ART. 370-371 – FAN COIL VALVES

TECHNICAL DATA SHEET 09/2017 - ENG

FUNCTION

Fan coil shut-off valves are used to control the flow of the heat transfer fluid of heating and air conditioning systems.
The three sizes DN15, DN20, DN25 are provided with threaded male thread, conical seat or flat seat.
The fan coil shut-off valves are designed for the installation of our electrothermal controls, thus guaranteeing automatic interception of the thermal fluid.
Each valve kit is provided with a knob for manual opening / closing of the valve itself.

Art. 370-371

PRODUCTS

Article 370

Code	*Measure*	*Connections*
82370AD05	DN15	G ½" – CONICAL SEAT
82370AE05	DN20	G ¾" – CONICAL SEAT
82370AF05	DN25	G 1" – CONICAL SEAT

Article 371

Code	*Measure*	*Connections*
82371AD05	DN15	G ½" – FLAT SEAT
82371AE05	DN20	G ¾" – FLAT SEAT
82371AF05	DN25	G 1" – FLAT SEAT

OPERATION

The fan coil shut-off valves are used in heating and air conditioning systems for controlling the flow of the heat transfer fluid.
The configuration of our fan coil valves is NORMALLY OPEN, the partial or total closing of the valves is done by pressing the steel pin in the top, this pin is integral with the valve internal shutter and has a max stroke of 3.5 mm.
It is possible to control the valves manually or automatically:
- MANUAL: To manually control the fan coil valves, simply use the white knob supplied with each valve. Turning clockwise the dial gradually closes the passage of the valves until they are fully closed.
- AUTOMATIC: To control the fan coil valves automatically, one of our electrothermal commands must be installed.
We have a wide range of electrothermal controls:
• Electrothermic controls on / off
• Electrothermic controls with microswitch for fine signal for clean signal
(For the choice of suitable electrothermal control and for technical specifications refer to the specific data sheet).

All our fan coil valves are ready to receive our electrothermal commands, the operations to be carried out are simple and fast.
Simply remove the white dial from the valve by rotating it counterclockwise and insert one of our electrothermic commands in place of it by screwing the threaded nut that is in its lower part on the valve thread until it locks.
In this way it is possible to control the opening and closing of the valve with a simple electrical signal that can be sent by an ambient thermostat or by a control unit.
With the installation of an electrothermal control in idle mode (non-powered control) the valve can be NORMALLY CLOSED or NORMALLY OPEN depending on the type of control selected.

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TECHNICAL FEATURES

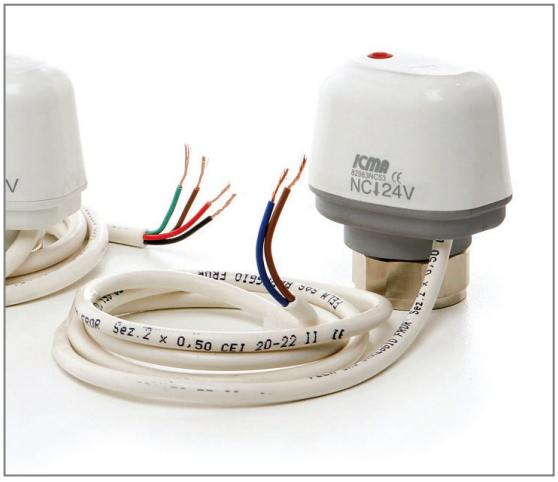
Fan coil valves

Useful fluids:	Water and glycol solutions
Maximum percentage of glycol:	50%
Maximum operating pressure:	10 bar
Maximum fluid temperature:	110 ° C
Minimum fluid temperature:	4 ° C
Valve travel stroke:	3.5 mm
Connection for actuators:	M30x1.5

Fan coil valves

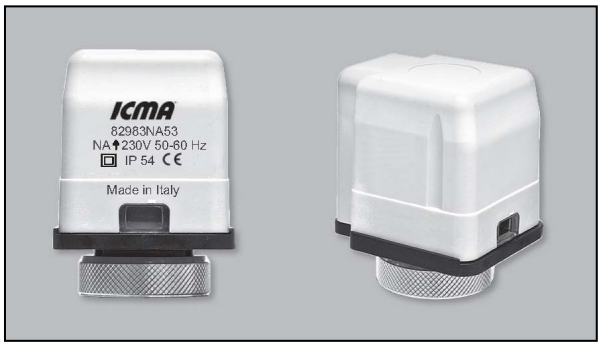
Electro-thermical control devices

Articles:	**980 NC**	**979 NC**
Type:	Without Micro-switch	With Micro-switch
Tension:	24V / 230V	24V / 230V
Frequency:	50÷60 Hz	50÷60 Hz
Starting Current:	0.2 A (230V) / 0.3 A (24V)	0.2 A (230V) / 0.3 A (24V)
Working Current:	8 mA (230V) / 70 mA (24V)	8 mA (230V) / 70 mA (24V)
Working power absorbed:	2W	2W
Movement type:	Linear	Linear
Actuator max trail:	5 mm	5 mm
ICMA valve trail:	3,5 mm	3,5 mm
Starting opening time:	ca 90 sec	ca 90 sec
Fully opening time:	ca 3 min	ca 3 min
Fully closing time:	ca 4 min	ca 4 min
Dynamic power:	100 N	100 N
Working temperature:	0°C ÷ 50°C	0°C ÷ 50°C
Stock temperature:	-25°C ÷ +60°C	-25°C ÷ +60°C
Thread connection:	M28x1,5 / M30x1,5	M28x1,5 / M30x1,5
Connection cable:	Flame resistant - Bipolar	Flame resistant - Quadripolar
Connection cable lenght:	2x0,5 mm² L= 1 m	4x0,35 mm² L= 1 m
Protection grade:	IP 53	IP 53
Electrical insulation class:	Class II	Class II



Electro-thermical control devices

Articles:	**980 NA 53**	**980 NA 54**
Type:	230 V	24 V
Tension:	50÷60 Hz	50÷60 Hz
Frequency:	0.2 A	0.25 A
Starting Current:	2,5 W	2,5 W
Working Current:	Lineare	Lineare
Working power absorbed:	3,6 mm (+0,4)	3,6 mm (+0,4)
Movement type:	3,5 mm	3,5 mm
Actuator max trail:	80 sec	3 min
ICMA valve trail:	3 min	5 min
Starting opening time:	110 N	110 N
Fully opening time:	90 N	90 N
Fully closing time:	-5°C ÷ 50°C	-5°C ÷ 50°C
Dynamic power:	-20°C ÷ +65°C	-20°C ÷ +65°C
Working temperature:	-5°C ÷ +100°C	-5°C ÷ +100°C
Stock temperature:	M28x1,5 (983) - M30x1,5 (980)	M28x1,5 (983) - M30x1,5 (980)
Thread connection:	Tipo H05V2V2-F	Tipo H05V2V2-F
Connection cable lenght:	1 m	1 m
Polluction grade:	II	II
Protection grade:	IP 54	IP 54
Electrical insulation class:	Classe II	Classe II



MANUFACTURING FEATURES

Fan coil valves

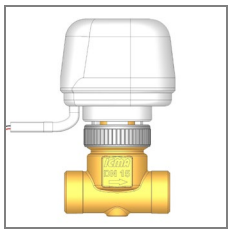
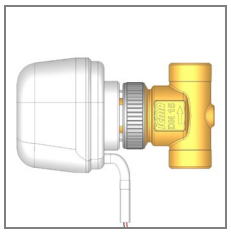
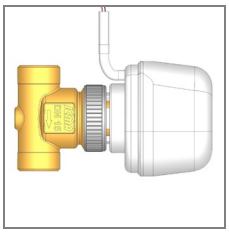
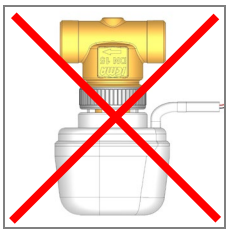
Body:	Brass CW 617 N - UNI EN 12165
Vitone:	Brass CW617N - UNI EN 12164
Awning:	Stainless Steel
Spring:	Stainless Steel
Gasket:	Nylon PA6 30% Glass Fiber
Hydraulic Seals:	Peroxide EPDM

Electro-thermical control devices

Nuts:	Brass CW617N - UNI EN 12164
Various components:	Composite

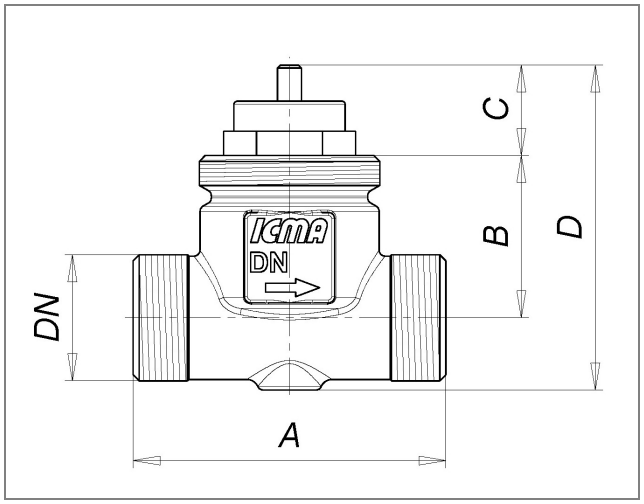
INSTALLATION

The choice of the valve model and its dimensions must be made according to the plant requirements (choice of connection type) and the desired load capacity and load losses (DN dimension).
Hydraulic flow capacity and valve leakage characteristics can be detected by the following diagrams.
Thanks to their reduced footprint, the fan coil valves are particularly suitable for the installation on single terminal batteries (fan coils, fan units).
\ It is advised to avoid valve installation with the electro-thermic command facing down, any condensation of the pipeline may fall on the electrical control by damaging it.
Before assembling the valves make sure that the pipes are clean, free of weld or limestone and in good condition.

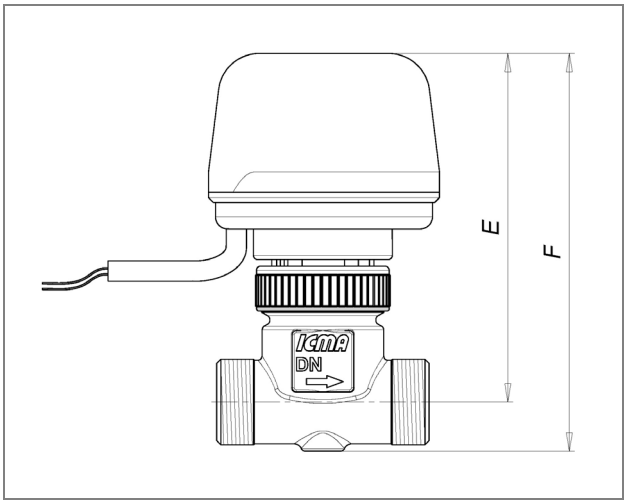





DIMENSIONS

2 WAY VALVE



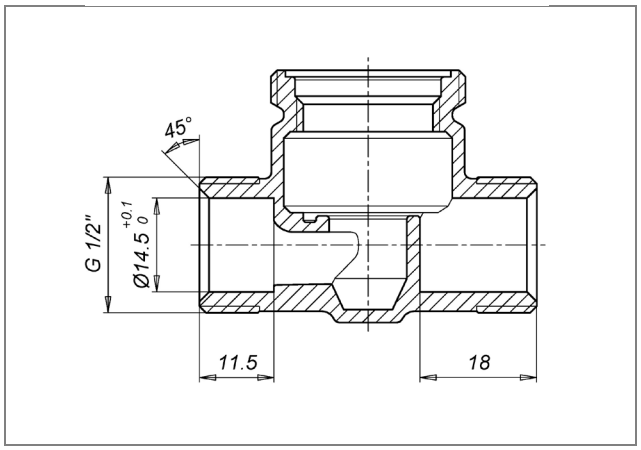
2 WAY VALVE + ELECTRO-THERMICAL CONTROL DEVICE



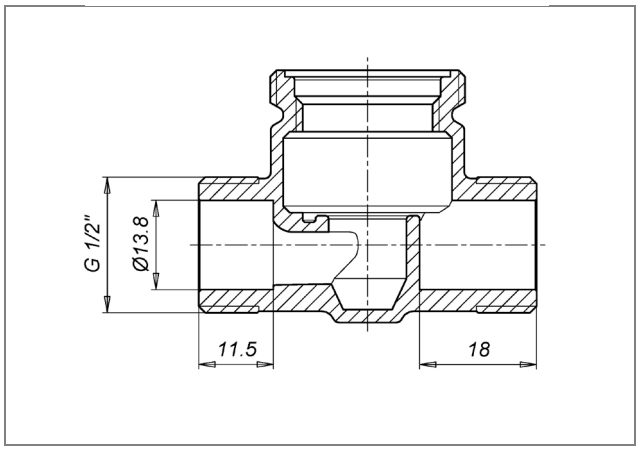
CODE	DN mm	DN	SEAT	A	B	C	D	E	F
82370AD05	DN 15	G ½" M	CONICAL	52	27	15	54	86	98
82370AE05	DN 20	G ¾" M	CONICAL	57	25	15	55	84	99
82370AF05	DN 25	G 1" M	CONICAL	72	39	15	72	98	116
82371AD05	DN 15	G ½" M	FLAT	52	27	15	54	86	98
82371AE05	DN 20	G ¾" M	FLAT	57	25	15	55	84	99
82371AF05	DN 25	G 1" M	FLAT	72	39	15	72	98	116

COUPLING DIMENSIONS

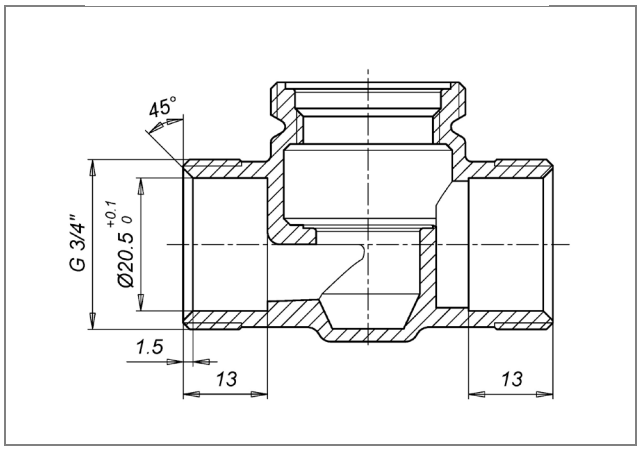
ART. 370 - DN15 CONICAL SEAT



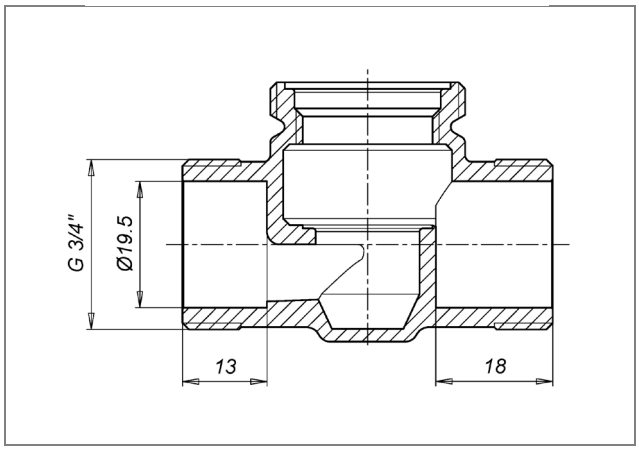
ART. 371 - DN15 FLAT SEAT



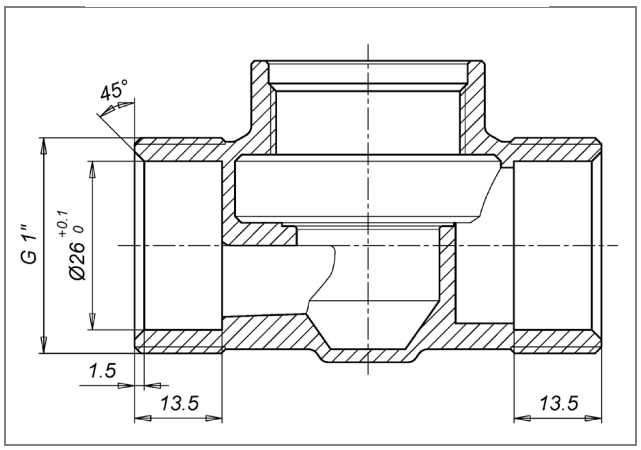
ART. 370 - DN20 CONICAL SEAT



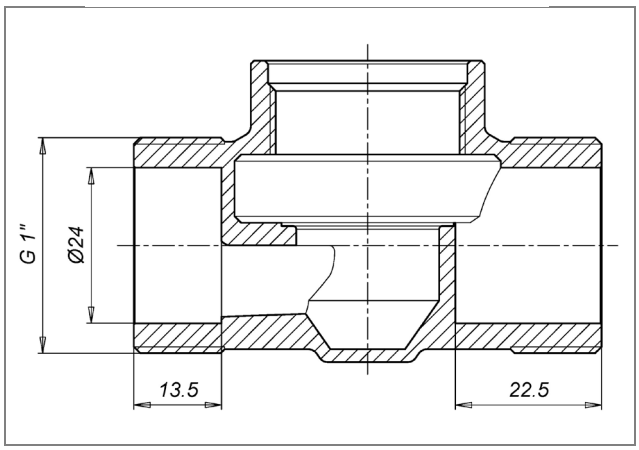
ART. 371 - DN20 FLAT SEAT



ART. 370 - DN25 CONICAL SEAT



ART. 371 - DN25 FLAT SEAT



HYDRAULICAL FEATURES

The choice of the valve model and its dimensions must be in accordance with the plant requirements and the flow characteristics and load losses desired.
ICMA fan coil valves are equipped with a "double regulation" system that allows to limit the max flow of valves during their normal operation.

OPERATION – "DOUBLE REGULATION"

As mentioned above, the "double regulation" system allows limiting the maximum flow rate of a fan coil valve to the max opening condition, which simplifies the operations of balancing a plant and the setting of the Kv of each single ring.
To set "double adjustment", remove the white dial at the top of the valve or remove the previously installed electrothermal control (the valve will be as shown in figure A).
Insert a screwdriver into the slot on the black pin and turn it clockwise to the end of the stroke (see the red arrow in fig. B).
In this way the valve will be fully closed and the center of the key will be locked; the black pin in fact with its movement acts directly on the inner valve shutter.
At this point it is advisable to mark with a marker a reference at the slot of the black pin (Fig. C), which will allow the pin to rotate counterclockwise to the desired position with some precision.

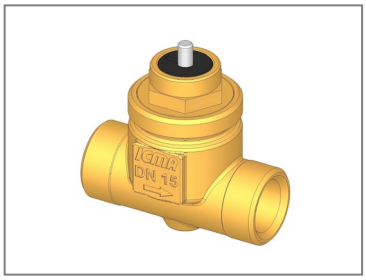


Figura A

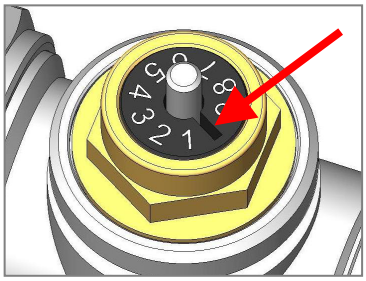


Figura B

The numbered curves on the load loss charts correspond to the number on the black pin and consequently to the degree of valve adjustment:
- curves 1 to 9 ==> correspond to the numbers 1 to 9 on the pin
- curve 10 ==> corresponds to a complete spin of the pin
- curve 15 ==> corresponds to a lap and half of the pin
- the curve 20 ==> corresponds to two full spindle revolutions
(These values are always from the complete closing position)

At two laps of the pin the valve is fully open, unscrewing the pin further increases the stroke of the central steel rod but the value of the max flow does not change.

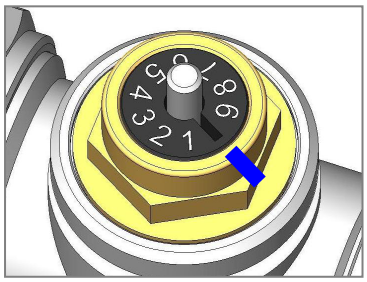
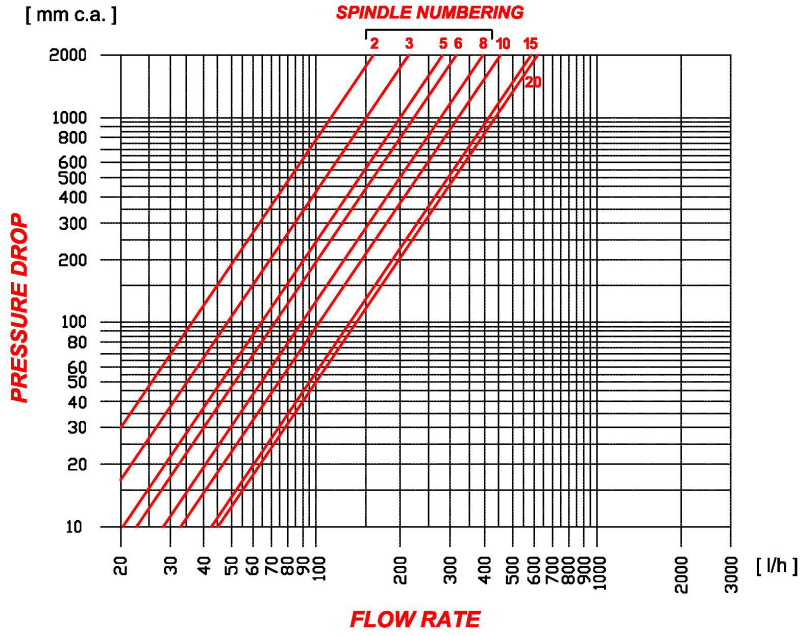


Figura C

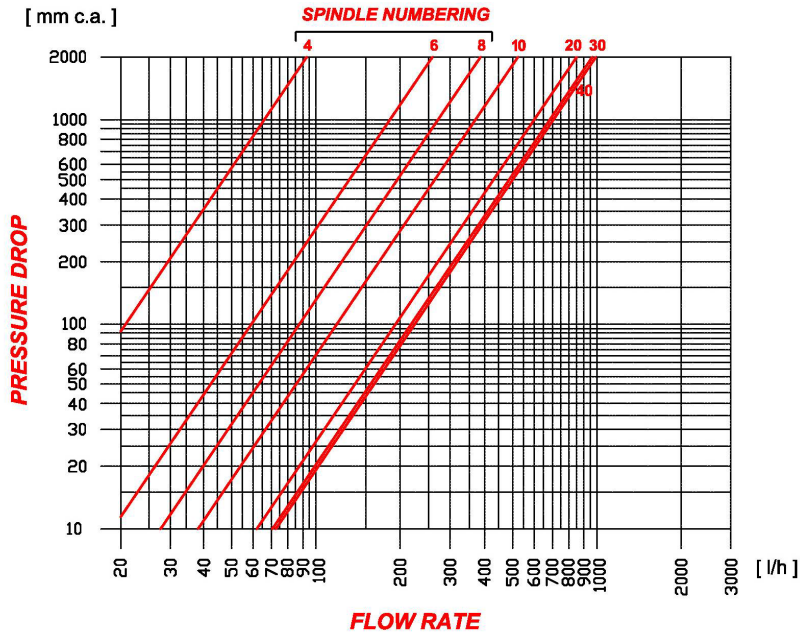
The following are the load loss diagrams for the three measurements of our range of fan coil valves: DN15 - DN20 - DN25.
The "VITONE ADJUSTMENT" tables in the three graphs show the Kv values (expressed in m^3 / h) depending on the degree of opening of the double adjustment for each valve measure.

FAN COIL VALVE DN15
PRESSURE DROP DIAGRAM



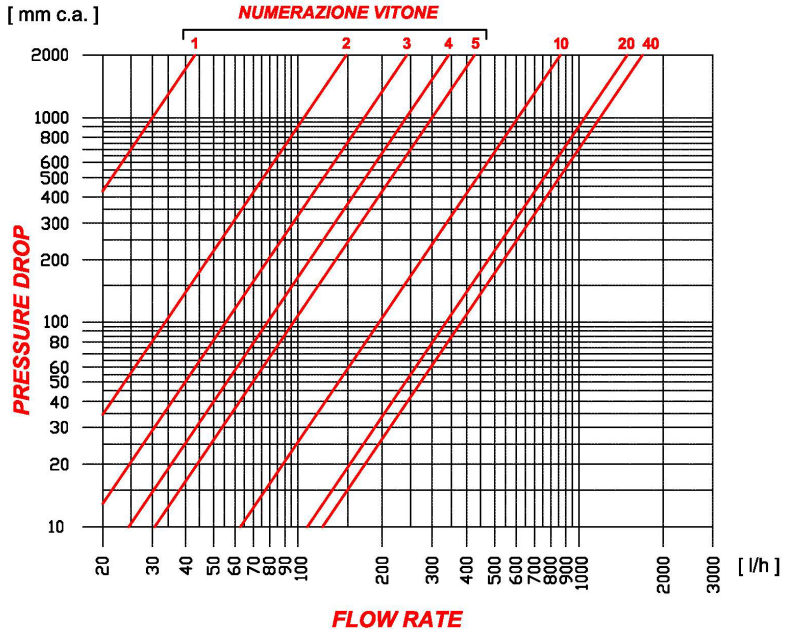
SPINDLE SETTING	
SPINDLE POSITION	Kv (m³/h)
2	0,36
3	0,48
5	0,63
6	0,71
8	0,88
10	1,02
15	1,31
20	1,39

FAN COIL VALVE DN20
PRESSURE DROP DIAGRAM



SPINDLE SETTING	
SPINDLE POSITIONN	Kv (m³/h)
4	0,21
6	0,59
8	0,86
10	1,17
20	1,90
30	2,17
40 TA	2,23

FAN COIL VALVE DN25
PRESSURE DROP DIAGRAM



SPINDLE SETTING	
POSIZIONE VITONE	Kv (m³/h)
1	0,10
2	0,34
3	0,55
4	0,77
5	0,96
10	1,93
20	3,40
40 TA	4,00