ASSEMBLY INSTRUCTIONS

Mod. MOTION
Mod. OPTIMA
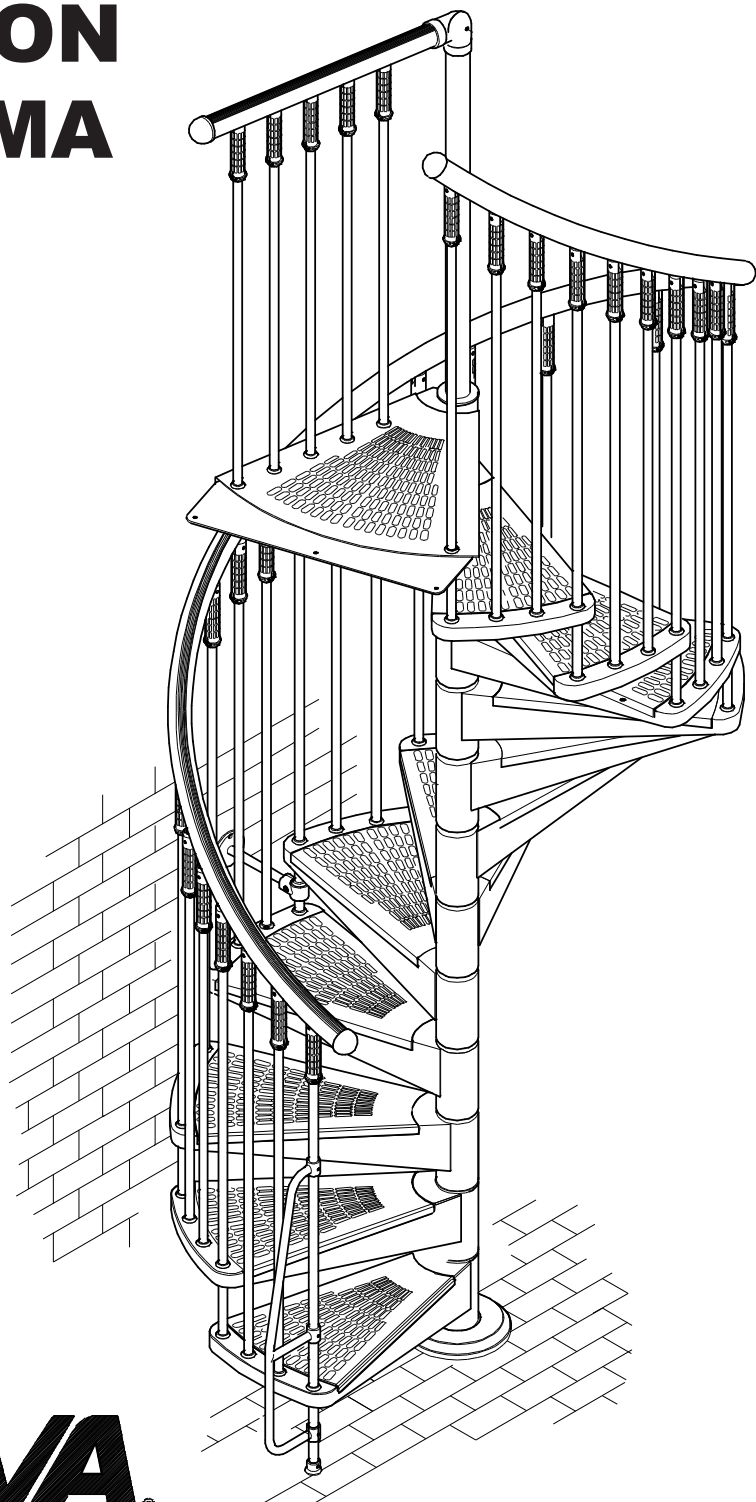
EHLEVA®

advanced mobular stair system

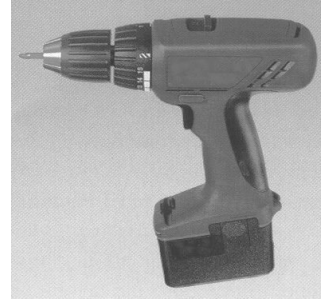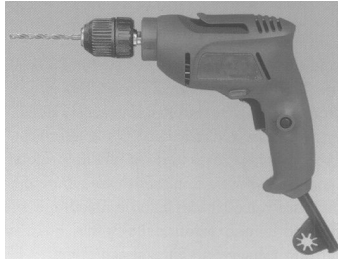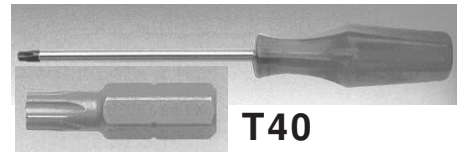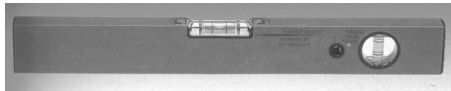| Code **MD.K.300** | Rev **02** | Edition **05/2007** |

EHLEVA.
advanced mobular stair system
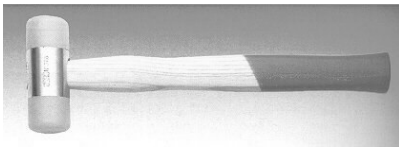
- MOTION - OPTIMA -

CONTENTS

PART 1

ASSEMBLY TOOLS

Ø10x150 - Ø12x80

Ø3 - Ø11

T40

PH2

3 - 4 - 5 - 6 - 8

30

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By *Mobirolo S.p.A.*

- 3 -
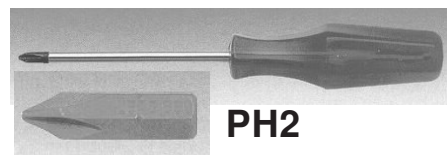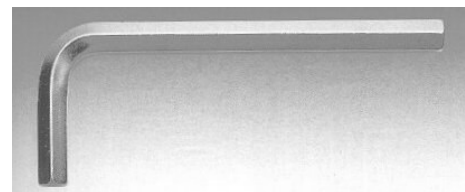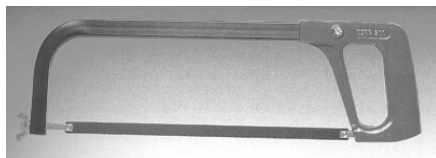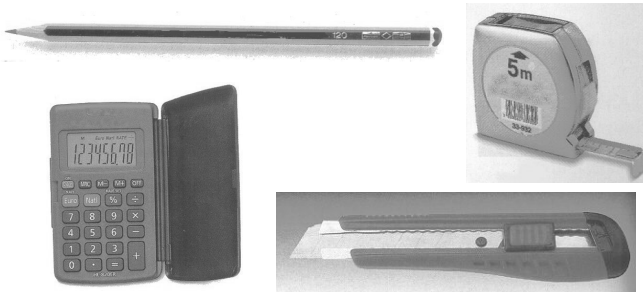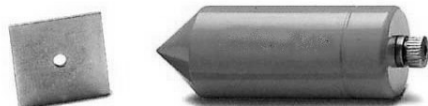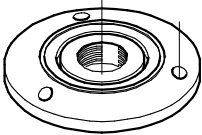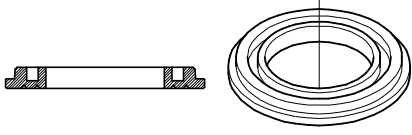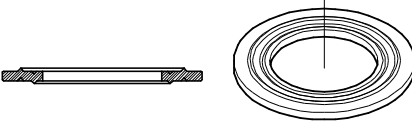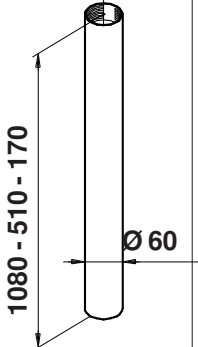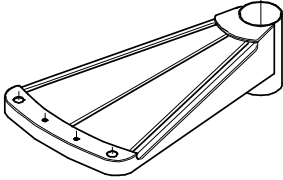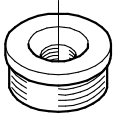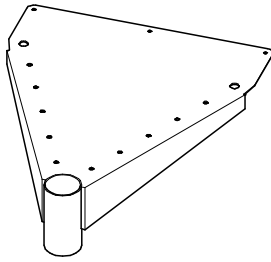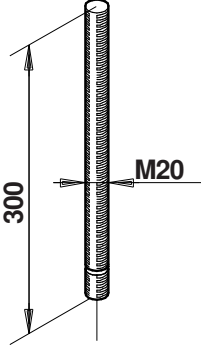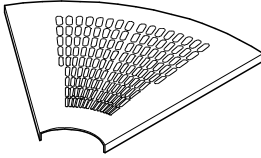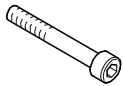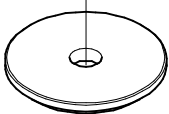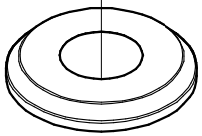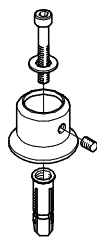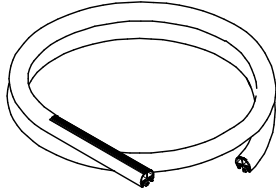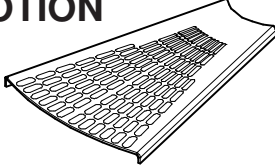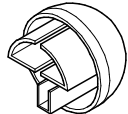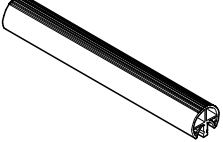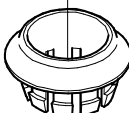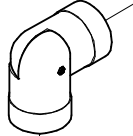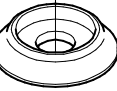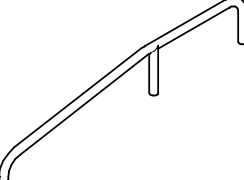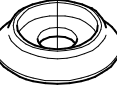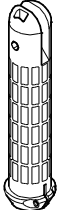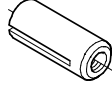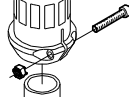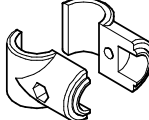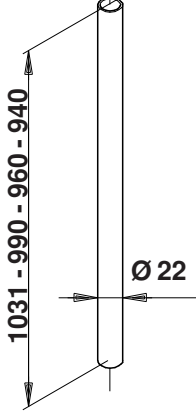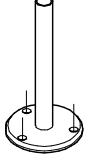
COMPONENTS

- Before proceeding to the various assembly stages, empty the cardboard package and arrange all parts on a flat surface to check that all components included in the list attached are present that no damaged parts are present

Ref.	Draw.	N. pcs.	Ref.	Draw.	N. pcs.
K1		1	**K9**		24
K2A	L. 510 mm	1	**K10**		60
K2B	L. 170 mm	2	**K11**		12
K2C	L. 1080 mm	2			
	1080 - 510 - 170 Ø 60		**K12**		1
K4		1			
K5	300 M20	1	**K13**	**Only MOTION**	1
			K14		1
K6	M10x70	3	**K15**		1
K7	M10	3	**K16**	M20	1
K8		1	**K17**		1

Ref.	Draw.	N. pcs.	Ref.	Draw.	N. pcs.
K18	M6x70 M6x6 Ø6x12	1	**K29**		1
K19	Only MOTION	12	**K30**		3
K150	Only OPTIMA	13	**K31**		1
K20		13	**K32**		1
K21		39	**K33**		1
K22		13	**K34**		44
K23		44	**K35**	M4 M4x20	96+96
K25	M10x40	44	**K36**		4
K26	L. 940 mm	12	**K38**		1
K27	L. 990 mm	12			
K28	L. 1031 mm	13	**K43**	Ø10x140	3
K70	L. 960 mm	7			

K26-K28, K70: 1031 - 990 - 960 - 940 — Ø 22

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By *Mobirolo S.p.A.*

- 5 -

PART 2

SET-UP

■ To assemble the staircase correctly, the precise number of steps, their "A" rise and starting point must be identified so as to place the final top step in the correct position.

A rule is attached hereto which, according to the height that is to be reached, calculates the number of necessary steps and their rise. The following pages will illustrate how to consult the rule correctly. Some set-ups are reported on this page (fig. a – fig. b).

A – step rise
H – staircase height

Ø Hole

H

A

Ø S

Fig. a

Ø S 1200	Ø S 1400	Ø S 1600

Right

30°

655 mm

27°

970 mm

27°

1088 mm

Left

Fig. b
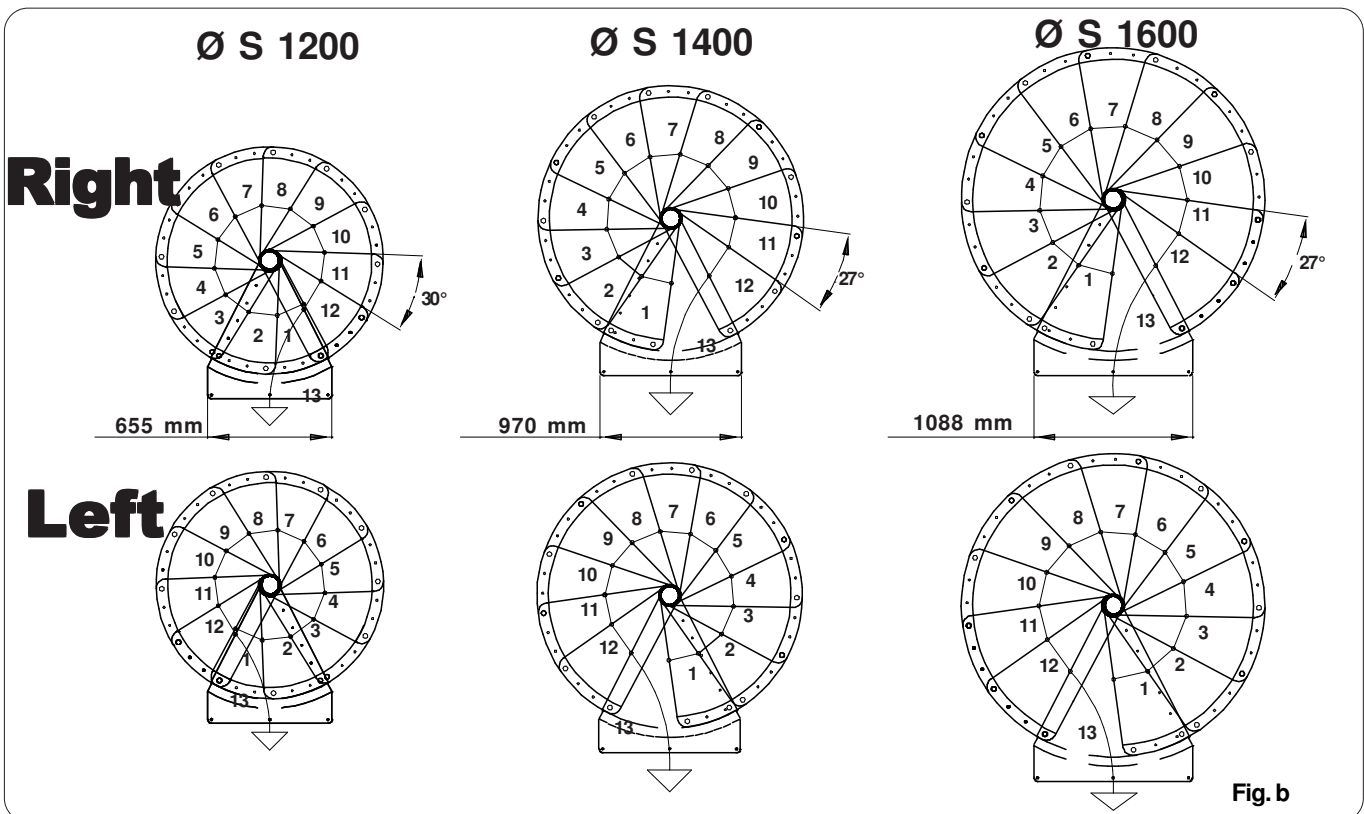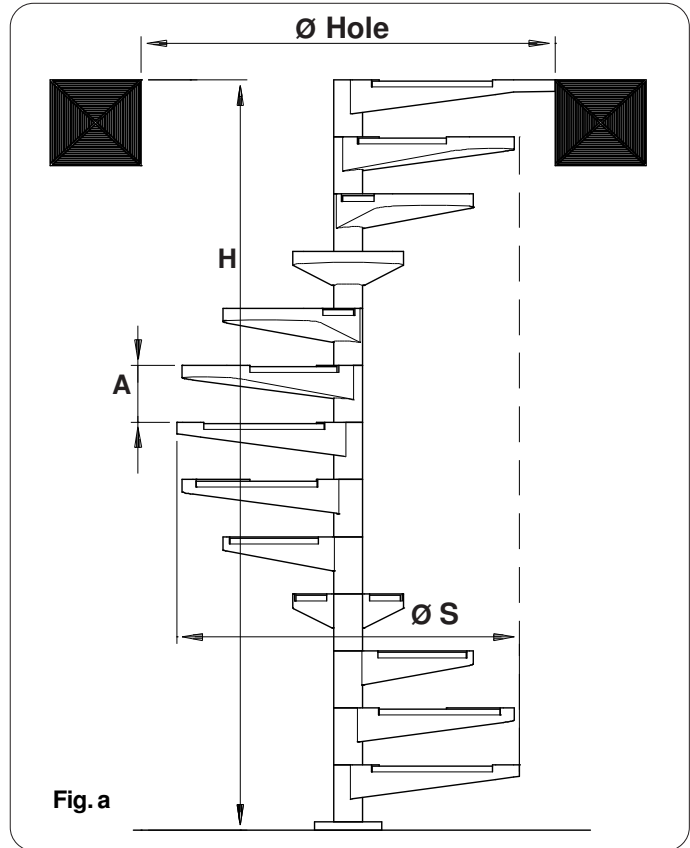
USEFUL HEIGHT MEASUREMENT

- Measure the "**H**" height from the top ceiling to the bottom floor. In addition, measure the stairwall staircase. (Fig. 1)
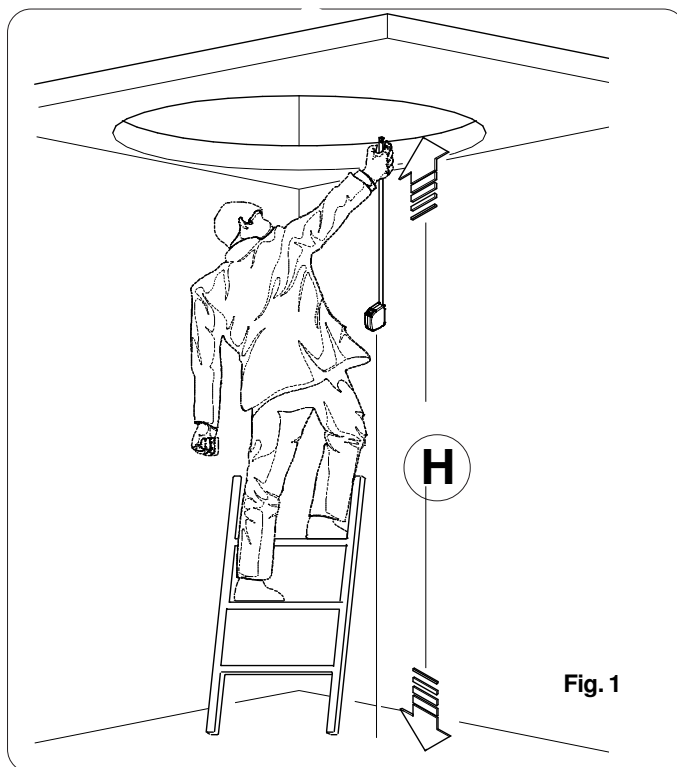
Fig. 1

TABLE: USING THE TABLE

- Column **"H"** Value of the measured height to be set

    Column **"G"** Number of steps to be mounted.

    Section **"P"** Including three columns relating to the length and the number of piles to be used.

    The number of parts to be assembled must be derived from the references above.

    Section **"A"** Composed of six columns relating to the rise value.

    Under each column, the boxes report how many rises need to be created.

    Moreover, the six columns report the number and type of spacers to be mounted to achieve their respective rise.

Search for the value of the measure "**H**" obtained in the respective column H. After having set the value, the adjacent columns report the parameters that need to be complied with to assemble the staircase.

In the example reported below, a **"H"** height value was set amounting to 2805 mm.

The column **"G"** shows that 13 (thirteen) steps are necessary.

The section **"P"** shows that 2 (two) 1080 mm long **K2C** piles and 1 (one) 510 mm long **K2A** pile must be mounted.

Section **"A"** shows the following parameters:

N. 10 215 mm rises and n. 2 220 rises.

The 215 rises require two **K9** spacers and one **K10** spacer

The 220 rises require two **K9** spacers and two **K10** spacers.

H.	G.	P			A mm					
		1080	510	170	210	215	220	225	230	235
		Rif. K2C	Rif. K2A	Rif. K2B	0₂ Rif. K9	0₂	0₂	0₂	0₂	0₂
					0₀ Rif. K10	0₁	0₂	0₃	0₄	0₅
2805	13	2	1	-		10	2			

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By **Mobirolo S.p.A.**

- 7 -

H.	G.	1080	510	170	210	215	220	225	230	235
		Rif. K2C	Rif. K2A	Rif. K2B	Rif. K0 / Rif. K10					
2215	10	2	-	-			5	4		
2225	10	2	-	-			3	6		
2235	10	2	-	-			1	8		
2245	10	2	-	-				8	1	
2255	10	2	-	-				6	3	
2265	10	2	-	-				4	5	
2275	10	2	-	-				2	7	
2285	10	2	-	1					9	
2295	10	2	-	1					7	2
2305	10	2	-	1					5	4
2315	10	2	-	1					3	6
2325	10	2	-	1					1	8
2335	11	2	-	1	6	4				
2345	11	2	-	1	4	6				
2355	11	2	-	1	2	8				
2365	11	2	-	1		10				
2375	11	2	-	1		8	2			
2385	11	2	-	1		6	4			
2395	11	2	-	1		4	6			
2405	11	2	-	1		2	8			
2415	11	2	-	1			10			
2425	11	2	-	1			8	2		
2435	11	2	-	1			6	4		
2445	11	2	-	1			4	6		
2455	11	2	-	1			2	8		
2465	11	2	-	1				10		
2475	11	2	-	1				8	2	
2485	11	2	-	1				6	4	
2495	11	2	-	1				4	6	
2505	11	2	-	1				2	8	
2515	11	2	-	1					10	
2525	11	2	-	1					8	2
2535	11	2	-	1					6	4
2545	11	2	-	1					4	6
2555	11	2	-	2					2	8
2565	11	2	-	2						10
2575	12	2	-	2	1	10				
2585	12	2	-	2		10	1			
2595	12	2	-	2		8	3			
2605	12	2	-	2		6	5			
2615	12	2	-	2		4	7			
2625	12	2	-	2		2	9			
2635	12	2	-	2			11			
2645	12	2	-	2			9	2		
2655	12	2	-	2			7	4		
2665	12	2	-	2			5	6		
2675	12	2	-	2			3	8		
2685	12	2	-	2			1	10		
2695	12	2	-	2				10	1	
2705	12	2	-	2				8	3	
2715	12	2	-	2				6	5	
2725	12	2	1	-				4	7	
2735	12	2	1	-				2	9	
2745	12	2	1	-					11	
2755	12	2	1	-					9	2
2765	12	2	1	-					7	4
2775	12	2	1	-					5	6
2785	12	2	1	-					3	8
2795	12	2	1	-					1	10
2805	13	2	1	-		10	2			
2815	13	2	1	-		8	4			
2825	13	2	1	-		6	6			
2835	13	2	1	-		4	8			
2845	13	2	1	-		2	10			

MOTION - OPTIMA

EHLEVA. advanced mobular stair system

H.	G.	P			A mm					
		1080	510	170	210	215	220	225	230	235
		Rif. K2C	Rif. K2A	Rif. K2B	Rif. K10					
2855	13	2	1	-			12			
2865	13	2	1	-			10	2		
2875	13	2	1	-			8	4		
2885	13	2	1	-			6	6		
2895	13	2	1	1			4	8		
2905	13	2	1	1			2	10		
2915	13	2	1	1				12		
2925	13	2	1	1				10	2	
2935	13	2	1	1				8	4	
2945	13	2	1	1				6	6	
2955	13	2	1	1				4	8	
2965	13	2	1	1				2	10	
2975	13	2	1	1					12	
2985	13	2	1	1					10	2
2995	13	2	1	1					8	4
3005	13	2	1	1					6	6
3015	13	2	1	1					4	8
3025	13	2	1	1					2	10
3035	13	2	1	1						12
3045	14	2	1	1		6	7			
3055	14	2	1	1		4	9			
3065	14	2	1	2		2	11			
3075	14	2	1	2			13			
3085	14	2	1	2			11	2		
3095	14	2	1	2			9	4		
3105	14	2	1	2			7	6		
3115	14	2	1	2			5	8		
3125	14	2	1	2			3	10		
3135	14	2	1	2			1	12		
3145	14	2	1	2				12	1	
3155	14	2	1	2				10	3	
3165	14	2	1	2				8	5	
3175	14	2	1	2				6	7	
3185	14	2	1	2				4	9	
3195	14	2	1	2				2	11	
3205	14	2	1	2					13	
3215	14	2	1	2					11	2
3225	14	2	1	2					9	4
3235	14	2	1	2					7	6
3245	14	2	1	2					5	8
3255	14	2	1	2					3	10
3265	14	2	1	2					1	12
3275	15	2	1	3		4	10			
3285	15	2	1	3		2	12			
3295	15	2	1	3			14			
3305	15	2	1	3			12	2		
3315	15	2	1	3			10	4		
3325	15	2	1	3			8	6		
3335	15	2	1	3			6	8		
3345	15	2	1	3			4	10		
3355	15	2	1	3			2	12		
3365	15	2	1	3				14		
3375	15	2	1	3				12	2	
3385	15	2	1	3				10	4	
3395	15	2	1	3				8	6	
3405	15	2	1	3				6	8	
3415	15	2	1	3				4	10	
3425	15	2	1	3				2	12	
3435	15	2	1	3					14	
3445	15	2	1	3					12	2
3455	15	2	1	3					10	4
3465	15	2	1	3					8	6
3475	15	2	1	3					6	8
3485	15	2	1	3					4	10
3495	15	2	1	3					2	12
3505	15	2	1	3						14

TRACING

■ Find a and project the centre of the stairwall staircase on the ground.
To carry out this operation correctly, connect a plumb line to a ruler and place it on the opening of the top floor as shown in fig.2.

R

R

Fig.2

K1

Fig. 3
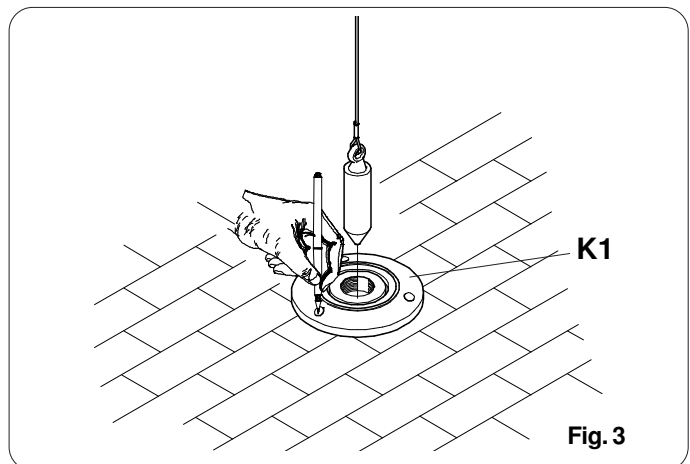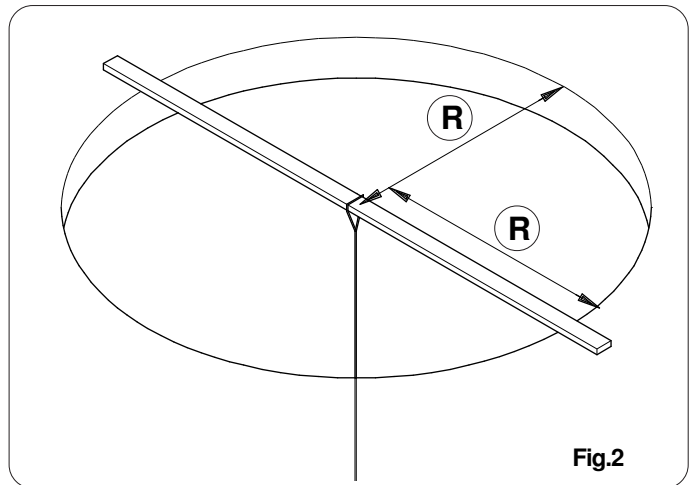
■ After completing the tracing operation, drill with a Ø **12** mm drill, (fig. 4).
Insert the **K7** brass small block, (fig. 4a)
Place the **K1** flange and anchor by means of 3 **K6 screws** as shown in fig. 4b

Ø12

Fig. 4

K7

Fig. 4a

K6

Fig. 4b

MOTION - OPTIMA
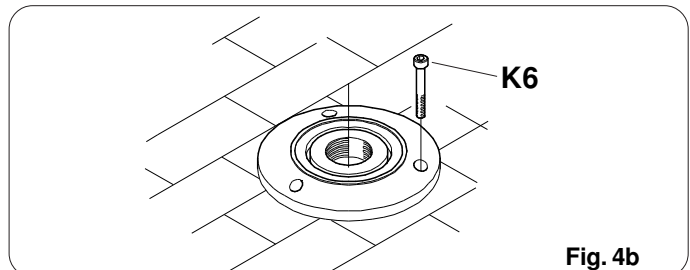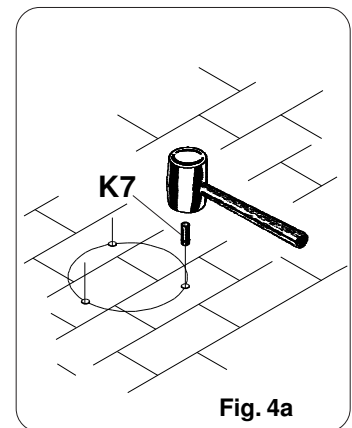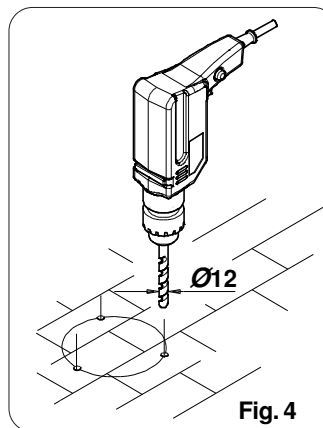
CALCULATING THE NUMBER OF STEPS

- Proceed to calculate the number of elements that shall compose the central pile in a similar way to the procedure used to calculate the number elements composing the central pile.
  By consulting the rule set at the "H" measure in mm, the number of elements is shown to compose the pile "P".
  NB. in the case of a 2805 mm height, n. 2 1080 mm elements and one 510 mm element are needed.

- Compose the post as shown in fig. 5. Start tightening the first **K2 (A-B-C)** pile component with the **K1** flange. Avoid damaging the thread during the operation. Mount the **K2 (A-B-C)** segment that will compose the pile.

K2

K1

Fig. 5
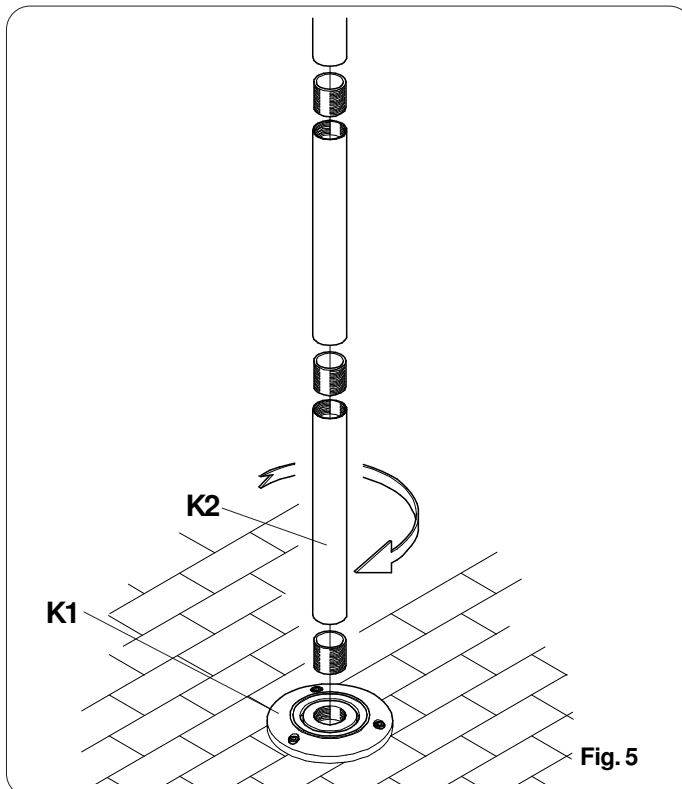
ASSEMBLING THE STEPS

- Before completing the assembly of all the segments composing the pile, it is advisable to start also inserting the various elements that will compose the staircase (steps, spacers) by assembling them gradually as the assembly of the pile proceeds. First of all, insert the **K8** plate cover and continue with the first **K11** step), as shown in fig. 6

K11

K8

Fig. 6
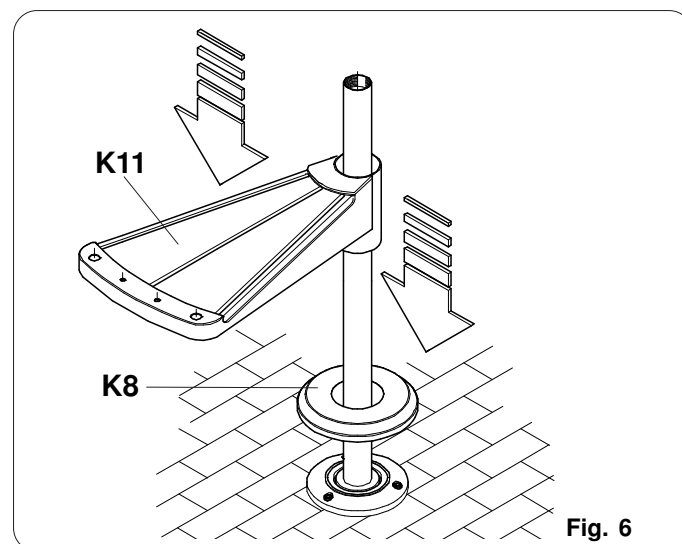
■ Proceed to assemble the other steps and make sure that the **K9** centre washer is also assembled between steps as shown in fig. 7
NB. The need may emerge for combining two different sizes of rises. In this case, we suggest to group together those of the same size starting from above.

Fig. 7
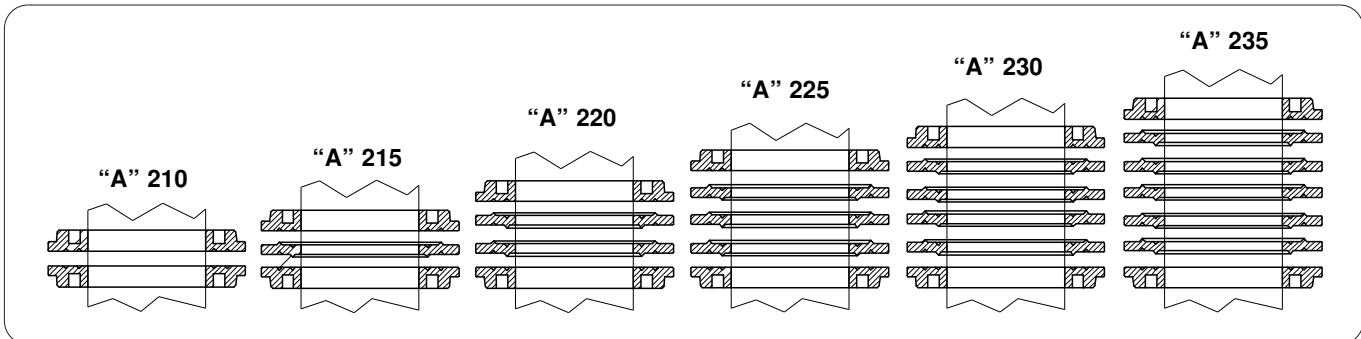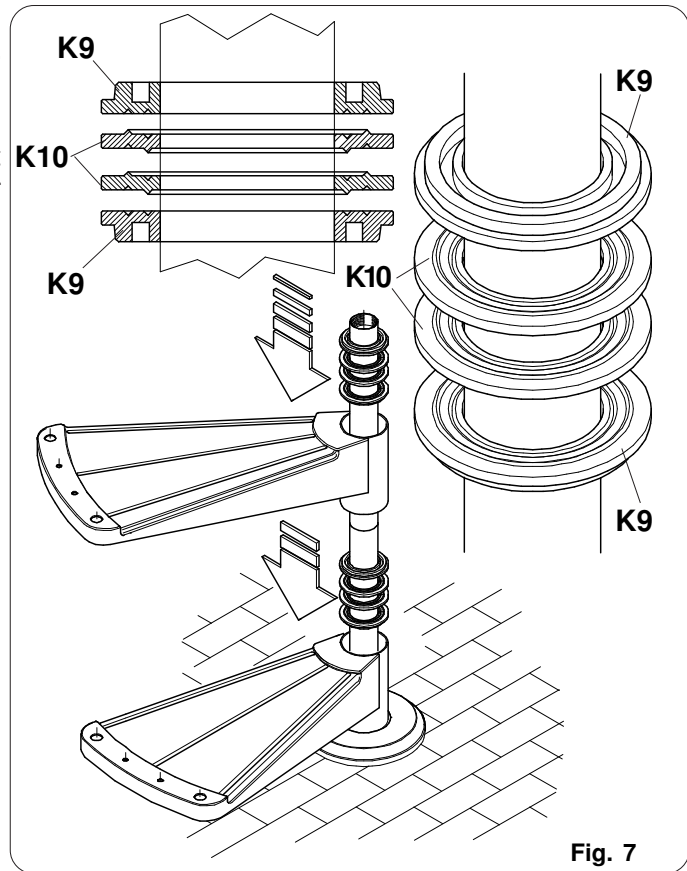
ASSEMBLING THE FINAL STEP

- Continue to assemble the various elements and steps in sequence, as shown, until the **K12** final top step is achieved.
  Tighten the staircase as shown in fig. 8.

- Trace the drilling point by using the final step as a reference template, then move the **K12** final step laterally and drill by means of a **Ø10** drill at a 140 mm depth.
  Insert the available **K23** small blocks (including the relevant screws) as shown in fig. 9.

Fig. 8

Fig. 9

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By *Mobirolo S.p.A.*

- 13 -

EHLEVA.
advanced mobular stair system
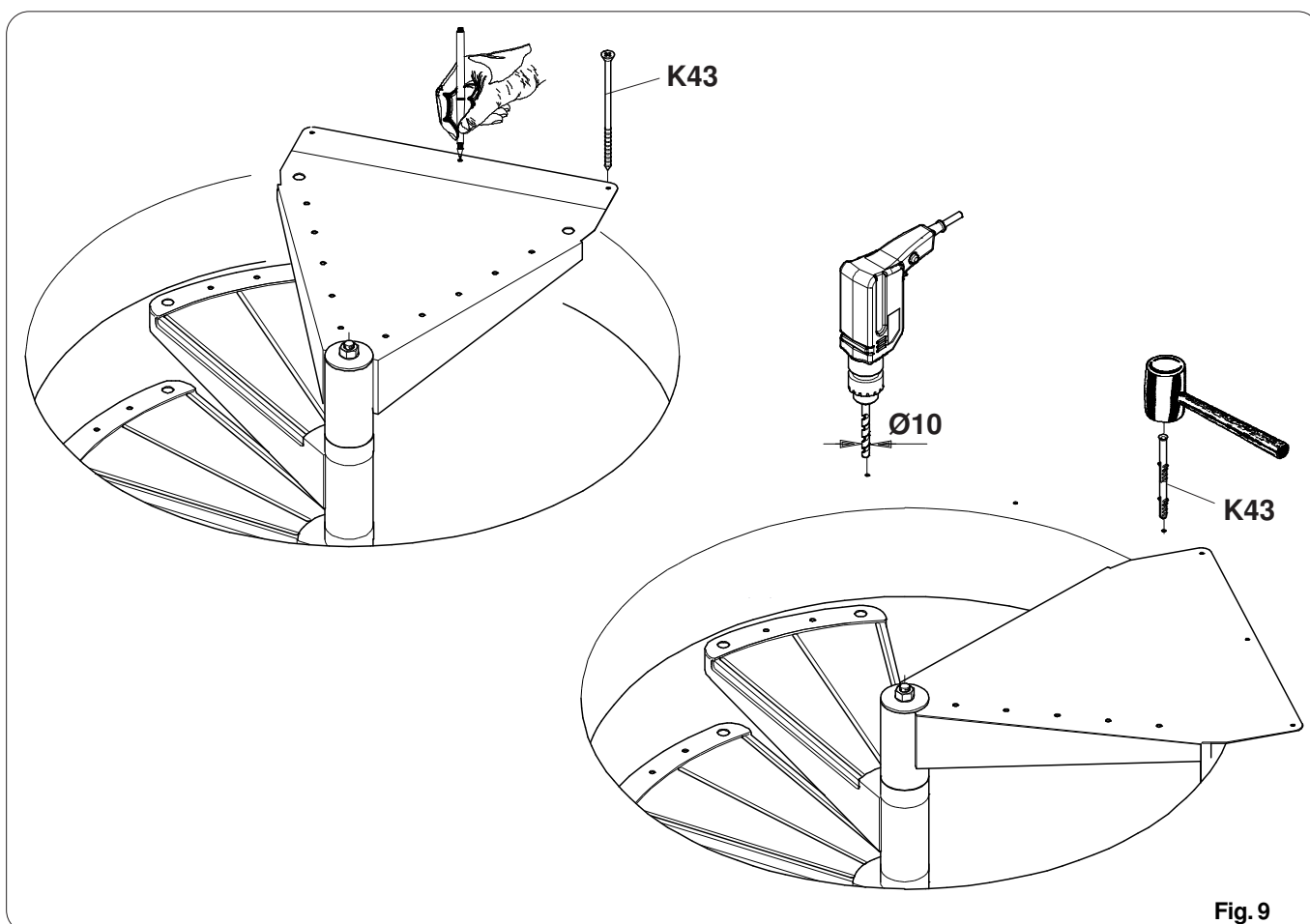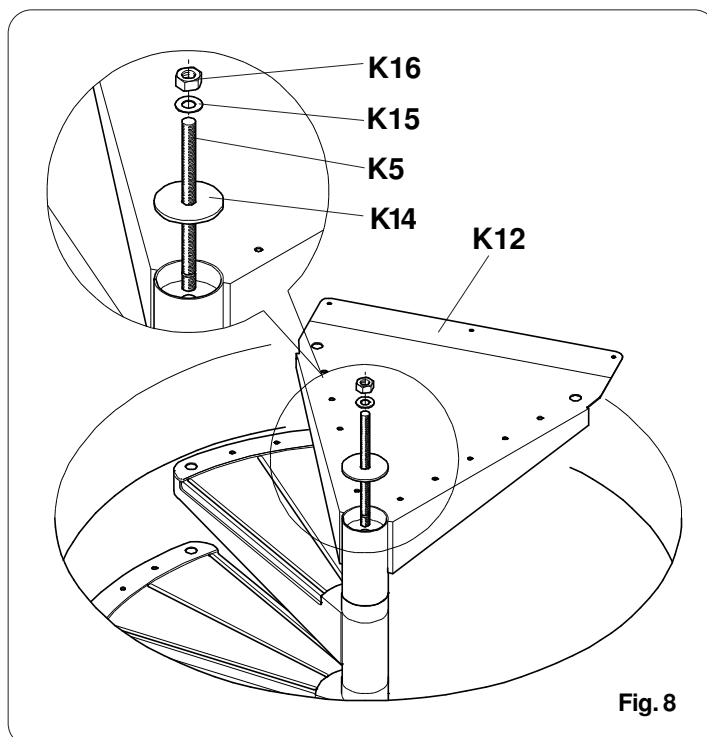
■ Take the **K13** final board and place it onto the **K12** final step.
According to the climbing directions, drill a **Ø11** hole in the board on the side where columns need to be assembled.
On the other side, drill a **Ø25** final hole only to insert the connecting column.

Warning !!!
This operation must be carried out only in the MOTION model: the OPTIMA model does not envisage any board.

Ø25   Ø11

K13
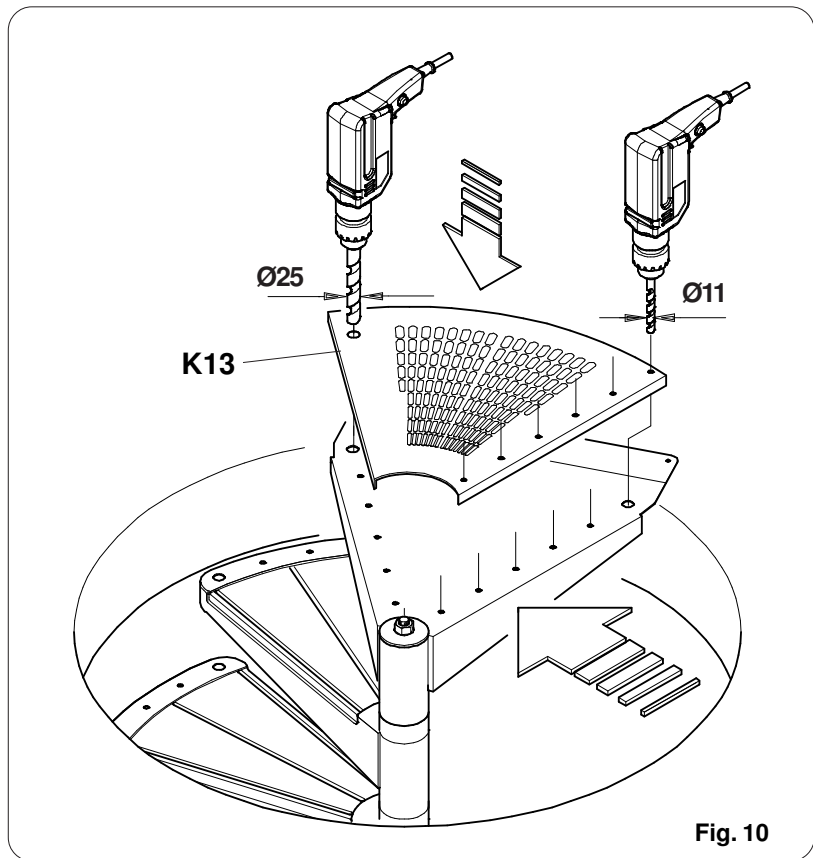
Fig. 10

■ Insert the **K20** washers (those with anchoring tabs) into the first hole of each step as shown in fig. 11

K20

Fig. 11

MOTION - OPTIMA

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By *Mobirolo S.p.A.*

- 15 -
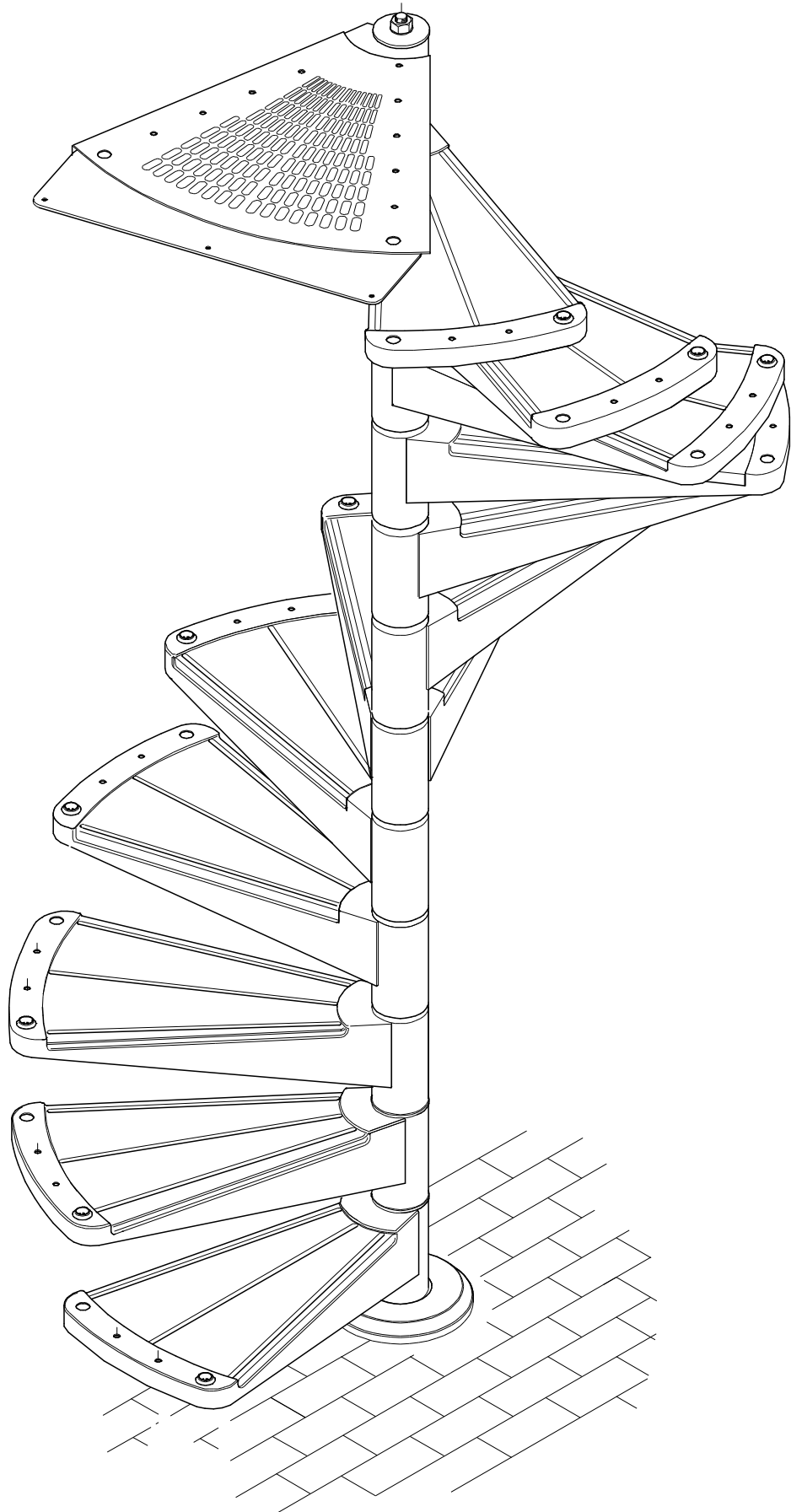
PART 3

PREPARING THE COLUMNS

- Operation to be carried out on all **K26 -K27 -K28 - K70**
  columns See Fig. 12
  N.B. Do not tighten the K35 screw and nut fully

K34

K35

K26 - K27 - K28 - K70

1031 - 990 - 960 - 940 mm

Ø22

K23

Fig. 12

EHLEVA.
advanced mobular stair system
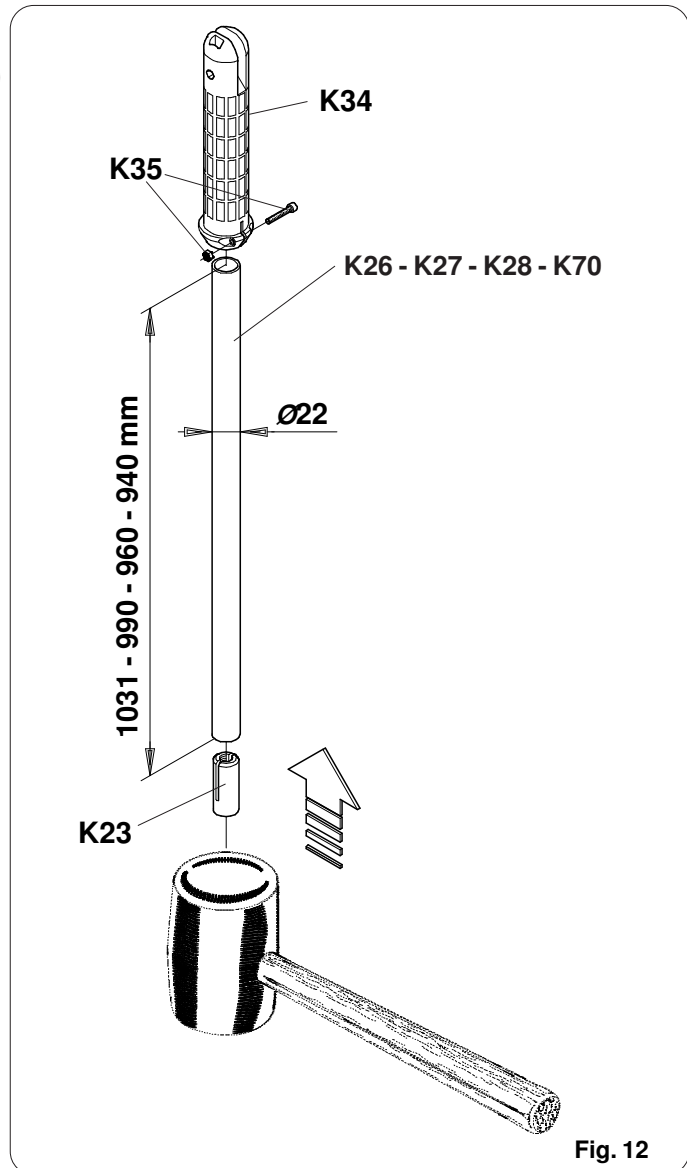
ASSEMBLING THE COLUMNS

■ Starting from the final step, assemble the columns prepared previously as shown in fig. 13.

L. 1031 mm **K28**

K20

K22

K25

Fig. 13
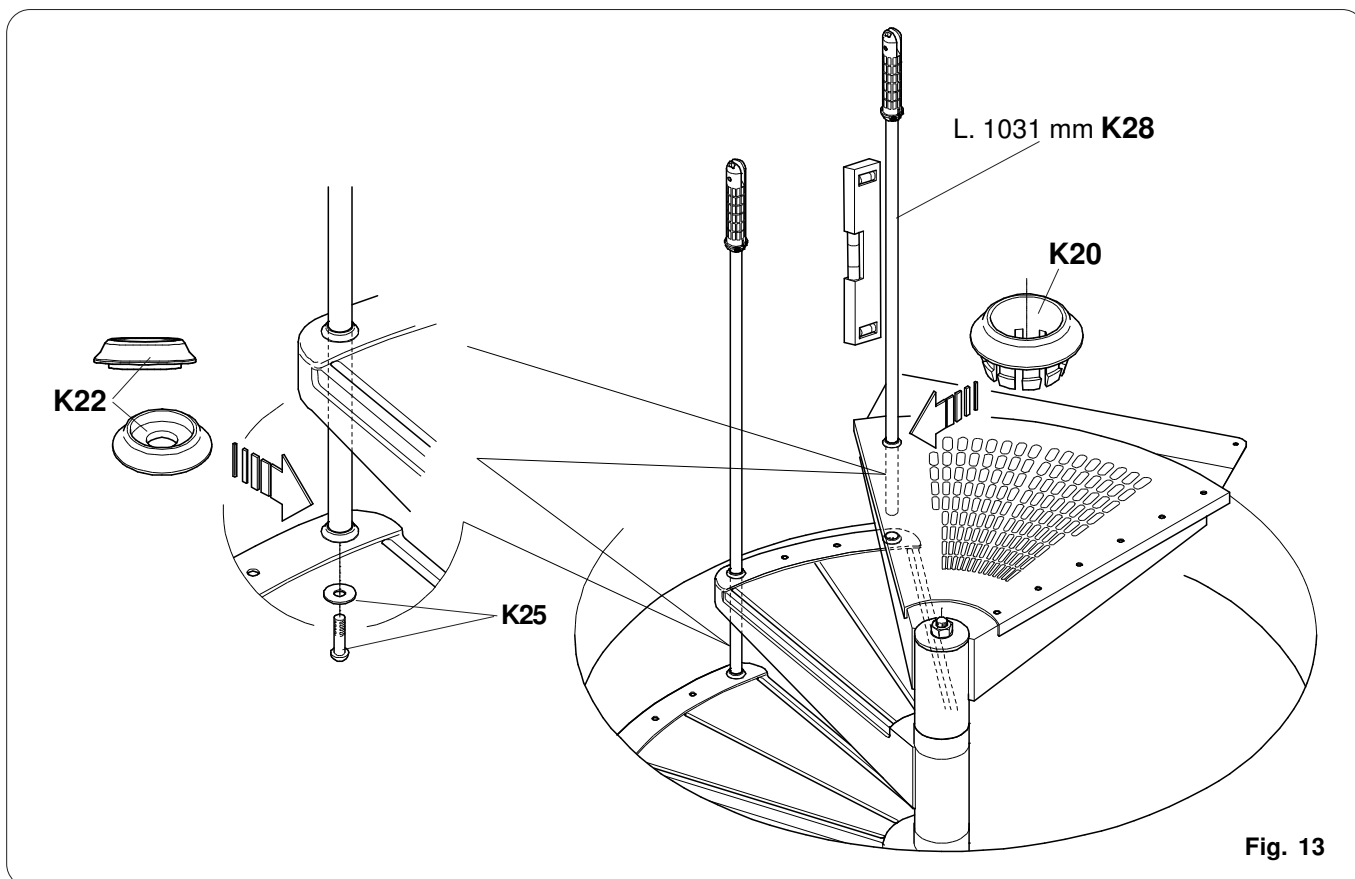
■ After reaching the first step, the column needs to be anchored. Proceed as follows: trace the column centre on the ground and make sure that the column is as vertical as possible (if necessary use a level as shown in fig. 14).
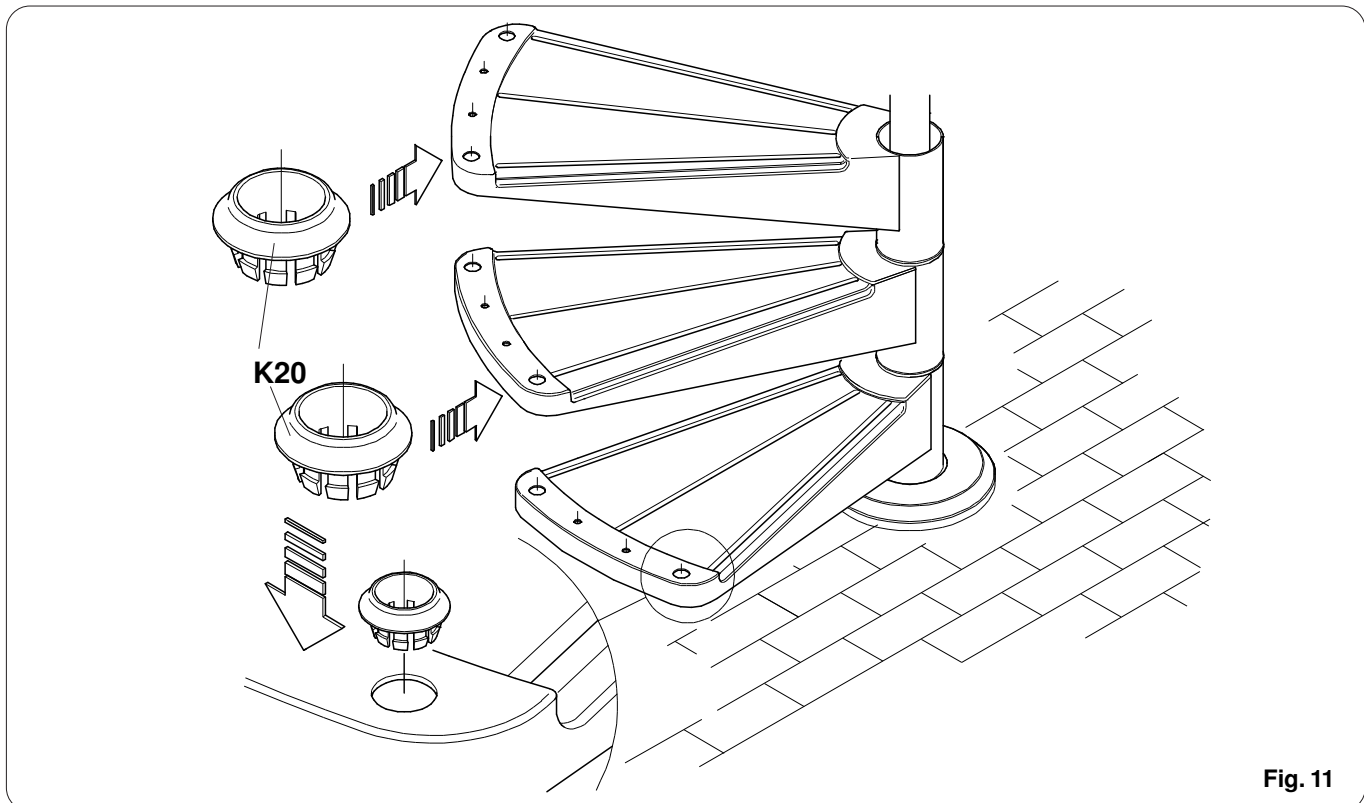

Fig. 14

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By *Mobirolo S.p.A.*

- 17 -
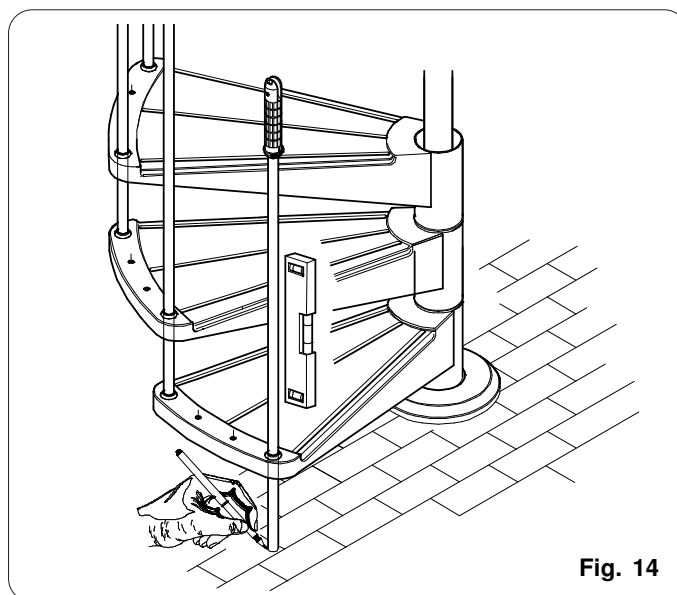
■ To easily drill the point marked before, move the step (by turning it) so that it does not become an obstacle, then drill the floor by means of a **Ø10** drill (fig. 14a) and proceed as shown in fig 14b and fig. 14c.

■ Before anchoring the column definitively in its respective seat previously marked on the ground, insert the **K33** stiffener as shown in fig. 15.
Then anchor the column to the ground by means of the dedicated **M6x5** screw included in the **K18** kit.

Ø10

Fig. 14a

■ Anchor the final step definitively by fully tightening or locking the **K16** elements which were previously left lose. Mount the **K17** clamp by tightening it fully to the **K5** bar without using tools or wrenches but simply by hand as shown in fig. 16.

Small Block.
K18

Fig. 14b

K18

Fig. 14c

L.1031 mm **K28**

K36

K33

K18
M6x5

Fig. 15

K17

K16

Fig. 16

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By **Mobirolo S.p.A.**

- 19 -
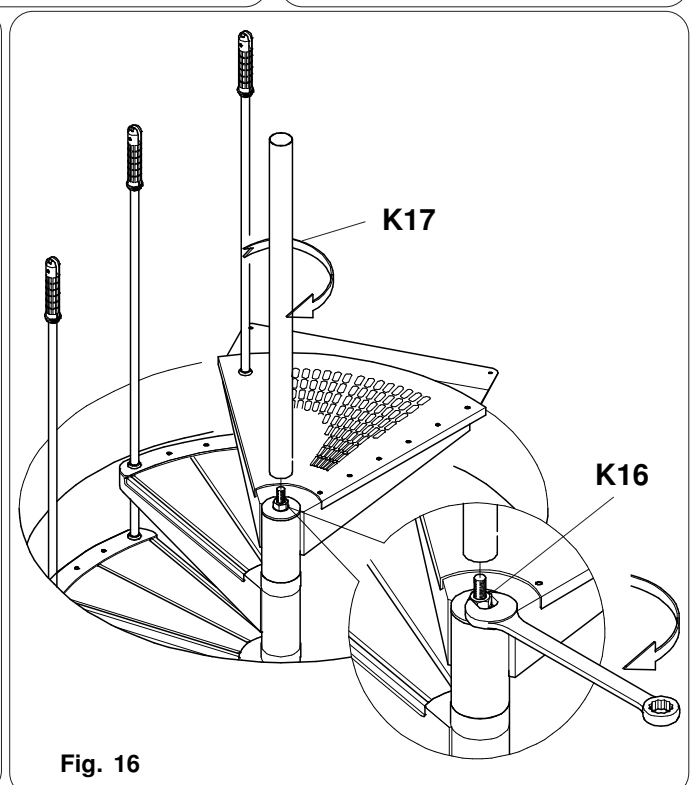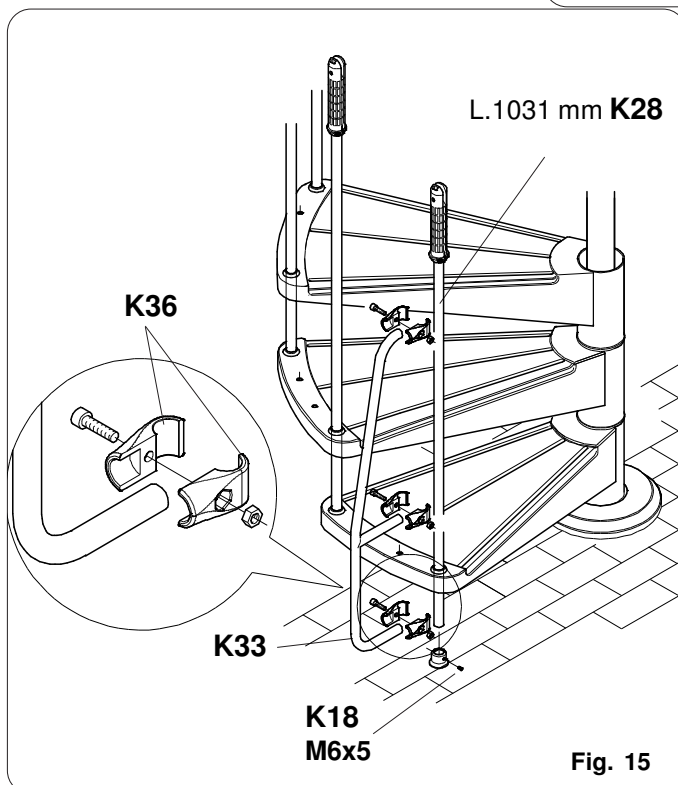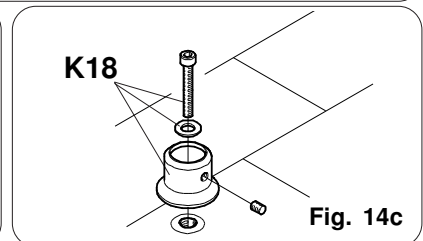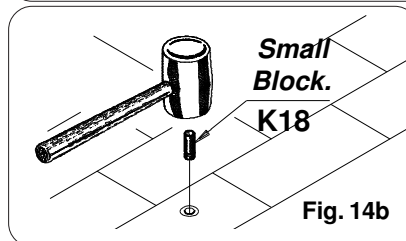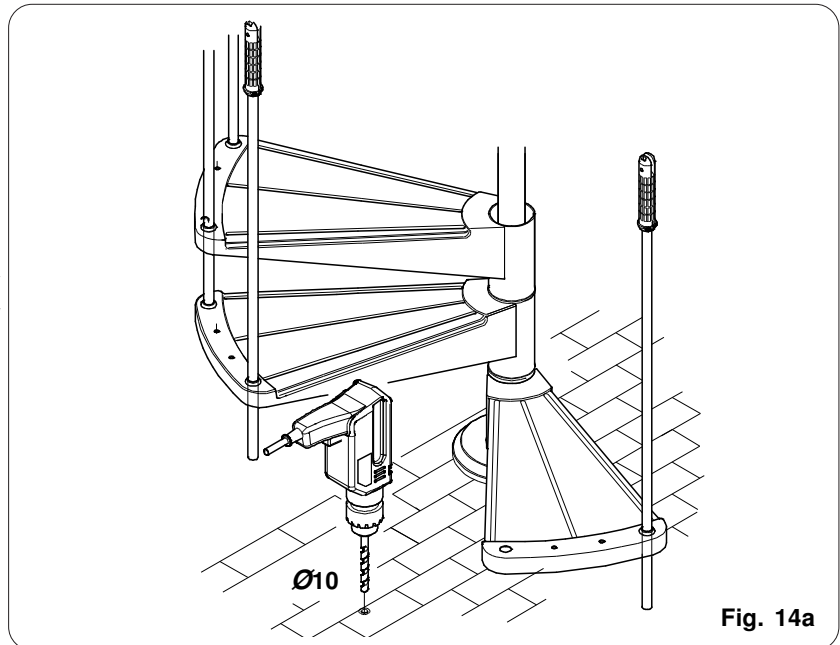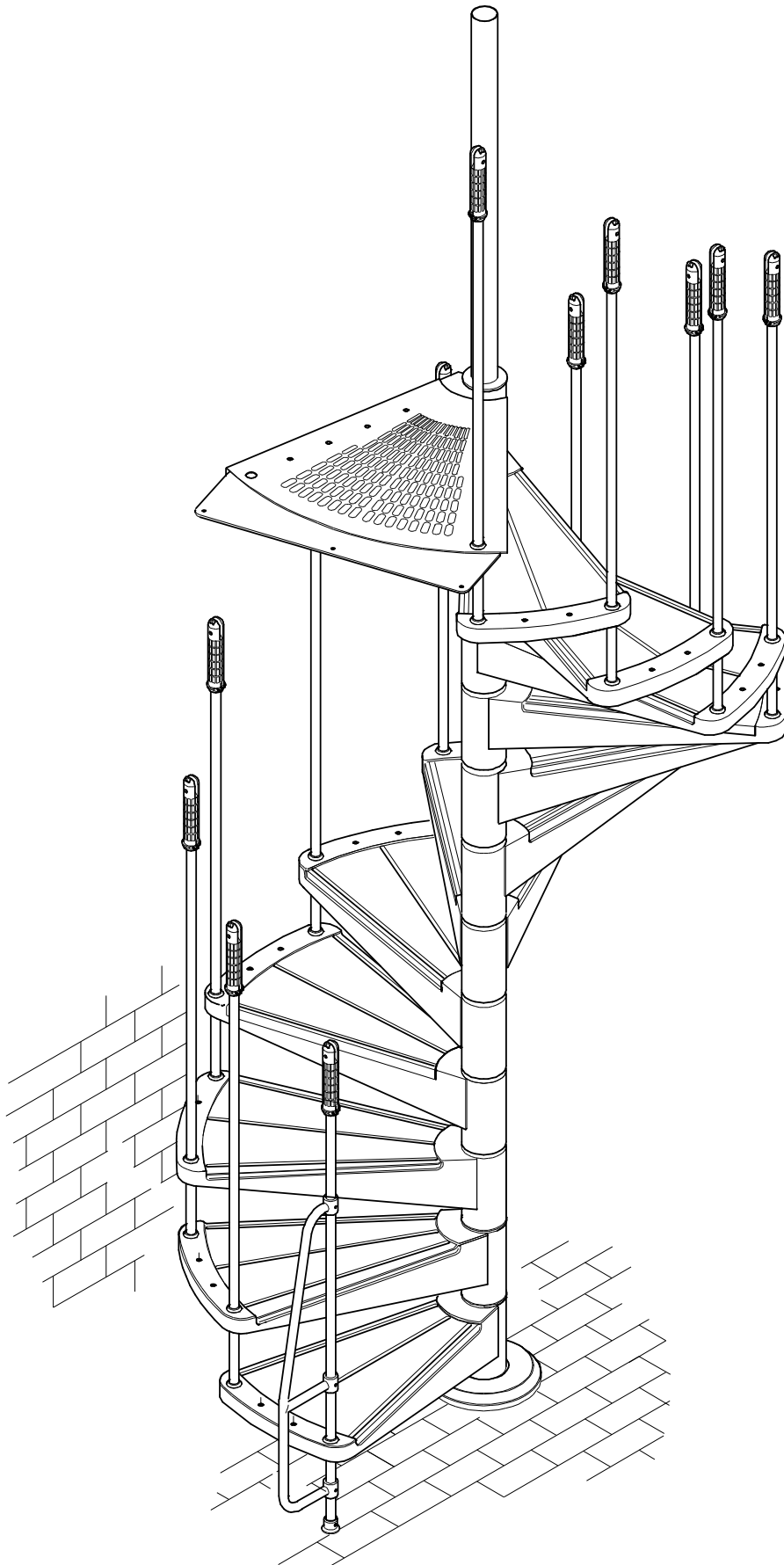
■ Mount the **K26 9**40mm long columns into the second hole of the step as shown in fig. 17. At the foot of the column, insert the **K21** washer and anchor it under the step by means of the **K25** screws.

■ Proceed as described above to mount the **K27** 990 mm long columns in the last free hole present on the step as shown in fig. 18.

K26
L=940 mm

K21

K25

Fig. 17

K27
L=990 mm

K21

K25

Fig. 18
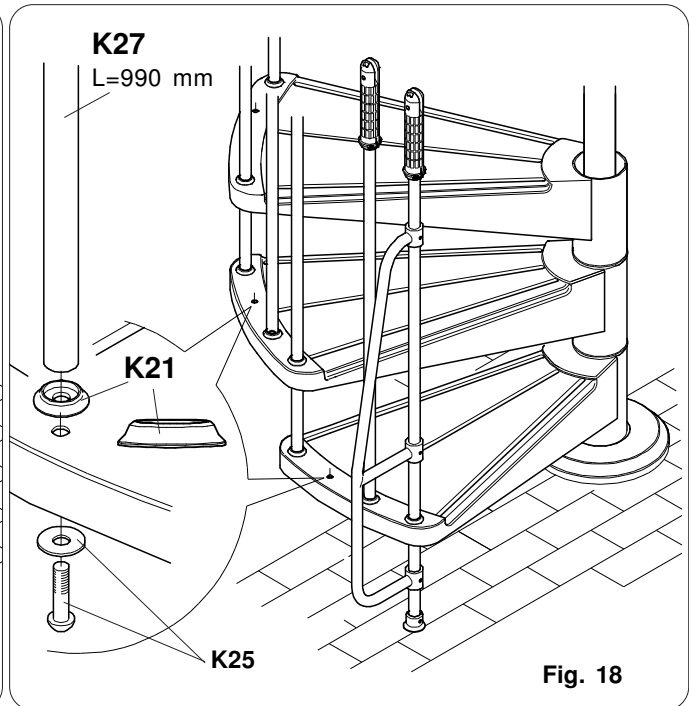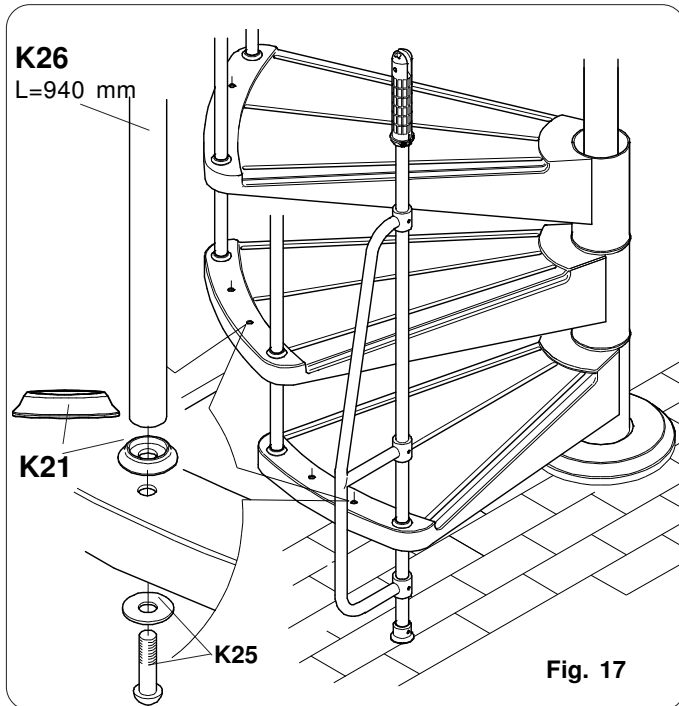
ASSEMBLING THE HANDRAIL

■ The handrail needs to be heated so as to make it flexible and bendable. It is advisable to follow the instructions below and be careful not to damage the handrail. Insert the **K29** handrail coil into the pack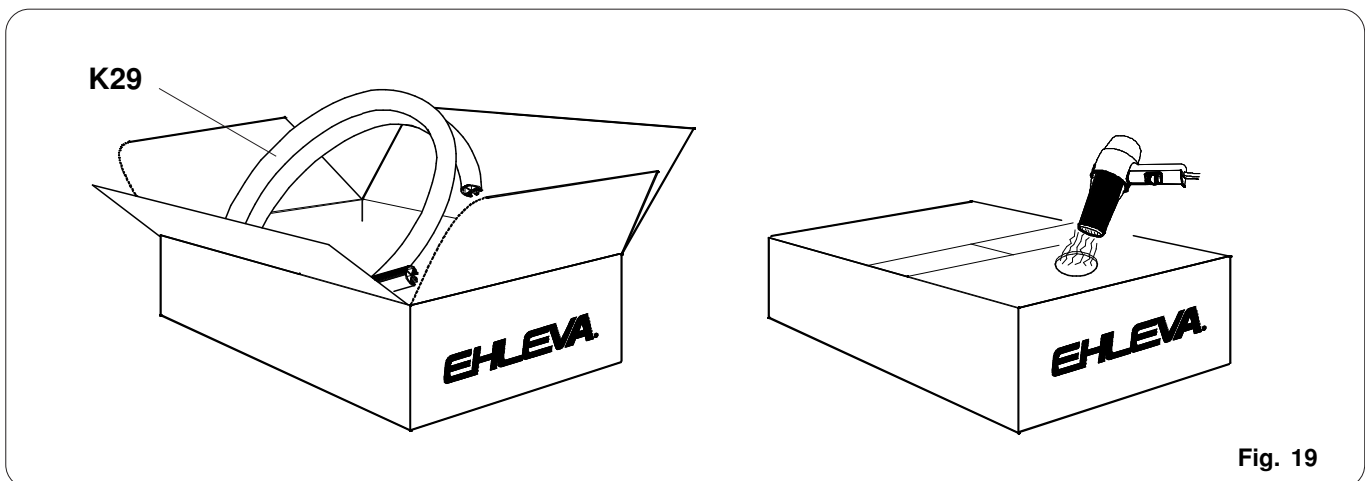age box that contained the staircase elements. Drill a hole in the top side and position the heat gun, making sure that the hot air jet does not come in touch with the handrail. Wait for 60 minutes approx. and check whether the handrail has become sufficiently flexible. Fig. 19

K29

Fig. 19

- 20 -

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By **Mobirolo S.p.A.**

MOTION - OPTIMA

EHLEVA.
advanced mobular stair system

■ Starting from above, insert the central part of the handrail (detail fig. 20) into the **K34** column cover of the second column of each step by making the necessary pressure until it snaps into positions. Avoid getting burnt because of the excessive handrail temperature (in case, wear gloves).
Tighten the relevant screws and make sure that the columns remain perfectly vertical.
Repeat this operation by inserting the remaining **K34** column covers into the dedicated handrail housing with a movement from below upwards, always making sure that the mechanism snaps into position.
Tighten each column cover fully by means of the relevant **K35** screws and nuts and check always that the columns are vertical.
By means of a saw, cut the handrail ends leaving a 50/60 mm segment projecting beyond the column and mount the **K30** plugs and anchor them with the available glue (fig. 20).
After this operation, check that the columns are not lose in their housing in the step: if necessary, tighten the screws from below the step.
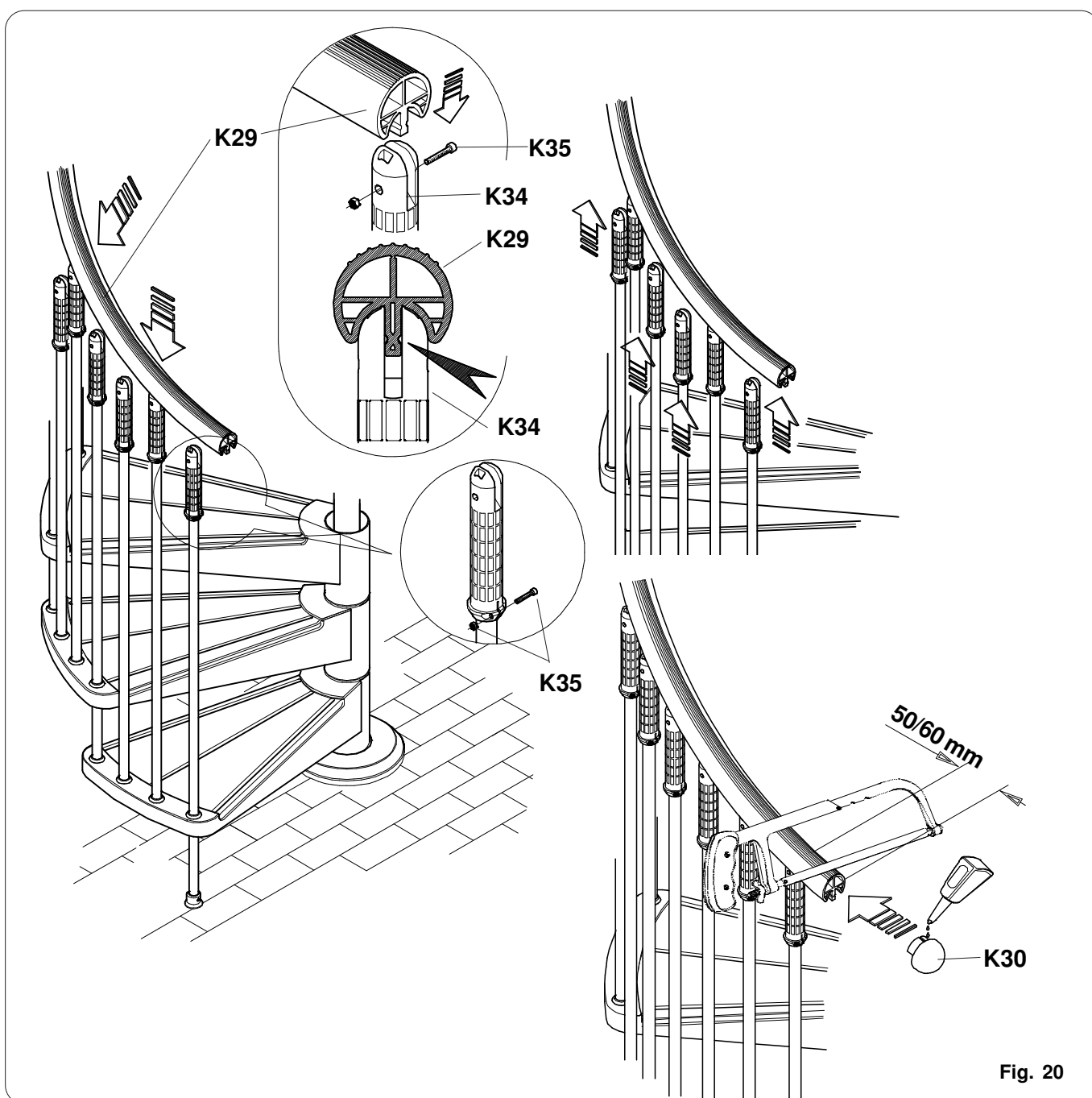
Fig. 20

MOTION - OPTIMA

Via C.Colombo, 22/A - 42046 - Reggiolo - Reggio Emilia - Italy
Tel. +39 - 0522-97 32 34 - Fax +39 - 0522-97 31 39
www.ehleva.com   ehleva@ehleva.it
By *Mobirolo S.p.A.*

- 21 -

ASSEMBLING THE BALUSTER HANDRAIL

K30 **K31**

K32

K70

K17

Ø3
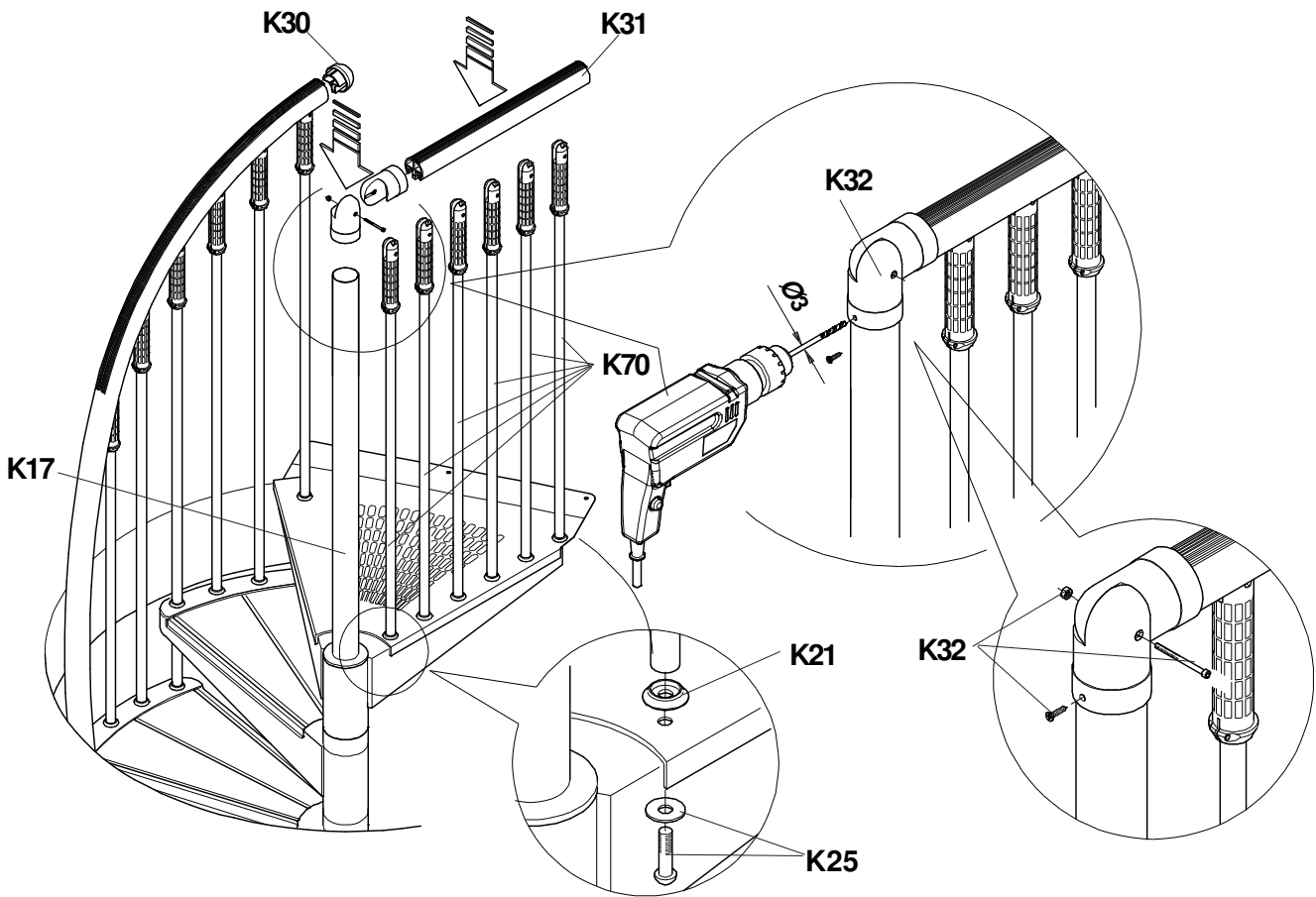
K21

K32

K25

Fig. 21
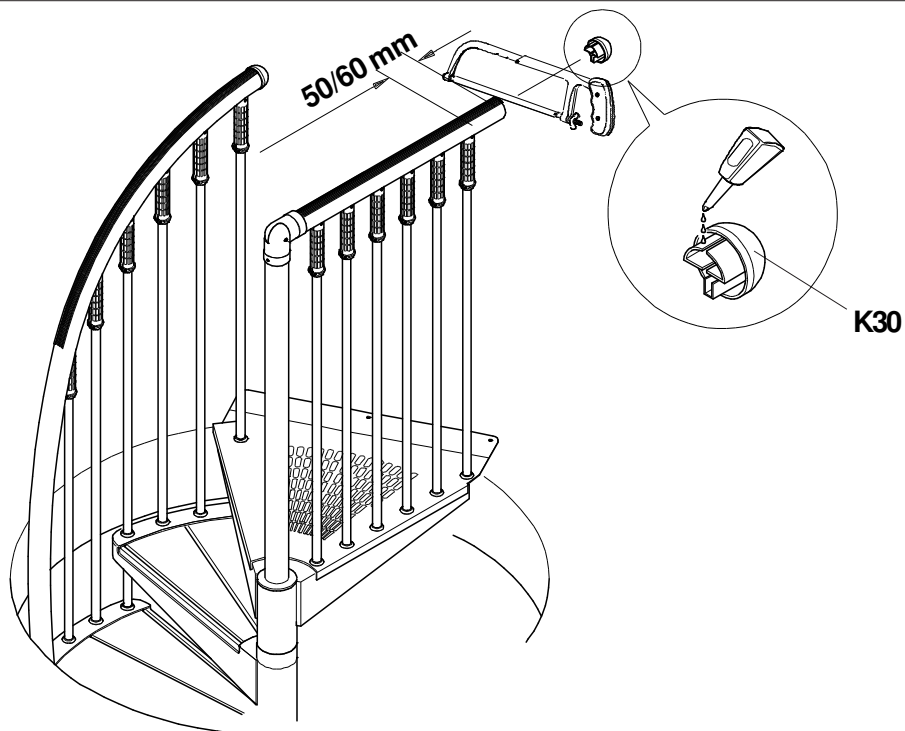

50/60 mm

K30

Fig. 22

COMPLETION AND CHECKS

- After the assembly operations have been completed, check and test that the staircase is stable and all components are firmly anchored.
  Place the **K38** bracket on the wall so that it is located between two steps at the correct height (approx. halfway of the staircase) as shown in Fig. 33

MOTION

K19

K38

K36

K38

K38

Tass.

Ø10

OPTIMA

K150

Fig. 23

MOTION - OPTIMA