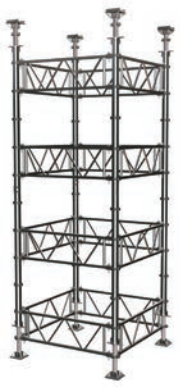
FORMWORK
PRODUCT GUIDE

# Acrow
# Powershore 30

## High Load Capacity Shoring System



Genuine **Safety.**
**Outstanding** Service.

ACROW SINCE 1936

# ACROW POWERSHORE 30

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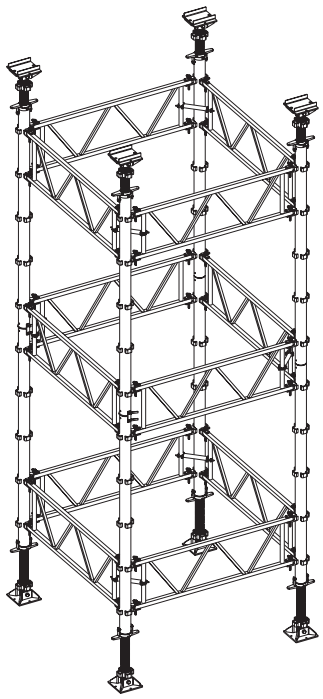
## Important



The erection and application instructions contained in this manual are the recommended methods to be used for Acrow Powershore 30 products.

The technical function related instructions must be accurately followed to obtain the correct performance of the product. Any deviation from the recommended usage will require a separate design and/or verification by AFS Engineering Department.

The safe use and application of the Acrow Powershore 30 system must be in accordance with Australian Standard AS 3610 Formwork for Concrete, Occupational Health & Safety regulations, approved industry codes of practice and relevant regulatory authority requirements.

The illustrations in these assembly configurations are minimum guidelines only.

The combined use of the Acrow Powershore 30 system with equipment from other suppliers may entail performance problems and therefore requires a design check and/or verification by AFS Engineering or suitably qualified and experienced engineer.

Safe Work Methods Statements and Hazard Identification/Risk Assessments for the erection and dismantling of the Acrow Powershore 30 system are available from AFS branches.

Site specific Hazard and Risk assessments may need to be generated for specific projects.

## Safety Warning

This warning is to draw the users attention to possible musculoskeletal disorder as a result of manual handling during assembly and dismantling of Acrow Powershore 30.

It is recommended that users of the Acrow Powershore 30 system employ and implement appropriate procedures and controls measures to eliminate or control any risk of Musculoskeletal disorder/injury while manually handling Acrow Powershore 30.

Refer to Code of Practice on manual handling published by local Workcover Authority or other approved and recognised guidelines for correct and appropriate manual handling procedures.

## Product Features

The Acrow Powershore 30 is a high load shoring system that provides a fast, efficient and versatile supporting structure. The simplicity of the coupling of strong vertical Standards joined together by Horizontal Bracing Frames enables towers to be easily and safely erected.

Standards are joined together using a Standard Connector which provide appropriate rigidity at the joint. The connector also incorporates two connecting pins which positively connects the two standards together.

Corner braces are attached at apposing corners and alternated between each level to maintain squareness and rigidity of the tower throughout its height.

Adjustable Bases at the bottom of the tower and Adjustable Bases with U-head attachments at the top of the tower provide 1200mm combined height adjustments. These Adjustable Bases can be braced with a Bracing Frame as required.

The built in strength of each individual component contributes to construction of a support tower capable of supporting leg load up to 308 kN based on tower and bracing frame configuration.

## Disclaimer

1. The photographs/illustrations shown within this manual are intended as expressing the diversity and possible applications of the product and as such must not be used as assembly instructions.
2. In line with Acrow Formwork & Scaffolding's commitment to continuous product development and improvement, the information contained in this manual may be changed without notice. Please confirm with AFS Head Office Engineering for latest update.
3. While all reasonable effort has been taken to ensure the accuracy and adequacy of the information contained herein, Acrow Formwork & Scaffolding Pty Ltd, accepts no responsibility or liability for any loss or damage suffered by any person acting or refraining from action as a result of this information.

Should users require any expert assistance, they are encourage to contact AFS Engineering or a competent professional engineer.

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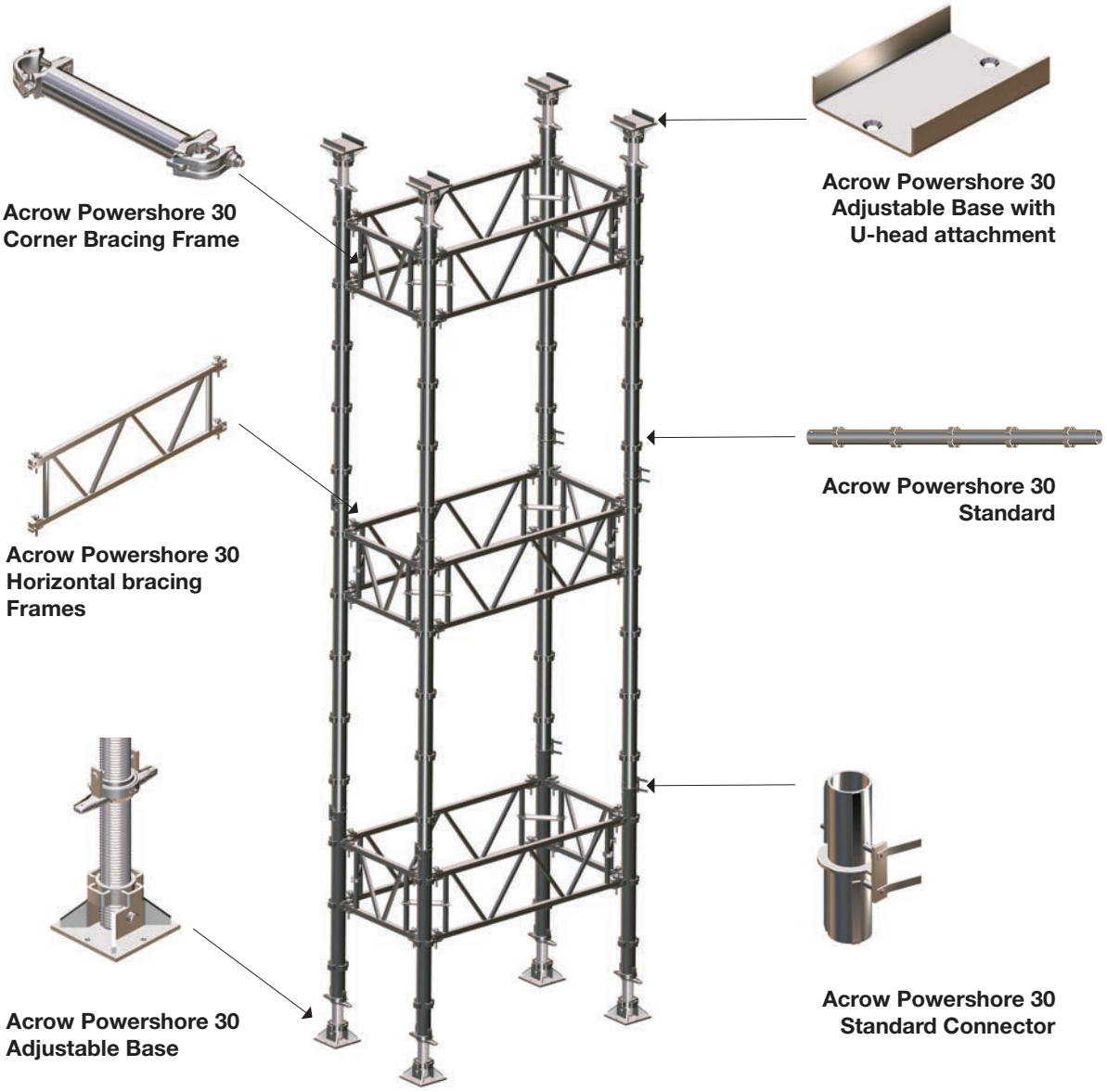
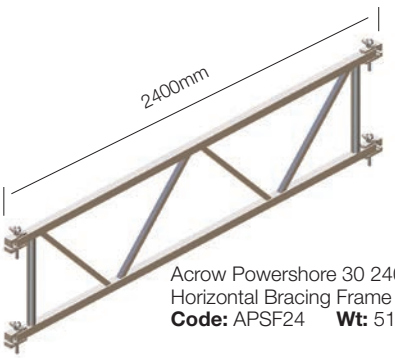
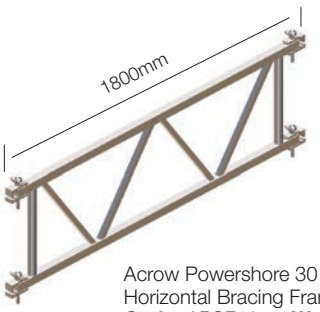
# ACROW POWERSHORE 30

## TYPICAL POWERSHORE 30 TOWER AND COMPONENTS

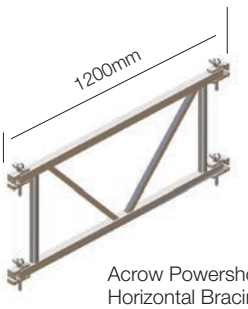



Acrow Powershore 30 2400
Horizontal Bracing Frame
**Code:** APSF24 **Wt:** 51kg

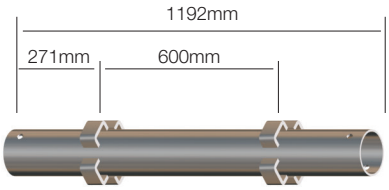



Acrow Powershore 30 1800
Horizontal Bracing Frame
**Code:** APSF18 **Wt:** 41kg

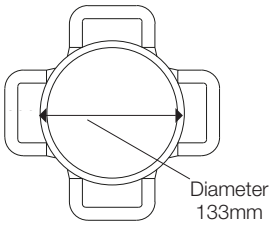



Acrow Powershore 30 1200
Horizontal Bracing Frame
**Code:** APSF12 **Wt:** 31kg

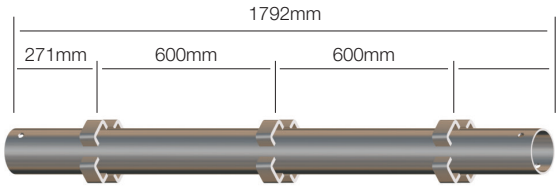
Acrow Powershore
1200 Standard
**Code:** APSS12
**Wt:** 26 kg



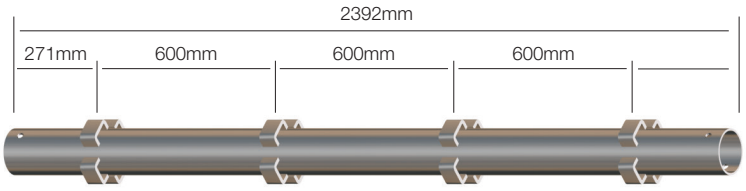

Section through Standard showing detail of location clusters



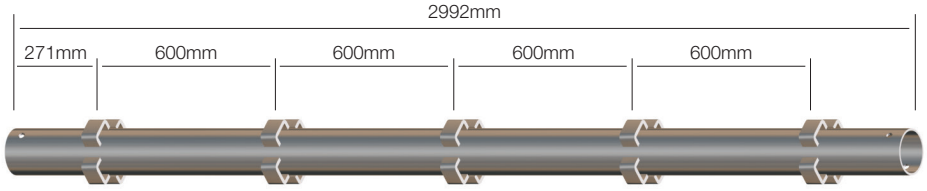

Acrow Powershore
1800 Standard
**Code:** APSS18
**Wt:** 39 kg




Acrow Powershore
2400 Standard
**Code:** APSS24
**Wt:** 52 kg

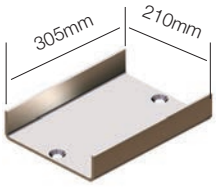



Acrow Powershore
3000 Standard
**Code:** APSS30
**Wt:** 65 kg

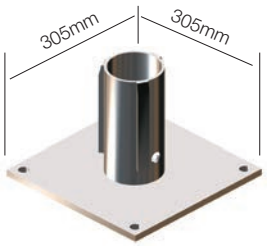




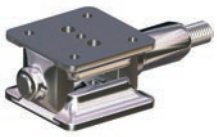
Acrow Powershore
Adjustable Base
**Code:** APSSJ **Wt:** 51kg



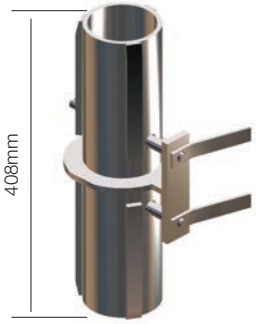

Acrow Powershore
U-Head Attachment
**Code:** APSUH **Wt:** 4.5kg



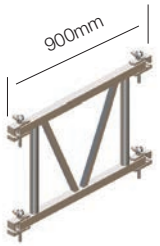

Acrow Powershore
Base Plate
**Code:** APSBP **Wt:** 16.5kg



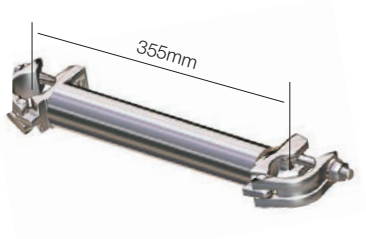
Acrow Powershore
Wedge Jack
**Code:** WJ50T **Wt:** 12.5kg



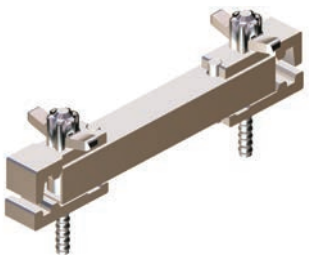

Acrow Powershore
Standard Connector
**Code:** APSC **Wt:** 10kg




Acrow Powershore 900
Horizontal Bracing Frame
**Code:** APSF09 **Wt:** 24kg




Acrow Powershore Corner Brace
**Code:** APSCB **Wt:** 2.2kg



Acrow Powershore 600 Tie Bar
**Code:** APSTB06 **Wt:** 5kg

# ACROW POWERSHORE 30

## Introduction

The purpose of this document is to provide guidance to estimate the maximum load capacity for Acrow Powershore 30 towers and single props under different conditions.

The load charts in this manual have been determined through the evaluation of different tower configurations with changing factors such as height, restrained conditions at the top and number of horizontal frames. With these graphs, the maximum vertical load available for a wide range of tower configurations can be deduced in an easy way.

This document does not cover every possible configuration of towers. The information and load charts in this document covers most commonly used single tower configurations and applications. Special and combined tower configurations will require specific structural modeling & analysis to determine the load capacities of the legs & towers. In some cases by configuring & arranging the towers in a different manner may provide higher leg load capacities.

## Geometrical considerations

**Towers:**
Two different cases have been considered:

**Case 1:** Top unrestrained, bottom restrained towers.
**Case 2:** Top and bottom restrained towers.

For each case, different configurations have been checked depending on:

**Plan dimension:** **1.2 m x 1.2 m**
**1.8 m x 1.8 m**
**2.4 m x 2.4 m**
**3.0 m x 3.0 m**

Height is measured from the top to bottom of the tower including adjustable bases. In the top unrestrained condition (ie. case 1) the stability of the load to be supported by Acrow Powershore 30 must be considered to ensure that it does not have adverse effect on the load capacity of the Acrow Powershore 30 towers. Generally, overall height is measured from top to bottom of the tower including adjustable bases. However when stability of the load may be questionable, it would be appropriate to consider the overall height of the tower to be from the top of unrestrained load to the bottom restrained point of the tower, in case 1 and check load capacity from the chart for total height.

In the top & bottom restrained condition (ie. Case 2) the overall height of the tower would be the distance between the restrained points.

Horizontal Bracing frames – the number of horizontal Bracing Frames depends on the tower height , the maximum distance between Bracing Frames shall not exceed 2.4m:

| Tower Height | Minimum Horizontal Bracing Frame Levels |
|---|---|
| 4.6m to 5.8m | 2 |
| 5.8m to 8.8m | 3 |
| 8.8m to 11.8m | 4 |
| 11.8m to 14.8m | 5 |

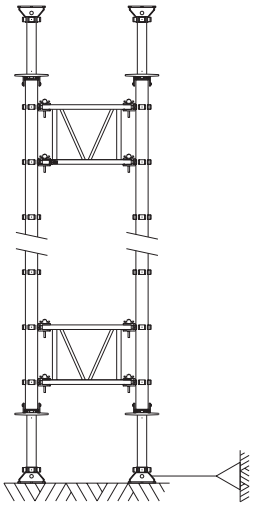
Load charts on pages 11 to 18 provide working load capacities for towers from 4.6 metres to 14.8 metres high and for all available plan configuration.

**Single Leg Props:**
When Acrow Powershore 30 is used as a single leg prop the boundary conditions at the top & bottom of the prop are considered as being restrained. The chart on page 19 provides working load capacities for prop height range of 2.8m-10.0m including overall adjustable base extensions.

## Summary of load charts

**Top unrestrained, bottom restained:**



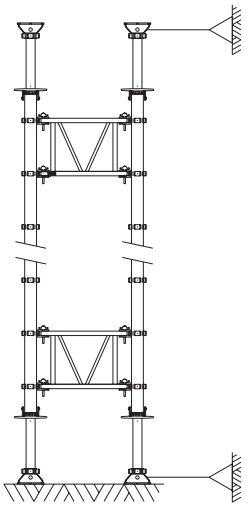


RIGID FOOTING

**Case 1:** Top unrestrained bottom restrained

**Top & bottom restrained:**





RIGID FOOTING

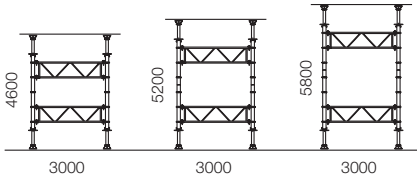
**Case 2:** Top & bottom restrained

- In the top unrestrained condition (ie. case 1) the stability of the load to be supported by Acrow Powershore 30 must be considered to ensure that it does not have adverse effect on the load capacity of the Acrow Powershore 30 towers. Generally, overall height is measured from top to bottom of the tower including adjustable bases. However when stability of the load may be questionable, it would be appropriate to consider the overall height of the tower to be from the top of unrestrained load to the bottom restrained point of the tower, in case 1 and check load capacity from the chart for total height. In the top & bottom restrained condition (ie. Case 2) the overall height of the tower would be the distance between the restrained points.
- Limit State Load Factor = 1.5
- Towers must be supported on suitably rigid footings to be designed by client.

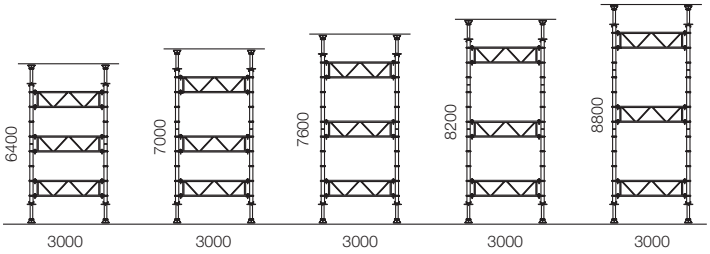
# ACROW POWERSHORE 30

## Heights & Horizontal Bracing Frames

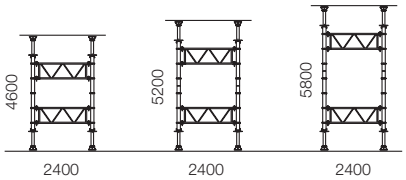
### 2 Horizontal Frame Levels



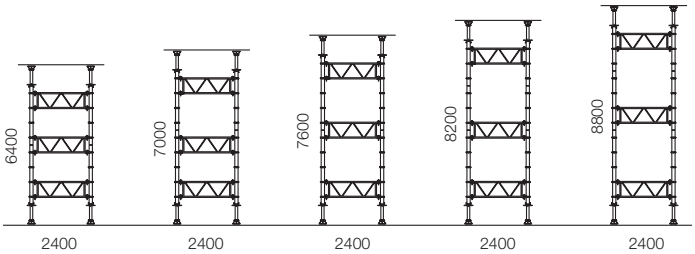

### 3 Horizontal frame levels



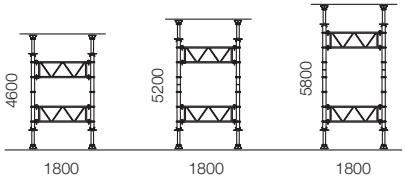

### 2 Horizontal Frame Levels




### 3 Horizontal frame levels




### 2 Horizontal Frame Levels

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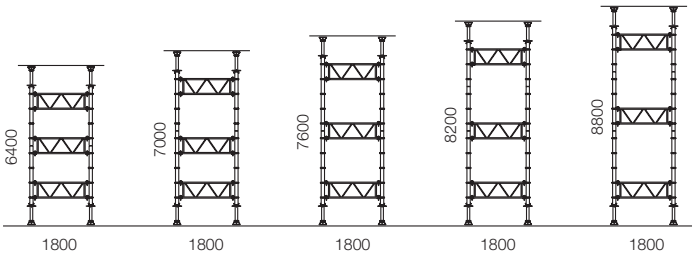
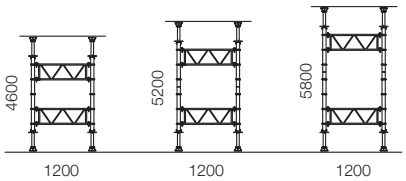
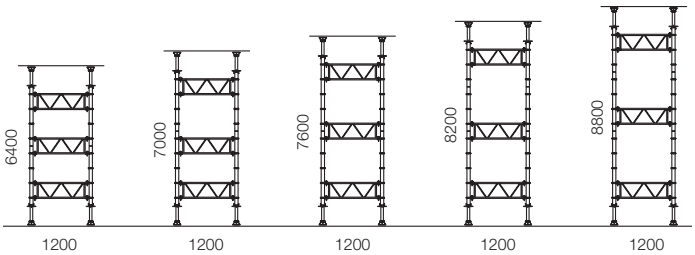



### 2 Horizontal Frame Levels




### 3 Horizontal frame levels

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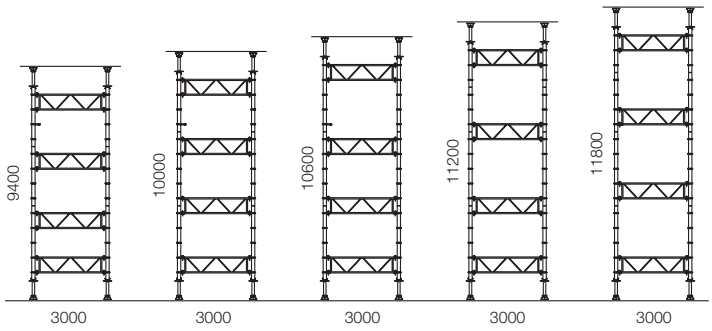
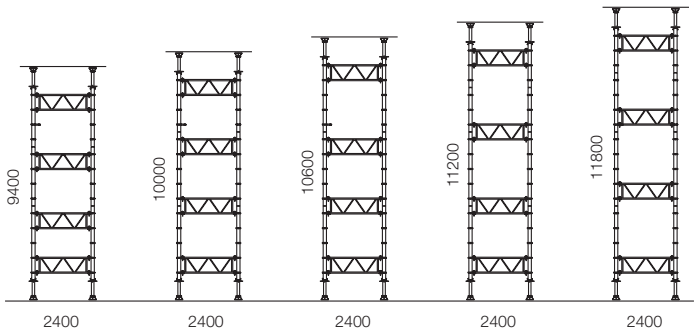
# Heights & Horizontal Bracing Frames

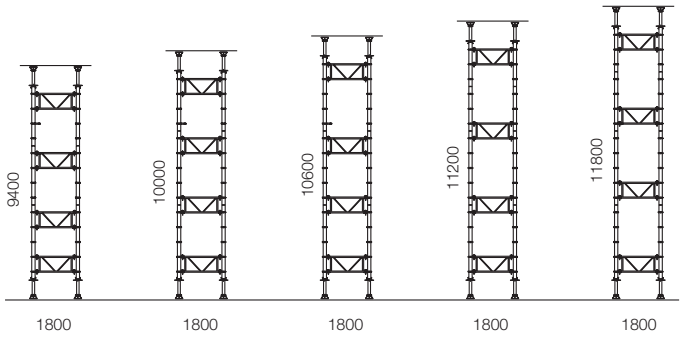
### 4 Horizontal Frame Levels



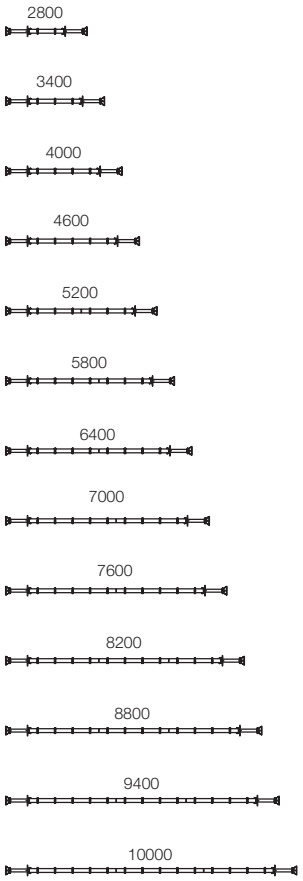

### 4 Horizontal Frame Levels



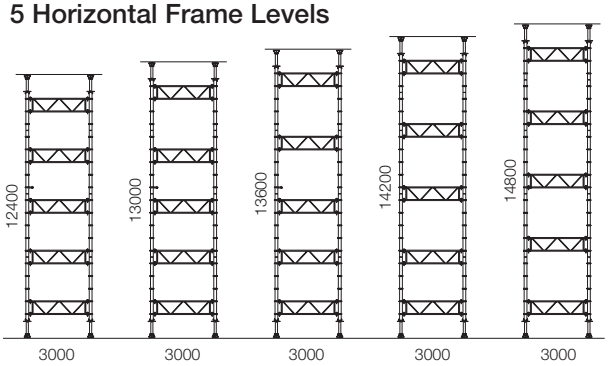

### 4 Horizontal Frame Levels



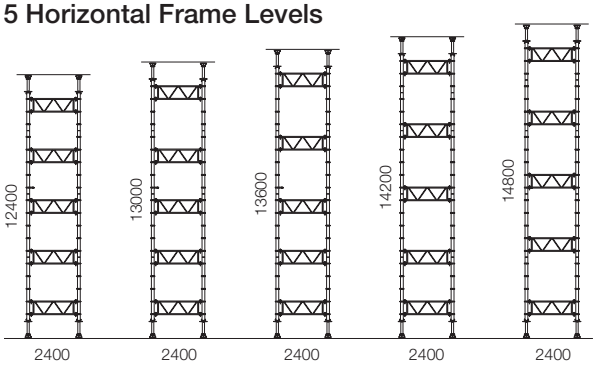

### Single Props




### 5 Horizontal Frame Levels




### 5 Horizontal Frame Levels

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# ACROW POWERSHORE 30

## Example:

**Case: Top unrestrained, bottom restrained**

PowerShore 30 Tower overall height (including jacks and unrestrained load) = 8.0m

Plan dimension: 1.80 x 2.40m

| | |
|---|---|
| • Height 8.0m — 5.80 < 8.0m < 8.80m — 3 horizontal frame levels<br>• Top unrestrained<br>• Plan Dimension: 1.80m x 2.40m — 1.80 curve | Fig Number 2, curve 1.80m |

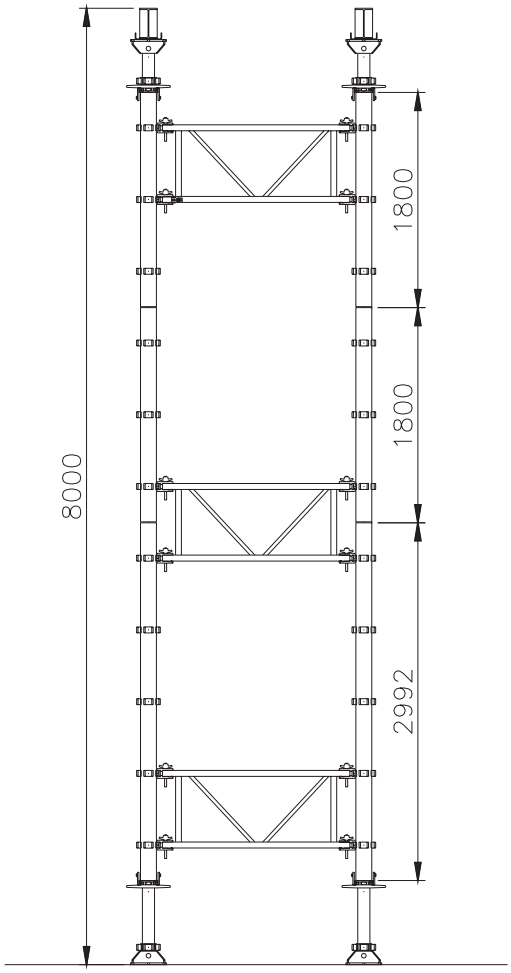
From Load Chart on Page 7 Fig. 2

Tower H = 7.60 m — W.L.L. = 142.5 kN

Tower H = 8.20 m — W.L.L. = 130.0 kN

Linear interpolation for overall height of tower & unrestrained load of 8.0m with tower plan dimensions of 1.80 x 2.40 m:

$$Q = \frac{(142.5 - 130.0) \times (8.2 - 8.0)}{(8.2 - 7.6)} + 130 = 134.2\text{kN}$$

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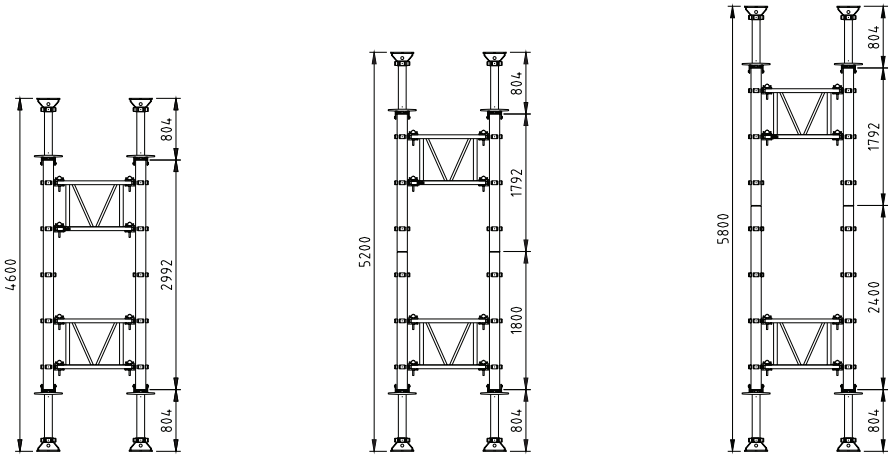
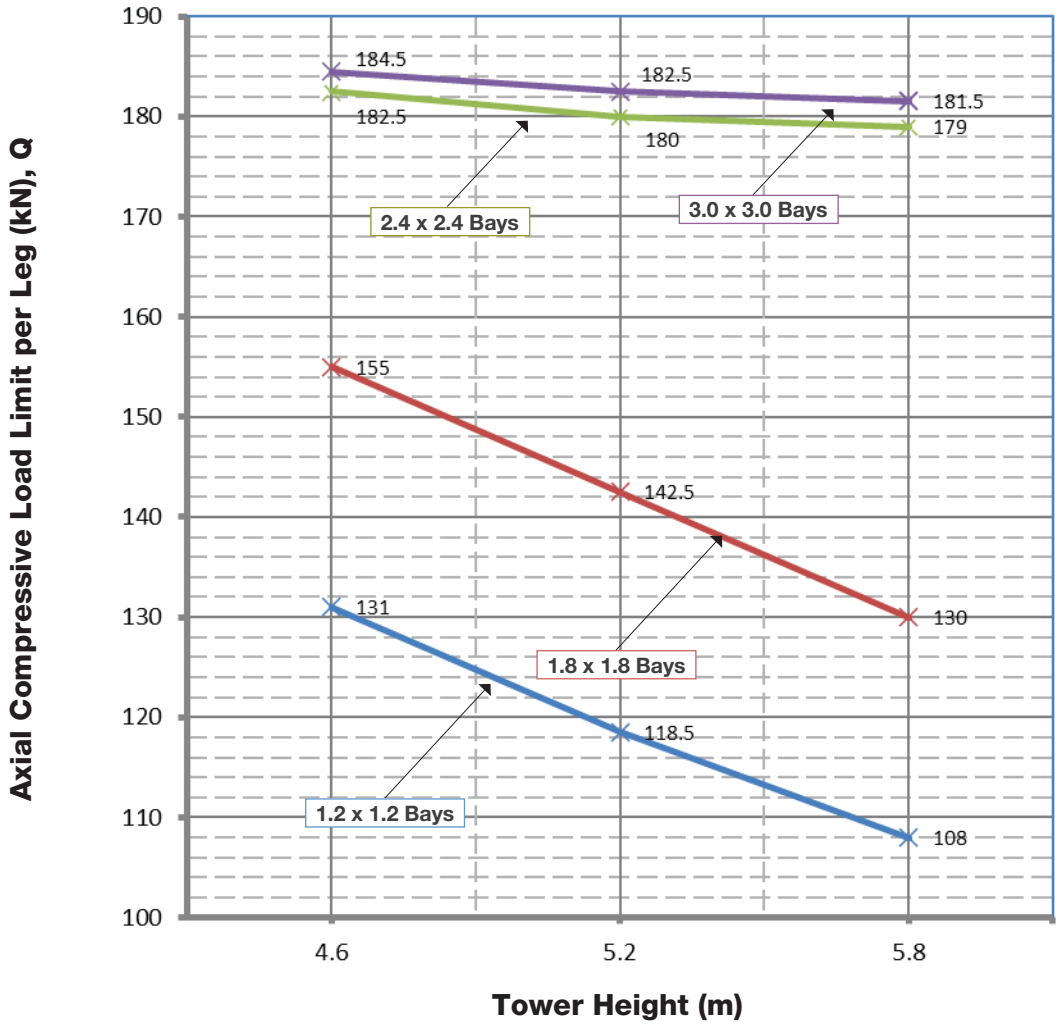
## Fig. 1: Top Unrestrained & Bottom Restrained 2 Horizontal Frame Levels

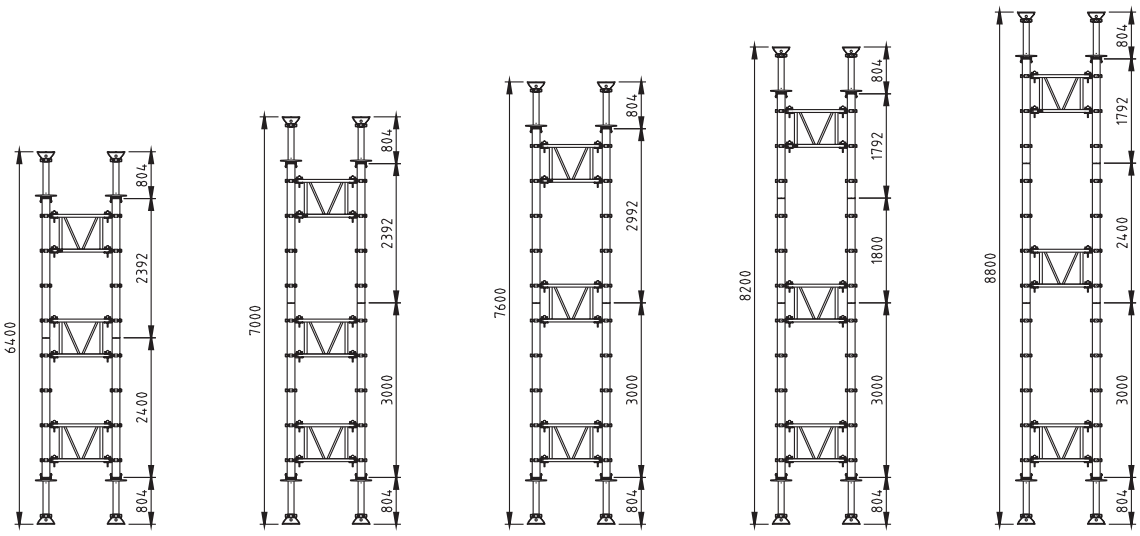
Height from 4.60m to 5.80m

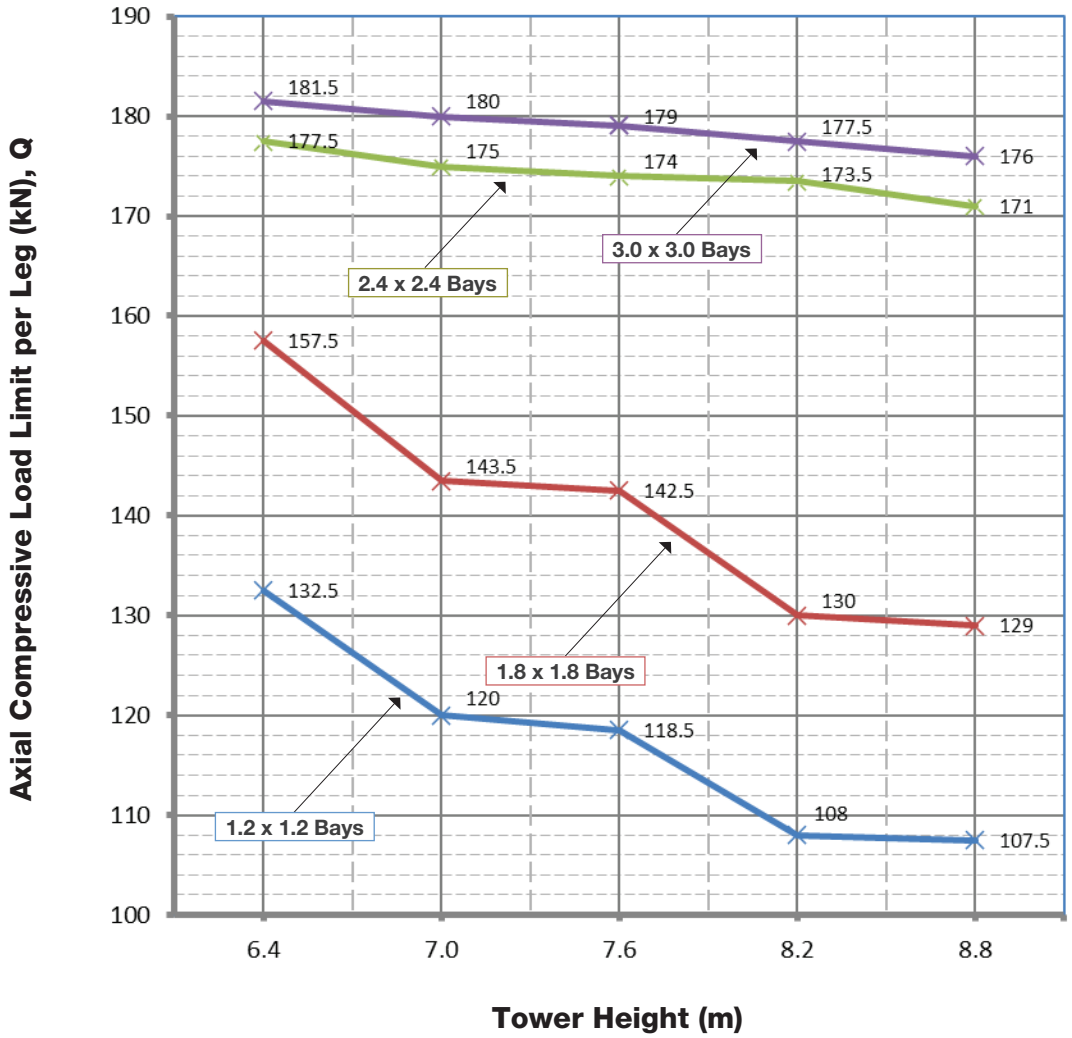


## Fig. 2: Top Unrestrained & Bottom Restrained 3 Horizontal Frame Levels

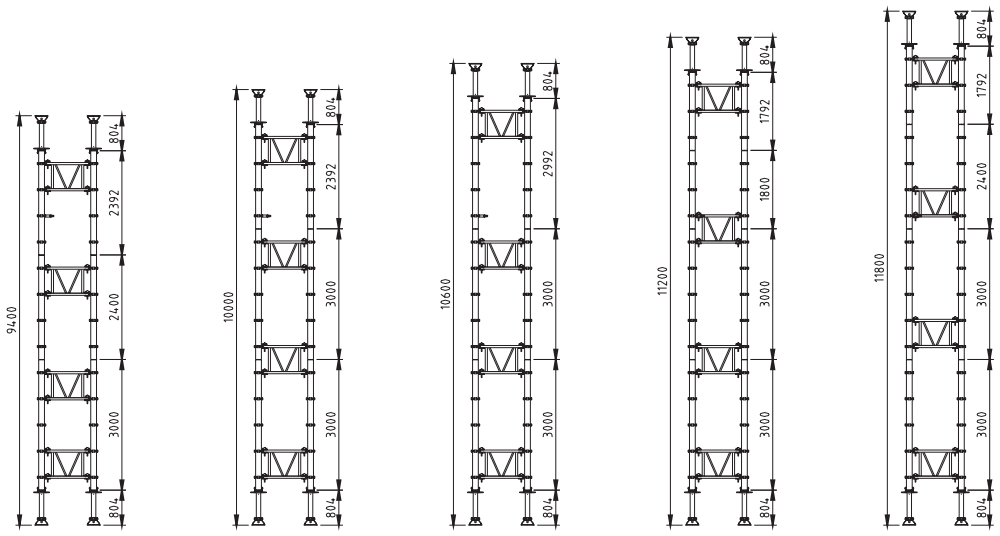
Height from 5.80m to 8.80m

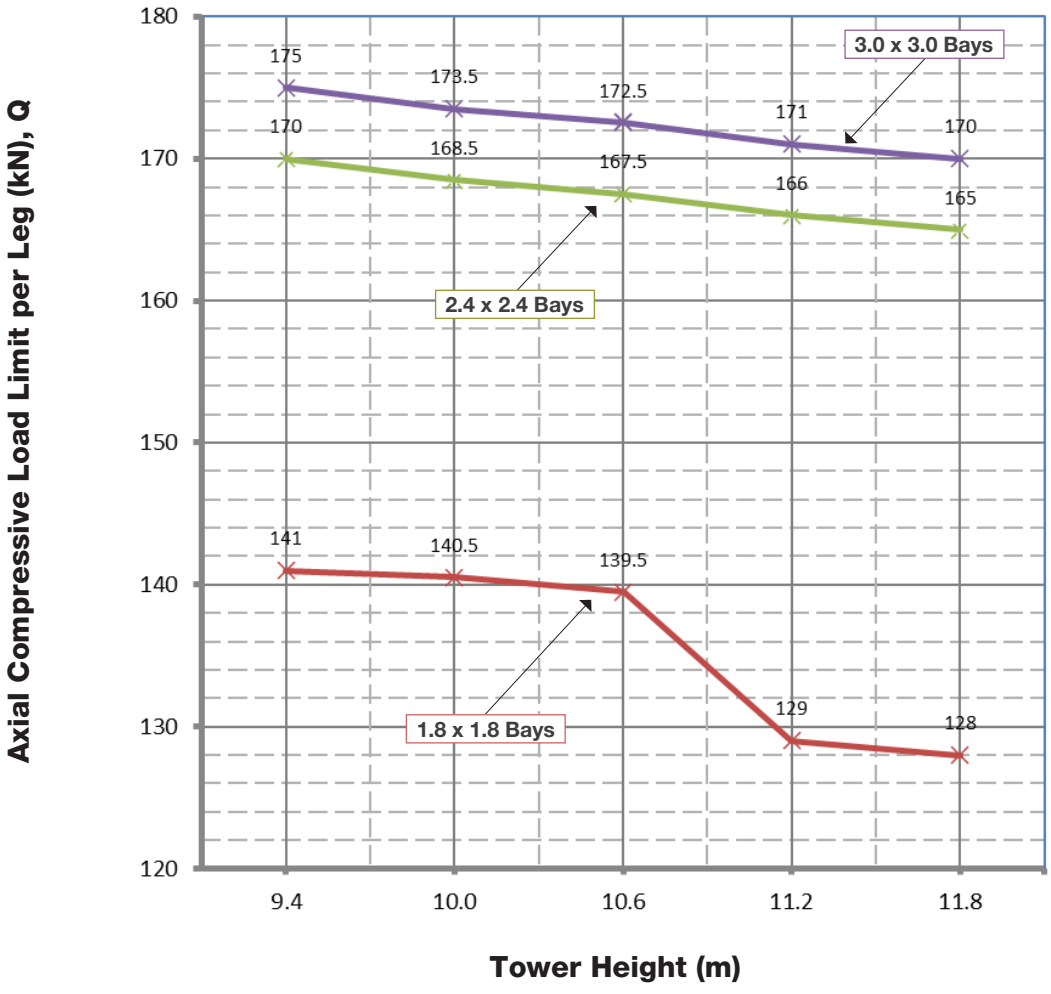


## Fig. 3: Top Unrestrained & Bottom Restrained 4 Horizontal Frame Levels

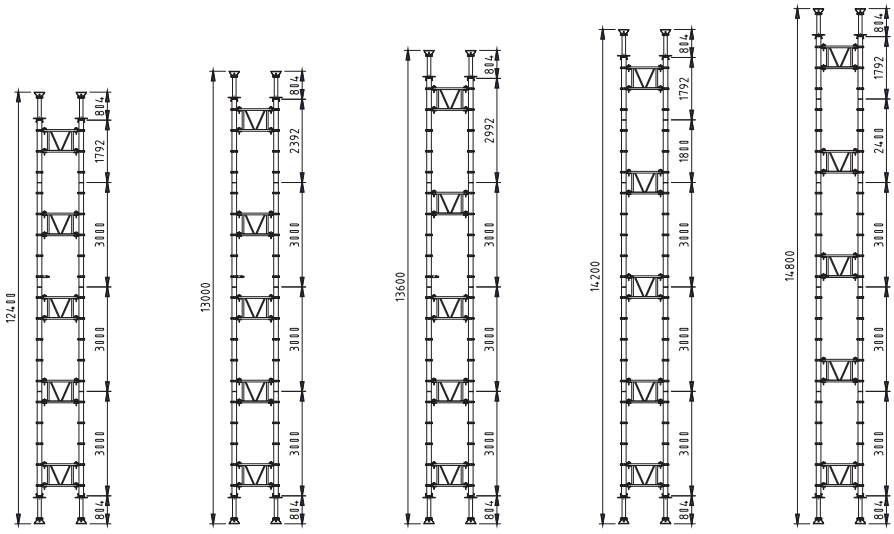
Height from 8.80m to 11.80m

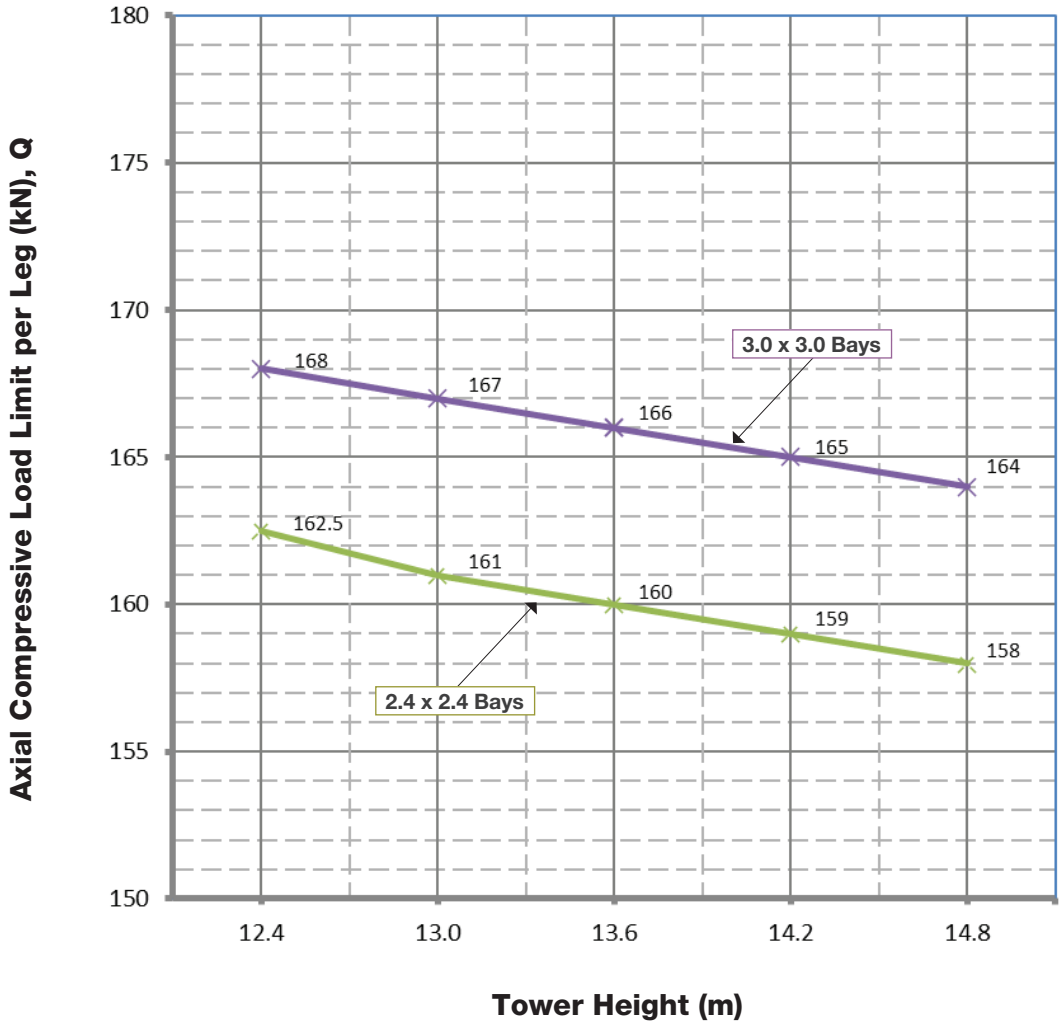


## Fig. 4: Top Unrestrained & Bottom Restrained 5 Horizontal Frame Levels

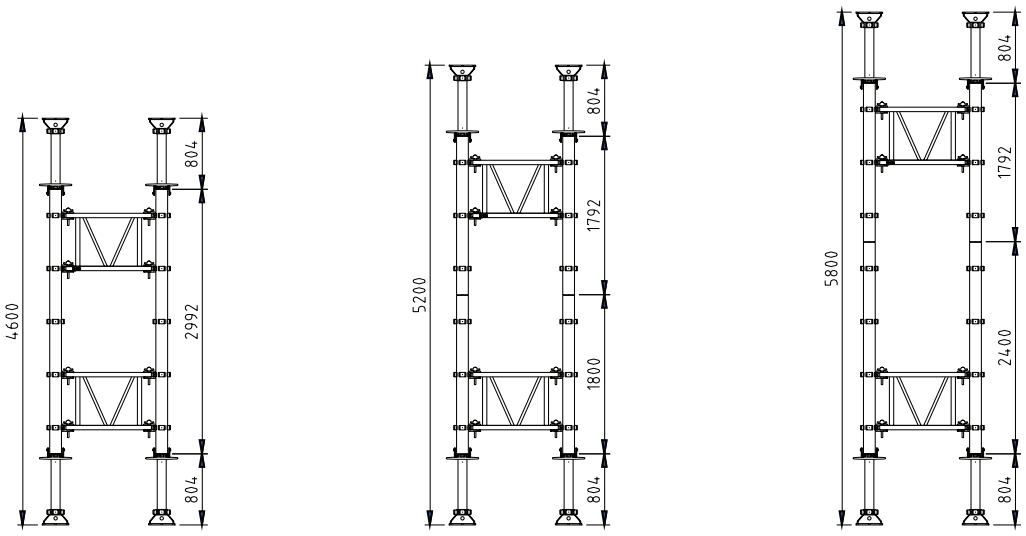
Height from 11.80m to 14.80m

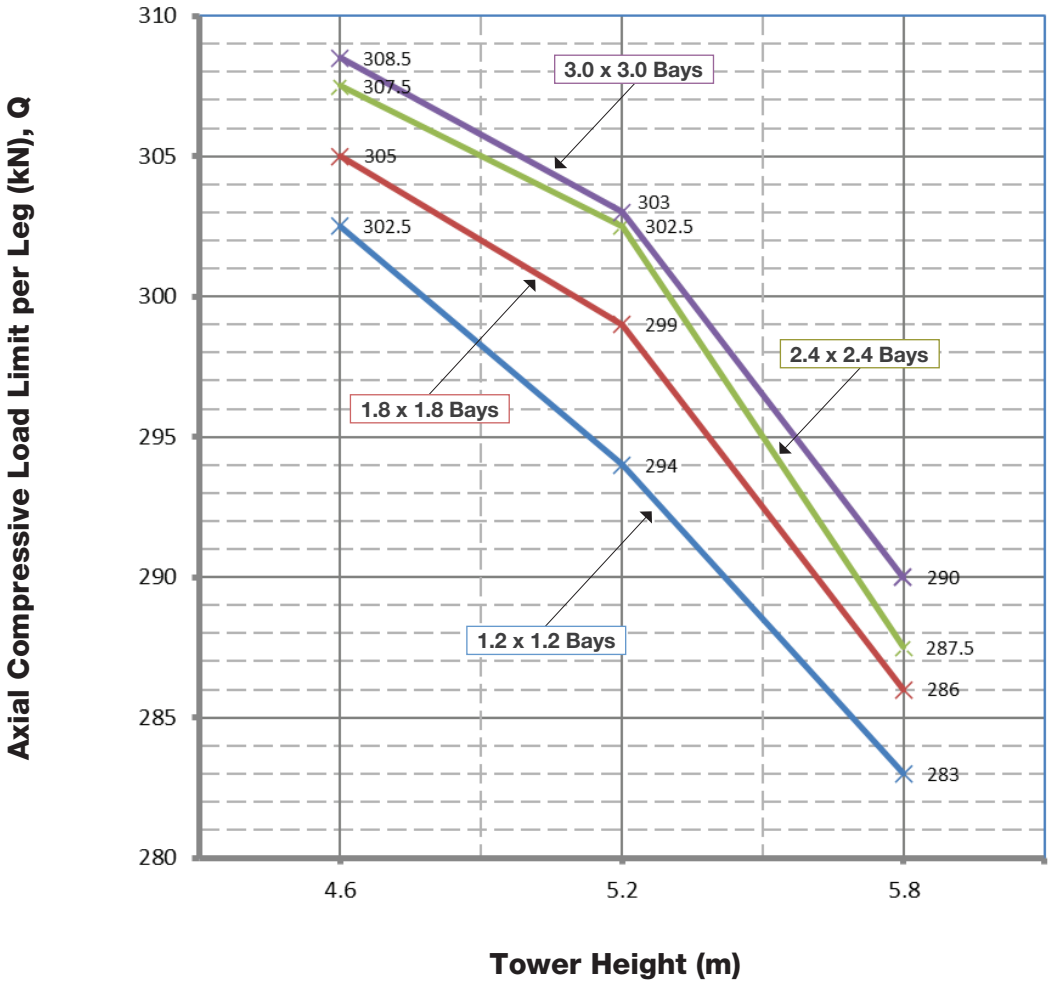


## Fig. 5: Top & Bottom Restrained 2 Horizontal Frame Levels

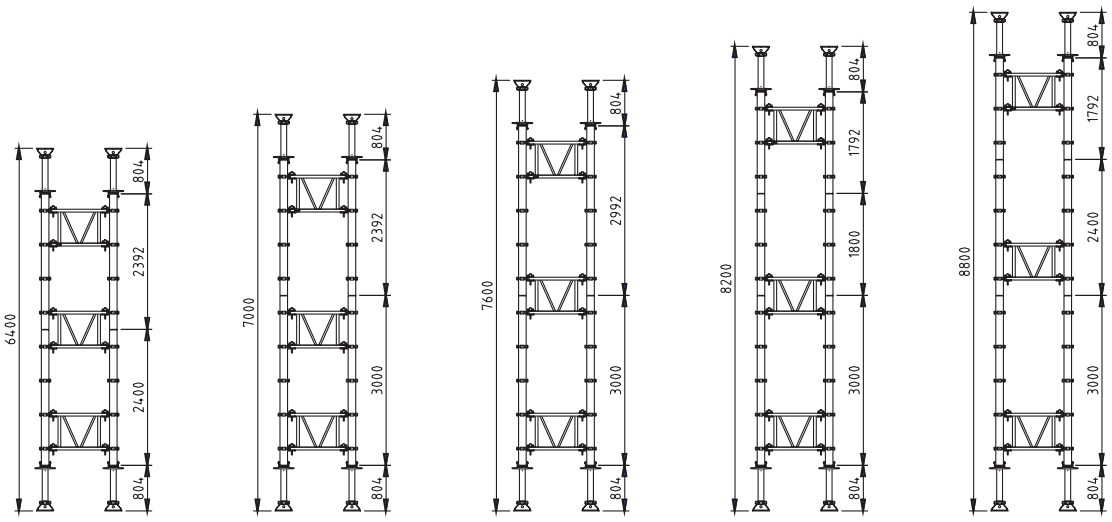
Height from 4.60m to 5.80m

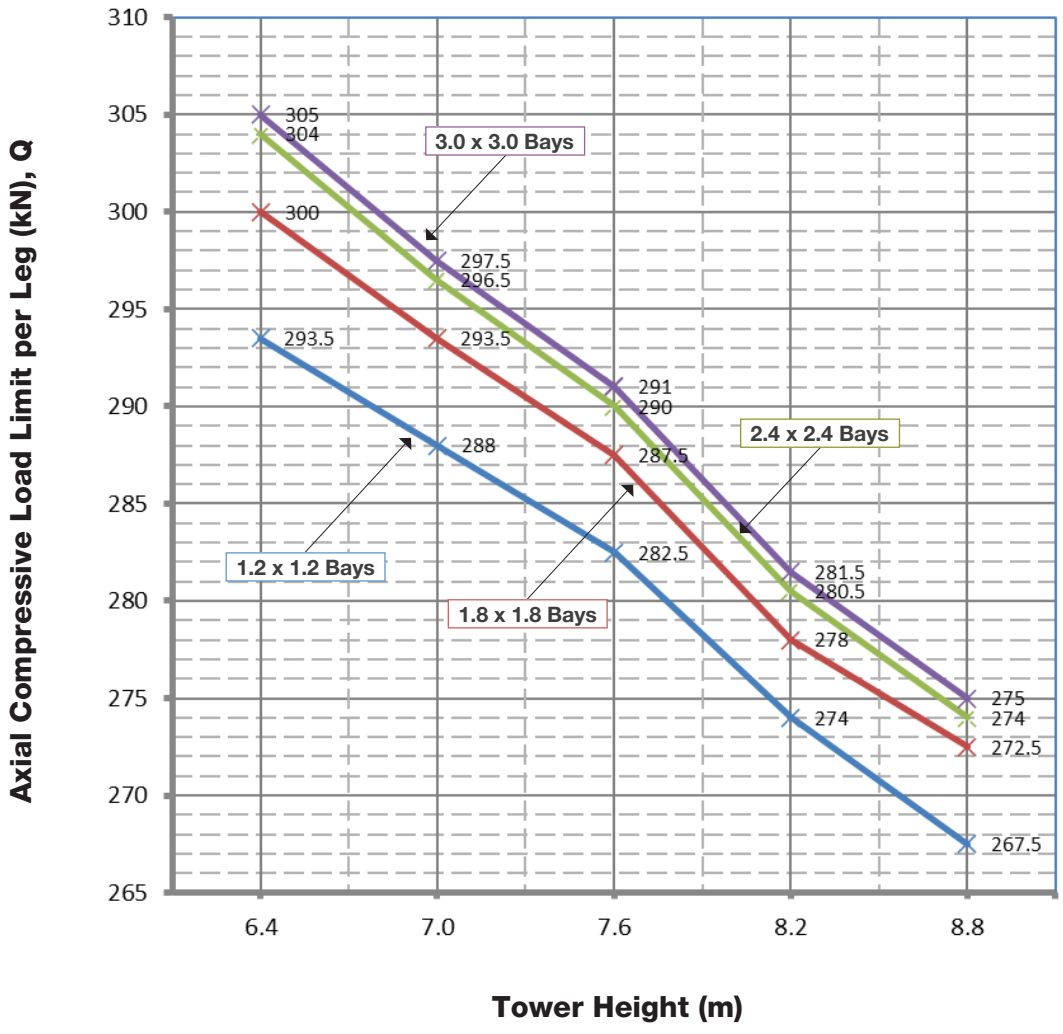


## Fig. 6: Top & Bottom Restrained 3 Horizontal Frame Levels

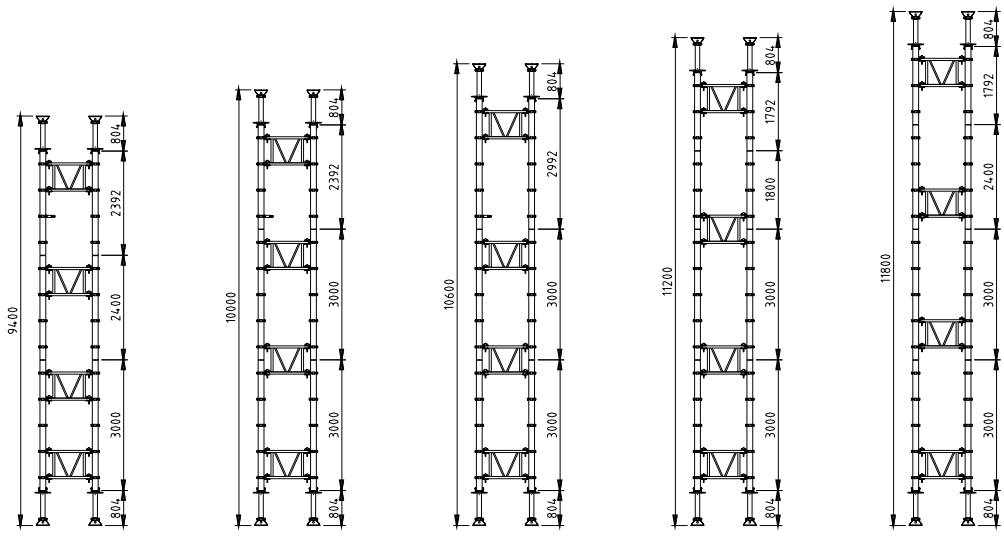
Height from 5.80m to 8.80m

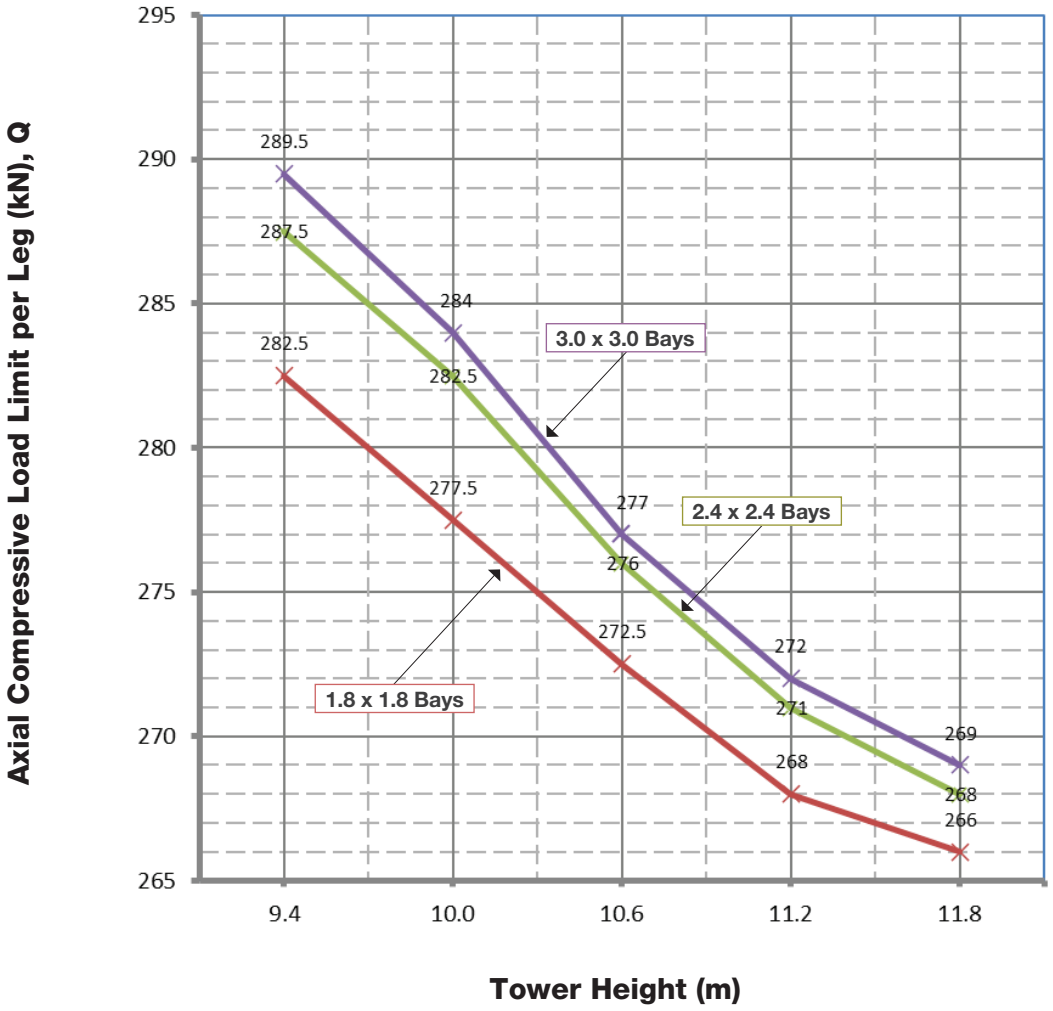


## Fig. 7: Top & Bottom Restrained 4 Horizontal Frame Levels

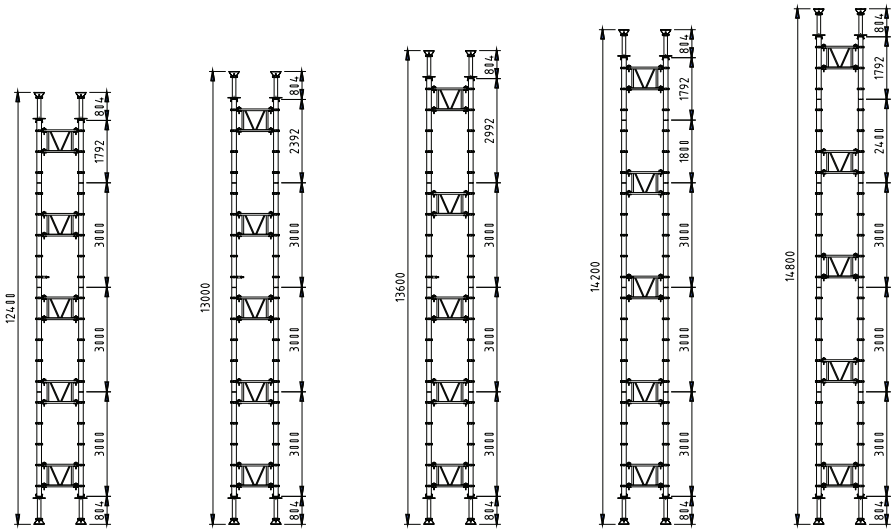
Height from 8.80m to 11.80m

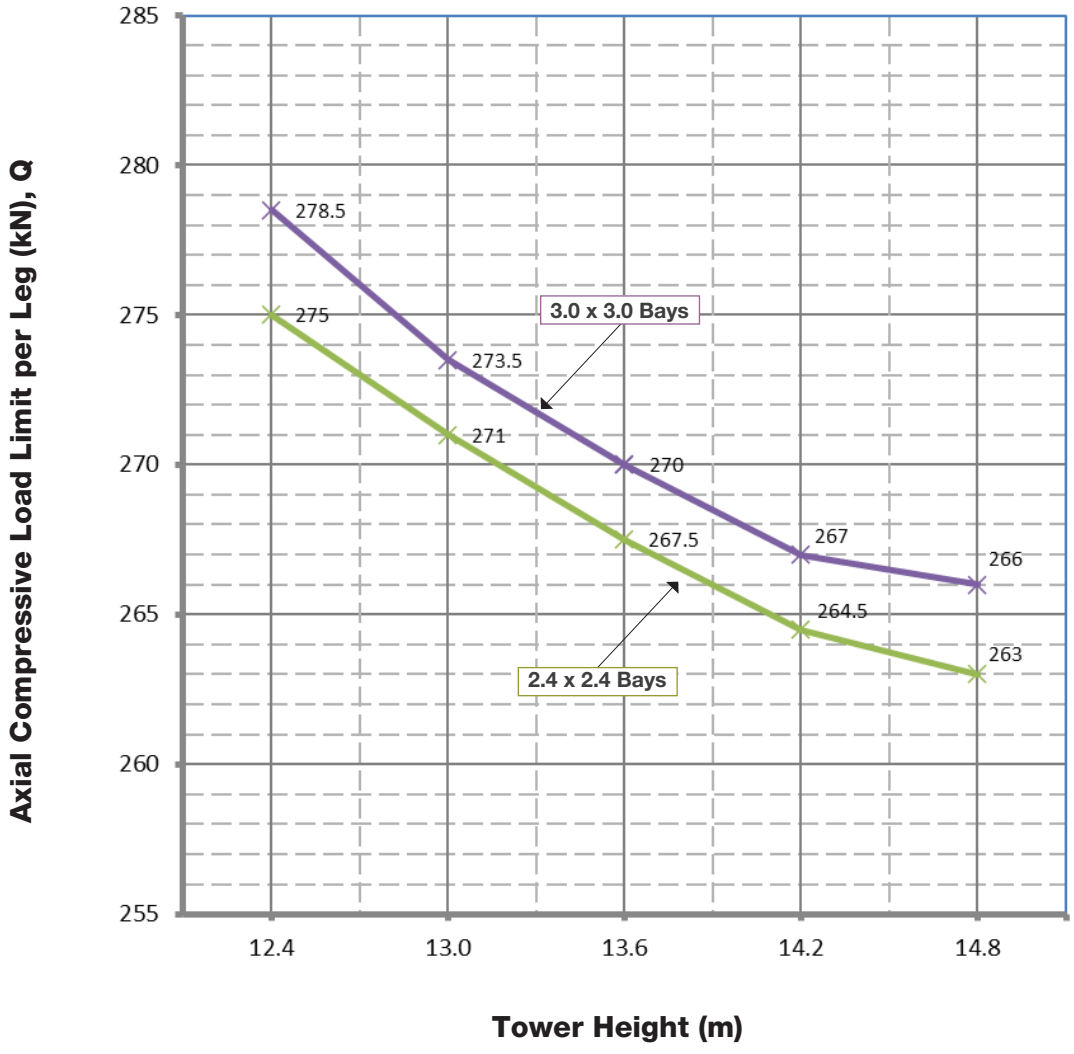


## Fig. 8: Top & Bottom Restrained 5 Horizontal Frame Levels

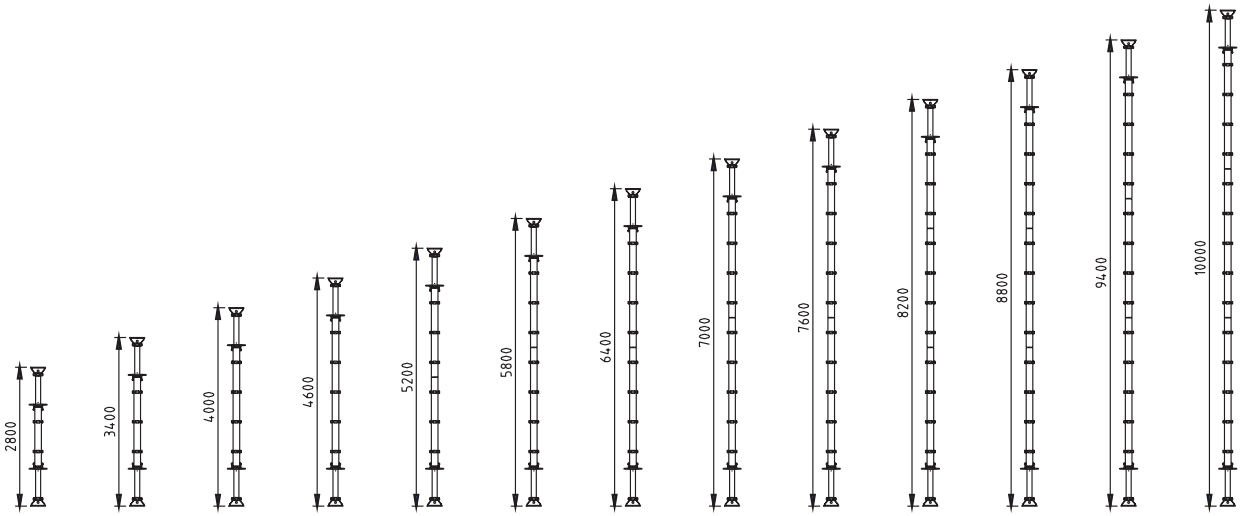
Height from 11.80m to 14.80m

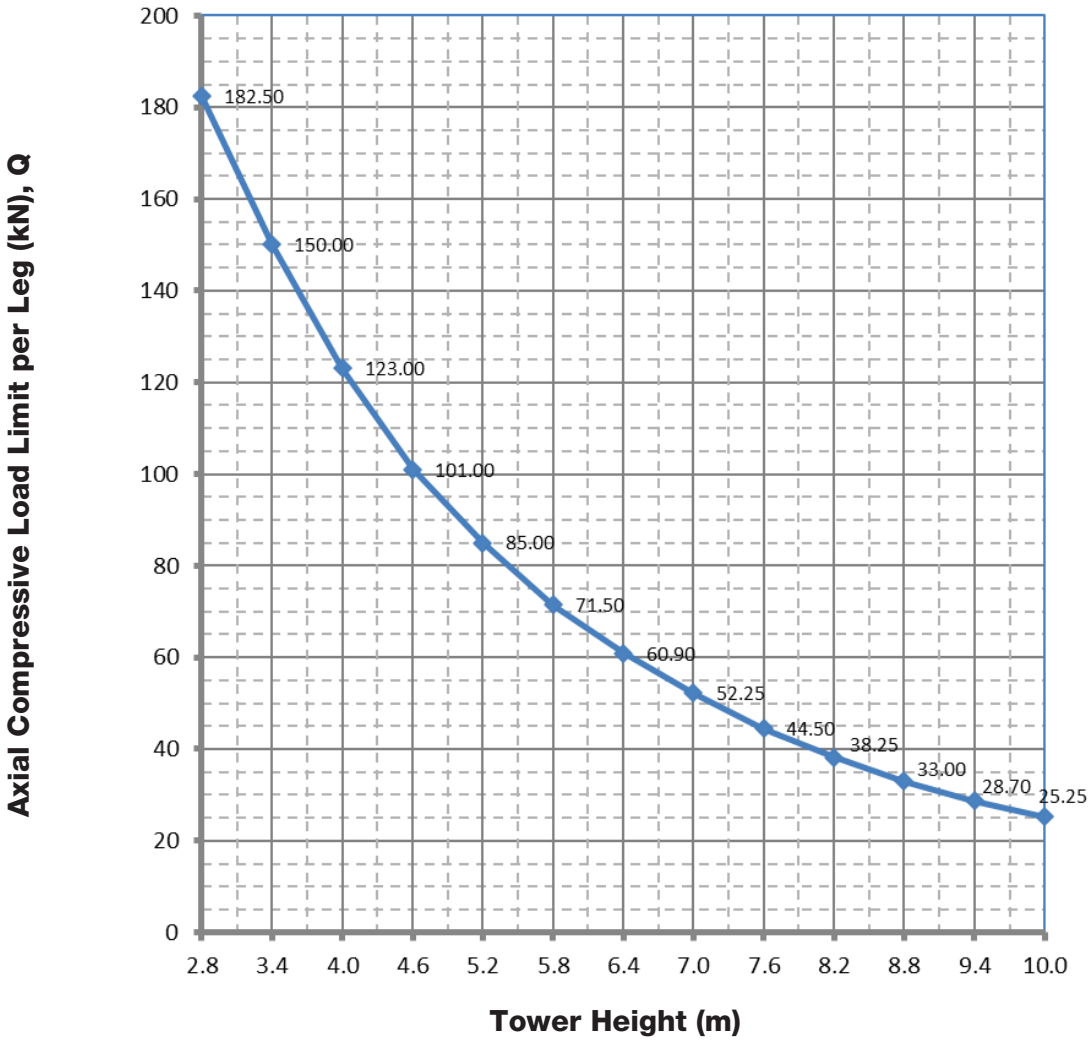


## Fig. 9: Single Prop - Top & Bottom Restrained

Height from 2.80m to 10.00m



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