

Model	PN	Connection	Dimensions	Stroke [mm]	Min. flow [l/h]	Max. flow [l/h]	Max. differential pressure [kPa]		
VSX03PB	25	G 1/2"	DN10	2,5	30	200	600		
VSXT03PB				5	65	370			
VSX05PB		G 3/4"	DN15	2,5	100	575			
VSXT05PB				5	220	1330			
VSX06PB		G 1"	DN20	2,5	100	575			
VSXT06PB				5,5	300	1800			
VSX03PBP		G 1/2"	DN10	2,5	30	200		800	
VSXT03PBP				5	65	370			
VSX05PBP		G 3/4"	DN15	2,5	100	575			
VSXT05PBP				5	220	1330			
VSX06PBP		G 1"	DN20	2,5	100	575			
VSXT06PBP				5,5	300	1800			
VSXT07PBP		G 1 1/4"	DN25	5,5	600	3609			
VSXT08PBP		G 1 1/2"	DN32	5,5	550	4001			
VSXT09PBP		25	G 1 1/2" F	DN40	15	1370	9500		800
VSXT10PBP			G 2" F	DN50	15	1400	11500		

VSX..PBP: models with pressure plugs.

APPLICATION AND USE

VSX..PB/VSXT..PB pressure independent balancing & control valves can be used in heating and cooling systems in applications with Fan Coil Units, Chilled Beams or other terminal units applications. VSX..PB/VSXT..PB valves provide modulating control with full authority regardless of any fluctuations in the differential pressure of the system.

VSX..PB/VSXT..PB valves combine an externally adjustable automatic balancing valve, differential pressure control valve and a full authority modulating control valve.

VSX..PB/VSXT..PB valves make it simple to achieve 100% control of the water flow in the building, while creating high comfort and energy saving at the same time. An additional benefit is that no balancing is required if further stages are added to the system, or if the dimensioned capacity is changed.

Energy saving is due to optimal control, lower flow and pump pressure. Maximized ΔT is due to faster response and increased system stability.

DESIGN

- Less time to define the necessary equipment for a hydraulic balanced system (only flow data are required);
- no need to calculate valve authority. Always 100%;
- flexibility if the system is modified after the installation.

INSTALLATION

- No further regulating valves required in the distribution pipework when VSX..PB/VSXT..PB is installed at terminals;
- total number of the valves minimized due to the 3-in-1 design;
- minimized commissioning time due to automatic balancing of the system;
- no minimum straight pipe lengths required before or after the valve.

Controlli S.p.A.
16010 Sant'Olcese (GE)
Tel. 010 73 06 1
Fax. 010 73 06 870/871
www.controlli.eu



VSXT09/10

OPERATION

- High comfort for the end-users due to high precision temperature control;
- longer life due to less movements of the actuator.

TECHNICAL CHARACTERISTICS

- The presetting function has no impact on the stroke; full stroke modulation at all times, regardless the present flow;
- differential pressure operating range up to 400-800kPa;
- the constant differential pressure across the modulating control component guarantees 100% authority;
- automatic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system;
- max. differential pressure: see model table;
- high flows with minimal required differential pressure due to advanced design of the valve;
- small dimensions due to compact housing;
- higher presetting precision due to step-less analogue scale.

ACTUATORS

DN10, DN20, DN25 and DN32 valves can be motorized by MVT.S, MVX52B or MCA Controlli actuators, while DN40 and DN50 valves can be motorized by MVE506S Controlli actuators. For valve/actuator coupling refer to the table on page 8.

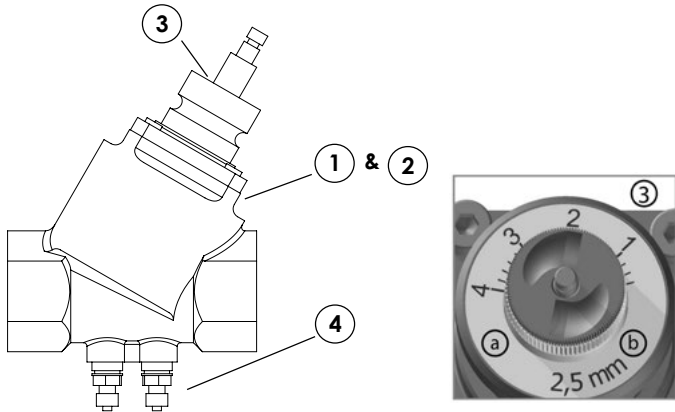
MANUFACTURING CHARACTERISTICS

Valve housing:	DZR brass (DN10-32); ductile iron (DN40-50)
Plug:	CW602N
DP controller:	PPS 40% GF
Spring:	stainless steel
Diaphragm:	HNBR
O-rings:	EPDM
Pressure class:	PN25
Max. differential pressure:	600 or 800kPa (see model table)
Fluid temperature:	0T120°C
Thread:	filettati ISO228
pressure plugs connections:	

Pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene).

The design of VSX..PB/VSXT..PB valve combines high performance with small size and compact construction. The main components of the valve are:

- ① Differential pressure control
- ② Modulating control component
- ③ Presetting scale (not accessible when the actuator is mounted)
 - ⓐ Flow range (Low-High)
 - ⓑ Stroke (2,5 - 5 - 5,5mm)
- ④ Pressure plugs (optional)



COMMISSIONING

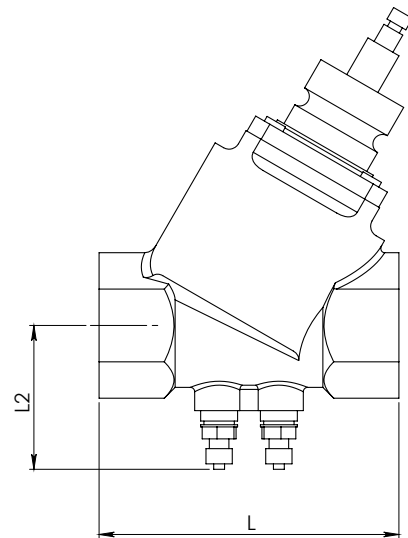
Valves are equipped with a rotating knob positioned on the valve bonnet and a scale from 0,5 to 4 (presetting scale); the maximum flow rate controlled by the valve can be set rotating by hand the knob and then the caliber scale; make sure to rotate again the knob. To each position from 0,5 to 4 corresponds a maximum flow. Valves are normally open; thus if they are not coupled with the actuator, the flow rate will be the one indicated in the table below according to the chosen caliber (see page 8 of this document). Find in the diagrams the required flow valued; to that value corresponds a preset and minimum operating pressure. Usually valves with pressure plugs are used in the farthest terminal units from the flow pump and in that position differential pressure needs to be at least equal to the minimum operating pressure of the corresponding model. If that happens all the other valves will work with a higher differential pressure and therefore the dynamic balancing function is guaranteed unless the 600 or 800kPa are exceeded (see model table).

ACCESSORIES

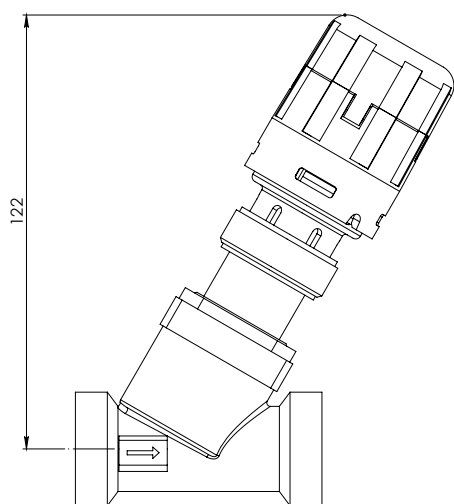
DMP700 differential pressure meter (700kPa max)

DIMENSIONS [mm]

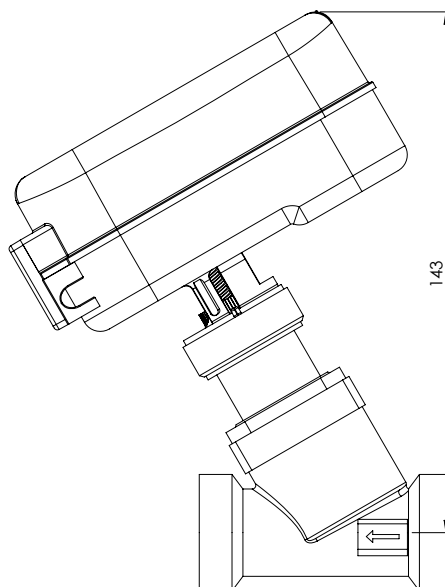
Model	Thread	L [mm]	L2 [mm]	Weight [kg]
VSX(T)03PB	G1/2"	65	-	0,36
VSX(T)03PBP			57	0,45
VSX(T)05PB	G3/4"	65	-	0,38
VSX(T)05PBP			57	0,47
VSX(T)06PB	G1"	70	-	0,40
VSX(T)06PBP			57	0,50
VSXT07PBP	G1"1/4	104	63	1,12
VSXT08PBP	G1"1/2	104	68	1,27
VSXT09PBP	G1"1/2F	138	71	3,28
VSXT10PBP	G2"F	138	77	3,71



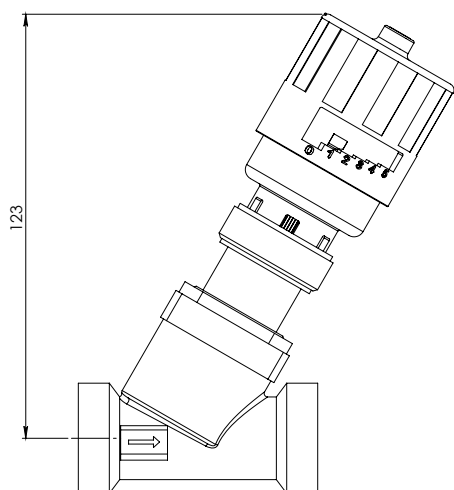
VSX..PB(P)/VSXT..PB(P) + MVX52B



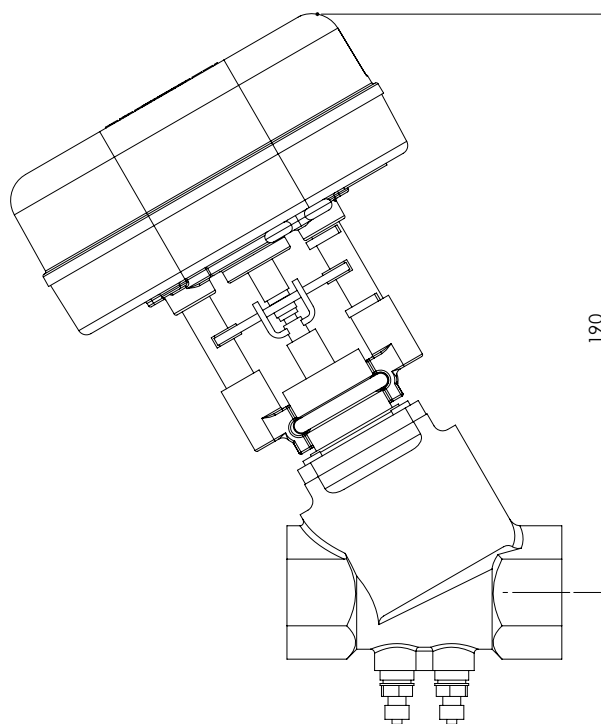
VXS..PB(P)/VSXT..PB(P) + MVTxxxS



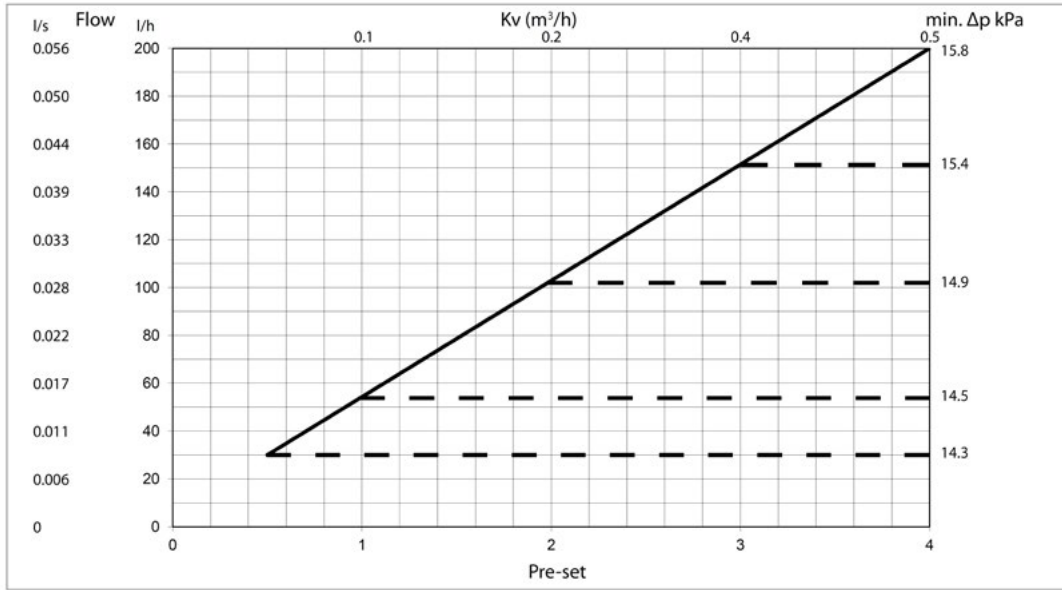
VSX..PB(P)/VSXT..PB(P) + MCA



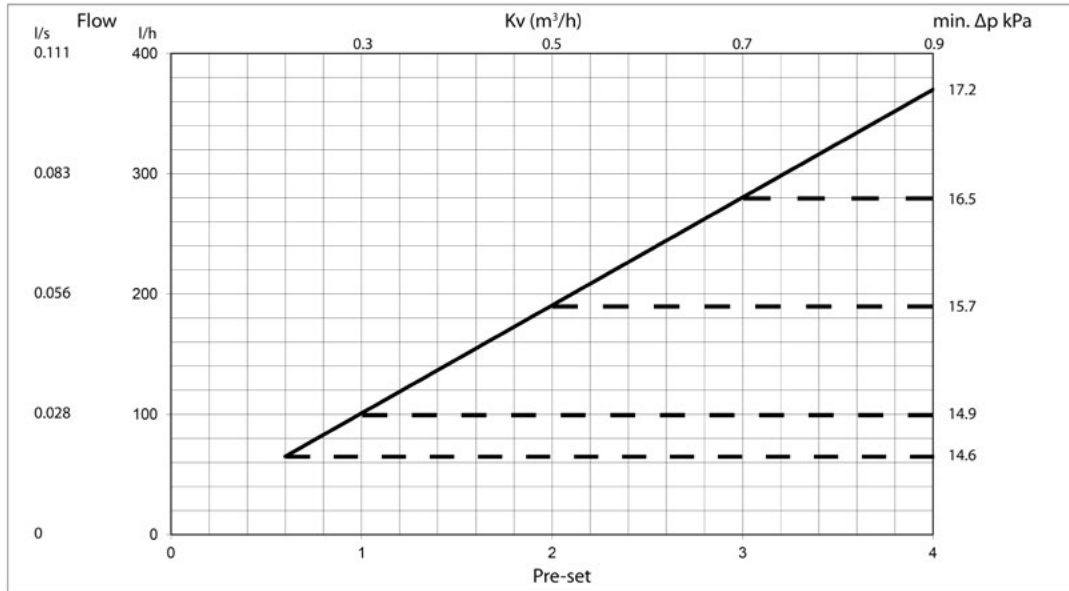
VSXT09PBP/VSXT10PBP + MVE506S



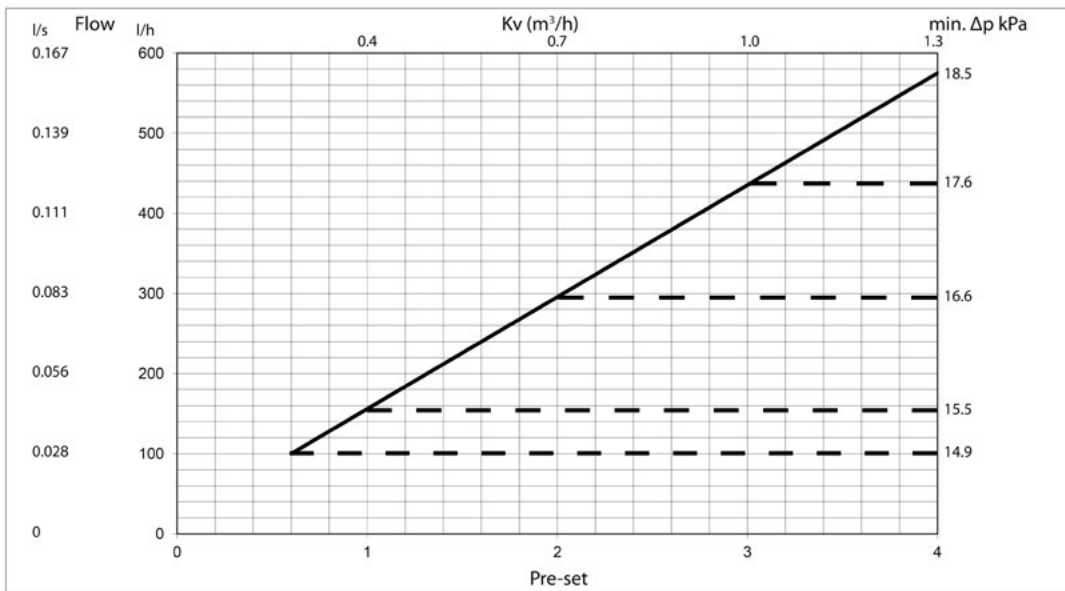
VSX03PB(P)



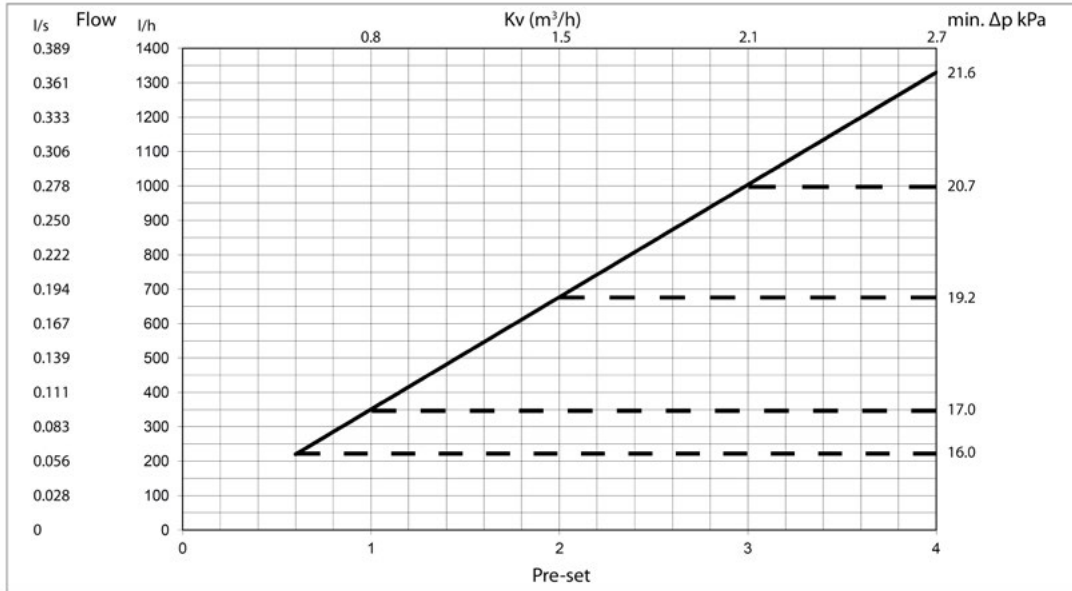
VSXT03PB(P)



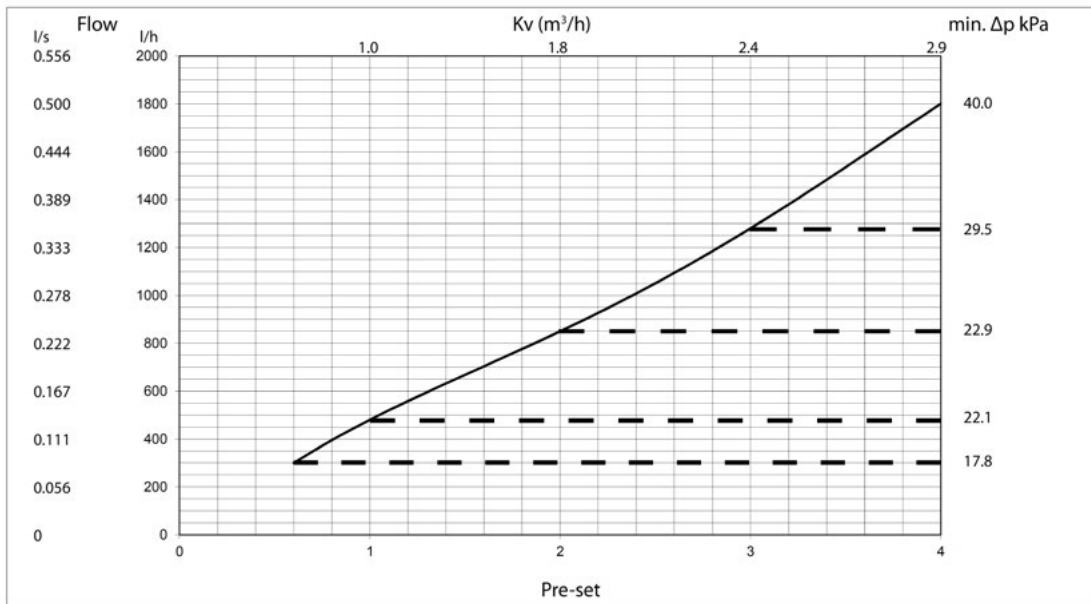
VSX05PBP/VSX06PB(P)



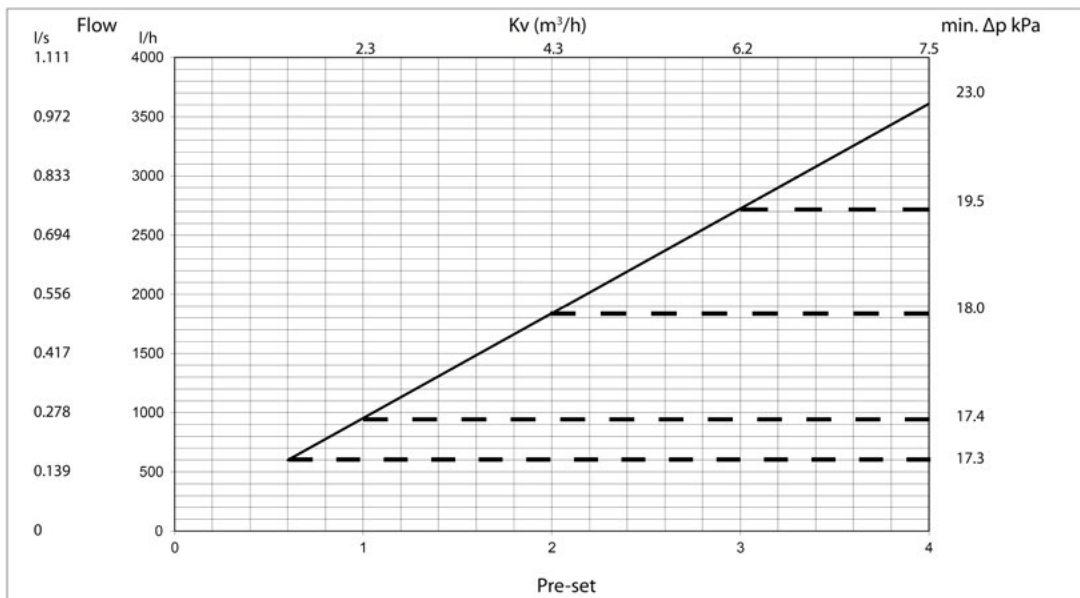
VSXT05PB(P)

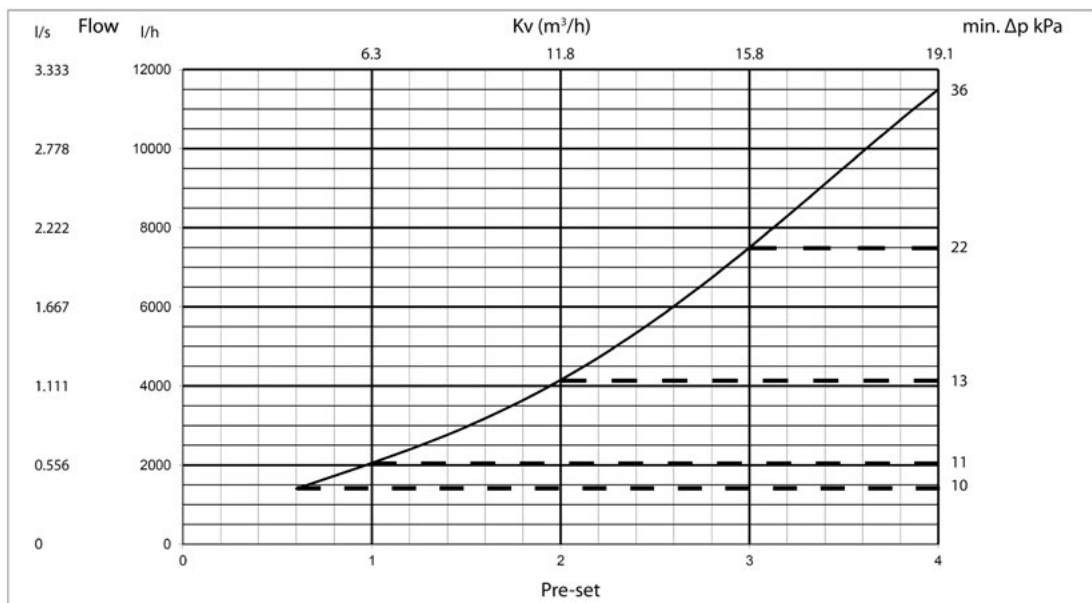
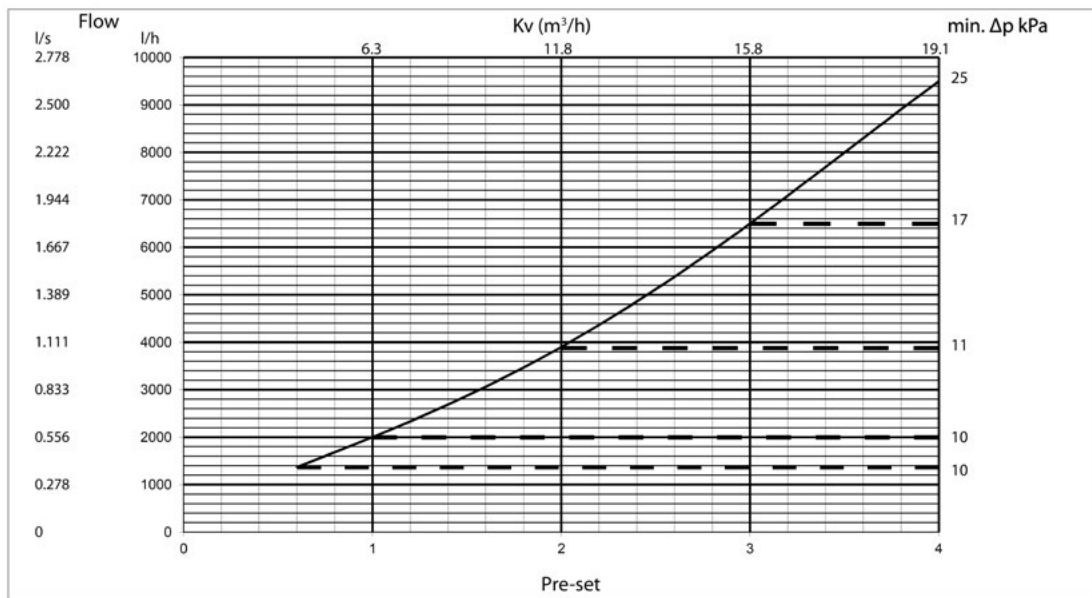
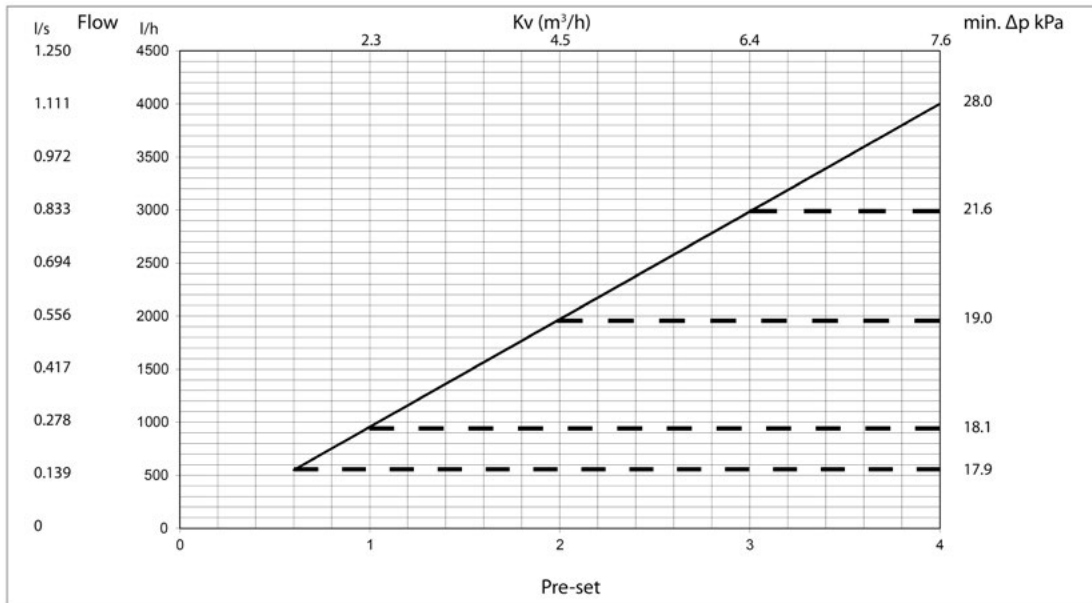


VSXT06PB(P)



VSXT07PBP





FLOW/PRE-SET TABLES

Pre-set	VSX03PB(P)	VSXT03PB(P)	VSX05PB(P) VSX06PB(P)	VSXT05PB(P)	VSXT06PB(P)	VSXT07PBP	VSXT08PBP	VSXT09PBP	VSXT10PBP
	Flow l/h								
0.5	30								
0.6	35	65	100	220	300	600	550	1370	1400
0.8	45	83	128	285	395	777	753	1681	1724
1.0	54	101	156	351	480	954	956	2000	2050
1.2	64	119	184	416	558	1131	1159	2333	2393
1.4	74	137	212	481	632	1308	1362	2686	2766
1.6	83	155	240	546	704	1485	1565	3063	3178
1.8	93	173	268	612	776	1662	1768	3467	3638
2.0	103	191	296	677	850	1839	1971	3900	4150
2.2	113	209	324	742	927	2016	2174	4364	4717
2.4	122	226	351	808	1008	2193	2377	4857	5339
2.6	132	244	379	873	1094	2370	2580	5380	6014
2.8	142	262	407	938	1185	2547	2783	5928	6737
3.0	151	280	435	1004	1280	2724	2986	6500	7500
3.2	161	298	463	1069	1380	2901	3189	7090	8295
3.4	171	316	491	1134	1483	3078	3392	7692	9108
3.6	181	334	519	1199	1589	3255	3595	8300	9925
3.8	190	352	547	1265	1695	3432	3798	8906	10729
4.0	200	370	575	1330	1800	3609	4001	9500	11500

ACTUATOR USE

						Electrothermal actuators		Motor actuators		
						on/off	0-10V	0-10V	3pos.	0-10V 3pos
Model	Stroke [mm]	Min. flow [l/h]	Max. flow [l/h]	Diff. Press. [kPa]	DN	MCA	MVX52B	MVT503S	MVT03S MVT403S	MVE506S
VSX03PB	2,5	30	200	600	10	X	X			
VSXT03PB	5	65	370			X (max. flow 300l/h)	X (max. flow 300l/h)	X	X	
VSX05PB	2,5	100	575		15	X	X			
VSXT05PB	5	220	1330			X (max. flow 1000l/h)	X (max. flow 1000l/h)	X	X	
VSX06PB	2,5	100	575		20	X	X			
VSXT06PB	5,5	300	1800			X (max. flow 1350l/h)	X (max. flow 1350l/h)	X	X	
VSX03PBP	2,5	30	200	600	10	X	X			
VSXT03PBP	5	65	370			X (max. flow 300l/h)	X (max. flow 300l/h)	X		
VSX05PBP	2,5	100	575		15	X	X			
VSXT05PBP	5	220	1330			X (max. flow 1000l/h)	X (max. flow 1000l/h)	X		
VSX06PBP	2,5	100	575		20	X	X			
VSXT06PBP	5,5	300	1800			X (max. flow 1350l/h)	X (max. flow 1350l/h)	X		
VSXT07PBP	5,5	600	3609	800	25	X (max. flow 2400l/h)	X (max. flow 2400l/h)	X	X	
VSXT08PBP	5,5	550	4001		32	X (max. flow 2700l/h)	X (max. flow 2700l/h)	X	X	
VSXT09PBP	15	1370	9500		40					X
VSXT10PBP	15	1400	11500		50					X
										X

Note: for the use of **MCA** actuator select position 3 of the cover;

for the use of **MVX52B** actuator with valves whose stroke is 2,5mm, set the potentiometer on position 6 (60%); with valves whose stroke is longer, set the potentiometer on position 10 (100%);

for the use of **MVT503S** actuator with valves whose stroke is 5mm set DIP n. 4 ON, with valves whose stroke is 5,5mm set DIP n. 4 and DIP n. 6 ON;

for the use of **MVE506S** actuator with control signal **0-10V** set reverse action: DIP 1 ON.

The performances stated in this sheet can be modified without any prior notice