

Safe Tanker Access Equipment

Chapter 6 Road and Rail Loading

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Folding Stairs

General Description

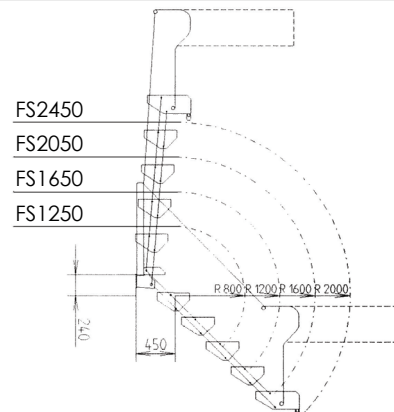
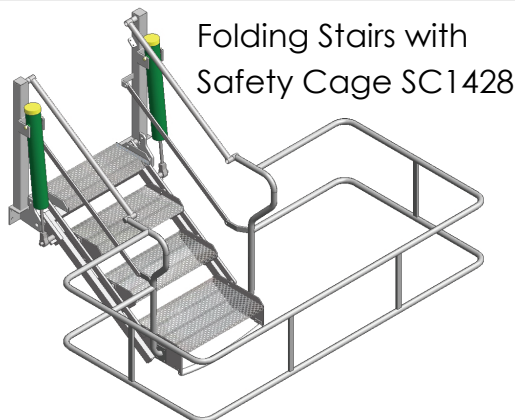
Function

KANON's Folding Stairs are used worldwide to achieve safe and easy access of road and rail tankers from a platform.

Description

As KANON promotes safe and easy solutions, our concept includes the following features:

- Easy handling by one operator.
- Handrails fitted as standard.
- Locking device for stored position (only for manual operation)
- Rubber bumper on last step, preventing sparks and tanker damage.
- Movable safety step to prevent trapped feet.
- Non slip steps.
- Access width of 800 mm upto 4000 mm.
- Fully balanced in any position.
- Maintenance free rotation joints.
- Pull rope to reduce forces needed to get folding stairs in stored position.
- Knee guides.

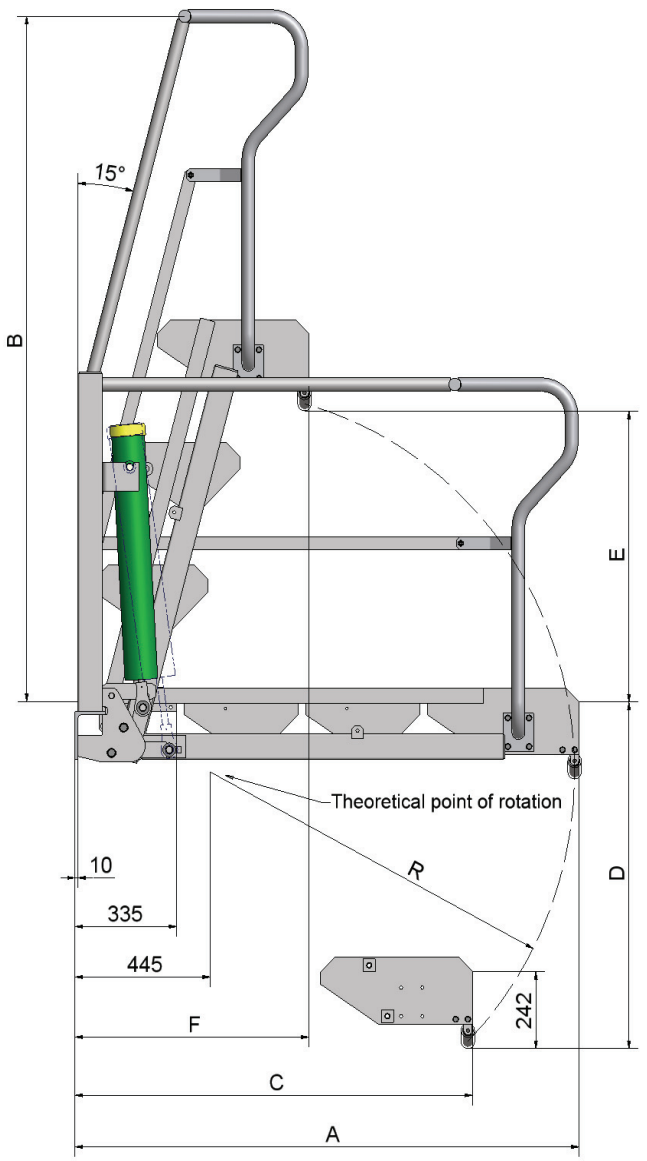
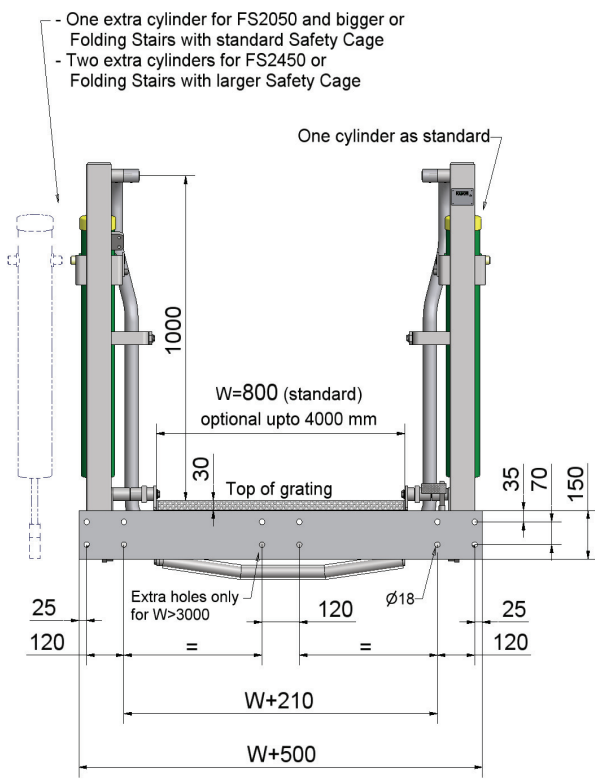


Accessories

- Safety cages 1400 x 1400 and 1400 x 2800 (other on request upto 12 m).
- Safety wings on both sides of the stairs to close the opening between platform and vehicle.
- All stairs are suitable for pneumatic or hydropneumatic operation.
- All stairs are designed to be equipped with a safety cage if it's required afterwards.
- A retrofit in a later stage is possible.
- Position detection.
- Movable alongside the platform.
- Galvanised execution.
- Locking chain, to hold stair in any position and prevent damage to insulation on tanker.

Folding stairs

Dimensions
3, 4, 5 & 6 steps
Bulletin 139001



Safety cages can be applied from 1400 mm upto 12 m.

Model	Steps	A	B	C	D	E	F	R
	[n]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FS1250	3	1260	1780	1025	805	535	670	800
FS1650	4	1660	2165	1310	1090	920	770	1200
FS2050	5	2060	2550	1595	1375	1305	870	1600
FS2450	6	2460	2935	1880	1660	1690	970	2000

Folding stairs

Dimensions
3, 4, 5 & 6 steps
Bulletin 139001

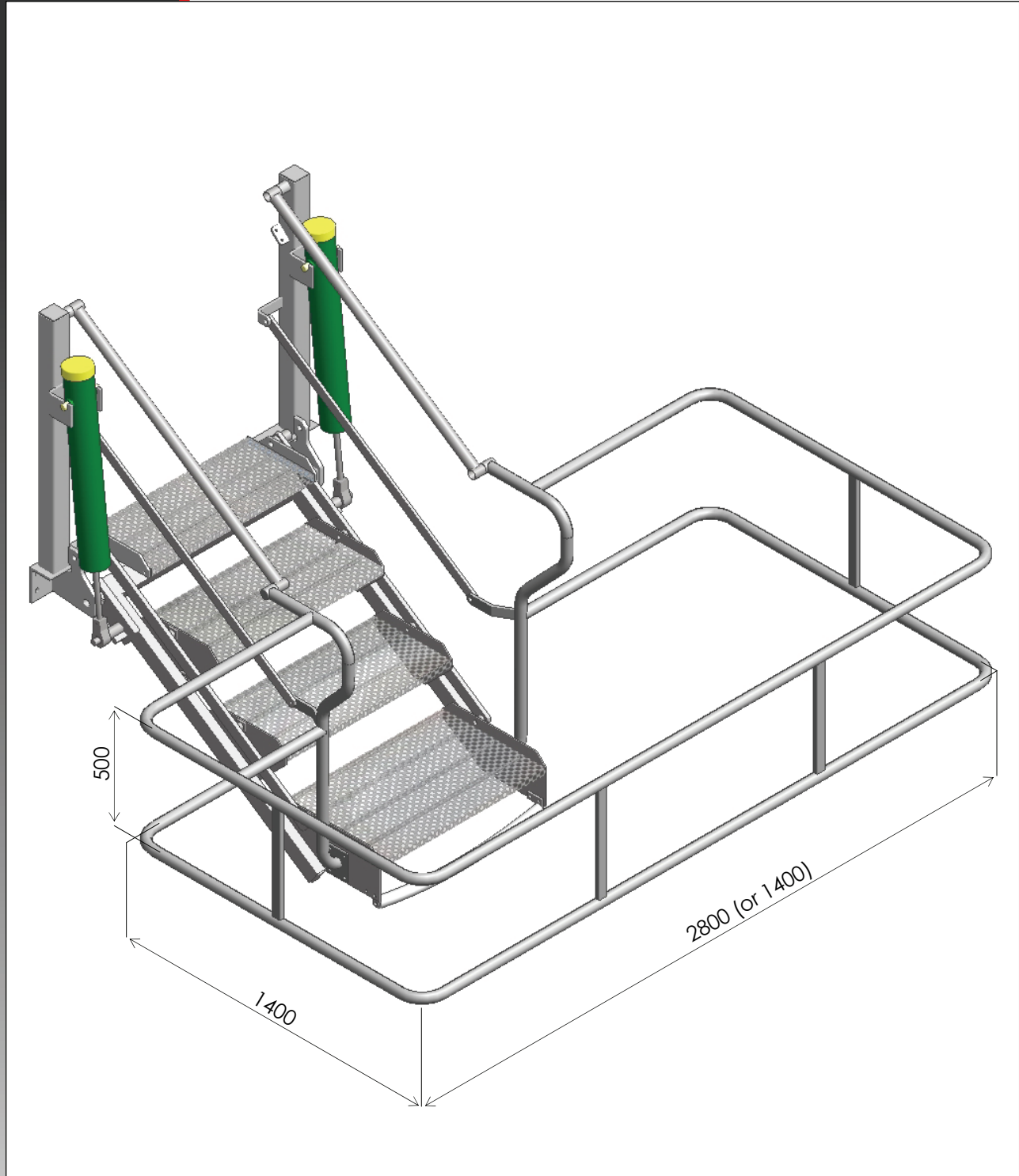
Folding Stairs are available from 800 mm upto 4000 mm, and Safety Cages can be applied from 1400 mm upto 12 m.



Weight [kg]										
W=	800	1000	1200	1500	1600	2000	2500	3000	3500	4000
FS1250	195	230	240	280	300	330	360	400	430	470
FS1650	215	280	300	320	350	390	430	470	500	570
FS2050	275	-	-	-	-	-	-	-	-	-
FS2450	305	-	-	-	-	-	-	-	-	-
Max. vertical load on mounting structure incl. operating load [N]										
W=	800	1000	1200	1500	1600	2000	2500	3000	3500	4000
FS1250	5370	4800	4900	5300	5400	5800	6100	6500	6800	7200
FS1650	6675	5300	5500	5700	6000	6400	6800	7200	7500	8200
FS2050	8190	-	-	-	-	-	-	-	-	-
FS2450	9550	-	-	-	-	-	-	-	-	-
Max. moment on mounting structure incl. operating load [Nm]										
W=	800	1000	1200	1500	1600	2000	2500	3000	3500	4000
FS1250	2820	3400	3500	3700	3700	3900	4000	4200	4300	4500
FS1650	4760	4900	5100	5200	5300	5600	5900	6100	6400	6700
FS2050	6320	-	-	-	-	-	-	-	-	-
FS2450	7950	-	-	-	-	-	-	-	-	-

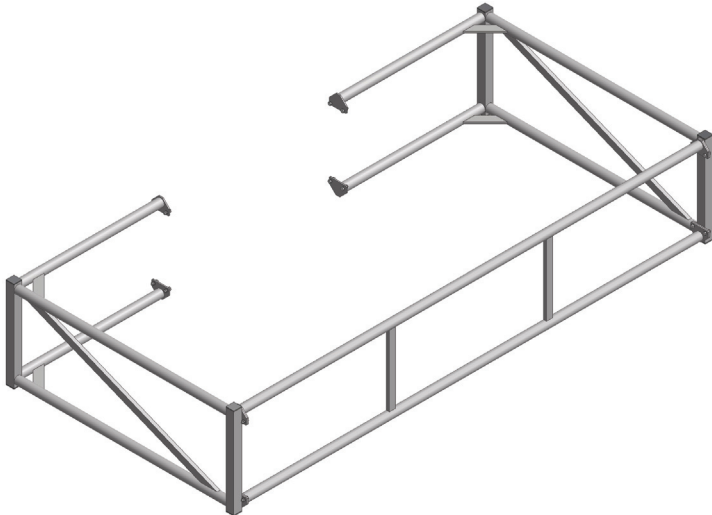
Safety Cages on
Folding Stairs

Models SC1414
& SC1428
Bulletin 139002

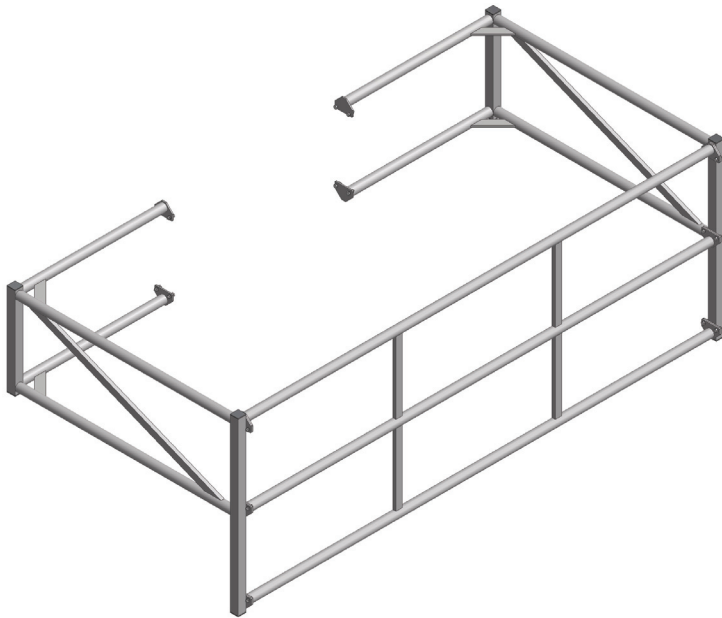


Safety Cages on Folding Stairs

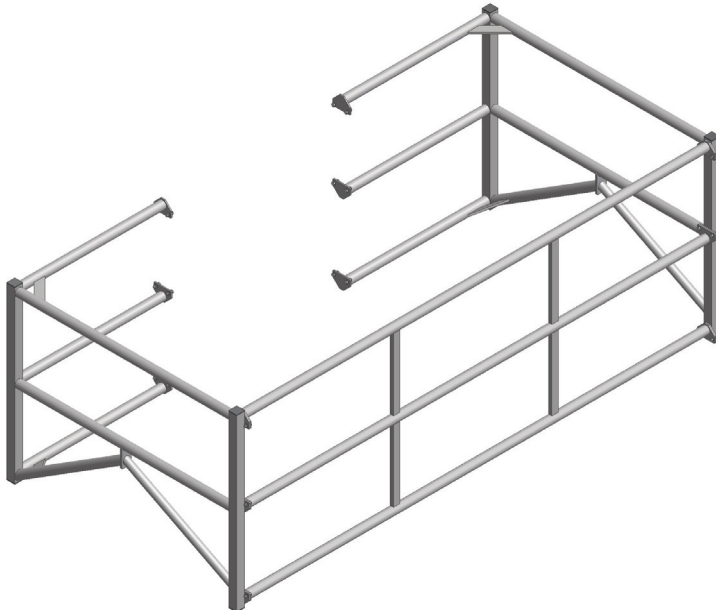
Types of execution
Bulletin 139002



- Safety Cage
- Double Railing



- Safety Cage
- Third Railing Front

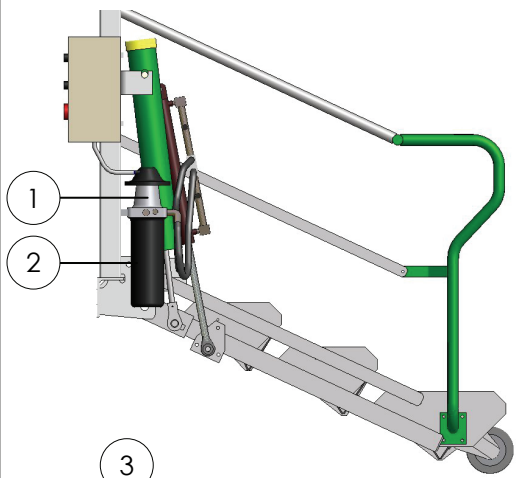
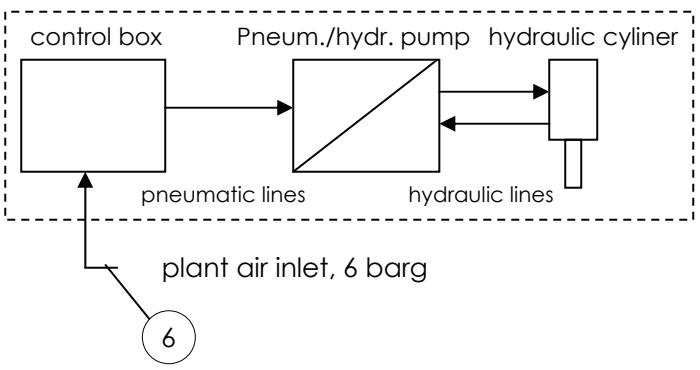
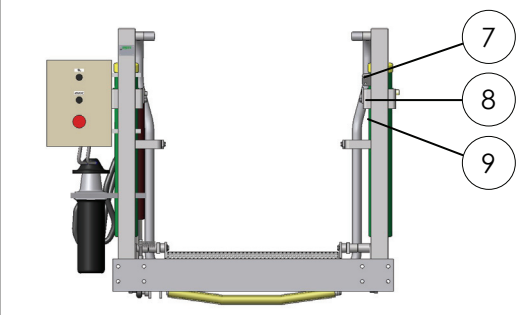


- Safety Cage
- Third Railing Around
- With V-shape

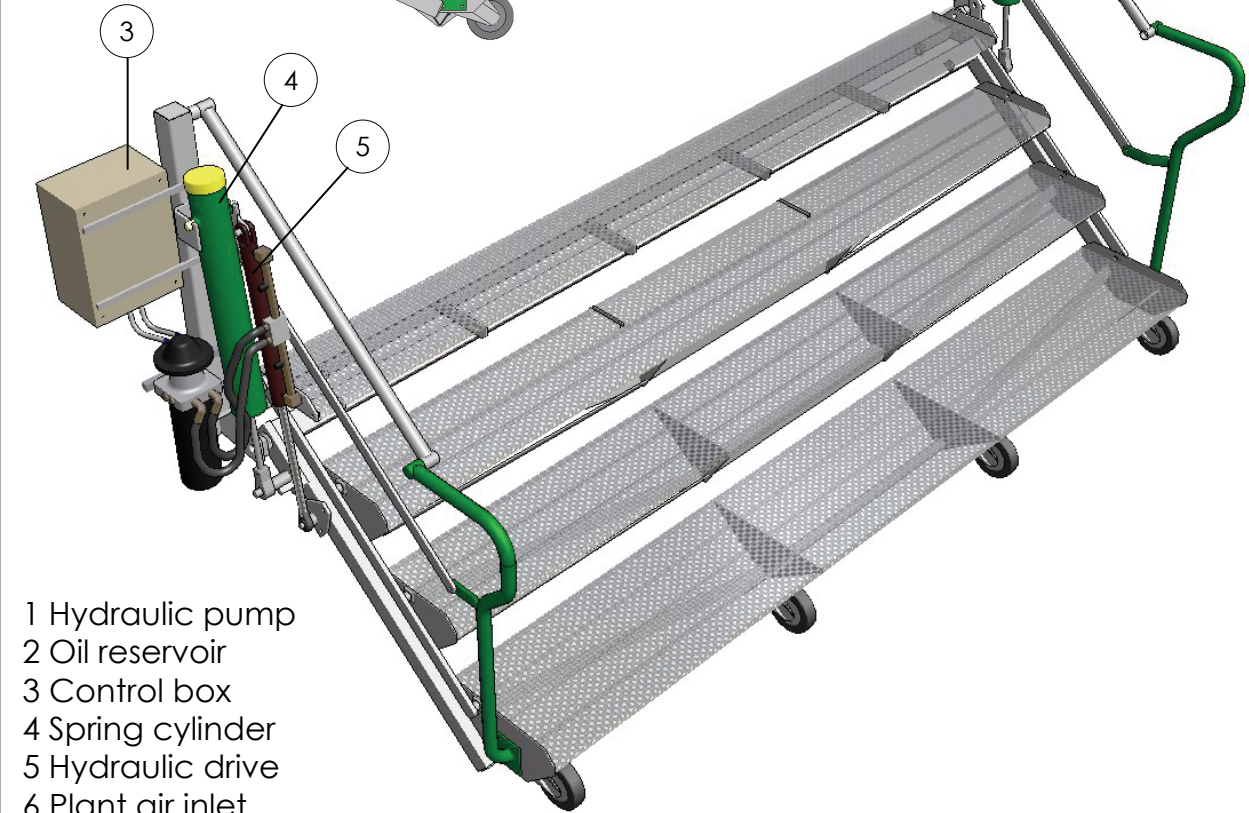
Folding Stairs

Hydro-pneumatically operated

Bulletin 139003



Folding Stairs are available from 800 mm upto 4000 mm, and Safety Cages can be applied from 1400 mm upto 12000 mm.

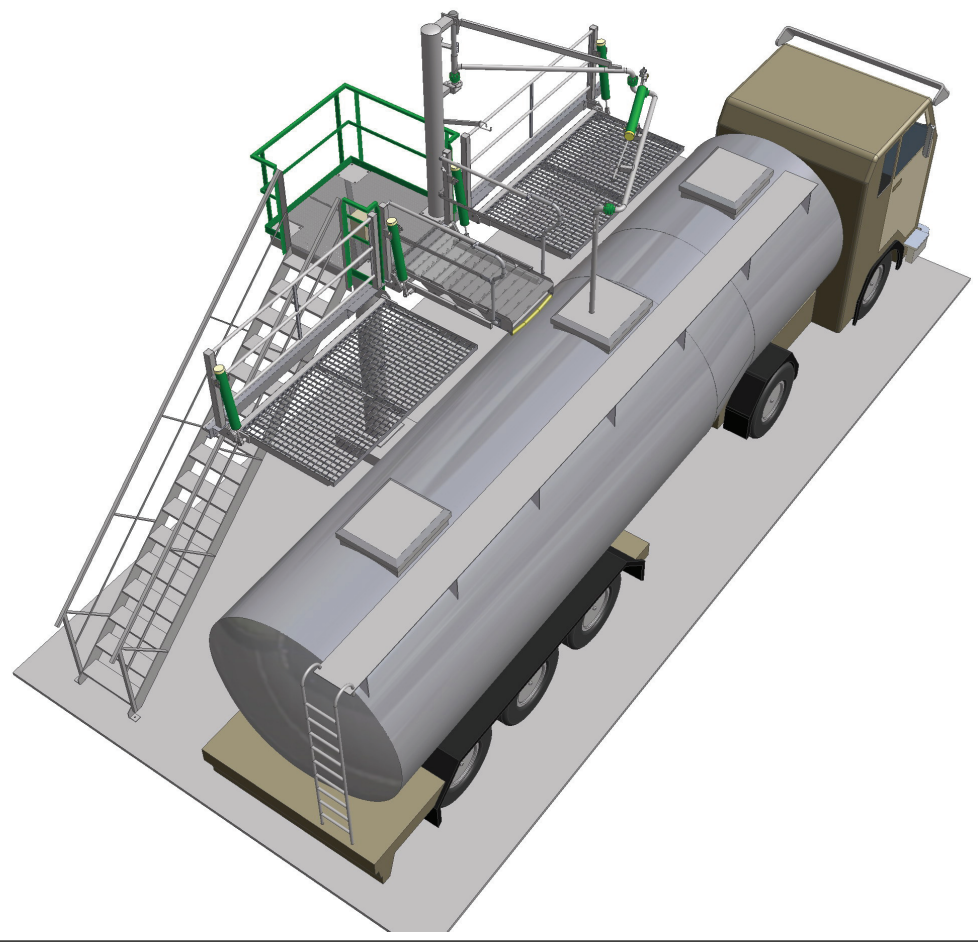
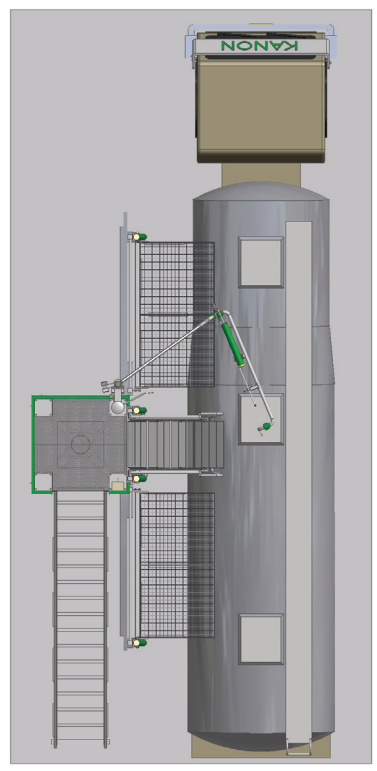


- 1 Hydraulic pump
- 2 Oil reservoir
- 3 Control box
- 4 Spring cylinder
- 5 Hydraulic drive
- 6 Plant air inlet
- 7 Push button (up)
- 8 Push button (down)
- 9 Emergency stop button

Safety Wings

Moving alongside
folding stairs

Bulletin 350043



Loading Platform LP1 600

General Description

Function:

KANON's Loading Platforms are used worldwide to achieve safe and easy top access of road and rail tankers from ground level.

Description:

As KANON promotes safe and easy solutions, our concept includes the following features:

- Prepared for loading on both sides.
- Prepared for up to maximum 4 loading arms.
- Prepared for up to 2 folding stairs.
- Handrails and knee guides fitted as standard.
- Access stair at a rising angle of 40° (lazy stair type).
- If necessary, delivered complete with basic calculation and typical drawing for approval of local authorities.
- Delivered with foundation data and drawing.
- Robust single support column, offering free space below platform to facilitate bottom loading and/or pump and metering equipment.
- Special safety grating, up to latest Swedish labour laws, offering less "see-through" than conventional types, thus preventing height fear.
- Designed according latest safety-guidelines.

In short: KANON's Loading Platforms, combined with loading equipment, offers *complete solution* for customers, without need for separate engineering.

Options:

- Galvanised execution.
- Folding stairs.
- Intermediate platforms to connect two loading platforms.
- Platform hanging on top construction instead of standing on ground level.
- Catwalks.
- Customized solutions.

Other data:

Maximum loads on platform base plate (with 4 loading arms)

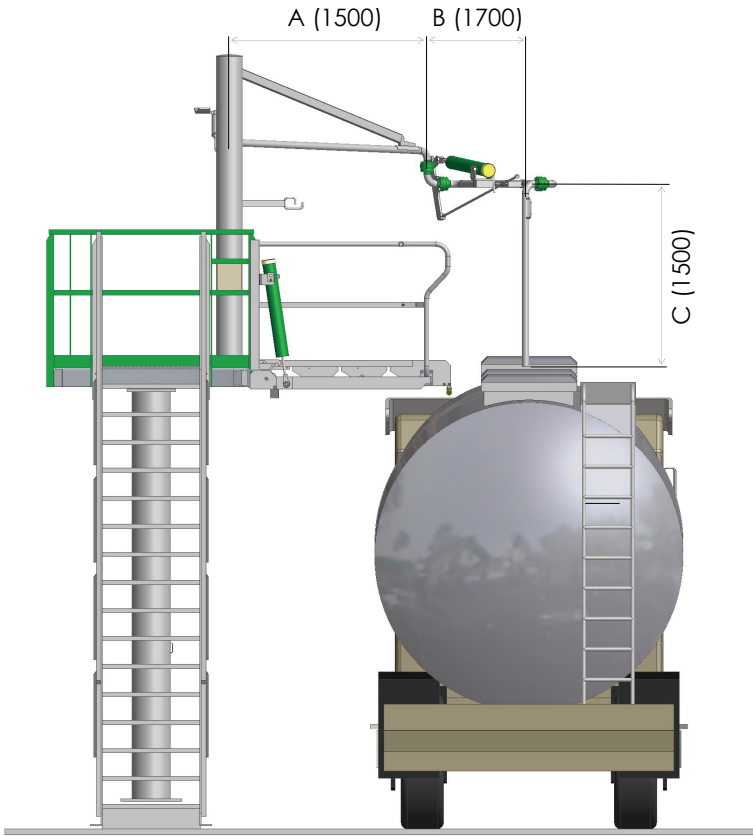
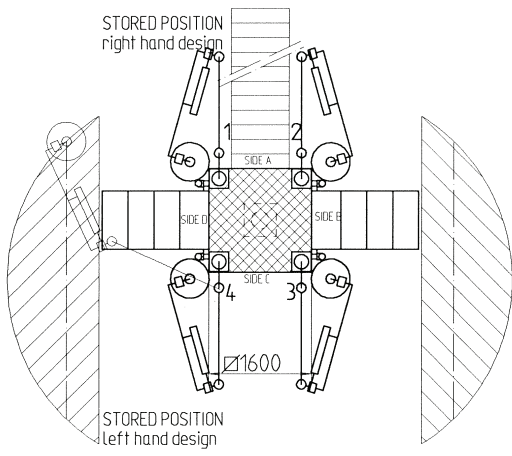
$M = 50 \text{ kNm}$

$F_v = 45 \text{ kN}$

$F_h = 4 \text{ kN}$ (wind load)

Loading Platform LP1600

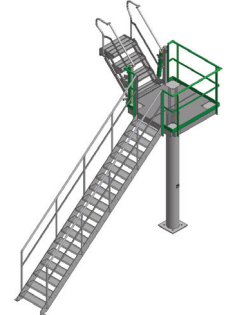
To accommodate up to 4 loading arms
Bulletin 350034



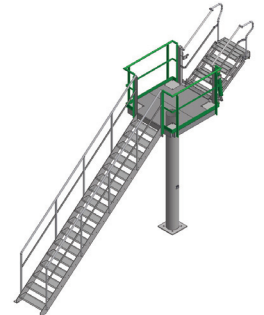
ARRANGEMENT I



ARRANGEMENT II



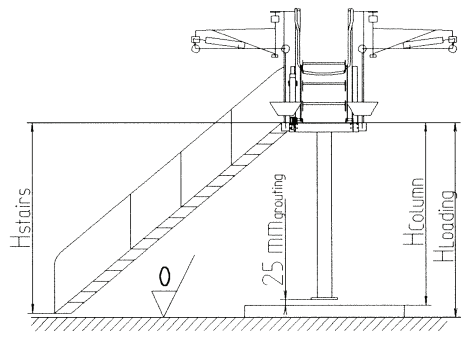
ARRANGEMENT III



ARRANGEMENT VI



ARRANGEMENT VII

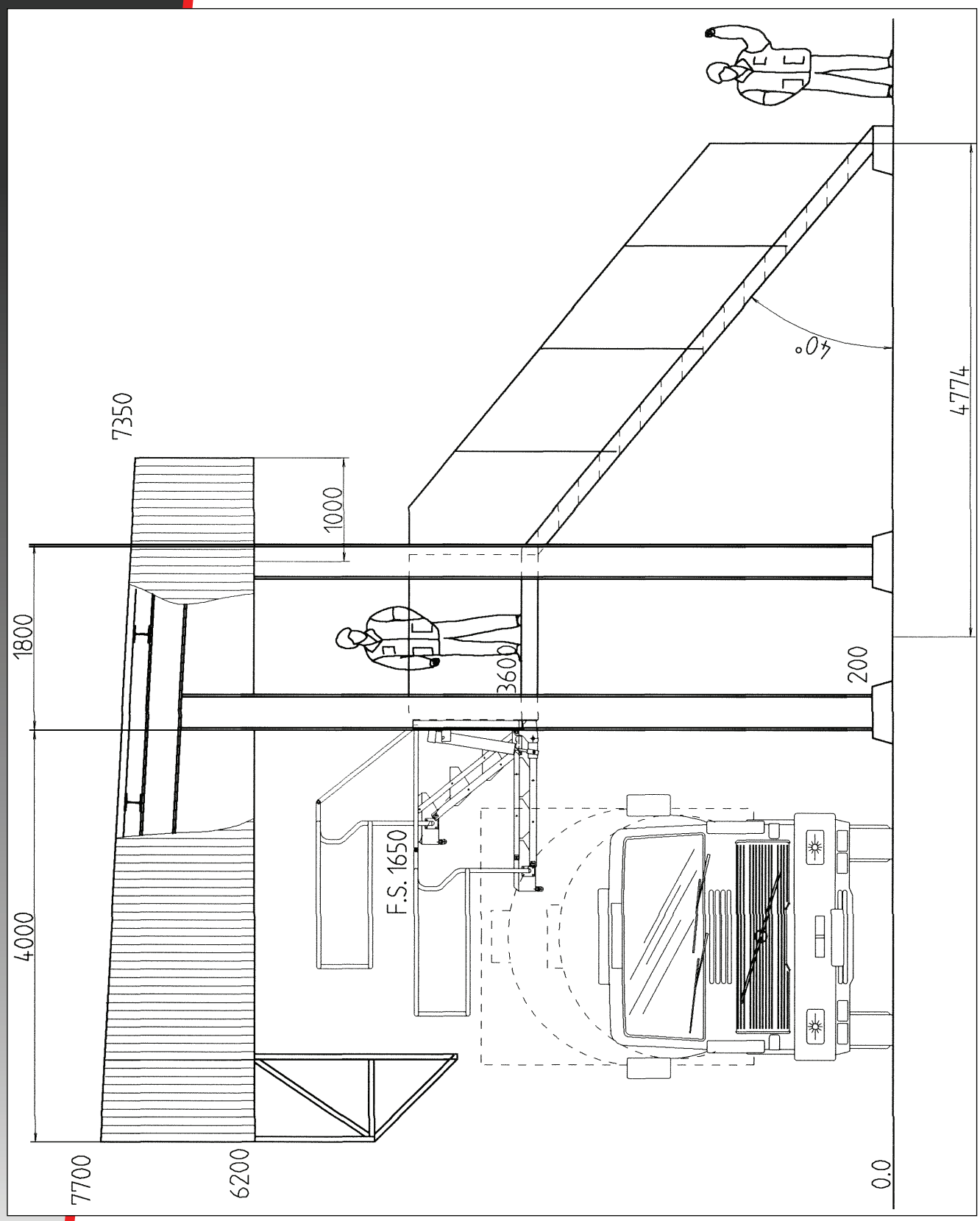


Recommended standards	
Hcolumn	= 3400 mm
Hloading	= 3600 mm
Hstairs	= 3600 mm

Loading Platform

With roof

Bulletin 350009



Grounding Devices

Tester Terramat type EK*3

When loading fuels or other non-conducting hydrocarbons into or from fuel-carrying vehicles, it is absolutely necessary to ground trucks and wagons in a safe way to divert electrostatic charges and to prevent a possible generation of sparks that may cause an explosion. The TERRAMAT-series of electronic grounding-testers were developed for controlled grounding of tank-trucks, tank-wagons, ships and aeroplanes during loading and fuelling. **The EKS is capable of detecting whether the clamp is connected to the tank truck or any other grounded object.**

The TERRAMAT-series EK*-3

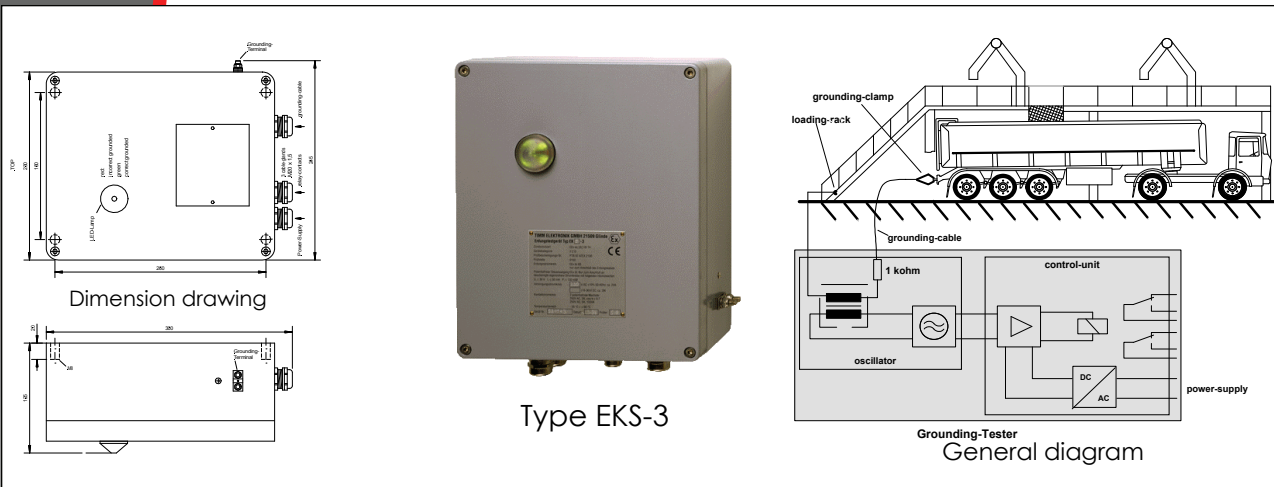
The grounding-testers, types EKN-3, EKK-3 and EKS-3, are build similarly. The only difference is that their oscillators are suited to the special range of application. The grounding-tester, type EKT-3, which has no internal oscillator, is a special version that co-operates with an external oscillator:

Grounding-Tester, Type EKN-3: standard version for grounding road tank-trucks and railway tank-wagons.

Grounding-Tester, Type EKK-3: special version only for grounding railway tank-wagons

Grounding-Tester, Type EKS-3: special version only for grounding road tank-trucks. Capacity measurement of the truck enables the EKS-3 to distinguish connection to a truck or any other grounded object.

Grounding-Tester, Type EKT-3: special version for external oscillators



All types have certain features in common that are described below:

- Explosion protection in accordance with European Standards EN 50014ff. and in conformity with the E.C. directive 94/9/E.E.C.
- Various power supply by 24 V AC, 115 V AC, 230 V AC and 24 V DC.
- Water jet protected aluminium housing (protection class IP 65).
- Two potential-free change over contacts and one NAMUR-compatible, potential-free
- Ex-i-contact for the connection of certified intrinsically safe circuits of explosion category
- EEx ia/ib IIB/IIC for external control procedures.
- A two-coloured lamp (red/green) for status-indication.
- The oscillator operates as an ohm-capacitive level-detector and detects the resistance of the grounding-loop.
- The oscillator is supplied with an intrinsically safe electric current. The limit values may be set when the unit is energised, even during operation of the equipment.
- The individual modules are encapsulated to be well-protected from adverse environmental exposures. In case of wear or failure, the modular units can be easily replaced.