Data sheet

Actuators for modulating control

AME 13SU, AME 23SU - safety function (spring up)

Description

AME 13SU

AME 23SU

The actuators with safety function are mainly used with VZ valve (AME 13SU) or with VS, VM and VB valves (AME 13SU, AME 23SU). Safety version is activated automatically in case of power failure or if the power supply is switched off by the safety thermostat.

The actuator has some special features:

- The advanced design incorporates load related 'switch-off' to ensure that actuators and valves are not exposed to overload;
- The advanced design incorporates a diagnostic LED, operational data capture and self stroking feature;
- Low weight and robust;
- Sefety function (spring up).

Main data:

- Nominal voltage:
  - 24 VAC, 50 Hz/60 Hz
- Control input signal:
  - 0(4)…20 mA
  - 0(2) … 10 V
- Force: 300 N (13SU); 450 N (23SU)
- Stroke: 5,5 mm (13SU); 10 mm (23SU)
- Speed: 14 s/mm (13SU); 15 s/mm (23SU)
- Max. medium temperature: 130 °C
- Self stroking

Ordering

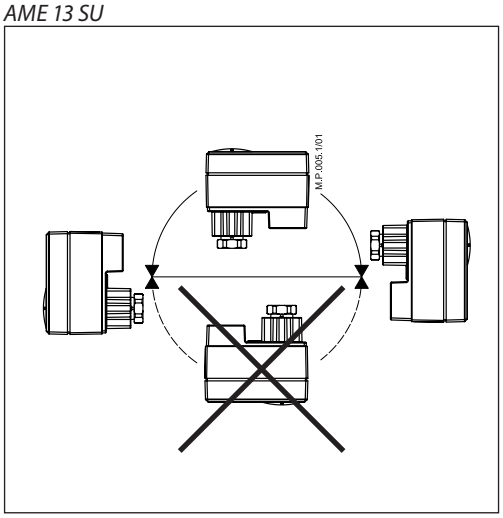
Type	Supply voltage (V)	Code No.
AME 13SU	24	**082H3044**
AME 23SU		**082G3042**

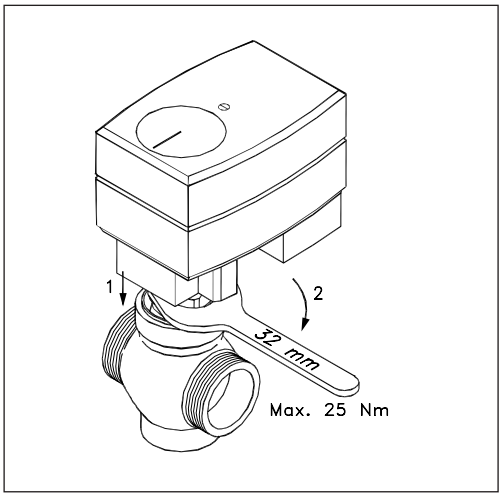
Technical data

Type		AME 13SU	AME 23SU
Power supply	V	24; +10 to –15 %; AC	
Power consumption	VA	9	
Frequency	Hz	50/60	
Control input Y	V	0-10 (2-10)	
	mA	0-20 (4-20)	
Output signal X	V	0-10 (2-10)	
Closing force	N	300	450
Max. stroke	mm	5,5	10
Speed	s/mm	14	15
Max. medium temperature	°C	130	
Ambient temperature		0 … 55	
Storage and transport temp.		–40 … 70	
Grade of enclosure		IP 54	
Weight	kg	0,8	1,45
CE - marking in accordance with standards		Low voltage directive (LVD) 2006/95/EC: EN 60730-1, EN 60730-2-14 EMC Directive 2004/108/EC: EN 61000-6-2, EN 61000-6-3	

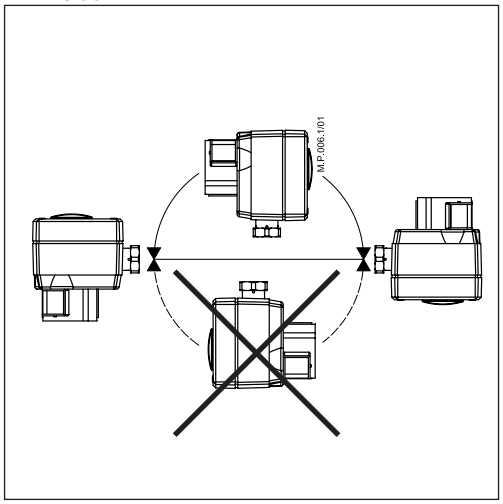
Installation

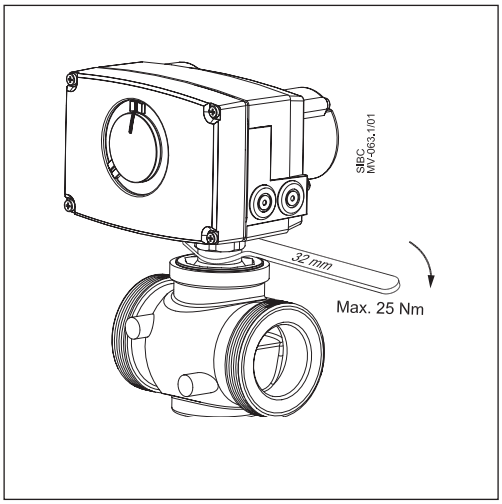
AME 13 SU





AME 23 SU





Mechanical
The actuator should be mounted with the valve stem in either horizontal position or pointing upwards.

The actuator is fixed to the valve body by means of a mounting nut which requires
32 mm screw key. The nut should be tightened with a torque of max. 25 Nm.

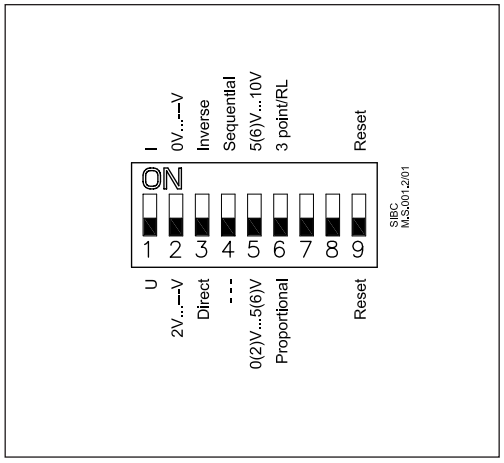
Electrical
Electrical connections can be accessed by removing the cover.

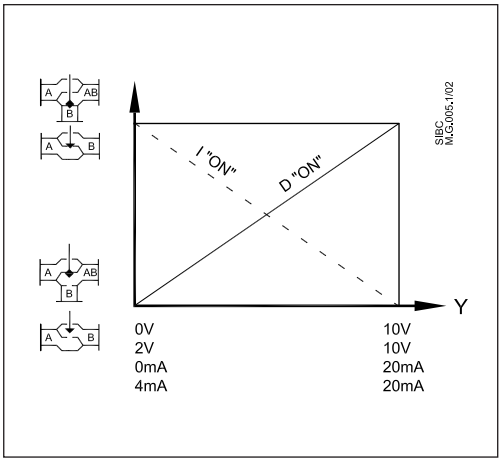
Two M16×1,5 cable entries are provided. However, in order to maintain the enclosure IP rating an appropriate cable gland must be used.

Disposal

The actuator must be dismantled and the elements sorted into various material groups before disposal.

DIP switch setting





The actuator has a function selection DIP switch under the removable cover. In particular, if SW3 is set to ON, the actuator will perform as 3-point actuator.
The switch provides the following functions:

• SW1: U/I - Input signal type selector:
If set to OFF position, voltage input is selected.
If set to ON position, current input is selected.

• SW2: 0/2 - Input signal range selector:
If set to OFF position, the input signal is in the range from 2-10 V (voltage input)
or from 4-20 mA (current input).
If set to ON position, the input signal is in the range from 0-10 V (voltage input) or from 0-20 mA (current input).

• SW3: D/I - Direct or inverse acting selector:
If set to OFF position, the actuator is direct acting (stem lowers as voltage increases).
If actuator is set to ON position the actuator is inverse acting (stem raises as voltage increases).

• SW4: —/Seq - Normal or sequential mode selector:
If set to OFF position, the actuator is working in range 0(2)-10 V or 0(4)-20 mA.
If set to ON position, the actuator is working in sequential range; 0(2)-5 (6) V or (0(4)-10 (12) mA) or (5(6)-10 V) or (10(12)-20 mA).

• SW5: 0-5 V/5-10 V - Input signal range in sequential mode:
If set to OFF position, the actuator is working in sequential range 0(2)-5(6) V or 0(4)-10(12) mA.
If set to ON position, the actuator is working in sequential range; 5(6)-10 V or 10(12)-20 mA.

• SW6: Prop./3-pnt - Modulating or 3-point mode selector:
If set to OFF position, the actuator is working normally according to control signal.
If set to ON position, the actuator is working as 3-point actuator.

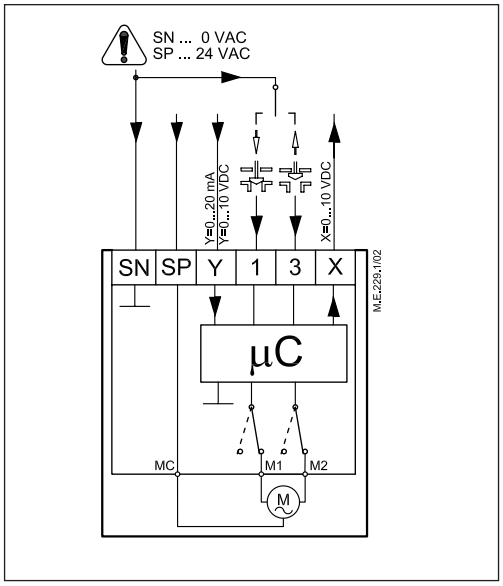
• SW7: LOG/LIN - Not in use.

• SW8: 100 % k_{VS}/Reduced k_{VS} - Not in use

• SW9: Reset:
Changing this switch position will cause the actuator to go through a self calibration cycle.

Wiring

24 VAC



Wiring length	Recommended square of the wiring
0-50 m	0,75 mm²
> 50 m	1,5 mm²

SP 24 Vac.....Power supply

SN 0 V .....Common

Y 0-10 V.....Input signal
(2-10 V)
0-20 mA
(4-20 mA)

X 0-10 V.....Output signal
(2-10 V)

Automatic self stroking feature
When power is first applied, the actuator will automatically adjust to the length of the valve stroke. Subsequently, the self stroking feature can be re-initialised by changing position of DIP SW9.

Diagnostic LED
The red diagnostic LED is located on the pcb under the cover. It provides indication of three operational states: Actuator Healthy (Permanently ON), Self Stroking (Flashes once per second), Error (Flashes 3 times per second - seek technical assistance).

Commissioning

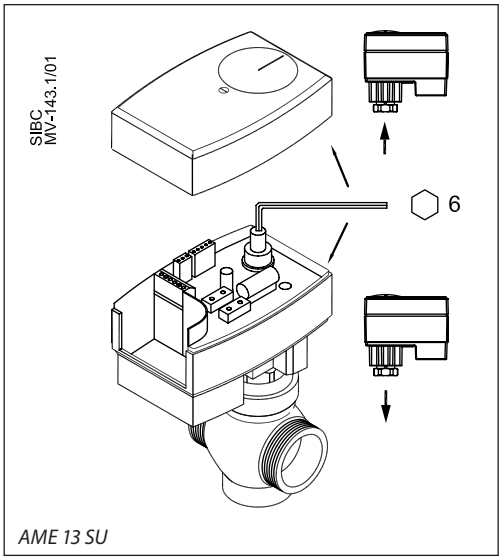
Complete the mechanical and electrical installation and perform the necessary checks and tests:

- Isolate control medium. (e.g. self stroking in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note that the actuator will now perform the self stroking function.
- Apply the appropriate control signal and check the valve stem direction is correct for the application.
- Ensure that the actuator drives the valve over its full stroke, by applying the appropriate control signal. This action will set the valve stroke length.

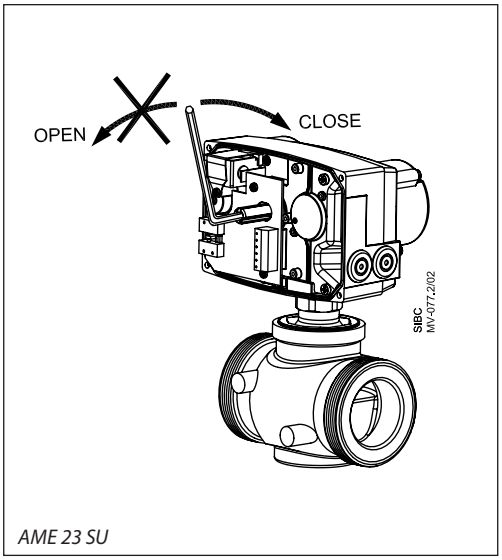
The unit is now fully commissioned.

Commissioning/testing feature
The actuator can be driven to the fully open or closed positions (depending on valve type) by connecting SN to terminals 1 or 3.

Manual override



AME 13 SU



AME 23 SU

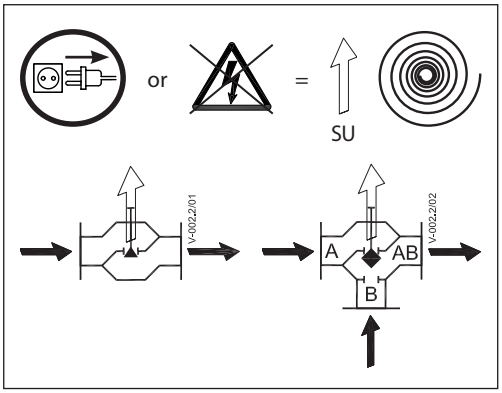
On spring versions manual override is achieved by disconnecting the power supply, removing the cover and inserting a 6 mm Allen key for AME 13 SU, a 5 mm Allen key for AME 23 SU (not supplied) into the top of the positioning spindle and turning the key against the spring. Observe the direction of rotation symbol. To hold a manual override position, the key must be wedged.

If manual override has been used then X and Y signal are not correct until the actuator reaches its end position. If this is not accepted reset the actuator.

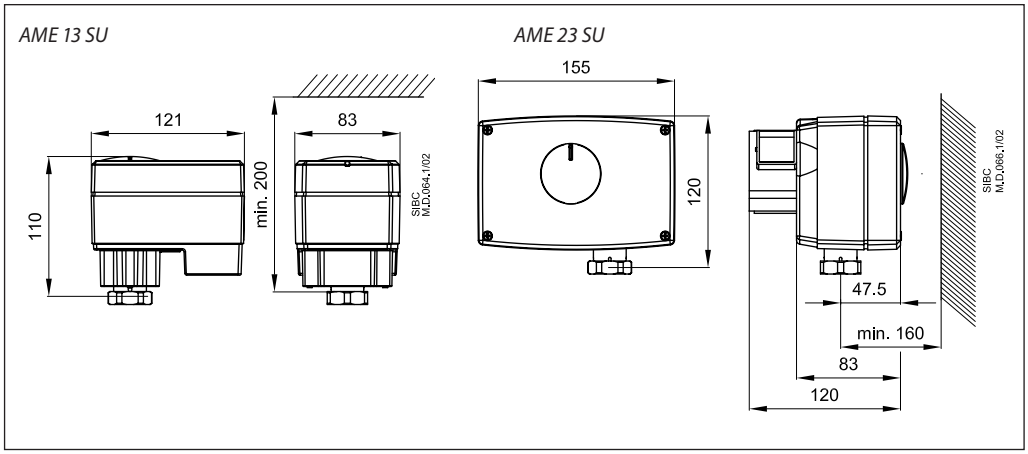
Safety function

The safety function will fully open or close the valve when the power is removed, depending upon the spring action selected. Valve selection will also affect the spring action. The safety function unit is factory fitted to the rear of the actuator.

Valve type	If safety version is activated than port A-AB will be
VZ	CLOSED
VS	OPENED
VM	OPENED
VB	OPENED

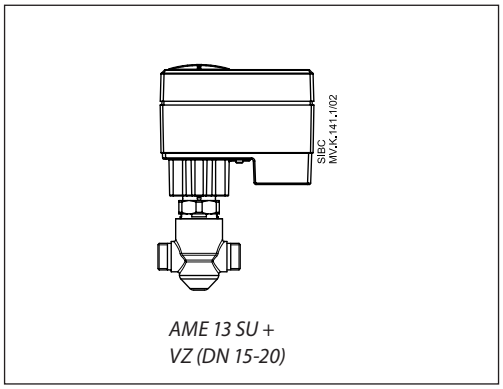


Dimensions



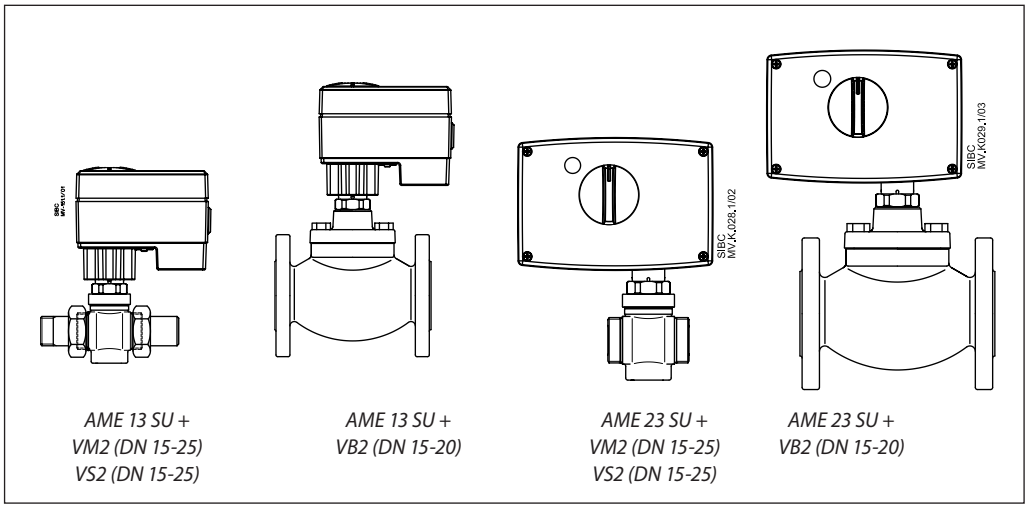
Actuator - valve combinations

- which close port A-AB if safety version is activated



AME 13 SU +
VZ (DN 15-20)

- which open port A-AB if safety version is activated)



AME 13 SU +
VM2 (DN 15-25)
VS2 (DN 15-25)

AME 13 SU +
VB2 (DN 15-20)

AME 23 SU +
VM2 (DN 15-25)
VS2 (DN 15-25)

AME 23 SU +
VB2 (DN 15-20)

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