



NANOBAUME™

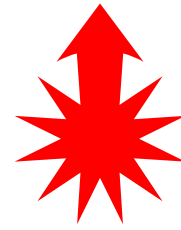
HIGH PRESSURE PACKING FOR CAPILLARY COLUMNS

PACK YOUR OWN CAPILLARIES FOR HPLC AND MASS SPEC

JULY 2015



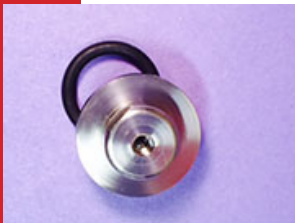
NANOBAUME SP-400-M1



NANOBAUME™



PACKER BODY



O RING & SEAL



COLUMN IN PLACE

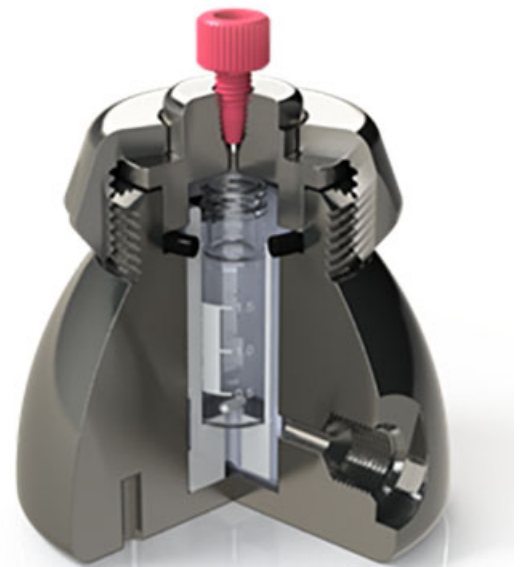


PRESSURE CONNECTION

CAPILLARY COLUMN PACKER

- Pack capillaries and Silica Tips
- Compact design will not tip on the work surface
- Seals safely at pressures up to 9000 psi *
- Change packing quickly, without tools
- Priced economically

Save time, money, and gain control by packing your own capillary columns and silica tips. Designed to accommodate empty fused silica or PEEKsil™ columns of 1/16" and less in outer diameter. The NANOBAUME™ is a compact 316 stainless steel unit built to pack tubing with a silica bed at high pressure. The Nanobaume™ may be used for packing at up to 9000 psig* with liquid media (3000 psig for gas pressure), NANOBAUME occupies a small footprint on the benchtop (at 2.5" in diameter, 2.5" tall), and assembles easily in a few simple steps. The FFKM O-ring seals at high pressure by hand-tightening only. A magnetic stir bar keeps the silica slurry suspended over a stir-plate during column packing. Not for use under SFC conditions.



SP-400-M1
NANOBAUM
cutaway

* Packing limit of the pressure vessel is 9000psi with liquid media for 1/16", 1/32" SS and PEEKSIL columns under 100um ID. Fused silica packed with the SP-400-M1 will hold pressure to 6000 psi. SP-403K-M1 includes high-pressure (9000psi liquid media) CE-005-M1 column connection kit. See PEEKSil column body Pressure specifications.





SP-400-M1 Nanobaume™ Assembly

SP-400-M1 NANOBAUME™ ASSEMBLY

- Our base unit – all the components for a functional packer
- Includes connections for 360µm, 1/32" and 1/16" OD columns

Order the SP-400-M1 assembly when all you need is a packer to get started. Includes a pressure source connection for 1/16" OD tubing, column connections each for 1/16", 1/32" and 360 µm OD, glass vial, FFKM O-ring, Teflon® micro stir bar, 2ml Vial insert, and SS316 hardware (body, cap lock and cap seal). A SS high pressure nut and ferrules will hold PEEKSIL and SS body columns to 9000 psig. Although the pressure limit of the packing vessel is 9000 psig with liquid media, use of fused silica columns will reduce working pressure to 6000psig. Note that the SP-400-M1 assembly does not include column end fittings, which are used to retain the silica bed while packing. These and other items may be purchased separately or as part of the SP-403K-M1 Kit. The following items are included in the SP-400-M1:

PART #	QUANTITY	DESCRIPTION
SP-133	5	FERRULE, PEEK, FOR 1/32" OD COLUMNS
SP-014	1	STAINLESS STEEL NUT, 10-32
SP-015	5	FERRULE, KEL-F®, FOR 360 MICRON OD
SP-400-07	1	O-RING, FFKM perfluoroelastomer
SP-085	1	PTFE STIR BAR, 5MM X 2MM
SP-400-01	1	CAP LOCK, SS316 WITH TITANIUM NITRIDE COATING
SP-400-02	1	CAP SEAL, SS316
SP-400-05	1	PACKER BODY, SS316
SP-116	1	CONNECTOR TO PACKER FOR 1/16" OD TUBING, SS316
VL-002	1	GLASS VIAL, 2ML, 12X32MM, BOROSILICATE
SP-130	1	SS NUT, MALE 10-32
SP-134	1	FERRULE, PEEK FOR 1/16" OD COLUMNS
SP-125	1	VIAL INSERT, KEL-F FOR 2ML VIAL 12X32mm

NANOBAUME™ CAPILLARY PACKING UNIT

SP-400 -M1 Nanobaume™ High Pressure Capillary Packing Assembly



SP-403K-M1 Nanobaume™ Startup Kit

SP-403K-M1 STARTUP KIT

- The ideal choice when starting from scratch – includes the SP-400-M1 Assembly and the most commonly used accessories
- High Pressure End Fittings and accessories included
- Rated to 9000 psig with liquid media*

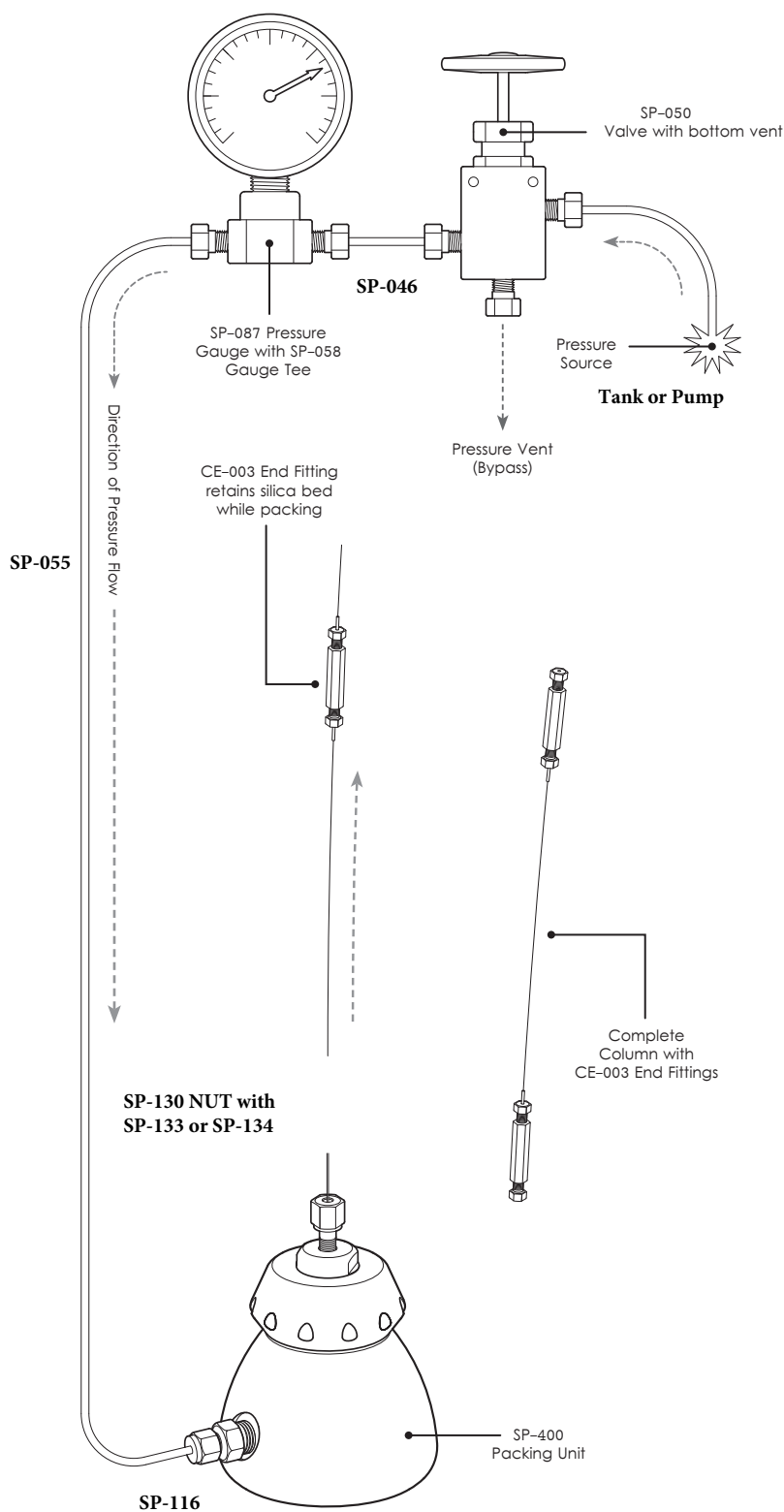
The SP-403K-M1 Startup Kit includes the most common accessories used in capillary column packing. At the heart of the system is the SP-400 Nanobaume Packing unit, with pack-ing accessories to connect to a pressure source and monitor the system pressure. Also included is the CE-005-M1 High Pressure Packing Adapter Kit, which includes end fittings and column connections capable of 9000 psig packing pressure WITH SS AND PEEKSIL columns with liquid media (3000 psig recommended with gas). Below are the items included in the SP-403K-M1:

PART #	QUANTITY	DESCRIPTION
SP-400-M1	1	NANOBAUME™ PACKING UNIT
SP-087	1	PRESSURE GAUGE, 0-10000 PSI, SS316
SP-046	2	TUBING, 0.020" ID X 1/16" OD X 10CM, SS316
SP-050	1	VALVE, PRESSURE RELIEF, BOTTOM VENT
SP-055	1	TUBING, 0.020" ID X 1/16" OD X 5 FEET, SS316
SP-058	1	PRESSURE GAUGE TEE FOR 1/16" OD TUBING
VL-002X	1	GLASS VIAL, 2ML, 12X32, PACK OF 10
CE-005-M1	1	HIGH PRESSURE PACKING ADAPTER KIT
SP-110	1	TANK ADAPTER, 1/4" M NPT TO 1/16" TUBE

NANOBAUME™ STARTUP KIT

SP-403K-M1 Nanobaume™ High Pressure Capillary Packing Startup Kit

COMPONENTS AND ASSEMBLY



SP-403K-M1 PARTS ASSEMBLY DIAGRAM

Cap Lock
SP-400-01

10-32 Nut
SP-130

Ferrule
SP-133 or SP-134

Cap Seal
SP-400-02

Stir Bar
SP-085

Glass Vial
VL-002
VIAL INSERT
SP-125 not shown

O-Ring
SP-400-07

Packer Body
SP-400-05

NOW 10-32
FEMALE
THREAD

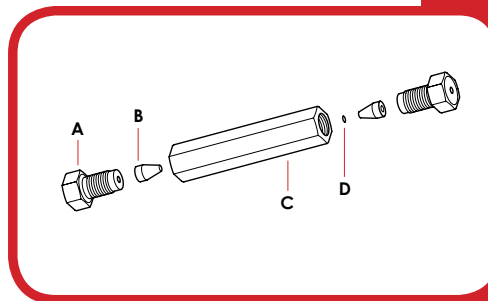
SP-400-M1 PARTS ASSEMBLY



CE-003, CE-006 Column End Fittings

- 27nL void volume with 0.5µm SS screen (1/32")
- For fused silica and 1/32" ,1/16" OD PEEKsil™ columns
- Rated to 9000 psig PEEKSIL COLUMN, for 6000 FUSED SILICA

To successfully pack a capillary column, a fritted end is required to retain the silica bed while packing. The CE-003 is a stainless steel end fitting made for direct-connection to 1/32" OD columns. Connection to columns and transfer tubing of smaller OD may be achieved by use of the appropriate column adapter sleeve, such as included in the TS-015 Adapter Kit. Use the CE-003 at system pressures up to 9000 psig PEEKSIL columns (3000 psig recommended with gas pressure). Please note that when the NanoBaume is in use with fused silica pressure limit is below 6000 psig.



CE-003, CE-006 COLUMN END FITTING

- A Stainless Nut
- B Ferrule
- C Union
- D SS Screen

COLUMN END FITTINGS, COMPONENTS, AND ADAPTERS

1/32"

CE-003	High Pressure Column End Fitting, 1/32" SS316, with (1) SP-088 0.5µm screen INCLUDES THE FOLLOWING ITEMS, 1 each
SP-088	Screen SS, 0.5µm
SP-099	Micro Union, SS316, for 1/32" OD columns, 150µm bore, with 6-40 ports

Fused Silica Adapters

TS-015

COLUMN END FITTING , COMPONENTS

1/16"

CE-006	High Pressure column end fitting, 1/16 SS with (1) SP-096 0.5µm SS screen INCLUDES THE FOLLOWING ITEMS 1 each
SP-096	Screen 0.5µm SS
SP-095	Union , SS for 1/16" OD columns, 0.25mm bore

CE-005-M1 COLUMN ADAPTER KIT

- Includes sample columns, end fittings, and adapters
- For fused silica, 1/32" and 1/16" OD PEEKsil™ columns

CE-005-M1 COLUMN ADAPTER KIT COMES WITH ITEMS LISTED BELOW. USE OF THE PEEKSIL COLUMNS WILL ALLOW PACKING AT 9000 PSIG PRESSURE. USE OF FUSED SILICA WILL ALLOW PACKING AT 6000 PSIG WITH THE FITTINGS AND COLUMNS INCLUDED.

PART #	QTY	DESCRIPTION
CE-003	2	HIGH PRESSURE 1/32" SS COLUMN END FITTING AND 0.5µm SS SCREEN
CE-006	2	HIGH PRESSURE 1/16" SS COLUMN END FITTING AND 0.5µm SS SCREEN
SP-088	2	SCREEN, SS, 0.5µm, 1/32" diameter
SP-096	2	SCREEN, SS, 0.5µm, 1/16" diameter
SP-010	1	FUSED SILICA, 360µm OD x 150µm ID, 500mm length
SP-044	1	PEEKsil COLUMN 1/32" OD X 100µm ID, 100mm(pk of 2)
SP-152	2	PEEKsil COLUMN 1/16" OD X 150µm ID, 150mm
SP-133	2	FERRULES 1/32"
SP-134	2	FERRULES 1/16"
SP-130	1	SS NUT FOR COLUMN ONTO NANOBAUME
TS-015	1	ADAPTER SLEEVES FOR FUSED SILICA TO 1/32" FITTINGS ONLY



CE-005-M1 COLUMN ADAPT KIT
1/16" OD PEEKSIL COLUMNS NOT
SHOWN

SILICA BULK MATERIAL

- Pack columns with the phase of your choice
- Other packings available - please inquire

A number of small particle silicas are available below and on the following page. Select a phase to suit your needs and order by the gram. Other packings are available; please contact your distributor for a broader selection or allow our technical staff to suggest a material tailored to your requirements. Sold in Gram quantities only.

SILICA BULK MATERIAL

SP-008	Strong Cation Exchange, PolySULFOETHYL A, 5µm, 300Å
SP-004	Weak Cation Exchange, PolyCATA A, 5µm, 1000Å



SILICA BULK MEDIA



SILICA BULK MATERIAL, CONTINUED

SP-005	Hydrophilic Interaction, PolyHYDROXYETHYL A, 5µm, 100Å
SP-007	Hydrophobic Interaction, PolyPROPYL A, 5µm, 300Å
SP-006	C-18, 5µm, 300Å
SP-001	C-18, 5µm, 100Å
SP-113	C-4, 5µm, 300Å



FUSED SILICA

FUSED SILICA

- Methyl-Deactivated and Undeactivated options
- Polyimide coated for strength

Fused silica tubing may be used as column bodies or as transfer tubing to connect a PEEKsil column to your system. May be cut to length by the user. Although referred to as "360 micron OD" by the industry, typical tolerances are $\pm 10\mu\text{m}$ on the OD, $\pm 3\text{--}4\mu\text{m}$ on the ID. Note that Deactivated fused silica has been coated on the ID to reduce active sites, while Un-Deactivated is standard uncoated fused silica. Priced per meter.

DEACTIVATED FUSED SILICA TUBING, 1 Meter length

SP-009	50µm ID x 363µm OD, Deactivated fused silica
SP-010	100µm ID x 365µm OD, Deactivated fused silica
SP-011	250µm ID x 350µm OD, Deactivated fused silica

UN-DEACTIVATED FUSED SILICA TUBING, 1 Meter length

SP-061	20µm ID x 363µm OD, Un-Deactivated fused silica
SP-062	50µm ID x 363µm OD, Un-Deactivated fused silica
SP-063	75µm ID x 363µm OD, Un-Deactivated fused silica
SP-064	100µm ID x 363µm OD, Un-Deactivated fused silica
SP-066	250µm ID x 363µm OD, Un-Deactivated fused silica

FUSED SILICA ADAPTERS

TS-015	Column adapters includes two 1/32" OD adapters each in five ranges, 125-495µm ID, 10 total sleeves
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FUSED SILICA TUBING CUTTER

SP-019	Precision fused silica tubing cutter
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PEEKsil™

PEEKsil™ 1/32inch OD EMPTY COLUMNS

- Fused silica lined PEEK tubing, Undeactivated
- Available in pre-cut lengths only

PEEKsil™ is fused silica tubing covered by a PEEK polymer sheath, supplied here in 1/32"OD. Mechanically stronger than fused silica tubing alone, it is readily adaptable to typical stainless or PEEK™ tubing connections. PEEKsil™ must be factory-cut to length. Use two of CE-003 for column ends to make complete column assembly.

PEEKsil™ EMPTY COLUMN Bodies

SP-031	25µm ID x 1/32" OD, 50mm long, pack of 2	Orange
SP-032	25µm ID x 1/32" OD, 100mm long, pack of 2	Orange
SP-033	25µm ID x 1/32" OD, 150mm long, pack of 2	Orange
SP-034	50µm ID x 1/32" OD, 50mm long, pack of 2	Beige
SP-035	50µm ID x 1/32" OD, 100mm long, pack of 2	Beige
SP-036	50µm ID x 1/32" OD, 150mm long, pack of 2	Beige
SP-037	75µm ID x 1/32" OD, 50mm long, pack of 2	Black
SP-038	75µm ID x 1/32" OD, 100mm long, pack of 2	Black
SP-039	75µm ID x 1/32" OD, 150mm long, pack of 2	Black



PEEKSiL™ EMPTY COLUMNS Bodies , CONTINUED

SP-040	100µm ID x 1/32" OD, 50mm long, pack of 2	Red
SP-041	100µm ID x 1/32" OD, 100mm long, pack of 2	Red
SP-042	100µm ID x 1/32" OD, 150mm long, pack of 2	Red
SP-043	150µm ID x 1/32" OD, 50mm long, pack of 2	Purple
SP-044	150µm ID x 1/32" OD, 100mm long, pack of 2	Purple
SP-045	150µm ID x 1/32" OD, 150mm long, pack of 2	Purple

PEEKSiL™ FUSED SILICA LINED PEEK COLUMN, 1/16" OD

PEEKSiL™ is fused silica tubing covered by a PEEK polymer sheath, supplied here in 1/16" OD. Mechanically stronger than fused silica tubing alone, (9000 psig) it is readily adaptable to typical stainless or PEEK™ tubing connections. PEEKSiL™ must be factory-cut to length. Use two of CE-006 for column ends to make complete column assembly.

PEEKSiL™ EMPTY COLUMNS Bodies , 1/16" OD

SP-150	100um ID x 1/16" ODx 150mm length , each
SP-151	100um ID x 1/16" ODx 200mm length, each
SP-152	150um ID x 1/16" ODx 150mm length, each
SP-153	150um ID x 1/16" ODx 200mm length, each
SP-154	200um ID x 1/16" ODx 200mm length, each
SP-155	200um ID x 1/16" ODx 200mm length, each

CAPILLARY NANO TRAP COLUMN, SP-165

Nano Trap is a direct connect to 360um OD Fused silica with the empty body (100um x 25mm) for your packing material. Two 1 um Titanium frits are included as well as end caps and ferrules. The swept volume of 10nl, optimum flowrate is 250nl/min. Excellent for concentrating or separating biological samples prior to a ESI-MS. Column is pressure rated to 5000psig.

SP-165	TRAP COLUMN KIT, INCLUDED PARTS LISTED BELOW
SP-166	EMPTY COLUMN (100um x 25mm, with 360um OD (1 ea)
SP-167	1um nanofilter with ti frits (2 ea)
SP-168	Female nut, (2 ea)
SP-169	Microferrule for 360um OD fused silica tube (2 ea)
SP-170	Microcapsule for packing (no frit)



SP-165 NANOTRAP COLUMN

WARNING: PACKING AT HIGH PRESSURE CAN BE HAZARDOUS. DO NOT USE AT PRESSURE ABOVE RECOMMENDED LEVELS (9000 PSIG LIQUID, 3000 PSIG GAS). NOT FOR SFC (SUPERCRITICAL FLUID CHROMATOGRAPHY) USE. PURGE AIR FROM LINES BEFORE PACKING WITH LIQUID MEDIA.

NOTE: WE OFFER NO GUARANTEE REGARDING COLUMN-TO-COLUMN PACKING REPRODUCIBILITY, COLUMN EFFICIENCY (THEORETICAL PLATES ACHIEVED), OR COLUMN SELECTIVITY OR TAILING FACTORS. CAPILLARY COLUMN PACKING IS, AT THIS STAGE, A HIGHLY EXPERIMENTAL TECHNIQUE.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

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PEEK™ polymer is a Trademark of Victrex PLC





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2015 PRICE LIST

SP-006	SILICA C-18 5um 300A /gm	\$140.00	SP-130	NUT, SS, 10-32 MALE	\$8.23
SP-007	SILICA PolyPROPYL A 5um 300A /gm	\$140.00	SP-131	PEEK Nut, 10K psi, 10-32	\$6.60
SP-008	SILICA PolySULFOETHYL A 5um 300A /gm	\$150.00	SP-133	FERRULE, FOR 1/32 TUBE, PEEK	\$18.49
SP-009	FS Tubing 50um ID x 360 um 0.5mtr	\$24.23	SP-134	FERRULE, FOR 1/16" TUBE, PEEK	\$13.54
SP-010	FS Tubing 100um ID x 360 um 0.5mtr	\$20.34	SP-135	Ferrule SSI, SS for 1/16 tube	\$5.34
SP-011	FS Tubin250um ID x 360 um OD 0.5mtr	\$34.37	SP-136	Nut, SSI, SS for 1/16 tube	\$11.51
SP-013	Ferrule PEEK for 1/32 OD tubing	\$16.06	SP-137	Ferrule , SS, for 1/16 tube for SP-058	\$4.71
SP-014	NUT SS, 10-32 male, long	\$20.20	SP-150	PEEKSil, 100um, x 150mm, 1/16, ea	\$36.57
SP-015	Ferrule Kel-F for 360um OD tube	\$23.29	SP-151	PEEKSil , 100um ID X 200mm, 1/16, ea	\$42.91
SP-019	Precision Fused Silica Tubing cutter	\$768.57	SP-152	PEEKSil, 150um, 150mm length, 1/16, ea	\$36.57
SP-026	Plug 10-32 Coned PEEK Natural	\$7.46	SP-153	PEEKSil, x 150um ID, 200mm, 1/16, ea	\$42.91
SP-029	Pressure Gauge 0-3000 psig SS316 dry	\$93.06	SP-154	PEEKSil , x 200um ID 150mm, 1/16, ea	\$36.57
SP-030	.030 ID x 1/16 OD Green PEEK /ft	\$9.60	SP-155	PEEKSil , 200um ID, 200 mm , 1/16, ea	\$42.91
SP-031	PEEKSil 25um ID x 50mm , 1/32" OD pk/2	\$45.17	SP-160	3 way valve, SS, 1/16 fitting, low pressure 1500 psig	\$0.00
SP-032	PEEKSil 25um ID x 100mm, 1/32" OD pk/2	\$49.14	SP-161	Teflon tape, for NPT Threads	\$0.00
SP-033	PEEKSil, 25um ID x 150mm long,, 1/32" OD, pk/2	\$60.74	SP-162	Torque wrench 1/4" hex , 10inch- lbs	\$461.14
SP-034	PEEKSil 50um ID x 50mm long , 1/32" OD pk/2	\$49.14	SP-165	NANOTrap column Kit, unpacked with frits, 100umx25r	\$376.23
SP-035	PEEKSil ,50um ID x 100mm long, 1/32" OD pk/2	\$49.14	SP-166	Empty Column, 100um Id x 360um OD, 25mm length	\$15.80
SP-036	PEEKSil ,50um ID x 150mm long, 1/32" OD pk/2	\$60.74	SP-167	1um nanofilter with Titanium Frits	\$75.31
SP-037	PEEKSil, 75um ID x 50mm long , 1/32" OD pk/2	\$45.17	SP-168	Nut, Female PEEK for SP-165	\$8.26
SP-038	PEEKSil, 75um ID x 100mm long, 1/32" OD pk/2	\$59.66	SP-169	Microferrule for 360umOD fused silica	\$7.66
SP-039	PEEKSil ,75um ID x 150mm long, 1/32" OD pk/2	\$73.74	SP-170	Packing Adapter, no frit	\$28.03
SP-040	PEEKSil , 100um ID x 50mm long, 1/32" OD pk/2	\$54.83	SP-400-01	Nanobaume Cap Lock Series 400	\$393.06
SP-041	PEEKSil, 100um ID x 100mm long, 1/32" OD pk/2	\$59.66	SP-400-02	Nanobaume Cap Seal Series 400	\$310.11
SP-042	PEEKSil, 100um ID x 150mm long, 1/32" OD pk/2	\$73.74	SP-400-05	Nanobaume Packer Body Series 400	\$573.97
SP-043	PEEKSil ,150um ID x 50mm long, 1/32" OD pk/2	\$54.83	SP-400-07	O-RING FFKM Perfluoroelastomer	\$44.14
SP-044	PEEKSil,150um ID x 100mm long, 1/32" OD pk/2	\$59.66	SP-400	NANOBAUME , base unit (Sp-400-01-02-05-07)	\$1,321.28
SP-045	PEEKSil , 150um ID x 150mm long, 1/32" OD pk/2	\$73.94	SP-400-M1	NANOBAUME CAPILLARY COLUMN PAC	\$1,651.80
SP-046	TUBING 0.020 x100mm long , SS, 1/16" OD pk/2	\$7.51	SP-403K-M	NANOBAUME STARTUP KIT high pre	\$2,936.27
SP-050	Shutoff valve with bottom vent	\$303.31	TS-015	Column Adapter Kit PEEK for adapt FS to 1/32" OD	\$41.43
SP-055	TUBING, SS, 1/16 ODx 0.020" ID 5ft	\$50.51	VL-001	Glass Vial 300ul 6x32mm	\$1.46
SP-057	Nut, Female, 10-32 for 1/16 OD tubing	\$14.60	VL-001X	Glass Vial 300ul 6x32mm pk/10	\$14.66
SP-058	TEE, PRESSURE GAUGE, 1/4 NPTx1/16"	\$122.51	VL-002	Glass Vial 2mL 12x32mm	\$0.63
SP-061	20 micron ID x 363 micron OD ,/mtr	\$32.17	VL-002X	GLASS VIAL 2mL 12x32mm pk/10	\$6.40
SP-062	50 micron ID x 363 micron OD ,/mtr	\$62.86	VL-003	PLASTIC VIAL, 1.5ML	\$1.46
SP-063	75 micron ID x 363 micron OD ,/mtr	\$62.86			
SP-064	100 micron ID x 363 micron OD ,/mtr	\$24.00			
SP-066	250 micron ID x 363 micron OD ,/mtr	\$24.86			
SP-068	SLEEVE 1/32 PEEK 70-110	\$4.14			
SP-069	SLEEVE 1/32 PEEK 125-165um Yellow	\$4.14			
SP-070	SLEEVE 1/32 ODX 150-190um Nat	\$4.14			
SP-071	SLEEVE 1/32, 175-215um Gray,	\$4.14			
SP-072	SLEEVE 1/32, 200-240um Blue	\$4.14			
SP-073	SLEEVE 1/32 ,225-265um Red	\$4.14			
SP-074	SLEEVE 1/32OD 275-315um	\$13.89			
SP-075	SLEEVE 1/32 od,325-365um Nat	\$4.14			
SP-076	SLEEVE 1/32 OD 455-495um Orange	\$4.14			
SP-085	NANOBAUME STIR BAR Teflon 5mm	\$7.43			
SP-086	FERRULE SET,SS, two piece, for 1/16 OD tubing	\$6.20			
SP-087	PRESSURE GAUGE, SS, 0-10 000 psi ,Dry	\$105.31			
SP-088	Screen, SS , 0.5micron, 1/32" diameter	\$3.71			
SP-089	MICRON UNION, 1/32" fittings included	\$91.43			
SP-092	FERRULE for 1/32 OD tube, SS	\$11.43			
SP-094	PLUG 1/32 SS	\$34.29			
SP-095	UNION , 10-32 , female SS, 1/16" fittings included	\$91.43			
SP-096	Screen 0.5micron 1/16 OD	\$5.71			
SP-097	FERRULE for 1/16 OD PEEK tube	\$8.57			
SP-098	O-RING Viton for low pressure	\$6.09			
SP-102	NUT,SS, for SP-089 micro union	\$8.83			
SP-103	Ferrule, 1/32" for the SP-089 union	\$11.43			