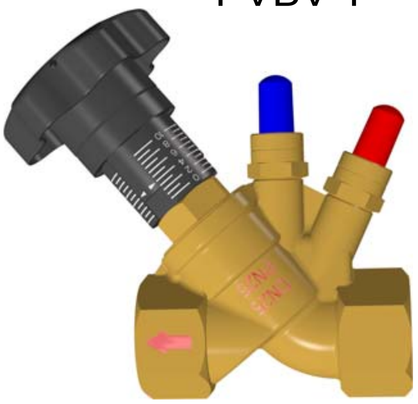
Progressive Environmental Co.
Water and Wastewater Treatment Systems

Model : PVBV-T
PVBV-F

Hydraulic Balancing Valve

PVBV-T

PVBV-F



DN15~DN50 **DN65~DN150** **DN200~DN350**

Why Balancing?

Benefit from a balanced system:

- A comfortable indoor environment.
- Sufficient domestic hot water to all parts of the building.
- Correct flow in boilers and chillers.
- Desired flow distribution throughout the building.
- Energy savings and cost savings.
- Trouble-free operation and ease of maintenance.
- Lower capital costs.

Incorrect balancing?

Before the system is balanced, more water is moved by the pump than required by the system over a short distance because water will always take the path of least resistance. A simple solution is to install valves in the system. As illustrates in Figure 1, pump in the system must provide water to location 4. For an unbalanced system, more water will go through location 1.

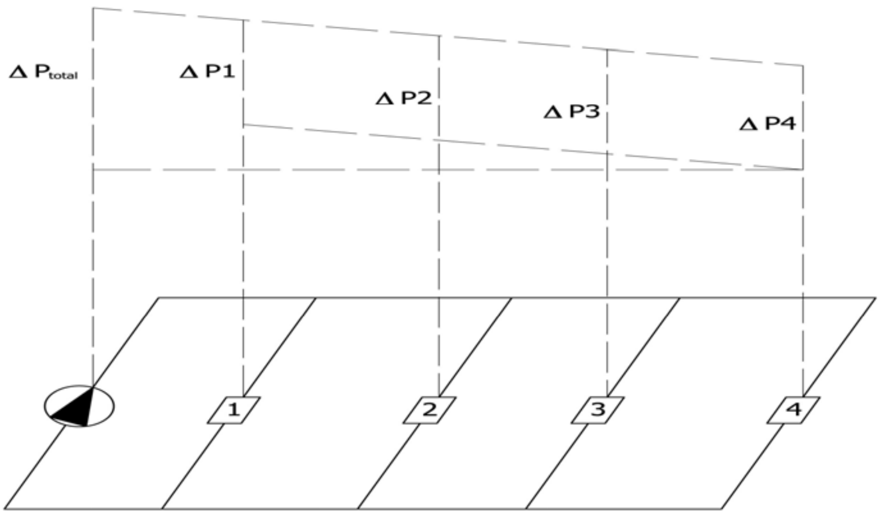


Figure 1

Working Principle

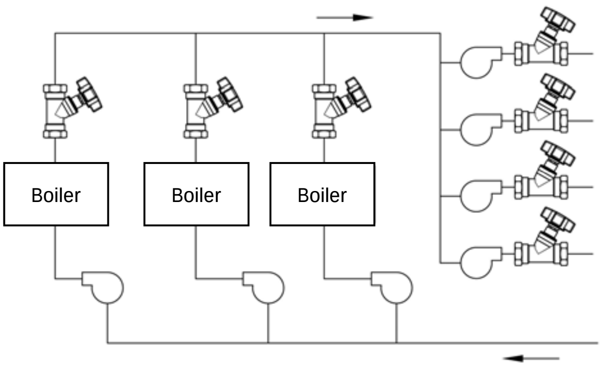
The working principle of a balancing valve is quite simple: Adjust the distance between the disk and seat to change the resistance of the valve. For uncompress fluid (i.e. water), we have:

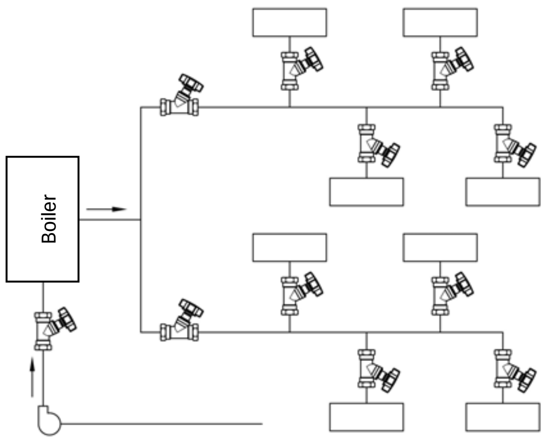
$$Q = K_V \sqrt{\Delta P}$$

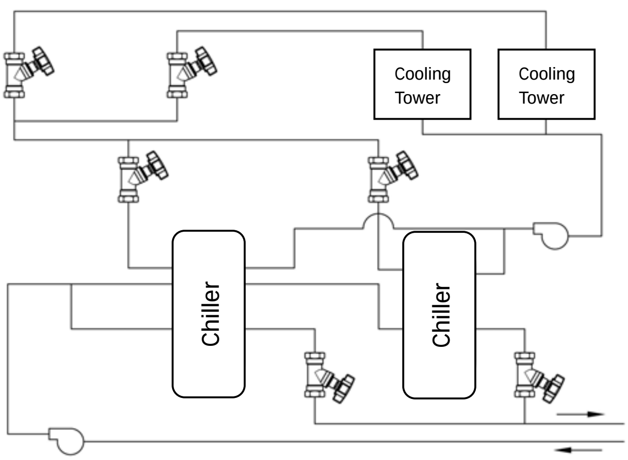
Q = flow through balancing valve（m^3/hr）,
K_V= resistance coefficient for the balancing valve
ΔP=pressure difference between inlet and outlet of the balancing valve（kgf/cm^2）.

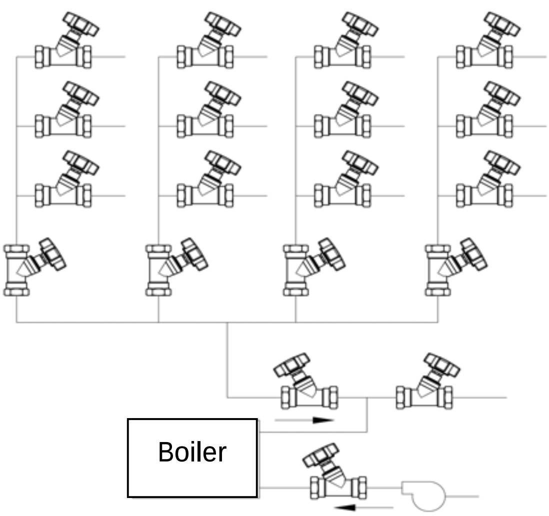
K_V is the resistance coefficient is related to the position of the balancing valve disk. Given the K_V of the balancing valve and the pressure differential pressure (between the inlet and outlet of the balancing valve), we can then calculate the flow through the balancing valve.

Application:







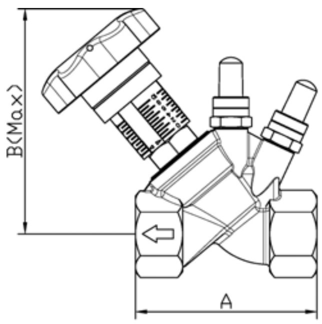


Specification

Model	PVBV-T	PVBV-F
Material	Body and other parts in contact with water : Bronze Seat seal : EPDM Gasket : EPDM Handwheel : Nylon	Body and cover : Ductile Iron Other parts in contact with water : Bronze Seat seal : EPDM Gasket : EPDM Handwheel : Nylon/Ductile-Iron Surface finish : Epoxyresin
Pressure Rating	25 bar	16 bar
Connection	BSP Female	PN16 / Raised Flange
Temperature Rating	-10~120℃	-10~120℃
Functions	Balancing , Shut-off , presetting of flow , flow & pressure measuring , opening locker and indicator	

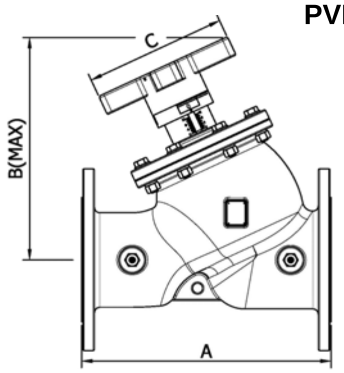
Dimensions

PVBV-T

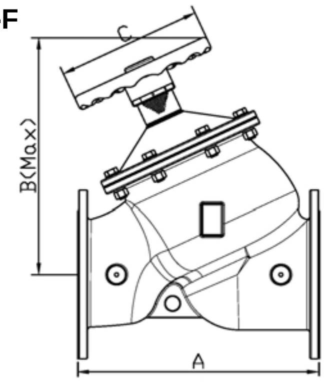


DN15~DN50

PVBV-F



DN65~DN150



DN200~DN350

Size	Material	Connect	A(mm)	B(mm)	C(mm)
DN15	Bronze	1/2” BSPF	80	115	---
DN20		3/4” BSPF	85	115	---
DN25		1” BSPF	98	120	---
DN32		1 1/4” BSPF	110	150	---
DN40		1 1/2” BSPF	120	155	---
DN50		2” BSPF	150	165	---
DN65	Body: Ductile Iron Trim: Bronze	$2^1/_2$" Flange	205	215	210
DN80		3" Flange	250	270	210
DN100		4" Flange	320	315	210
DN125		5" Flange	370	335	210
DN150		6" Flange	415	345	210
DN200		8" Flange	500	500	210
DN250		10" Flange	605	520	340
DN300		12" Flange	725	560	340
DN350		14" Flange	733	600	340

※Other size & materials upon your request.

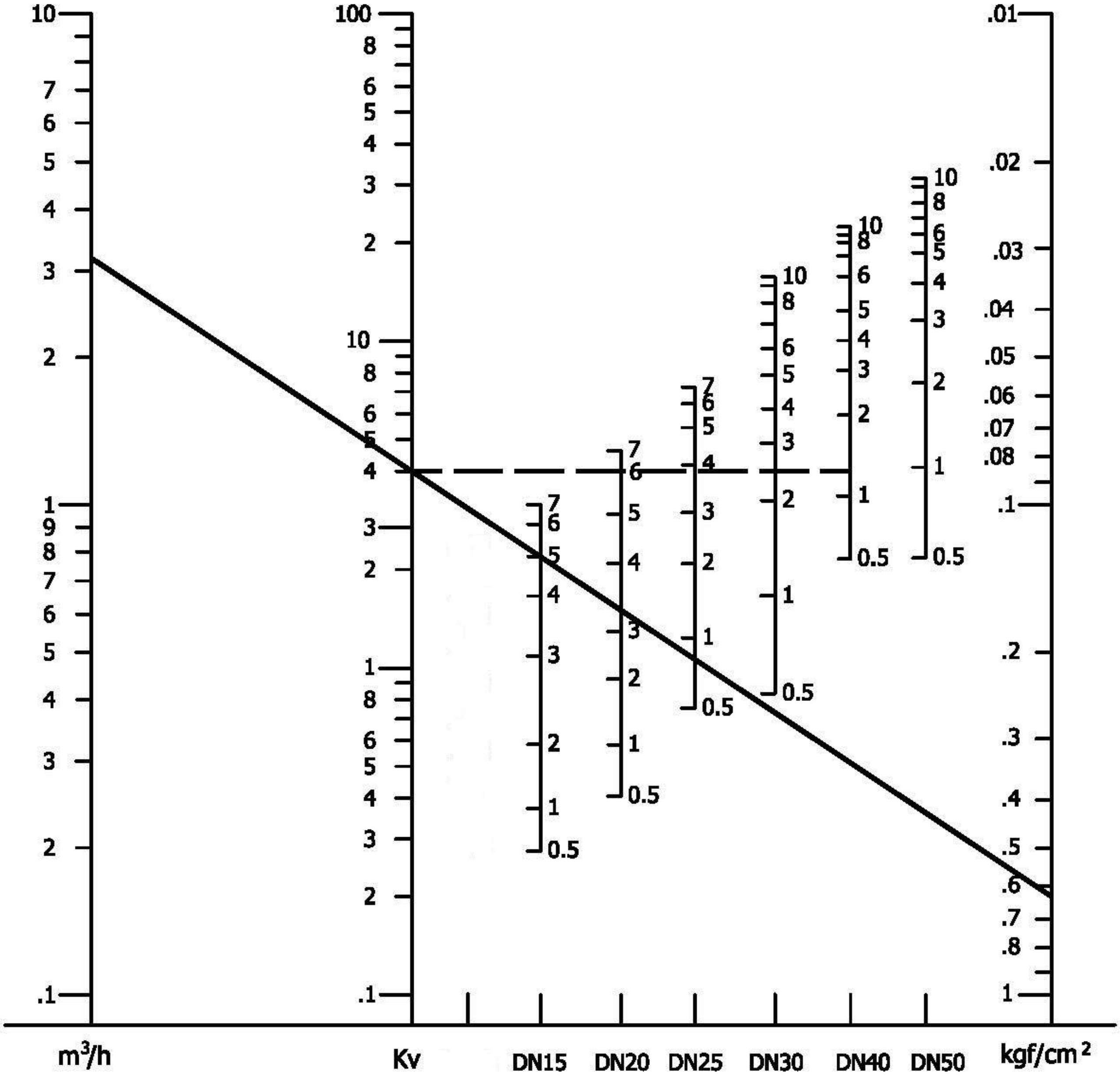


Figure 2 DN 15~DN 50 Kv Curve

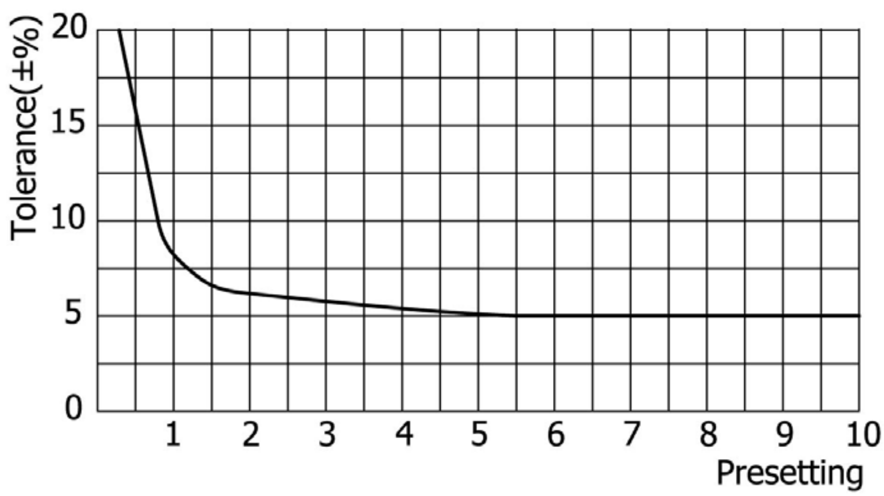


Figure 3 Tolerance-preset relation

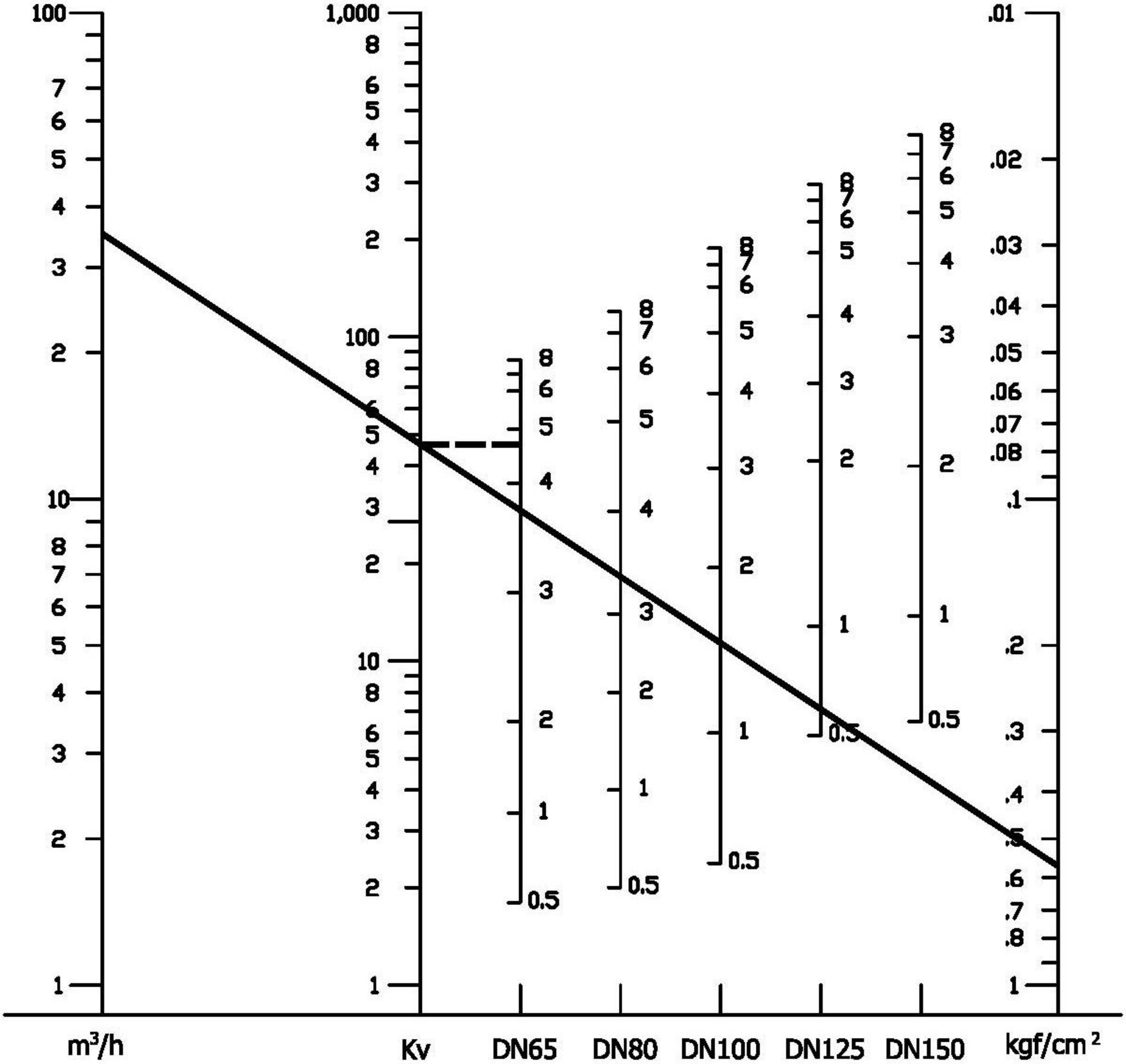


Figure 4 DN 65~DN 150 Kv Curve

Example：

As shown on Fig. 4, the require system capacity is 35m^3/hr and the pressure differential is 0.63kgf/cm^2. Draw a straight from 35m^3/hr to 0.63kgf/cm^2 and it will intersect with the K_V Axis and it will give us the K_V value (44 in this case). From the intersect point, draw a line parallel to the abscissa (dash line on figure 4), and it will intersect lines that represent the number of turns for different size valves for the K_V required. In this case, if, valve DN65 is chosen, it needs to be set at 4.7 turns to get a K_V of 44. From Figure 3, we can determine the Tolerance-preset relation. In this case for the DN65 at 4.7 turns, the tolerance is at 6％.

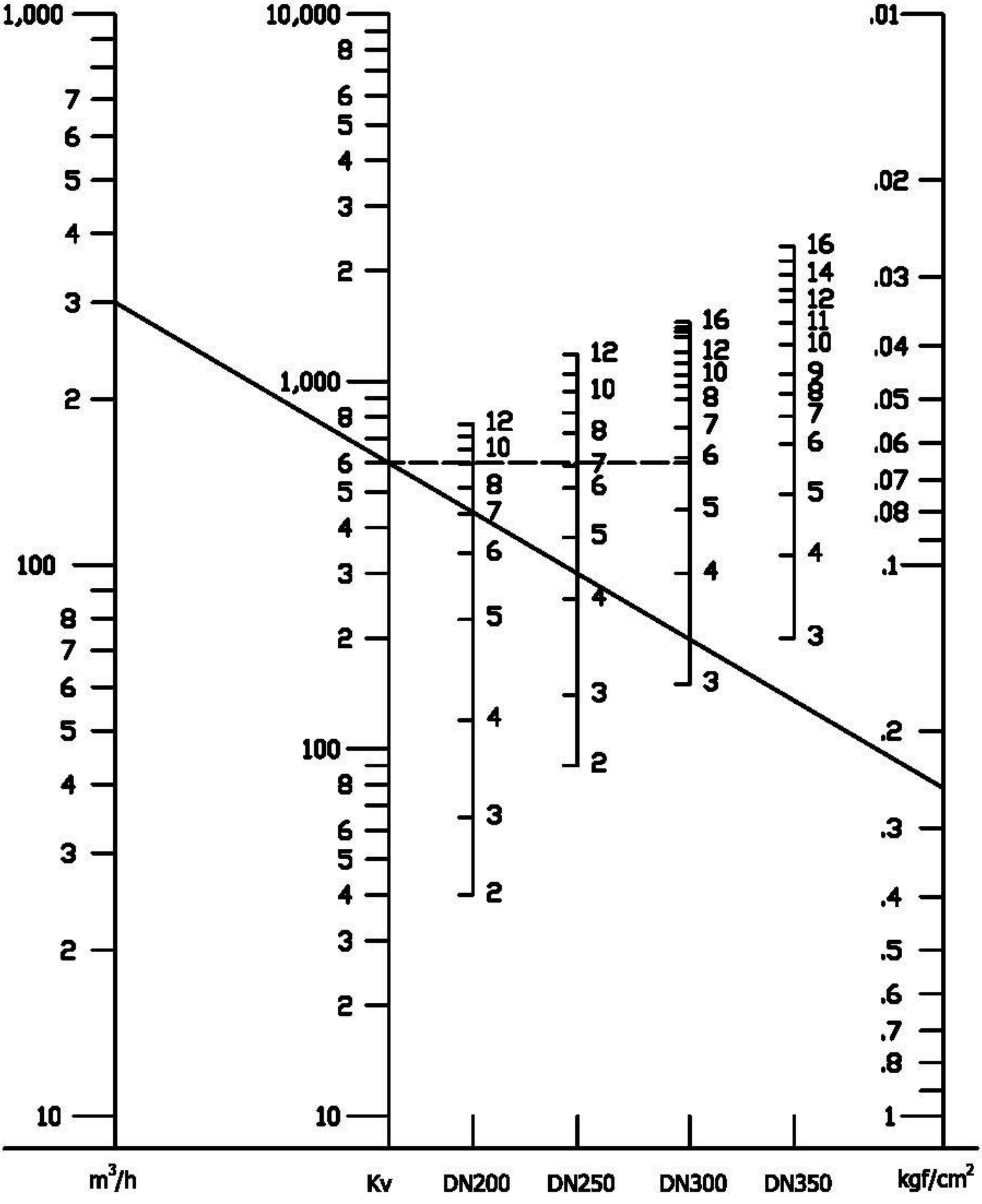


Figure 5 DN 200~DN 350 Kv Curve

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