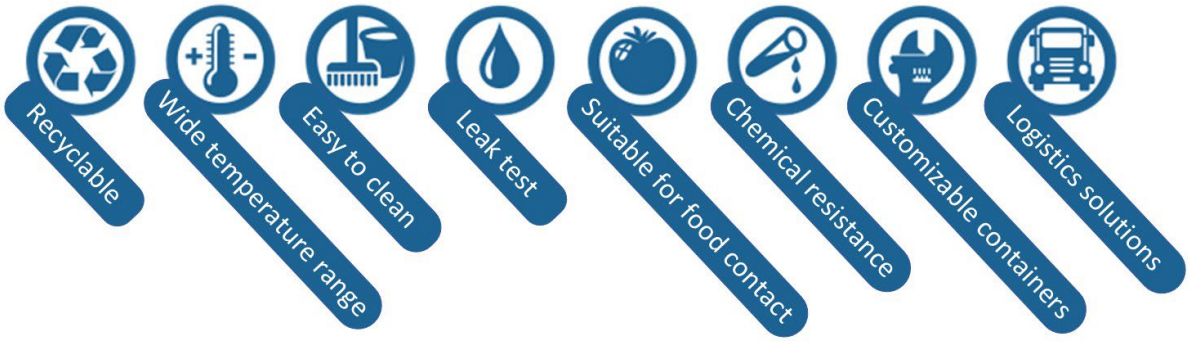
Installation and operation for CPX containers or plastic (PE) tanks for heavy industry / chemicals / plumbing or foodstuffs



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Choice of tank

We recommend taking guidance from the '***CPX guide to choosing a container or tank***' to select the appropriate product and prepare for installation.

Temperature

CPX containers/tanks can handle temperatures from -30°C to +60°C. Avoid allowing ice to form so there is no risk of frost shattering, not only in the container/tank but in pipes and connections. Note that the dimensions of our tanks/containers change with temperature and associated movements.

Tolerances

General tolerances of length base dimensions for containers/tanks unless otherwise specified on the latest drawing. Applicable at 20°C.				
0-20 mm	21-75 mm	76-150 mm	151-300 mm	>300 mm
+/- 0.5 mm	+/- 1.0 mm	+/- 1.5 mm	+/- 1,3 %	+/- 1.0 mm

General tolerances for the location of installed connections / accessories.
Ø20 mm, relative tolerance from the specified centre.

Installed components

Consult Cipax if you are going to install ***your own components*** on the container/tank in order to verify that weight/load/torque limits will not be exceeded.

Transport and handling of CPX containers and tanks

Goods reception checks

Be sure to check the delivery matches the consignment note and order to see that the amount is correct and that the goods have not been damaged during transport. Any damage needs to be noted, documented on the consignment note (please take a photo) and reported to the haulage contractor at the time of receiving.

Pay particular attention to possible transport damage if the tank has installed connections or pipe connections which protrude.

Unloading from a vehicle

For safety reasons, no one should be nearby or in the area near to a container/tank during high lifts.

Unload as close to the usage location as possible and plan a suitable place for intermediate storage and for the transfer if the container/tank will not be installed directly on delivery.

Containers/tanks strapped to pallets are best handled with a forklift truck. Unloading larger containers and tanks that cannot be handled on pallets can be done either with a forklift or with a crane that lifts using textile straps with cast-in or pre-assembled lifting lugs, or alternatively around and with proper support towards the tank. Avoid pressure/weight close to fittings installed on the tank such as connections or piping and ensure that the tank will not roll during handling, which causes a risk of damage.

Raise container/tank to the upright position

Containers/tanks with bunding are usually delivered placed in the bunding. Raise both the bunding and the tank at the same time, then place the container/tank centrally in the bunding. Remove any supports that have prevented the tank from moving in the bunding during transport.

The best option for raising a large storage tank from horizontal is to use a lifting crane or overhead crane to lift, using textile straps tethered to lifting lugs at the top. One alternative could be a truck or wheel loader with smooth, damage-free forks, where you lift under the long side at the top of the tank while receiving on the opposite side when the tank tips up. To avoid rolling or sliding, you should also tether the tank with textile straps to the forks.

Transportation

Move stationary containers/tanks only when they are completely empty.

Smaller products can be moved by hand using pallet jacks. Larger products have to be handled with care for safety reasons, as incorrect handling can result in damage to the container/tank, accessories or, in the worst case, personal injury. Accessories installed on the container/tank by Cipax need to be supervised during installation so that they are not put under weight pressure during unloading, transport or installation.

Installation of CPX containers and tanks

Floor surface

CPX industrial containers/tanks have to be placed above ground and are not intended to be buried. We also have tanks for burying, but these are categorised as products for infrastructure with separate instructions. The floor surface for the container/tank has to be flat, with the entire bottom side supported and able to withstand the weight after filling, such as reinforced concrete slabs or equivalent. This also applies to support points for containers/tanks with stands. The surface under the container/tank must not have sharp edges or sharp objects that could come into contact with the container/tank. For hard, rough surfaces such as concrete that has not been sanded/smoothed or tarmac, a protective layer under the container/tank is recommended, which can be non-slip and made of PE film (2 layer, age-resistant 0.20 PE), fibre cloth or a rubber granulate mat.

Tethering to the substrate

For containers/tanks that are placed outdoors where they are exposed to wind, we recommend tethering to the floor surface. This has to be done in a way by which the tethering isn't immobile but rather allows for movement due to changing temperatures, filling/emptying etc. with cables mounted at the top of the tank, for example. If fixing plates are used at the base of the container/tank, these must allow for movement and not be pulled to a point of immobility.

When used indoors, it is not normally necessary to tether to the floor surface. Exceptions may be if there is an increased risk of rolling over due to work that takes place around the container/tank, or for stands.

Venting

All CPX Industry Containers and tanks are intended for atmospheric pressure without under/overpressure except for the pressure that normally arises from the tare weight of the contents, within the limit values for density that we specify.

The flows to and from the container/tank require properly dimensioned venting, which is also necessary to avoid pressure build-up. A basic rule for dimensioning is that the vent should at least have the same dimension as the largest inlet/drain, but preferably a safety margin of +1" for the dimension of the vent. For pneumatic pumps, it may be necessary to vent more, and the need then always has to be calculated - not estimated.

Ensure that the process does not create overpressure or that, after filling, overpressure is caused by the tanker with air for purging or cleaning the truck's tank and pipes.

It is not possible to oversize a vent for the ventilation of a container/tank. Ensure a safety margin for airflow.

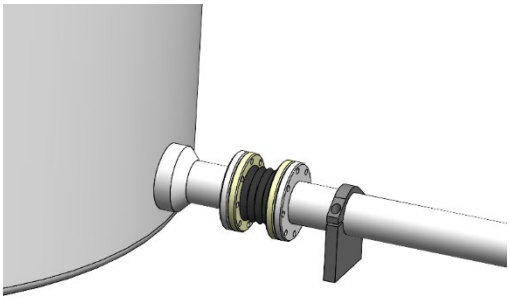
Connections

Connecting containers/tanks in a fixed installation has to be done with flexible connections. This could be a flexible pipe connection, a compensator, or equivalent. The flexible connection must allow for movements arising from temperature changes or emptying/filling as well as vibrations from pumps etc. A faulty fixed connection will cause unnecessary stress which can damage and limit the service life and errors arising from this are never Cipax's responsibility.

In case of rapid changes in flow, such as for example during pump extraction, a compensator should be used.

Connections have to be flexible and not cause weight pressure on the surrounding area. Flexible connections must be installed straight.

All connections must be relieved in a way that does not add weight pressure the container/tank. The load-reducing support needs to be put in place *after* the flexible connection



Installation of connections must be done with care so as to obtain a sealed connection without risking damage to the connection, gasket, or container/tank from excessive force. Lubricate the thread and gasket with a suitable lubricant (Silicone, PFPE) before tightening.

CPX accessory/connection	Tightening
Lid Union joint	Tighten by hand.
Nipple Hose socket Camlock Tank penetration Stopper Internal thread External thread Clamp sleeve	Tighten by hand and then carefully with a tool, approx. ¼ turn.
Flexible pipe connection (hose clamps)	Tighten by hand to a torque of 6Nm. This corresponds to firm tightening with a screwdriver with one hand.
Flanged connection Compensator	Tighten by hand with a torque wrench with 5Nm increasing torque crosswise to 20Nm. (10kg force with handle length 20cm)

Commissioning

Seal testing

Container/tank and accessories fitted by Cipax have been verified to be sealed at our factory. However, we recommended that ***the system*** in which the products are to be included be seal tested before commissioning to verify the connections. This should most conveniently be done by filling the container/tank to a level above the highest-placed connection on the side and, after 5 hours, inspecting for any leaks.

Cleaning/Disinfection

Unless otherwise agreed, CPX tanks and containers are delivered internally clean without being disinfected or specifically checked by any standard of cleanliness. Therefore, we recommend that cleaning/disinfection is done on site after connection if there are special requirements for the process. This is often done through "CIP - Clean In Place" cleaning and "SIP-Sterilise In Place" disinfection.

The first fill

Monitor the first fill to ensure that no pressure builds up in the tank.

Safety

Stay out of the area near a container/tank during high lifts.

Use safety bunding around the container/tank if hazardous chemicals are being stored.

CPX containers and tanks are not pressure vessels and overpressure means a risk of explosion.

Tanks in operation with chemicals should be considered dangerous. Do not enter the tank without first taking appropriate precautions such as cleaning and ventilation.

Do not walk on top of a tank/container without fall protection anchored to the building, not to the container/tank. A wet container/tank can be very slippery, causing a risk of slipping to people, and long-term storage of chemicals can also weaken the container/tank.

Maintenance schedule

Unless otherwise stipulated in the periodic maintenance plan for the facility in question or in the guidelines from the supplier of the chemicals in question, we recommend the following checks and periodic maintenance in addition to general ongoing vigilance after changes such as visible damage or leakage.

	Commissioning	Weekly	Monthly	Annually
Container/tank	Location suitable? Floor surface and placement area as well as marking according to needs and requirements? Permit for facility?		Visual inspection for damage/leakage when the tank is in operation.	Cleaning followed by visual inspection for damage and cracking in the material both inside and outside. (cracking).
Bunding	Is bunding required for the chemicals in question or is it a personal request for increased safety?		Visual inspection for damage/leakage when the tank is in operation.	Cleaning followed by visual inspection for damage.
Venting/ ventilation	Dimension of ventilation suitable for requirement? Guideline min. same as largest inlet/outlet but preferably largest outlet +1". Filter desirable?			Check that any ventilation ducts for venting have free passage. Changing the carbon filter.
Connections	Correct tightening? Connection to a flexible connection (Compensator, flexible pipe connection) that is not putting weight pressure on the surrounding environment? Leakage test with water 5h.	Visual check for possible changes, leakage.	Continued Correct tightening? Sealed?	Gasket material sealed? Replace if there is a leak or visible signs of ageing.
Cleanness	Need for cleaning/disinfection before commissioning?			Cleaning/rinsing inside with water or other solvent that does not damage the container/tank.

Tank in operation with chemicals must be considered hazardous to health. Do not enter the tank without first taking appropriate precautions such as cleaning and ventilation.