Oil conditioning station

Modernise your oil storage and handling practices

Keep your oil clean from the beginning

Oil conditioning station

The reliability of oil lubricated machinery depends very much on the cleanliness of the oil. Given its liquid nature, oil easily gets contaminated from the moment it is delivered up to application in the machine.

In order to achieve long life from the components, contamination limits have to be defined for every asset according to the type of machinery and/or criticality. ISO 4406 is a standard method for classifying oil cleanliness and therefore, defining contamination limits. OEM recommendations are normally the first step in setting the limits. Alternatively, reference tables or criticality calculations can be used. The bottom line is, oil should be cleaned to a certain level, and it takes time and several cycles through an adequate filter to achieve the defined targets.

An oil conditioning station helps to clean the oil while it is being loaded into the tanks, during delivery, and maybe most importantly while it remains in the tank. A continuous filtration process helps to ensure that the desired cleanliness level is achieved. Finally, an additional step in order to improve machine reliability, is to verify the topping up process at the machine level and its sealing conditions, in order to prevent the ingress of new contaminants. After this point, it's all about oil condition monitoring. Devices like the oil conditioning station can help to maintain the desired cleanliness level of a given machine.

Lubrication contamination and cross contamination can occur during

- Delivery (lubricant is already contaminated)
- Storage (contaminants can ingress)
- Transfer to smaller cans (poor process)
- Dispensing to machinery (poor process)

Oil conditioning station benefits

- Helps to ensure each oil achieves the target cleanliness code (ISO 4406) prior to be delivered to the machine
- Prevents cross contamination
- Prevents the ingress of airborne particles and moisture to the stored oil
- Minimizes safety risks associated with drum handling and /or oil spillage
- Reduces risks in case of fire due to the flame resistant and fire suppression devices
- Helps to build a neat and tidy workspace

SKF offers an analysis of your current lubrication practices and proposes an improvement in various oil storage station configurations to satisfy the required application.

Typical current practices

- Dirty
- Disorganized
- Unsafe
- Excessive
- Costly

SKF proposal

- Clean
- Organized
- Safe
- Optimal
- Financially rewarding

Standard model

- Very space efficient
- Easy relocation around the plant

Superior model

- Premium ergonomic dispensing and working surfaces
- Integrated parts, hose reels and tool storage
- Electrical protection – circuit breakers, surge protectors and motor overload protection all help to ensure safe and effective operation in demanding environments
- Numerous upgrade options

Features

- **Tanks** – Built in aluminized steel and available in 10 different colours and four sizes: 113, 246, 454 and 908 litre *(30, 65, 120 and 240 US gal)*
- **Scalable and configurable** – scale system to accommodate the number of lubricants required for storage and dispensing
- **Spill control** – all systems come standard with integrated spill pans for SPCC and EPA compliance and overall environmental protection
- **Fire suppression** – includes MSHA-CFR30 – rated flame resistant fire suppression hoses as standard with optional fusible link tank isolation valves and auto-shut off taps
- **Filtration** – all systems come with fluid filtration capability with a choice of micron ratings and also desiccant air breathers. Filter micron rating must be chosen according with cleanliness level targets and oil viscosity. Ask SKF for further assistance
- **All systems ship in fully assembled pods** – for efficient freight and rapid on-site installation
- **Transport** – all systems have integrated spill transport pallets for easy forklift and hand truck access for freight and workplace mobility
- **Power** – all systems can be equipped with 110 V/220 V, 50Hz / 60Hz motors, according with customer's specifications
- **High viscosity** – Each tank is equipped with an individual high viscosity pump with a flow rate of 3 US gal/min able to deliver oils up to ISO VG 680

Comparison table	Standard	Superior
SPCC spill containment	●	●
Optional Fire safety	●	●
Pressurized dispensing from taps	●	●
One pump and filter per tank	●	●
One succion hose without storage per tank (storage options as accesories)	●	●
3 way filtration – fill, re-circulate, dispense	●	●
Electrical protection – circuit breakers, surge protectors, motor overload protection	–	●
Push button emergency system stop	–	●
Independent ergonomic stainless steel dispensing console	–	●
Integrated parts and tools storage	–	●
Optional hose reels	–	●

Standard model

The standard model delivers best-practice contamination control in a compact and space efficient form. Ideal for organizations that need a great contamination control, working within budget and/or space constraints.

Easy dispensing to transfer containers from colour-coded dispensers.

ISO contamination classification and filter rating

The standard method for classifying the contamination level in an oil is described in ISO 4406. In this classification system, the result of the solid particle count is converted into a code using a scale number.

Three particle size ranges are indicated:
≥4 µm (c), ≥6 µm (c) and ≥14 µm (c)

A given oil with a code 22/18/13 for example, contains per millilitre of oil:

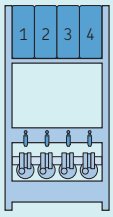
- 20 000 to 40 000 particles ≥4 µm
- 1 300 to 2 500 particles ≥6 µm
- 40 to 80 particles ≥14 µm

Sometimes, only the two larger particle size ranges are used.

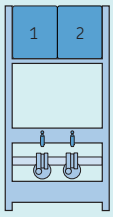
ISO contamination classification

Number of particles per millilitre oil		Scale number
over	incl.	–
10 000	20 000	21
5 000	10 000	20
2 500	5 000	19
1 300	2 500	18
640	1 300	17
320	640	16
160	320	15
80	160	14
40	80	13
20	40	12
10	20	11
5	10	10

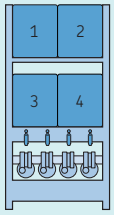
Select from the 9 pre-configured models below or contact your SKF representative for a custom system quote.
We can help you select the configuration most suitable for your needs.



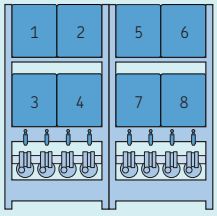
Model nr: ST1
4 × 113 litre *(4 × 30 US gal)*



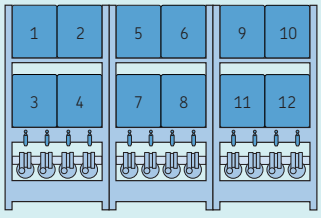
Model nr: ST2
2 × 246 litre *(2 × 65 US gal)*



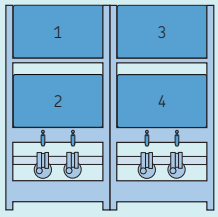
Model nr: ST3
4 × 246 litre *(4 × 65 US gal)*



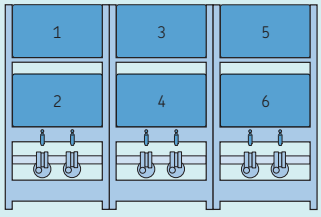
Model nr: ST4
8 × 246 litre *(8 × 65 US gal)*



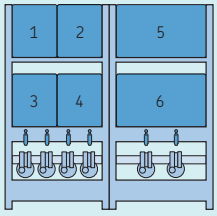
Model nr: ST5
12 × 246 litre *(12 × 65 US gal)*



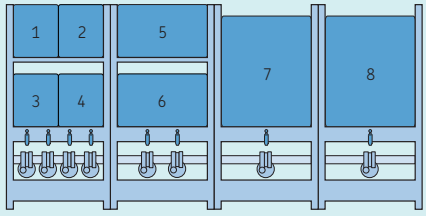
Model nr: ST6
4 × 454 litre *(4 × 120 US gal)*



Model nr: ST7
6 × 454 litre *(6 × 120 US gal)*



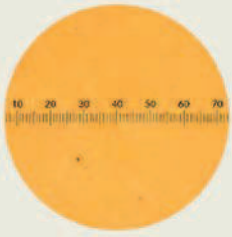
Model nr: ST8
4 × 246, 2 × 454 litre *(4 × 65, 2 × 120 US gal)*



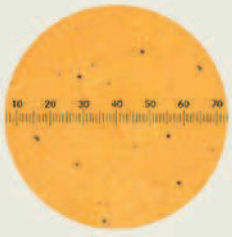
Model nr: ST9
4 × 246, 2 × 454, 2 × 908 litre *(4 × 65, 2 × 120, 2 × 240 US gal)*

Dimensions standard model ST1 - **w x d x h:** 117 × 155 × 223,5 cm *(46 × 61 × 88 in.)*

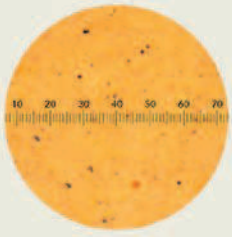
Microscopic images of various contamination levels.



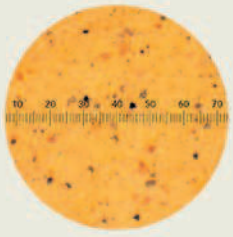
ISO 13/12/9



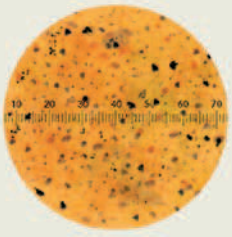
ISO 16/15/12



ISO 18/16/23



ISO 19/17/14



ISO 23/22/19

Superior model

The superior model is the excellent practice solution for storage and dispensing of lubricating oils and glycol-based coolants in industrial facilities. An instant lubrication room, this premium configuration incorporates best-of-class features.

Ergonomic filling of containers from colour-coded dispensers.

Impact of cleanliness in bearing life

SKF Bearing Calculator is an online tool available from www.skf.com/kc that can be used (among others) to calculate the expected bearing life. Let's consider an SKF 22222 E under the following conditions:

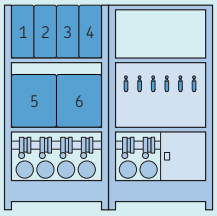
- Radial load: 100 kN
- Axial load: 10 kN
- Rotational speed of the inner ring: 500 r/min
- Operating temperature: 70 °C
- Lubricant: ISO VG 100 mineral oil with VI 95

The expected life values for two different contamination levels are:

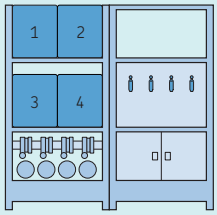
- ISO 4406 -/21/18: 1 060 hours
- ISO 4406 -/19/16: 1 950 hours

This means that by cleaning the oil, the bearing life is increased over 80%. Similar effects are experienced in other types of machinery and are even more sensititve in high pressure/high precission applications.

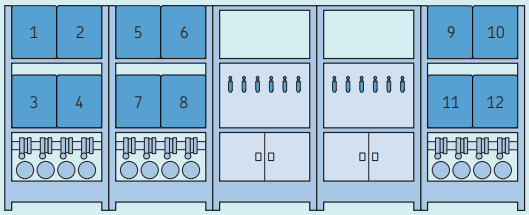
Select from the 9 pre-configured models below or contact your SKF representative for a custom system quote.
We can help you select the configuration most suitable for your needs.



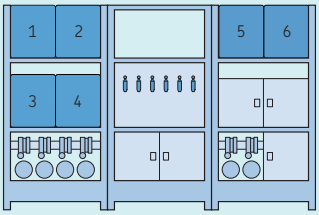
Model nr: SU1 – up to 2 hose reels
4 × 113, 2 × 246 litres *(4 × 30, 2 × 65 US gal)*



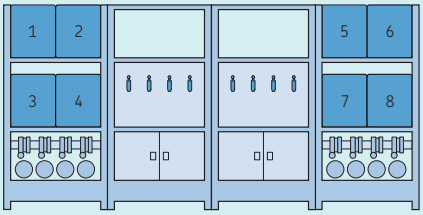
Model nr: SU2 – up to 4 hose reels
4 × 246 litres *(4 × 65 US gal)*



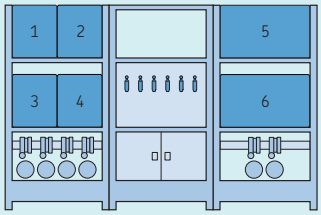
Model nr: SU3 – up to 8 hose reels
12 × 246 litres *(12 × 65 US gal)*



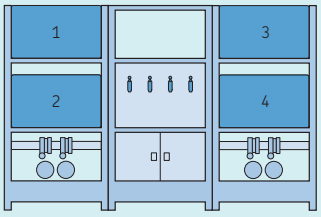
Model nr: SU4 – up to 6 hose reels
6 × 246 litres *(6 × 65 US gal)*



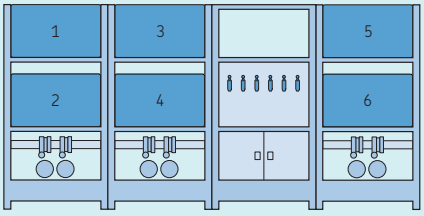
Model nr: SU5 – up to 8 hose reels
8 × 246 litres *(8 × 265 US gal)*



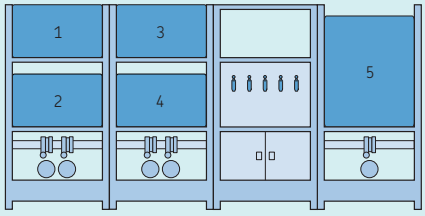
Model nr: SU6 – up to 4 hose reels
4 × 246, 2 × 454 litres *(4 × 65, 2 × 120 US gal)*



Model nr: SU7 – up to 4 hose reels
4 × 454 litres *(4 × 120 US gal)*



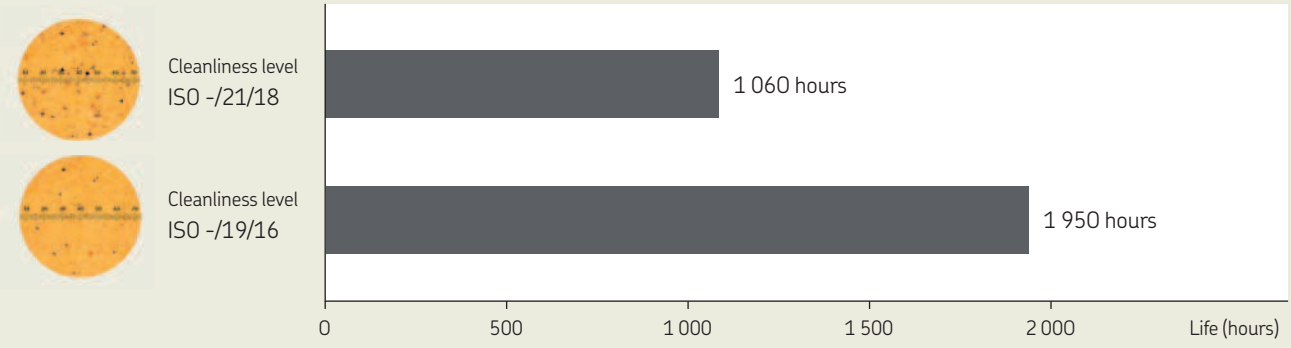
Model nr: SU8 – up to 4 hose reels
6 × 454 litres *(6 × 120 US gal)*



Model nr: SU9 – up to 4 hose reels
4 × 454, 1 × 908 litres *(4 × 120, 1 × 240 US gal)*

Dimensions superior model SU1- **w x d x h:** 233,7 × 117 × 223,5 cm *(92 × 46 × 88 in.)*

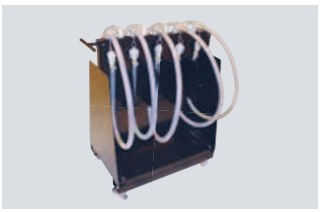
Effect of oil cleanlines in bearing life



High-viscosity pumps

Hose reels

Tank overfill alarms



Suction hose storage

Upgrade options

Fire safety

Includes fusible link 74 °C *(165 °F)* auto-shut off tank isolation valves. Order one fire safety upgrade for each tank on your system.

Hose reels

Retractable hose reels with trigger operated dispensing nozzles. A 19 mm *(¾ in.)* diameter hose in 8 m *(25 ft)* lengths allows dispensing to lubricant carts or other large containers.
Available only with the superior model.

Consumables

Filters

β2000 Micro Glass filters are a premium Spin-On Filter that provides maximum dirt-holding capacity and superior particle capture over paper filters. Efficient operation with minimum pressure drop and high flow rate. Size: 4.7" × 14.2".
Part nr. 469962 - 4 micron
Part nr. 469964 - 7 micron
Part nr. 469966 - 25 micron

Desiccant Breather

One desiccant breather per tank. Replace Breather when orange gel turns green. Size: 3" × 3.25".
Part nr. Z134 (available in packs of 12 pcs)

Accessories

Tank overfill alarms

Direct mount tank overfill alarms fit easily to tank level gauges and can be supplied with your system.

- Audible and flashing light
- Can be reset even while in alarm mode
- Powered by a 9 V lithium battery (supplied with battery)
- Audible alarm is 110 dB which will get your attention
- Test switch allows you to test the battery before each use

Suction hose storage

After emptying drums, totes or pails, the suction hoses for the oil storage system can be stored in the mobile hose carts, on wall mounted racks or if space permits on the side of your system with a frame mount rack.

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