



# Rectus Medical Solutions

Products for medical devices and biotechnology

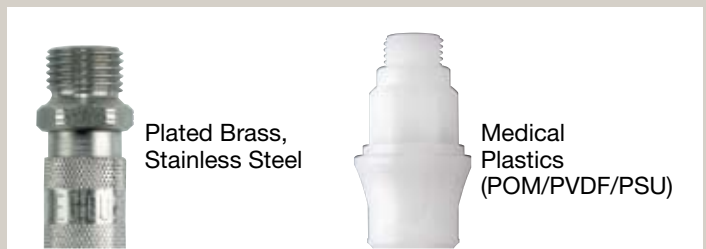
aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# TECHNICAL SOLUTIONS FOR OUTSTANDING PERFORMANCE.

## Materials

The POM, PVDF and PSU medical grade resins and the metals used to build our couplings are cytotoxically harmless and guarantee low wear, the greatest breaking strength, and excellent antifriction properties. Additionally these materials have high creep resistance and dimensional stability, which enhance the system reliability. They can be sterilized by EtO, autoclaving or gamma.



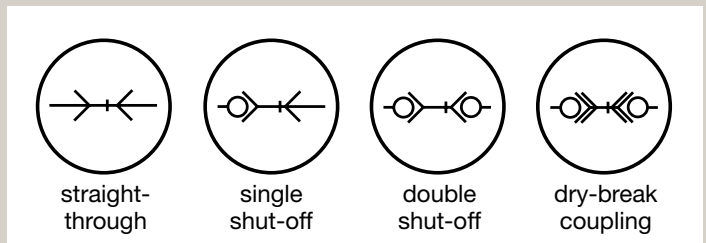
## Seals

A coupling can only be as good as its sealing components. This is why we rely on EPDM (ethylene propylene rubber) and silicone compliant with USP class VI as standard for our sealing materials. For challenging requirements, our experts will, of course, offer completely individual advice and develop an optimum solution.



## Valves

Depending on the application area, Parker Rectus coupling systems are available with free flow, single or double shut-off, and in clean break design. To ensure fault free operation all valve seals are the same as the main seal choice. Furthermore, the valve springs are produced exclusively in AISI 316 L.



## Keyed

This keyed coupling system completely eliminates the possibility of confusing different media. The shape and color of the couplings and the plugs are differentiated, which eliminates accidental cross coupling errors. Additionally, our keyed couplings are also available with individual laser marking or adhesive labels.



# OUR PRODUCT RANGE FOR MEDICAL SOLUTIONS.



## Series 20

- Nominal flow size 2.7 mm
- Small dimension
- Plated Brass or Stainless Steel
- Free flow or single shut-off
- Kv = 0.21
- 0 - 35 bar



## MD Series

- Nominal flow size 5 mm
- Thermoplastics (POM)
- Free flow, single or double shut-off
- Can be sterilized by EtO
- USP class VI
- Kv = 0.23
- 0 - 10 bar
- -20°C - +80°C



## NP Series

- Nominal flow size 2.7 mm
- Small dimension
- Thermoplastics (POM)
- The ideal connector for extension tube sets
- Free flow
- Can be sterilized by EtO
- USP class VI
- Clean-room manufactured
- Kv = 0.16
- 0 - 4.5 bar
- -20°C - +80°C



## MD Series keyed

- Nominal flow size 5 mm
- Thermoplastics (POM)
- Free flow, single shut-off or double shut-off
- Can be sterilized by EtO
- Optional laser labelling
- Mechanical and color coding
- USP class VI, resp. FDA
- Kv = 0.23
- 0 - 10 bar
- -20°C - +80°C



## CO Series

- Nominal flow size 2.7 mm
- 2 independent flow paths
- Thermoplastics (POM)
- Can be sterilized by EtO
- Kv = 0.16

Final performance specs will be included in the forthcoming sales bulletin.



## PPL Series

- Nominal flow size 6 mm
- Thermoplastics (POM)
- Free flow, single or double shut-off
- FDA and NSF conform
- Kv = 1.00
- 0 - 8 bar
- -40°C - +82°C



## PPM Series

- Nominal flow size 3 mm
- Thermoplastics (POM)
- Free flow, single or double shut-off
- FDA and NSF conform
- Kv = 0.40
- 0 - 8 bar
- -40°C - +82°C



## BT Series

- Nominal flow size 7 mm
- Thermoplastics (POM, PVDF or PSU)
- Free flow
- Can be sterilized by EtO, autoclaving or gamma
- Clean-room manufactured
- Kv = 1.50
- 0 - 4.5 bar
- -20°C - +148°C



Nominal flow size  
**2.7 mm**

RECTUS Series

**NP**



Low Pressure

actual size



**Technical Description**  
Mini medical coupling, internationally used profile. Notable for low weight, small package size and numerous application options with various media. Frequently used for non-invasive blood pressure measurement devices, medical device technology and chemistry/pharmacy. The main components are molded in a clean room from virgin transparent USP Class VI acetal (POM). Only available as straight-through version.

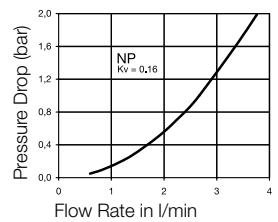
**Advantages**  
Single handed operation. Small dimensions. Audible click to indicate a secure connection. Ergonomic sleeve for easy operation with gloves.

**Working Pressure**  
PB = 0 bar to 4.5 bar, maximum static working pressure with safety factor of 4 to 1.

**Compatibility**  
RECTUS Series 20

**Working Temperature**  
-20°C to +80°C

**Water Flow**



**Material**

**Standard**

**Coupler**

- Back Body
- Valve Body
- Sleeve
- Valve
- Springs
- Locking Systems
- Seals

- Acetal (POM), natural color USP Class VI
- Acetal (POM), natural color USP Class VI
- Acetal (POM), natural color USP Class VI
- N/A
- Acetal (POM), natural color USP Class VI
- Stainless Steel 1.4310 (AISI 301)
- EPDM USP Class VI

**Nipple**

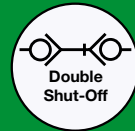
- Plug Profile
- Valve
- Spring
- Adapter
- Seal

- Acetal (POM), natural color USP Class VI
- N/A
- N/A
- N/A
- N/A

**Couplers / Nipples** **RECTUS NP Series**

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
<p>Hose Barb</p>	3 mm		29.7	14.8	13							-	NP-M33-M3HB
	4 mm		29.7	14.8	13							-	NP-M33-M4HB
	5 mm		29.7	14.8	13							-	NP-M33-M5HB
<p>Hose Barb</p>	3 mm		22.8		13							-	NP-M34-M3HB
	4 mm		22.8		13							-	NP-M34-M4HB
	5 mm		22.8		13							-	NP-M34-M5HB

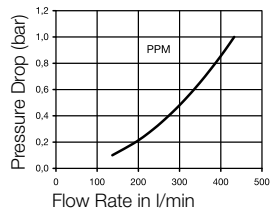
⚠ Please consider our security advices on page 18 ⚠



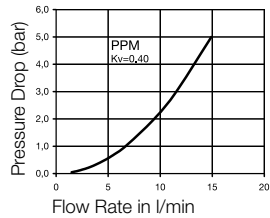
### Technical Description

Small latch type plastic coupling.

### Air Flow



### Water Flow



### Advantages

Resistance to mild chemicals, low weight, intuitive operation.

### Compatibility

Other small latch type couplings.

### Material

#### Coupler

Body  
Termination  
Latch  
Valve  
Springs  
Seals

#### Nipple

Body  
Termination  
Valve  
Springs  
Seals

### Standard

Acetal (POM), natural color USP Class VI  
Acetal (POM), natural color USP Class VI  
Stainless steel  
Acetal (POM), natural color USP Class VI  
Stainless steel  
FDA Buna-N

Acetal (POM), natural color USP Class VI  
Acetal (POM), natural color USP Class VI  
Acetal (POM), natural color USP Class VI  
Stainless steel  
FDA Buna-N

### Working Pressure

PB = 0 bar to 8 bar, maximum static working pressure with safety factor 4 to 1.

### Working Temperature

-40°C to +82°C

actual size

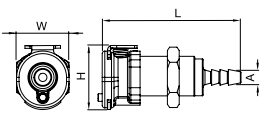


## Couplers

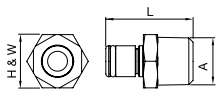
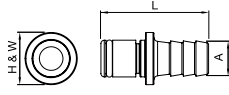
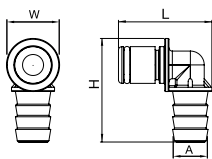
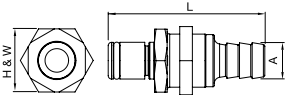
## RECTUS PPM Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
<p>Male Thread</p>	1/8" BSPT	25.4	15.7	20.3							without	-	PPM-123-2MBT
	1/4" BSPT	27.9	15.7	20.3							without	-	PPM-123-4MBT
	1/8" BSPT	25.4	15.7	20.3							with	-	PPM-121-2MBT
	1/4" BSPT	27.9	15.7	20.3							with	-	PPM-121-4MBT
<p>Hose Barb</p>	1.6 mm	38.1	15.7	20.3							without	-	PPM-123-1HB
	3.2 mm	41.9	15.7	20.3							without	-	PPM-123-2HB
	4.8 mm	43.7	15.7	20.3							without	-	PPM-123-3HB
	6.0 mm	45.7	15.7	20.3							without	-	PPM-123-4HB
	1.6 mm	38.1	15.7	20.3							with	-	PPM-121-1HB
	3.2 mm	41.9	15.7	20.3							with	-	PPM-121-2HB
	4.8 mm	43.7	15.7	20.3							with	-	PPM-121-3HB
	6.0 mm	45.7	15.7	20.3							with	-	PPM-121-4HB

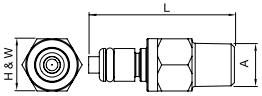
**Couplers** **RECTUS PPM Series**

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
 <p>Panel Mount, Hose Barb</p>	1.6 mm	38.1	15.7	20.3							without	–	PPM-123-H1HB
	3.2 mm	41.9	15.7	20.3							without	–	PPM-123-H2HB
	4.8 mm	43.7	15.7	20.3							without	–	PPM-123-H3HB
	6.0 mm	45.7	15.7	20.3							without	–	PPM-123-H4HB
	1.6 mm	38.1	15.7	20.3							with	–	PPM-121-H1HB
	3.2 mm	41.9	15.7	20.3							with	–	PPM-121-H2HB
	4.8 mm	43.7	15.7	20.3							with	–	PPM-121-H3HB
	6.0 mm	45.7	15.7	20.3							with	–	PPM-121-H4HB

**Nipples** **RECTUS PPM Series**

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
 <p>Male Thread</p>	1/8" BSPT	26.2	12.4	12.4							without	–	PPM-124-2MBT
	1/4" BSPT	28.7	14.2	14.2							without	–	PPM-124-4MBT
 <p>Hose Barb</p>	1.6 mm	20.8	12.7	12.7							without	–	PPM-124-1HB
	3.2 mm	24.6	12.7	12.7							without	–	PPM-124-2HB
	4.8 mm	26.4	12.7	12.7							without	–	PPM-124-3HB
	6.0 mm	28.4	12.7	12.7							without	–	PPM-124-4HB
 <p>Hose Barb 90°</p>	3.2 mm	30.2	12.7	24.1							without	–	PPM-124-C2HB
	6.0 mm	30.2	12.7	27.9							without	–	PPM-124-C4HB
 <p>Panel Mount, Hose Barb</p>	1.6 mm	37.3	15.7	15.7							without	–	PPM-124-H1HB
	3.2 mm	41.1	15.7	15.7							without	–	PPM-124-H2HB
	4.8 mm	42.9	15.7	15.7							without	–	PPM-124-H3HB
	6.0 mm	44.7	15.7	15.7							without	–	PPM-124-H4HB

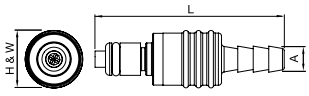
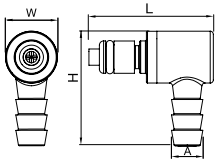
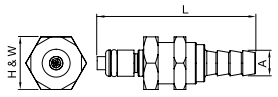
**Valved Nipples** **RECTUS PPM Series**

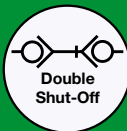
	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
 <p>Male Thread</p>	1/8" BSPT	34.5	12.7	12.7							with	–	PPM-122-2MBT
	1/4" BSPT	35.3	14.2	14.2							with	–	PPM-122-4MBT

⚠ Please consider our security advices on page 18 ⚠

# Valved Nipples

# RECTUS PPM Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
	1.6 mm	38.1	14.0	14.0							with	-	PPM-122-1HB
	3.2 mm	41.9	14.0	14.0							with	-	PPM-122-2HB
	4.8 mm	43.7	14.0	14.0							with	-	PPM-122-3HB
	6.0 mm	45.7	14.0	14.0							with	-	PPM-122-4HB
Hose Barb													
	3.2 mm	30.2	12.7	24.1							with		PPM-122-C2HB
	6.0 mm	30.2	12.7	27.9							with		PPM-122-C4HB
Hose Barb 90°													
	1.6 mm	40.1	15.7	15.7							with	-	PPM-122-H1HB
	3.2 mm	43.9	15.7	15.7							with	-	PPM-122-H2HB
	4.8 mm	45.7	15.7	15.7							with	-	PPM-122-H3HB
	6.0 mm	47.5	15.7	15.7							with	-	PPM-122-H4HB
Panel Mount, Hose Barb													



Nominal flow size

5 mm



RECTUS Series

MD

actual size



actual size



**Technical Description**

Medical coupling made of USP Class VI POM with the world's most commonly used profile. Above average flow performance for liquid and gaseous media. A new type of locking system made of thermoplastic with a non-slip sleeve considerably expands the application possibilities of this small, quick connect coupling.

**Advantages**

Single handed operation. The coupling is fitted with a double shut-off valve which enables it to be connected to a single shut-off (non-valved) plug as well as a double shut-off (valved) plug. The coupling is also available as straight-through coupling (without a valve). The 21 series eliminates the danger of mix-ups by color coding of the coupling and the respective plug. This system guarantees the elimination of mix-ups when media are connected.

**Working Pressure**

PB = 0 bar to 10 bar, maximum static working pressure with safety factor 4 to 1.

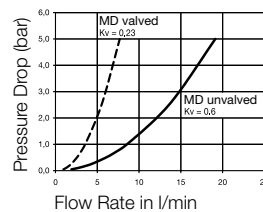
**Working Temperature**

-20°C to +80°C

**Compatibility**

RECTUS Series 21

**Water Flow**



**Material**

**Coupler**

- Valve Body
- Sleeve
- Valve
- Spring
- Locking System
- Seals
- Back Body

**Standard**

- POM USP Class VI, white
- POM USP Class VI, white
- POM USP Class VI, white
- Stainless Steel 1.4571 (AISI 316 Ti)
- POM USP Class VI, white
- EPDM USP Class VI
- POM USP Class VI, white

**Nipple**

- Plug Profile
- Valve
- Spring
- Adapter
- Seal

- POM USP Class VI, white
- POM USP Class VI, white
- Stainless Steel 1.4571 (AISI 316 Ti)
- POM USP Class VI, white
- EPDM USP Class VI

**Couplers**

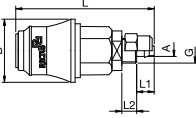
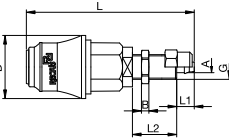
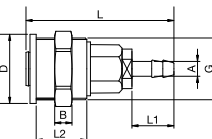
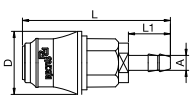
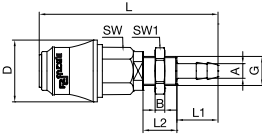
**RECTUS MD Series**

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 Male Thread	G 1/8	17	50	25.5	7							-	MD-M51-2MB
	G 1/4	17	50	25.5	7							-	MD-M51-4MB
 Female Thread	G 1/8	17	50	25.5	8							-	MD-M51-2FB
	G 1/4	17	50	25.5	9							-	MD-M51-4FB
 Plastic Hose Connection, Flush Mount	4 x 6 mm	17	56	28	7	20.5		27	7	M 25 x 1		-	MD-M51-QM6CSP
	6 x 8 mm	17	56	28	7	20.5		27	7	M 25 x 1		-	MD-M51-QM8CSP



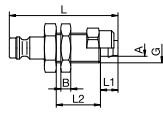
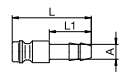
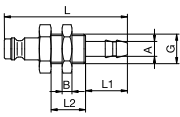
# Couplers

# RECTUS MD Series

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 <p>Plastic Hose Connection</p>	4 x 6 mm	17	56	25.5	7	6				M 10 x 1		-	MD-M51-M6CSP
	6 x 8 mm	17	56	25.5	7	6				M 12 x 1		-	MD-M51-M8CSP
 <p>Panel Mount, Plastic Hose Connection</p>	4 x 6 mm	17	68	25.5	7	18		14	4	M 10 x 1		-	MD-M51-HM6CSP
	6 x 8 mm	17	68	25.5	7	18		17	4	M 12 x 1		-	MD-M51-HM8CSP
 <p>Hose Barb, Flush Mount</p>	4 mm	17	60	28	17	20.5		27	7	M 25 x 1		-	MD-M51-QM4HB
	6 mm	17	60	28	17	20.5		27	7	M 25 x 1		-	MD-M51-QM6HB
 <p>Hose Barb</p>	4 mm	17	60	25.5	17							-	MD-M51-M4HB
	6 mm	17	60	25.5	17							-	MD-M51-M6HB
 <p>Panel Mount, Hose Barb</p>	4 mm	17	74	25.5	17	14		14	4	M 10 x 1		-	MD-M51-HM4HB
	6 mm	17	74	25.5	17	14		17	4	M 12 x 1		-	MD-M51-HM6HB

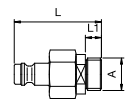
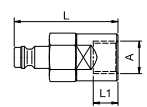
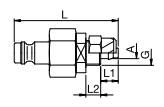
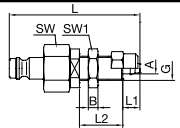
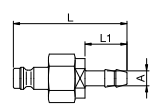
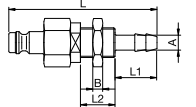
# Nipples

# RECTUS MD Series

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 <p>Panel Mount, Plastic Hose Connection</p>	4 x 6 mm	14	44		7	18		14	4	M 10 x 1		-	MD-M54-HM6CSP
	6 x 8 mm	14	44		7	18		14	4	M 12 x 1		-	MD-M54-HM8CSP
 <p>Hose Barb</p>	4 mm		32		17							-	MD-M54-M4HB
	6 mm		32		17							-	MD-M54-M6HB
 <p>Panel Mount, Hose Barb</p>	4 x 6 mm	14	50		17	14		14	4	M 10 x 1		-	MD-M54-HM4HB
	6 x 8 mm	14	50		17	14		17	4	M 12 x 1		-	MD-M54-HM6HB

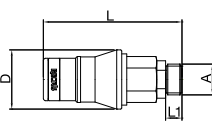
# Valved Nipples

# RECTUS MD Series

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 <p>Male Thread</p>	G 1/8 o.	17	36		7							-	MD-M52-2MB
	G 1/4 o.	17	38		7							-	MD-M52-4MB
 <p>Female Thread</p>	G 1/8 i.	17	39		8							-	MD-M52-2FB
	G 1/4 i.	17	42		10							-	MD-M52-4FB
 <p>Plastic Hose Connection</p>	4 x 6 mm	17	42		7	6				M 10 x 1		-	MD-M52-M6CSP
	6 x 8 mm	17	42		7	6				M 12 x 1		-	MD-M52-M8CSP
 <p>Panel Mount, Plastic Hose Connection</p>	4 x 6 mm	17	48		7	18		4		M 10 x 1		-	MD-M52-HM6CSP
	6 x 8 mm	17	52		7	18		4		M 12 x 1		-	MD-M52-HM8CSP
 <p>Hose Barb</p>	4 mm	17	46		17							-	MD-M52-M4HB
	6 mm	17	46		17							-	MD-M52-M6HB
 <p>Panel Mount, Hose Barb</p>	4 mm	17	60		17	14		14	4	M 10 x 1		-	MD-M52-HM4HB
	6 mm	17	60		17	14		17	4	M 12 x 1		-	MD-M52-HM6HB

# Couplers

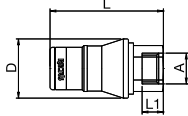
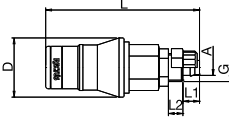
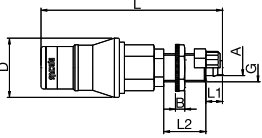
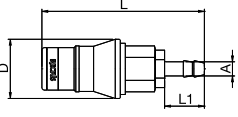
# RECTUS MD Series keyed

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number	
 <p>Male Thread</p>	G 1/8	17	59.5	25.5	7							green - 0	MD-M51-2MB-K0	
												black - 2	MD-M51-2MB-K2	
												brown - 3	MD-M51-2MB-K3	
												yellow - 5	MD-M51-2MB-K5	
	G 1/4	17	59.5	25.5	7								blue - 6	MD-M51-2MB-K6
													red - 8	MD-M51-2MB-K8
													green - 0	MD-M51-4MB-K0
													black - 2	MD-M51-4MB-K2
												brown - 3	MD-M51-4MB-K3	
												yellow - 5	MD-M51-4MB-K5	
												blue - 6	MD-M51-4MB-K6	
												red - 8	MD-M51-4MB-K8	

⚠ Please consider our security advices on page 18 ⚠

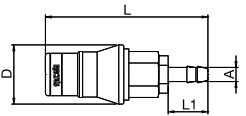
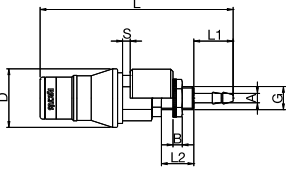
# Couplers

# RECTUS MD Series keyed

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number	
 <p>Female Thread</p>	G 1/8	17	62.5	25.5	9							green – 0	MD-M51-2FB-K0	
												black – 2	MD-M51-2FB-K2	
												brown – 3	MD-M51-2FB-K3	
												yellow – 5	MD-M51-2FB-K5	
												blue – 6	MD-M51-2FB-K6	
	red – 8	MD-M51-2FB-K8												
	G 1/4	17	48.5	25.5	9								green – 0	MD-M51-4FB-K0
													black – 2	MD-M51-4FB-K2
													brown – 3	MD-M51-4FB-K3
													yellow – 5	MD-M51-4FB-K5
blue – 6													MD-M51-4FB-K6	
red – 8	MD-M51-4FB-K8													
 <p>Plastic Hose Connection</p>	4 x 6 mm	17	65.5	25.5	7	6						green – 0	MD-M51-M6CSP-K0	
												black – 2	MD-M51-M6CSP-K2	
												brown – 3	MD-M51-M6CSP-K3	
												yellow – 5	MD-M51-M6CSP-K5	
												blue – 6	MD-M51-M6CSP-K6	
	red – 8	MD-M51-M6CSP-K8												
	6 x 8 mm	17	65.5	25.5	7	6							green – 0	MD-M51-M8CSP-K0
													black – 2	MD-M51-M8CSP-K2
													brown – 3	MD-M51-M8CSP-K3
													yellow – 5	MD-M51-M8CSP-K5
blue – 6													MD-M51-M8CSP-K6	
red – 8	MD-M51-M8CSP-K8													
 <p>Panel Mount, Plastic Hose Connection</p>	4 x 6 mm	17	77.5	25.5	7	18	14	4				green – 0	MD-M51-HM6CSP-K0	
												black – 2	MD-M51-HM6CSP-K2	
												brown – 3	MD-M51-HM6CSP-K3	
												yellow – 5	MD-M51-HM6CSP-K5	
												blue – 6	MD-M51-HM6CSP-K6	
	red – 8	MD-M51-HM6CSP-K8												
	6 x 8 mm	17	77.5	25.5	7	18	17	4					green – 0	MD-M51-HM8CSP-K0
													black – 2	MD-M51-HM8CSP-K2
													brown – 3	MD-M51-HM8CSP-K3
													yellow – 5	MD-M51-HM8CSP-K5
blue – 6													MD-M51-HM8CSP-K6	
red – 8	MD-M51-HM8CSP-K8													
 <p>Hose Barb</p>	4 mm	17	69.5	25.5	17							green – 0	MD-M51-M4HB-K0	
												black – 2	MD-M51-M4HB-K2	
												brown – 3	MD-M51-M4HB-K3	
												yellow – 5	MD-M51-M4HB-K5	
												blue – 6	MD-M51-M4HB-K6	
												red – 8	MD-M51-M4HB-K8	

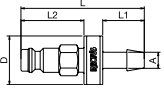
# Couplers

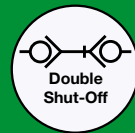
# RECTUS MD Series keyed

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 <p>Hose Barb</p>	6 mm	17	69.5	25.5	17							green - 0	MD-M51-M6HB-K0
												black - 2	MD-M51-M6HB-K2
												brown - 3	MD-M51-M6HB-K3
												yellow - 5	MD-M51-M6HB-K5
												blue - 6	MD-M51-M6HB-K6
												red - 8	MD-M51-M6HB-K8
 <p>Panel Mount, Hose Barb</p>	4 mm	17	83.5	25.5	17	14		14	4	M 10 x 1	1 to 8 mm	green - 0	MD-M51-HM4HB-K0
												black - 2	MD-M51-HM4HB-K2
												brown - 3	MD-M51-HM4HB-K3
												yellow - 5	MD-M51-HM4HB-K5
												blue - 6	MD-M51-HM4HB-K6
												red - 8	MD-M51-HM4HB-K8
	6 mm	17	83.5	25.5	17	14		17	4	M 12 x 1	1 to 8 mm	green - 0	MD-M51-HM6HB-K0
												black - 2	MD-M51-HM6HB-K2
												brown - 3	MD-M51-HM6HB-K3
												yellow - 5	MD-M51-HM6HB-K5
											blue - 6	MD-M51-HM6HB-K6	
											red - 8	MD-M51-HM6HB-K8	

# Nipples

# RECTUS MD Series keyed

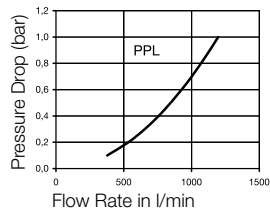
	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 <p>Hose Barb</p>	4 mm		32		17							green - 0	MD-M54-M4HB-K0
	4 mm		32		17							black - 2	MD-M54-M4HB-K2
	4 mm		32		17							brown - 3	MD-M54-M4HB-K3
	4 mm		32		17							yellow - 5	MD-M54-M4HB-K5
	4 mm		32		17							blue - 6	MD-M54-M4HB-K6
	4 mm		32		17							red - 8	MD-M54-M4HB-K8
	6 mm		32		17							green - 0	MD-M54-M6HB-K0
	6 mm		32		17							black - 2	MD-M54-M6HB-K2
	6 mm		32		17							brown - 3	MD-M54-M6HB-K3
	6 mm		32		17							yellow - 5	MD-M54-M6HB-K5
	6 mm		32		17							blue - 6	MD-M54-M6HB-K6
	6 mm		32		17							red - 8	MD-M54-M6HB-K8
	10 mm		32		17							green - 0	MD-M54-M10HB-K0
	10 mm		32		17							black - 2	MD-M54-M10HB-K2
	10 mm		32		17							brown - 3	MD-M54-M10HB-K3
	10 mm		32		17							yellow - 5	MD-M54-M10HB-K5
	10 mm		32		17							blue - 6	MD-M54-M10HB-K6
	10 mm		32		17							red - 8	MD-M54-M10HB-K8



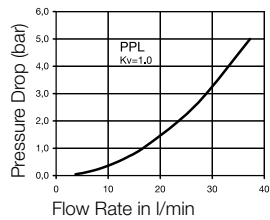
### Technical Description

Large latch type plastic coupling.

### Air Flow



### Water Flow



### Advantages

Resistance to mild chemicals, low weight, intuitive operation.

### Compatibility

Other large latch type couplings.

### Material

#### Coupler

Body  
Termination  
Latch  
Valve  
Springs  
Seals

#### Nipple

Body  
Termination  
Valve  
Springs  
Seals

### Working Pressure

PB = 0 bar to 8 bar, maximum static working pressure with safety factor 4 to 1.

### Working Temperature

-40°C to +82°C

### Standard

Acetal (POM), natural color USP Class VI  
Acetal (POM), natural color USP Class VI  
Stainless steel  
Acetal (POM), natural color USP Class VI  
Stainless steel  
FDA Buna-N

Acetal (POM), natural color USP Class VI  
Acetal (POM), natural color USP Class VI  
Acetal (POM), natural color USP Class VI  
Stainless steel  
FDA Buna-N

actual size



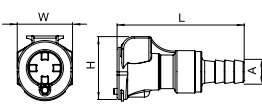
## Couplers

## RECTUS PPL Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
<p>Male Thread</p>	1/4" BSPT	29.2	19.1	23.6							without	-	PPL-253-4MBT
	3/8" BSPT	29.2	19.1	23.6							without	-	PPL-253-6MBT
	1/4" BSPT	29.2	19.1	23.6							with	-	PPL-251-4MBT
	3/8" BSPT	29.2	19.1	23.6							with	-	PPL-251-6MBT
<p>Hose Barb</p>	6 mm	48.3	19.1	23.6							without	-	PPL-253-4HB
	8 mm	48.3	19.1	23.6							without	-	PPL-253-5HB
	10 mm	48.3	19.1	23.6							without	-	PPL-253-6HB
	6 mm	48.3	19.1	23.6							with	-	PPL-251-4HB
	8 mm	48.3	19.1	23.6							with	-	PPL-251-5HB
	10 mm	48.3	19.1	23.6							with	-	PPL-251-6HB

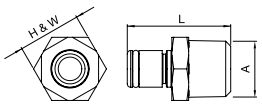
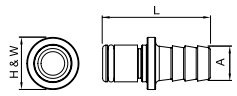
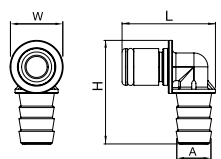
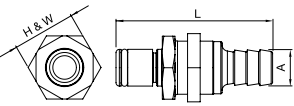
## Couplers

## RECTUS PPL Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
 <p>Panel Mount, Hose Barb</p>	6 mm	48.3	19.1	23.6							without	–	PPL-253-H4HB
	8 mm	48.3	19.1	23.6							without	–	PPL-253-H5HB
	10 mm	48.3	19.1	23.6							without	–	PPL-253-H6HB
	6 mm	48.3	19.1	23.6							with	–	PPL-251-H4HB
	8 mm	48.3	19.1	23.6							with	–	PPL-251-H5HB
	10 mm	48.3	19.1	23.6							with	–	PPL-251-H6HB

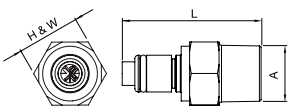
## Nipples

## RECTUS PPL Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
 <p>Male Thread</p>	1/4" BSPT	31.8	15.7	15.7							without	–	PPL-254-4MBT
	3/8" BSPT	31.8	18.8	18.8							without	–	PPL-254-6MBT
 <p>Hose Barb</p>	6 mm	31.8	15.7	15.7							without	–	PPL-254-4HB
	8 mm	31.8	15.7	15.7							without	–	PPL-254-5HB
	10 mm	31.8	15.7	15.7							without	–	PPL-254-6HB
 <p>Hose Barb 90°</p>	6 mm	27.9	15.7	32.5							without	–	PPL-254-C4HB
	10 mm	27.9	15.7	32.5							without	–	PPL-254-C6HB
 <p>Panel Mount, Hose Barb</p>	6 mm	47.8	18.8	18.8							without	–	PPL-254-H4HB
	8 mm	47.8	18.8	18.8							without	–	PPL-254-H5HB
	10 mm	47.8	18.8	18.8							without	–	PPL-254-H6HB

## Valved Nipples

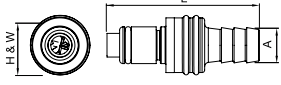
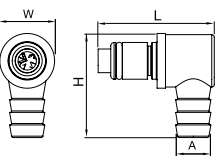
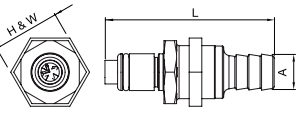
## RECTUS PPL Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
 <p>Male Thread</p>	1/4" BSPT	41.9	15.7	15.7							with	–	PPL-252-4MBT
	3/8" BSPT	41.9	19.1	19.1							with	–	PPL-252-6MBT

⚠ Please consider our security advices on page 18 ⚠

# Valved Nipples

# RECTUS PPL Series

	Connection A	L mm	W mm	H mm	Hex SW	L1 mm	L2 mm	L3 mm	B mm	G mm	Valve	Color Coding Ring	Part Number
	6 mm	49.3	17.8	17.8							with	–	PPL-252-4HB
	8 mm	49.3	17.8	17.8							with	–	PPL-252-5HB
	10 mm	46.5	17.8	17.8							with	–	PPL-252-6HB
Hose Barb													
	6 mm	27.9	15.7	32.5							with		PPL-252-C4HB
	10 mm	27.9	15.7	32.5							with		PPL-252-C6HB
Hose Barb 90°													
	6 mm	50.8	18.8	18.8							with	–	PPL-252-H4HB
	8 mm	50.8	18.8	18.8							with	–	PPL-252-H5HB
	10 mm	50.8	18.8	18.8							with	–	PPL-252-H6HB
Panel Mount, Hose Barb													



Nominal flow size  
**7 mm**

RECTUS Series  
**BT**



actual size



**Technical Description**

The BT series coupling system has been developed for use in medical, biotechnology, pharmaceutical and laboratory applications and uses only medical grade materials. The main components are molded in a clean room from virgin transparent USP Class VI polysulfone (PSU). The seals are made from platinum cured silicone. The locking pins are stainless steel. Only available as straight-through version.

**Advantages**

Single handed operation. Audible click to indicate a secure connection. Transparent components allow visual control of the flow path. Completely smooth flow path without any dead spaces prevents cross-contamination. Ergonomic sleeve for easy operation with gloves.

**Working Pressure**

PB = 0 bar to 4.5 bar, maximum static working pressure with safety factor of 4 to 1.

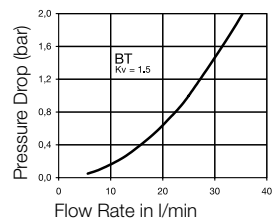
**Compatibility**

RECTUS Series 48

**Working Temperature**

-20°C to +148°C

**Water Flow**



**Material**

**Coupler**

- Back Body
- Valve Body
- Sleeve
- Valve
- Springs
- Locking Systems
- Seals

**Standard**

- PSU, transparent USP Class VI
- PSU, transparent USP Class VI
- PSU, transparent USP Class VI
- N/A
- PSU, transparent USP Class VI
- Stainless Steel 1.4310 (AISI 301)
- Platinum cured silicone, transparent USP Class VI

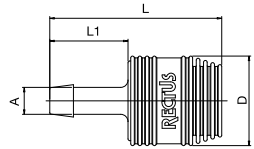
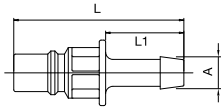
**Nipple**

- Plug Profile
- Valve
- Spring
- Adapter
- Seal

- PSU, transparent USP Class VI
- N/A
- N/A
- N/A
- N/A

**Couplers / Nipples**

**RECTUS BT Series**

	Connection A	Hex SW	L mm	D mm	L1 mm	L2 mm	L3 mm	Hex1 SW1	B mm	G mm	S	Color Coding Ring	Part Number
 Hose Barb	1/4"		47.25	24.6	21.5							-	BT-M73-4HB
	3/8"		47.25	24.6	21.5							-	BT-M73-6HB
	1/2"		47.25	24.6	21.5							-	BT-M73-8HB
 Hose Barb	1/4"		46.8		21.5							-	BT-M74-4HB
	3/8"		46.8		21.5							-	BT-M74-6HB
	1/2"		46.8		21.5							-	BT-M74-8HB
Sealing Cap			25.75	24.6	21.5							-	BT-M73-PLUG
Sealing Plug			40.0		14.7							-	BT-M74-PLUG

⚠ Please consider our security advices on page 18 ⚠



# General Conditions of Sale

RECTUS GmbH, Daimlerstr. 7, 71735 Eberdingen – Germany

## I. General

(1) The present General Conditions of Sale of Parker Hannifin GmbH & Co. KG ("Vendor") ("Conditions") shall apply only to entrepreneurs in the sense of Art. 14 German Civil Code ("Buyer") with regard to the sale of machinery, integrated software and other products ("Products"). (2) Offers, order confirmations, deliveries and services provided by the Vendor shall be undertaken solely on the basis of these Conditions. (3) The Conditions shall also govern all future business relationships including where this has not been expressly agreed again. (4) Counterconfirmations by the Buyer citing his Terms of Business and/or Purchase Conditions shall not be valid, even where the Vendor has not expressly taken exception to them. (5) Divergences from the present Conditions shall only be effective where they are confirmed in writing by the Vendor.

## II. Offer and Conclusion of Contract

(1) The Vendor's offers are subject to change except where they have been expressly specified as binding. (2) A contract shall be created only in conjunction with an order confirmation from the Vendor. The order confirmation may be issued in writing or in electronic form (including EDI, remote data transmission or machine-readable data carriers). This shall also apply to additions, amendments or supplementary agreements. The issue of an invoice shall be deemed an order confirmation. (3) Order or article numbers relate to the given latest issue of the Vendor's documents such as catalogues or brochures which also contain further technical details. These documents serve only to provide information where they are not specified as binding or unless they exactly correspond to the purpose of use contractually foreseen by the Contracting Parties. No guarantee is given for the precise unit weights as specified from time to time in the catalogue. (4) Drawings, sketches, dimensions, weights and other performance data shall only be binding where this has been expressly agreed in writing. All drawings and documents shall be returned automatically to the Vendor where no contract is effected. (5) Where it becomes apparent after conclusion of the contract that the Vendor's claim to consideration is endangered through the Buyer's inability to perform, in particular because of open, outstanding invoices, the Vendor shall be entitled to refuse performance of the contract until the Buyer has effected the consideration or provided security for same. The Vendor shall be entitled to withdraw from the contract where the Buyer fails to perform having been given an appropriate deadline for effecting the consideration or providing security for same. The Buyer's countervailing rights shall not be affected.

## III. Prices and Payment Terms

(1) The prices specified by the Vendor in his offers are subject to change except where they have been designated as binding. Unless otherwise stated in the order confirmation, prices shall be ex works/warehouse of the Vendor exclusive of packaging, postal charges, freight, other shipping charges, insurance and excise duty which shall be shown separately in the invoice. Packaging shall be charged at cost price. VAT is not included in the Vendor's prices. The rate valid at the time shall be shown separately in the invoice. (2) All of the Vendor's invoices shall be payable in Euro at the place specified by the Vendor net 30 days from the date of the invoice without deduction or within 14 days from the date of invoice with a 2% cash discount. Cash discounts shall not be permissible where existing payments from older, due invoices remain outstanding. Any applicable cash discounts are to be deducted from the gross invoice amount. (3) The Vendor shall be entitled, irrespective of contrary Buyer terms, to set off payments against the Buyer's older debts. Where costs and interest charges have already accrued, the Vendor shall be entitled to set off payments firstly against the costs, then against the interest charges and finally against the main payment. (4) A payment shall only be considered fulfilled when the corresponding sum has been received by the Vendor. (5) Where the Buyer falls into arrears with his payment obligations the Vendor is entitled, after a suitable deadline has elapsed, to demand that all outstanding debts be paid immediately or that other securities be provided.

## IV. Setting Off, Right to Retention, Non-Assignability

(1) The Buyer shall only be entitled to set off or retention with regard to claims which are undisputed or which have been recognised by declaratory judgment. Deductions because of defects shall be subject to the same restrictions. (2) The Buyer declares that his claims and obligations may be set off by the Seller and his associated companies. Claims and obligations of the Buyer's associated companies may also be set off in the same way. (3) The Buyer's rights out of the contract and these Conditions are non-transferable.

## V. Delivery and Performance Time

(1) The dates and deadlines specified by the Vendor are subject to change unless expressly agreed otherwise in writing. Individual delivery time agreements shall be required for on demand and blanket orders. (2) Delivery deadlines shall commence on the day on which the Buyer's order is received by the Vendor. The Vendor's observance of his delivery obligation presumes that the Buyer shall meet his obligations properly and in full; in particular the Vendor must be in possession of all documents, parts, details and licences required from the Buyer and any agreed part-payments must have been made. (3) The day of delivery shall be the day on which the Buyer is notified that the goods are ready for collection. Where delivery is due, the day of delivery shall be the day on which the goods are handed over to the party effecting the transport. (4) Acceptable part deliveries and part-performances are permissible to a reasonable degree. Moreover unavoidable divergences in quantity of up to +/- 5-10% shall not be deemed as insufficient quantity. (5) The Vendor shall not be responsible for delivery and performance delays caused by force majeure. In the event of force majeure and labour disputes the Buyer shall be released from his obligation to perform for the duration of such interruption and to the extent of its effect. The Buyer is obliged to provide all necessary information and to adjust his obligations to the altered circumstances in good faith within the bounds of what may reasonably be expected.

The Buyer shall only be entitled to withdraw from the contract where the agreed delivery time exceeds the duration of a force majeure event plus an appropriate extra deadline period. Prior to this, the right to withdraw shall only apply where the Vendor has informed the Buyer in writing that the delivery cannot be made by him or can no longer be made. The foregoing restriction shall not apply to transactions where time is of the essence. (6) Where the Vendor's delivery is delayed, and where a delivery date has been agreed in writing, the Buyer may withdraw from the contract once he has given the Vendor a suitable deadline for supplementary performance of at least 14 days save where, exceptionally, no such deadline is required.

Where the Buyer does not specify during such deadline period whether he insists on performance or intends to exercise his right to withdraw and where such declaration is not received by the Vendor within a further period of 7 days, the Vendor shall in turn be entitled to withdraw from the contract. The Buyer's right to claim damages pursuant to section X, below shall remain unaffected.

## VI. Transfer of Risk

(1) The risk shall transfer to the Buyer as soon as the goods have left the Seller's works, an outside warehouse or, in the event of direct delivery of goods not manufactured by the Seller himself, the warehouse of the subcontractor. Where the dispatch or collection of the goods is delayed or impossible on grounds for which the Seller is not responsible, the risk shall transfer to the Buyer once the Vendor has notified his readiness to dispatch. (2) Goods delivered, even where they display minor defects, shall be accepted by the Buyer, irrespective of his rights as specified at section VIII, below.

## VII. Right of Retention to Title

(1) The delivered goods shall remain the property of the Vendor until the Buyer has met all obligations arising out of the business relationship. (2) Processing or mixture of goods subject to retention shall always be undertaken with the Vendor in the role of manufacturer yet shall not be binding upon him. Where the Vendor's part ownership lapses through confusion of goods it is herewith agreed that the Buyer's part ownership in the goods shall be transferred pro rata to the value of the invoice amount. The Buyer shall hold goods owned or part-owned by the Vendor at his own expense. (3) The Buyer undertakes to protect the goods owned or part-owned by the Vendor with the due care of a proper businessman against spoilage, deterioration or loss, also in regard to his buyers. (4) The Buyer is entitled to process and sell goods subject to retention in the normal course of business. Such goods may not be mortgaged or assigned as security. The Buyer herewith declares that he assigns any claims arising out of the resale of the goods subject to retention or on any other legal grounds, together with all ancillary rights, to the Vendor. (5) Where third parties wish to seize the goods subject to retention, the Buyer shall advise them of the Vendor's ownership and shall inform the Vendor without delay. Costs and damages shall be borne by the Buyer. (6) Where the Buyer is in arrears with payment, the Vendor shall be entitled to withdraw from the contract and shall recover the goods subject to retention at the Buyer's expense or, where appropriate, shall demand that the Buyer assign any rights of recovery which the Buyer may have against third parties to the Vendor. The Vendor's right to claim damages shall remain unaffected. The same shall apply in the event of any other breach of contract by the Buyer. (7) The Vendor undertakes to release securities owed to him at the Buyer's request insofar as the realisable value of such securities does not exceed the value of his claims by more than 20%. The securities thus released shall be determined at the Vendor's discretion.

## VIII. Defect Claims

(1) The Vendor shall be liable for ensuring that his products are free of manufacturing and material defects and that they are otherwise of the quality specified in the order confirmation. The Vendor shall only give guarantees where these are provided expressly in writing and designated as guarantees. The Buyer shall only have the right to claim for defects where he has properly fulfilled his inspection and notification obligations pursuant to Art. 377 German Commercial Code.

(2) For products with integrated software a separate sales contract shall be concluded with regard to the software. A defect in such software does not represent a defect in the product as a whole unless the remaining product does not meet the standard agreed by Vendor and Buyer because of the software defect. Where such a quality has not been agreed, a software defect shall only represent a defect in the product as a whole where the product, owing to such software defect, is not suitable for the contractually agreed or usual use. (3) Industry standard divergences shall only be deemed defects where this has been expressly agreed in writing by the Contracting Parties. The Vendor's declarations in his catalogues, brochures and price lists with regard to the items available and their performance serve only as descriptions, designations and guidelines, provided that this has not been otherwise agreed by the Contracting Parties in the order confirmation or in terms of the contractually agreed purpose. Minor, insignificant divergences compared with the catalogues or compared with previously delivered goods shall not be deemed defects. (4) The Buyer shall himself check whether the goods ordered from the Vendor are suitable for his intended purpose. Goods which are not suitable shall only be deemed defective where the Vendor has confirmed their suitability to the Buyer in writing. (5) Wear and tear of expendable parts during the course of normal use does not represent a defect. (6) Where the Vendor's instructions with regard to installation, fitting, operation or servicing are not observed, where alterations to the products are made, where parts are exchanged or consumables used which do not correspond with the original specifications, the right to claim for defects shall apply only where the Buyer can provide proof that the defect was not caused by such action but was already present at the time the risk was transferred. (7) Where the goods have not yet been delivered to the end consumer, the Vendor shall be obliged in the event of justified and properly notified defects to either remedy the defects or to replace the goods or parts thereof at his discretion. Where replacement deliveries or repairs fail, the Buyer may, at his discretion, only demand a discount or withdraw from the contract. The Buyer's right to withdraw and right to claim damages in place of full performance shall only apply where the defect is material. The Buyer's right to claim damages shall apply pursuant to section X, below. (8) Where the goods have already been delivered to an end consumer, the Buyer shall on principle only be entitled to make such defect claims against the Buyer as have been notified to him by his own buyer. (9) Defect claims cannot be made against the Vendor where the goods have been returned on the basis of goodwill arrangements not agreed with the Vendor. Furthermore the Buyer shall not be entitled to withdraw from the contract where he has been required to take back the goods because he has not properly fulfilled his obligation of supplementary performance and, in particular, where he has failed to fulfil his obligation of supplementary performance within a specified deadline.

The Buyer shall inform the Vendor in advance in writing of his own buyer's claim for supplementary performance and shall advise the Vendor of his proposed method of supplementary performance and the approximate associated costs. In the interests of the Vendor, the Buyer is obliged to keep expenditure as low as possible pursuant to Art. 439, para. 2 German Civil Code and to follow the Vendor's suggestions for a cheaper means of providing supplementary performance.

(10) Where the Vendor is in breach of non performance-related obligations pursuant to Art. 241, para. 2 German Civil Code, the Buyer shall have the right to withdraw and the right to claim damages instead of performance where he may no longer be reasonably expected to honour the contract. (11) Where a defect is to be remedied, the Vendor is obliged to bear all expenses, and in particular all transport, travel, labour and material costs which are necessarily incurred for the purpose of remedying the defect provided that such costs do not arise from the transportation of the given item to some place other than the place of performance. (12) Defect claims shall lapse 12 months from delivery of the goods to the Buyer. In the event of intent or negligence, section X, below shall apply.

## IX. Software

The Vendor's software is not intended for private use. It may only be installed and/or used by qualified personnel who are familiar with the Vendor's installation and warning information. Any incorrect installation, usage and/or servicing of the software by the Buyer may cause the software to malfunction and/or may cause damage to plant and/or machinery or people. Where software defects are caused by the Buyer's failure to observe the Vendor's installation and warning instructions and/or the Buyer's improper use and/or servicing of the software, these shall not be covered by the Vendor's warranty obligation. Equally the Vendor accepts no liability for consequential losses resulting therefrom. This shall apply in particular with regard to any damage suffered by the software and/or consequential damage caused to machinery, plant, other products or people by the defective software.

## X. Disclaimer

(1) The Vendor's liability shall be unlimited in the event of intent or gross negligence in relation to culpable injury to life, limb or health, for defects which he has deliberately concealed or in the event that he has provided a guarantee of quality or durability. The Vendor's liability shall also be unlimited within the scope of product liability and other liability legislation.

(2) In the event of culpable violation of material contractual obligations, the Vendor shall also be liable for minor negligence although this shall be limited to contract-typical damages which may reasonably be foreseen at the time the contract is concluded. Material contractual obligations are those the violation of which endangers the object of the contract because those rights of the Buyer are thus taken or restricted which the Vendor is meant to be granting him under the terms of the contract. (3) Further damage claims, particularly claims relating to pecuniary loss, are excluded. (4) The above liability restrictions specified here at section X, also apply to employees, representatives, agents and assistants of the Vendor.

## XI. Rights of Usage and Processing, Property Rights

(1) Insofar as the Vendor manufactures goods based on an order from the Buyer and in keeping with his instructions and guidelines and delivers these to the Buyer, the Buyer shall be liable to the Vendor with regard to ensuring that the deliveries and services ordered do not violate the property rights of any third party. He shall indemnify the Vendor against any such claims and shall compensate him for any losses thus incurred. (2) Where the Vendor makes tools, drafts, installation suggestions or other drawings and documentation available to the Buyer together with the goods, the former shall retain title and all property and usage rights to such items. The Buyer shall only be entitled to usage within the scope of the sale contract; he shall in particular not be entitled to reproduce such items or make them available to third parties. (3) Where the products in question are integrated software, the Buyer is entitled to use them to the extent defined in the contract. The intellectual property rights to the software and any manuals delivered with it shall remain unaffected. The Buyer may only reproduce the software and/or manuals or make them available to third parties where this is imperative under legislation. Art. 69 a ff. of the Copyright Act (UrhG) shall remain unaffected. The Vendor gives no guarantee and accepts no liability for the software where and insofar as it has been altered or improperly used by the Buyer.

## XII. Non-Disclosure Clause

(1) Unless otherwise expressly agreed in writing, all information to which the Buyer is made privy within the scope of the contractual relationship shall be treated as confidential. (2) Confidentiality shall not apply to such information of which the party who received the information ("receiving party") can verifiably demonstrate that it was already aware prior to disclosure provided that the receiving party informs the party which disclosed the information ("disclosing party") within one month of receipt of such information; which at the time of its disclosure to the receiving party was already in the public domain or accessible, or entered the public domain or became accessible after disclosure without any violation of this agreement on the part of the receiving party; that the receiving party shall receive from third parties provided that this information does not form part of a non-disclosure agreement with the disclosing party; the disclosure of which to third parties has been approved in advance in writing by the disclosing party or the disclosure of which the disclosing party is obliged either under legislation or by court order or by official directive. (3) The obligation to observe confidentiality shall also apply after the contractual relationship has ended.

## XIII. Data Protection

The Vendor shall store and process all data relating to the Client obtained in connection with the contract for his own purposes observing the provisions of the Federal Data Protection Act.

## XIV. Severance Clause

Where one of the provisions of these Conditions or any other provision in any other agreement is or should become invalid or where any loophole is contained this shall not affect the validity of the remaining provisions or the contracts as a whole. Loopholes shall be filled with such valid provisions as would have been agreed by the Contracting Parties in keeping with the economic purpose of the contract and these General Conditions of Sale had they recognised the loophole in the first instance.

## XV. Place of Jurisdiction, Place of Performance

The sole and exclusive place of jurisdiction for any disputes arising out of or in connection with these Conditions (including any relating to tort claims) between the Contracting Parties shall be Bielefeld. The Vendor is however entitled to take action against the Buyer at his registered office.

Unless otherwise specified in the order confirmation, the place of performance shall be the registered office or branch office of the Vendor carrying out the respective delivery.

## XVI. Applicable Law

The laws of the Federal Republic of Germany shall govern the terms of business and all legal relationships between the Buyer and the Vendor. The United Nation Convention on Contracts for the International Sale of Goods ("CISG") is excluded.

# SAFETY GUIDE FOR SELECTING AND USING QUICK CONNECT COUPLINGS AND RELATED ACCESSORIES

**DANGER:** failure or improper selection or improper use of quick connect couplings or related accessories can cause death, personal injury and property damage. Possible consequences of failure

- Couplings or parts thrown off at high speed
- High velocity fluid discharge
- Contact with suddenly moving or falling objects that are to be held in position or moved by the conveyed fluid
- Dangerously whipping hose

or improper selection or improper use of quick connect couplings or related accessories include but are not limited to:

- Explosion or burning of the conveyed fluid
- Contact with conveyed fluids that may be hot, cold, toxic, or otherwise injurious
- Sparking or explosion while paint or flammable liquid spraying

Before selecting or using any Parker RectusTema quick connect couplings or related accessories, it is important that you read and follow the following instructions.

## 1.0 GENERAL INSTRUCTIONS

**1.1 Scope:** this catalogue provides instructions for selecting and using (including installing, connecting, disconnecting, and maintaining) quick connect couplings and related accessories (including caps, plugs, hoses, blow guns). This safety instruction is a supplement to and is to be used with the specific Parker publications for the specific quick connect couplings and related accessories that are being considered for use.

**1.2 Fail-Safe:** quick connect couplings or the hose they are attached to can fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of the quick connect coupling or hose will not endanger persons or property.

**1.3 Distribution:** provide a copy of this safety guide to each person who is responsible for selecting or using quick connect coupling products. Do not select or use quick connect couplings without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

**1.4 User responsibility:** due to the wide variety of operating conditions and uses for quick connect couplings, Parker RectusTema and its distributors do not represent or warrant that any particular coupling system is suitable for any specific end use system. This safety instructions do not analyse all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the quick connect couplings.
- Assuring that the user's requirements are met and that the use presents no health or safety hazards.
- Providing all appropriate health and safety warnings on the equipment on which the quick connect couplings are used.

**1.5 Additional questions:** call the appropriate Parker customer service department if you have any questions or require any additional information. For the telephone numbers of the appropriate customer service department, see the Parker publication for the product being considered or used.

## 2.0 SELECTION INSTRUCTIONS

**2.1 Pressure:** quick connect couplings selection must be made so that the published rated pressure of the coupling is equal to or greater than the maximum system pressure. Pressure surges in the system higher than the rated pressure of the coupling will shorten the quick connect coupling's life. Do not confuse burst pressure or other pressure values with rated pressure and do not use burst pressure or other pressure values for this purpose.

**2.2 Fluid compatibility:** quick connect couplings selection must assure compatibility of the body and seal materials with the fluid media used. See the fluid compatibility chart.

**2.3 Temperature:** be certain that fluid and ambient temperatures, both steady and transient, do not exceed the limitations of the quick connect couplings. Use caution and hand protection when connecting or disconnecting quick connect couplings that are heated or cooled by the media they are conducting or by their environment.

**2.4 Size:** transmission or power by means of pressurised liquid varies with pressure and rate of flow. The size of the quick connect couplings and other components of the system must be adequate to keep pressure losses to a minimum and avoid damage due to heat generation or excessive fluid velocity.

**2.5 Pressurised connection or disconnection:** if connecting or disconnecting under pressure is a requirement, use only quick connect couplings designed for that purpose. The rated operating pressure of a quick connect coupling may not be the pressure at which it may be safely connected or disconnected.

**2.6 Environment:** care must be taken to ensure that quick connect couplings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed. Environmental conditions including but not limited to ultraviolet radiation, ozone, moisture, water, salt water, chemicals, and air pollutants can cause degradation and premature failure.

**2.7 Locking means:** ball locking quick connect couplings can unintentionally disconnect if they are dragged over obstructions on the end of a hose or if the sleeve is bumped or moved enough to cause disconnection. Sleeves designed with flanges to provide better gripping for oily or gloved hands are especially susceptible to accidental disconnection and should not be used where these conditions exist. Sleeve lock or union (threaded) sleeve designs should be considered where there is a potential for accidental uncoupling.

**2.8 Mechanical loads:** external forces can significantly reduce quick connect couplings' life or cause failure. Mechanical loads which must be considered include excessive tensile or side loads and vibration. Unusual applications may require special testing prior to quick connect couplings selection.

**2.9 Specifications and standards:** when selecting quick connect couplings, government, industry and Parker specifications must be reviewed and followed as applicable.

**2.10 Vacuum:** not all quick connect couplings are suitable or recommended for vacuum service. Quick connect couplings used for vacuum applications must be selected to ensure that the quick connect couplings will withstand the vacuum and pressure of the system.

**2.11 Fire resistant fluids:** some fire resistant fluids require seals other than the standard NBR (nitrile) used in many coupling systems.

**2.12 Radiant heat:** quick connect couplings can be heated to destruction or loss of sealing without contact by such nearby items as hot manifolds or molten metal. The same heat source may then initiate a fire. This can occur despite the presence of cool air around the quick connect couplings.

**2.13 Welding and brazing:** heating of plated parts, including quick connect couplings and port adapters, above 450 °F (232 °C) such as during welding, brazing, or soldering may emit deadly gases and may cause coupling seal damage.

## 3.0 INSTALLATION INSTRUCTIONS

**3.1 Pre-installation inspection:** before installing a quick connect coupling, visually inspect it and check for correct style, body material, seal material, and catalogue number. Before final installation, coupling halves should be connected and disconnected with a sample of the mating half with which they will be used.

**3.2 Quick connect coupling halves from other manufacturers:** if a quick connect coupling assembly is made up of one Parker RectusTema half and one half from another manufacturer, the lowest pressure rating of the two halves should not be exceeded.

**3.3 Fitting installation:** use a thread sealant, when assembling taper pipe thread joints in quick connect couplings. Be sure the sealant is compatible with the system fluid or gas. To avoid system contamination, use a liquid or paste type sealant rather than a tape style. Use the flats provided to hold the quick connect coupling when installing fittings. Do not use pipe wrenches or a vice on other parts of the coupling to hold it when installing or a removing fittings as damage or loosening of threaded joints in the coupling assembly could result. Do not apply excessive torque to taper pipe threads because cracking or splitting of the female component can result.

**3.4 Caps and plugs:** use dust caps and plugs when quick connect couplings are not coupled to exclude dirt and contamination and to protect critical surfaces from damage.

**3.5 Coupling location:** locate quick connect couplings where they can be reached for connection or disconnection without exposing the operator to slipping, falling, getting sprayed or coming in contact with hot or moving parts.

**3.6 Hose whips:** use a hose whip (a short length of hose between the tool and the coupling half) instead of rigidly mounting a coupling half on hand tools or other devices. This reduces the potential for coupling damage if the tool is dropped and provides some isolation from mechanical vibration which could cause uncoupling.

## 4.0 MAINTENANCE INSTRUCTIONS

**4.1** Even with proper selection and installation, quick connect coupling life may be significantly reduced without a continuing maintenance program. Frequency should be determined by the severity of the application and risk potential. A maintenance program must be established and followed by the user and must include the following as a minimum:

**4.2 Visual inspection of quick connect couplings:** any of the following conditions require immediate shut down and replacement of the quick connect coupling:

- Cracked, damaged, or corroded quick connect couplings parts.
- Leaks at the fitting, valve or mating seal.
- Broken coupling mounting hardware, especially breakaway clamps.

**4.3 Visual inspection all other:**

- Leaking seals or port connections.
- Excess dirt build-up on the coupling locking means or on the interface area of either coupling half.
- Defective clamps, guards, and shields.
- System fluid level, fluid type and any entrapment.

**4.4 Functional test:** operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks.

Personnel must avoid potential hazardous areas while testing and using the system.

**4.5 Replacement intervals:** specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage or injury risk. See instruction 1.2 above.

# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sup>2</sup> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



ENGINEERING YOUR SUCCESS.



**RECTUS GmbH**  
Quick Coupling Division Europe  
Daimlerstr. 7  
71735 Eberdingen – Germany  
Phone +49 7042 100 0  
Fax +49 7042 100 147  
[www.rectus.de](http://www.rectus.de)

**Parker Hannifin Corporation**  
Quick Coupling Division USA  
8145 Lewis Road  
Minneapolis, MN 55427  
Phone +1 763 544 7781  
Fax +1 763 544 3418  
[www.parker.com/quickcouplings](http://www.parker.com/quickcouplings)

**ENGINEERING YOUR SUCCESS.**