



## **More helpful Information about our Products.**

What should you consider when using our products? What type of thread should your new SCAT component have? Be guided by our tables, symbols and other useful tips.

# Addendum

- ✓ Thread Identification
- ✓ Thread Types
- ✓ Resistance to Chemicals
- ✓ Safety Instructions
- ✓ GHS Hazard Symbols
- ✓ Terms & Conditions

# Thread Identification

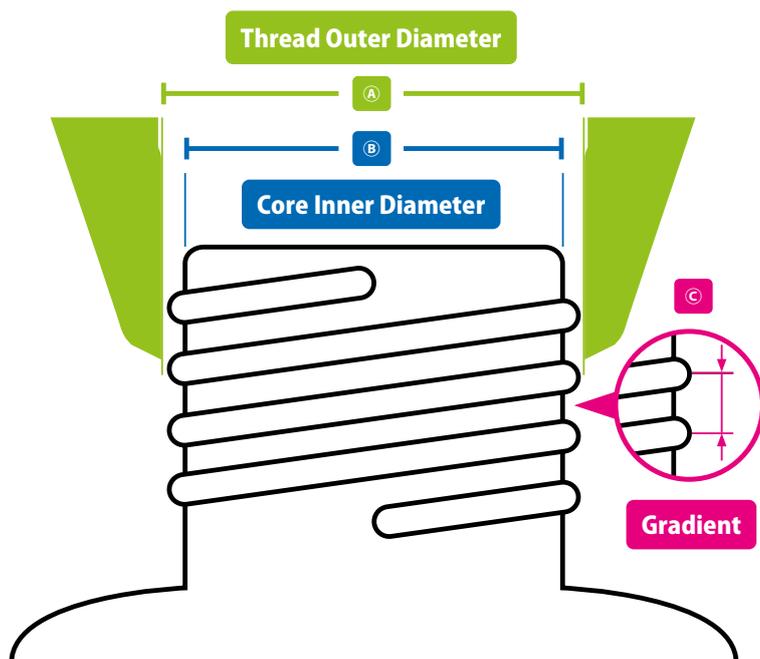
## Container Threads

### Container Threads

SCAT Safety Caps are available for a wide variety of differing container threads. On the following pages you will find tables for determining thread sizes, together with a helpful overview of typical thread types. It is best to use a slide gauge.

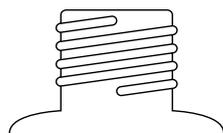
### Instruction, identification of Threads

Use the measured distances below to determine the outer diameter of the thread (A) or the core inner diameter of the container opening (B).



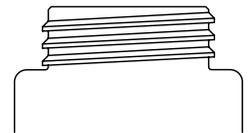
#### Round Thread, Example:

- Bottle thread (GL or GLS)
- Common standard for laboratory bottles



#### Saw Thread, Example:

- Canisters (S-Thread)
- Nalgene containers
- Barrels (Mauser, Trisure, BCS-Threads)
- GPI Standard (Glass Packaging Institute)
- Other plastic containers



Note: All the measurements and values given here can vary up to 0.5 mm, dependent upon the manufacturer involved (due to manufacturing tolerances). Brand names and trademarks are the property of the respective owners. The brand names and protected trademarks mentioned here are simply of descriptive nature.

Ø A Thread Outer Diameter		Ø B Core Diameter	© Gradient			
mm max.	mm min.	mm max.	in mm	Norm	Thread	Norm Thread Comments (also re. brand names, trademarks)
28.00	27.50	25.98	3.00	DIN 168-1	GL 28	Chromsystems®, Recipe®, 500 ml Buffer from Sigma®
32.00	31.30	29.30	4.00	DIN 168-1	GL 32 (glass)	For containers of the brand Duran®
32.00	31.50	29.00	3.00		S 32 (plastic)	-
37.49	36.88	35.10	4.23	GPI / SPI	GL 38/ GPI 38-400 (glass) (short)	For containers of the brands Wheaton® and Nalgene®
38.00	37.50	35.00	3.00	DIN 6063-2	GL 38 short (foldable canister)	4 L BDH bottle, Fulltime® Reagents
38.00	37.50	35.00	3.00	DIN 6063-1	S 38 (plastic)	2.5 L canister from Recipe®, HPLC-P Water, 1 litre Biosolve®, Fresenius Kabi® 10 L
37.49	36.88	35.10	4.23	GPI / SPI	GPI 38-430 (glass) (long)	Wheaton®, Nalgene® 4-edge 500 ml plastic bottle
40.00	39.30	37.30	4.00	DIN 168-1	GL 40 (glass)	For containers of the brand Merck®
41.00	39.50	37.00	3.50	DIN 6063-1	S 40/41 (plastic)	Due to the tolerances involved, a GL 40 cap will often fit on to an S 40 container of the brand Metrohm® / Merck®
42.00	41.50	38.00	4.00		S 42	The designation DIN42 is often written on the cap, Agro Paris Tech 51, Polimoon™, Nalgene®
45.00	44.30	42.30	4.00	DIN 168-1	GL 45	The most common thread for laboratory glass bottles
45.00	44.30	41.00	4.00	DIN 6063-1 DIN 6063-2	S 45	Due to the tolerances involved, a GL 45 cap will fit on to an S 45 thread
44.30	39.70	40.80	4.00	DIN45	DIN45	-
50.00	49.30	46.00	4.00	DIN 6063-1	S 50	Space-saving canister
51.00	49.00	47.00	4.00		S 51	Almost identical to S 50, but the outer diameter of the container thread (OD=Ø) is significantly different. The designation DIN50 is written on the cap.
54.00	53.50	47.50	6.35	53B	B 53	For containers of the brands Nalgene® and Polimoon™
53.80	53.20	49.50	5.00	DIN51	S 55	Designation 51 / DIN51 / HP51 is often written on the cap
60.00	59.20	54.00	6.00	DIN 6063-1	S 60/61	The designation 61, Mauser® 13, RPC Containers® C59PP / DIN61 is often written on the cap
62.51	61.62	60.12	4.23	GPI / SPI	B 63 / GPI 63-415	For containers of the brand Nalgene®
65.00	64.30	59.00	6.00		S 65	For containers of the brand Kautex® (round canisters)
71.00	69.30	65.00	6.00	DIN71	S 70/71	Designation 71, Rieke® 70 mm is often written on the cap
80.00	79.00	77.00	15P5	(DIN 168-1) short	GLS 80	Typical laboratory bottle with wide neck, short thread with 3 thread ends
89.18	88.29	79.00	12.70	83B	B 83	For containers of the brands Nalgene®, Kautex®, Foxx® and Carboy 80 mm
90.00	89.30	84.00	6.00		S 90	The designation D90 is often written on the cap
95.00	93.50	89.00	7.00		S 95	-
106.00	104.00	95.00	6.00		105x 6	Hünersdorff

## Thread Types

### NPT

#### NPT (National Pipe Thread) Conical, American Tubular Thread

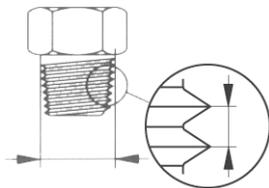
Very easily recognizable due to the conical outer and/or inner diameters, which are self-sealing. NPT is therefore also described as the "sealed thread" or as having a "sealed connection within the thread".



#### Good to know!

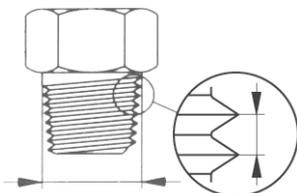
Drawings are of **scale 1:1**

NPT 1/8" – Outer-Ø = 9.9 mm



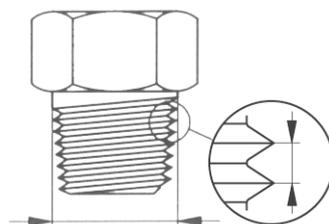
Gradient 27 on 1" = 0.94 mm

NPT 1/4" – Outer-Ø = 13.2 mm



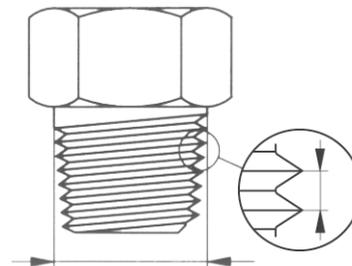
Gradient 18 on 1" = 1.41 mm

NPT 3/8" – Outer-Ø = 16.6 mm



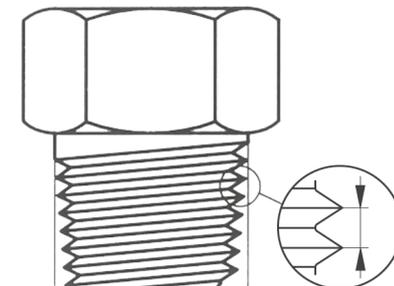
Gradient 18 on 1" = 1.41 mm

NPT 1/2" – Outer-Ø = 20.6 mm



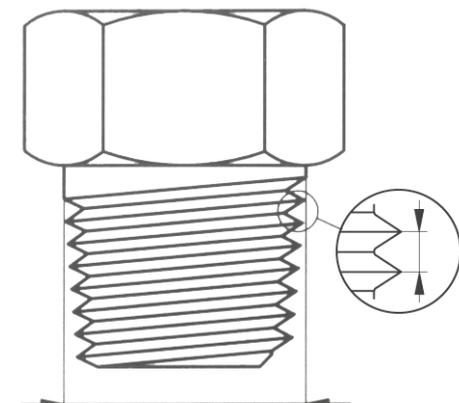
Gradient 14 on 1" = 1.81 mm

NPT 3/4" – Outer-Ø = 26 mm



Gradient 14 on 1" = 1.81 mm

NPT 1" – Outer-Ø = 32.5 mm



Gradient 11.5 on 1" = 2.21 mm



#### SCAT products with NPT 1/8" thread

NPT 1/8" - "tube connector" on Safety Waste Caps. Flexible like no other, with countless tube connections, dividers, collectors etc.



## Thread Types

### G; R; BSP

#### G or R (Whitworth Tubular Thread) and BSP (British Standard Pipe)

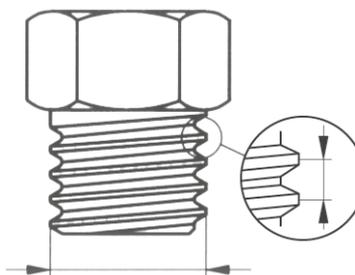
Cylindrical tubular threads are mainly used in english-speaking countries. The measurements, e.g. R 3/4", do not allow for recognition of diameters, the corresponding dimension must be obtained from tables.



#### Good to know!

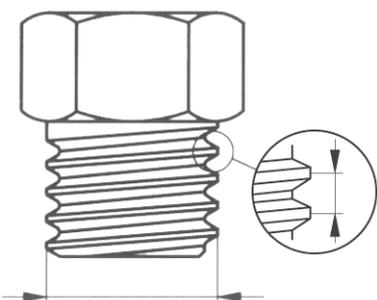
Drawings are of **scale 1:1**

G 1/2" – Outer-Ø = 20.8 mm



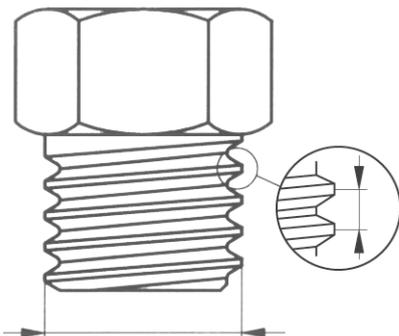
Gradient 14 on 1" = 1.81 mm

G 5/8" – Outer-Ø = 22.8 mm



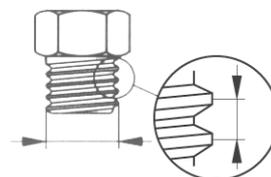
Gradient 14 on 1" = 1.81 mm

G 3/4" – Outer-Ø = 26.3 mm



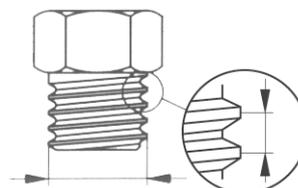
Gradient 14 on 1" = 1.81 mm

G 1/8" – Outer-Ø = 9.6 mm



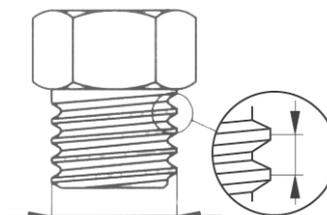
Gradient 28 on 1" = 0.91 mm

G 1/4" – Outer-Ø = 13 mm



Gradient 19 on 1" = 1.34 mm

G 3/8" – Outer-Ø = 16.5 mm



Gradient 19 on 1" = 1.34 mm



#### SCAT products with G thread

e.g. thread adapters



# Thread Types

## M

### M (Metric ISO-Thread) - standard in the European Region

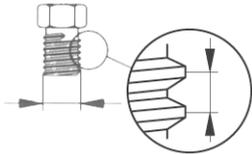
Cylindrical outer and inner diameters, accurate to the very millimeter. Forces are particularly well absorbed, due to the extremely small gradient of the metric thread. The designations begin with an "M", followed by the nominal diameter, e.g. M 10. If there is a gradient that differs from that of the norm, this is given in an addendum, e.g. M 10 x 0.75.



#### Good to know!

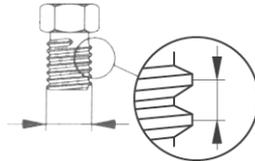
Drawings are of **scale 1:1**

M5 – Outer-Ø = 5 mm



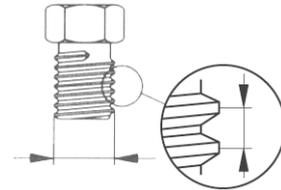
Gradient 0.80 mm

M6 – Outer-Ø = 6 mm



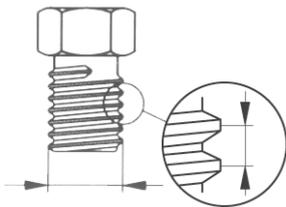
Gradient 1.00 mm

M8 – Outer-Ø = 8 mm



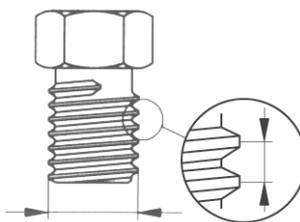
Gradient 1.25 mm

M10 – Outer-Ø = 10 mm



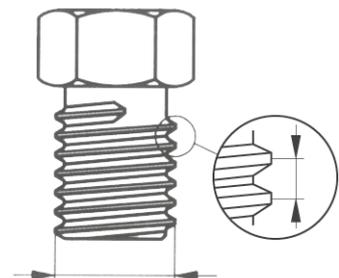
Gradient 1.50 mm

M12 – Outer-Ø = 12 mm



Gradient 1.75 mm

M16 – Outer-Ø = 16 mm



Gradient 2.00 mm



#### SCAT products with M thread

e.g. SymLine pipe connectors



# Thread Types

## UNF 1/4"-28G

### UNF 1/4"-28G

From the USA. Mainly employed in chromatography/HPLC. Standard sizes are UNF 1/4"-28G and UNF 10-32G. The numbers 28G and 32G refer to the number of thread "steps" taken, over a vertical distance of one inch (25.4 mm).



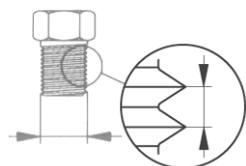
#### Good to know!

Drawings are of **scale 1:1**

### UNF 1/4"-28G versus M6

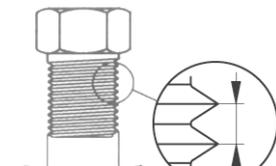
Our HPLC fittings are exclusively constructed with the most typically-used UNF 1/4"-28G HPLC-thread. There also exist fittings and dividers with the very similar thread M6. The two can only be differentiated by exact measurement of the outer diameter, or by using a special test ring or test cap. (It is e.g. therefore possible, to screw the one hollow screw type into the converse piece of the other thread type, at least for 2-3 revolutions). The UNF 1/4" thread has an outer diameter of 6.35 mm, the thread M6 has one of exactly 6.0 mm (production-related tolerances may apply). We recommend the exclusive use of the UNF thread 1/4"-28G, in order to avoid confusion, mistakes being made, or unnecessary double stocking.

UNF 1/4"-28G – Outer-Ø = 6.2 mm



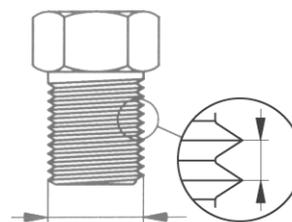
Gradient 28 on 1" = 0.91 mm

UNF 3/8"-28G – Outer-Ø = 9.4 mm



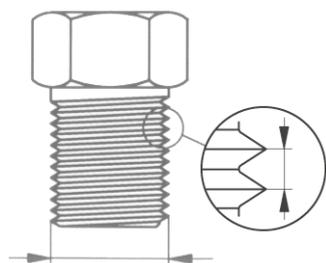
Gradient 24 on 1" = 1.06 mm

UNF 1/2"-28G – Outer-Ø = 12.6 mm



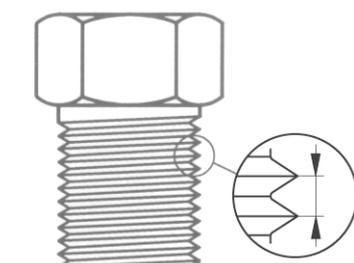
Gradient 20 on 1" = 1.27 mm

UNF 5/8"-18G – Outer-Ø = 15.7 mm



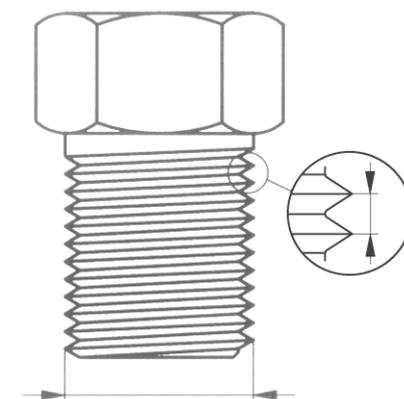
Gradient 18 on 1" = 1.41 mm

UNF 3/4"-16G – Outer-Ø = 18.9 mm



Gradient 16 on 1" = 1.59 mm

UNF 1"-12G – Outer-Ø = 25.2 mm



Gradient 12 on 1" = 2.12 mm



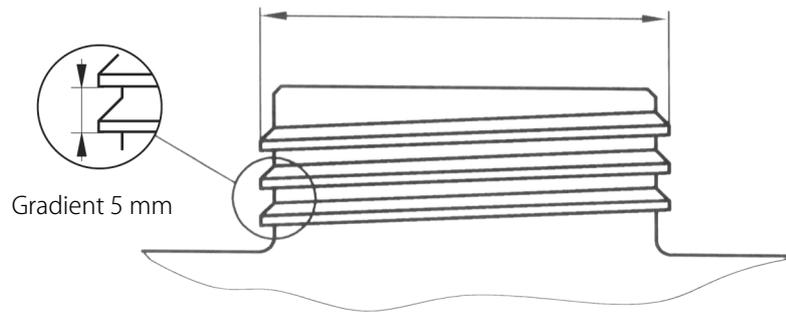
#### SCAT products with UNF 1/4"-28G thread

e.g. fittings, dividers, blind plugs and air valves

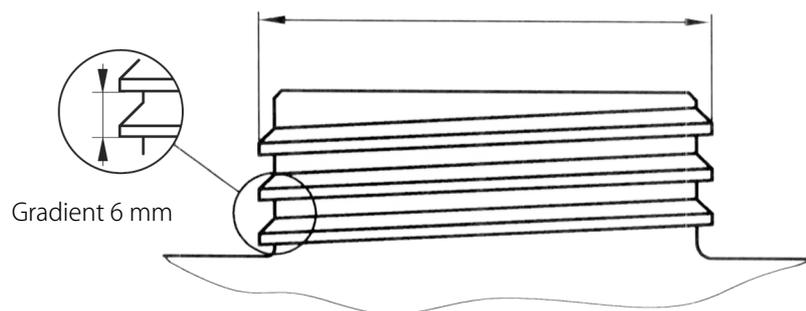


## Thread Types Canisters

S 55 – Outer-Ø = 53.5 mm



S 60 – Outer-Ø = 59.5 mm

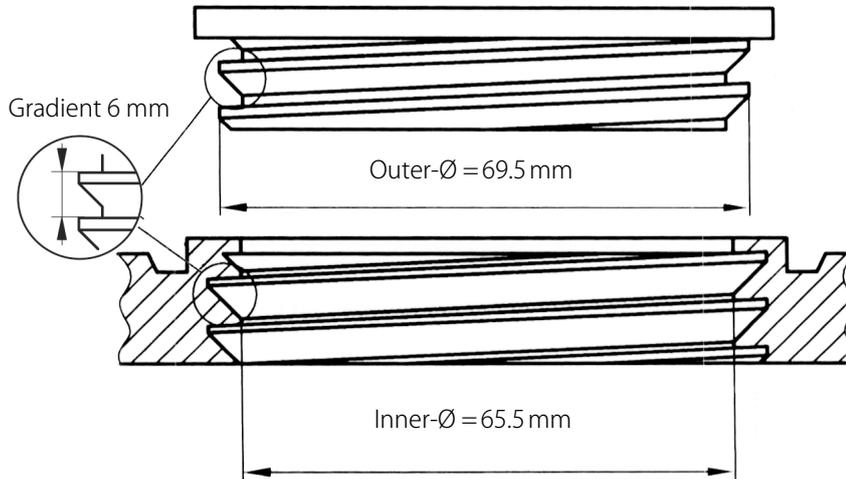


**SCAT products with S thread**

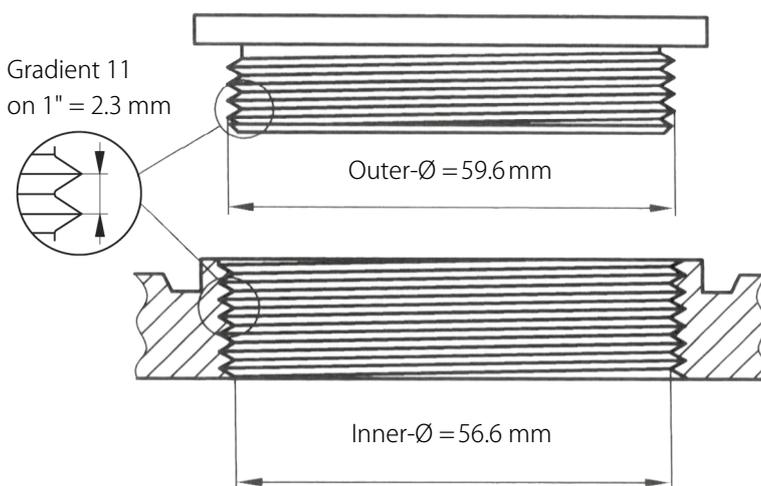
e.g. Safety Waste Caps

# Thread Types Barrels

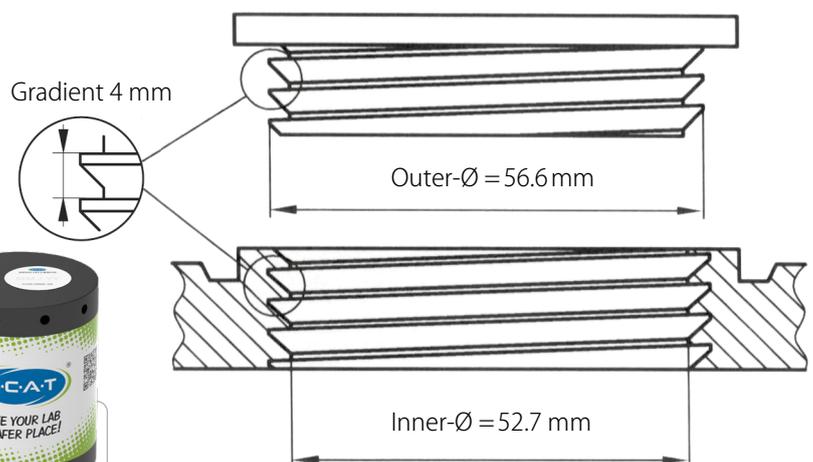
BCS 70x6 e.g. MAUSER® 2"



G2"/ R 2"/ BSP 2"



BCS 56x4 e.g. Tri Sure® 2"



### SCAT products with barrel threads

e.g. exhaust filters for barrels



Filling Units

Feedthroughs

Pipe System

Tubing System

Safety Waste Caps

Ventilation

Containers

Level Control

Safety Cabinets

## Thread Types

### Glass Threads

#### GL Threads

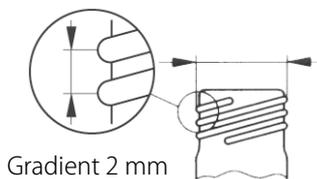
Glass threads are round threads, i.e. the surface of the thread lines is always rounded. The simple form and the rounded surface allow them to be easily constructed on glass bottle necks. The relatively large gradient and the wide edges give it great carrying capacity.



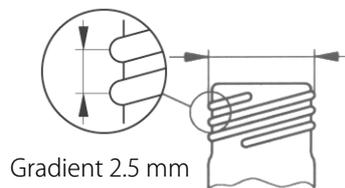
#### Good to know!

Drawings are of **scale 1:1**

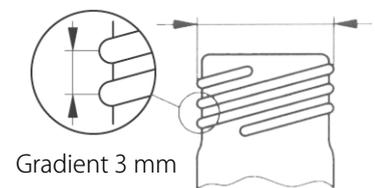
GL 12 – Outer-Ø = 12 mm



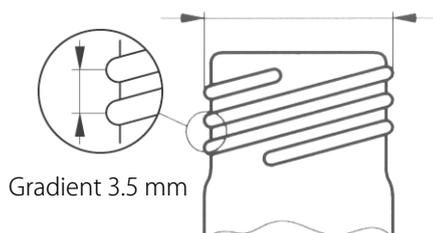
GL 14 – Outer-Ø = 14 mm



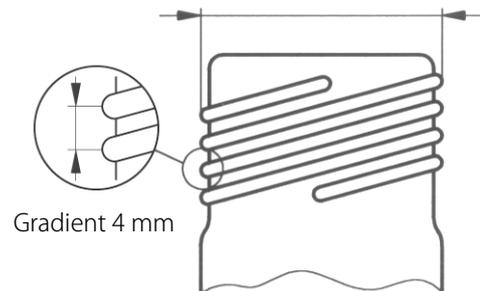
GL 18 – Outer-Ø = 18 mm



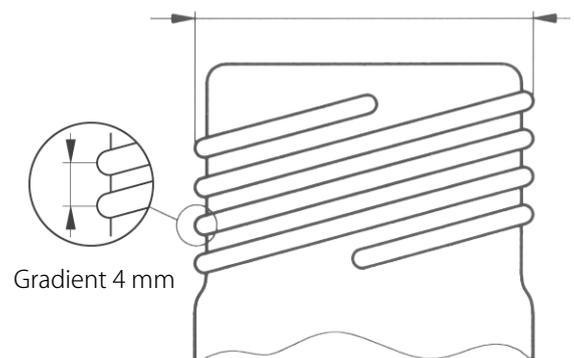
GL 25 – Outer-Ø = 25 mm



GL 32 – Outer-Ø = 32 mm



GL 45 – Outer-Ø = 45 mm



#### SCAT products with GL threads

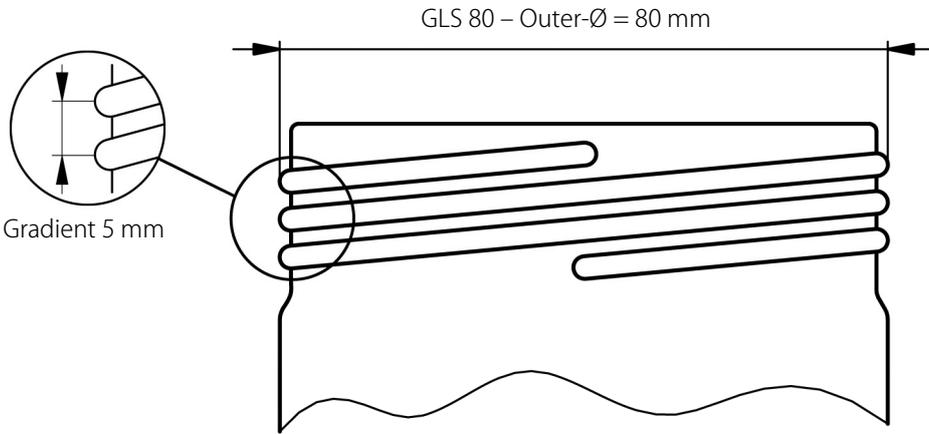
GL 14 - "The Exhaust Filter Connection",  
e.g. for exhaust filters and blind plugs

GL 28, GL 38, GL 40, GL 45,  
SCAT Safety Cap and  
Safety Waste Cap threads



# Thread Types

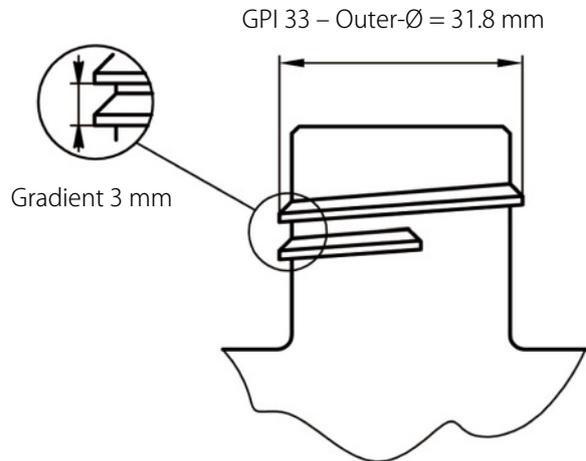
## Glass Threads



**Good to know!**  
Drawings are of **scale 1:1**

### GPI Thread

The abbreviation GPI stands for Glass Packaging Institute, in which the North American manufacturers of glass bottles of every type are represented. The GPI norms are voluntary standards, which serve as the basis for compatibility and exchange regarding glass receptacles and their caps.



### Conversions: Inch - Millimeter / Millimeter - Inch

#### Inch - Millimeter

Inch Fractional Notation "	Inch Decimal Notation "	Millimeter Decimal Notation mm
1/16	0.062	1.57
1/8	0.125	3.18
3/16	0.188	4.78
1/4	0.250	6.35
5/16	0.313	7.95
3/8	0.375	9.53
7/16	0.438	11.13
1/2	0.500	12.70
9/16	0.563	14.30
5/8	0.625	15.88
11/16	0.688	17.48
3/4	0.750	19.05
13/16	0.813	20.65
7/8	0.875	22.23
15/16	0.938	23.83
1	1	25.40
2	2	50.80
3	3	76.20
4	4	101.60
5	5	127.00
6	6	152.40
7	7	177.80
10	10	254.00

#### Millimeter - Inch

Millimeter mm	Decimal Inch in "
1.0	0.039
1.8	0.071
2.0	0.079
3.0	0.118
3.2	0.126
4.0	0.157
4.3	0.169
4.6	0.181
5.0	0.197
6.0	0.236
7.0	0.276
8.0	0.315
9.0	0.354
10.0	0.394
20.0	0.787
30.0	1.181
40.0	1.575
50.0	1.969
60.0	2.362
70.0	2.756
80.0	3.150
90.0	3.543
100.0	3.937

# Resistance to Chemicals

## Resistance Table

### Resistance to Chemicals

Due to the wide variety and the different compositions of solvents and substances available on the market, we can assume no guarantee for chemical compatibility.

**As per the most up-to-date information available, materials with best resistance have been selected for SCAT products, in particular with a view to satisfying the requirements of working with aggressive fluids.**

You may obtain information regarding compatibility with specific substances from the manufacturer of your chemicals or other expert sources.

We would be pleased to offer you consultation during selection of suitable products for your application. The responsibility for the selection of the chemicals used lies with the end user.

SCAT Europe offers no guarantee for the results and assumes no obligation or liability concerning the use of these products as regards their chemical compatibility or their abrasive effects.

Resistance to other available chemicals upon request.

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Acetaldehyde	100,00 %	A	B	C	A	A
Acetamide	100,00 %	A	A	A	A	A
Acetic acid	100,00 %	A	C	B	A	A
Acetic acid	90,00 %	A	A	A	-	A
Acetic acid allyl ester	100,00 %	A	A	C	A	A
Acetic acid butyl ester	100,00 %	A	B	C	A	A
Acetic acid-2-pentyl	100,00 %	A	B	C	A	A
Acetic anhydride	100,00 %	A	C	B	A	A
Acetone	100,00 %	A	A	A	A	A
Acetonitrile	100,00 %	A	A	A	A	A
Acetophenone	100,00 %	A	C	B	A	A
Acetyl chloride	100,00 %	A	C	B	A	B
Acetyl chloride	100,00 %	A	C	C	-	A/C
Acrylonitrile	100,00 %	A	A	A	A	A
Adipic acid	100,00 %	A	A	A	A	B
Allyl acetate	100,00 %	A	A	B	-	A

### Meaning of the Evaluations

Resistance	Meaning
<b>A</b>	Very good resistance after 30 days' exposure, none or only mild damage.
<b>B</b>	Conditional resistance: damage may occur after longer periods of exposure (e.g. hair cracks, mechanical stability affected, discoloration etc.)
<b>C</b>	Poor resistance: can lead to destruction, severe damage, deformation of plastic etc.
<b>A/C</b>	There is a risk of pitting corrosion or stress cracking.
<b>-</b>	Currently no information about chemical resistance available.

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Allyl chloride	100,00 %	A	B	C	A	B
Aminoacetic acid	10,00 %	A	A	A	-	B
Aminobenzene	100,00 %	A	A	A	A	A
Aminomethane	100,00 %	A	A	A	A	A
Ammonium hydroxide	25,00 %	A	A	A	A	A
Amyl acetate	100,00 %	A	A	B	A	A
Amyl alcohol	100,00 %	A	A	A	A	A
Aniline	100,00 %	A	A	A	A	A
Anisole	100,00 %	A	B	B	A	A
Aqua regia	100,00 %	A	C	C	-	C
Aviation fuel	100,00 %	A	C	B	A	A
Benzaldehyde	100,00 %	A	B	A	A	A
Benzene	100,00 %	A	B	B	A	A
Benzenesulfonic acid	100,00 %	A	A	A	A	A
Benzoic acid	100,00 %	A	A	A	A	A
Benzoyl chloride	100,00 %	A	C	C	A	B
Benzyl alcohol	100,00 %	A	A	A	-	A
Benzyl chloride	100,00 %	A	C	C	A	B
Boric acid	100,00 %	A	A	A	A	A
Buta-1,3-diene	100,00 %	A	C	C	A	A
Butan-2-one	100,00 %	A	C	C	A	A
Butanedioic acid	100,00 %	A	A	A	-	A
Butanol	100,00 %	A	A	A	A	A
Butenedioic acid	100,00 %	A	A	A	A	A
Buthylphenol, tert.	100,00 %	A	B	B	A	A

# Resistance to Chemicals

## Resistance Table

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Butyl acetate	100,00 %	A	C(B)	C	A	A
Butyl alcohol	100,00 %	A	A	A	A	A
Butyl ether	100,00 %	A	C	C	A	A
Butyric acid	100,00 %	A	C	A	A	A
Camphor	100,00 %	A	C	B	A	A
Carbolic acid	100,00 %	A	A	A	A	A
Carbon disulfide	100,00 %	A	C	C	A	A
Carbon tetrachloride	100,00 %	A	C	C	A	B
Caustic soda	85,00 %	A	A	A	A	A/B
Chloral hydrate	100,00 %	A	B	C	-	-
Chlorine	100,00 %	A	C	C	A	C
Chloroacetic acid	100,00 %	A	A	A	A	C
Chlorobenzene	100,00 %	A	C	C	A	A
Chloroethane	100,00 %	A	B	C	A	B
Chloroethanol-2	100,00 %	A	A	A	A	B
Chloroform (trichloromethane)	100,00 %	A	C	C	A	A
Chlorosulfuric acid	100,00 %	A	C	C	A	C
Chlorotoluene	100,00 %	A	C	B	A	A
Chromic acid	50,00 %	A	C	B	A	B
Chromic acid	<50,00%	A	B	B	A	B
Chromic sulfuric acid	100,00 %	A	C	C	A	B
Citric acid	10,00 %	A	A	A	A	A
Cumene	100,00 %	A	B	C	A	A
Cyclohexane	100,00 %	A	A	A	A	A
Cyclohexanol	100,00 %	A	A	A	A	A
Cyclohexanone	100,00 %	A	B	B	A	A
Decalin	100,00 %	A	B	C	A	A
Decane	100,00 %	A	C	B	A	A
Diacetone alcohol	100,00 %	A	A	A	A	A
Diaminoethane	100,00 %	A	A	A	A	A
Dibutyl ether	100,00 %	A	C	C	A	A
Dichloroacetic acid (also monochloro-)	100,00 %	A	A	A	A	-
Dichlorobenzene	100,00 %	A	B	C	A	-
Dichloroethanes	100,00 %	A	B	C	-	B
Dichloromethane (methylene chloride)	100,00 %	A	C	C	A	B
Diesel fuel	100,00 %	A	B	B	A	A

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Diethyl ether	100,00 %	A	C	C	A	A
Diethyl ketone	100,00 %	A	B	B	A	A
Diethylamine	100,00 %	A	C	A	A	A
Diethylene glycol	100,00 %	A	A	A	-	A
Diethylene oxide	100,00 %	A	A	C	A	-
Dihydroxybenzene-1,3	50,00 %	A	C	B	A	-
Diisobutylketone	100,00 %	A	B	B	A	A
Dimethylformamide	100,00 %	A	A	A	A	A
Dimethyl ether	100,00 %	A	C	C	A	A
Dimethyl sulfoxide (DMSO)	100,00 %	A	A	A	-	A
Dimethylamine	100,00 %	A	B	B	A	A
Dimethylbenzenes	100,00 %	A	C	C	A	A
Dioxane	100,00 %	A	A	B	A	A
Diphenyl ether	100,00 %	A	C	C	A	A
Dipropylene glycol	100,00 %	A	A	A	-	A
Disodium tetraborate	100,00 %	A	A	A	-	-
Ethanol (ethyl alcohol)	96,00 %	A	A	A	A	A
Ethereal oils	100,00 %	A	C	C	-	A
Ethyl acetate	100,00 %	A	B/C	B/C	A	A
Ethyl acrylate	100,00 %	A	C	C	A	A
Ethyl chloride	100,00 %	A	C	C	A	A/C
Ethylbenzene	100,00 %	A	B	C	A	A
Ethylene glycol	100,00 %	A	A	A	A	A
Ethylene oxide	100,00 %	A	B	B	A	A
Ethylene chlorhydrin	100,00 %	A	A	A	A	A/C
Ethylenediamine	100,00 %	A	A	A	A	A
Ethylmethylketone	100,00 %	A	C	C	A	A
Formaldehyde, Formalin	40,00 %	A	A	A	A	A
Formamide (Methanamide)	100,00 %	A	A	A	A	A
Formic acid	100,00 %	A	A	B	A	B
Fuel oils	100,00 %	A	B	B	A	A
Furfural	100,00 %	A	B	C	A	A
Gasoline, aromatic	100,00 %	A	B	B	A	B
Glycerine	100,00 %	A	A	A	-	A
Glycine	10,00 %	A	A	A	-	A
Glycol	100,00 %	A	A	A	A	A
Glycolic acid	100,00 %	A	A	A	A	A/B

Filling Units

Feedthroughs

Pipe System

Tubing System

Safety Waste Caps

Ventilation

Containers

Level Control

Safety Cabinets

# Resistance to Chemicals

## Resistance Table

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Heptane	100,00 %	A	B	B	A	A
Hexadecanol	100,00 %	A	A	A	A	A
Hexafluorosilicic acid	100,00 %	A	A	A	A	A
Hexan-1,2,6-triol	100,00 %	A	A	A	A	A
Hexane	100,00 %	A	B	B	A	A
Hexanedioic acid (Adipic acid)	100,00 %	A	A	A	A	A
Hexanol	100,00 %	A	A	A	A	A
Hydrazine hydrate	64,00 %	A	A	A	A	A/B
Hydrochloric acid	37,00 %	A	A	A	A	C
Hydrofluoric acid	45,00 %	A	A	A	A	C
Hydrogen peroxide	90,00 %	A	B	B	A	A
Hydrogen sulfide	100,00 %	A	A	A	A	A
Hydroxyacetic acid (Glycolic acid)	100,00 %	A	A	A	A	B
Isobutanol	100,00 %	A	A	A	A	A
Isooctane	100,00 %	A	B	B	A	A
Isopropanol	100,00 %	A	A	A	A	A
Isopropenyl acetate	100,00 %	A	A	A	A	-
Isopropyl acetate	100,00 %	A	A	B	-	A
Isopropyl ether	100,00 %	A	C	C	A	A
Isopropylbenzene	100,00 %	A	C	C	A	-
Kerosene	100,00 %	A	A	A	A	A
Lactic acid	90,00 %	A	A	A	A	A/B
Menthol	100,00 %	A	A	A	-	A
Methanol	100,00 %	A	A	A	A	A
Methoxybenzene	100,00 %	A	C	C	A	A
Methoxyethanol	100,00 %	A	A	C	A	A
Methyl acetate	100,00 %	A	A	A	A	A
Methyl bromide	100,00 %	A	C	C	A	A/C
Methyl ethyl ketone	100,00 %	A	B	B	A	A
Methyl isobutyl ketone	100,00 %	A	C	C	A	A
Methyl methacrylate	100,00 %	A	A	A	A	A
Methyl phenyl ether	100,00 %	A	C	C	A	A
Methylamine	100,00 %	A	A	A	A	A
Methylbenzene	100,00 %	A	C	C	A	A

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Methylcyanide	100,00 %	A	A	A	A	A
Methylene chloride	100,00 %	A	C	C	A	A/C
Methyloxirane	100,00 %	A	A	A	A	A
Methylpentanone	100,00 %	A	C	C	A	A
Methylphenylketone	100,00 %	A	C	C	A	A
Mineral oil	100,00 %	A	A	B	-	A
Nitric acid	65,00 %	A	B	C	A	B
Nitrobenzene	100,00 %	A	C	B	A	A
Octane	100,00 %	A	B	B	A	A
Oleic acid	100,00 %	A	C(B)	C(B)	A	A
Oleum	100,00 %	A	C	C	A	A
Oxalic acid	100,00 %	A	A	A	A	A/B
Pentan-1-ol	100,00 %	A	A	A	A	-
Pentan-3-on	100,00 %	A	A	A	A	A
Pentylacetate	100,00 %	A	A	C	A	A
Perchlorethylene	100,00 %	A	C	C	A	-
Perchloric acid	100,00 %	A	B	C	A	-
Petroleum	100,00 %	A	B	B	A	A
Phenol	100,00 %	A	A	A	A	A
Phenylamine	100,00 %	A	A	A	A	A
Phosphoric acid	85,00 %	A	B	A	A	A/B
Phosphorus trichloride	100,00 %	A	B	B	A	-
Potassium hydroxide	100,00 %	A	A	A	A	A
Potassium hypochlorite	20,00 %	A	B	B	A	B
Potassium perchlorate	25,00 %	A	A	A	A	A
Propan-2-ol	100,00 %	A	A	A	A	A
Propane-1,2-diol	100,00 %	A	A	A	A	A
Propionic acid	100,00 %	A	A	A	A	A
Propylene oxide	100,00 %	A	A	A	A	A
Pyridine	100,00 %	A	B	B	A	A
Resorcinol	50,00 %	A	B	A	A	-
Salicylic acid	100,00 %	A	A	A	A	A
Silicone oils	100,00 %	A	A	A	-	A
Silver acetate	100,00 %	A	A	A	-	-
Sodium hydroxide	85,00 %	A	A	A	A	A/B

## Resistance to Chemicals

### Resistance Table

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Sodium persulfate	25,00 %	A	A	B	A	A
Sodium persulfate	100,00 %	A	A	A	A	A
Styrene	100,00 %	A	C	C	A	A
Succinic acid	100,00 %	A	A	A	A	A
Sulfuric acid	80,00 %	A	A	A	A	B/C
Sulfuric acid, fuming	100,00 %	A	C	C	A	A
Tartaric acid	100,00 %	A	A	A	A	A
Tetrachlorethylene	100,00 %	A	C	C	A	-
Tetrachloroethane	100,00 %	A	B	C	A	-
Tetrahydrofuran (THF)	100,00 %	A	C	C	A	A
Tetrahydronaphthalene	100,00 %	A	C	C	A	A
Tetralin	100,00 %	A	C	C	A	A
Thionyl chloride	100,00 %	A	C	C	A	-
Toluene	100,00 %	A	C	C	A	A
Trichloroacetic acid	100,00 %	A	B	A	A	B
Trichlorobenzenes	100,00 %	A	C	C	A	-
Trichloroethylene	100,00 %	A	C	C	A	B
Triethanolamine	100,00 %	A	A	A	-	A
Triethylene glycol	100,00 %	A	A	A	A	A
Turpentine	100,00 %	A	B	C	A	A
Urea	100,00 %	A	A	A	A	A
Uric acid	100,00 %	A	A	A	-	A

Substances (+20°)	Conc.	PTFE	PEHD	PP	PFA	V4A
Vinyl acetate	100,00 %	A	A	B	A	A
Vinyl chloride	100,00 %	A	A	C	A	-
Vinyl cyanide	100,00 %	A	A	A	A	A
Vinylbenzene, Styrene	100,00 %	A	C	C	A	A
Vinylidene chloride	100,00 %	A	C	C	A	-
Waterglass	100,00 %	A	A	A	-	A
Xylenes	100,00 %	A	C	C	A	A

Filling Units

Feedthroughs

Pipe System

Tubing System

Safety Waste Caps

Ventilation

Containers

Level Control

Safety Cabinets

## Addendum

### Safety Instructions

#### Warranty/Safety of our Products

Strict quality control ensures you receive faultless, high-quality products from us. However, if a product is defective, we will, of course, replace it free of charge. Since these are technically sophisticated components, we cannot provide warranty for any articles which have been technically modified or damaged by the user.

#### Customised Products

The same applies to customized products which have been manufactured according to the specifications made by our customers. It is the responsibility of the user to check whether these products meet their technical requirements. We accept no liability for events or accidents caused by incorrect handling or technical modifications to our products by the user.

#### Health & Safety

Pay special attention to hazard pictograms (including H and P statements) on Safety Data Sheets (SDS) in your company and on the packaging of your chemicals. When handling substances labeled as hazardous, always wear personal protective equipment (PPE) as specified.

#### Chemical Compatibility

Due to the variety and different composition of solvents and substances available on the market, we cannot provide warranty for chemical compatibility. State-of-the-art resistant materials have been used for SCAT products, with special focus on requirements relating to work with aggressive liquids. You can obtain information on compatibility with specific substances from your chemical manufacturers or other specialist sources. We can provide support in selecting the appropriate for your application. However, the end user is responsible for the selection of chemicals used. SCAT does neither provide warranty for results nor does it assume any obligation or liability in connection with the use of such products as far as their chemical compatibility or abrasive effects are regarded.

A wide range of information is available for you to download from the SCAT online site. For example, the continuously updated table: 'Plastics – Chemical Resistance to Chemicals' or safety instructions relating to SCAT products. Visit us at:

**[www.scat-europe.com](http://www.scat-europe.com)**

#### Grounding and Antistatics

Our products for safe grounding of containers and vessels are suitable for connection to current-free and zero potential installations. Connection to power-driven installations or live components must be executed by qualified electricians only!

Please observe the internal safety instructions of your company.

## Addendum

### GHS Hazard Symbols



GHS 01  
Explosive



GHS 06  
Acute toxicity



GHS 02  
Flammable



GHS 07  
Health hazard/  
Hazardous to the ozone layer



GHS 03  
Oxidising



GHS 08  
Serious health hazard



GHS 04  
Gas under pressure



GHS 09  
Hazardous to the environment



GHS 05  
Corrosive

# Addendum

## Terms & Conditions

### § 1 General

- 1.1 The following provisions apply to all initial, ongoing and future business relationships between us and our clients who are contractors/traders within the meaning of § 14 of the German Civil Code (Bürgerliches Gesetzbuch). Our Terms and Conditions of Supply, Performance and Payment apply exclusively and by placing orders with us our customers declare that they are in agreement with these conditions; this applies equally for future business if these conditions are expressly referred to or if they are not referred to but are sent to the customer in connection with an order that we are acknowledging. If the order is placed at variance with our Terms and Conditions of Supply, Performance and Payment, our Terms and Conditions of Supply, Performance and Payment apply even if we do not object to such alternative conditions. Terms and conditions which are at variance with our standard Terms and Conditions of Supply, Performance and Payment apply only if we have expressly acknowledged such alternative conditions in writing. Amendments of and additions to these Terms and Conditions of Business must be made in writing. The customer can only invoke collateral agreements prior to and at the conclusion of the contract if such agreements are confirmed in writing without delay. These provisions do not apply if our customer is a consumer within the meaning of § 13 of the German Civil Code. The language of our contractual dealings is German.
- 1.2 The customer's General Terms and Conditions of Business are excluded unless we have expressly recognized them.
- 1.3 Our offers are subject to final confirmation; we reserve the right to make technical changes to our products. Files that are important for conducting business may be stored by us on data processing equipment.
- 1.4 Supply contracts and all other agreements (including collateral agreements) as well as statements made by our representatives are only binding in law on us if confirmed in writing. Business correspondence printed on data processing equipment (e.g. order confirmations, invoices, credit notes, extracts from accounts, payment reminders) is binding in law without a signature.
- 1.5 We draw our customers' attention to the fact that we process and transmit their personal data (exclusively for business purposes) with the aid of electronic data processing equipment in accordance with the requirements of the German Federal Data Protection Act (Bundesdatenschutzgesetz).

### § 2 Agreement on prices

- 2.1 Our prices exclude any Value Added Tax which may be imposed by law and are ex works. In case of orders for which no prices are agreed, our prices valid on the day of delivery apply and are expressed in Euros (EUR) unless indicated otherwise.
- 2.2 If changes to the prices should occur up to the day of delivery, we reserve the right to amend our prices accordingly. However, this only applies to delivery periods longer than 4 months and price changes not exceeding 10%. If the price change is greater, a new price agreement must be concluded. If such an agreement should not be concluded, we have the right to withdraw from the contract in writing within 14 days.
- 2.3 Confirmed prices only apply when the quantities confirmed are accepted by the customer.
- 2.4 Packing, transport, freight and insurance costs are charged to the customer.

### § 3 Payment

- 3.1 The purchase price and/or agreed compensation for work including all costs are due for payment without reduction on receipt of invoice. Our invoices must be paid within 14 days without deductions, unless other payment terms have been agreed in written form. Payments are not deemed to have been received until the day on which we have access to the funds.
- 3.2 Payments must be made including VAT and without deduction of any prompt payment discounts or other deductions unless any other terms of payment are expressly agreed in writing.
- 3.3 Bills of payment are only accepted by express agreement and – also in the case of checks – only as an undertaking to pay and subject to our acceptance of them on a case by case basis. Discounting and other fees must be born by the customer and are due for payment immediately.
- 3.4 All payments are credited first to interest and costs and thereafter to our oldest receivables, irrespective of the customer's directions.
- 3.5 If payments are late, we will invoice interests on such payments at the level allowed by law. The assertion of additional claims for compensation is not allowed.
- 3.6 If payment should be late, checks and bills of exchange dishonored, payments suspended, the filing of proceedings for the arrangement of debt, failure to abide by the terms of payment or if circumstances arise likely to reduce the customer's creditworthiness, all our receivables – including in the event of a payment moratorium – are due for immediate payment. We are also entitled to perform services and make deliveries which are still outstanding only against the payment of cash or to withdraw from the contract after setting a reasonable grace period and to require compensation in lieu of performance.
- 3.7 Claims arising from the contractual arrangement may only be assigned by the customer with our express consent. Off-setting or retention are only permitted in respect of untested counterclaims which have been judged to be final and absolute. We are entitled to refuse the exercise of the right of retention in the form of a provision of a bond or a surety (Bürgschaft).

### § 4 Retention of title

- 4.1 All our deliveries are made with retention of title (goods subject to retention of title). Title does not pass to the customer until he has paid all his liabilities owed to us (including those arising from incidental claims) arising from our supplies and services. If we are trading with the customer on open account, the goods subject to retention of title are deemed to be collateral for our account balance including when payment is made against liabilities which have been specifically excluded.
- 4.2 If goods we have supplied should be mixed with or connected to other objects, the customer will assign to us (joint) title on the item arising therefrom in the ratio of the value of our goods subject to retention of title to the invoice value of the other goods used. If the customer should prejudice our rights set out above, he is obliged to pay us compensation. Dismantling and other costs are for the customer's account.
- 4.3 The customer may only sell the goods we delivered in the normal course of business and in such a case may only sell or use them (e.g. as part of a contract for work and services or a contract for work done and materials supplied) if his customer has not excluded the reassignment of the receivable arising from the resale or re-use of the goods. The customer is obliged to ensure that his customer delivers any retention of the right to consent to the assignment to us in the required form. The customer is not allowed to pledge by way of security or hypothecate the goods to which title is reserved.
- 4.4 The customer must inform us immediately of any attachment, even if such attachment is imminent or any other prejudice to the right of ownership in writing and to third parties and to us. In the case of attachments, a copy of the return of execution must be sent to us.
- 4.5 If a customer should default on payment, we are entitled to demand return of the goods subject to right of retention of title and to procure direct possession of such goods for us or via authorized persons, irrespective of where the goods are located. The customer is obliged to return to us the goods to which title is reserved and is also obliged to provide us with the information necessary for us to assert our rights and to surrender documents for this purpose. The request for the goods is not deemed to be withdrawal from the contract. The same applies for the withdrawal of goods subject to retention.
- 4.6 In order to act as collateral for our claims (including future claims) arising from the business relationship, the customer hereby assigns to us all the receivables (including those on open account) with all ancillary rights which arise to him through the resale and other use of the goods subject to retention of title (e.g. combination, processing, installation in a building).
- 4.7 If the sale or other use of our goods subject to retention of title – in whatever state – should be made in conjunction with the sale or other use of objects to which third party rights are attached and/or in conjunction with the performance of services by third parties, the assignment of future claims is limited to the invoiced value of our invoices.
- 4.8 The customer is entitled to collect receivables which have been assigned to us. In the event of payment default, suspension of payments, the application for or opening of insolvency or out of court composition proceedings or other deterioration of the customer's assets, we may revoke this authorization to collect receivables. If so required, the customer must inform us of the receivables which have been assigned and of the parties owing such receivables, and provide us with all information necessary for the collection of these receivables, to surrender to us the associated documents and inform the debtor of the assignment. We are also entitled to inform the customer's debtors of the assignment and require the debtors to pay us.
- 4.9 If the realizable value of the collateral to which we have been entitled in accordance with the above provisions should exceed the value of our receivables by more than 10%, we are obliged to release the excess collateral at our option if so required by the customer.

### § 5 Supplies and service

- 5.1 Partial deliveries are only permitted to a reasonable extent. We may invoice partial payments to a reasonable degree. We reserve the right to correct orders so that they comply with packaging units. The order is deemed to be completed if plus or minus 10% of the quantity is delivered.
- 5.2 The delivery route, delivery method, packaging and other protection for deliveries are at our option. Transport risks are borne by the customer in all cases. We are entitled, but not obliged, to insure deliveries in the name and for the account of the customer.
- 5.3 The customer must arrange for any damage and/or loss to be recorded in writing by the carrier immediately on receipt of the goods and claims asserted.
- 5.4 Shipments that are returned to us will only be accepted insofar as the fact that they are being reported to us in advance, in which case the following conditions must be fulfilled:
  - a) The identification that the customer receives when reporting a return shipment to us must be stated on the return documents and
  - b) All such shipments must be reported in our incoming goods department by means of the freight papers on which this identification number is noted.
- 5.5 The following rules apply to return shipments excepting those for return of defective delivered goods (Sect. 5.4):
  - a) The goods were delivered at most 4 weeks before in case of deliveries within Germany, at most 6 weeks before in the case of deliveries to European customers and at most 8 weeks before in the case of deliveries to overseas customers.
  - b) The regulations of Section 5.4 apply to reporting, labeling and acceptance of return shipments.
  - c) Only return goods that are undamaged, unopened and have no additional writing or labels on them – so that these goods can be resold by us – will be accepted.

# Addendum

## Terms & Conditions

- d) The return delivery takes place at the expense and risk of the customer.
- e) In addition, a processing fee of 20% of the goods' value will be charged to the customer, whereby this charge shall be at least 30.00 Euros per return shipment. All delivery dates are ex works.

### § 6 Passage of risk and placement of performance

- 6.1 We bear the risk up until the time when the goods are handed over to the mail service or to the carrier or the company charged with organizing the transportation.
- 6.2 The customer also bears the risk before hand-over if he delays the hand-over.
- 6.3 The place of performance for delivery and payment is our company seat in Mörfelden.

### § 7 Time limits

- 7.1 If the customer should be in breach of his obligations of cooperation (e.g. by failure to call off the goods in time and refusal to accept them), we are entitled, at the end of a grace period which has elapsed without performance being made, to take the necessary steps ourselves and to deliver the goods or to withdraw from that part of the supply contract where performance has not been made. Our right to require compensation for breach of duty and compensation in lieu of performance is unaffected hereby. In the case of call-off orders, the customer must take the whole quantity within 12 months.
- 7.2 In the case of goods which we supply but do not manufacture ourselves, supply is subject to timely and correct deliveries to ourselves unless we are responsible for late, incorrect or short delivery.
- 7.3 Force majeure events extend the delivery time commensurably and entitle us to withdraw from the contract in whole or in part. Strikes, lockouts, disruptions of operations or other unanticipated circumstances for which we are not responsible and which materially impede delivery or render delivery impossible are of equal ranking with force majeure. This also applies if the above-mentioned circumstances occur during a delivery delay or at a supplier.
- 7.4 If the time period or an agreed date is exceeded, the customer has the right to require us to state within two weeks whether we are withdrawing from the contract or wish to deliver within a reasonable grace period. If we fail to provide a statement, the customer may withdraw from the contract in so far as performance is without interest to him.

### § 8 Liability for defects

- 8.1 The goods supplied are free from material defects if they comply with the product description or, in so far as no product description is available, comply with the relevant state of the art. We reserve the right to make changes in design and/or workmanship which do not prejudice the fitness for use or value of the goods which are to be supplied; such changes do not justify a complaint for defects. If defects do not prejudice the fitness for use or the value of the goods which are supplied or only prejudice such fitness and value to an immaterial extent, there are no grounds for claims due to defects.
- 8.2 Guarantees relating to the character and durability of the goods which are supplied are only deemed to have been accepted to the extent that we have expressly recognized the guarantee in writing as such. Guarantees which our suppliers have made in written guarantees, in relevant publicity or other product documentation, are not made by us. They obligate only the supplier who made this acceptance of guarantee.
- 8.3 Defects must be noted without delay and are excluded if they are not received by us within 2 weeks of the receipt of delivery. Defects which cannot be ascertained within this period even after the most careful examination must be reported to us without delay and not later than 2 weeks after discovery. We are not responsible for damage due to breakage of glass during transportation caused after the transfer of risk. Breakages with a value of up to and including € 20.00 will not be replaced.
- 8.4 If the goods which were delivered should exhibit defects or if they fail to comply with a warranted property, we will, at our option, either rectify the defect free of charge or replace the goods by defect-free goods (subsequent performance). The customer must allow us, or a person authorized by us, the time and opportunity for such actions. If this does not occur or if modifications or repairs are undertaken to the object which is the subject of the complaint, we are released from liability for the defect.
- 8.5 If subsequent performance should fail or if subsequent performance is not made within a reasonable grace period imposed on us by the customer, the customer may require a reduction in price or withdraw from the contract. The purchaser cannot require reimbursement for his expenses incurred to no effect.
- 8.6 Claims by the customer for expenditure necessary for the purpose of subsequent performance (Clause 8.4) or reversal after withdrawal from the contract (Clause 8.5), especially transportation, shipping, labor and material costs are excluded in so far as the expenditure arose because the goods were installed in a location difficult to access. The same applies mutis mutandis if the goods which were delivered were installed in a location outside the Federal Republic of Germany.
- 8.7 Damage which occurs through incorrect or defective installation, commissioning, handling, operation or maintenance or through the use of unsuitable apparatus or apparatus other than the specified apparatus do not give rise to any grounds for claims for defects.
- 8.8 The time limits specified by law for the assertion of claims for defects applies. The time period commences on the day of our delivery. In the event of loss of life, bodily injury or impairment of health and in the event of gross or intentional neglect of duty on our part and in the event of fraudulent concealment of a defect or if properties have been warranted, the normal statutory prescription periods apply.

- 8.9 For the remainder, Clause 9 applies for claims for compensation. Additional claims by customers for defects are excluded.

### § 9 Compensation

- 9.1 We accept liability for compensation and reimbursement of expenditure incurred to no effect (§ 284 of the German Civil Code) for reason of breach of contract or non-contractual obligations (e.g. for reason of default or tortious acts) only in the case of intent or gross negligence; in the case of culpable loss of life, bodily injury, fraudulent concealment of a defect or acceptance of a warranty as to properties or under the German Product Liability Act (Produkthaftungsgesetz) we only accept liability for personal loss or for damage to property in the case of objects used for private purposes.
- 9.2 In addition we accept liability for breach of material contractual obligations also in the event of ordinary negligence. However, in this case our liability is limited to damage which could have been reasonably foreseen at the time of conclusion of the contract and which is typical under the contract.
- 9.3 In the case of loss caused by delay and in the event of ordinary negligence, we only accept liability amounting to 5% of the purchase price agreed with us.
- 9.4 The purchaser has to notify us immediately in writing about potential consequences of delay.
- 9.5 The provision above does not cause any change of the burden of proof in the detriment of the customer.

### § 10 Intellectual property rights, confidentiality

- 10.1 We retain ownership and all intellectual property rights of our designs, samples, drawings, technical documentation, cost estimates even if the customer has accepted the costs thereof. The customer may only use the designs etc. in a manner agreed with us. He may not manufacture the goods without our written consent or cause the goods to be manufactured by a third party.
- 10.2 In so far as we supply goods in accordance with designs specified by the customer, the customer warrants to us that intellectual property rights and other third party rights are not breached by their manufacture and supply. He must compensate us for all losses resulting from such infringements.
- 10.3 The customer must retain confidentiality vis-à-vis third parties in respect of all information not in the public domain which was obtained as a result of this business relationship.
- 10.4 Drawings, pictures, sketches and weights are approximate/conditionally authoritative, save as confirmed expressly and bindingly. The customer guarantees that the documents do not infringe the third party rights of third persons. He has to indemnify us and hold us harmless for any loss damage or costs, including reasonable attorneys' fees, resulting from any third party claim, action or demand.

### § 11 Records

Documents, drawings and pictures supplied by us must not be made available to any third party or reproduced or used for any purpose outside this contract.

### § 12 Provision in respect of

electronic business transactions

If we use a tele or media service within the meaning of § 312e of the German Civil Code for the purpose of the conclusion of a contract for the supply of goods or the performance of services, the customer waives

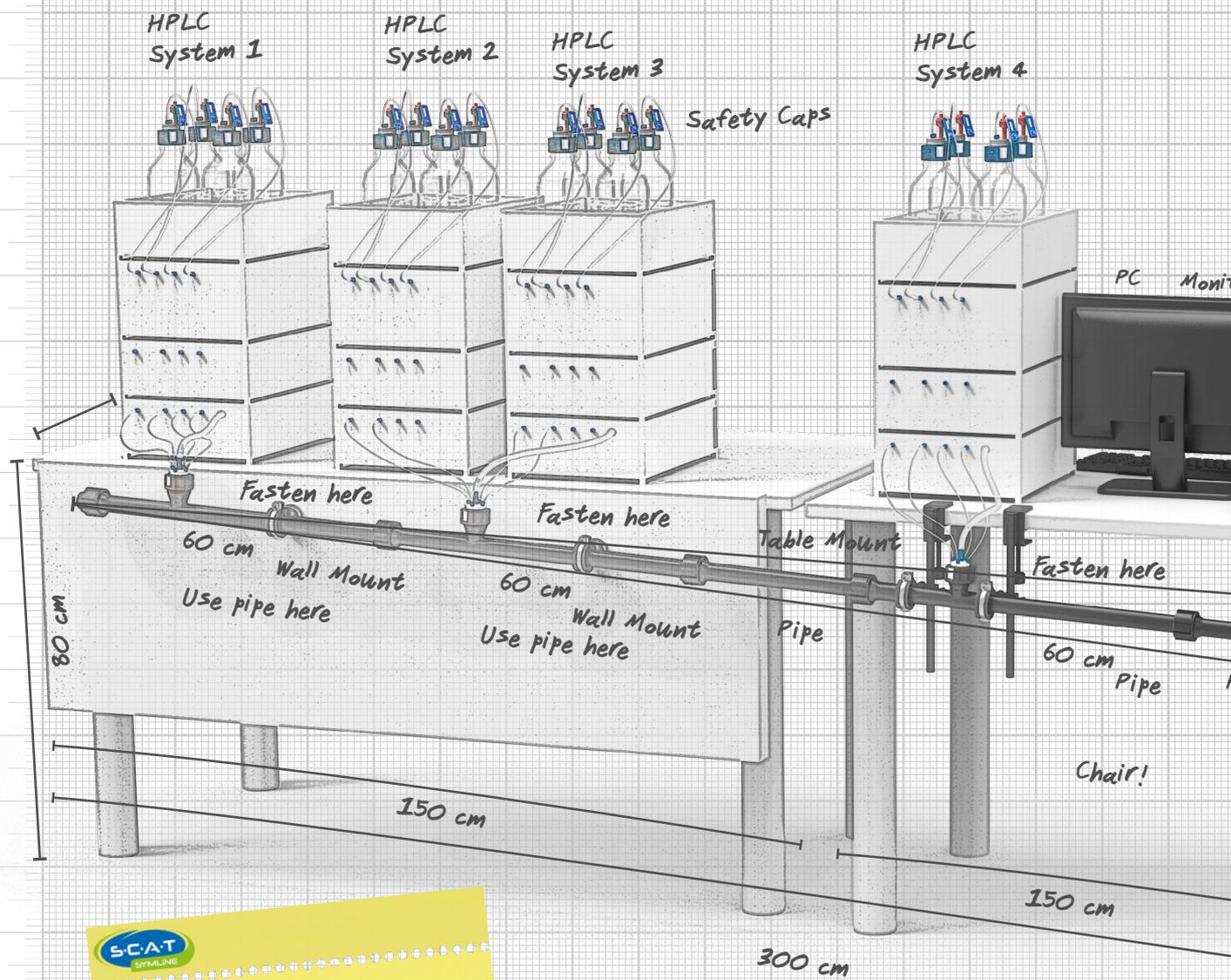
- provision and demonstration of a system which the customer can use to recognize and correct entry errors before the order is transmitted, and
- provision of information in respect to
  - the languages in which the contract can be concluded,
  - the steps to be carried out for the contract to be concluded and
- storage of the contract text after conclusion of the contracts so that it is accessible by the customer.

### § 13 Final provisions

- 13.1 The place of jurisdiction and performance is Mörfelden in so far as the customer is a merchant. However, we are also at liberty to take legal action before the court competent for the customer's legal domicile.
- 13.2 If a provision of these General Terms and Conditions of Business or in other agreements between the customer and ourselves should become invalid, the validity of all other provisions or agreements is unaffected thereby. If a provision of these contractual terms and conditions is invalid, after taking into account the other provisions this provision is to be replaced by a valid provision which comes closest to the economic purpose of the invalid provision.
- 13.3 This contract is governed exclusively by the law of the Federal Republic of Germany. International law, including international conventions on the cross-border sale of goods, is excluded.

Status 01/2025. The continuously updated version of Terms and Conditions can be found at [www.scatt-europe.com](http://www.scatt-europe.com)

# PLANNING THE LAB STARTS HERE!



  
We provide BIM data!  
Building Information Modeling (BIM).  
We provide BIM data for your  
technical department. Contact our  
SymLine team for a download link.