

**MB  
GROUP**

# **PTC Fittings**



## ABOUT US

MB Group is a family-owned manufacturing enterprise with over 20 years of automotive experience, ranking among Europe's top four producers of pneumatic fittings. Operating globally through MB Pneumatyka in Poland and MBP PVT in India, we specialise in safety-critical, precision-made fittings for all pneumatics systems, including braking and air suspension systems in trucks, trailers, agricultural vehicles, tractor trailers, and buses.

Components where reliability is non-negotiable.

Rather than offering standard catalogue components alone, we provide customised engineering solutions tailored to individual client requirements. We work together with our customers on their pneumatic layout to provide a tailored solution that is both lighter and more cost-effective.

Where the world's largest pneumatic manufacturers require years to develop a custom component, we can take a concept to a finished prototype in as little as 7 working days. Our commitment to quality is backed by IATF 16949:2016 certification, the international standard for automotive supply chains.

Our product range includes pneumatic push-in fittings, distribution manifolds, modular plastic manifolds, test points, drain valves, and polyamide tubes.



# WHY PARTNER WITH US

Message from the Founder

The question I ask of every decision, would we be comfortable if our client could see exactly what we are doing and why?

MB Pneumatyka was established in 2002. For over two decades, this company has built its reputation on a single, consistent principle: quality matters most when no one is watching.

I have led this business since the beginning. In that time, the industry around us has changed enormously - supply chains have globalised, margins have compressed, and the pressure to cut corners has never been greater. Our answer to that pressure has not changed. The question I ask of every decision is the same one I have always asked: would we be comfortable if our client could see exactly what we are doing and why? That is not a rhetorical question in a supply chain, where shortcuts rarely surface until something goes wrong on the road.

We are not the largest manufacturer in this industry. We do not aim to be. What we offer is something larger manufacturers struggle to match: the agility to take a client's engineering problem and return a working solution in days, not years. Every fitting we make goes into a pneumatic system like braking system or an air suspension. Every one of them must work, every time, under conditions that include extreme cold & heat, road vibration, and corrosive road salts over hundreds of thousands of kilometres.

This catalogue is a record of what that commitment produces. We hope it earns your confidence.

**Małgorzata Bieniaszewska** Founder, MB Pneumatyka

# WHY PARTNER WITH US

IATF 16949 & 100% Leak Testing Protocols

MB Pneumatyka holds **IATF 16949:2016** certification - the standard for the automotive supply chain. This mandatory requirement for Tier 1 and Tier 2 manufacturers is a threshold that the majority of local Polish competitors do not meet.

## STATISTICAL PROCESS CONTROL (SPC)

Quality is built in, not inspected in, through documented Poka-Yoke error prevention.



### RIGOROUS QUALITY VALIDATION

Rigorous quality validation and testing protocols compliant with AIAG, SAE & ISO standards.



### AUTOMATED SERIAL PRODUCTION

Repeatability across high-volume supply.



### SAFETY-CRITICAL RELIABILITY

Zero-defect philosophy in fittings for braking and suspension systems.

Sample test results for push-in fittings:

Static Leakage	≤3.5 cm <sup>3</sup> /min across all temperatures
Dynamic Leakage	≤4 cm <sup>3</sup> /min at -40°C; ≤1 cm <sup>3</sup> /min at -20°C / 0°C; ≤0.5 cm <sup>3</sup> /min at +20°C and above
High Temperature	No damage; leakage ≤0.5 cm <sup>3</sup> /min at +20°C
Vibration Resistance	No external damage; leakage ≤0.5 cm <sup>3</sup> /min at +20°C
Corrosion Resistance	No corrosion affecting function; leakage ≤0.5 cm <sup>3</sup> /min
Tube Pull-Out Force	Pull-out force exceeds minimum tube retention force under all operating conditions

# WHY PARTNER WITH US

In-House R&D and Testing Labs

## CONCEPT TO PROTOTYPE IN 7 DAYS

### PROBLEM

Standard prototyping cycles at Tier-1 suppliers take months or even years. This "bureaucratic drag" and reliance on external hand-offs delay your time-to-market.

### CAPABILITY

- We produce complex geometries in one setup, eliminating time lost to multi-machine recalibration.
- Design, validation, and production are co-located in MB Pneumatyka Headquarters. We don't wait for external CAD approvals or third-party engineering.
- As a family-owned business, we bypass the multi-level sign offs. Our "ready-to-act" culture treats prototyping as a core service, not an interruption to production.

### GUARANTEE

Concept to finished prototype in as little as 7 working days. The same process can take months or even years at larger, less agile pneumatic manufacturers.

## FIT-AND-FORGET RELIABILITY

### PROBLEM

CV braking systems face extreme cycles ( $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ ), constant vibration, and corrosive salts over lives of 1M+ km.

### CAPABILITY

- Climate chambers ( $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$ ),
- Salt spray chambers (480h ISO 9227),
- Vibration rigs (5g, 10-150 Hz).

### GUARANTEE

Every MB Pneumatyka fitting is validated across the full operating envelope before release to production.

# ENGINEERING GUIDE

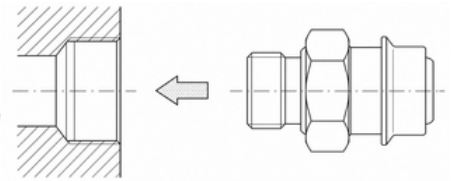
## Assembly & Disassembly Guide

Our development and QA capability is housed entirely within our Sulechów (Poland) facility. Zero external dependence means direct engineering control and a market-leading 7-day concept-to-prototype development cycle.

### PTC FITTINGS: ASSEMBLY

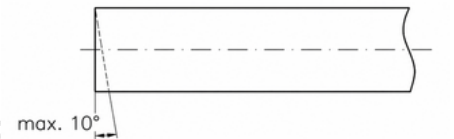
#### 1 Screw the fitting into the socket.

Before you begin, ensure that both the fitting and the socket are completely free of any dirt or debris. Once they are clean, carefully screw the fitting into the socket until it is securely fastened.



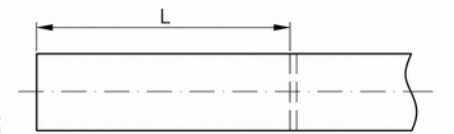
#### 2 Prepare the pipe

Begin by cutting the pipe at a precise right angle to its axis, making sure that any deviation from the perpendicular does not exceed a 10-degree tolerance. Once the cut is complete, verify that the surface is entirely smooth and free of any dirt, debris, or visible scratches.



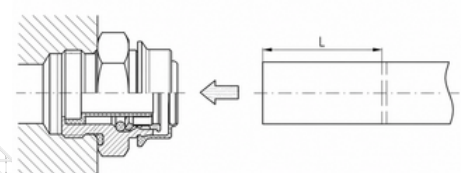
#### 3 Calculate final dimensions

When calculating your final dimensions, keep in mind that the specific pipe length (L) must be pressed entirely into the socket of the fitting (Tab.1). Accurate measurement of this insertion depth is essential to ensure the joint is fully seated and remains structurally sound.



#### 4 Assemble the pipe

Slide the pipe through the protective cap and the clamping sleeve. Continue pushing the pipe forward until it reaches the internal stop and you encounter a firm resistance.



Tab.1

Pipe diameter $\varnothing$ [mm]	6	8	12	15
Pipe length in connector with cap L [mm]	22.5	22.5	22	24.5
Pipe length in connector without cap L [mm]	18	18	19	20

# ENGINEERING GUIDE

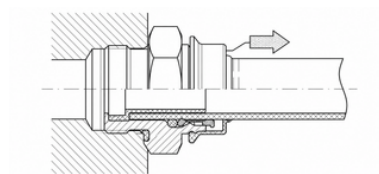
## Assembly & Disassembly Guide

### PTC FITTINGS: DISASSEMBLY

1

#### Remove the protective cap

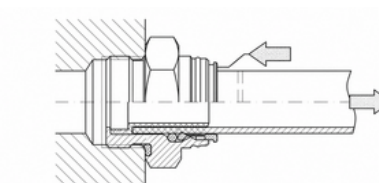
Remove the blue protective cap from the fitting's end to expose the clamping sleeve (brass ring). It is not possible to press the ring without first removing the cap.



2

#### Remove the pipe

To disconnect the joint, apply firm and consistent pressure to the clamping sleeve to release its internal grip. While holding the sleeve in this position, pull the pipe steadily away from the fitting until it is fully released.

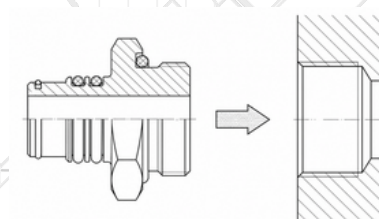


### ROTARY FITTINGS: ASSEMBLY

1

#### Install the screw plug

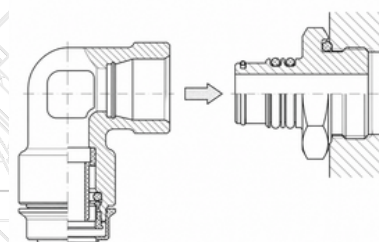
Prior to assembly, verify that the socket is completely free of any dirt or contaminants. Once cleanliness is confirmed, thread and tighten the screw plug of the rotary fitting into the socket until it is fully secured.



2

#### Insert the fitting

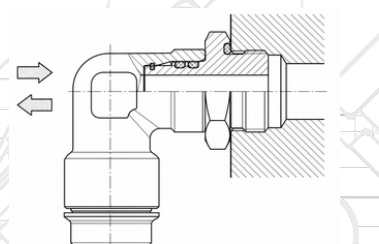
Insert the body of the fitting into the screw plug that you have previously mounted. Apply firm, steady pressure until you encounter strong resistance, which indicates that the fitting is correctly seated within the plug.



3

#### Check the fitting is mounted properly

To ensure the fitting is securely installed, perform several up-and-down movements on the entire assembly. This manual verification confirms that the internal locking mechanisms are fully engaged and that the connection is stable.



# THREADED FITTINGS

High-performance straight fittings designed for heavy-duty pneumatic systems. Optimised for rapid assembly and extreme durability.

	NOTATION	D	M				
	4/M8	4x1	M8x1		10x1,25/M12	10x1,25	M12x1,5
	4/M10	4x1	M10x1		10x1,25/M14	10x1,25	M14x1,5
	4/M12	4x1	M12x1,5		10x1,25/M16	10x1,25	M16x1,5
	5/M8	5x1	M8x1		10x1,25/M18	10x1,25	M18x1,5
	5/M10	5x1	M10x1		10x1,25/M22	10x1,25	M22x1,5
	6/M6	6x1	M6x1		10x1,5/M10	10x1,5	M10x1
	6/M8	6x1	M8x1		10x1,5/M12	10x1,5	M12x1,5
	6/M10	6x1	M10x1		10x1,5/M14	10x1,5	M14x1,5
	6/M12	6x1	M12x1,5		10x1,5/M16	10x1,5	M16x1,5
	6/M14	6x1	M14x1,5		10x1,5/M18	10x1,5	M18x1,5
	6/M16	6x1	M16x1,5		10x1,5/M22	10x1,5	M22x1,5
	6/M22	6x1	M22x1,5		11/M12	11x1,5	M12x1,5
	8/M10	8x1	M10x1		11/M16	11x1,5	M16x1,5
	8/M12	8x1	M12x1,5		12/M10	12x1,5	M10x1
	8/M14	8x1	M14x1,5		12/M12	12x1,5	M12x1,5
	8/M16	8x1	M16x1,5		12/M14	12x1,5	M14x1,5
	8/M18	8x1	M18x1,5		12/M16	12x1,5	M16x1,5
	8/M22	8x1	M22x1,5		12/M18	12x1,5	M18x1,5
	9/M16	9x1,5	M16x1,5		12/M22	12x1,5	M22x1,5
	10/M10	10x1	M10x1		14/M16	14x2	M16x1,5
	10/M12	10x1	M12x1,5		15/M16	15x1,5	M16x1,5
	10/M14	10x1	M14x1,5		15/M18	15x1,5	M18x1,5
10/M16	10x1	M16x1,5	15/M22	15x1,5	M22x1,5		
10/M18	10x1	M18x1,5	16/M16	16x2	M16x1,5		
10/M22	10x1	M22x1,5	16/M22	16x2	M22x1,5		
10x1,25/M10	10x1,25	M10x1	18/M22	18x2	M22x1,5		

D – plug-in connector for plastic tubing (polyamide tube)  
M – metric external thread, male, with O-ring seal

YOUR NOTES

# THREADED FITTINGS

	NOTATION	D	G	
	6/G18	6x1	1/8"	<p>D/G</p>
	8/G18	8x1	1/8"	
	8/G14	8x1	1/4"	
	8/G38	8x1	3/8"	
	8/G12	8x1	1/2"	
	10/G12	10x1	1/2"	
	12/G38	12x1,5	3/8"	
	12/G12	12x1,5	1/2"	
	15/G12	15x1,5	1/2"	

D – plug-in connector for plastic tubing (polyamide tube)  
 G – external inch pipe thread, male, with O-ring seal

	NOTATION	Mk	M	
	M14k/M22	M14x1,5	M22x1,5	<p>Mk/M</p>
	M18k/M16	M18x1,5	M16x1,5	
	M18k/M22	M18x1,5	M22x1,5	
	M22k/M22	M22x1,5	M22x1,5	

Mk – Male connector with a 24° taper (in accordance with ISO 8434-1)  
 M – metric external thread, male, with O-ring seal

	NOTATION	Mw1	Mw2	
	M12w/M12w	M12x1,5	M12x1,5	<p>Mw/Mw</p>
	M16w/M16w	M16x1,5	M16x1,5	
	M22w/M22w	M22x1,5	M22x1,5	

Mw – metric internal thread, female

YOUR NOTES

# THREADED FITTINGS

	NOTATION	D	Mw	
	6/M12w	6x1	M12x1,5	
	8/M12w	8x1	M12x1,5	
	8/M14w	8x1	M14x1,5	
	8/M16w	8x1	M16x1,5	
	10/M16w	10x1	M16x1,5	
	12/M16w	12x1,5	M16x1,5	
	12/M18w	12x1,5	M18x1,5	
	12/M22w	12x1,5	M22x1,5	
	15/M16w	15x1,5	M16x1,5	
	15/M18w	15x1,5	M18x1,5	
	15/M22w	15x1,5	M22x1,5	

D – plug-in connector for plastic tubing (polyamide tube)

Mw – metric internal thread, female

	NOTATION	D	MNs	
	6/M14Ns	6x1	M14x1,5	
	6/M16Ns	6x1	M16x1,5	
	6/M22Ns	6x1	M22x1,5	
	8/M16Ns	8x1	M16x1,5	
	8/M18Ns	8x1	M18x1,5	
	8/M22Ns	8x1	M22x1,5	
	10/M22Ns	10x1	M22x1,5	

D – plug-in connector for plastic tubing (polyamide tube)

MNs – female connector for a 24° cone (compliant with ISO 8434-1)

YOUR NOTES

# STREIGHT FITTINGS

Built for tough pneumatic systems, these straight fittings deliver fast assembly and long-lasting strength.

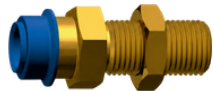
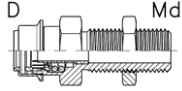
	NOTATION	D1	D2	
	4/4	4x1	4x1	
	4/6	4x1	6x1	
	5/5	5x1	5x1	
	5/6	5x1	6x1	
	6/6	6x1	6x1	
	6/8	6x1	8x1	
	6/10	6x1	10x1	
	8/8	8x1	8x1	
	8/10	8x1	10x1	
	8/12	8x1	12x1,5	
	10/10	10x1	10x1	
	10/12	10x1	12x1,5	
	12/12	12x1,5	12x1,5	
	12/15	12x1,5	15x1,5	
	15/15	15x1,5	15x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)

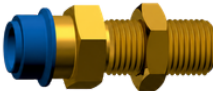
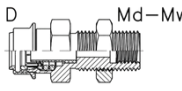
YOUR NOTES

# STUD BULKHEAD FITTINGS

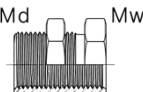
Secure through-wall connections for pneumatic lines. Designed to maintain system integrity while passing through chassis panels or control boxes.

	NOTATION	D	Md	
	15/M22d	15x1,5	M22x1,5	 D/Md

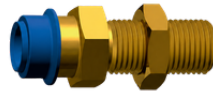
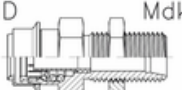
D – plug-in connector for plastic tubing (polyamide tube)  
Md – long metric external/male thread – bulkhead

	NOTATION	D	Md	Mw	
	8/M22d-M16w	8x1	M22x1,5	M16x1,5	 D/Md-Mw

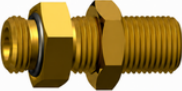
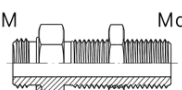
D – plug-in connector for plastic tubing (polyamide tube)  
Md – long metric external/male thread – bulkhead  
Mw – Metric internal female thread

	NOTATION	Md	Mw	
	M22d/M16w	M22x1,5	M16x1,5	 Md/Mw

Md – long metric external/male thread – bulkhead  
Mw – Metric internal thread, female

	NOTATION	D	Mdk	
	8/M16dk	8x1	M16x1,5	 D/Mdk
	12/M18dk	12x1,5	M18x1,5	
	15/M18dk	15x1,5	M18x1,5	
	15/M22dk	15x1,5	M22x1,5	

D – plug-in connector for plastic tubing (polyamide tube)  
Mdk – long metric external/male thread – bulkhead type with a 24° taper (in accordance with ISO 8434-1)

	NOTATION	M	Md	
	M16/M16d	M16x1,5	M16x1,5	 M/Md
	M16/M22d	M16x1,5	M22x1,5	
	M22/M22d	M22x1,5	M22x1,5	

M – metric external thread, male, with O-ring seal  
Md – long metric external/male thread – bulkhead

# STUD BULKHEAD FITTINGS

	NOTATION	M	Md	D	
	M16/M20d-12	M16x1,5	M20x1,5	12x1,5	
	M22/M18d-10	M22x1,5	M18x1,5	10x1	
	M22/M20d-8	M22x1,5	M20x1,5	8x1	
	M22/M20d-12	M22x1,5	M20x1,5	12x1,5	

M – metric external thread, male, with O-ring seal  
 Md – long metric external/male thread – bulkhead  
 D – plug-in connector for plastic tubing (polyamide tube)

	NOTATION	Mk	Mdk	
	M18k/M18dk	M18x1,5	M18x1,5	

Mk – Male connector with a 24° taper (in accordance with ISO 8434-1)  
 Mdk – long metric external/male thread – bulkhead type with a 24° taper (in accordance with ISO 8434-1)

	NOTATION	M	Md	Mw	
	M16/M22d-M16w	M16x1,5	M22x1,5	M16x1,5	
	M22/M22d-M16w	M22x1,5	M22x1,5	M16x1,5	
	M22/M26d-M16w	M22x1,5	M26x1,5	M16x1,5	

M – metric external thread, male, with O-ring seal  
 Md – long metric external/male thread – bulkhead  
 Mw – metric internal thread, female

	NOTATION	M	Mdu	
	M16/M16du	M16x1,5	M16x1,5	


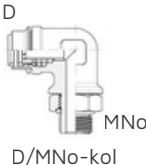
M – metric external thread, male, with O-ring seal  
 Mdu – long metric external/male thread – bulkhead type with a seal end fitting for an O-ring

	NOTATION	M	Mdk	
	M16/M18dk	M16x1,5	M18x1,5	
	M18/M16dk	M18x1,5	M16x1,5	
	M22/M16dk	M22x1,5	M16x1,5	
	M22/M18dk	M22x1,5	M18x1,5	


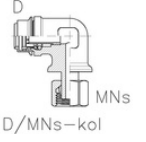
M – metric external thread, male, with O-ring seal  
 Mdk – long metric external/male thread – bulkhead type with a 24° taper (in accordance with ISO 8434-1)

# ELBOW FITTINGS

Designed as a versatile modular platform, these fittings offer the architectural flexibility required for complex pneumatic layouts. By integrating diverse terminations, ranging from internal and external threads to push-to-connect or eyelet interfaces, into our elbow-style bodies, we provide a solution tailored to your specific technical requirements.



	NOTATION	D	M		NOTATION	D	M	
	4/M10-kol	4x1	M10x1	 D/MNo-kol	10/M10-kol	10x1	M10x1	
	4/M12-kol	4x1	M12x1,5		10/M12-kol	10x1	M12x1,5	
	5/M10-kol	5x1	M10x1		10/M14-kol	10x1	M14x1,5	
	6/M8-kol	6x1	M8x1		10/M16-kol	10x1	M16x1,5	
	6/M10-kol	6x1	M10x1		10/M18-kol	10x1	M18x1,5	
	6/M12-kol	6x1	M12x1,5		10/M22-kol	10x1	M22x1,5	
	6/M14-kol	6x1	M14x1,5		12/M10-kol	12x1,5	M10x1	
	6/M16-kol	6x1	M16x1,5		12/M12-kol	12x1,5	M12x1,5	
	6/M22-kol	6x1	M22x1,5		12/M14-kol	12x1,5	M14x1,5	
	8/M10-kol	8x1	M10x1		12/M16-kol	12x1,5	M16x1,5	
	8/M12-kol	8x1	M12x1,5		12/M18-kol	12x1,5	M18x1,5	
	8/M14-kol	8x1	M14x1,5		12/M22-kol	12x1,5	M22x1,5	
	8/M16-kol	8x1	M16x1,5		15/M16-kol	15x1,5	M16x1,5	
	8/M18-kol	8x1	M18x1,5		15/M22-kol	15x1,5	M22x1,5	
	8/M22-kol	8x1	M22x1,5		16/M22-kol	16x2	M22x1,5	
	9/M16-kol	9x1,5	M16x1,5		18/M22-kol	18x2	M22x1,5	

D – plug-in connector for plastic tubing (polyamide tube)  
 M – metric external thread, male, with O-ring seal  
 kol – elbow


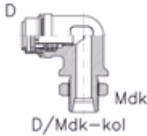
	NOTATION	D	MNs	
	12/M18Ns-kol	12x1,5	M18x1,5	 D/MNs-kol
	12/M22Ns-kol	12x1,5	M22x1,5	

D – plug-in connector for plastic tubing (polyamide tube)  
 MNs – female end for 24° taper (in accordance with ISO 8434-1)  
 kol – elbow



# ELBOW FITTINGS

	NOTATION	Mk	M	
	M18k/M16-kol	M18x1,5	M16x1,5	
	M22k/M22-kol	M22x1,5	M22x1,5	

Mk – male fitting with 24° cone (to ISO 8434-1)  
M – metric external thread, male, with O-ring seal  
kol - elbow



	NOTATION	D	Mdk	
	6/M12dk-kol	6x1	M12x1,5	
	8/M14dk-kol	8x1	M14x1,5	
	10/M16dk-kol	10x1	M16x1,5	
	12/M16dk-kol	12x1,5	M16x1,5	
	12/M18dk-kol	12x1,5	M18x1,5	
	15/M22dk-kol	15x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
Mdk – long external/male metric thread – bulkhead with 24° cone (according to ISO 8434-1)  
kol - elbow


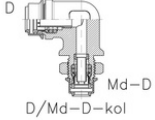
	NOTATION	D	Mw	
	6/M12w-kol	6x1	M12x1,5	
	8/M12w-kol	8x1	M12x1,5	
	12/M22w-kol	12x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
Mw – metric internal thread, female  
kol - elbow


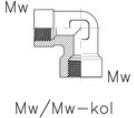
# ELBOW FITTINGS

	NOTATION	Mw	M	
	M12w/M12-kol	M12x1,5	M12x1,5	 Mw/MNo-kol
	M16w/M16-kol	M16x1,5	M16x1,5	
	M18w/M18-kol	M18x1,5	M18x1,5	
	M22w/M22-kol	M22x1,5	M22x1,5	

Mw – metric internal thread, female  
M – metric external thread, male, with O-ring seal  
kol - elbow

	NOTATION	D	Md	D	
	8/M16d-8-kol	8x1	M16x1,5	8x1	 D/Md-D-kol

D – plug-in fitting for plastic tubing (polyamide tube)  
Md – long external/male metric thread – bulkhead  
kol - elbow

	NOTATION	Mw	Mw	
	M16w/M16w-kol	M16x1,5	M16x1,5	 Mw/Mw-kol
	M22w/M22w-kol	M22x1,5	M22x1,5	

Mw – metric internal thread, female  
kol - elbow

	NOTATION	Mk	MNs	
	M18k/M18Ns-kol	M18x1,5	M18x1,5	 Mk/MNs-kol


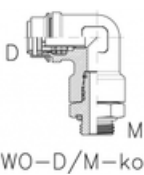
Mk – male fitting with 24° cone (to ISO 8434-1)  
MNs – female end for 24° taper (in accordance with ISO 8434-1)  
kol - elbow

	NOTATION	MNs	M	
	M14Ns/M12-kol	M14x1,5	M12x1,5	 MNs/MNo-kol


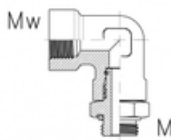
MNs – female end for 24° taper (in accordance with ISO 8434-1)  
M – metric external thread, male, with O-ring seal  
kol - elbow

# SWIVEL FITTINGS

Our swivel connectors eliminate line torsion and kinking by providing essential rotational freedom. These precision-engineered components protect high-pressure lines from mechanical stress, significantly extending service life in safety-critical braking and suspension applications. By ensuring torsion-free connectivity, we enhance total system reliability and reduce maintenance downtime for heavy-duty commercial vehicles.


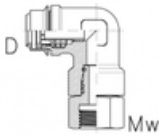
	NOTATION	D	M	
	WO-6/M10-kol	6x1	M10x1	 WO-D/M-kol
	WO-6/M12-kol	6x1	M12x1,5	
	WO-6/M14-kol	6x1	M14x1,5	
	WO-8/M12-kol	8x1	M12x1,5	
	WO-8/M14-kol	8x1	M14x1,5	
	WO-8/M16-kol	8x1	M16x1,5	
	WO-12/M14-kol	12x1,5	M14x1,5	
	WO-12/M16-kol	12x1,5	M16x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 M – metric external thread, male, with O-ring seal  
 kol – elbow

	NOTATION	Mw	M	
	WO-M12w/M10-kol	M12x1,5	M10x1	 Mw
	WO-M12w/M12-kol	M12x1,5	M12x1,5	
	WO-M12w/M14-kol	M12x1,5	M14x1,5	
	WO-M12w/M16-kol	M12x1,5	M16x1,5	
	WO-M12w/M22-kol	M12x1,5	M22x1,5	
	WO-M16w/M10-kol	M16x1,5	M10x1	
	WO-M16w/M12-kol	M16x1,5	M12x1,5	
	WO-M16w/M14-kol	M16x1,5	M14x1,5	
	WO-M16w/M16-kol	M16x1,5	M16x1,5	
	WO-M16w/M22-kol	M16x1,5	M22x1,5	

Mw – metric internal thread, female  
 M – metric external thread, male, with O-ring seal  
 kol – elbow


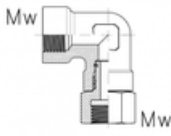
# SWIVEL FITTINGS

	NOTATION	D	Mw	
	WO-4/M16w-kol	4x1	M16x1,5	 WO-D/Mw-kol
	WO-4/M22w-kol	4x1	M22x1,5	
	WO-6/M16w-kol	6x1	M16x1,5	
	WO-6/M22w-kol	6x1	M22x1,5	
	WO-8/M16w-kol	8x1	M16x1,5	
	WO-8/M22w-kol	8x1	M22x1,5	
	WO-10/M16w-kol	10x1	M16x1,5	
	WO-10/M22w-kol	10x1	M22x1,5	
	WO-12/M16w-kol	12x1,5	M16x1,5	
	WO-12/M22w-kol	12x1,5	M22x1,5	
	WO-15/M16w-kol	15x1,5	M16x1,5	
	WO-15/M22w-kol	15x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)

Mw – metric internal thread, female

kol – elbow

	NOTATION	Mw	Mw	
	WO-M12w/M16w-kol	M12x1,5	M16x1,5	 WO-Mw/Mw-kol
	WO-M12w/M22w-kol	M12x1,5	M22x1,5	
	WO-M16w/M16w-kol	M16x1,5	M16x1,5	
	WO-M16w/M22w-kol	M16x1,5	M22x1,5	

Mw – metric internal thread, female

kol – elbow

YOUR NOTES

# SWIVEL FITTINGS

	NOTATION	D1	M	D2	
	WO-8/M12/8	8x1	M12x1,5	8x1	
	WO-8/M16/8	8x1	M16x1,5	8x1	
	WO-8/M16/12	8x1	M16x1,5	12x1,5	
	WO-8/M22/8	8x1	M22x1,5	8x1	
	WO-10/M16/10	10x1	M16x1,5	10x1	
	WO-12/M16/12	12x1,5	M16x1,5	12x1,5	
	WO-12/M22/12	12x1,5	M22x1,5	12x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)

M – metric external thread, male, with O-ring seal

	NOTATION	D1	Mw	D2	
	WO-8/M16w/8	8x1	M16x1,5	8x1	
	WO-8/M22w/8	8x1	M22x1,5	8x1	
	WO-8/M16w/12	8x1	M16x1,5	12x1,5	
	WO-8/M22w/12	8x1	M22x1,5	12x1,5	
	WO-10/M16w/10	10x1	M16x1,5	10x1	
	WO-10/M22w/10	10x1	M22x1,5	10x1	
	WO-10/M16w/12	10x1	M16x1,5	12x1,5	
	WO-10/M22w/12	10x1	M22x1,5	12x1,5	
	WO-15/M16w/15	15x1,5	M16x1,5	15x1,5	
	WO-15/M22w/15	15x1,5	M22x1,5	15x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)

Mw – metric internal thread, female

# SWIVEL FITTINGS BODIES

	NOTATION	D1	zzw	D2	
	8/zz5w/8	8x1	zz5w	8x1	
	8/zz5w/12	8x1	zz5w	12x1,5	
	10/zz5w/10	10x1	zz5w	10x1	
	10/zz5w/12	10x1	zz5w	12x1,5	
	15/zz5w/15	15x1,5	zz5w	15x1,5	
	15/zz9w/15	15x1,5	zz9w	15x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)

ZZw – female end for swivel connector

	NOTATION	Mw	Mw	zzw	
	M16w/M16w/zz5w	M16x1,5	M16x1,5	zz5w	
	M16w/M16w/zz9w	M16x1,5	M16x1,5	zz9w	

Mw – metric internal thread, female

ZZw – female end for swivel connector

	NOTATION	D	zzw	
	4/zz5w-kol	4x1	zz5w	
	6/zz5w-kol	6x1	zz5w	
	8/zz5w-kol	8x1	zz5w	
	10/zz5w-kol	10x1	zz5w	
	12/zz5w-kol	12x1	zz5w	
	15/zz5w-kol	15x1	zz5w	
	12/zz9w-kol	12x1	zz9w	
	15/zz9w-kol	15x1	zz9w	

D – plug-in fitting for plastic tubing (polyamide tube)

ZZw – female end for swivel connector

	NOTATION	Mw	zzw	
	M12w/zz5w-kol	M12x1,5	zz5w	
	M16w/zz5w-kol	M16x1,5	zz5w	
	M16w/zz9w-kol	M16x1,5	zz9w	

Mw – metric internal thread, female

ZZw – female end for swivel connector

# SCREEN PLUGS TO SWIVEL FITTINGS

	NOTATION	zzz	M	
	zz5z/M10	zz5z	M10x1	 ZZZ M zzz/M
	zz5z/M12	zz5z	M12x1,5	
	zz5z/M14	zz5z	M14x1,5	
	zz5z/M16	zz5z	M16x1,5	
	zz5z/M22	zz5z	M22x1,5	
	zz5z/M26	zz5z	M26x1,5	
	zz9z/M16	zz9z	M16x1,5	
	zz9z/M22	zz9z	M22x1,5	
	zz9z/M26	zz9z	M26x1,5	

ZZz – male end for swivel connector

M – metric external thread, male, with O-ring seal

	NOTATION	zzz	Mw	
	zz5z/M16w	zz5z	M16x1,5	 ZZZ Mw zzz/Mw
	zz5z/M22w	zz5z	M22x1,5	
	zz9z/M16w	zz9z	M16x1,5	
	zz9z/M22w	zz9z	M22x1,5	

ZZz – male end for swivel connector

Mw – metric internal thread, female

# THREE-WAY FITTINGS

Designed for safety-critical air suspension systems, our three-way fittings facilitate precise air distribution and multi-path routing. These precision components manage complex airflow configurations, ensuring consistent system control for heavy-duty commercial vehicles.

	NOTATION	D	Mk	M	 D/Mk/Mno
	6/M22k/M22	6x1	M22x1,5	M22x1,5	
	8/M12k/M16	8x1	M12x1,5	M16x1,5	
	12/M12k/M16	12x1,5	M12x1,5	M16x1,5	
	12/M12k/M22	12x1,5	M12x1,5	M22x1,5	
	NOTATION	Mk	D	M	 Mk/D/MNo
	M22k/6/M22	M22x1,5	6x1	M22x1,5	
	NOTATION	D	M	Mk	 D/MNo/Mk
	8/M22/M12k	8x1	M22x1,5	M12k	
	8/M16/M12k	8x1	M16x1,5	M12k	
	12/M16/M12k	12x1,5	M16x1,5	M12k	
	12/M22/M12k	12x1,5	M22x1,5	M12k	

D – plug-in fitting for plastic tubing (polyamide tube)  
 M – metric external thread, male, with O-ring seal  
 Mk – male fitting with 24° cone (to ISO 8434-1)

	NOTATION	D	Mw	M	 D/Mw/MNo
	15/M16w/M22	15x1,5	M16x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 Mw – metric internal thread, female  
 M – metric external thread, male, with O-ring seal

# THREE-WAY FITTINGS

	NOTATION	D1	MNs	D2	
	8/M14Ns/8	8x1	M14x1,5	8x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 MNs – female end for 24° taper (in accordance with ISO 8434-1)

	NOTATION	M	D	M	
	M22/10/M22	M22x1,5	10x1	M22x1,5	
	M22/15/M22	M22x1,5	15x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 Mw – metric internal thread, female  
 M – metric external thread, male, with O-ring seal

	NOTATION	D	M	M	
	6/M22/M22	6x1	M22x1,5	M22x1,5	
	8/M22/M22	8x1	M22x1,5	M22x1,5	
	12/M12/M16	12x1,5	M12x1,5	M16x1,5	
	12/M16/M12	12x1,5	M16x1,5	M12x1,5	
	15/M22/M22	15x1,5	M22x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 M – metric external thread, male, with O-ring seal

	NOTATION	Mk	Mk	M	
	M18k/M18k/M16	M18x1,5	M18x1,5	M16x1,5	
	M22k/M22k/M22	M22x1,5	M22x1,5	M22x1,5	

Mk – male fitting with 24° cone (to ISO 8434-1)  
 M – metric external thread, male, with O-ring seal

	NOTATION	Mw1	Mw2	Mw3	
	M12w/M12w/M12w	M12x1,5	M12x1,5	M12x1,5	
	M14w/M14w/M14w	M14x1,5	M14x1,5	M14x1,5	
	M16w/M16w/M16w	M16x1,5	M16x1,5	M16x1,5	
	M22w/M22w/M22w	M22x1,5	M22x1,5	M22x1,5	

Mw – metric internal thread, female

# THREE-WAY FITTINGS

	NOTATION	Mw1	M	Mw2	
	M22w/M22/M22w	M22x1,5	M22x1,5	M22x1,5	
	M16w/M16/M16w	M16x1,5	M16x1,5	M16x1,5	
	M16w/M12/M16w	M16x1,5	M12x1,5	M16x1,5	

Mw – metric internal thread, female

M – metric external thread, male, with O-ring seal

	NOTATION	D1	D2	M	
	6/6/M12	6x1	6x1	M12x1,5	
	6/6/M22	6x1	6x1	M22x1,5	
	6/8/M16	6x1	8x1	M16x1,5	
	6/12/M16	6x1	12x1,5	M16x1,5	
	6/12/M22	6x1	12x1,5	M22x1,5	
	8/6/M12	8x1	6x1	M12x1,5	
	8/6/M22	8x1	6x1	M22x1,5	
	8/8/M10	8x1	8x1	M10x1	
	8/8/M12	8x1	8x1	M12x1,5	
	8/8/M14	8x1	8x1	M14x1,5	
	8/8/M16	8x1	8x1	M16x1,5	
	8/8/M22	8x1	8x1	M22x1,5	
	8/12/M22	8x1	12x1,5	M22x1,5	
	10/10/M16	10x1	10x1	M16x1,5	
	10/10/M22	10x1	10x1	M22x1,5	
	10x1,25/10x1,25/M16	10x1,25	10x1,25	M16x1,5	
	10x1,25/10x1,25/M22	10x1,25	10x1,25	M22x1,5	
	10x1,5/10x1,5/M16	10x1,5	10x1,5	M16x1,5	
10x1,5/10x1,5/M22	10x1,5	10x1,5	M22x1,5		

D – plug-in fitting for plastic tubing (polyamide tube)

M – metric external thread, male, with O-ring seal

YOUR NOTES

# THREE-WAY FITTINGS

	NOTATION	D1	D2	D3	
	4/4/4	4x1	4x1	4x1	
	6/6/6	6x1	6x1	6x1	
	6/8/6	6x1	8x1	6x1	
	8/6/6	8x1	6x1	6x1	
	8/6/8	8x1	6x1	8x1	
	8/8/8	8x1	8x1	8x1	
	9/9/9	9x1,5	9x1,5	9x1,5	
	10/8/10	10x1	8x1	10x1	
	10/10/10	10x1	10x1	10x1	
	10x1,25/8/10x1,25	10x1,25	8x1	10x1,25	
	10x1,25/10x1,25/10x1,25	10x1,25	10x1,25	10x1,25	
	10x1,5/8/10x1,5	10x1,5	8x1	10x1,5	
	10x1,5/10x1,5/10x1,5	10x1,5	10x1,5	10x1,5	
	12/6/12	12x1,5	6x1	12x1,5	
	12/8/8	12x1,5	8x1	8x1	
	12/8/12	12x1,5	8x1	12x1,5	
	12/10/12	12x1,5	10x1	12x1,5	
	12/10x1,25/12	12x1,5	10x1,25	12x1,5	
	12/10x1,5/12	12x1,5	10x1,5	12x1,5	
	12/12/12	12x1,5	12x1,5	12x1,5	
	12/15/12	12x1,5	15x1,5	12x1,5	
	15/8/15	15x1,5	8x1	15x1,5	
	15/15/15	15x1,5	15x1,5	15x1,5	
16/10/16	16x2	10x1	16x2		
16/16/16	16x2	16x2	16x2		

D – plug-in fitting for plastic tubing (polyamide tube)

# THREE-WAY FITTINGS

	NOTATION	Mw1	Mw2	M	
	M16w/M16w/M16	M16x1,5	M16x1,5	M16x1,5	
	M16w/M16w/M22	M16x1,5	M16x1,5	M22x1,5	
	M22w/M12w/M22	M22x1,5	M12x1,5	M22x1,5	

Mw – metric internal thread, female with sealing O-ring  
M – metric external thread, male, with O-ring seal

	NOTATION	D1	M	D2	
	6/M10/6	6x1	M10x1	6x1	
	6/M12/6	6x1	M12x1,5	6x1	
	6/M22/6	6x1	M22x1,5	6x1	
	6/M22/12	6x1	M22x1,5	12x1,5	
	8/M16/6	8x1	M16x1,5	6x1	
	8/M12/8	8x1	M12x1,5	8x1	
	8/M16/8	8x1	M16x1,5	8x1	
	8/M16/12	8x1	M16x1,5	12x1,5	
	8/M22/8	8x1	M22x1,5	8x1	
	8/M22/12	8x1	M22x1,5	12x1,5	
	10/M16/10	10x1	M16x1,5	10x1	
	10/M22/6	10x1	M22x1,5	6x1	
	10/M22/10	10x1	M22x1,5	10x1	
	10x1,25/M16/10x1,25	10x1,25	M16x1,5	10x1,25	
	10x1,25/M22/6	10x1,25	M22x1,5	6x1	
	10x1,25/M22/10x1,25	10x1,25	M22x1,5	10x1,25	
	10 x1,5/M16/10x1,5	10x1,5	M16x1,5	10x1,5	
	10x1,5/M22/6	10x1,5	M22x1,5	6x1	
10x1,5/M22/10x1,5	10x1,5	M22x1,5	10x1,5		

D – plug-in fitting for plastic tubing (polyamide tube)  
M – metric external thread, male, with O-ring seal

# FOUR-WAY FITTINGS

High-performance four-way fittings designed for heavy-duty pneumatic systems. Optimised for rapid assembly and extreme durability.

	NOTATION	D	D	D	D	
	6/6/6/6	6x1	6x1	6x1	6x1	 D/D/D/D
	8/8/8/8	8x1	8x1	8x1	8x1	

D – plug-in fitting for plastic tubing (polyamide tube)

	NOTATION	D	D	D	MNo	
	8/8/8/M22	8x1	8x1	8x1	M22x1,5	 D/D/D/MNo

D – plug-in fitting for plastic tubing (polyamide tube)  
 M – metric external thread, male, with O-ring seal

# HOSETAILS

Connectors for rubber hoses

	NOTATION	Kar	M	
	Kar-8/M12	8	M12x1,5	
	Kar-9/M16	9	M16x1,5	
	Kar-10/M12	10	M12x1,5	
	Kar-10/M16	10	M16x1,5	
	Kar-11/M16	11	M16x1,5	
	Kar-13/M16	13	M16x1,5	
	Kar-13/M22	13	M22x1,5	

KAR – end fitting for rubber hose  
M – metric external thread, male, with O-ring seal

	NOTATION	KAR	MNs	
	Kar-6/M16Ns	6	M16x1,5	
	Kar-13/M18Ns	13	M18x1,5	
	Kar-13/M22Ns	13	M22x1,5	

KAR – end fitting for rubber hose  
MNs – female end for 24° taper (in accordance with ISO 8434-1)

YOUR NOTES

# TEST POINTS

A valve that allows for the safe connection of diagnostic equipment such as a pressure gauge.

	NOTATION	HPh	M	
	HPhM16/M12	M16x1,5	M12x1,5	
	HPhM16/M16	M16x1,5	M16x1,5	
	HPhM16/M22	M16x1,5	M22x1,5	

HPh – connection fitting for test equipment (Test Point)

M – metric external thread, male, with O-ring seal

	NOTATION	D	HPh	M	
	8/HPhM16/M12	8x1	M16x1,5	M12x1,5	
	8/HPhM16/M16	8x1	M16x1,5	M16x1,5	
	8/HPhM16/M22	8x1	M16x1,5	M22x1,5	
	10/HPhM16/M22	10x1	M16x1,5	M22x1,5	
	12/HPhM16/M16	12x1,5	M16x1,5	M16x1,5	
	12/HPhM16/M22	12x1,5	M16x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)

HPh – connection fitting for test equipment (Test Point)

M – metric external thread, male, with O-ring seal

# TEST POINTS

	NOTATION	HPh	D	M	
	HPhM16/8/M16	HPhM16	8x1	M16x1,5	
	HPhM16/8/M22	HPhM16	8x1	M22x1,5	
	HPhM16/10/M16	HPhM16	10x1	M16x1,5	
	HPhM16/10x1,25/M16	HPhM16	10x1,25	M16x1,5	
	HPhM16/10x1,5/M16	HPhM16	10x1,5	M16x1,5	
	HPhM16/12/M16	HPhM16	12x1,5	M16x1,5	
	HPhM16/12/M18	HPhM16	12x1,5	M18x1,5	
	HPhM16/12/M22	HPhM16	12x1,5	M22x1,5	
	HPhM16/15/M16	HPhM16	15x1,5	M16x1,5	
	HPhM16/15/M22	HPhM16	15x1,5	M22x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 HPh – connection fitting for test equipment (Test Point)  
 M – metric external thread, male, with O-ring seal

	NOTATION	D	M	HPh	
	HPhM16/M16/8	8x1	M16x1,5	M16x1,5	
	HPhM16/M22/8	8x1	M22x1,5	M16x1,5	
	HPhM16/M22/12	12x1,5	M22x1,5	M16x1,5	
	HPhM16/M22/15	15x1,5	M22x1,5	M16x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
 M – metric external thread, male, with O-ring seal  
 HPh – connection fitting for test equipment (Test Point)

YOUR NOTES

# ADAPTOR FITTINGS

	NOTATION	M	Mw	
	M12/M12w	M12x1,5	M12x1,5	
	M14/M22w	M14x1,5	M22x1,5	
	M16/M10w	M16x1,5	M10x1,5	
	M16/M12w	M16x1,5	M12x1,5	
	M16/M14w	M16x1,5	M14x1,5	
	M16/M22w	M16x1,5	M22x1,5	
	M22/M12w	M22x1,5	M12x1,5	
	M22/M14w	M22x1,5	M14x1,5	
M22/M22w	M22x1,5	M22x1,5		

M – metric external thread, male, with O-ring seal

Mw – metric internal thread, female

	NOTATION	M	M	
	M10/M16	M10x1	M16x1,5	
	M12/M12	M12x1,5	M12x1,5	
	M12/M16	M12x1,5	M16x1,5	
	M16/M16	M16x1,5	M16x1,5	
	M16/M22	M16x1,5	M22x1,5	
	M22/M22	M22x1,5	M22x1,5	

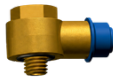
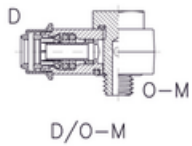
M – metric external thread, male, with O-ring seal

# PLUGS

	NOTATION	M	
	KR M12	M12x1,5	
	KR M16	M16x1,5	
	KR M18	M18x1,5	
	KR M22	M22x1,5	


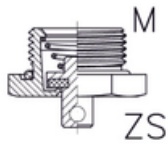
M – metric external thread, male, with O-ring seal

# COMPLEX MESH FITTINGS

	NOTATION	D	M	
	6/O-M10	6x1	M10x1	
	6/O-M12	6x1	M12x1,5	
	6/O-M14	6x1	M14x1,5	
	8/O-M12	8x1	M12x1,5	
	8/O-M14	8x1	M14x1,5	

D – plug-in fitting for plastic tubing (polyamide tube)  
M – metric external thread, male, with O-ring seal

# DRAIN VALVES

	NOTATION	M	
	ZSM22	M22x1,5	 ZsM


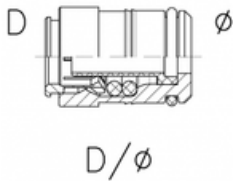
ZS – drain valve

	NOTATION	M	
	ZSM22 + RING	M22x1,5	 ZsM

ZS – drain valve

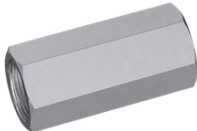
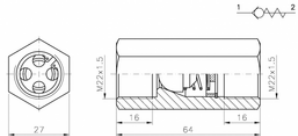
YOUR NOTES

## CARTRIDGE FITTINGS

	NOTATION	D	Ø	
	8/Ø14	8x1	14	
	12/Ø18	12 x1,5	18	


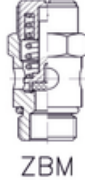
D – plug-in fitting for plastic tubing (polyamide tube)

## NON RETURN VALVES

	NOTATION	Mw	
	HZZ	M22x1,5	

Mw – metric internal thread, female

## SAFETY VALVES

	NOTATION	M	OPENING PRESSURE	
	ZBM16-9,2bar	M16x1,5	9,2bar	
	ZBM16-11bar	M16x1,5	11bar	
	ZBM16-14bar	M16x1,5	14bar	
	ZBM16-16bar	M16x1,5	16bar	
	ZBM22-14bar	M22x1,5	14bar	

M – metric external thread, male, with O-ring seal

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