



## KLEMM 4 GENERAL SPECIFICATION





[www.roger-bullivant.co.uk](http://www.roger-bullivant.co.uk)

Information collated by: Plant Design Department  
Roger Bullivant Limited  
RB Walton Park  
Hearthcote Road  
Swadlincote  
Derbyshire  
DE11 9DU

Tel: 01332 977 300

Published Date: April 2018



Whilst every care has been taken to ensure the correctness of the information contained within this document, no liability can be accepted for any errors or omissions.  
Published by Roger Bullivant Limited

12 April 2018



|                        |                          |
|------------------------|--------------------------|
| <b>Rig Designation</b> | <b>Klemm 4 (KR709-1)</b> |
| Commissioning Date     | June 2004                |

### Weight & Dimensions

|                                  |              |
|----------------------------------|--------------|
| Gross Weight                     | 13.30 tonnes |
| Operating Length                 | 5.50 m       |
| Operating Height                 | 8.85 m       |
| Overall Width                    | 2.40 m       |
| Transport Length                 | 8.85 m       |
| Transport Height                 | 2.95 m       |
| Mast Articulation - Fore & Aft   | ±5°          |
| Mast Articulation - Side to Side | ±15°         |
| Foot Travel                      | 1250 mm      |

### Piling System

|                       |                                                        |
|-----------------------|--------------------------------------------------------|
| Drill Head            | Klemm KH 43                                            |
| Rotary Head Torque    | 7.5 kNm @ 86 rpm<br>15 kNm @ 44 rpm<br>30 kNm @ 22 rpm |
| Available Auger Range | Ø228 mm to Ø508 mm                                     |
| Head Travel           | 6.50 m                                                 |

### Environmental

|                         |               |
|-------------------------|---------------|
| Engine Emissions Rating | Euro Stage II |
|-------------------------|---------------|





## Power & Control Systems

|                           |                                       |
|---------------------------|---------------------------------------|
| Prime Mover               | Caterpillar 3056E                     |
| Power Rating (Continuous) | 129.5 kW @ 2300 rpm                   |
| Fuel Tank Capacity        | 240 Litres                            |
| Main Controls             | Manually Operated from Front Station  |
| Additional Controls       | Travel Operation at On-board Platform |
| Max. Operating Pressure   | 250 Bar                               |

## Undercarriage

|                      |                             |
|----------------------|-----------------------------|
| Track Plate Width    | 500 mm                      |
| Max. Tractive Effort | 100 kN (10.10 Tonnes force) |
| Max. Travel Speed    | 2.60 km/h (1.62 mph)        |

## Ground Pressure

FPS Rig Loading Data Sheet available

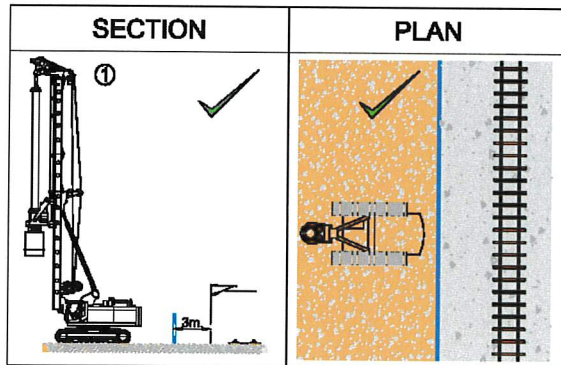


| Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures |                              |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
|----------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Rig Manufacturer :                                                         |                              | KLEMM                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Rig Type : KLM4 (KR709-1) |
| Operation mode:                                                            |                              | Auger Piling                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Completed by:                                                              | Neil Harris                  | 07/11/2014                                                                          | Checked by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Chris Hibbert             |
| Item                                                                       | Mass (kg)                    | Moment arm (m)                                                                      | Moment (kNm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                           |
| UPPER WORKS                                                                | 0                            | 0.00                                                                                | 0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| LOWER WORKS                                                                | 0                            | 0.00                                                                                | 0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT                                   | 2000                         | 2.36                                                                                | 46.30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                           |
| COUNTERWEIGHT                                                              | 0                            | 0.00                                                                                | 0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| OTHER                                                                      | 12300                        | 0.06                                                                                | 7.24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| TOTAL                                                                      | 14300                        | 0.38                                                                                | 53.54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                           |
| Tracks                                                                     |                              |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Track bearing length (m)                                                   | 2.765                        |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Track pad width (m)                                                        | 0.5                          |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Distance between centrelines of tracks (m)                                 | 1.9                          |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Front Foot Pads                                                            |                              |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Pad Bearing Area (m <sup>2</sup> )                                         | 0.49                         | Actual Dimensions                                                                   | 700mm x 700mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |
| Pad Maximum Loading (kN)                                                   | 76.00                        | Actual Shape                                                                        | Rectangular                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                           |
| Pad Moment Arm (m)                                                         | 1.80                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Rear Foot Pads                                                             |                              |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Pad Bearing Area (m <sup>2</sup> )                                         | 0.00                         | Actual Dimensions                                                                   | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| Pad Maximum Loading (kN)                                                   | 0.00                         | Actual Shape                                                                        | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| Pad Moment Arm (m)                                                         | 0.00                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Forces                                                                     |                              |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Maximum Extraction Force (kN)                                              | 100.00                       |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Maximum Penetration Force (kN)                                             | 56.00                        |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Maximum Auxillary Force (kN)                                               | 10.00                        | Auxillary Force Moment Arm (m)                                                      | 2.36                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| Pressure Summary for Platform Design (unfactored)                          |                              |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| MODE                                                                       | BRE LOAD CASE ( 1 or 2 )     | Length (m)                                                                          | Width (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | UDL Pressure (kPa)        |
| Standing                                                                   | 1                            | 2.54                                                                                | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 46                        |
| Travelling                                                                 | 1                            | 2.00                                                                                | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70                        |
| Handling                                                                   | 1                            | 2.29                                                                                | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 54                        |
| Penetrating                                                                | 2                            | 0.89                                                                                | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 95                        |
| Extracting                                                                 | 2                            | 1.15                                                                                | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 134                       |
| Other                                                                      | NOT USED                     | N/A                                                                                 | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N/A                       |
| MODE                                                                       | WARNING MESSAGES             | ERROR MESSAGES FOR FORCES                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Standing                                                                   | None                         | Auxiliary Line Force OK                                                             | Extraction Force OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Penetration Force OK      |
| Travelling                                                                 | None                         | Auxiliary Line Force OK                                                             | Extraction Force OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Penetration Force OK      |
| Handling                                                                   | None                         | Auxiliary Line Force OK                                                             | Extraction Force OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Penetration Force OK      |
| Penetrating                                                                | None                         | Auxiliary Line Force OK                                                             | Extraction Force OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Penetration Force OK      |
| Extracting                                                                 | None                         | Auxiliary Line Force OK                                                             | Extraction Force OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Penetration Force OK      |
| Other                                                                      | None                         | Auxiliary Line Force OK                                                             | Extraction Force OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Penetration Force OK      |
| MODE                                                                       | ERROR MESSAGES FOR FOOT PADS |                                                                                     | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                           |
| Standing                                                                   | Front Foot Pad Force OK      | Rear Foot Pad Force OK                                                              | <p>Only for rig operation on level ground with a vertical mast, unless noted below !</p> <p>Only for use where the rig is working on a ground supported platform !</p> <p>Foot pad pressures are adjusted to equalise with the track pressures !</p> <p>Rigs to be operated in accordance with manufacturer's &amp; employer's instructions</p> <p>This spreadsheet presents an "idealised" situation where the leader remains vertical at all times and left-to-right asymmetry is ignored. If in doubt contact Plant Design Department.</p> |                           |
| Travelling                                                                 | Front Foot Pad Force OK      | Rear Foot Pad Force OK                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Handling                                                                   | Front Foot Pad Force OK      | Rear Foot Pad Force OK                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Penetrating                                                                | Front Foot Pad Force OK      | Rear Foot Pad Force OK                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Extracting                                                                 | Front Foot Pad Force OK      | Rear Foot Pad Force OK                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Other                                                                      | Front Foot Pad Force OK      | Rear Foot Pad Force OK                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
|                                                                            |                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |

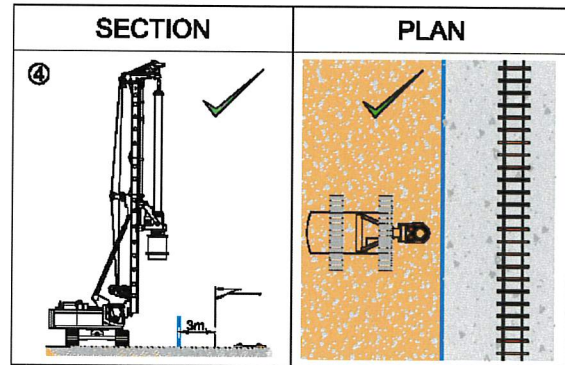


|                  |                  |
|------------------|------------------|
| Ref:             | NR/L3/INI/CP0063 |
| Issue:           | 1                |
| Date:            | 06/03/2010       |
| Compliance date: | 05/06/2010       |

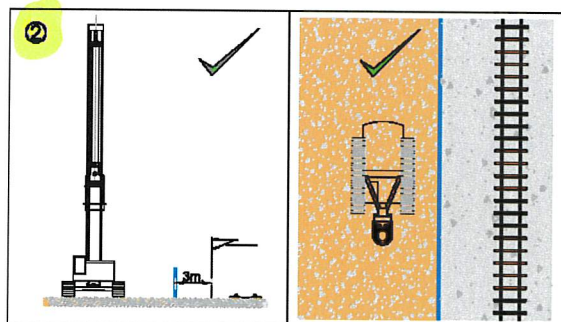
## ORIENTATION OF PILING RIG ADJACENT TO THE RAILWAY INFRASTRUCTURE DURING NORMAL RAILWAY OPERATIONS.



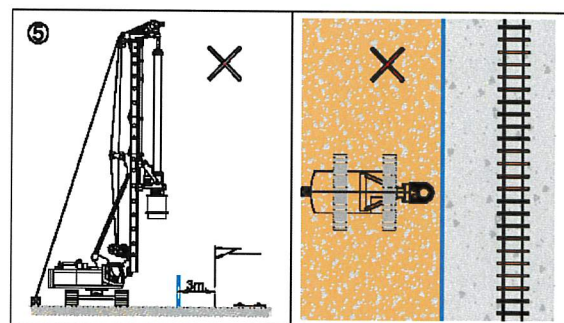
**RIG MAY SIT AT THIS ORIENTATION**



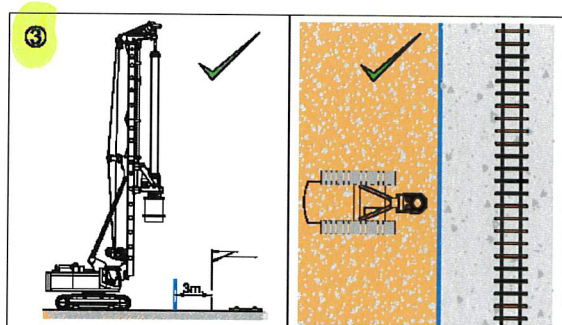
**RIG MAY SIT AT THIS ORIENTATION  
(SUBJECT TO MANUFACTURERS SPECIFICATION)**



**RIG MAY SIT AT THIS ORIENTATION**



**INDEPENDENT TIE BACKS OR ANY OTHER  
ARTIFICIAL STABILITY AIDS  
MUST NOT BE UTILISED**



**RIG MAY SIT AT THIS ORIENTATION**

### NOTE :-

- 1.) IN ALL CASES APPROPRIATE MITIGATION MEASURES SHOULD BE IMPLEMENTED - PARTICULARLY WITH REGARD TO THE PILING PLATFORM CONSTRUCTION.
- 2.) PLATFORM TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATION.
- 3.) NO ARTIFICIAL AIDS ALLOWED TO INCREASE STABILITY - REFER TO DIAGRAM 5.

