Brake pad and braking unit for capturing particles

Technical Field

This invention relates to non-polluting brake systems, intended in particular to be used on road or rail vehicles. The invention, in particular, relates to braking systems able to capture by suction, particles and dust resulting from abrasion, emitted by the friction braking.

It is known that these particles dispersed in the surrounding environment are harmful to the health of individuals. The development of electrical engines for automotive vehicles has heightened the need to process particles and dust resulting from abrasion, from friction braking systems.

Prior Art

The document WO2014072234 discloses a simple and autonomous device, based on the principle of suction as close as possible to the pad/disc interface.

However, it has proved to be that the capture rate is not optimum, as this depends on air conditions and, in particular, the relative wind, which is prevalent at the immediate surroundings of the brake pad.

A need has therefore appeared to improve solutions to capture particles and dust resulting from braking effectively, in view of removing all or part of the aforementioned disadvantages.

Summary of the invention

To this end, according to this invention, a brake pad in an axle disc brake A is proposed, the pad comprising a shoe, and a friction material lining,

the lining being delimited by a friction face, a mounting face, an internal edge, an external edge, a front edge, a rear edge, the lining being provided with a collection groove, open on the friction face and arranged close to the front edge, the shoe comprising a hole in fluid communication with the

CLAIMS

1. Brake pad in an axle disc brake A, the pad comprising a shoe and a lining made from friction material,
the lining being delimited by a friction face, a mounting face, an internal edge, an external edge, a front edge, a rear edge,
the lining being provided with a collection groove, open on the friction face and arranged close to the front edge,
the shoe comprising a hole in fluid communication with the collection groove, this hole being connected to a vacuum source via the communication means,
characterised in that the collection groove emerges at one of the edges chosen among the internal and external edges.

2. Brake pad according to claim 1, wherein the collection groove is hollowed directly in the friction material, up to the surface area of the shoe.

3. Brake pad according to claim 1, wherein the collection groove is formed directly in the friction material during the sintering operation, with a groove bottom which corresponds to the surface area of the shoe.

4. Brake pad according to one of the claims 1 to 3, wherein the surface area S3 occupied by the groove, is less than 5% of the total available surface area S20 on the friction face.

5. Brake pad according to one of the claims 1 to 4, wherein the collection groove extends generally radially in relation to the axle A, between an open end and a blind end, the shoe hole emerging at the groove close to the blind end, the hole of the shoe emerging at the groove close to the blind end.

6. Brake pad according to one of the claims 1 to 5, wherein

the collection groove is unique and continuous, and the collection groove is of a constant width and is substantially parallel to the front edge of the lining.

7. Braking unit comprising a brake disc, a brake calliper, two pads according to one of the claims 1 to 8, and a suction device pneumatically connected to the grooves of the pads by the communication means.

8. Braking unit according to claim 7, wherein the communication means comprise at least one flexible hose.

9. Braking unit according to claim 8, wherein an end of the flexible hose is fitted into a shoe hole.

10. Braking unit according to claim 7, wherein the communication means are formed through an internal passage arranged in the body of the calliper.