



1.2m Ø Super Extensions for MP250, MP375 and MP750



Important Notes

All excavation work must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance for the MP250/MP375/MP750 Strut when used in conjunction with the 1.2m Diameter Super Extensions. They should be read in conjunction with the standard MP250, MP375 and MP750 Hydraulic Strut User Guide.

Hires for this equipment will always be accompanied by a general arrangement drawing, which must be read in conjunction with these instructions.

Ensure all personnel engaged in installation operations are properly briefed and adequately supervised by a competent person.

THIS USER GUIDE IS NOT CONTROLLED WHEN PRINTED

To ensure you are reading the most up-to-date version of this user guide, [download as a pdf](#) from the Groundforce Technical Library.

**IF IN ANY DOUBT SEEK FURTHER ADVICE:
ON FREEPHONE - 0800 000 345**



Certification Number 14419
ISO 9001 • ISO14001 • ISO45001



A 3D video animation showing hydraulic strut typical installation methodology is available to [watch now](#) on our YouTube channel.

Rev	Date	Comments	Initial
2.1	29/03/23	Additional HD extensions	DSW

Groundforce, Central House,
Beckwith Knowle, Otley Road,
Harrogate, HG3 1UD

T: 0800 000 345
E: info@vpgroundforce.com

SAFETY

Common Symbols and Meanings

Safety Note: It is recommended that hand and eye protection is used when operating hydraulic equipment.

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
	Use eye protection
	Use hearing protection
	Wear protective gloves
	Wear head protection
	Wear protective footwear

WARNING SYMBOLS	
	General warning
	Crushing of hands

Introduction

The 1.2m* diameter Super Extensions have been designed to extend the range of the standard MP250 and MP375 hydraulic struts and MP750 hybrid strut to achieve spans up to 45m. Longer spans can be accommodated with appropriate support arrangements.

The extensions comprise modular pieces of 1, 2, 4, 8, 10 and 12m lengths and a 1m long tapered adaptor piece so as to be able to bolt to existing strut components at the strut extremities. Heavy Duty (HD) extension pieces of 5, 8 and 10m lengths are also available as shown in the lower table.

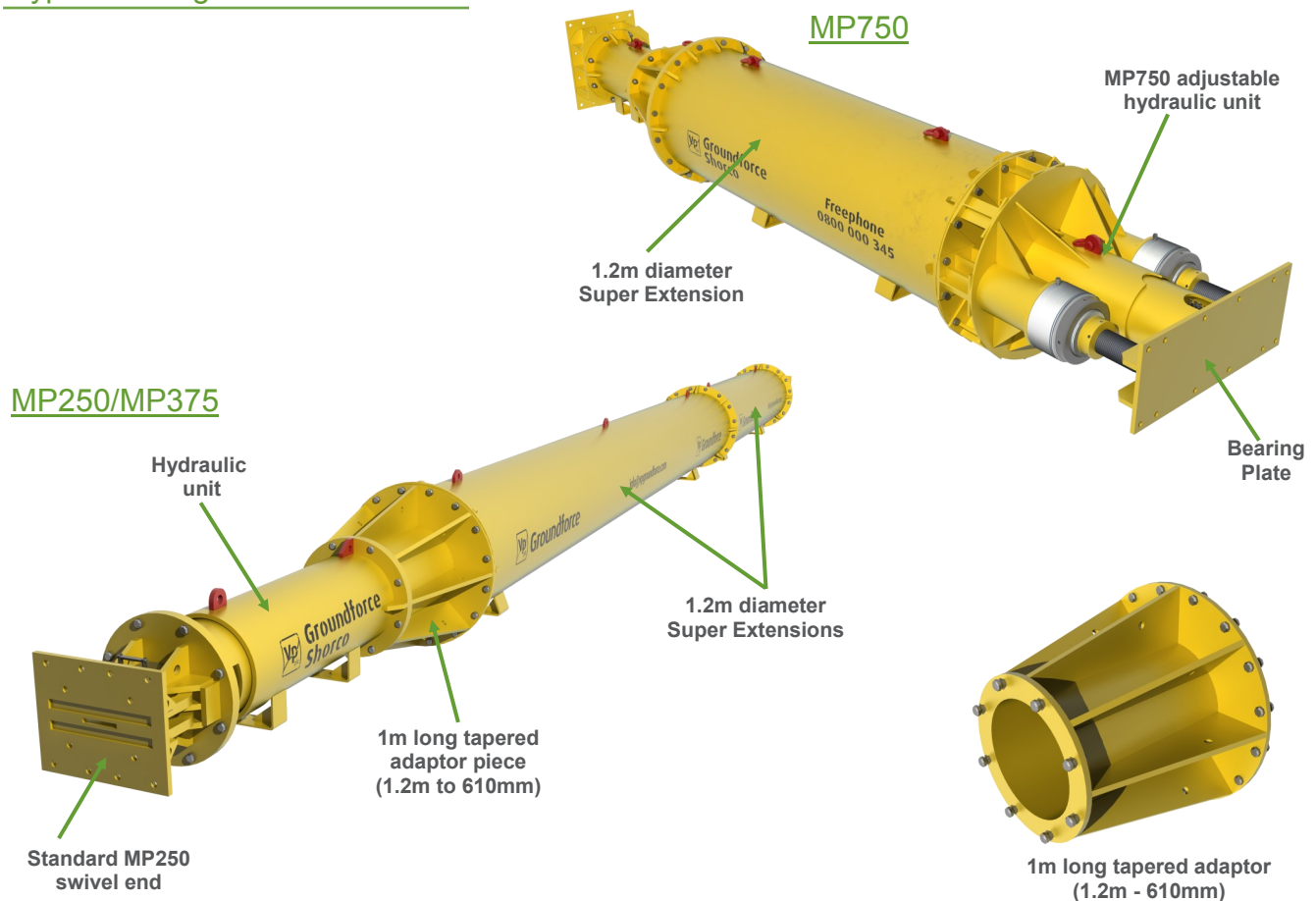
* Actual diameter is 1.220m

Equipment Specification

Item Code	Description	Length (m)	Weight (kg)
HS250.SEX1	MP250 Super Extn 1.0m	1.0	750
HS250.SEX2	MP250 Super Extn 2.0m	2.0	1100
HS250.SEX4	MP250 Super Extn 4.0m	4.0	2100
HS250.SEX8	MP250 Super Extn 8.0m	8.0	4100
HS250.SEX10	MP250 Super Extn 10.0m	10.0	5000
HS250.SEX12	MP250 Super Extn 12.0m	12.0	6000
HS250.SSAH	MP250 Super to Std Adaptor (HD)	1.0	950

Item Code	Description	Length (m)	Weight (kg)
HS250.20SEX5	MP250 Super Extension 5m (20WT) - HD	5.0	3602
HS250.20SEX8	MP250 Super Extension 8m (20WT) - HD	8.0	5094
HS250.20SEX10	MP250 Super Extension 10m (20WT) - HD	10.0	6276

Typical Configurations



Bolt Schedule

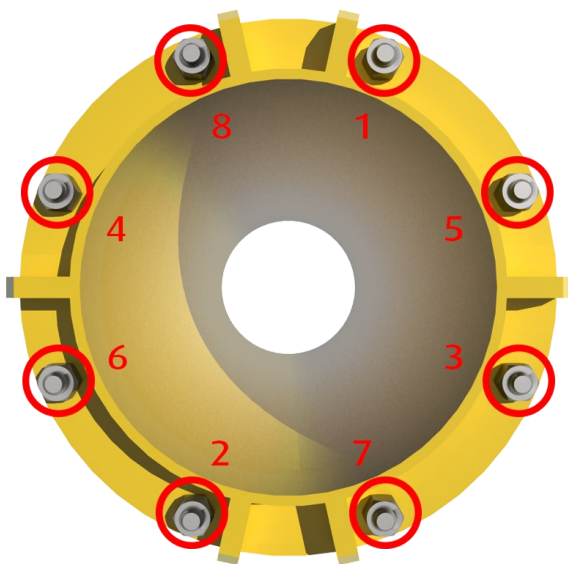


Safety Note:

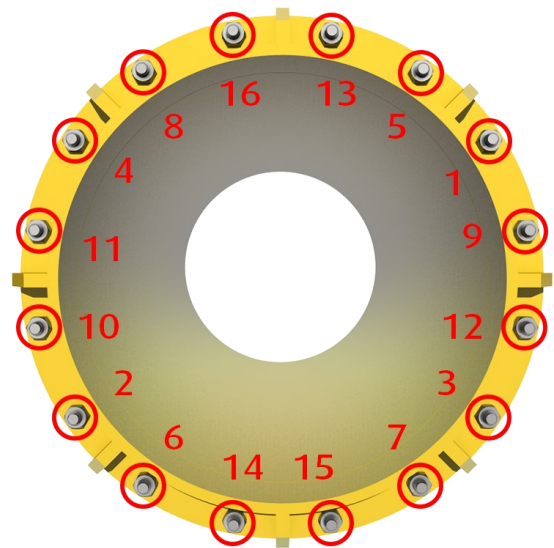
Due to the extra thickness of the hydraulic unit flange plate, all **MP250/MP375** hydraulic unit flange plate connections should be made using **M30 x 110mm** Grade 10.9 un-plated nut and bolt assemblies. See **B3** in the table below. **Do not use bolts other than those supplied by Groundforce.**

Bolt Ref.	Quantity (per flange)	Specification	Location	Tools	Tightening Torque
B1	8	M30 x 100 grade 10.9 bolts, grade 10 nuts c/w 1No. Plain washer	Standard flanges	46mm spanner/ socket	1500Nm (1100 ft lb)
B2	16	M30 x 100 grade 10.9 bolts, grade 10 nuts c/w 1No. Plain washer	1.0m Super extension flanges	46mm spanner/ socket	1500Nm (1100 ft lb)
B3	8	M30 x 110 grade 10.9 bolts, grade 10 nuts c/w 1No. Plain washer	MP250/MP375 Hydraulic unit flange connections	46mm spanner/ socket	1500Nm (1100 ft lb)

Proprietary anti-seize compound must be applied to the nut and bolt threads prior to assembly



Diagonal tightening sequence for an eight hole flange or tube connection.



Diagonal tightening sequence for a sixteen hole flange or tube connection.

Safety Note: Strut configurations involving 1.0m/1.2m dia tubes must use grade 10.9 bolts in **every** joint throughout its length and torqued to the correct specification.

Note: On shorter spans, there may be difficulty accessing nuts **2** and **7** on an 8 hole flange or nuts **14** and **15** on a 16 hole flange when attempting to use a Torque Wrench and Multiplier. This is due to obstructions caused by the strut foot.

If access is difficult, it is permissible to use a 'Slogging Spanner' in conjunction with a lump hammer to tighten the above nuts. **Always follow the diagonal tightening sequence wherever possible.**

Item No.	Description
SIA.SSW46	46mm Ring Slogging Spanner Wrench

Handling and Lifting



Safety Note: MP250/MP375/MP750 components are very heavy. It is essential to have a detailed lifting and installation/removal plan in place prior to commencing work. Components must be lifted from the correct lifting points provided. All slings, shackles and any other lifting equipment must have current test certificates and working load limit values.



Note: the weight of an assembled strut is concentrated towards the end incorporating the hydraulic unit. The slinging positions should be adjusted by trial lift until a near horizontal lift is achieved. Due to the weight of strut assemblies incorporating the super extensions, **struts over 40m spans must not be lifted in one piece.**

Consideration must be given to the capacities of the individual lifting points:
Individual lifting point capacities are as stated below:

Super extensions (including tapered sections) -12 tonnes

All other components - 8 tonnes

Minimum slinging angle (to the horizontal) is 45°



Safety Note: The assembly of these struts on site **must** be supervised by a Groundforce engineer using the correct tools.



- Check the correct capacity of lifting equipment
- Know the weight of the load
- Adjust slings so that loads are balanced correctly
- Check that the lift angle of chains is not exceeded
- Do not exceed the capacity of individual lifting points

- Use clear and precise hand signals
- Be aware of personnel in the vicinity
- Use tag lines to control the load
- Ensure all lifting equipment has valid certification
- Do not use damaged lifting points

Assembly techniques will vary from site to site depending on the space and lifting equipment available. If adequate lifting equipment and space is available, struts less than 40m long can be assembled away from the excavation and lifted in whole, **however it is essential that individual lifting point capacities on the tubes are not exceeded.** It is more likely that the strut will be assembled from within the excavation. A typical method of assembly and installation is as follows:

Assembly and Installation



Safety Note:
Due to the extra thickness of the hydraulic unit flange plate, all **MP250/MP375** hydraulic unit flange plate connections should be made using **M30 x 110mm** Grade 10.9 un-plated nut and bolt assemblies. **Do not use bolts other than those supplied by Groundforce.**



1. Excavate to approximately 1.0m below the centre line of the strut to form a level working area
2. Pre-assemble strut components into manageable sections. i.e. at one end this could be a hydraulic unit c/w swivel unit and a tapered adaptor piece and at the other end the swivel unit, standard MP250/MP375/MP750 extensions and the other tapered unit.
3. Lift the non-hydraulic end first, locate and fix the swivel onto its bearing location; preferably a bolted connection to a capping beam. Support the free end on solid timbers on firm ground, ensuring that the strut is horizontal.
4. Lift the first Super Extension, ensure the flange mating faces are clean and align the flange bolt holes (guide spigots are provided to help). Insert the bolts and tighten in diametric sequence and finally torque to the correct specification (see page 3).
5. Lift the strut slightly and re support near the free end again, ensuring that the strut is horizontal.
6. Continue generally as in 3. & 4. until the strut is fully assembled.
7. Lift the free end of the strut to align with its support location and expand the hydraulic unit and make the connection to the capping beam
8. Once the strut is fully pumped out and secured to its end location, the chains can be removed.
9. Install any secondary restraint, i.e. hanging chains if deemed necessary.



Removal

1. Removal is generally a reverse of the installation process. It is likely that the strut will need to be removed in sections. The free end of the strut will consequently need supporting from either the permanent works or from movable staging or trestles.
2. On removal, super tube components **must** be broken down for transportation so that no single assembly exceeds 12m in length. Care must be taken to return all bolts, nuts etc to avoid unnecessary charges being incurred.

Do	Do Not
✓ Read this user guide in conjunction with the MP250/MP375 and/or the MP750 user guides ✓ Have a lifting plan in place before commencing installation ✓ Ensure that the bolts are of the correct specification ✓ Ensure that all the bolts are correctly torqued ✓ Use a torque wrench, multiplier or calibrated impact wrench ✓ Ensure the strut is correctly and adequately located and supported at each end. ✓ Inspect regularly and check alignment ✓ Support the strut adequately during installation/removal ✓ Take care to protect the strut from accidental strikes, concrete accumulation, etc ✓ Break down assemblies into max 12m lengths on removal ✓ Take care to avoid trapping fingers at all stages of work	✗ Underestimate the weight of the strut components and assemblies ✗ Use bolts other than those supplied by Groundforce ✗ Strike or otherwise impact the strut ✗ Allow debris to accumulate on the strut ✗ Over pressurise the ram unit ✗ Use shoring fluid other than supplied by Groundforce ✗ Use uncertified lifting chains ✗ Attempt to remove the strut under load ✗ Suspend or store materials on the struts ✗ Over-tighten the lock-off valve on the hydraulic ram



Groundforce Training Services offer a wide range of courses primarily for those working in utilities, construction and civil engineering. From short duration health and safety awareness to more complex or specialist safety consultancy solutions.

Industry leading accredited safety training is delivered both on-site and through a nationwide network of training centres. For details of the courses available, [follow this link](#).

EXCAVATION TRAINING AVAILABLE

Train your team with **Groundforce Training Services**

• Nationwide training locations • EUSR accredited • Flexible courses

☎ 0800 023 2663