outer pad, the rear part of the piston has a significant thickness which makes it difficult for the suction pipe to be sealingly supported directly by the suction port of the outer pad.

[0007] As a result, it is necessary to find a solution to seal the connection between the outer pad and the respective suction pipe.

Summary

[0008] The present disclosure improves the situation.

[0008a] In an aspect, the present disclosure refers to a friction braking device (10) comprising a caliper (12), at least one pad (36) movable in translation along an axis (A) relative to the caliper (12), said at least one pad (36) being intended to cooperate with a brake disk, said at least one pad (36) comprising at least one particle suction region (48) that comprises a suction port (50), wherein the friction braking device (10) further comprises a suction pipe (90) attached to the caliper (12), the caliper (12) comprising a suction port (80) capable of being sealingly supported by the at least one pad (36) opposite the suction port (50) of said at least one pad (36), so as to connect said suction pipe (90) and said suction region (48) of the at least one pad (36).

[0008b] In an aspect, the present disclosure refers to a braking system comprising a brake disk and a friction braking device (10) as claimed in claim 1.

[0009] To this end, in an example, the disclosure proposes a friction braking device comprising a caliper, at least one pad movable in translation along an axis relative to the caliper, said pad being intended to cooperate with a brake disk, said pad comprising at least one particle suction region that comprises a suction port, characterized in that the device further comprises a suction pipe attached to the caliper, the caliper comprising a suction port capable of being sealingly supported by the pad opposite the suction port of said pad, so as to connect said suction pipe and said suction region of the second pad.

[0010] The seal between the suction pipe and the pad is thus ensured due to the sealed support between the suction port of the caliper and the suction port of the pad. This limits the number of parts in the braking device.

[0011] It is noted that the suction port of the caliper can be capable of being sealingly supported by the suction port of the second pad in the case of braking, i.e. when the pad is pushed against the disk. Particles are produced and, as a result, they have to be suctioned in such braking phases. It is thus also in these phases that a seal has to be ensured between the suction pipe and the suction port of the pad.

[0012] Outside the braking phases, such a seal is always ensured, which makes it possible to suction the particles after the braking, at least during a so-called cleaning phase, immediately after the braking phases.

[0013] The suction pipe can comprise a first end which is attached directly or indirectly to the caliper and a second end which is designed to be connected to a suction and filtration device. It is noted that, due to the attachment of the suction pipe to the caliper, this avoids the situation where the suction pipe exerts forces on the pad. More specifically, instead of attaching the suction pipe directly to the pad, the suction port of the caliper is provided, via which the particles resulting from the braking are suctioned by the suction pipe.

[0014] According to one example, said suction port of the pad can have a diameter which is smaller than the diameter of the suction port of the caliper. Thus it is guaranteed that a maximum number of particles emitted during the cooperation between the pad and the brake disk are suctioned by the suction pipe. More specifically, if the suction port of the caliper had the same diameter or a smaller diameter than that of the suction port of the

pad, the risk of the accumulation of particles at the interface between the two suction ports would be very high.

[0015] According to one example, a first end part of the suction port of the caliper can comprise a substantially annular shoulder which is shaped to receive said suction pipe.

[0016] The seal between the caliper and the suction pipe is thus improved, given that the suction pipe is partially introduced into the suction port of the caliper. This limits the risk that the particles are expelled toward the outside of the braking device at the interface between the caliper and the suction pipe.

[0017] Said first end part corresponds, in particular, to the end part of the suction port of the caliper which opposes the pad. Due to the shoulder, the diameter of the suction port of the caliper increases at its first end part. The suction pipe can thus be received in the suction port of the caliper while guaranteeing that a channel of the suction pipe, in which the particles flow, can have a diameter which is equal to or greater than that of the suction port of the caliper. Thus the risk is limited of the accumulation of particles at the interface between the suction port of the caliper and the suction pipe.

[0018] The suction pipe can be received, in particular, in a clamped or fitted manner in said shoulder.

[0019] According to one example, said suction pipe is implemented in the continuation of a floating cast part

of the caliper. In particular, the second pipe can be made in one piece with the floating cast part of the caliper.

[0020] According to one example, said suction pipe can be attached to the caliper from at least one removable connecting member. The suction pipe can thus be replaced easily in the case of wear. For example, the suction pipe can be attached to the caliper by screws.

[0021] According to one example, the suction port of the pad can be included in a first face of the pad, the first face of the pad being metallic and being sealingly supported by a first metallic face of the caliper into which the suction port of the caliper leads. The seal between the pad and the caliper is thus ensured by a metal-to-metal contact.

[0022] According to one example, the caliper is a floating caliper capable of being axially displaced in translation relative to a caliper support, the device comprising a first pad, called the inner pad, and a second pad, called the outer pad, the first pad being actuated directly by a piston, the second pad being actuated directly by a rear part of the floating caliper, a first suction pipe being capable of being connected to a particle suction region of the first pad, a second suction pipe being capable of being connected to a particle suction region of the second pad, and each of the particle suction regions of the first pad and the second pad respectively comprising a suction port.