



# Valves and actuators

For every requirement – from SAUTER, of course

**Innovation** is our passion, and energy efficiency is our responsibility: SAUTER sets the technology standard for the field level.

**SAUTER's experience shows in every detail, every product and every solution**

SAUTER is an experienced manufacturer and provider of energy-efficient solutions for modern building automation. Intelligent control, measurement and regulation technology reflects SAUTER's core expertise and the company's success based on 100 years of research, development and production. SAUTER products maintain a universally high standard, from automation level through to field level, ensuring ideal conditions of well-being in all environments, whether they are used as stand-alone components or in composite systems.

**Highly flexible for the best results**

Our 'Made in Switzerland' components are much in demand in the heating, ventilation and air-conditioning industry. They are equally prized by installers, end customers and the manufacturing industry. Everyone appreciates their accurate control quality and easy installation. With just a few basic types, the current SAUTER range of valves and SUT actuators, with their in-built intelligence, provides a myriad of regulating units that will function reliably throughout a long serviceable life. That makes your choice logical and easy.

**To make things simple for you: our catalogue of components**

Maximum control quality depends on the valve and the actuator having the same high standard: the SAUTER quality standard. Select your basic valve type here, go to the corresponding page, and use the exact data to define your specific combination of valve and actuator.



## Unit valves

of cast brass or gunmetal,  
PN16, equal-percentage/linear characteristic,  
DN 10 to DN 40,  
2 °C to 130 °C



## Stroke actuators

04 05

Motorised and thermal,  
2-pt./3-pt./continuous

## Ball valves

Made of dezincification-resistant cast brass,  
PN40, equal-percentage/linear characteristic,  
DN 15 to DN 50,  
-10 °C to 130 °C



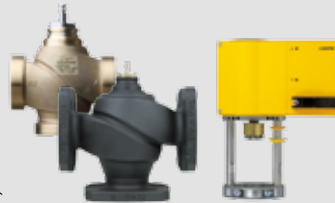
## Rotary actuators

08 09

Electric,  
2-pt./3-pt./continuous signal

## Valves with male thread and flange

Made of cast brass, flanged valves of cast steel, ductile cast iron or grey cast iron, PN6 to PN40, equalpercentage/linear characteristic, DN 15 to DN 150, -20 °C to 240 °C



## Stroke actuators

10 11

Electric,  
pushing force 250 N to 2500 N,  
2-pt./3-pt./continuous signal

## Control valves with female thread and flange

Made of brass or grey cast iron  
PN6, linear characteristic,  
DN 20 to DN 150



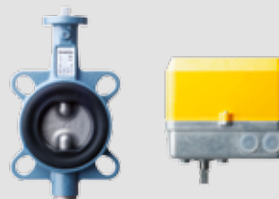
## Rotary actuators

16 17

Electric,  
torque 5 Nm to 18 Nm,  
2-pt./3-pt./continuous signal

## Butterfly valves

Made of grey cast iron und EPDM collar,  
PN6/10/16, linear characteristic,  
DN 25 to DN 200



## Rotary actuators

18 19

Electric,  
torque 15 Nm to 30 Nm,  
2-pt./3-pt./continuous signal

## Pneumatic combinations

Actuators and valves,  
PN6 to PN40,  
equal-percentage/linear characteristic,  
DN 15 to DN 150, -20 °C to 240 °C



## Pneumatic actuators

20 21

Stroke 8/20/40 mm

## Technical appendix

Plant schematics  
Calculation aids  
Overview of applications



## Software

24 25

VALVEDIM valve-sizing program,  
CASE Drives actuator diagnosis

## Cutting-edge technology for **energy-efficient control precision**

### **Actuator for unit valves, with SAUTER quality**

SAUTER AXT2 is the logical development of technology used in our thermal actuator. Like its predecessor, the SAUTER AXT, it offers convincing pulse-pause control and is a reliable actuator even for short periods of just a few seconds. Together with equal-percentage characteristic valves, both actuators can produce quasi-continuous control. Their area of use is the control and regulation of unit valves and underfloor distributors for room automation. SAUTER AXT2 also offers added functionality to meet increasing requirements. The future lies in automatic valve adaptation for 100% tightness, electrical protection for the inner mechanisms and automatic stroke adaptation. Another feature is Low-Force-Locking®, which ensures easy installation in seconds, thanks to the excellent compatibility of SAUTER AXT2 with old or third-party valves. An actuator of this type combines convincingly flexible and functional product intelligence with easy customisation thanks to a wide range of accessories.

If the task is to maintain the equilibrium of a hydraulically stable installation, then the new SAUTER Valveco valves are indispensable. These regulating valves are genuine all-rounders, because they unite three functions in one compact fitting. Whether a volume flow merely has to be blocked off or a set flow rate needs to be kept constant, the SAUTER Valveco valve decidedly and reliably withstands the pressure changes, providing a variable resistance for hydraulically balanced conditions in your installation. Together with the new AXT211 and AXS 215S thermal actuators, SAUTER Valveco is a future-orientated product for numerous heating and cooling applications.

*Thermal actuators are available with various cable lengths. You can identify valves with a male thread by the code F3..., and valves with a compression fitting by code F6...*



*SAUTER's new Valveco regulating valve for easy and time-saving hydraulic balancing.*

# PN16

## SAUTER Valveco.

### VCL unit valves of dezincification-resistant cast brass.

### AXT, AXS, AXM motorised and thermal actuators.



Model series	AXT				AXT				AXS		AXM							
Type (see product data sheet for further types)	211				211				211		215S		117 117S					
Version	F110 <sup>1)</sup>	F210	F112 <sup>1)</sup>	F212	HF110	HF210	HF112	HF212	F110M	F112M	SF122 <sup>1)</sup>	SF222 <sup>1)</sup>	F200	F202	F202	F302	F402	
Pushing force/N <sup>2)</sup>	115		110		115		110		115		125		110		140		120	
Stroke/mm	4.5				4.5				4.5		4.5		4					
Running time/min	3.5	4.5	4.5		3.5	4.5			3.5	4.5	4.5		1 <sup>2)</sup> / <sub>3</sub>	1	1	1	1	
Power supply	230 V a.c.				24 V a.c./d.c.				24 V a.c.									
Control signal	2-point				3-point				0...10 V (variable)									
Connection	Nut M30 x 1.5				Bayonet M30 x 1.5													
Direction of action	normally closed				normally open max. 110 N													
Auxiliary contacts																		
Mechanical adjustment																		

<sup>1)</sup> Also available in black

<sup>2)</sup> Pushing force max. 125 N for AXT211/AXS215 and closing dimension 13.5 mm

### Dynamic regulating valve, made of dezincification-resistant cast brass, PN16, with linear characteristic

	Type	DN	Connection	Kvs (m <sup>3</sup> /h)	Δp <sub>min</sub> (bar)	Δp <sub>max</sub> (bar)		
	VCL 010 F210	10	G ½B	30...210	0.2	4	4	4
	VCL 010 F200	10	G ½B	90...450	0.2	4	4	4
	VCL 015 F220	15	G ¾B	30...210	0.2	4	4	4
	VCL 015 F210	15	G ¾B	90...450	0.2	4	4	4
	VCL 015 F200	15	G ¾B	150...1050	0.2	4	4	4
	VCL 020 F210	20	G 1B	150...1050	0.2	4	4	4
	VCL 020 F200	20	G 1B	180...1300	0.2	4	4	4

### Main accessories for AXT, AXS actuators

Type	Description
0550240 001	Dismantling protection for AXT/AXS 211 (prevents unauthorised dismantling of plug and actuator)
0550390001	Raised bayonet nut M30x1.5 (black)
0550390101	Raised bayonet nut M28x1.5 (grey)
0550390201	Raised bayonet nut M30x1.0 (white)
0550393001	Adaptor for fitting to Danfoss valves type RA 2000, 22 mm
0550393002	Adaptor for fitting to Danfoss valves type RAVL, 26 mm
0550393003	Adaptor for fitting to Danfoss valves type RAV, 34 mm
0550394001	Adaptor for fitting to Giacomini valves type R450, R452, R456 and programme 60
0550395001	Adaptor for fitting to Pettinaroli valves, set of 10

### Range of connectors for AXT

Type	Length of cable Ø 0.22 x 3									
	0.8 m	1 m	2 m	3 m	4 m	5 m	6 m	7 m	10 m	15 m
Connector with cable, white, PVC H03VV or H05VV										
0550602...	801	011	021	032	042	052	062	072	102	152
Connector with cable, black, PVC H03VV or H05VV 0550602...										
0550602...	-	-	-	032B	-	052B	-	-	102B	152B
Connector with cable, halogen-free, white FH05Z1Z1										
0550602...	-	013	023	-	-	053	-	-	103	-
Connector for continuous activation, 0...10 V, NC cable white, PVC H03 0550423.										
0550423...	-	-	121	-	-	151	-	171	-	-
Connector for continuous activation, 0...10 V, NO cable white, PVC H03										
0550423...	-	-	221	-	-	251	-	271	-	-

# PN16

## VXL/BXL unit valves of gunmetal.

### AXT, AXS, AXM motorised and thermal actuators for OEM versions.



Model series	AXT <sup>3)</sup>		AXT				AXT				AXS		AXM						
Type (see product data sheet for further types)	201 <sup>1)</sup>		211				211				211		215S		117 117S				
Version	F110	F112	F110 <sup>1)</sup>	F210	F112 <sup>1)</sup>	F212	HF110	HF210	HF112	HF212	F110M	F112M	SF122 <sup>1)</sup>	SF222 <sup>1)</sup>	F200	F202	F202	F302	F402
Pushing force/N <sup>2)</sup>	90		115 110				115 110				115		125 110		140 120				
Stroke/mm	4.5		4.5				4.5				4.5		4.5		4				
Running time/min	3.5	4.5	3.5	4.5	4.5		3.5		4.5		3.5	4.5	4.5		1 2/3	1	1	1	1
Power supply	230 V a.c.		•				•				•		•		•				
	24 V a.c./d.c.		•				•				•		•		•				
	24 V a.c.		•				•				•		•		•				
Control signal	2-point		•				•				•		•		•				
	3-point		•				•				•		•		•				
	0...10 V (variable)		•				•				•		•		•				
Connection	Nut M30 x 1.5		•				•				•		•		•				
	Bayonet M30 x 1.5		•				•				•		•		•				
Direction of action	normally closed		•				•				•		•		•				
	normally open max. 110 N		•				•				•		•		•				
Auxiliary contacts			•				•				•		•		•				
Mechanical adjustment			•				•				•		•		•				

<sup>1)</sup> Also available in black

<sup>2)</sup> Pushing force max. 125 N for AXT211/AXS215 and closing dimension 13.5 mm

<sup>3)</sup> Neutral version for underfloor heating

### Unit valves of gunmetal, PN16, with linear characteristic, radiator valve as per DIN 3841 T1

	Type	DN	Connection	Kvs (m <sup>3</sup> /h)	$\Delta P_{max}$ (bar)								
Through 2 °C...130 °C	VXL 010 F260	10	Rp/R 3/8	0.04...0.72			2	2	2	2	2	2	2
	VXL 010 F250	10	Rp/R 3/8	0.25...1.7			1	1	1	1	1	1	1
	VXL 015 F260	15	Rp/R 1/2	0.04...0.72			2	2	2	2	2	2	2
	VXL 015 F250	15	Rp/R 1/2	0.25...1.85			1	1	1	1	1	1	1
	VXL 020 F260	20	Rp/R 3/4	0.04...0.72			2	2	2	2	2	2	2
	VXL 020 F250	20	Rp/R 3/4	0.25...1.95			1	1	1	1	1	1	1
	VXL 025 F200	25	Rp/R 1	5.5			1	1	-	-	1	1	1
	VXL 025 F201	25	Rp/R 1	5.5			4	4	-	-	4	4	4
	VXL 032 F201	32	Rp/R 1 1/4	10.0			3.5	3.5	-	-	3.5	3.5	3.5
	Angle valve	VXL 010 F510	10	Rp/R 3/8	0.36			2.2	2.2	2.2	2.2	2.2	2.2
VXL 010 F500		10	Rp/R 3/8	0.8			2.2	2.2	2.2	2.2	2.2	2.2	2.2
VXL 015 F520		15	Rp/R 1/2	0.8			2.2	2.2	2.2	2.2	2.2	2.2	2.2
VXL 015 F510		15	Rp/R 1/2	2.2			4	4	4	4	4	4	4
VXL 015 F500		15	Rp/R 1/2	5.0			0.9	0.9	0.9	0.9	0.9	0.9	0.9
VXL 020 F500		20	Rp/R 3/4	7.0			0.8	0.8	0.8	0.8	0.8	0.8	0.8
3-way 2 °C...120 °C		BXL 025 F200	25	G 1 1/4A	6.5			0.5	0.5	0.5	0.5	0.5	0.5
	BXL 040 F200	40	G 2A	9.5			0.2	0.2	0.2	0.2	0.2	0.2	0.2

# PN16

## VUL/BUL unit valves of cast brass. AXT, AXS, AXM motorised and thermal actuators.






Model series	AXT				AXT				AXT	AXS	AXM							
Type (see product data sheet for further types)	211				211				211	215S	117	117S						
Version	F110 <sup>1)</sup>	F210	F112 <sup>1)</sup>	F212	HF110	HF210	HF112	HF212	F110M	F112M	SF122 <sup>1)</sup>	SF222 <sup>1)</sup>	F200	F202	F202	F302	F402	
Pushing force/N <sup>2)</sup>	115		110		115		110		115		125		110		140			
Stroke/mm	4.5				4.5				4.5		4.5		4					
Running time/min	3.5	4.5	4.5		3.5	4.5			3.5	4.5	4.5		1 2/3	1	1	1	1	
Power supply	230 V a.c.				24 V a.c./d.c.				24 V a.c.		24 V a.c.							
Control signal	2-point				3-point				0...10 V (variable)									
Connection	Nut M30 x 1.5				Bayonet M30 x 1.5													
Direction of action	normally closed				normally open max. 110 N													
Auxiliary contacts																		
Mechanical adjustment																		

<sup>1)</sup> Also available in black

<sup>2)</sup> Pushing force max. 125 N for AXT211/AXS215 and closing dimension 13.5 mm

### Unit valves of cast brass, PN16, with equal-percentage characteristic

	Type	DN	Connection	Kvs (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)								
 Through 2 °C...120 °C	VUL 010 F340	10	G ½B	0.16		4	4	4	4	4	4	4	4
	VUL 010 F330	10	G ½B	0.4		4	4	4	4	4	4	4	4
	VUL 010 F320	10	G ½B	0.63		4	4	4	4	4	4	4	4
	VUL 010 F310	10	G ½B	1.0		4	4	4	4	4	4	4	4
	VUL 010 F300	10	G ½B	1.6		4	4	4	4	4	4	4	4
	VUL 015 F310	15	G ¾B	2.5		1.6	1.6	1.6	1.6	1.7	1.1	1.1	1.1
	VUL 015 F300	15	G ¾B	3.5		1.6	1.6	1.6	1.6	1.7	1.1	1.1	1.1
	VUL 020 F300	20	G 1B	4.5		1.6	1.6	1.6	1.6	1.5	1.1	1.1	1.1
	 3-way 2 °C...120 °C	BUL 010 F330	10	G ½B	0.4		1.7	1.7	1.7	1.7	1.7	1.7	1.7
BUL 010 F320		10	G ½B	0.63		1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
BUL 010 F310		10	G ½B	1.0		1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
BUL 010 F300		10	G ½B	1.6		1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
BUL 015 F310		15	G ¾B	2.5		1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
BUL 015 F300		15	G ¾B	3.5		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
BUL 020 F300		20	G 1B	4.5		1	1	1	1	1	1	1	1
 with T-bypass 2 °C...120 °C		BUL 010 F430	10	G ½B	0.4		1.7	1.7	1.7	1.7	1.7	1.7	1.7
	BUL 010 F420	10	G ½B	0.63		1.7	1.7	1.7	1.7	1.7	1.7	1.7	
	BUL 010 F410	10	G ½B	1.0		1.7	1.7	1.7	1.7	1.7	1.7	1.7	
	BUL 010 F400	10	G ½B	1.6		1.7	1.7	1.7	1.7	1.7	1.7	1.7	
	BUL 015 F410	15	G ¾B	2.5		1.4	1.4	1.4	1.4	1.4	1.4	1.4	
	BUL 015 F400	15	G ¾B	3.5		1.2	1.2	1.2	1.2	1.2	1.2	1.2	
	BUL 020 F400	20	G 1B	4.5		1	1	1	1	1	1	1	

### Main accessories for unit valves

Type	Description
0378133 010	1 threaded nipple R½, flat sealing, DN 10, with union nut and flat seal
0378133 015	1 threaded nipple R½, flat sealing, DN 15, with union nut and flat seal
0378133 020	1 threaded nipple R¾, flat sealing, DN 20, with union nut and flat seal
0361824025	3 threaded nipples R1, flat sealing
0361824040	3 threaded nipples R5/4, flat sealing
0378134 010	1 solder nipple Ø 12 mm, flat sealing, DN 10, with union nut and flat seal
0378134 015	1 solder nipple Ø 15 mm, flat sealing, DN 15, with union nut and flat seal
0378134 020	1 solder nipple Ø 22 mm, flat sealing, DN 20, with union nut and flat seal
0361825028	3 solder nipples Ø 28 mm, flat sealing, DN 25
0361825035	3 solder nipples Ø 35 mm, flat sealing, DN 40
0361825042	3 solder nipples Ø 42 mm, flat sealing, DN 40
0378135 010	1 compression fitting for pipe Ø 15 mm, DN 10
0378145 015	1 compression fitting for pipe Ø 15 mm, DN 15, flat seal ¾ B
0378145 020	1 compression fitting for pipe Ø 22 mm, DN 20, flat seal 1 B

The values stated apply when used as a control valve (against the pressure). For values when used as a diverting valve (with the pressure), further details and official technical specifications, see the relevant PDS (product data sheet).

# Control accuracy and high flow rates: **two- and three-way ball valves** from SAUTER

## **The perfection of a tried-and-tested principle**

The bodies of SAUTER's tightly-closing ball valves are manufactured from high-grade DZR brass, which enables them to be used for a wide variety of applications, even for drinking water. Thanks to the excellent physical properties of the zinc-free, chromium-plated brass ball with its polished surface, unrivalled control precision and a flexible modular concept can be taken for granted. The ball valves can be produced very simply either with a male thread, NPT thread or customised.

## **Versatile and functional in a host of applications:**

- Combination with or without spring return
- Simple assembly without tools
- Slot the actuator onto the ball valve, turn the bayonet ring to the end – and it's ready
- Running times can be modified and the characteristic can be changed
- Detection of 2-point, 3-point or continuous actuators
- Anti-jamming function available
- Actuators with spring return can be fitted as 'normally closed' or 'normally open'





# PN40

## VKR/BKR ball valves of DZR brass. AKM and AKF rotary actuators with 90° angle of rotation.



Model series		AKM				AKF				
		105	115	115S	115S	112	113	113S		
Type		F100	F120	F122	F132	F152	F120	F122	F122	F122
Version										
Power supply	230 V a.c.	•	•				•			
	24 V a.c.			•	•	•		•	•	•
	24 V d.c.				•	•		•	•	•
Running time	6 s									
	35 s	•								
	60 s									
	120 s		•	•	•	•				
	90 s						•	•	•	•
Return time	15 s						•	•	•	•
Control signal	2-point	•	•	•	•	•	•	•		
	3-point	•	•	•	•	•			•	
	0...10 V				•	•				•
Characteristic	equal-percentage	•	•	•	•	•	•	•	•	•
	linear				•	•				
	quadratic				•					
Spring return	normally closed						•	•	•	•
	normally open						•	•	•	•

### Ball valve with ISO female thread, of DZR cast brass, PN40, and equal-percentage characteristic

	Type	DN	Connection	K <sub>vs</sub> (m <sup>3</sup> /h)	ΔP <sub>max</sub> (bar)								
					1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
2-way -10 °C...+130 °C	VKRO15F350-FF	15	R <sub>p</sub> ½	1	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO15F340-FF	15	R <sub>p</sub> ½	1.6	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO15F330-FF	15	R <sub>p</sub> ½	2.5	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO15F320-FF	15	R <sub>p</sub> ½	4	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO15F310-FF	15	R <sub>p</sub> ½	6.3	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO15F300-FF	15	R <sub>p</sub> ½	10	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO20F320-FF	20	R <sub>p</sub> ¾	4	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO20F310-FF	20	R <sub>p</sub> ¾	6.3	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO20F300-FF	20	R <sub>p</sub> ¾	10	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO25F320-FF	25	R <sub>p</sub> 1	6.3	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO25F310-FF	25	R <sub>p</sub> 1	10	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO25F300-FF	25	R <sub>p</sub> 1	16	1.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	VKRO32F320-FF	32	R <sub>p</sub> 1¼	10	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	VKRO32F310-FF	32	R <sub>p</sub> 1¼	16	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	VKRO32F300-FF	32	R <sub>p</sub> 1¼	25	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	VKRO40F320-FF	40	R <sub>p</sub> 1½	16	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	VKRO40F310-FF	40	R <sub>p</sub> 1½	25	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	VKRO40F300-FF	40	R <sub>p</sub> 1½	40	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
VKRO50F320-FF	50	R <sub>p</sub> 2	25	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
VKRO50F310-FF	50	R <sub>p</sub> 2	40	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
VKRO50F300-FF	50	R <sub>p</sub> 2	63	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
3-way -10 °C...+130 °C	BKRO15F340-FF	15	R <sub>p</sub> ½	1.6	1.8	2	2	2	2	2	2	2	2
	BKRO15F330-FF	15	R <sub>p</sub> ½	2.5	1.8	2	2	2	2	2	2	2	2
	BKRO15F320-FF	15	R <sub>p</sub> ½	4	1.8	2	2	2	2	2	2	2	2
	BKRO20F320-FF	20	R <sub>p</sub> ¾	4	1.8	2	2	2	2	2	2	2	2
	BKRO20F310-FF	20	R <sub>p</sub> ¾	6.3	1.8	2	2	2	2	2	2	2	2
	BKRO25F320-FF	25	R <sub>p</sub> 1	6.3	1.8	2	2	2	2	2	2	2	2
	BKRO25F310-FF	25	R <sub>p</sub> 1	10	1.8	2	2	2	2	2	2	2	2
	BKRO32F310-FF	32	R <sub>p</sub> 1¼	16	1.2	2	2	2	2	2	2	2	2
	BKRO40F310-FF	40	R <sub>p</sub> 1½	25	1.2	2	2	2	2	2	2	2	2
	BKRO50F310-FF	50	R <sub>p</sub> 2	40	1.2	2	2	2	2	2	2	2	2

Ball valves with NPT female thread in version VKROxx F3xxMM

### Accessories

#### Screw fitting of brass, flat sealing, male/female thread

Type	DN	Connection
0560283 015	15	G1B / R <sub>p</sub> ½
0560283 020	20	G 1¼B / R <sub>p</sub> ¾
0560283 025	25	G 1½B / R <sub>p</sub> 1
0560283 032	32	G 2B / R <sub>p</sub> 1¼
0560283 040	40	G 2¼B / R <sub>p</sub> 1½
0560283 050	50	G 2¾B / R <sub>p</sub> 2

#### Dirt trap of gunmetal, -10...150 °C

Type	DN	Description
0560332 015	15	Mesh size 0.5 mm
0560332 020	20	Mesh size 0.8 mm
0560332 025	25	Mesh size 0.8 mm
0560332 032	32	Mesh size 0.8 mm
0560332 040	40	Mesh size 0.8 mm
0560332 050	50	Mesh size 0.8 mm

For further details and official technical specifications, see the relevant PDS (product data sheet).



## Strong types and flexible combinations for every requirement: **threaded and flanged valves** from SAUTER

### **The complete range of control valves**

No matter whether you need threaded valves in zinc-free cast brass or flanged valves in grey cast iron, ductile cast iron or cast steel, you'll find exactly the right products at SAUTER. Used in combination with the actuators for 2- or 3-point control or the innovative SUT (SAUTER Universal Technology) actuators, they form exceptionally compact regulating units. The simple way of fitting the two components together, and the automatic adaptation to the valve stroke, makes installation easy. All nominal diameters up to DN 50 are fitted with a high-grade seal in the cone. Large diameters feature a very precise metallic or stainless-steel sealing surface – so even the highest requirements for control, shut-off and safety functions can be met.

### **Versatile use and flexible handling**

SAUTER valves can be used as control or diverting valves, with or against the pressure. Long-term reliability is guaranteed even with high pressure differences. And you remain flexible when it becomes necessary to make adjustments to your SUT actuator: as well as a choice of characteristics, the running time can be adapted and the input signal can be set. So SAUTER offers you a complete range of actuators with forces in the range from 250 to 2500 N, with matching valves for every application – yet only a few combinations.



# PN16

## VUN/BUN valves with male thread in cast brass. AVM, AVF actuators with 8 mm of stroke.



Model series		AVM								AVF				
Type	Version	105		105S		115		115S		124		125S		
Power supply	Pushing force	F100	F120	F122	F132	F120	F122	F132	F130	F132	F130	F230	F132	F232
230 V a.c.	250 N	•	•								•	•		
24 V a.c.	500 N													
24 V d.c.	800 N													
	30/35 s	•			•									
	60 s													
	120 s													
2-point	0...10 V	•	•	•	•	•	•	•	•	•	•	•	•	•
3-point	4...20 mA	•	•	•	•	•	•	•	•	•	•	•	•	•
	equal-percentage	•	•	•	•	•	•	•	•	•	•	•	•	•
	linear				•			•					•	•
	quadratic												•	•
normally closed	Spring return										•		•	
normally open												•		•

### Valves with male thread, of cast brass, PN16, equal-percentage (F3..) or linear (F2..) characteristic

	Type	DN	Connection	Kvs (m³/h)	Δp <sub>max</sub> (bar)										
					4	4	4	4	6	6	6	8	8	6	6
 Through -15 °C...150 °C	VUN015F350	15	G1B	0.4	4	4	4	4	6	6	6	8	8	6	6
	VUN015F340	15	G1B	0.63	4	4	4	4	6	6	6	8	8	6	6
	VUN015F330	15	G1B	1	4	4	4	4	6	6	6	8	8	6	6
	VUN015F320	15	G1B	1.6	4	4	4	4	6	6	6	8	8	6	6
	VUN015F310	15	G1B	2.5	4	4	4	4	6	6	6	8	8	6	6
	VUN015F300	15	G1B	4	4	4	4	4	6	6	6	8	8	6	6
	VUN020F300	20	G 1¼B	6.3	4	4	4	4	5	5	5	8	8	5	5
	VUN025F300	25	G 1½B	10	4	4	4	4	4	4	4	8	8	4	4
	VUN032F300	32	G 2B	16	3	3	3	3	3.5	3.5	3.5	6	6	3.5	3.5
	VUN040F300	40	G 2¼B	22	1.9	1.9	1.9	1.9	3	3	3	5	5	3	3
	VUN050F300	50	G 2¾B	28	1	1	1	1	2.4	2.4	2.4	3	3	2.4	2.4
	VUN050F200	50	G 2¾B	40	1	1	1	1	2.4	2.4	2.4	3	3	2.4	2.4
 3-way -15 °C...150 °C	BUN015F330	15	G1B	1	4	4	4	4	6	6	6	8	8	6	6
	BUN015F320	15	G1B	1.6	4	4	4	4	6	6	6	8	8	6	6
	BUN015F310	15	G1B	2.5	4	4	4	4	6	6	6	8	8	6	6
	BUN015F300	15	G1B	4	4	4	4	4	6	6	6	8	8	6	6
	BUN020F300	20	G 1¼B	6.3	4	4	4	4	5	5	5	8	8	5	5
	BUN025F300	25	G 1½B	10	3	3	3	3	4	4	4	8	8	4	4
	BUN032F300	32	G 2B	16	2	2	2	2	3.7	3.7	3.7	6	6	3.7	3.7
	BUN040F300	40	G 2¼B	22	1.2	1.2	1.2	1.2	2.7	2.7	2.7	4.4	4.4	2.7	2.7
	BUN050F300	50	G 2¾B	28	0.8	0.8	0.8	0.8	1.8	1.8	1.8	3	3	1.8	1.8
	BUN050F200	50	G 2¾B	40	0.8	0.8	0.8	0.8	1.8	1.8	1.8	3	3	1.8	1.8

### Accessories

#### Screw fitting of brass, flat sealing

Type	DN	Connection G2 / G1
0361951 015	15	G1B / Rp ½
0361951 020	20	G 1¼B / Rp ¾
0361951 025	25	G 1½B / Rp 1
0361951 032	32	G 2B / Rp 1¼
0361951 040	40	G 2¼B / Rp 1½
0361951 050	50	G 2¾B / Rp 2



#### Main accessories for valves with male thread

Type	Description
0372240 001	Manual adjuster for valves with 8 mm stroke
0372249 001	Temperature adaptor >100 °C to 130 °C
0372249 002	Temperature adaptor >130 °C to 150 °C
0378284 100	Stuffing-box heater 230 V, 15 W, for media below 0 °C
0378284 102	Stuffing-box heater 24 V, 15 W, for media below 0 °C

# PN6, PN16/10

**VUD/BUD and VUE/BUE flanged valves of grey cast iron. AVM, AVF and AVN actuators with up to 8 mm of stroke.**



Model series		AVM									AVF			
Type		105			105S		115		115S		124	125S		
Version		F100	F120	F122	F132	F120	F122	F132	F130	F132	F130	F230	F132	F232
Power supply	230 V a.c.	•	•			•			•		•	•		•
	24 V a.c.			•	•		•	•		•			•	•
	24 V d.c.				•			•						•
Pushing force	250 N	•	•	•	•									
	500 N					•	•	•			•	•	•	•
	800 N								•	•				
Running time	30/35 s	•			•					•	•			
	60 s				•			•	•	•	•	•	•	•
	120 s		•	•	•	•	•	•	•	•	•	•	•	•
Control signal	2-point	•	•	•	•	•	•	•	•	•	•	•	•	•
	3-point	•	•	•	•	•	•	•	•	•	•	•	•	•
	0...10 V				•			•					•	•
	4...20 mA							•					•	•
Characteristic	equal-percentage	•	•	•	•	•	•	•	•	•	•	•	•	•
	linear				•			•					•	•
	quadratic									•			•	•
Spring return	normally closed										•		•	
	normally open											•		•

## Flanged valves of grey cast iron, PN6, equal-percentage (F300) or linear (F200) characteristic

	Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)													
				4	4	4	4	6	6	6	6	6	6	6	6	6	6
Through -10 °C... 150 °C	VUD015F320	15	1.6	4	4	4	4	6	6	6	6	6	6	6	6	6	6
	VUD015F310	15	2.5	4	4	4	4	6	6	6	6	6	6	6	6	6	6
	VUD015F300	15	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6
	VUD020F300	20	6.3	4	4	4	4	6	6	6	6	6	6	6	6	6	6
	VUD025F300	25	10	2.8	2.8	2.8	2.8	6	6	6	6	6	6	6	6	6	6
	VUD032F300	32	16	2.1	2.1	2.1	2.1	5.2	5.2	5.2	6	6	5.2	5.2	5.2	5.2	5.2
	VUD040F300	40	22	1.2	1.2	1.2	1.2	3.3	3.3	3.3	5.7	5.7	3.3	3.3	3.3	3.3	3.3
	VUD050F300	50	28	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2
	VUD050F200	50	40	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2
	3-way -10 °C... 150 °C	BUD015F320	15	1.6	4	4	4	4	6	6	6	6	6	6	6	6	6
BUD015F310		15	2.5	4	4	4	4	6	6	6	6	6	6	6	6	6	6
BUD015F300		15	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6
BUD020F300		20	6.3	4	4	4	4	6	6	6	6	6	6	6	6	6	6
BUD025F300		25	10	2.8	2.8	2.8	2.8	6	6	6	6	6	6	6	6	6	6
BUD032F300		32	16	2.1	2.1	2.1	2.1	5.2	5.2	5.2	6	6	5.2	5.2	5.2	5.2	5.2
BUD040F300		40	22	1.2	1.2	1.2	1.2	3.3	3.3	3.3	5.7	5.7	3.3	3.3	3.3	3.3	3.3
BUD050F300		50	28	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2
BUD050F200		50	40	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2

## Flanged valves of grey cast iron, PN16/10, equal-percentage (F300) or linear (F200) characteristic

	Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)													
				4	4	4	4	6	6	6	10	10	6	6	6	6	
Through -10 °C... 150 °C	VUE015F350	15	0.4	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE015F340	15	0.63	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE015F330	15	1	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE015F320	15	1.6	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE015F310	15	2.5	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE015F300	15	4	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE020F300	20	6.3	4	4	4	4	6	6	6	10	10	6	6	6	6	6
	VUE025F300	25	10	2.8	2.8	2.8	2.8	6	6	6	10	10	6	6	6	6	6
	VUE032F300	32	16	2.1	2.1	2.1	2.1	5.2	5.2	5.2	9	9	5.2	5.2	5.2	5.2	5.2
	VUE040F300	40	22	1.4	1.4	1.4	1.4	3.3	3.3	3.3	5.7	5.7	3.3	3.3	3.3	3.3	3.3
3-way -10 °C... 150 °C	VUE050F300	50	28	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2
	VUE050F200	50	40	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2
	BUE015F330	15	1	4	4	4	4	6	6	6	10	10	10	10	10	10	10
	BUE015F320	15	1.6	4	4	4	4	6	6	6	10	10	10	10	10	10	10
	BUE015F310	15	2.5	4	4	4	4	6	6	6	10	10	10	10	10	10	10
	BUE015F300	15	4	4	4	4	4	6	6	6	10	10	10	10	10	10	10
	BUE020F300	20	6.3	4	4	4	4	6	6	6	10	10	10	10	10	10	10
	BUE025F300	25	10	2.8	2.8	2.8	2.8	6	6	6	10	10	6	6	6	6	6
	BUE032F300	32	16	2.1	2.1	2.1	2.1	5.2	5.2	5.2	9	9	5.2	5.2	5.2	5.2	5.2
	BUE040F300	40	22	1.4	1.4	1.4	1.4	3.3	3.3	3.3	5.7	5.7	3.3	3.3	3.3	3.3	3.3
BUE050F300	50	28	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2	
BUE050F200	50	40	0.9	0.9	0.9	0.9	2	2	2	3.4	3.4	2	2	2	2	2	

# PN6, PN16/10

## VUD/BUD and VUE/BUE flanged valves of grey cast iron. AVM, AVF and AVN actuators with up to 40 mm of stroke.



Model series		AVM	AVF	AVN
Type		234S	234S	224S
Version		F132	F132 F232	F132 F232
Power supply	24 V a.c.	•	•	•
	24 V d.c.	•	•	•
	230 V a.c. with accessory 372232 001 *	•	•	•
	100 V a.c. with accessory 372232 002 *	•	•	•
Pushing force	2500 N	•		
	2000 N		•	
	1100 N			•
Running time	2 s/4 s/6 s per mm	•	•	•
Return time	15...30 s		•	•
Control signal	2-point	•	•	•
	3-point	•	•	•
	0...10 V	•	•	•
	4...20 mA	•	•	•
Characteristic	equal-percentage	•	•	•
	linear	•	•	•
	quadratic	•	•	•
Spring return	normally closed		•	•
	normally open			•

\* Continuous 0...10 V/4...20 mA control is also possible

### Flanged valves of grey cast iron, PN6, equal-percentage (F300) or linear (F200) characteristic

Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)				
Through valve -10 °C...150 °C	VUD065F300 / F200	65	49 / 63	3	3	-	-
	VUD080F300 / F200	80	78 / 100	3	3	-	-
	VUD100F300 / F200	100	124 / 160	2	2	-	-
3-way valve -10 °C...150 °C	BUD065F300 / F200	65	49 / 63	3	3	3	-
	BUD080F300 / F200	80	78 / 100	3	3	3	-
	BUD100F300 / F200	100	124 / 160	2	2	2	-

### Flanged valves of grey cast iron, PN16/10, equal-percentage (F300) or linear (F200) characteristic

Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)					
Through valve -10 °C...150 °C	VUE065F300 / F200	65	49 / 63	3	3		2.6	
	VUE080F300 / F200	80	78 / 100	3	3		1.8	
	VUE100F300 / F200	100	125 / 160	2	2		1.1	
	VUE125F300 / F200	125	200 / 240	1.5	1.4		0.7	
	VUE150F300 / F200	150	300 / 320	1	1		0.6	
3-way valve -10 °C...150 °C	BUE065F300 / F200	65	49 / 63	2	3	3	2.6	2.6
	BUE080F300 / F200	80	78 / 100	3	3	3	1.8	1.8
	BUE100F300 / F200	100	125 / 160	2	2	2	1.1	1.1
	BUE125F300 / F200	125	200 / 240	1.5	1.4	1.4	0.7	0.7
	BUE150F300 / F200	150	300 / 320	1	1	1	0.6	0.6

### Main accessories for flanged valves and actuators

Type	Description
0372240 001	Manual adjuster for valves with 8 mm stroke
0372249 001	Temperature adaptor > 100 °C to 130 °C for valves with 8 mm stroke
0372249 002	Temperature adaptor > 130 °C to 150 °C for valves with 8 mm stroke
0372336 180	Adaptor required for media > 130 °C, from DN65 for valves with 20 or 40 mm stroke
0372336 240	Adaptor required for media > 180 °C, from DN65 for valves with 20 or 40 mm stroke
0378284 100	Stuffing-box heater 230 V, 15 W for media below 0 °C, to match all valves
0378284 102	Stuffing-box heater 24 V, 15 W for media below 0 °C, to match all valves
0313529 001	Split-range unit to set sequences, to match all actuators
0372332 001	Plug-in module for 230 V power supply and 2-point or 3-point control, accessory for actuators with 40 mm stroke
0372332 002	Plug-in module for 100 V power supply and 2-point or 3-point control, accessory for actuators with 40 mm stroke
0372333 001	Two auxiliary change-over contacts, infinitely adjustable, load 6 (2) A, accessory for actuators with 40 mm stroke
0372334 001	Potentiometer 2000 Ω, 1 W, accessory for actuators with 40 mm stroke
0372334 002	Potentiometer 130 Ω, 1 W, accessory for actuators with 40 mm stroke
0372334 006	Potentiometer 1000 Ω, 1 W, accessory for actuators with 40 mm stroke
0372462 001	'CASE Drives' PC tool to configure actuators via computer



# PN25/16



## VUG/BUG flanged valves in ductile cast iron. AVM, AVF and AVN actuators with stroke of 20 to 40 mm.



Model series	AVM	AVF		AVN	
Type	234S	234S		224S	
Version	F132	F132	F232	F132	F232
Power supply	24 V a.c.	•	•	•	•
	24 V d.c.	•	•	•	•
	230 V a.c. with accessory 372232 001 *	•	•	•	•
	100 V a.c. with accessory 372232 002 *	•	•	•	•
Pushing force	2500 N	•			
	2000 N		•		
	1100 N			•	•
Running time	2 s/4 s/6 s per mm	•	•	•	•
Return time	15...30 s		•	•	•
Control signal	2-point	•	•	•	•
	3-point	•	•	•	•
	0...10 V	•	•	•	•
	4...20 mA	•	•	•	•
Characteristic	equal-percentage	•	•	•	•
	linear	•	•	•	•
	quadratic	•	•	•	•
Spring return	normally closed		•	•	
	normally open			•	•

\* Continuous 0...10 V/4...20 mA control is also possible

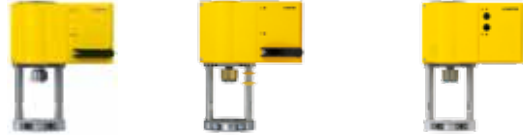
### Flanged valves of ductile cast iron, PN25/16, equal-percentage characteristic

	Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)				
 Through valve -20 °C...240 °C	VUG015F374	15	PN25/16	0.16	16	16	16	16	16
	VUG015F364	15	PN25/16	0.25	16	16	16	16	16
	VUG015F354	15	PN25/16	0.4	16	16	16	16	16
	VUG015F344	15	PN25/16	0.63	16	16	16	16	16
	VUG015F334	15	PN25/16	1	16	16	16	16	16
	VUG015F324	15	PN25/16	1.6	16	16	16	16	16
	VUG015F314	15	PN25/16	2.5	16	16	16	16	16
	VUG015F304	15	PN25/16	4	16	16	16	16	16
	VUG020F304	20	PN25/16	6.3	16	16	16	16	16
	VUG025F304	25	PN25/16	10	16	16	16	16	16
	VUG032F304	32	PN25/16	16	16	16	16	10.5	10.5
	VUG040F304	40	PN25/16	25	16	13.5	13.5	6.5	6.5
	VUG050F304	50	PN25/16	40	11	8.5	8.5	4	4
	VUG065F316	65	PN16	63	7.1	5.6	5.6	3	3
	VUG065F304	65	PN25	63	7.1	5.6	5.6	3	3
	VUG080F304	80	PN25/16	100	4.7	3.4	3.4	2	2
VUG100F304	100	PN25	160	3	2.2	2.2	1.1	1.1	
VUG125F304	125	PN25	250	2	1.6	1.6	0.8	0.8	
VUG150F304	150	PN25	340	1.5	1.2	1.2	0.6	0.6	
 3-way valve -20 °C...240 °C	BUG015F334	15	PN25/16	1	16	16	16	16	16
	BUG015F324	15	PN25/16	1.6	16	16	16	16	16
	BUG015F314	15	PN25/16	2.5	16	16	16	16	16
	BUG015F304	15	PN25/16	4	16	16	16	16	16
	BUG020F304	20	PN25/16	6.3	16	16	16	16	16
	BUG025F304	25	PN25/16	10	16	16	16	16	16
	BUG032F304	32	PN25/16	16	16	16	16	10.5	10.5
	BUG040F304	40	PN25/16	25	16	13.5	13.5	6.5	6.5
	BUG050F304	50	PN25/16	40	11	8.5	8.5	4	4
	BUG065F316	65	PN16	63	7.1	5.6	5.6	3	3
	BUG065F304	65	PN25	63	7.1	5.6	5.6	3	3
	BUG080F304	80	PN25/16	100	4.7	3.4	3.4	2	2
	BUG100F304	100	PN25	160	3	2.2	2.2	1.1	1.1
	BUG125F304	125	PN25	250	2	1.6	1.6	0.8	0.8
	BUG150F304	150	PN25	340	1.5	1.2	1.2	0.6	0.6

Main accessories for flanged valves and actuators: see page 13

# PN40, PN25



**VUS/BUS and VUP flanged valves in cast steel/ductile cast iron. AVM, AVF, AVN actuators with up to 40 mm of stroke.**




Model series		AVM	AVF		AVN	
Type		234S	234S		224S	
Version		F132	F132	F232	F132	F232
Power supply	24 V a.c.	•	•	•	•	•
	24 V d.c.	•	•	•	•	•
	230 V a.c. with accessory 372232 001 *	•	•	•	•	•
	100 V a.c. with accessory 372232 002 *	•	•	•	•	•
Pushing force	2500 N	•				
	2000 N		•	•		
	1100 N				•	•
Running time	2 s/4 s/6 s per mm	•	•	•	•	•
Return time	15...30 s		•	•	•	•
Control signal	2-point	•	•	•	•	•
	3-point	•	•	•	•	•
	0...10 V	•	•	•	•	•
	4...20 mA	•	•	•	•	•
Characteristic	equal-percentage	•	•	•	•	•
	linear	•	•	•	•	•
	quadratic	•	•	•	•	•
Spring return	normally closed (only VUS/VUP opened)		•		•	
	normally open (only VUS/VUP closed)			•		•

\* Continuous 0...10 V/4...20 mA control is also possible

## Flanged valves of cast steel, PN40, equal-percentage (F3..) or linear (F2..) characteristic

	Type	DN	Flange	$K_{vs}$ (m <sup>3</sup> /h)	$\Delta p_{max}$ (bar)				
Through -10 °C...260 °C 	VUS015F374	15	PN40	0.16	40	40	40	24.5	24.5
	VUS015F364	15	PN40	0.25	40	40	40	24.5	24.5
	VUS015F354	15	PN40	0.4	40	40	40	24.5	24.5
	VUS015F344	15	PN40	0.63	40	40	40	24.5	24.5
	VUS015F335	15	PN40	1	40	40	40	24.5	24.5
	VUS015F325	15	PN40	1.6	40	40	40	24.5	24.5
	VUS015F315	15	PN40	2.5	40	40	40	24.5	24.5
	VUS015F305	15	PN40	4	40	40	40	24.5	24.5
	VUS020F305	20	PN40	6.3	40	40	40	24.5	24.5
	VUS025F305	25	PN40	10	37.8	29.6	29.6	14.7	14.7
	VUS032F305	32	PN40	16	28.7	22.5	22.5	11.1	11.1
	VUS040F305	40	PN40	25	16.4	12.8	12.8	6.2	6.2
	VUS050F305	50	PN40	40	10.5	8.2	8.2	3.9	3.9
	VUS065F305	65	PN40	63	6.1	4.7	4.7	2.1	2.1
	VUS080F305	80	PN40	100	3.9	3	3	1.3	1.3
	VUS100F305	100	PN40	160	1.5	1.5	1.5	0.8	0.8
	VUS125F305	125	PN40	220	1	1	1	0.4	0.4
VUS150F305	150	PN40	320	0.7	0.7	0.7	0.2	0.2	
3-way -10 °C...260 °C 	BUS015F225	15	PN40	1.6	40	40	40	24.5	24.5
	BUS015F215	15	PN40	2.5	40	40	40	24.5	24.5
	BUS015F205	15	PN40	4	40	40	40	24.5	24.5
	BUS020F205	20	PN40	6.3	40	34.7	34.7	17.5	17.5
	BUS025F205	25	PN40	10	37.8	29.6	29.6	14.7	14.7
	BUS032F205	32	PN40	16	27	21.1	21.1	10.4	10.4
	BUS040F205	40	PN40	25	16.4	12.8	12.8	6.2	6.2
	BUS050F205	50	PN40	40	10.5	8.2	8.2	3.9	3.9
	BUS065F205	65	PN40	63	6.1	4.7	4.7	2.1	2.1
	BUS080F205	80	PN40	100	3.9	3	3	1.3	1.3
	BUS100F205	100	PN40	160	2.5	1.9	1.9	0.8	0.8
	BUS125F304	125	PN40	220	1.7	1.3	1.3	0.5	0.5
	BUS150F304	150	PN40	320	1.2	0.9	0.9	0.3	0.3

## Flanged valves of ductile cast iron, PN25, pressure-compensated, equal-percentage characteristic

	Type	DN	Flange	$K_{vs}$ (m <sup>3</sup> /h)	$\Delta p_{max}$ (bar)				
Through -20 °C...200 °C 	VUPO40F304	40	PN25	25	25	25	25	25	25
	VUPO50F304	50	PN25	40	25	25	25	20	20
	VUPO65F304	65	PN25	63	25	25	25	16	16
	VUPO80F304	80	PN25	100	25	25	25	12	12
	VUP100F304	100	PN25	160	25	20	20	9	9
	VUP125F304	125	PN25	250	19	14	14	6	6
	VUP150F304	150	PN25	350	15	10	10	4	4

The values stated apply when used as a control valve (against the pressure). For values when used as a diverting valve (with the pressure), further details and official technical specifications, see the relevant PDS (product data sheet).



## For heating systems, houses and communal heating systems: **rotary actuators and control valves** from SAUTER.

### **Reliability for trouble-free heating functions: control valves**

SAUTER control valves are used to regulate heating and cooling systems in buildings. This applies to the 3-way version for control and change-over functions, and to the 4-way version for higher temperatures in the return circuit. All versions are available with either a thread (made of brass for small diameters) or a flange of ductile cast iron. For increased control precision when setting the flow temperature combined with maximum energy efficiency, we also recommend the weather-compensating heating controllers of the SAUTER equitherm® series.

### **The ideal combination: control valves with SAUTER rotary and damper drives**

SAUTER offers you a complete family with actuating forces from 5 to 15 Nm. SAUTER's AR30W rotary drive has a continuously adjustable angle of rotation, from 5° to 360°. This unique drive can also build up releasing torque in excess of 50% of the torque. As one would expect, all SAUTER actuators have a manual adjuster.





## MH control valves of grey cast iron and M3R/M4R control valves of cast brass.

AR30 and ASM rotary drives with 90° or more.



Model series		AR30			ASM										
Type		W23	W23S		105	105S	115	115S	124	124S					
Version		F001	F020	F020	F120	F122	F132	F152	F120	F122	F132	F152	F120	F122	F132
Power supply	230 V a.c.	•			•				•				•		
	24 V a.c.		•	•		•	•	•		•	•	•		•	•
	24 V d.c.							•					•		•
Torque	5 Nm				•	•	•	•							
	10 Nm								•	•	•	•			
	15/18 Nm	•	•	•									•	•	•
Running time	3 s							•							
	6 s														
	35 s						•								
	60 s											•			•
	120 s	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Control signal	2-point				•	•	•	•	•	•	•	•	•	•	•
	3-point	•			•	•	•	•	•	•	•	•	•	•	•
	0...10 V			•	•	•	•	•	•	•	•	•	•	•	•
Angle of rotation	90°	•	•	•	•	•	•	•	•	•	•	•	•	•	•

### Control valves of grey cast iron, with flange connection, PN6



Type	DN	K <sub>vs</sub> (m³/h)	Δp <sub>max</sub> (bar)														
3-way 2...110 °C	MH32F20F200	20	12	1	1	1	1	1	1	1	1	1	1	1	1	1	
	MH32F25F200	25	18	1	1	1	1	1	1	1	1	1	1	1	1	1	
	MH32F32F200	32	28	1	1	1	1	1	1	1	1	1	1	1	1	1	
	MH32F40F200	40	44	1	1	1	1	1	1	1	1	1	1	1	1	1	
	MH32F50F200	50	66	0.5	0.5	0.5	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	MH32F65F200	65	100	0.5	0.5	0.5	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	MH32F80F200	80	150	0.5	0.5	0.5	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	MH32F100F200	100	225	0.5	0.5	0.5	-	-	-	-	-	-	-	-	0.5	0.5	0.5
	MH32F125F200	125	310	0.5	0.5	0.5	-	-	-	-	-	-	-	-	0.5	0.5	0.5
MH32F150F200	150	420	0.5	0.5	0.5	-	-	-	-	-	-	-	-	0.5	0.5	0.5	
4-way 2...110 °C	MH42F32F200	32	28	1	1	1	-	-	-	-	-	-	-	1	1	1	
	MH42F40F200	40	44	1	1	1	-	-	-	-	-	-	-	1	1	1	
	MH42F50F200	50	66	0.5	0.5	0.5	-	-	-	-	-	-	-	0.5	0.5	0.5	

### Control valves of cast brass, with female thread, PN6



Type	DN	Connection	K <sub>vs</sub> (m³/h)	Δp <sub>max</sub> (bar)												
3-way 2...110 °C	M3R015F200	15	R <sub>p</sub> ½	2.5	2	2	2	2	2	2	2	2	2	2	2	2
	M3R020F200	20	R <sub>p</sub> ¾	6	2	2	2	2	2	2	2	2	2	2	2	2
	M3R025F200	25	R <sub>p</sub> 1	12	1	1	1	1	1	1	1	1	1	1	1	1
	M3R032F200	32	R <sub>p</sub> 1 ¼	18	1	1	1	1	1	1	1	1	1	1	1	1
	M3R040F200	40	R <sub>p</sub> 1 ½	28	1	1	1	1	1	1	1	1	1	1	1	1
	M3R050F200	50	R <sub>p</sub> 2	44	1	1	1	1	1	1	1	1	1	1	1	1
4-way 2...110 °C	M4R020F200	20	R <sub>p</sub> ¾	6	2	2	2	2	2	2	2	2	2	2	2	2
	M4R025F200	25	R <sub>p</sub> 1	12	2	2	2	2	2	2	2	2	2	2	2	2
	M4R032F200	32	R <sub>p</sub> 1 ¼	18	1	1	1	1	1	1	1	1	1	1	1	1
	M4R040F200	40	R <sub>p</sub> 1 ½	28	1	1	1	1	1	1	1	1	1	1	1	1
	M4R050F200	50	R <sub>p</sub> 2	44	1	1	1	1	1	1	1	1	1	1	1	1

### Main accessories for control valves and drives

Type	Description
0361775 000	Assembly part for AR30, with lever
0361977 001	Assembly part for ASM124
0361977 002	Assembly part for ASM105/115, with lever

## Reliable in any medium: tight-sealing **butterfly valves** from SAUTER

### **Universal and energy-efficient**

SAUTER's butterfly valves are very versatile and can be used for controlling or closing purposes. Energy consumption is reduced because they close with absolute tightness. Heat generators and chillers are connected up to heating boilers or cooling plants as required. If this is not required, or if a change-over is needed, the SAUTER butterfly valve separates the circuits tightly and reliably.

### **Well equipped for flexibility and tightness**

Butterfly valves and SAUTER rotary actuators are an ideal combination. Their action is so easy that even actuators with only 15 or 30 Nm can be used. The hole pattern is designed to take PN6, PN10 or PN16 flanges. To enable simultaneous use of different media such as water, air, brines, water with additives and others, an EPDM collar guarantees that the valve remains tight.



# PN6/10/16

**DEF butterfly valves of grey cast iron.**

**ASM/ASF rotary actuators with 90°, or AR30 and A44 with more.**



Model series		ASM			AR30			A44			ASF					
Type		124			134			W23 W23S		W2 W2S		122 123 123S				
Version		F120	F122	SF132	F130	SF132	F001	F020	F020	F001	F020	F001	F120	F122	F122	F122
Power supply	230 V a.c.	•			•		•			•			•			
	24 V a.c.		•	•		•		•		•	•			•	•	•
	24 V d.c.			•		•								•	•	•
Torque	15 Nm						•	•	•							
	18 Nm	•	•	•									•	•	•	•
	30 Nm				•	•				•	•	•				
Running time	90 s						•			•			•	•	•	•
	120 s	•	•	•	•	•	•	•	•	•	•					
Control signal	2-point	•	•		•					•	•		•	•		
	3-point	•	•		•		•	•		•	•				•	
	0...10 V	•	•	•	•	•										•
Angle of rotation	90° fixed	•	•	•	•	•							•	•	•	•
	90° and larger						•	•	•	•	•					
Spring return	normally closed												•	•	•	•
	normally open												•	•	•	•

## Tight-sealing butterfly valve, PN16, PN6/10/16 flange

	Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)												
				10	–	10	10	10	10	10	10	10	10	10	10	
-10...130 °C	DEFO25F200	25	36	10	–	10	10	10	10	10	10	10	10	10	10	10
	DEFO32F200	32	40	10	–	10	10	10	10	10	10	10	10	10	10	10
	DEFO40F200	40	50	10	–	10	10	10	16	16	16	16	10	10	10	10
	DEFO50F200	50	85	10	–	10	10	10	16	16	16	16	10	10	10	10
	DEFO65F200	65	215	7	7	7	7	7	16	16	16	16	7	7	7	7
	DEFO80F200	80	420	4	7	4	4	4	10	10	10	10	4	4	4	4
	DEF100F200	100	800	2	7	2	2	2	10	10	10	10	2	2	2	2
	DEF125F200	125	1010	–	7	–	–	–	6	6	6	6	–	–	–	–
	DEF150F200	150	2100	–	6	–	–	–	5	5	5	5	–	–	–	–
	DEF200F200	200	4000	–	2	–	–	–	3	3	3	3	–	–	–	–



## Main accessories for butterfly valves and actuators

Type	Description
0378108 001	Assembly part DEF DN25-65 for AR30
0378109 001	Assembly part DEF DN80-100 for AR30
0378110 001	Assembly part DEF DN25-65 for A44
0378111 001	Assembly part DEF DN80-125 for A44
0378112 001	Assembly part DEF DN150-200 for A44
0378113 001	Assembly part DEF DN25-100 for ASF122/123
0372455 001	Assembly part DEF DN25...65 for ASM124
0372455 002	Assembly part DEF DN80...100 for ASM124
0372455 003	Assembly part DEF DN125...200 for ASM134

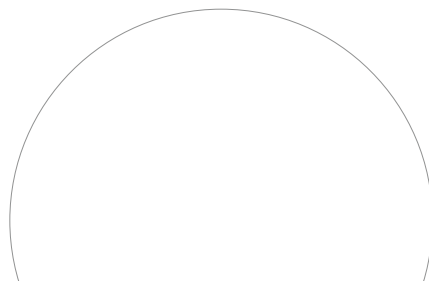
# A strong combination: **pneumatic actuators and valves** based on years of SAUTER experience

## **We set standards on the market**

No matter whether you need fast control systems or high actuating forces – pneumatic combinations from SAUTER are always your first choice. Thanks to our decades of experience in the pneumatic sector, and in close practical contact with our customers, we have improved these products yet again. The automatic coupling from the electronic actuators has also been adopted, so SAUTER ensures that installation times continue to be kept to a minimum. The actuator is controlled via the control pressure. The actuator can also be fitted on the mounting bracket in either of two positions, making it easy to reverse the direction of action.

## **Everything is available**

The SAUTER range is complete. Any requirement can be fulfilled. And there are plenty of accessories, matching threads and flanged valves to provide the ideal complement.



# PN6, PN16/10, PN16

## AVP pneumatic actuators. Flanged valves and valves with male thread.



Model series	AVP	AVP
Type	242	242
Version	F001	F001
Control pressure/bar	0...1.2	0...1.2
Stroke/mm	8	8
Air consumption/l <sub>n</sub>	0.8	0.8
Control span/bar	0.6	0.6
Diaphragm area/cm <sup>2</sup>	180	180
Max. pressure/bar	1.5	1.5

### Flanged valve of grey cast iron, PN6, equal-percentage (F3..) or linear (F2..) characteristic

Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	ΔP <sub>max</sub> (bar)
Through -10...150 °C	VUDO15F320	15	1.6
	VUDO15F310	15	2.5
	VUDO15F300	15	4
	VUDO20F300	20	6.3
	VUDO25F300	25	10
	VUDO32F300	32	16
	VUDO40F300	40	22
	VUDO50F300	50	28
	VUDO50F200	50	40
3-way -10...150 °C	BUDO15F320	15	1.6
	BUDO15F310	15	2.5
	BUDO15F300	15	4
	BUDO20F300	20	6.3
	BUDO25F300	25	10
	BUDO32F300	32	16
	BUDO40F300	40	22
	BUDO50F300	50	28
	BUDO50F200	50	40

### Flanged valve of grey cast iron, PN16/10, equal-percentage (F300) or linear (F200) characteristic

Type	DN	K <sub>vs</sub> (m <sup>3</sup> /h)	ΔP <sub>max</sub> (bar)
Through -10...150 °C	VUE015F350	15	0.4
	VUE015F340	15	0.63
	VUE015F330	15	1
	VUE015F320	15	1.6
	VUE015F310	15	2.5
	VUE015F300	15	4
	VUE020F300	20	6.3
	VUE025F300	25	10
	VUE032F300	32	16
	VUE040F300	40	22
	VUE050F300	50	28
	VUE050F200	50	40
3-way -10...150 °C	BUE015F330	15	1
	BUE015F320	15	1.6
	BUE015F310	15	2.5
	BUE015F300	15	4
	BUE020F300	20	6.3
	BUE025F300	25	10
	BUE032F300	32	16
	BUE040F300	40	22
	BUE050F300	50	28
	BUE050F200	50	40

### Valve with male thread, of cast brass, PN16, equal-percentage (F3..) or linear (F2..) characteristic

Type	DN	Connection	K <sub>vs</sub> (m <sup>3</sup> /h)	ΔP <sub>max</sub> (bar)
Through -15...150 °C	VUN015F350	15 G 1B	0.4	10
	VUN015F340	15 G 1B	0.63	10
	VUN015F330	15 G 1B	1	10
	VUN015F320	15 G 1B	1.6	10
	VUN015F310	15 G 1B	2.5	10
	VUN015F300	15 G 1B	4	10
	VUN020F300	20 G 1¼B	6.3	10
	VUN025F300	25 G 1½B	10	10
	VUN032F300	32 G 2B	16	6.5
	VUN040F300	40 G 2¼B	22	4
	VUN050F300	50 G 2¾B	28	2.5
	VUN050F200	50 G 2¾B	40	2.5
3-way -15...150 °C	BUN015F330	15 G1B	1	10
	BUN015F320	15 G1B	1.6	10
	BUN015F310	15 G1B	2.5	10
	BUN015F300	15 G1B	4	10
	BUN020F300	20 G 1¼B	6.3	10
	BUN025F300	25 G 1½B	10	10
	BUN032F300	32 G 2B	16	6
	BUN040F300	40 G 2¼B	22	4
	BUN050F300	50 G 2¾B	28	2.5
	BUN050F200	50 G 2¾B	40	2.5

### Main accessories for valves and actuators

Type	Description
0372336180	Adaptor (required for media > 130 °C, for >DN65)
0372336240	Adaptor (required for media > 180 °C, for >DN65)
0378284100	Stuffing box heater, 230 V, 15 W for media below 0 °C
0378284102	Stuffing box heater, 24 V, 15 W for media below 0 °C
XSP31	Pneumatic positioner
XAP 1	Pneumatic position transmitter with auxiliary contacts unit
XAP 2	Pneumatic position transmitter with potentiometer unit
<b>e/p transducer without electric pre-amplifier</b>	
XEP 1 F001	Input 2...10 V, output 0.2...1.0 bar, 19 ln/h
XEP 1 F002	Input 4...20 mA, output 0.2...1.0 bar, 19 ln/h
XEP 10 F001	Input 2...10 V, output 0.2...1.0 bar, 400 ln/h
XEP 10 F002	Input 4...20 mA, output 0.2...1.0 bar, 400 ln/h
<b>e/p transducer with electric pre-amplifier</b>	
XEP 110 F001	Input 2...10 V, output 0.2...1.0 bar, 400 ln/h
XEP 110 F011	Input 0...10 V, output 0.2...1.0 bar, 400 ln/h
<b>e/p transducer with electric pre-amplifier and additional p/e transducer</b>	
XEP 301 F001	Input/output 2...10 V, output/input 0.2...1.0 bar, 16 ln/h
XEP 301 F011	Input/output 0...10 V, output/input 0.2...1.0 bar, 16 ln/h

# PN6, PN16/10, PN25/16

## AVP pneumatic actuators. Flanged valves.



Model series	AVP				
	242	243		244	
Type	F021	F021	F031	F021	F031
Version	F021	F021	F031	F021	F031
Control pressure/bar	0...1.2	0...1.2	0...1.2	0...1.2	0...1.2
Stroke/mm	20	20	40	20	40
Air consumption/l <sub>n</sub>	0.8	2.2	2.2	4.2	4.2
Control span/bar	0.6	0.6	0.6	0.6	0.6
Diaphragm area/cm <sup>2</sup>	180	250	250	500	500
Max. pressure/bar	1.5	1.5	1.5	1.5	1.5

### Flanged valves of grey cast iron. PN6. equal-percentage (F300) or linear (F200) characteristic

Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)					
				1.5	2.5	–	3	–	
Through valve –10...150 °C	VUD065F300 / F200	65	PN6	49 / 63	1.5	2.5	–	3	–
	VUD080F300 / F200	80	PN6	78 / 100	1	1.5	–	3	–
	VUD100F300 / F200	100	PN6	124 / 160	–	–	1	–	2
3-way valve –10...150 °C	BUD065F300 / F200	65	PN6	49 / 63	1	2.3	–	3	–
	BUD080F300 / F200	80	PN6	78 / 100	1	1.5	–	3	–
	BUD100F300 / F200	100	PN6	124 / 160	–	–	1	–	2

### Flanged valves of grey cast iron. PN16/10. equal-percentage (F300) or linear (F200) characteristic

Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)					
				1.5	2.3	–	3	–	
Through valve –10...150 °C	VUE065F300 / F200	65	PN16/10	49 / 63	1.5	2.3	–	3	–
	VUE080F300 / F200	80	PN16/10	78 / 100	1	1.5	–	3	–
	VUE100F300 / F200	100	PN16/10	125 / 160	–	–	1	–	2
	VUE125F300 / F200	125	PN16/10	200 / 240	–	–	0.6	–	1.2
	VUE150F300 / F200	150	PN16/10	300 / 320	–	–	0.4	–	1
3-way valve –10...150 °C	BUE065F300 / F200	65	PN16/10	49 / 63	1.2	2	–	3	–
	BUE080F300 / F200	80	PN16/10	78 / 100	0.8	1.3	–	3	–
	BUE100F300 / F200	100	PN16/10	125 / 160	–	–	1	–	2
	BUE125F300 / F200	125	PN16/10	200 / 240	–	–	0.6	–	1.2
	BUE150F300 / F200	150	PN16/10	300 / 320	–	–	0.4	–	1

### Flanged valves of ductile cast iron. PN25/16. equal-percentage characteristic (F3..)

Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)					
				16	16	–	16	–	
Through valve –20...240 °C	VUG015F374	15	PN25/16	0.16	16	16	–	16	–
	VUG015F364	15	PN25/16	0.25	16	16	–	16	–
	VUG015F354	15	PN25/16	0.4	16	16	–	16	–
	VUG015F344	15	PN25/16	0.63	16	16	–	16	–
	VUG015F334	15	PN25/16	1	16	16	–	16	–
	VUG015F324	15	PN25/16	1.6	16	16	–	16	–
	VUG015F314	15	PN25/16	2.5	16	16	–	16	–
	VUG015F304	15	PN25/16	4	16	16	–	16	–
	VUG020F304	20	PN25/16	6.3	13	16	–	16	–
	VUG025F304	25	PN25/16	10	8.8	12.2	–	16	–
	VUG032F304	32	PN25/16	16	5.5	7.8	–	15.5	–
	VUG040F304	40	PN25/16	25	3.7	5.2	–	10.3	–
	VUG050F304	50	PN25/16	40	2.5	3.3	–	6.6	–
	VUG065F316	65	PN16	63	–	–	2.2	–	4.4
	VUG065F304	65	PN25	63	–	–	2.2	–	4.4
	VUG080F304	80	PN25/16	100	–	–	1.5	–	3
	VUG100F304	100	PN25	160	–	–	1	–	2
VUG125F304	125	PN25	250	–	–	0.7	–	1.3	
VUG150F304	150	PN25	340	–	–	0.5	–	1	
3-way valve –20...240 °C	BUG015F334	15	PN25/16	1	16	16	–	16	–
	BUG015F324	15	PN25/16	1.6	16	16	–	16	–
	BUG015F314	15	PN25/16	2.5	16	16	–	16	–
	BUG015F304	15	PN25/16	4	16	16	–	16	–
	BUG020F304	20	PN25/16	6.3	10	16	–	16	–
	BUG025F304	25	PN25/16	10	6.5	11.9	–	16	–
	BUG032F304	32	PN25/16	16	4	7.4	–	15.5	–
	BUG040F304	40	PN25/16	25	2.6	4.2	–	10.3	–
	BUG050F304	50	PN25/16	40	1.7	3.1	–	6.5	–



# PN25/16, PN40, PN25

## AVP pneumatic actuators. Flanged valves.



Model series	AVP				
	242	243		244	
Type	F021	F021	F031	F021	F031
Version	F021	F021	F031	F021	F031
Control pressure/bar	0...1.2	0...1.2	0...1.2	0...1.2	0...1.2
Stroke/mm	20	20	40	20	40
Air consumption/l <sub>n</sub>	0.8	2.2	2.2	4.2	4.2
Control span/bar	0.6	0.6	0.6	0.6	0.6
Diaphragm area/cm <sup>2</sup>	180	250	250	500	500
Max. pressure/bar	1.5	1.5	1.5	1.5	1.5

### Flanged valves of ductile cast iron. PN25/16. equal-percentage characteristic (continued)

Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)	
BUG065F316	65	PN16	63	–	2.2
BUG065F304	65	PN25	63	–	2.2
BUG080F304	80	PN25/16	100	–	1.5
BUG100F304	100	PN25	160	–	1
BUG125F304	125	PN25	250	–	0.6
BUG150F304	150	PN25	340	–	0.4

### Flanged valves of cast steel. PN40. equal-percentage (F3..) or linear (F2..) characteristic

Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)	
Through –10...260 °C	VUS015F374	15	PN40	0.16	15.5
	VUS015F364	15	PN40	0.25	21.7
	VUS015F354	15	PN40	0.4	21.7
	VUS015F344	15	PN40	0.63	21.7
	VUS015F335	15	PN40	1	21.7
	VUS015F325	15	PN40	1.6	21.7
	VUS015F315	15	PN40	2.5	21.7
	VUS015F305	15	PN40	4	21.7
	VUS020F305	20	PN40	6.3	15.5
	VUS025F305	25	PN40	10	9.5
	VUS032F305	32	PN40	16	7.2
	VUS040F305	40	PN40	25	4.1
	VUS050F305	50	PN40	40	2.7
	VUS065F305	65	PN40	63	–
	VUS080F305	80	PN40	100	–
	VUS100F305	100	PN40	160	–
	VUS125F305	125	PN40	220	–
VUS150F305	150	PN40	320	–	
3-way –10...260 °C	BUS015F225	15	PN40	1.6	12.1
	BUS015F215	15	PN40	2.5	21.1
	BUS015F205	15	PN40	4	21.1
	BUS020F205	20	PN40	6.3	7.7
	BUS025F205	25	PN40	10	6.6
	BUS032F205	32	PN40	16	4.7
	BUS040F205	40	PN40	25	3
	BUS050F205	50	PN40	40	1.9
	BUS065F205	65	PN40	63	–
	BUS080F205	80	PN40	100	–
	BUS100F205	100	PN40	160	–
	BUS125F304	125	PN40	220	–
	BUS150F304	150	PN40	320	–

### Flanged valves of ductile cast iron. PN25. pressure-compensated. equal-percentage characteristic

Type	DN	Flange	K <sub>vs</sub> (m <sup>3</sup> /h)	Δp <sub>max</sub> (bar)	
Through –20...200 °C	VUPO40F304	40	PN25	25	22.2
	VUPO50F304	50	PN25	40	15.1
	VUPO65F304	65	PN25	63	15.1
	VUPO80F304	80	PN25	100	9.8
	VUP100F304	100	PN25	160	–
	VUP125F304	125	PN25	250	–
	VUP150F304	150	PN25	350	–

# Specifying valves

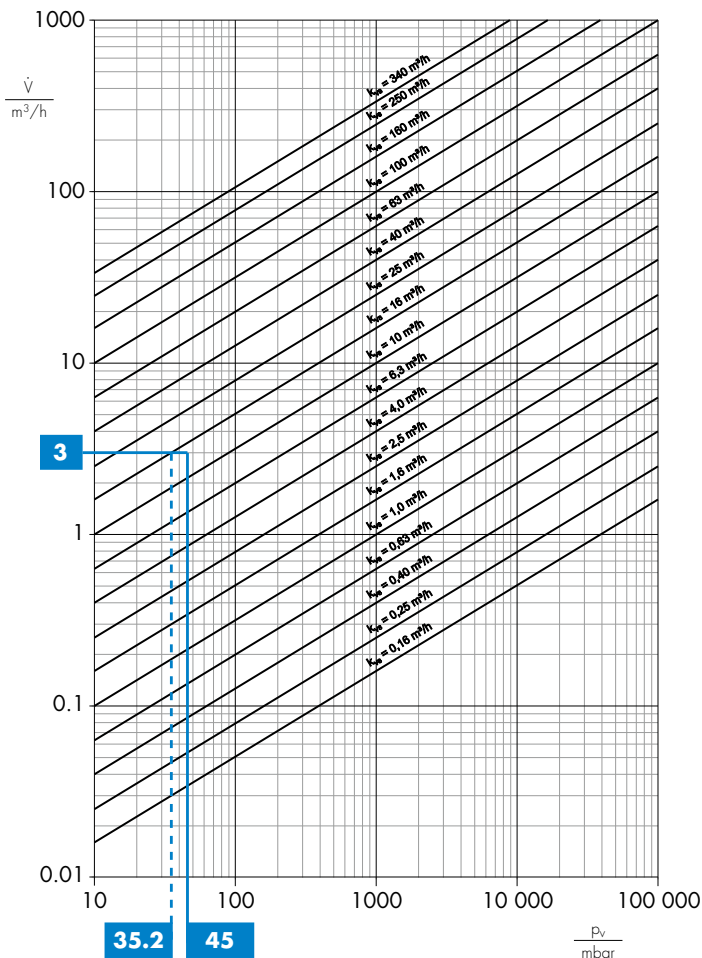
## Manual calculation

### Variables, constants and formulas

Variable	Description	Value	Unit
$\dot{V}$	Volume flow		m <sup>3</sup> /h
$\dot{Q}_{zu}$	Supplied heat per unit of time (heat flow)		kW, kJ/h
$\dot{Q}_{ab}$	Removed heat per unit of time (heat flow)		kW, kJ/h
$\Delta t$	Temperature difference		K
$c_w$	Specific thermal capacity of water	4.19 = 1.164 · 10 <sup>-3</sup>	kJ/(kg·K) kWh/(kg·K)
$\rho_w$	Density of water	Assuming: $\rho_w = \text{const.} = 1000$	kg/m <sup>3</sup>
$\Delta p_v$	Pressure difference across the valve		bar, Pa
$k_v$	Calculated flow rate for the valve		m <sup>3</sup> /h
$k_{vs}$	Actual flow rate for the valve at nominal stroke, selected according to table or chart		m <sup>3</sup> /h

### Calculation formula for $k_v$

$$k_v = \dot{V} \cdot \sqrt{\frac{1 \text{ bar}}{\Delta p_v}}$$



Example drawn: volume flow (3 m<sup>3</sup>/h) and a desired  $\Delta p_v$  of 45 mbar are given, resulting in a  $k_v$  value of 14.1 m<sup>3</sup>/h.  
The  $k_{vs}$  values entered are attainable values.  
Selected: one valve with  $k_{vs} = 16$  m<sup>3</sup>/h, giving a pressure difference  $\Delta p_v$  of 35.2 mbar.

### Calculations

The following are given:

$$\dot{Q}_{zu} = 70 \text{ kW} \approx 250\,000 \text{ kJ/h}$$

$$\Delta t = 20 \text{ K}$$

$$\Delta p_v = 45 \text{ mbar} = 4.5 \text{ kPa (corresponds to 450 mm water column)}$$

We seek the following:

$$\dot{V}, k_v$$

Approximate calculation of  $\dot{V}$

Assumption:  $\dot{Q}_{zu} = \dot{Q}_{ab}$

$$\dot{Q}_{zu} = \dot{Q}_{ab} = \dot{V} \cdot c_w \cdot \Delta t \cdot \rho_w$$

$$\Rightarrow \dot{V} = \frac{\dot{Q}_{zu}}{c_w \cdot \Delta t \cdot \rho_w}$$

$$\Rightarrow \dot{V} = \frac{70}{1.164 \cdot 10^{-3} \cdot 20 \cdot 1000} \cdot \frac{\text{kW} \cdot (\text{kg} \cdot \text{K}) \cdot \text{m}^3}{\text{kWh} \cdot \text{K} \cdot \text{kg} \cdot \text{h}} \approx \mathbf{3 \text{ m}^3/\text{h}}$$

Calculation of  $k_v$

$$k_v = 3 \text{ m}^3/\text{h} \cdot \sqrt{\frac{1 \text{ bar}}{\Delta p_v}} \approx \mathbf{14.1 \text{ m}^3/\text{h}}$$

**Determining the flow value**

Determining  $k_v$  from the chart

$$\mathbf{k_{vs} = 16 \text{ m}^3/\text{h}}$$



# Overview of applications

Application	Schematic	Position	Valve type																	
			VUL BUL	VXL BXL	VCL	BUN	BKR	BUD BUE	BUG	BUS	VUN	VKR	VUD VUE	VUG	VUP	VUS	DEF	MH	M3R M4R	
		PN	16	16/10		16	40	6/16	25/16	40	16	40	6/16	25/16	25	40	6...16	6		
Intelligent unitary control (heating)			•	•	•							•								
Intelligent unitary control (cooling)			•	•	•							•								
Ventilation/air-conditioning, pre-heater	1	1			•	•	•	•	•		•	•	•	•					•	•
Ventilation/air-conditioning, cooler	1	2			•		•				•	•	•	•						
Ventilation/air-conditioning, humidifier	1	3								•						•				
Ventilation/air-conditioning, re-heater	1	4				•	•	•			•	•	•	•						
Chilled beams, underfloor heating	2		•	•	•		•				•	•								
Radiator	2			•																
Underfloor device	3		•		•															
Static heating	4				•	•	•	•			•	•							•	•
Cooling tower (regulating valve)	5	1				•			•		•									
Cooling tower (shut-off valve)	5	2																•		
Multiple-boiler system (regulating valve)	6	1			•		•				•	•	•	•	•			•		
Multiple-boiler plant (shut-off valve)	6	2													•			•		
Local heating	7				•	•	•	•			•	•	•							
District heating	8									•				•	•	•				
Page numbers for electrical combinations			7	6	5	11	9	12-13	14	15	11	9	12-13	14	15	15	19	17	17	
Page numbers for pneumatic combinations			-	-	-	21	-	21-22	22-23	23	21	-	21-22	22-23	23	23	-	-	-	

The figures in the *Schematic* and *Position* columns refer to the graphic illustration (below) of the application profiles.

## SAUTER CASE Drives



USB/RS232



### CASE Drives

With SAUTER's CASE Drives (accessory 0372\_61001), the actuator's parameters can be set and read on site (e.g. running time and operating hours). Accordingly, CASE Drives can also be used as a tool for diagnosis and maintenance. The connection is made via a serial interface on the PC and the socket on the actuator. The set comprises:

- Software including installation and operating instructions
- Fitting instructions
- Connector and cable
- Interface converter for the PC

This application is intended for use by commissioning and service technicians and experienced operators.

# Graphic overview and application profiles

The numbers are derived from the *Schematic* and *Position* columns in the table above listing the application profiles.

### 1 Ventilation and air-conditioning

**Schematic**

**Position**

Flow, heating coil  
Return, heating coil  
Flow, cooling coil  
Return, cooling coil

Page numbers				
Electric actuators	9, 11-14, 17	9, 11-14	15	9, 11-14
Pneumatic actuators	21-23	21-22	23	21-23

### 2 Chilled beams, underfloor heating and radiators

Page numbers	
7, 9, 11	Electric actuators
21	Pneumatic actuators

### 3 Underfloor devices

Page numbers	
Electric actuators	9
Pneumatic actuators	-

### 4 Static heating

Page numbers		
9, 11-13	Electric actuators	9, 11-13
21-22	Pneumatic actuators	21-22

### 5 Cooling towers

Page numbers		
19	11, 14	Electric actuators
-	21-23	Pneumatic actuators

### 6 Multi-boiler systems

Page numbers		
Electric actuators	9, 11-15, 19	9, 11-15, 19
Pneumatic actuators	21-23	21-23

### 7 Local heating

### 8 District heating

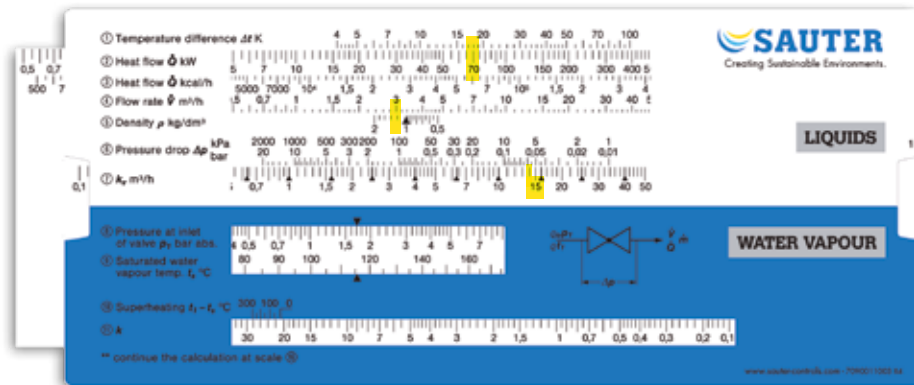
Page numbers	
14-15, 17	Electric actuators
22-23	Pneumatic actuators

# Specifying valves

## Calculation using the SAUTER slide rule

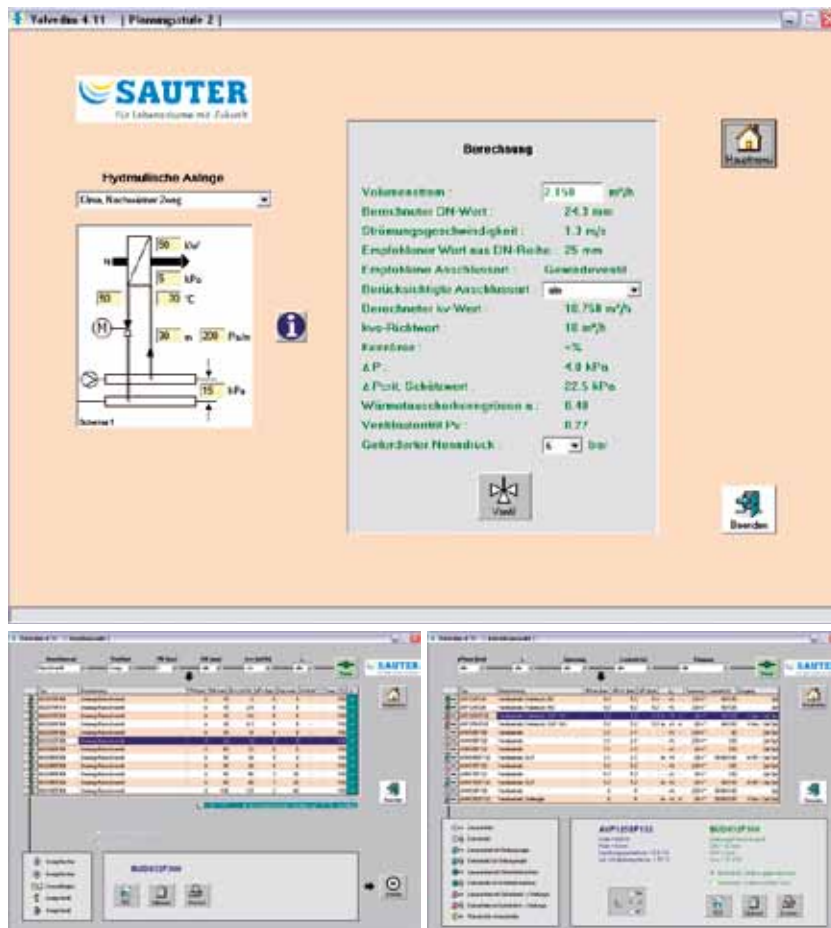
The easy-to-use slide rule makes it possible to work out manually the nominal valve diameter in relation to the flow rate; for fluids, gases and vapours.

The slide rule is available in various languages.



Example: The temperature difference is set (20 K) with the desired heat flow (70 kW). You can now read off the air volume (3 m³/h). Reading off the  $k_v$  value for a  $\Delta p_v$  of 45 mbar gives  $k_v = 14.1 \text{ m}^3/\text{h}$ . The  $k_{vS}$  values marked with a triangle are deliverable values (16 m³/h).

## Calculation using SAUTER VALVEDIM



The SAUTER VALVEDIM software tool is a convenient method of specifying valves and actuators, with three functional levels:

1. Specifying valves and actuators:
  - using recommended values to obtain an approximation of the required versions and sizes
  - on the basis of existing or required plant values, i.e. definitive determination of the required versions and sizes
2. Selection of the valve and the matching actuator on the basis of specific characteristics.
3. The results can be transferred directly into the project documentation.

**Systems**

**Components**

**Services**

**Facility Management**

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