BASIS®

MINOTAUR®

OPTIMAL®

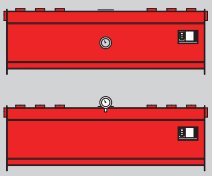
EQUIPMENT®

Kramp itz®

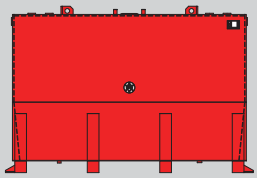
TANKSYSTEM GMBH

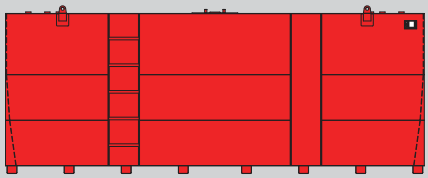
Professional Supplying Combustion Engines

with fuel, engine oil and adblue

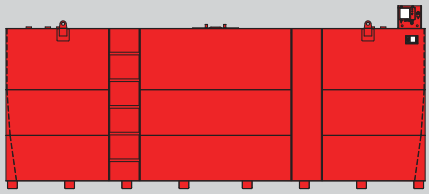


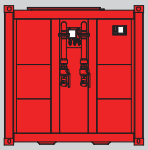
day fuel tank

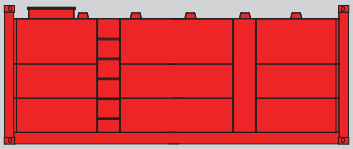


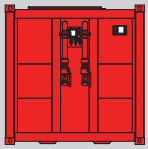


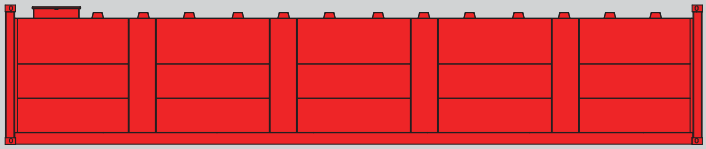
storage tank



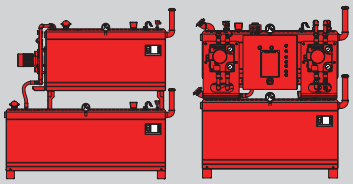


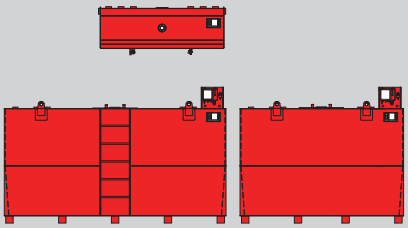




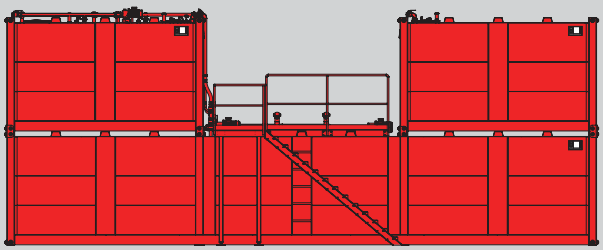


storage tank container





lube oil supplying equipment



container-tank-combined system

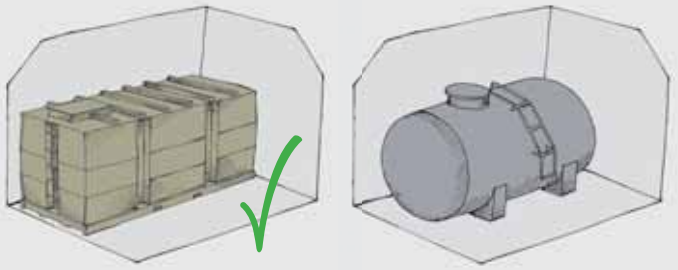
Overview

Day Fuel Tanks and Storage Tanks

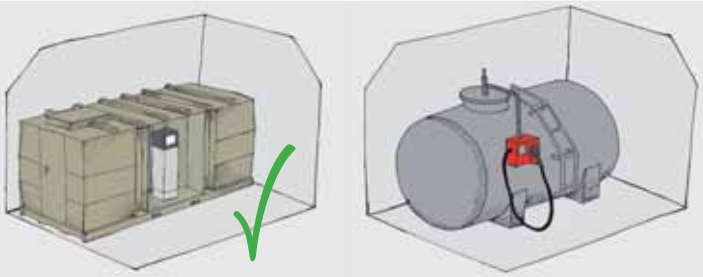
Overview
Storage Tank Container

Overview
Systems

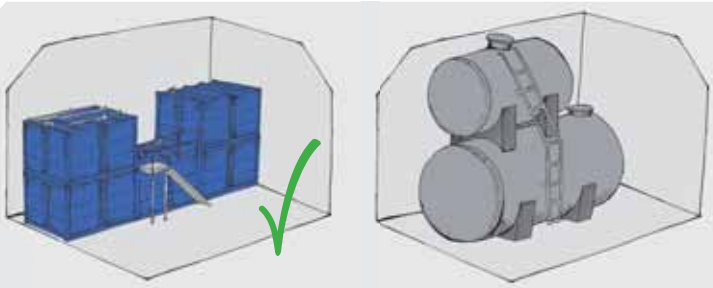
Advantages
of Cubic Design



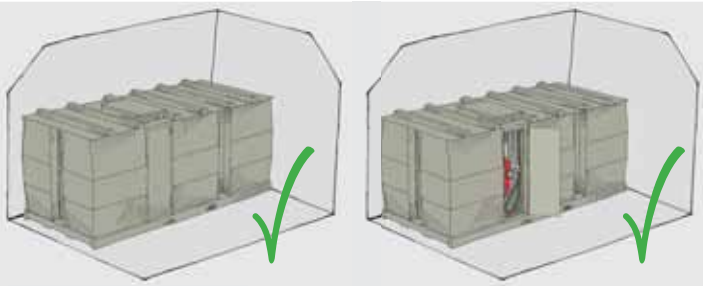
optimal space utilization
The cubic shape of the tank container creates an optimal space-capacity ratio. At the same time every corner of the equipment room is ideally used. No space is wasted.



optimal arrangement of equipment
The cubic shape of the tank container enables the placement of different niches for the whole equipment, such as gas pump.



good stackability
The cubic shape of the tank container enables the stack of more containers, without losing any stability. The stairs and ladders ensure the accessibility.

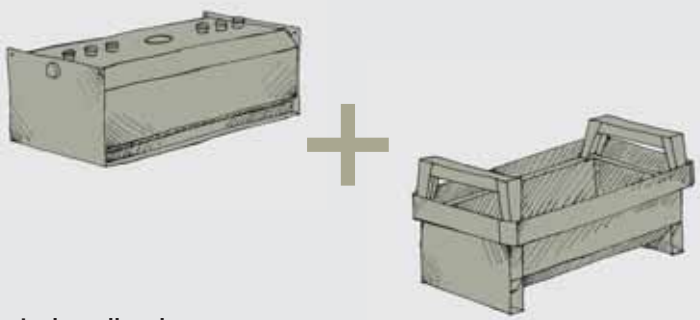


good locking possibility
The cubic shape of the tank container enables the simple integration of doors in the niches of the container, which offer an effective protection against burglary or damage to the equipment.

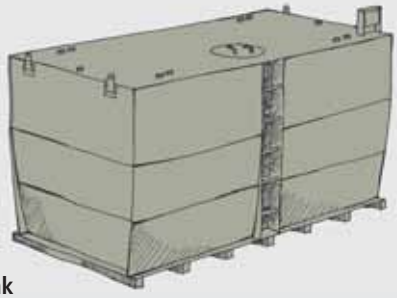
optimal transport possibility
The cubic shape of the tank container enables transport of one or more containers without any problem due to the ideal room-utilization. The structural safety is also assured due to the big assembly area.

transportation security
Since the equipment of the container is placed in the integrated niches, it needn't be dismounted during the transportation. The system can be moved as a whole.

Single-Wall and Double-Wall Tanks
Comparison



single-wall tank
A separate catch sump is necessary. The advantage lies in its bottom outlet, enabling the static inflow to the machine; making an additional pump redundant.



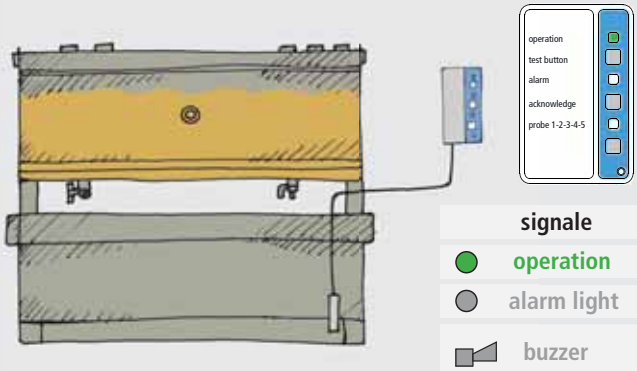
double-wall tank
No catch sump is required in this case, because an intrinsically safe vacuum leak monitor is available. Disadvantages:
- suction tube in the roof
- An electrical pump with controller for conveying to machine is necessary.

Security Concept of Single-Wall Tank

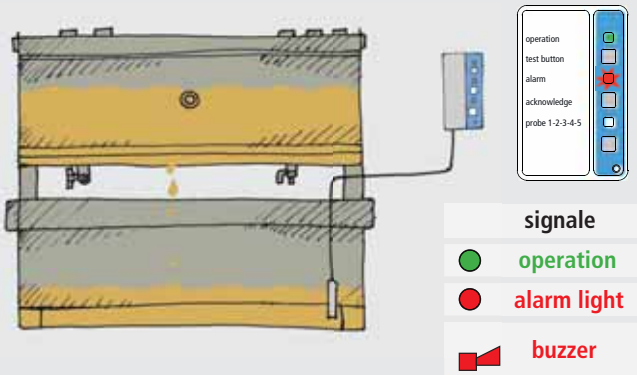
Protection from Leak of Fuel by Means of Vacuum Leak Monitoring

Oil-Warning Probe, Electronic, Type OM5- AE-303

- The alarm is raised optically and acoustically (with potential-free alarm contact).



signale
operation
alarm light
buzzer



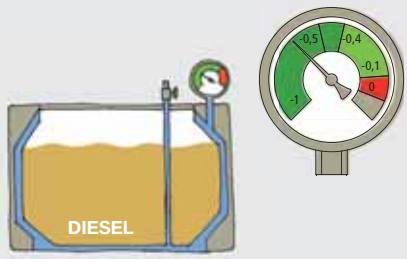
signale
operation
alarm light
buzzer

Security Concept of Double-Wall Tank

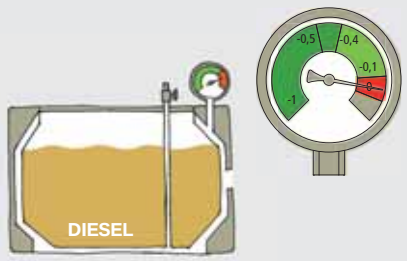
Protection from Leak of Fuel by Means of Vacuum Leak Monitoring

Vacuum Leak Monitoring, Static, Type KÜR 5 - AM-359

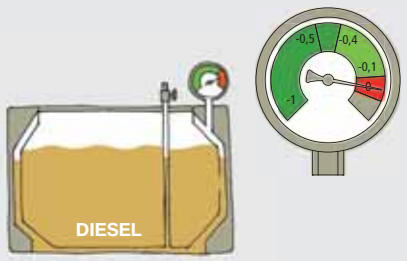
- The alarm is raised optically (without potential-free alarm contact).



secured by vacuum	
-0,5 bar und -0,4 bar	setting range
-0,4 bar und -0,1 bar	operating range
-0,1 bar und 0,0 bar	alarm range



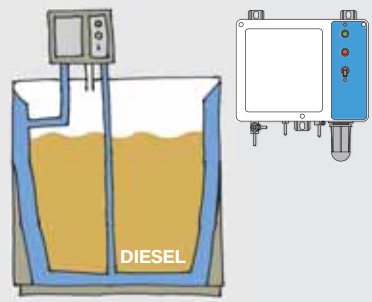
fault: leakage in external tank	
-0,5 bar und -0,4 bar	setting range
-0,4 bar und -0,1 bar	operating range
-0,1 bar und 0,0 bar	alarm range



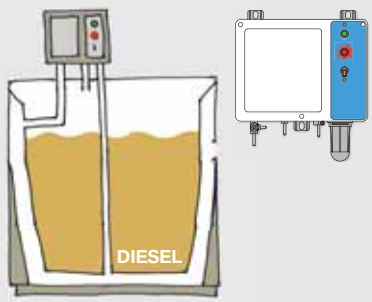
fault: leakage in internal tank	
-0,5 bar und -0,4 bar	setting range
-0,4 bar und -0,1 bar	operating range
-0,1 bar und 0,0 bar	alarm range

Vacuum Leak Monitor, Electronic, Type LAZ-04/1 - AE-350

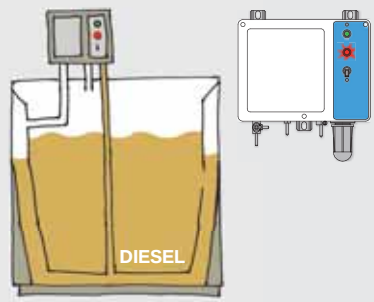
- The alarm is raised optically and acoustically (with potential-free alarm contact).



secured by vacuum	
0 mbar	signale
-300 mbar	operation
-600 mbar	alarm light
	buzzer



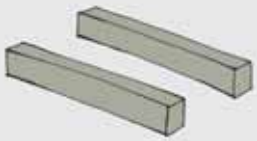
fault: leakage in external tank	
0 mbar	signale
-300 mbar	operation
-600 mbar	alarm light
	buzzer



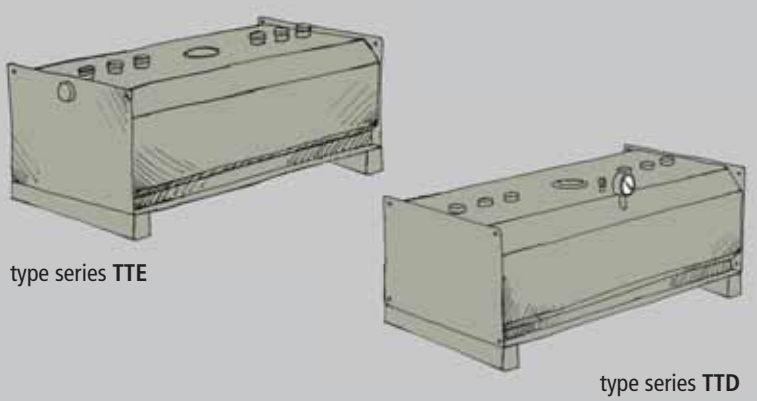
fault: leakage in internal tank	
0 mbar	signale
-300 mbar	operation
-600 mbar	alarm light
	buzzer

Basic Constructive Features
of the Tank Type Series

Feet - Indoor Installation



The single-wall day fuel tank should be set up on an even and stable ground. The feet made of a few steel square pipes (100 x 100 x 3 mm) are screwed with the tank and enable air ventilation and make the ground visible. The equipment on the roof is not protected from the weather.

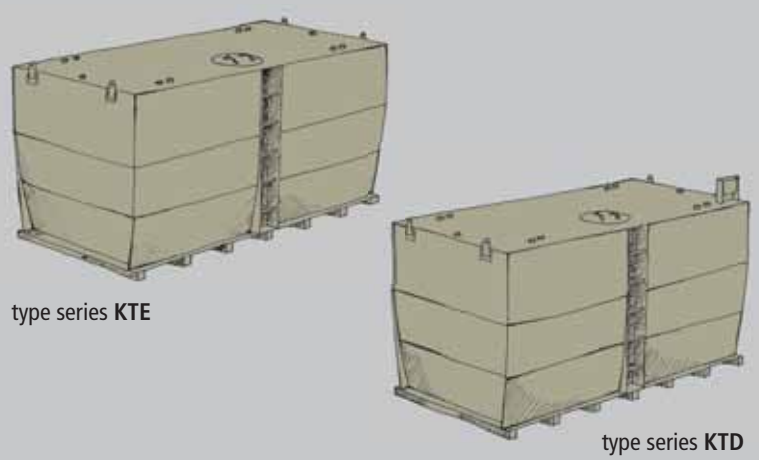


type series **TTE**

type series **TTD**

Bottom Construction Group – Indoor Installation

The reservoir should be set up on an even and stable ground. It seats on a simple bottom construction group with welded feet made of canted plate. This prevents the accumulation of condensation water on the external tank bottom and ensures visibility and transportability by industrial trucks. The equipment on the roof is not protected from the weather. Furthermore, four crane eyes are mounted on the tank roof, through which the tank can be lifted with a crane.

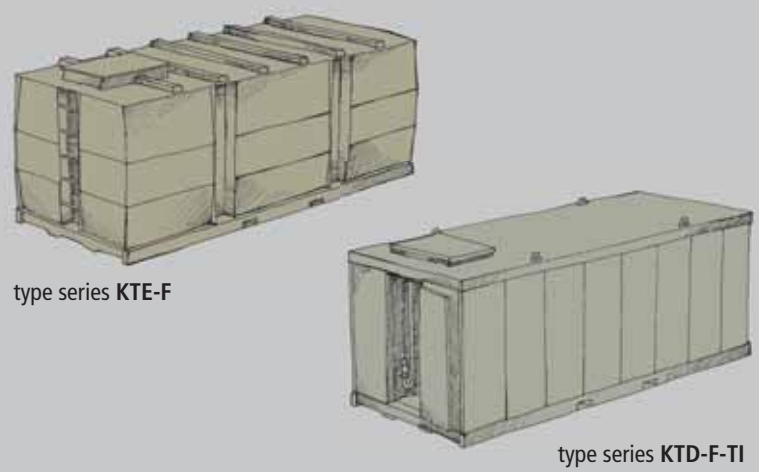


type series **KTE**

type series **KTD**

Bottom Construction Group and Hatch Compartment Outdoor Installation

The reservoir should be set up on an even and stable ground. The high ground clearance makes sure good air ventilation, and the heavy bottom construction group ensures good stability. The attached forklift pockets on the side make sure transportability. The equipment on the roof is placed in a hood and protected from the weather and destruction.

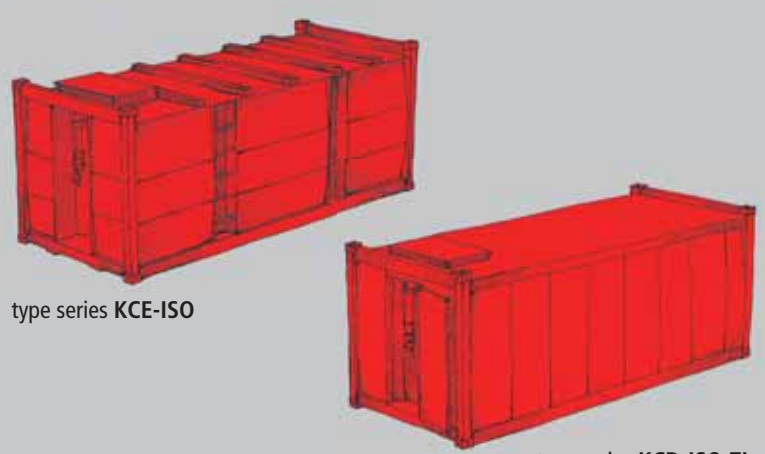


type series **KTE-F**

type series **KTD-F-TI**

Frame Construction and Hatch Compartment Outdoor Installation

The storage tank stands on a heavy bottom construction group with stackable frame construction in accordance with ISO measurements. This standard ensures the international transportation by means of street, railway and see. The equipment on the roof is placed in a hood and protected from the weather and destruction.



type series **KCE-ISO**

type series **KCD-ISO-TI**

Material of Tank and Combination of Coatings
According to Tank Media

	TTE	TTE-XL	TTD	KTE	KTD	KTE-F	KTD-F	KCE ISO	KCD ISO
diesel									
bio diesel									
vegetable oil									
bioethanol									
engine oil									
waste oil									
cooling water									
adblue									

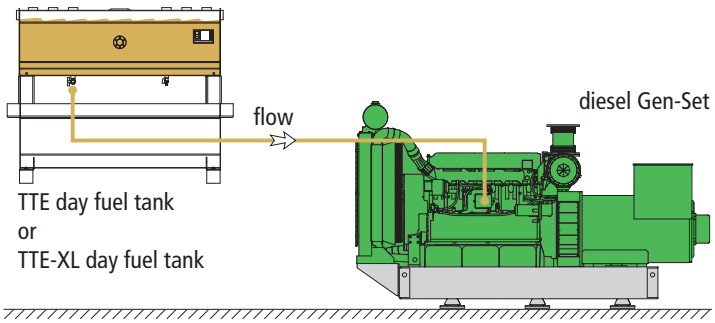
caption – material of tank

- external wall – steel
- external wall – stainless steel
- external wall – steel
internal wall – stainless steel
- external wall –steel
internal coating
- external wall –steel
internal wall – steel
internal coating

Why Use A Day Fuel Tank?
Comparison

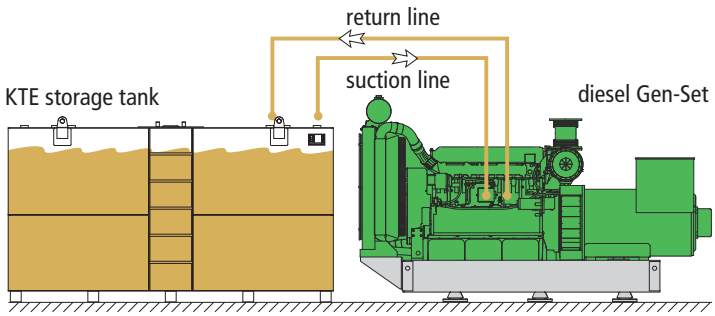
advantages of a day fuel tank TTE with bottom outlet

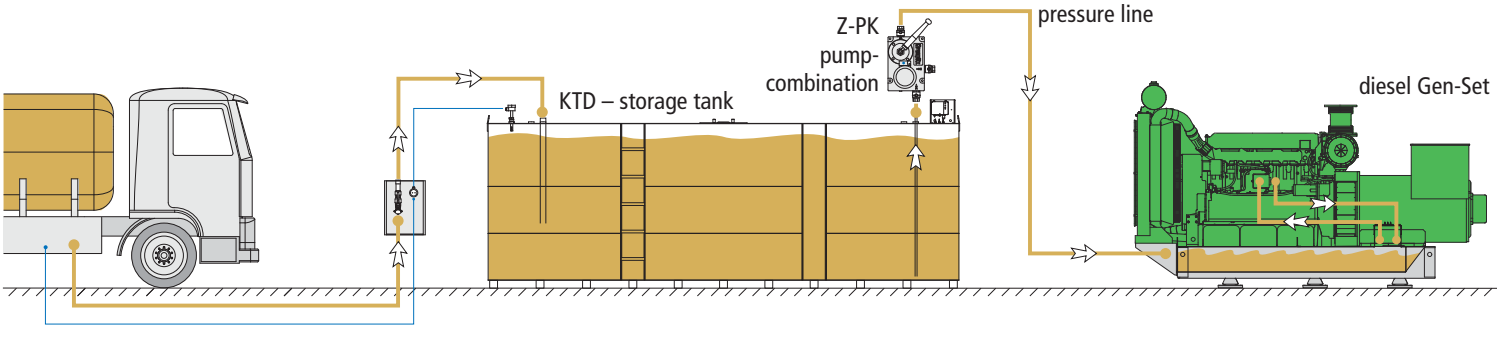
The installation of the day fuel tank is carried out above the injection pump of the Gen-Set to be supplied (approx. 500 mm according to VDE 107/108). The fuel can unhamperedly flow (flow pipe) into the injection pump by its own static pressure. Through this an immediate start of the Gen-Set is assured without any problem.



suction of fuel by feed pump of engine

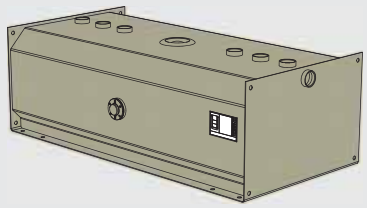
problems:
1) After long down time of the Gen-Set, the suction line to feeding pump is exhausted. Air has been kept in the system. An immediate start is not possible anymore.
2) If the tank stands too deep down, the feed pump cannot suck all volume of the fuel tank any more. (intake problem – cavitation)





TTE Day Fuel Tank Single Wall
Description / Date Sheet

The TTE serves as day fuel tank to supply Gen-Set with fuel or lube oil and adblue. The TTE is also identified as holding tank or reservoir. This tank can not only be set up inside buildings but also in facility-containers. The installation surface must be smooth and sustainable. If there is no catchment area provided by customer, a catch sump must be used. The cubic-design of TTE ensures the optimal utilization of space. Custom-design dimensions in length, width and height can be realized without any problem if transportation is possible.



BASIS® TTE 500 Day Fuel Tank single wall

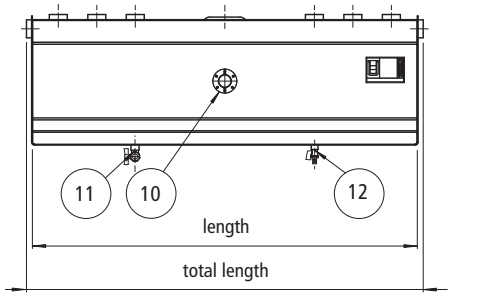
tank type	capacity 100%	capacity 95%	length	total length	width	total width	height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	mm	kg
TTE 50	59	50	510	550	500	550	305	330	28
TTE 100	106	100	510	550	500	525	505	530	38
TTE 250	265	250	1.260	1.300	500	525	505	530	78
TTE 500	500	470	1.510	1.550	750	775	505	530	115
TTE 750	770	730	1.510	1.550	750	775	755	780	153
TTE 990	1.020	980	2.010	2.050	750	775	755	780	192
TTE 1500	1.870	1.790	2.010	2.050	1.000	1.000	1.005	1.030	336
TTE 1950	2.370	2.260	2.010	2.050	1.250	1.250	1.005	1.030	428

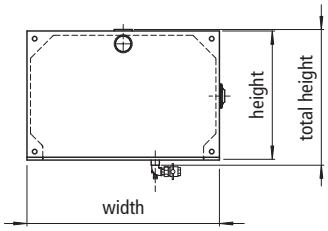
Subject to technical changes!

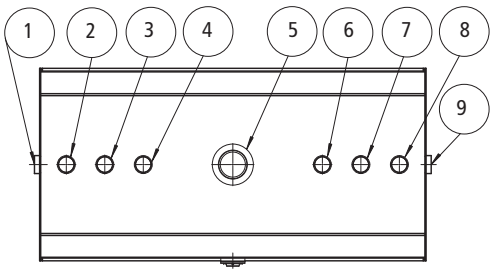
Standard Equipment:
- bursting disk
- connection sleeves in accordance with connection table
- 2x reduction 2" AG to 1" IG
- 2x reduction 2" AG to 3/4" IG
- 4x dummy plug 2"
- vent plug 2" with E-hood
- mechanical float level indicator
- flow, ball cock, angle 90° 3/4"
- emptying of residues 1/2" with KFE-cock 1/2"
- Krampitz Sealfix 10 ml
- type plate

Optional Accessories:
- oil sump type TW
- wall console type WK
- feet type FS
- column type ST
- electronic level indicator
- overfill protection system
- level sensor
- pumps
- tank heating
- filling nozzle 2" with elbow 45° and tank car connection 2"x 2 1/2"

Corrosion Protection:
- outside: 2-C paint RAL 7032
- inside: unwrought, oiled



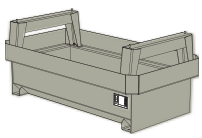




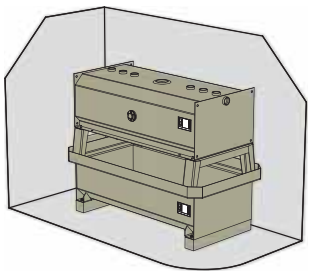
Pos.	Nominal Diameter	Connection
1	sleeve G2	overflow
2	sleeve G2	filling
3	sleeve G2	level sensor
4	sleeve G2	spare
5	Ø 115 mm	bursting disk
6	sleeve G2	spare
7	sleeve G2	return
8	sleeve G2	ventilation
9	sleeve G2	overflow
10	flange	float level indicator
11	sleeve G 3/4	flow
12	sleeve G 1/2	emptying of residues

Special Equipment:
- paint in all RAL colors
- material stainless steel

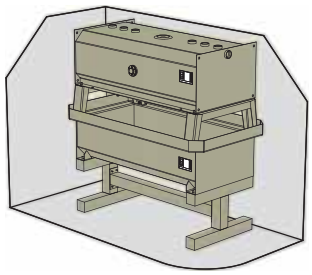
TTE Day Fuel Tank Single Wall - Equipment
Tank Catch Sump, Foot, Stand Column, Wall Brackets



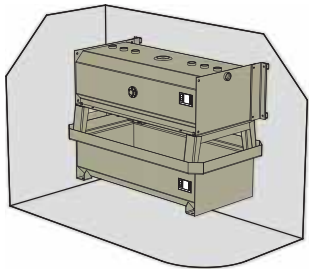
BASIS® Tank Catch Sump



Example of Use:
BASIS® Day Fuel Tank single wall with catch sump and foot



Example of Use:
BASIS® Day Fuel Tank single wall with catch sump and stand column



Example of Use:
BASIS® Day Fuel Tank single wall with catch sump and wall bracket

TTE Day Fuel Tank Single Wall
Applications

BASIS® TTE Day Fuel Tank single wall 250 litres with tank catch sump

BASIS® TTE Day Fuel Tank single wall 250 litres with tank catch sump and Z-PK pump-combination for filling the day fuel tank

BASIS® TTE Day Fuel Tank single wall 990 litres with float level indicator

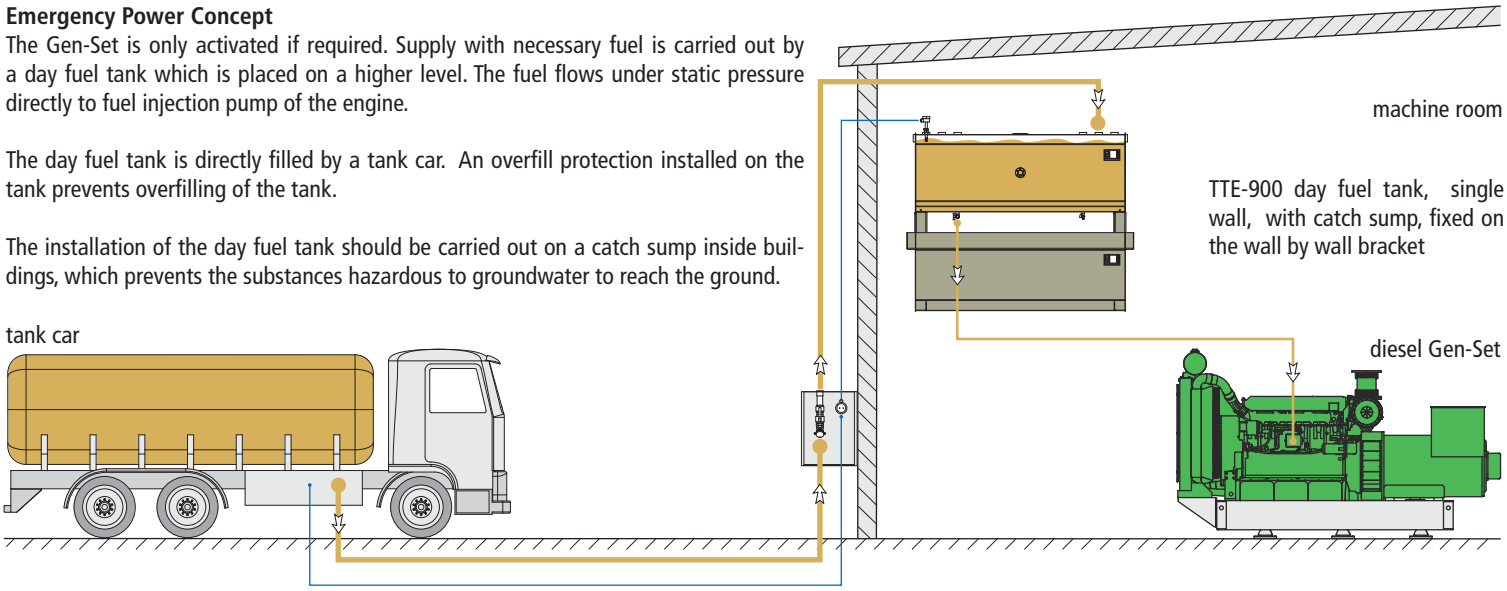
TTE Day Fuel Tank Single Wall
Example of Use / Flow Chart

Emergency Power Concept

The Gen-Set is only activated if required. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine.

The day fuel tank is directly filled by a tank car. An overfill protection installed on the tank prevents overfilling of the tank.

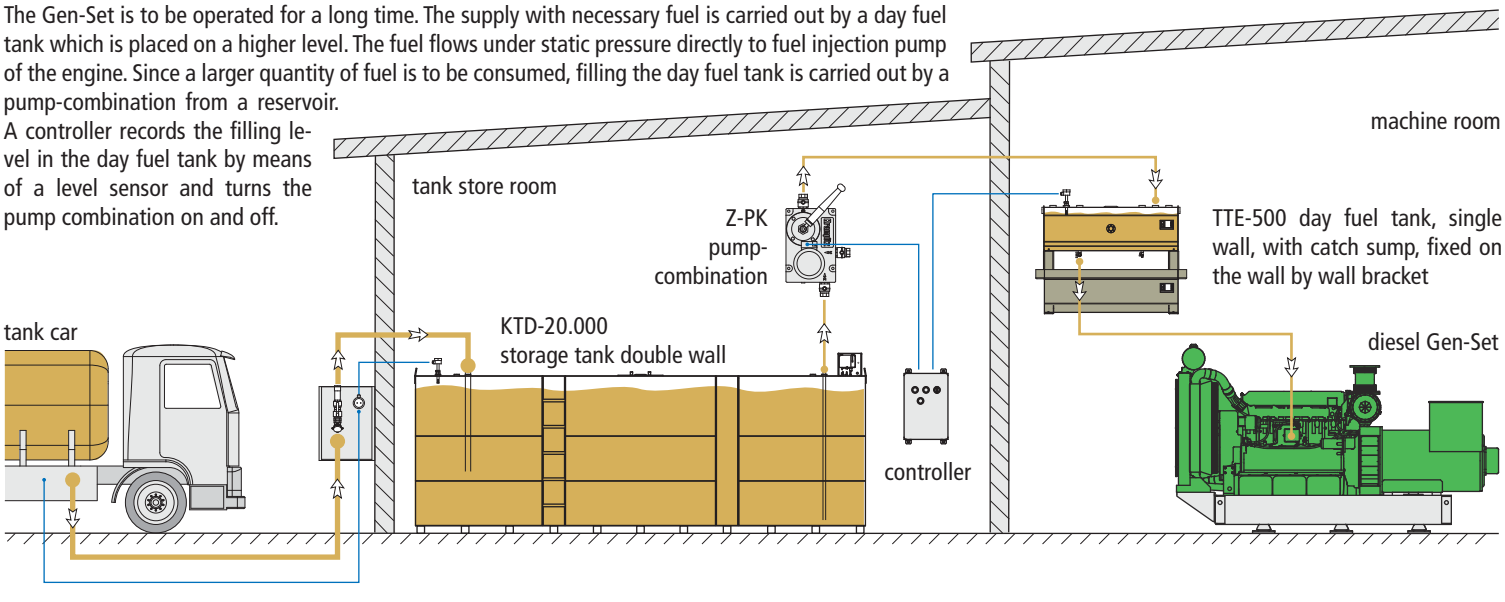
The installation of the day fuel tank should be carried out on a catch sump inside buildings, which prevents the substances hazardous to groundwater to reach the ground.



Concept of Continuous Operation

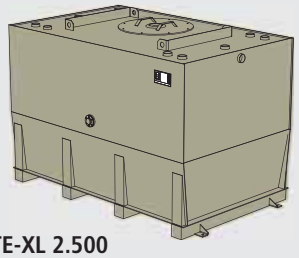
The Gen-Set is to be operated for a long time. The supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir.

A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump combination on and off.



TTE-XL Day Fuel Tank Single Wall
Description / Data Sheet

The TTE-XL serves as day fuel tank to supply Gen-Sets with fuel, lube oil or adblue. The TTE-XL can be used as big reservoir for Gen-Set, or as a small storage tank. This tank can not only be set up inside buildings but also in facility-containers. The installation surface must be smooth and sustainable. If there is no catchment area provided by customer, a catch sump must be used. The cubic-design of TTE-XL ensures the optimal utilisation of space. Custom design dimensions in length, width and height can be realised without any problem if transportation is possible.



BASIS® TTE-XL 2.500
Day Fuel Tank single wall

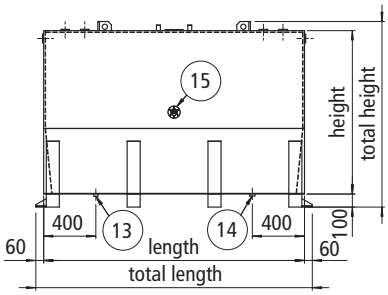
Standard Equipment:
- bursting disk
- man hole DN 500
- connection sleeves in accordance with connection table
- 2x reduction 2" AG to 1" IG
- 2x reduction 2" AG to 3/4" IG
- 8x dummy plug 2"
- 4x lifting eyes
- ladder steps in tank for inspection
- ventilation nozzle 2" with E-hood
- float level indicator
- inlet with ball cock and angle 90°
- emptying of residues 1/2" with KFE-cock 1/2"
- filling pipe 2"
- Krampitz Sealfix 10 ml, type plate

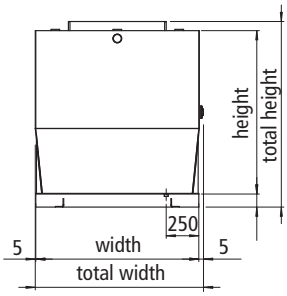
Optional Accessories:
- catch sump type TW-XL
- stand column type ST
- electronic level indicator
- overfilling protection / level sensor
- pumps / tank heating
- filling nozzle 2" with angle 45° and tank-car-connection 2"x 2 1/2"
- intake tube with foot valve and reduction 2" AG to 1" IG

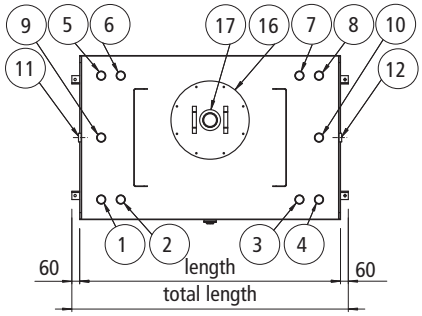
Corrosion Protection:
- outside: 2-K painting RAL 7032
- inside: rough, oiled

tank type	capacity 100%	capacity 95%	length	total length	width	total width	height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	mm	kg
TTE-XL 2500	2.900	2.800	2.000	2.135	1.250	1.260	1.250	1.450	530
TTE-XL 3000	3.400	3.300	2.000	2.135	1.500	1.510	1.250	1.450	595
TTE-XL 4000	4.200	3.950	2.000	2.135	1.500	1.510	1.500	1.700	660
TTE-XL 5000	5.300	5.000	3.000	3.135	1.500	1.510	1.250	1.450	810
TTE-XL 6000	6.300	6.000	3.000	3.135	1.500	1.530	1.500	1.750	885
TTE-XL 7000	7.400	7.100	3.500	3.635	1.500	1.530	1.500	1.750	998
TTE-XL 8000	8.500	8.100	4.000	4.135	1.500	1.530	1.500	1.750	1.115
TTE-XL 9000	9.600	9.100	4.500	4.635	1.500	1.530	1.500	1.750	1.260

Subject to technical changes!



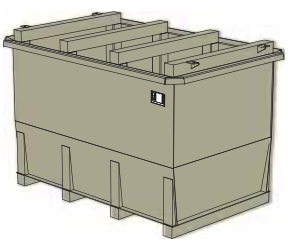




Pos.	Nominal Diameter	Connection
1	sleeve G2	filling / filling pipe
2	sleeve G2	extraction
3	sleeve G2	limiting level transmitter
4	sleeve G2	level sensor
5	sleeve G2	ventilation
6	sleeve G2	spare
7	sleeve G2	spare
8	sleeve G2	spare / overfill protection
9	sleeve G2	spare
10	sleeve G2	return
11	sleeve G2	overflow
12	sleeve G2	overflow
13	sleeve G1	inlet with ball cock 1" and angle 90°
14	sleeve G1/2	emptying of residues with KFE-cock 1/2"
15	flange	float level indicator AM-004
16	sleeve G2	man hole
17	Ø 115 mm	bursting disk

Optional Equipment:
- painting in all RAL colours
- material: stainless steel
- equipment adblue

TTE-XL Day Fuel Tank Single Wall - Equipment
Tank-Catch Sump



BASIS® TW-XL 2.500 catch sump

The catch sump serves the reservation of substances hazardous to water, which might seep from the leaks of tank or untight connections. If there is no catchment area provided by customer, a cubic, single-wall catch sump made of steel must be used, and it must be deliverable in all standard dimensions of TTE-XL.

Standard Equipment:
- feet with bottom attachment
- support bracket for TTE-XL
- type plate

Optional Accessories:
- oil warning probe

Corrosion Protection:
- outside/inside: 2-K painting RAL 7032

Optional Equipment:
- painting in all RAL colours
- material: stainless steel

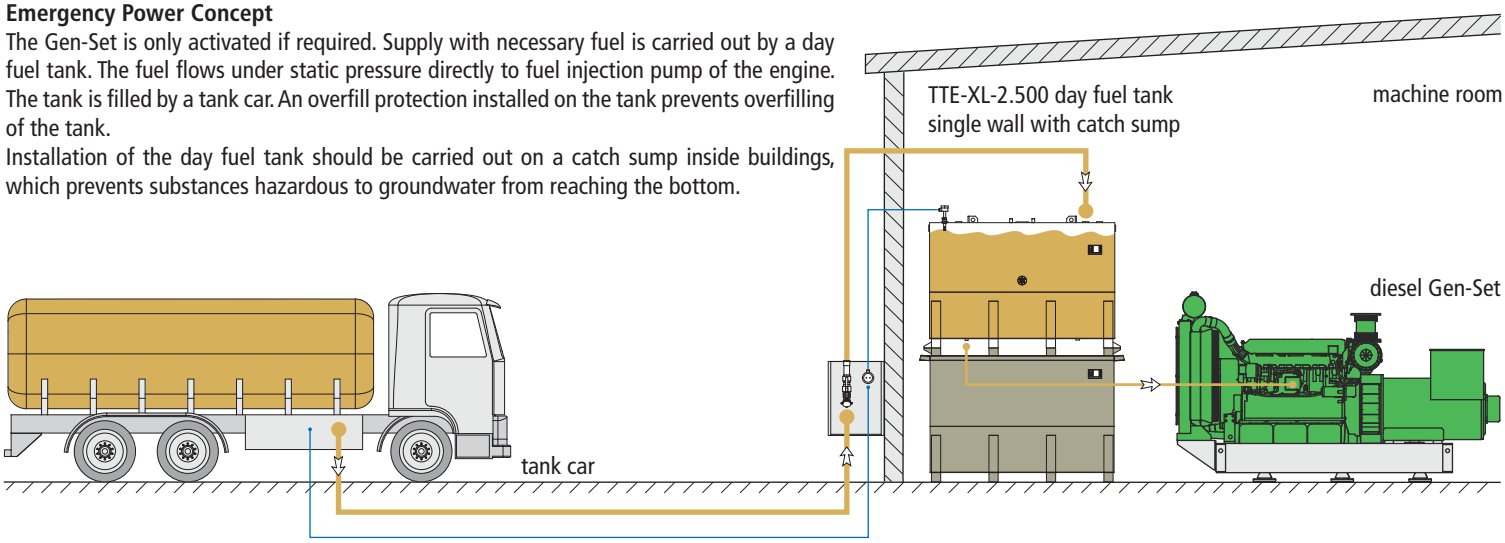
TTE-XL Day Fuel Tank Single Wall
Applications

BASIS® TTE-XL Day Fuel Tank single wall 2.500 litres with tank catch sump and PH-30-001 double action semi rotary hand pump for filling the day fuel tank

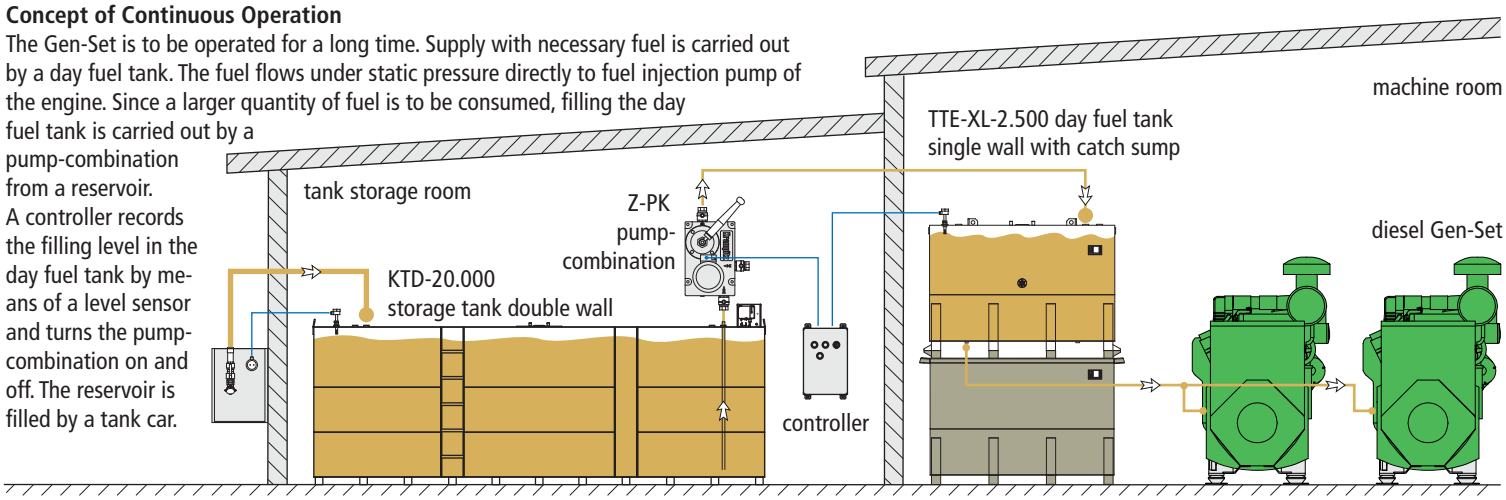
BASIS® TTE-XL Day Fuel Tank
single wall 8.000 litres with tank catch sump

TTE-XL Day Fuel Tank Single Wall
Example of Use/ Flow Chart

Emergency Power Concept
The Gen-Set is only activated if required. Supply with necessary fuel is carried out by a day fuel tank. The fuel flows under static pressure directly to fuel injection pump of the engine. The tank is filled by a tank car. An overfill protection installed on the tank prevents overfilling of the tank.
Installation of the day fuel tank should be carried out on a catch sump inside buildings, which prevents substances hazardous to groundwater from reaching the bottom.

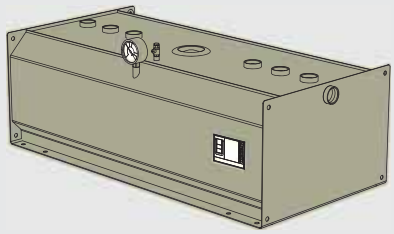


Concept of Continuous Operation
The Gen-Set is to be operated for a long time. Supply with necessary fuel is carried out by a day fuel tank. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir.
A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off. The reservoir is filled by a tank car.



TTD Tay Fuel Tank Double Wall
Description / Data Sheet

The TTD serves as day fuel tank to supply Gen-Sets with fuel, lube oil and adblue. It is also identified as holding tank or reservoir. This tank can not only be set up inside buildings but also in facility-containers. The installation surface must be smooth and sustainable. The cubic-design of TTD ensures the optimal utilisation of space. Custom-design dimensions in length, width and height can be realised without any problem if transportation is possible.



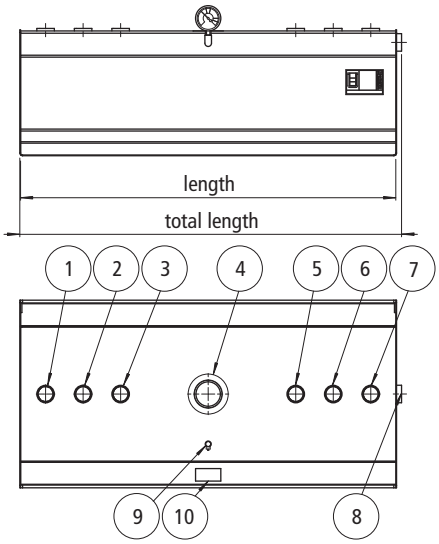
BASIS® TTD 500 Day Fuel Tank
double wall

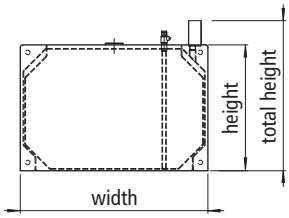
tank type	capacity 100%	capacity 95%	length	total length	width	height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	kg
TTD 250	245	230	1.260	1.280	500	505	630	133
TTD 500	470	440	1.510	1.530	750	505	630	186
TTD 750	730	700	1.510	1.530	750	755	880	248
TTD 990	975	940	2.010	2.030	750	755	880	316
TTD 1500	1.800	1.730	2.010	2.030	1.000	1.005	1.130	524
TTD 1950	2.300	2.190	2.010	2.030	1.250	1.005	1.130	658

Subject to technical changes!

Standard Equipment:
- static vacuum leakage indicator type KÜR-5
- bursting disk
- connection sleeves in accordance with connection table
- 2x reduction 2" AG to 1" IG
- 2x reduction 2" AG to 3/4" IG
- 4x dummy plug 2"
- ventilation sleeve 2" with E-hood
- Krampitz Sealfix 10 ml
- type plate

Optional Accessories:
- wall bracket type WK
- foot type FS
- stand column type ST
- intake tube for extraction with foot valve
- mechanical / electronic level indicator
- overfilling protection
- level sensor
- pumps
- tank heating
- filling sleeve 2" with angle 45° and TW-connection 2"x 2 1/2"
- equipment of explosion-proof for inflammable media according to TRbF20
- equipment adblue



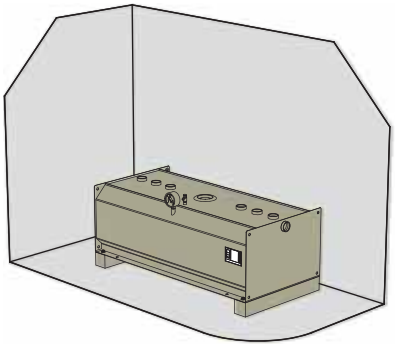


Corrosion Protection:
- outside: 2-K coating RAL 7032
- inside: rough, oiled

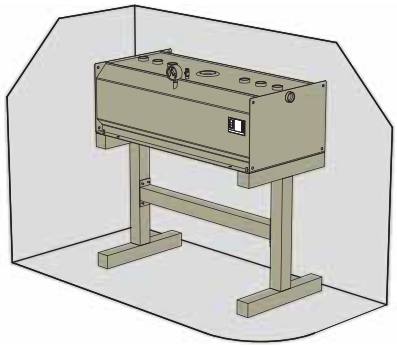
Optional Equipment:
- coating in all RAL colours
- material stainless steel

Pos.	Nominal Diameter	Connection
1	sleeve G2	filling
2	sleeve G2	spare
3	sleeve G2	intake
4	Ø 115 mm	bursting disk
5	sleeve G2	level indicator
6	sleeve G2	level sensor
7	sleeve G2	ventilation
8	sleeve G2	overflow
9	sleeve G 3/8	exhaust tube for vacuum producing, ball cock and dummy plug
10	sleeve G 1/2	gauge connection for static vacuum leakage indicator KÜR-5

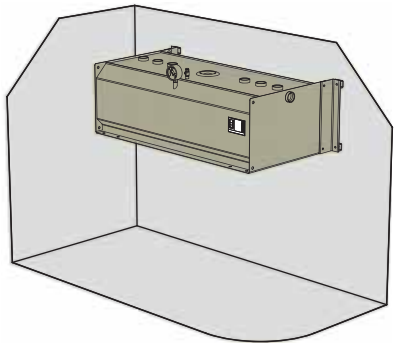
TTD Day Fuel Tank Double Wall - Equipment
Foot, Stand Column and Wall Brackets



Example of Use:
BASIS® TTD Day Fuel Tank double wall with foot



Example of Use:
BASIS® TTD Day Fuel Tank double wall with stand column



Example of Use:
BASIS® TTD Day Fuel Tank double wall with wall bracket

TTD Day Fuel Tank Double Wall
Applications

BASIS® TTD Day Fuel Tank double wall 250 litres with accessories as accessories kit

BASIS® TTD Day Fuel Tank double wall 1.500 litres

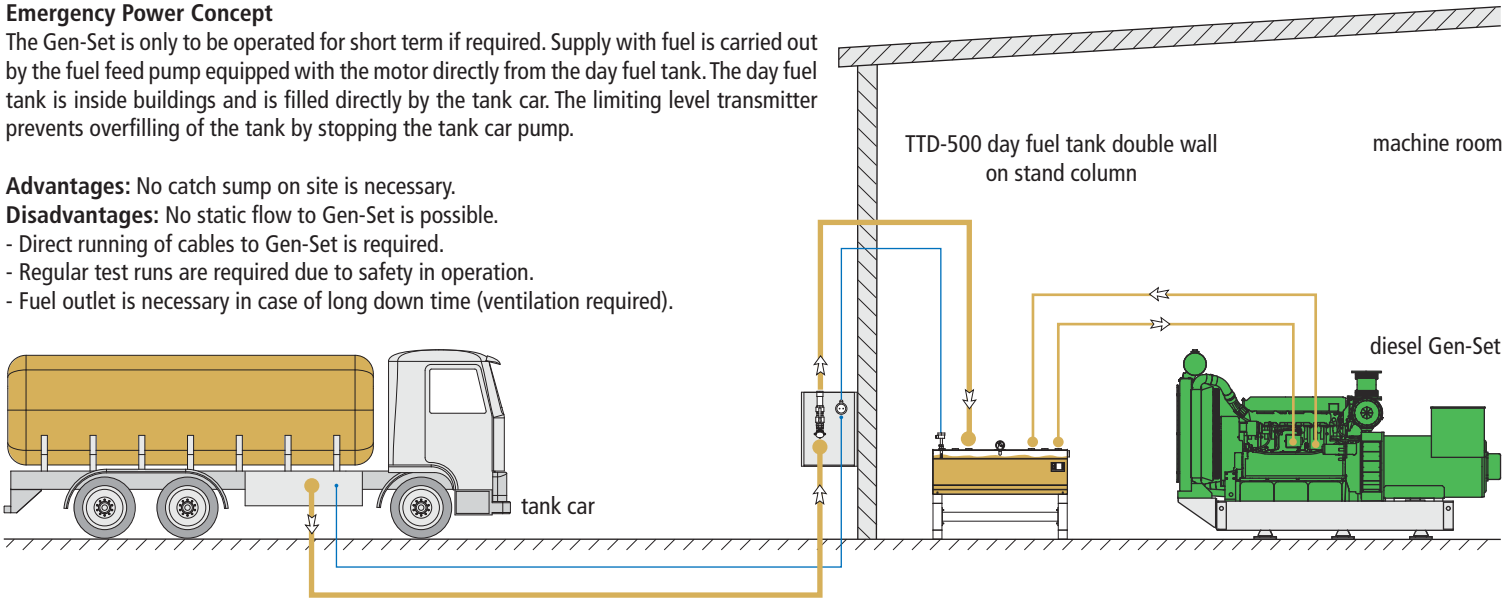
BASIS® TTD Day Fuel Tank double wall with leak detector KÜR 5 and intake connection with ball valve

TTD Day Fuel Tank Double Wall
Example of Use / Flow Chart

Emergency Power Concept

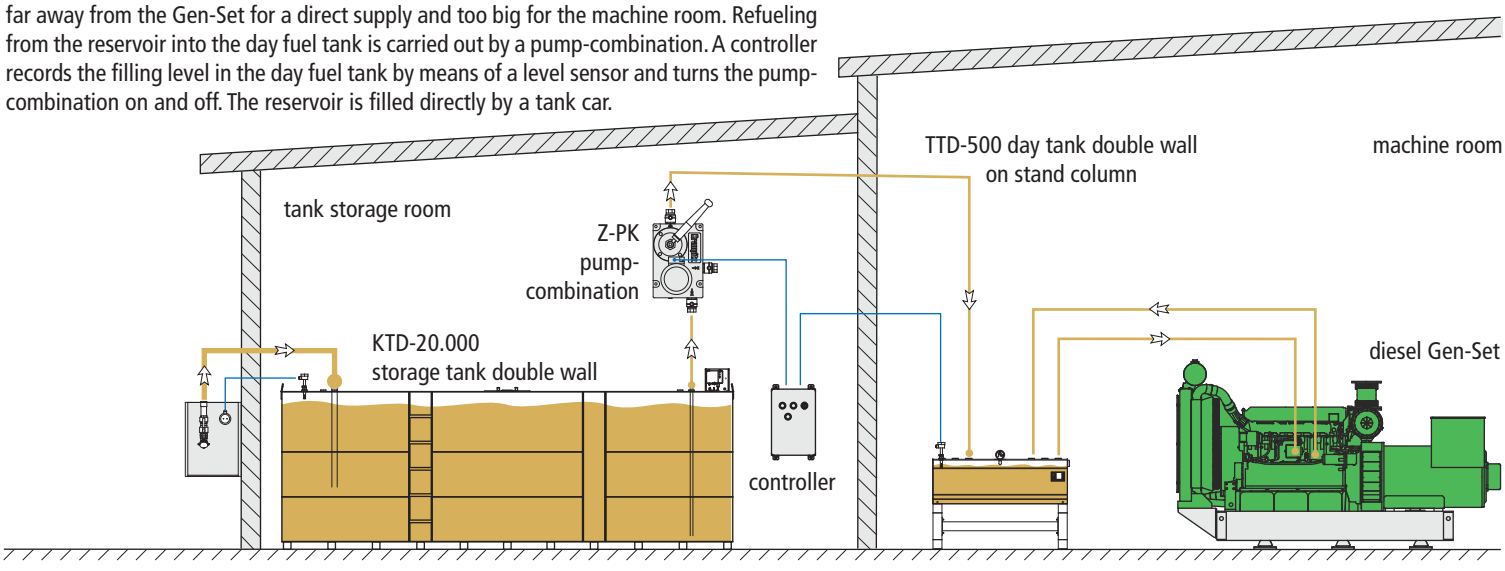
The Gen-Set is only to be operated for short term if required. Supply with fuel is carried out by the fuel feed pump equipped with the motor directly from the day fuel tank. The day fuel tank is inside buildings and is filled directly by the tank car. The limiting level transmitter prevents overfilling of the tank by stopping the tank car pump.

Advantages: No catch sump on site is necessary.
Disadvantages: No static flow to Gen-Set is possible.
- Direct running of cables to Gen-Set is required.
- Regular test runs are required due to safety in operation.
- Fuel outlet is necessary in case of long down time (ventilation required).



Concept of Continuous Operation

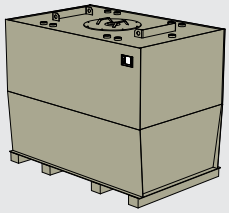
The Gen-Set is to be operated for a long time. Supply with fuel is carried out by the fuel feed pump equipped with the motor directly from the day fuel tank. The storage tank is too far away from the Gen-Set for a direct supply and too big for the machine room. Refueling from the reservoir into the day fuel tank is carried out by a pump-combination. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off. The reservoir is filled directly by a tank car.



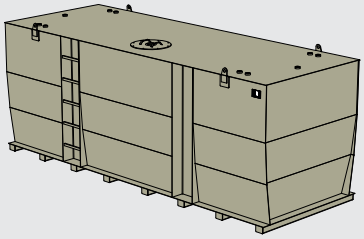
KTE Storage Tank Single Wall

Description / Data Sheet

The KTE serves to store fuel oil, diesel, mineral oil (fresh and waste oil) vegetable oil or other liquids hazardous to waters in accordance with the approval, such as adblue. It is also identified as holding tank or reservoir. The characteristic traits of the tank are its single wall and cubic construction, which ensures the optimum space-utilisation. The KTE is suited for both indoor installation and installation in facility-containers. For storage of media hazardous to waters, an approved catch sump is necessary. The installation surface must be smooth and sustainable. The KTE can be transported by forklifts and lift trucks.



BASIS® KTE 3.000 Storage Tank
single wall



BASIS® KTE 20.000 Storage Tank
single wall

tank type	capacity 100%	capacity 95%	length	width	total width	tank height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	kg
KTE 950	1.000	970	1.000	750	760	1.500	1.700	280
KTE 1500	1.550	1.450	1.500	750	760	1.500	1.700	360
KTE 2000	2.050	1.950	1.500	1.000	1.010	1.500	1.700	430
KTE 2500	2.800	2.650	2.000	1.000	1.010	1.500	1.700	530
KTE 3000	3.550	3.350	2.000	1.250	1.260	1.500	1.700	620
KTE 4000	4.250	4.000	2.000	1.500	1.510	1.500	1.700	680
KTE 6000	6.200	5.900	3.000	1.500	1.530	1.500	1.750	970
KTE 9000	9.500	9.000	3.400	2.000	2.030	1.500	1.750	1.270
KTE 12000	12.700	12.000	3.500	2.000	2.030	2.000	2.250	1.730
KTE 15000	14.500	13.700	4.000	2.000	2.030	2.000	2.250	1.920
KTE 20000	20.000	18.900	5.500	2.000	2.030	2.000	2.250	2.720
KTE 25000	25.400	24.100	7.000	2.000	2.030	2.000	2.250	3.100
KTE 30000	28.900	27.400	8.000	2.000	2.030	2.000	2.250	3.600
KTE 40000	46.000	43.600	10.500	2.400	2.430	2.000	2.250	4.900
KTE 50000	52.600	49.900	12.000	2.400	2.430	2.000	2.250	5.600

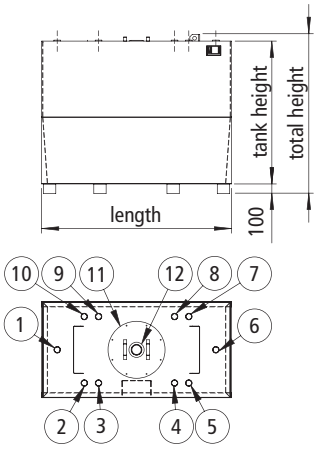
Subject to technical changes!

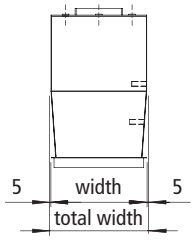
Standard Equipment:
- bursting disk
- man hole DN 600
- connection sleeves in accordance with connection table
- 2x reduction 2" MT to 1" FT
- 2x reduction 2" MT to 3/4" FT
- 6x dummy plug 2"
- 4x lifting eyes
- ladder steps in tank for inspection
- ventilation nozzle 2" with E-hood
- Krampitz Sealfix 10 ml
- filling pipe 2" screwed
- type plate
- ladder outside from KTE 6000

Corrosion Protection:
- outside: 2-K painting RAL 7032
- inside: rough, oiled

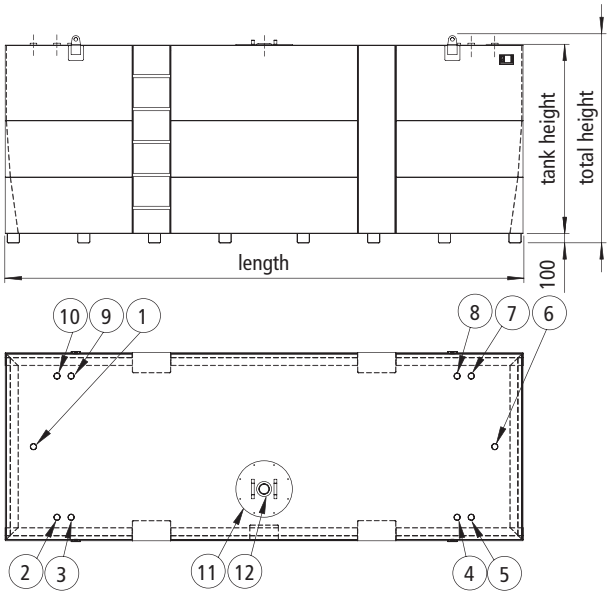
Optional Equipment:
- painting in all RAL colours
- material: stainless steel
- thermal insulation
- internal coating

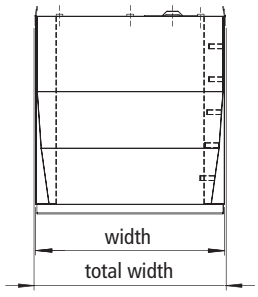
Optional Accessories:
- mechanical or electrical level indicator
- overfilling protection
- level sensor
- pumps
- electric tank heating
- pipe heating coils, hot water
- filling nozzle 2" with angle 45° and tank-car-connection 2"x 2 1/2"
- intake tube 1" with foot valve flanged 1"for extraction
- equipment adblue





Pos.	Nominal Diameter	Connection
1	sleeve G2	ventilation
2	sleeve G2	filling/filling pipe
3	sleeve G2	extraction
4	sleeve G2	limiting level transmitter
5	sleeve G2	level indicator
6	sleeve G2	return
7	sleeve G2	spare
8	sleeve G2	level sensor
9	sleeve G2	spare
10	sleeve G2	spare
11	DN 600	man hole
12	ø 115 mm	bursting disk





KTE Storage Tank Single Wall
Applications

BASIS® KTE Storage Tank single wall 3.000 litres with Z-PK combination of pumps and filter

BASIS® KTE Storage Tank single wall 15.000 litres with sunscreen for outdoor installation

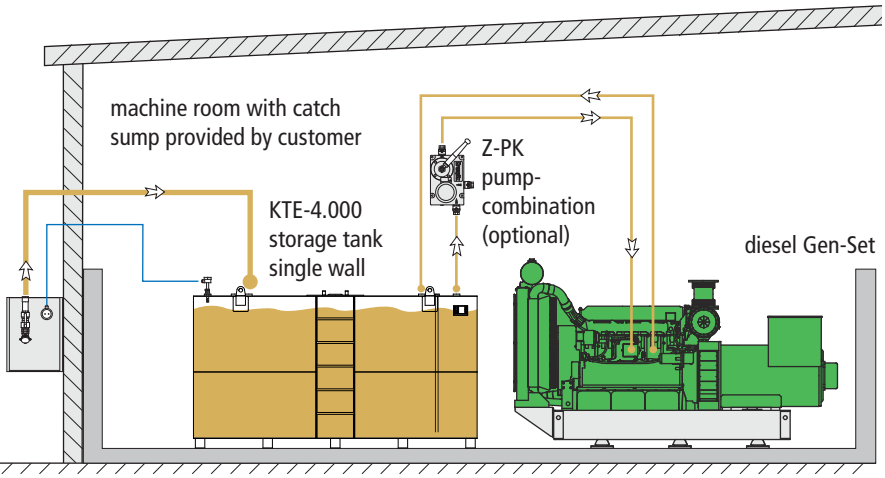
BASIS® KTE Storage Tank single wall 20.000 litres with sunscreen for outdoor installation

KTE Storage Tank Single Wall
Example of Use / Flow Chart

Concept of Continuous Operation without Day Fuel Tank
The Gen-Set is to be operated for a long time. Supply with fuel is carried out by the fuel feed pump equipped with the motor directly from the day fuel tank, which must be placed near the Gen-Set. If the reservoir is installed in machine room, and the volume is limited to 5.000 litres, a Z-PK is meaningful for the long distance. The reservoir is filled directly by the tank car. The limiting level transmitter prevents overfilling of the tank by turning off the tank car pump.

Advantages:
- well-priced big tank, no additional pump required
  (If the line is short.)

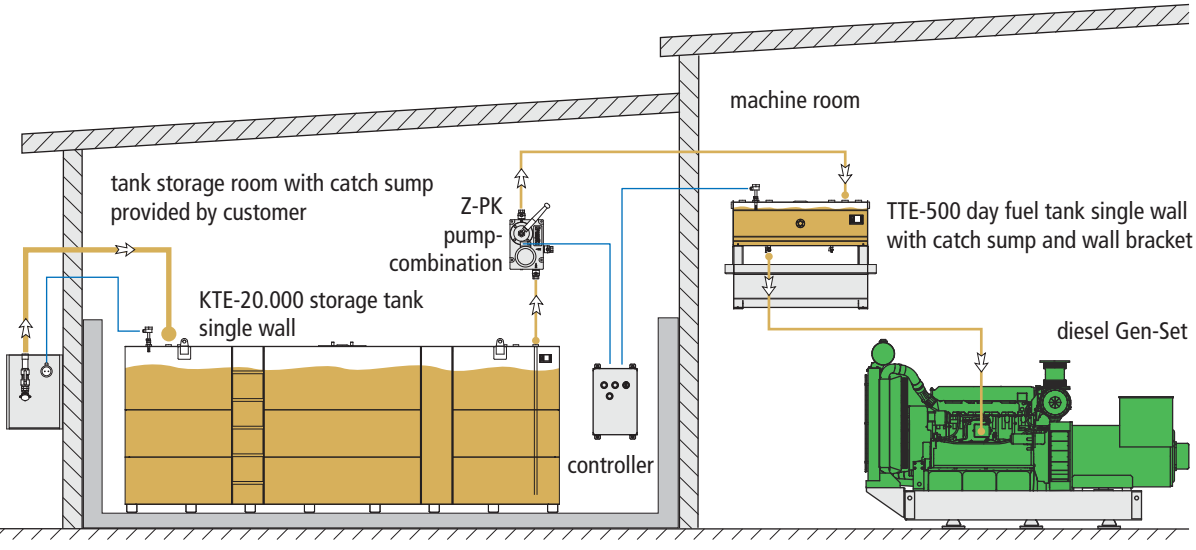
Disadvantages:
- catch sump on site necessary, short distance and direct running of cables to Gen-Set, fuel outlet in case of long down time (Ventilation might be required.), restrictions on volume for assembly in machine room



Concept of Continuous Operation with Day Fuel Tank
The Gen-Set is to be operated for a long time. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off.
The reservoir is filled directly by the tank car.

Advantages:
- well-priced big tank
- static flow to engine
- The reservoir can be logistically well placed.

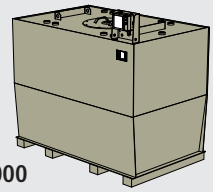
Disadvantages:
- catch sump on site necessary
- additional day fuel tank and pump-combination required



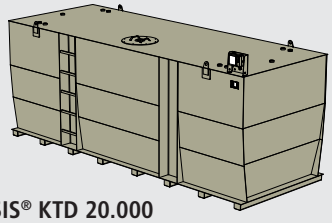
KTD Storage Tank Double Wall

Description / Data Sheet

The KTD serves to store fuel oil, diesel, mineral oil (fresh and waste oil) palm oil or other liquids hazardous to waters in accordance with the approval, such as adblue. It is also identified as holding tank or reservoir. Its double-wall construction ensures the highest safety requirements. The cubic design guarantees optimum space-utilisation. The KTD is suited for both indoor installation and installation in facility-container. The installation surface must be smooth and sustainable. The KTD can be transported by forklifts and lift trucks without any problem.



BASIS® KTD 3.000
Storage Tank double wall



BASIS® KTD 20.000
Storage Tank double wall

tank type	capacity 100%	capacity 95%	length	width	total width	tank height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	kg
KTD 950	990	930	1.000	750	760	1.500	1.950	450
KTD 1500	1.520	1.440	1.500	750	760	1.500	1.950	560
KTD 2000	2.040	1.930	1.500	1.000	1.010	1.500	1.950	680
KTD 2500	2.750	2.640	2.000	1.000	1.010	1.500	1.950	795
KTD 3000	3.500	3.300	2.000	1.250	1.260	1.500	1.950	920
KTD 4000	4.150	3.950	2.000	1.500	1.510	1.500	1.950	1.080
KTD 6000	6.000	5.700	3.000	1.500	1.530	1.500	1.950	1.460
KTD 9000	9.350	8.900	3.400	2.000	2.030	1.500	1.950	1.840
KTD 12000	12.500	11.800	3.500	2.000	2.030	2.000	2.450	2.280
KTD 15000	14.300	13.600	4.000	2.000	2.030	2.000	2.450	2.490
KTD 20000	19.800	18.700	5.500	2.000	2.030	2.000	2.450	3.460
KTD 25000	25.100	23.800	7.000	2.000	2.030	2.000	2.450	4.200
KTD 30000	28.900	27.400	8.000	2.000	2.030	2.000	2.450	4.750
KTD 40000	46.000	43.600	10.500	2.400	2.430	2.000	2.450	6.800
KTD 50000	52.600	49.900	12.000	2.400	2.430	2.000	2.450	7.600

Subject to technical changes!

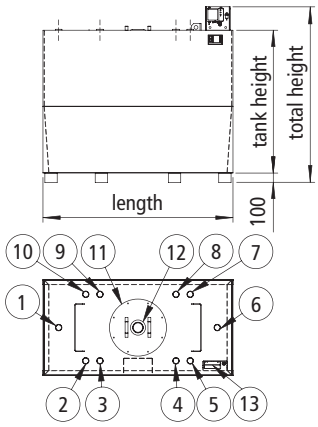
Standard Equipment:
- electronic vacuum leakage indicator (with removable console)
- bursting disk
- man hole DN 500
- connection sleeves in accordance with connection table
- 2x reduction 2" MT to 1" FT
- 2x reduction 2" MT to 3/4" FT
- 6x dummy plug 2"
- 4x lifting eyes
- ladder steps in tank for inspection
- ventilation nozzle 2" with E-hood
- Krampitz Sealfix 10 ml
- filling pipe 2" screwed in
- feet
- type plate
- ladder outside from KTD 6000

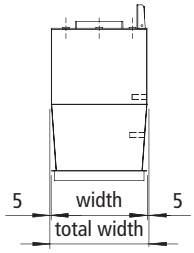
Corrosion Protection:
- outside: 2-K painting RAL 7032
- inside: rough, oiled

Optional Equipment:
- painting in all RAL colours
- material: stainless steel
- thermal insulation
- internal coating

Optional Accessories:
- mechanical or electrical level indicator
- overfilling protection
- level sensor
- pumps
- electric tank heating
- pipe heating coils, hot water
- filling nozzle 2" with angle 45° and TW
- connection 2"x 2 1/2"
- intake tube 1" with foot valve flanged 1"for extraction
- protective casing for vacuum at outdoor installation
- equipment of explosion-proof for inflammable media according to TRbF20
- equipment for adblue

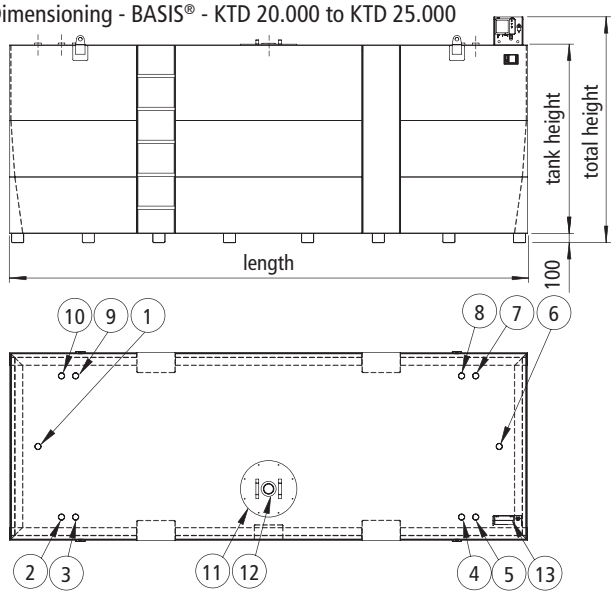
Dimensioning - BASIS® - KTD 1.500 to KTD 4.000

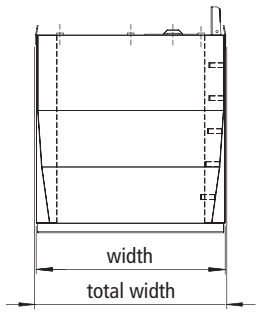




Pos.	Nominal Diameter	Connection
1	sleeve G2	ventilation
2	sleeve G2	filling / filling pipe
3	sleeve G2	extraction
4	sleeve G2	limiting level transmitter
5	sleeve G2	level indicator
6	sleeve G2	return
7	sleeve G2	spare
8	sleeve G2	level sensor
9	sleeve G2	spare
10	sleeve G2	spare
11	DN 500	man hole
12	ø 115 mm	bursting disk
13	3x sleeve G3/8	sleeve for leakage indicator

Dimensioning - BASIS® - KTD 20.000 to KTD 25.000





KTD Storage Tank Double Wall
Applications

BASIS® KTD Storage Tank double wall 1.500 Litres

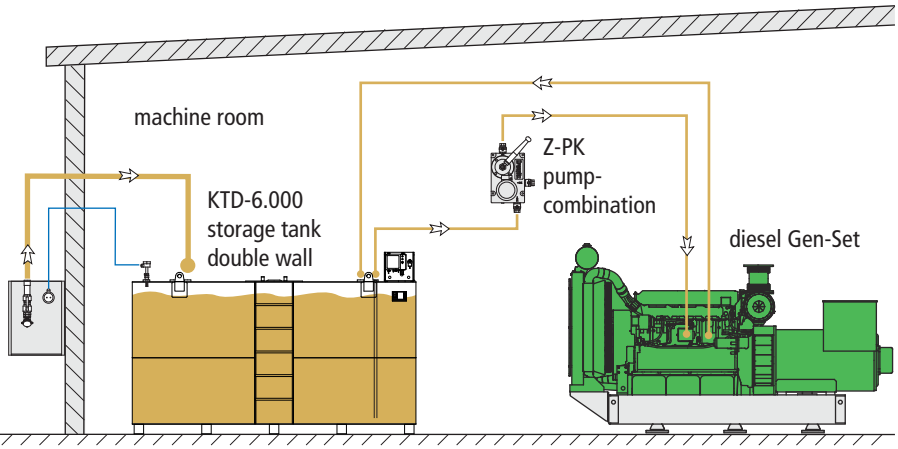
BASIS® KTD Storage Tank double wall 2.000 Litres with standard- and special equipment

KTD Storage Double Wall
Example of Use / Flow Chart

Concept of Continuous Operation without Day Fuel Tankn
The Gen-Set is to be operated for a long time. Supply with fuel is carried out by the fuel feed pump equipped with the motor directly from the day fuel tank, which must be placed near the Gen-Set. If the reservoir is installed in machine room, and the volume is limited to 5.000 litres, a Z-PK is meaningful for the long distance. The reservoir is filled directly by the tank car. The limiting level transmitter prevents overfilling of the tank by stopping the tank car pump.

Advantages: No catch sump on site is necessary. No day fuel tank and additional pump are required.

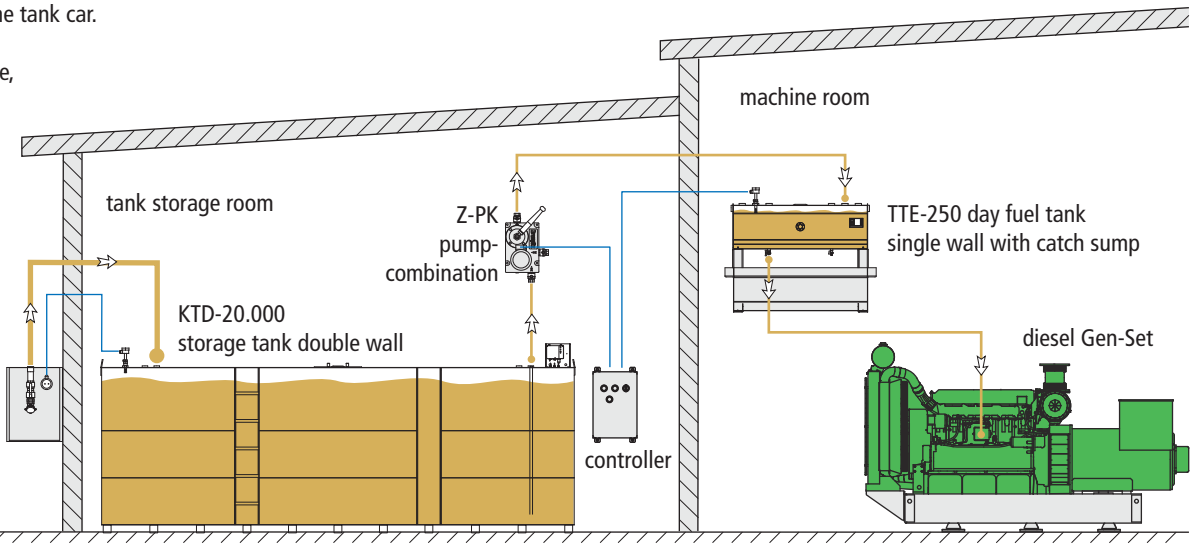
Disadvantages: short distance and direct running of line to the Gen-Set, fuel out let for long down time (ventilation might be required), limitation of volume for arrangement in machine room.



Concept of Continuous Operation with Day Fuel Tank
The Gen-Set is to be operated for a long time. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combinatio from a reservoir. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off.
The reservoir is filled directly by the tank car.

Advantages: static flow to engine, meeting demands on concept of emergency power in accordance with VDE107/108. No catch sump on site is required.

Disadvantages: Additional day fuel tank with pump-combination are required.



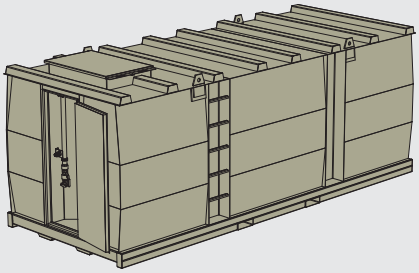
KTD-F Storage Tank Double Wall - Freeland

Description / Data Sheet

The KTD-F serves to store fuel oil, diesel, mineral oil, vegetable oil, water and process water. The KTD-F is designed for outdoor installation. The installation surface must be a smooth and sustainable concrete slab. The KTD-F can be equipped with high-grade internal coating. Furthermore the tank can possibly be equipped with high-grade thermal insulation and shrink-wrapped with hot water heating coils. The KTD-F is built according to general construction-supervision approval Z-38.12-23.

Advantages of the system are:
- safety - highly, static strength, double-wall construction with vacuum leak monitor
- storage capacity - optimal space-capacity ratio due to cubic building form
- arrangement of the equipment secured in a niche of the tank
- little investment cost: Additional catch sump is not necessary, sustainable underground is enough.

KTE-F Storage Tank Single Wall - Freeland is in the same dimensions (except Weight).

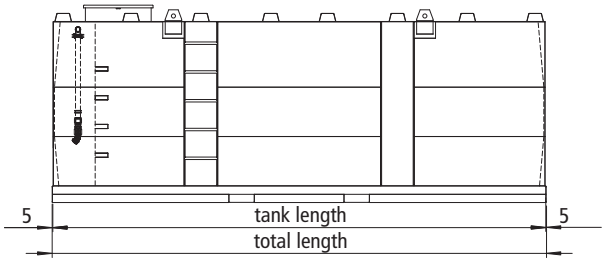


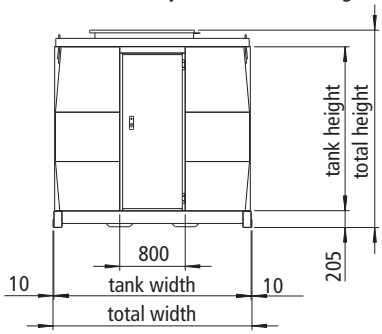
BASIS® - KTD-F - 24.000 Litres
Storage Tank Freeland double wall

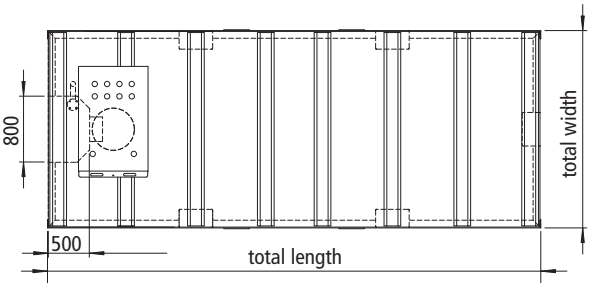
tank type	capacity 100%	capacity 95%	tank length	total length	tank width	total width	tank height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	mm	kg
KTD-F 10000	11.800	11.200	3.000	3.010	2.400	2.420	2.000	2.410	2.800
KTD-F 24000	25.200	24.000	6.000	6.010	2.400	2.420	2.000	2.410	4.600
KTD-F 30000	30.700	29.200	6.000	6.010	2.400	2.420	2.500	2.890	5.800
KTD-F 36000	38.700	36.800	9.000	9.010	2.400	2.420	2.000	2.410	6.400
KTD-F 50000	51.800	49.200	12.000	12.010	2.400	2.420	2.000	2.410	8.200
KTD-F 60000	61.700	58.600	12.000	12.010	2.400	2.420	2.500	2.890	8.900
KTD-F-XL 62000	65.900	62.600	12.000	12.010	3.000	3.020	2.000	2.410	9.400
KTD-F-XL 78000	82.700	78.600	15.000	15.010	3.000	3.020	2.000	2.410	11.600
KTD-F-XL 96000	101.200	96.200	15.000	15.010	3.000	3.020	2.500	2.890	13.400

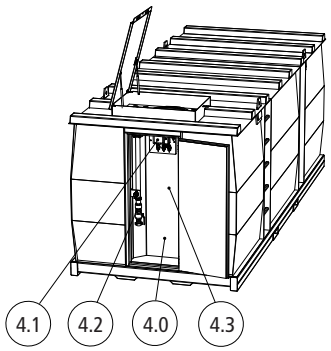
Please note: transportation only when empty and clean

Subject to technical changes!









Standard Equipment:
1.0 load-carrying-system construction, consisting of stable bottom construction
2.0 robust cubic double-wall body of steel, material: S 235 JRG 2
2.1 ladder for climbing (steps of climbing mounted in one of the external niches)
3.0 Tank roof is a self-supporting single wall construction.
3.1 The hatch compartment is mounted on the tank roof, consisting of
- a sealing hood with a gas pressure spring, a handle strip and a padlock
- a man hole DN 500
- access interfaces (bush 2")
- vent connections DN 50, a vent hood 2"IG
- a mechanical level indicator (fuel dip stick)
- emptying of residues

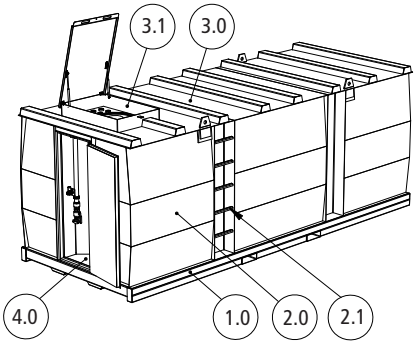
4.0 functional niche, front side including a sealing door width 800 mm, depth 500 mm, height 2.000 mm
4.1 electronic leak warning device (only for double walled storage tanks)

Corrosion Protection:
- inside: rough, oiled
- outside: 2-K coating
  - RAL 3003 (ruby)
  - RAL 5007 (brilliant blue)
  - RAL 7032 (pebble grey)
  - RAL 8001 (ochre brown)

Optional Equipment:
- coating in all RAL colours
- material stainless steel

Optional Accessories:

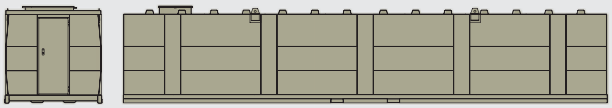
1. functional niche for additional machines and equipment
2. separating walls for more-chamber tank
3. overfill protection
4. equipment functional niche, front side
   4.2 - filling system for tank cars
   4.3 - withdraw system
5. level sensor
6. limiting level transmitter
7. buzzer, flashlight
8. chemical-resistant special coating
9. fire extinguisher
10. thermal insulation
11. electrical tank heating
12. heater coils for heating liquids
13. strainer, pumps
14. system control
15. equipment for easily inflammable media
16. equipment for special medium such as adblue



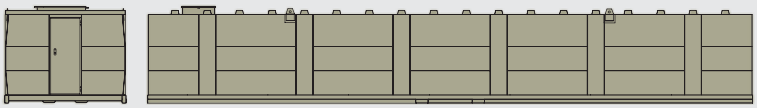
KTD-F Storage Tank Double Wall - Freeland

Applications

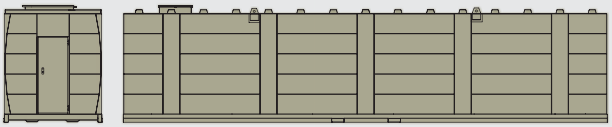
BASIS® KTD-F Storage Tank Freeland double wall 29.200 liters



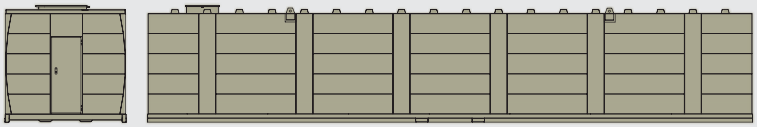
BASIS® KTD-F Storage Tank Freeland double wall 49.200 liters



BASIS® KTD-F Storage Tank Freeland double wall 78.600 liters



BASIS® KTD-F Storage Tank Freeland double wall 58.600 liters



BASIS® KTD-F Storage Tank Freeland double wall 96.200 liters

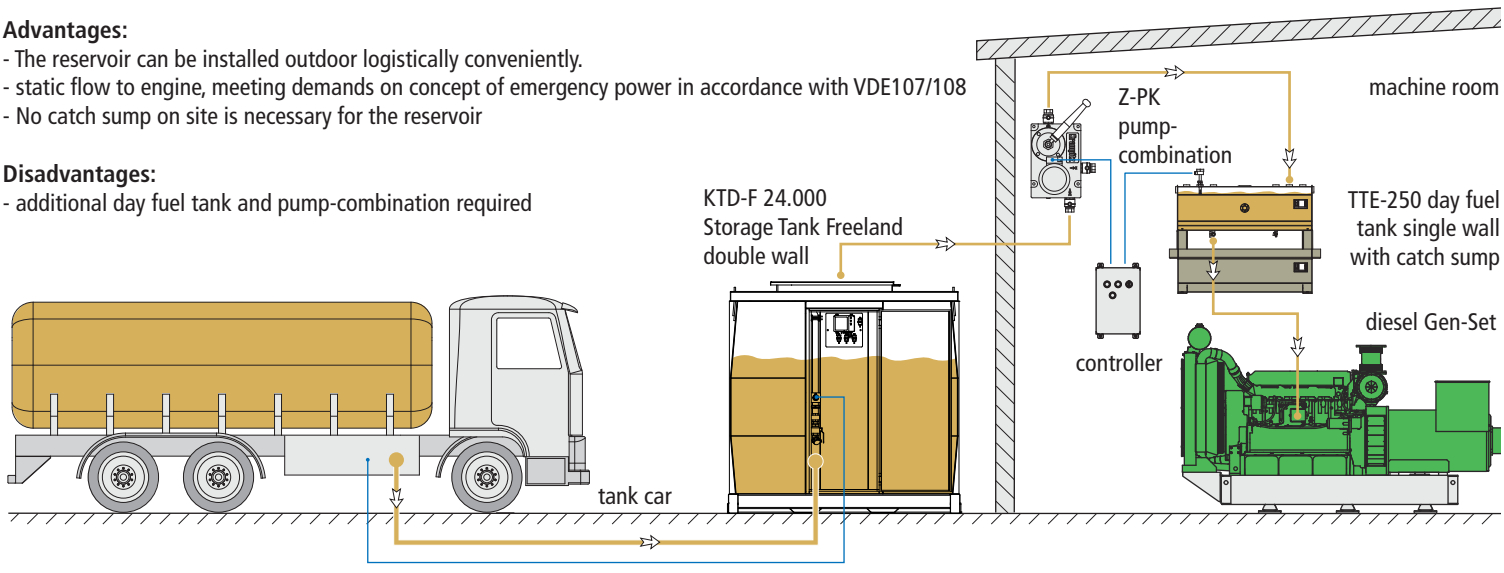
KTD-F Storage Tank Double Wall Freeland

Description / Data Sheet

Concept of Continuous Operation:
The Gen-Set is to be operated for a long time. The tank can be set up outdoor, no catch sump is required. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off. The reservoir is filled directly by the tank car.

Advantages:
- The reservoir can be installed outdoor logistically conveniently.
- static flow to engine, meeting demands on concept of emergency power in accordance with VDE107/108
- No catch sump on site is necessary for the reservoir

Disadvantages:
- additional day fuel tank and pump-combination required



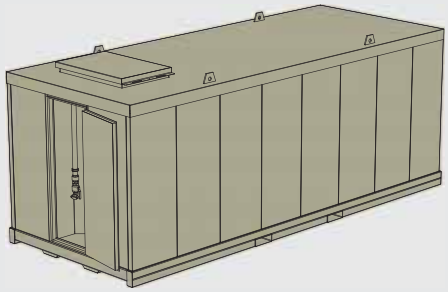
KTD-F-TI Storage Tank Double Wall - Freeland Thermal Insulated

Description / Data Sheet

The Freeland serves to store fuel oil, diesel, mineral oil, vegetable oil, and media which have to be heated. The Freeland is designed for outdoor installation. The installation surface must be a smooth and sustainable concrete slab. The Freeland can be equipped with high-grade internal coating.
The Freeland can be transported by forklift or crane without any problem. Characteristics of the tank is its double-wall, cubic construction with high-grade thermal insulation.

Advantages of the system are:
- safety – high, static strength, double-wall construction with vacuum leak monitor and thermal insulation
- storage capacity – optimal space capacity ratio due to cubic building form
- arrangement of the equipment secured in a niche of the tank
- little investment cost: Additional catch sump is not required, sustainable underground is enough.

KTE-F-TI Storage Tank Single Wall-Freeland Thermal Insulated is in the same dimensions (except weight).

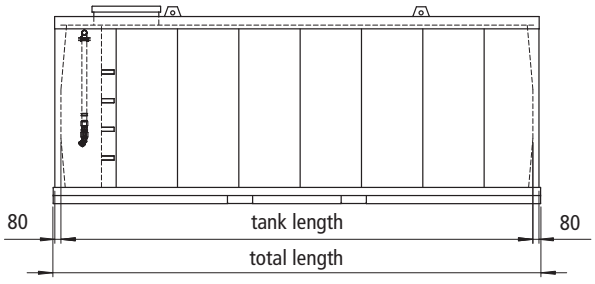


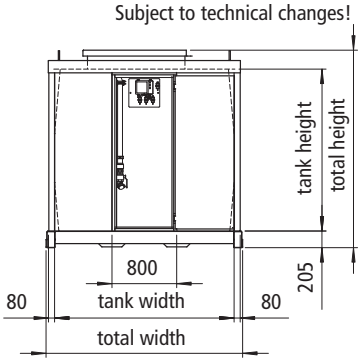
BASIS® - KTD-F-TI-24.000 Liters Storage Tank Freeland double wall thermal insulated

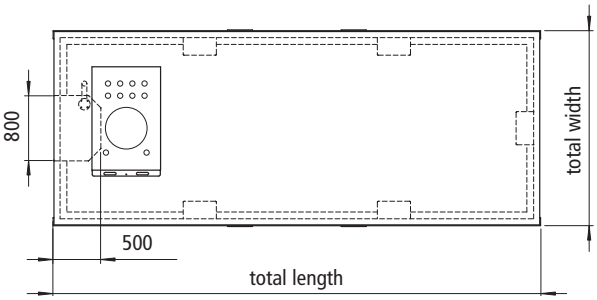
tank type	capacity 100%	capacity 95%	tank length	total length	tank width	total width	tank height	total height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	mm	kg
KTD-F-TI 10000	10.300	9.800	2.840	3.010	2.240	2.420	2.000	2.450	3.800
KTD-F-TI 24000	22.700	21.600	5.840	6.010	2.240	2.420	2.000	2.450	5.600
KTD-F-TI 30000	27.600	26.200	5.840	6.010	2.240	2.420	2.500	2.940	6.300
KTD-F-TI 36000	35.200	33.400	8.840	9.010	2.240	2.420	2.000	2.450	7.400
KTD-F-TI 50000	47.400	45.000	11.840	12.010	2.240	2.420	2.000	2.450	9.200
KTD-F-TI 60000	57.500	54.600	11.840	12.010	2.240	2.420	2.500	2.940	9.800
KTD-F-XL-TI 62000	61.500	58.400	11.840	12.010	2.840	3.020	2.000	2.450	10.400
KTD-F-XL-TI 78000	77.500	73.600	14.840	15.010	2.840	3.020	2.000	2.450	12.700
KTD-F-XL-TI 96000	94.700	90.000	14.840	15.010	2.840	3.020	2.500	2.940	14.600

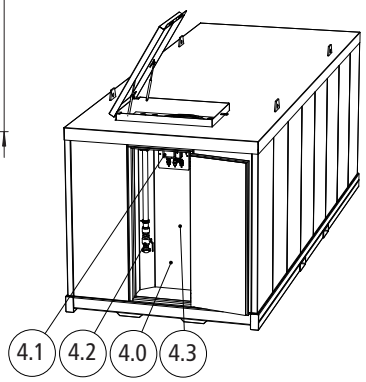
Please note: transportation only when empty and clean

Subject to technical changes!









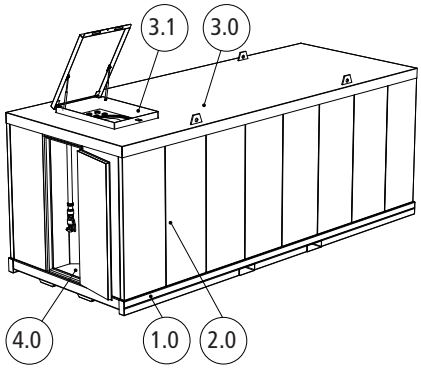
Standard Equipment:
1.0 load-carrying-system construction, consisting of stable bottom construction, mounted forklift pockets
2.0 robust cubic double-wall body of steel, material: S 235 JRG 2 with high-grade thermal insulation, 80 mm mineral wool
2.1 ladder for climbing
3.0 Tank roof is a self-supporting single wall construction.
3.1 The hatch compartment is mounted on the tank roof, consisting of
- a sealing hood with a gas pressure spring, a handle strip and a padlock
- a man hole DN 500
- access interfaces (bush 2")
- vent connections DN 50, a vent hood 2" IG
- a mechanical level indicator (fuel dip stick)
- emptying of residues

4.0 functional niche, front side including a sealing door width 800 mm, depth 500 mm, height 2.000 mm
4.1 leak warning device
(only for double walled storage tanks)

Corrosion Protection:
- inside: rough, oiled
- outside: 2-K coating
  - RAL 3003 (ruby)
  - RAL 5007 (brilliant blue)
  - RAL 7032 (pebble grey)
  - RAL 8001 (ochre brown)

Optional Equipment:
- coating in all RAL colours
- material stainless steel

Optional Accessories:
1. functional niche for additional machines and equipment
2. separating walls for more-chamber tank
3. overfilling protection
4. equipment functional niche, front side
   4.2 - filling system for tank cars
   4.3 - withdraw system
5. level sensor
6. limiting level transmitter
7. buzzer, flashlight
8. chemical-resistant special coating
9. fire extinguisher
10. electrical tank heating
11. heater coils for heating liquids
12. strainer, pumps
13. system control
14. equipment for easily inflammable media
15. equipment for special medium such as adblue



KTE-F-TI Storage Tank Double Wall - Freeland Thermal Insulated

Applications

BASIS® KTE-F-TI Storage Tank Freeland
single wall thermal insulated 45.000 liters

BASIS® KTE-F-TI Storage Tank Freeland
single wall thermal insulated 45.000 liters

BASIS® KTD-F-TI Storage Tank Freeland
double wall thermal insulated 45.000 liters

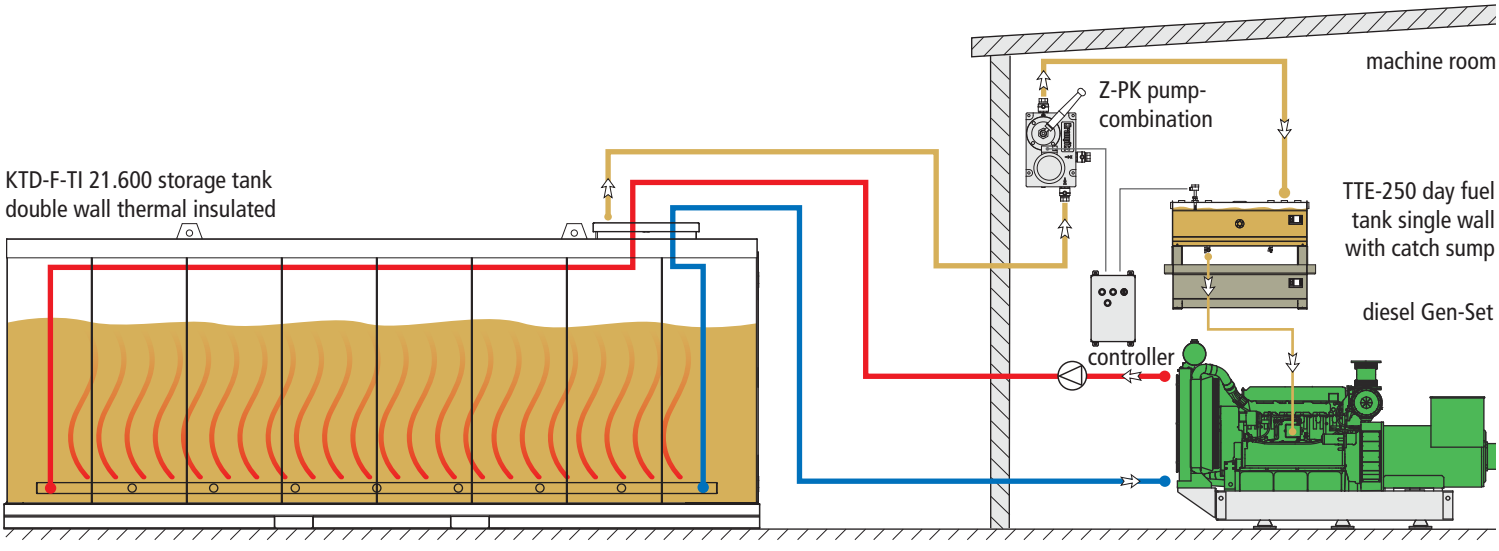
BASIS® KTD-F-TI Storage Tank Freeland
double wall thermal insulated 45.000 liters

BASIS® KTD-F-TI Storage Tank Freeland
double wall thermal insulated 45.000 liters

KTE-F-TI Storage Tank Double Wall - Freeland Thermal Insulated

Example of Use / Flow Chart

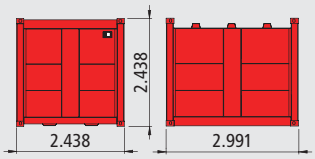
Concept of Continuous Operation:
The Gen-Set is to be operated for a long time. The tank can be set up outdoor, no catch sump is required. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off. The reservoir is filled directly by the tank car. To maintain the operating temperature the heat from the cooling system of the engine can be utilized. The flow in accordance with the requirements is governed by temperature sensor and thermostatic valve.



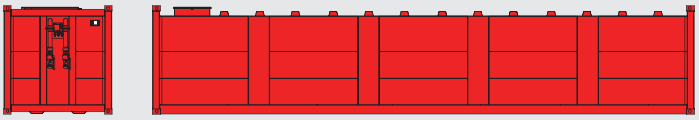
Storage Tank Container

Sizes of Containers / Container - Types

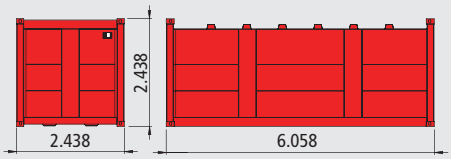
KCD-ISO 10ft. approx. 10.000 liters



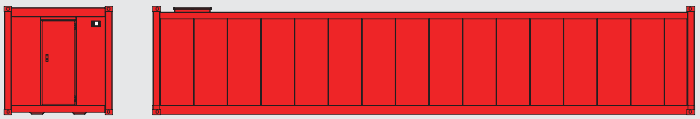
type: storage tank container



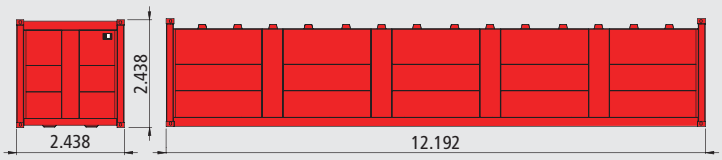
KCD-ISO 20ft. approx. 24.000 liters



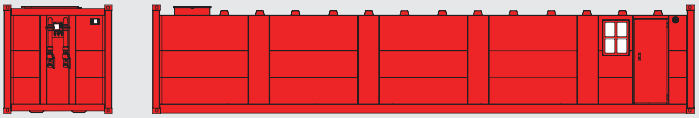
type: storage tank container with thermal insulation



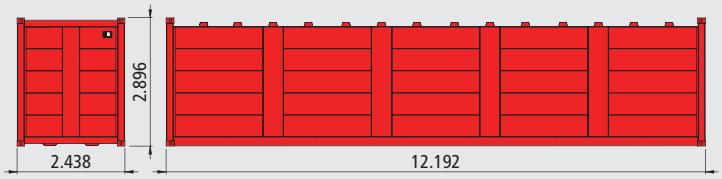
KCD-ISO 40ft. approx. 50.000 liters



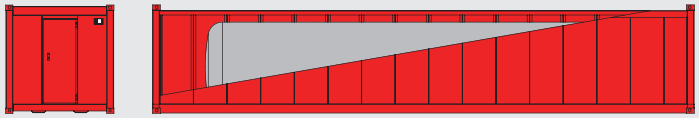
type: storage tank container with integrated machine room



KCD-ISO-HC 40ft. approx. 60.000 liters



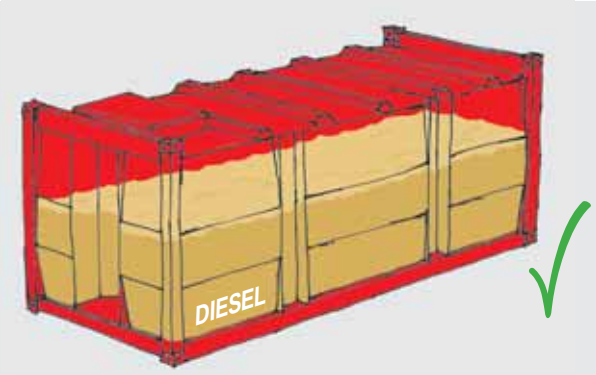
type: special type – hot water buffer storage, highly insulated with complete equipment, pressure system



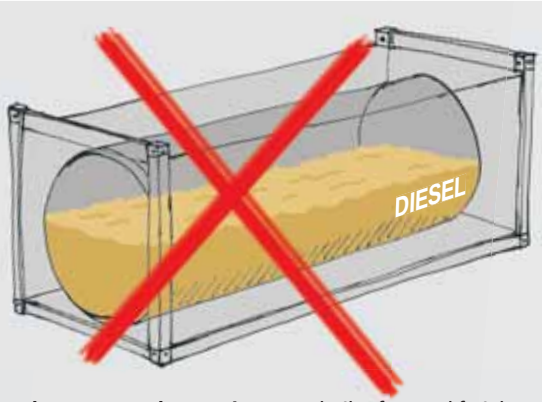
general construction-supervision approvals (DIBt): - as storage tank for liquids hazardous to water and inflammable liquids - Z-38.12-23
- as storage tank for liquids not hazardous to liquids - Z-38.11-143

Building Concept - Space Optimized - Transport Optimized

Optimal Space-Capacity Ratio Due to Cubic Building Form

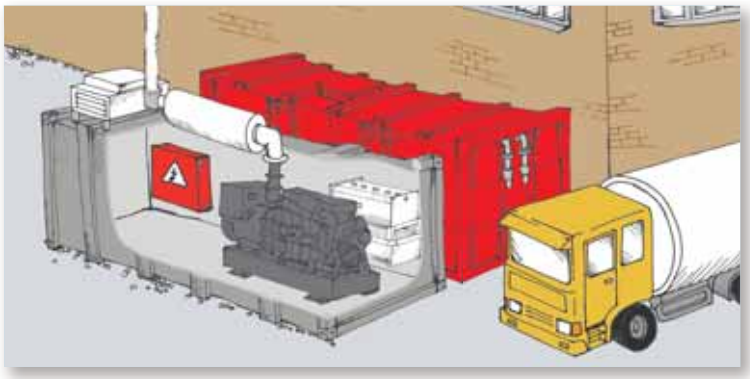


MINOTAUR® storage tank containers are volume-optimized, highly safe, and double-wall systems. The container itself is the cubic tank, in which equipment-niches for gas pump, Gen-Set, filter systems and electronic control can be integrated. A robust, functional and highly modern system-building-block is herefrom formed.



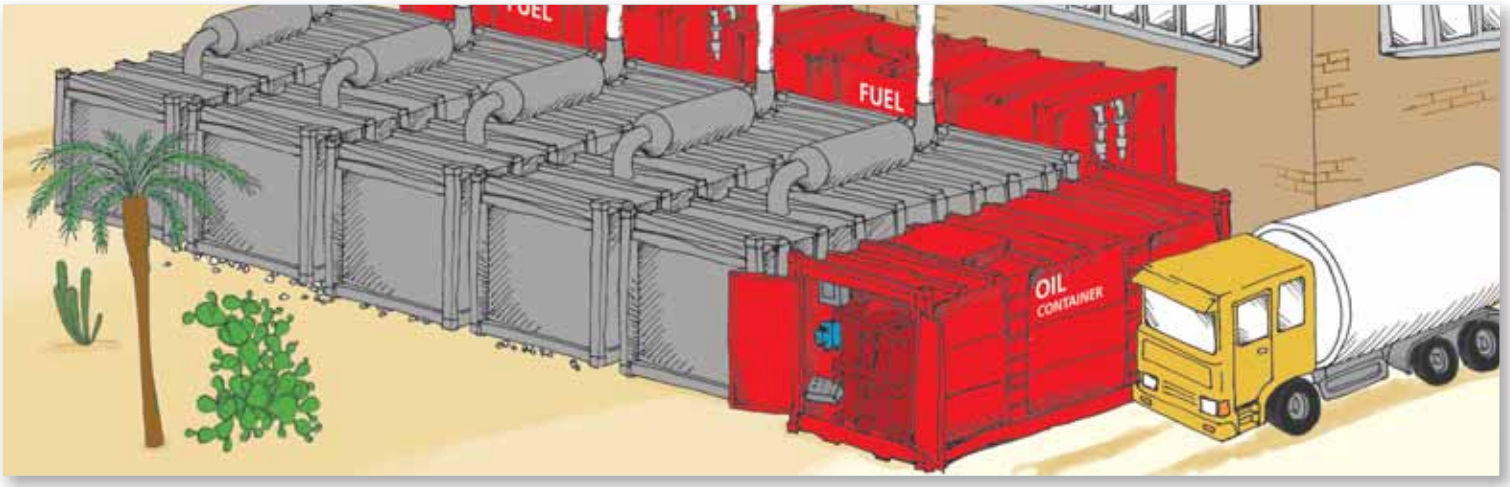
Traditional storage tank containers are built of normal freight containers, in which a round tank and the required equipment are placed at great expense. This method of construction gives away a lot of space, and it is instable.

Storage Tank Container
Applications



MINOTAUR® 20ft. Storage Tank Container and functional container for heat and power generation. The combination of a storage tank container and a functional container with an integrated Gen-Set serve to generate heat and power for the attached building.

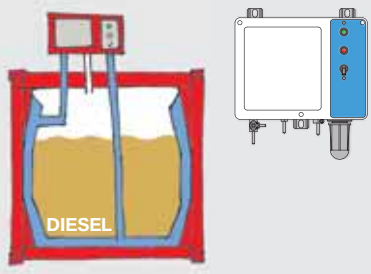
MINOTAUR® 20ft. Storage Tank Container and functional container for heat generation. The combination of a storage tank container and a functional container with an integrated CHP serve to generate heat for the attached building.



Minotaur® 20ft. Storage-Tank-Container Battery
for supplying a Gen-Set container farm with fuel and engine oil as well as the intermediate storage of incidental waste oil

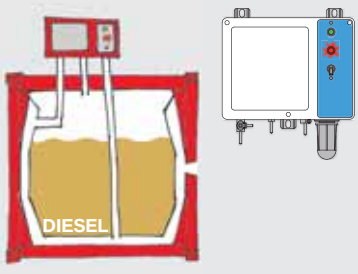
Security Concept for Double-Wall Storage Tank Container
Optimal Protection of the Fuel by Means of Vacuum Leak Monitor

Vacuum Leak Monitoring, Electronic, Type LAZ-04/1
- The alarm is given optically and acoustically (additional potential-free alarm contact).



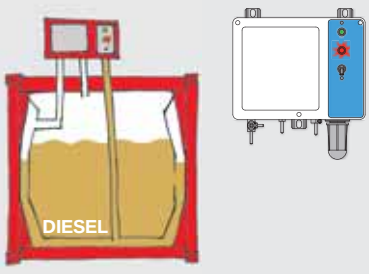
secured by vacuum

	signal
0 mbar	operation
-300 mbar	alarm light
-600 mbar	buzzer



fault: leakage in external tank

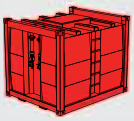
	signal
0 mbar	operation
-300 mbar	alarm light
-600 mbar	buzzer



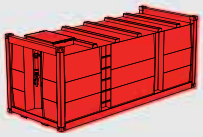
fault: leakage in internal tank

	signal
0 mbar	operation
-300 mbar	alarm light
-600 mbar	buzzer

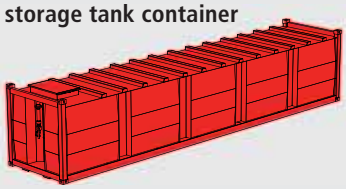
Storage Tank Container Double Wall
Description / Data Sheet



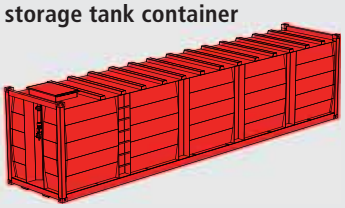
MINOTAUR® 10ft.
storage tank container



MINOTAUR® 20ft.
storage tank container



MINOTAUR® 40ft.
storage tank container



MINOTAUR® HC 40ft.
storage tank container

The Minotaur-Storage Tank Container is a cubic, double-wall construction. It is integrated in a ISO-container frame and combines all the advantages of the system, which refers to:

- transport - international transportation permission for ship, rail and road (CSC)
- storage – 8x stackable
- safety - high-static firmness and extremely robust double-wall construction with vacuum leak monitor
- storage capacity – optimal space capacity ratio due to cubic building form
- arrangement of the equipment secured in the body of the double-wall storage tank
- designed for temperature from -25°C to +55°C
- low investment cost: no additional catch sump required, sustainable ground is enough

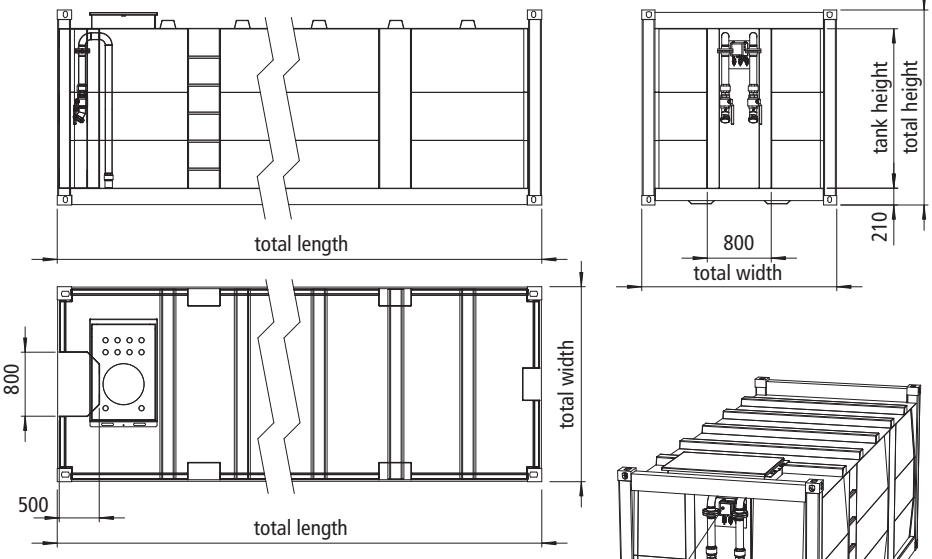
In the tank body of the Minotaur storage tank container, more functional niches are built for placement of technological modules. Available on request:

- functional niche, front side, required for power supplying the storage tank container, firmly installed for connection with power supply system

tank type	capacity 100%	capacity 95%	total length	total width	total height	tank height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	kg
KCD-ISO 10ft.	11.200	10.600	2.991	2.438	2.438	2.000	2.400
KCD-ISO 20ft.	25.200	23.900	6.058	2.438	2.438	2.000	6.800
KCD-ISO 40ft.	52.500	49.800	12.192	2.438	2.438	2.000	10.000
KCD-ISO-HC 40ft.	63.800	60.800	12.192	2.438	2.896	2.500	12.400

Please note: transportation only when empty and clean

Subject to technical changes!



Standard Equipment:

1.0 load-carrying-system construction, consisting of stable frame structure with 8 pieces ISO-corners.
2.0 robust, cubic, double-wall body of steel, material: S 235 JRG 2
2.1 ladder for climbing (steps of climbing mounted in one of the external niches)
3.0 Tank roof is a self-supporting single-wall construction.
3.1 The hatch compartment is mounted on the tank roof, consisting of:
- a sealing hood with a gas pressure spring, a handle strip and a padlock
- a man hole DN 500
- access interfaces (bush 2")
- vent connections DN 50, a vent hood 2" IG
- a mechanical level indicator (fuel dip stick)
- emptying of residues

4.0 functional niche, front side including a sealing door, width 800 mm, depth: 500 mm, height: 2.000 mm
4.1 electronic leak warning device

Corrosion Protection:

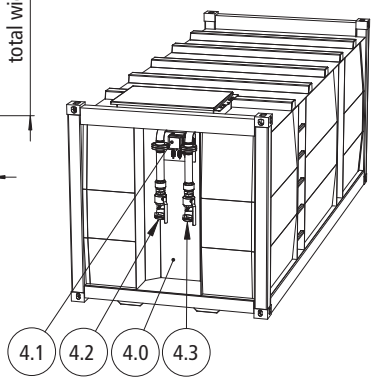
- inside : rough, oiled
- outside: 2-K coating
  - RAL 3003 (ruby)
  - RAL 5007 (brilliant blue)
  - RAL 7032 (pebble grey)
  - RAL 8001 (ochre brown)

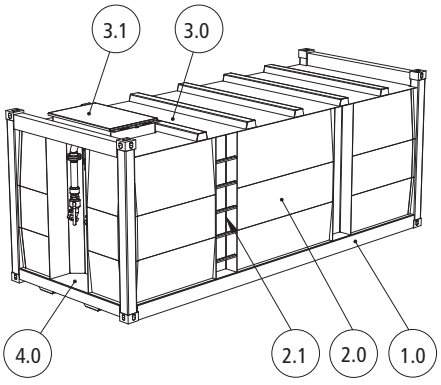
Optional Equipment:

- coating in all RAL colours
- material stainless steel

Optional Accessories:

1. functional niches for additional machines and equipment
2. separating walls for more-chamber tank
3. overfilling protection
4. equipment functional niche, front side
   4.2 filling system for tank cars
   4.3 withdraw system
5. level sensor
6. limiting level transmitter
7. buzzer, flashlight
8. chemical-resistant special coating
9. thermal insulation
10. electrical tank heater
11. heater coils for heating liquids
12. strainer, pumps
13. system control
14. fire extinguisher
15. equipment for easily inflammable media
16. equipment for special meida such as abblue





Storage Tank Container Double Wall
Applications

MINOTAUR® 10ft. Storage Container
with opened filling niche

MINOTAUR® 10ft. Storage Container
with closed filling niche

leak detector installed in the tank niche

MINOTAUR® 20ft. Storage Container
with integrated functional niche and hatch compartment

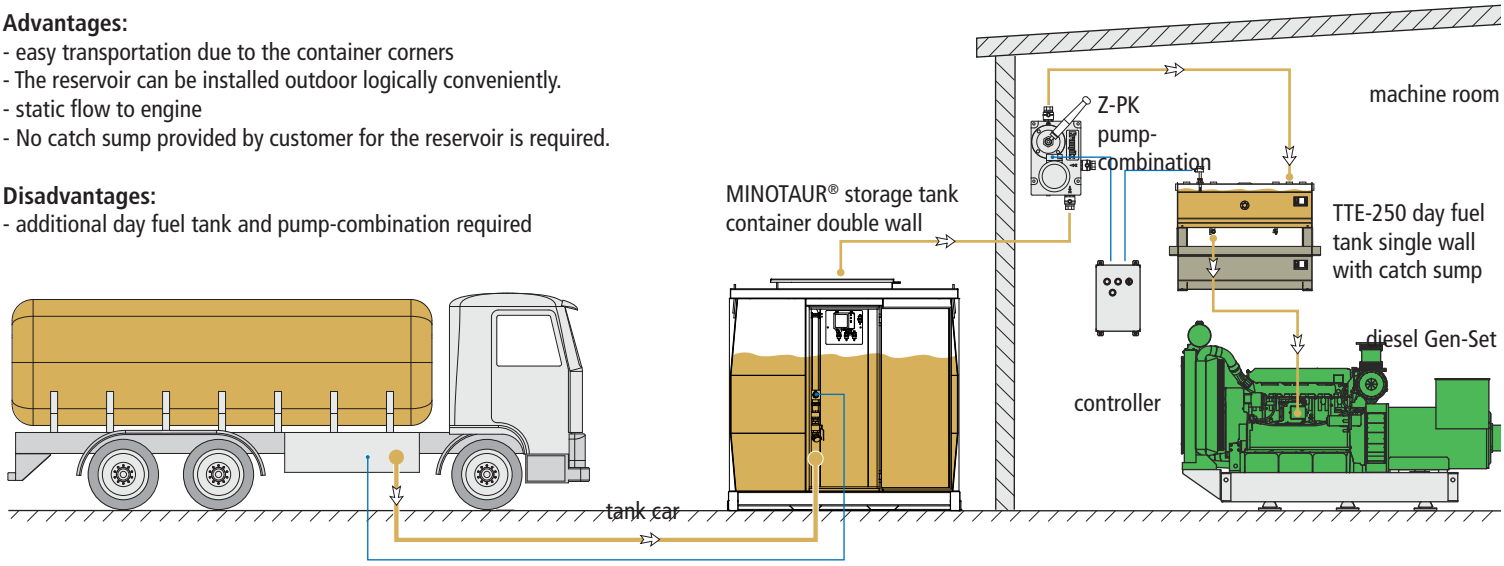
limiting level transmitter / overfill protection with tank-car plug installed in the filling nice

Storage Container Double Wall
Example of Use / Flow Chart

Concept of Continuous Operation with Day Fuel Tank
The Gen-Set is to be operated for a long time. The tank can be set up outdoor, no catch sump is required. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off. The reservoir is filled directly by the tank car.

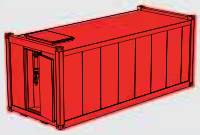
Advantages:
- easy transportation due to the container corners
- The reservoir can be installed outdoor logically conveniently.
- static flow to engine
- No catch sump provided by customer for the reservoir is required.

Disadvantages:
- additional day fuel tank and pump-combination required

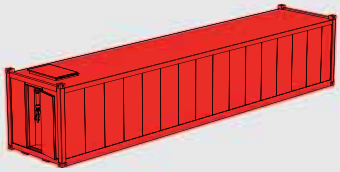


Storage Tank Container Thermal Insulated Double Wall

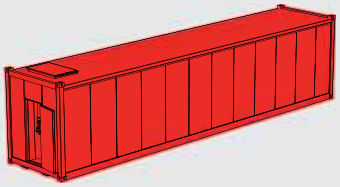
Description / Data Sheet



**MINOTAUR® 10ft.
storage tank container
thermal insulated**



**MINOTAUR® 40ft.
storage tank container
thermal insulated**



**MINOTAUR® HC 40ft.
storage tank container
thermal insulated**

The Minotaur-Storage Tank Container serves to store fuel oil, diesel, mineral oil, vegetable oil, and media which have to be heated. The Minotaur is designed for outdoor installation. The installation surface must be a smooth and sustainable concrete slab. The Minotaur can be equipped with high-grade internal coating. The Minotaur can be transported by forklift or crane without any problem. Characteristics of the tank are its double-wall, cubic construction with high-grade thermal insulation and its integration into an ISO-container-frame.

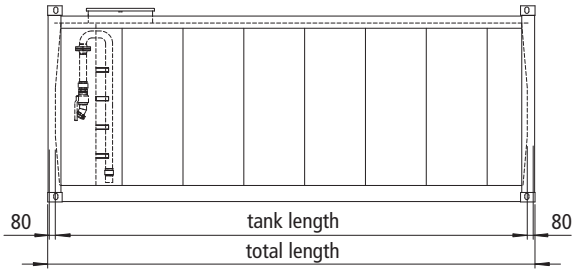
Advantages of the system are:

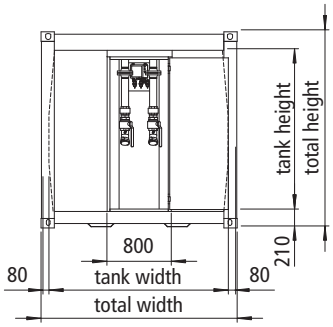
- transport - international transportation permission for ship, rail and road (CSC)
- storage – 8x stackable (empty)
- safety - high-static firmness and extremely robust double-wall construction with vacuum leak monitor and thermal insulation
- storage capacity – optimal space capacity ratio due to cubic building form
- arrangement of the equipment secured in the body of the double-wall storage tank
- designed for temperature from -25°C to +55°C
- low investment cost: no additional catch sump required, sustainable ground is enough

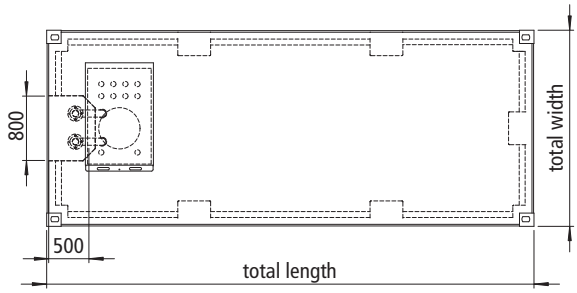
tank type	capacity 100%	capacity 95%	total length	tank length	total width	tank width	total height	tank height	weight (empty)
no. of type	litre	litre	mm	mm	mm	mm	mm	mm	kg (ca.)
KCD-ISO-TI 10ft.	9.800	9.300	2.991	2.761	2.438	2.208	2.438	2.000	3.200
KCD-ISO-TI 20ft.	22.300	21.200	6.058	5.828	2.438	2.208	2.438	2.000	7.280
KCD-ISO-TI 40ft.	46.400	44.000	12.192	11.962	2.438	2.208	2.438	2.000	11.600
KCD-ISO-HC-TI 40ft.	58.400	55.600	12.192	11.962	2.438	2.208	2.896	2.500	14.200

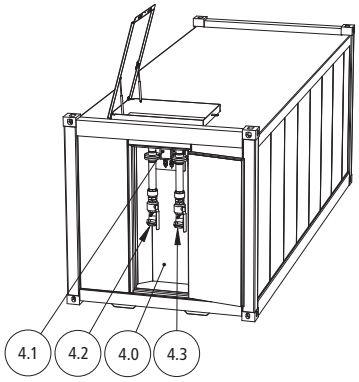
Please note: transportation only when empty and clean

Subject to technical changes!









Standard Equipment:

1.0 load-carrying-system construction, consisting of stable frame structure with 8 pieces ISO-corners.
2.0 robust, cubic, double-wall body of steel, material: S 235 JRG 2, thermal insulated thickness 80mm
3.0 Tank roof is a self-supporting single-wall construction, thermal insulated.
3.1 The hatch compartment is mounted on the tank roof, consisting of:
- a sealing hood with a gas pressure spring, a handle strip and a padlock
- a man hole DN 500
- access interfaces (bush 2")
- vent connections DN 50, a vent hood 2" IG
- a mechanical level indicator (fuel dip stick)
- emptying of residues

4.0 functional niche, front side including a sealing door, width: 800 mm, depth: 500 mm, height: 2.000 mm
4.1 electronic leak warning device

Corrosion Protection:

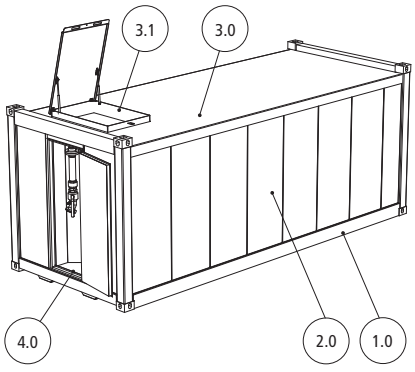
- inside : rough, oiled
- outside: 2-K coating
  - RAL 3003 (ruby)
  - RAL 5007 (brilliant blue)
  - RAL 7032 (pebble grey)
  - RAL 8001 (ochre brown)

Optional Equipment:

- coating in all RAL colours
- material stainless steel

Optional Accessories:

1. functional niches for additional machines and equipment
2. separating walls for more-chamber tank
3. overfilling protection
4. equipment functional niche, front side
   4.2 filling system for tank cars
   4.3 withdraw system
5. level sensor
6. limiting level transmitter
7. buzzer, flashlight
8. chemical-resistant special coating
9. electrical tank heater
10. heater coils for heating liquids
11. strainer, pumps
12. system control
13. fire extinguisher
14. equipment for easily inflammable media
15. equipment for special meida such as abblue



Storage Tank Container Thermal Insulated Double Wall
Applications

MINOTAUR® 40ft. Storage Container Thermal Insulated delivery

MINOTAUR® 40ft. Storage Container Thermal Insulated with opened filling niche

filling system for tank car / limiting level transmitter overfill protection / ISO-corner

MINOTAUR® 20ft. Storage Container Thermal Insulated loaded by forklift

MINOTAUR® 20ft. Storage Container Thermal Insulated delivery

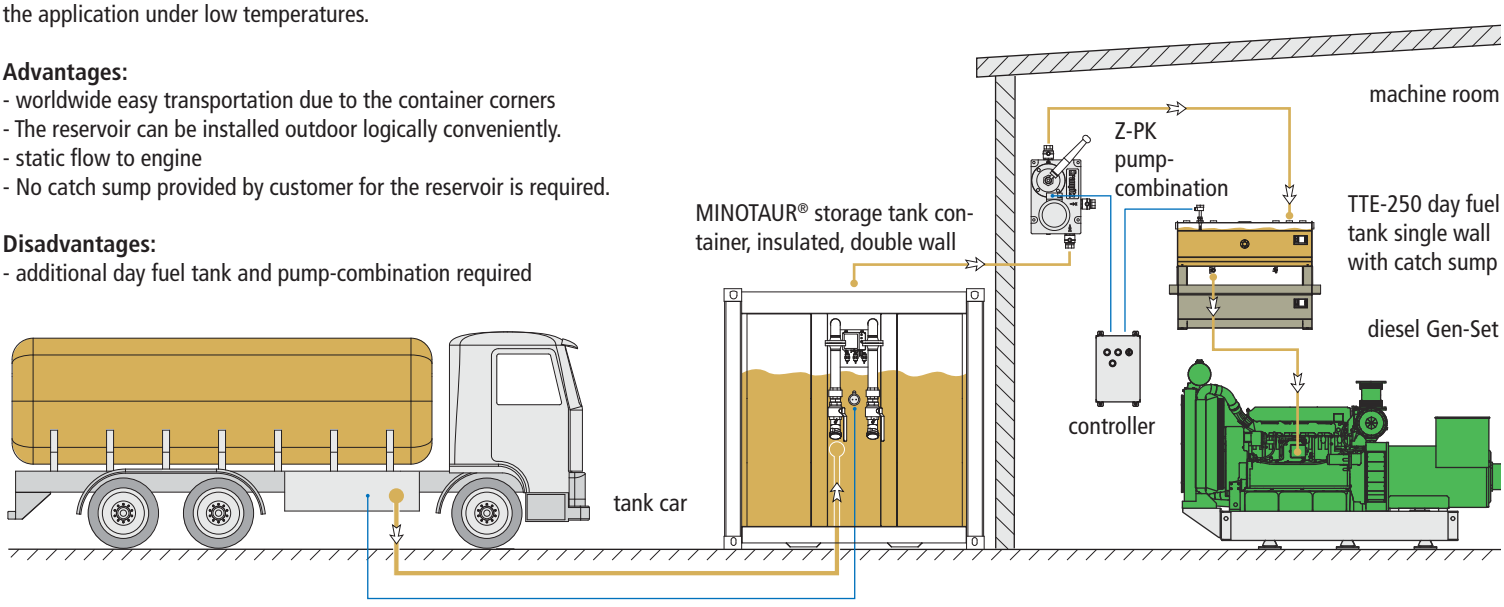
Storage Tank Container Thermal Insulated Double Wall
Example of Use / Flow Chart

Concept of Continuous Operation with Day Fuel Tank

The Gen-Set is to be operated for a long time. The tank can be set up outdoor, no catch sump is required. Supply with necessary fuel is carried out by a day fuel tank which is placed on a higher level. The fuel flows under static pressure directly to fuel injection pump of the engine. Since a larger quantity of fuel is to be consumed, filling the day fuel tank is carried out by a pump-combination from a reservoir. A controller records the filling level in the day fuel tank by means of a level sensor and turns the pump-combination on and off. The reservoir is filled directly by the tank car. The thermal insulation prevents the liquid from quick cooling-down and ensures the application under low temperatures.

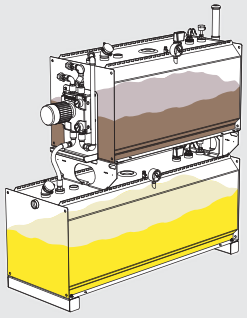
Advantages:
- worldwide easy transportation due to the container corners
- The reservoir can be installed outdoor logically conveniently.
- static flow to engine
- No catch sump provided by customer for the reservoir is required.

Disadvantages:
- additional day fuel tank and pump-combination required



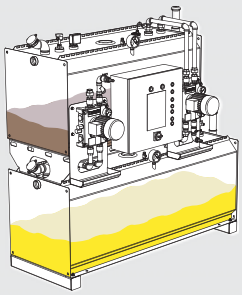
Installation Details for Oil Supply System to Industrial Combustion Engine
Minimal / Ideal / Maximal

MINIMAL - Oil Supply System



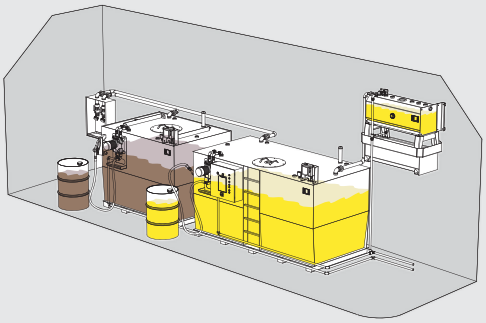
"Minimal" is normally used for small combustion engines. Both fresh and waste oil are conveyed with one pump. This system and the Ideal may be maximum 6 meters away from the combustion engine. The step height in the waste-oil intake pipe cannot exceed 1.500 mm. This system is for supplying at most two combustion engines.

IDEAL - Oil Supply System



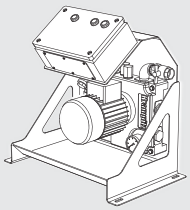
For high quality requirements the system "Ideal" is employed. Two separate pumps are used here, which are for operation of fresh and waste oil respectively. With these pumps the fresh oil can be conveyed from barrels to the machine, and waste oil can be filled into the barrels from the machine. Furthermore, a pulser is integrated in the controller, which is responsible for automatic refilling of fuel into the engine sump. Small flow rate is made by the pulser. This system is for supplying at most two combustion engines.

MINIMAL - Oil Supply System



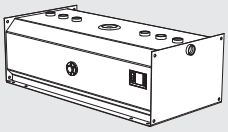
The system "Maximal" is used for large machines with more engines, more day fuel tanks, and the waste oil intake station "OSP". It is expandable without any restriction. Two separate pumps are employed for fresh and waste oil. The functional principle is similar to Ideal system.

Waste Oil Intake Station OSP



The waste oil intake station "OSP" is used everywhere at which the oil supply system is 6 meters away from the combustion engines, or at which the height differential in the waste-oil-intake pipe is more than 1.500mm, because they might cause cavitation.

TTE – Day Fuel Tank



Day fuel tank is used for larger machines to hold engine oil locally. As a general rule, the rate of consumption on a weekly basis is set directly to engine. The filling is carried out periodically by pumps from the reservoir when the minimum filling level is reached.

Calculation of Required Quantity of Lube Oil
Formula / Factors of Calculation

$V_{fresh\ oil\text{-}tank}$ (Litre) - required volume of fresh-oil tank

$$V_{fresh\text{-}oil\ tank}\ (liter) = (V_{W\text{-}engine} + V_{V\text{-}engine}) * J * Z$$

$$V_{V\text{-}engine} = m_{V\text{-}engine} * 1/\rho_{oil} * P_{engine} * t_{oil}$$

$V_{waste\text{-}oil\ tank}$ (litre) - required volume of waste-oil tank

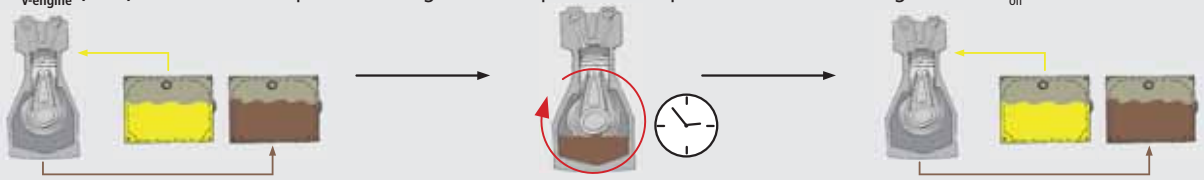
$$V_{waste\text{-}oil\ tank}\ (litre) = V_{W\ engine} * J * Z$$

$V_{W\text{-}engine}$ (litre) - capacity of the engine-oil sump and the lube-oil system

max. approved filling-volume of the engine-oil in the engine-oil sump

$m_{V\text{-}engine}$ (g/kWh) - special oil consumption of an engine as parameter of manufacturer (fluctuates between 0,3 and 1,2 g/kWh)

$V_{V\text{-}engine}$ (litre) - lube oil consumption of an engine due to special consumption within the oil-change interval t_{oil}

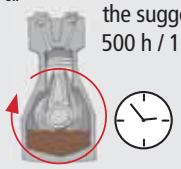


change of engine oil 1 — operation time of the engine e.g. 1.000h — change of engine oil 2

e.g. 100 ltr. oil consumption of the engine for 1000h

Factors of Calculation
Minimal / Ideal / Maximal

t_{oil} (hour) - running time of engine within a oil change interval according to the suggestion of manufacturer and type of fuel varies from 500 h / 1000 h / 1500 h per oil change



P_{engine} (kW) - engine power

power of engine (For the calculation the average output is binding in real operation.)

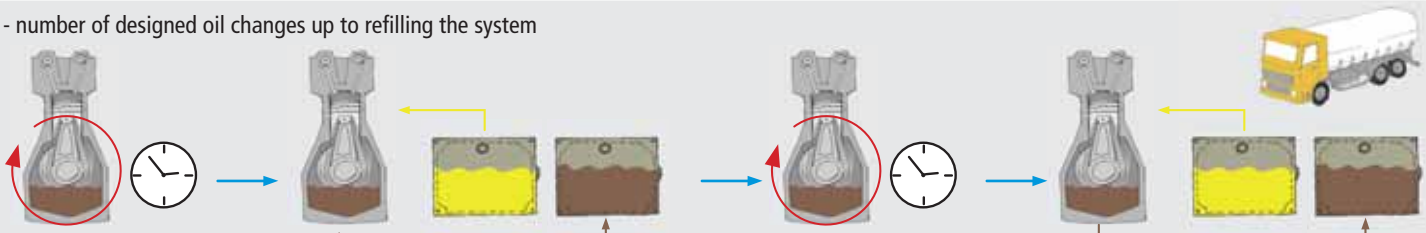
ρ_{oil} (g/Litre) - specific density

of lube oil (mostly approx. 860g/litre)

Z - number of engines supplied with one system

engine 1 | engine 2 | engine 3 | engine 4 | engine 5 | engine 6 | engine 7 | engine 8

J - number of designed oil changes up to refilling the system



oil change interval, e.g. 1000h

engine oil change 1

oil change interval of engine, e.g. 1.000h

engine oil change **2**

Example of Calculation
Minimal / Ideal / Maximal

P_{engine} = 360 kW
$m_{V\text{-}engine}$ = 0,48 g/kWh
t_{oil} = 500 hours
ρ_{oil} = 860 g/litre
J = 4 changes (approx. every 20 days, provision/disposal after 80 days (1/4- annually)
Z = 2 engines
$V_{W\text{-}engine}$ = 38 litre

$V_{V\text{-}engine} = m_{V\text{-}engine} * 1/\rho_{oil} * P_{engine} * t_{oil}$

$V_{V\text{-}engine}$ = 0,48 g/kWh * 1/860 g/litre * 360 kW * 500 h

$V_{V\text{-}engine}$ = 100,5 litre

$V_{fresh\text{-}oil\ tank} = (V_{W\text{-}engine} + V_{V\text{-}engine}) * J * Z$

$V_{fresh\text{-}oil\ tank}$ = (38 litre + 100,5 litre) * 4 * 2

$V_{fresh\text{-}oil\ tank}$ = 1.108 litre

$V_{waste\text{-}oil\ tank} = V_{engine} * J * Z$

$V_{waste\text{-}oil\ tank}$ = 38 litre * 4 * 2

$V_{waste\text{-}oil\ tank}$ = 304 litre

selected module e.g.: Minimal IV, Ideal IV or Maximal I
(definitely for a consumption of 20% higher)

P_{engine} = 1.067 kW
$m_{V\text{-}engine}$ = 0,3 g/kWh
t_{oil} = 500 hours
ρ_{oil} = 860 g/litre
J = 2 changes (approx. every 10 days, provision/disposal after 40 days (1/4- annually)
Z = 1 engine
$V_{W\text{-}engine}$ = 330 litre

$V_{V\text{-}engine} = m_{V\text{-}engine} * 1/\rho_{oil} * P_{engine} * t_{oil}$

$V_{V\text{-}engine}$ = 0,3 g/kWh * 1/860 g/litre * 1.067 kW * 500 h

$V_{V\text{-}engine}$ = 186 litre

$V_{fresh\text{-}oil\ tank} = (V_{W\text{-}engine} + V_{V\text{-}engine}) * J * Z$

$V_{fresh\text{-}oil\ tank}$ = (330 litre + 186 litre) * 2 * 1

$V_{fresh\text{-}oil\ tank}$ = 1.032 litre

$V_{waste\text{-}oil\ tank} = V_{enine} * J * Z$

$V_{waste\text{-}oil\ tank}$ = 330 litre * 2 * 1

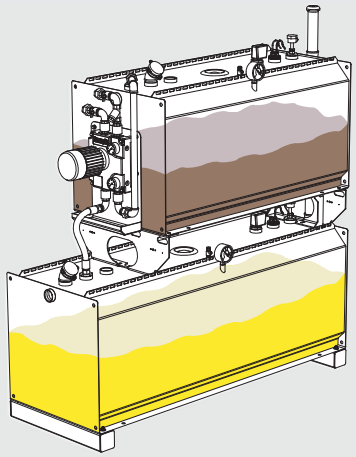
$V_{waste\text{-}oil\ tank}$ = 660 litre

selected module e.g.: Minimal IV, Ideal IV or Maximal I
(definitely for a consumption of 20% higher)

MINIMAL Oil Supply System - Complete System

Description / Data Sheet

The MINIMAL is especially designed for oil change and oil supply to industrial combustion engines. The characteristic of MINIMAL is its compact construction method. All required functions and armatures are integrated in the system.
The MINIMAL has a fresh oil and a waste oil tank make of steel available. To perform the safe supply and disposal process, the system is equipped with a pump unit and a central controller with all required sensors and armatures.



Functions:
1) continual oil supply to the engines from fresh oil tank (oil refilling)
2) oil change: sucking the waste oil from the oil sump, filling the oil sump with fresh oil
3) third-party fueling the system with fresh oil by means of tank car
4) third-party disposal of the waste oil from waste oil tank by means of tank car
5) storage of up to 2000 litre fresh oil or 1500 liter waster oil in the system

	Litre	fresh oil tank				
		TTD 500	TTD 750	TTD 990	TTD 1.500	TTD 1.950
waste oil tank	TTD 250	Minimal I	-	-	-	-
	TTD 500	-	Minimal II	-	-	-
	TTD 750	-	-	Minimal III	-	-
	TTD 990	-	-	-	Minimal IV	-
	TTD 1.500	-	-	-	-	Minimal V

For further technical data please refer to data sheets of TTD and accessories.

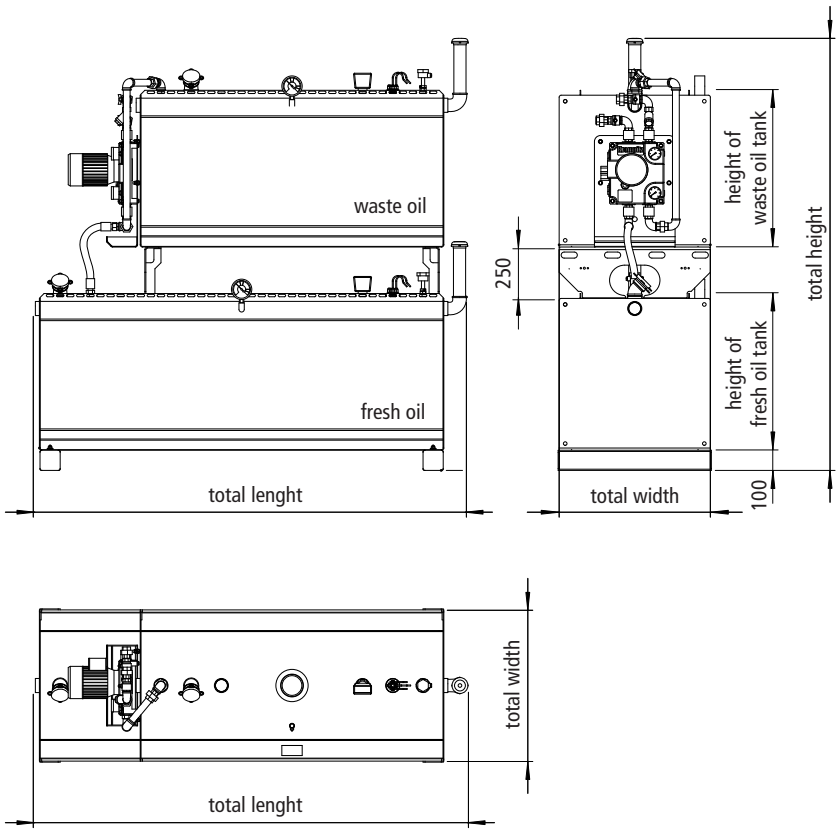
Standard Equipment of Fresh Oil Tank
- fresh oil tank reservoir – double wall of steel
- static vacuum leak monitor KÜR 5, design approved
- bursting disk 115mm
- mechanical level indicator
- overfill protection AE-200 with AE-201
- block pump Gen-Set 27 liters/min, 5,0 bar, 400 V, 0,75kW
  1 mounting plate with catch sump
- filling connection 2" for tank sump with filling
  pipe connection
- vent connection 2" with hood
- suction tube 1" with foot valve
- 2x spare bushings 2"
- system controller

Special Equipment Fresh Oil
- overfill- acknowledging device, tank-car shutoff for fresh oil
- level indicator electronic type LC V

Standard Equipment of Waste Oil Tank:
- waste oil tank reservoir – double wall made of steel
- static vacuum leak monitor KÜR 5, design approved
- bursting disk 115mm
- mechanical level indicator
- overfill protection AE-200 with AE-201
- vent connection 2" with hood
- suction tube 2" with tank sump sealing
- 2x spare bushings 2"
- system controller

Special Equipment Waste Oil
- level indicator electronic type LC V

View Main Components MINIMAL
Example System: Minimal lll, fresh oil tank TTD 990, waste oil tank TTD 750



Advantages:
- Compact unit, which combines all elements into smallest space for continuous oil supply to combustion engines (e.g. CHP, power station), oil change and own- and third-party fueling with the highest ease of use and the most modern leakage monitoring in itself.
- The fresh oil pump Gen-Set can be coupled with a pulser which is responsible for the automatic operation. The small conveyor capacity of the pump will prevent a sudden overfilling of the oil sump as well as whirling up of oil sludge. When switching the modes of function, no additional ball valves must be used (except stop valve from oil sump of the engine).
- Considerable economy of assembling time on the building site, short piping paths due to direct installation at the engines.
- Economy of construction costs because no separate oil stockroom is necessary and only small room is required for the unit.

MINIMAL Oil Supply System - Complete System
Applications

OPTIMAL® MINIMAL III Oil Supply System with Z-PG pump Gen-Set at the long side and controller

OPTIMAL® MINIMAL III Oil Supply System with Z-PG pump Gen-Set at the long side and controller

OPTIMAL® MINIMAL Special 2 x 300 litre Oil Supply System with Z-PG Pump Gen-Set

MINIMAL Oil Supply System - Complete System
Flow Chart and Explanations

Combination of Operation with a Z-PG pump Gen-Set
The waste oil is sucked through the first conveying path from the engine oil sump of the combustion engine and conveyed into the waste oil tank. After switching the rotating direction the fresh oil is sucked through the second conveying path from the fresh oil tank and conveyed in the engine oil sump.

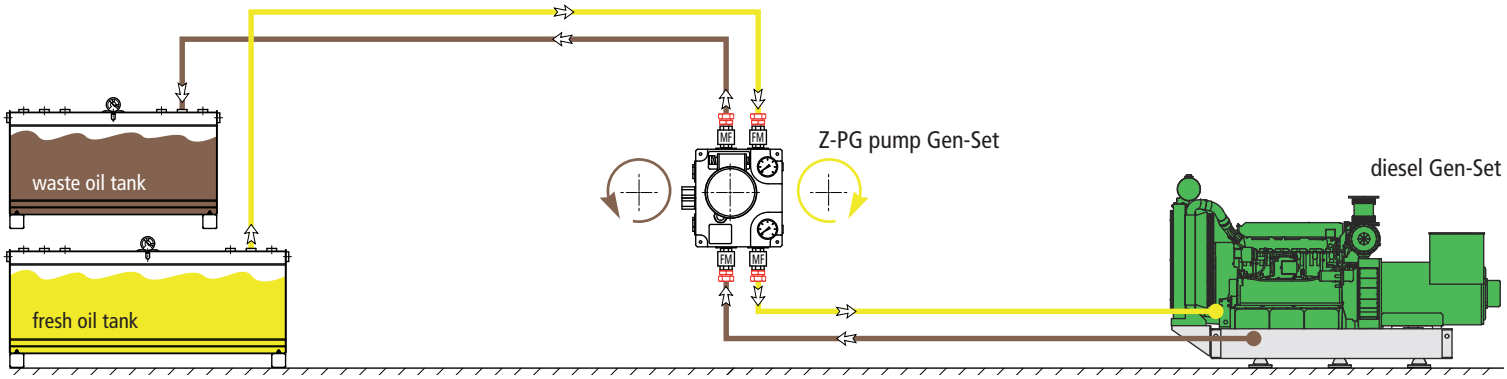


Chart - Combination of Operation with a Z-PG pump Gen-Set
Waste oil is sucked from the engine oil sump by a Z-PG pump Gen-Set and conveyed into the waste oil tank. After it the fresh oil is conveyed by the same pump from fresh oil tank into the engine oil sump.

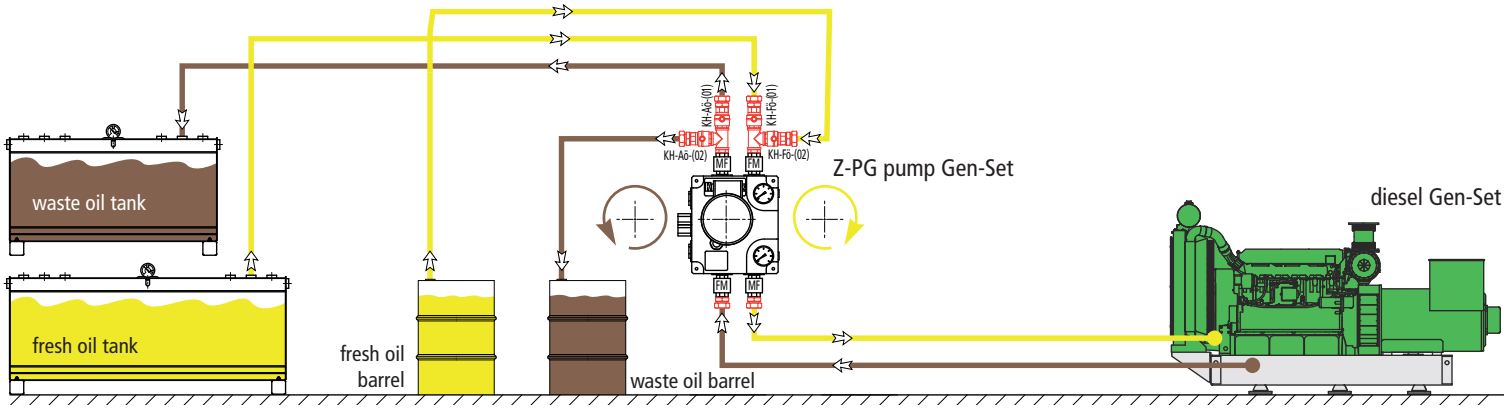
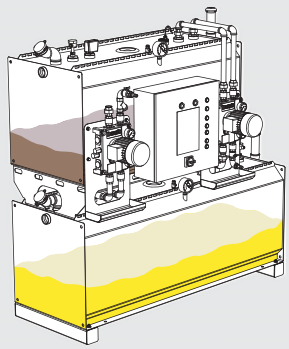


Chart – Combination of Operation with a Z-PG pump Gen-Set
Waste oil is sucked from the engine oil sump by a Z-PG pump Gen-Set and conveyed into the waste oil tank or a barrel. After it the fresh oil is conveyed by the same pump from fresh oil tank or a barrel into the engine oil sump.

IDEAL Oil Supply System - Complete System

Description / Data Sheet

The IDEAL is especially designed for oil change and oil supply to industrial combustion engines. The characteristic of IDEAL is its compact construction method. All required functions and armatures are integrated in the system.
The IDEAL has a fresh oil and a waste oil tank make of steel available. To perform the safe supply and disposal process, the system is equipped with a fresh oil and a waste oil pump unit and a central controller with all required sensors and armatures.



Functions:
1) continual oil supply to the engines from reservoir
2) oil change: sucking the waste oil from the oil sump, filling the oil sump with fresh oil
3) fuelling the fresh oil tank from the barrel possible
4) disposal of the waste oil from waste oil tank into barrel possible
5) third-party fueling the system with fresh oil by means of tank car
6) third-party disposal of the waste oil from waste oil tank by means of tank car

	Litre	fresh oil tank				
		TTD 500	TTD 750	TTD 990	TTD 1.500	TTD 1.950
waste oil tank	TTD 250	Ideal I	-	-	-	-
	TTD 500	-	Ideal II	-	-	-
	TTD 750	-	-	Ideal III	-	-
	TTD 990	-	-	-	Ideal IV	-
	TTD 1.500	-	-	-	-	Ideal V

For further technical data please refer to data sheets of TTD and accessories.

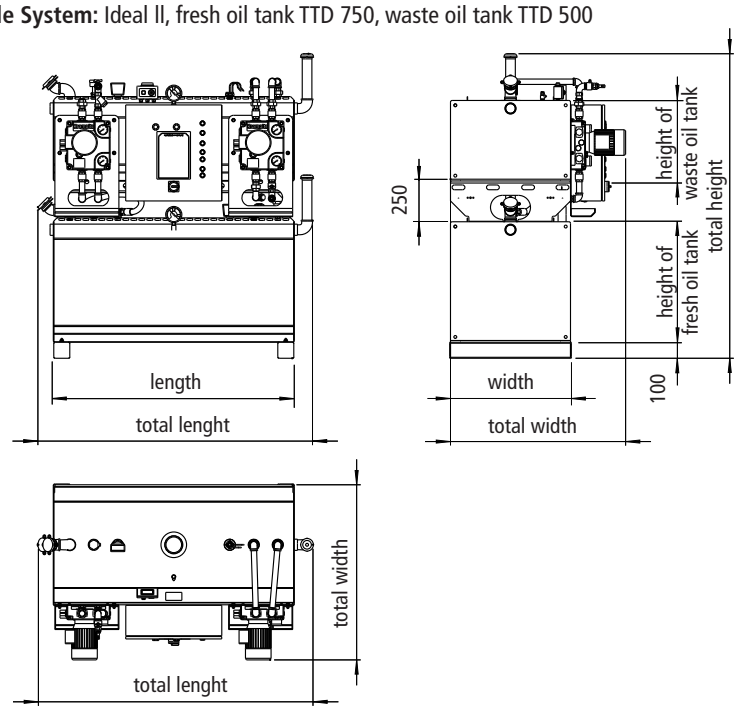
Standard Equipment of Fresh Oil Tank
- fresh oil tank reservoir – double wall of steel
- static vacuum leak monitor KÜR 5, design approved
- bursting disk 115mm
- 2x level indicator (Min+Max) type AE-100-E with cable connection AM-987
- mechanical level indicator type AM-002
- overfill protection/level limiter AE-200 with AE-201+ AE-201
- block pump Gen-Set 27 liters/min, 5,0 bar, 400 V, 0,75kW controller, mounting plate with catch sump
- filling connection 2" for tank car with filling pipe connection
- vent connection 2" with hood
- suction tube 1" with foot valve
- 2x spare bushings 2"
- system controller

Special Equipment Fresh Oil
- overfill- acknowledging device, tank-car shutoff fresh oil
- barrel connector, intake tube 1" with tool holder and ball valve
- electronic level indicator type AE-115-V
- filling and disposal cabinet

Standard Equipment of Waste Oil Tank:
- waste oil tank reservoir – double wall made of steel
- static vacuum leak monitor KÜR 5, design approved
- bursting disk 115mm
- 2x level sensor (Min+Max) type AE-100-E with cable connection AM-987
- mechanical level indicator type AM-002
- overfill protection/level limiter type AE-200 with AE-201
- block pump Gen-Set 27 litres/min, 5,0 bar, 400 V, 0,75 kW, controller, mounting plate with catch sump
- vent connection 2" with hood
- suction tube 2" with tank car sealing
- 2x spare bushings 2"
- system controller

Special Equipment Waste Oil
- barrel connector, intake tube 1" with tool holder and ball valve
- suction tube 1"
- level indicator electronic type AE-115-V

View Main Components IDEAL
Example System: Ideal II, fresh oil tank TTD 750, waste oil tank TTD 500



Advantages:
- Compact unit, which combines all elements into smallest space for continuous oil supply to combustion engines (e.g. CHP, power station), oil change and own- and third-party fueling with the highest ease of use and the most modern leakage monitoring in itself.
- By means of analog and electronic liquid level measurement, the individual filling level can be displayed in control centre.
- No mixture of media will take place due to application of separate fresh oil and waster oil pumps of type Z-PG.
- The fresh oil pump Gen-Set is controlled by a pulser. The small conveyor capacity of 6 litres/min will prevent a sudden overfilling of the oil sump as well as whirling up of oil sludge. When switching the modes of function, no additional ball valves must be used (except stop valve from oil sump of the engine).
- Considerable economy of assembling time on the building site, short piping paths due to direct installation at the engines.
- Economy of construction costs because no separate oil stockroom is necessary and only small room is required for the unit.

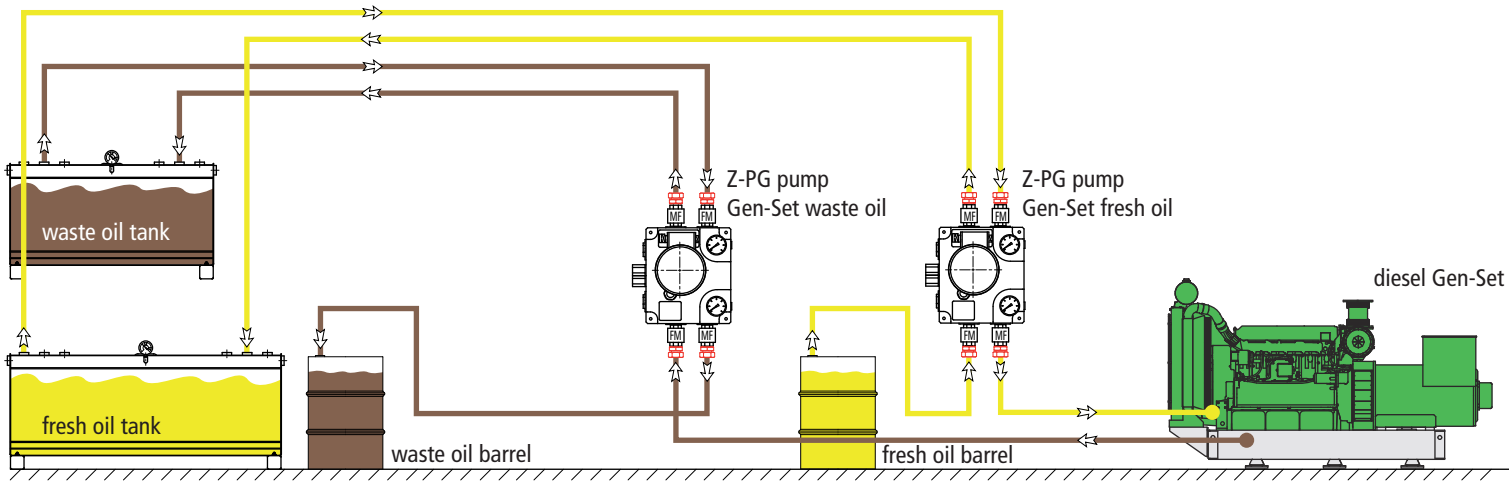
IDEAL Oil Supply System - Complete System
Applications

OPTIMAL® IDEAL II Oil Supply System
with 2x Z-PG Pump Gen-Set and Controller

OPTIMAL® IDEAL III Oil Supply System
with 2x Z-PG Pump Gen-Set and Controller

IDEAL Oil Supply System - Complete System
Flow Chart and Explanations

Operation with Two Separate Z-PG Pump Gen-Sets
Two Z-PG-Gen-Sets are required for the separate operation. The advantage: No mixture of fresh oil and waste will take place.



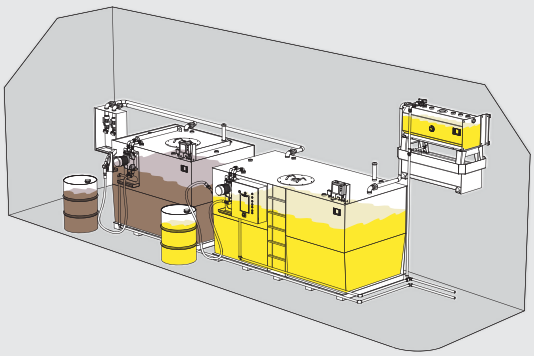
Oil Change of Engine:
Z-PG-pump Gen-Set of waste oil: Trough the first conveying path the waste oil pump is sucked from the engine oil sump and conveyed in an accordant tank. Through the second conveying path the oil is conveyed from the tank into barrels after switching the rotating direction.
Z-PG-pump Gen-Set of fresh oil: Trough the first conveying path the fresh oil is conveyed from the barrels by the fresh oil pump in a accordant tank.
Through the second conveying path the oil is conveyed from the tank into the engine oil sump.

Fuelling and Disposal of the System:
The fresh oil tank can be filled by a tank car. The overfill protection prevents an overfilling by means of turning off the tank-car pump.
The waste oil tank car is emptied through a tank-car connection to suction tube. The overfill protection will be turned off when the tank car is full.
Alternatively, the supply/disposal can be carried out through barrel connector and the controller of the system itself. In doing so the waste oil tank will be emptied or the fresh oil tank will be filled by simply changing the rotating direction of the pumps to the right connection of the accordant lines.

MAXIMAL Oil Supply System - Complete System

Description / Data Sheet

The MAXIMAL is especially designed for oil change, oil supply to big or more industrial combustion engines and more oil changes. The characteristic of MAXIMAL is its compact construction method. All required functions and armatures are integrated in the system.
The MAXIMAL has a fresh oil and a waste oil tank make of steel available. To perform the safe supply and disposal process, the system is equipped with a pump Gen-Set and a central controller with all required sensors and armatures.



	Litre	fresh oil tank					
		KTD 1.500	KTD 2.000	KTD 4.000	KTD 6.000	KTD 9.000	KTD 12.000
waste oil tank	KTD 950	Maximal I	-	-	-	-	-
	KTD 1.500	-	Maximal II	-	-	-	-
	KTD 2.000	-	-	Maximal III	-	-	-
	KTD 3.000	-	-	-	Maximal IV	-	-
	KTD 6.000	-	-	-	-	Maximal V	-
	KTD 9.000	-	-	-	-	-	Maximal VI
day fuel tank	TTE 100	x	x	-	-	-	-
	TTE 250	-	x	x	x	x	x
	TTE 500	-	-	x	x	x	x

Note:
The fresh oil tanks are available with different sizes for choice: TTE 100, TTE 250 or TTE 500. The possibilities of combinations please see the above table. The day fuel tank with catch sump can be fastened on the wall with a bracket, installed on a suitable stand column or directly on the fresh oil tank (The delivery is carried out disassembly).
For further technical data please refer to data sheets of KTD, TTE, TW and accessories.

Standard Equipment of Fresh Oil Tank
- fresh oil tank reservoir – double wall of steel
- electronic level indicator type AE-115-V with two 2 switching point (min-min, max)
- overfill protection/level limiter type AE-200 with AE-201+ AE-201
- Z-PG pump Gen-Set with catch sump
- filling connection 45° 2" with tank-car connection 2"x 2 1/2"
- vent connection 2" with e-hood
- suction tube 1" with foot valve
- system controller
- Further standard equipment see KTD data sheet.

Special Equipment Fresh Oil
- overfill- acknowledging device, tank sump- shutoff for fresh oil
- barrel connector, intake tube 1" with tool holder and ball valve

Standard Equipment of Waste Oil Tank:
- waste oil tank reservoir – double wall made of steel
- electronic level indicator type AE-115-V with two 2 switching point (min-min, max)
- overfill protection/level limiter type AE-200 + AE-201
- Z-PG pump Gen-Set with catch sump
- vent connection 2" with e-hood
- suction tube 2" with with tank-car connection 2"x 2 1/2"
- suction tube 1" in barrel
- Further standard equipment see KTD data sheet.

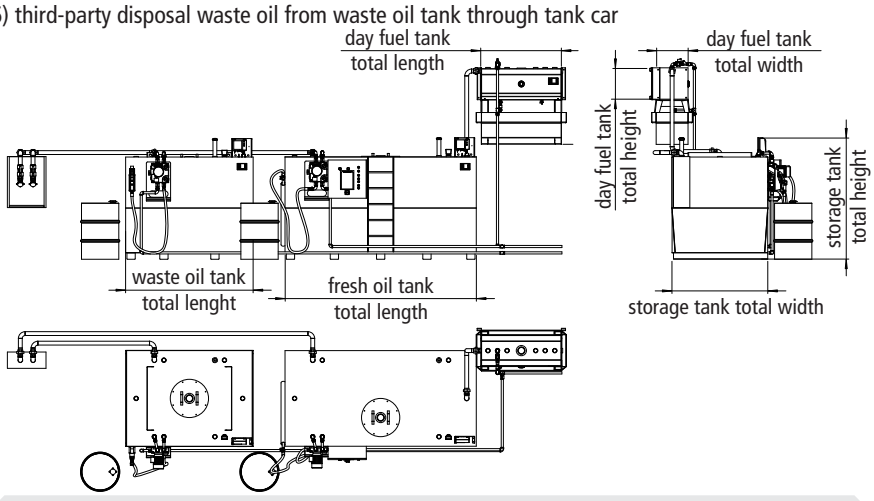
Special Equipment Waste Oil
- barrel connector, pressure hose 1" with tool holder and ball valve

Standard Equipment Day Fuel Tank
- day fuel tank – single wall of steel
- catch sump – single wall of steel
- wall bracket of steel
- electronic level indicator type AE-115-V with two 2 switching point (min-min, max)
- overfill protection/ level limiter type AE-200 + AE-201
- vent connection 2" with e-hood
- emptying of residues with KFE-cock 3/4"
- extraction with ball cock and angle 1"
- over flow connection 2"
- oil warning-probe for catch sump AE-303
- Further standard equipment see TTE data sheet!

Special Equipment TTE
- height of vertical column: 1.000 mm and 1.500 mm

View Main Components MAXIMAL
Example System: MAXIMAL IV, fresh oil tank KTD 6.000, waste oil tank KTD 3.000, day fuel tank TTE 500

Functions:
1) continuous oil supply to the engines from the reservoir which is filled automatically
2) oil change, sucking of waste oil from the oil sump, filling the oil sump with fresh oil
3) fuelling the fresh oil tank from barrel possible
4) disposal waste oil from waste oil tank into barrel possible
5) third-party fuelling the system with fresh oil through tank car
6) third-party disposal waste oil from waste oil tank through tank car



Advantages:
- Compact unit, which combines all elements into smallest space for continuous oil supply to combustion engines (e.g. CHP, power unit), oil change and own- and third-party fueling with the highest ease of use and the most modern leakage monitoring in itself.
- By means of standard devices with analog and electronic liquid level measurement, the individual filling level can be displayed in control centre.
- No mixture of media will take place due to application of separate fresh oil and waster oil pumps of type Z-PG.
- Considerable economy of assembling time on the building site, short piping paths due to direct installation at the engines.
- Economy of construction costs because no separate oil stockroom is necessary and only small room is required for the unit.

MAXIMAL Oil Supply System - Complete System
Applications

OPTIMAL® MAXIMAL II oil supply system with fresh oil tank, waste oil tank and close-coupled pumps

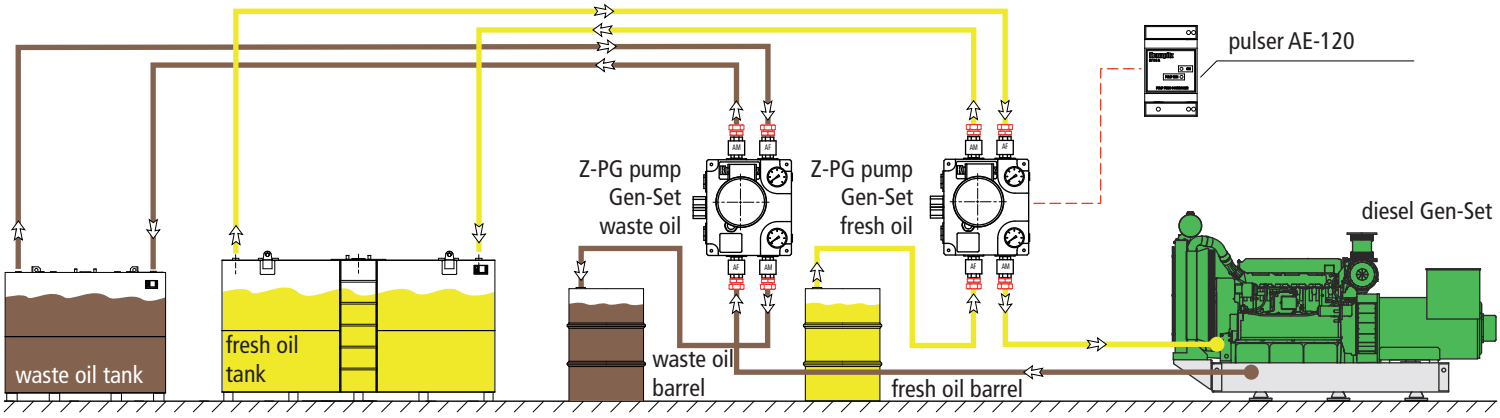
OPTIMAL® MAXIMAL - day fuel tank 100 litres with tank sump and pipework to storage tank and engine

OPTIMAL® MAXIMAL - day fuel tank 250 liters with tank sump and pipework to storage tank and engine

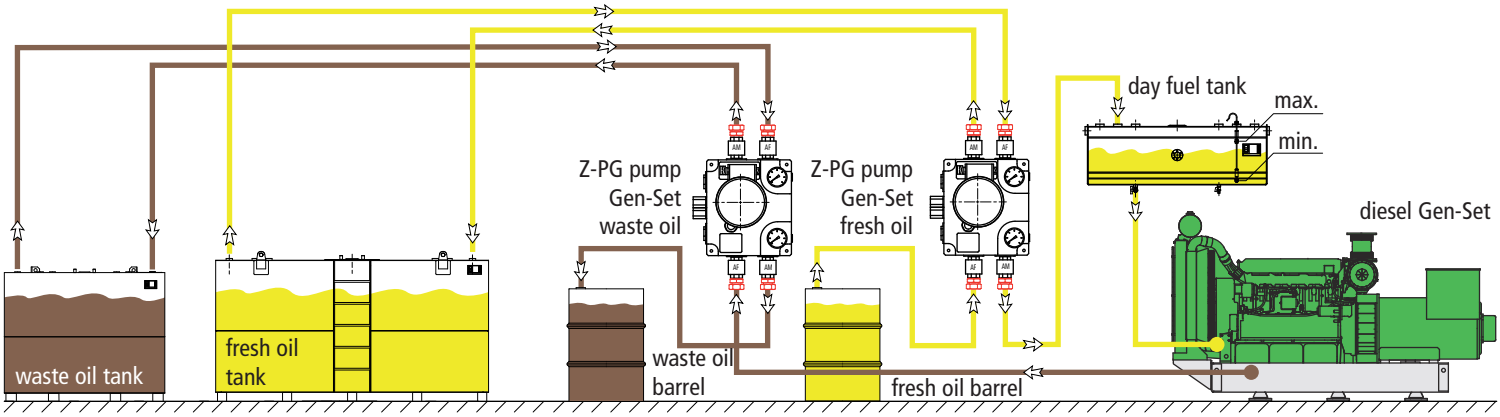
MAXIMAL Oil Supply System - Complete System
Flow Chart and Explanations

Operation with Two Separate Z-PG Pump Gen-Sets
Two Z-PG-Gen-Sets are required for the separate operation. The advantage: No mixture of fresh oil and waste will take place.

Oil Change of Engine: same as IDEAL
Automated oil level regulation during operation of the combustion engine, after filling the engine oil sump with fresh oil, the automatic level control will be carried out by switching to the automatic operation. The pump Gen-Set works then under impulse and level control.



automatic operation – fresh oil pump Gen-Set – impulse controlled (filling engine)
A controlled break during running period at second-interval reduces the flow rate to approximate 15%.
If additional fresh oil is required in the engine sump, the inlet magnet valve on the engine-oil sump will open, and the fresh-oil-pump Gen-Set will convey fresh oil in small amount according to requirement, till the maximum oil level is reached.

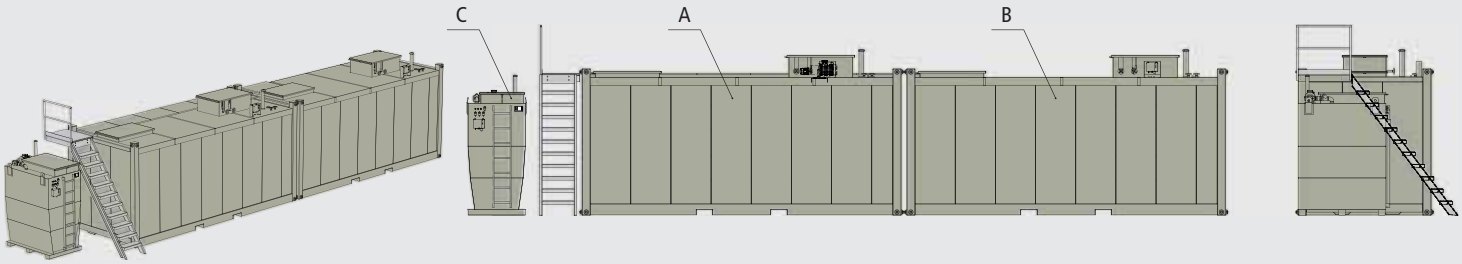


automatic operation – fresh oil pump Gen-Set – level controlled (filling TTE)
In a day fuel tank, a level sensor is installed for each maximum and minimum filling level. The pump receives electrical signal from the level sensor. If the signal "minimum filling level" arrives, the pump will request fresh oil as long as it receives the signal "maximum filling level", and then, it turns off. Due to the raised arrangement of the day fuel tank above the engine, static supplying the engine-oil sump with fresh oil can take place.

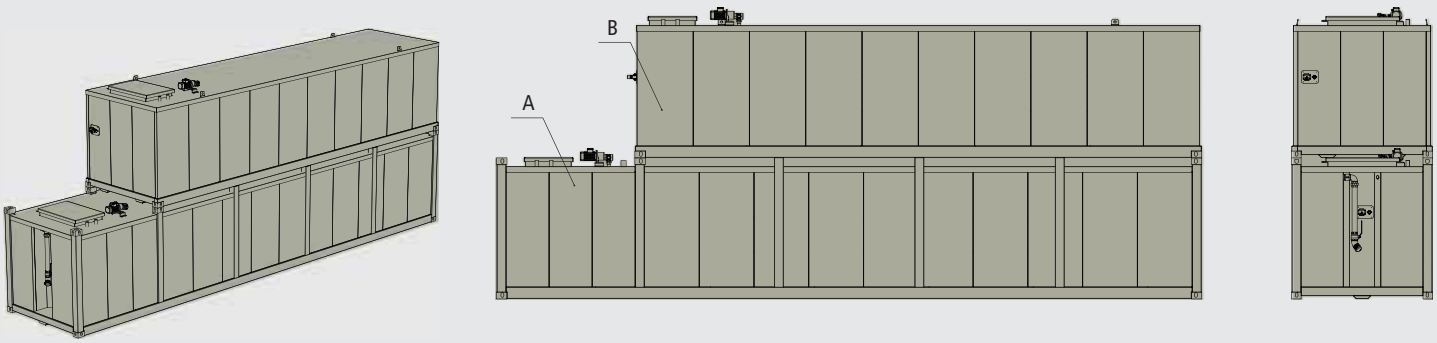
OPTIMAL - Complete System

Stacking Variants / More-Chamber Tank Container

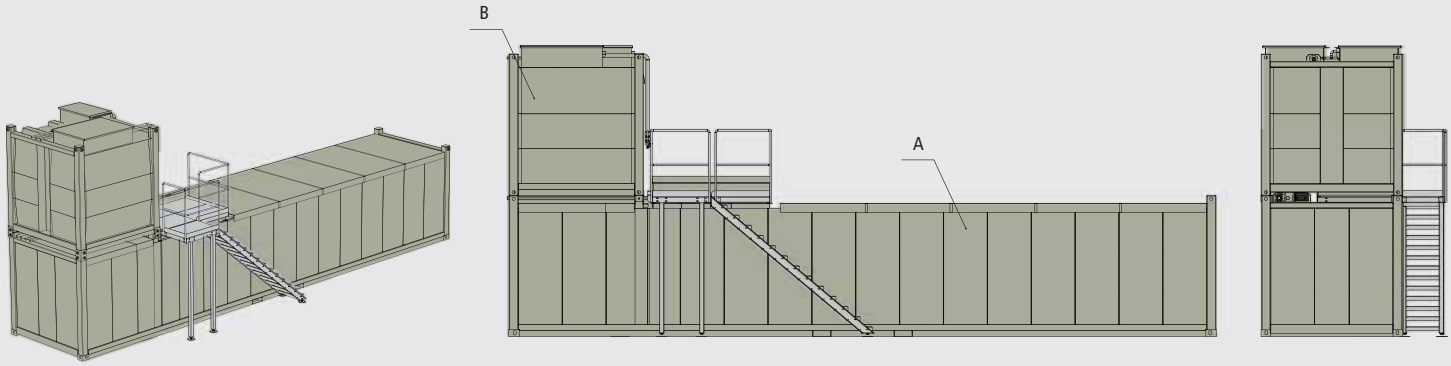
For large systems the oil supplying can be integrated in Minotaur Container. It is possible to adjust the individual tanks to the special requirements of the system and the local structural conditions. Thereby a container can be equipped with more chambers in order to contain the required media. Otherwise a single container can be equipped for a certain medium. To save room the containers can be stacked on each other. Stairs and ladders for the accessibility has been considered and exactly adjusted. Next to the tanks, buffer storage for operating material can be connected to the whole concept in order to improve efficiency.



A.) KTD-F storage tank, double wall, Freeland-thermal insulated, capacity: 25.000 litres, medium: palm oil
B.) KTD-F storage tank, double wall, Freeland-thermal insulated, capacity: 25.000 litres, medium: palm oil
C.) KTD storage tank, double wall, volume: 3.000 litres, medium: fresh oil



A.) KCD-ISO storage tank container, double wall – thermal insulated, capacity: 46.000 litres, medium: palm oil
B.) KTD-special storage container, double wall – thermal insulated, capacity: 37.000 litres, medium: palm oil

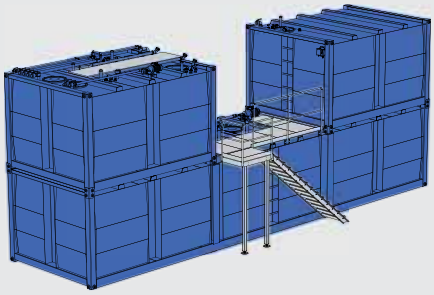


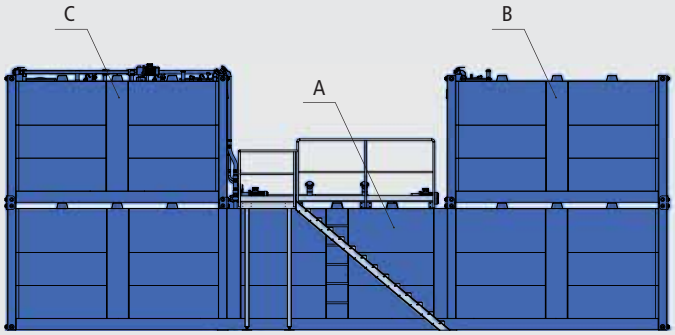
A.) KTD-F storage tank, double wall, Freeland-thermal insulated, capacity: 46.000 litres, medium: vegetable oil
B.) more-chamber module, double wall
B1.) fresh-oil chamber 3.000 litres
B2.) waste-oil chamber 3.000 litres
B3.) fuel-oil chamber 3.000 litres

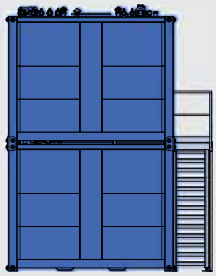



OPTIMAL - Complete System

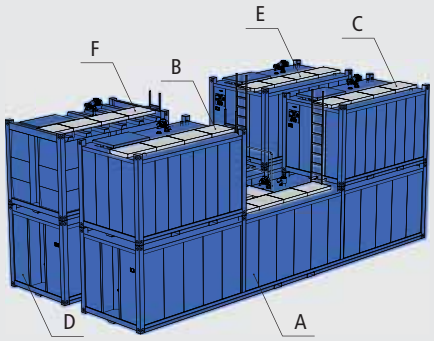
Stacking Variants / More-Chamber Tank Container

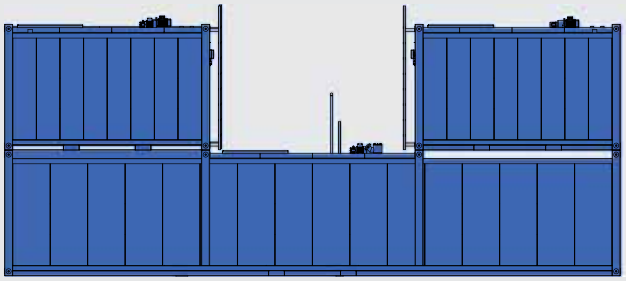


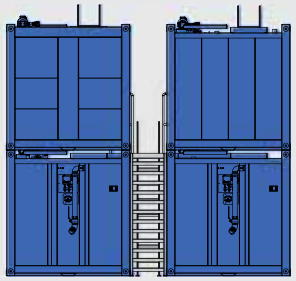




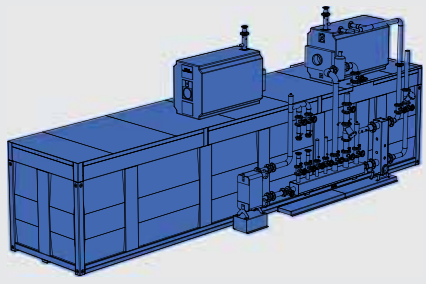
A.) KCD-special storage tank container, capacity: 60.000 litres, medium: vegetable oil
B.) KCD-special storage tank container, medium: adblue
C.) more-chamber module double wall
C1.) vegetable-oil chamber 5.000 litres
C2.) fresh-oil chamber 5.000 litres
C3.) waste-oil chamber 5.000 litres
C4.) biodiesel chamber 5.000 litres

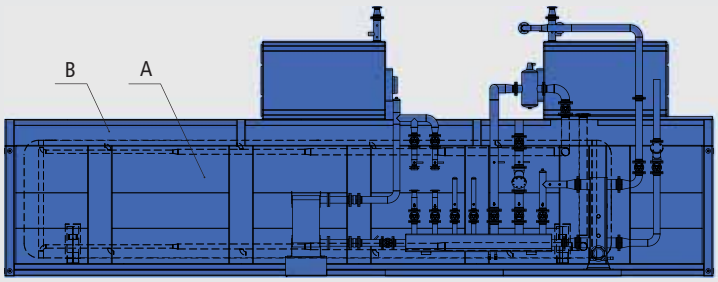


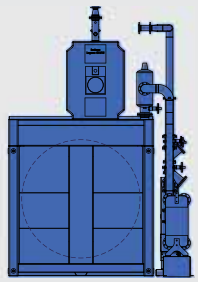




A.) KCD-special storage tank container, capacity: 46.000 litres, medium: palm oil
B.) KCD-special storage tank container, capacity: 15.000 litres, medium: palm oil
C.) KCD-special storage tank container, capacity: 15.000 litres, medium: rape oil
D.) KCD-special storage tank container, capacity: 46.000 litres, medium: palm oil
E.) KCD-special storage tank container, capacity: 15.000 litres, medium: rape oil
F.) KCD-special storage tank container, capacity: 15.000 litres, medium: rape oil



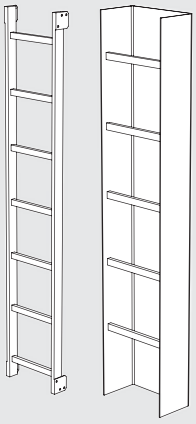




A.) hot-water buffer storage, highly insulated, with complete equipment, capacity: 30.000 litres
B.) 2x oil heating boiler 400kW

EQUIPMENT
Constructive Equipment

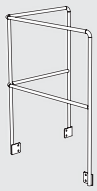
Ladder Internal / External

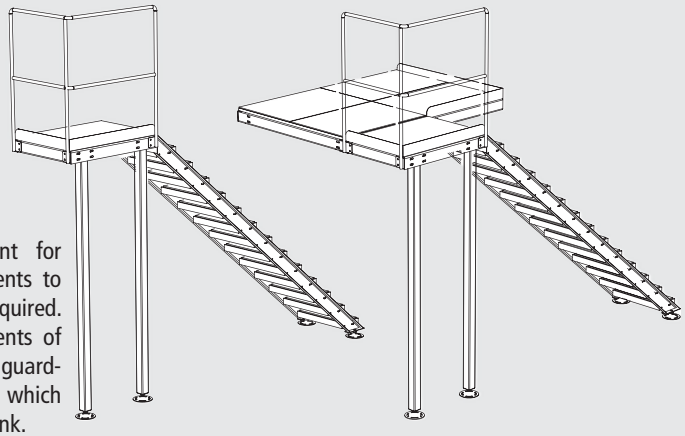


Safty-engineering equipment for tank from a height of 1,50 m. The ladder is welded on the tank body for running on the tank roof outside and inspection inside.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	x	x	x	x

Stair/ Pedestal/ Railing

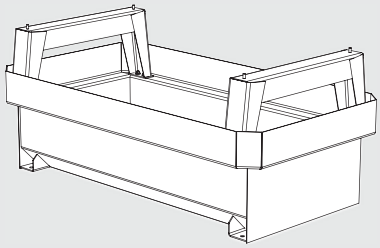




Safty-engineering equipment for stacked tanks and equipments to which regular access is required. According to the requirements of the equipment if necessary, guardrail for railing is required which must exactly adapt to the tank.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	x	x	x	x

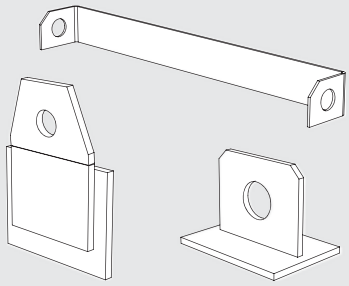
Tank Sump TW, TW-XL



Equipment required by water law for holding substances hazardous to water which might leak from the tank or unsealed pipe connections. If no catch sump is available on site, a cubic catch sump with single wall made of steel must be employed.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	-	-	-	-

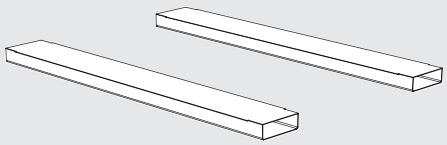
Crane Eyes



Crane eyes are firmly connected with the tank and serve simple carriage when the tank is empty. For tanks of up to approximate 5000 litres, two brackets with bores direct on the roof must be attached; up to 6000 litres 4x towing eyes on the side walls must be attached.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	x	x	x	x	x

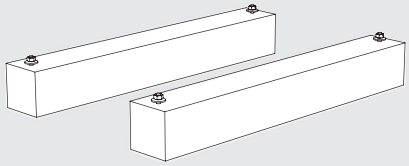
Forklift Pockets



Forklift pockets serve the safe transportation with forklift. They can be integrated in the under carriage or frame profile. Position and dimensions in accordance with international standards.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	-	-	x	x

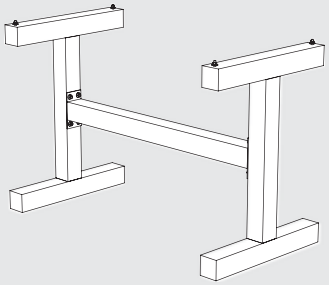
Feet FS



Safety-engineering equipment for optimal installation of the day fuel tank and the catch sump on the floor, with which the tank bottom can be seen. The feet consist of a pair of square pipes made of steel.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	-	-	-	-	-

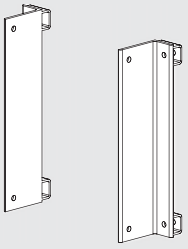
Stand Column ST



Plant-engineering equipment to providing the required height for flow. The stand column consists of two double-T-form supports. The supports are crewed with a cross girder on two face plates. After this, the catch sump and the day tank are lifted on the stand column and fastened.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	-	-	-	-	-

Wand Bracket WK

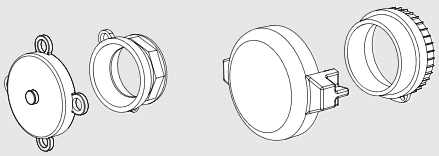


Plant-engineering equipment to providing the required height for flow and to fastening the tank on other components. The wall brackets are fixed to the two fixing holes in the front-wall area of the tank. After this, the tank with the wall brackets is positioned on the wall. Drill the wall and fix the tank with proper rawl plugs.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	-	-	-	-	-

EQUIPMENT
Tank Equipment and Armatures

Tank Car Coupling VK/MK

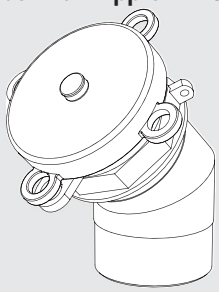


Equipment required by water law for fuelling tank with diesel or vegetable oil by tank car. Tanks over 1000 litres can only be fuelled through a filling connection. Furthermore, a limiting level transmitter and an overfill protection are required.

ND	Thread	max.	flow rate
DN50	VK50/MK50	2"	< 500 l/min
DN80	VK80/MK80	3"	< 900 l/min
DN100	VK100/MK100	4"	< 1200 l/min

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	-	-	x	x

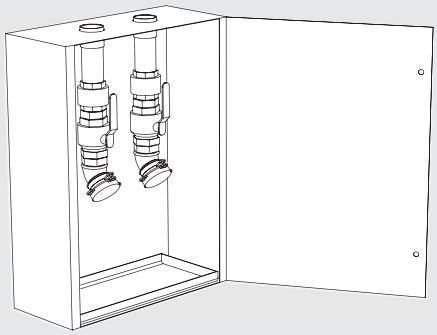
Filling Tube with Nipple AM-912



Equipment required by water law for fuelling tank with fuel oil or lube oil by tank car. Tanks over 1.000 litres can only be fuelled through a filling connection. Furthermore, a limiting level transmitter and an overfill protection are required.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

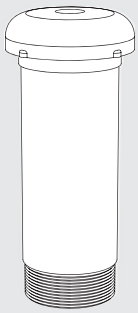
Filling and Disposal Cabinet



Safety-engineering equipment for simple installation of the tank-car closure with limiting- level-transmitter plug and overfill-acknowledging box as well as protection from unauthorized application and effect of the weather.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

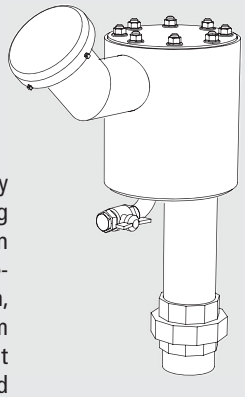
Vent Connection with Hood AM-911



Equipment required by water law to ensuring pressure equalisation when filling and removing the medium. dimension: nominal diameter 50 with thread 2"

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

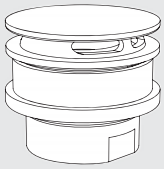
Relief Valve with Oil Separator



Equipment required by water law to ensuring pressure equalisation when filling and removing the medium, and preventing from oil leack through vent during the fuelling and heating the tank.
dimension: nominal diameter 50 with thread 2" and nominal diameter 80 with thread 3".

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	-	-	x	x

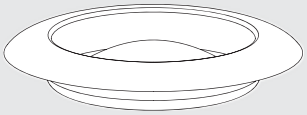
Vent with Dust and Stench Trap "Get-Fuel"



Equipment required by water law to ensuring pressure equalisation when filling and removing the medium. The vent prevents intrusion of dust and atmospheric moisture as well as vapour and gas in unpressurized state. Application for only non-flammable media and not as construction group of safety. dimension: nominal diameter 50 with thread 2", max. flow rate 1.000ltr./min

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

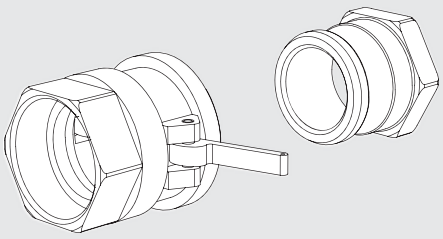
Bursting Disk AM-595



Equipment required by water law to ensuring pressure equalisation when filling and removing the medium. Not applicable to easily inflammable liquids.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	-	-

Tank Car Coupling "Camlock"



Equipment required by water law for fuelling tank with diesel or vegetable oil by tank car outside Germany. Tanks over 1.000 litres can only be fuelled through a filling connection. Furthermore, an approved limiting level transmitter is required. Camlock-couplings are specified for gas-return equipment.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	x	x	x	x

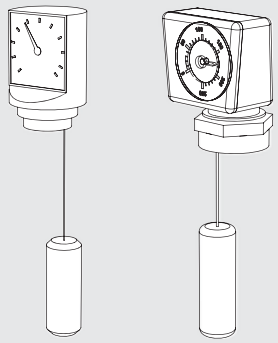
Thread Sealant "Krampitz-Sealfix"

Plant-engineering accessory for quick installation and durable sealant for connecting threads. Sealfix is oil- and diesel-resistant and hardens "middle firm".

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

EQUIPMENT
Tank Equipment and Armatures

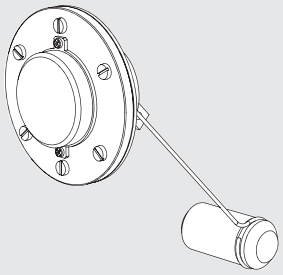
Level Indicator AM-001/AM-002



Equipment required by water law for showing tank capacity in % of the height of filling level. The display can be adjusted by setting the floaters of tank height. Apllicable for tank-height of 300-2.500 mm.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	-	-	-	-

Level-Indicator AM-004



Equipment required by water law for showing tank capacity in % of the height of filling level. The display can be adjusted by setting the level of tank height

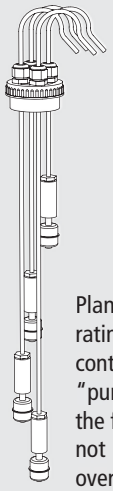
TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	-	x	-	-	-	-

Fuel Dip Stick AM-006 and AM-006.1

Equipment required by water law for showing tank capacity in mm. Employable for tanks up to 2m high by cutting the fuel dip scale to size.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	x	x	x	x

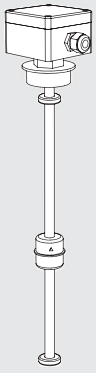
Level Sensor AE-100-E



Plant-engineering equipment for generating switch contact such as for pump control "pump on" (min. contact) and "pump off" (max. contact) in respect of the filling level of the tank. This device is not approved safety equipment against overfilling.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

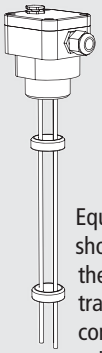
Level Sensor AE-111

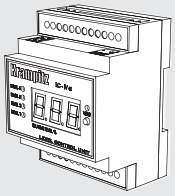


Water-law required and plant-engineering equipment for showing the tank capacity in % of the height of filling level and as signal transmitter for up to 4 normally open contacts, e.g. for pump control. Employable for tanks up to 2.500 mm high by cutting the pipe with sensor into size. This device is not approved safety equipment against overfilling.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

Level-Indicator and Signal Transmitter AE-115-VI

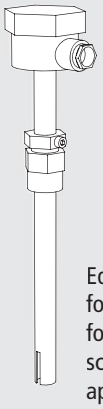


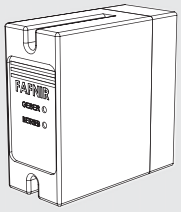


Equipment required by water law for showing the tank capacity in % of the filling-level height and as signal transmitter for up to 4 normally open contacts, e.g. for pump control. Employable for tanks up to 2.500 mm high by cutting the pipe with sensor into size. This device is not approved safety equipment against overfilling. Required working voltage 24V.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	x	x	x	x

Overfill Protection AE-200 and AE-201

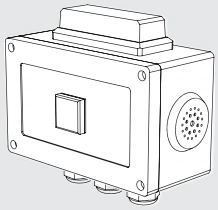




Equipment required by water law for limiting the max. filling level for firmly pipework by releasing a schwitch contact to stop the inflow. If applied to lube oil system, an optical and acoustical signalling in form of overfilling acknowledging box is compulsory.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

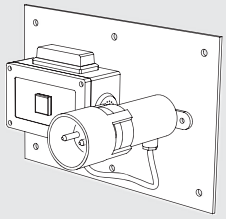
Overfill-Acknowledging Box B-AE-110



Safety-engineering equipment for signalling and raising alarm of the overfill protection to the operator during fresh-oil fuelling. The shutdown of the feed pump is carried out manually by the operator. By pressing the acknowledging button the buzzer for reported overfill protection is turned off. The flashing lamp expires if the overfill protection is not wetted.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

Overfill-Acknowledging Box with Tank Car Plug B-AE-907-Z

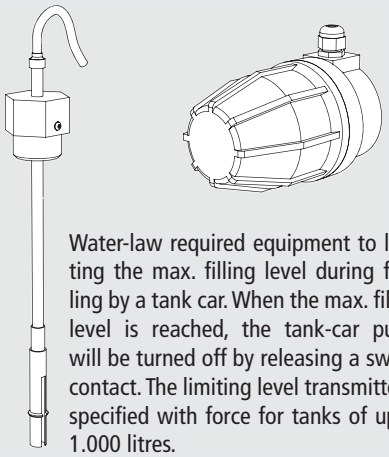


Safety-engineering equipment as combination for automatic shutdown of the tank-car pump and for signalling to the tank-car driver, applied to fuelling of fresh-oil tank. By pressing the acknowledging button the buzzer for reported overfill protection is turned off. The flashing lamp expires if the overfill protection is not wetted.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

EQUIPMENT
Tank Equipment and Armatures

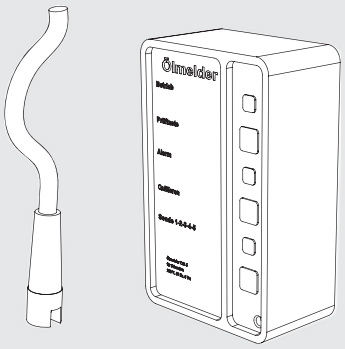
Limiting Level Transmitter with Tank Car Plug AE-250



Water-law required equipment to limiting the max. filling level during fuelling by a tank car. When the max. filling level is reached, the tank-car pump will be turned off by releasing a switch contact. The limiting level transmitter is specified with force for tanks of up to 1.000 litres.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

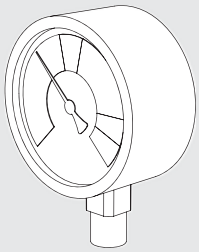
Leak Warning Probe AE-303



Safety-engineering equipment for remote detection of leaking liquid at up to 5 positions through releasing a switch contact to give signal or switch pump.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	-	x	-	-	-	-

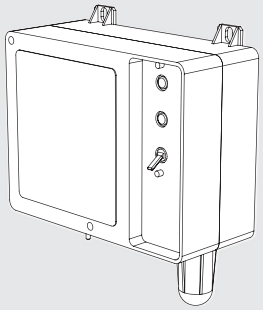
Static Leak Detector KÜR5 AM-359



Water-law required equipment for double-wall tanks without fixed power connection available. The vacuum is generated by an external pump in the leak control room and constantly kept. In the case of negative pressure drop, the hand of the leak detector is move to the red area to show alarm (without potential-free alarm contact). The leak detector is intrinsically safe and has no ignition source. Application for inflammable and non-inflammable liquids under temperature from -5°C to +50°C.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	x	-	-	x	-	x

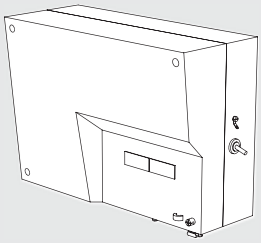
Electronic Leak Detector AE-350



Water-law required equipment for double-wall tanks with fixed power connection 24V, 50Hz available. The leak detector generates a constant low-pressure in the control room of the tank and raises alarm in case of negative pressure drop. The alarm is notified optically and acoustically and raised by a potential-free contact. Application for non-flammable liquids under temperatures from -5°C to +50°C.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	x	-	-	x	-	x

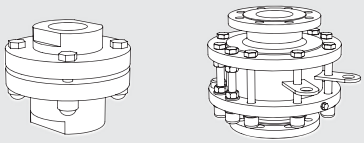
Electronic Leak Detector AE-354



Water-law required equipment for double-wall tanks with fixed power connection 24V, DC available. The leak detector generates a constant low-pressure in the control room of the tank and raises alarm in case of negative pressure drop. The alarm is notified optically and acoustically and raised by a potential-free contact. Application for non-flammable liquids under temperatures from -5°C to +50°C, with special equipment also for inflammable liquids and temperature up to 80°C.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	x	-	-	x	-	x

Flame Trap



Safety-engineering required equipment for using inflammable liquids with a flash point <50°C in the explosion-prone area. Applied in every pipe, which is open during operation, such as vent pipe, fuelling pipe, extraction pip. The sizes are in accordance with the flow rate in the pipe to secure.

ND	thread	max. flow rate
DN25	1"	< 200 l/min
DN50	2"	< 500 l/min
DN100	4"	< 1.200 l/min

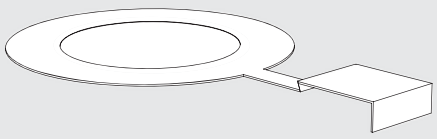
TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	x	-	-	x	-	x

Fuel Dip Stick EX

Water-law required and safety-engineering equipment for displaying the height of filling level in mm. Applicable for tanks of up to 2m high by cutting the fuel dip scale to size. By means of special construction and using material suited to application to prevent from ignition source, the employment of the fuel dip stick is possible for inflammable liquids with a flash point <50°C within the explosion-prone area.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	-	x	-	x

Bursting Disk EX

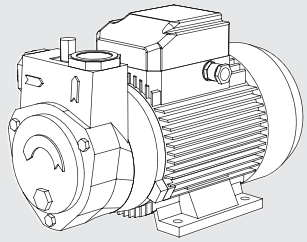
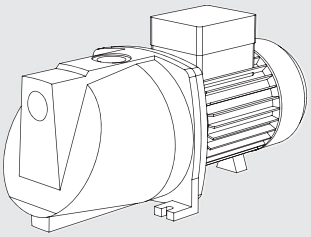
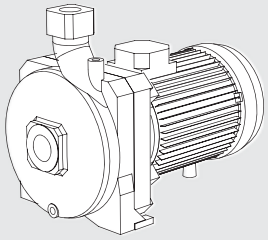


Safety-engineering required equipment for pressure equalisation. Application of the inflammable liquids with a flash point <50°C requires an approved safety component with separate ventilation to outside.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	x	-	-	x	-	x

EQUIPMENT
Pumps

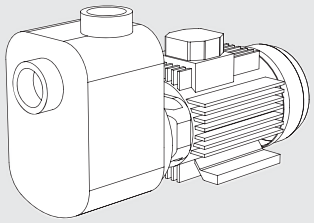
Rotary Pump PK

tpye	connection	flow rate
PK-10-010	G 1"	20-80 l/min
PK-80-15	G 1"	5-50 l/min
PK-170-11	G 11/4"	60-120 l/min

Plant-engineering equipment for delivering low- viscosity media like diesel, gasoline or water. The pump is self-priming and very service reduced. For the protection of the pump, employment of filters is recommended.

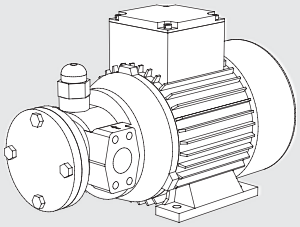
Transfer Pump PK



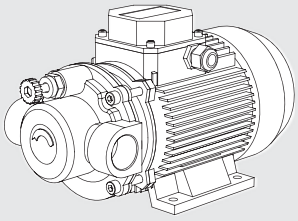
Plant-engineering equipment for delivering low-viscosity media like diesel, gasoline or water if a high flow rate is required such as for decanting from tank car in the tank. The pump is self-priming and very service reduced. For the protection of the pump, employment of filters is recommended.

tpye	connection	flow rate
PK-Transfer	G 2"	165-730 l/min

Gerotor Pump PG

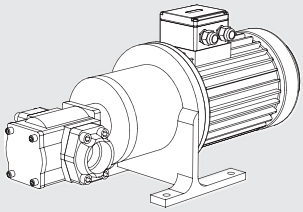


Plant-engineering equipment for delivering lubricating media like diesel or oils. The pump is self-priming and very service reduced. For the protection of the pump, employment of filters is recommended.



tpye	connection	flow rate
PG-6-110	G 3/4"	6 l/min
PG-13-112	G 3/4"	13 l/min
PG-26-114	G 1"	26 l/min
PG-60-25	G 1"	60 l/min

Gear Pump PZ

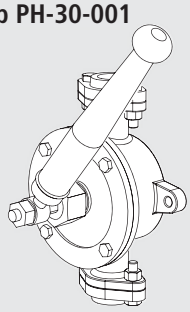


Plant-engineering equipment for delivering lubricating media like diesel or oils. The pump is self-priming and very service reduced.

tpye	connection	flow rate
PZ-50-120	G 11/2"	50 l/min
PZ-100-121	G 2"	110 l/min
PZ-200-122	G 21/2"	200 l/min

The gear pump is especailly suited for delivering media which contain no solid, have minmum lubricity and are chemical compatible.
The standard configuration is delivered with rotational direction "right". Turning the pump hausing 180° enables a change of the rotating direction, and the flow-rate direction is also changed.

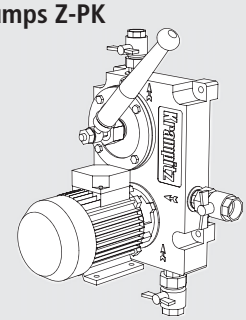
Semi Rotary Hand Pump PH-30-001



Plant-engineering equipment for clear and light liquids such as water, gasoline, diesel and other substances like paraffin, alcohol, light chemical solutions, cooking oils etc. It is the only hand pump which is adapted to hot liquids of up to 80 °C. It serves to simply decant media and to vent fuel lines.The standard model has threaded flanges and is supplied with threaded counter flanges. Two lugs facilitate the mounting of the pump to a wall or similar structure.

tpye	connection	flow rate
PH-30-001	G 3/4"	ca. 20 l/min

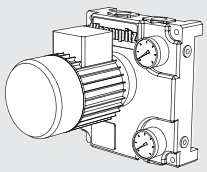
Combination of Pumps Z-PK



Plant-engineering equipment for delivering diesel fuel and extra light fuel oil. The main feature of the untility-patent protected Z-PK is the shared pump carrier for carring the rotary pump and the semi rotary hand pump. No lines or block system is necessary between the rotary pump and the semi rotary hand pump.

tpye		connection	flow rate
Z-PK-2000	E-Pumpe	G 1"	5-50 l/min
	H-Pumpe		20 l/min

Pump Gen-Set Z-PG

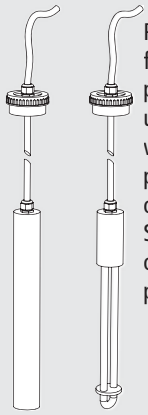


Plant-engineering equipment for delivering fresh oil and sucking waste oil from the oil sump of engine with only one pump Gen-Set! The direction of pump rotating is reversible! Thereby the suction and delvery in reverse directions is possible. A pressure relief valve is attached for each rotating direction. Advantages: minimal cost for pipe line installation! Economy of room and time due to simpler installation. Optimal arrangement of connections and armatures.

tpye	connection	flow rate
Z-PG-06	G 1"	6 l/min
Z-PG-13	G 1"	13 l/min
Z-PG-26	G 1"	26 l/min

EQUIPMENT
Tank Heating and Insulation

Electric Tank Heating AE-800/802

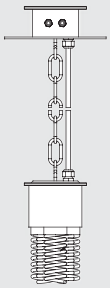


Plant-engineering equipment for reliable prevention from paraffin precipitation of fuels under lowered temperature as well as for preservation of pumping- and jetting- viscosity of oil in the intaking area.
Simple heating without additional control for tank up to approx. 3000 litres.

AE-800	230V	1,5kW
AE-802	230V	0,22kW

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	-	-

Electric Tank Heating AE-810-830

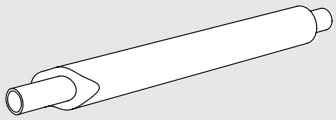


Plant-engineering equipment for reliable prevention from paraffin precipitation of fuels under lowered temperature as well as for preservation of pumping- and jetting-viscosity of oil in the intaking area. An additional temperature sensor and a switching box are required for temperature control and heating switching.

AE-810	230V	3,0kW
AE-820	400V	4,5kW
AE-830	400V	6,0kW

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
-	-	-	x	x	x	x

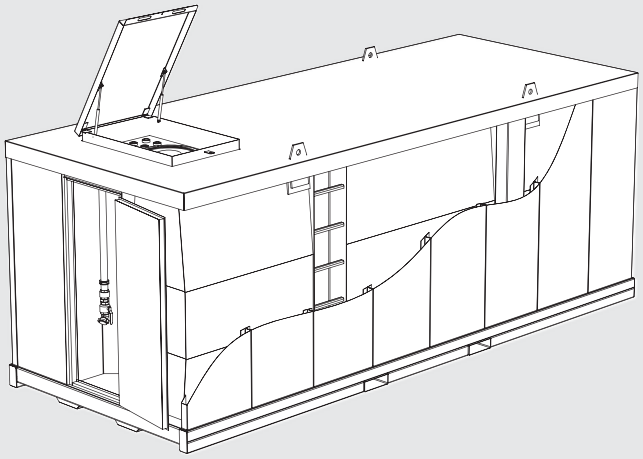
Pipe Insulation



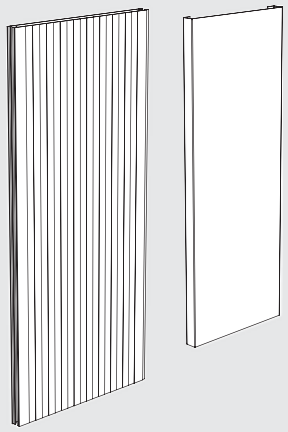
Plant-engineering equipment for employment of heated pipes under lowered temperature and outdoor, reliably preventing from paraffin precipitation of fuels as well as for preservation of pumping- and jetting- viscosity of oil. The insulation contains a flame resistant insulating layer of 100% of the pipe diameter, which is made of plastic material.

TTE	TTD	TTE-XL	KTE	KTD	KTE-F	KTD-F
x	x	x	x	x	x	x

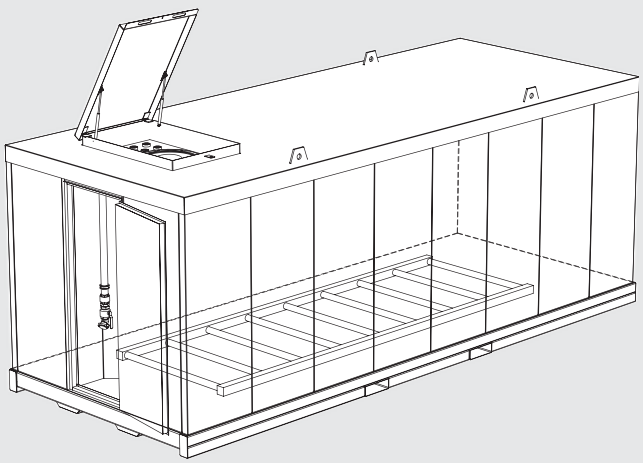
Thermal Insulation



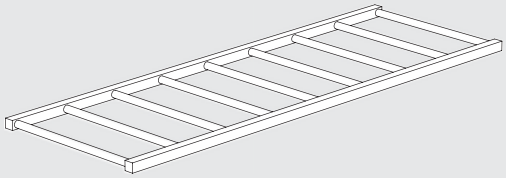
Plant-engineering equipment for employment of heated tanks under lowered temperature and outdoor, reliably preventing from paraffin precipitation of fuels as well as for preservation of pumping- and jetting- viscosity of oil. The insulation contains a flame resistant insulating layer of 80mm and an external zinc-plate cladding for bottom, side walls and roof. Outside the tank, the pipes are hundred percent insulated by plastic material.



Heating Coils



Plant-engineering equipment for reliable prevention from paraffin precipitation of fuels under lowered temperature as well as for preservation of pumping- and jetting- viscosity of oil in the intaking area. The heating coils is a liquid heater which is firmly installed in the tank and connected with the system-owned heat circulation with cooling water or thermotransfer oil. Employment of temperature sensor and thermostatic valve are required for reliable temperature regualtion.



To maintain our high quality requirements, we cooperate with the following test, inspection and accreditation organizations:

DIBt PTB Germanischer Lloyd TÜV NORD BAM

Our containers will be manufactured in heavy all-steel quality with ISO standard dimensions or special dimensions and on request approved by GL respectively TÜV. All essential construction parts will be designed and manufactured according to DIBt permissions and certificated statics. Substantial equipment cares for manifold container variations. The excellent corrosion protection coating guarantees a long-life cycle.
Our Product Lines:


Storage Tank Container


Filling-Station Container


Machine Container (Aggregate Container)


Switchgear Container


Supplying Container for technical processes

CUBIC GOOD

Krampitz Tanksystem GmbH

headquarter: Dannenberger Str. 15 I 21368 Dahlenburg/Lbg I Tel.: +49(0)5851/9443-0 I Fax: +49(0)5851/9443-21
NL SAW: Siedlung des Friedens 40 I 29410 Salzwedel I Tel.: +49(0)3901/3088-100 I Fax: +49(0)3901/3088-131
factory Henningen: Dorfstraße 78 I 29413 Henningen/SAW I Tel.: +49(0)39038/9078-0 I Fax: +49(0)39038/9078-10
homepage: www.krampitz.de I email: info[@]krampitz.de

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