

# Wine tanks Fermenters

[www.sk-skrlj.com](http://www.sk-skrlj.com)



*Brilliant products*

Stainless steel tanks in every phase of the winemaking process (maceration, decantation, fermentation, mixing, maturation, clarification) make it relatively easy to control the vinification process and guide it in the desired direction:

- they help maintain high hygiene standards
- they preserve wine freshness, without undesired aftertaste
- they create optimal conditions for wine maturation with oxygen level control



## Comprehensive solutions

Škrlj d.o.o. has been manufacturing winemaking equipment since 1985. Thanks to our presence in multiple advanced industrial fields and the technology transfer, we are now able to manufacture wine tanks of exceptional quality.

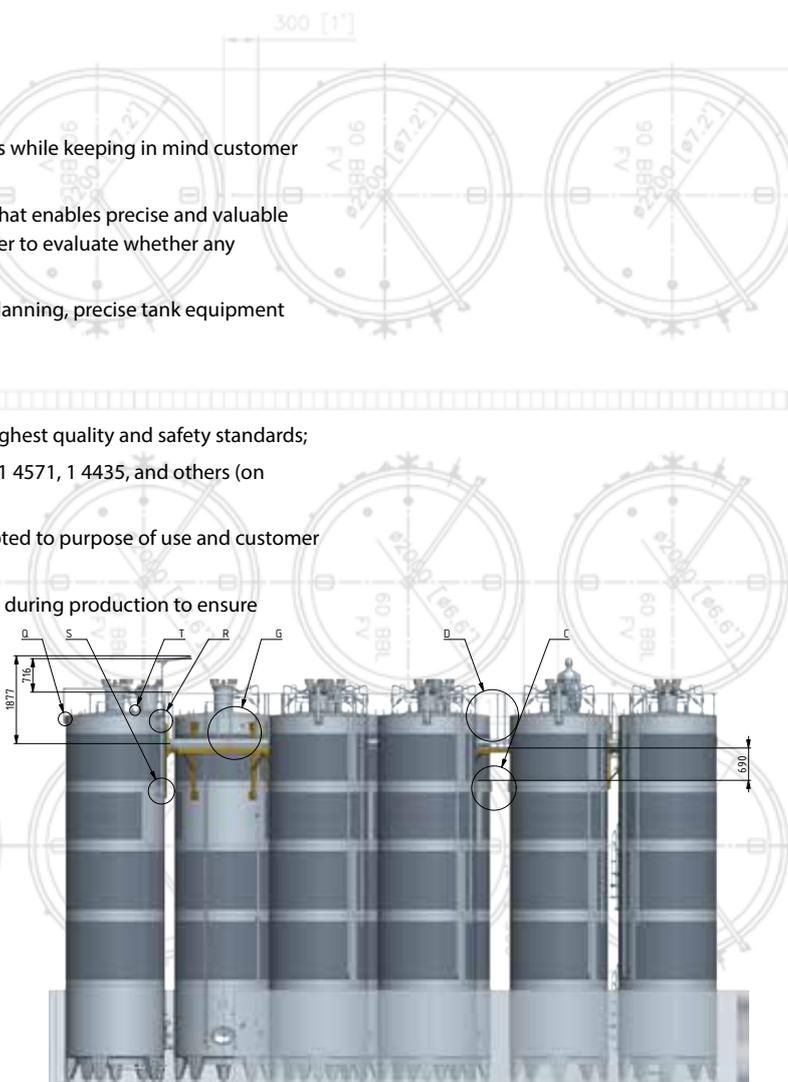
We are innovative and pragmatic, we always try to find the most optimal and comprehensive solution.

### From concept...

- examining customer demands and product specifications;
- finding solutions, planning in accordance with all standards while keeping in mind customer needs and demands;
- presenting the project in the form of a detailed 3D model that enables precise and valuable product insight right from the beginning and makes it easier to evaluate whether any adjustments should be made before production;
- using the most advanced CAD technology enables quick planning, precise tank equipment production, and thorough project documentation.

### ...to reality!

- tank equipment is manufactured in accordance with the highest quality and safety standards;
- only high-quality stainless steel is used: EN 1 4301, 1 4404, 1 4571, 1 4435, and others (on customer request);
- internal, external, and weld surface finishing is always adapted to purpose of use and customer demands (passivation, grinding, polishing);
- guaranteed material and technological process traceability during production to ensure high-quality work in every production phase.



# Closed cylindrical tanks

## Classic cylindrical tanks

Cylindrical tanks are designed for must fermentation and wine storage under atmospheric pressure.

Tank surface can be marbled, ground, scotch brite, sandblasted, or polished. Smooth surfaces and weld finishing prevent the formation of potassium bitartrate and the accumulation of impurities inside the tank.

On customer request, the tanks can be equipped with a temperature regulation system (laser welded double jacket, plate heat exchanger, cooling coil, thermometers and regulators with computer control) and other technical equipment (different door and valve types, adjustable legs, agitators).

We help our customers design their own winery and then manufacture all equipment, including the platforms and drain channels, and create a 3D model of the project. The model enables better product insight right from the start and makes it easier to evaluate whether a solution is suitable.



## Stackable tanks

Stackable tanks are recommended for winemakers who need smaller capacity storage tanks. Using special fittings, these tanks can be arranged into stacks to make better use of the space at disposal in the winery. Only tanks with the same diameter can be stacked, taking into account, of course, the maximum carrying capacity of the bottom tanks.

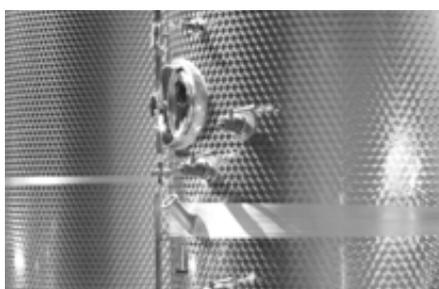
On customer request, the tanks can be equipped with a temperature regulation system (double jacket, plate heat exchanger, solenoid valves, temperature regulator) and other technical equipment.



## Intermediate bottom tanks

Cylindrical intermediate bottom tanks are recommended for winemakers who need smaller capacity storage tanks and want to make better use of the space at disposal in their winery.

These tanks can be divided into two or more compartments. If the tank is divided into two parts, the intermediate bottom is usually placed in the middle. With other tank divisions, the jacket height of each part mustn't be lower than 750 mm.



# Open top tanks

Open top cylindrical tanks are designed for wine storage under atmospheric pressure.

The floating lid enables storage of various wine quantities, as it adapts to the wine level in the tank, which means there is no need to add more. The winemaker inflates the floating lid gasket using the supplied pump. The inflated gasket blocks air inflow and, thus, prevents uncontrolled oxidation.

In order to easily lift and lower the floating lid, the tanks are equipped with a pulley and a hand winch (larger tanks).

The reinforced upper rim of the storage tank (pipe reinforcement) gives strength and stability and prevents tank jacket deformations.

On customer request, the tanks can be equipped with a temperature regulation system (double jacket, temperature regulator) and other technical equipment (different door and valve types, adjustable legs).



## Small floating lid tanks

Small floating lid tanks are recommended for the storage of smaller quantities of wine. They are only available in the standard design: type S (no legs, flat bottom) and type S-excl. (with legs and conical bottom). Their capacities range between 300 and 2400 L.

The floating lid adapts to the wine level in the tank, which means there is no need to add more. The inflated floating lid gasket blocks air inflow and, thus, prevents uncontrolled oxidation.

The flat and reinforced upper rim of the storage tank gives strength and stability and prevents tank jacket deformations. As the upper rim has no blind spots, dirt and liquid can't accumulate underneath it.

All tanks are equipped with an anti-dust cover.



Small tanks type S / flat bottom, no legs



Small tanks type S-excl. / conical bottom, 3 legs

# Rectangular and oval tanks

## Rectangular tanks

The main advantage of rectangular tanks is their space-saving ability, which makes them perfect for smaller and narrower wineries.

All internal edges are rounded and with no angle welds. The interior has no reinforcement elements, so the surface is smooth and easy to clean. The tank bottom is inclined, which enables easy liquid discharge and air outflow from the tank.

### Rectangular tanks without edge reinforcements (P0)

Tanks (same width and depth) can be arranged into stacks using connection fittings.

### Rectangular tanks with edge reinforcements (P4)

Tanks (same width and depth) can be arranged into stacks without any connection fittings.



Tank without edge reinforcements



Tank with edge reinforcements

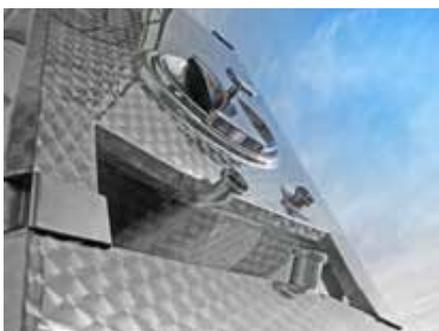


## Small rectangular tanks

Small rectangular tanks are perfect for the storage of smaller quantities of wine. The standard tank capacities range between 190 and 2000 L. They are ideal for smaller and narrower wineries.

The tanks have a modular design, which means they are stackable. Their lids are equipped with special built-in stacking fittings, so tanks with the same dimensions can be simply stacked one on top of the other. However, there are some construction limitations to bear in mind:

- the maximum number of stacked tanks (3),
- the maximum weight of the entire stack (full tanks) can not exceed the carrying capacity of the bottom tank (3000 kg).



## Oval tanks

Oval tanks are ideal for low-ceiling wineries.

All internal edges are rounded and with no angle welds. The interior has no reinforcement elements, so the surface is smooth and easy to clean.

The tank bottom is inclined, which enables easy liquid discharge and air outflow from the tank.

On customer request, the tanks can be equipped with a temperature regulation system and other technical equipment (valves, adjustable legs).



# Maceration

Maceration is a very sensitive but extremely important vinification process, which demands extensive knowledge, constant supervision, and a lot of feeling. The only way to produce a wine with the right character (color, bouquet, and taste) is to carry out the maceration process properly. Most importantly, this process should always be adapted to vine variety and grape characteristics and quality, as well as the type of wine you would like to produce.

The fermenter is a modern enological and technical device which is perfect for winemakers that do not want to leave this important process to chance. The fermenter makes a winemaker's job much easier:

- it reduces the amount of physical work and is time-saving,
- it can process larger amounts of grapes at once,
- a software monitors the process day and night, so the winemaker's presence is not necessary at all times.

Each winemaker must choose the system that would be ideal for him. While selecting a fermenter, it is important to take into account the work area (dimensions and layout), the estimated must quantity for maceration (open fermenters are more suitable for smaller quantities), and the grape type (some require more aeration during maceration).

We offer different pump-over and punch-down fermenters, as well as a model that is a combination of both systems.



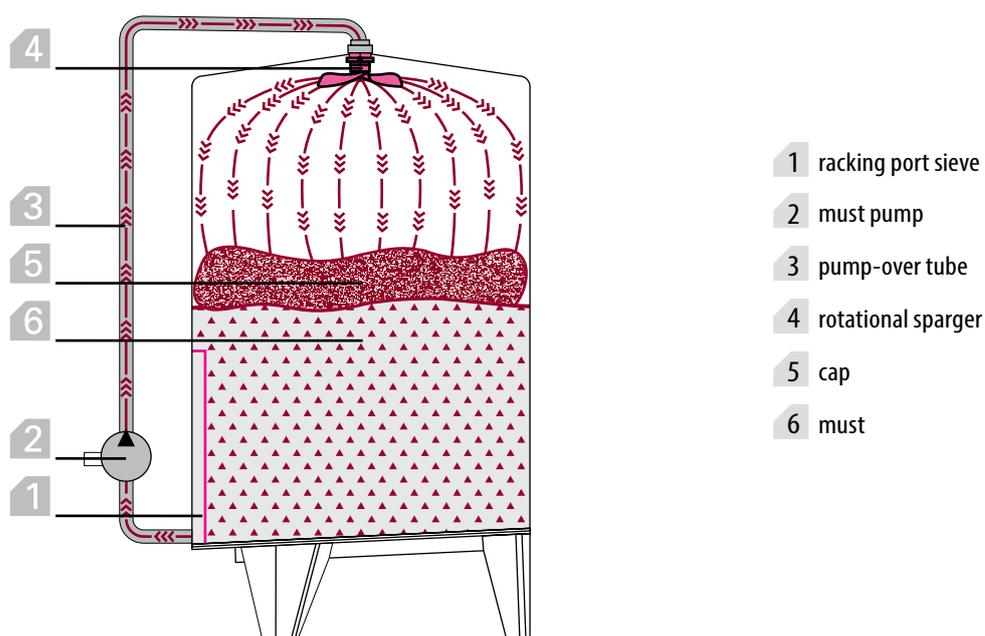
## Maceration with pump-over system

During must fermentation, a cap is created inside the tank. It consists of the solid parts of the must - grape skins and pips. Juice is pumped from the lower part of the tank and a rotating sparger periodically sprays the juice evenly all over the cap surface.

This maceration type:

- ▶ enables constant contact between juice and grape skins,
- ▶ breaks down the created cap and enables intense pigment leaching from the grape skins.

The maceration process must be carried out at the right temperature. That is why our fermenters are equipped with a double jacket, bottom heaters, and cooling/heating medium flow regulation equipment.



# Pump-over fermenters

## Open pump-over fermenters

Due to their shape, open pump-over fermenters can also be used for the treatment of smaller quantities of must.

The tank bottom is inclined, which enables good liquid discharge and easy tank emptying. The reinforced upper rim of the tank (pipe reinforcement) gives strength and stability and prevents tank jacket deformations.

The fermenter is easy to use. It can also be used as a classic wine storage tank, but only after removing the rotational sparger and the upper (removable) part of the pump-over tube, as well as closing the lid opening with a blind nut.

On customer request, the fermenters can be equipped with a temperature regulation system and other technical equipment.



## Closed pump-over fermenters

Closed pump-over fermenters are designed to carry out the maceration process using the must pump system, but they can also be used as classic wine storage tanks.

They are also suitable for use in low-ceiling wineries.

The tank bottom is inclined, which enables good liquid discharge and easy tank emptying. The fermenter's big rectangular door facilitates tank emptying and cleaning.

On customer request, the fermenters can be equipped with a temperature regulation system (laser welded plate heat exchanger, cooling coil, double bottom with heaters, thermometer or temperature regulator), and other technical equipment (door, valves, adjustable legs, agitators).



## Conical pump-over fermenters

Conical pump-over fermenters can be used for the fermentation of red and white grape varieties, as well as wine storage under atmospheric pressure. Their shape brings back the tradition of ancient cooperage.

Advantages:

- the cone-shaped jacket slows down the lifting of the hard particles within the must and enables more efficient cap submersion and breakdown,
- the tank surface in contact with the must is bigger, which means the cooling surface is bigger,
- consequently, the extraction of phenols and aromas is also improved.

On customer request, the fermenters can be equipped with a must pump system, a temperature regulation system (laser welded plate heat exchanger, cooling coil, double bottom with heaters...), and other technical equipment in accordance with order specifications.



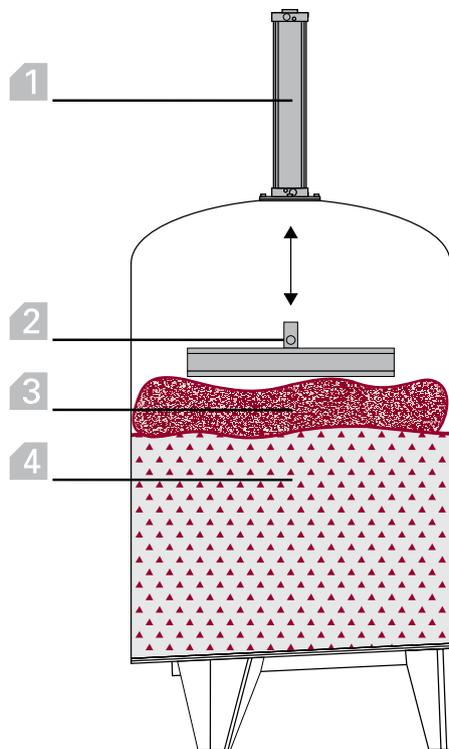
# Maceration with cap submersion system

Punch-down fermenters are equipped with a cap submersion system, which consists of a punch-down agitator, a pneumatic cylinder, and a control unit. The punch-down mechanism makes it possible to break down the cap that is created during the fermentation process and submerge it into the must.

The pneumatic cylinder (larger fermenters have two) continuously pushes the punch-down agitator up and down, which makes the agitator gently pierce the cap and submerge it into the must. The submersion cycles are carried out periodically in set intervals, which can be set in accordance with enological demands.

The maceration process must be carried out at the right temperature. That is why our fermenters are equipped with a double jacket, bottom heaters, and cooling/heating medium flow regulation equipment.

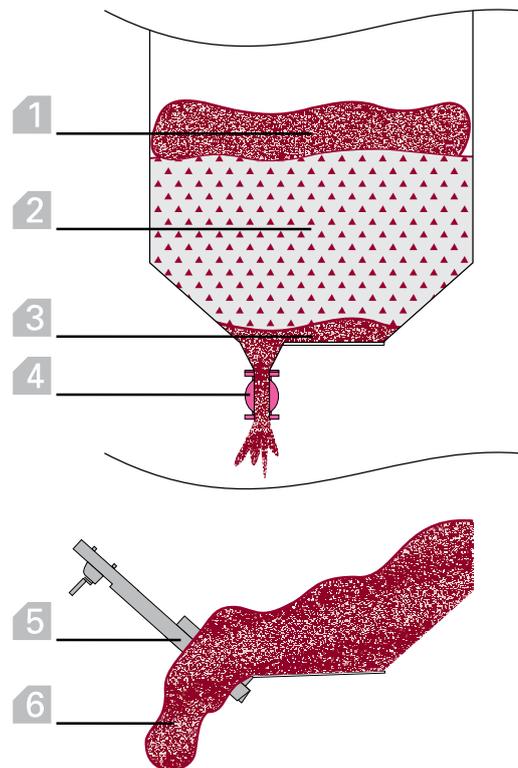
The inclined tank bottom and big rectangular door enable good liquid discharge and easy tank emptying. We offer open and closed punch-down fermenters, as well as a special model – the punch-down fermenter with a pip removal system.



- 1 pneumatic cylinder
- 2 punch-down agitator
- 3 cap
- 4 must



Punch-down fermenter with pip removal system



- 1 cap
- 2 must
- 3 pips
- 4 pip discharge valve
- 5 sliding hatch
- 6 pomace

# Punch-down fermenters

## Punch-down fermenters with removable lid

The removable lid is lifted using a set of special lifting attachments, located on top of it, and then placed and secured on the reinforced upper tank rim. The lid can also be used on other tanks, provided that they have the same diameter and a properly reinforced upper rim.

The removable lid is equipped with a cap submersion system (pneumatic cylinder, punch-down agitator), as well as a must pumping and sparging system (pump-over tube, rotational sparger).

The control unit enables submersion cycle setup and modification, as well as must pump operation control (OFF/ON).



## Punch-down fermenters

Punch-down fermenters are designed to carry out the process of maceration with cap submersion while simultaneously pumping and spraying must over the cap.

The control unit enables submersion cycle setup and modification, as well as must pump operation control (OFF/ON) and temperature regulation. It offers five factory preset programs that can be modified and adapted as needed, depending on the maceration process.

The inclined flat tank bottom and big rectangular door (option: sliding hatch) enable quick and easy tank emptying.

All cap submersion equipment can be removed and the fermenter can be used as a normal must fermentation or wine storage atmospheric tank.



## Punch-down fermenters with pip removal system

These fermenters are equipped with a system that enables pip collection and removal from the must during the maceration process.

During must fermentation, the pips are deposited on the tank bottom. The scraper rotates and pushes the pips into the collection container at the bottom of the tank. Once full, the collection container can be emptied using the pneumatic valve. Pip removal during maceration and fermentation can significantly lower the release of bitter and unripe (green) tannins into the wine.

The control unit enables submersion cycle setup and modification, must pump operation control (OFF/ON), temperature regulation, as well as scraper and pneumatic pip discharge valve operation control. It offers five factory preset programs that can be modified and adapted as needed, depending on the maceration process.

The special tank bottom design (truncated cone) with a built-in scraper and sliding hatch enables quick and easy pip removal.



# Insulated and pressure tanks

## Insulated tanks

Insulated tanks are designed for wine storage, fermentation, clarification, stabilization, and all other enological processes which require the use of a tank with thermal insulation. These tanks are used under atmospheric pressure.

The tank jacket is equipped with multiple laser welded heat exchangers (pillow-plate).

The entire tank is surrounded by insulation and an external insulation jacket. The insulation material is polyurethane foam. Standard insulation thickness is 50 mm.

The external jacket is welded and waterproof.



## Sparkling wine tanks

Sparkling wine tanks are designed for the production of sparkling wine using the tank method.

The tank method, also known as the Charmat method, named after its French inventor Eugene Charmat, dictates that the secondary fermentation must be carried out in a special pressure tank. Compared to the classic method, where the secondary fermentation takes place inside the bottle, this process is much simpler, as well as quicker.

Sparkling wine tanks are designed and manufactured in accordance with the PED Directive (PED 2014/68/EU). These vertical cylindrical tanks are equipped with laser welded heat exchangers (pillow-plate).

The tanks can be uninsulated or surrounded by insulation (mechanically expanded polyurethane foam) and an external insulation jacket.

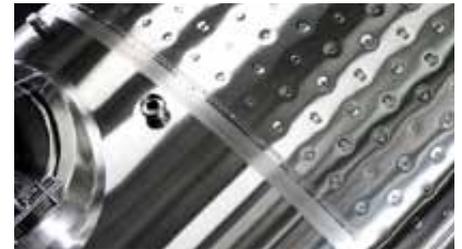
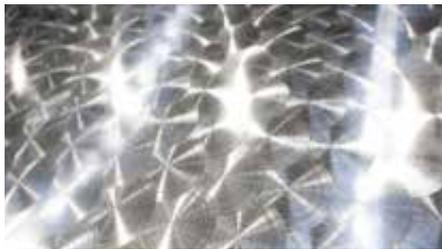
They are equipped with a valve to achieve isobaric conditions, a decantation valve to remove sediment, a safety valve, level indicator, manometer, agitator, thermometer, and other technical equipment (on customer request).



# Materials and surface treatment

## Basic material surfaces

2B (IIIc)	cold rolled metal with 2B (IIIc) surface in accordance with EN 10088-2 (smooth, matte surface) surface irregularities that appear during the production process are tolerated metal roughness (before production): $0.1 \mu\text{m} < \text{Ra} < 0.5 \mu\text{m}$ product roughness is not inspected
2R (IIIId, BA)	cold rolled metal with 2R (IIIId) surface in accordance with EN10088-2, bright annealing (ultra smooth, reflective surface) surface irregularities that appear during the production process are tolerated metal roughness (before production): $0.03 \mu\text{m} < \text{Ra} < 0.1 \mu\text{m}$ product roughness is not inspected
1D (IIa)	hot rolled metal with 1D (IIa) surface in accordance with EN10088-2 surface irregularities that appear during the production process are tolerated metal roughness (before production): $2 \mu\text{m} < \text{Ra} < 6 \mu\text{m}$ product roughness is not inspected



## Surface treatment

no treatment [X]	- without further surface treatment or roughness control
no treatment, protective film [F]	- without further surface treatment or roughness control - metal is protected against scratches with protective film
passivated [CP]	- surface is chemically treated - passivated - without mechanical treatment or roughness control
marbled [K]	- basic material surface used for marbled finish is 2B or 2R - basic material surface irregularities and those that appear during the production process are tolerated, product roughness is not inspected
scotch brite [SB]	- surface is brushed with scotch brite material - basic material surface irregularities and those that appear during the production process are tolerated - final surface roughness is undefined; brushing leads to a uniform and aesthetic surface
sandblasted [S]	- surface is sandblasted with CrNi beads in a sandblasting chamber - final product surface roughness is undefined
ground [BC] or [BK]	- surface is mechanically ground with abrasive belts - final surface roughness is undefined; grinding leads to a uniform and aesthetic surface
mechanically polished [PC] or [PK]	- surface is mechanically polished to a mirror finish - final surface roughness is undefined; grinding leads to a uniform and aesthetic surface

## Weld treatment

passivated [CZN/CZZ]	- weld surface is chemically treated, without grinding or further surface treatment - weld structure visible
striped [BP]	- weld surface is ground - weld zone is partially evened out with sheet metal surface - weld structure partly visible
polished no grinding [C]	- weld surface is chemically treated and mechanically polished, without grinding, - weld structure visible
ground [B_] ]	- weld surface is ground with different grit sizes to achieve desired final surface roughness - weld zone is evened out with sheet metal surface - weld structure not visible



# Platforms and staircases

... for safe and simple access to difficult-to-reach workstations

We manufacture platforms, overhead passages, staircases, ladders with guardrails, and other walking surfaces on customer request. These structures can be used in plants (wineries, breweries, industrial plants) that require safe and simple access to workstations at heights that would otherwise be difficult to reach.

All structures are designed and manufactured in accordance with the standard **SIST EN 1090-1:2009+A1:2012** (Steel and aluminum construction design).

The walking structures consist of multiple perforated gratings, which ensure good protection against slipping.

## Modular design

A modular construction system offers various element combinations, so the structures can be adapted according to the space available and all preexisting structures in the vicinity.

## Custom-made

Aside from the standard designs, we also manufacture custom-made walking structures. With our customer's help, we can design and present the project in the form of a detailed 3D model that enables better product insight right from the beginning and makes it easier to evaluate whether any adjustments should be made before production.

## Stainless steel

All elements are made of high-quality stainless steel EN1.4301 (AISI 304). All surfaces are passivated and pickled, if requested also sandblasted with steel beads.



# Drain channels

## ... for easier winery, brewery, and industrial plant cleaning

We design and manufacture drainage systems that consist of multiple channel segments with one or multiple drains.

All elements are made of high quality stainless steel EN1.4301 (AISI 304) and can be incorporated into a concrete floor.

The 0.4 % channel incline (4 mm per meter) enables good waste water drainage and prevents the accumulation of impurities within the drain channels.

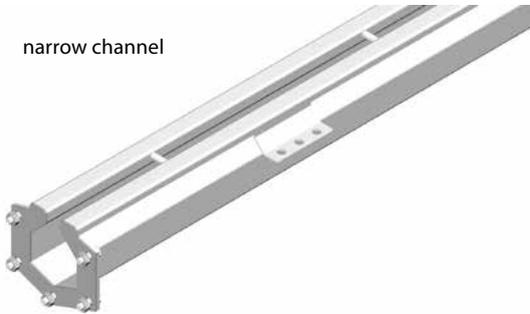
The channels are designed for use in wineries and industrial plants. We offer narrow channels as well as wide channels with gratings.

Main advantages:

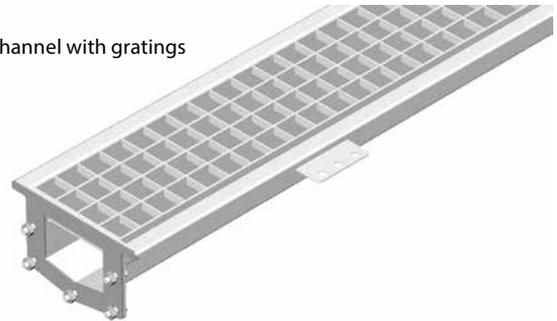
- simple cleaning
- corrosion resistance
- fast delivery of standard segments (up to 9 m in length) at low cost



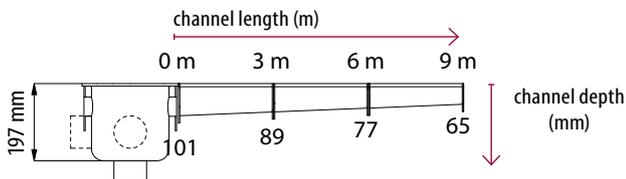
narrow channel



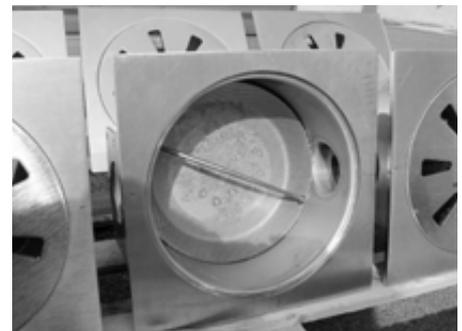
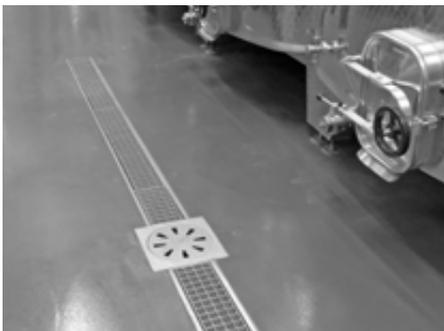
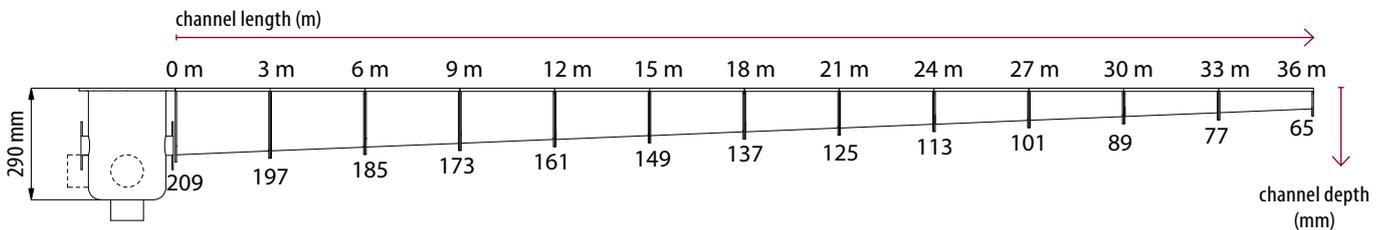
wide channel with gratings



Drain system with low gully, up to 9 m in length:



Drain system with high gully, up to 36 m in length:





Škrlj d.o.o. is a business with a strong foundation that was built on rich family tradition and is today a valued European company with an established international market.

We design, manufacture, and sell stainless steel equipment for:

- winemaking
- beer brewing
- the food industry
- the pharmaceutical industry

To be able to efficiently adapt to the changes in the economic environment and to high market demands, we have to continuously modernize and technologically improve our products, services, and processes. Production and design have to be adaptable, while the entire process and documentation preparation need to be run as efficiently as possible.

A large portion of our financial resources is dedicated to research and material resources that are needed for technological process optimization. We keep an eye out for any emerging new trends and industry demands. We make sure to upgrade our information and production technologies regularly and guarantee material and production process traceability.

Our production services encompass:

- sheet metal coil cutting line
- plain sheet polishing and grinding line
- internal and external grinding (tank and tank bottom)
- sheet metal bending, shaping
- manual, machine (linear and circular), and robotic welding (TIG, MIG/MAG, plasma)
- automatic sandblasting of larger products in special sandblasting chamber (using CrNi beads)
- passivation of finished products
- treatment with CNC processing machine
- abrasive water jet cutting
- 2D and 3D laser cutting
- laser welding
- electropolishing





www.sk-skrlj.com

Winemaking



- wine tanks
- fermenters
- pneumatic presses
- temperature regulation equipment
- semiautomatic labeling machines

Beer brewing



- fermentation tanks
- maturation tanks
- compact brewhouses
- microbreweries
- semiautomatic labeling machines

Food industry



- storage tanks (milk, yogurt)
- process tanks (milk, dairy products)
- production and storage tanks (alcoholic beverages)
- production and storage tanks (juices, fizzy drinks)
- storage tanks (water, oil, vinegar)

Pharmaceutical industry



- CIP / SIP tanks
- preparation tanks (sterile WFI water and purified PW water)
- storage tanks (sterile and non-sterile solutions)
- (bio)reactors
- fermenters
- mixing tanks

Other products



- chemical industry tanks
- bulk material storage silos (grain, flour, etc.)
- waste material storage containers
- walking structures: platforms, staircases, gratings
- drain channels
- other equipment (on customer request)



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