Claims~~:~~

1. ~~Disk~~A disc-shaped ~~cutting~~separating tool, for rotating (D) cutting of an elongated, stationarily clamped workpiece, at exclusively radial feed (VR) of the separating tool in relation to its rotation axis at least roughly in the direction of the clamped workpiece, with
geometrically undetermined separating blades (5) in a radially outer circumferential area (3) of the separating tool,
two opposing disc flanks (4) in a radially inner area in relation to the circumferential area (3), and
with an axial attachment opening (7) on the radial inside,
characterised in that
the separating tool is formed as a separating-grinding-polishing disc (1), specifically

~~1.~~ for ~~the~~ rotating (D) cutting of ~~a stationary clamped workpiece, elongated at least roughly along an axis of rotation, with an exclusively radial advance (VR) of the cutting tool with respect to this axis of rotation,~~the workpiece clamped at least roughly ~~in the direction of the orthogonally clamped workpiece, with~~orthogonally to the radial feed (VR) along its rotation axis via the separating blades (5) radially arranged on the outside, and

~~1.1 cutting edges (5) in a radially outer peripheral region (3) of~~ for rotating grinding, with the ~~cutting tool (1),~~

~~1.2 two opposing disk~~disc flanks (4) ~~in a radially inner region with respect to the circumferential region (3), and~~

~~1.3 radially inside with an axial fastening opening (7)~~

~~characterized in that~~

~~1.4~~ ~~the disk flanks are~~being at least ~~partially provided~~partly applied with grinding media and optionally also with ~~grinding and~~ polishing ~~agents~~media (6, 20, 21, 22).

2. ~~Disk~~The disc-shaped ~~cutting~~separating tool ~~(~~in accordance with claim 1~~),~~, ~~characterized~~characterised in that it has a defined flexibility and a defined ~~impact~~imbalance.

3. ~~Disk~~The disc-shaped ~~cutting tool (1) according to claim 1 or 2, characterized in~~ separating tool in accordance with claims 1 or 2, characterised in that it has a disc-shaped basic body (2) made of a composite material, e.g. using a synthetic resin matrix, or of a composite material that already contains separating agent of a defined grain.

4. The disc-shaped separating tool in accordance with one of the preceding claims, characterised by at least one area with the separating blades (5), acting in the radial working direction (VR), and at least one grinding area acting in the axial working direction (VA), and optionally also a polishing area (6), wherein preferably wearing binding materials of the grinding grains responsible for separation are used as separating blades (5), and wherein its radial wear generally is possible up to the tool holder of an operating machine.

5. The disc-shaped separating tool in accordance with one of the preceding claims,

~~3.~~ characterised in that the grinding media and optionally also the polishing media (6) are made of

geometrically undetermined blades, wherein the grinding media and optionally also the polishing media (6) have a finer grain or serration or are designed for a lower material removal than the separating media (5) and/or that at least one of the two ~~disk~~disc flanks~~–~~ (4) is thickened in ~~comparison~~one or multiple steps as compared to the material thickness in the radially outer circumferential ~~region~~ area (3) from ~~radially~~the radial outside to ~~radially~~the radial inside, in particular by ~~means~~way of the grinding media and~~/or~~ optionally also the polishing ~~agent~~ media (6).

~~4.~~6. ~~Disk~~The disc-shaped ~~cutting~~separating tool ~~(1) according to any~~in accordance with one of the preceding claims,
~~characterized~~characterised in that, from the radial outside to the radial inside, initially ~~the~~ grinding ~~surfaces~~areas and, at least ~~toward~~increasingly towards the radial inside~~, more and more~~ or ~~finally~~eventually exclusively at the radial inside ~~exclusively~~, polishing ~~surfaces are arranged~~areas on at least one of the ~~disk~~disc flanks (4~~).~~), are arranged.

~~5.~~7. ~~Disk~~The disc-shaped ~~cutting~~separating tool ~~(1) according to any~~in accordance with one of the preceding claims,
~~characterized~~characterised in that different geometrically undetermined tool blades and/or materials of different grains are arranged in the circumferential ~~region~~area (3) and on at least one of the ~~disk~~disc flanks (4~~) different tool cutting edges and/or material of a different grain size is/are arranged~~), in particular with increasingly fine grinding and polishing materials towards the disc centre.

~~6.~~8. ~~Disk~~The disc-shaped ~~cutting~~separating tool ~~(1) according to any~~in accordance with one of the preceding claims, ~~characterized~~characterised in it that ~~it comprises~~there is at least one wear ~~indicator~~display (41 to 44).

9. ~~Radial cutting~~The disc-shaped separating tool in accordance with claim 8, characterised in that the wear display (41 to 44) reacts independently to mechanical wear of the separating tool, in particular by a different colour appearing or becoming evident, particularly preferably detectable in the radial and axial directions each.

10. A radial separating method for ~~machining~~processing axially elongated workpieces ~~using~~by way of a ~~disk~~disc-shaped ~~cutting~~separating tool ~~which cuts, grinds~~with geometrically undetermined separating blades (5),

~~7.~~ **characterised in that** it is performed with a disc-shaped separating tool in accordance with one of claims 1 to 9 and that a clamped workpiece is cut and/or ~~polishes~~polished during a single~~, purely~~ strictly radial feed movement of the ~~cutting tool.~~

~~8. Radial cutting method according to claim 7, carried out by means of a disk-shaped cutting tool (1) according to any of claims 1 to 6.~~

~~9.~~ ~~Radial cutting method according to claim 7 or 8, characterized in that~~separating tool, and, optionally, wherein a lateral deflection of the axially ~~stationary~~stationarily rotating separating tool ~~(1)~~ brings ~~the tool~~this into grinding and/or polishing axial ~~effective~~active contact with the workpiece to be processed at least with one laterally ~~applied~~attached

grinding and polishing surface (6, 20, 21, 22~~) on the workpiece to be machined.~~).

11. ~~Radial cutting~~The radial separating method ~~according to~~in accordance with claim ~~7, characterized~~10, ~~10.~~ characterised in that the lateral deflection of the rotating ~~tool (1)~~separating tools is achieved by a flexibility and a defined ~~impact~~imbalance of the separating tool ~~(1),~~, wherein ~~the~~ combined ~~geometric~~geometrical and kinematic properties of the separating tool ~~(1)~~ lead to a lateral deflection of the separating tool ~~(1)~~ as soon as the separating tool ~~(1)~~ rotating at ~~operating~~working speed touches a workpiece with its outer circumference (3) or its ~~cutting edge~~separating blade (5) in the radial feed direction (VR).

~~11.~~12. ~~Radial cutting~~The radial separating method ~~according to~~in accordance with claim ~~10, characterized~~11, characterised in that the total lateral deflection is ~~approximately~~about 10 percent of the ~~axial~~ width of the ~~cutting edge (5~~separating-grinding-polishing disc (1).

13. ~~Radial cutting~~The radial separating method ~~according to~~in accordance with one of claims ~~7~~10 to 12, characterised in that the operating revolutions of the separating-grinding-polishing disc (1) has a value that corresponds to ~~11, characterized~~a multiple of one of the natural frequencies of the separating-grinding-polishing disc (1).

~~12.~~14. The radial separating method in accordance with claims 10 to 13, characterised in that a thickening of the ~~disk~~disc flanks~~_~~ (4) supports the axial

~~engagement~~interlock of the at least one grinding and polishing ~~agents~~medium (6, 20, 21, 22).

15. ~~Radial cutting~~The radial separating method ~~according to any~~in accordance with one of claims ~~7~~10 to ~~12, characterized~~ 14,

~~13.~~ characterised in that a wear ~~indicator shows~~display (41 to 44) displays a remaining ~~utilization~~residual usage capacity, in particular a remaining cutting volume and/or a remaining ~~utilization~~usage time.

16. ~~Radial cutting~~The radial separating method ~~according to~~in accordance with claim ~~13, characterized~~15, characterised in that the wear ~~indicator~~display reacts independently to ~~the~~ mechanical wear of the tool ~~(1),~~, in particular ~~in that~~by a different ~~color appears~~colour appearing or ~~becomes recognizable.~~ becoming evident.

~~14.~~

~~15. Cutting device with at least one disk-shaped cutting tool (1) according to any of claims 1 to 6.~~

~~16. Cutting device according to claim 15, characterized in that the cutting tool (1) can only be moved radially in said device for machining the workpiece.~~

~~17. Use of a disk-shaped cutting tool for specimen preparation and subsequent surface analysis on a workpiece cut to length.~~

~~18. Use according to claim 17, using a disk-shaped cutting tool (1) according to any of claims 1 to 6 for machining or removing a surface structure on a workpiece.~~

~~19. Use according to claim 17 or 18 for the machining of a test specimen for assessing product conditions, namely for assessing a wear condition of a cable.~~

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