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## Light Fueller for temporary hydrogen supply.

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**Description** The Light Fueller from Linde is a robust, low-cost and easy-to-use hydrogen dispenser solution. It is ideally suited for temporary hydrogen supply and allows for product trials at low volume. The dispenser can be connected directly to high-pressure hydrogen cylinder bundles without an additional compression unit. Apart from the hydrogen supply, the individual fuelling pressure is based on the availability of high-pressure bundles in the respective market. Due to the Light Fueller's special cascade fuelling procedure, the decrease of the pressure in the cylinders is minimised. This in turn optimises the utilisation of the stored hydrogen.

**Specification and design** The Light Fueller system consists of four hydrogen cylinder bundles (e.g. 30 MPa) and a panel to which the fuelling hose and coupling are connected. There is no need to connect the system to the electrical grid because it is based solely on mechanical components. This simple and lightweight concept allows easy transport and rapid assembly and disassembly. The hydrogen fuelling process is adjusted manually and extremely flexible utilisation is guaranteed.

**Storage**

- Compressed gaseous hydrogen is stored in four separate bundles of pressure cylinders.
- Each bundle consists of twelve high-pressure cylinders.
- The bundles can be exchanged easily.

**Fuelling** The four storage bundles provide the hydrogen in a specified sequence. The fuelling always starts through the same bundle. As soon as this bundle reaches pressure balance with the tank of the vehicle, the hydrogen source for fuelling is switched to the next bundle until this bundle also reaches pressure balance. This procedure continues until the last bundle reaches pressure balance with the pressure in the tank of the vehicle. Using this so-called cascade fuelling procedure multiplies the utilisation of stored hydrogen in comparison to simple refuelling with all bundles supplying hydrogen at once.

**Capacity** The maximum achievable vehicle tank pressure depends on the current maximum pressure in each bundle.

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**Safety concept** One aspect of Linde's Light Fueller is that no explosion prevention zone is needed. As no electrical components are used, the Light Fueller itself provides no ignition source. The purge gas is released by a height-adjustable exhaust pipe. As the maximum filling pressure is lower than the maximum vehicle tank pressure, there is no danger of overfilling. A pressure balance within the bundles is avoided by check valves.

**Technical data** Linde Light Fueller

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Dimension of a bundle	990 x 750 x 1950 mm
Dimension of the panel	800 x 525 x 1900 mm
Weight of a bundle	approx. 1.5 t
Weight of the panel	approx. 30 kg
Number of bundles	4 or more
Number of pressure cylinders per bundle	12
Volume of a pressure cylinder	50 litres
Pressure increase in vehicle tank	50–100 bar/min
Operating temperature	Ambient air temperature
Maximum operating pressure	300 bar
Amount of stored hydrogen	approx. 50 kg

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**Competitive advantages**

- Lowest-cost solution
- Easy and time-saving set-up
- Easily adjustable vehicle tank pressure
- No danger of overfilling
- Easy to transport, temporary solution
- No need for electrical connections
- Perfectly applicable for demonstration purposes