КЛАПАНЫ И КОМПОНЕНТЫ T.VIS
Технические характеристики

T.VIS® control top

The T.VIS® control top is an optimal system for controlling and monitoring GEA Aseptomag® valves.

This is available in several variants depending on the valve type, tasks and user convenience.

Common features of all T.VIS® variants are:

- Flexible modular system for optimum variant confi guration for the particular task (e.g. type of interface module, number of solenoid valves, etc.)
- Characteristic design
- High Protection class (min. IP66, optional IP67 or IP69k)
- Ease of cleaning without dead zones, whatever the installation orientation
- Clear visualization of the valve status via a light dome visible 360°, which is illuminated by colored LEDs
- Low energy consumption
- Ease of handling
- Maintenance-free electronic modules
- Many special options, e.g.:
  - Air throttles
  - Cable connections, etc.

For maintenance work on the valve, the control tops can be removed from the valve actuator by loosening two bolts on the clamp, without electrical or pneumatic connections having to be disconnected.

T.VIS® concept – for valves with pneumatic actuator

T.VIS® M-15 – control top with manual sensor setting

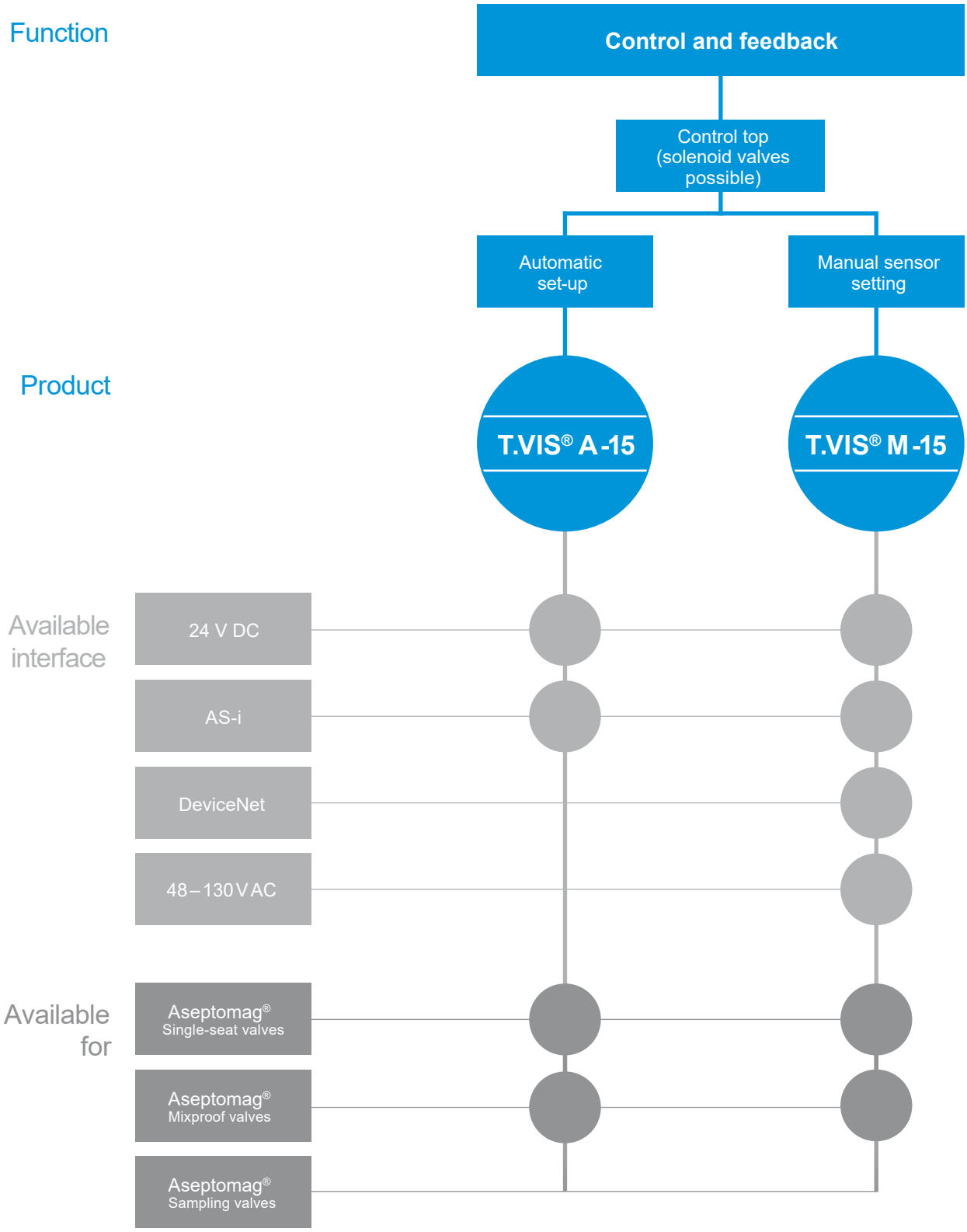
- For open/close position feedback and actuator control
- Proven sensor technology
- Modules and solenoid valves can be retrofitted

- For open/close position feedback and actuator control
- Automatic set-up
- Semi-automatic setup

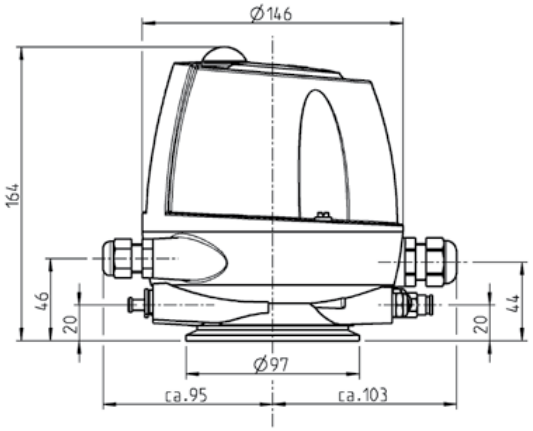
T.VIS® A-15 – control top with automatic set-up

GEA

Selection Matrix of Control and Feedback Systems for Valves with Pneumatic Actuator



Technical data of the standard version	
Position detection	Sensors
Housing material	PA 12/L
Ambient temperature	–20 to 60 °C
Air supply	Pressure range 2 to 8 bar Standard acc. to ISO 8573-1:2010 Solid content Quality class 6 Water content Quality class 4 Oil content Quality class 3
Dimensions of air connections	Metric 6/4 mm, inch 6.35/4.31 mm (¼")
Protection class	IP66 (powerful water jet)
Sound pressure level via exhaust air throttle	Max. 72 dB
Visualization	LED (green, yellow)



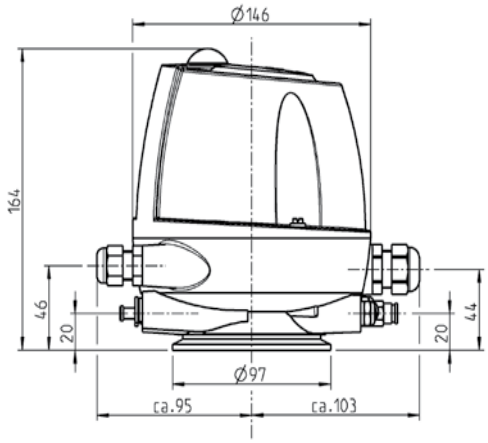
Type of interface	24 V DC, 3-wire, PNP 24 V DC, 3-wire, NPN	48 – 130 V AC
Supply		
Operating voltage	24 V DC (+20 %, −12.5 %)	48 – 130 V AC
No-load current	≤ 40 mA	≤ 51 mA
Maximum current consumption	285 mA	185 mA
Polarity reversal protection	Yes	Yes
Inputs		
Activation voltage	21 – 28.8 V = high; < 16 V = low	48 – 130 V = high*; < 30 V = low > 1.5 mA = high*; < 0.4 mA = low
Current consumption per input	≤ 35 mA	≤ 3 mA Electronic
Activation “PV Y1”	Direct PV activation	input Electronic
Activation “PV Y2”	Direct PV activation	input Electronic
Activation “PV Y3”	Direct PV activation	input
Outputs		
Connection type	24 V DC (PNP / NPN with changeover function)	
Maximum current carrying capacity per feedback output	50 mA	≤ 100 mA
Voltage drop on the outputs	≤ 3 V	≤ 5 V
Feedback “start position”	Electronic outputs	Electronic outputs
Feedback “end position”	Electronic outputs	Electronic outputs
Feedback “seat lift position”	Electronic outputs	Electronic outputs

* Leakage currents can arise if PLC modules with electronic outputs are used. If the leakage currents are more than 1.5 mA, it is essential to use a load resistor in parallel with the interface module. Recommendation: 15 kΩ / 2 W

Position	Description of the order code	
1	**Feedback location**	
	TM15	Control top T.VIS® M-15
2	**Control top type**	
	N	Without solenoid valve
	R	1 solenoid valve Y1 (retrofittable: Y2, Y3)
	I	2 solenoid valves Y1, Y2 (retrofittable: Y3)
	J	2 solenoid valves Y1, Y3 (retrofittable: Y2)
	L	3 solenoid valves Y1, Y2, Y3
	V	1 solenoid valve Y1 (retrofittable: Y2, Y3), logic NOT-element
3	**Feedback**	
	2	2 feedbacks
	3	2 feedbacks with external proximity switch
4	**Type of interface**	
	B	24 V DC, 3-wire, PNP
	N	24 V DC, 3-wire, NPN
	C	48 – 130 V AC
5	**Solenoid valve**	
	A	24 V DC, 0.85 W
	0	Without
6	**Screw connection**	
	M	Metric air connection, M20×1.5 cable gland
	Z	Inch air connection, 0.5" NPT cable gland
	J	Metric air connection, 5-pin M12 plug (1 solenoid valve, 2 feedbacks)
	P	Inch air connection, 5-pin M12 plug (1 solenoid valve, 2 feedbacks)
	H	Metric air connection, 8-pin M12 plug (> 1 solenoid valve, > 2 feedbacks)
	I	Inch air connection, 8-pin M12 plug (> 1 solenoid valve, > 2 feedbacks)
	B	Inch air connection, Brad Harrison 0.5" NPT 5-pin plug (US)
7	**Valve type**	
	/A	Suitable for Aseptomag® valves

	Options (multiple selection possible)	
	/18	Supply air throttle: regulates the opening speed of the valve
	/19	Exhaust air throttle: regulates the closing speed of the valve
	/22	5-pin M12 connection socket for screw fitting J, P (article no. 508-963) 8-pin M12 connection socket for screw fitting H, I (article no. 508-061) Protection class IP67 (temporary immersion) Protection class IP69k (high-pressure spray down) Certification UL / CSA
	/67	
	/69k	
	/UC	

Technical data of the standard version	
Position detection	Sensors
Housing material	PA 12/L
Ambient temperature	–20 to 60 °C
Air supply	Pressure range 2 to 8 bar Standard acc. to ISO 8573-1:2010 Solid content Quality class 6 Water content Quality class 4 Oil content Quality class 3,
Dimensions of air connections	Metric 6/4 mm, inch 6.35/4.31 mm
Protection class	(¼") IP66 (powerful water jet)
Sound pressure level via exhaust air throttle	Max. 72 dB
Visualization	LED (green, yellow)



Type of interface	AS-Interface bus	DeviceNet
Supply	Yes	Yes
Operating voltage	AS-i V3.0 (max. 62 slaves with master V3.0) IO.ID.ID2-code: 7.A.E	ODVA-compliant
No-load current	25.0 – 31.6 V DC	21 – 26 V DC
Maximum current consumption	AS-i association	EDS file:
Polarity reversal protection		F1022_R4.eds
Specifi cation		ODVA
Additional information		
Conformity		

Inputs		
Feedback “start position”	Data bit DI 0	Data bit I-0
Feedback “end position”	Data bit DI 1	Data bit I-1
Feedback “seat lift position” (ext. NI)	Data bit DI 2	Data bit I-2
Collective fault		Data bit I-7

Outputs		
Activation “PV Y1”	Data bit DO 0	Data bit O-0
Activation “PV Y2”	Data bit DO 1	Data bit O-1
Activation “PV Y3”	Data bit DO 2	Data bit O-2

Position	Description of the order code	
1	**Feedback location**	
	TM15	Control top T.VIS® M-15
2	**Control top type**	
	N	Without solenoid valve
	R	1 solenoid valve Y1 (retrofittable: Y2, Y3)
	I	2 solenoid valves Y1, Y2 (retrofittable: Y3)
	J	2 solenoid valves Y1, Y3 (retrofittable: Y2)
	L	3 solenoid valves Y1, Y2, Y3
	V	1 solenoid valve Y1 (retrofittable: Y2, Y3), logic NOT-element
3	**Feedback**	
	2	2 feedbacks
	3	2 feedbacks with external proximity switch
4	**Type of interface**	
	A	AS-Interface bus
	D	DeviceNet
5	**Solenoid valve**	
	A	24 V DC, 0.85 W
	0	Without
6	**Screw connection**	
	A	Metric air connection M20×1.5 cable gland with connection box on cable 1 m (AS-i)
	S	Inch air connection M20×1.5 cable gland with connection box on cable 1 m (AS-i)
	L	Metric air connection, 2-pin M12 plug (AS-i)
	U	Inch air connection, 2-pin M12 plug (AS-i)
	D	Metric air connection, 5-pin M12 plug (DeviceNet)
	K	Inch air connection, 5-pin M12 plug (DeviceNet)
7	**Valve type**	
	/A	Suitable for Aseptomag® valves

	Options (multiple selection possible)	
	/18	Supply air throttle: regulates the opening speed of the valve
	/19	Exhaust air throttle: regulates the closing speed of the valve
	/22	5-pin M12 connection socket for screw fitting L, U, D, K (A-coded, article no. 508-963)
	/67	Protection class IP67 (temporary immersion)
	/69k	Protection class IP69k (high-pressure spray down)
	/81	AS-i connection box on cable 1 m with M12 connection socket (article no. 508-027) for screw fitting L, U
	/82	AS-i connection box on cable 2 m with M12 connection socket (article no. 508-028) for screw fitting L, U
	/UC	Certification UL / CSA

Concept

The T.VIS® A-15 is equipped with a high-precision path measuring system. This automatic open/close position recognition is available on any valve from GEA, along with a T.VIS® feedback system.

Development has focussed on the requirements and necessities of our customers from the fluid-processing industry. In addition to safe control and monitoring of all functions of the process valves in breweries, dairies, plants for manufacturing fruit juices as well as pharmaceuticals, the T.VIS® A-15 offers significant advantages that are directly reflected in lower total cost of ownership.

Standard variant

1. Pneumatic block
2. Control unit
3. Path measuring system
4. Solenoid valves
5. LED lighting
6. 2 push buttons
7. Central compressed air connection with replaceable filter
8. M12 plug connection

Features
Quick, automatic initialization
Tamper-proof setting of tolerances
Reduced energy consumption
Reduction in operating costs
Valve status display by LED
Basic LED colors can be selected specifi cally for the customer
Filter protects solenoid valves
High-quality pneumatic fi ttings
Exchangeable compressed air connection
Supply and exhaust air throttles can be fi tted
LEFF® function
Semi-automatic setup
Standard protection class IP66

Structure

The T.VIS® A-15 is equipped with a precise path measuring system for detecting its position.

The necessary wiring for control and feedback is performed, depending on the requirements, via the M12 plug connections accessible from the outside or through direct wiring and cable glands.

The control top can be opened for this.

Operation and configuration of the T.VIS® A-15 takes place either by the two push buttons on the cap or, with the cap removed, via the buttons below. The push buttons are secured electronically against inadvertent or incorrect operation, while in operating mode.

A replaceable filter, in the supply air connection, protects the solenoid valves.

Position detection

Path measuring system – the valve position is registered by means of a highly modern path measuring system.

Setting

Automatic – following unlocking, simply pressing the two buttons on the cap of the T.VIS® A-15 starts the initialization process which runs fully automatically. There is no need to open the control top for this purpose, resulting in particularly quick, easy and safe commissioning of the control top (on average < 1 minute).

Immediately following the set-up, it is possible to set the open/close position tolerances and signal attenuation in the parameter menu.

LEFF® function

LEFF® (Low Emission Flip Flop) is available in double-seat valves for each lifted and monitored valve disc. The function describes modulation of the valve disc during the lifting process to reduce the consumption of cleaning agent.

Semi-automatic setup

As a new feature, our control top T.VIS® A-15 has the option of semi-automatic setup that permits uncomplicated exchange in the current process.

For more information about the semi-automatic setup, refer to the end of this section.

Visualization

LED display:

- Gree n
- Yello w
- Red

Protection class IP66

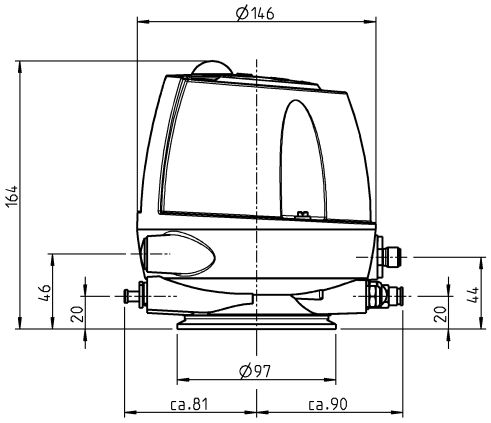
The programmable color change allows the display of colors yellow and green to be swapped over.

Service mode

Activation of the main stroke which may be required in Aseptomag® valves with open non-actuated position for valve maintenance is performed using the service mode which can be activated by the buttons. At the same time, all feedbacks are stopped (warning to the system control). Furthermore, input signals from the control room are not implemented by the T.VIS®, in order to protect the employee.

Technical data of the standard version	
Position detection	Path measuring system
Housing material	PA 12/L
Ambient temperature	–20 to 60 °C
Air supply	Pressure range 2 to 8 bar Standard acc. to ISO 8573-1:2010 Solid content Quality class 6* Water content Quality class 4 Oil content Quality class 3
Dimensions of air connections	Metric 6/4 mm, inch 6.35/4.31 mm
Protection class	(¼") IP66 (powerful water jet)
Sound pressure level via exhaust air throttle	Max. 72 dB
Visualization	LED (green, yellow, red)

* Recommended



Type of interface	24 V DC, 3-wire, PNP	AS-Interface bus
Supply		
Operating voltage	24 V DC (+20 %, −12.5 %)	26.5 – 31.0 V DC
No-load current	≤ 25	≤ 25 mA
Maximum current consumption	mA 265	65 mA*
Polarity reversal protection	mA Yes	Yes
Specifi cation		AS-i V3.0 (max. 62
Additional information		slaves) IO.ID.ID2-code:
Conformity		7.A.E. AS-i association
Inputs		
Connection type	24 V DC (PNP)	
Short circuit-proof	Yes	
Overload-proof	Yes	
Maximum current carrying capacity per feedback output	100 mA	
Voltage drop on the outputs	≤ 1 V	
Feedback “start position”	Electronic output	Data bit DI 0
Feedback “end position”	Electronic output	Data bit DI 1
Feedback “seat lift position”	Electronic output	Data bit DI 2
Outputs		
Activation voltage	> 13 V = high; < 6 V =	
Current consumption per input	low < 10 mA	
Activation “PV Y1”	Electronic input	Data bit DO 0
Activation “PV Y2”	Electronic input	Data bit DO 1
Activation “PV Y3”	Electronic input	Data bit DO 2

* This value is valid only with an activated solenoid valve.

Position	Description of the order code	
1	**Feedback location**	
	TA15	Control top T.VIS® A-15
2	**Control top type**	
	N	Without solenoid valve
	P	1 solenoid valve Y1
	I	2 solenoid valves Y1, Y2 (Y2 for lower seat lift)
	J	2 solenoid valves Y1, Y3 (Y3 for upper seat lift, air/air actuator or external process valve)
	L	3 solenoid valves Y1, Y2, Y3
	V	1 solenoid valve Y1, logic NOT-element
3	**Feedback**	
	8	2 digital feedbacks
	9	2 digital feedbacks with external proximity switch
4	**Type of interface**	
	A	AS-Interface BUS
	B	24 V DC PNP
5	**Solenoid valve**	
	A	24 V DC, 0.85 W
	0	Without
6	**Screw connection**	
	J	Metric air connection, 5-pin M12 plug for 24 V DC (1 PV, 2 feedbacks), AS-i
	P	Inch air connection, 5-pin M12 plug for 24 V DC (1 PV, 2 feedbacks), AS-i
	H	Metric air connection, 8-pin M12 plug for 24 V DC (> 1 solenoid valve, > 2 feedbacks)
	I	Inch air connection, 8-pin M12 plug for 24 V DC (> 1 solenoid valve, > 2 feedbacks)
	M	Metric air connection, M20×1,5 cable gland with integrated terminal strip
	Z	Inch air connection, 0.5" NPT cable gland with integrated terminal strip
7	**Valve type**	
	/A	Suitable for Aseptomag® valves

	Options (multiple selection possible)	
	/18	Supply air throttle: regulates the opening speed of the valve
	/19	Exhaust air throttle: regulates the closing speed of the valve
	/22	24 V DC / AS-i : 5-pin connection socket for screw connection J, P (article no. 508-963) 24 V DC: 8-pin connection socket for screw fitting H, I (article no. 508-061)
	/67	Protection class IP67 (temporary immersion)
	/69k	Protection class IP69k (high-pressure spray down)
	/81	AS-i connection box on cable 1 m with 5-pin M12 connection socket (article no. 508-027)
	/82	AS-i connection box on cable 2 m with 5-pin M12 connection socket (article no. 508-028)
	/UC	Certification UL / CSA

Switch bars and adapters

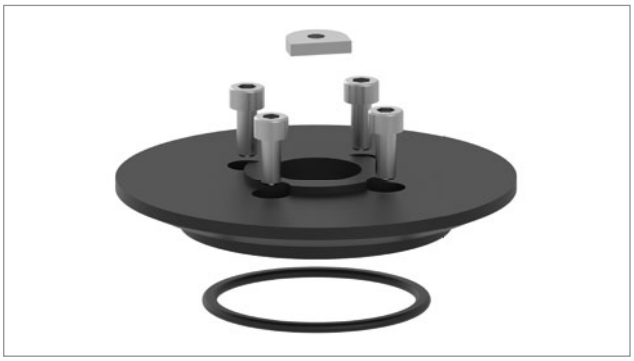
The following components are required for installation of a control and feedback system on an Aseptomag® valve pig retention cylinder.

If a complete control and feedback system is ordered, switch bar 221-589.87 or 221-589.88 is already included.

Valve type		Control top	
		T.VIS® M-15	T.VIS® A-15
Aseptomag®	Switch bar/add-on parts		
Single-seat valves AF, AV, AVBS, GD, UV	Switch bar	221-589.87	221-589.88
	Mounting kit	0984.00038	0984.00038
Mixproof valves ADV, AXV, DK, DKBS, DDK, DT, LV	Switch bar	221-589.87	221-589.88
	Mounting kit	0984.00038	0984.00038

Switch bar 221-589.87 for T.VIS® M-15

Switch bar 221-589.88 for T.VIS® A-15



Mounting kit 0984.00038 for T.VIS® M-15 / A-15

Installation on a valve

The installation of a T.VIS® on an Aseptomag® valve is achieved by using a mounting kit. The following procedure has to be executed:

1. Place adaptor plate with o-ring on the pneumatic actuator and tighten it with the four bolts.
2. Mount switch bar on piston rod and tighten it with a wrench.
3. Place control top on the adaptor plate and tighten the two together by using the clamp.

With Aseptomag® valves all air tubes are connected externally. By orienting the control top, it must be considered that the air tubes are free of kinks and as short as possible.

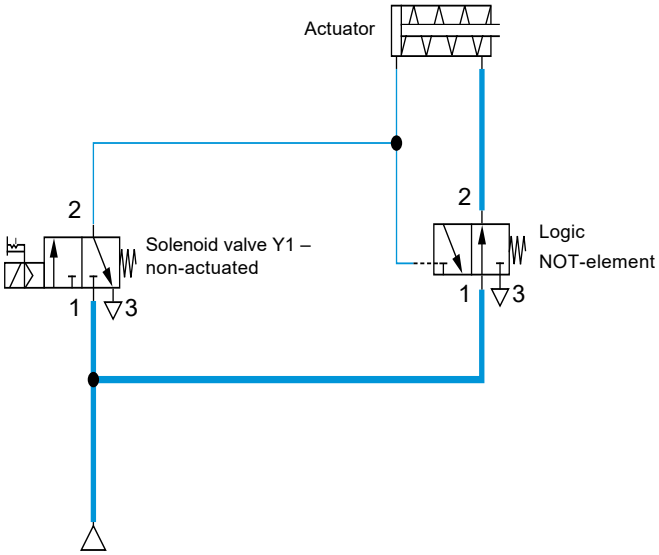
T.VIS® A-15 and T.VIS® M-15 control tops can optionally be equipped with a logic NOT-element. It simplifies wiring with optionally available automatic air support of the spring chamber in the actuator in order to increase the locking force of the valve, thus ensuring that it remains closed even at high product pressures, for example.

The logic NOT-element is linked to the solenoid valve Y1 (main stroke) of the particular control top and automatically channels the air supply to the spring side of the actuator as soon as solenoid valve Y1 for the main stroke is deactivated.

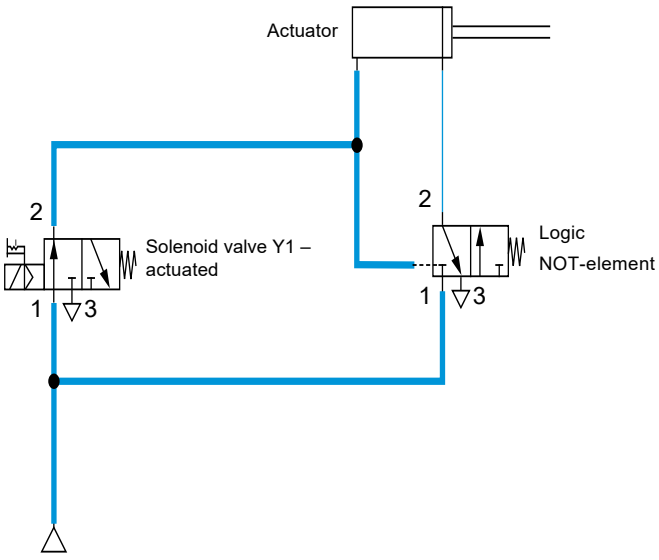
The pneumatic operating method of the logic NOT-element means there is no additional control complexity. In order
for the logic NOT-element to be used, it is necessary for the installed actuator to be equipped with an air connection on the spring side.

- Y1 solenoid valve and a NOT-element

To order a control top with logic NOT-element, select the following option in the order code under “control top type”:



When the solenoid valve is closed, the logic NOT-element automatically directs the supporting air supply to the spring side of the actuator.



Activating the solenoid valve also activates the logic NOT-element pneumatically. The spring chamber is opened to the atmosphere and depressurized, causing the main stroke to take place.

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курган (3522)50-90-47
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Ноябрьск(3496)41-32-12
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саранск (8342)22-96-24
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Улан-Удэ (3012)59-97-51
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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