



Hydraulic versus high-frequency motor driven concrete cutting equipment - environmental considerations.



With the support of a case from a concrete cutting contractor in the US, we will show how the use of HF-technology can lead to substantial energy savings, thus lowering the overall environmental impact of concrete cutting as well as improving the profitability for the contractor.

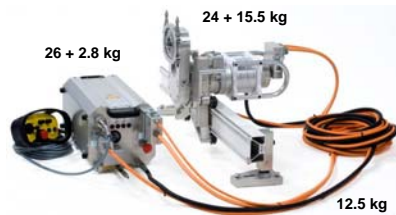


Dimensions and weight – Pentrunder equipment

Hydraulics



High frequency



Power and losses (1)

Hydraulics



High frequency





Power and losses (2)

Hydraulics

- Minimum 25 Amp fuses
- Minimum 45 kVA generator

High frequency

- Minimum 16 Amp fuses
- Minimum 30 kVA generator



Presumptions for comparison between hydraulic and HF wall saw truck in the US

The diesel generator is on average used 2 hours with low load, wet vacuuming, drilling for anchors, etc.

The diesel generator is on average used at high load for 2 hours with Pentrunder hydraulic wall saw equipment and due to higher system efficiency for 1 hour with Pentrunder high frequency wall saw equipment.

The truck is on average driven 160 km per day.



Case with Pentrunder Hydraulic Equipment

Hydraulic wall saw: Pentrunder 8-20 and Pentpak 25.
Total weight with accessories 270 kg

Power generator: 45 kVA, driven by 75 HP diesel motor, built on a Ford F650.
Weight 820 kg.

Diesel consumption per day:

Generator usage at high load:
2 hours a' 20 liter = 40 liter.

Generator usage at light load:
2 hours a' 5 liter = 10 liter.

Transport: 160 km a' 0.21 liter =
34 liter.

TOTAL= 84 LITER PER DAY



Other common trucks in the US





Case with Pentrunder High Frequency Equipment

HF-wall saw: Pentrunder 8-20HF and Pentpak 422,
Total weight with accessories, 150 kg

Power generator: 30kVA, driven by 45 HP diesel motor, built on a Ford F550.
Weight 585 kg.

Diesel consumption per day:

Generator usage at high load:
1 hour a' 13 liter = 13 liter.

Generator usage at light load:
2 hours a' 3,5 liter = 7 liter.

Transport:
160 km a' 0.16 liter = 26 liter.

TOTAL= 46 LITER PER DAY



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Conclusions of comparison between hydraulic and HF wall saw truck in the US

Diesel consumption per day Hydraulic equipment

Generator usage at high load: 2 hours a' 20 liter = 40 liter.

Generator usage at light load: 2 hours a' 5 liter = 10 liter.

Transport: 160 km a' 0.21 liter = 34 liter.

TOTAL= 84 LITER PER DAY

Diesel consumption per day HF equipment

Generator usage at high load: 1 hour a' 13 liter = 13 liter.

Generator usage at light load: 2 hours a' 3,5 liter = 7 liter.

Transport: 160 km a' 0.16 liter = 26 liter.

TOTAL= 46 LITER PER DAY

→ **Saving: 38 liter per day and unit.**
The unit works 180 days per year
and thus the saving is
6840 liter diesel per year.



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Oil leakage

Hydraulics

High frequency



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