THREE-WAY MANUAL CONTROL HYDRAULIC BLOCK

Requirements

This system consists of a three-way hydraulic distribution block (**2-1398-0**).
This device has been designed to control the hydraulic pressure delivered by hydraulic power units (**5-1563-*-0**). Therefore, a **5-1563** power unit is required to use the three-way distribution block (**2-1398-0**). For their technical characteristics, see the relevant technical documentation.
This device has been designed to control a single pressure line, and therefore is fit for single-acting cylinders.

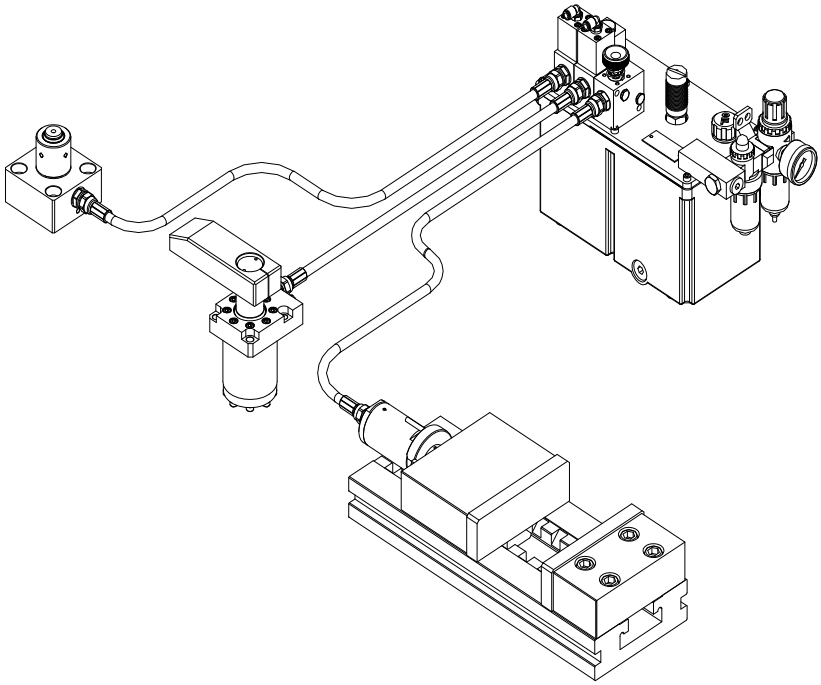


fig.1

Characteristics

Owing to its structural characteristics this system ensures the control of a hydraulic line and makes it possible to hold pressure even when the pressure in the rest of the system is lower, because oil is needed by another application. The system modularity also makes it possible to handle more pressure lines (up to a maximum of 6 elements).

Hydraulic system

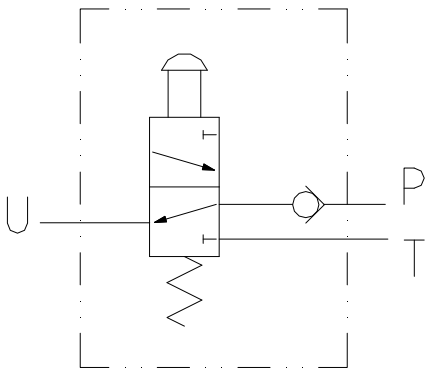


fig.2

Figure 2 shows the block's hydraulic diagram (**2-1398-0**) in the spring return version.
The basic version is under examination: the block is mounted directly on the pressure intake flange of the hydraulic power unit. An additional modular version can be mounted on this basic block. The additional block's code is **2-1406-0**.
The symbols used in figure 2 shall be interpreted as follows:
P = Pressure line (from the power unit), **T** = Discharge line (to the power unit), **U** = connection to the hydraulic device.

Operating principle

This distributor exploits the motion of a distribution box that slides along its guide sleeve and covers/uncovers the openings which connect the delivery, use and discharge lines. A unidirectional vale is positioned upstream of this distribution box, to prevent pressure on the operating line from reaching the delivery line, if the pressure in this line is lower than the one in the pressure line, when hydraulic pressure is need by another hydraulic block mounted on the plant.

Hydraulic diagrams

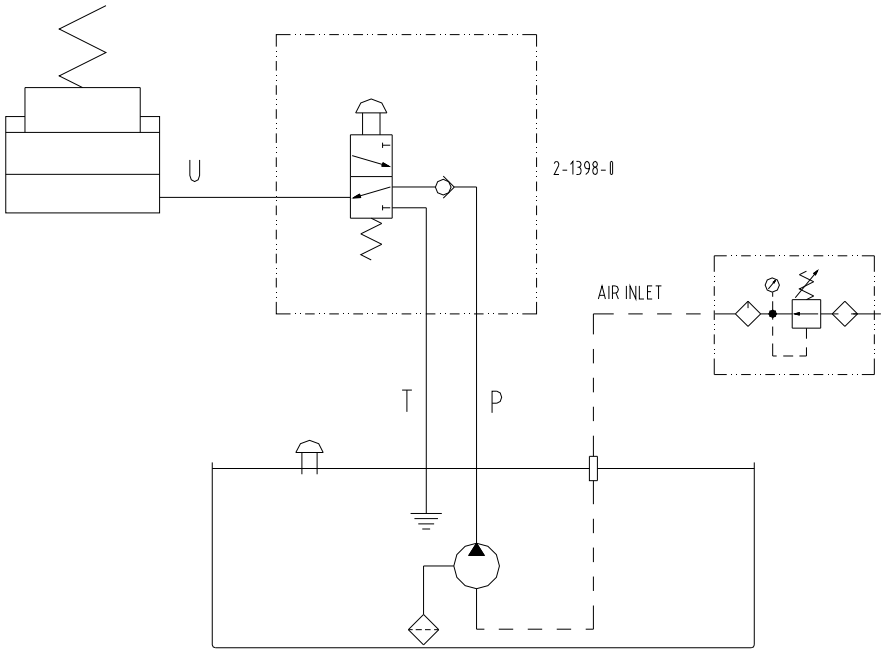


fig.3

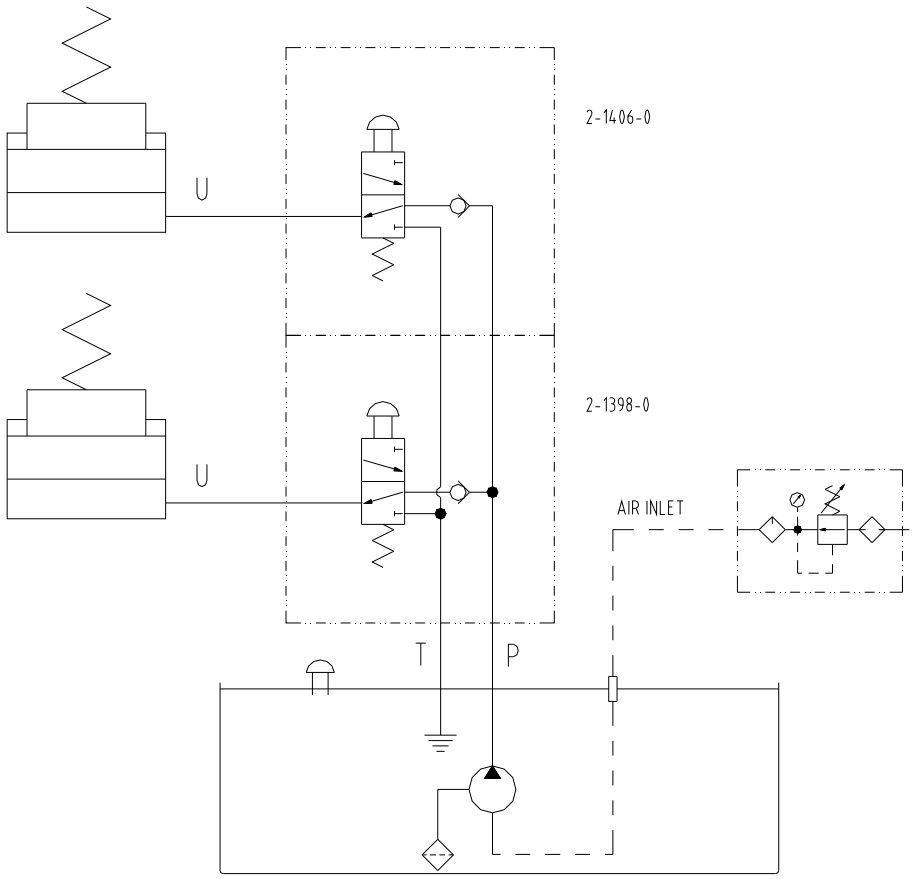


fig.4

Operation of single-use plant **(diagram in figure 3)**

The system shown in the figure is an example of connection of a single collector block (**2-1398-0**) to a hydropneumatic power unit.
In this case the block is connected to a single-acting spring-return cylinder.
In this position the power unit's delivery line is in communication with the cylinder, that is extended and under pressure. When pressing the manual control of block **2-1398-0**,the delivery line is shut-off and the operating line connected to the cylinder is connected to the discharge.
When the button is released, block **2-1398-0** is switched again and the operating line is put under pressure.

Operation of single-use plant **(diagram in figure 4)**

The system shown in the figure is an example of connection of a collector block (**2-1398-0**) to an additional block (**2-1406-0**).
As in the above example, the cylinders connected to delivery lines are usually under pressure.
If the line of the cylinder connected to block **2-1406-0** is switched to the discharge mode, the pressure on the plant's delivery **P** will not change and the other block (**2-1398-0**) will remain under pressure. When the button of the block (**2-1406-0**) is released, the connected cylinder will need some fluid, and a pressure drop will occur on the whole pressure line **P** of the plant. The pressure in the cylinder connected to collector block **2-1398-0** will not drop suddenly, owing to the activation of the internal check valve.

Manual collector block 2-1398-0

This direct-actuation spring-return directional valve is operated when a stem slides vertically inside the seat available in the single-block distributor body. The stem motion is controlled by a push-button integral with the stem.
The valve body is made of steel coated with anti-friction material and passivized to withstand corrosion over the time.
Gaskets are usually made of nitrile rubber, but different compounds can be mounted when necessary.
The cursor and the internal unidirectional valve are made of treated and ground chrome-nickel steel.

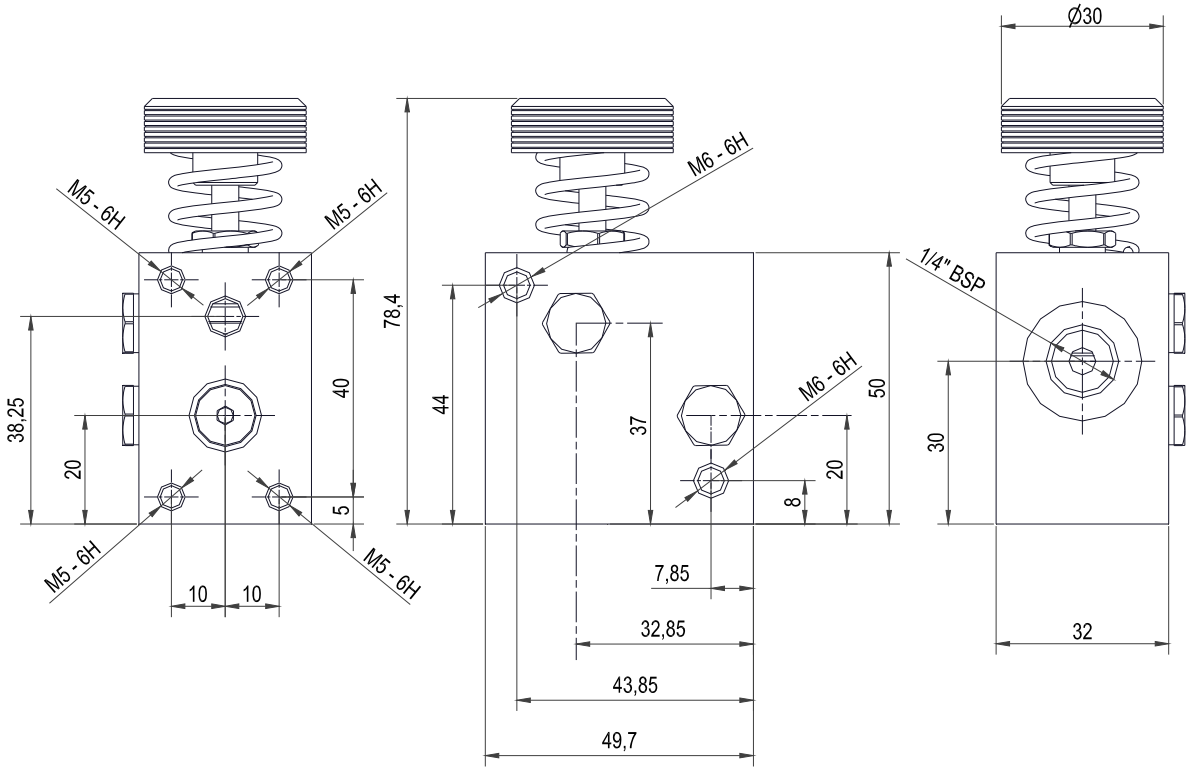


fig.5

Figure 5 shows the external view of collector block **2-1398-0**, with its overall dimensions. The device is secured to the power unit by means of 4 tapped holes (M5). The additional version **2-1406-0** is different from the basic version, but only because the two M6 holes are replaced by 2 through holes (Ø 6.5) for 2 M6 screws, that will clamp the additional distributor unit **2-1406-0** (max. 5 blocks) to collector block **2-1398-0**.

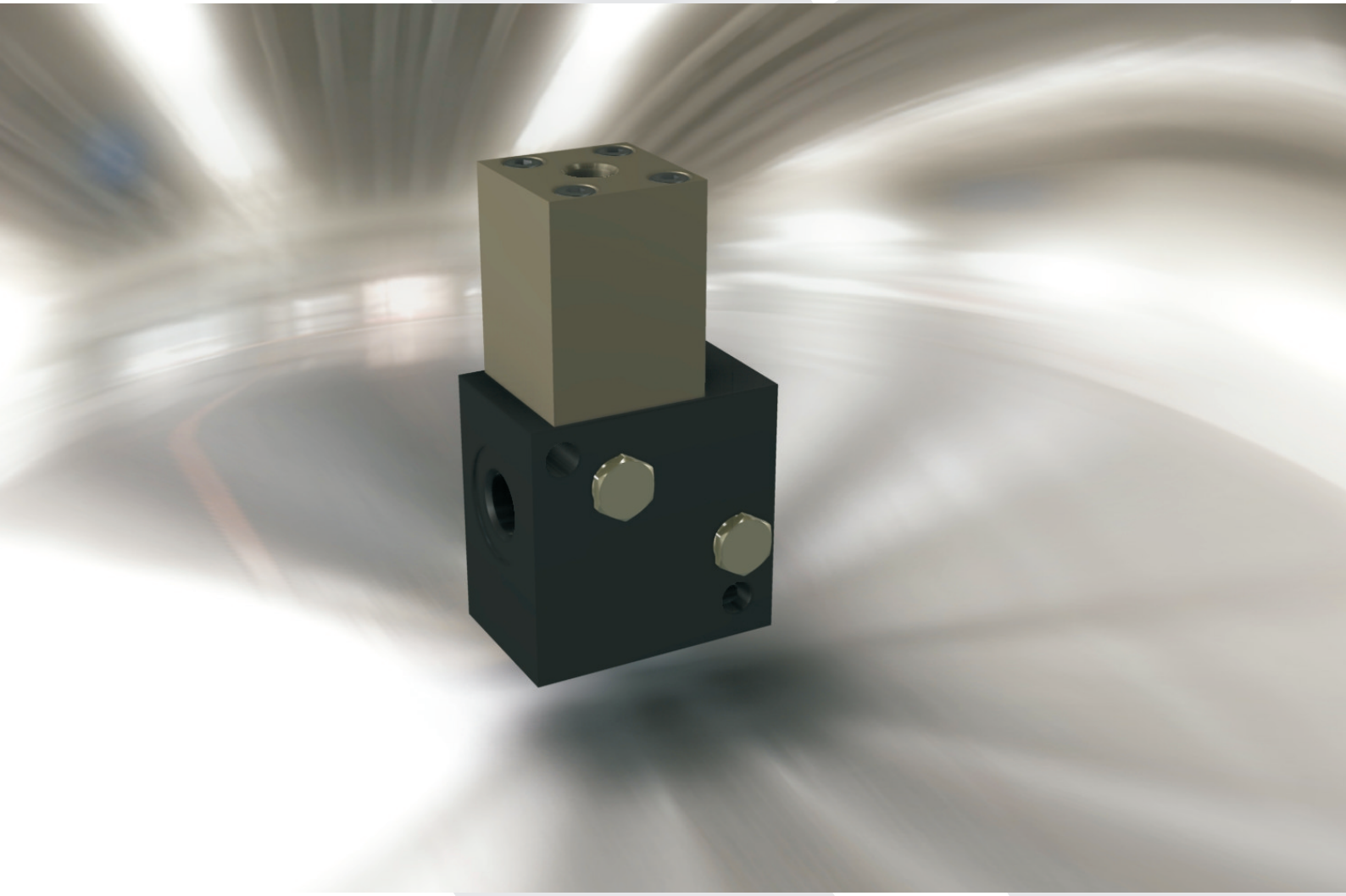
Technical data

MAXIMUM WORKING PRESSURE	**500 bar**
MAXIMUM OIL VISCOSITY	**10° Engler**
MAXIMUM OIL TEMPERATURE	**90°C**
AMBIENT TEMPERATURE	**-10 / +50°C**
CONNECTION DIAMETER	**1/4” G**

NOTES

As specified above, distributor blocks **2-1398-0** and **2-1406-0** have been designed and manufactured for Tecnofluid hydropneumatic power units.
Any other application shall be carefully assessed in cooperation with our technical department.

THREE-WAY PNEUMATIC CONTROL HYDRAULIC BLOCK



Requirements

This system consists of a three-way hydraulic distribution block (**2-1403-0**).
This device has been designed to control the hydraulic pressure delivered by hydraulic power units (**5-1563-*-0**). Therefore, a **5-1563** power unit is required to use the three-way distribution block (**2-1403-0**). For their technical characteristics, see the relevant technical documentation.
This device has been designed to control a single pressure line, and therefore is fit for single-acting cylinders. For cylinders or other devices to be actuated which require a double-acting control, use 2 distributor blocks: one for each line of the item to be actuated.

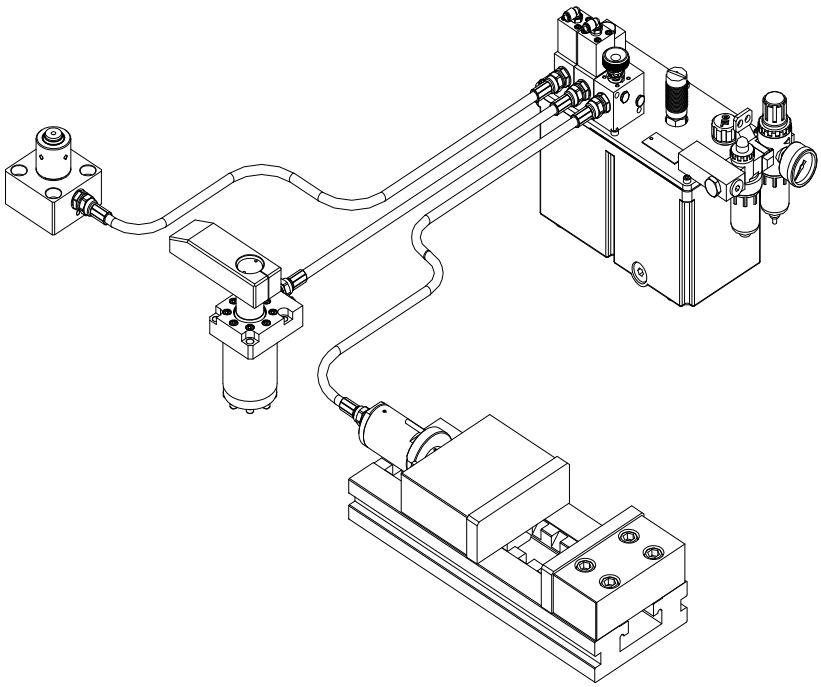


fig.1

Characteristics

Owing to its structural characteristics this system ensures the control of a hydraulic line and makes it possible to hold pressure even when the pressure in the rest of the system is lower, because oil is needed by another application. The system modularity also makes it possible to handle more pressure lines (up to a maximum of 6 elements).

Hydraulic diagram

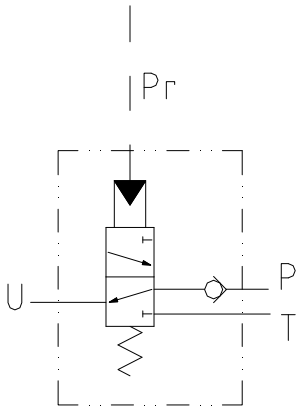


fig.2

Figure 2 shows the hydraulic diagram of block **2-1403-0**.
The basic version is under examination: the block is mounted directly on the pressure intake flange of the hydraulic power unit. An additional modular version can be mounted on this basic block. The additional block's code is **2-1405-0**.
The symbols used in figure 2 shall be interpreted as follows:
P = Pressure line (from the power unit), **T** = Discharge line (to the power unit), **U** = connection to the hydraulic device, **Pr** = Pneumatic driving line (from a 3-way pneumatic directional valve)

Operating principle

This distributor exploits the motion of a distribution box that slides along its guide sleeve and covers/uncovers the openings which connect the delivery, use and discharge lines. A unidirectional vale is positioned upstream of this distribution box, to prevent pressure on the operating line from reaching the delivery line, if the pressure in this line is lower than the one in the pressure line, when hydraulic pressure is need by another hydraulic block mounted on the plant.

Hydraulic connection diagrams

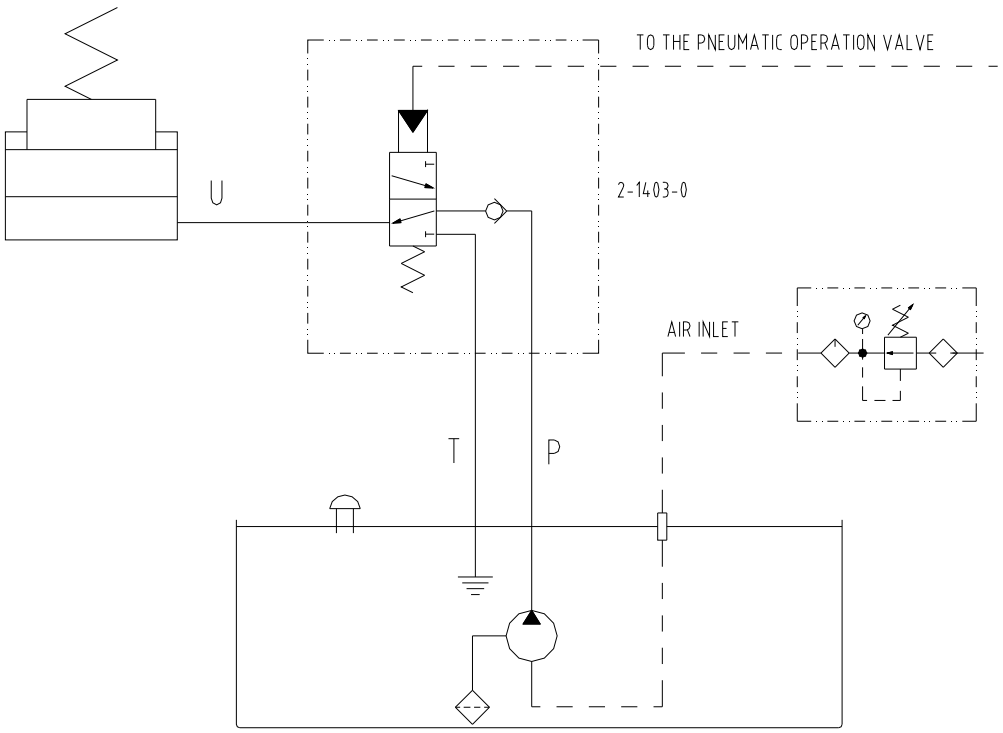


fig.3

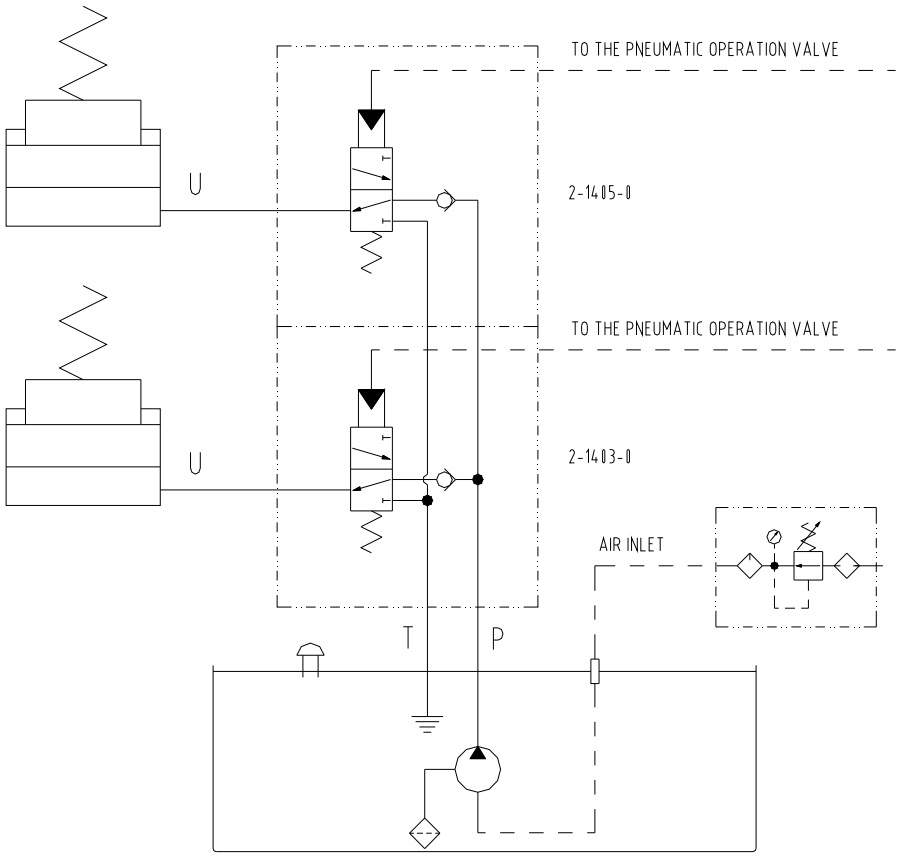


fig.4

Operation of a single-use plant **(diagram in figure 3)**

The system shown in the figure is an example of connection of a single collector block (**2-1403-0**) to a hydropneumatic power unit.
In this case the block is connected to a single-acting spring-return cylinder.
In this position the power unit's delivery line is in communication with the cylinder, that is extended and under pressure. By providing pressure to the pneumatic driving line of block **2-1403-0**, the delivery line is shut-off and the line connected to the cylinder is connected to the discharge.
By letting the pressure on the pneumatic driving line out, block **2-1403-0** is switched again and puts the operating line under pressure again.

Operation of a double-use plant **(diagram in figure 4)**

The system shown in the figure is an example of connection of a collector block (**2-1403-0**) to an additional block (**2-1405-0**).
As in the above example, the cylinders connected to delivery lines are usually under pressure.
If the line of the cylinder connected to block **2-1405-0** is switched to the discharge mode, the pressure on the plant's delivery **P** will not change and the other block (**2-1403-0**) will remain under pressure. By letting out the pressure on the pneumatic driving line of block **2-1405-0**, the connected cylinder will need some fluid, and a pressure drop will occur on the whole pressure line **P** of the plant. The pressure in the cylinder connected to collector block **2-1403-0** will not drop suddenly, owing to the activation of the internal check valve.

Pneumatic collector block 2-1403-0

This pneumatic spring-return directional valve is operated when a stem slides vertically inside the seat available in the single-block distributor body. The stem is moved by a pneumatic piston integral with the stem.
The valve body is made of steel coated with anti-friction material and passivized to withstand corrosion over the time.
Gaskets are usually made of nitrile rubber, but different compounds can be mounted when necessary.
The cursor and the internal unidirectional valve are made of treated and ground chrome-nickel steel.
The liner of the pneumatic drive unit is made of hard oxidized aluminium, like the piston moving inside it, which is anodized only.

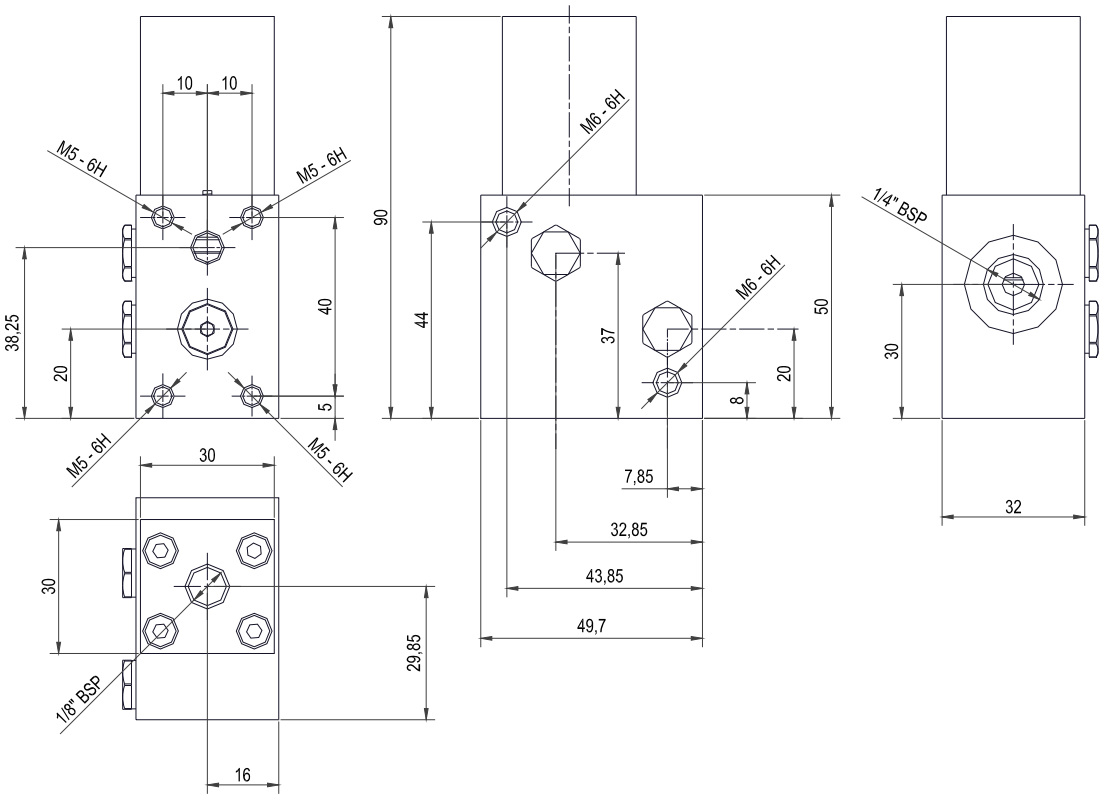


fig.5

Figure 5 shows the external view of collector block **2-1405-0**, with its overall dimensions. The device is secured to the power unit by means of 4 tapped holes (M5). The additional version **2-1405-0** is different from the basic version, but only because the two M6 holes are replaced by 2 through holes (Ø 6.5) for 2 M6 screws, that will clamp the additional distributor unit **2-1405-0** (max. 5 blocks) to collector block **2-1403-0**.

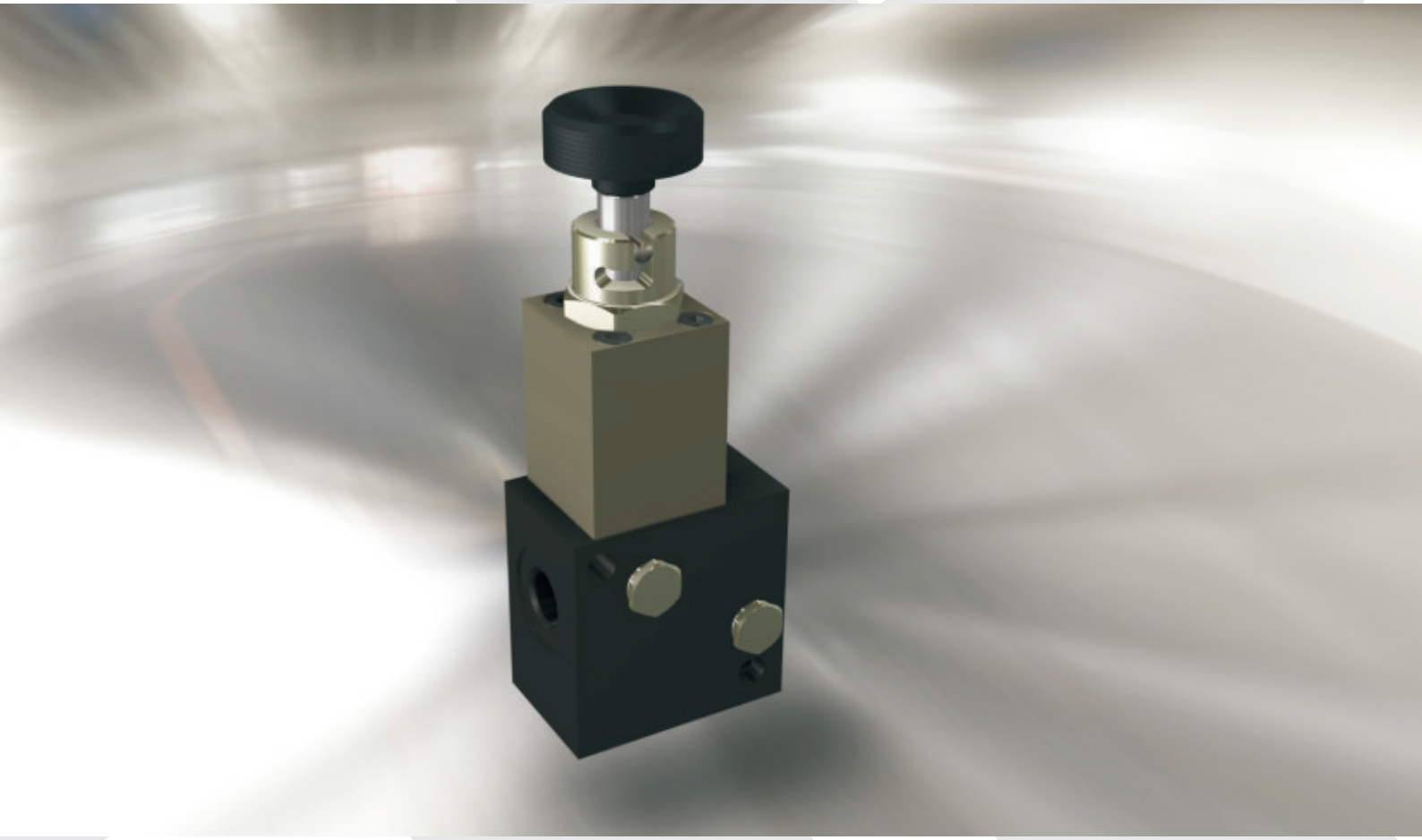
Technical data

MAXIMUM WORKING PRESSURE	**500 bar**
MAXIMUM PNEUMATIC DRIVE PRESSURE	**7 bar**
MAXIMUM OIL VISCOSITY	**10° Engler**
MAXIMUM OIL TEMPERATURE	**90°C**
AMBIENT TEMPERATURE	**-10 +50°C**
CONNECTION DIAMETER	**1/4” G.**
DRIVE CONNECTION DIAMETER	**1/8” G.**

NOTES

As specified above, distributor blocks **2-1403-0** and **2-1405-0** have been designed and manufactured for Tecnofluid hydropneumatic power units.
Any other application shall be carefully assessed in cooperation with our technical department.

THREE-WAY HYDRAULIC BLOCK MANUAL CONTROL AND DETENTOR



Requirements

This system consists of a three-way hydraulic distribution block (**2-1634-0**).
This device has been designed to control the hydraulic pressure delivered by hydraulic power units (**5-1563-*-0**). Therefore, a **5-1563** power unit is required to use the three-way distribution block (**2-1634-0**). For their technical characteristics, see the relevant technical documentation.
This device has been designed to control a single pressure line, and therefore is fit for single-acting cylinders.

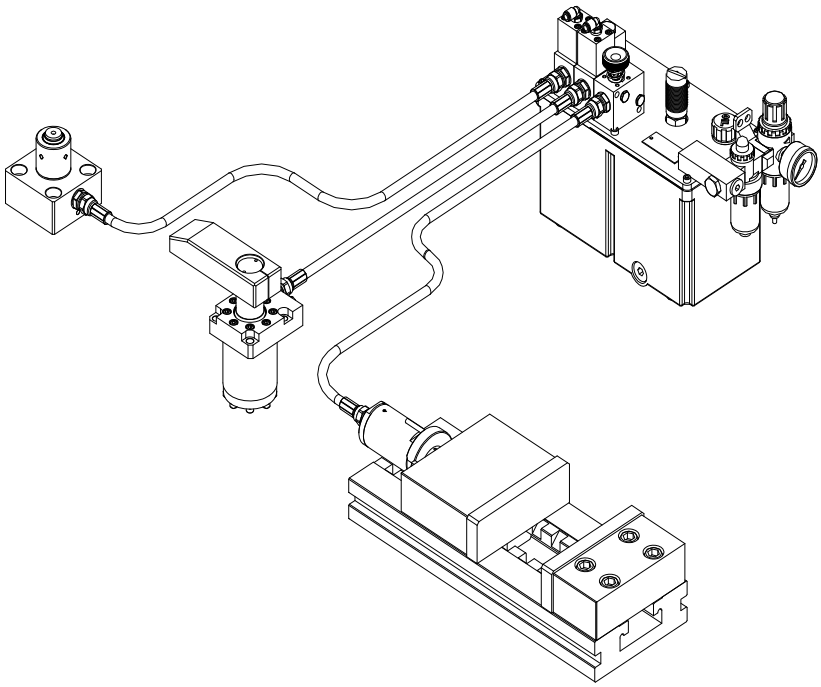


fig.1

Characteristics

Owing to its structural characteristics this system ensures the control of a hydraulic line and makes it possible to hold pressure even when the pressure in the rest of the system is lower, because oil is needed by another application. The system modularity also makes it possible to handle more pressure lines (up to a maximum of 6 elements).

Hydraulic diagram

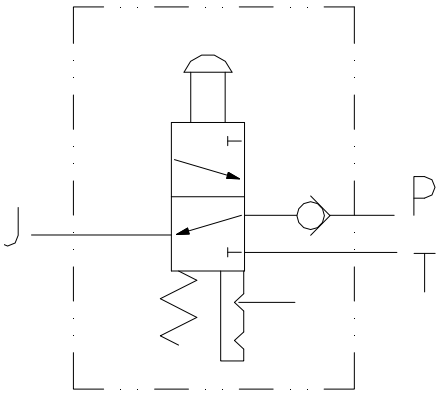


fig.2

Figure 2 shows the hydraulic diagram of block **2-1634-0**.
The basic version is under examination: the block is mounted directly on the pressure intake flange of the hydraulic power unit. An additional modular version can be mounted on this basic block. The additional block's code is **2-1635-0**.
The symbols used in figure 2 shall be interpreted as follows:
P = Pressure line (from the power unit), **T** = Discharge line (to the power unit), **U** = connection to the hydraulic device.

Operating principle

This distributor exploits the motion of a distribution box that slides along its guide sleeve and covers/uncovers the openings which connect the delivery, use and discharge lines. A unidirectional vale is positioned upstream of this distribution box, to prevent pressure on the operating line from reaching the delivery line, if the pressure in this line is lower than the one in the pressure line, when hydraulic pressure is need by another hydraulic block mounted on the plant.

Hydraulic connection diagrams

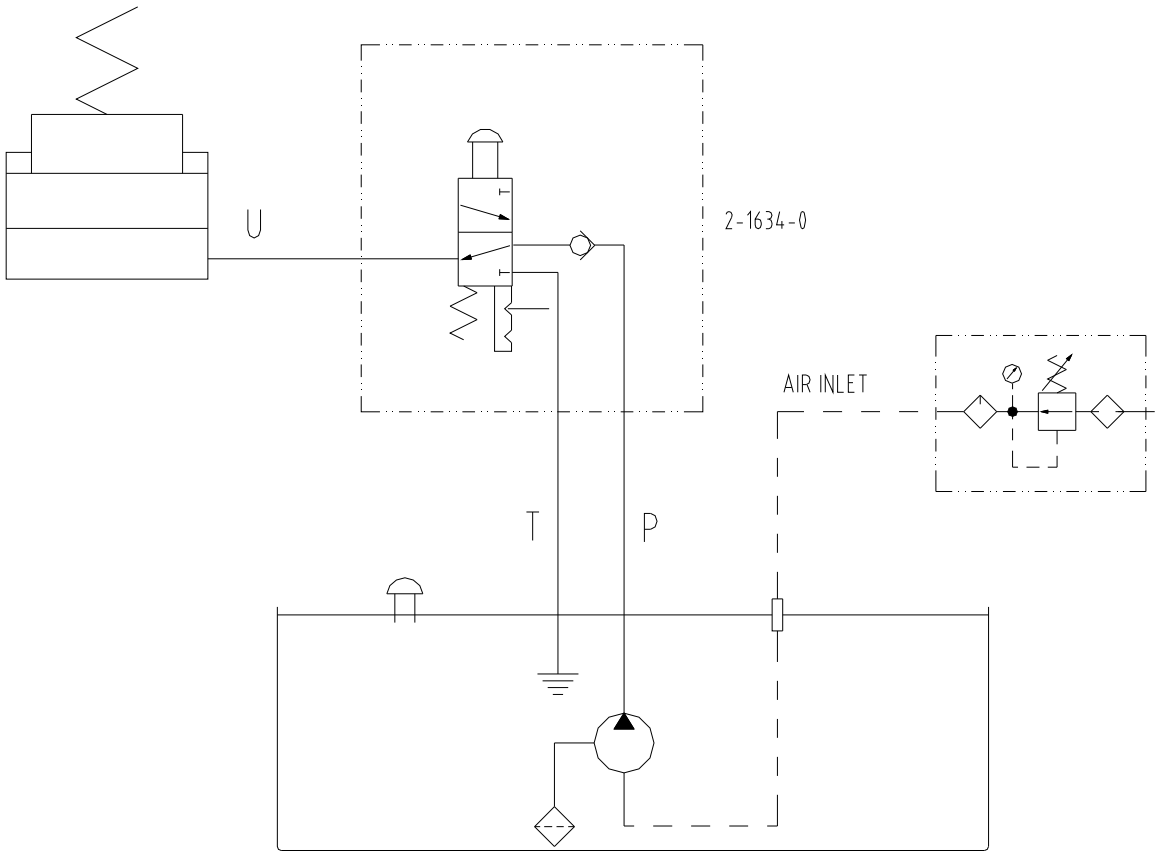


fig.3

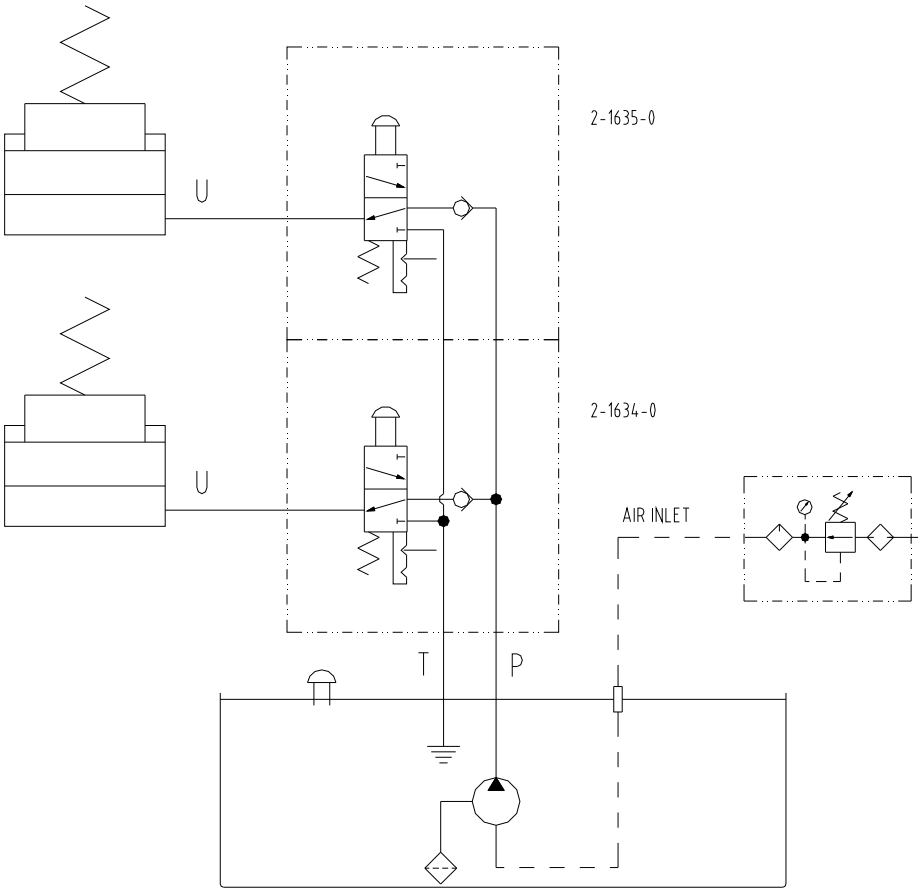


fig.4

Operation of a single-use plant **(diagram in figure 3)**

The system shown in the figure is an example of connection of a single collector block (**2-1634-0**) to a hydropneumatic power unit.
In this case the block is connected to a single-acting spring-return cylinder.
In this position the power unit's delivery line is in communication with the cylinder, that is extended and under pressure. By pressing and turning (to keep it pressed) the manual control of block **2-1634-0**, the delivery line is shut-off and the line connected to the cylinder is connected to the discharge.
When the manual control is turned in the opposite direction and the button is released, block **2-1634-0** is switched again and the operating line is put under pressure.

Operation of a single-use plant **(diagram in figure 4)**

The system shown in the figure is an example of connection of a collector block (**2-1634-0**) to an additional block (**2-1635-0**).
As in the above example, the cylinders connected to delivery lines are usually under pressure.
If the line of the cylinder connected to block **2-1635-0** is switched to the discharge mode, the pressure on the plant's delivery **P** will not change and the other block (**2-1634-0**) will remain under pressure. When the button of block **2-1635-0** is turned and released, the connected cylinder will need some hydraulic fluid, and a pressure drop will occur on the whole pressure line **P** of the plant. The pressure in the cylinder connected to collector block **2-1634-0** will not drop suddenly, owing to the activation of the internal check valve.

Manual collector block 2-1634-0

This direct-actuation spring-return directional valve is operated when a stem slides vertically inside the seat available in the single-block distributor body. The stem motion is controlled by a push-button integral with the stem. The push-button is retained by means of a hollow grub screw inside which a pin integral with the piston stem slides.
The valve body is made of steel coated with anti-friction material and passivized to withstand corrosion over the time.
Gaskets are usually made of nitrile rubber, but different compounds can be mounted when necessary.
The cursor and the internal unidirectional valve are made of treated and ground chrome-nickel steel.

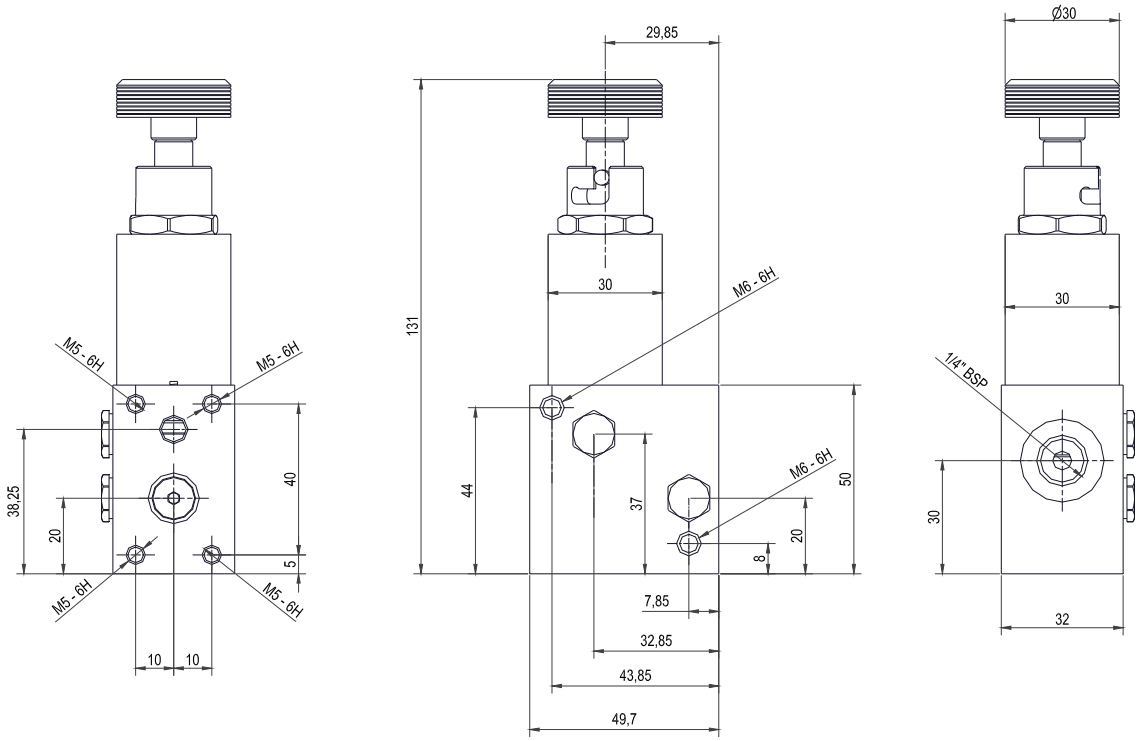


fig.5

Figure 5 shows the external view of collector block **2-1634-0**, with its overall dimensions. The device is secured to the power unit by means of 4 tapped holes (M5). The additional version **2-1635-0** is different from the basic version, but only because the two M6 holes are replaced by 2 through holes (Ø 6.5) for 2 M6 screws, that will clamp the additional distributor unit **2-1635-0** (max. 5 blocks) to collector block **2-1634-0**.

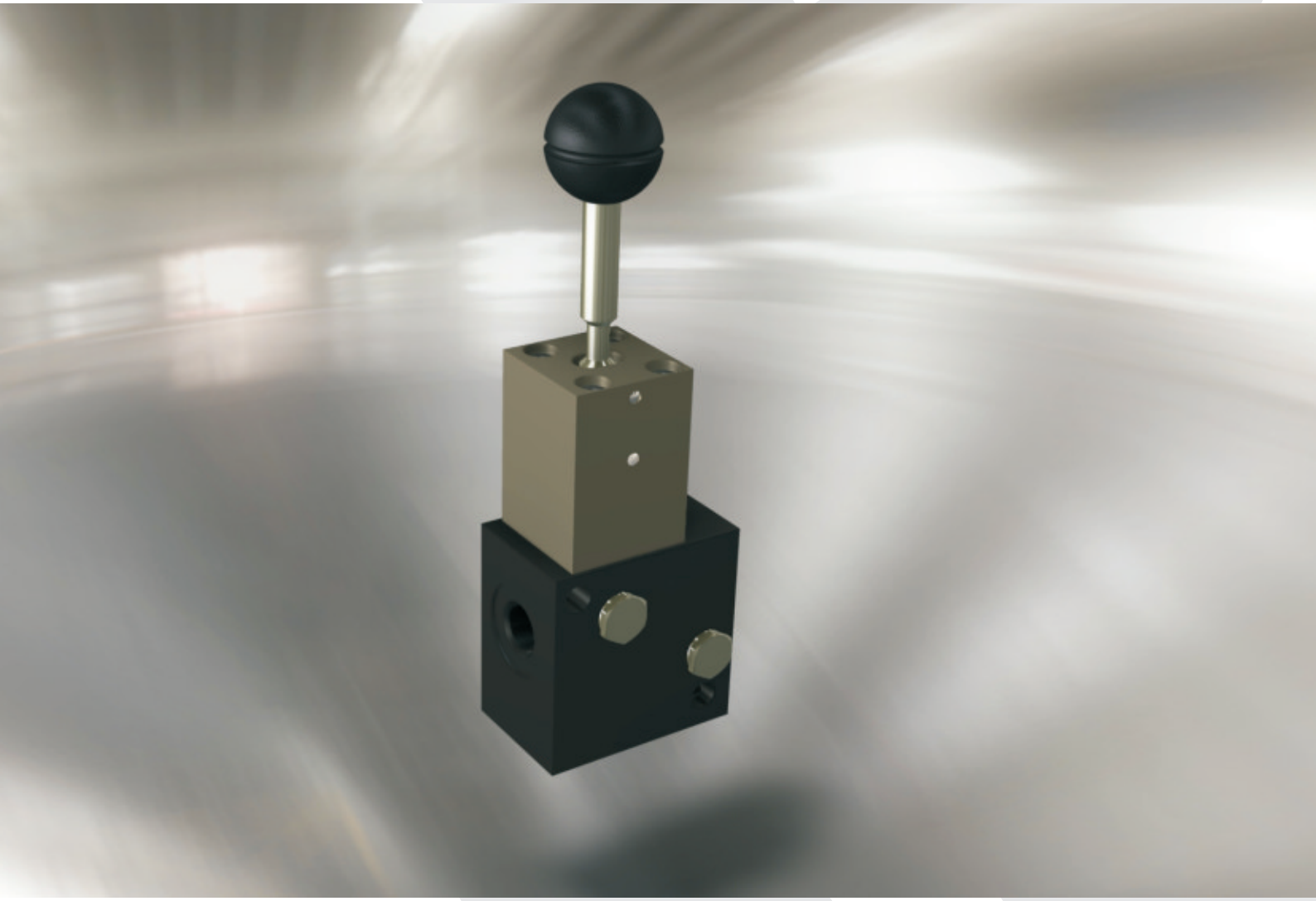
Technical data

MAXIMUM WORKING PRESSURE	**500 bar**
MAXIMUM OIL VISCOSITY	**10° Engler**
MAXIMUM OIL TEMPERATURE	**90°C**
AMBIENT TEMPERATURE	**-10 +50°C**
CONNECTION DIAMETER	**1/4" G.**

NOTES

As specified above, distributor blocks **2-1634-0** and **2-1635-0** have been designed and manufactured for Tecnofluid hydropneumatic power units.
Any other application shall be carefully assessed in cooperation with our technical department.

THREE-WAY LEVER CONTROL HYDRAULIC BLOCK



Requirements

This system consists of a three-way hydraulic distribution block (**2-1514-0**).
This device has been designed to control the hydraulic pressure delivered by hydraulic power units (**5-1563-*-0**). Therefore, a **5-1563** power unit is required to use the three-way distribution block (**2-1514-0**). For their technical characteristics, see the relevant technical documentation.
This device has been designed to control a single pressure line, and therefore is fit for single-acting cylinders. For cylinders or other devices to be actuated which require a double-acting control, use 2 distributor blocks: one for each line of the item to be actuated.

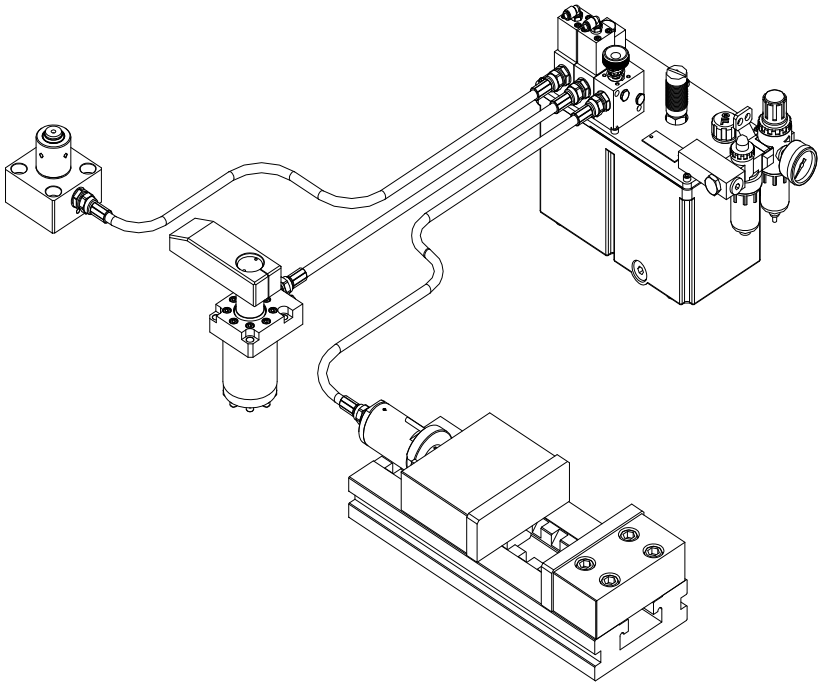


fig.1

Characteristics

Owing to its structural characteristics this system ensures the control of a hydraulic line and makes it possible to hold pressure even when the pressure in the rest of the system is lower, because oil is needed by another application. The system modularity also makes it possible to handle more pressure lines (up to a maximum of 6 elements).

Hydraulic diagram

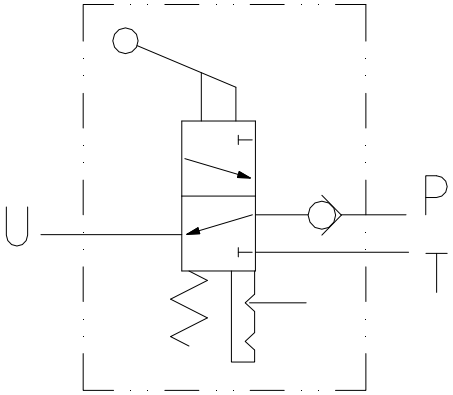


fig.2

Figure 2 shows the hydraulic diagram of block **2-1514-0**.
The basic version is under examination: the block is mounted directly on the pressure intake flange of the hydraulic power unit. An additional modular version can be mounted on this basic block. The additional block's code is **2-1514-A-0**.
The symbols used in figure 2 shall be interpreted as follows:
P = Pressure line (from the power unit), **T** = Discharge line (to the power unit), **U** = connection to the hydraulic device, **Pr** = Pneumatic driving line (from a 3-way pneumatic directional valve)

Operating principle

This distributor exploits the motion of a distribution box that slides along its guide sleeve and covers/uncovers the openings which connect the delivery, use and discharge lines. A unidirectional vale is positioned upstream of this distribution box, to prevent pressure on the operating line from reaching the delivery line, if the pressure in this line is lower than the one in the pressure line, when hydraulic pressure is need by another hydraulic block mounted on the plant.

Hydraulic connection diagrams

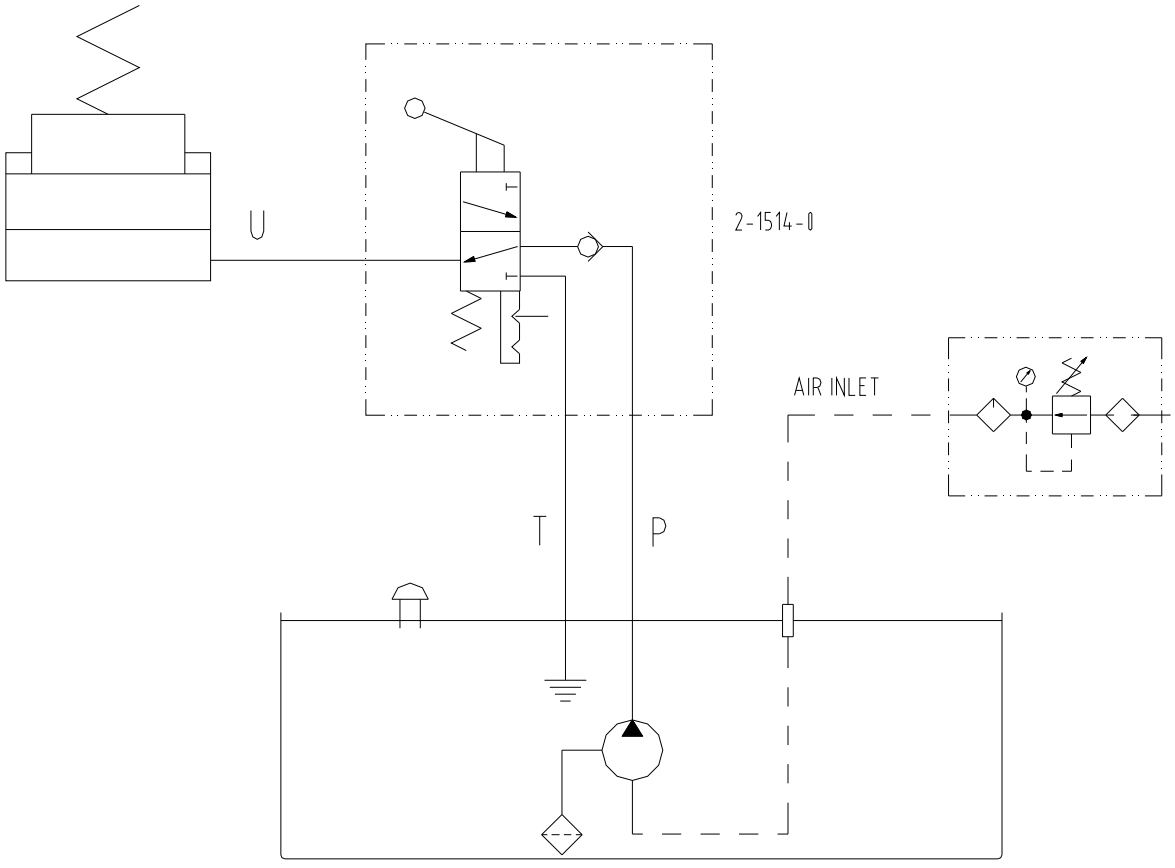


fig.3

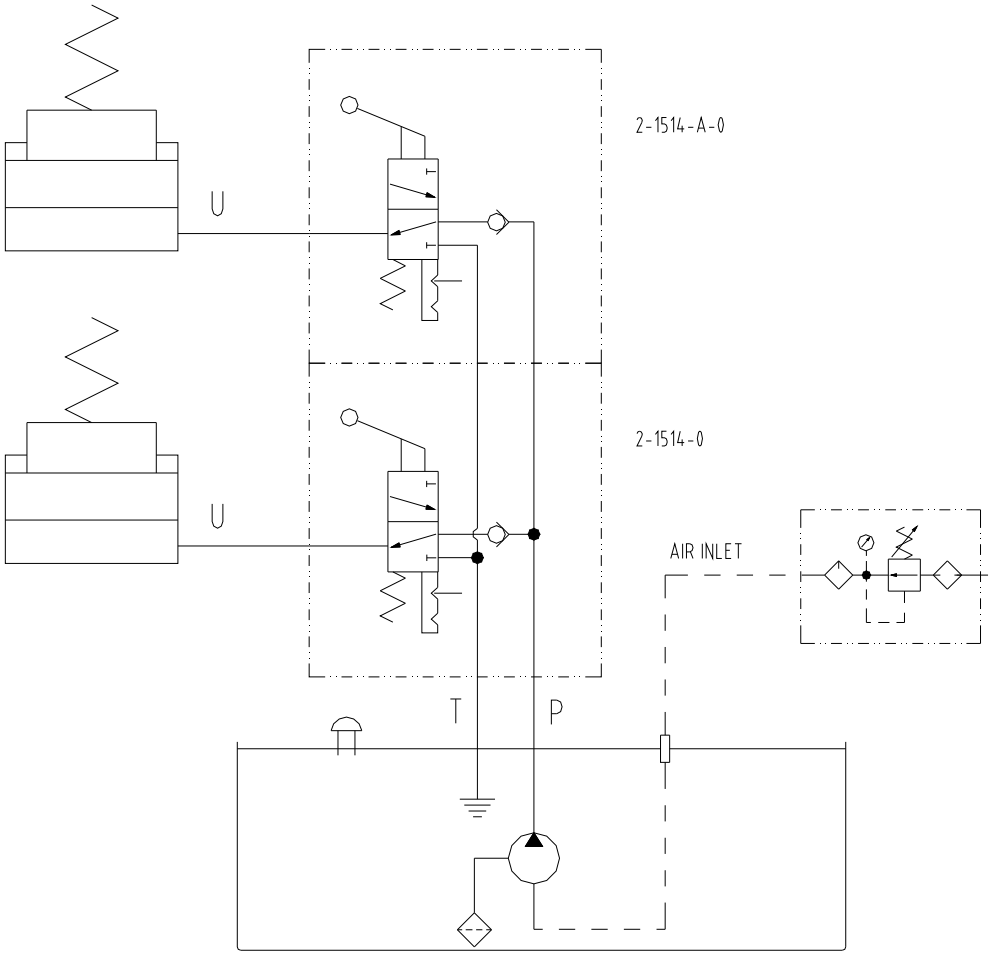


fig.4

Operation of a single-use plant **(diagram in figure 3)**

The system shown in the figure is an example of connection of a single collector block (**2-1514-0**) to a hydropneumatic power unit.
In this case the block is connected to a single-acting spring-return cylinder.
In this position the power unit's delivery line is in communication with the cylinder, that is extended and under pressure. By activating the lever control available on block **2-1514-0**, the delivery line is shut-off and the line connected to the cylinder is connected to the discharge.
When the control lever is moved to the previous position, block **2-1514-0** is switched again and the operating line is put under pressure.

Operation of a double-use plant **(diagram in figure 4)**

The system shown in the figure is an example of connection of a collector block (**2-1514-0**) to an additional block (**2-1514-A-0**).
As in the above example, the cylinders connected to delivery lines are usually under pressure.
If the line of the cylinder connected to block **2-1514-0** is switched to the discharge mode, the pressure on the plant's delivery **P** will not change and the other block (**2-1514-A-0**) will remain under pressure. When the lever on block **2-1514-A-0** is moved, the connected cylinder will need some hydraulic fluid, and a pressure drop will occur on the whole pressure line **P** of the plant. The pressure in the cylinder connected to collector block **2-1514-0** will not drop suddenly, owing to the activation of the internal check valve.

Lever control collector block (code 2-1514-0)

This manual control (bistable lever) directional valve is operated when a stem slides vertically inside the seat available in the single-block distributor body. The stem motion is controlled by a cam which slides coaxially to the piston, actuated by the control lever.
The valve body is made of steel coated with anti-friction material and passivized to withstand corrosion over the time.
Gaskets are usually made of nitrile rubber, but different compounds can be mounted when necessary.
The cursor and the internal unidirectional valve are made of treated and ground chrome-nickel steel.

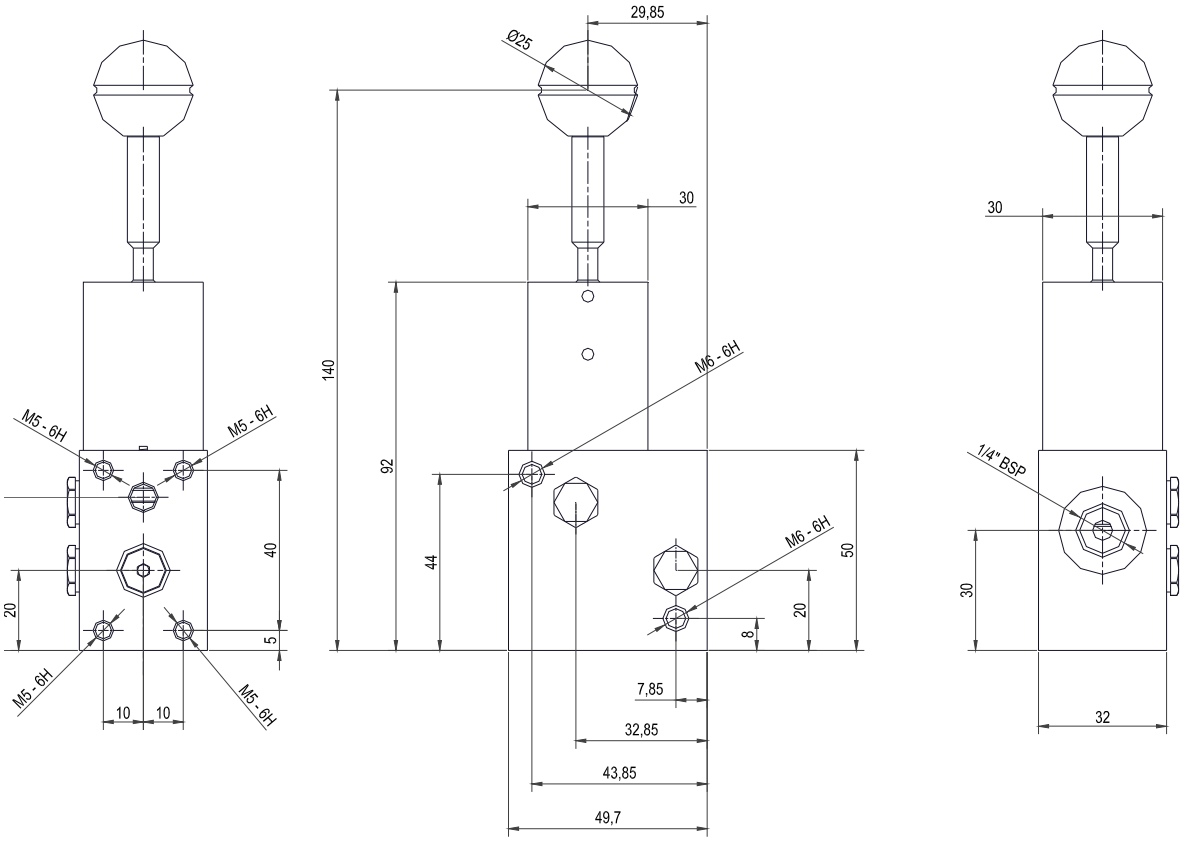


fig.5

Figure 5 shows the external view of collector block **2-1415-0**, with its overall dimensions. The device is secured to the power unit by means of 4 tapped holes (M5). The additional version **2-1415-A-0** is different from the basic version, but only because the two M6 holes are replaced by 2 through holes (Ø 6.5) for 2 M6 screws, that will clamp the additional distributor unit **2-1514-0** (max. 5 blocks) to collector block **2-1514-A-0**.

Technical data

MAXIMUM WORKING PRESSURE	**500 bar**
MAXIMUM OIL VISCOSITY	**10° Engler**
MAXIMUM OIL TEMPERATURE	**90°C**
AMBIENT TEMPERATURE	**-10 +50°C**
CONNECTION DIAMETER	**1/4" G.**

NOTES

As specified above, distributor blocks **2-1514-0** and **2-1514-A-0** have been designed and manufactured for Tecnofluid hydropneumatic power units.
Any other application shall be carefully assessed in cooperation with our technical department.