

# TECHNICAL INFORMATION

## Differential pressure control valve Art. 24



### DESCRIPTION

**Art. 24** are designed for automatic control of differential pressure (DPCV) in order to maintain constant differential pressure between two points of the installation. The flow rate of each branch of a circuit may change according to temperature requirements. Since flow rates depend on  $\Delta p$ , the main feature of **Art. 24** is to maintain constant the nominal flow rate through open terminal units, regardless partial or full closing of them. **Art. 24** is suitable for heating and cooling installations, assuring a good modulating control and reducing the noise risks coming from two-ways control valves, when high  $\Delta p$  values might be present in the installation. **Art. 24** is normally coupled with a partner balancing valve placed on feed line, enabling the flow regulation. **Art.24** differential pressure control valve is made of "CR-Corrosion Resistant" brass with female-female threads according to ISO 228 standard and it is suitable for working pressure up to 16 bar, within the working temperature range of -10°C and +120°C. They are manufactured in sizes from DN 15 up to DN 50 and work properly up to a maximum differential pressure of 400 KPa. The maximum flow rate is 15 m<sup>3</sup>/h.

The main features of **Art. 24** are as follows:

- Keeping of selected  $\Delta p$  at the ends of the circuit, by operating on screw of the handle of the valve with Allen key.
- Differential pressure control at the ends of the valve, using a  $\Delta p$  measuring instrument connected to binder points.
- Noise clearance when installation is in overpressure conditions.
- Reduction of balancing costs, improved energy saving and high environmental comfort.
- Easy flushing procedure thanks to quick and simple removal of differential pressure control cartridge, placed inside valve body.
- Reduced installation dimensions thanks to compact valve construction, which does not require inlet and outlet straight pipelines to stabilize the flow.

### INSTALLATION

Before installation of **Art. 24**, check that inside the valve and the pipes there are no foreign matters which might damage the tightness of the valve. Deburr pipe connections after having threaded them and distribute the sealing material on pipe threads only and not on valve threads. Make sure that required flow rate is within operating range of the valve. **Art. 24** shall be installed on the return line either on horizontal or vertical position, but following the arrow direction casted on valve body, which shall be the same as the flow one. **Art. 24** is coupled with partner valve **Art. 28 DP**, installed on feed line by a copper capillary pipe.

For assembly purpose, use a spanner, not a pipe wrench, by applying necessary working torque only on the valve end nearest to the pipe. This helps get a firmer grip and avoids potential damages to valve body. Make sure that pipe threading length is not longer than valve threads. After DPC cartridge removal, it is possible to flush the system branch where the valve is installed; when flushing process is over, reposition the DPC control cartridge.

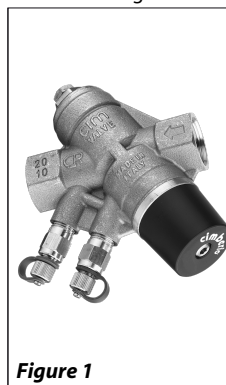


Figure 1

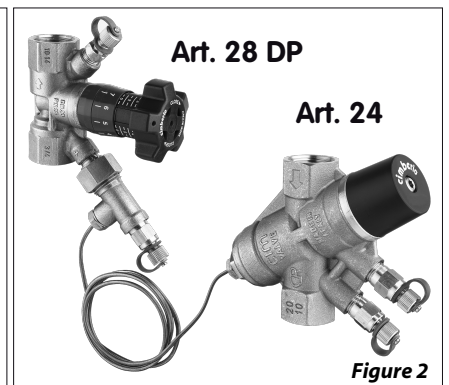


Figure 2

### VALVE REGULATION

$\Delta p$  regulation of **Art. 24** valve (see figure 3) is carried out by Allen key in 4 mm. The relation between flow rate,  $\Delta p$  of feed line and return line and screwing turns of regulating Allen screw are given by the tables stated on the rear (see "Graphs and Tables").  $\Delta p$  increase and decrease is reached by turning clockwise or anticlockwise Allen screw respectively (see figure 3).

During regulation of differential pressure, the valve shall be set to minimum value to proceed with turns numbering; after that, the valve shall be regulated according to tables

$\Delta p$  of the system is measured through differential pressure manometer **Art. 24** with the two sensors, red and blue, which are inserted in binder points PF- and P+ respectively (see figure 4).

Flow rate of the system is regulated through a partner balancing valve **Art. 28 DP** by measuring the difference in pressure between points PF+ and PF- and referring to the graphs of **Art. 24** valve.

Pressure drop of **Art. 24** valve under service is shown when the two sensors of measuring device are inserted in the binder points of the said valve.

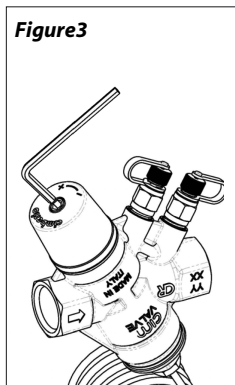


Figure 3

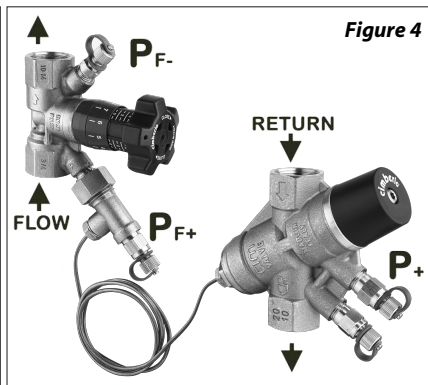


Figure 4

### MAINTENANCE

As a rule, the balancing valve does not need any maintenance. In case of replacement or need of disassembling of some components of the valve, e.g. for flushing the cartridge of differential pressure, make sure that the installation is not under service or pressure.

The following table shows the dimensions of full range of valves **Art. 24**.

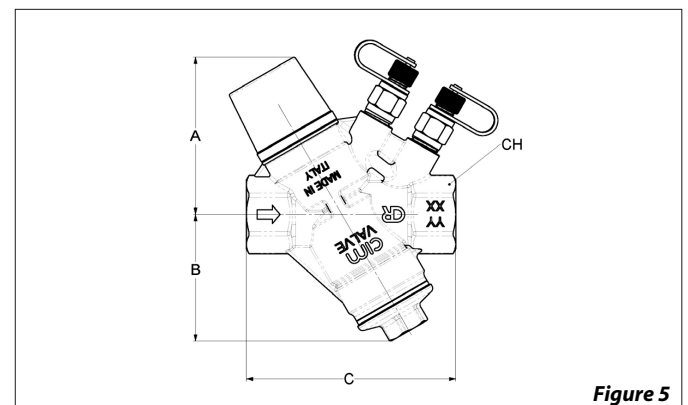
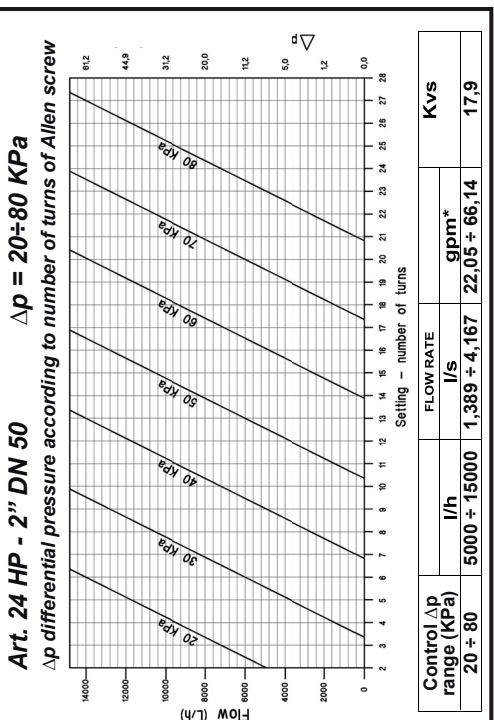
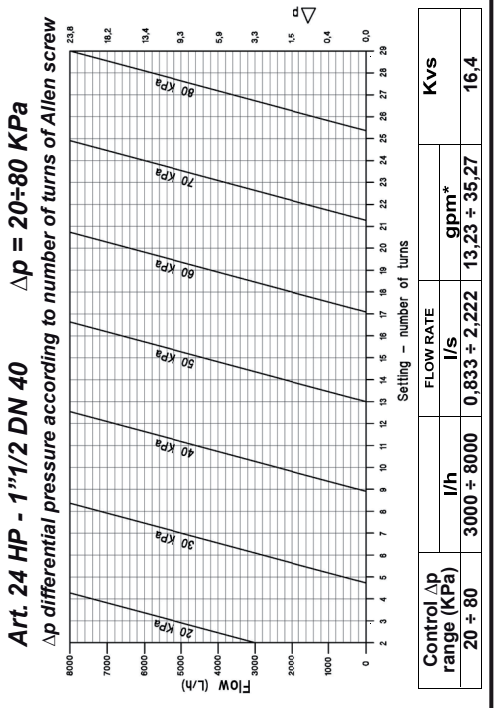
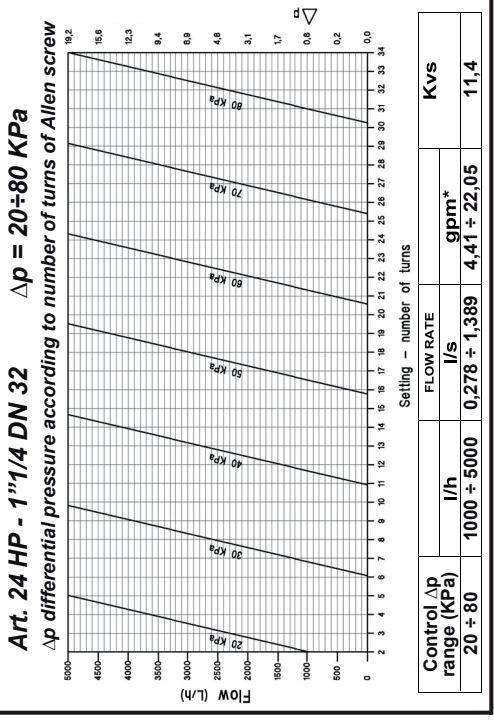
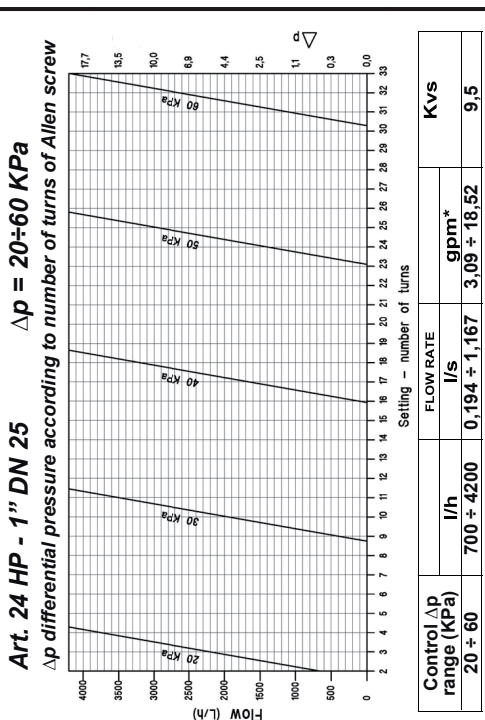
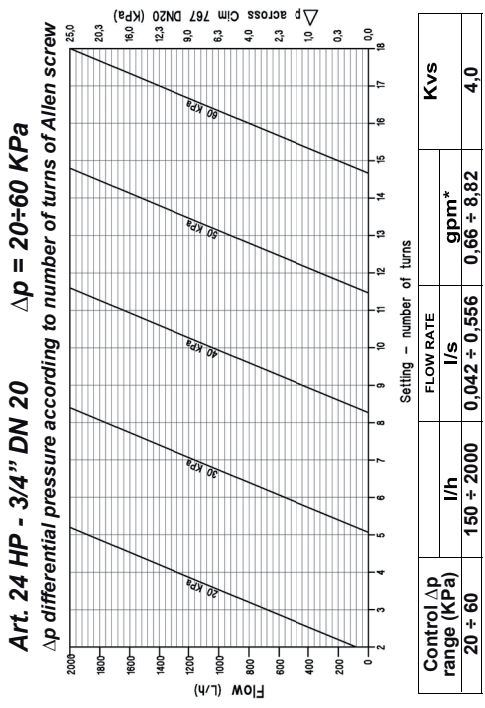
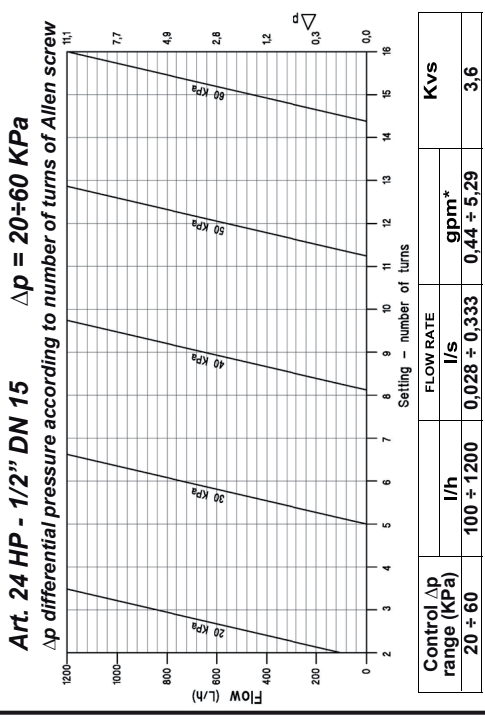
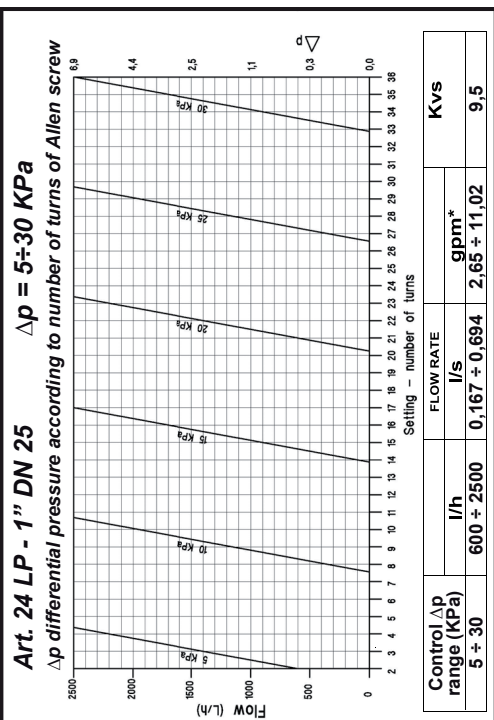
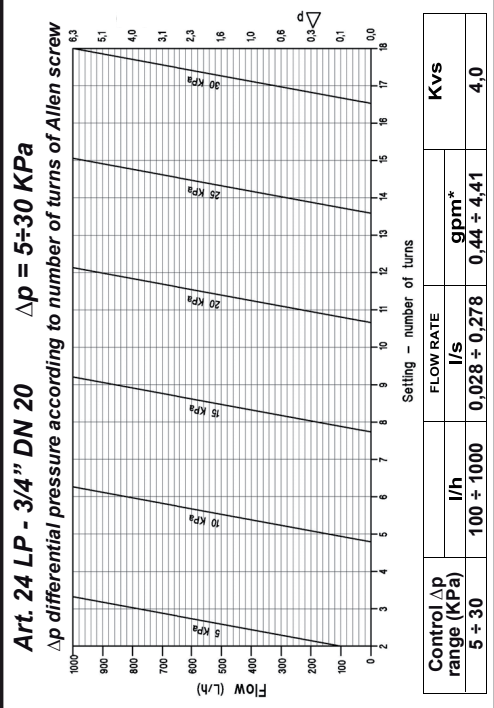
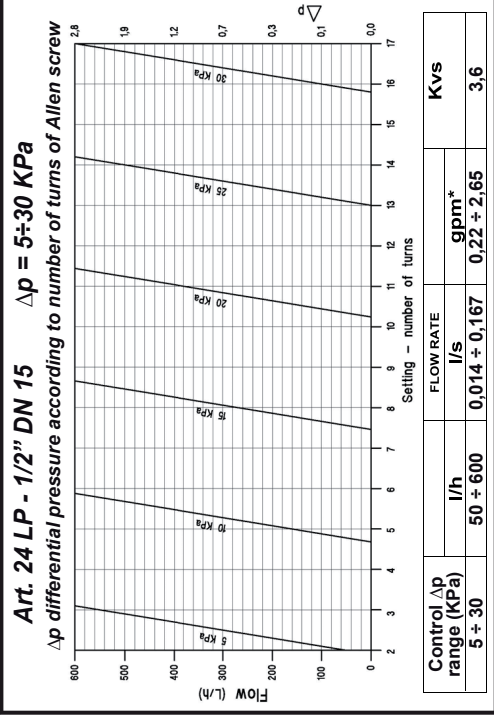


Figure 5

DN	A	B	C	CH
1/2"	70	57	95,5	27
3/4"	72	57	96,5	32
1"	91	74	132	39
1"1/4	91	74	132	47
1"1/2	98	85	144,5	54
2"	105	90	155	68

# GRAPHS AND TABLES Art. 24



\* The "gpm" values are corresponding to US gallon per minute.