Claims

1. A system (10; 20; 30) for position determination comprising an energy guide chain (1) for guiding supply lines, the energy guide chain comprising a first run (1B), wherein an end of the first run is fixed to a connection point, and a mobile second run (1A), wherein an end of the mobile second run is fixed to a moving end (4), the moving end being displaceable back and forth along a route, comprising
a guide arrangement (7) with guide components (8A, 8B; 28A, 28B; 38A, 38B) arranged along the route for lateral guidance of the energy guide chain during displacement and
a sensor device (12; 22; 32) for position determination which is mounted at the moving end (4),
characterized in that
at least some guide components (8A, 8B; 28A, 28B; 38A, 38B) have thereon at least one reference component (14; 23A, 24; 33, 33A) serving as position reference, and in that the sensor device (12; 22; 32) interacts with individual reference components for position determination.

2. A system (40) for position determination comprising an energy guide chain (1) for guiding supply lines, the energy guide chain comprising chain links (2) and the energy guide chain comprising a first run (1B), wherein an end of the first run is fixed to a stationary connection point (5) and a mobile second run (1A), wherein an end of the mobile second run is fixed to a displaceable moving end (4) which is displaceable back and forth along a route and forms therebetween a deflection arc (1C), comprising

a first sensor device (41) for position determination which is mounted at the moving end,
characterized in that
a second sensor device (42) for position determination is mounted stationarily at the stationary connection point (5),
and in that at least every n^{th} chain link (2) has at least one reference component (44) mounted thereon, and in that, depending on a traveling position along the route, the first sensor device (41) or the second sensor device (42) interacts with individual reference components (44) of the chain links (2) for position determination.

3. The system according to Claim 1 or 2, characterized in that each sensor device (12; 22; 32; 41, 42) interacts contactlessly with the individual reference components (14; 24; 33, 33A; 44), in particular electromagnetically, preferably by radio, optically and/or acoustically, preferably by ultrasound.

4. The system according to Claim 1, 2 or 3, characterized in that the reference components (14; 24; 33, 33A; 44) are arranged in a predetermined, in particular uniform, spacing
and/or
each reference component (14; 24; 44) has a unique identifier which can be associated with a position, in particular an absolute position, along the route.

5. The system according to Claim 3 or 4, characterized in that the reference component (14; 24; 44) takes a form of a radio circuit with transmit capability and the sensor device has a corresponding receiver (12A, 12B; 22A, 22B; 41, 42).

6. The system according to one of Claims 3 to 5, characterized in that the reference component takes a form of a radio component (14; 24; 44), namely a passive radio circuit, in particular an RFID transponder, or an active radio circuit and each sensor device comprises a corresponding antenna arrangement (12A; 22A; 41, 42).

7. The system according to Claim 3, characterized in that the at least one reference component (23A; 33A) takes a form of optical and/or electromagnetic markings, in particular encoded markings (33A), which are detectable using an optical and/or electromagnetic sensor (22C; 32A) of the sensor device.

8. The system according to Claim 1, in particular according to Claims 1 and 7, characterized in that the guide arrangement is a guide channel (7), wherein the guide components comprise side wall parts (8A, 8B; 28A, 28B; 38A, 38B),

- wherein the side wall parts (8A, 8B; 28A, 28B; 38A, 38B) are arranged stationarily in a longitudinal direction (L) in a continuous succession on both sides along the route, and at least every n^{th} side wall part (8A, 8B; 28A, 28B; 38A, 38B) of one side of the guide channel in each case comprises at least one reference component (14; 23A, 24; 33, 33A), and/or
- wherein the reference component (14, 24) is preferably fastened as a separate component to the side wall part or is an integral component (23A, 33) of the side wall part.

9. The system according to Claim 1, characterized in that the guide arrangement has, as its guide components, floor guide elements fastened distributed at a predetermined

mutual spacing along the route, wherein at least every n^{th} floor guide element comprises a reference component, preferably a radio component.

10. The system according to Claim 2, characterized in that each reference component (50) comprises a crosspiece (55) of the respective chain link or is mounted on a crosspiece (55) and/or in particular comprises optically and/or electromagnetically detectable markings and/or a passive radio component (50).

11. The system according to one of the preceding claims comprising an installation control system for controlling a movement of a mobile machine part (62, 64) which comprises the moving end (4), characterized in that the control system is connected for signaling to the sensor device (12; 22; 32; 41, 42) for position determination of the mobile machine part (62, 64).

12. A side wall part (8A, 8B; 28A, 28B; 38A, 38B) of a guide channel for an energy guide chain (1), characterized in that at least one stationary reference component (14; 23A, 24; 33, 33A), which is a radio component (14; 24) or optically and/or electromagnetically detectable markings (23A, 33), is provided on the side wall part (8A, 8B; 28A, 28B; 38A, 38B), which reference component is configured to interact as a position reference with a sensor device for position determination.

13. A crane (60), in particular a gantry crane or bridge crane, such as a container gantry crane or the like, comprising a linearly displaceable crane trolley (62, 64) and a system (10; 20; 30; 40) according to one of Claims 1 to 11, in particular according to Claim 1, wherein the crane trolley (62, 64) is connected at the moving end to the energy guide chain (1) and the crane comprises a

control system which is connected for signaling to the sensor device.

14. Use of a system (10; 20; 30; 40) according to one of Claims 1 to 11 for continuous measurement of an absolute position of a displaceable machine or installation part, in particular a linearly displaceable crane trolley (62, 64), supplied by the energy guide chain (1).