



GRP Ladder Installation Guide

Contents

Section 1: Ladder Overview Figure.....	3
Section 2: Assembly Components and Assembly Figure.....	4
Section 3: Assembly Steps.....	6
Step 1: preparation.....	6
Step 2: Assembling the Wall Brackets.....	6
Step 3: Assembling the Floor Brackets.....	7
Step 4: Assembling the Top Step.....	7
Step 5: Assembling the Top Handrail.....	8
Step 6: Assembling the Safety Cage.....	8
Step 7: Final Adjustment and Inspection.....	10
Section 4: Installation.....	11
Step 1: Placing the Ladder.....	11
Step 2: Installing the Ladder to the Wall.....	11
Step 3: Securing the Ladder to the Ground.....	11
Step 4: Final Adjustment and Inspection.....	11
Section 5: Safety Instructions.....	12
Section 6: Troubleshooting.....	12

Section 1: Ladder Overview Figure



Fig. 1.1: Ladder Overview Figure

Section 2: Assembly Components and Assembly Figure

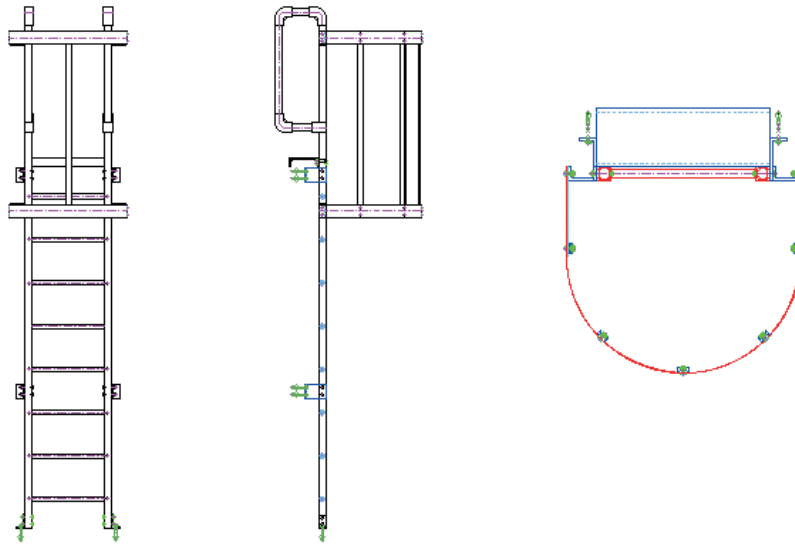


Fig. 2.1: Ladder Assembly Figure

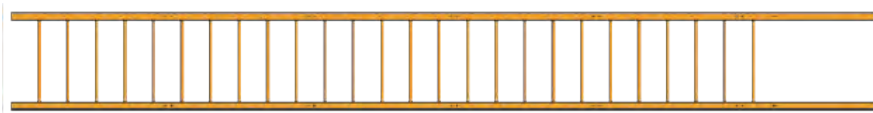


Fig. 2.2: Ladder Body



Fig. 2.3: Wall Bracket



Fig. 2.4: Floor Bracket



Fig. 2.5: Top Step



Fig. 2.6: Top Handrail



Fig. 2.7: Ladder to
Hoop Bracket



Fig. 2.8: Safety Cage Hoop
and Hoop Washer



Fig. 2.9: Safety Cage

Name	Description	No.	Remark
Ladder Body	Square box 50 x 50 x 5, L = 3580mm Corrugated tube Ø 32, L = 590mm	1	
Ladder-to-Hoop Bracket	Channel 100 x 50 x 10, L = 100mm	4	
Safety Cage Hoop	Flat sheet 90 x 3, L = 1892mm	2	
Hoop Washer	Flat sheet 88 x 5, L = 310mm	4	
Safety Cage	Vertical strip 'I' beam 38 x 15, L = 1290mm	5	
Top Handrail	Square box 50 x 50, with standard elbow and 3 way	2	
Top Step	'C' Channel 200 x 60 x 10, L = 600mm	1	
Wall Bracket	'L' Angle 150 x 50 x 10, L = 100mm	4	
Floor Bracket	'L' Angle 100 x 60 x 10, L = 100mm	2	
Fixings	Hex bolt M8 x 70	24	
	Pan head screw M8 x 30	28	
	Nylon lock nut M8	52	
Fixings	Expansion anchor bolt M8 x 80	10	

Tbl.2.1:Packing List

Section 3: Assembly Steps

Step 1: Preparation

- This step requires Fig. 2.2: ladder body (see page 4)
- Lay out all parts to ensure nothing is missing
- Perform the assembly on a flat surface to avoid difficulties caused by uneven ground
- Place the ladder parallel to the ground (see fig. 3.1)



Fig. 3.1: Place the ladder parallel to the ground

Step 2: Assembling the Wall Brackets

- This step requires Fig. 2.3: wall bracket (see page 4), hex bolt M8 x 70 and nylon lock nut M8
- Attach the wall brackets to the ladder, using hex bolt M8 x 70 and nylon lock nut M8 (see fig. 3.2)



Fig. 3.2: Assembly of wall brackets

Step 3: Assembling the Floor Brackets

- This step requires Fig. 2.4: floor bracket (see page 4), hex bolt M8 x 70 and nylon lock nut M8
- Attach the floor brackets to the ladder, using hex bolt M8 x 70 and nylon lock nut M8 (see fig. 3.3)



Fig. 3.3: Assembly of floor brackets

Step 4: Assembling the Top Step

- This step requires Fig. 2.5: top step (see page 4), hex bolt M8 x 70 and nylon lock nut M8
- Attach the top step to the ladder, using hex bolt M8 x 70 and nylon lock nut M8 (see fig. 3.4)



Fig. 3.4: Assembly of the top step

Step 5: Assembling the Top Handrail

- This step requires Fig. 2.6: top handrail (see page 4)
- Remove the bolts from the handrail (see fig. 3.5)



Fig. 3.5: Image of top handrail with bolts

- Install the top handrail on the body of the ladder and secure with the bolts that were just removed from the top handrail (see fig. 3.6)



Fig. 3.6: Diagram of the top handrail

Step 6: Assembling the Safety Cage

6.1: Assemble the ladder-to-hoop brackets

- This step requires Fig. 2.7: ladder-to-hoop bracket (see page 4), hex bolt M8 x 70 and nylon lock nut M8
- Attach the ladder-to-hoop brackets to the ladder, using hex bolt M8 x 70 and nylon lock nut M8 (see fig. 3.7)
- Ensure that the 2 pairs of ladder-to-hoop brackets are securely fastened



Fig. 3.7: Connection of ladder-to-hoop brackets to the ladder body

6.2: Assemble the cage hoops

- This step requires Fig. 2.8: cage hoop and hoop washer (see page 4), pan head screw M8 x 30 and nylon lock nut M8
- Attach the safety cage hoop and hoop washer to the ladder forming a ring, using pan screw M8 x 30 and nylon lock nut M8 (see fig. 3.8)
- Ensure that the safety cage hoop is centred and perpendicular to the ladder
- Repeat this step to assemble the remaining cage hoops, for a total of 2 hoops



Fig. 3.8: connection of safety cage hoops to the ladder-to-hoop brackets

6.3: Assemble the safety cage

- This step requires Fig. 2.9: safety cage (see page 4), pan head screw M8 x 30 and nylon lock nut M8
- After assembling all hoops, align the holes on the safety cage with the hoops
- Assemble and secure the safety cage to the safety cage hoops, using pan screw M8 x 30 and nylon lock nut M8 (see fig. 3.9)
- Assemble and secure a total of five safety cages, ensuring all bolts are tightly fastened



Fig. 3.9: connection of safety cage to the safety cage hoops

Step 7: Final Adjustment and Inspection

1: Stability check

- Ensure all nuts and bolts are tightened, and the ladder steps and safety cage are secure

2: Alignment check

- Use a level to ensure the ladder and safety cage are upright and properly aligned

3: Safety check

- Inspect the entire assembly to ensure there are no loose parts or potential safety hazards

Section 4: Installation

Step 1: Placing the Ladder

- Transport the assembled ladder to the installation site, ensuring it is placed on a flat, sturdy surface
- Ensure the ground is free from oil and other obstacles to maintain a clean and safe working environment

Step 2: Installing the Ladder to the Wall

- Identify the contact points between the ladder and the wall, and mark the installation positions for the wall brackets
- Drill holes in the wall at the marked positions, ensuring the diameter and depth of the holes match the bolts for the wall brackets
- Secure the wall brackets to the wall with anchor bolts M8 x 80, and ensure that all bolts are tightened and brackets are firmly secured

Step 3: Securing the Ladder to the Ground

- Identify the contact points between the bottom of the ladder and the ground, and mark the installation positions for the floor brackets
- Drill holes in the floor at the marked positions, ensuring the diameter and depth of the holes match the bolts for the floor brackets
- Secure the floor brackets to the ground with anchor bolts M8 x 80, and ensure that all bolts are tightened and brackets are firmly secured

Step 4: Final Adjustment and Inspection

- After installing the brackets, check that all nuts and bolts are tightened, ensuring the ladder and safety cage are stable
- Use a level to ensure the ladder and safety cage are vertically aligned
- Inspect each connection and bracket to ensure there are no loose parts

Section 5: Safety Instructions

Usage Precautions:

- Ensure the ladder is securely placed before use
- Always use the safety cage while climbing to prevent falls

Maintenance:

- Regularly inspect and tighten nuts and bolts to prevent loosening
- Check the ladder and safety cage for any signs of wear or damage
- Clean the ladder periodically to remove dirt and debris

Section 6: Troubleshooting

Loose Ladder Steps or Hoops:

- Inspect nuts and bolts and tighten as needed

Unstable Ladder:

- Ensure the ladder is placed on a flat surface and properly secured to the structure

Difficulty Tightening Bolts:

- Ensure that all nuts and bolts match, and replace them if there are signs of damage

By following these steps, you can safely and efficiently complete the assembly of the ladder and its safety cage. During the assembly process, always follow safety procedures to avoid unnecessary risks.