ENGLISH . ENGLISCH

SAFETY CHECK LIST

Concrete pumps on the construction site

Concrete pumps on the construction site

CHECK 1 ACCESS ROAD

- Safety distances

CHECK 2 GROUND CONDITIONS

- Load bearing capacity of the subsoil

CHECK 3 STABILITY

- Footprint
- Distances to excavation pits/shoring systems

CHECK 4 SAFEGUARDS

- Road traffic
- Overhead lines
- End hose

CHECK 5 SAFETY

- Workplace
- Weather conditions
- Decision making authority
- Responsibility

We provide information, advice and details to the best of our knowledge.
The information and advice are provided free of charge and not specific to the concrete, individual case. Last update: July 2019

CHECK 1

ACCESS ROAD

Proper, load-bearing, unobstructed and sufficiently wide access road.

TO BE PROVIDED BY THE CUSTOMER

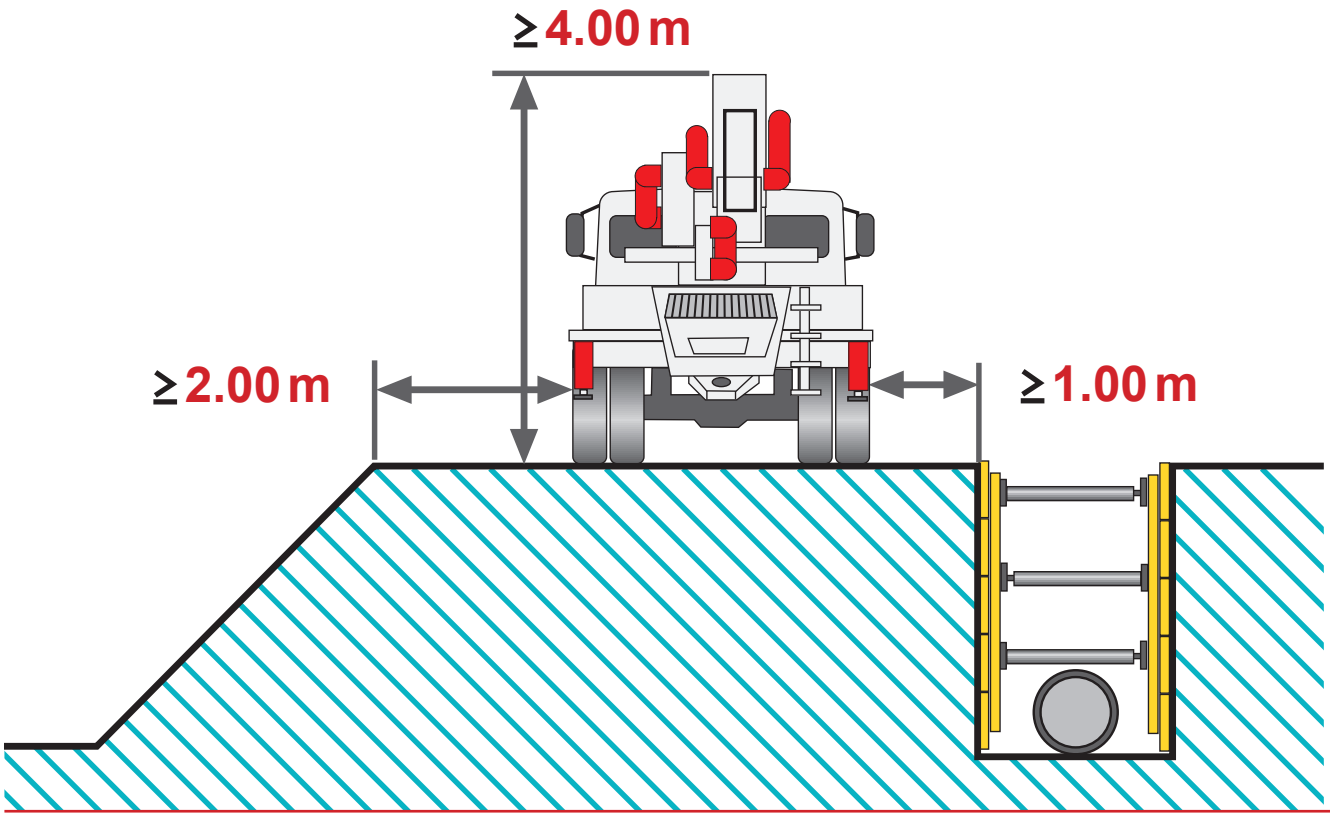
Safety distance for passing

Access roads must be suitable for a machine weight of up to 63 tons and a machine height of approximately 4.00 m. Lines crossing the the access route – in/on/ under the road surface – must be adequately protected.

Clearance height ≥ 4.00 m

Safety distance from unshored excavation pits ≥ 2.00 m

Safety distance from shored excavation pits ≥ 1.00 m



CHECK 2
GROUND CONDITIONS

TO BE PROVIDED BY THE CUSTOMER

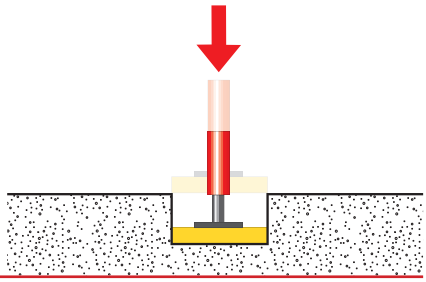
Before setting up the pump:
Proof of subsoil load bearing capacity at the installation location.

Construction management | the construction company is responsible for the standard ground values!

Protection against ground collapse

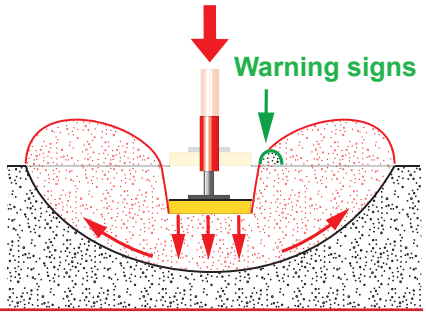
Checking the load bearing capacity of the subsoil is very important! When setting up and supporting vehicles on unpaved ground, there is a risk of ground collapse due to settling, ground break and perforation.

Ground collapse depends on the type of soil and degree of compaction. The vehicle may tilt and can tip over under unfavourable conditions.



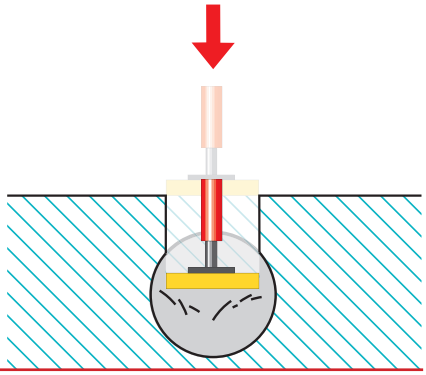
Settling

In case of settling, the ground sinks due to compaction of the soil particles but usually consolidates after a few centimetres.



Ground break

In a ground break, the soil is displaced sideways and upward due to overloading by shear forces, and the support sinks in. This occurs in particular with soft and mushy, compact soil. Proximity to an embankment favours a ground break.

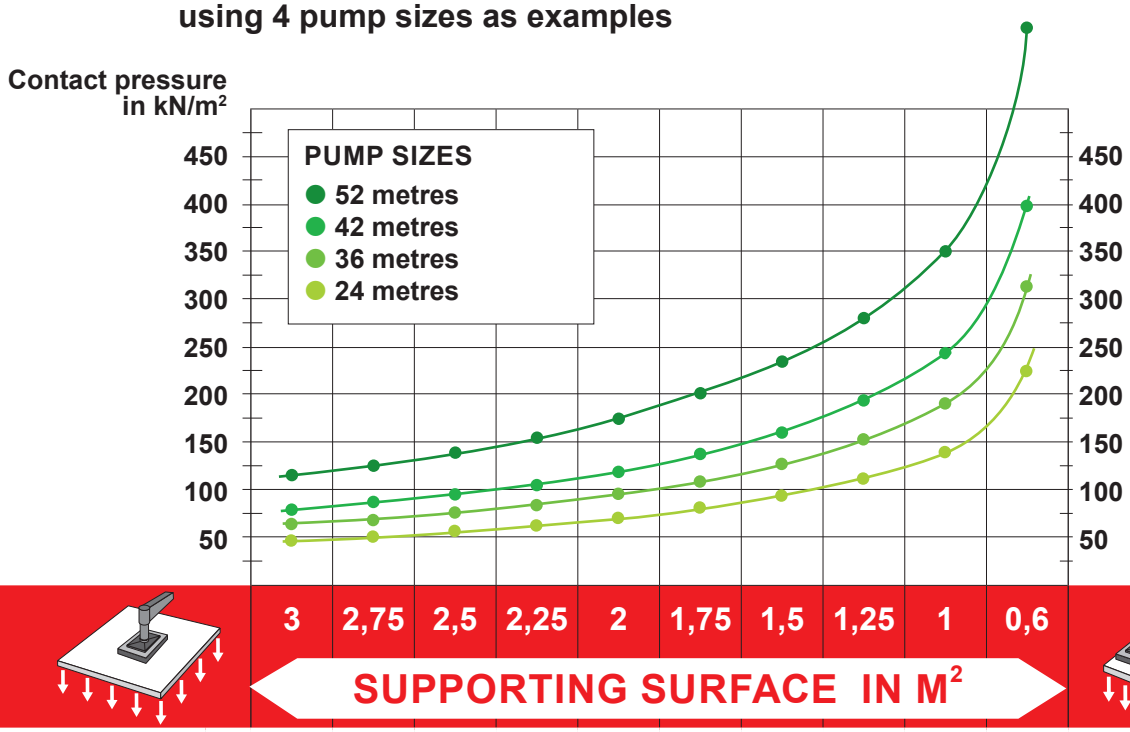


Perforation

In case of perforation, the ground collapse or ground break occurs abruptly without any warning signs.

Required supporting surface depending on the soil type

using 4 pump sizes as examples



Soil type Subsoil	PUMP SIZE	Permissible ground pressure in kN/m²
Solid rock (limestone, granite)	52 42 36 24	2000 – 4000
Paved road	52 42 36 24	300 – 1000
Backfilled, compacted ground (gravel bed)	52 42 36 24	250
Backfilled, not artificially compacted ground	52 42 36 24	0 – 100
Non-compact soil without sufficient support	52 42 36 24	150 – 300
Non-compact soil, fine to medium sand, coarse sand to gravel	52 42 36 24	200 – 500
Moist loam (soft)	52 42 36 24	50 – 100
Dry loam (hard)	52 42 36 24	100 – 200
Clay (semi-solid)	52 42 36 24	150 – 250
Gypsum, sandstone (hard)	52 42 36 24	300

IMPORTANT: Non-binding guiding values.
See the respective operating manual for the concrete pump for actual values.

CHECK 3
STABILITY

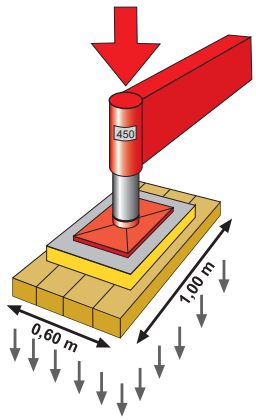
TO BE PROVIDED BY THE CUSTOMER

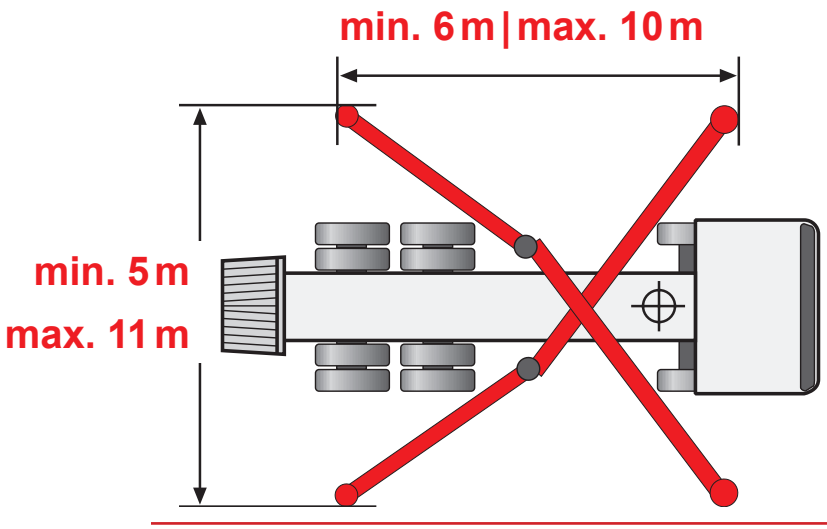
Proof of adequate compaction of fill and structural analysis for any basement walls required.

Safety distances to excavation pits | shoring system

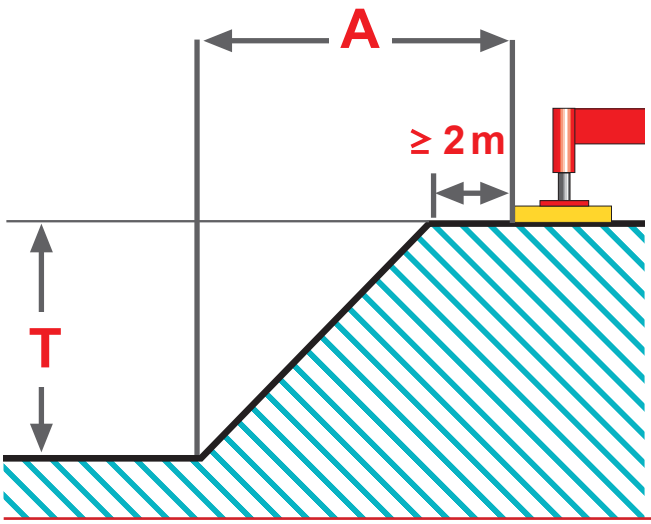
Aside from the ground conditions, the distances to excavation pits and embankments/shoring systems as well as previously constructed basement walls/sewer installations must be observed! If complying with the distances is not possible, a state-of-the-art calculation of the embankment stability is required.

max 450 kN





Ground pressure at 0.6 m² can be up to 750 kN/m².



Safety distance for

natural, cohesive soil **A ~ 1 x T**
(up to 40 tons at least 2 m)

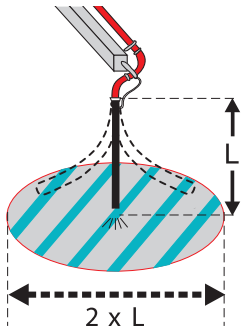
backfilled, non-cohesive soil **A ~ 2 x T**

CHECK 4
SAFEGUARDS

Clear splash zone around the concrete pump.
Permit for road blocks and power cut-off as required.

TO BE PROVIDED BY THE CUSTOMER

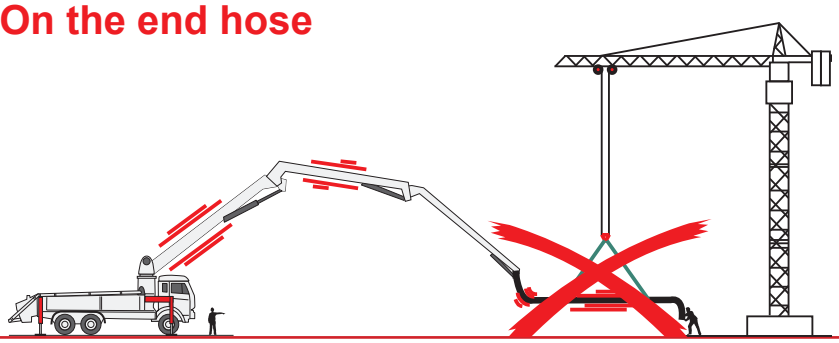
Note danger area (L)!



PROHIBITED
Presence of persons in the danger area when pumping starts!

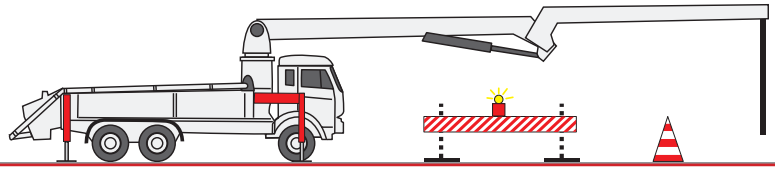
PROHIBITED
Fixed end pieces or reducers on the end hose!

On the end hose



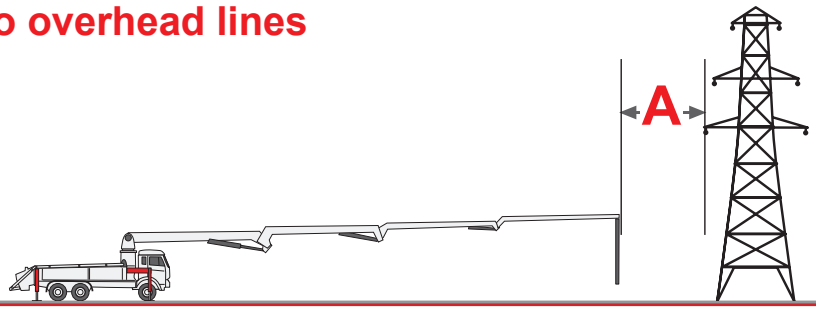
PROHIBITED
Use of traverses!

In road traffic



Approvals
for road blocks

To overhead lines



Safety distance to live lines
A ≥ 5 m

CHECK 5
SAFETY

TO BE PROVIDED BY THE CUSTOMER

Sufficient helpers for setup, removal and cleaning.
Trained guides for the truck mixers.
Instruction of the end hose guide.

Workplace

- All employees must wear personal protective equipment (PPE).
- Danger areas must be observed: around the mast, especially the end hose, and around the pump and truck mixer.

Wear protective equipment!

Note danger areas!

Fall protection!

Weather conditions

There is a risk of machinery breakage

- if temperatures are too low.
- if the wind is too high (e.g. when green leaves are torn off the trees).
- Move the boom to the travel or idle position in case of a wind storm or thunderstorm.

Pump operation prohibited

- **below -15°C**
- **at wind speed 8 < 40-metre class**
- **at wind speed 7 ≥ 40-metre class**

Decision making authority

- The pump operator makes the final decision whether using their equipment is possible.
- The instructions of the operator must be followed!

The pump operator decides whether or not the equipment can be used!

Responsibility

- Are all required papers and documents from the builder/construction management on hand?
  - Road blocks
  - Load bearing capacity of the subsoil
  - Structural analysis

Provided by:

www.zierdesign.de Last update July 2019