Claims:

1. A magnetorheological braking device (1) having a fixed holder (4) and having at least two brake components (2, 3), wherein a first brake component (2) is connected in a rotatably-fixed manner to the holder (4) and extends in an axial direction (20) and wherein the second brake component (3) comprises a sleeve part (13) that is embodied as hollow and that may rotate about the first brake component (2), wherein a gap (5) is embodied between the first and the second brake component (2, 3) and at least one, two or more rotatable transmission components (11) are arranged in said gap (5), and wherein the gap (5) is filled at least in part with a magnetorheological medium (6),
characterized in that
the first brake component (2) comprises a core (21) that extends in the axial direction (20), said core being embodied from a magnetically-conductive material, and an electrical coil (26) that is wound in the axial direction (20) centrally around the core (21), and wherein the sleeve part (13) is embodied from a magnetically conductive material and provides an outer ring (24) for a magnetic field (8) with a result that the magnetic field (8) of the electrical coil (26) extends transversely with respect to the axial direction trough said core (21) and enters through said transmission components (11) on opposite sides of the gap (5) into said sleeve part (13), wherein the magnetic field (8) closes itself in opposing halves of the sleeve part (13).

2. The magnetorheological braking device (1) as claimed in claim 1, wherein at least one transmission component (11) is embodied as a roller body.

3. The magnetorheological braking device (1) as claimed in the preceding claim, wherein at least one roller body (11)

comprises a cylindrical or spherical or round or rounded cross section.

4. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein at least some of the transmission components (11) are embodied from a magnetically conductive material.

5. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein at least some of the transmission components (11c) are embodied from a magnetically non-conductive material.

6. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein the sleeve part (13) is embodied on a rotary knob (23).

7. The magnetorheological braking device (1) as claimed in the preceding claim, wherein at least one radial wall thickness (13a) of the sleeve part (13) is at least half as thick as a gap width (5a) of the gap (5) and/or a diameter (11a) of a transmission component (11).

8. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein a length (2a) of the first brake component (2) in the axial direction (20) is greater than a length (11b) of a transmission component (11) in the axial direction (20).

9. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein a length (5b) of the gap (5) in the axial direction (20) is at least twice as large as a length (11b) of a transmission component (11) in the axial direction (20).

10. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein the first brake component (2) is embodied in an essentially cylindrical

manner and comprises a cylindrical base body (33) as a core (21) and the electrical coil (26).

11. The magnetorheological braking device (1) as claimed in the preceding claim, wherein the electrical coil (26) is wound in axial grooves (31) and/or transverse grooves (32) of the cylindrical base body (33).

12. The magnetorheological braking device (1) as claimed in the preceding claim 11, wherein the axial grooves (31) and/or the transverse grooves (32) are filled at least in part with casting compound (28).

13. The magnetorheological braking device (1) as claimed in any one of the preceding claims 10 to 12, wherein the cylindrical base body (33) is surrounded by a sleeve body (34) that is fixedly connected to the cylindrical base body (33), wherein a radial thickness (34a) of the sleeve body (34) is smaller than half of the radial gap width (5a) of the gap (5).

14. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein the holder (4) comprises a cable feed-through (35).

15. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein the holder (4) comprises a receiving arrangement (36) for the rotatably fixed connection to the first brake component (2) and wherein the holder (4) comprises a cylindrical running surface (37) for a bearing arrangement (30) and supports the sleeve part (13) in a rotatable manner on the holder (4).

16. The magnetorheological braking device (1) as claimed in the preceding claim, wherein a seal (38) is arranged on the cylindrical running surface (37) so as to seal the gap

(5), wherein the seal (38) is arranged closer to the gap (5) than the bearing arrangement (30).

17. The magnetorheological braking device (1) as claimed in either of the two preceding claims, wherein the cylindrical running surface (37) is hardened and/or comprises a higher surface quality than the radial outer surface of the receiving arrangement.

18. The magnetorheological braking device (1) as claimed in any one of the three preceding claims, wherein the cylindrical running surface (37) comprises an outer diameter (37a) that is at least 3 mm smaller than an outer diameter (36a) of the receiving arrangement (36) of the holder.

19. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein the first brake component (2) comprises a feed-through (39) for a shaft (40) that is connected in a rotatably-fixed manner to the second brake component (3).

20. The magnetorheological braking device (1) as claimed in the preceding claim, wherein a part (41) of an angle sensor is attached to the shaft (40).

21. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein the holder (4) is fastened to a console (50).

22. The magnetorheological braking device (1) as claimed in the preceding claim, wherein a further part (42) of an angle sensor is fastened to the holder (4) or the console (50).

23. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein a user interface (43), an operator panel, a display, a touch-sensitive

display with or without haptic feedback and/or at least one sensor is attached to the axial end that lies opposite the holder.

24. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein at least one component, which the magnetic field flows through, is embodied at least in part from the material FeSi3P.

25. The magnetorheological braking device (1) as claimed in any one of the preceding claims, wherein at least one microphone and/or a sound recognition device and/or a voice recognition device is included or allocated.