CLAIMS

1. A line guide arrangement (1), in particular for clean room applications, for protected guidance of supply lines like cables, hoses or the like between two connecting locations (2, 4), of which at least one is moveable relative to the other, wherein the line guide arrangement (1) is reciprocatingly displaceable with a formation of two runs (8, 9) and a direction-changing arc (6) between the runs (8, 9), wherein the line guide arrangement (1) within the runs (8, 9) is in a straight position with respect to a longitudinal direction (L) of the line guide arrangement (1) and is in a curved direction-changing position within the direction-changing arc, wherein the direction-changing arc is curved about a direction-changing axis (A), the line guide arrangement (1) including:

- a flexible enclosure (10; 20; 30) for enclosing supply lines (22; 32) having a plurality of mutually juxtaposed receiving passages (24; 34) for at least one respective supply line (22; 32), the receiving passages (24; 34) extending in the longitudinal direction (L), and
- at least one support chain (16; 26; 36) comprising chain links (18; 48), in particular comprising individual chain links (18; 48), wherein the support chain (16; 26; 36) cooperates with the enclosure (10; 20; 30) for support of at least one associated receiving passage (24; 34) in the straight position, wherein the support chain (16; 26; 36) has first abutment surfaces (41) which bear against each other in the straight position and second abutment surfaces (42) which bear against each other in the direction-changing position,

and whereinthe support chain (16; 26; 36) forms a support surface (13; 23; 33; 43), a width of which is greater than a width of a free cross-section of the associated receiving passage (24; 34);

characterised in that

the first abutment surfaces (41) and the second abutment surfaces (42) are respectively of a dimension in the longitudinal direction (L) and a dimension in a width direction (W) parallel to the direction-changing axis (A), wherein the dimension of the respectively abutment surface (41, 42) in the width

direction (W) is greater than the dimension of said abutment surface (41, 42) in the longitudinal direction (L).

2. A support chain (16; 26; 36), in particular for a line guide arrangement (1) according to claim 1, wherein the support chain (16; 26; 36)

- is receiprocatingly displaceable with a formation of two runs and a direction-changing arc between the runs, wherein the support chain (16; 26; 36) within the runs is in a straight position with respect to a longitudinal direction (L) of the support chain (16; 26; 36) and extends in a direction-changing position within the direction-changing arc,
- in the direction-changing position the support chain is curved about a direction-changing axis (A), and
- includes chain links (18; 48), wherein each two successive chain links (18; 48) are pivotably connected together,

wherein the support chain (16; 26; 36) has first abutment surfaces (41) which bear against each other in the straight position and second abutment surfaces (42) which bear against each other in the direction-changing position, and wherein

the support chain (16; 26; 36) forms a support surface (13; 23; 33; 43), a width of which is at least three times a spacing of the support surface (13; 23; 33; 43) relative to an opposite side of the support chain (16; 26; 36) considered in a cross-section perpendicularly to the longitudinal direction (L); characterised in that

the first abutment surfaces (41) and the second abutment surfaces (42) are respectively of a dimension in the longitudinal direction (L) and a dimension in a width direction (W) parallel to the direction-changing axis (A), wherein the dimension of the respectively abutment surface (41, 42) in the width direction (W) is greater than the dimension of said abutment surface (41, 42) in the longitudinal direction (L).

3. Line guide arrangement (1) according to claim 1, characterised in that the width of the support surface (13; 23; 33; 43) is greater than the total of the widths of the cross-sections perpendicularly to the longitudinal direction (L) of at least two associated receiving passages (24; 34), preferably at least three associated receiving passages (24; 34).

4. Support chain (16; 26; 36) according to claim 2 characterised in that the support chain (16; 26; 36) is composed of individual, in particular structurally identical, chain links (18; 48).

5. Support chain according to one of claims 2 and 4 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which are respectively in one piece and are in the form of a solid body or are monolithic, in particular made from plastic.

6. Line guide arrangement (1) according to one of claims 1 and 3 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which are respectively in one piece and are in the form of a solid body or are monolithic, in particular made from plastic.

7. Line guide arrangement (1) according to one of claims 1, 3 and 6 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which are each of a plate-shaped configuration and/or the dimension of the respective chain link (18; 48) in the width direction (W) is greater at least by a factor $\geq$ 5 than a dimension of the respective chain link (18; 48) in a height direction (H) perpendicularly to the width direction (W) and perpendicularly to the longitudinal direction (L).

8. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 7 characterised in that in the straight position of the support chain (16; 26; 36) a surface region (48a) of a chain link (18; 48), that is opposite the second abutment surfaces (42), is flush with a surface of a next adjacent

chain link (18; 48) and in the direction-changing position of the support chain (16; 26; 36) a further surface region (48b) of the chain link (18; 48), that is opposite the first abutment surfaces (41), is flush with the surface of the next adjacent chain link (18; 48).

9. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 8 characterised in that the support surface (13; 23; 33; 43) is of a width greater than the chain pitch of the support chain (16; 26; 36).

10. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 9 characterised in that the chain links (18; 48) of the support chain (16; 26; 36) are pivotably connected together by receiving means-pin connections and in particular have inclined insertion portions (47a) at the pins (47) and insertion grooves (45a) at the receiving means (45).

11. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 10 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which are respectively of such a design that the dimension of the respective chain link (18; 48) in the width direction (W) is greater than the dimension of the respective chain link (18; 48) in the longitudinal direction (L).

12. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 11 characterised in that the support chain (16; 26; 36) is enclosed with own flexible chain enclosure (200; 300) of the support chain, in particular comprising flexurally elastic plastic.

13. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 12 characterised in that the enclosure (10; 20; 30) is of a belt-like configuration and at least at one of narrow sides has at least one functional region (28; 38; 208; 308) extended in the longitudinal direction (L), in particular for dust-tight closure of an opened state of the enclosure (10; 20;

30) in which a supply line (22, 32) or a support chain (26; 36) can be inserted or removed transversely to the longitudinal direction and for transfer of the enclosure (10; 20; 30) into the opened state.

14. Line guide arrangement (1) according to claim 12 characterised in that the chain enclosure (200; 300) is of a belt-like configuration and at least at one of narrow sides has at least one functional region (28; 38; 208; 308) extended in the longitudinal direction (L), in particular for dust-tight closure of an opened state of the chain enclosure (200; 300) in which a support chain (26; 36) can be inserted or removed transversely to the longitudinal direction and for transfer of the chain enclosure (200; 300) into the opened state.

15. Line guide arrangement (1) according to claim 13 or 14 characterised in that the functional region (28; 38; 208; 308) includes two cooperating closure profiles (29; 39; 209; 309) of a closure, in particular positively locking and/or force-locking engagement profiles.

16. Line guide arrangement (1) according to claim 13, 14 or claim 15 characterised in that the functional region (28; 38; 208; 308) has a fixing profile (27; 37; 207; 307) for connecting the enclosure (10; 20; 30) and/or the chain enclosure (200; 300) to a further enclosure (10; 20; 30) and/or the chain enclosure (200; 300).

17. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 16 characterised in that the enclosure (10; 20; 30) is made from a flexurally elastic plastic, in particular a plastic of lesser hardness than the plastic of the chain links (18; 48) of the support chain (16; 26; 36).

18. Line guide arrangement (1) according to one of claims 1, 3, and 6 to 17 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which each have convex guide surfaces (44, 46),

wherein the guide surfaces (44, 46) form a minimal movement gap with end faces (49)of pivotably connected chain links.

19. Support chain (16; 26; 36) according to one of claims 2, 4 and 5 characterised in that in the straight position of the support chain (16; 26; 36) a surface region (48a) of a chain link (18; 48), that is opposite the second abutment surfaces (42), is flush with a surface of a next adjacent chain link (18; 48) and in the direction-changing position of the support chain (16; 26; 36) a further surface region (48b) of the chain link (18; 48), that is opposite the first abutment surfaces (41), is flush with the surface of the next adjacent chain link (18; 48).

20. Support chain (16; 26; 36) according to one of claims 2, 4, 5 and 19 characterised in that the support surface (13; 23; 33; 43) is of a width greater than the chain pitch of the support chain (16; 26; 36).

21. Support chain (16; 26; 36) according to one of claims 2, 4, 5, 19 and 20 characterised in that the chain links (18; 48) of the support chain (16; 26; 36) are pivotably connected together by receiving means-pin connections and in particular have inclined insertion portions (47a) at the pins (47) and insertion grooves (45a) at the receiving means (45).

22. Support chain (16; 26; 36) according to one of claims 2, 4, 5, and 19 to 21 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which are respectively of such a design that the dimension of the respective chain link (18; 48) in the width direction (W) is greater than the dimension of the respective chain link (18; 48) in the longitudinal direction (L).

23. Support chain (16; 26; 36) according to one of claims 2, 4, 5, and 19 to 22 characterised in that the support chain (16; 26; 36) has a plurality of chain links (18; 48) which each have convex guide surfaces (44, 46),

wherein the guide surfaces (44, 46) form a minimal movement gap with end faces (49) of pivotably connected chain links.