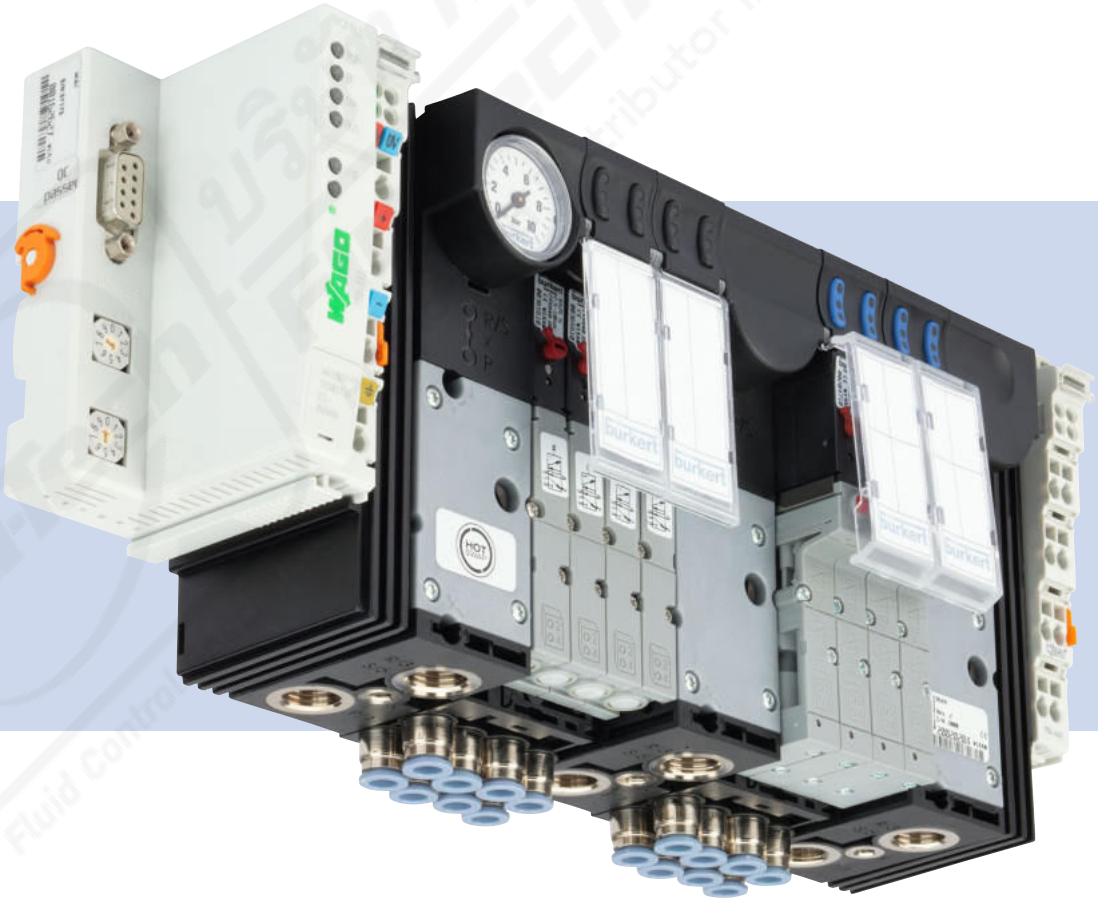
bürkert
FLUID CONTROL SYSTEMS

MAN 1000599318 EN Version: B Status: RL (released | freigegeben) printed: 05.05.2025

Type 8644
AirLINE

with I/O System 750 (Wago)



Operating Instructions

Type 8644 AirLINE - Wago

Contents

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1 OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions in a location which is easily accessible to every user and make them available to every new owner of the device.

WARNING!

The operating instructions contain important safety information!

Failure to observe these instructions may result in hazardous situations.

▸ The operating instructions must be read and understood.

1.1 Symbols

DANGER!

Warns of an immediate danger!

▸ Failure to observe these instructions will result in death or serious injuries.

WARNING!

Warns of a potentially hazardous situation!

▸ Failure to observe these instructions may result in serious injuries or death.

CAUTION!

Warns of a potential danger!

▸ Failure to observe these instructions may result in moderate or minor injuries.

NOTE!

Warns of damage to property!

▸ Failure to observe these instructions may result in damage to the device or the equipment.

Indicates important additional information, advice and recommendations.

Refers to information in these operating instructions or in other documentation.

▸ Highlights instructions to avoid a danger.

→ Highlights a procedure which you must carry out.

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1.2 Definition of terms

Term	in these instructions stands for
Device, valve block	Valve island Type 8644, variant WAGO
Valve island	Valve block Type 8644 in combination with modules from the decentralised “I/O System 750” from WAGO
Valve, pilot valve	Pneumatic solenoid valve integrated in the valve block
Actuator	pneumatic consumer controlled by the valve island
Equipment	Machine whose pneumatic consumers are controlled by the valve island

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2 INTENDED USE

The valve island Type 8644 Wago has been built to control pneumatic consumers in automation systems. The device must only be used to control suitable pneumatic consumers.

- The device must only be used for its intended purpose. Improper use of the device may be dangerous to people, nearby equipment and the environment.
- In potentially explosive areas, only use devices that are approved for these areas. These devices are identified by additional approval data on the type label. When used in potentially explosive areas, observe the information on the type label and the additional instructions for the potentially explosive area included in the scope of delivery.
- Install the device in a suitable control cabinet or housing. The requirements for the control cabinet or housing correspond to those of the “I/O System 750” from WAGO.
- Do not use the device outdoors.
- The prerequisites for safe and trouble-free operation are correct transportation, correct storage, installation, commissioning, operation and maintenance.
- To use the device, observe the permitted data, operating conditions and usage conditions. These specifications can be found in the contract documents, the operating instructions and on the type label.
- Use the device only in conjunction with third-party devices and components recommended or approved by Bürkert.
- Use the device only when it is in technically perfect condition.

The valve island is intended exclusively for use in the industrial sector.

The valve island is only permitted in applications where there is a danger to life and limb if the SIA and EVS functions provided for this purpose are used with appropriate, approved equipment (safety relays, etc.).

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3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not take into account any unforeseen circumstances or events that occur during installation, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, including staff safety.

Risk of injury from high pressure, medium leakage and uncontrolled movement of the actuators.

- ▶ Secure the actuators against adjusting before working on the device or system.
- ▶ Switch off the pressure before working on the device or system. Vent or drain the pipes.

Risk of injury from electric shock.

- ▶ Switch off the power supply before working on the device or system. Secure against reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.

Risk of burns from hot device parts.

- ▶ Keep the device away from highly flammable substances and media.

Risk of injury due to improper installation and maintenance.

- ▶ Only trained technicians may perform installation and maintenance work.
- ▶ Perform installation and maintenance work using suitable tools only.

Risk of injury from unintentional activation and uncontrolled start-up of the device and system.

- ▶ Secure the device and system against unintentional activation.
- ▶ Ensure that the system starts up in a controlled manner only.

Risk of injury due to allergic reaction to lubricants.

- ▶ Avoid skin contact with lubricants.
- ▶ Wear protective gloves.

General hazardous situations.

To prevent injuries, observe the following:

- ▶ Transport, install and dismantle a heavy device only with the aid of a second person and using suitable equipment.
- ▶ Install the device in accordance with the regulations applicable in the respective country.
- ▶ Do not feed any aggressive or combustible media into the media connections of the device.
- ▶ Do not feed any liquids into the media connections of the device.
- ▶ Following interruption of the process, ensure that the process is restarted in a controlled manner. Observe sequence:
  1. Connect electrical power supply.
  2. Pressurise with medium.
- ▶ Do not modify the device.
- ▶ Do not to subject the device to mechanical stress.
- ▶ Observe the general rules of the technical equipment.

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ATTENTION

Electrostatically sensitive components and assemblies.

The device contains electronic components that are sensitive to the effects of electrostatic discharge (ESD). Components are at risk if they come into contact with electrostatically loaded persons or objects. In the worst case scenario, these components will be destroyed immediately or fail after start-up.

- ► Meet the requirements specified by EN 61340-5-1 to minimise or avoid the possibility of damage caused by sudden electrostatic discharge.
- ► Do not touch electronic components when the supply voltage is connected.

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4 GENERAL NOTES

4.1 Contact address

Germany

Bürkert Fluid Control Systems
Sales Centre
Christian-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. +49 (0) 7940 - 10-91 111
Fax +49 (0) 7940 - 10-91 448
Email: info@burkert.com

International

The contact addresses can be found on the back pages of the printed quickstart.

They are also available online at: country.burkert.com

4.2 Warranty

A precondition for the warranty is that the device is used as intended and that the specified usage conditions are taken into account.

4.3 Information online

Operating instructions and data sheets for Type 8644 can be found online at: country.burkert.com

Technical specifications, configuration files and a detailed description of bus couples and electrical function terminals from Wago can be found online at:

www.wago.com → Downloads → Documentation → WAGO I/O System 750

Bürkert has no control over the currency or technical or presentative changes of the linked pages.

4.4 Standards and directives

The device complies with the valid EU harmonisation legislation.

The harmonised standards that have been applied for the conformity assessment procedure are listed in the current version of the EU Declaration of Conformity.

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5 PRODUCT DESCRIPTION

5.1 Application range

The valve island Type 8644 is built for decentralised use in industrial environments. Electronics and fluidics can be easily and efficiently combined due to the modular structure.

DANGER!

Risk of injury from electric shock.

- Switch off the power supply before working on the device or system. Secure against reactivation.
- Observe the applicable accident prevention and safety regulations for electrical devices.

5.2 General description

Fig. 1: Type 8644 AirLINE Wago

The valve island Type 8644 is an electrical and pneumatic automation system that has been developed for use in control cabinets or switch boxes. All electronic and pneumatic components are standardised in an integrated system. By adhering to simple rules, pneumatic, electrical and electronic modules with various functionalities can be combined very easily. All components are connected via a locking mechanism. As a result, the required electrical connections are also made. For example, valves and power outlets can be combined with just 1 fieldbus connection. A large number of electronic modules (terminals) can be combined very easily with the valves installed on special pneumatic modules (valve segments).

In its minimum configuration, the system consists of fieldbus nodes, a valve block and a connection module. Terminals can be arranged before and after the valve block.

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5.3 System structure

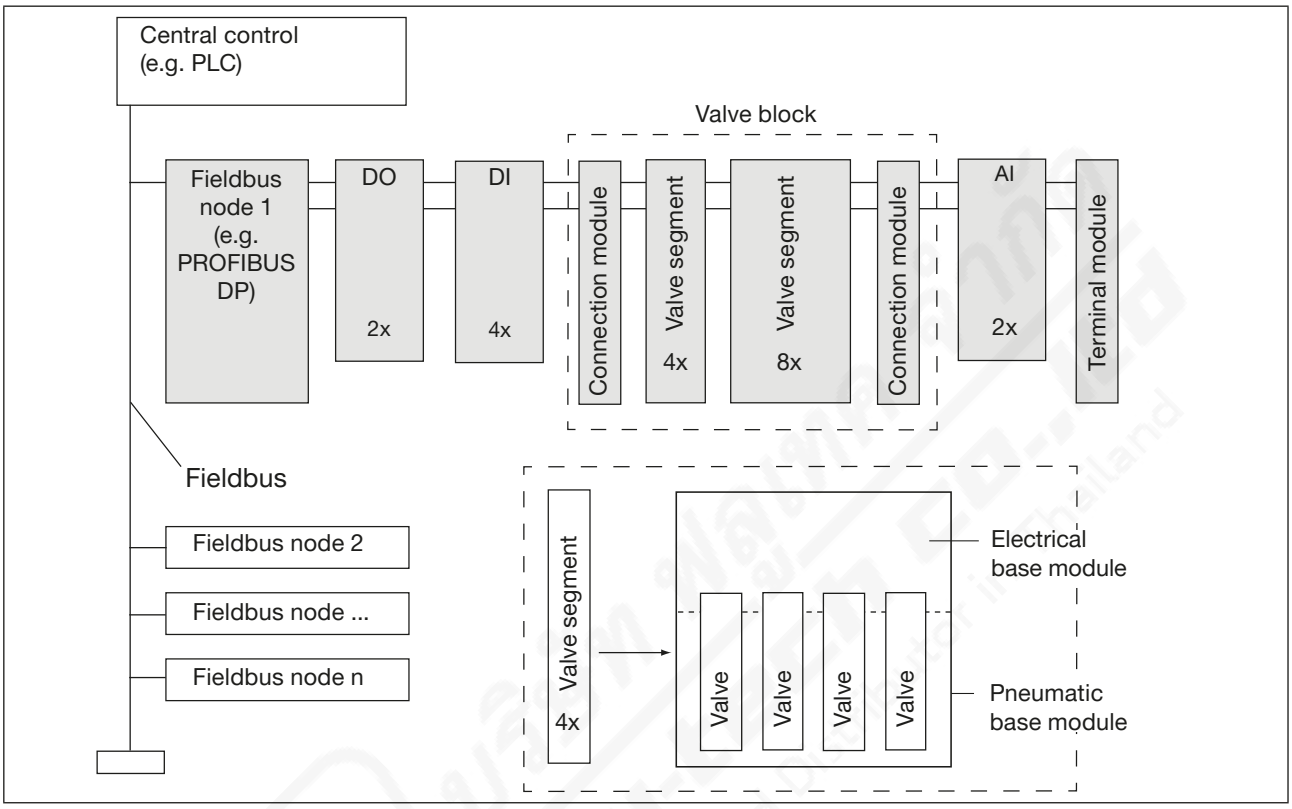

Fig. 2: Schematic representation of the Bürkert AIRLINE System

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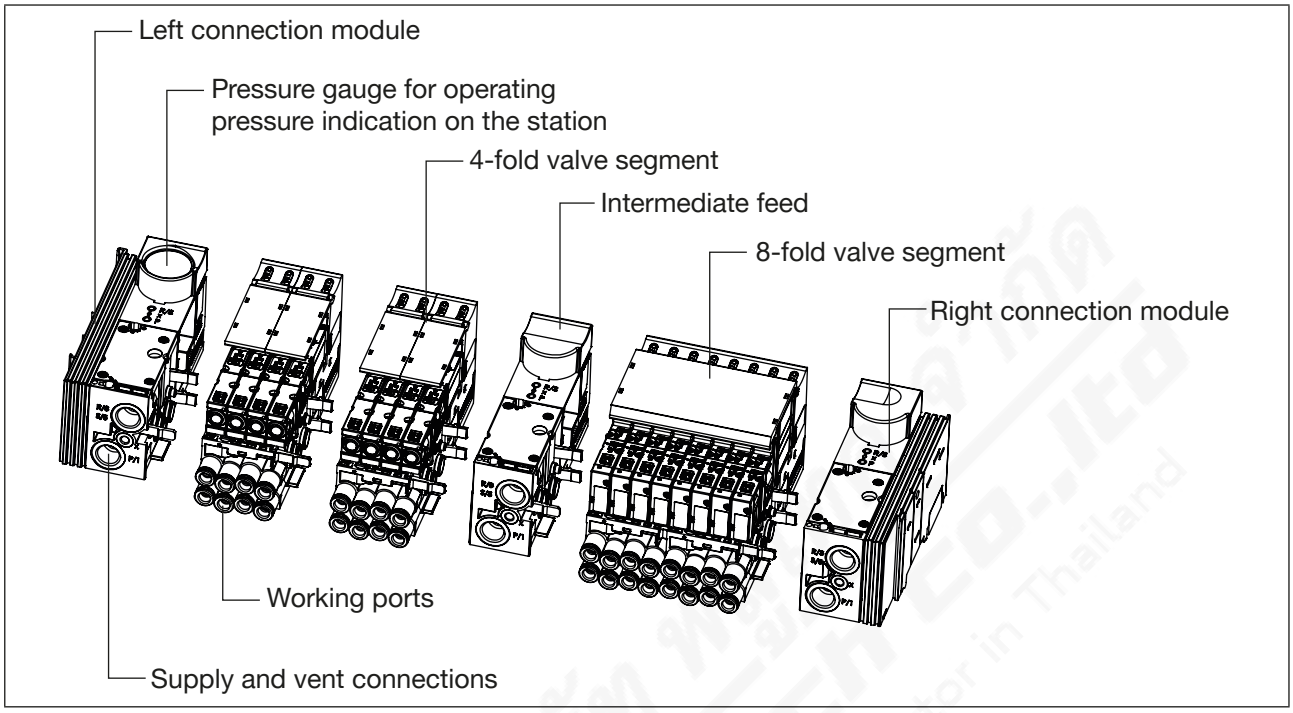

Fig. 3: Representation of the modules of the Bürkert AIRLINE System

Additional information and technical details on the electrical and fluidic components:

Electrical modules
see“7.2 Electrical connection modules” on page 34 and
“7.3 Electronic base modules” on page 35

Pneumatic modules
see “7.4 Pneumatic connection modules” on page 47 and
“7.5 Pneumatic base modules” on page 49

Valves
see “7.6 Valves” on page 50

AirLINE Quick
see “8.6 Installation with AirLINE Quick (only valve islands width per station 11 mm)” on page 64

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5.4 Exploded view

5.4.1 Exploded view - width per station 11mm, REV.1

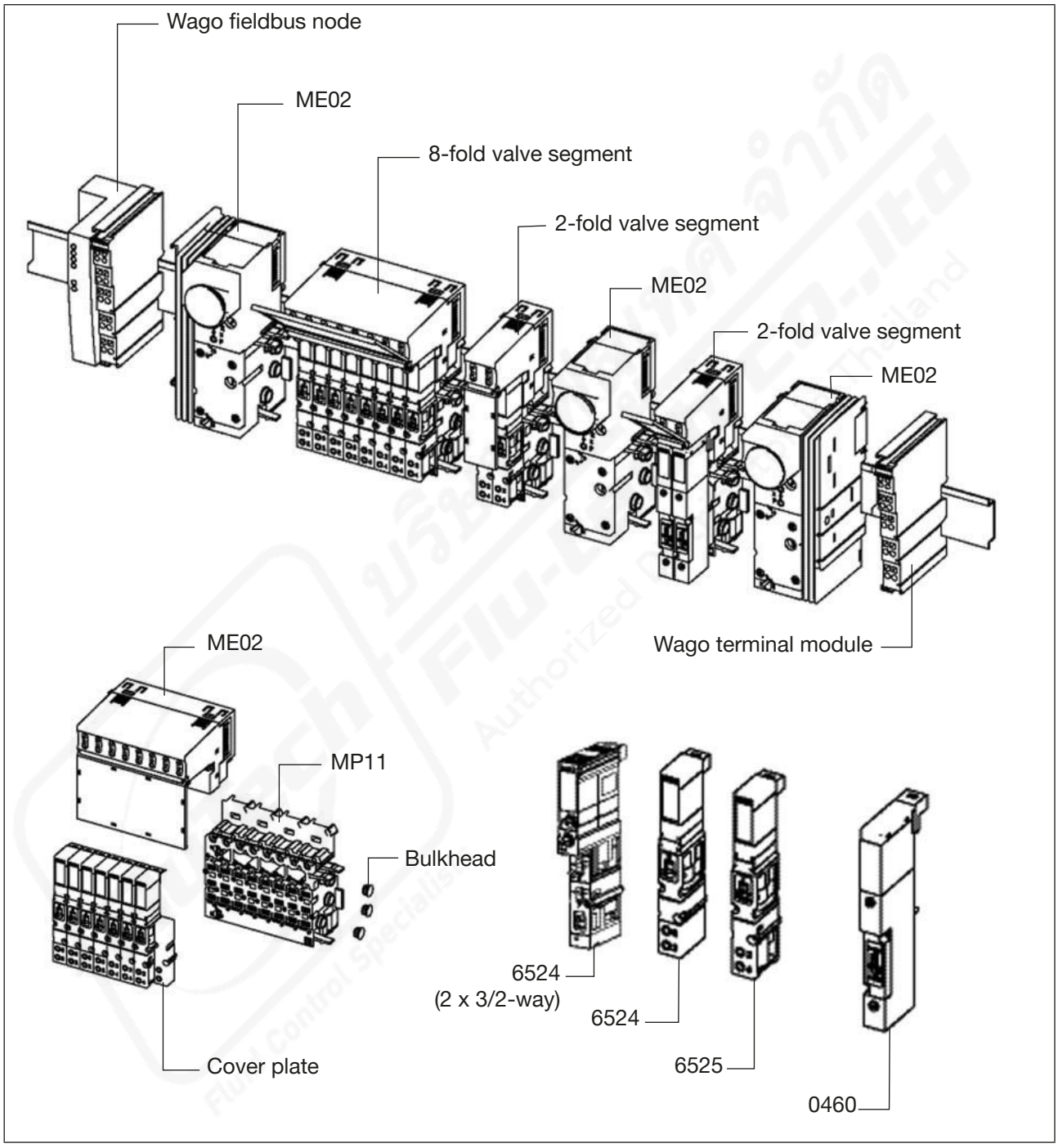

Fig. 4: Exploded view - width per station 11 mm

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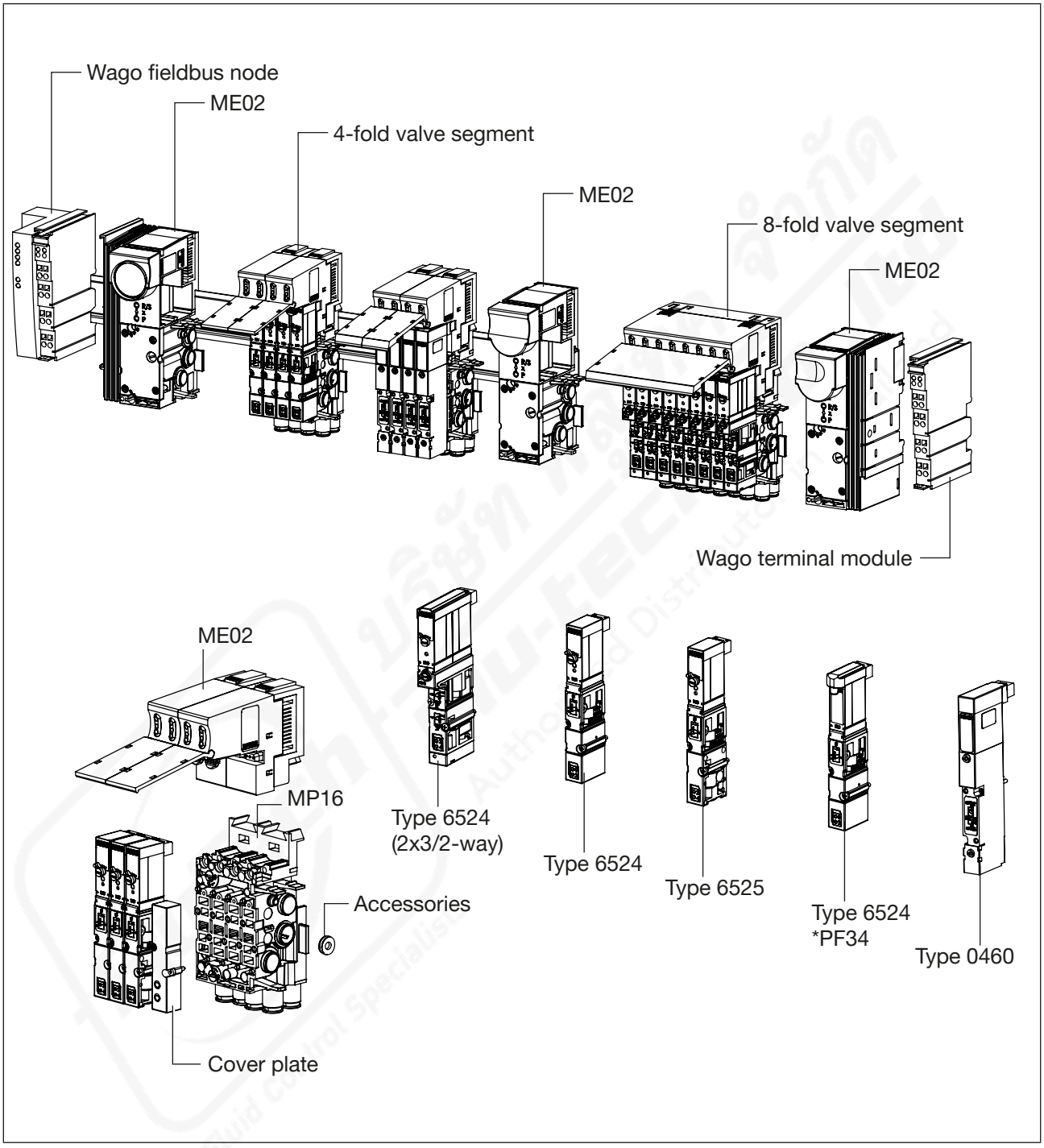
5.4.2 Exploded view - width per station 11 mm, REV.2



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5.4.3 Exploded view - width per station 16 mm, REV.1

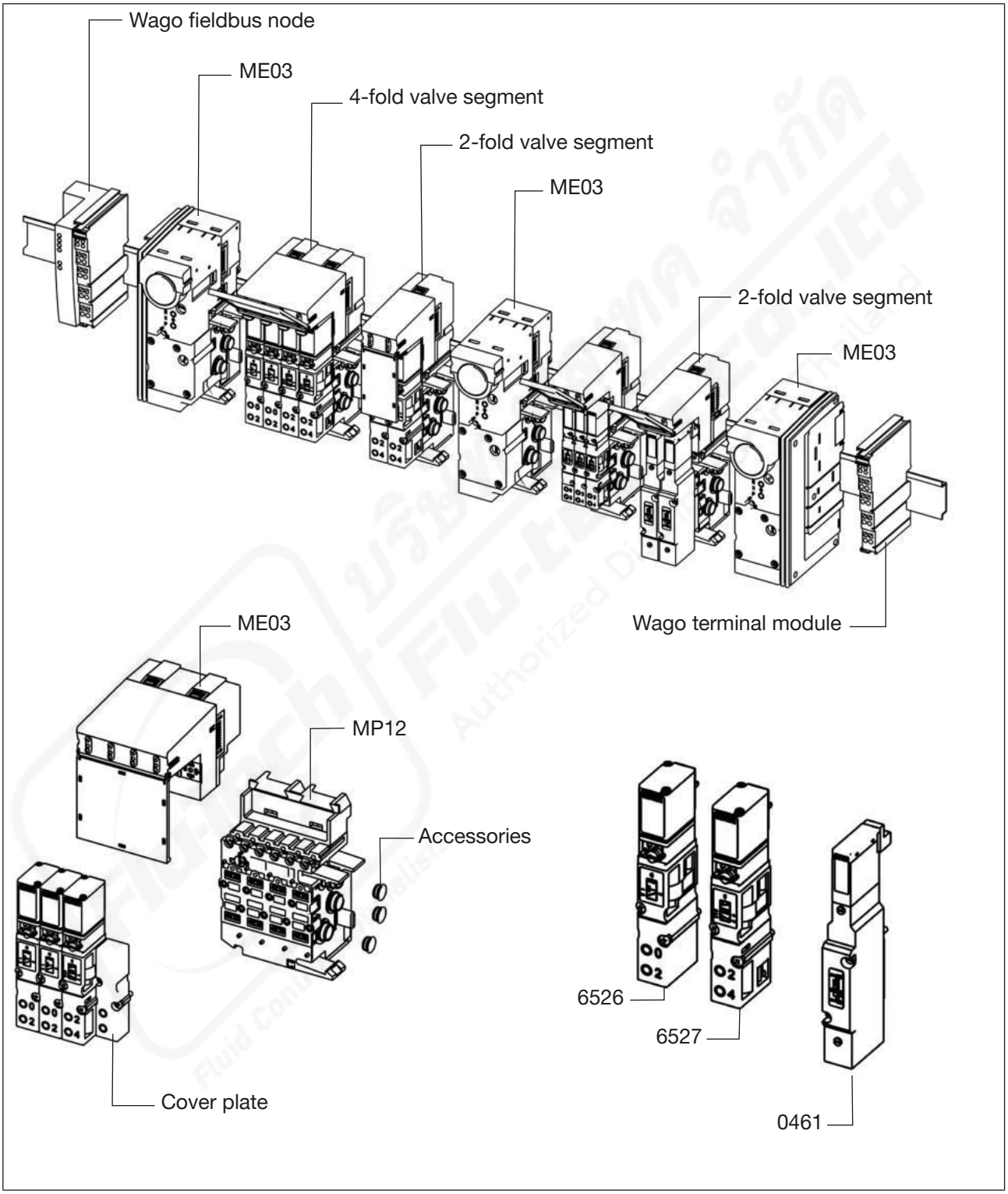

Fig. 5: Exploded view - width per station 16 mm

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5.5 Location and description of the type labels

5.5.1 Valve island type label

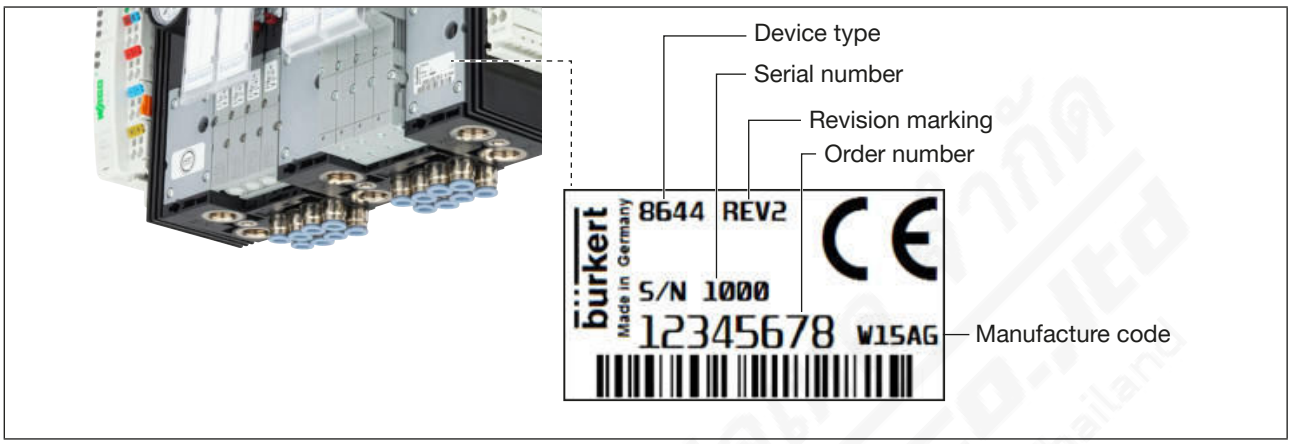

Fig. 6: Location and description of a valve island type label (example)

5.5.2 UL type label

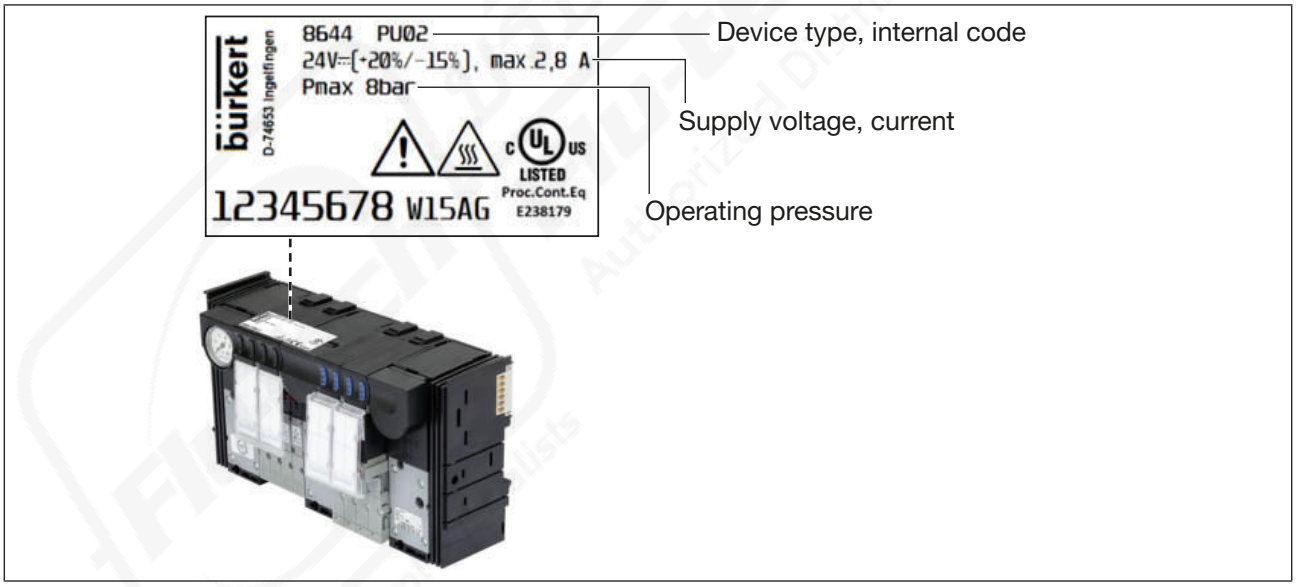

Fig. 7: Location and description of a UL type label (example)

5.5.3 Valve type label

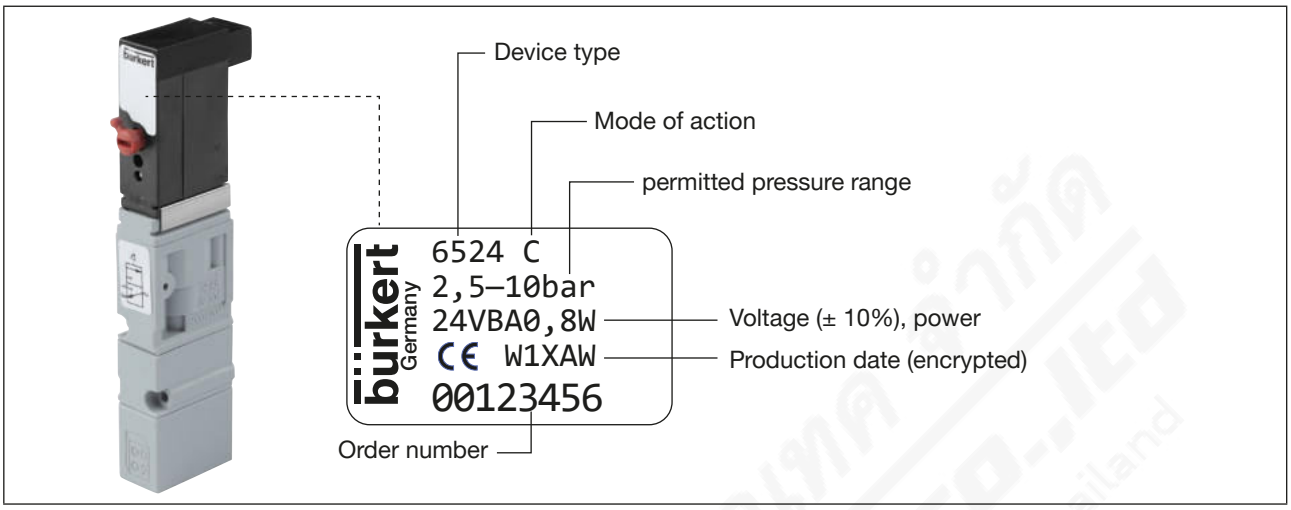

Fig. 8: Location and description of a valve type label (example Type 6524)

5.6 Information on compatibility and revision status

5.6.1 Overview of revision statutes for the different widths per station

Valve island width per station 11 mm

REV.1	REV.2
• Electronic modules REV.1	• Electronic modules REV.1
• Pneumatic base modules REV.1	• Pneumatic base modules REV.2
• Connection modules REV.1	• Connection modules REV.2
• Solenoid valve types 6524 and 6525 REV.1: 1 flange pattern for double valves: Type 6524 2 x 3/2-way 1 flange pattern for single valves: Type 6524 3/2-way Type 6525 5/2-way	• Solenoid valve types 6524 and 6525 REV.2: 1 flange pattern for double valves and single valves: Type 6524 2 x 3/2-way Type 6524 3/2-way Type 6525 5/2-way
• Solenoid valve Type 0460: 1 flange pattern for pulse valves and bistable valves: Type 0460 5/2-way Type 0460 5/3-way	• Solenoid valve Type 0460: 1 flange pattern for pulse valves and bistable valves: Type 0460 5/2-way Type 0460 5/3-way
• AirLINE Quick REV.1	• AirLINE Quick REV.2

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Valve island width per station 16 mm

REV.1

- **Electronic modules REV.1**
- **Pneumatic base modules REV.1**
- **Connection modules REV.1**
- **Solenoid valve Types 6526, 6527 and 0461:**

  1 flange pattern for single valves:
  Type 6526 3/2-way
  Type 6527 5/2-way

  1 flange pattern for pulse valves and bistable valves:
  Type 0461 5/2-way
  Type 0461 5/3-way

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5.6.2 Information on Revision 2 (REV.2)

The single valves of types 6524 and 6525, the pneumatic base modules and connection modules as well as the control cabinet base adaptation AirLINE Quick have been revised due to various optimisations. Compatibility must therefore be considered in the following cases:

- Valve replacement
- Expansion, repair or conversion of valve blocks

Revision 2 (REV.2) only affects pneumatic components of the 8644 valve block. Not affected by the revision:

– Electrical data

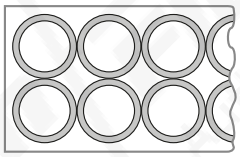
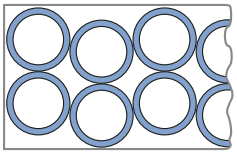
– Configuration

– External dimensions

For further information see also

- Chapters „7.2 Electrical connection modules“ and „7.4 Pneumatic connection modules“
- Chapter „7.5 Pneumatic base modules“
- Chapter „7.6 Valves“

5.6.3 Distinguishing features between REV.1 and REV.2

Feature	REV.1	REV.2
Colour of the release rings (push-in connectors)	black	blue
Channel arrangement of the working ports	 parallel	 undulating
Note on the type label of the valve island	 without “REV” specification	 with “REV.2” specification

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6 TECHNICAL DATA

6.1 Operating conditions

WARNING!

Risk of injury.

Malfunction when used outdoors.

- ▸ Do not use the device outdoors.
- ▸ Avoid heat sources which may cause the permissible temperature range to be exceeded.

Ambient temperature	0...+50 °C
Storage temperature	–20...+60 °C
Air humidity	75% on average, 85% occasionally
Air pressure	
Operation	80 kPA to 106 kPA (up to 2000m amsl)
Storage / transportation	70 kPA to 106 kPA (up to 3000m amsl)
Protection class	Class 3 according to VDE 106, IEC 60536
Degree of protection	IP20 according to IEC 60529

6.2 Technical data of the overall system

Power supply	
Nominal voltage	24 V / DC
Tolerance	–15 % / +20 %
Valve types 0460, 0461	–10 % / +10 %
Valve type 6524 (2 x 3/2-way)	–15 % / +10 %
Current-carrying capacity	
Valve block (front port)	max. 2.5 A

Valve type	Valve current	
	Before power reduction	After power reduction
6524	43 mA	28 mA
6524 (2 x 3/2-way)	43 mA	18 mA
6525	43 mA	28 mA
6526	85 mA	52 mA
6527	85 mA	52 mA
0460	41 mA	-
0461	41 mA	-

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Max. current consumption	
Logic	I_Log = I_Log_FBKN + Σ I_Module
I_Log	Power consumption in the 5 V logic range
I_Log_FBKN	Proportional current in the fieldbus node (see corresponding variant in Wago documentation)

Further product-specific information about Wago fieldbus nodes / terminals can be found online at:
www.wago.com → Downloads → Documentation → WAGO I/O System 750

I_module	Proportional current in the 5-V logic range of the basic electrical modules max. 15 mA
I_valve	Valve current before and after power reduction
Fieldbus node	See Wago documentation

The permitted ambient temperature depends on the modules used.
When assembling, the most critical module is crucial.

Module with valve types 6524, 6525, 6526, 6527	0...+55 °C
Module with valve types 0460, 0461	0...+50 °C

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6.3 Technical data of the valve block

Nominal operating mode	Continuous operation (100% duty cycle)
Degree of protection (in terminal version)	IP20
Protection class	III (according to VDE 0580)
Total current	depends on the electrical connection technology, expansion level and control unit

Width per station	**11 mm**		
Valve circuit function	C/D (3/2-way) Type 6524	2 x C (2 x 3/2-way) Type 6524	L/N (5/3-way) Type 0460***
Valve circuit function	H (5/2-way) Type 6525	-	Z (5/2-pulse) Type 0460
Flow	300 l/min	300 l/min	200 l/min
Pressure range (with P shutoff)	2.5...7 bar 5...7 bar	2.5...7 bar -	2.5...7 bar -
Capacity	1 W *	2 x 1 W with power reduction	0.9 W
Current before power reduction	43 mA	2 x 43 mA	41 mA
Current after power reduction	28 mA	2 x 18 mA	-
Valve slots (max.)	64	32	32
Electronic base modules	2-fold, 8-fold monostable	2-fold 2 x monostable 8-fold 2 x monostable	2-fold, 8-fold bistable
Pneumatic modules REV.1	2-fold, 8-fold	2-fold	2-fold bistable
Pneumatic modules REV.2	4-fold	4-fold	4-fold bistable
Ambient temperature	0...+55 °C	0...+55 °C	0...+50 °C
Operating voltage	24 V / DC, –15 % / +20 % tolerance**, Residual ripple with fieldbus interface 5 %		

* Power reduction (in the module)
** For the ex-version maximum +10%
*** The following restrictions apply to the voltage supply tolerances of the entire system (see technical data of the entire system): valve Type 0460 ± 10 %

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Width per station	16 mm		
Variant	REV.1		REV.1
Valve circuit function	C/D (3/2-way) Type 6526		L/N (5/3-way) Type 0461***
Valve circuit function	H (5/2-way) Type 6527		Z (5/2-pulse) Type 0461
Flow	700 l/min		500 l/min
Pressure range (with P shutoff)	2...10 bar		2.5...7 bar -
Capacity	1 W	2 W	0.9 W
Current before power reduction	42 mA	85 mA	41 mA
Current after power reduction	33 mA	52 mA	-
Valve slots (max.)	32		24
Electronic base modules	2-fold, 3-fold*, 4-fold monostable		2-fold bistable
Pneumatic modules	2-fold, 3-fold*, 4-fold		2-fold bistable
Ambient temperature	0...+55° C		0...+50° C
Operating voltage	24 V / DC, –15 % / +20 % tolerance**, Residual ripple with fieldbus interface 5%		

* 3 x 10 mm valve for width per station 16
** For the ex-version maximum +10%
*** The following restrictions apply to the voltage supply tolerances of the entire system (see technical data of the entire system): valve Type: 0461 ± 10 %

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6.4 Electrical data

6.4.1 Performance characteristics from the perspective of the overall system

Left connection module (ME02, ME03)

The left connection module is electronically passive

logical	no process image, therefore no address is required
electronic	no current consumption
Fluidic	left limitation of the valve block, left feed

Central connection module (ME02, ME03)

The intermediate feed is electronically passive

logical	no process image, therefore no address is required
electronic	no current consumption
Fluidic	additional feed

Right connection module (ME02, ME03)

The right connection module is electronically passive

logical	no process image, therefore no address is required
electronic	no current consumption
Fluidic	right limitation of the valve block, right feed

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6.4.2 Electrical basic module ME02 / 2-fold monostable, ME02 / 2-fold 2 x monostable

Technical data	ME02 / 2-fold monostable	ME02 / 2-fold 2 x monostable
Dimensions W x H x D	22 x 70.5 x 52 mm	22 x 70.5 x 52 mm
Weight	38 g	38 g
Storage temperature	-20...+60° C	-20...+60° C
Load voltage	DC 24 V	DC 24 V
Number of valve outlets	2	2 x 2
Current consumption per valve position when switching	43 mA	2 x 43 mA
Current consumption per valve position after ca. 65ms	28 mA	2 x 18 mA
Current consumption from the backplane bus	max. 15 mA	max. 15 mA
Indication of the valve status	1 yellow LED per valve position	2 yellow LEDs per valve position
Power loss of the module at the moment of switching	2 W	4 W
Power loss of the module 65ms after the switching operation (2 x 0.25 W power loss on resistors, 2 x 0.25 W power loss on valve coils)	1 W	-
Power loss of the module 110 ms after the switching operation	-	1 W

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6.4.3 Electrical basic module ME02 / 8-fold monostable, ME02 / 8-fold 2 x monostable

Technical data	ME02 / 8-fold monostable	ME02 / 8-fold 2 x monostable
Dimensions W x H x D	88 x 70.5 x 52 mm	88 x 70.5 x 52 mm
Weight	94 g	94 g
Storage temperature	-20...+60° C	-20...+60° C
Load voltage	DC 24 V	DC 24 V
Number of valve outlets	8	8 x 2
Current consumption per valve position when switching	43 mA	2 x 43 mA
Current consumption per valve position after ca. 65ms	28 mA	2 x 18 mA
Current consumption from the backplane bus	max. 15 mA	max. 15 mA
Indication of the valve status	1 yellow LED per valve position	2 yellow LEDs per valve position
Power loss of the module at the moment of switching	8 W	16 W
Power loss of the module 65ms after the switching operation (8 x 0.25 W power loss on resistors, 8 x 0.25 W power loss on valve coils)	4 W	-
Power loss of the module 110 ms after the switching operation	-	4 W

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6.4.4 Electronic base module ME02 / 2-fold bistable, ME02 / 8-fold bistable

Technical data	ME02 / 2-fold bistable	ME02 / 8-fold bistable
Dimensions W x H x D	22 x 70.5 x 52 mm	88 x 70.5 x 52 mm
Weight	38 g	94 g
Storage temperature	-20...+60° C	-20...+60° C
Load voltage	DC 24 V	DC 24 V
Number of valve outlets	2 x 2	8 x 2
Current consumption per valve position when switching	41 mA	41 mA
Current consumption from the backplane bus	max. 15 mA	max. 15 mA
Indication of the valve status	2 yellow LEDs per valve position	2 yellow LEDs per valve position
Power loss of the module at the moment of switching	1.8 W	7.2 W

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6.4.5 Electronic base module ME03 / 2-fold monostable, ME03 / 2-fold bistable

Technical data	ME03 / 2-fold monostable	ME03 / 2-fold bistable
Dimensions W x H x D	33 x 93 x 60 mm	33 x 93 x 60 mm
Weight	54.4g	49.1g
Storage temperature	-20...+60° C	-20...+60° C
Load voltage	DC 24 V	DC 24 V
Number of valve outlets	2	2 x 2
Current consumption per valve position when switching	85 mA	41 mA
Current consumption per valve position after ca. 400ms	52 mA	-
Current consumption from the backplane bus	max. 15 mA	max. 15 mA
Indication of the valve status	1 yellow LED per valve position	1 yellow LED per valve position
Power loss of the module at the moment of switching	4 W	1.8 W
Power loss of the module 400ms after the switching operation (2 x 0.5 W power loss on resistors, 2 x 0.5 W power loss on valve coils)	2 W	-

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6.4.6 Electronic base module ME03 / 3-fold 10 mm monostable, ME03 / 4-fold monostable

Technical data	ME03 / 3-fold 10mm monostable	ME03 / 4-fold monostable
Dimensions W x H x D	33 x 93 x 60 mm	66 x 93 x 60 mm
Weight	51 g	91.2 g
Storage temperature	-20...+60° C	-20...+60° C
Load voltage	DC 24 V	DC 24 V
Number of valve outlets	3	4
Current consumption per valve position when switching	43 mA	85 mA
Current consumption per valve position after ca. 65ms (for ME03 / 4-fold monostable after ca. 400ms)	28 mA	52 mA
Current consumption from the backplane bus	max. 15 mA	max. 15 mA
Indication of the valve status	1 yellow LED per valve position	1 yellow LED per valve position
Power loss of the module at the moment of switching	3 W	8 W
Power loss of the module 65ms after the switching operation (3 x 0.25 W power loss on resistors, 3 x 0.25 W power loss on valve coils)	1.5 W	-
Power loss of the module 400ms after the switching operation (4 x 0.5 W power loss on resistors, 4 x 0.5 W power loss on valve coils)	-	4 W

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7 STRUCTURE AND FUNCTION OF THE MODULES

7.1 Valve block

The valve block consists of the follow assemblies:

- Connection modules / feeds (common connections for supply, exhaust air and auxiliary pilot air),
- Valve segments (working ports, various valves).

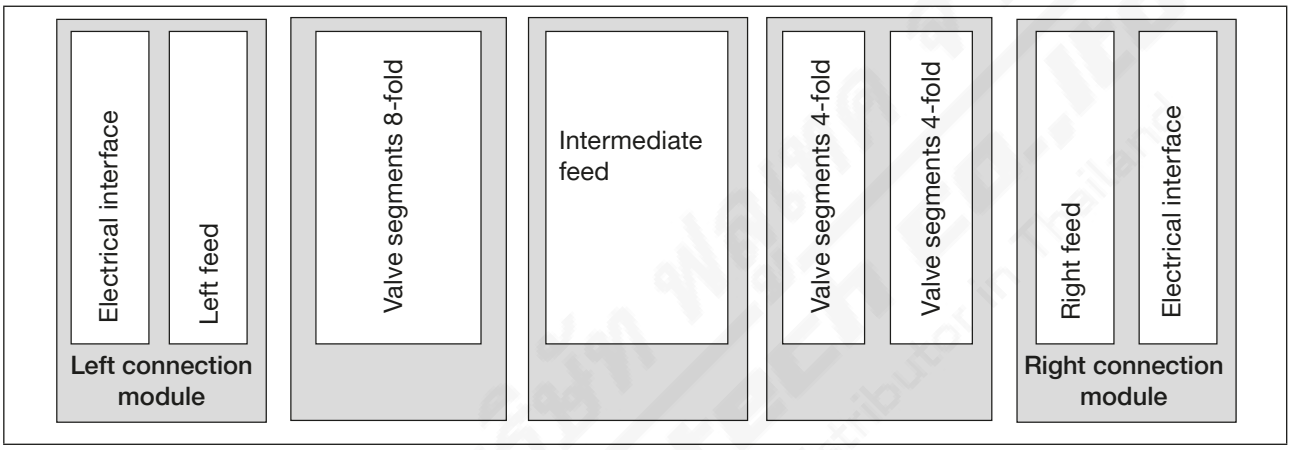

Fig. 9: Example of a valve block, schematically

Electronically, the pneumatic automation system forms a closed unit from the outside. Due to the modular structure, the number of internal bus participants and the current consumption of the valve block can vary. Like every electrical module / clip, the valve block provides a standardised electrical interface to the outside.

If the configuration of the valve block also includes valves of Type 0461 (5/2-way pulse valve, 5/3-way valve), an EN 50022-35 x 15 mounting rail must be used. In all other cases, this mounting rail is also recommended.

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7.2 Electrical connection modules

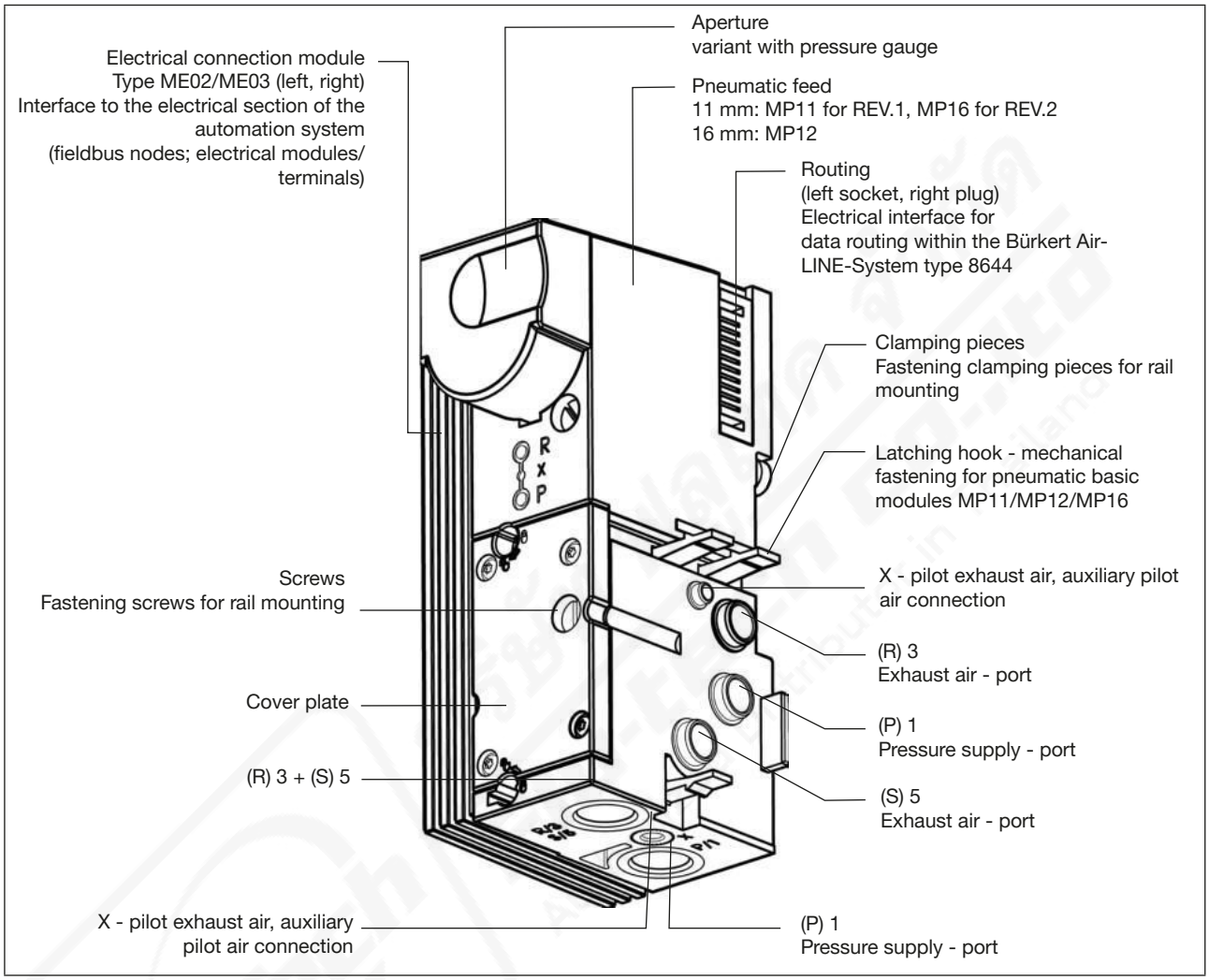

Fig. 10: Structure of the connection module

Variants

The feeds were developed in different variants to meet different requirements. Feeds with pressure gauges are available for easy start-up and diagnostics. The fluid ports are available with straight or conical screw connections as well as with quick-connect systems.

The fluid ports can be assigned differently for special functions. For example, the exhaust port for the pilot valve can be used as a port for the auxiliary pilot air, whereby different pressures can be applied to supply and control the valve.

The feeds differ, for example, by:

- Manometer (optional)
- Auxiliary pilot air yes / no
- Connection type: (width per station 11 mm: G1/4”, width per station 16mm: G3/8”)

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7.3 Electronic base modules

The electronic base module is connected to the neighbouring modules via its electrical interface. In this way, it receives both the power supply and the control signals for the valves on the valve slots. Electronic base modules and therefore the valve segments can be controlled like digital output modules / terminals. Further information can be found in chapter „10 Start-up“.

Variants

The valves that can be used with AirLINE Type 8644 have different working ports, valve dimensions and control properties. Therefore, the electronic base modules are available in different variants.

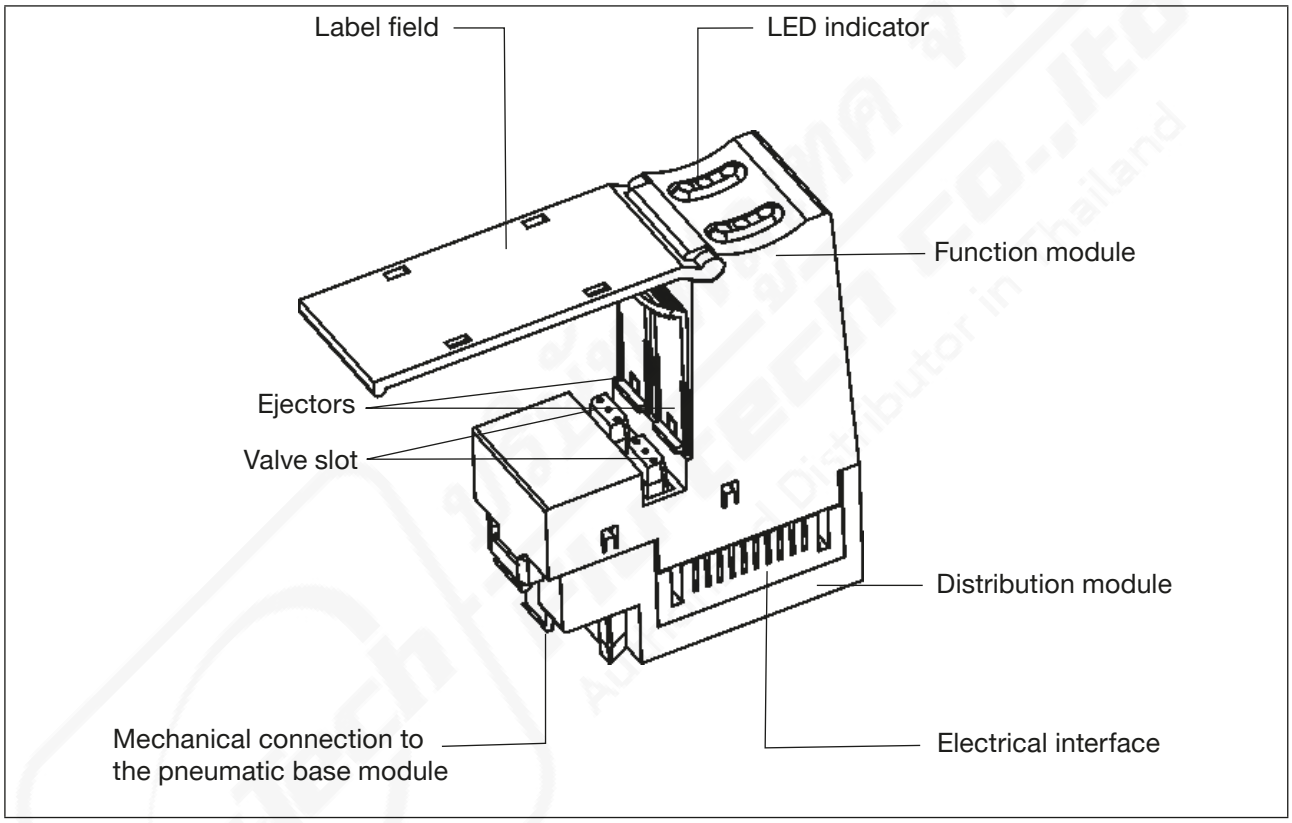

Fig. 11: Example of an electronic base module (Type ME02 / 2-fold)

Available variants

Variants	2-fold mono	2-fold bistable	2-fold 2x mono	3-fold 10 mm mono	4-fold mono	8-fold mono	8-fold bistable	8-fold 2x mono
ME02	X	X	X	-	-	X	X	X
ME03	X	X	-	X	X	-	-	-

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Combination modules (electronic base module / valve)

Base module type		Width per station	Valve slots	Valve type	Mode of action
ME02	2-fold monostable	11 mm	2	6524	3/2-way
				6525	5/2-way
	2-fold bistable	11 mm	2	0460	5/3-way
					5/2-way pulse
	2-fold 2 x monostable	11 mm	2	6524	2 x 3/2-way
	8-fold monostable	11 mm	8	6524	3/2-way
				6525	5/2-way
	8-fold bistable	11 mm	8	0460	5/3-way
					5/2-way pulse
	8-fold 2 x monostable	11 mm	8	6524	2 x 3/2-way
ME03	2-fold monostable	16 mm	2	6526	3/2-way
				6527	5/2-way
	2-fold bistable	16 mm	2	0461*	5/3-way
					5/2-way pulse
	3-fold monostable**	11 mm	3	6524	3/2-way
				6525	5/2-way
	4-fold monostable	16 mm	4	6526	3/2-way
				6527	5/2-way

* only for devices REV.1

** with 10 mm valves

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7.3.1 Electronic base module ME02 / 2-fold monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME02 / 2-fold monostable	11 mm	2	6524	3/2-way
			6525	5/2-way

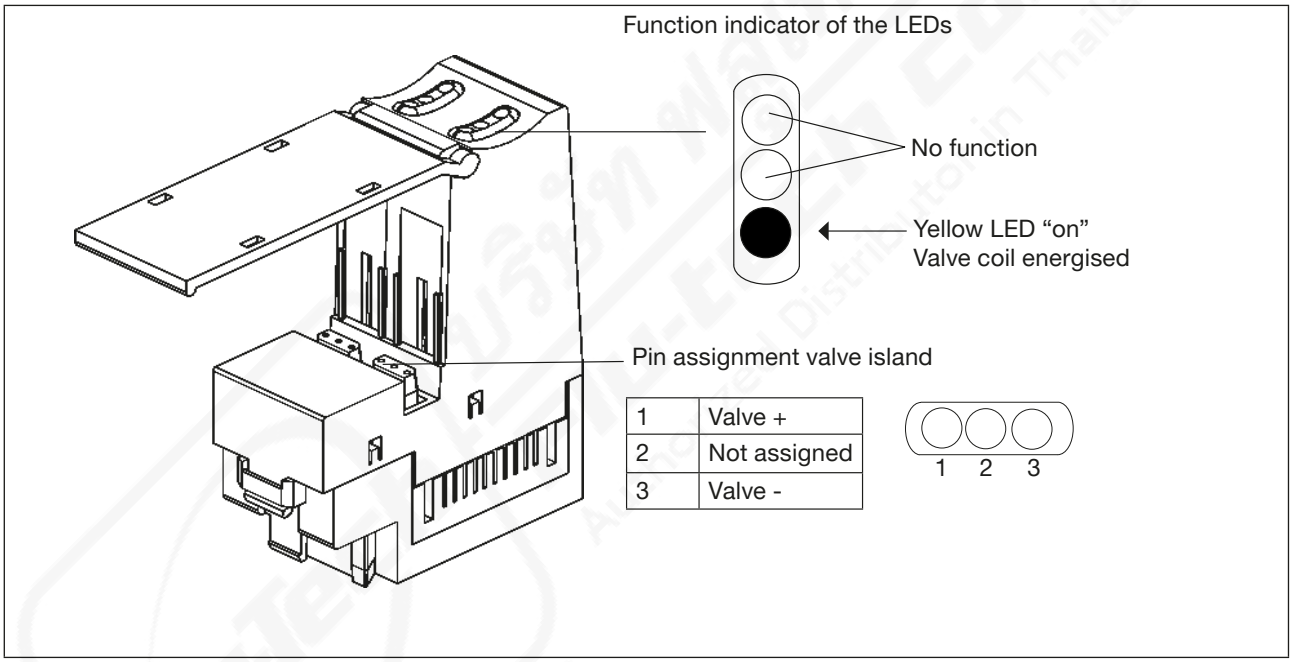

Fig. 12: Electronic base module ME02 / 2-fold monostable

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7.3.2 Electronic base module ME02 / 2-fold 2 x monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME02 / 2-fold 2 x monostable	11 mm	2	6524	2 x 3/2-way

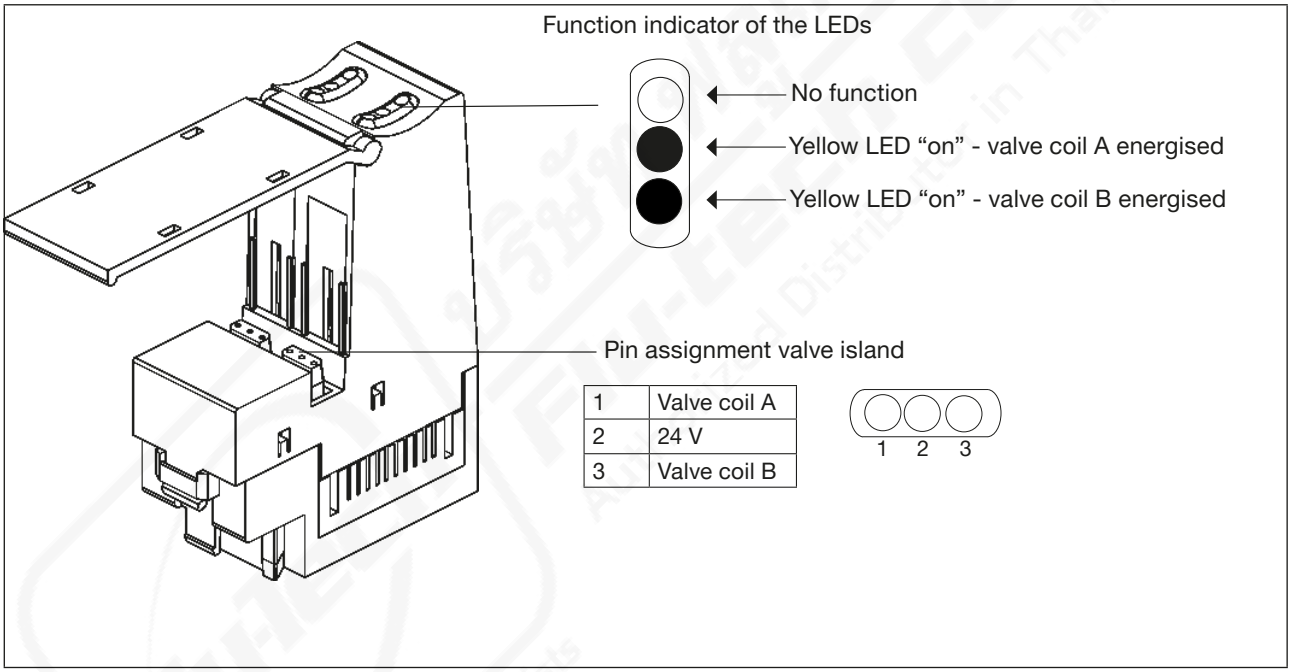

Fig. 13: Electronic base module ME02 / 2-fold 2 x monostable

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7.3.3 Electronic base module ME02 / 8-fold monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME02 / 8-fold monostable	11 mm	8	6524	3/2-way
			6525	5/2-way

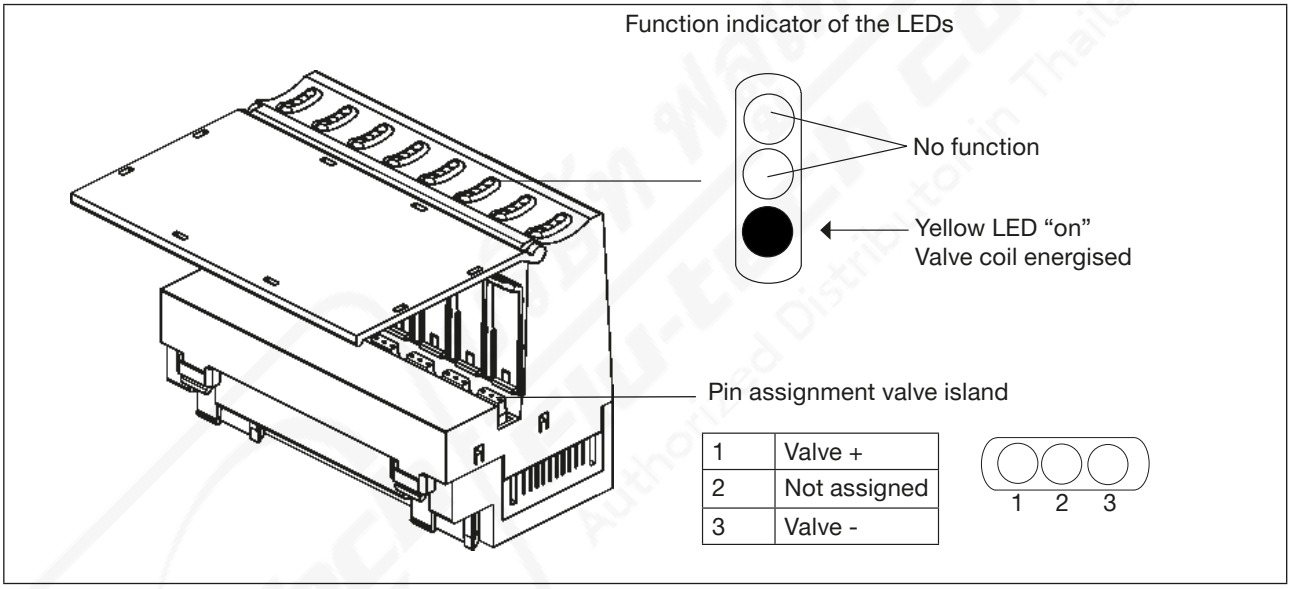

Fig. 14: Electronic base module ME02 / 8-fold monostable

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7.3.4 Electronic base module ME02 / 8-fold 2 x monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME02 / 8-fold 2 x monostable	11 mm	8	6524	2 x 3/2-way

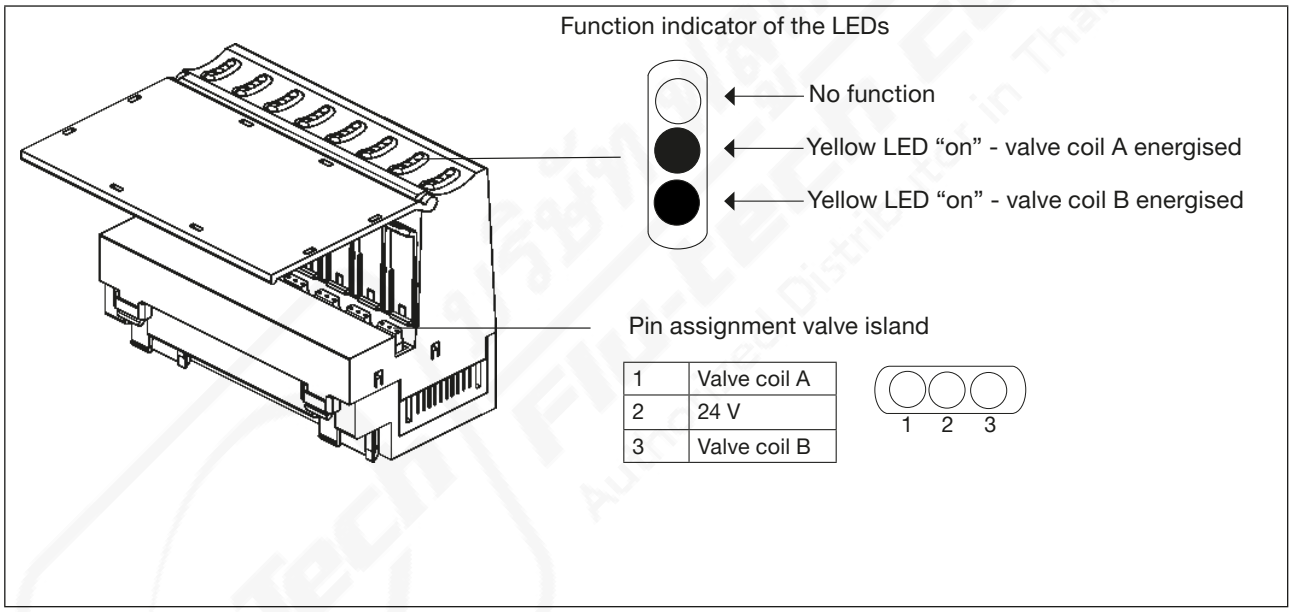

Fig. 15: Electronic base module ME02 / 8-fold 2 x monostable

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7.3.5 Electronic base module ME02 / 2-fold bistable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME02 / 2-fold bistable	11 mm	2	0460	5/3-way
				5/2-way pulse

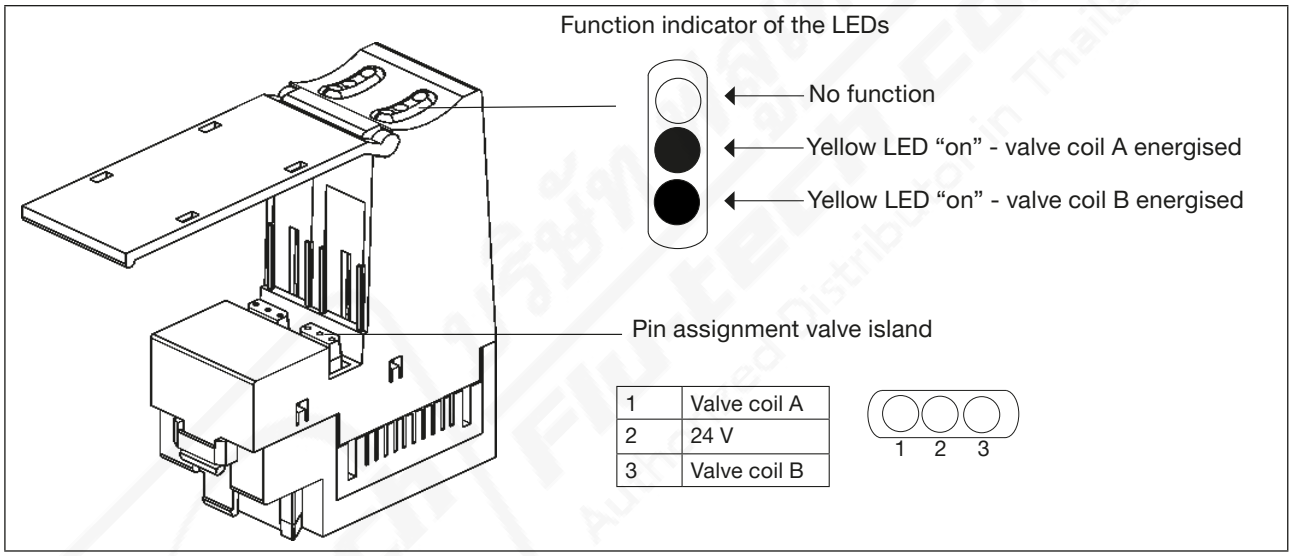

Fig. 16: Electronic base module ME02 / 2-fold bistable

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7.3.6 Electronic base module ME02 / 8-fold bistable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME02 / 8-fold bistable	11 mm	8	0460	5/3-way
				5/2-way pulse

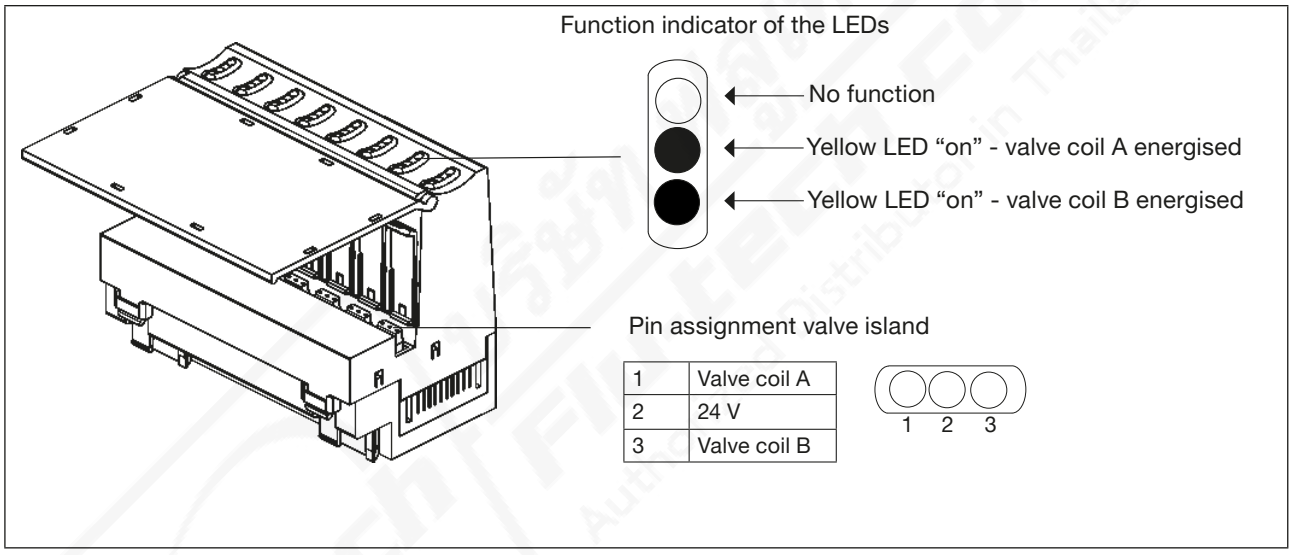

Fig. 17: Electronic base module ME02 / 8-fold bistable

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7.3.7 Electronic base module ME03 / 2-fold monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME03 2-fold monostable	16 mm	2	6526	3/2-way
			6527	5/2-way

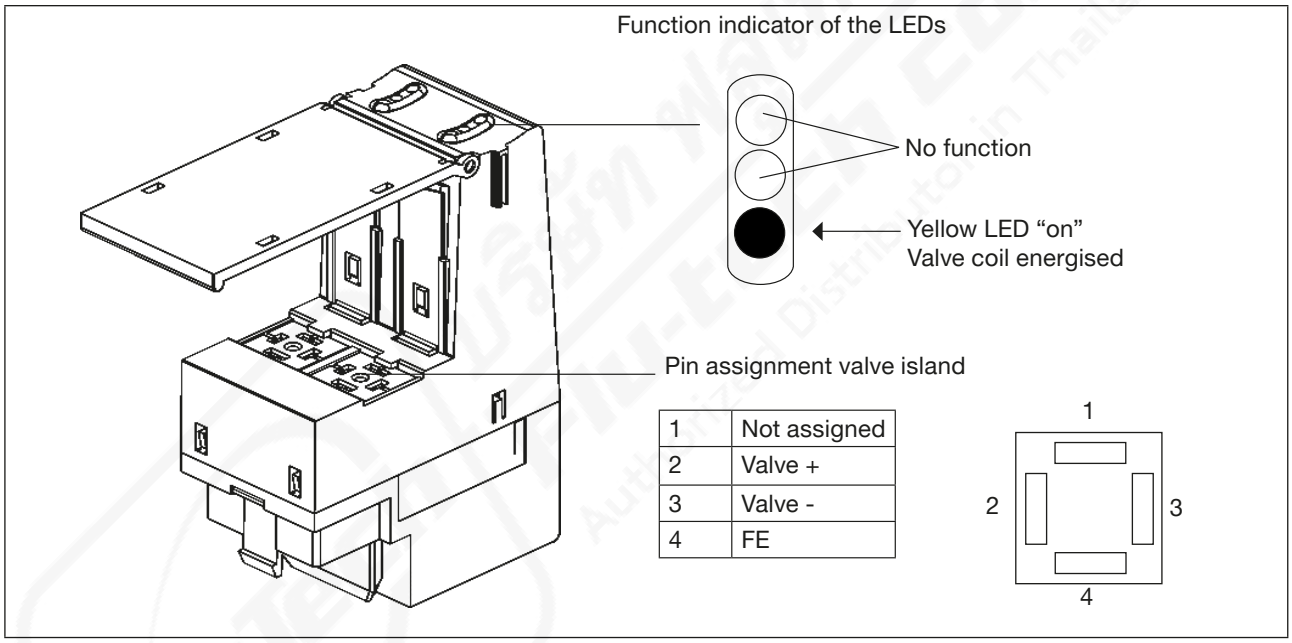

Fig. 18: Electronic base module ME03 / 2-fold monostable

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7.3.8 Electronic base module ME03 / 2-fold bistable

This base module is only available for devices of revision 1 (REV.1):
see „5.6.1 Overview of revision statutes for the different widths per station“.

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME03 / 2-fold bistable	16 mm	2	0461	5/3-way
				5/2-way pulse

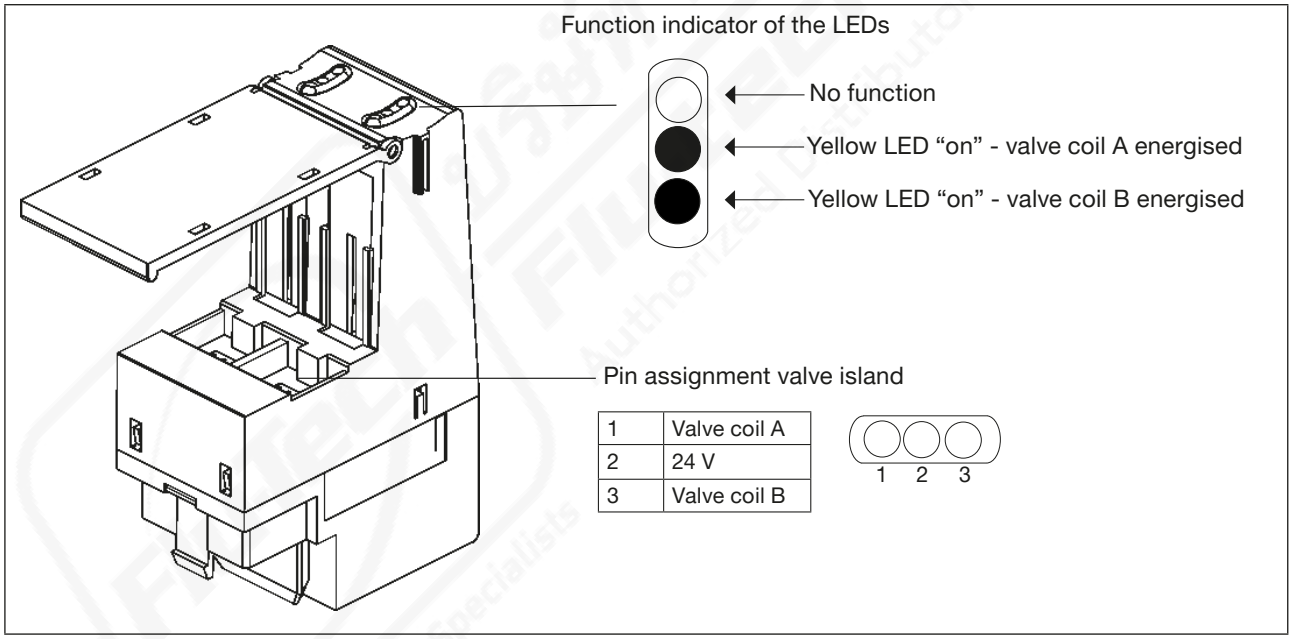

Fig. 19: Electronic base module ME03 / 2-fold bistable

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7.3.9 Electronic base module ME03 / 3-fold 10 mm monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME03 / 3-fold 10 mm monostable	11 mm	3	6524	3/2-way
			6525	5/2-way

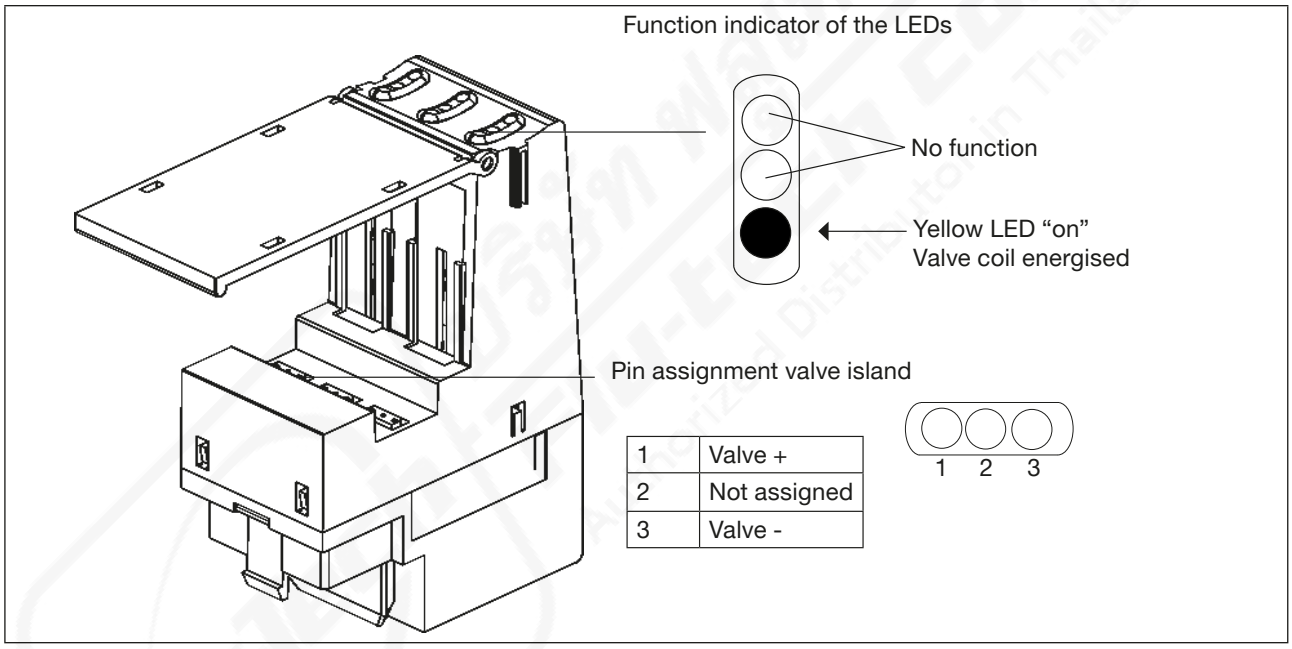

Fig. 20: Electronic base module ME03 / 3-fold 10 mm monostable

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7.3.10 Electronic base module ME03 / 4-fold monostable

Structure

An electronic base module consists of a distribution module (backplane bus) and a function module. Both modules are contacted by a 14-pin board-to-board connector.

Combination options with valve types

Base module type	Width per station	Valve slots	Valve type	Mode of action
ME03 / 4-fold monostable	16 mm	4	6526	3/2-way
			6527	5/2-way

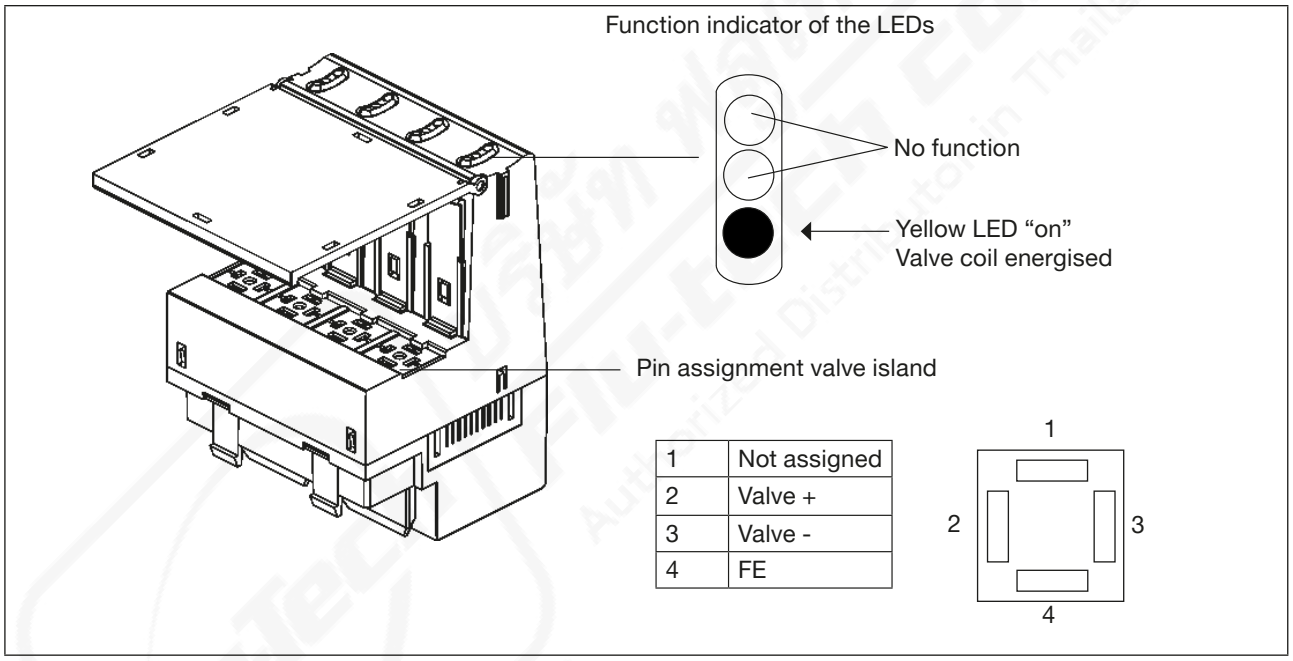

Fig. 21: Electronic base module ME03 / 4-fold monostable

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7.4 Pneumatic connection modules

Feeds in the form of pneumatic connection modules form the fluid interface between the supply line and the internal supply structure. The fluid is passed from one valve segment to the next via the feed. To ensure that the supply pressure over the entire route remains almost constant, additional feeds may be required. It is recommended to set one after 24 (ME02) or 16 (ME03) valve positions. By using intermediate feeds, segments can also be created if the pneumatic channels between individual valve segments are closed.

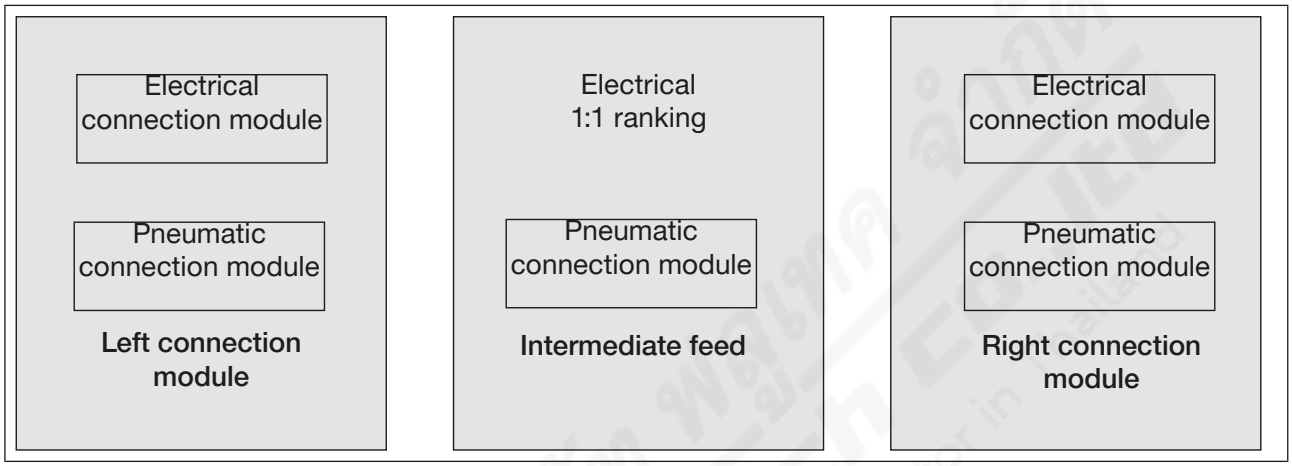

Fig. 22: Schematic presentation of the feed

Variant design

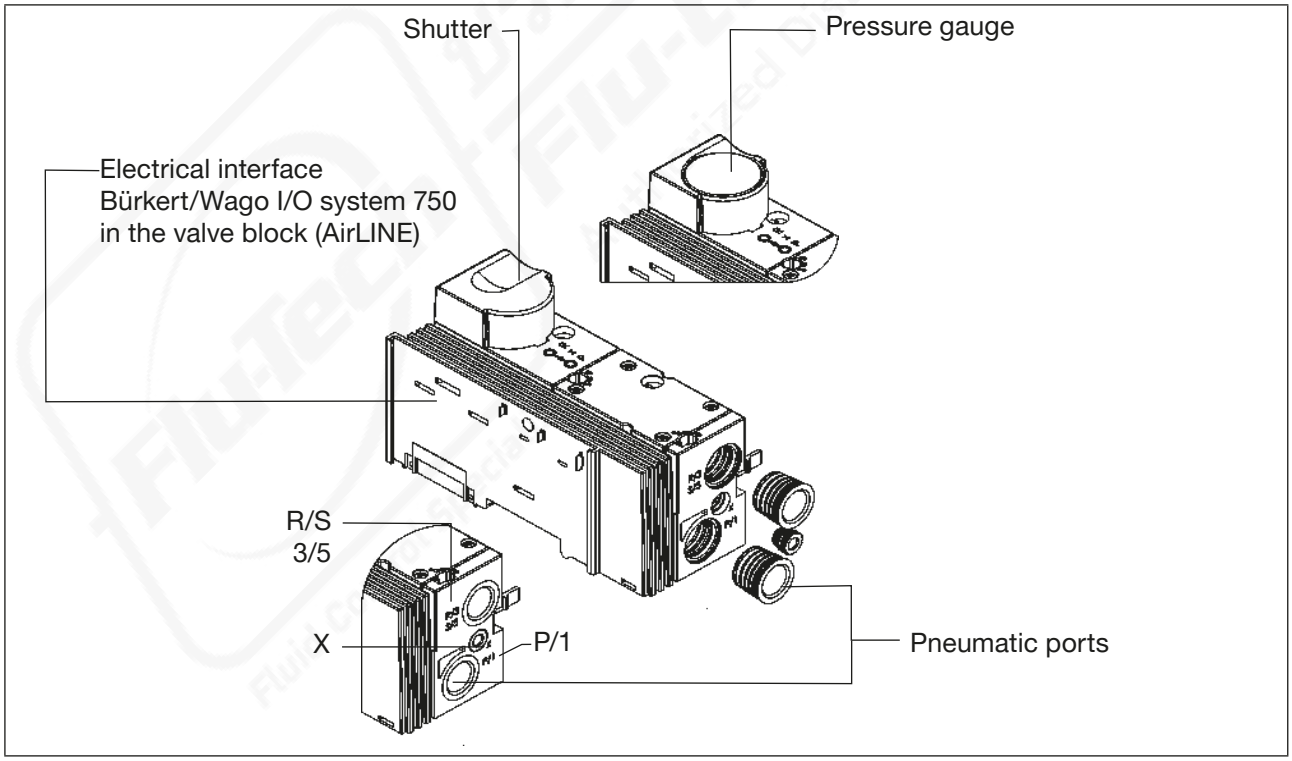

Fig. 23: Left side feed

Variants

Width per station	Pressure port (P) 1	Port X	Exhaust air port (R/S) 3/5
11 mm	G 1/4	M5	G 1/4
16 mm	G 3/8	G1/8	G 3/8

- Variant available with and without pressure gauge

Port X

Operation	Pin assignment from X
Standard	Exhaust air, pilot valve
Auxiliary pilot air	Port for auxiliary pilot air (operation with auxiliary pilot air is optional)

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7.5 Pneumatic base modules

The pneumatic base module is part of the valve unit. It carries the valves, is used for pneumatic supply and venting of the valves and provides the pneumatic working outputs. Various port and equipment options are available (see data sheet).

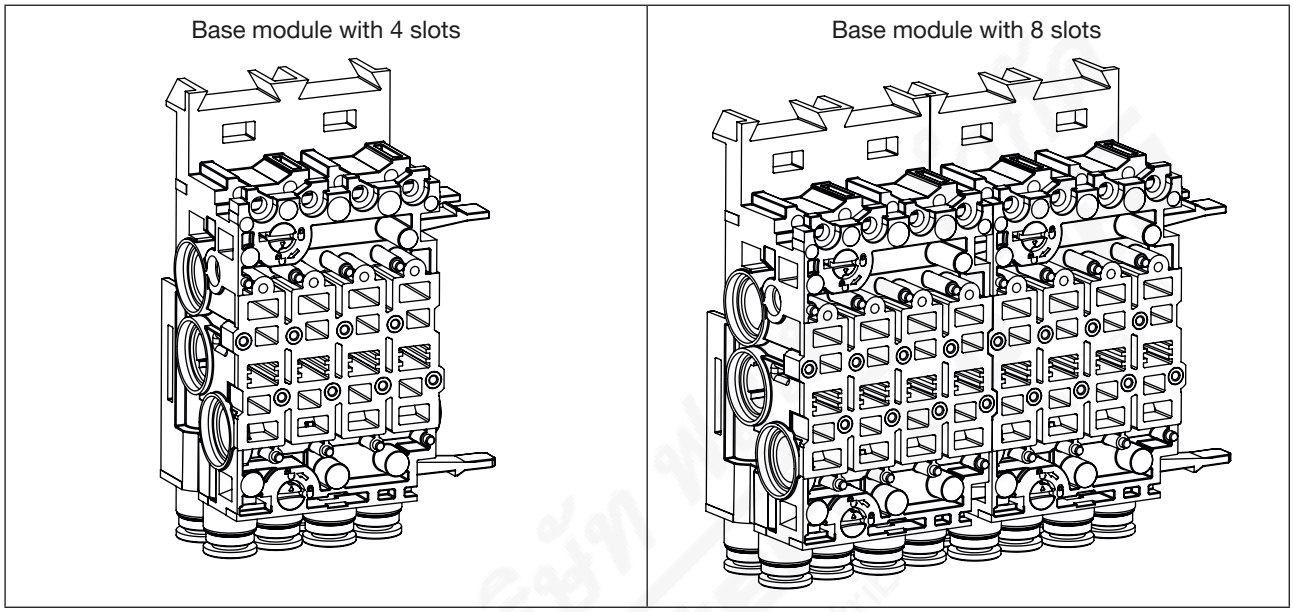

Fig. 24: Base modules, width per station 11 mm (shown: REV.2 - only detail differences to REV.1)

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7.6 Valves

7.6.1 Valves Type 6524 and Type 6525 for valve islands width per station 11 mm

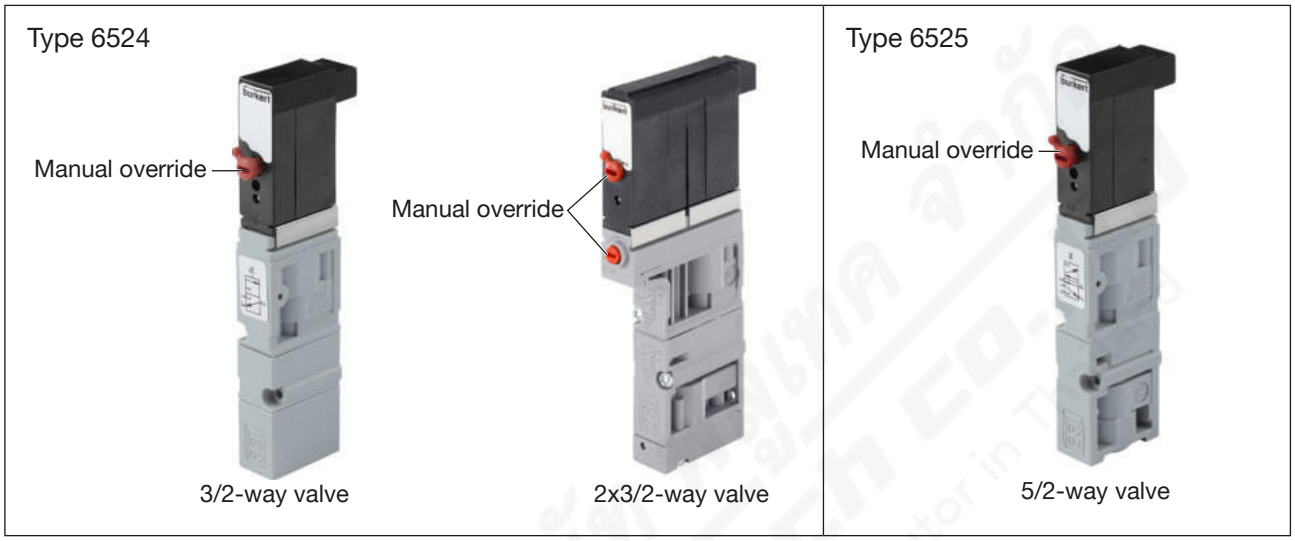

Fig. 25: Valves Type 6524 (3/2-way and 2x3/2-way valve) and Type 6525 (5/2-way valve)

Type 6524 is a 3/2-way valve or a 2x3/2-way valve. Type 6525 is a 5/2-way valve. The valves consist of a flipper solenoid valve as a pilot control and a pneumatic seat valve as an amplifier. They are monostable and equipped with manual override as standard.

Types 6524 and 6525 are suitable for individual mounting or block mounting and are used to control pneumatic actuators primarily in valve blocks or valve islands. They allow high pressures to be switched with low power consumption and short switching times.

2x3/2-way variant

In this variant, Type 6524 contains two independently operating 3/2-way valves. This makes the valve block extremely compact.

Channel-by-channel safety-related shut-off

Optionally, valve types 6524 and 6525 can be equipped with a 2. port (pressed cable). Safety-related shut-off is therefore possible for each channel individually. These valve variants do not have manual override.

Bürkert has tested the function with a cable length of up to 2 m and the switching contact in the same control cabinet with regard to EMC conformity and voltage drop. The standard local requirements must be observed when wiring.

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7.6.1.1 Fluidic connection single valves

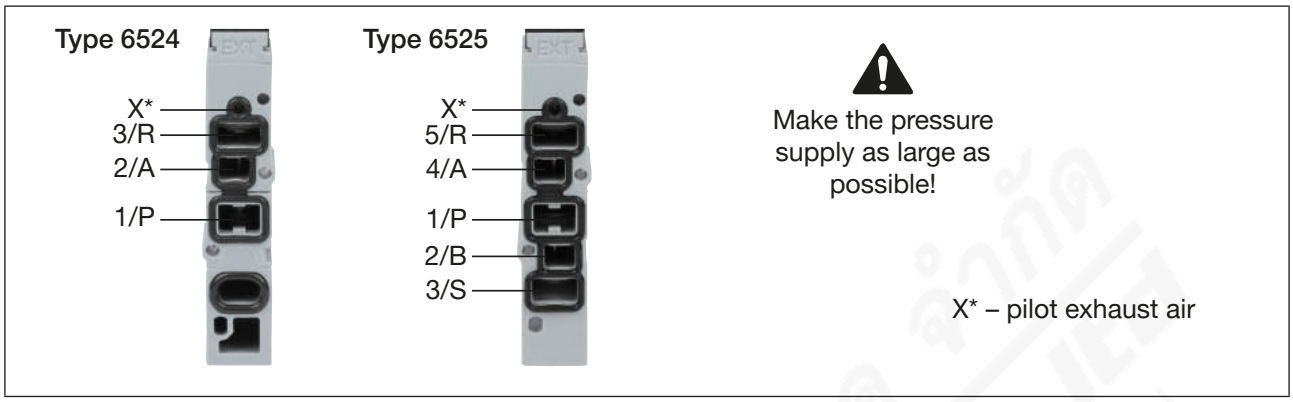

Fig. 26: Fluid connection single valves Type 6524 and Type 6525

7.6.1.2 Fluidic and electrical connection double valves

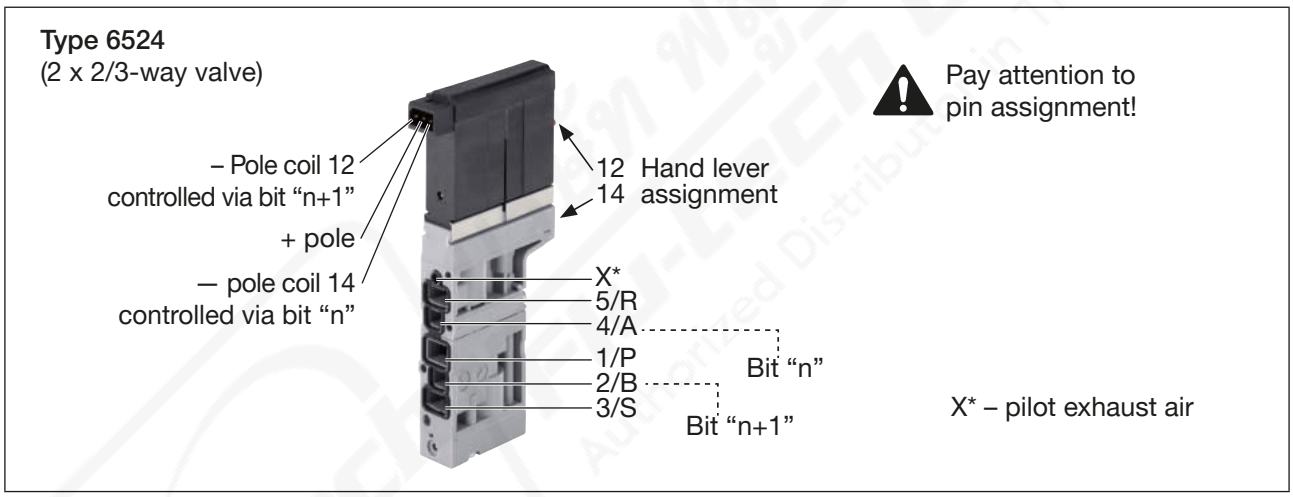

Fig. 27: Fluidic and electrical connection Type 6524 2x3/2-way valve

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7.6.1.3 Manual override

NOTE

Damage to the manual override.

To avoid damage to the manual override, observe the following:

Manual override “A”:
► Press (push function) or turn (lock function).

Manual override “B”:
► Turn only (lock function).

Manual override “C”:
► Press (push function), turn **while pressed** (lock function).

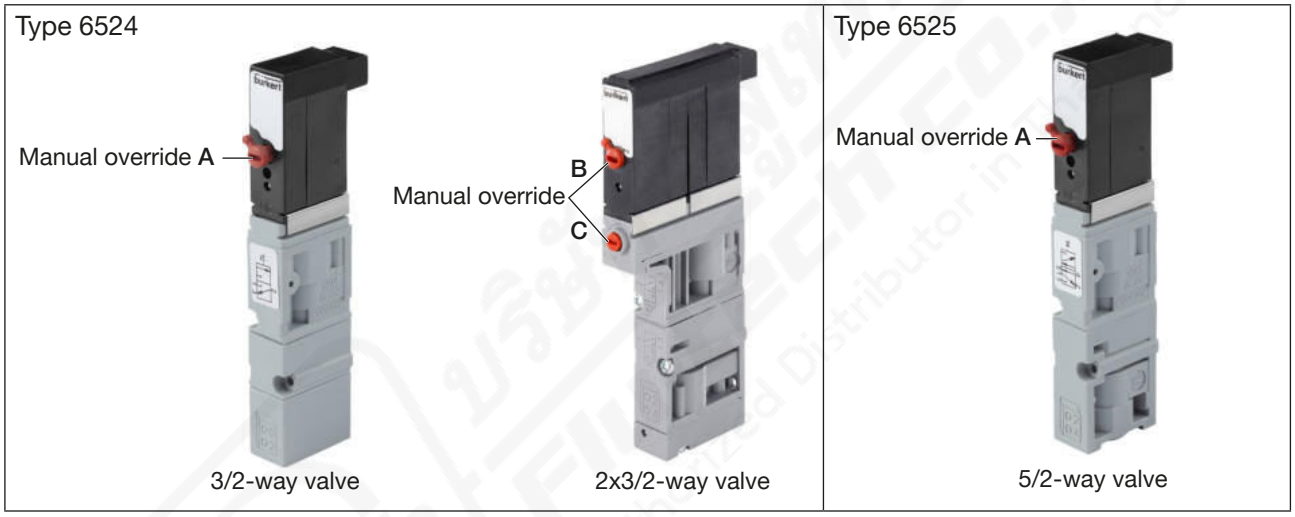

Fig. 28: Valves Type 6524 (3/2-way and 2x3/2-way valve) and Type 6525 (5/2-way valve)

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7.6.1.4 Exchange valve types 6524 and 6525

DANGER

Risk of injury due to pressure change.

Actuators can change their position when the pressure changes, leading to injuries and material damage.

► Secure the actuators against adjusting before working on the device or system.

Risk of injury due to high pressure with pneumatic base modules without P shutoff.

The sudden escaping of pressure medium can greatly accelerate parts (hoses, small parts ...) and thus cause injuries and material damage.

► Switch off the pressure before working on the device or system. Vent or drain the pipes.

Risk of injury when the pressure changes in pneumatic base modules with P shutoff.

When the valve is dismantled, only the P channel is shut off. This relieves the pressure at work outputs A or B. An actuator connected to it will therefore also be depressurised, which can trigger the actuator to move.

► Secure the actuators against adjusting before working on the device or system.

Risk of debris or components coming loose.

When releasing a valve under pressure with P shutoff, debris or aged components may come loose.

► Use suitable safety glasses when replacing valves.

ATTENTION

Risk of malfunction of the valve block.

Single valves REV.1 and REV.2 are not compatible.

► Replace single valves REV.1 only with single valves REV.1.

► Replace single valves REV.2 only with single valves REV.2.

For distinguishing features of the single valves, see chapter 7.6.1.5 on page 54.

Pneumatic base modules with “P shutoff”:

If the pneumatic base module in question is equipped with a “P shutoff” (marked on the module), a valve can be replaced even when supply pressure is present.

When the valve is dismantled, a relatively large amount of air is released - for functional reasons - into the atmosphere until the required pressure difference is reached. The automatic shut-off reduces the residual leakage to a minimum and the remaining valves of the valve block can continue to operate.

It is recommended not to remove several valves from the pneumatic base module simultaneously.

→ Loosen the fastening screws of the valve with a screwdriver.

→ Pull the valve with flange seal off the valve block.

→ Attach the new valve with the neatly inserted flange seals onto the valve slot.

→ Tighten the fastening screws crosswise, paying attention to the tightening torque (see Fig. 29).

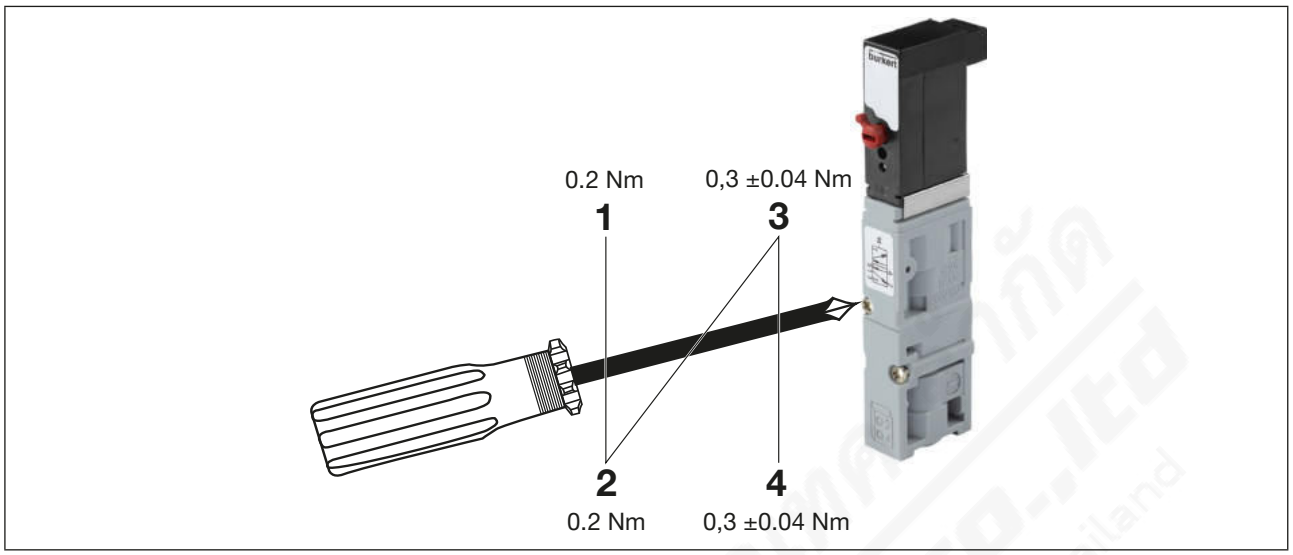

Fig. 29: Tightening the screws when replacing valve types 6524 and 6525

7.6.1.5 Valve Type 6524 and Type 6525: Differentiating features between REV.1 and REV.2

REV.1:
The single valves of Type 6524 3/2-way and Type 6525 5/2-way have the same flange pattern towards the pneumatic base module.

This single valve flange pattern differs from that of the double valve Type 6524 2x3/2-way.

REV.2:
Compared to the REV.1, the flange patterns of the valves for the pneumatic base modules have been standardised. The single valves 3/2-way and 5/2-way as well as the double valves 2x3/2-way now have the same/unified pneumatic flange pattern.

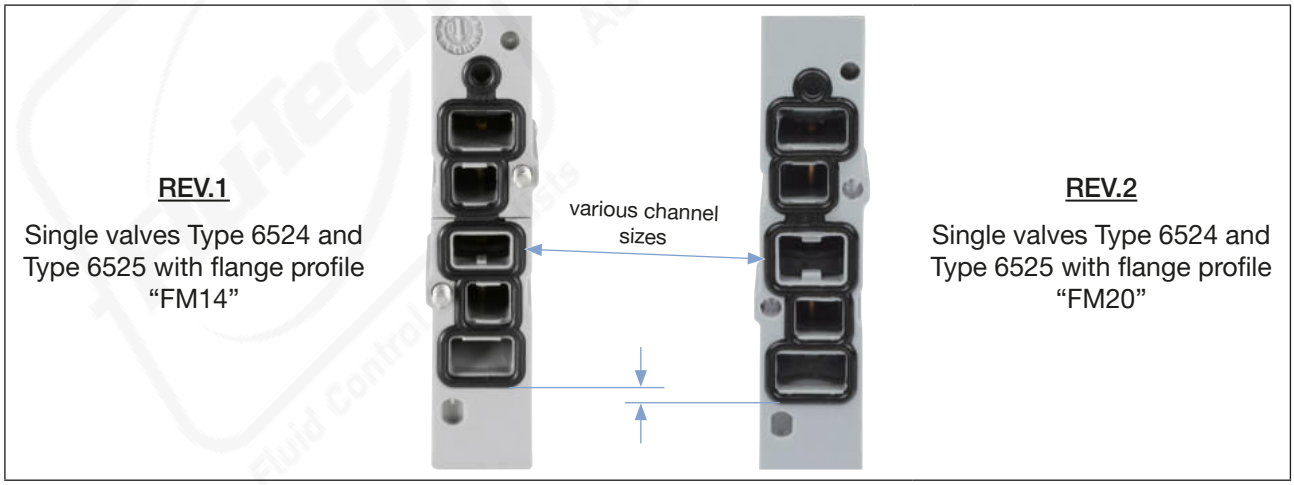

Fig. 30: Variations in flange profiles of single valves Type 6524 and Type 6525

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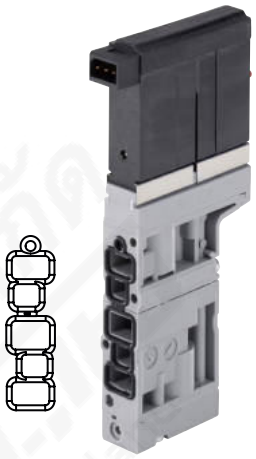
REV.1		REV.2		REV.1 and REV.2
				
Type 6524 with flange pattern FM14	Type 6525 with flange pattern FM14	Type 6524 with flange pattern FM20	Type 6525 with flange pattern FM20	Type 6524 double valve with flange pattern FM20

Fig. 31: The pneumatic valves of the REV.1 and REV.2 can be visually differentiated using the fluidic flange images.

7.6.2 Valves Type 0460 for valve islands width per station 11 mm

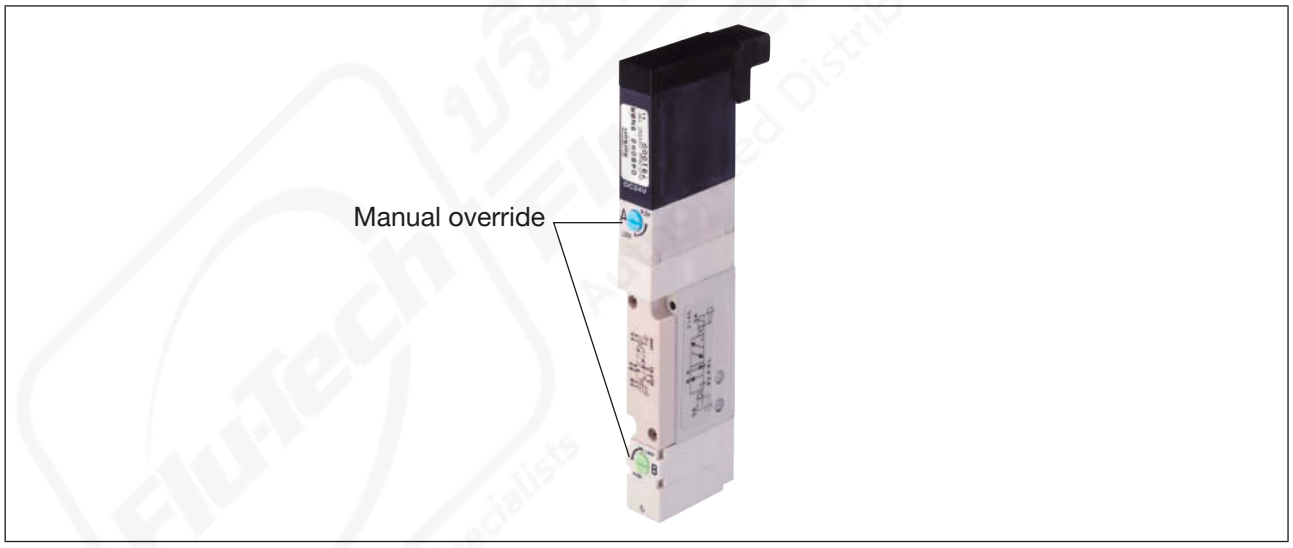


Fig. 32: Valve Type 0460, width per station 11 mm

Valve Type 0460 consists of 2 pilot valves and 1 pneumatic slide valve. The operating principle allows the switching of high pressures together with low power consumption and fast switching times. The valves offer 5/2-way impulse and 5/3-way functions and are equipped with manual overrides as standard.

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7.6.3 Valves Type 6526 and Type 6527 for valve islands width per station 16 mm

Fig. 33: Valves Type 6526 (3/2-way valve) and Type 6527 (5/2-way valve)

Type 6526 is a 3/2-way valve, Type 6527 is a 5/2-way valve. The valves consist of a flipper solenoid valve as a pilot control and a pneumatic seat valve as an amplifier. They are monostable and equipped with manual override as standard.

Types 6526 and 6527 are suitable for single installation or block installation and are used to control the pneumatic actuator primarily in valve blocks or valve islands. They allow high pressures to be switched with low power consumption and short switching times.

7.6.3.1 Fluidic connection

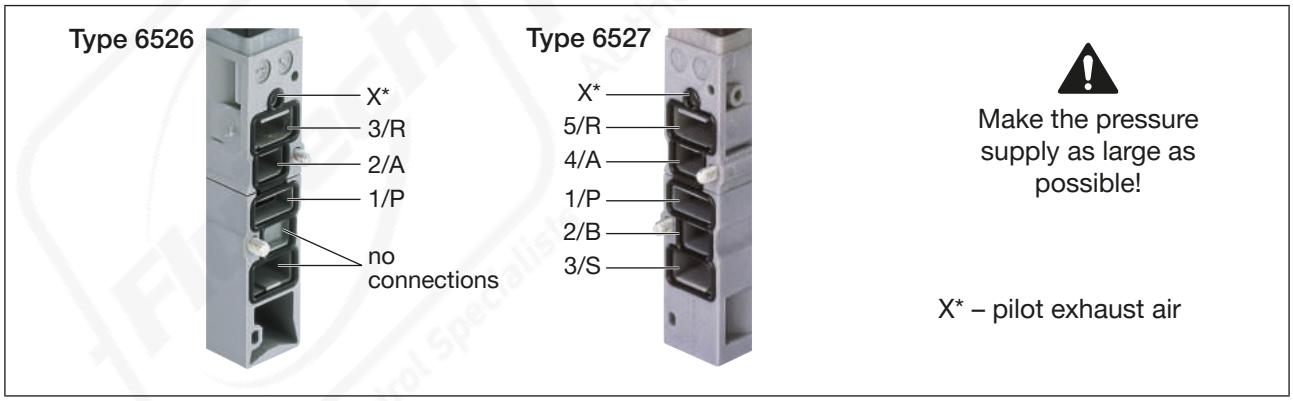

Fig. 34: Fluid port Type 6524 and Type 6525

7.6.3.2 Exchange valves Type 6526 and Type 6527

DANGER

Risk of injury due to pressure change.

Actuators can change their position when the pressure changes, leading to injuries and material damage.

▶ Secure the actuators against adjusting before working on the device or system.

Risk of injury from high pressure

The sudden escaping of pressure medium can greatly accelerate parts (hoses, small parts ...) and thus cause injuries and material damage.

▶ Switch off the pressure before working on the device or system. Vent or drain the pipes.

Risk of debris or components coming loose.

When loosening a valve under pressure, debris or aged components may come loose.

▶ Use suitable safety glasses when replacing valves.

→ Loosen the fastening screws of the valve with a screwdriver.

→ Pull the valve with flange seal off the valve block.

→ Attach the new valve with the neatly inserted flange seals onto the valve slot.

→ Tighten the fastening screws crosswise, paying attention to the tightening torque (see Fig. 35).

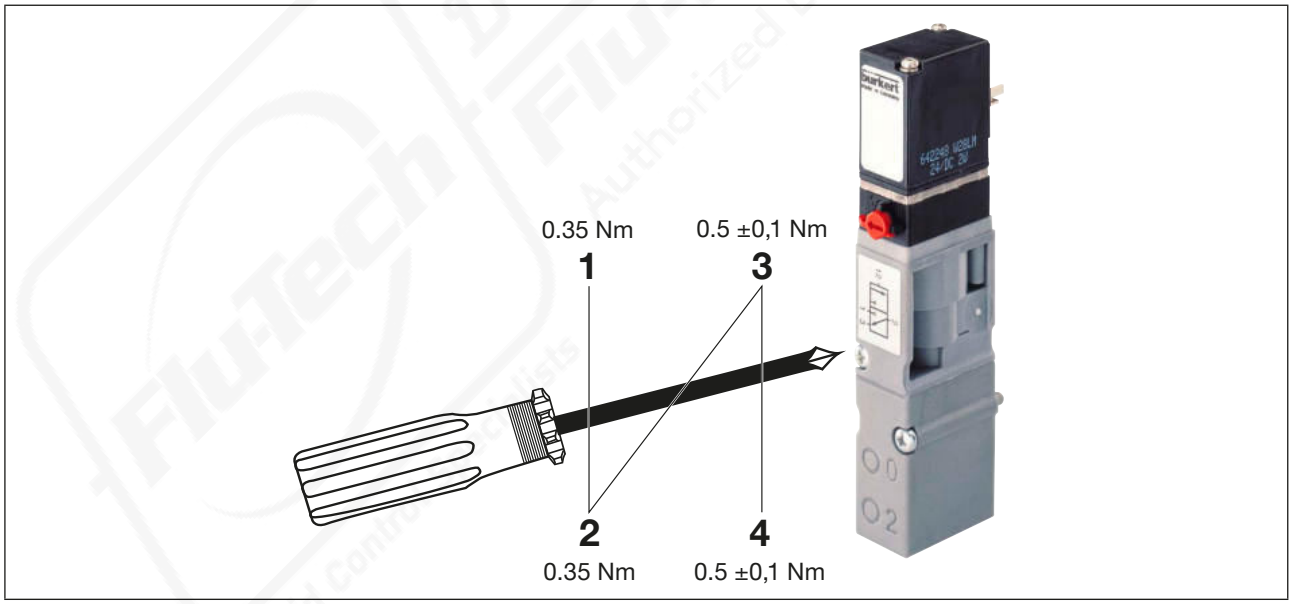

Fig. 35: Tightening the screws when replacing valves Type 6526 and Type 6527

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7.6.4 Valves Type 0461 for valve islands width per station 16 mm

Fig. 36: Valve Type 0461, width per station 16 mm

Valve Type 0461 consists of 2 pilot valves and 1 pneumatic slide valve. The operating principle allows the switching of high pressures together with low power consumption and fast switching times.

The valves offer 5/2-way impulse and 5/3-way functions and are equipped with manual overrides as standard.

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8 INSTALLATION AND START-UP OF THE VALVE ISLAND IN THE CONTROL CABINET

8.1 Safety instructions

DANGER

Risk of explosion.

For systems in the explosion-proof areas, which are installed in a control cabinet, the following must be ensured:

- ▸ The control cabinet must be approved for use in explosion-proof areas.
- ▸ The control cabinet must have large enough dimensions that the resulting heat loss can be appropriately discharged externally.
- ▸ The internal temperature of the control cabinet must not exceed the maximum permitted ambient temperature for the device.

Risk of injury from electric shock.

- ▸ Switch off the power supply before working on the device or system.
- ▸ Secure against reactivation.

WARNING

Risk of injury due to improper installation.

- ▸ Only trained technicians may carry out installation and disassembly work.
- ▸ Only carry out installation work using suitable tools.

CAUTION

Risk of injury due to falling heavy equipment.

A heavy device may fall during transportation or installation work and cause injuries.

- ▸ Heavy equipment must only be transported, installed and disassembled with the help of a second person and using suitable apparatus.

The valve block is not firmly connected to the standard rail before tightening the fastening screws.

- ▸ For the duration of the installation, make sure that the valve block cannot fall.

Risk of injury due to sharp edges.

Sharp edges can cause cuts.

- ▸ Wear suitable protective gloves.

Valve island Type 8644 is supplied as a fully assembled device. Modifications may only be made by Bürkert.

The valves are excluded from this and may be exchanged by the user for valves of the same variant.

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8.2 Removing the transport lock from the valve block

The valve block is mounted on a standard rail for transport security. It must be removed from this standard rail for installation in the control cabinet.

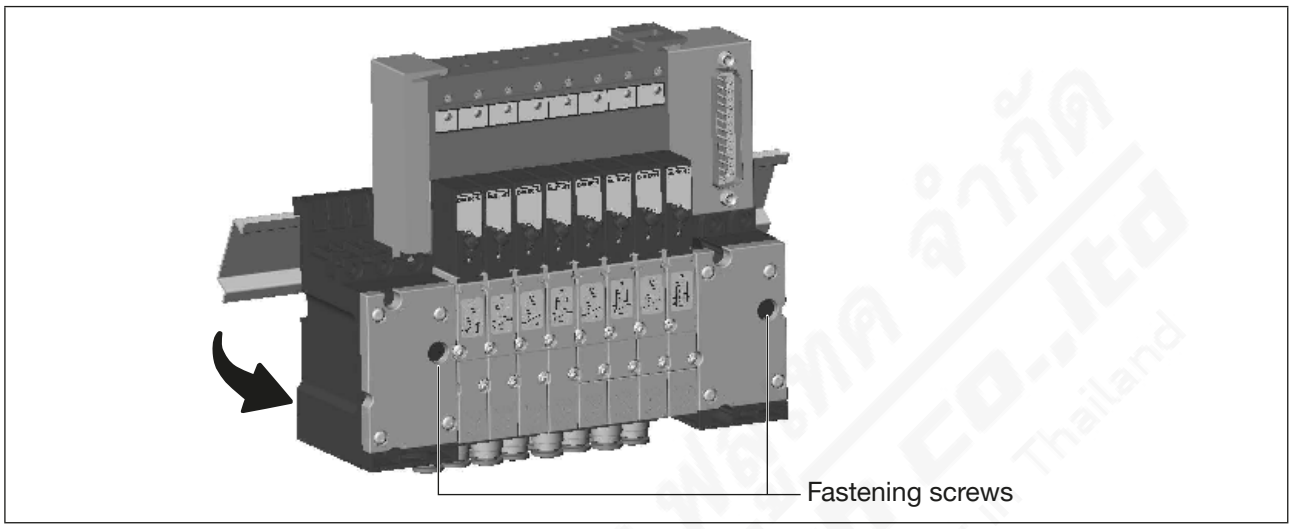

Fig. 37: Remove the valve block from the standard rail (displayed as an example with valve island Type 8640)

→ Carefully turn the fastening screws anticlockwise until they stop.

→ Tilt the valve block slightly upwards and lift it off the standard rail.

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8.3 Installation on standard rail

ATTENTION

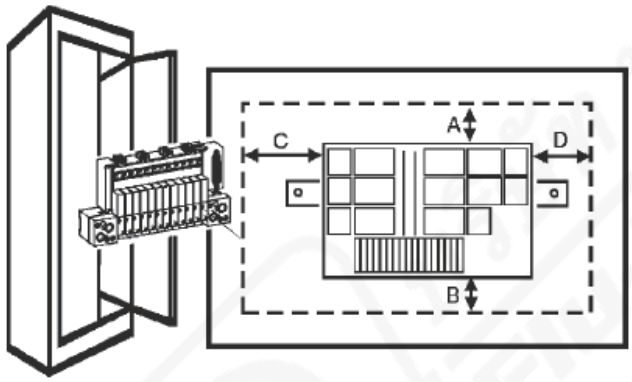
- ► To ensure the best possible EMC protection, ground the standard rail with low impedance.
- ► Prior to installation in the control cabinet, check whether the standard rail is firmly anchored in the control cabinet.

The valve block must be freely accessible at the top. When installing the standard rail in the control cabinet, consider that the valve block requires a **minimum distance of 3 cm from the top edge of the control cabinet** (“Fig. 12“).

The minimum distance is required for

— Installation and removal of the device on the standard rail,

— Avoidance of heat build-up due to the waste heat from the device.



Recommended distance when installing in the control cabinet:

A	30 mm	**C**	30 mm
B	30 mm	**D**	60 mm

Fig. 38: Installation of the valve block in a control cabinet

CAUTION

Risk of injury due to falling heavy equipment.

The valve block is not firmly connected to the standard rail before tightening the fastening screws.

- ► For the duration of the installation, make sure that the valve block cannot fall.

→ Check whether all fastening screws of the valve block (see Fig. 37) are at their stops when turning anticlockwise.

→ Place the valve block slightly tilted upwards on the standard rail in the desired position and pivot it onto the standard rail. **Hold the valve block if the installation position is not horizontal!**

→ Tighten the fastening screws clockwise (tightening torque approx. 1.8 Nm).

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8.4 Fluidic installation

DANGER

Risk of injury from high pressure.

- ► Before loosening lines and valves, turn off the pressure and vent the lines.
- ► Close open connections that are not required with suitable fastener elements.
- ► Connections for pilot exhaust air (x) must not be closed.
- ► Check connections 1 and 3/5 are correctly assigned. These must not be interchanged under any circumstances.

CAUTION

Uncontrolled behaviour of the system due to back pressures.

Insufficient removal of exhaust air can lead to unintentional switching of the valves due to back pressure.

- ► Ensure that the exhaust air is removed safely (e.g. through a large cable cross section).
- ► Avoid pressure build-up in the exhaust air ducts. To do this, use all the valve block's exhaust air connections and pilot exhaust air connections, and regularly check the exhaust air silencers, replacing them if necessary.
- ► To avoid unwanted system behaviour when switching the valves, run the pressure supply as high as possible.

8.4.1 Pneumatic installation of the connection units

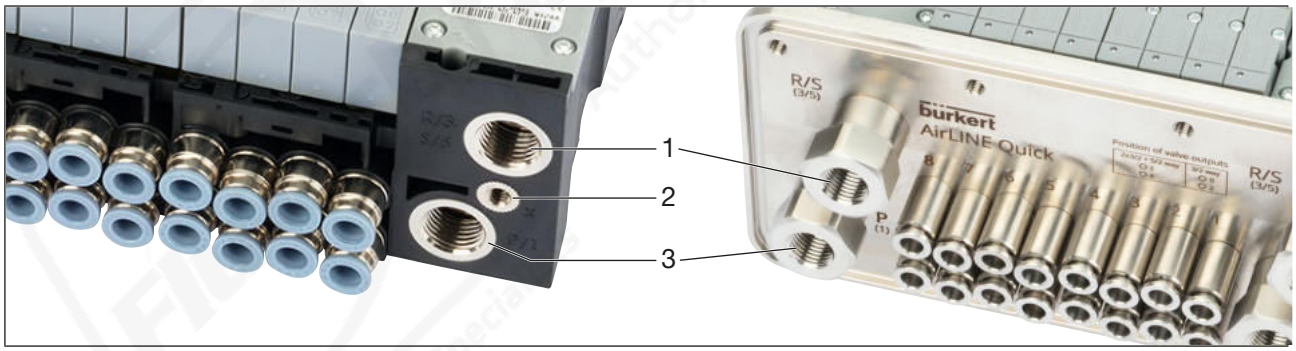

Fig. 39: Pneumatic assignment of the connection module

Position	Labelling	Function	Connection type
1	R/3 S/5	Exhaust air	G1/4
2	X	Control unit EXT: Auxiliary pilot air INT: Pilot exhaust air	M5
3	P/1	Pressure supply	G1/4

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8.4.2 Pneumatic installation of the valve units

ATTENTION

With 3/2-way valves, the upper ports remain open.

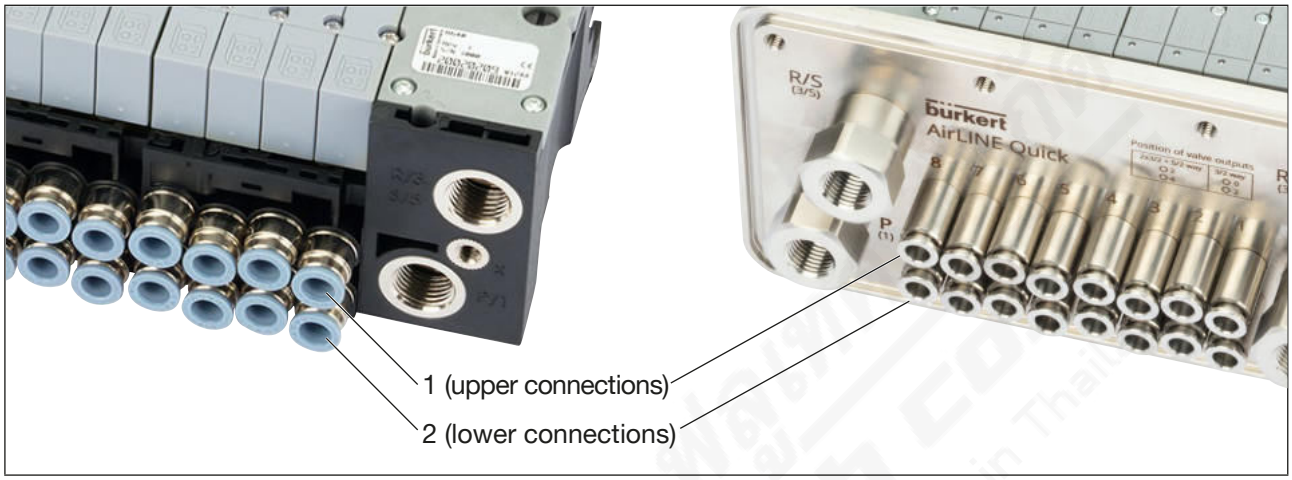

Fig. 40: Pneumatic pin assignment base module

Position	3/2-way valve Type 6524	5/2-way valve Type 6525	2x3/2-way valve Type 6524	Valve Type 0460
1 (upper connections)	not assigned	2	2	2
2 (lower connections)	2	4	4	4

Table 1: Pin assignment of the working ports of the pneumatic base modules

For Type 6524 and Type 6525 valves, the pin assignment of the connections is displayed on the body.

3/2-way valve Type 6524	5/2-way valve Type 6525	2x3/2-way valve Type 6524
		

Information on the mapping of the valves can be attached to the labels of the electronic base modules.

If a higher air flow rate is required to control individual pneumatic consumers, the connections of several valves can be connected externally using a suitable adapter (Y-piece).

The relevant channels must then be controlled together in the controller program.

Disassemble plug connections

→ To release the lines, push in the thrust collar and pull out the line.

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8.5 Tightening torques for port connections

Observe the following tightening torques when screwing into the port connections. The specified tightening torque may vary depending on the sealing system.

Port size	Marking/function	Recommended tightening torque [Nm]	Maximum tightening torque [Nm]
G3/8	P, R/S connection (connection modules 16 mm)	6…9	40
G1/4	P, R/S connection (connection modules 11 mm)	4…7	20
G1/8	Auxiliary pilot air (connection modules 16 mm)	3…6	10
M5	Auxiliary pilot air (connection modules 11 mm)	1…1.2	3
M7 (D6, D1/4)	AirLINE Quick push-in connector	1.75…2.25	4

For an illustration of the connections, see Fig. 39 on page 62 and Fig. 40 on page 63

8.6 Installation with AirLINE Quick (only valve islands width per station 11 mm)

When using the “AirLINE Quick” control cabinet base adaptation, the device is mounted on the control cabinet base using a solid metal plate. In this case, the device supports the standard rail (including the modules mounted on it) instead of vice versa.

ATTENTION

- ► During installation, follow the specifications in the configuration file.
- ► To ensure the best possible EMC protection, ground the standard rail with low impedance.

When configuring the SIMATIC ET 200SP modules, consider that the permissible overhang of the standard rail on both sides of the valve block is limited to 10 cm.

Only short base units can be used.

The combination of AirLINE Quick with SIMATIC ET 200SP HA is not possible due to the design.

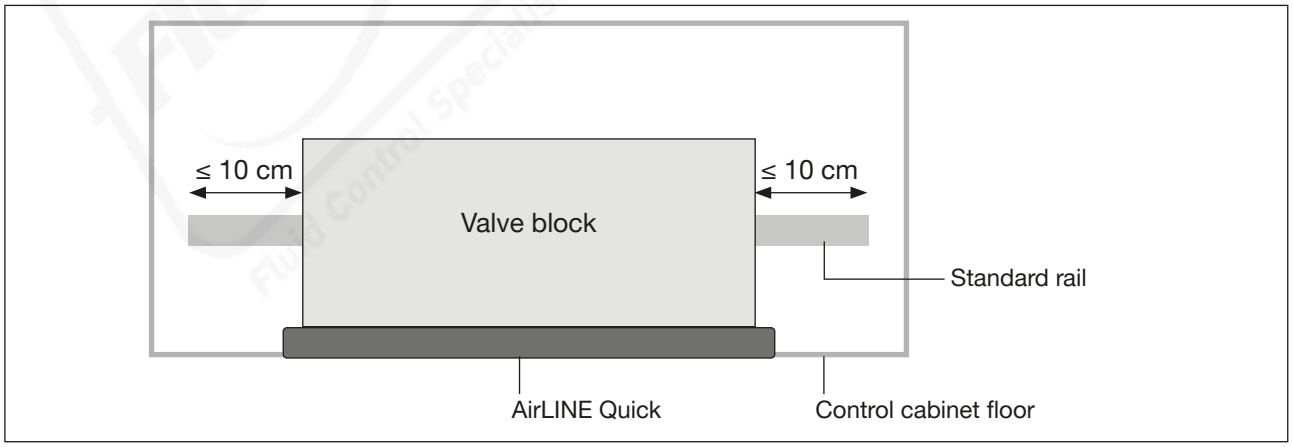

Fig. 41: Installation position in the control cabinet when using AirLINE Quick

There is no difference between AirLINE Quick REV.1 and REV.2 in terms of assembly and installation.

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8.6.1 AirLINE Quick in a potentially explosive atmosphere

DANGER

Risk of explosion in the Ex area.

- When used in Ex areas, note the information in the "*Operating instructions for the Ex areas type MP18*". These operating instructions are included in the scope of delivery of the Ex variant of the AirLINE Quick control cabinet base adaption.

8.6.2 Installation of AirLINE Quick

During installation of AirLINE Quick, a break-out must be provided at the base of the control cabinet. The break-out can be done, for example, with a laser or a punch.

The assignment of pneumatic ports and the dimensions of the flange patterns can be found online at country.burkert.com→8644→ „Additional manual Type 8640 8644 | AirLINE Quick, Assignment of the pneumatic connections“

ATTENTION

- The break-out on the control cabinet must be burr-free to avoid damage to the seal between the AirLINE Quick and the control cabinet.

→ Place the seal between the AirLINE Quick and the control cabinet in the groove of thee AiRLINE Quick metal plate without causing damage.

→ Place the valve block in the control cabinet on the prepared break-out.

→ Attach the stabilising plate from the outside and secure it with M5x10 screws (tightening torque 2.0 Nm).

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8.6.3 Dimensions of the flange patterns for AirLINE Quick

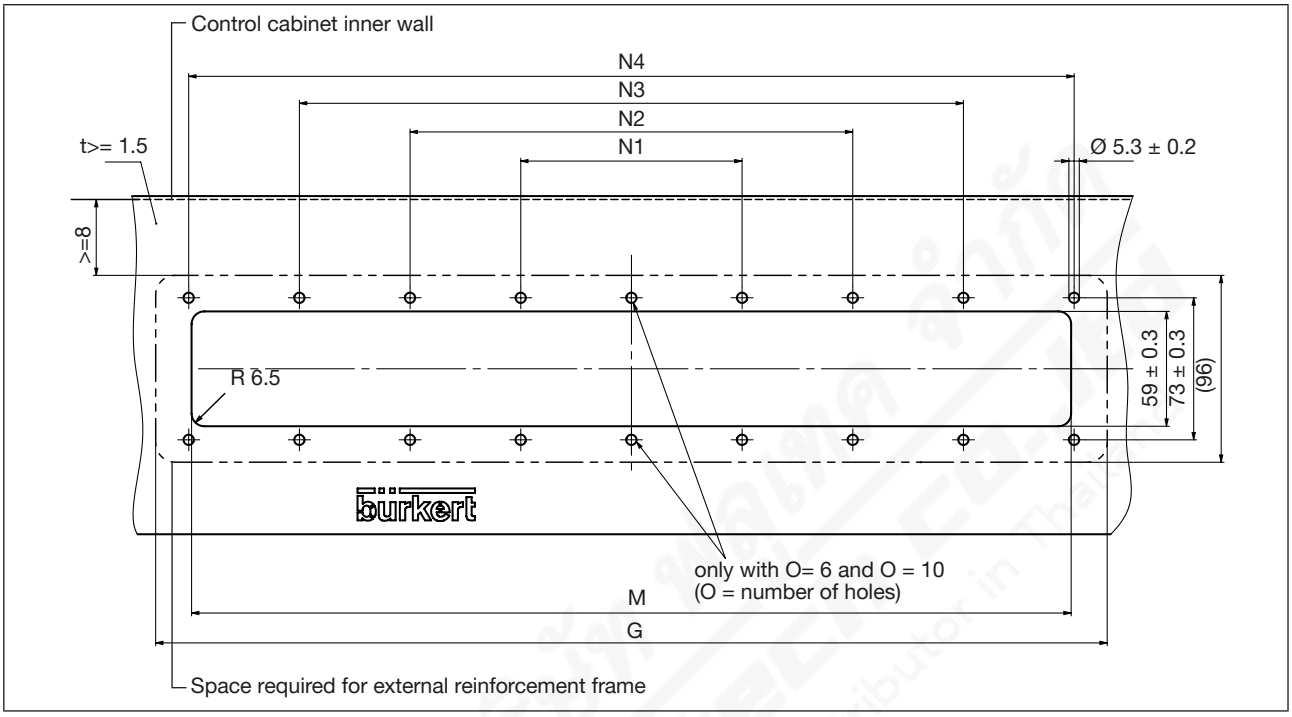

Fig. 42: AirLINE Quick flange patterns — for dimensions see Table 2

	Version						
	4-fold	8-fold	12-fold	16-fold	16-fold with interme-diate feed	24-fold	24-fold with interme-diate feed
Special feature	–	–	–	–		on request	
M	111 ±0.4	155 ±0.4	199 ±0.4	243 ±0.4	276 ±0.4	331 ±0.4	364 ±0.4
N1	114 ±0.4	54 ±0.3	68 ±0.3	123 ±0.4	140 ±0.4	66 ±0.3	73 ±0.3
N2	–	158 ±0.4	202 ±0.4	246 ±0.4	279 ±0.4	200 ±0.4	219 ±0.4
N3	–	–	–	–		334 ±0.4	367 ±0.4
N4	–	–	–	–		–	
O (number of holes)	6	8	8	10	10	12	12
G	148	192	236	280	313	368	401

Table 2: Dimensions of the AirLINE Quick flange patterns

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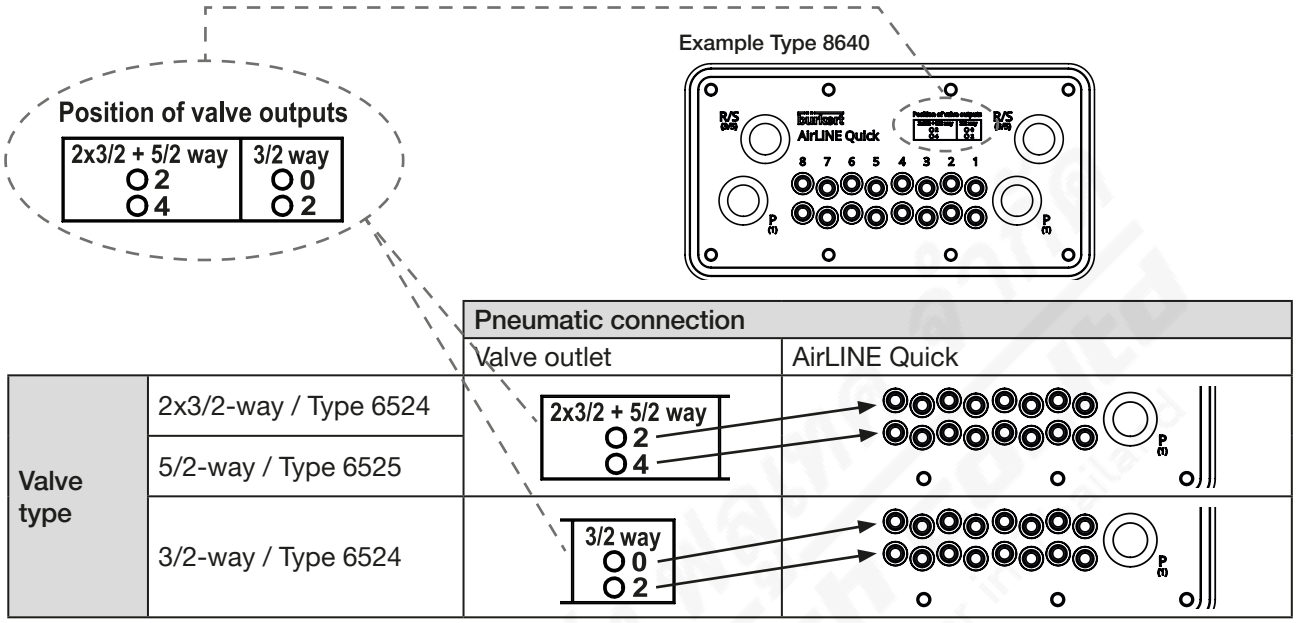
8.6.4 Assignment of the pneumatic connections for AirLINE Quick



8.7 Recommended action for push-in connectors

Our push-in connectors meet the requirements specified in the ISO 14743:2020 standard. However, if you encounter leakage or retention problems when installing pneumatic hoses in the push-in connectors, you can take the following measures:

Use suitable materials

→ Ensure that the appropriate combination of hose material (polyamide or polyurethane) and push-in connector is used, as different materials require different holding forces.

Check the hose size

→ Ensure that the outer diameter of the hose matches the specification of the push-in connector. Hoses that are too small or too large may not sit correctly in the push-in connector.

According to ISO 14743:2020, depending on the outer diameter (OD) of the hose, the tolerances must not exceed the following values:

Material	Hose OD [mm]	Permitted deviation OD [mm]
Polyamide (PA)	3…10	±0.08
	12…16	±0.1
Polyurethane (PU)	3…8	±0.1
	10…16	±0.15

Check the hose for damage

→ Check the hose for visible damage such as cracks, kinks or wear. Such defects can prevent the hose from seating properly in the push-in connector.

Cut the hose correctly

→ Cut the hose straight. Cutting it diagonally adversely affects the holding force. If the hose is not seated evenly in the push-in connector, the holding force is reduced and the seal between the push-in con-

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nector and hose is no longer sufficient. Furthermore, the pressure will be distributed unevenly in the system, which can cause the hose to slip or be pulled out of the push-in connector under pressure.

Insert the hose correctly

→ Press the hose into the push-in connector with sufficient force. The hose must be inserted deep enough into the push-in connector so that it is held correctly by the claws.

Check the push-in connector system

→ Ensure that the push-in connector system is designed for the corresponding operating conditions. The push-in connectors must function reliably at pressures from –0.09 MPa (–0.9 bar) to 1.6 MPa (16 bar) and be designed for temperatures from –20 °C to +80 °C. Even if the operating conditions for push-in connectors are specified in accordance with ISO 14743:2020, the specific operating conditions of the product used (e.g. those of a valve island) must be taken into account.

Check the holding capacity of the push-in connector

→ When installing the hose, make sure that it is firmly seated in the push-in connector and can reliably withstand the specified minimum tensile forces to ensure a secure connection. It is recommended not to increase the load beyond what is necessary, as excessive tensile force can impair the function and safety of the connection.

For orientation: depending on body weight and fitness, an average person can apply forces of around 300 to 500 N when pulling.

Hose OD, D, mm	3	4	6	8	10	12	14	16
Hose OD, D, in (mm)	1/8 (3.17)	5/32 (4)	1/4 (6.35)	5/16 (8)	3/8 (9.52)	1/2 (12.7)	–	5/8 (16)
Minimum tensile force for polyamide hose (PA), N	60	70	120	170	250	300	300	350
Minimum tensile force for polyurethane hose (PU), N	25	50	100	150	200	200	250	300

Table 3: Minimum tensile force for the tensile test (DIN ISO 14743:2020)

If the problem persists despite the measures taken, it is possible to use support sleeves (ID 20099400). These sleeves help to increase the stability and tightness of hoses in push-in connectors. This is particularly important when softer or more flexible hoses such as polyurethane (PU) ones are used.

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8.8 Electrical installation

DANGER!

Risk of injury from electric shock.

- Switch off the power supply before working on the device or system. Secure against reactivation.
- Observe the applicable accident prevention and safety regulations for electrical devices.

Information on electrical installation can be found online at:

www.wago.com → Documentation → WAGO I/O System 750

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9 MAINTENANCE, TROUBLESHOOTING

9.1 Safety instructions

DANGER!

Risk of injury due to high pressure and escaping medium.

▸ Switch off the pressure before working on the device or system. Vent or drain the pipes.

Risk of injury from electric shock.

▸ Switch off the power supply before working on the device or system. Secure against reactivation.

▸ Observe the applicable accident prevention and safety regulations for electrical devices.

WARNING!

Risk of injury due to improper maintenance work!

▸ Maintenance may only be carried out by authorised technicians and with the appropriate tools!

Risk of injury due to unintentional activation of the system and uncontrolled restart!

▸ Secure the system against unintentional activation.

▸ Ensure a controlled restart after maintenance is completed.

9.2 Troubleshooting

Fault	Possible cause	Remedy
Valves do not switch	No operating voltage or operating voltage too low	→ Check the electrical connection → Ensure the operating voltage according to the type label.
	Manual override not in neutral position	→ Bring the manual override to the zero position
	Pressure supply insufficient or not available	→ Make the pressure supply as high as possible (also for upstream devices such as pressure regulators, maintenance units, on/off valves etc.) **Minimum operating pressure ≥ 2.5 bar**

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Fault	Possible cause	Remedy
Valves switch with a delay or blow off at the exhaust ports	Pressure supply insufficient or not available	→ Make the pressure supply as high as possible (also for upstream devices such as pressure regulators, maintenance units, on/off valves etc.) **Minimum operating pressure ≥ 2.5 bar**
	Valves are not in the home position (de-energised) during pressure build-up	→ Pressurise the valve block before switching the valves.
	Insufficient ventilation of the exhaust air ducts due to silencers that are too small or dirty (back pressures)	→ Use suitably-sized silencers or expansion vessels. Clean the dirty silencers. → Clean the dirty silencers
	Impurities or foreign matter in the pilot or main valve	→ Change the valve
Leaky valve blocks	Missing or crushed O-rings between the modules; Missing or incorrectly positioned profile seals between valve and pneumatic base module	→ Identify leaks or missing seals
		→ Insert missing seals or replace damaged seals.

9.3 Maintenance of components

9.3.1 UL handling

Valve islands of Type 8644 with UL approval may only be converted by UL-certified manufacturing, installation or service centres.

Interfering with the system is not permitted. This particularly applies to:

- Damage to components,
- Extension of the valve islands through modules where the latching of the pneumatic modules must be unfastened.

NOTE!

Changing the valves is a permitted maintenance operation. The general safety instructions must be observed.

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10 START-UP

10.1 Safety instructions

WARNING!

Risk of injury due to improper operation!

Improper operation may result in injuries as well as damage to the device and the surrounding area.

- Before start-up, ensure that the operating personnel are aware of and have completely understood the contents of the operating instructions.
- The safety instructions and intended use must be observed.
- Only sufficiently trained personnel may start up the system / device.

10.2 Fluidic start-up

NOTE!

- Switch on the supply pressure.
- Only then switch on the voltage!

Measures before fluidic start-up

→ Check connections, voltage and operating pressure!

→ Ensure that the max. operating data (see type label) is not exceeded.

→ Check that pin assignment for ports 1, 3 or 5 are correct. These must not be mixed up under any circumstances!

→ For electrical operation, unlock the manual override!

10.3 Electrical start-up

Information on electrical start-up can be found online at:

www.wago.com → Documentation → WAGO I/O System 750

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10.3.1 Selection of modules in the GSD file

The module names of the different electronic base modules in the GSD file can be found in the table below.

Width per station	Module name	Entry in GDSD file
11 mm	ME02 / 2-fold monostable	Bürkert 8644 monostable 2 DO
		*Bürkert 8644 monostable 2 DO
	ME02 / 2-fold 2 x monostable	Bürkert 8644 monostable 4 DO
		*Bürkert 8644 monostable 4 DO
	ME02 / 8-fold monostable (ID 00148843)	Bürkert 8644 monostable 8 DO V1 (corresponds to 4 times 2 DO)
	ME02 / 8-fold monostable (ID 00218237)	Bürkert 8644 monostable 8 DO V2
	ME02 / 8-fold 2 x monostable	Bürkert 8644 monostable 16 DO
	ME02 / 2-fold bistable	Bürkert 8644 bistable 4 DO
		*Bürkert 8644 bistable 4 DO
	ME02 / 8-fold bistable	Bürkert 8644 monostable 16 DO
16 mm	ME03 / 2-fold monostable	Bürkert 8644 monostable 2 DO
		*Bürkert 8644 monostable 2 DO
	ME03 / 3-fold 10 mm monostable	Bürkert 8644 monostable 3 DO**
		* Bürkert 8644 monostable 3 DO**
	ME03 / 4-fold monostable	Bürkert 8644 monostable 4 DO
		* Bürkert 8644 monostable 4 DO
	ME03 / 2-fold bistable	Bürkert 8644 bistable 4 DO
		* Bürkert 8644 bistable 4 DO

* Module is combined with predecessor module to use the data byte
** One bit remains unoccupied

Connection modules and intermediate feeds are not bus users and are not taken into account!

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11 ACCESSORIES, SPARE PARTS

CAUTION

Risk of injury and/or damage due to incorrect parts.

Incorrect accessories and unsuitable spare parts may cause injuries and damage the device and the surrounding area.

► Use only original accessories and original spare parts from Bürkert.

The article numbers of the solenoid valve types 6524, 6525 and 0460 and the corresponding cover plates can be found in the data sheets for these types.

11.1 Accessories, spare parts for width per station 11 mm

Different flange patterns of the single valve Types 6524/6525 REV.1 and 6524/6525 REV.2!

The single valves (3/2-way valve Type 6524 and 5/2-way valve Type 6525) were optimised. Among other things, the channel cross-sections and thus the flange pattern of these valves were revised.
Valves REV.1 and valves REV.2 are therefore different.

When replacing single valves, observe the following:

- The different design of the mechanical interface prevents the accidental installation of incompatible valves.
- It is not possible to switch between REV.1 and REV.2 single valves (Type 6524 / 6525).
- **With regard to spare parts, take care to ensure that the matching variant of the valve is used.**

This does not apply to the double valve (2x 3/2-way valve Type 6524).

Additional spare parts are available under Type SVVI. The corresponding article numbers can be found on the data sheet of the valve island or in the Bürkert e-Shop.

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12 PACKAGING, TRANSPORT, STORAGE

WARNING

Risk of injury due to improper behaviour during transport.

- ▶ Transport may only be carried out by trained technicians.

A heavy device may fall during transportation or installation work and cause injuries.

- ▶ Transport, install and dismantle a heavy device only with the aid of a second person and using suitable equipment.

ATTENTION

Damage in transit.

Inadequately protected devices may be damaged during transport.

- ▶ Use shock-resistant packaging to protect the device against moisture and dirt during transport.
- ▶ Avoid exceeding or dropping below the permitted storage temperature.
- ▶ Protect the electrical interfaces and pneumatic connections from damage and dirt by fitting protective caps.

Incorrect storage may damage the device.

- ▶ Store the device in a dry and dust-free location.
- ▶ Storage temperature –20...+60 °C.

13 ENVIRONMENTALLY FRIENDLY DISPOSAL

- ▶ Follow national regulations regarding disposal and the environment.
- ▶ Collect electrical and electronic devices separately and dispose of them as special waste.

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