to the cylinder from the stem side through the double holed screw (supplied with the valves) and double banjos, connect C2 to the cylinder from the block's side, P and T to the machine inlet.

CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0325	VRAP 110/130 FSCM	250	400
V0326	VRAP 110/130 FSSM	250	400



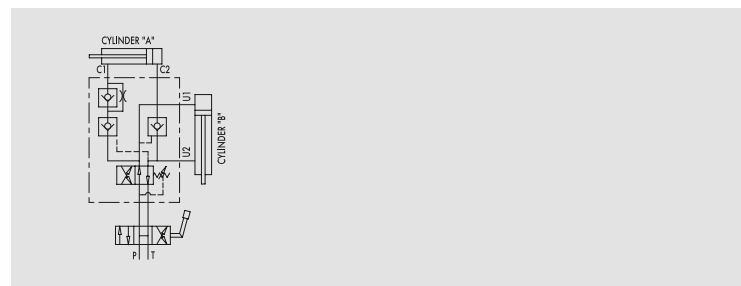
MOUNTING DIAGRAM



CODE	TYPE	C2 P - T GAS	C1 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	S mm	S1 mm	WEIGHT Kg.
V0325	VRAP 110/130 FSCM	G 3/8"	Ø12	94	123	30	241	80	35	65	3,390
V0326	VRAP 110/130 FSSM	G 3/8"	Ø12	94	123	30	241	80	35	65	3,390

TYPE
VRAP SS

HYDRAULIC DIAGRAM



DOUBLE ACTING PLOUGH OVERTURNING VALVE BY DOWN MOULDBOARD LOAD SHIFTING

USE AND OPERATION:

This valve has been realised for use on cylinders for reversible plough to obtain the automatic oil backflow and therefore the motion reversal of the hydraulic cylinder that makes the plough rotating. It has been studied to set in action 2 cylinders with disadvantageous rotation load(see scheme).

Operating instructions: the 2 cylinders work in parallel. First cylinder B starts lining up the load (it requires less pressure). Before the working ends, cylinder A starts overturning. Once it passed the standoff (90°), the cylinders A and B restart together.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard

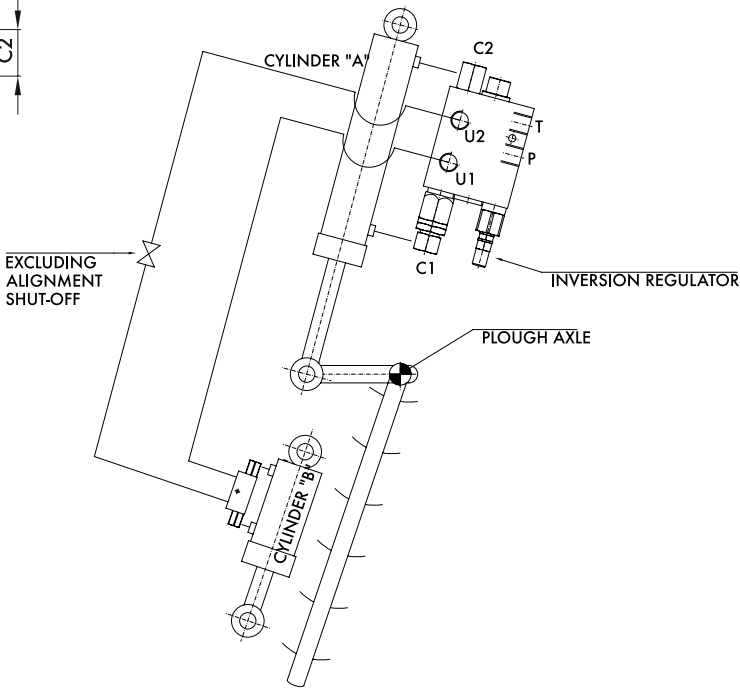
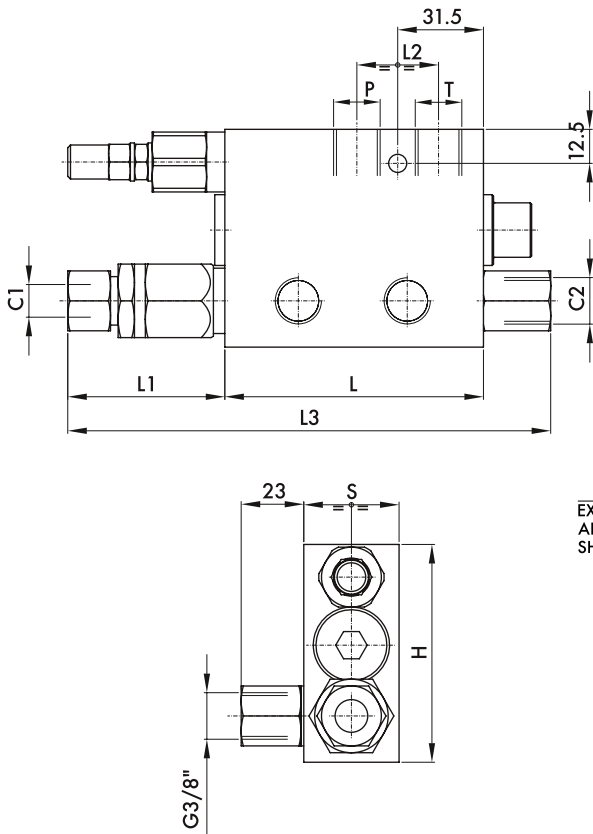
Poppet type: any leakage

These valves are supplied with exchange pressure at about 150 Bar: according to your requirements, pressure setting can be modified by acting on the pressure regulator.

APPLICATIONS:

Connect C1 to the stem, C2 to the cylinder's block A, U1 to the block and U2 to the stem of the lining up cylinder's B; P and T to the machine inlet. Thanks to its shape, it can be in-line assembled on a hydraulic cylinder or directly fixed on the plough through the threaded hole made on the body.

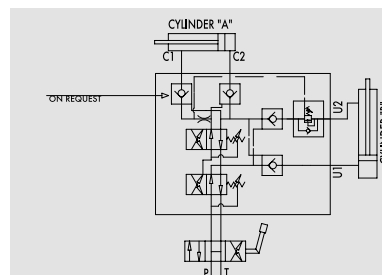
CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0330	VRAP 80/100 SS	250	400



CODE	TYPE	C2 P - T GAS	C1 mm	L mm	L1 mm	L2 mm	L3 mm	H mm	S mm	WEIGHT Kg.
V0330	VRAP 80/100 SS	G 3/8"	Ø12	94	58	30	176	80	35	2,230

TYPE
VRAP SV

HYDRAULIC DIAGRAM



DOUBLE ACTING PLOUGH OVERTURNING VALVE BY UP MOULDBOARD LOAD SHIFTING (Patent 2013)

USE AND OPERATION:

This valve has been designed for use on two cylinders in sequence for reversible plough to obtain the automatic alignment of load and its overturning. The rotation occurs with up mouldboards, given the possibility to equip the plough of a wheel for towing on the road. Two different passing calibrations have been studied, depending on diameter of the cylinder, which valves will be assembled on. For a smooth rotation is recommended to use a single-acting valve on the cylinder used for overturning; whether it is necessary to stop the plough at 90° (dead point), it is recommended to use the double acting one.

Operating instructions: first cylinder B starts lining up the load. Once it got the end stroke, cylinder A starts overturning and complete the rotation. At this point cylinder B takes back the plough in working position.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard - Poppet type: any leakage

These valves are supplied with exchange pressure at 150 bar: according to your requirements, pressure setting can be modified by acting on the pressure regulator.

APPLICATIONS:

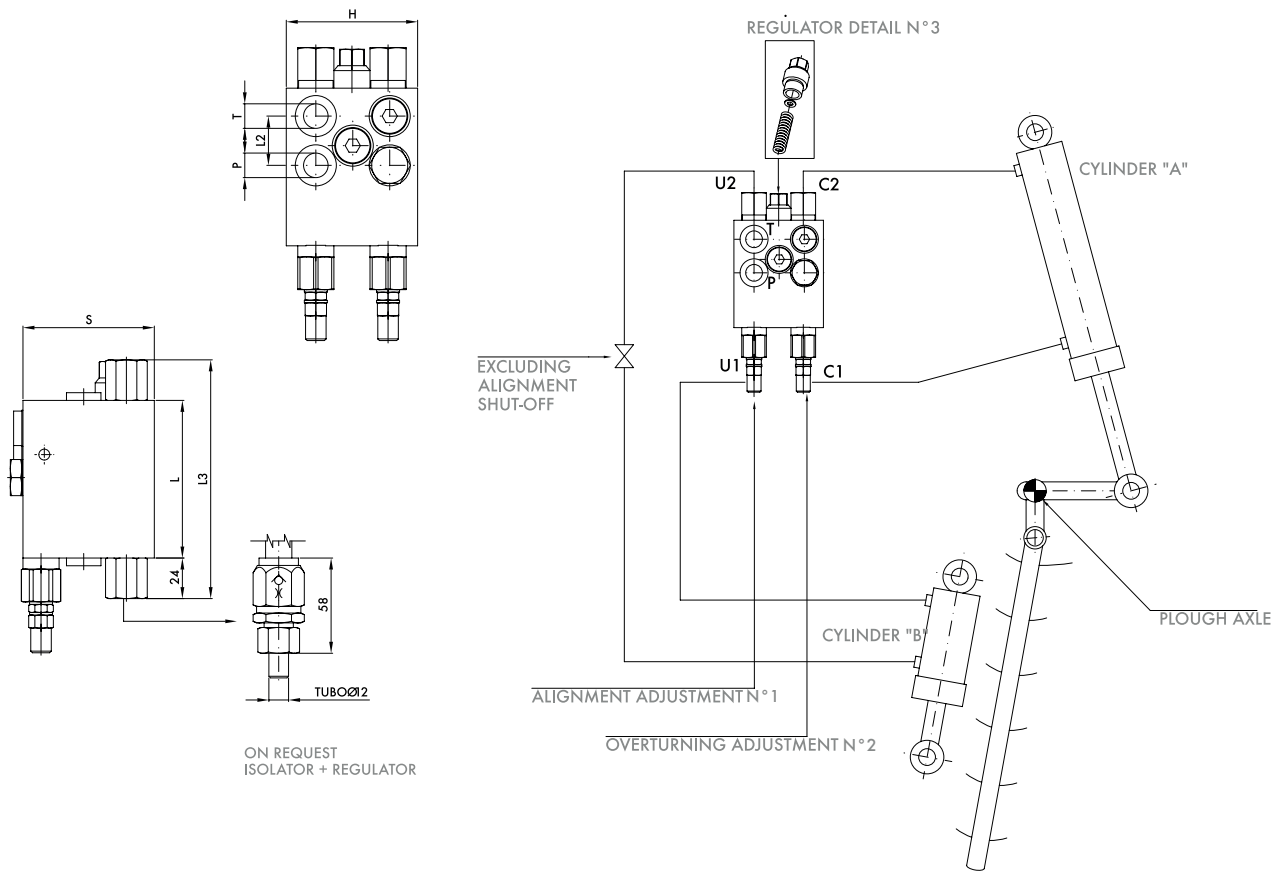
Connect C1 to the stem, C2 to the cylinder's block A, U1 to the block and U2 to the stem of the lining up cylinder's B; P and T to the machine inlet. Thanks to its shape, it can be in-line assembled on a hydraulic cylinder or directly fixed on the plough through the threaded hole made on the body.

SETTING:

These valves are supplied already settled, therefore, should not be touched. Nevertheless, in case of needs, settings to carry out are as follow:

- **SETTING 1:** If lining up cylinder (B) comes back, screw the setting nut. If cylinder got the end stroke without starting the rotation, unscrew the nut.
- **SETTING 2:** if the valve on cylinder A does not carry out the rotation at 90°, screw the nut; if rotation stops at dead point (90°), unscrew the nut.
- **SETTING 3:** if lining up cylinder (B) starts before than cylinder A got the end stroke, unscrew the cap and put a washer 0,8 mm thick (suitable for screws with 5 mm diameter) in order to increase the pressure.

CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0339	VRAP 70/80 SE SV	230	400
V0340	VRAP 80/100 SE SV	230	400
V0345	VRAP 70/80 DE SV	230	400
V0346	VRAP 80/100 DE SV	230	400

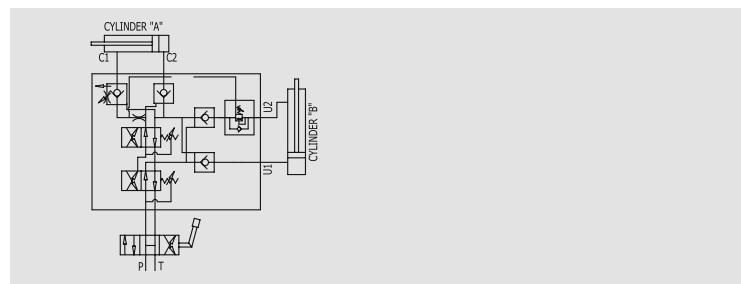


CODE	TYPE	C1 - C2 V1 - V2 GAS	L mm	L1 mm	L2 mm	L3 mm	H mm	S mm	WEIGHT Kg.
V0339	VRAP 70/80 SE SV	G 3/8"	94	58	30	142	80	80	4,760
V0340	VRAP 80/100 SE SV	G 3/8"	94	58	30	142	80	80	4,760
V0345	VRAP 70/80 DE SV	G 3/8"	94	58	30	176	80	80	4,800
V0346	VRAP 80/100 DE SV	G 3/8"	94	58	30	176	80	80	4,800



TYPE VRAP SV FSM

HYDRAULIC DIAGRAM



LINING UP PLOUGH OUTSIDE DRILLS OVERTURNING VALVES (Patent 2013)

USE AND OPERATION:

This valve has been designed for use on two cylinders in sequence for reversible plough to obtain the automatic alignment of load and its overturning. Two different passing calibrations have been studied, depending on diameter of the cylinder, which valves will be assembled on.

Operating instructions: first cylinder B starts lining up the load. Once it got the end stroke, cylinder A starts overturning and complete the rotation. At this point cylinder B takes back the plough in working position.

MATERIALS AND FEATURES:

Body: zinc-plated steel

Internal parts: hardened and ground steel

Seals: BUNA N standard

Poppet type: any leakage

These valves are supplied with exchange pressure at 150 bar: according to your requirements, pressure setting can be modified by acting on the pressure regulator.

APPLICATIONS:

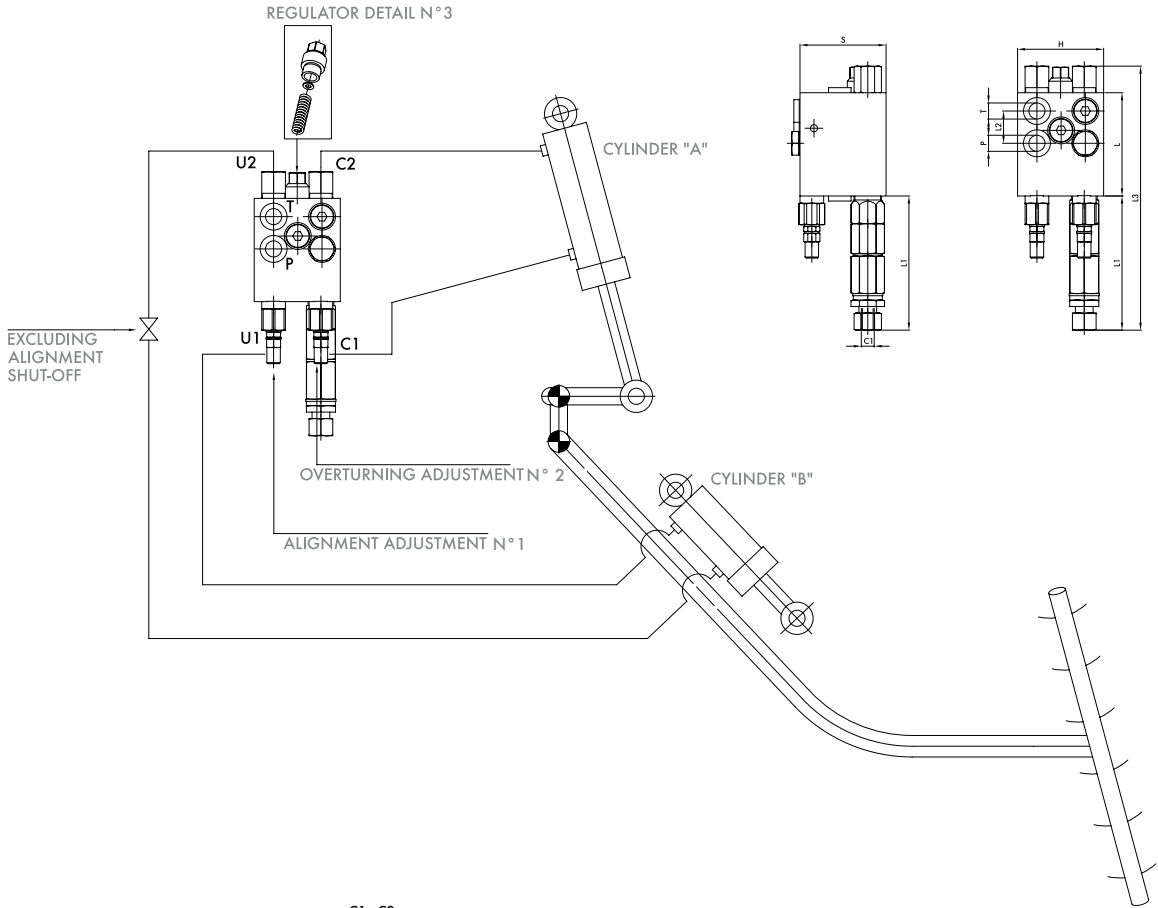
Connect C1 to the stem, C2 to the cylinder's block A, U1 to the block and U2 to the stem of the lining up cylinder's B; P and T to the machine inlet. Thanks to its shape, it can be in-line assembled on a hydraulic cylinder or directly fixed on the plough through the threaded hole made on the body.

SETTING:

These valves are supplied already settled, therefore, should not be touched. Nevertheless, in case of needs, settings to carry out are as follow:

- **SETTING 1:** If lining up cylinder (B) comes back, screw the setting nut. If cylinder got the end stroke without starting the rotation, unscrew the nut.
- **SETTING 2:** if the valve on cylinder A does not carry out the rotation at 90°, screw the nut; if rotation stops at dead point (90°), unscrew the nut.
- **SETTING 3:** if lining up cylinder (B) starts before than cylinder A got the end stroke, unscrew the cap and put a washer 0,8 mm thick (suitable for screws with 5 mm diameter) in order to increase the pressure.

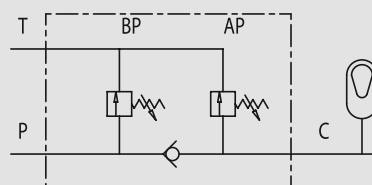
CODE	TYPE	MAX EXCHANGE PRESSURE Bar	MAX PRESSURE Bar
V0342	VRAP 80/90 SV FSSM	230	400
V0343	VRAP 110/130 SV FSCM	230	400



CODE	TYPE	C1 - C2 V1 - V2 GAS	L mm	L1 mm	L2 mm	L3 mm	H mm	S mm	WEIGHT Kg.
V0342	VRAP 80/100 SV FSSM	G 3/8"	94	123	30	241	80	80	4,980
V0343	VRAP 110/130 SV FSCM	G 3/8"	94	123	30	241	80	80	4,980



HYDRAULIC DIAGRAM



1 WAY SPECIAL BLOCK FOR NO-STOP PLOUGH AND SUB-SOILERS TILLERS

USE AND OPERATION:

This valve is made up by 2 relief valves and 1 check valve. It is used to supply pressure to tanked systems on non-stop plough and sub-soilers tillers in order to provide protection against shocks

MATERIALS AND FEATURES:

Body: zinc-plated steel
Internal parts: hardened and ground steel
Seals: BUNA N standard
Poppet type: any leakage

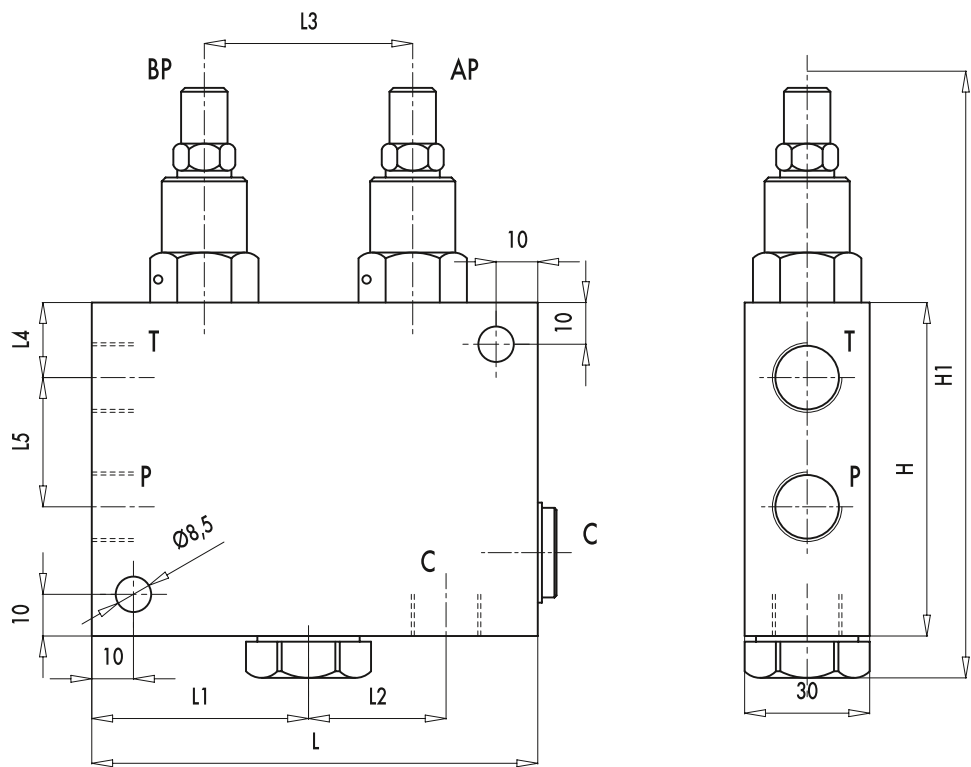
APPLICATIONS:

Connect P to the machine inlet, T to the draining or to the tank for the eventual oil reutilization and C to the system.

Adjustment:

- BP adjusts the charge pressure of system and is set at 80 Bar
- AP adjusts the eventual security drainage opening and is set at 250 Bar.

CODE	TYPE	MAX PRESSURE Bar
V0295	MASSELLO 1 VIA 3/8"	350
V0296	MASSELLO 1 VIA 1/2"	350



CODE	TYPE	T - P GAS	C GAS	L mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	H mm	H1 mm	S mm	WEIGHT Kg.
V0295	MASSELLO 1 VIA 3/8"	G 3/8"	G 3/8"	107	52	33	50	18	31	80	140	30	1,930
V0296	MASSELLO 1 VIA 1/2"	G 3/8"	G 1/2"	114	52	40	50	18	31	80	140	30	2,050