

A N A L Y S E N T E C H N I K

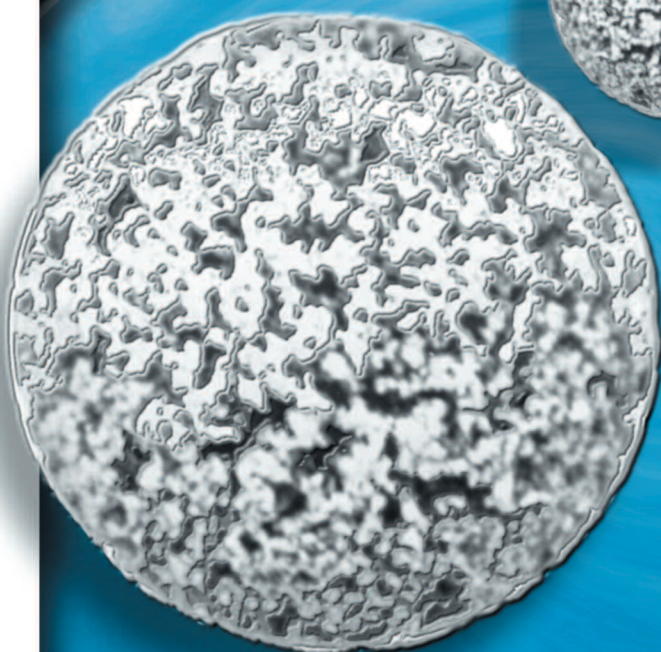
# GPC-/SEC-Columns

& accessories

# 2024

**Direct from producer**

packed in new generation column hardware!



- MZ-Gel SD<sup>plus</sup>
- MZ-Gel SD<sup>plus</sup> LS
- MZ-Super FG

Development • Manufacturing  
Distribution • Consulting

### HPLC-Columns

- New + Refill
- Complete Range of Packings
- Micro • Analytical • Preparative
- PerfectChrom • PerfectBond
- MZ-AquaPerfect • PerfectSil
- PerfectSil Target • Orbit

### Distributor For:

- WATERS • GL-SCIENCES
- THERMO SCIENTIFIC • MERCK
- NOURYON/KROMASIL • TCI
- DAICEL/CHROMTECH • ES-IND.
- PERKIN-ELMER • AMT/HALO
- AVANTOR-ACE • SEPAX
- MACHEREY-NAGEL

### MZ-PAH

- Analytics of PAH's

### MZ-PBM

- Analytics of Pesticides

### MZ-Gel SD<sup>plus</sup>

- SEC-Columns hydrophobic (Styrene-Divinylbenzene)

### MZ-Gel Super FG

- SEC with fluorinated Eluents

### Accessories

- IDEX H&S Valves
- EXMIRE-Syringes
- Guard-Columns
- Capillaries
- Fingertight-Fittings
- etc.



Online-Shop OPEN



## 30+ YEARS FOR SEPARATION

MZ-Analysentechnik GmbH was founded in 1986. Ever since we are active in the field of research and development of columns and bulk media for high performance liquid chromatography (HPLC), gel permeation chromatography (GPC) and size exclusion chromatography (SEC). Our goal is to provide customers worldwide with LC-columns, packing media and accessories with the highest level of quality – by reasonable pricing.

Columns and packing media made by MZ-Analysentechnik serve chromatographers in obtaining reliable and reproducible separations, very often shipping as OEM-products with other brand names.

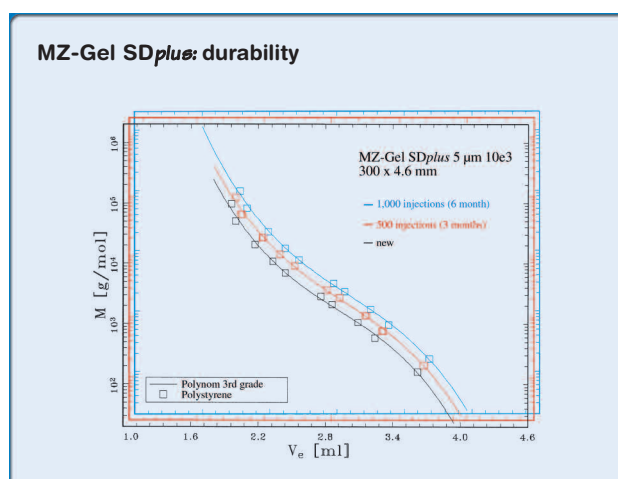
The continuous refinement of the manufacturing process – ISO 9001-certified – improved quality and durability of the columns. This brochure is a short survey of our series of GPC- and SEC-columns highlighting the following specialties:

- ▶ **MZ-Gel SD<sub>plus</sub> LS** – extra low phase bleeding for detection via light scattering techniques
- ▶ **MZ-Gel SD<sub>plus</sub> 3 μm** – hydrophobic GPC-columns with guaranteed platenumbers > 100,000 m<sup>-1</sup>
- ▶ **Narrow bore & Micro bore** GPC-/SEC-columns (saving up to 70 % eluent)

For additional information – please contact us or visit our homepage: <http://www.gpc.biz>

## MZ-Gel SD<sub>plus</sub>

- ▶ **MZ-Gel SD<sub>plus</sub>** is a proprietary development of MZ-Analysentechnik GmbH based on highly cross-linked styrene / divinylbenzene high-performance copolymer
- ▶ Narrow pore size distribution and low polydispersity combined with nearly perfect spherical particle shape
- ▶ Ships in new High-End-hardware, fully compatible with previous columns and with guaranteed Refill-capabilities
- ▶ High reliability, reproducibility and durability



## TECHNICAL DATA

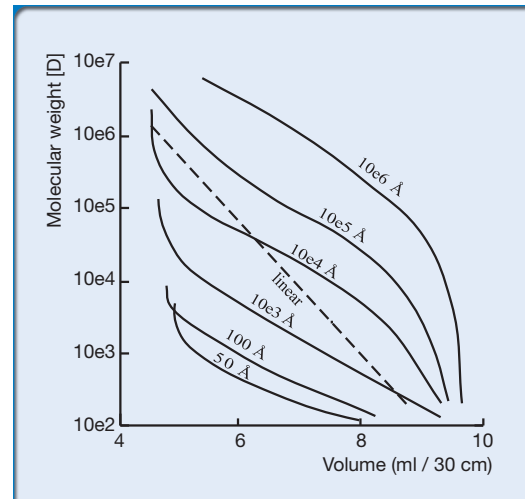
MZ-Gel SD <sub>plus</sub>	3 μm	5 μm	10 μm
particle shape	spherical	spherical	spherical
available porosities [Å]	50-10 <sup>3</sup> Å	50-10 <sup>6</sup> Å + linear	50-10 <sup>6</sup> Å + linear
plate numbers: min. guaranteed [m <sup>-1</sup> ]	100,000	60,000	50,000
plate numbers: typical [m <sup>-1</sup> ]	120,000	80,000	60,000
pressure stability [bar]	160	160	160
backpressure per 30 cm [bar]*	40	25	15
max. flow rate analytical 8 mm ID	1.5 ml/min	1.5 ml/min	3 ml/min
max. flow rate narrow bore 4.6 mm ID	0.6 ml/min	0.6 ml/min	0.6 ml/min
max. flow rate preparative 20 mm ID		10 ml/min	20 ml/min
temperature range	max. 100 °C	max. 100 °C	max. 140 °C

\* based on column 300 x 8 mm, flow rate 1 ml/min, eluent THF

## MZ-Gel SD<sub>plus</sub>

### MOLECULAR MASS RANGE & EXCLUSION LIMIT

POROSITY	MOLECULAR MASS RANGE		EXCLUSION LIMIT
50 Å	<	2,000	3,000
100 Å	<	3,000	5,000
500 Å	<	20,000	20,000
10e3 Å	1,000 -	40,000	70,000
10e4 Å	4,000 -	500,000	700,000
10e5 Å	10,000 -	2,000,000	4,000,000
10e6 Å	200,000 -	10,000,000	> 10,000,000
linear	1,000 -	1,000,000	> 2,000,000

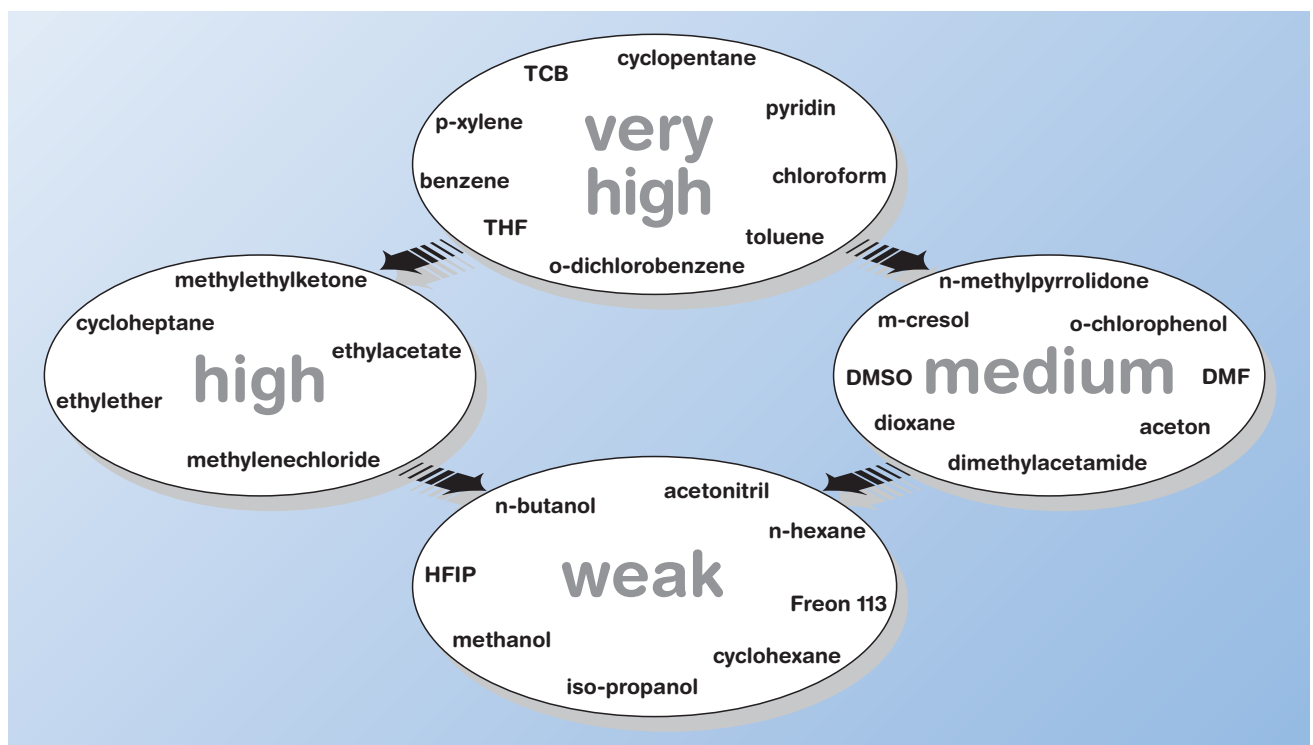
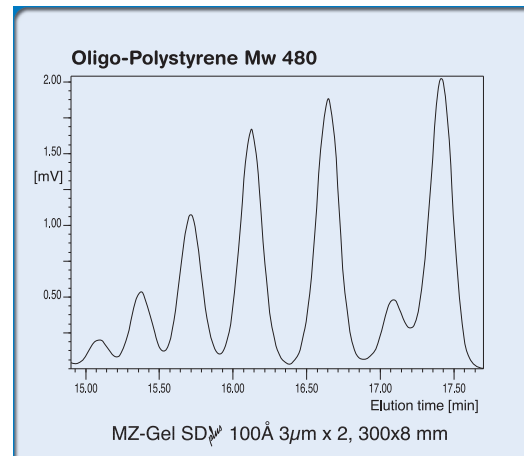


### SOLVENT COMPATIBILITY CHART

**MZ-Gel SD<sub>plus</sub>** GPC-columns are manufactured, tested and shipped by default in THF.

By request we can deliver these columns filled with any other common solvent. Please follow the solvent compatibility chart below if you intend to change the solvent due to the swelling of the polymer.

The swelling capacity of GPC-eluents is classified in four categories from low up to very high. This offers the following possibilities for changing the eluent:



GPC-solvents: swelling capacity and possibilities for changing the eluent

# MZ-Gel SDplus PRICES AND ORDERING INFORMATION



ANALYTICAL 8 MM ID			PRICE/€	
LENGTH x ID	PARTICLE SIZE	POROSITIES	NEW	REFILL
300 x 8 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,223.--	1,101.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,070.--	948.--
	5 µm	linear	1,162.--	1,040.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	834.--	713.--
600 x 8 mm	10 µm	linear	950.--	828.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,529.--	1,345.--
	5 µm	linear	1,754.--	1,572.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,213.--	1,029.--
50 x 8 mm	10 µm	linear	1,374.--	1,190.--
	5 µm	all porosities + linear	373.--	324.--
	10 µm	all porosities + linear	373.--	324.--

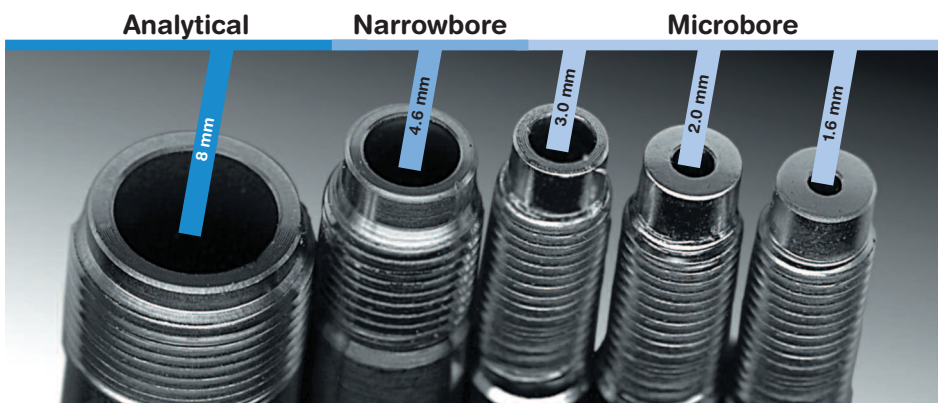
MICRO BORE			PRICE/€	
LENGTH x ID	PARTICLE SIZE	POROSITIES	NEW	REFILL
250 x 3 mm	5 µm	all porosities + linear	734.--	613.--
40 x 3 mm	5 µm	all porosities + linear	256.--	196.--
250 x 2 mm	5 µm	all porosities + linear	734.--	613.--
40 x 2 mm	5 µm	all porosities + linear	256.--	196.--

NARROW BORE 4.6 mm ID (SAVING UP TO 70 % ELUENT)			PRICE/€	
LENGTH x ID	PARTICLE SIZE	POROSITIES	NEW	REFILL
300 x 4.6 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,223.--	1,101.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	917.--	794.--
	5 µm	linear	1,009.--	887.--
40 x 4.6 mm	3 µm	all porosities + linear	256.--	196.--
	5 µm	all porosities + linear	256.--	196.--
	10 µm	all porosities + linear	256.--	196.--

PREPARATIVE 20 mm ID			PRICE/€	
LENGTH x ID	PARTICLE SIZE	POROSITIES	NEW	REFILL
300 x 20 mm	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	2,434.--	2,130.--
	10 µm	linear	2,754.--	2,450.--
50 x 20 mm	10 µm	all porosities + linear	594.--	417.--

**CODES** **MZ-Gel SDplus**

Porosity	3 µm	5 µm	10 µm
50 Å	5553	5555	5530
100 Å	5013	5015	5010
500 Å	5053	5055	5050
1,000 Å	5303	5305	5300
10 <sup>4</sup> Å	-	5405	5400
10 <sup>5</sup> Å	-	5505	5500
10 <sup>6</sup> Å	-	5605	5600
Linear	-	5005	5000



**i** PART-NO.

<b>MZ</b>	<b>CODE</b>	<b>LEN</b>	<b>IDØ</b>
four-digit Materialcode	length in mm	ID in 1/10 mm	

**Example:**  
 MZ-Gel SDplus 100 Å 5 µm (5015);  
 SEC-Column 300 x 8,0 mm  
 => Part-No.: **MZ5015-300080**

*Please inquire about details of Refill-Service*

## MZ-Gel SD<sup>plus</sup> LS - for Detection via Light Scattering

Detection via today's Laser-Lightscattering-technique enables direct acquisition of polymeric molecular size information during a GPC/SEC-run. Due to its high sensitivity, this method requires special attention upon the whole chromatographic procedure - sample preparation, purity of the solvent and the stability and quality of the GPC column.

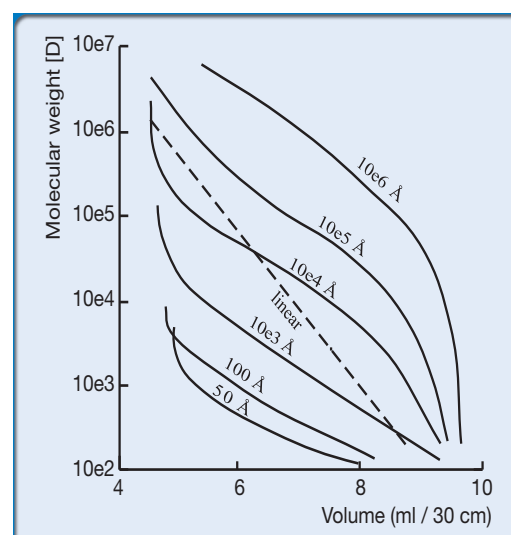
**MZ-Gel SD<sup>plus</sup> LS** is a proprietary development of MZ-Analysentechnik based on highly-crosslinked

and totally porous high-performance styrene-divinylbenzene copolymer. It is derived from the well-known **MZ-Gel SD<sup>plus</sup>** as base material via a special post-treatment to meet the special requirements of detection via light-scattering. Therefore **MZ-Gel SD<sup>plus</sup> LS** features an extremely low phase-bleeding plus the extraordinary capabilities as the HPLC-like separation efficiency of the well-known original material.

### MOLECULAR MASS RANGE &

#### EXCLUSION LIMIT

POROSITY	MOLECULAR MASS RANGE		EXCLUSION LIMIT
50 Å	<	2,000	3,000
100 Å	<	3,000	5,000
500 Å	<	20,000	20,000
10e3 Å	1,000 -	40,000	70,000
10e4 Å	4,000 -	500,000	700,000
10e5 Å	10,000 -	2,000,000	4,000,000
10e6 Å	200,000 -	10,000,000	> 10,000,000
linear	1,000 -	1,000,000	> 2,000,000



### TECHNICAL DATA

MZ-Gel SD <sup>plus</sup>	3 µm	5 µm	10 µm
particle shape	spherical	spherical	spherical
available porosities [Å]	50-10 <sup>3</sup> Å	50-10 <sup>6</sup> Å + linear	50-10 <sup>6</sup> Å + linear
plate numbers: min. guaranteed [m <sup>-1</sup> ]	100,000	60,000	50,000
plate numbers: typical [m <sup>-1</sup> ]	120,000	80,000	60,000
pressure stability [bar]	160	160	160
backpressure per 30 cm [bar]*	40	25	15
max. flow rate analytical 8 mm ID	1.5 ml/min	1.5 ml/min	3 ml/min
max. flow rate narrow bore 4.6 mm ID	0.6 ml/min	0.6 ml/min	0.6 ml/min
max. flow rate preparative 20 mm ID		10 ml/min	20 ml/min
temperature range	max. 100 °C	max. 100 °C	max. 140 °C

\* based on column 300 x 8 mm, flow rate 1 ml/min, eluent THF

## MZ-Gel SD<sup>plus</sup> LS - PRICES AND ORDERING INFORMATION

ANALYTICAL 8 MM ID			Price/€	
LENGTH x ID	PARTICLE SIZE	POROSITY	NEW	REFILL
300 x 8 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,206.--	1,097.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,056.--	946.--
	5 µm	linear	1,148.--	1,039.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	820.--	711.--
	10 µm	linear	935.--	826.--
600 x 8 mm	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,510.--	1,344.--
	5 µm	linear	1,734.--	1,570.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,194.--	1,028.--
	10 µm	linear	1,354.--	1,188.--
50 x 8 mm	5 µm	all porosities + linear	368.--	324.--
	10 µm	all porosities + linear	368.--	324.--

MICROBORE				
250 x 3 mm	5 µm	all porosities + linear	720.--	610.--
40 x 3 mm	5 µm	all porosities + linear	269.--	215.--
250 x 2 mm	5 µm	all porosities + linear	720.--	610.--
40 x 2 mm	5 µm	all porosities + linear	269.--	215.--

NARROW BORE 4.6 mm ID (SAVING UP TO 70 % ELUENT)				
300 x 4.6 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,210.--	1,100.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	903.--	794.--
	5 µm	linear	996.--	886.--
40 x 4.6 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	269.--	215.--
	5 µm	all porosities + linear	269.--	215.--
	10 µm	all porosities + linear	269.--	215.--

### Codes MZ-Gel SD<sup>plus</sup> LS

Porosity	3 µm	5 µm	10 µm
50	5554	5556	5531
100	5014	5016	5011
500	5054	5056	5051
1,000	5304	5306	5301
10 <sup>4</sup>	-	5406	5401
10 <sup>5</sup>	-	5506	5501
10 <sup>6</sup>	-	5606	5601
Linear	-	5006	5001

**i** PART-No.

<b>MZ</b>	<b>CODE</b>	<b>-</b>	<b>LEN</b>	<b>IDØ</b>
four-digit Materialcode			length in mm	ID in 1/10 mm

**Example:** MZ-Gel SD<sup>plus</sup> LS linear 5 µm (5006);  
GPC-Column 300 x 8.0 mm  
=> Part-No.: **MZ5006-300080**

*Please inquire about details of Refill-Service*

## ACCESSORIES

PART-NO.	PRODUCT		AMOUNT	PRICE/€
AS0301	stainless steel tubing	AD 1/16" x 0.13 mm ID	3 m	125.--
AS0325		AD 1/16" x 0.25 mm ID	3 m	63.--
AS0350		AD 1/16" x 0.50 mm ID	3 m	63.--
AS0370		AD 1/16" x 0.75 mm ID	3 m	63.--
AS0310		AD 1/16" x 1.00 mm ID	3 m	63.--
AS1001	stainless steel ferrules	1/16"	10 pieces	28.--
AS1010	stainless steel ferrules	1/16"	100 pieces	213.--
AR1101	stainless steel ferrules	1/16" Rheodyne	10 pieces	28.--
AS2001	fitting screws	stainless steel short	10 pieces	37.--
AS2101	fitting screws	stainless steel long	10 pieces	37.--
AS2201	fitting screws	stainless steel large	10 pieces	56.--
AS3001	ZDV-union stainless steel	1/16"	1 piece	47.--
AS3101	tee-piece stainless steel	1/16"	1 piece	194.--
AS3201	cross stainless steel	1/16"	1 piece	213.--
AP0313	PEEK-tubing	AD 1/16" x 0.13 mm ID	3 m	60.--
AP0317		AD 1/16" x 0.17 mm ID	3 m	60.--
AP0325		AD 1/16" x 0.25 mm ID	3 m	60.--
AP0350		AD 1/16" x 0.50 mm ID	3 m	60.--
AP0375		AD 1/16" x 0.75 mm ID	3 m	60.--
AP5001	fingertight-fittings	PEEK	10 pieces	59.--
AP5101	coupler PEEK universal fingertight		1 piece	43.--
AP5201	union PEEK	1/16" (incl. 2 fingertight-fittings)	1 set	37.--
AP5301	tee-piece PEEK	1/16" (incl. 3 fingertight-fittings)	1 set	120.--
AP5401	cross PEEK	1/16" (incl. 4 fingertight-fittings)	1 set	135.--
AN5501	plug Nylon	1/16"	10 pieces	--.--
AN5510			100 pieces	--.--
AS6000	pliers for stainless steel tubings		1 piece	--.--
AR6100	Rheotool		1 piece	--.--
AP6200	Clean-Cut for cutting polymeric tubings		1 piece	--.--
AP6300	Guillotine-Cutter		1 piece	--.--
AC7000	EasyFlange Kit		1 set	--.--
AS7500	Last-drop mobile phase-filter with 2.0 µm stainless steel frit		1 piece	--.--
AP7500	Last-drop mobile phase-filter with 2.5 µm PAT-frit		1 piece	--.--

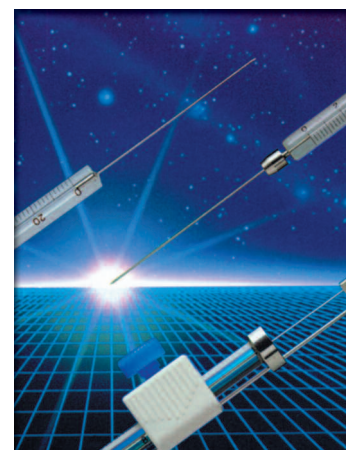


## SYRINGES



### EXMIRE® HIGH QUALITY INJECTION SYRINGES

volume	smallest amount	Part-No.	Price/€
5 µl	0.1 µl	MSR 05	74.--
10 µl	0.2 µl	MSR 10	52.--
25 µl	0.5 µl	MSR 25	53.--
50 µl	1.0 µl	MSR 50	57.--
100 µl	2.0 µl	MSR 100	61.--
250 µl	5.0 µl	MSR 250	72.--
500 µl	10.0 µl	MSR 500	89.--



All prices in EUR excluding VAT. Shipping details by request.