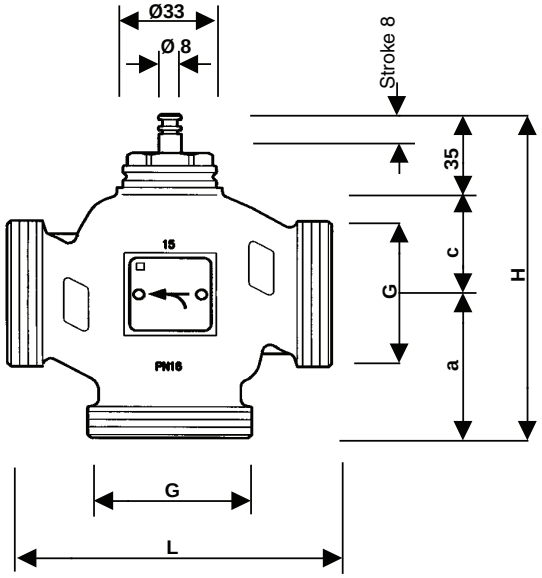
HERZ-3-way-mixing and diverting valves

For constant control of cooling and heating water

Data sheet for **4037**, Issue 0516

Dimensions in mm



Order number	Dimension	G	a	c	L	H	Δ p max [bar]	kvs [m³/h]
1 **4037** 15	1/2	G3/4B	50	32	100	117	4	4
1 **4037** 20	3/4	G1 B	50	33	100	118	3	6,3
1 **4037** 25	1	G1 1/2B	55	36	110	126	2	10
1 **4037** 32	1 1/4	G2B	60	38	120	133	15	16
1 **4037** 40	1 1/2	G2 1/4B	70	48	130	153	1	25
1 **4037** 50	2	G2 3/4B	75	54	150	164	0,8	40

Model

3-way-valve with outside parallel thread, according to ISO 228/1, with flat seal, pipe connections are not included in package. Spindle made of stainless-steel, brass valve cone with glass fibre reinforced Teflon sealing. Brass stuffing box with EPDM O-ring, DR brass body.
Using mixing and diverting valve **4037** gives an advantage to usual installations as there are no sealing edges and so cannot be worn, and thus leak. Even after long service the leakage rate will be minimal.

Operational data

Max. operating temperature - 15 ...+ 130 °C
Max. operating pressure 16 bar / 130 °C till DN 32
16 bar / 110 °C for DN 40 and DN 50

When the temperature < 0 °C we recommend to use the gland sealing heater, when the temperature > 100 °C - use the temperature adapter.

Valve characteristic:	linear	
Leakage rate	norm branch	< 0,02 % from the Kv-value
(mode)	admix branch	1% from the Kv-value

Heating water according to ÖNORM H5195 or VDI-Standard 2035. The use of ethylene or propylene glycol in a mixing ratio 25- 50% is allowed. EPDM gaskets can be affected by mineral oils lubricants and thus lead to failure of the EPDM seals. Please refer to manufacturers documentation when using ethylene glycol and propylene glycol products for frost and corrosion protection. Too high differential pressure drop may damage the due to cavitation.

Application field

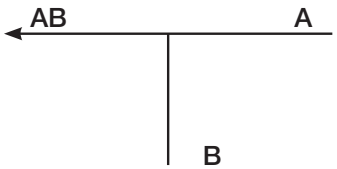
For constant control of cooling or heating water, or air as a mixing or diverting valve. Together with valve drives used as control device with adjustable characteristic curve (linear, proportional or square).
The control device may be mounted in any position, except vertically downward. Avoid penetration of condensing water, dripping water, etc. into drive. Assembling of valve and drive is possible without pre-adjustment. The drive is self adjusting as soon as voltage is put on the valve.

Installation

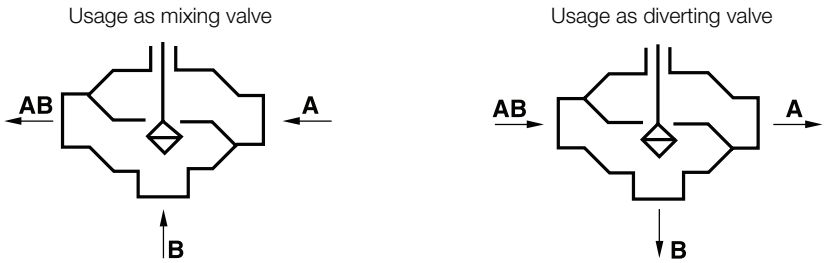
Valves are mounted in pipe system according to application (mixing or diverting valve) by means of commercial standard screw connections with flat seals. Avoid penetration of dirt into valves.

By the time the pin of valve spindle is extended, the path A-AB is closed.

During installation, be aware of the flow direction marked by an arrow on body.

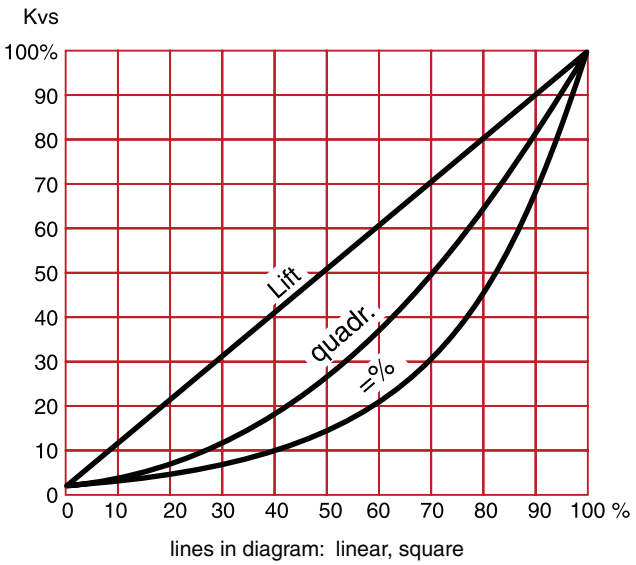


Mounting directions



Characteristic curves

Characteristics in combination with drive 1 **7712** 11
The illustration shows the square characteristic for comparison



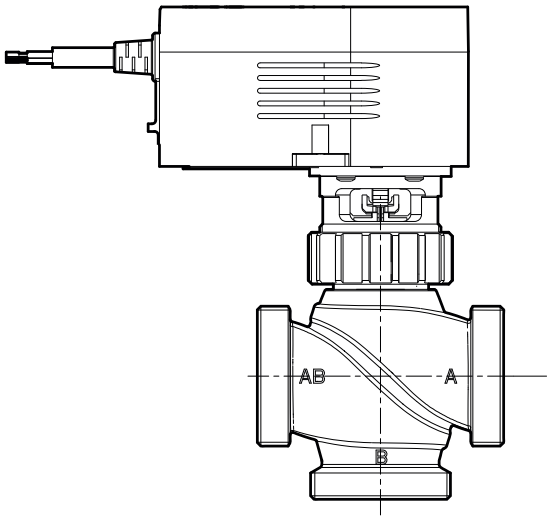
lines in diagram: linear, square

Linear valve characteristic could be changed by using the valve drive 1 **7712** 11 with fitted DIP switches.
Also possible:
- linear characteristic
- equal percentage characteristic

Actuating combinations

7712

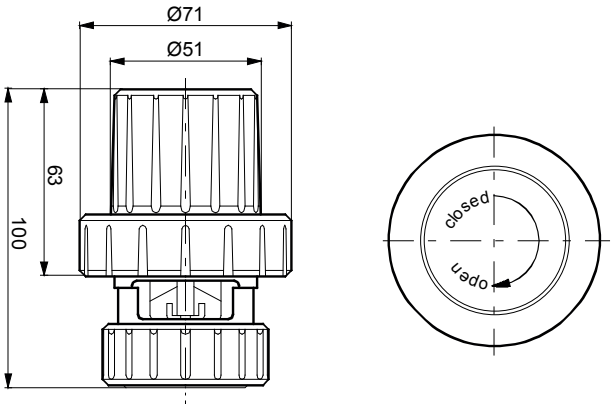
Valve Drive for Three-Port Valve,
Actuating power 500 N
Operating through heating control for 3-point operation. Two-piece body made of self-extinguishing plastic. Plastic console and brass union nut for valve installation. Gearbox for positioning of valve and handwheel adjustment. Vertical and horizontal mounting is possible, inverted installation is not possible.



9102

HERZ-Handwheel

for HERZ-Three-Port Mixing and Diverting Valve **4037**, not supplied with valve drive.



Accessories

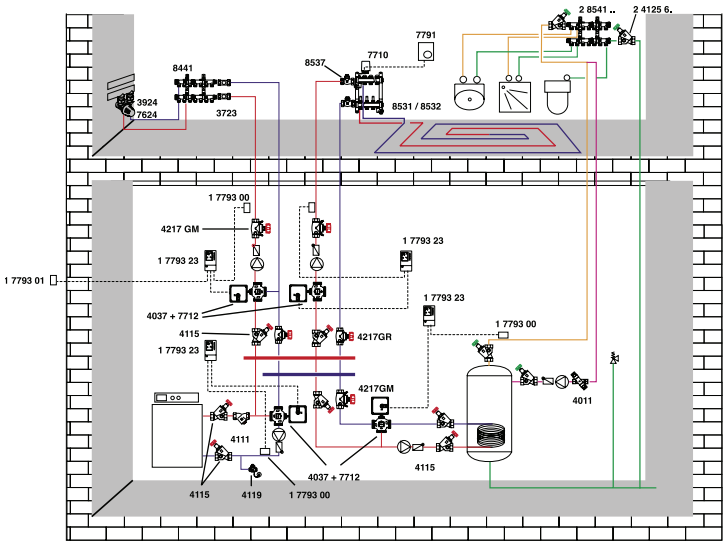
1 **7712** 11	HERZ-Valve drive with position controller 24 V, control signal 0-10 V
1 **7712** 50	HERZ-Valve drive for 3-way valves 230 V, actuating power 500 N
1 **7712** 51	HERZ-Valve drive for 3-way valves 24 V, actuating power 500 N
1 **7712** 80	HERZ-Valve drive for 3-way valves 24 V, actuating power 800 N
1 **7796** 03	HERZ-Safety transformer 230 / 24 V, 50 Hz, 50 VA
1 **7793** 23	HERZ-Electronic heat controller 110-230 V, with PI control
1 **7793** 24	HERZ-Electronic heat controller 24 V, with PI control
1 **7793** 01	HERZ-Outdoor temperature sensor for heat controller
1 **7793** 00	HERZ-System temperature sensor for heat controller
1 **9102** 40	HERZ-Hand wheel for **4037**

We recommend the valve drive with actuating power 800 N when using the valve as a Diverter

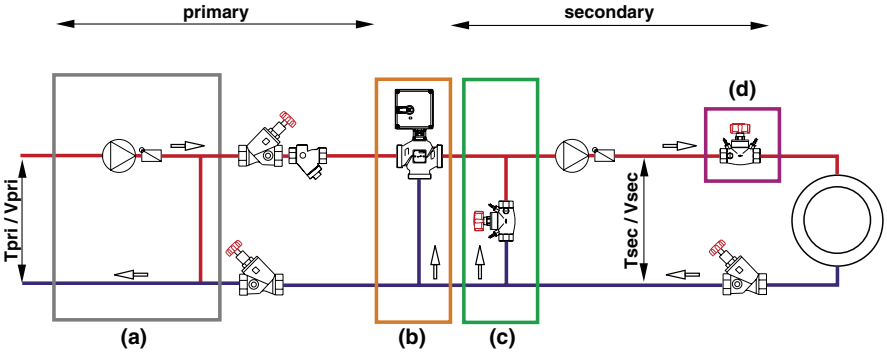
Other products

1 **7761** xx	Diverting valve CALIS-RD, DN 15 - DN 32 for thermal drive
1 **7762** xx	Thermostatic 3-way mixing and diverting valve, DN 10 - DN 20 for thermal drive
1 **7766** xx	Mixing 3-way valve, Teplomix, for raising return temperature, DN 25 and DN 32 equipped with thermostat, no drive required.

Application example



Dimensioning example



(a)	Pump primary invariably with bypass
(c)	Bypass valve if ΔT > 30 K Δp Bypass = Δp 3-way valve (actual)
(d)	Δp STRÖMAX = 3 [kPa]
(b)	Dimension of mixing valve; modus operandi

1) Δp theo = 3 [kPa]

2) $k_{vtheo} = \frac{\dot{V}_{pri}}{100\sqrt{\Delta p_{theo}}}$

3) Valve selction acc. to table (kv-tat < kv-theo)

4) Recalculation of actual pressure drop

$$\Delta p_{tat} = \left(\frac{\dot{V}_{pri}}{100 \cdot Kv_{tat}}\right)^2$$

Common power/water quantity

$$\dot{V} = \frac{3600 \cdot P}{c \cdot \Delta T}$$

$\dot{V}$ = Volume flow rate [$m^3.h^{-1}$]
P = Capacity [W]
c = Specific heat capacity, for water 4,19 [$kJ.kg^{-1}.K^{-1}$]
T = Temperature [K]
k_v = Valve parameter for partially open valve [$m^3.h^{-1}$]
p = Pressure [$Pa=N.m^{-2}$]