Claims

1. A system configured to operate with a spindle apparatus (170) of a machine tool (100), the system comprising:

- an energy transmission unit (320) having a transmitter coil unit (323) being configured to transmit electrical energy to a receiver coil unit (312) of a tool interface unit (310) in a contact-free manner, wherein the tool interface unit (310) includes the receiver coil unit (312), an electrical load and a tool interface portion (311) being configured to receive the tool interface unit (310) at a tool support (173) of a work spindle (172) of the spindle apparatus (170), and

- a coupling interface unit (330) having an interface body element (332) that can be attached to the spindle apparatus (170) and a second coupling element (331) which is configured to be coupled to a first coupling element (321) of the energy transmission unit (320) by means of a releasable connection;

wherein the coupling interface unit (330) has an electrically, hydraulically or pneumatically controllable locking mechanism configured to unlock and lock the releasable attachment between the first and second coupling elements (321, 331).

2. The system according to claim 1, characterized in that

the first and second coupling elements (321, 331) each have one or more plug connection elements such that the one or more plug connection elements of the first coupling element (321) are configured with the one or more plug connection elements of the second coupling element (331) to establish a releasable plug connection for the releasable attachment of the first coupling element (321) to the second coupling element (331).

3. The system according to claim 1 or 2, characterized in that

the first and second coupling elements (321, 331) each have interconnectable electrical contact portions for establishing an electric connection between the first and second coupling elements (321, 331) when the first coupling element (321) is releasably attached to the second coupling element (331).

4. The system according to claim 3, characterized in that

the first coupling element (321) has electrical wirings which electrically connect the transmitter coil unit (323) of the energy transmission unit (320) to the electric contact portions of the first coupling element (321).

5. The system according to claim 3 or 4, characterized in that

the second coupling element (331) has electrical wirings which electrically connect the electric contact portions of the second coupling element (331) to electric connection elements (334) arranged on the interface body element (332) of the coupling interface unit (330) for the connection of external electrical wirings.

6. The system according to any of the preceding claims, characterized in that

the coupling interface unit (330) has electric, hydraulic or pneumatic connection elements (334) arranged on the interface body element (332) in order to control the locking mechanism.

7. The system according to any of the preceding claims, characterized in that

the interface body element (332) of the coupling interface unit (330) can be attached to the spindle apparatus (170) by means of a screw connection.

8. The system according to any of the preceding claims, characterized by

a coupling element holder (340) that can be attached to the machine tool (100) and has a coupling element support (341) for holding the energy transmission unit (320) when the first coupling element (321) of the energy transmission unit (320) is uncoupled from the second coupling element (331) of the coupling interface unit (330).

9. The system according to any of the preceding claims, characterized by

a coupling element adapter (350) having a third coupling element (351), which is configured to be coupled by means of a releasable connection to the second coupling element (331) of the coupling interface unit (330) analogously to the first coupling element (321) of the energy transmission unit (320) when the first coupling element (321) of the energy transmission unit (320) is uncoupled from the second coupling element (331) of the coupling interface unit (330).

10. The system according to claim 9, characterized in that

the third and second coupling elements (351, 331) each have one or more plug connection elements such that together with the one or more plug connection elements of the second coupling element (331) the one or more plug connection elements of the third coupling element (351) are configured to establish a releasable plug connection for the releasable attachment of the third coupling element (351) to the second coupling element (331).

11. The system according to claim 10, characterized in that

the third coupling element (351) has an attachment element (352) on the side opposite the plug connection elements for the plug connection to the second coupling element (331) for the releasable attachment to a further attachment element (360), which can be attached to a material deposition processing apparatus (230) that can be received at the tool support (173) of the work spindle (172) of the spindle apparatus (170).

12. The system according to claim 1, characterized in that

the tool interface unit (310) also has a tool support portion (313) on a side opposite the tool interface portion (311) in order to receive a tool.

13. The system according to claim 12, characterized in that

the tool interface unit (311) has as the electrical load a vibration drive which is configured to drive an oscillation of the tool interface unit (311), in particular within the ultrasonic frequency range.