



Overview

Field bus connections  
Link structure AES

Valve systems  
Series AV03

Interview with  
Theo Paulus

Press release

Electric Drives  
and Controls

Hydraulics

Linear Motion and  
Assembly Technologies

Pneumatics

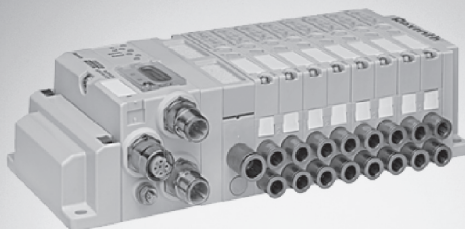
Service

**Rexroth**  
Bosch Group

Valve systems → Valve systems

## Series AV03

Brochure



2 Bosch Rexroth AG | Pneumatics

Valve systems → Valve systems  
**Series AV03**

**Valve systems**



Valve system, Series AV03  
► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, top / D-Sub plug, 44-pin, top

**4**



Valve system, Series AV03  
► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, on the side / D-Sub plug, 44-pin, on the side

**7**



Valve system, Series AV03  
► Qn Max. = 300 l/min ► Field bus connection with I/O functionality (AES)

**10**

**Single valves**



2x3/2-way valve, Series AV03  
► Qn = 250 - 300 l/min ► plate connection ► Manual override: with detent, without detent  
► double solenoid

**12**



5/2-way valve, Series AV03  
► Qn = 300 l/min ► plate connection ► Manual override: with detent, without detent  
► double solenoid, single solenoid

**15**



5/3-way valve, Series AV03  
► Qn = 285 l/min ► plate connection ► Manual override: with detent, without detent  
► double solenoid

**18**

**Accessories**

**Field Bus Modules**



Field bus connection with I/O functionality  
► Bus coupler ► Field bus protocol: PROFIBUS DP / ProfiNet IO / EtherCAT ► for AV series valves, for AES series I/O modules

**20**



Field bus connection with I/O functionality, D-design  
► I/O module, active ► for AES series bus couplers

**21**

**Other accessories**



Multipole plug D-Sub (25-pin)  
► Socket, D-Sub, 25-pin ► for series AV03

**23**

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

**Series AV03**



Multipole plug (44-pin)  
► Socket, D-Sub, 44-pin ► for series AV03

**25**



Blanking plate  
► Base plate principle, multiple ► Reversed pressure supply permissible ► With collective pilot air exhaust ► for AV03

**27**



End plate left  
► for AV03

**28**



End plate right  
► for AV03

**30**



Retaining bracket for intermediate mounting  
► for AES, AV03

**32**

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change

## Valve systems → Valve systems

**Valve system, Series AV03**

► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, top / D-Sub plug, 44-pin, top



18204

Blocking principle	Combination of double and triple base plate principles
Working pressure min./max.	-0.9 bar / 10 bar
Control pressure min./max.	3 bar / 8 bar
Ambient temperature min./max.	-10 °C / +60 °C
Medium temperature min./max.	-10 °C / +60 °C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Protection class with electrical connector/plug	IP 65
Protection class without electrical connector	IP 54
Number of valve positions	24 / 36
Number of solenoid coils	24 / 40
DC operating voltage	24 V
Voltage tolerance DC	-10% / +10%
Materials:	
End plate	Aluminum; Polyamide
Base plate	Polyamide

An example configuration is illustrated. The delivered product may thus deviate from the illustration.

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.
- The combination of double and triple base plates allows a configuration in increments of 1.
- See the following pages on the series for technical data on individual components.
- Here you can find more information on D-Sub connection pin assignments (version A and version B).

**Configurable product**

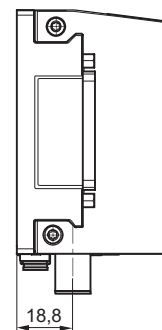
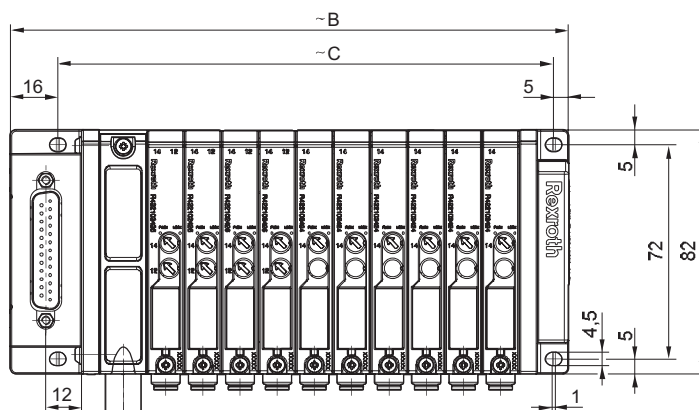
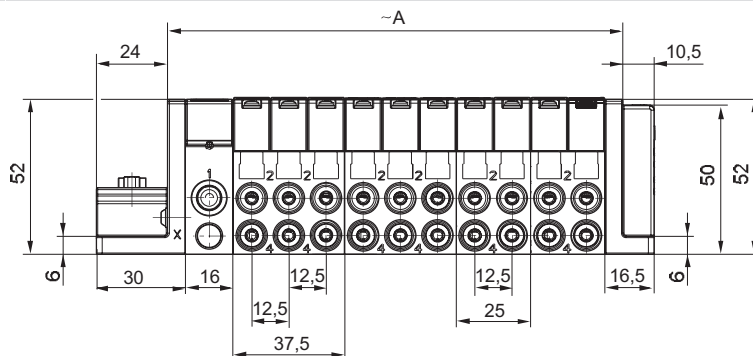
 This product is configurable. Please use our Internet configurator at [www.boschrexroth.com/pneumatics](http://www.boschrexroth.com/pneumatics) or contact the nearest Bosch Rexroth sales office.

Valve systems → Valve systems

**Valve system, Series AV03**

► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, top / D-Sub plug, 44-pin, top

**Dimensions**



16446

A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 12 mm

B = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 46.5 mm

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 25.5 mm

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting Ø 4 mm, Ø 6 mm and Ø 8 mm. Connection angle 1: straight and 90° (exchangeable fittings)

2 and 4 = push-in fitting Ø 3 mm. Connection angle: 90°

2 and 4 = push-in fitting Ø 4 mm and Ø 8 mm. Connection angle: straight and 90° (exchangeable fittings)

3 and 5 = push-in fitting Ø 8 mm. Connection angle: straight

R = restricted pilot exhaust air, push-in fitting Ø 4 mm. Connection angle: straight

X = external pilot, push-in fitting Ø 4 mm. Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.



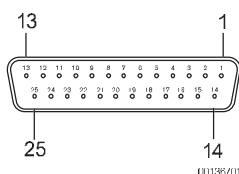


## Valve systems → Valve systems

### Valve system, Series AV03

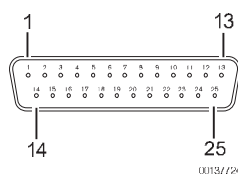
► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, top / D-Sub plug, 44-pin, top

**Multipole plug (25-pin), PIN assignment and cable colors, cable identification as per DIN 47100**



00135/r01

Socket (female)



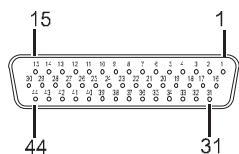
00133/r24

Plug (male)

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Color	white	brown	green	yellow	gray	pink	blue	red	black	violet	gray/ pink	red/blue	white/ green

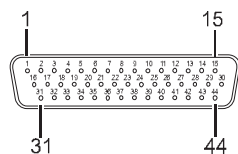
Pin	14	15	16	17	18	19	20	21	22	23	24	25
Color	brown/ green	white/ yellow	yellow/ brown	white/ gray	gray/ brown	white/ pink	pink/ brown	white/ blue	brown/ blue	white/red	brown/ red	white/ black

**Multipole plug (44-pin), PIN assignment and cable colors, cable identification as per DIN 47100**



00131/r21

Socket (female)



00131/r21\_a

Plug (male)

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Color	white	brown	green	yellow	gray	pink	blue	red	black	violet	gray/ pink	red/blue	white/ green

Pin	14	15	16	17	18	19	20	21	22	23	24	25
Color	brown/ green	white/ yellow	yellow/ brown	white/ gray	gray/ brown	white/ pink	pink/ brown	white/ blue	brown/ blue	white/red	brown/ red	white/ black

Pin	38	39	40	41	42	43	44
Color	pink/blue	gray/red	pink/red	gray/black	pink/black	blue/black	red/black

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

**Valve system, Series AV03**

► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, on the side / D-Sub plug, 44-pin, on the side



18520c

Blocking principle	Combination of double and triple base plate principles
Working pressure min./max.	-0.9 bar / 10 bar
Control pressure min./max.	3 bar / 8 bar
Ambient temperature min./max.	-10°C / +60°C
Medium temperature min./max.	-10°C / +60°C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Protection class with electrical connector/plug	IP 65
Protection class without electrical connector	IP 54
Number of valve positions	24 / 36
Number of solenoid coils	24 / 40
DC operating voltage	24 V
Voltage tolerance DC	-10% / +10%
Materials:	
End plate	Aluminum; Polyamide
Base plate	Polyamide

An example configuration is illustrated. The delivered product may thus deviate from the illustration.

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.
- The combination of double and triple base plates allows a configuration in increments of 1.
- See the following pages on the series for technical data on individual components.
- Here you can find more information on D-Sub connection pin assignments (version A and version B).

**Configurable product**



This product is configurable. Please use our Internet configurator at [www.boschrexroth.com/pneumatics](http://www.boschrexroth.com/pneumatics) or contact the nearest Bosch Rexroth sales office.

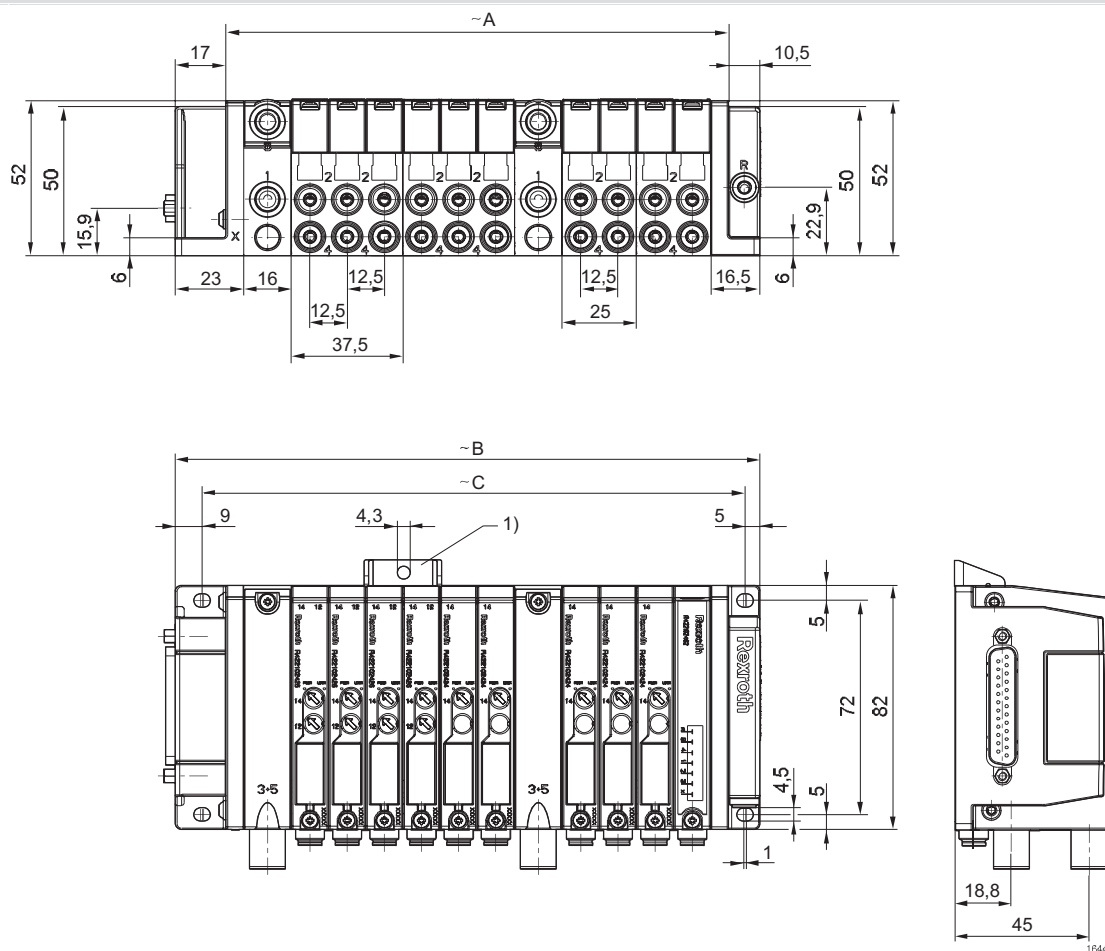


## Valve systems → Valve systems

### Valve system, Series AV03

► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, on the side / D-Sub plug, 44-pin, on the side

#### Dimensions



1) Retaining bracket (optional)

A = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 12 mm

B = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 39.5 mm

C = number of valve positions x 12.5 mm + number of supply plates x 16 mm + 25.5 mm

The supply plate in front of the first valve must be taken into consideration in the dimensions.

1 = push-in fitting Ø 4 mm, Ø 6 mm and Ø 8 mm. Connection angle 1: straight and 90° (exchangeable fittings)

2 and 4 = push-in fitting Ø 3 mm. Connection angle: 90°

2 and 4 = push-in fitting Ø 4 mm and Ø 8 mm. Connection angle: straight and 90° (exchangeable fittings)

3 and 5 = push-in fitting Ø 8 mm. Connection angle: straight

R = restricted pilot exhaust air, push-in fitting Ø 4 mm. Connection angle: straight

X = external pilot, push-in fitting Ø 4 mm. Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.



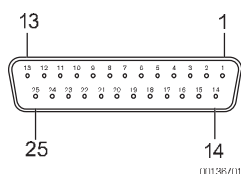


## Valve systems → Valve systems

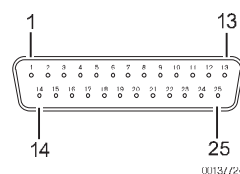
### Valve system, Series AV03

► Qn Max. = 300 l/min ► Multipole ► Electr. connection: D-Sub plug, 25-pin, on the side / D-Sub plug, 44-pin, on the side

#### Multipole plug (25-pin), PIN assignment and cable colors, cable identification as per DIN 47100



Socket (female)



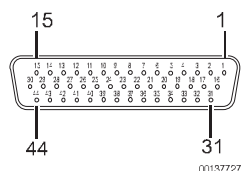
Plug (male)

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Color	white	brown	green	yellow	gray	pink	blue	red	black	violet	gray/pink	red/blue	white/green

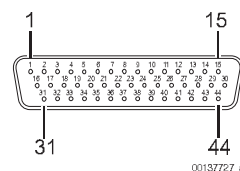
#### cable identification as per DIN 47100

Pin	14	15	16	17	18	19	20	21	22	23	24	25
Color	brown/green	white/yellow	yellow/brown	white/gray	gray/brown	white/pink	pink/brown	white/blue	brown/blue	white/red	brown/red	white/black

#### Multipole plug (44-pin), PIN assignment and cable colors, cable identification as per DIN 47100



Socket (female)



Plug (male)

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Color	white	brown	green	yellow	gray	pink	blue	red	black	violet	gray/pink	red/blue	white/green

Pin	14	15	16	17	18	19	20	21	22	23	24	25
Color	brown/green	white/yellow	yellow/brown	white/gray	gray/brown	white/pink	pink/brown	white/blue	brown/blue	white/red	brown/red	white/black

Pin	26	27	28	29	30	31	32	33	34	35	36	37
Color	brown/black	gray/green	yellow/gray	pink/green	yellow/pink	green/blue	yellow/blue	green/red	yellow/red	green/black	yellow/black	gray/blue

Pin	38	39	40	41	42	43	44
Color	pink/blue	gray/red	pink/red	gray/black	pink/black	blue/black	red/black

10 Bosch Rexroth AG | Pneumatics

**Valve systems → Valve systems**
**Valve system, Series AV03**
**► Qn Max. = 300 l/min ► Field bus connection with I/O functionality (AES)**


18450

Version	Link structure AES
Blocking principle	Combination of double and triple base plate principles
Working pressure min./max.	-0.9 bar / 8 bar
Control pressure min./max.	3 bar / 10 bar
Ambient temperature min./max.	-10 °C / +60 °C
Medium temperature min./max.	-10 °C / +60 °C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Protection class, with plug	IP 65
Number of valve positions	4 / 64
Number of solenoid coils	4 / 128
Supported field bus protocols:	ProfiNet IO EtherCAT PROFIBUS DP
Operational voltage electronics	24 V DC
Electronics voltage tolerance	-25% / +25%
Operational voltage valves	24 V DC
Valve voltage tolerance	-10% / +10%
Power supply connection	M12, A-coded, 4-pin
Materials:	
End plate	Aluminum
Subbase	Polyamide

An example configuration is illustrated. The delivered product may thus deviate from the illustration.

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.
- The combination of double and triple base plates allows a configuration in increments of 1.
- See the following pages on the series for technical data on individual components.
- For technical data for electronics (link structures), see the Chapter “Field bus connections”.

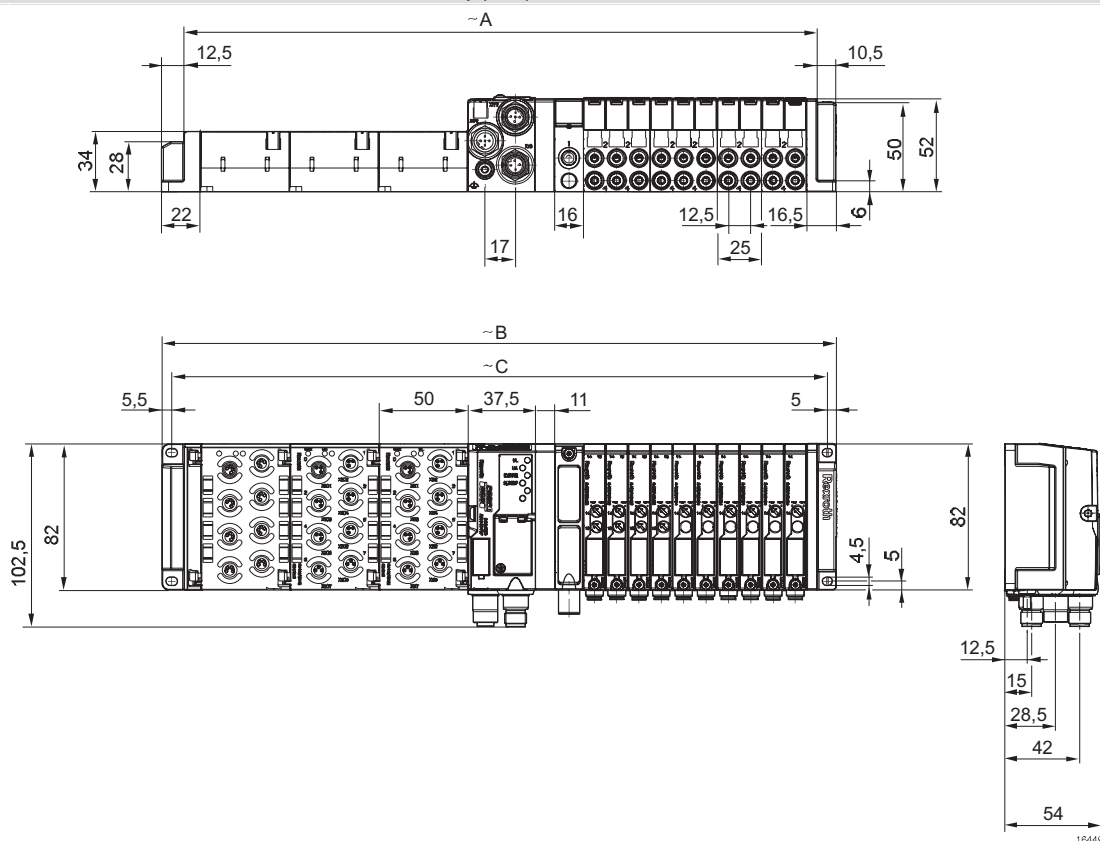
**Configurable product**


This product is configurable. Please use our Internet configurator at [www.boschrexroth.com/pneumatics](http://www.boschrexroth.com/pneumatics) or contact the nearest Bosch Rexroth sales office.

## Valve systems → Valve systems

**Valve system, Series AV03**

▶ Qn Max. = 300 l/min ▶ Field bus connection with I/O functionality (AES)

**Dimensions, Field bus connection with I/O functionality (AES)**

 $A = \text{number of valve positions} \times 12,5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + \text{number of I/O} \times 50 \text{ mm} + 64 \text{ mm}$ 
 $B = \text{number of valve positions} \times 12,5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + \text{number of I/O} \times 50 \text{ mm} + 87 \text{ mm}$ 
 $C = \text{number of valve positions} \times 12,5 \text{ mm} + \text{number of supply plates} \times 16 \text{ mm} + \text{number of I/O} \times 50 \text{ mm} + 76,5 \text{ mm}$ 

The supply plate in front of the first valve must be taken into consideration in the dimensions.

 1 = push-in fitting  $\varnothing 4 \text{ mm}$ ,  $\varnothing 6 \text{ mm}$  and  $\varnothing 8 \text{ mm}$ . Connection angle 1: straight and  $90^\circ$  (exchangeable fittings)

 2 and 4 = push-in fitting  $\varnothing 3 \text{ mm}$ . Connection angle:  $90^\circ$ 

 2 and 4 = push-in fitting  $\varnothing 4 \text{ mm}$  and  $\varnothing 8 \text{ mm}$ . Connection angle: straight and  $90^\circ$  (exchangeable fittings)

 3 and 5 = push-in fitting  $\varnothing 8 \text{ mm}$ . Connection angle: straight

 R = restricted pilot exhaust air, push-in fitting  $\varnothing 4 \text{ mm}$ . Connection angle: straight

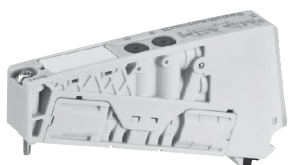
 X = external pilot, push-in fitting  $\varnothing 4 \text{ mm}$ . Connection angle: straight

An example configuration is shown. You can calculate the dimensions for your configuration using the formula or read them directly in the configurator.

## Valve systems → Valve systems

**2x3/2-way valve, Series AV03**

► Qn = 250 - 300 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid



1843/

Version	Spool valve, zero overlap
Pilot	external
Sealing principle	soft sealing
Blocking principle	Base plate principle, multiple
Working pressure min./max.	-0.9 bar / 10 bar
Control pressure min./max.	-- / 8 bar
Ambient temperature min./max.	-10°C / +60°C
Medium temperature min./max.	-10°C / +60°C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³ with directional pilot air exhaust
Degree of protection with electrical connector/plug	IP 65
Protective circuit	Z-diode Protected against polarity reversal
Status display LED	Yellow
Duty cycle	100 %
Switch-on time	16 ms
Switch-off time	20 ms
Mounting screw	Hexalobular socket (TORX) ISO 10664-8
mounting screw tightening torque	0.7 Nm
Materials:	
Housing	Polyamide, fiber-glass reinforced
Seals	Acrylonitrile Butadiene Rubber; Hydrogenated acrylonitrile butadiene rubber
Front plate	Polyamide, fiber-glass reinforced
End plate	Polyamide

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.

Operating voltage	Voltage tolerance	Power consumption
DC	DC	DC
		<b>W</b>
24 V	-10% / +10%	0.55

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
 Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

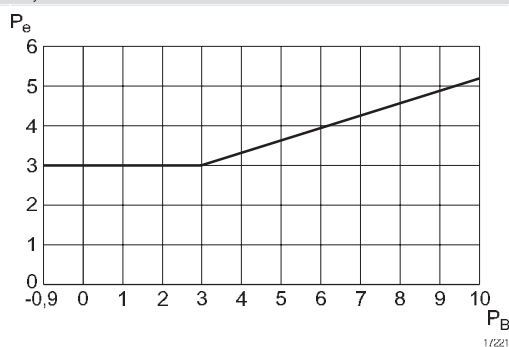
**2x3/2-way valve, Series AV03**

► Qn = 250 - 300 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid

		MO	Operating voltage	Flow conductance		Flow rate value	Weight	Part No.
			DC	b	C	Qn		
					[l/(s*bar)]	[l/min]	[kg]	
	NC/NC		24 V	0.29	1.17	300	0.05	<b>R422102430</b>
	NO/NO		24 V	0.38	0.92	250	0.049	<b>R422102432</b>
	NC/NO		24 V	0.38	0.92	250	0.05	<b>R422102434</b>
	NC/NC		24 V	0.29	1.17	300	0.05	<b>R422102431</b>
	NO/NO		24 V	0.38	0.92	250	0.049	<b>R422102433</b>
	NC/NO		24 V	0.38	0.92	250	0.05	<b>R422102435</b>

MO = Manual override  
Basic valve with pilot valve  
Nominal flow Qn at 6 bar and Δp = 1 bar

Control pressure: see diagram for min., max. 8 bar



P<sub>B</sub> = Working pressure  
P<sub>e</sub> = External control pressure, min.

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



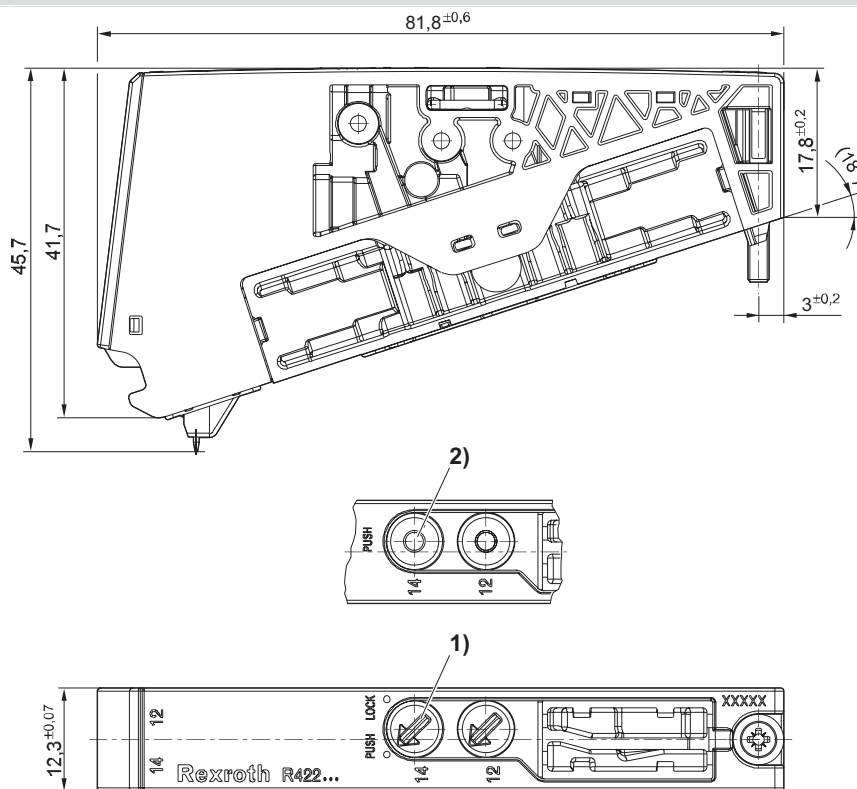
14 Bosch Rexroth AG | Pneumatics

Valve systems → Valve systems

**2x3/2-way valve, Series AV03**

► Qn = 250 - 300 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid

Dimensions



- 1) with detent  
2) without detent

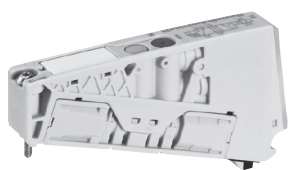
Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

**5/2-way valve, Series AV03**

► Qn = 300 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid, single solenoid



18434

Version	Spool valve, zero overlap
Pilot	external
Sealing principle	soft sealing
Blocking principle	Base plate principle, multiple
Working pressure min./max.	-0.9 bar / 10 bar
Control pressure min./max.	3 bar / 8 bar
Ambient temperature min./max.	-10°C / +60°C
Medium temperature min./max.	-10°C / +60°C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³ with directional pilot air exhaust
Degree of protection with electrical connector/plug	IP 65
Protective circuit	Z-diode Protected against polarity reversal
Status display LED	Yellow
Duty cycle	100 %
Mounting screw	Hexalobular socket (TORX) ISO 10664-8
mounting screw tightening torque	0.7 Nm
Materials:	
Housing	Polyamide, fiber-glass reinforced
Seals	Acrylonitrile Butadiene Rubber; Hydrogenated acrylonitrile butadiene rubber
Front plate	Polyamide, fiber-glass reinforced
End plate	Polyamide

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.
- The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.

Operating voltage	Voltage tolerance	Power consumption
DC	DC	DC
		<b>W</b>
24 V	-10% / +10%	0.55

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



16 Bosch Rexroth AG | Pneumatics

Valve systems → Valve systems

**5/2-way valve, Series AV03**

►  $Q_n = 300 \text{ l/min}$  ► plate connection ► Manual override: with detent, without detent ► double solenoid, single solenoid

	MO	Operating voltage	Flow conductance		Flow rate value	Switch-on time	Switch-off time	Weight	Part No.
			b	C					
		DC		$[\text{l}/(\text{s} \cdot \text{bar})]$	$[\text{l}/\text{min}]$	$[\text{ms}]$	$[\text{ms}]$	$[\text{kg}]$	
		24 V	0.29	1.17	300	8	8	0.048	<b>R422102426</b>
		24 V	0.29	1.17	300	12	17	0.043	<b>R422102424</b>
		24 V	0.29	1.17	300	8	8	0.048	<b>R422102427</b>
		24 V	0.29	1.17	300	12	17	0.043	<b>R422102425</b>

MO = Manual override

Basic valve with pilot valve

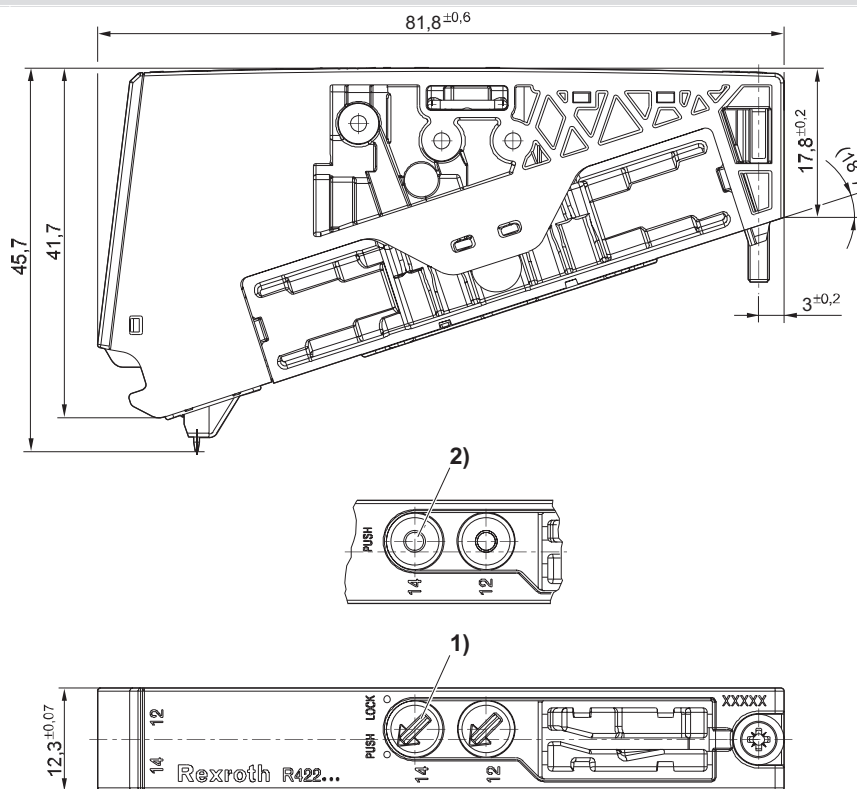
Nominal flow  $Q_n$  at 6 bar and  $\Delta p = 1 \text{ bar}$

Valve systems → Valve systems

**5/2-way valve, Series AV03**

► Qn = 300 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid, single solenoid

**Dimensions**

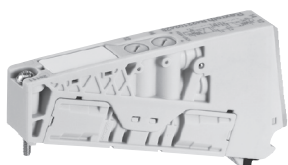


- 1) with detent  
2) without detent

## Valve systems → Valve systems

**5/3-way valve, Series AV03**

► Qn = 285 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid



18436

Version	Spool valve, zero overlap
Pilot	external
Sealing principle	soft sealing
Blocking principle	Base plate principle, multiple
Working pressure min./max.	-0.9 bar / 10 bar
Control pressure min./max.	3 bar / 8 bar
Ambient temperature min./max.	-10°C / +60°C
Medium temperature min./max.	-10°C / +60°C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³ with directional pilot air exhaust
Degree of protection with electrical connector/plug	IP 65
Protective circuit	Z-diode Protected against polarity reversal
Status display LED	Yellow
Duty cycle	100 %
Switch-on time	12 ms
Switch-off time	12 ms
Mounting screw	Hexalobular socket (TORX) ISO 10664-8
mounting screw tightening torque	0.7 Nm
Materials:	
Housing	Polyamide, fiber-glass reinforced
Seals	Acrylonitrile Butadiene Rubber; Hydrogenated acrylonitrile butadiene rubber
Front plate	Polyamide, fiber-glass reinforced
End plate	Polyamide

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.
- The pilot type (external/internal) is not implemented in the valve, but in the end plate of the valve system.

Operating voltage	Voltage tolerance	Power consumption
DC	DC	DC
		<b>W</b>
24 V	-10% / +10%	0.55

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
 Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

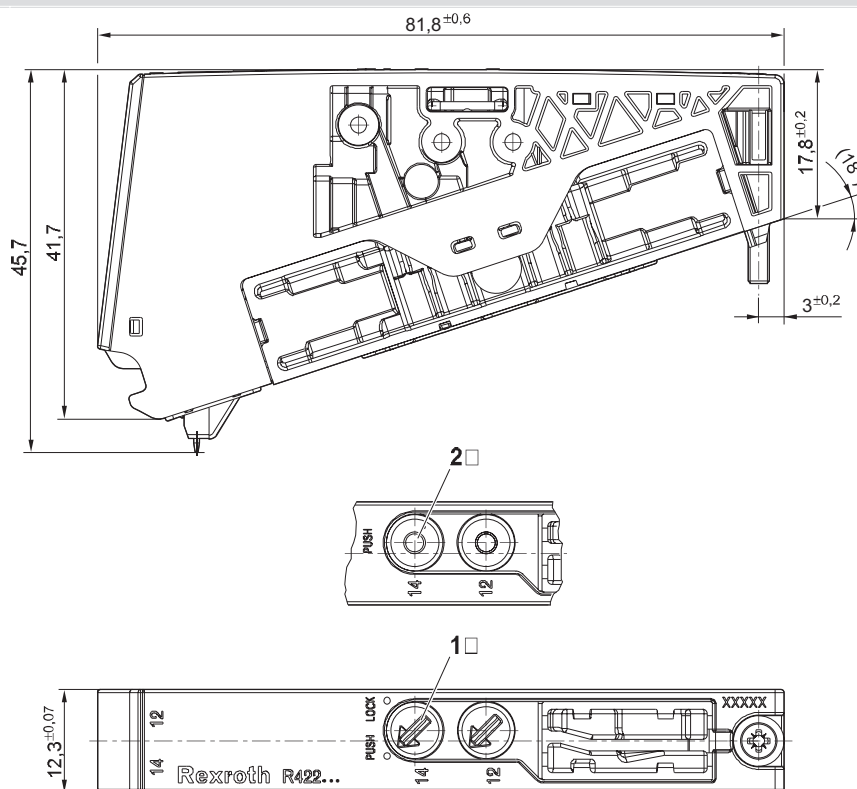
**5/3-way valve, Series AV03**

► Qn = 285 l/min ► plate connection ► Manual override: with detent, without detent ► double solenoid

	MO	Operating voltage	Flow conductance		Flow rate value	Weight	Part No.
		DC	b	C	Qn		
				[l/(s*bar)]	[l/min]	[kg]	
		24 V	0.28	1.1	285	0.046	<b>R422102428</b>
		24 V	0.28	1.1	285	0.046	<b>R422102429</b>

MO = Manual override  
Basic valve with pilot valve  
Nominal flow Qn at 6 bar and Δp = 1 bar

**Dimensions**



- 1) with detent  
2) without detent

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



20 Bosch Rexroth AG | Pneumatics

**Valve systems → Valve systems**

**Series AV03**  
**Accessories**

**Field bus connection with I/O functionality**

► Bus coupler ► Field bus protocol: PROFIBUS DP / ProfiNet IO / EtherCAT ► for AV series valves, for AES series I/O modules



16456

Ambient temperature min./max.	-10°C / +60°C
Protection class, with plug	IP 65
Operational voltage electronics	24 V DC
Electronics voltage tolerance	-25% / +25%
Power consumption electronics	0.1 A
Operational voltage valves	24 V DC
Number of solenoid coils	128
Number of valve positions	64
I/O extension possible, Max.	10
Generic emission standard in accordance with norm	EN 61000-6-4
Generic immunity standard in accordance with norm	EN 61000-6-2

Materials:

Housing Polyamide, fiber-glass reinforced

**Technical Remarks**

■ You will find assignment schemes for the product in the operating instructions, or contact the nearest Bosch Rexroth sales office.

Field bus protocol	Communication port Bus IN	Communication port Bus OUT	power supply	Number of inputs	Number of outputs	Weight	Part No.
						[kg]	
PROFIBUS DP	Plug (male), M12, 5-pin, B-coded	Socket (female), M12, 5-pin, B-coded	Plug (male), M12, 4-pin, A-coded	512 bit	512 bit	0.16	R412018218
ProfiNet IO	Socket (female), M12, 4-pin, D-coded	Socket (female), M12, 4-pin, D-coded	Plug (male), M12, 4-pin, A-coded	512 bit	512 bit	0.175	R412018223
EtherCAT	Socket (female), M12, 4-pin, D-coded	Socket (female), M12, 4-pin, D-coded	Plug (male), M12, 4-pin, A-coded	512 bit	512 bit	0.175	R412018225
Scope of delivery: Incl. mounting screws 3x							

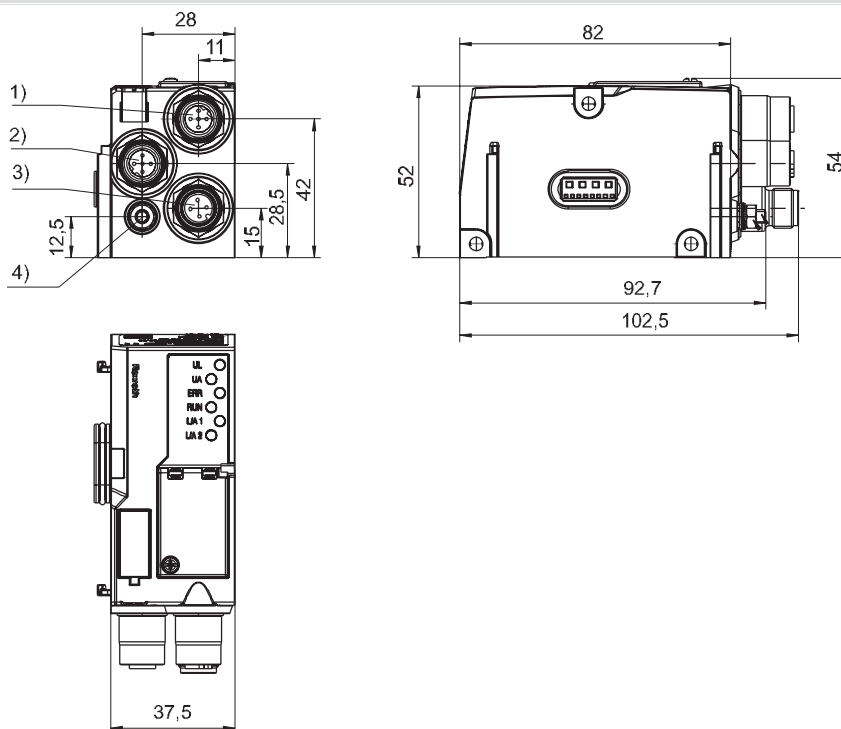
Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

Series AV03  
Accessories

Dimensions



1) Bus IN 2) Bus OUT 3) Power supply 4) Ground

16457

Field bus connection with I/O functionality, D-design

► I/O module, active ► for AES series bus couplers



16457

Ambient temperature min./max.	-10°C / +60°C
Protection class, with plug	IP 65
Operational voltage electronics	24 V DC
Electronics voltage tolerance	-25% / +25%
Generic emission standard in accordance with norm	EN 61000-6-4
Generic immunity standard in accordance with norm	EN 61000-6-2

Materials:	
Housing	Polyamide, fiber-glass reinforced

Technical Remarks

- You will find assignment schemes for the product in the operating instructions, or contact the nearest Bosch Rexroth sales office.

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



22 Bosch Rexroth AG | Pneumatics

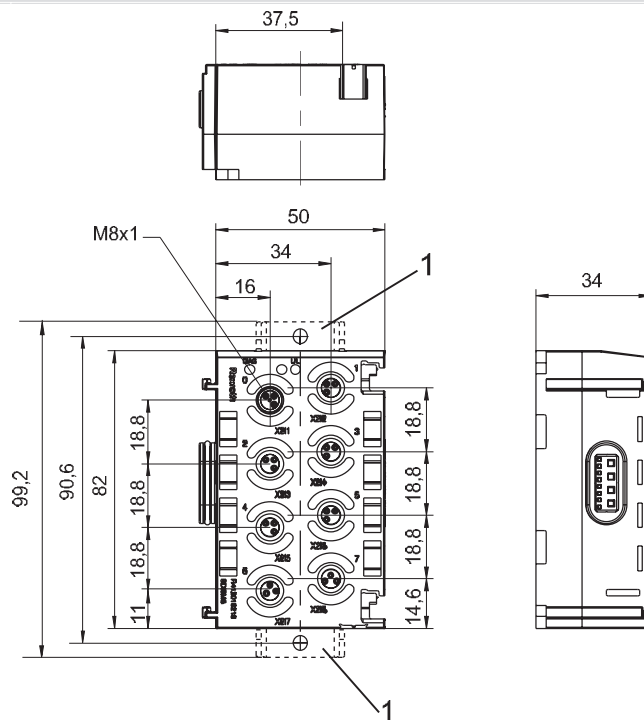
Valve systems → Valve systems

**Series AV03**  
Accessories

Communication port Bus IN	power supply	Number of inputs	Number of outputs	I/O module version	Weight	Part No.
					[kg]	
Socket (female), M8, 3-pin	Through the bus coupler via the backplane	8	-	Digital inputs	0.11	R412018233
Socket (female), M8, 3-pin	Through the bus coupler via the backplane	-	8	Digital outputs	0.11	R412018248

Delivery contents: incl. 2 spring clamp elements

**Dimensions**



1) Retaining bracket (optional)

16474

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

**Series AV03**

**Accessories**

**Multipole plug D-Sub (25-pin)**

► Socket, D-Sub, 25-pin ► for series AV03



15845

Ambient temperature min./max.  
Protection class  
Operating voltage DC max.  
Wire cross-section

-20°C / +80°C  
IP 65  
24 V  
0.22 mm²

Materials:

Housing  
Housing color  
Cable color

Thermoplastic elastomer  
Black  
Black

**Technical Remarks**

- The specified protection class is valid only in assembled and tested state.
- The increased wire cross-section of pin 25 is 0.82 mm².

Electrical interface	Cable exit	Cable sheath	Cable-Ø	Cable length L		Part No.
[Port 1]			[mm]	[m]		
Socket, D-Sub, 25-pin	straight 180°	Polyvinyl chloride	8.5	3	-	<b>R419500454</b>
Socket, D-Sub, 25-pin	straight 180°	Polyvinyl chloride	8.5	5	-	<b>R419500455</b>
Socket, D-Sub, 25-pin	straight 180°	Polyvinyl chloride	8.5	10	-	<b>R419500456</b>
Socket, D-Sub, 25-pin	straight 180°	Polyurethane	10.5	3	suitable for dynamic laying	<b>R419500457</b>
Socket, D-Sub, 25-pin	straight 180°	Polyurethane	10.5	5	suitable for dynamic laying	<b>R419500458</b>
Socket, D-Sub, 25-pin	straight 180°	Polyurethane	10.5	10	suitable for dynamic laying	<b>R419500459</b>
Socket, D-Sub, 25-pin	angled 90°	Polyvinyl chloride	8.5	3	-	<b>R419500460</b>
Socket, D-Sub, 25-pin	angled 90°	Polyvinyl chloride	8.5	5	-	<b>R419500461</b>
Socket, D-Sub, 25-pin	angled 90°	Polyvinyl chloride	8.5	10	-	<b>R419500462</b>
Socket, D-Sub, 25-pin	angled 90°	Polyurethane	10.5	3	suitable for dynamic laying	<b>R419500463</b>
Socket, D-Sub, 25-pin	angled 90°	Polyurethane	10.5	5	suitable for dynamic laying	<b>R419500464</b>
Socket, D-Sub, 25-pin	angled 90°	Polyurethane	10.5	10	suitable for dynamic laying	<b>R419500465</b>

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



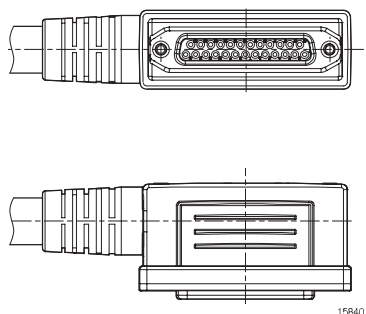


24 Bosch Rexroth AG | Pneumatics

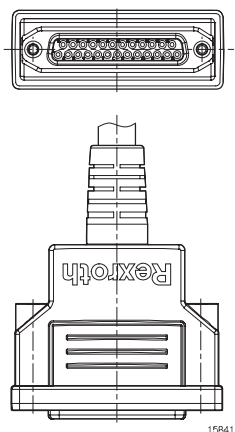
Valve systems → Valve systems

**Series AV03**  
Accessories

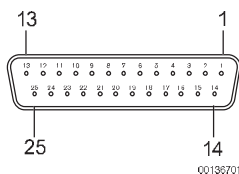
angled



straight

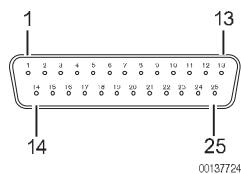


**Multipole plug (25-pin), PIN assignment and cable colors, cable identification as per DIN 47100**



00136701

Socket (female)



00137724

Plug (male)

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Color	white	brown	green	yellow	gray	pink	blue	red	black	violet	gray/ pink	red/blue	white/ green

Pin	14	15	16	17	18	19	20	21	22	23	24	25
Color	brown/ green	white/ yellow	yellow/ brown	white/ gray	gray/ brown	white/ pink	pink/ brown	white/ blue	brown/ blue	white/red	brown/ red	white/ black

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

**Series AV03**

**Accessories**

**Multipole plug (44-pin)**

► Socket, D-Sub, 44-pin ► for series AV03



1584E

Ambient temperature min./max.

-20°C / +80°C

Protection class

IP 65

Operating voltage DC max.

24 V

Wire cross-section

0.22 cm²

Materials:

Housing

Thermoplastic elastomer

Housing color

Black

Cable color

Black

**Technical Remarks**

- The specified protection class is valid only in assembled and tested state.

Electrical inter- face	Cable exit	Cable sheath	Cable-Ø	Cable length L		Part No.
[Port 1]			[mm]	[m]		
Socket, D-Sub, 44-pin	straight 180°	Polyvinyl chloride	10.7	3	-	<b>R419500466</b>
Socket, D-Sub, 44-pin	straight 180°	Polyvinyl chloride	10.7	5	-	<b>R419500467</b>
Socket, D-Sub, 44-pin	straight 180°	Polyvinyl chloride	10.7	10	-	<b>R419500468</b>
Socket, D-Sub, 44-pin	straight 180°	Polyurethane	13	3	suitable for dy- namic laying	<b>R419500469</b>
Socket, D-Sub, 44-pin	straight 180°	Polyurethane	13	5	suitable for dy- namic laying	<b>R419500470</b>
Socket, D-Sub, 44-pin	straight 180°	Polyurethane	13	10	suitable for dy- namic laying	<b>R419500471</b>
Socket, D-Sub, 44-pin	angled 90°	Polyvinyl chloride	10.7	3	-	<b>R419500472</b>
Socket, D-Sub, 44-pin	angled 90°	Polyvinyl chloride	10.7	5	-	<b>R419500473</b>
Socket, D-Sub, 44-pin	angled 90°	Polyvinyl chloride	10.7	10	-	<b>R419500474</b>
Socket, D-Sub, 44-pin	angled 90°	Polyurethane	13	3	suitable for dy- namic laying	<b>R419500475</b>
Socket, D-Sub, 44-pin	angled 90°	Polyurethane	13	5	suitable for dy- namic laying	<b>R419500476</b>
Socket, D-Sub, 44-pin	angled 90°	Polyurethane	13	10	suitable for dy- namic laying	<b>R419500477</b>

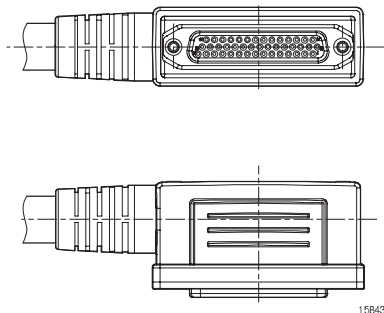
Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



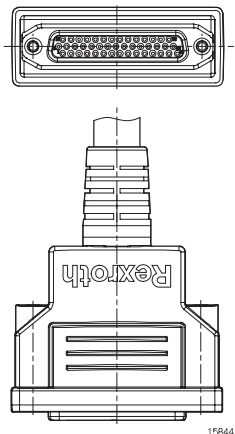
Valve systems → Valve systems

**Series AV03**  
Accessories

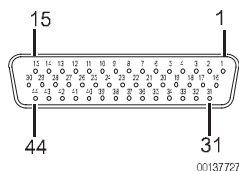
angled



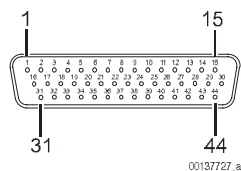
straight



**Multipole plug (44-pin), PIN assignment and cable colors, cable identification as per DIN 47100**



Socket (female)



Plug (male)

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
Color	white	brown	green	yellow	gray	pink	blue	red	black	violet	gray/ pink	red/blue	white/ green

Pin	14	15	16	17	18	19	20	21	22	23	24	25
Color	brown/ green	white/ yellow	yellow/ brown	white/ gray	gray/ brown	white/ pink	pink/ brown	white/ blue	brown/ blue	white/red	brown/ red	white/ black

Pin	26	27	28	29	30	31	32	33	34	35	36	37
Color	brown/ black	gray/ green	yellow/ gray	pink/ green	yellow/ pink	green/ blue	yellow/ blue	green/ red	yellow/ red	gray/ black	yellow/ black	gray/ blue

Pin	38	39	40	41	42	43	44
Color	pink/blue	gray/red	pink/red	gray/black	pink/black	blue/black	red/black

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



Valve systems → Valve systems

**Series AV03**

**Accessories**

**Blanking plate**

► Base plate principle, multiple ► Reversed pressure supply permissible ► With collective pilot air exhaust  
► for AV03



18435

Ambient temperature min./max.	-10°C / +60°C
Medium temperature min./max.	-10°C / +60°C
Medium	Compressed air
Max. particle size	40 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Working pressure min./max.	-0.9 bar / 10 bar
Protection class	IP 65
Mounting screw	Hexalobular socket (TORX) ISO 10664-8
Tightening torque for mounting screws	0.7 Nm±0,1

**Materials:**

Subbase	Polyamide, fiber-glass reinforced
Seals	Nitrile rubber
Screws	Steel, galvanized

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.

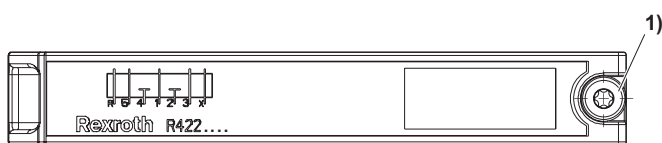
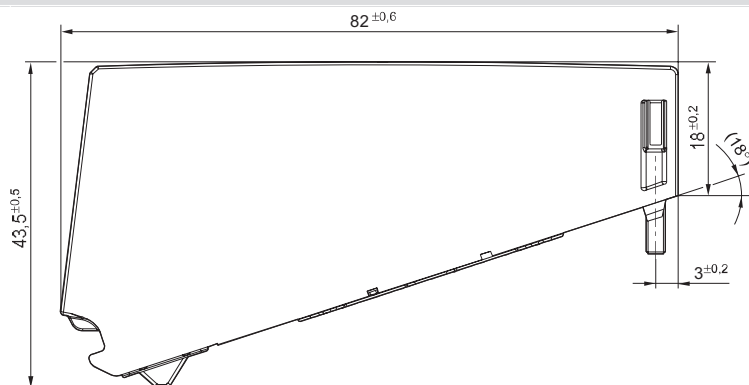
	Weight	Part No.
	[kg]	
	0.028	R422102462
Delivery includes sealing kit and 1x mounting screw		

28 Bosch Rexroth AG | Pneumatics

**Valve systems → Valve systems**

**Series AV03**  
**Accessories**

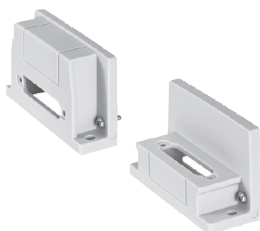
**Dimensions**



1/220

1) Mounting screw

**End plate left**  
► for AV03



15851

Ambient temperature min./max. -10 °C / +50 °C  
Medium temperature min./max. -10 °C / +50 °C

Materials:  
Housing Polyamide  
Screws Steel

**Technical Remarks**

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change





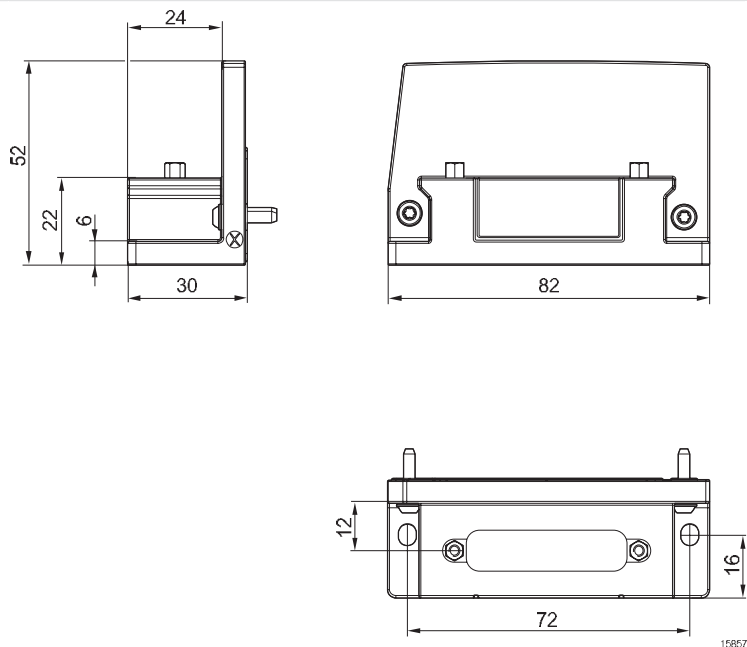
Valve systems → Valve systems

**Series AV03**  
Accessories

Type	Delivery quantity	Weight [kg]	Fig.	Part No.
Top connection	1	0.045	Fig. 1	R412018334
Side connection	1	0.05	Fig. 2	R412018335

Scope of delivery: incl. 1 seal and 2 mounting screws

**Fig. 1**



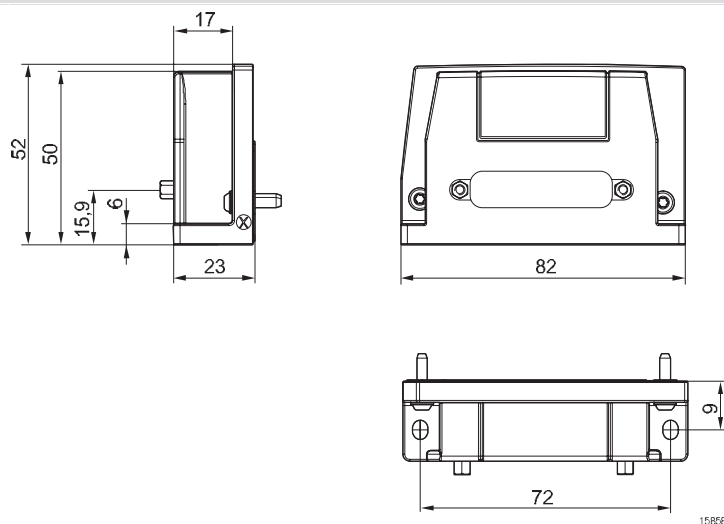
Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change

30 Bosch Rexroth AG | Pneumatics

## Valve systems → Valve systems

### Series AV03 Accessories

Fig. 2



### End plate right ► for AV03



Ambient temperature min./max. -10 °C / +50 °C  
Medium temperature min./max. -10 °C / +50 °C

Materials:  
Housing Aluminum  
Screws Steel

#### Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.

Compressed air connection	Delivery quantity	Weight	Fig.	Part No.
<b>Pilot control exhaust</b>				
<b>[R]</b>		<b>[kg]</b>		
Ø 4	1	0.08	Fig. 1	R412018349

Scope of delivery: Incl. mounting screws

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change

**Valve systems → Valve systems**

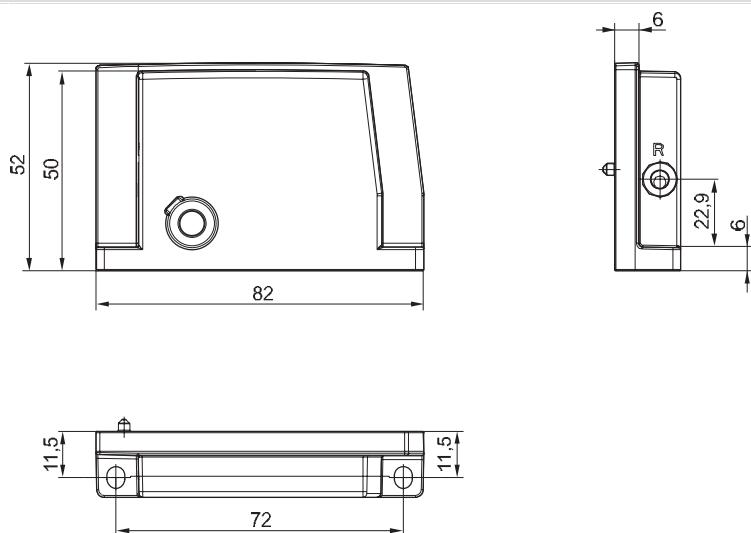
## Series AV03

## Accessories

Compressed air connection	Delivery quantity	Weight	Fig.	Part No.
Pilot control exhaust				
[R]		[kg]		
-	1	0.08	Fig. 2	R412018350

Scope of delivery: Incl. mounting screws

**Fig. 1**



1585G

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change

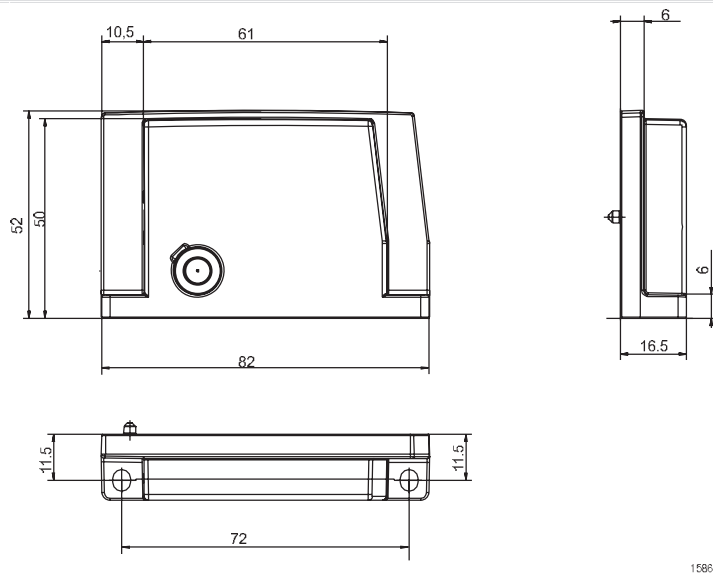


32 Bosch Rexroth AG | Pneumatics

Valve systems → Valve systems

**Series AV03**  
**Accessories**

**Fig. 2**

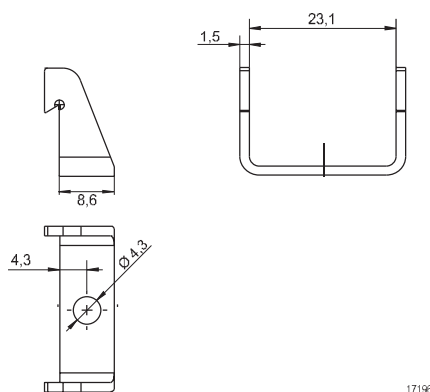


**Retaining bracket for intermediate mounting**

► for AES, AV03



19093



Part No.	Type	Material	Delivery quantity [Piece]				
R412018339	Retaining brackets	Stainless steel	10				

After three I/O modules or 8 valves, mount a retaining bracket (R412018339) to fasten the entire unit to the mounting surface. An appropriate number of retaining brackets are included in the initial configuration.  
The max. permissible space between the retaining brackets is 150 mm.

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information  
Pneumatics catalog, online PDF, as of 2012-10-24, © Bosch Rexroth AG, subject to change



## Rexroth Bosch Group

Bosch Rexroth AG  
Pneumatics  
Ulmer Straße 4  
D - 30880 Laatzen  
Phone +49 511 2136-0  
Fax +49 511 2136-2 69  
[sales-pneumatics@boschrexroth.de](mailto:sales-pneumatics@boschrexroth.de)  
[www.boschrexroth.com/pneumatics](http://www.boschrexroth.com/pneumatics)

Your contact:

**Canada**

Bosch Rexroth Canada Corp.  
3426 Mainway Drive  
Burlington, Ontario L7M 1A8  
Tel. +1 905 335-5511  
Fax +1 905 335-4184

**Australia**

Bosch Rexroth Pty. Ltd.  
3 Valediction Road  
Kings Park NSW 2148  
Sydney  
Tel. +61 2 9831-7788  
Fax +61 2 9831-5553

**U.S.A.**

Bosch Rexroth Corp.  
1953 Mercer Road  
Lexington, KY 40511-1021  
Kentucky  
Tel. +1 859 254-8031  
Fax +1 859 254-4188

**Great Britain**

Bosch Rexroth Ltd.  
Broadway Lane  
South Cerney  
Cirencester, GL7 5UH  
Gloucestershire  
Tel. +44 1285 86-3000  
Fax +44 1285 86-3003

further contacts:  
[www.boschrexroth.com/addresses](http://www.boschrexroth.com/addresses)

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

© This document, as well as the data, specifications and other informations set forth in it, are the exclusive property of Bosch Rexroth AG. Without their consent it may not be reproduced or given to third parties.

Subject to modifications.

Online-PDF  
24-10-2012