



Handling hazardous Liquids simply and safe!

The SymLine system is involved from the design phase of new laboratory buildings. The modular and flexible system can also be easily integrated into your existing laboratory equipment. Perfectly matched components make working with liquid waste as safe as ever before.

SymLine - Intro

The right Strategy for liquid Waste.

- ✓ Environment and Health Safety
- ✓ Sustainable Waste Management
- ✓ Modular and expandable System



Filling Units

Feedthroughs

Pipe System

Tubing System

Safety Waste Caps

Ventilation

Containers

Level Control

Safety Cabinets

SymLine - Intro Component Overview

Filling Units



1



2



3



4

5

6

Feedthroughs



14



15



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Pipe System



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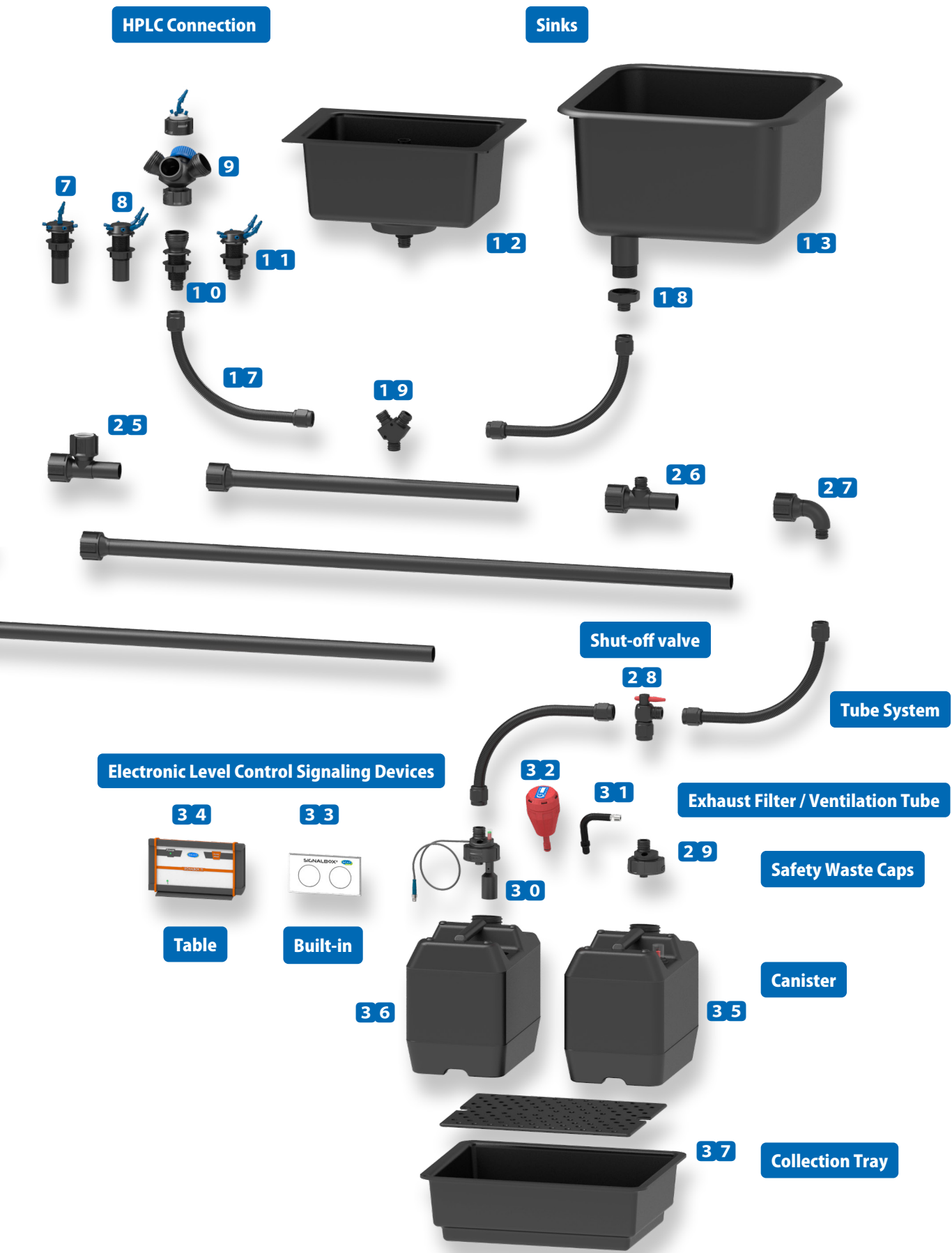


- ✓ One System, many Possibilities
- ✓ Freely Combinable
- ✓ Expandable

SymLine system components

- | | | | |
|----|--|----|--|
| 1 | 317 633 Funnel ARNOLD with sieve | 20 | 106 430 Connection pipe, angled 150 mm |
| 2 | 317 638 Funnel ARNOLD with ball valve | 21 | 106 438 Connection pipe, angled 200 mm |
| 3 | 306 980 Funnel MARCO | 22 | 106 440 Connection pipe, angled 500 mm |
| 4 | 450 120 Funnel LISA-Extension | 23 | 106 690 Connection pipe, straight 600 mm |
| 5 | 450 045 Safety Waste Cap LISA | 24 | 106 700 Connection pipe, straight 1200 mm |
| 6 | 306 498 Safety Waste Cap | 25 | 106 712 T-Piece for pipes |
| 7 | 106 412 HPLC Table feedthrough pipe | 26 | 106 711 T-Piece for pipes with tube connection |
| 8 | 106 669 HPLC Table feedthrough pipe flat | 27 | 106 456 Curved element pipe to tube |
| 9 | 306 509 4-in-1 Collector NICOLE | 28 | 106 475 Shut-off valve |
| 10 | 106 455 Table feedthrough tube connection | 29 | 306 482 Safety Waste Cap |
| 11 | 106 616 HPLC Table feedthrough tube connection flat | 30 | 106 480 Safety Waste Cap electr. level control |
| 12 | 118 021 Sink GL 25 | 31 | 106 490 Ventilation tube |
| 13 | 118 003 Sink G 1 1/2" | 32 | 410 535 Exhaust filter |
| 14 | 106 450 Table feedthrough with pipe connection | 33 | 106 548 Built-in Signalbox ² |
| 15 | 106 601 Rear wall feedthrough for ARNOLD | 34 | 108 087 Table Signalbox |
| 16 | 106 612 Rear wall feedthrough for MARCO | 35 | 108 042 Canister with mechanical level control |
| 17 | 106 575 FlexTube Pro 1500 mm | 36 | 107 953 Canister |
| 18 | 106 584 Thread adapter sink/tube | 37 | 117 985 Collection tray with removable base insert |
| 19 | 106 476 Tube connector Y-Distributor | | |

SymLine - Intro Component Overview

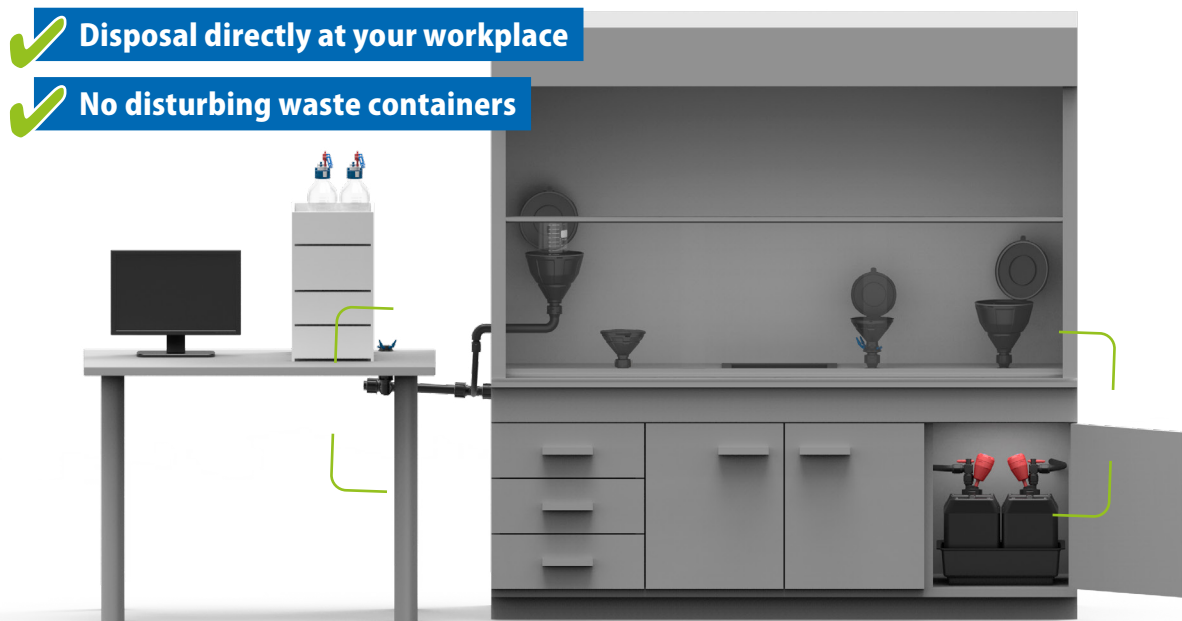


SymLine - Intro

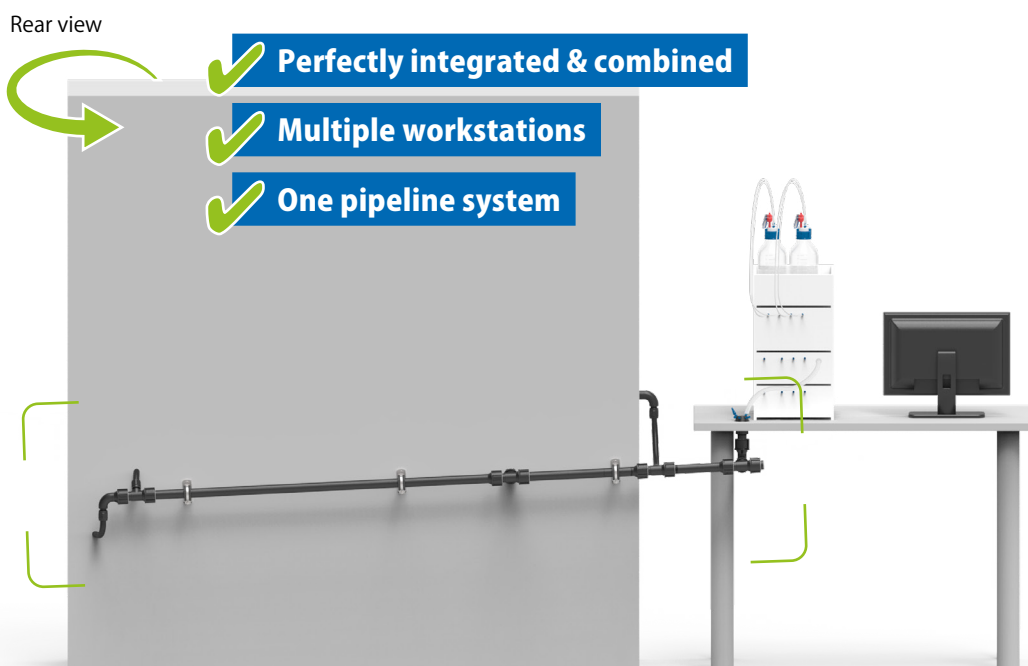
The Installation Systems

Perfect integration, variable and safe

The SymLine pipe and tube system adapts to your laboratory equipment and can flexibly be integrated in the planning phase of new laboratory buildings or in existing work environments. Liquid waste can flow from several work stations via pipe elements and tubes to a central collection point. No hazardous waste containers in the work area! Liquid waste transferred safely and compliantly between the work and storage areas.



Example illustration, HPLC, table and fume hood



Back side with pipe and tube system

SymLine - Intro The Installation Systems

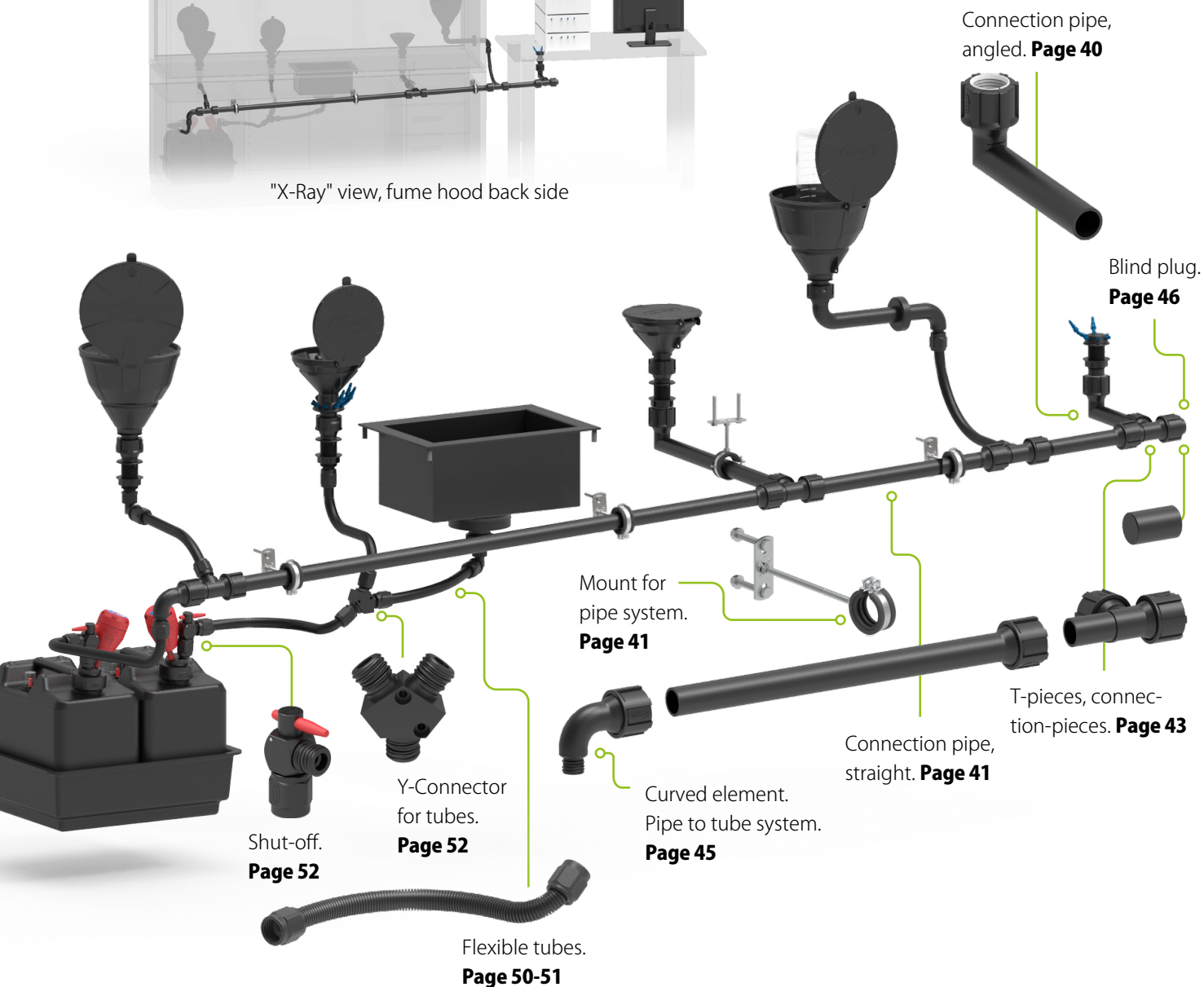
Flexible in every detail

You are free to choose when installing and placing your filling units. Whether funnel, collection tray or table feed through, thanks to flexible tubes, pipe connections and numerous connecting pieces, every angle can be reached. Tubes and pipes are available in different lengths and can also be shortened according to your needs.

- ✓ Individually adaptable to each laboratory
- ✓ Reaches every angle



"X-Ray" view, fume hood back side



Connection pipe, angled. **Page 40**

Blind plug. **Page 46**

Mount for pipe system. **Page 41**

T-pieces, connection-pieces. **Page 43**

Connection pipe, straight. **Page 41**

Curved element. Pipe to tube system. **Page 45**

Y-Connector for tubes. **Page 52**

Shut-off. **Page 52**

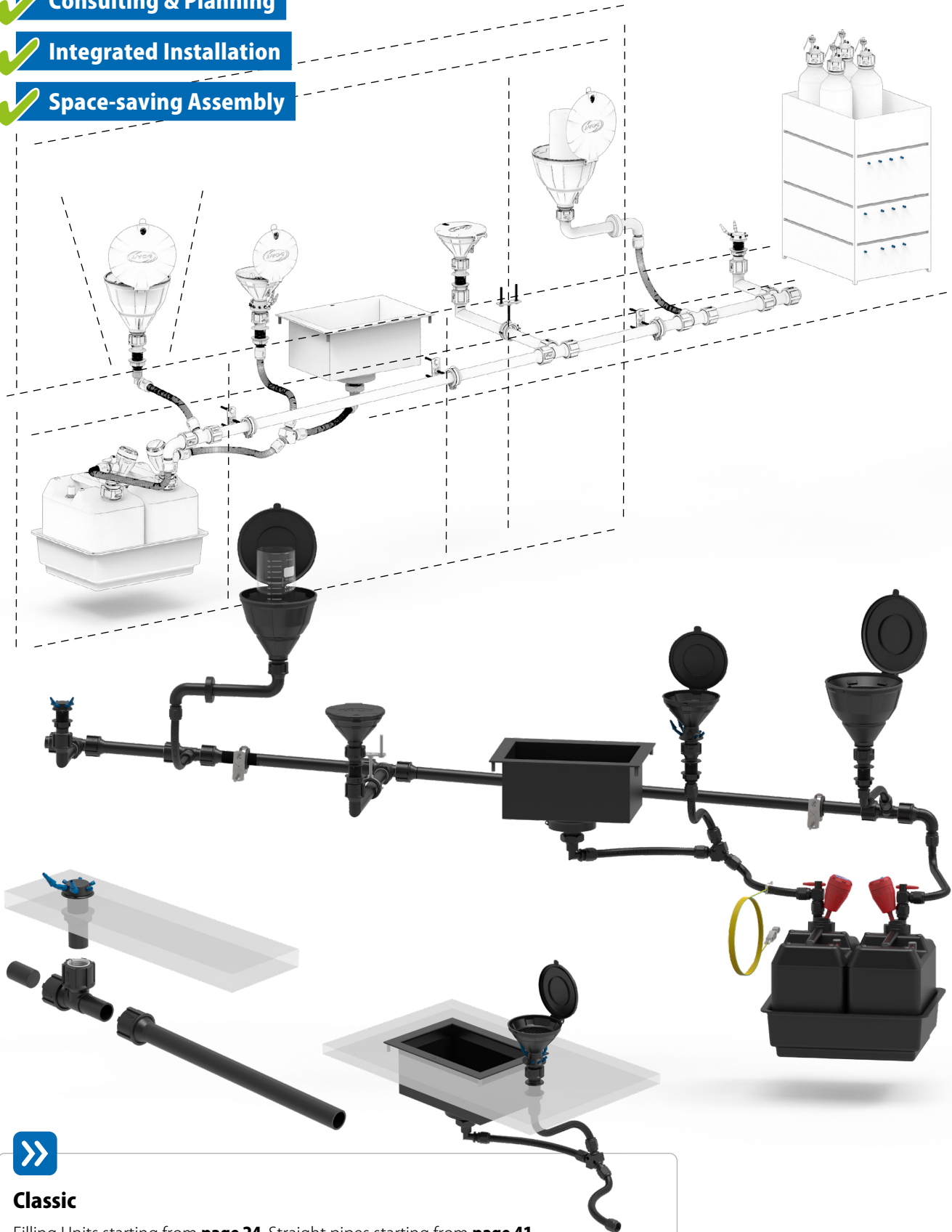
Flexible tubes. **Page 50-51**

- Filling Units
- Feedthroughs
- Pipe System
- Tubing System
- Safety Waste Caps
- Ventilation
- Containers
- Level Control
- Safety Cabinets

SymLine - Intro

The Installation Systems

- ✓ Consulting & Planning
- ✓ Integrated Installation
- ✓ Space-saving Assembly



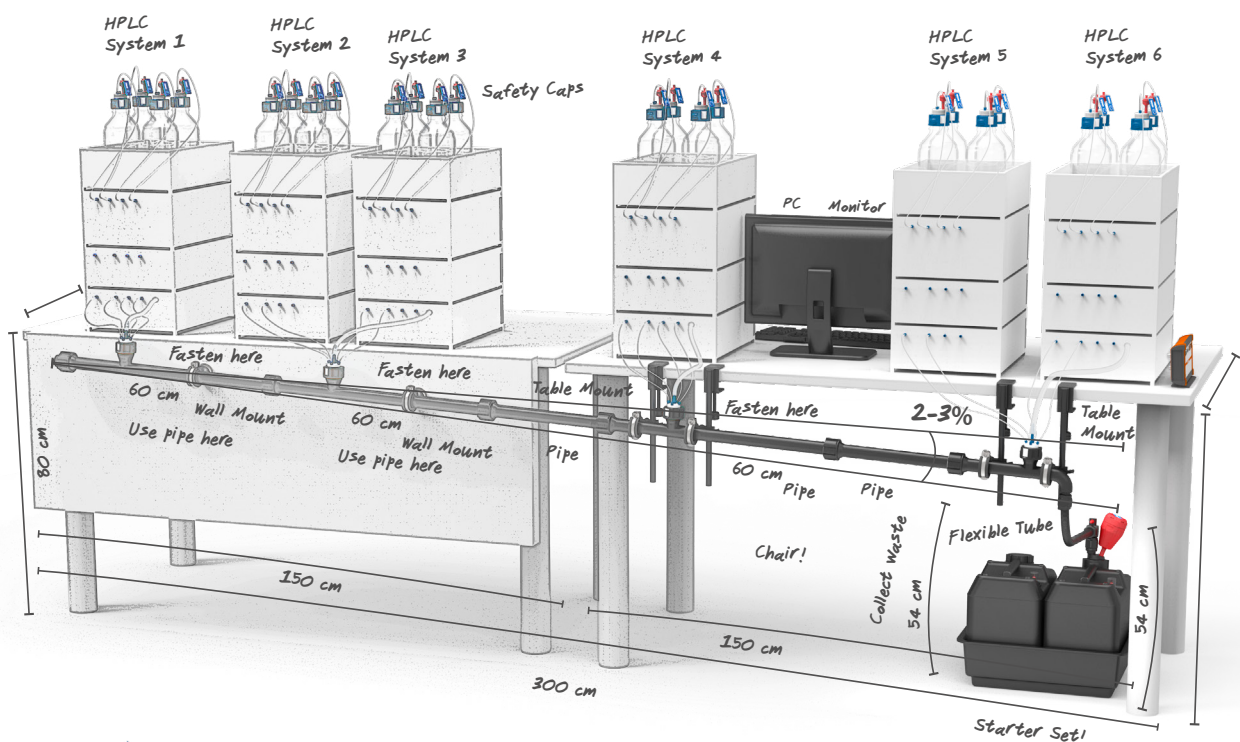
Classic

Filling Units starting from **page 24**. Straight pipes starting from **page 41**.

SymLine - Intro

The Attachment Systems

- ✓ Consulting & Planning
- ✓ Do-it-yourself Built-on
- ✓ Flexible Conversion



FLEX

Extensions starting from **page 42**. Pipe system accessories starting from **page 47**.

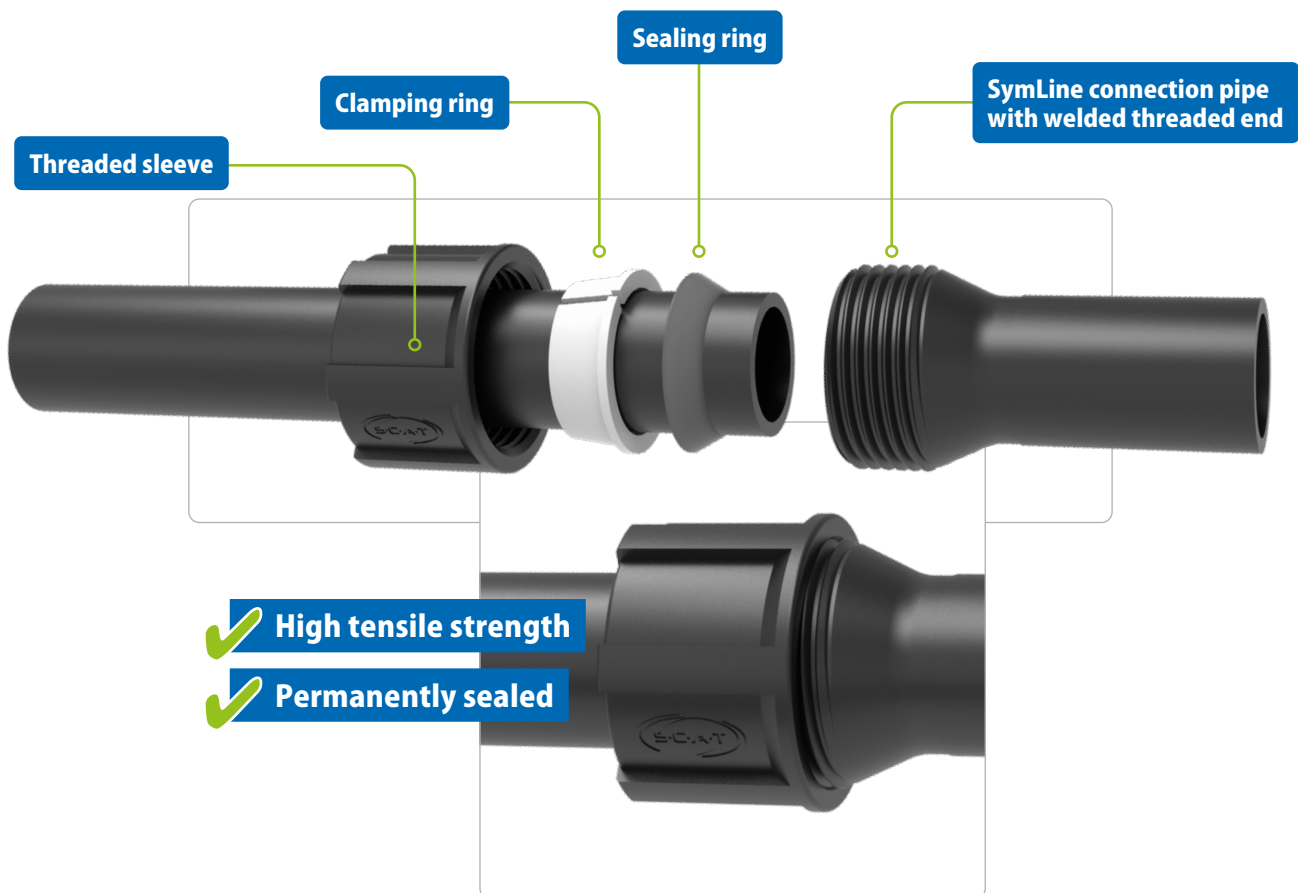
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SymLine - Intro

The Pipe System - Safe Screw Connection

The tubular system: safe attachment, optimum flow direction

The SymLine FLEX tube extensions have a funnel-shaped threaded sleeve at one end and a smooth tube opening at the other. In order to tightly interconnect the tubular system, the threaded sleeve, clamping ring and sealing ring are simply pushed over the smooth end of one tube, and this is then firmly screwed on to the threaded part of the following extension piece (i.e. on the other tube). When done properly (tightening torque 10 - 15 Nm), the resulting connection will withstand a tensile force of 400 N. The system allows for optimum flow of waste liquids and prevents leakage.



SymLine material properties

All components made of electrostatic conductive plastic can be earthed and are suitable for voltage equalization, as per TRGS 727. Electrically conductive PE-HD EC displays a discharge resistance against earth of $< 10^9 \Omega$, as per DIN EN 61340-5-1, and is suitable for Zones 0, 1 and 2, as per the German Hazardous Substances Ordinance (GefStoffV), EN 1127-1, DIN EN 60079-10-1 and DIN EN 60079-10-2. It is resistant to chemicals, as defined in SEFA 3 and SEFA 8.

✓ TRGS 727

✓ GefStoffV Zone 0, 1 and 2

✓ DIN EN 60079-10-1

✓ SEFA 3

✓ DIN EN 61340-5-1

✓ EN 1127-1

✓ DIN EN 60079-10-2

✓ SEFA 8

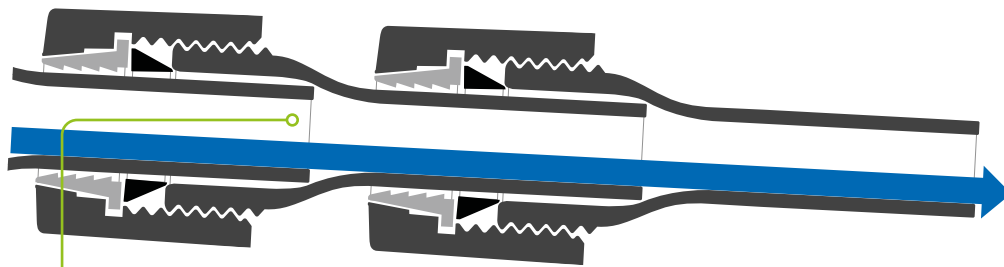
SymLine - Intro

The Pipe System - Flow Concept

Pipe system

The principle "smooth tube end runs in funnel-shaped threaded socket" optimally leads waste liquids and prevents leaks. This SymLine design is the global standard for all types of waste disposal cycles and their installations. Trust SymLine - the market leader - for safe disposal.

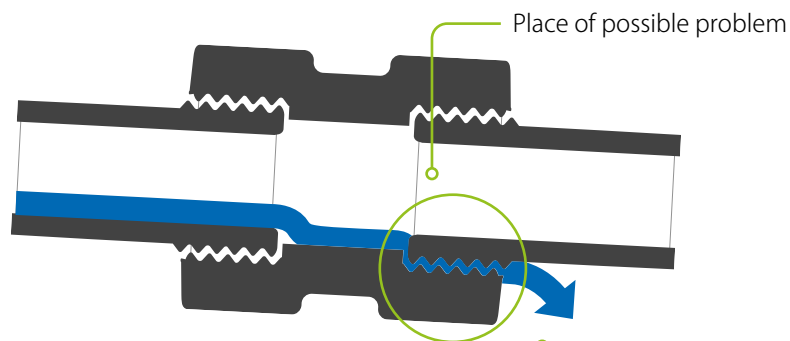
SymLine construction principle - optimal for waste transport



SymLine construction, with optimum liquid flow. Liquids flow continually downwards, from the smooth pipe end, into the interconnected threaded one.

Cylindrical inner tube and conical outer tube, with sealing ring to ensure a tight connection.

Typical construction principle - liable to leaks!



Smooth pipe ends are interconnected, using connecting sleeves. This results in increased danger of leakage.

SymLine - Intro

The Material

✓ **By adding carbon, the plastic turns black and becomes electrostatic conductive.**



SymLine material properties

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✓ **TRGS 727**

✓ **GefStoffV Zone 0, 1 and 2**

✓ **DIN EN 60079-10-1**

✓ **SEFA 3**

✓ **DIN EN 61340-**

✓ **EN 1127-1**

✓ **DIN EN 60079-10-2**

✓ **SEFA 8**



The alternative to heavy stainless steel!

Organic solvents, acids, alkalis or other aggressive substances can be collected safely using the SymLine system. There will be no problems of corrosion as they exist with stainless steel. Heavy stainless steel canisters are very difficult to transport when full. As a result of its light weight, electrostatic conductive plastic is the ideal material for use in the lab. This is why here SymLine products have a considerable advantage.



SymLine - Intro The Grounding



Proactive protection against risks of ignition.

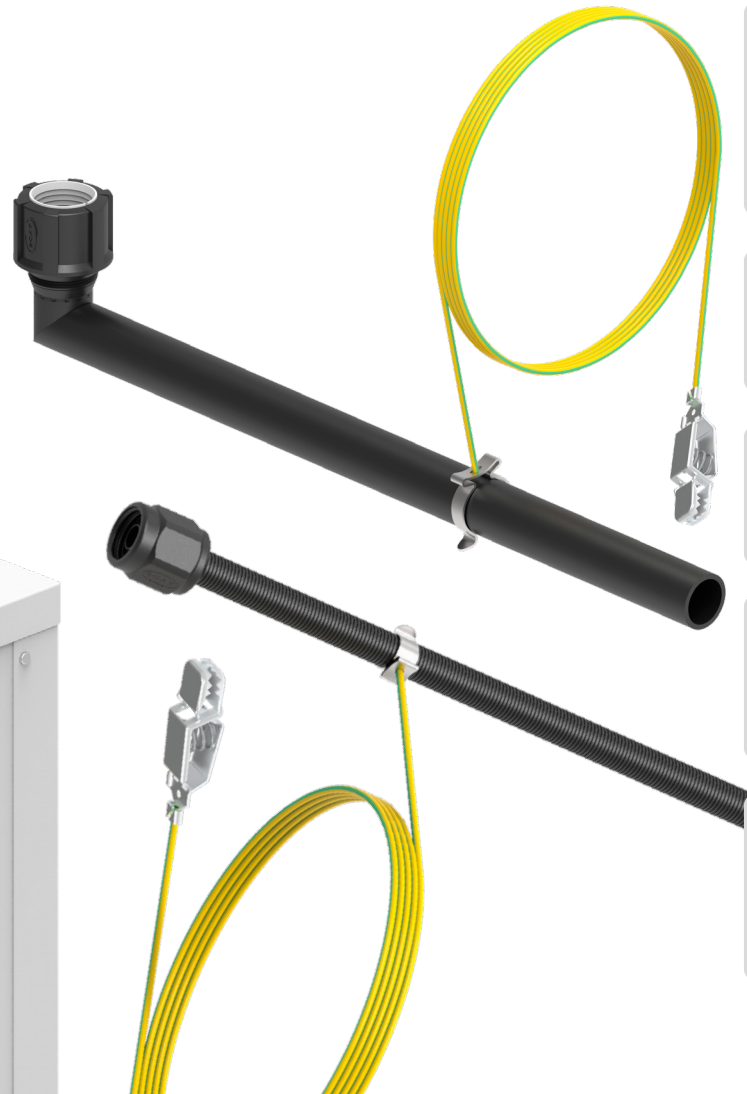
Why is grounding necessary?

Special care is required when collecting flammable liquids. Static charging may occur during drainage which is the cause of static sparking and increased fire risk. SymLine built-in solutions made of electrostatic conductive plastics prevent static charging and can be secured by means of additional grounding connections.

There are a number of directives and regulations that define how to assess and avoid risks of ignition and which proactive measures to take. Of special importance are the German Trade Association Rules for Safety and Health at Work (BGR) issued by the German Federation of Institutions for Statutory Accident Insurance and Prevention, HVBG): BGR 132 - Directive 'Static Electricity'. In terms of contents this corresponds mainly to the international norm CENELEC 50404 and the latest Technical Regulations for Hazardous Substances (TRGS) TRGS 727 (formerly TRBS 2153) - Avoiding ignition risks caused by electrostatic charging. Electrostatic conductive synthetic materials which have a volume resistance $> 10^4 \Omega$ & $< 10^9 \Omega$ can be used in protective systems which are subject to the ATEX directive provided they are sufficiently grounded.

ATEX compliant!

SymLine uses high-performance synthetic materials, provides an ideal link to safety cabinets and observes the ATEX directives.



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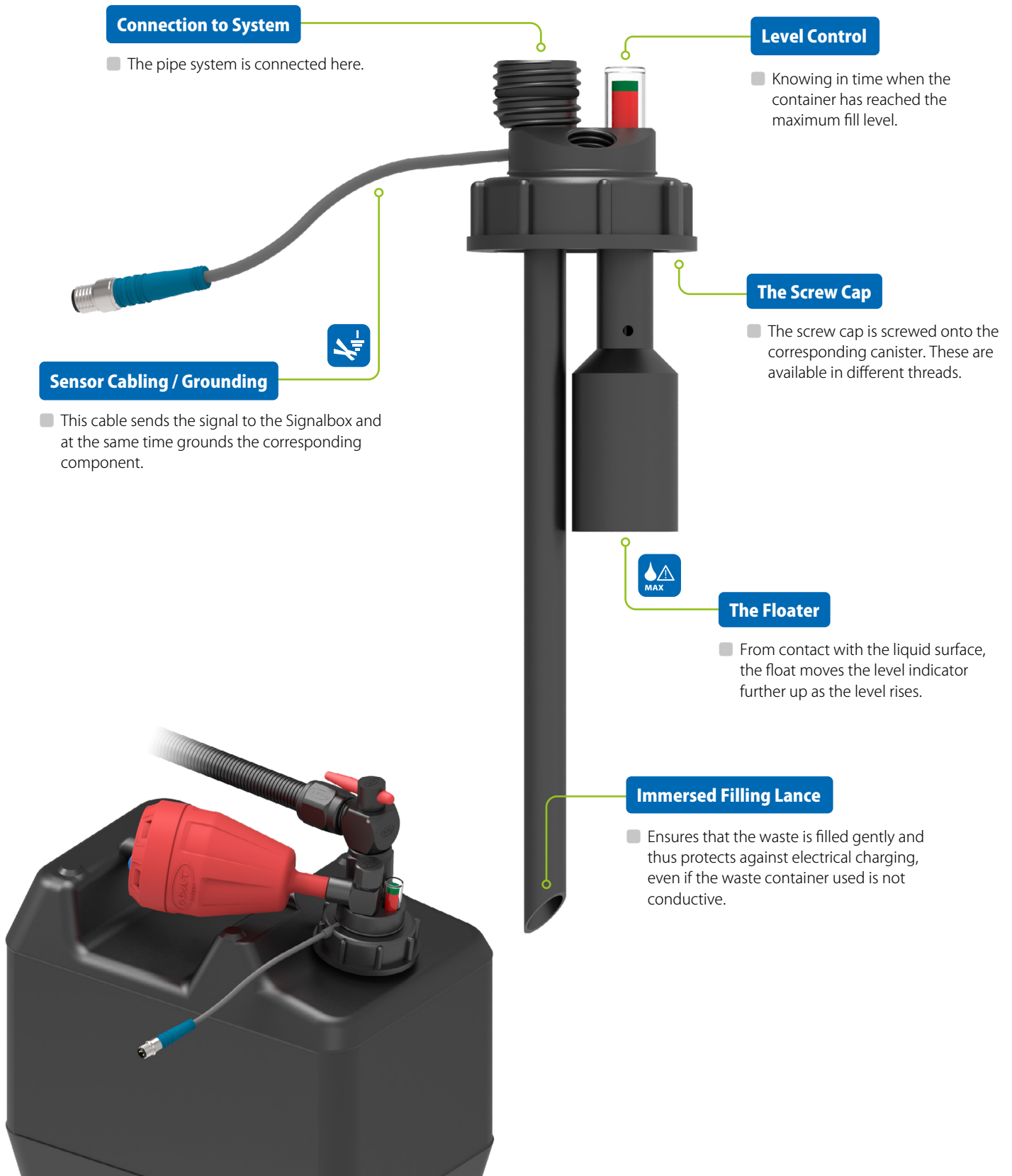
Safety Cabinets

SymLine - Intro

Protection from Fumes

How it works

Closed safety systems from SCAT Europe offer effective protection and additionally guarantee economical work in the laboratory.



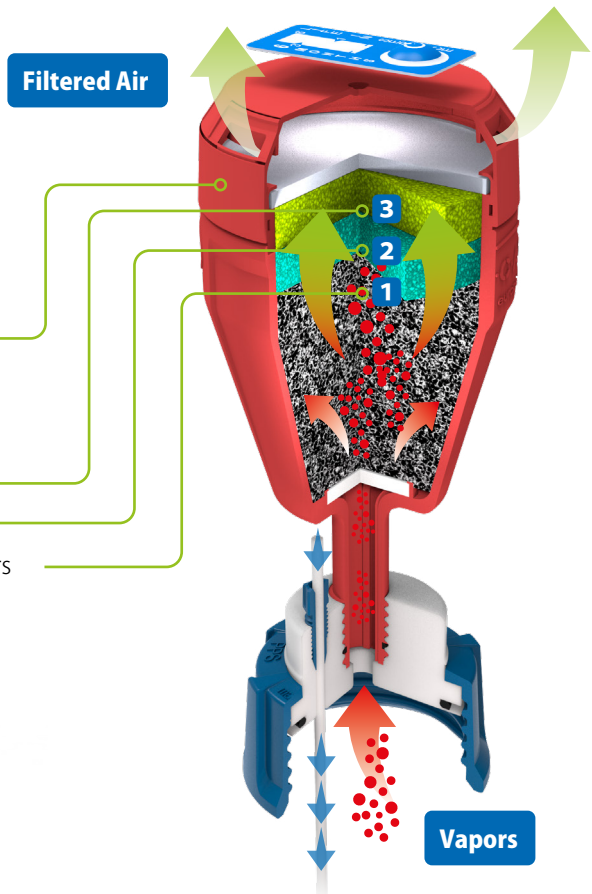
SymLine - Intro Protection from Fumes

Disposal



Safety Waste Cap

Liquid laboratory waste can consist of a wide variety of substances and tends to produce toxic fumes. Users often do not know which mixtures are stored in their containers. The closed SymLine disposal system provides reliable protection against these toxic fumes. The Safety Waste Cap provides a safe connection to the waste containers. The freely rotatable core made of electrically conductive plastic ensures an ergonomic and secure closure and is suitable for use in potentially explosive areas and is ATEX-compliant! **Exhaust air systems can be connected directly to our Safety Waste Cap in order to be able to remove pollutants via the laboratory exhaust air - the SymLine standard for safe collection of liquid laboratory waste.**



Exhaust Filter

- with three types of active carbon.
- 3. layer - binds acids
- 2. layer - binds alkalis
- 1. layer - adsorbs solvent vapors

Safety Waste Cap

- with exhaust filter



Exhaust Filter

The SCAT exhaust filters offer optimal protection against the toxic laboratory waste vapors that are produced when there is no laboratory exhaust air. Thanks to the beveled core of the Safety Waste Cap, exhaust filters can be connected without offset adapters. Due to the composition of 3 layers of active carbon, SCAT exhaust filters are suitable for adsorbing solvent vapors and binding acids and alkalis.

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SymLine - Intro Installation Service

- ✓ SymLine Service Team
- ✓ On-site Advice, Planning and Installation Service
- ✓ Certified Installation Training

Installation service

The SymLine installation service by our experienced team guarantees the highest level of safety in demanding installations. We are a master when it comes to the drilling of holes for table and wall feedthroughs in the laboratory furniture equipment and the handling of safety cabinets. We install every system with commitment and precision.

Installation training

SymLine offers trading partners and service teams the opportunity to be certified installation partners. Installation training can take place on site and in our showrooms. You are interested? Please get in touch with us!



SymLine - Intro

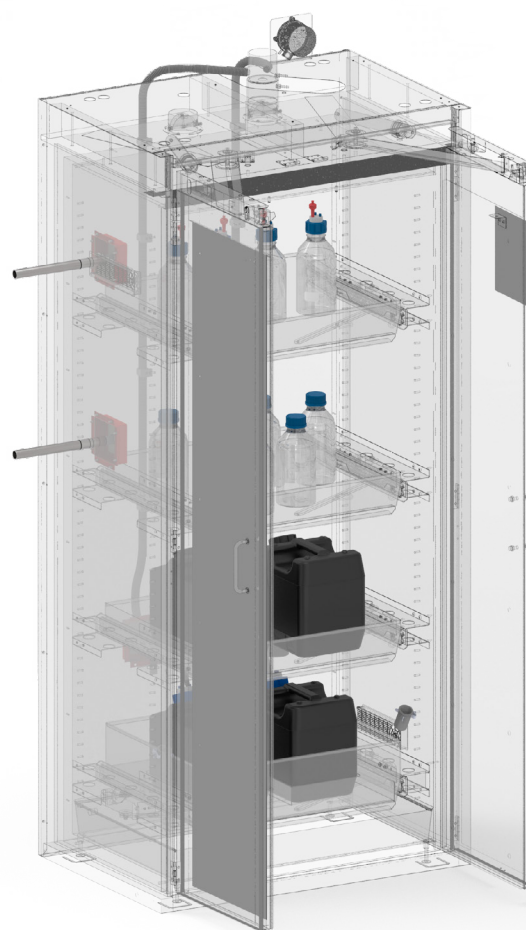
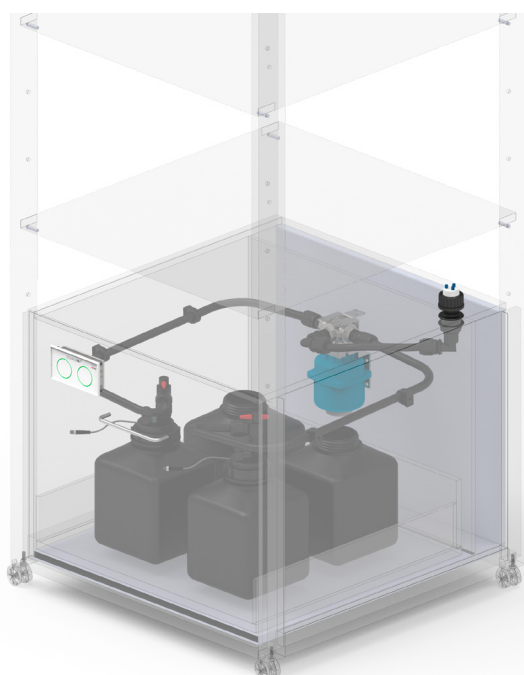
Custom-made Solutions

SymLine custom-made products

With the large number of different applications, it can happen that a system of standard components does not meet the demand perfectly. Therefore, we offer customized solutions meeting the customers' individual requirements. This gives the system an unique flexibility and individuality, whereby the highest quality standard is given at all times!

Mobile HPLC rack

Can be used flexibly thanks to castors. Safety Waste Cap with table feedthrough. Waste disposal with level control and automatic switching via 3-way ball valve.



Safety cabinet with HPLC connection for supply and disposal

Tall safety cabinet with steel tube feedthrough for HPLC tubes and capillaries. Through attachments the fire protection is maintained. HPLC supply and disposal without any contact with solvents.