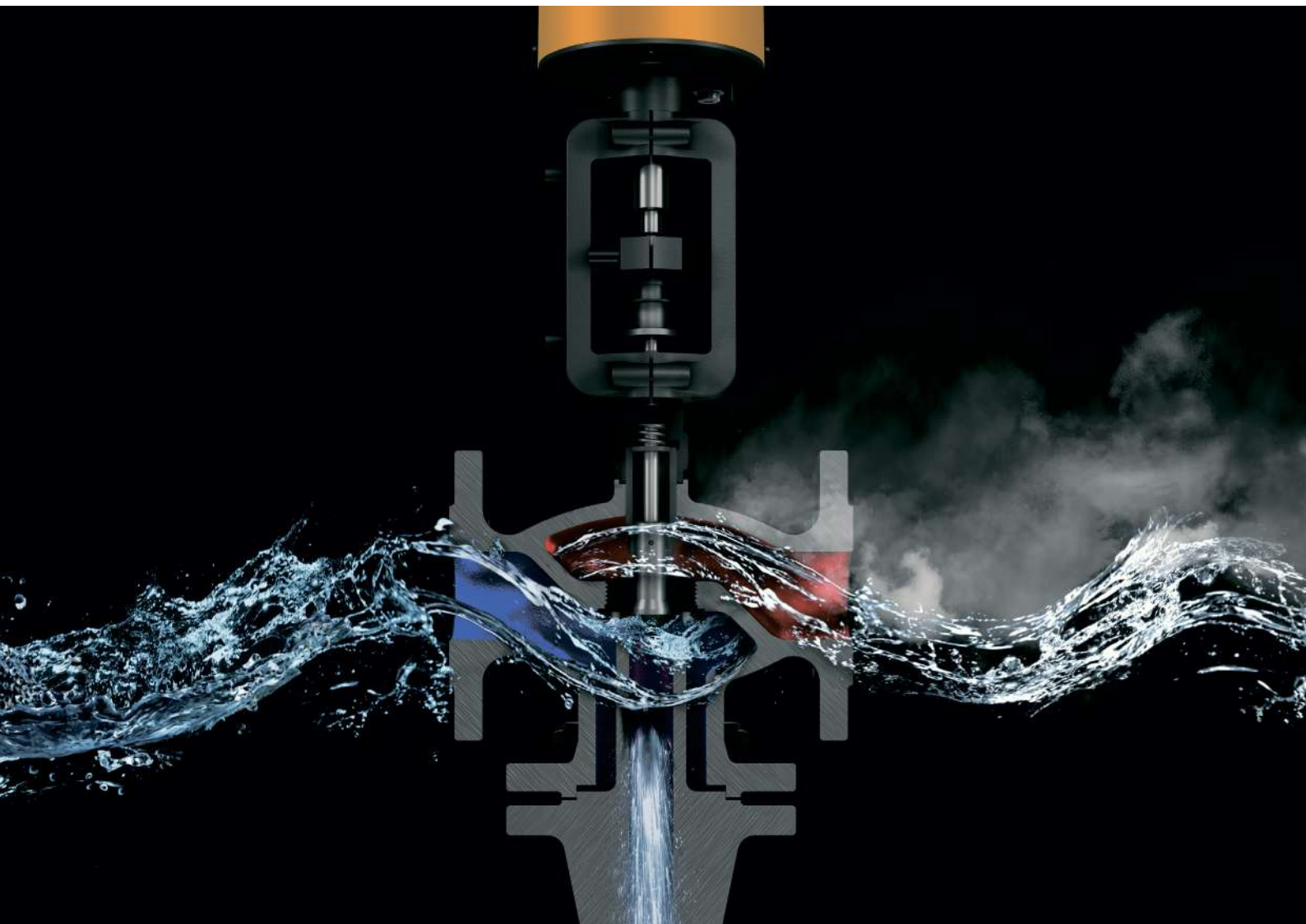




# Baelz Jetomat® Ejectors



Water Ejector Technology  
Baelz-hydrodynamic®

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# Baelz Water Ejectors

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One heart  
is enough.  
So is one  
pump.

## **Baelz hydrodynamic®** Innovative Ejector Technology

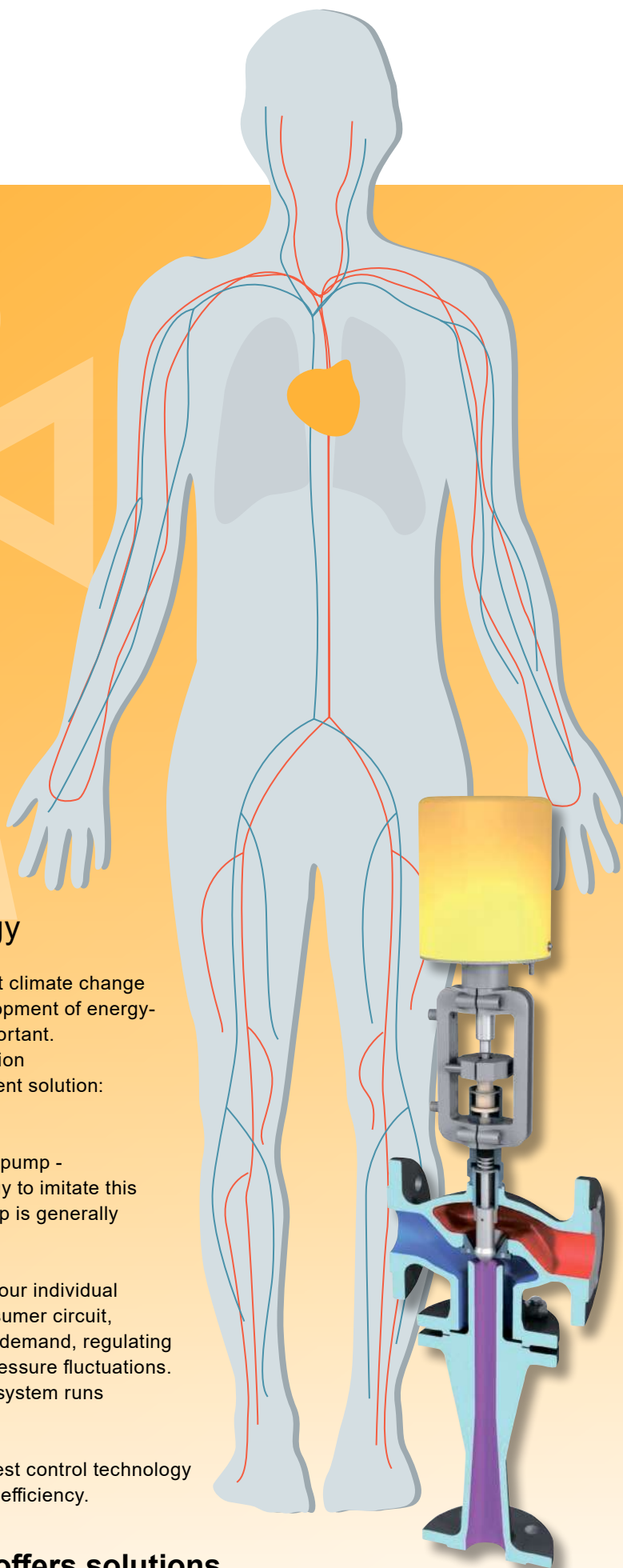
In view of dwindling resources, concerns about climate change and rising energy costs, investing in the development of energy-efficient systems is becoming increasingly important. As a specialist for energy-saving heat distribution Baelz recommends an economical and intelligent solution: **the Jetomat® controlled water ejector.**

The entire human body is supplied by just one pump - the heart. The water ejector enables technology to imitate this principle of nature, meaning that only one pump is generally required in each distribution system.

Each Baelz ejector carries out the function of four individual components: generating circulation in the consumer circuit, adapting the circulation rate to the actual heat demand, regulating the temperature and evening out differential pressure fluctuations. With huge savings on circulation pumps, your system runs more efficiently and more economically.

Baelz provides entire systems, including the best control technology for your needs, which further improves energy efficiency.

**Want to save energy? Baelz offers solutions.**



# Product Series Water Ejectors



**baelz 474**



**baelz 476**



**baelz 480**

Type	Radiator ejector	Ext. thread / weld-on sockets	Flanged ejector
Pressure	PN 16/25	PN 16/25	PN 16 – 40
Size	G 3/4	G 1/2 – 2	DN 15 – 300
Material of body	Brass	Stainless steel	Steel / Spheroid ductile iron
Temperature	up to 110 °C / 140 °C	up to 150° C / 200 °C	up to 240° C / 350 °C

## Actuators

### Electric Actuators

baelz 373-E07	baelz 373-E07-OSD/OSZ*	baelz 373-E45	baelz 373-E65	baelz 373-ESI
700 N / 2.000 N	700 N	4.000 N	1.100 N* / 2.000N	100 N

\*with fail-safe function

### Pneumatic Actuators

baelz 373-P11	baelz 373-P21	baelz 373-P22	baelz 373-P31	baelz 373-P32
950 N	1.020 N – 7.590 N	1.846 N – 3.692 N	2.480 N – 10.560 N	2.201 N – 8.115 N

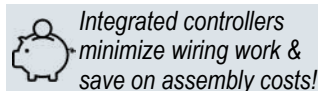
## Controllers

### Universal / Industrial Controllers

4 - 20 mA / 0 - 10 V: baelz 6496, baelz 6596  
 3-point step controller: baelz 6490, baelz 6590  
 Multichannel controller: baelz 6200, baelz 6164  
 Multichannel integrated controller: baelz 7164

### Positioners

Integrated in electric actuators: baelz 7020, baelz 7020A  
 For pneumatic actuators: baelz 87



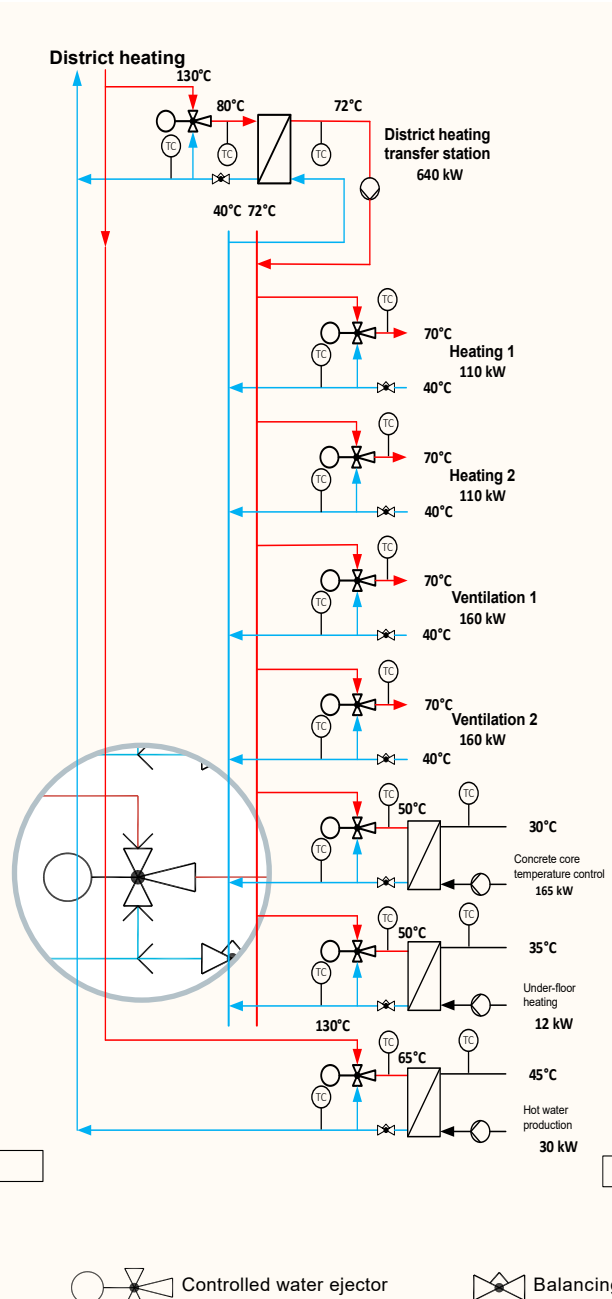
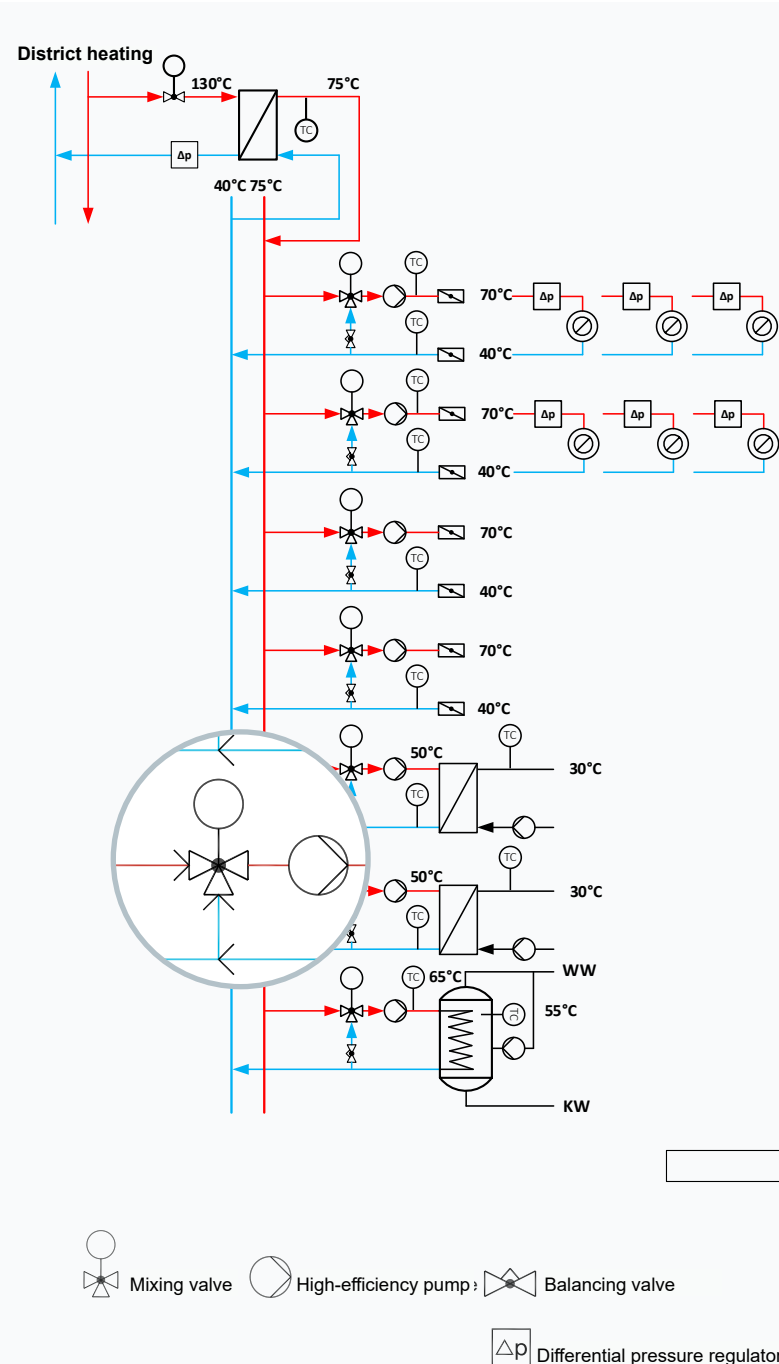
## Accessories

Manual Fittings: Throttle valve baelz 70098, isolating valve 70028, check valve 70081, strainer 70200  
 Temperature indicators and sensors: baelz 71150, baelz 61  
 Manometers / pressure transmitters: baelz 70802, baelz 828  
 Safety valves: baelz 70340, baelz 70625-VA  
 Safety double thermostat: baelz 231  
 Safety pressure switch: baelz 834

## a) Conventional configuration

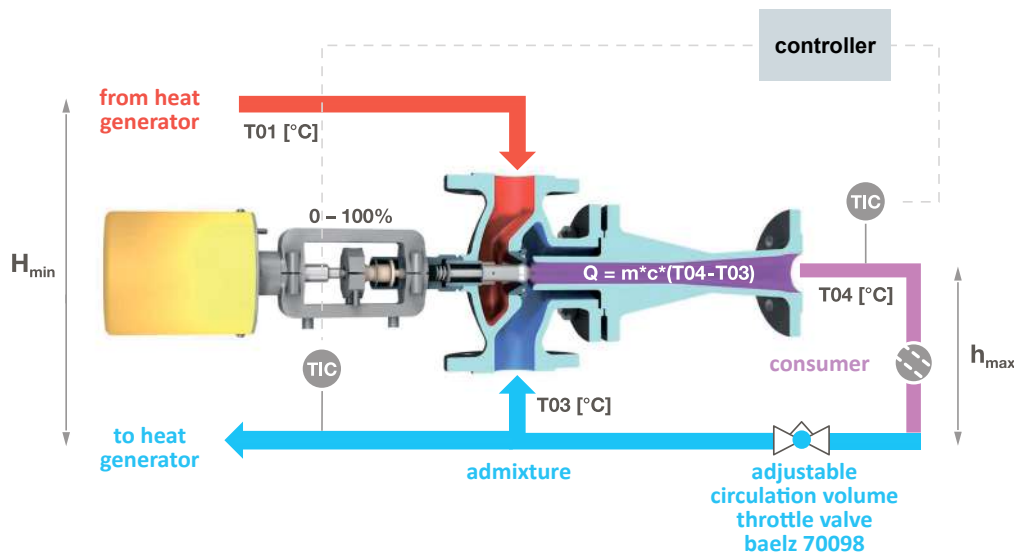
## b) Solution with ejectors

Baelz-hydrodynamic® process

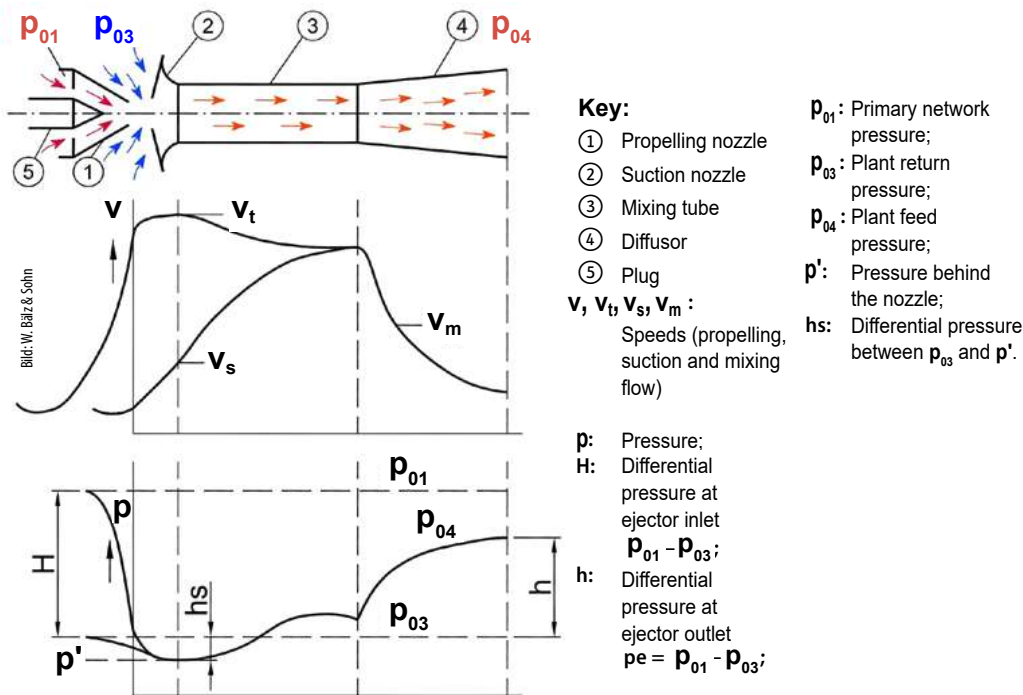


- One pump per control circuit
- 3–4 data points per control circuit
- Necessitates a differential pressure regulator
- High investment costs
- High maintenance costs
- Higher electricity consumption

- ✓ Fewer components and data points
- ✓ No differential pressure regulator required
- ✓ 30–40 % saving on investment costs
- ✓ Savings on maintenance costs
- ✓ Significantly reduced electricity consumption
- ✓ Decreasing energy costs



The primary differential pressure ( $H_{min}$ ) ensures the circulation of the required variable admixture with a variable pressure drop ( $h_{max}$ ) across the consumer.



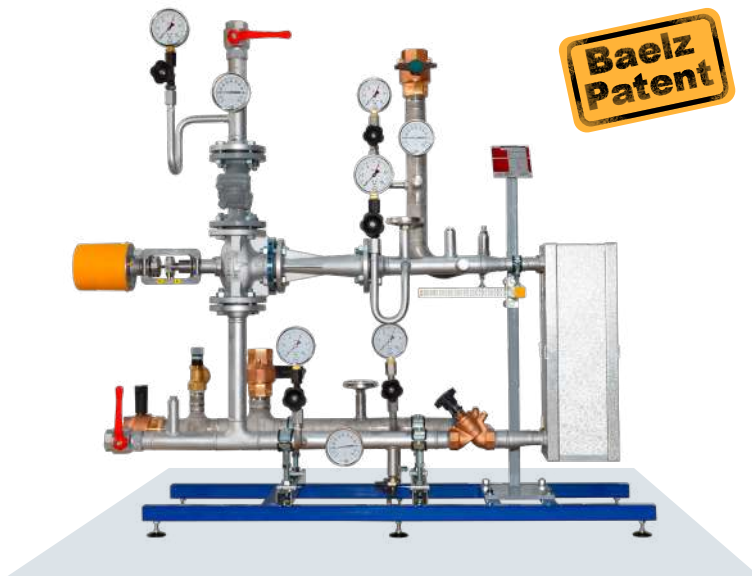
**Schematic diagram of the function of a controllable ejector:** The propelling flow with initial pressure  $p_{01}$  is accelerated in the convergent propelling nozzle ① and reaches its maximum velocity  $v_t$  upon entering the mixing tube ③ i.e. at the end of the suction nozzle ②. Due to its high velocity, the propelling flow drags the suction flow along with it by the mechanism of turbulent shear stress.

The suction flow with initial pressure  $p_{03}$  is accelerated in the suction nozzle and reaches velocity  $v_s$  upon entry into the mixing tube. The propelling and the suction flow come together in the mixing tube and their momentum and kinetic and thermal energy are combined. At the end of the mixing tube, the speed of flow is  $v_m$ , which is lower than  $v_t$  and higher than  $v_s$ . The speed of the mixture decreases by the required amount in the diffusor ④.

In the propelling nozzle and in the suction nozzle, the flow pressures decrease approximately as given by Bernoulli's Equation and reach the lowest value, the common pressure  $p'$ , upon entry into the mixing tube. Due to the combination of momentum mentioned above, the pressure increases slightly in the mixing tube and then further increases due to the decrease in velocity as the diffusor widens.

# System Applications

## Heat transfer stations, Fresh water stations



- Excellent controllability across the entire output range
- Reduction of material stresses due to lower primary temperature
- Reduced build-up of scale due to lower primary temperature
- Less sediment accumulation owing to increased circulation
- Prolonged service life of the equipment
- The conventional water storage tank is no longer necessary for fresh water stations
- Baelz supplies stations for direct and indirect transfer of district heating

## State subsidized:

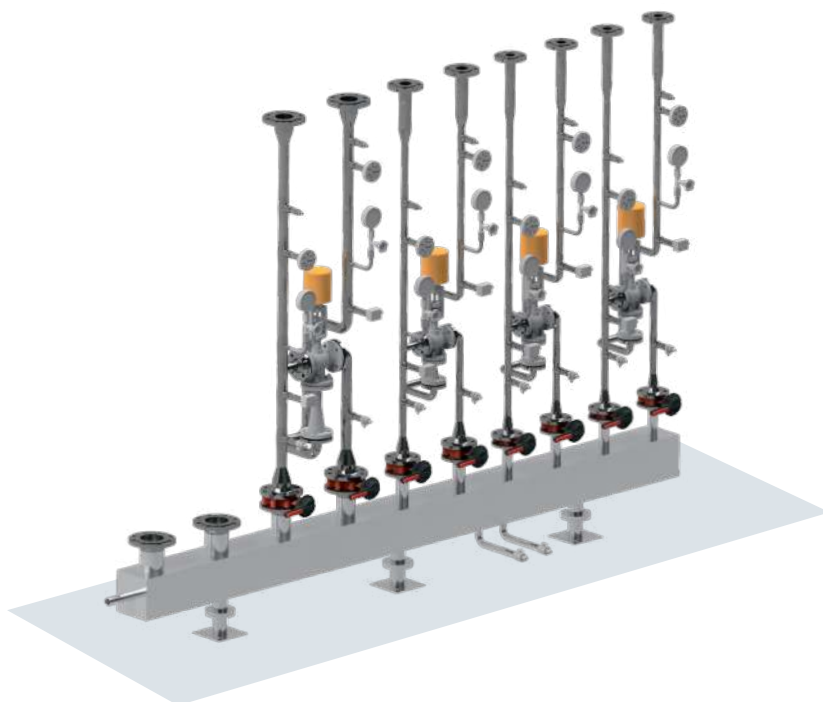
### Baelz ejectors for maximum energy efficiency

In Germany, the federal subsidy for efficient buildings (BEG) refunds 15-20% of investment costs, for example for a Hydropilot® heat distribution system with controlled Jetomat® ejectors by Baelz.



Bundesministerium  
für Wirtschaft  
und Klimaschutz

## Hydropilot® heat distribution



- Savings on planning fees
- Reduced investment costs  
(No individual line circulation pumps!)
- Lower energy consumption  
(Just one circulation pump for the whole distributor!)
- Reduced maintenance and repair costs

### Find out more:

**Baelz compact station for  
heating domestic water**

**Steam applications with  
Baelz-vapordynamic®**

**[www.baelz.de](http://www.baelz.de)**

## Example of an Existing Project

Station	Conventional system	System with Baelz hydrodynamic®
Haus 1	7.113,00 €	4.999,00 €
Haus 2	4.198,00 €	2.756,00 €
Haus 3	6.076,00 €	3.893,00 €
Haus 4	5.382,00 €	3.021,00 €
Haus 5	6.451,00 €	4.681,00 €
Haus 6	6.650,00 €	2.795,00 €
Haus 7	6.544,00 €	4.448,00 €
Haus 8	3.987,00 €	2.294,00 €
Haus 9	6.945,00 €	4.616,00 €
Haus 10	4.635,00 €	2.617,00 €
Haus 11	3.326,00 €	2.232,00 €
Haus 12	2.932,00 €	2.088,00 €
Haus 13	2.932,00 €	2.088,00 €
Haus 14	10.146,00 €	4.337,00 €
Utility building	9.429,00 €	3.447,00 €
Office building	5.402,00 €	2.066,00 €
Sports hall	4.155,00 €	2.590,00 €
Judo hall	4.229,00 €	2.605,00 €
Workshop	1.994,00 €	1.657,00 €
Washrooms/accomodation	1.958,00 €	1.656,00 €
<b>Total</b>	<b>104.484,00 €</b>	<b>60.886,00 €</b>
<b>Savings</b>		<b>43.598,00 €</b>
		<b>43%</b>

Many institutions (such as AGFW, VDMA, AMEV) advise a more extensive use of ejector technology. The Saxony-Anhalt Police University of Applied Sciences followed this advice.

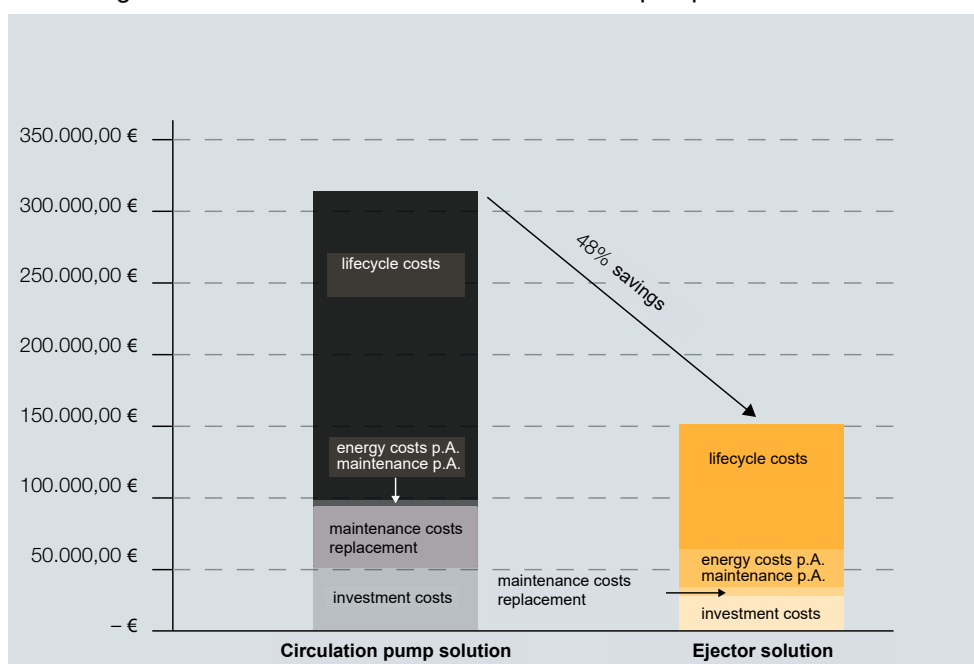
The table of investment costs illustrates the huge savings which can be made thanks to the integration of ejectors.

Further applications:

- Stations for heating of homes and domestic water in local and district heating networks
- Ventilation systems
- Heat distribution systems
- Industrial heating and cooling processes
- Radiant ceiling panels
- Air curtains
- Ceiling-mounted fan heaters

## Cost Comparision

Ejectors are low maintenance and economical and have a much longer service life than conventional circulation pumps.





● Baelz near you

#### Germany

W. Baelz & Sohn  
GmbH & Co.  
Headquarters in Heilbronn

Berlin, Hamburg, Essen,  
Frankfurt, Nürnberg, Aalen,  
Ulm, München

● Baelz Group

#### France

Baelz Automatic SARL  
Paris

#### Austria

Bälz GmbH  
Wien

#### China

Baelz Heat Automation Equipments  
Beijing

#### USA

Baelz North America  
Atlanta, GA

#### Baelz energy-saving solutions for:



Chemical



Automobile



Textile



Heat distribution



Pharmaceutical



Aviation



Wood



Power generation



Paper



Tires



Building



Food and drink