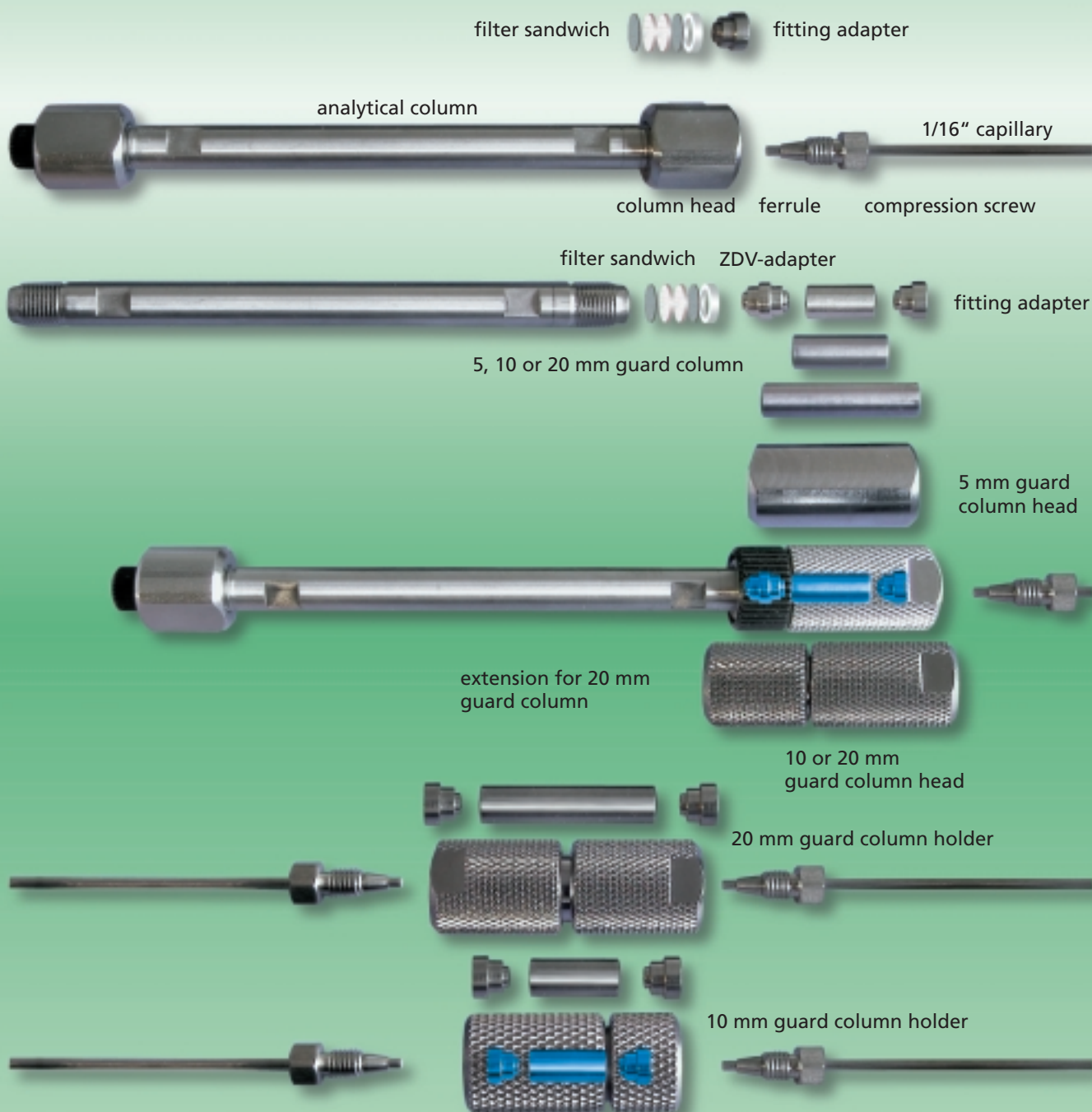


ANALYTICAL **NovoGROM** COLUMNS – 3.0, 4.0, and 4.6 mm i.d. –

The analytical **NovoGROM** HPLC column system is many-fold proven. These columns can be connected to any HPLC system either conventionally via 1/16" capillary, ferrules and screw fittings or dead volume free via the **NovoGROM Quick** connectors. Standard dimensions are 3, 4 and 4.6 mm internal diameter and lengths of 2, 4, 6, 10, 12.5, 15, 20, 25 and 30 cm. Guard columns, i.e., protective precolumns, are available in the lengths of 5, 10 and 20 mm. Columns may be filled as often as is required in the economical refill service. Use of the 3 mm i.d. column results in a reduction in the consumption of solvent of ca. 43% or 57% compared to the 4 mm and 4.6 mm i.d. columns respectively. This not only reduces costs, but is also active environmental protection.

All **NovoGROM** columns can be supplied with any of the stationary phases listed on **GROM** websites or in this **GROM-HPLC catalogue** (see pages 12/13 and 144-151). Alternatively, they may also be packed by the **GROM filling service** with any stationary phase specified by the customer.

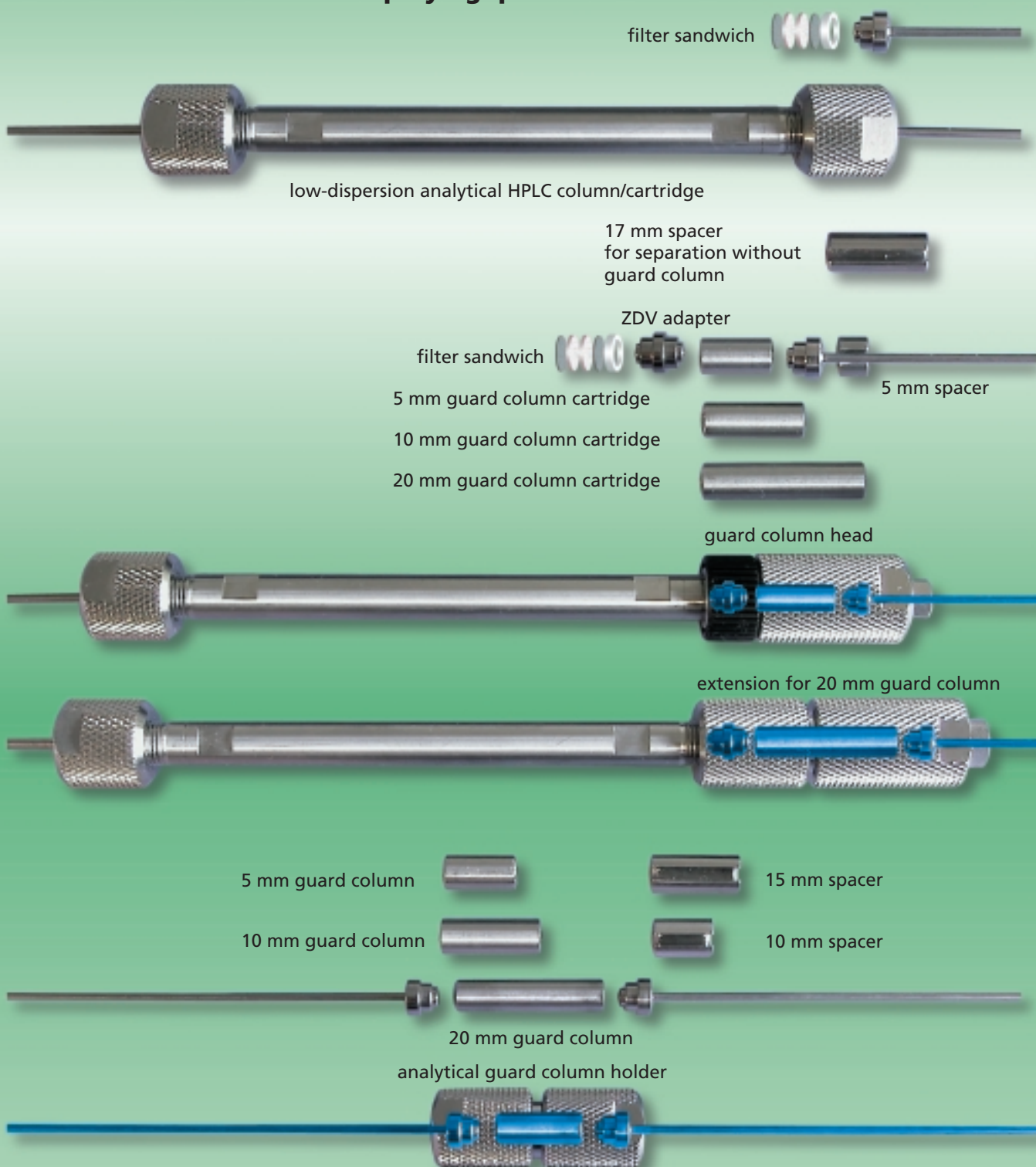
Traditional ferrule-type fitting of **NovoGROM** columns



The **NovoGROM analytical column** system is simple to use and requires no tools („finger-tight“). It is practically dead volume free, thus providing maximum resolution. **NovoGROM stainless steel columns** are available in four versions:

- Standard packed column, complete with column heads, gaskets and sieves
- Packed cartridge, with gaskets and sieves, ends sealed with screw caps.
- Empty column, complete with column heads, gaskets and sieves.
- Empty cartridge, with gaskets and sieves, ends sealed with screw caps.

Modern, advanced low-dispersion HPLC-column hardware employing quick connectors



Analytical HPLC columns, packed*

Order number Description *

***... V0003V	Guard column, analytical,	5 x 3 mm (Pk. of 5)
***... V0103V	Guard column, analytical,	10 x 3 mm (Pk. of 5)
***... V0203V	Guard column, analytical,	20 x 3 mm (Pk. of 5)
***... V0403V	Guard column, analytical,	40 x 3 mm (Pk. of 5)
***... V0004V	Guard column, analytical,	5 x 4.0 mm (Pk. of 5)
***... V0104V	Guard column, analytical,	10 x 4.0 mm (Pk. of 5)
***... V0204V	Guard column, analytical,	20 x 4.0 mm (Pk. of 5)
***... V0404V	Guard column, analytical,	40 x 4.0 mm (Pk. of 5)
***... V0005V	Guard column, analytical,	5 x 4.6 mm (Pk. of 5)
***... V0105V	Guard column, analytical,	10 x 4.6 mm (Pk. of 5)
***... V0205V	Guard column, analytical,	20 x 4.6 mm (Pk. of 5)
***... V0405V	Guard column, analytical,	40 x 4.6 mm (Pk. of 5)

***... S0203, resp. ***... K0203	Column (S) or cartridge (K), analytical,	20 x 3 mm
***... S0403, resp. ***... K0403	Column (S) or cartridge (K), analytical,	40 x 3 mm
***... S0503, resp. ***... K0503	Column (S) or cartridge (K), analytical,	50 x 3 mm
***... S0603, resp. ***... K0603	Column (S) or cartridge (K), analytical,	60 x 3 mm
***... S0803, resp. ***... K0803	Column (S) or cartridge (K), analytical,	75 x 3 mm
***... S1003, resp. ***... K1003	Column (S) or cartridge (K), analytical,	100 x 3 mm
***... S1203, resp. ***... K1203	Column (S) or cartridge (K), analytical,	125 x 3 mm
***... S1503, resp. ***... K1503	Column (S) or cartridge (K), analytical,	150 x 3 mm
***... S2003, resp. ***... K2003	Column (S) or cartridge (K), analytical,	200 x 3 mm
***... S2503, resp. ***... K2503	Column (S) or cartridge (K), analytical,	250 x 3 mm
***... S3003, resp. ***... K3003	Column (S) or cartridge (K), analytical,	300 x 3 mm

***... S0204, resp. ***... K0204	Column (S) or cartridge (K), analytical,	20 x 4.0 mm
***... S0404, resp. ***... K0404	Column (S) or cartridge (K), analytical,	40 x 4.0 mm
***... S0504, resp. ***... K0504	Column (S) or cartridge (K), analytical,	50 x 4.0 mm
***... S0604, resp. ***... K0604	Column (S) or cartridge (K), analytical,	60 x 4.0 mm
***... S0804, resp. ***... K0804	Column (S) or cartridge (K), analytical,	75 x 4.0 mm
***... S1004, resp. ***... K1004	Column (S) or cartridge (K), analytical,	100 x 4.0 mm
***... S1204, resp. ***... K1204	Column (S) or cartridge (K), analytical,	125 x 4.0 mm
***... S1504, resp. ***... K1504	Column (S) or cartridge (K), analytical,	150 x 4.0 mm
***... S2004, resp. ***... K2004	Column (S) or cartridge (K), analytical,	200 x 4.0 mm
***... S2504, resp. ***... K2504	Column (S) or cartridge (K), analytical,	250 x 4.0 mm
***... S3004, resp. ***... K3004	Column (S) or cartridge (K), analytical,	300 x 4.0 mm

***... S0205, resp. ***... K0205	Column (S) or cartridge (K), analytical,	20 x 4.6 mm
***... S0405, resp. ***... K0405	Column (S) or cartridge (K), analytical,	40 x 4.6 mm
***... S0505, resp. ***... K0505	Column (S) or cartridge (K), analytical,	50 x 4.6 mm
***... S0605, resp. ***... K0605	Column (S) or cartridge (K), analytical,	60 x 4.6 mm
***... S0805, resp. ***... K0805	Column (S) or cartridge (K), analytical,	75 x 4.6 mm
***... S1005, resp. ***... K1005	Column (S) or cartridge (K), analytical,	100 x 4.6 mm
***... S1205, resp. ***... K1205	Column (S) or cartridge (K), analytical,	125 x 4.6 mm
***... S1505, resp. ***... K1505	Column (S) or cartridge (K), analytical,	150 x 4.6 mm
***... S2005, resp. ***... K2005	Column (S) or cartridge (K), analytical,	200 x 4.6 mm
***... S2505, resp. ***... K2505	Column (S) or cartridge (K), analytical,	250 x 4.6 mm
***... S3005, resp. ***... K3005	Column (S) or cartridge (K), analytical,	300 x 4.0 mm

To satisfy the highest demands for biocompatibility in biochemical applications, **NovoGROM** HPLC columns are also available in an inert poly-ether-ether-ketone (PEEK) version*.

***... P0305	PEEK-column, analytical	- 30 x 4.6 mm
***... P0505	PEEK-column, analytical	- 50 x 4.6 mm
***... P1005	PEEK-column, analytical	- 100 x 4.6 mm
***... P1205	PEEK-column, analytical	- 125 x 4.6 mm
***... P1505	PEEK-column, analytical	- 150 x 4.6 mm
***... P2505	PEEK-column, analytical	- 250 x 4.6 mm
***... P3005	PEEK-column, analytical	- 300 x 4.6 mm

* Analytical **NovoGROM** HPLC columns can be packed with any of the stationary phases listed in this catalogue or with the customer's stationary phase.

** Other dimensions upon request.

*** To complete the order number, add here the abbreviation for the desired stationary phase (see pages 160-161).




Order number Description*

***... M0404	NovoGROM PEEK-column , 40 x 4.0 mm, complete
***... M0504	NovoGROM PEEK-column , 50 x 4.0 mm, complete
***... M0804	NovoGROM PEEK-column , 75 x 4.0 mm, complete
***... M1004	NovoGROM PEEK-column , 100 x 4.0 mm, complete
***... M1204	NovoGROM PEEK-column , 125 x 4.0 mm, complete
***... M1504	NovoGROM PEEK-column , 150 x 4.0 mm, complete
***... M2504	NovoGROM PEEK-column , 250 x 4.0 mm, complete
***... M3004	NovoGROM PEEK-column , 300 x 4.0 mm, complete
***... M0104V	NovoGROM PEEK-guard column , 10 x 4.0 mm (Pk. of 5), complete
***... M0104X	NovoGROM PEEK-guard column , 10 x 4.0 mm (Pk. of 10), complete
***... M0204V	NovoGROM PEEK-guard column , 20 x 4.0 mm (Pk. of 5), complete
***... M0204X	NovoGROM PEEK-guard column , 20 x 4.0 mm (Pk. of 10), complete



M2101 **NovoGROM PEEK-guard column head**, for 10 x 4.0 mm guard columns
(PEEK ZDV adapter and PEEK fitting included)



M2102 **NovoGROM PEEK-guard column head**, for 20 x 4.0 mm guard columns
(PEEK ZDV- and PEEK fitting adapter included)



M2201 **NovoGROM PEEK-guard column holder**, for 10 x 4.0 mm guard columns
(2 x PEEK fitting adapters included)



M2202 **NovoGROM PEEK-guard column holder**, for 20 x 4.0 mm guard columns
(2 x PEEK fitting adapters included)



M5019 **PEEK zero dead volume (ZDV) adapter**, analytical, for direct coupling
of guard column



M6000 **PEEK frit**, 2 µm (1 piece)
M6001 **PEEK frits**, 2 µm (3 pieces)



M6003 **PEEK fitting adapter**, analytical

* Other dimensions upon request.

System components and accessories for analytical **NovoGROM** HPLC columns

Finger-tight: blocked components (eg. from fines) are easily replaced without tools.

	Order number	Description
	1100	Set of quick connectors , analytical, for rapid manual, dead volume free connection of all analytical cartridges and standard columns, compatible with similar systems; consisting of two Quick connector heads (cap nuts) and two 250 x 0.25 mm i.d. capillaries with fitting adapters
	1110	Set of quick connectors , analytical, same as 1100, but with 100 x 0.25 mm i.d. capillaries with fitting adapters
	1200	Set of quick connectors , analytical, same as 1100, but with 250 x 0.12 mm i.d. capillaries with fitting adapters
	1210	Set of quick connectors , analytical, same as 1100, but with 100 x 0.12 mm i.d. capillaries with fitting adapters
	2100	Guard column holder , analytical, for 5, 10 and 20 mm analytical guard columns, manual assembly without tools, pressure rating 40 MPa, complete, including two capillaries with fitting adapters (250 mm x 0.25 mm i.d.) and two spacers for 5 and 10 mm guard columns
	2200	Guard column holder , analytical, same as 2100, but with 250 mm x 0.12 mm i.d. capillaries
	2220	Guard column holder , analytical, same as 2100, but supplied with two additional fitting adapters
	2115	Guard column holder , analytical, for conventional connecting 20 mm guard column and conventional, ferrule-type connections
	2116	Guard column holder , analytical, for conventional connecting 10 mm guard column and conventional, ferrule-type connections
	3100	Guard column head , analytical, for the direct, dead volume free connection of analytical columns with 5, 10 or 20 mm guard columns - pressure rating 40 MPa - consisting of capillary with fitting adapter (250 mm x 0.25 mm i.d.), ZDV adapter and 2 spacers for 5 mm guard column or for operation without guard column
	3200	Guard column head , analytical, same as 3100, but with 250 mm x 0.12 mm i.d. capillary with fitting adapter
	3101	Guard column head , analytical, for 10 mm guard column and conventional, ferrule-type connections
	3102	Guard column head , analytical, for 20 mm guard column and conventional, ferrule-type connections
	3103	Guard column holder , analytical, for 5 mm guard column and conventional, ferrule-type connections
	4100	Guard column combination , analytical, for the direct, dead-volume free connection of analytical columns with 5, 10 or 20 mm guard columns - pressure rating 40 MPa - consisting of one guard column head and one quick connector head, two capillaries with fitting adapters (250 mm x 0.25 mm i.d.), ZDV adapter and 2 spacers for 5 mm guard column or for operation without guard column.
	4200	Guard column combination , analytical, same as in 4100, but with 250 mm x 0.12 mm i.d. capillaries with fitting adapter.

	Order number	Description
	5002	Quick connector head (cap nut), analytical
	5010	Spacers , for 5 mm and 10 mm analytical guard columns (Pk. of 2)
	5011	Spacer (15 mm) for guard column holder for 5 mm analytical guard column
	5012	Spacer (10 mm) for guard column holder for 10 mm analytical guard column
	5013	Spacer (17 mm) for guard column head, analytical, for operation without guard column
	5014	Spacer (5 mm) for guard column head for 5 mm analytical guard column
	5019	Zero dead volume (ZDV) adapter for connecting analytical guard column to analytical column
	5020	Spacer set for operation with 5, 10 or 20 mm or without analytical guard columns (Items 5011-5014)
	5030	Extension for analytical guard column holder to allow use of 40 mm guard columns
	5050	Capillary , 50 x 0.25 mm, with fitting adapter, analytical
	5051	Capillary , 100 x 0.25 mm, with fitting adapter, analytical
	5052	Capillary , 250 x 0.25 mm, with fitting adapter, analytical
	5053	Capillary , 500 x 0.25 mm, with fitting adapter, analytical
	5054	Capillary , 700 x 0.25 mm, with fitting adapter, analytical
	5055	Capillary , 50 x 0.12 mm, with fitting adapter, analytical
	5056	Capillary , 100 x 0.12 mm, with fitting adapter, analytical
	5057	Capillary , 250 x 0.12 mm, with fitting adapter, analytical
	5058	Capillary , 500 x 0.12 mm, with fitting adapter, analytical
	5059	Capillary , 800 x 0.12 mm, with fitting adapter, analytical
	6001	Coupling nut for connecting two analytical columns or cartridges

	Order number	Description
	6002	Column head , analytical
	6003	Fitting adapter for analytical column head
	6011	Screw plug for column head (Pk. of 10)
	6016	Sealing caps for analytical guard columns (Pk. of 20)
	6017	Screw caps for closure of analytical cartridges (Pk. of 10)
	6018P	PE stopper (cap) for analytical cartridges (Pk. of 10)
	6021	PTFE sealing gaskets , analytical (Pk. of 40)
	6022	PTFE sealing gaskets , analytical (Pk. of 100)
	6030	4x Filter-sieve sandwiches , analytical, each sandwich consists of 2 stainless steel sieves, 2 glass fiber filters and 1 PTFE sealing gasket
	6031	Sieve set , analytical, (8 stainless steel sieves, 12 glass fiber filters)
	6032	Sieve set , analytical, (80 stainless steel sieves, 120 glass fiber filters)
	6040	Stainless steel sieves , analytical, 10 µm (Pk. of 100)
	6041	Stainless steel sieves , analytical, 5 µm (Pk. of 100)
	6042	Stainless steel sieves , analytical, 3 µm (Pk. of 100)
	6044	Stainless steel sieves , analytical, 5 µm (Pk. of 1000)
	6045	Stainless steel sieves , analytical, 3 µm (Pk. of 1000)
	6052	Glass fiber filters , analytical (Pk. of 250)
	6054	Glass fiber filters , analytical (Pk. of 1000)