





1 Service modules

1.1 Service spine

- Service panels and electrical modules
- Add-on parts
- Service modules
- Suspended service booms

1.2 Service wing

1.3 Service distribution terminal

The philosophy of our **mc6** furniture system is to enable changes to be made easily and therefore to provide more mobility in the laboratory.

Energy and service systems have a central role.

Pipes and cables for supplies and waste are run to the service spine, service module, suspended service boom and the service wing. These units then provide the services at fittings and integrated electrical units.

Due to the modular layout and flexible installation technology, services and energy are always available where they are needed.

General

Service spine



The special feature of the service spine is its modular layout and its logical separation from the furniture in the laboratory.

The service spine gives the designer freedom of choice during the design of the laboratory environment and provides the best possible options for different designs and rapid changes. The backbone of this system is formed by the strong pillar profile without grooves, which can be combined together with the freely selectable bench frames to form a work bench against a wall or a double-sided work bench.

The strong profile frame is perfectly designed for fitting different services and electrical modules, reagent shelves, instrument shelves and much more.

The surfaces of the supporting structure and the panels are protected with high-grade powder coatings. As the items fitted to the panel can be changed rapidly without the need to undo bolts, laboratory operations are hardly interrupted at all.

The supply pipes, for example for water and compressed air, can be rapidly extended and fitted using a quick release coupling system. Overbench cabinets can also be fastened when pillar extensions are used.

For the perfect planning of the preparatory work on-site, we provide planners and architects with installation plans containing exact sizes for supply pipes and cables as well as information on dimensioning and flow rates.

Flexibility and rapid upgradability

The modular design principle enables all modules to be rapidly replaced or changed for expansion. This feature signifies low installation costs. Shelves can be fitted as required independent of modular size. Ready to plug-in electrical modules are installed in no time.



Full independence from the work bench

As a result of the separation of the service spine and furniture, worktops and underbench units can be moved or changed without dismantling the mechanical services and electrical installation.

Two service spines used for double-sided work benches

Here the double spine comprises two self-contained spines that are independent of each other. When making changes, double bench spines can be converted into two individual spines set up against the wall.





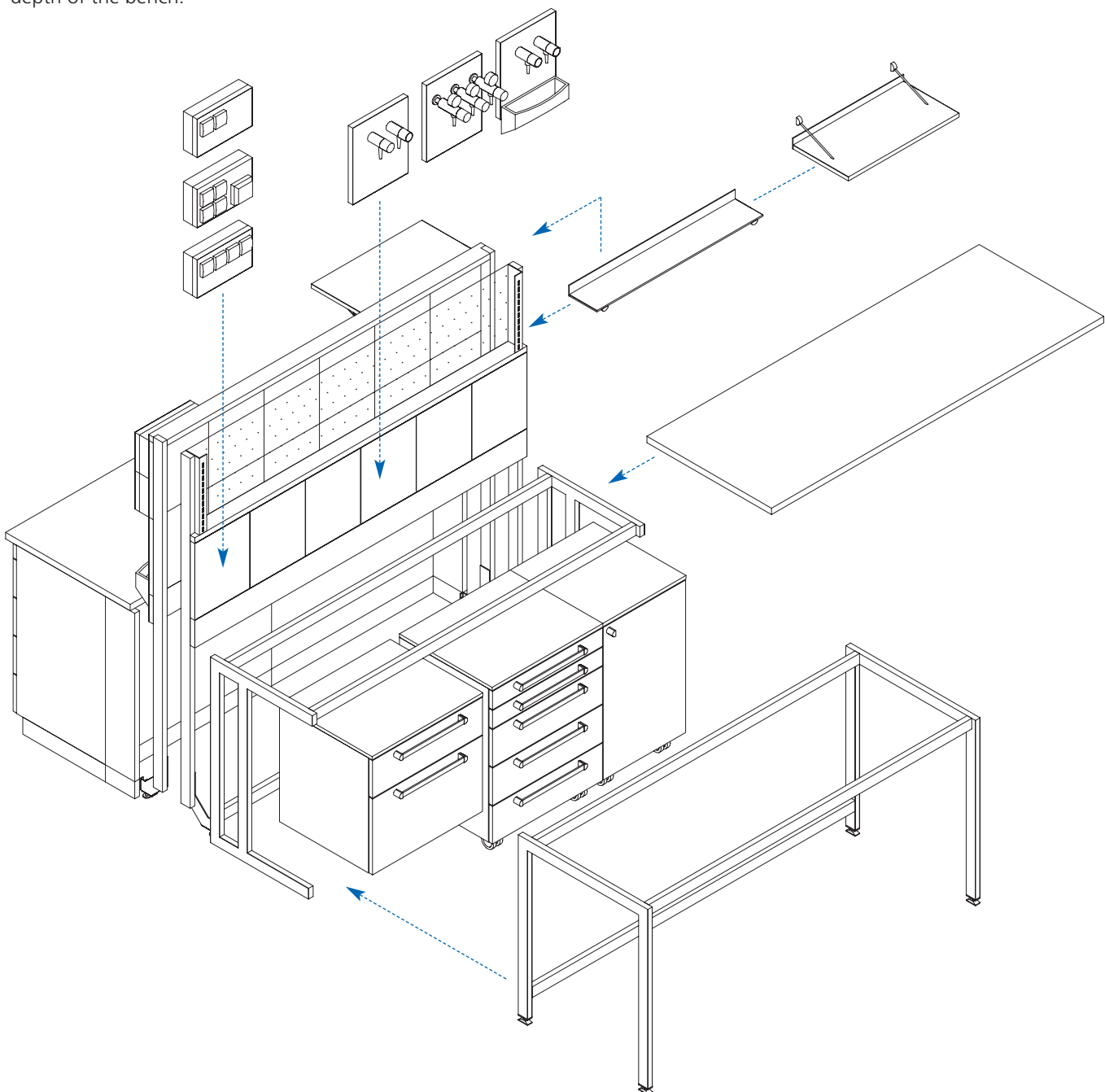
Use of electrical modules that can be positioned as required

Our modules only need space where the power is required. There is no awkward electrical trunking with the service spines. You can use the full depth of the bench.

Wear-free cold/hot water fittings

Unlike upper sections with a grease chamber, our fittings with ceramic sealing in the upper section are wear-free and maintenance-free for significantly increased economy.

The basic structure of the service spine based on the example of a double work bench with the various elements fitted



General

Service wing



Since the introduction of our laboratory furniture system **mc6**, the term “freedom in the laboratory” has been completely re-defined: Maximum flexibility of all systems and maximum freedom of movement without interface problems provide people working in laboratories freedom to be able to implement their ideas.

The revolutionary service wing supplements the new freedom in the laboratory in a special manner: as the central furniture element in which all key services such as mechanical, electrical, lighting, EDP, extract air and of course the disposal of waste water are integrated, our system provides a very high-degree of flexibility.

The possibility of being able to plug-in to the service wing, practically anywhere, using quick-release couplings signifies a very high level of freedom of movement in the laboratory.

Using the service wing simplifies the entire laboratory fitting out process including the mechanical and electrical services. A central feed point is



sufficient and the service wing – securely mounted to the ceiling with adjustable steel bars – makes further installations, holes in the walls and visible suspension systems superfluous. Installation costs are reduced significantly, extensions can be made without problems without the need to make structural changes.

With the service wing we have created a service supply area outside the direct working area. All services can be rapidly fed to the work bench without complications.

Extraordinary flexibility in the laboratory

All areas of the laboratory are supplied using cross and T elements. All services are pre-installed in the wing. In this way we achieve a large number of possible configurations. It is possible to “dock” anywhere at any time. Standardised units for analysis tables and work benches, mobile tables, racks, mobile sink units or mobile fume cupboards – everything can be used as required under the wing.

Simplification of the preliminary structural planning

Complex installations for different systems and their planning are no longer required when

the service wing is used. The saving in room height due to the lack of need for a suspended ceiling for improved appearance signifies a considerable saving in planning and fitting out costs.

Easy to reach connection quick-release couplings

When standing, the connections on the service wing can be reached easily without problems.

The service wing is also easy to integrate in difficult circumstances

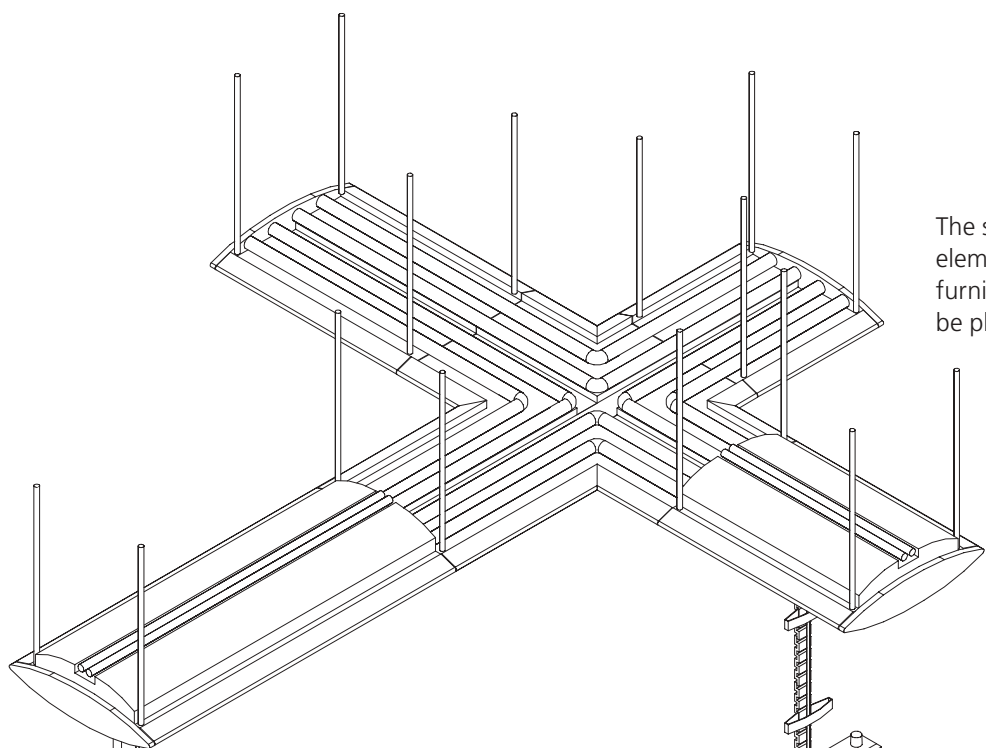
The existing room architecture and the characteristics of the ceiling, wall and floor often make extensive installations more difficult. On listed buildings it is not even allowed to make major changes to the historic structure. Here the service wing can be easily integrated with minimal effort without complications.

Perfectly planned, pre-assembled and equipped in the factory

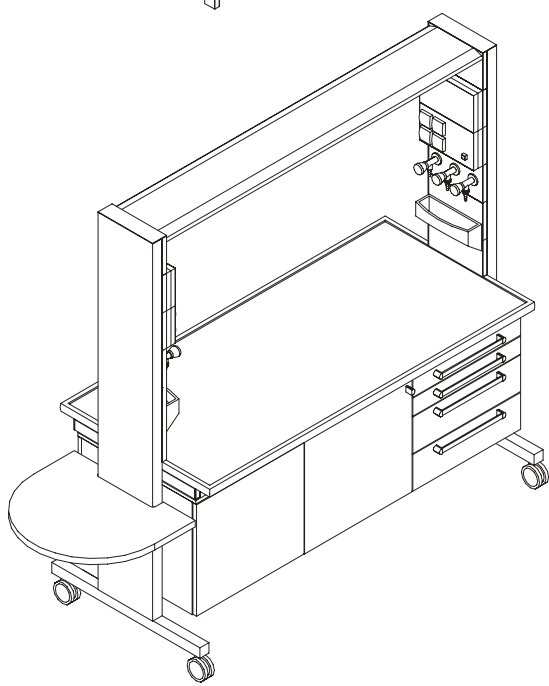
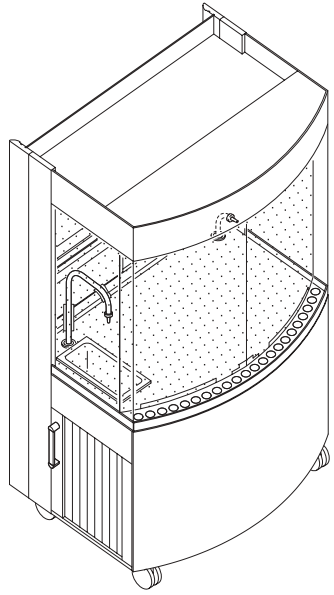
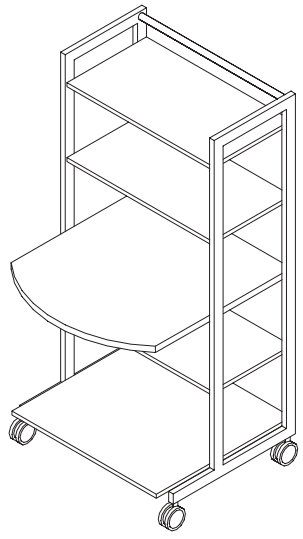
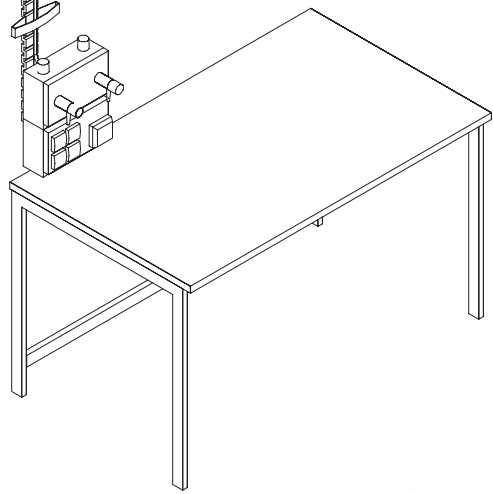
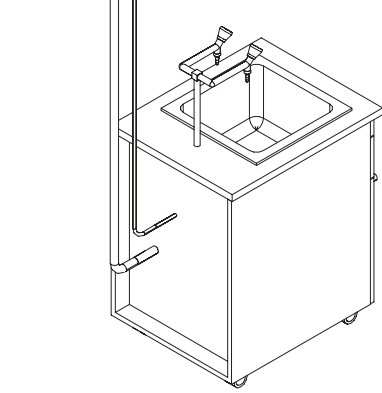
The service wing system for your laboratory is fully pre-assembled in our factory to suit your needs. You save assembly time on-site and your service wing is rapidly installed and ready to use.

Uncomplicated to extend and maintain

Due to its independent design as a self-contained unit, the service wing is almost maintenance-free. Extending, upgrading and checking the system are possible without major effort.



The service wing with cross element and systems and furniture components that can be placed below it.



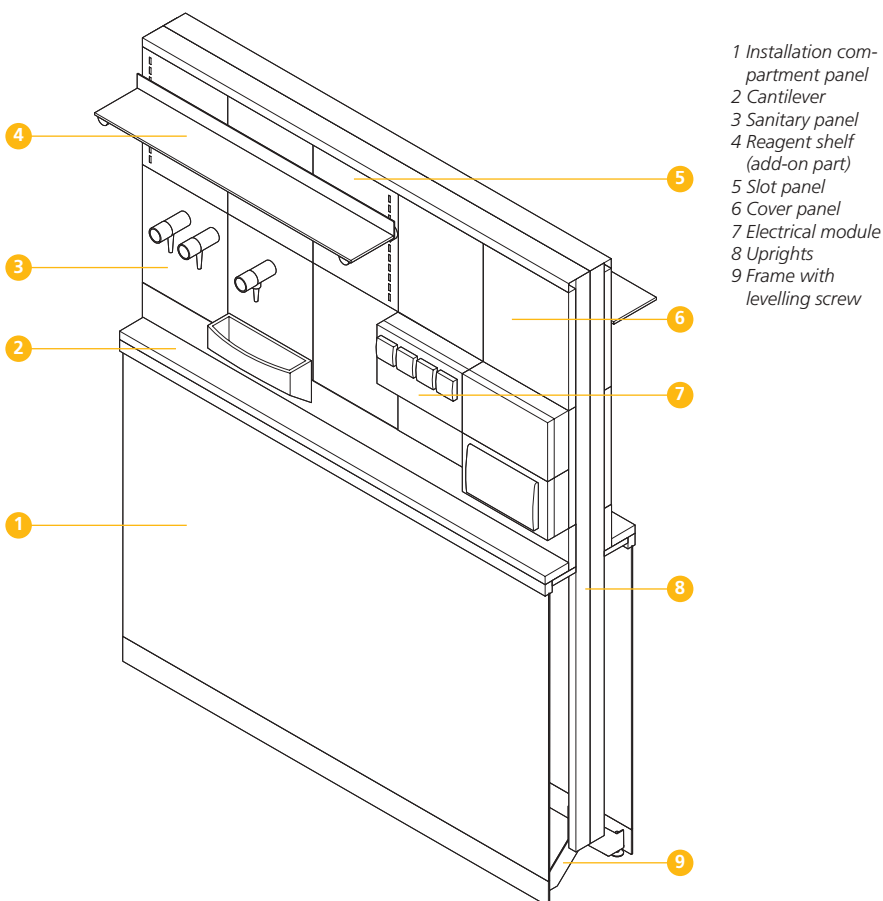
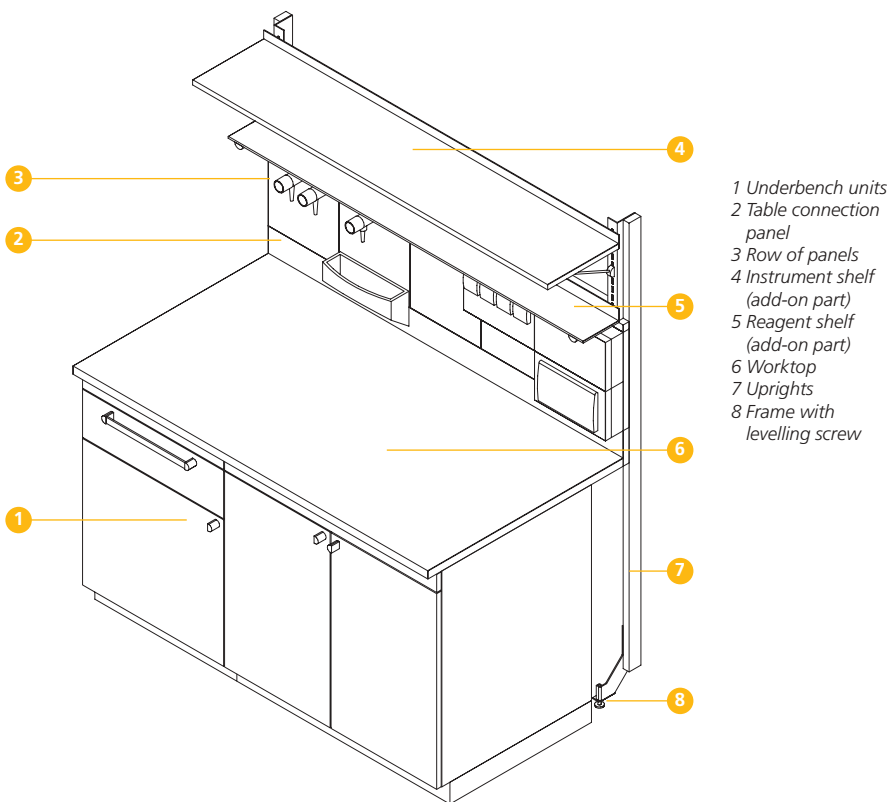
1.1 Service spine

Layout

Service spines provide fittings and sockets, can be fitted with supply pipes and cables and waste pipes, and are used for mounting a wide range of shelf systems.

Service panels and electrical modules can be individually equipped and upgraded. The powder-coated panels made of steel sheet are clipped into the lateral profiles on the service spine above the worktop without the need for tools.

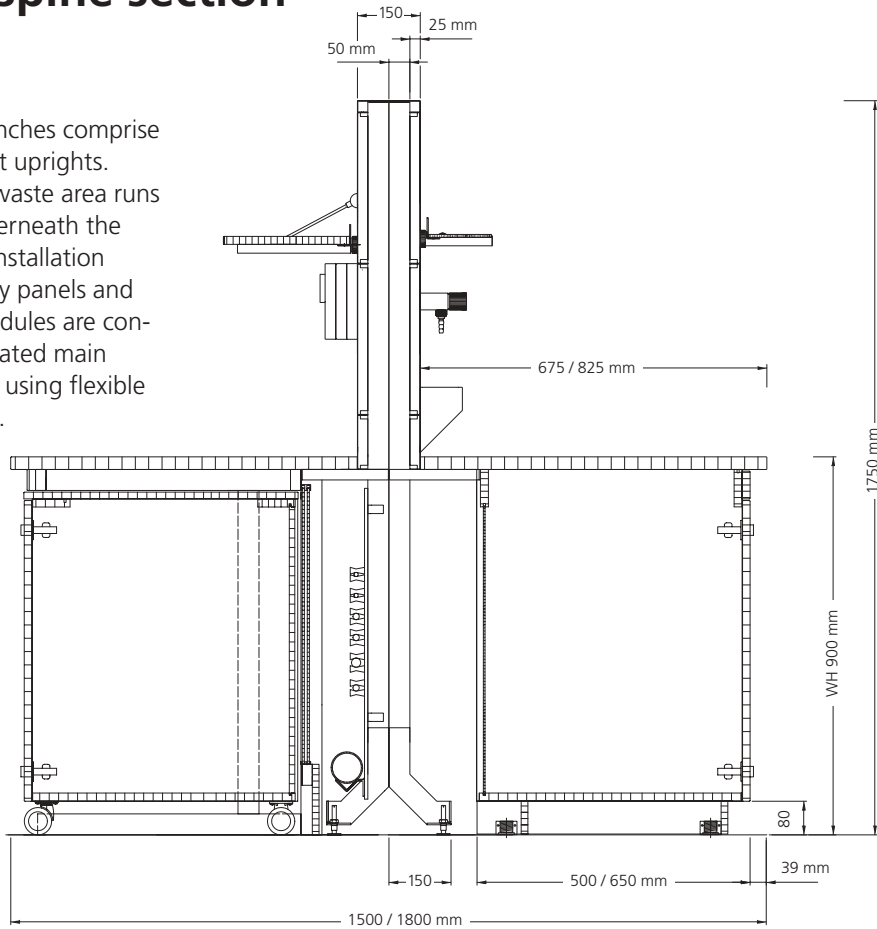
The uprights for the service spine can be extended in height at any time as required, e. g. for installing overbench cabinets.





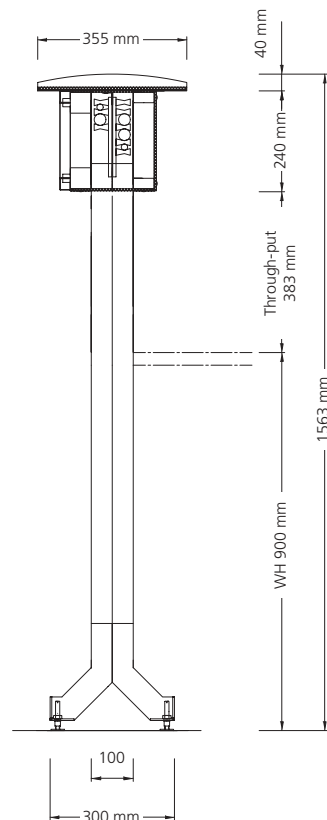
Service spine section

Double work benches comprise two independent uprights. The supply and waste area runs horizontally underneath the worktop in the installation area. The sanitary panels and the electrical modules are connected to the related main pipes and cables using flexible cables and pipes.



Bench mounted service module section

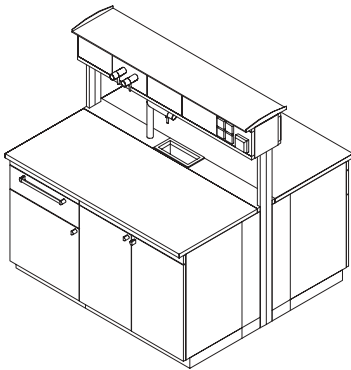
The supply area on the bench mounted service module runs horizontally above the worktop. Mechanical services and electrical services are fitted using the panel technology or using a fixed panel.



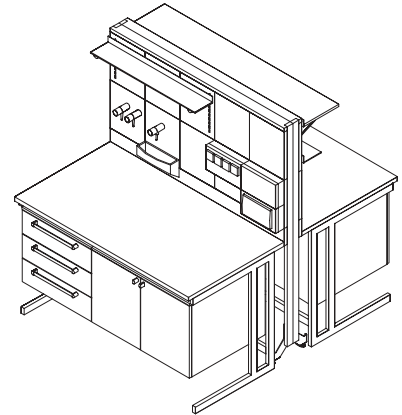
1.1 Service spine

Application examples

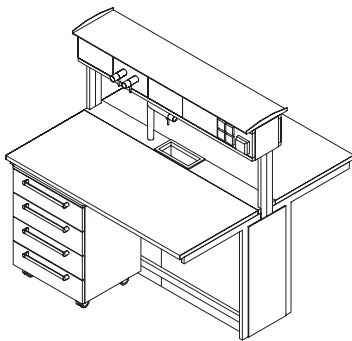
Double work bench with bench mounted service module and underbench units on plinth



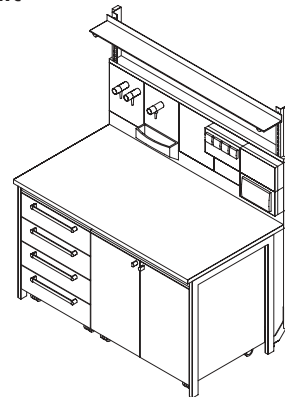
Double work bench with two rows of panels and C frame construction with suspended underbench units



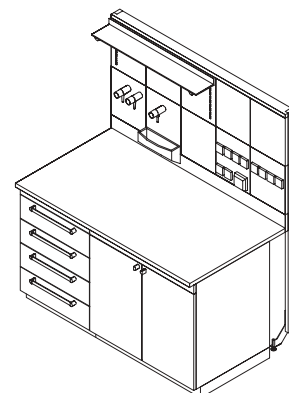
Double work bench with bench mounted service module and cantilever construction with mobile underbench unit



Wall bench with one row of panels and 4-leg construction with mobile underbench unit

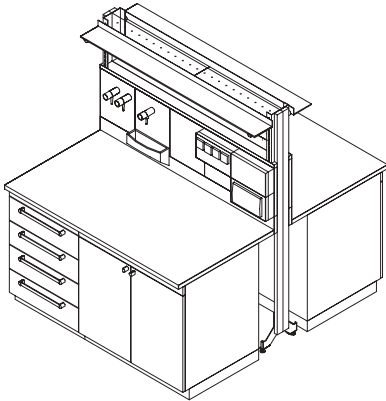


Wall bench with two rows of panels and flush sockets; Underbench units on plinth

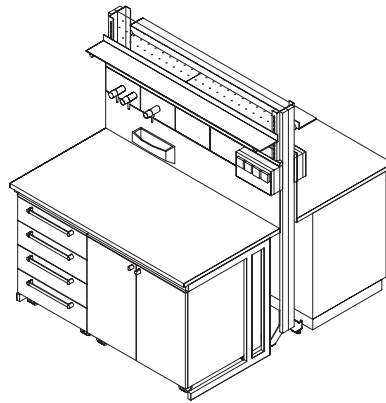




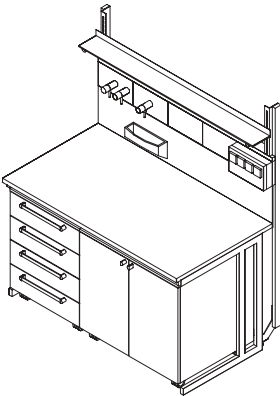
**Double work bench with one row of panels and splash protection;
Underbench units on plinth**



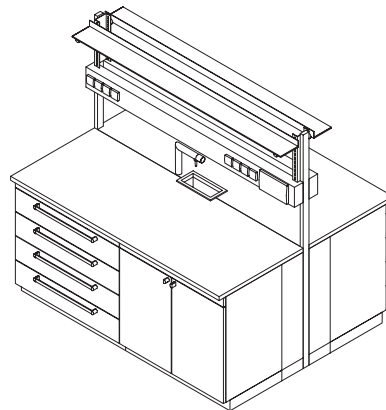
**S2 Double work bench with one row of panels and splash protection;
C frame construction with mobile under-
bench units and underbench units on plinth**



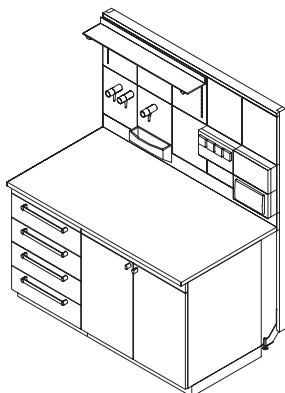
**S2 Wall bench with one row of panels and
C frame construction with mobile under-
bench units**



**Double work bench, with open spine
system. Electrical trunking is optional.**



**Wall bench with two rows of panels and
underbench units on plinth**



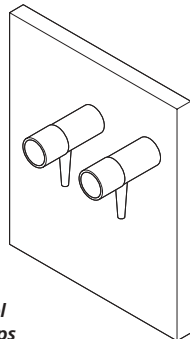
1.1 Service spine

Service panels and electrical modules

The panels and modules are clipped into a mounting frame and can be arranged as required.

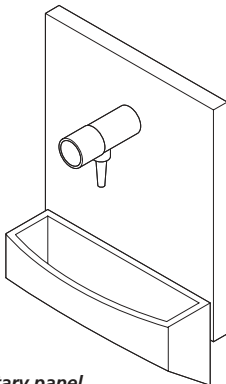
The outlet valves in the panels can be connected as required to the main pipes using branch pipes. The main pipes are laid in the installation compartment underneath the worktop or the cantilever.

It is possible to fit up to five angle taps to sanitary panels (for gas, water, vacuum, compressed air or high purity gas valves).



Sanitary panel with angle taps

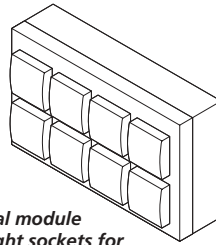
In addition, a sanitary panel can be fitted with a drip cup.



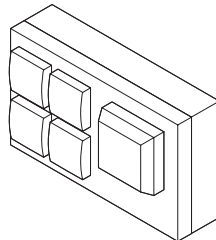
Sanitary panel with drip cup

Up to eight sockets for alternating current or up to two sockets for three-phase current can be fitted to electrical modules. Different sockets can be combined.

As an option, the sockets can also be supplied fitted flush with the service spine.

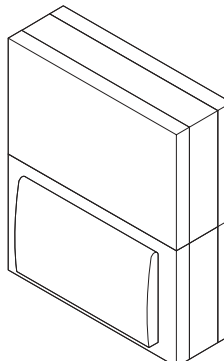


Electrical module with eight sockets for alternating current



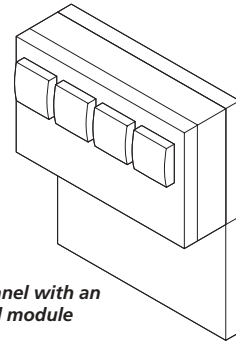
Electrical module with various sockets

The supply is provided using an electrical module with an interface to the electrical supply and, on request, an electrical module with up to 14 fuses under a cover.



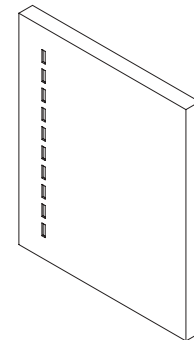
Electrical module with interface to the electrical supply and electrical module with fuses

Cover panels cover the areas between sanitary panels and electrical modules. Individually mounted electrical modules are always fitted with a half height cover panel.



Cover panel with an electrical module

Behind slot panels there are slot rails to which add-on parts of varying height can be fitted.



Slot panel

Add-on parts

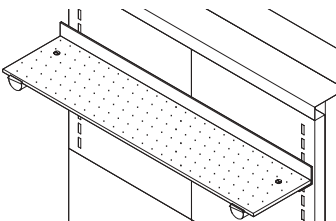
Add-on parts can be fitted at different heights to panels and runners with slots on the service spine.

The following add-on parts are available:

- Reagent shelf
- Instrument shelf
- Scaffold points

Reagent shelf

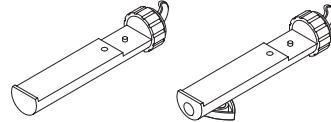
A glass plate is fastened to two brackets using screws. An angle behind the glass plate is used as a stop and for stiffening.



Reagent shelf

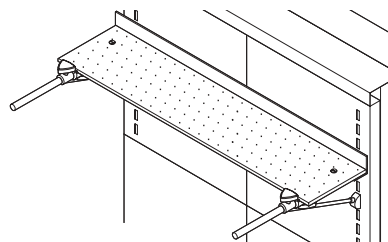
Bracket for reagent shelf

Bracket for reagent shelf *Bracket with hole for rod*

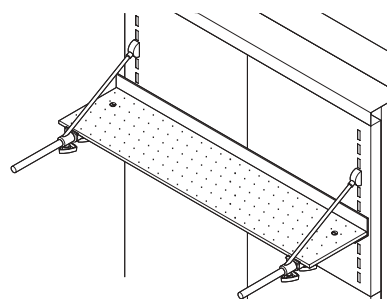


The reagent shelf can be extended using rods supported with braces at the top or bottom. For this purpose special brackets with a fastening feature for rods with a diameter of 13 mm are used.

The rods are fixed in the holes in the brackets using clamping screws. Braces can be clamped to the rods, the braces are fastened to the slots in the service spine using hooks and increase the load capacity of the rods.



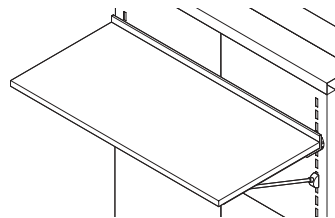
Reagent shelf with brace underneath



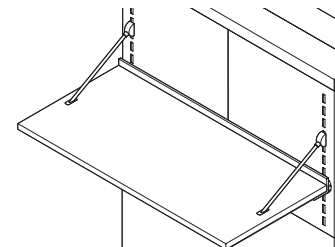
Reagent shelf with brace on top

Instrument shelf

A panel is fastened to two brackets from below using countersunk screws. An angle behind the panel is used as a stop and for stiffening. The panel is supported underneath or on top using braces.



Instrument shelf with brace underneath

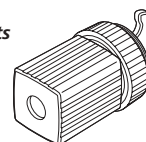


Instrument shelf with brace on top

Scaffold points

Scaffold points are used for fitting a rod with a diameter of 13 mm. The rod is fixed by turning the knob on the scaffold point by a quarter of a turn.

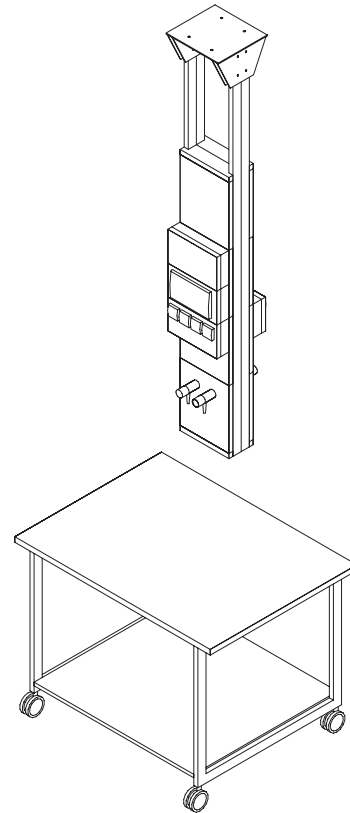
Scaffold points



1.1 Service spine

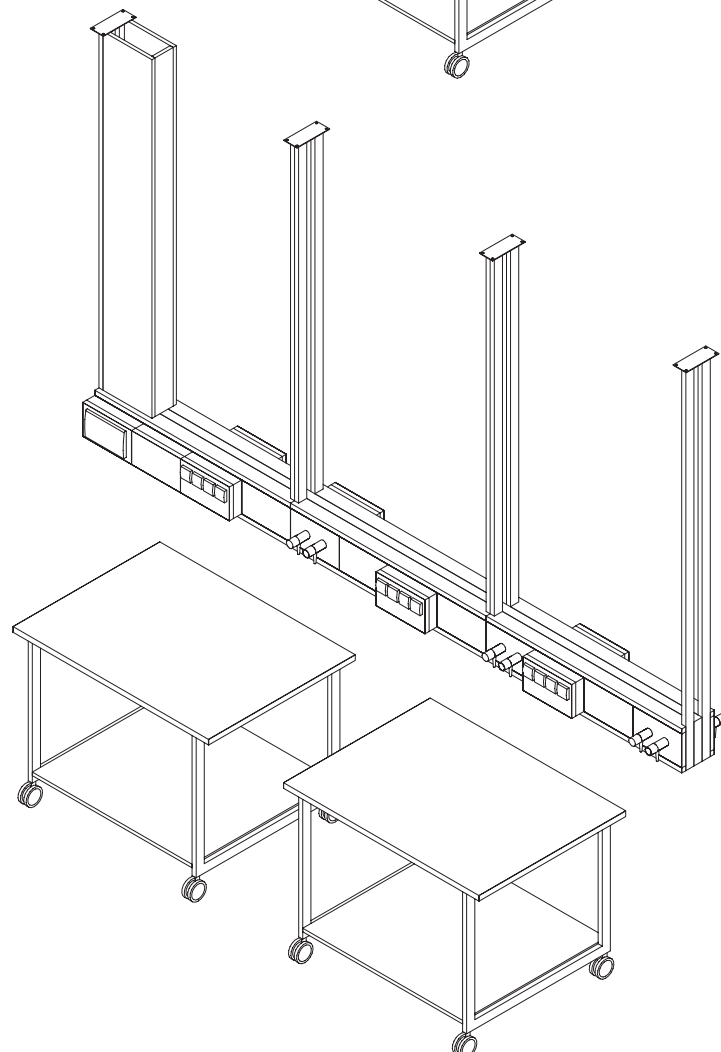
Service modules

Service modules are used for the provision of electrical and mechanical services at the laboratory workstation. They are fastened to the raw ceiling using a ceiling anchor. The sanitary panels and electrical modules fastened to the uprights can be positioned on both sides and can be equipped as required.



Suspended service booms

Suspended service booms are used for the provision of electrical and mechanical services at the laboratory workstation. The modular spines are fastened to the raw ceiling. The sanitary panels and electrical modules fastened between the uprights can be positioned on both sides and can be equipped as required.





Technical data

Service spine	
Widths (mm)	600, 900, 1200, 1500, 1800
Height (mm)	1745
Depths, single-sided with table (mm)	750, 900
Depths, double-sided with table (mm)	1500, 1800
Working heights (mm)	720, 900
Pillar extension (mm)	960
Pillar extension for suspended cabinet with height of 540 mm (mm)	515
Pillar extension for suspended cabinet with height of 720 mm (mm)	695
Pillar extension up to the ceiling (mm)	1725
Height S2 panel for working height of 900 mm (mm)	280

Dimension of the panels	
Width, panel (mm)	300
Width, slot panel (mm)	300, 75
Height, panel (mm)	180, 360

Dimension of the electrical modules	
Width, electrical module (mm)	300
Height, electrical module (mm)	180

Bench mounted service module	
Widths (mm)	900, 1200, 1500, 1800
Height (mm)	1563
Working heights (mm)	720, 900
Opening for working height of 720 mm (mm)	563
Opening for working height of 900 mm (mm)	383

Reagent shelf	
Widths (mm)	600, 900, 1200, 1500, 1800
Depth (mm)	150
Load carrying capacity	20 kg

Instrument shelf	
Widths (mm)	600, 900, 1200, 1500, 1800
Depth (mm)	300
Load carrying capacity	30 kg

Scaffold points	
Diameter of the hole for rods (mm)	13
Load carrying capacity in conjunction with reagent shelf without brace	5 kg
Load carrying capacity in conjunction with reagent shelf with brace	20 kg

Service module	
Width (mm)	300
Length of the uprights (mm)	adjusted to suit customer needs

Dimension of the panels	
Width, panel (mm)	300
Heights, panel (mm)	180, 360

Dimension of the electrical modules	
Width, electrical module (mm)	300
Height, electrical module (mm)	180

Suspended service boom	
Widths (mm)	600, 900, 1200, 1500, 1800
Length of the uprights (mm)	adjusted to suit customer needs

Dimension of the panels	
Width, panel (mm)	300
Height, panel (mm)	180

Dimension of the electrical modules	
Width, electrical module (mm)	300
Height, electrical module (mm)	180

1.2 Service wing

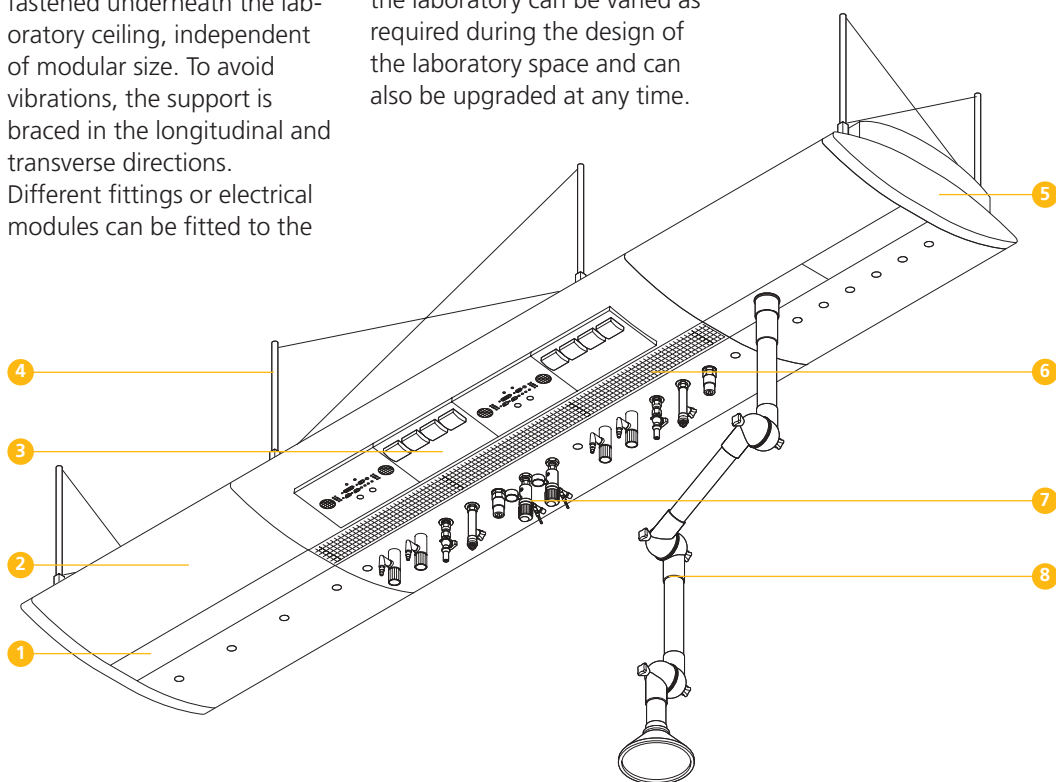
Layout

The service wing provides services and waste facilities at the laboratory workstation. The service wing support is fastened underneath the laboratory ceiling, independent of modular size. To avoid vibrations, the support is braced in the longitudinal and transverse directions. Different fittings or electrical modules can be fitted to the

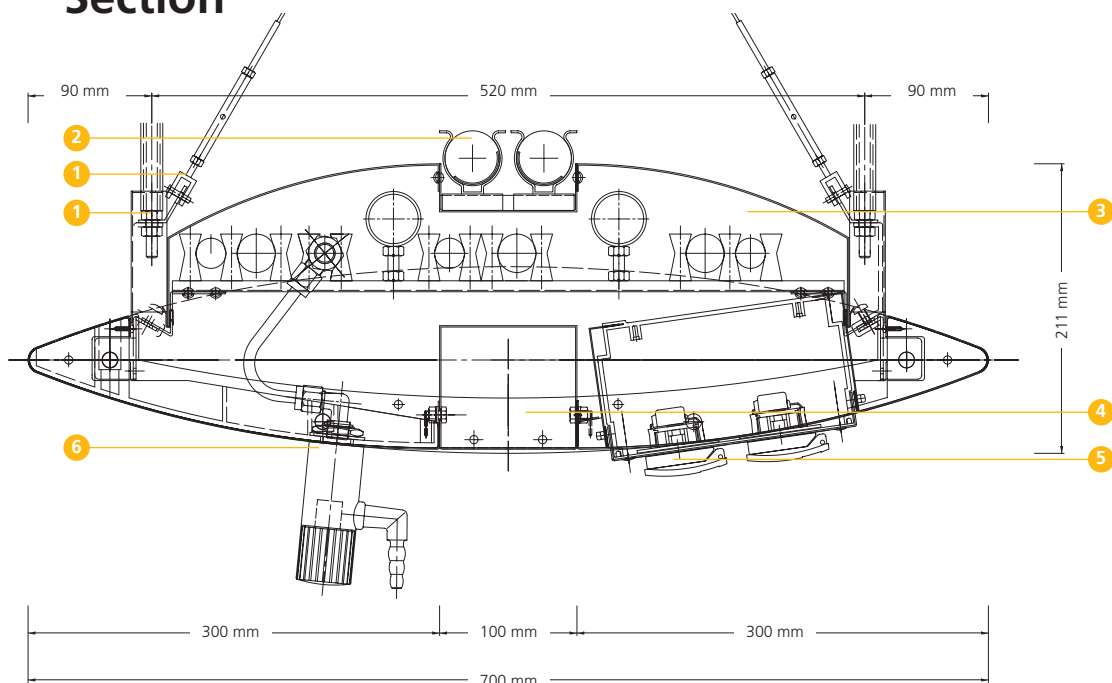
underside of the elements on both sides. Due to the modular layout, the services and energy supplies in the laboratory can be varied as required during the design of the laboratory space and can also be upgraded at any time.

Components of the service wing

- 1 Cover panel
- 2 Wing element
- 3 Electrical module
- 4 Support
- 5 Front cover
- 6 Workplace light
- 7 Fittings
- 8 Alsident exhaust (optional)



Section

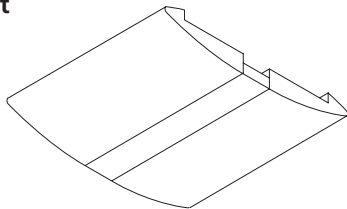


Cross section through the service wing

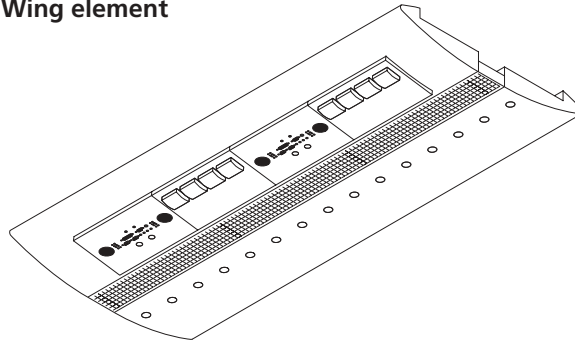
- 1 Support
- 2 Indirect room lighting
- 3 Service duct
- 4 Workplace lighting and possibility for extract air spigot
- 5 Electrical supply area
- 6 Mechanical services supply and waste area

Service wing elements

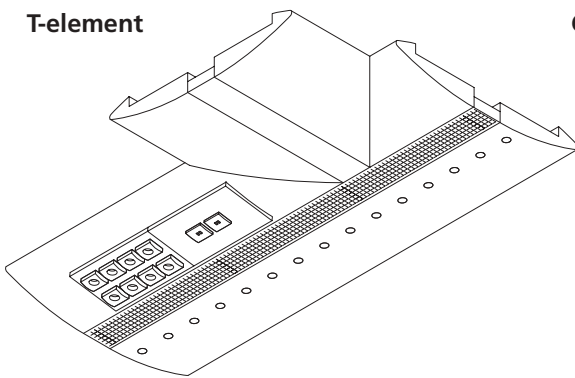
Feed element



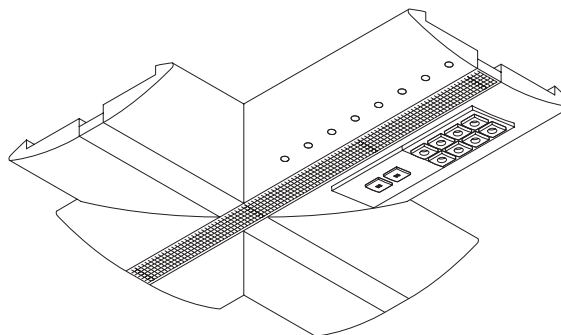
Wing element



T-element



Cross element



Design variants	
Mechanical services	<ul style="list-style-type: none"> – A very wide range of supply services such as flammable gas, technical gases, pure gas, vacuum, compressed air, water in a very wide range of quality stages – Waste pipes for waste water
Electrical	<ul style="list-style-type: none"> – Electrical supply for alternating current and three-phase current – Fuse modules
Lighting	<ul style="list-style-type: none"> – Workplace lighting – Indirect room lighting
Ventilation	<ul style="list-style-type: none"> – Alsident exhaust – Extract air spigot for mobile fume cupboard AeroEm – Plate valves for room ventilation
Dust protection	<ul style="list-style-type: none"> – Cover over the spacing elements from above

1.2 Service wing

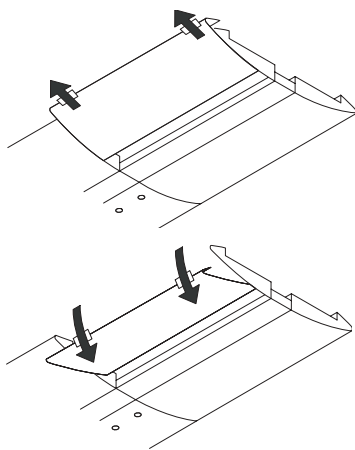
Service wing elements

Feed element

The supply pipes are fed through the wall at the height of the service wing using a feed element. As an alternative to the feed element, the supply pipes can be fed through a service duct from the ceiling to the service wing. In this case the isolating valves are outside the service wing.

Easy access to the isolation valves and pipes in the service wing is provided by opening the feed element.

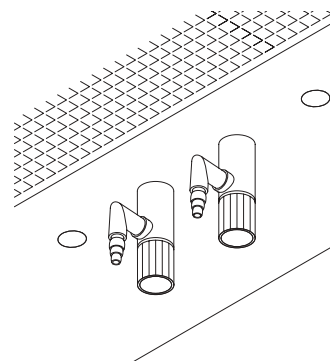
*Feed element
Open*



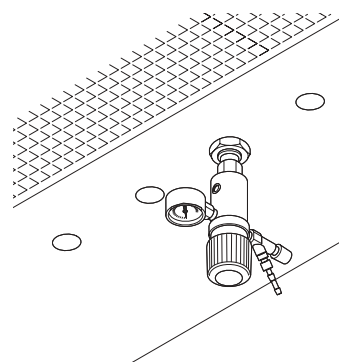
Mechanical services supply and waste facilities directly at the service wing

The fittings (angle taps, high purity gas valves or quick release outlets) supply the laboratory workstation with flammable gas, technical gases, pure gases, vacuum or compressed air and water.

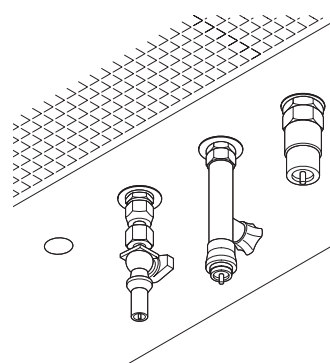
The pipes from, e. g., service distribution terminals (see section 1.3) or mobile sinks (see section 2.11) are connected to quick release outlets.



*Wing element
with angle taps*



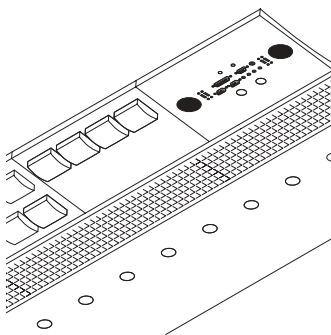
*Wing element with
high purity gas valve*



*Quick release outlets for
gas, water, waste water*

Electrical supply directly at the service wing

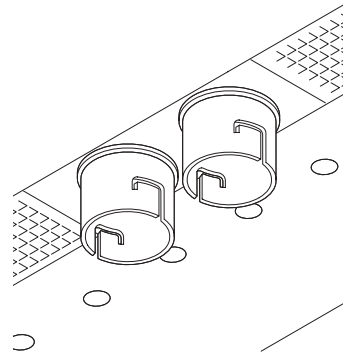
Up to eight sockets for alternating current or up to two sockets for three-phase current can be fitted to electrical modules. Connections, e. g., for telephones, monitors, data or loudspeakers can also be installed on electrical modules.



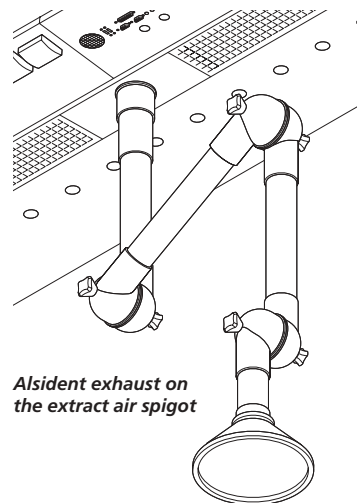
Wing element with electrical modules

Extract air removal directly at the service wing

Extract air spigots can be fitted to the underside of the service wing between the two halves of the wing. The spigots are connected to the central exhaust system using an extract air duct. It is possible to connect, e. g. the ducts from mobile fume cupboards AeroEm (see section 3.12) or specific Alsident exhausts (see section 3.13).



Wing element with extract air spigots



Alsident exhaust on the extract air spigot

Technical data

Dimension of the elements	
Length, feed element (mm)	600
Lengths, wing elements (mm)	600, 900, 1200, 1500
Lengths, T elements (mm)	1500
Lengths, cross elements (mm)	1500
Width (mm)	700
Height (incl. dust cover) (mm)	210

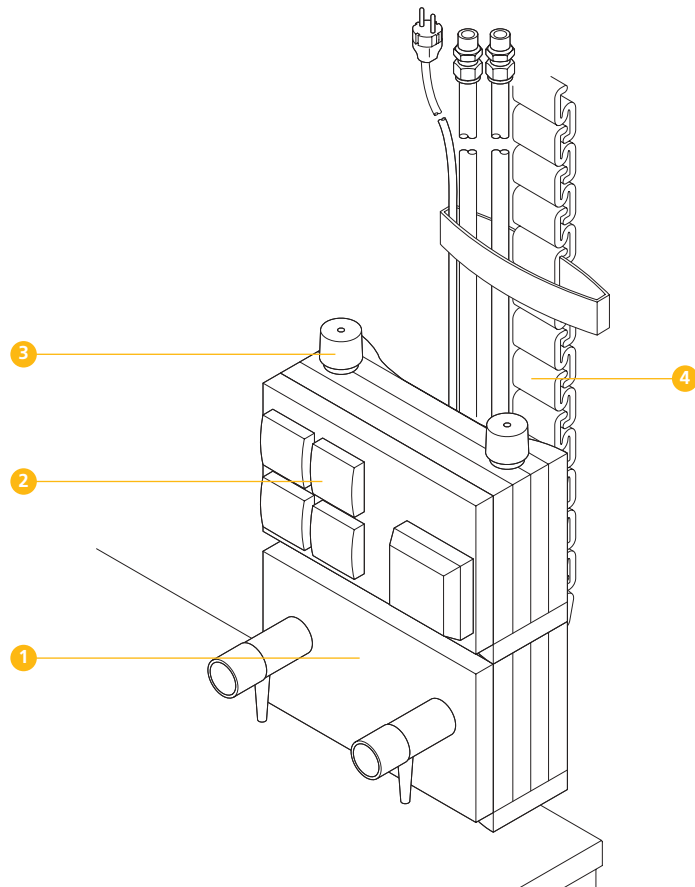
Dimensions panels and modules	
Length (mm)	300
Width (mm)	180

Dimensions of the workplace lights/cover panels	
Lengths (mm)	600, 900, 1200, 1500
Width (mm)	100

1.3 Service distribution terminal

Layout

In combination with the service wing as a supply and waste disposal system, the service distribution terminal enables services and electrical supplies to be drawn directly at the workplace. The service distribution terminal is clamped to worktops or steel support frames using a clamping system.



Components of a service distribution terminal

- 1 Service distribution terminal with sanitary panel
- 2 Service distribution terminal with electrical module
- 3 Clamping system
- 4 Service beam

Design variants

The service distribution terminal is supplied using the service wing. Services and the electrical supply are provided using flexible pipes and cables that are connected to the service distribution terminal.

The pipes and cables are connected to the service wing using quick release outlets and plugs.

A very wide range of mechanical services such as flammable gas, technical gases, pure gases, vacuum, compressed air can be provided.

Up to three angle taps or high purity gas valves are fitted to the sanitary panel.

Up to eight sockets for alternating current or up to two sockets for three-phase current can be fitted to the electrical panel. Different sockets can be combined.

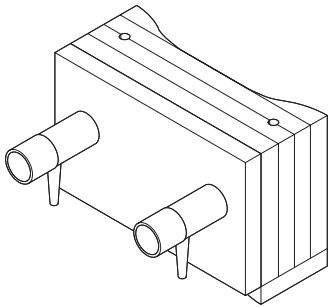
The pipes and cables between the service distribution terminal and the service wing are fed to the service beam and bundled with two straps. In addition, a steel rope on the service beam is used to provide strain relief for the pipes and cables.

The service distribution terminal can be fastened horizontally, e.g. to a worktop or vertically to a steel frame, e. g. to the rack (see section 2.8) .

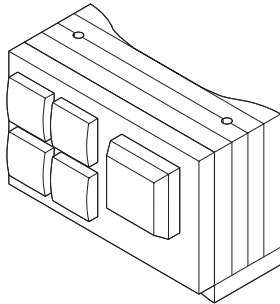


Examples of the design variants

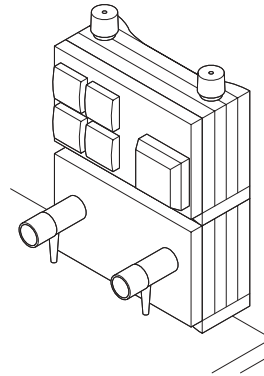
Service distribution terminal with angle taps



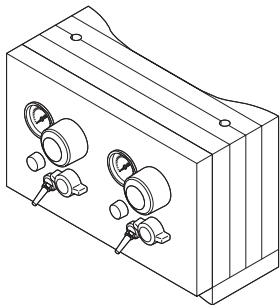
Service distribution terminal with different sockets



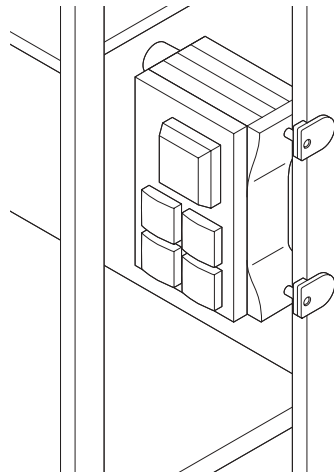
Fastening two service distribution terminals one above the other



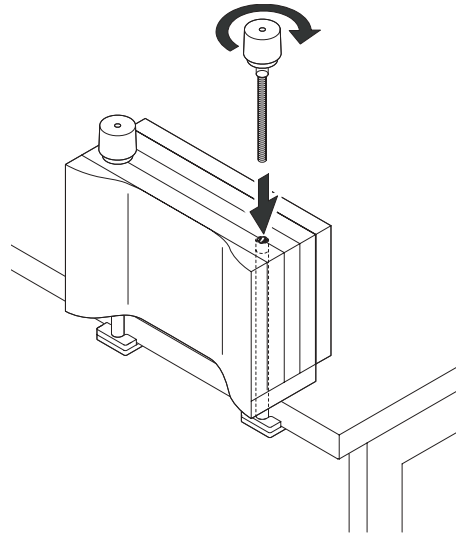
Service distribution terminal with high purity gas valves



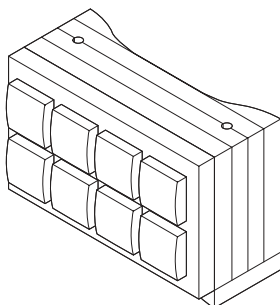
Vertical fastening of the service distribution terminal



Horizontal fastening of the service distribution terminal



Service distribution terminal with 8 sockets for alternating current



Dimension service distribution terminal

Width (mm)	300
Height of a service distribution terminal (mm)	205
Height of two service distribution terminals (mm)	410
Depth (mm)	125.5
Clamping range for the fastening (mm)	10 to 90