ERHARD VALVES

Pressure and Flow Control Valves

DBGM, German and European Patents

Absolutely Reliable Pressure and Flow Control

In water mains of sizes DN 50 to DN 150, **ERHARD** Control Valves in straight or angle pattern

throttle and control

showing excellent results.

Globe type **ERHARD** Control Valves with body of ductile cast iron (SG GGG-50) are equipped with a fixed slotted cylinder of stainless steel. The control piston guided in PTFE lined slide rings moves within this cylinder covering or opening the ports according to the control position required. The actual valve seat which is an integral part of the slotted cylinder seals by means of an O-ring in a bubbletight manner. Travel is limited by a fixed stop in fully closed position.

The slotted cylinder provides for inoffensive energy conversion, minimizing noise and material stress. **The control is very much appropriate for long-time operation under cavitation conditions.** The piston is connected to the valve stem without end play.

All **ERHARD** Control Valves are equipped with mechanical position indicator as a standard.

ERHARD Control Valves may be equipped with the following interchangeable operating gears:

1. **Handwheel**
2. **Electric actuator**
3. **Hydraulic or pneumatic actuator**

It is always possible to retrofit locally from handwheel to electric actuator valve operation or vice versa without removing the valve from the pipeline. The same applies to replacement of the slotted cylinder including the piston.

Due to their sensitive port control, **ERHARD** Control Valves with handwheel or electric actuator provide starting or stopping of flows causing only very little water hammer, even at the end of long pipelines.

Dimensioning of the valves according to the duty involved has to be based on the valve K_V parameters considering the differential pressure across the valve and the pipe characteristic curve.

For perfect adaptation to the plant, special slotted cylinders can also be used.

For range of sizes DN 100 to DN 1800, see also our leaflet „Needle Valves".

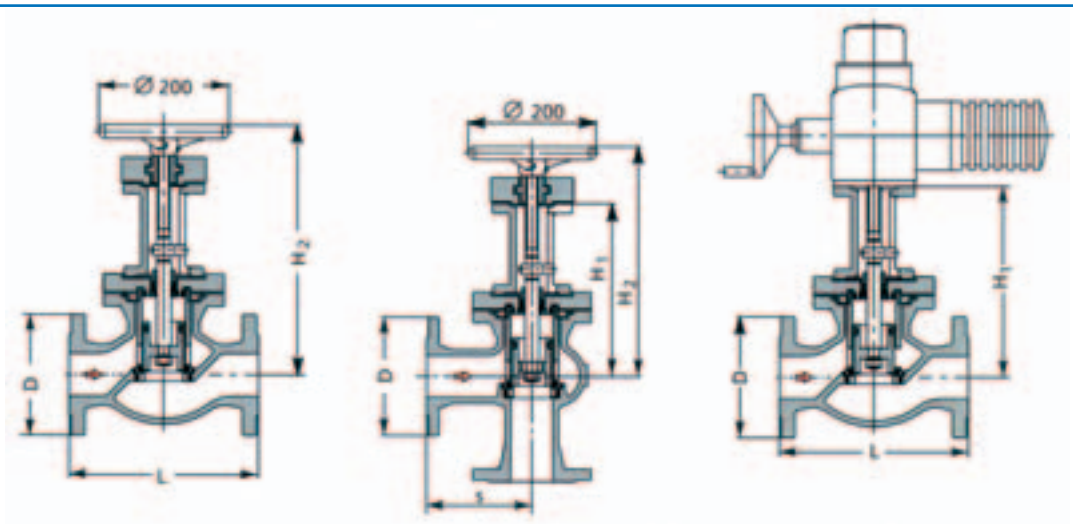
For Water Service

Size **DN**	Nominal Pressure **PN**	Hydrostatic body test pressure in bars	Hydrostatic seat test pressure in bars	Max. admissible working pressure in bars at a working temperature up to 40° C
50 - 150	16	24	16	16
50 - 150	25	37,5	25	25
50 - 150	40	60	40	40

When placing the order, please specify pressures upstream and downstream of the valve, max. flow rate and flow medium.

Flanges DN 50 - 150, C... connecting dimensions to DIN 28 605, PN 16[2] Prod. no. 6031 95..
connecting dimensions to DIN 28 606, PN 25 Prod. no. 6032 95..
connecting dimensions to DIN 28 607, PN 40 Prod. no. 6033 95..

Dimensions



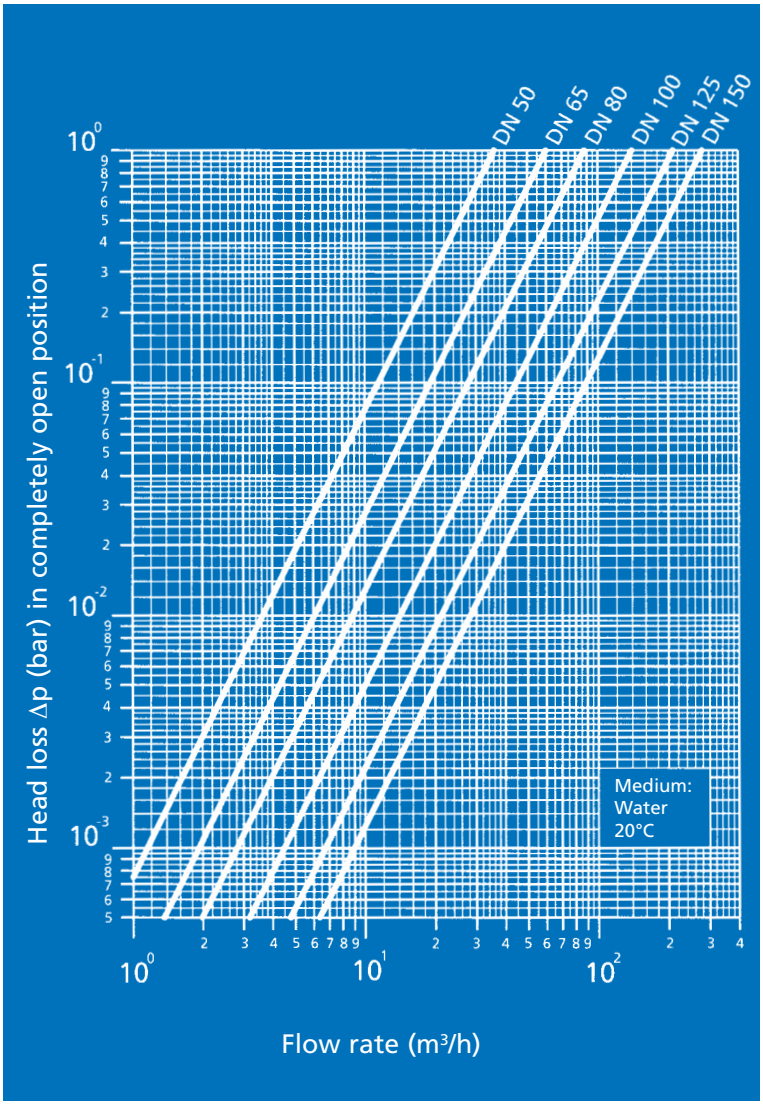
Size **DN**	Face-to-face dimension [4] L mm	Face-to-face dimension **s** mm	Height **H1** mm	Height **H2** mm	PN 16 **D** mm	PN 25/40 **D** mm	Handwheel turns per travel	Weight [3] with handwheel kg	Volume m^3
50	230	115	285	380	165	165	8,0	28	0,02
65	290	145	290	385	185	185	9,5	36	0,03
80	310	155	310	400	200	200	10,5	45	0,03
100	350	175	330	420	220	235	12,5	59	0,04
125	400	200	355	445	250	270	14,5	80	0,06
150	480	240	385	475	285	300	17,0	112	0,08

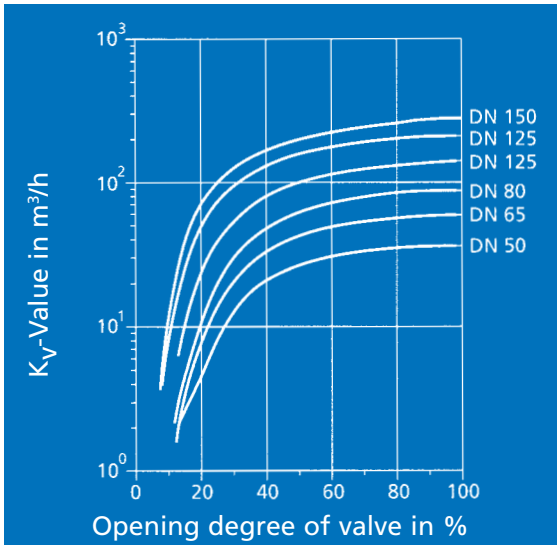
1) Sizing to K_{vs}-value. We reserve the right to size the valve according to order specifications.
2) For DN 80 please indicate, if to be drilled with 4 or 8 holes (4 holes only for PN 10).
3) Net (without obligation).
4) Control Valves in angle pattern on request.

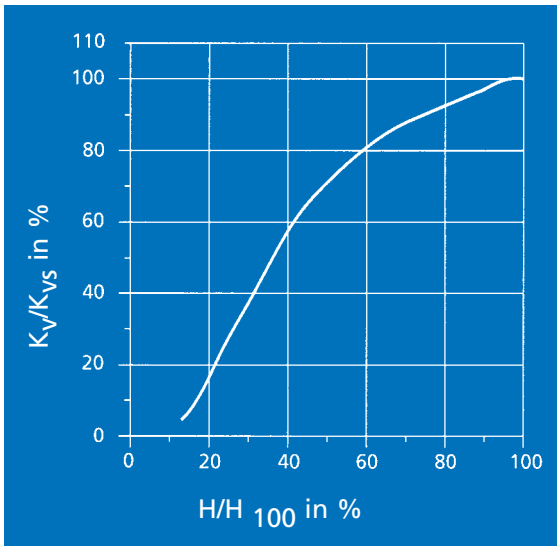
Note:

The valve are to be installed into the clean and flushed pipeline according to the cast-on arrow showing the flow direction. If the flow medium is polluted or subject to impurities, it is necessary to install a dirt trap upstream of the valve.

Dimensioning for water service: $K_v = \frac{Q\ (m^3/h)}{\Delta\ p\ (bar)} < K_{vs}$ (This sizing is only valid for service free from cavitation).







DN	50	65	80	100	125	150
K_{VS} (m³/h)	36	59	87	140	210	280
K	7.6	8.1	8.5	7.8	8.7	10.2
Q_{normal} (m³/h)	11-28	18-47	27-72	43-113	65-175	97-255
h_v at Q_{normal} (mWC)	0,9-8,5					
Q_{max} (m³/h)	42	70	108	170	265	380
h_v at Q_{max} (mWC)	14-19					
$K_{V\ min}$ (m³/h)	1.2	1.2	1.2	1.5	1.5	1.5

Characteristic curves for valves with special slotted cylinder according to operating data.

K_{vs}: The flow coefficient K_{VS} shows the amount of water in m³/h flowing through the fully opend valve at 5°C to 30°C with a differential pressure of 1 bar.

K: Head loss coefficient under fully open conditions.

Q_{normal}: Flow rate corresponding to a flow velocity of 1,5 - 3 m/s (referring to nominal size).

h_v: Head loss (Δp) when valve is completely open.

Q_{max}: Max. admissible flow rate for long-time operation corresponding to a flow velocity of 5 m/s (referring normal size).

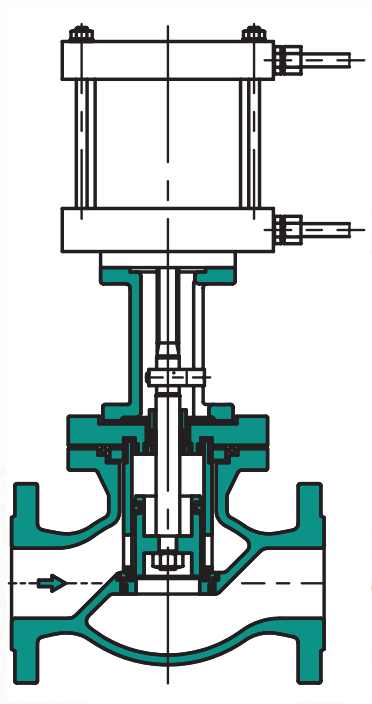
$K_{v\ min}$: Lowest controllable water flow rate at a differential pressure of 1 bar.
For any other differential pressure, the lowest controllable flow rate equals

$Q_{min.} = K_V\ min \cdot \sqrt{\Delta p}$ [m³/h] (Δp in bar).

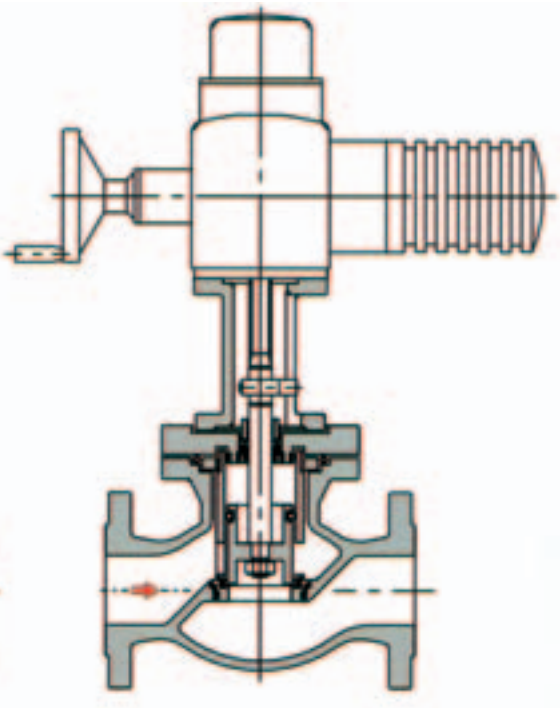
ERHARD-Performance	User's Advantage
State of the art	Universal control valves for water service
Equipped with slotted cylinder	Optimum flow characteristics
Compact design, long piston guide	Perfect and reliable operation
Components resistant to corrosion and ageing: Body of SG GGG-50/EKB epoxy coated Trim and screws of stainless steel	Robust and insensitive
Piston sealing of PTFE/coal and elastomer outside the area of flow and cavitation	Long life
Replacement of trim without removing the valve from the pipeline	Easy maintenance
Slotted cylinder with graded control ports	Excellent control characteristics – even for small rates
Position indicator as a standard	Easy operation
Handwheel and electric actuator interchangeable	Retrofitting possible without removing valve from the pipeline

Various Types of Actuators

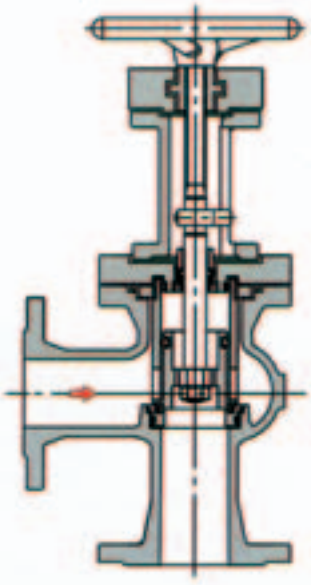
Hydraulic or pneumatic actuator



Electric actuator

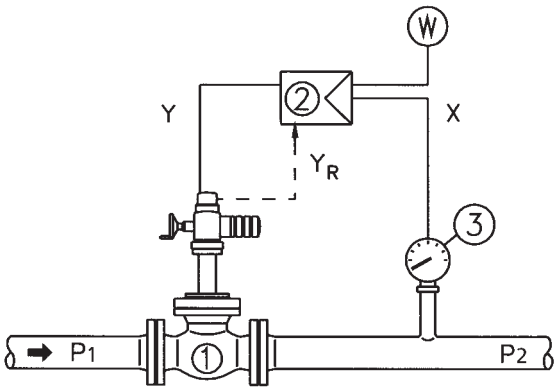


Handwheel

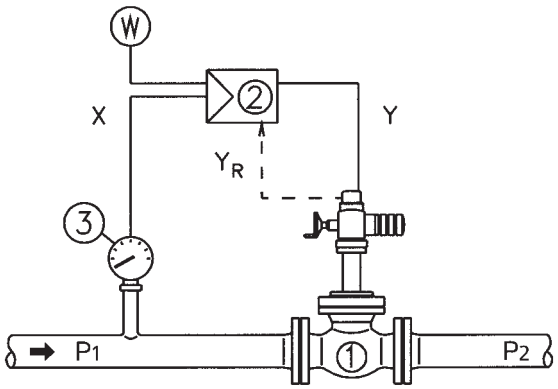


1 **ERHARD** Control Valve
2 Electronic Controller
3 Pressure Gauge with Teletransmitter
4 Flow Meter
5 Float Switch
6 Pump

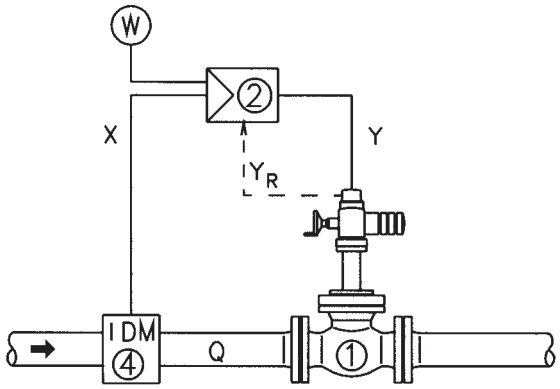
W Set point
Y Controller output signal
X Controller input parameter
Y_R Signal feedback



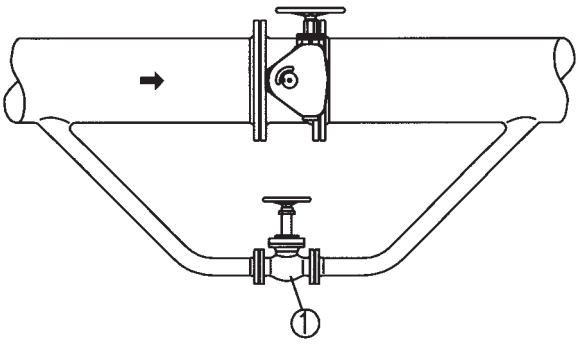
Pressure Control:
constant downstream pressure (Pd)



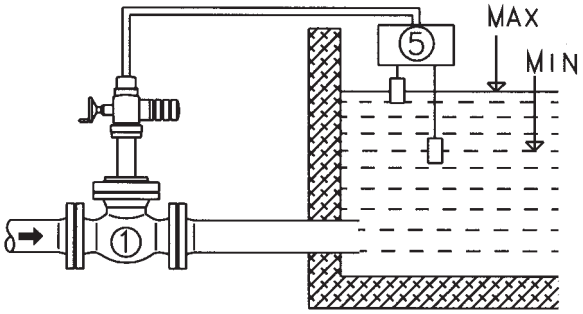
Pressure Control:
constant upstream pressure (P2)



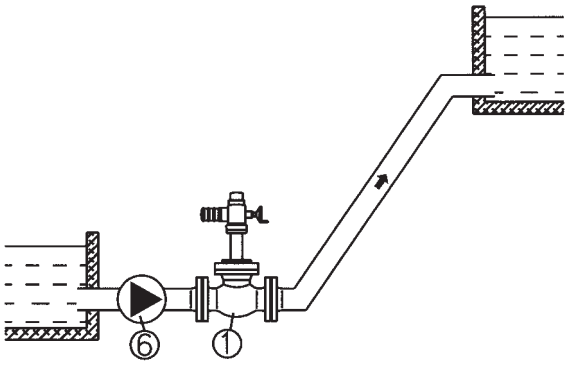
Flow Control: constant flow rate (Q)



By-pass Valve: For filling mains with the
main valve in closed position



Reservoir Feeding Valve



Pump-discharge valve: Minimizing water hammer
on closing a long delivery line

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