

Electric Vacuum Pumps | HELLA

Electric Vacuum Pumps in Brake Systems

The brake system is one of the most important systems in any vehicle. Ensuring that stable and effective braking power is available at all times usually requires a vacuum pump.

Until recently, the majority of brake boosters used the vacuum generated by the internal combustion engine's intake section. Under certain operating conditions (e.g. during the cold start/warm-up phase, driving at extreme altitudes or when using the air-conditioning system), the vacuum produced by the engine is no longer sufficient.

Application

Electric vacuum pumps are used to ensure the reliable operation of the brake booster.

Aside from the internal combustion engine, modern engine technologies such as those found in electric or hybrid vehicles are not able to build up vacuum pressure.

The electric vacuum pump is therefore required to generate an alternative or additional vacuum for these technologies.

This additional vacuum pump ensures compliance with the latest safety standards, while maintaining reliable operation of the brake system, which operates with pneumatic brake boost.



Advantages

Advantages of an additional vacuum pump

- Supports all engine types, including hybrid and electric vehicles
- Reduction in energy requirements thanks to on-demand pump operation
- Supports the reduction of CO₂ emissions
- Independent of combustion engine technology
- Maintenance-free (dry running, self-lubrication requires no connection to the oil circuit)
- Electrically driven vacuum pumps support a flexible vehicle platform concept

HELLA Product Range

With longstanding experience and worldwide reach, HELLA has been the global market leader for many years for original equipment vacuum pumps.

HELLA supplies vacuum pumps for any application, from compact to high-power pumps, depending on the required vacuum performance.

Designation

UP28

UP30

UP32

UP5.0

Rated voltage

13.5 volts

14.0 volts

13 volts

13 volts

Average current consumption

< 10 A

< 15 A

< 18 A

< 15 A

Pump operation time

600

hours

1,200 hours

1,200 hours

1,500 hours

Maximum vacuum level (at ambient pressure)

86 %

(typically $\geq 88\%$)

86 %

(typically $\geq 88\%$)

86 %

(typically $\geq 88\%$)

$\geq 90\%$

50 % of ambient pressure

$\leq 5.5\text{ s}$

$\leq 3.5\text{ s}$

$\leq 3.1\text{ s}$

$\leq 3.0\text{ s}$

70% of ambient pressure

$\leq 11\text{ s}$

$\leq 7\text{ s}$

$\leq 6.2\text{ s}$

$\leq 5.5\text{ s}$

Booster size

3.2 l

4.0 l

5.0 l

5.0 l

Sound level

< 70 db (A)

< 77 db(A)

< 78 db(A)

< 73 db(A)

Important safety note

Technical information and practical tips have been compiled by HELLA in order to provide professional support to vehicle workshops in their day-to-day work. The information provided on this website is intended for use by suitably qualified personnel only.

Reprinting, distribution, reproduction, exploitation in any form or disclosure of the contents of this document, even in part, is prohibited without our express, written approval and indication of the source. The schematic illustrations, pictures and descriptions serve only for the purposes of explanation and representation of the instructions and cannot be used as a basis for installation or assembly work. All rights reserved.