

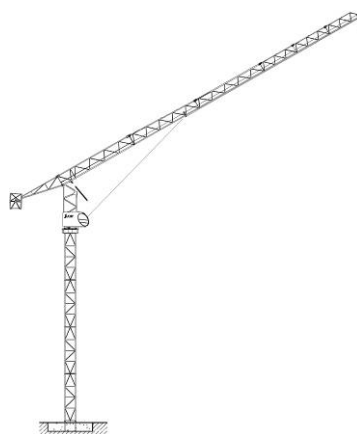


# Test record book

- Topless luffing crane JTL 108.6 -



|                                                                   |                                                                                                                                              |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>JOST CRANES GmbH</b><br><b>80805 München</b><br><b>GERMANY</b> | <b>FON 0049 (0)89 36109-333</b><br><b>FAX 0049 (0)89 36109-334</b><br><b>MAIL <a href="mailto:info@jostcranes.de">info@jostcranes.de</a></b> |
| <b>Type</b><br><b>Serial No.</b><br><b>Year of manufacture</b>    | <b>JTL 108.6</b><br><b>JTL 108.031</b><br><b>2006</b>                                                                                        |



## CONTENTS

|      |                                          |    |
|------|------------------------------------------|----|
| 1.1  | Preliminary remark                       | 2  |
| 1.2  | Master sheet                             | 3  |
| 1.3  | EC -manufacturer's declaration           | 4  |
| 1.4  | Technical data Tower TS 18.2             | 5  |
| 1.5  | Motors & Gears & Safety devices          | 6  |
| 1.6  | Electric control & Brakes & Accessories  | 7  |
| 1.7  | Ropes & Hook                             | 8  |
| 1.8  | Assembly sequence                        | 9  |
| 1.9  | Foundation Loadings      30,0 m - 35,0 m | 10 |
| 1.10 | Foundation Loadings      40,0 m - 45,0 m | 11 |
| 1.11 | Corner pressures & ballast               | 12 |
| 1.12 | Supplier Certificates                    | 13 |
| 1.13 | Periodic inspections                     | 18 |

## 1.1 Preliminary remark

When carrying out inspections on tower cranes the following shall be observed:

- The national accident prevention rules.
- Standards and directives.
- The completeness of the crane Test record book (the existence of all sheets indicated) shall be checked by the experienced technicians or expert engineers (see ISO 9927-1). The crane test record book shall be completed accordingly.
- Repeat order of blank sheets for the periodical inspection is possible.

## Inspections

Inspections prior to first use and after major modifications:

1. The user shall ensure, that power driven cranes are tested by an expert engineer before being operated for the first time or before return to service following major modifications. Sentence 1 applies also to other cranes with a load capacity exceeding 1000 kg.
2. Testing prior to first use of a new crane as required by paragraph 1 include correct assembling, equipment and readiness for commissioning.
3. Testing before initial operation of a new crane as required by paragraph 1 is not necessary if the crane is delivered ready for commissioning and accompanied by evidence of type testing (EC type-Examination) or the EC-Declaration of conformity.

## Periodic inspections

1. The user shall ensure that in accordance with their operating conditions and local circumstances at appropriate intervals, but at least once a year, cranes are subjected to all necessary inspections by an experienced technician. The user shall further ensure, that tower cranes are inspected by an experienced technician each time they are erected or converted to a new configuration.
2. The user shall ensure, that
  - a) power driven tower cranes
  - b) power driven mobile cranes,
  - c) power driven derrick cranes, which change their places of operation and
  - d) truck-mounted loading cranesare inspected by an expert engineer at least every 4 years.
3. The user shall ensure, that power driven cranes beyond paragraph 2 are inspected in the 18th year and then each year by an expert engineer.
4. Paragraph 2 does not apply for permanent erected truck-mounted loading cranes.

## Crane test record book

The user shall ensure, that the results of the inspections carried out as specified above are entered into a test record book.

## Expert engineers

These can be members of a government run or authorised technical inspecting office or persons nominated by the industrial insurance authorities. These inspections do not cover other regulations required by authorities, e. g. the highway code.

## 1.2 Master sheet

|                                                    |                                                                              |
|----------------------------------------------------|------------------------------------------------------------------------------|
| Manufacturer                                       | <b>JOST CRANES GmbH<br/>Garching Str. 26<br/>D-80805 München<br/>Germany</b> |
| Type:                                              | <b>JTL 108.6</b>                                                             |
| Serial No.:                                        | <b>JTL 108.031</b>                                                           |
| Year of manufacture:                               | <b>2006</b>                                                                  |
| Classification according ISO 4301 (FEM-DIN 15018): | <b>A3</b>                                                                    |
| Type of crane according DIN 15001, sheet 1:        | <b>Crane with luffing jib</b>                                                |
| Application of crane according DIN 15002, sheet 2: | <b>Tower crane</b>                                                           |
| Kind of operation:                                 | <b>Fixed control station</b>                                                 |

December 2006

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Munich / Date



**JOST CRANES GmbH**  
Garching Strasse 26  
D-80805 MÜNCHEN - Germany  
Tel. (089) 36109333 Fax (089) 36109334

-----  
Manufacturer

### 1.3 EC -manufacturer's declaration

#### Manufacturer's Declaration

in conformity with the Directive for Machines 98/37/ EC Attachment IIB

We,

**JOST CRANES GmbH**  
**Garching Str. 26**  
**D-80805 München**  
**Germany**

herewith declare that the design of the below described components, in the execution they are supplied, are determined for installation in a crane and that it is forbidden to take the crane into operation until it has been proved that the components which are to be installed in the crane are in accordance with the determinations comprised in the EC Directive for Machines 98 / 37 / EC.

|                                                            |                                                                                             |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Designation of machine /<br>part machine / machine part    | Construction crane<br>with luffing jib                                                      |
| Manufacturer / Type                                        | <b>JTL 108.6</b>                                                                            |
| Serial No.                                                 | <b>JTL 108.031</b>                                                                          |
| Year of manufacture                                        | 2006                                                                                        |
| Applied harmonized standards                               | EN 292-1 and EN 292-2<br>DIN EN 60204-part 32                                               |
| Applied national standards and<br>technical specifications | Rules applicable in Germany until date,<br>according to Machine Directory Oct. 92<br>to GSG |
| Standards in particular                                    | ISO 4301<br>DIN 15018 / DIN 18800<br>DIN 15020<br>BGV D 6                                   |

Examination of the actual applications of the related harmonized standards (see above) and confirmation that all documents are in accordance with the regulations as per Attachment VI.

December 2006

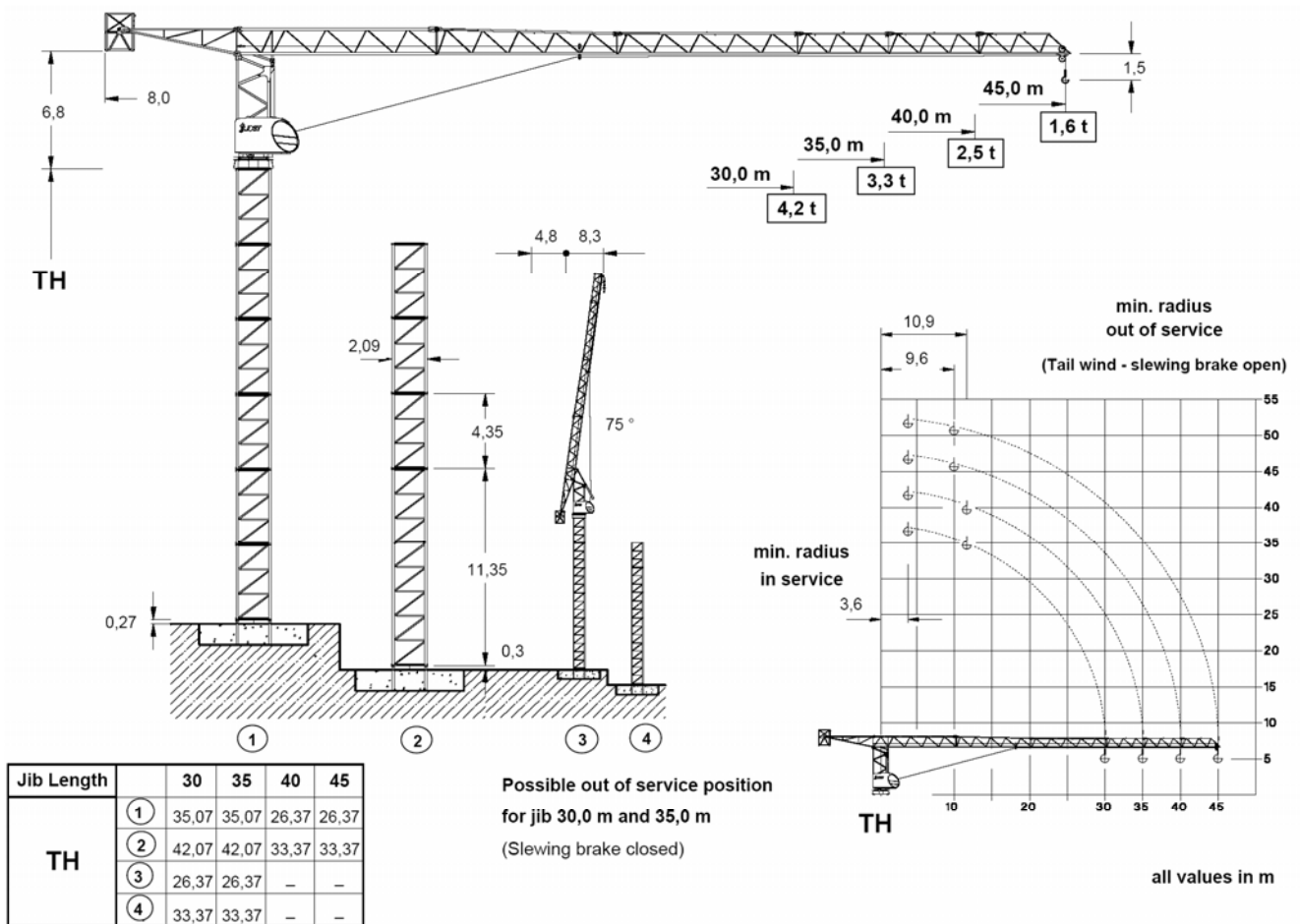
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Munich / Date

  
**JOST CRANES GmbH**  
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D-80805 MÜNCHEN - Germany  
Tel. (089) 36109333 Fax (089) 36109334

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Manufacturer

## 1.4 Technical data

## Tower TS 18.2



### Radius & Capacity

| Jib |                                                                                     | max. Load |      | m x t |      |      |      |      |      |      |      |      |  |
|-----|-------------------------------------------------------------------------------------|-----------|------|-------|------|------|------|------|------|------|------|------|--|
| m   | rope                                                                                | t         | m    | 16    | 18   | 20   | 22   | 25   | 30   | 35   | 40   | 45   |  |
| 45  |  | 3,0       | 25,6 | 3,00  | 3,00 | 3,00 | 3,00 | 3,00 | 2,52 | 2,13 | 1,83 | 1,60 |  |
|     |  | 6,0       | 13,3 | 4,94  | 4,36 | 3,90 | 3,53 | 3,07 | 2,52 | 2,13 | 1,83 | 1,60 |  |
| 40  |  | 3,0       | 33,9 | 3,00  | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 2,50 |      |  |
|     |  | 6,0       | 17,6 | 6,00  | 6,00 | 5,22 | 4,76 | 4,15 | 3,42 | 2,89 | 2,50 |      |  |
| 35  |  | 3,0       | 35,0 | 3,00  | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 |  |
|     |  | 6,0       | 19,9 | 6,00  | 6,00 | 5,94 | 5,45 | 4,70 | 3,91 | 3,30 |      |      |  |
| 30  |  | 3,0       | 30,0 | 3,00  | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 |  |
|     |  | 6,0       | 21,4 | 6,00  | 6,00 | 6,00 | 5,82 | 5,08 | 4,20 |      |      |      |  |

|                                                                                     |                   |             |                        |              |
|-------------------------------------------------------------------------------------|-------------------|-------------|------------------------|--------------|
|  | Motor             | 11,0 kW     | 1 x 3,0 kW             | 2 x 5,0 kW   |
|  | t / v             | 2,50 min    | 0,77 min <sup>-1</sup> | 25,0 m / min |
|  | Power requirement | Hoist 22 kW | 44 KVA                 |              |
|  | Upper part        | Hoist 30 kW | 53 KVA                 |              |

Subjected to alterations

Edition 10.05

CE

FEM A3  
DIN 15018 H1-B3  
TÜV-CERT  
DIN EN ISO 9001

### Speeds 400 V - 50 Hz / 440 V - 60 Hz

| Hoist unit 22 kW<br>Frequency inverter                                               |           |               |     |     |     |     |     |
|--------------------------------------------------------------------------------------|-----------|---------------|-----|-----|-----|-----|-----|
| Pmax                                                                                 |           | 3,0 t - 6,0 t |     |     |     |     |     |
|  | Load [to] | 1,2           | 1,3 | 1,5 | 1,8 | 2,5 | 3,0 |
|  | v [m/min] | 80            | 78  | 68  | 60  | 46  | 40  |

|                                                                                      |           |         |     |     |     |     |     |
|--------------------------------------------------------------------------------------|-----------|---------|-----|-----|-----|-----|-----|
|  | Load [to] | 2,4     | 2,6 | 3,0 | 3,6 | 5,0 | 6,0 |
|  | v [m/min] | 40      | 39  | 34  | 30  | 23  | 20  |
| Drum capacity                                                                        |           | 340,0 m |     |     |     |     |     |

| Hoist unit 30 kW<br>Frequency inverter                                               |           |               |     |     |     |     |     |
|--------------------------------------------------------------------------------------|-----------|---------------|-----|-----|-----|-----|-----|
| Pmax                                                                                 |           | 3,0 t - 6,0 t |     |     |     |     |     |
|  | Load [to] | 1,2           | 1,3 | 1,5 | 1,8 | 2,5 | 3,0 |
|  | v [m/min] | 116           | 110 | 98  | 86  | 66  | 58  |

|                                                                                      |           |         |     |     |     |     |     |
|--------------------------------------------------------------------------------------|-----------|---------|-----|-----|-----|-----|-----|
|  | Load [to] | 2,4     | 2,6 | 3,0 | 3,6 | 5,0 | 6,0 |
|  | v [m/min] | 58      | 55  | 49  | 43  | 33  | 29  |
| Drum capacity                                                                        |           | 340,0 m |     |     |     |     |     |

## 1.5 Motors & Gears & Safety devices

| General data                  |               |          | Safety device                |       |          |
|-------------------------------|---------------|----------|------------------------------|-------|----------|
| Type                          | JTL 108.6     |          | Maximum load limiter         |       | existent |
| Serial No.                    | JTL 108.031   |          | Load moment limiter          |       | existent |
| Jib                           | horizontal    | existent | Warning device               | Horn  | existent |
|                               | luffing       | existent |                              | Light |          |
| Radius                        | 45,0 m        |          | Hoist emergency limit switch |       | existent |
| Capacity                      | 1,6 t         |          |                              |       |          |
| Position cabin                | Turntable     |          |                              |       |          |
| Type of drive                 | El. motor     |          |                              |       |          |
| Power:<br>Alternative current | 400 V - 50 Hz |          |                              |       |          |
| Control voltage               | 110 V - 50 Hz |          |                              |       |          |
| Construction weight           | 16,5 t        |          |                              |       |          |

| Motors          |             |    |                 |                           |            |                         |          |                 |
|-----------------|-------------|----|-----------------|---------------------------|------------|-------------------------|----------|-----------------|
|                 | Power<br>kW | HZ | Duty cycle<br>% | Type                      | Serial-No. | Degree of<br>protection | Position | r.p.m.<br>U/min |
| Hoist unit      | 22          | 50 | 100             | DV 180 L4<br>BM/TF/V/EV1T |            | IP 55                   | M1B      | 1470            |
| Slewing<br>unit | 3,0         | 50 | 40              | LS a 112 M                |            | IP 23                   | V1       | 1300            |
| Hyd.<br>unit    | 11,0        | 50 | 50              | 160M                      |            | IP 55                   | B5       | 1455            |

| Gears        |          |              |            |                |
|--------------|----------|--------------|------------|----------------|
|              | Type     | Transmission | Serial-No. | Remarks        |
| Hoist unit   | K 97     | 27,91        |            |                |
| Slewing unit | OLS 3403 | 143          |            | M = 10; T = 13 |

## 1.6 Electric control & Brakes & Accessories

Type **JTL 108.6**  
Serial No. **JTL 108.031**

|                  | Control house    |                                   |                      |                  |
|------------------|------------------|-----------------------------------|----------------------|------------------|
|                  | Kind             | Circuit diagram-No.<br>2.00000.53 | Power                | Serial-No.       |
| Hoist unit       | Contactor contr. | <b>2.00000.53</b>                 | <b>400 V / 110 V</b> | <b>JTL 108.6</b> |
| Luffing unit     | Contactor contr. | <b>2.00000.53</b>                 | <b>400 V / 110 V</b> | <b>JTL 108.6</b> |
| Slewing unit     | Contactor contr. | <b>2.00000.53</b>                 | <b>400 V / 110 V</b> | <b>JTL 108.6</b> |
| Feeding part     | Contactor contr. | <b>2.00000.53</b>                 | <b>400 V / 110 V</b> | <b>JTL 108.6</b> |
| Load measurement | Contactor contr. | <b>2.00000.53</b>                 | <b>400 V / 110 V</b> | <b>JTL 108.6</b> |

|              | Brakes                                   |                        |                    |
|--------------|------------------------------------------|------------------------|--------------------|
|              | Designation                              | Type                   | Brake moment<br>Nm |
| Hoist unit   | <b>Disc brake</b>                        | <b>BM 32</b>           | <b>300</b>         |
| Slewing unit | <b>Disc brake<br/>Eddy current brake</b> | <b>FCO 112 - RO 12</b> | <b>40</b>          |

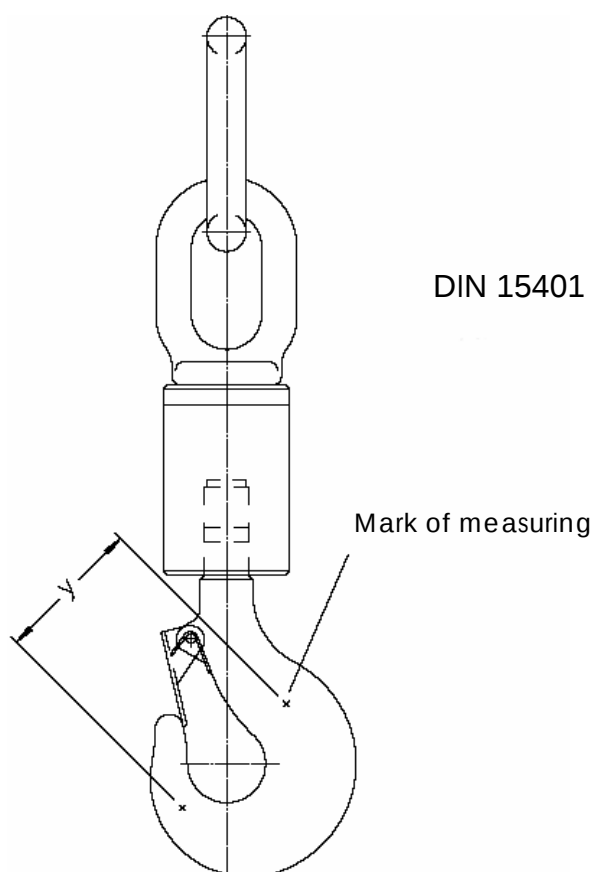
|                       | Accessories               |                          |               |
|-----------------------|---------------------------|--------------------------|---------------|
|                       | Designation               | Type                     | Serial-No.    |
| Slewing ring          | <b>M = 10<br/>Z = 167</b> | <b>34499.30.35.0 - A</b> |               |
| Slip ring transmitter |                           | <b>SRD 4904</b>          | <b>920001</b> |
| Limit switches        | Hoist unit                | <b>GE 4C</b>             | <b>610083</b> |
|                       | Load limiter              | <b>SKA 1</b>             | <b>610010</b> |
|                       | Angle sensor              | <b>WG 2</b>              | <b>610051</b> |

## 1.7 Ropes & Hook

Type **JTL 108.6**  
Serial No. **JTL 108.031**

| Ropes       |           |             |                   |              |                                       |
|-------------|-----------|-------------|-------------------|--------------|---------------------------------------|
| Application | d<br>mm   | Length<br>m | Making<br>of rope | Manufacturer | Remarks                               |
| Hoist rope  | <b>10</b> | <b>400</b>  | <b>STARLIFT</b>   | <b>CASAR</b> | <b>min. breaking load<br/>76,6 kN</b> |

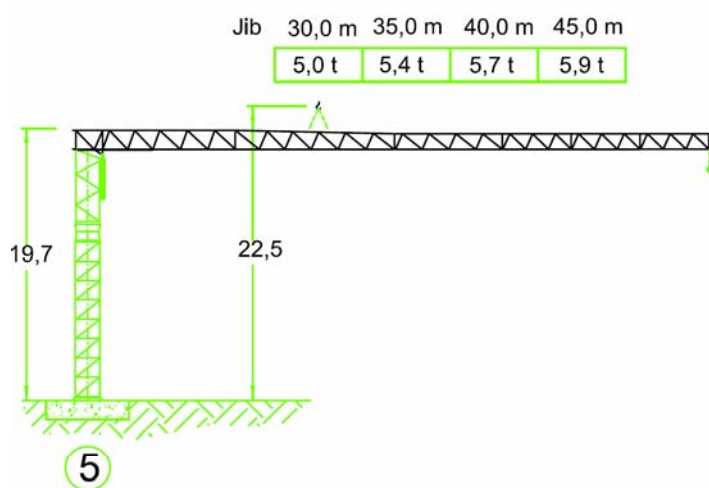
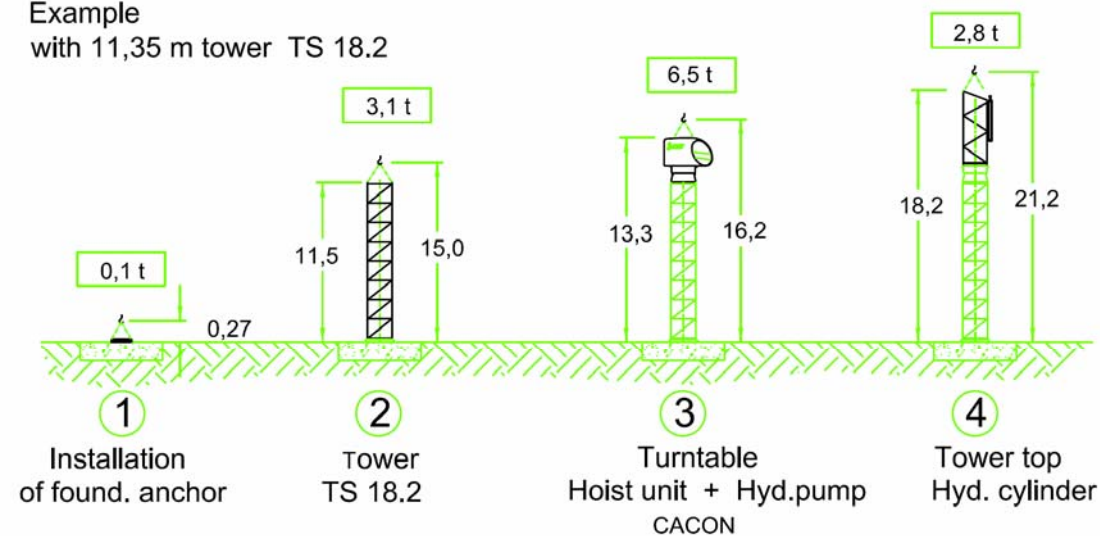
| Load hook |
|-----------|
|-----------|



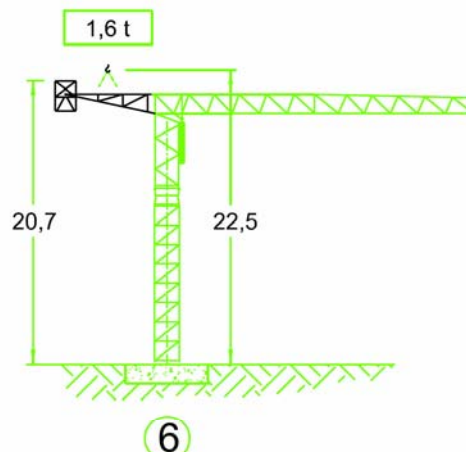
| Application | Classification       | Y<br>mm   | Capacity<br>t | Manufacturer                 |
|-------------|----------------------|-----------|---------------|------------------------------|
| Hoist unit  | <b>GSN 2,5 T 2 m</b> | <b>90</b> | <b>6,0</b>    | <b>Robert Grass<br/>GmbH</b> |

## 1.8 Assembly sequence

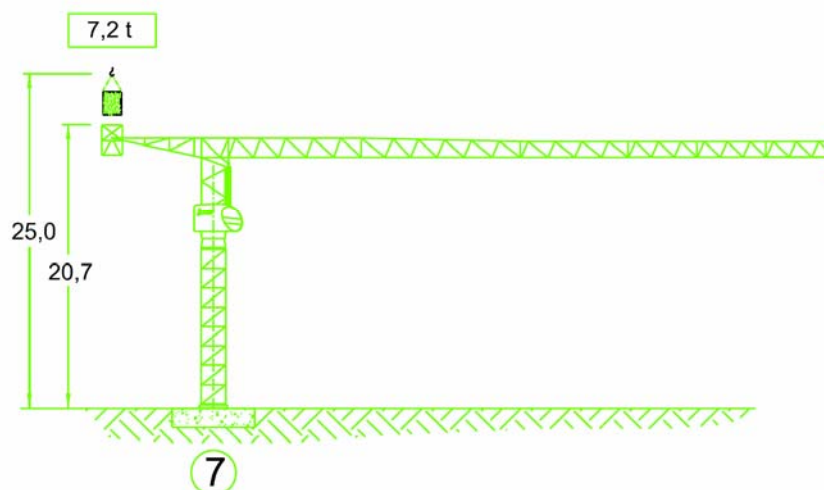
Example  
with 11,35 m tower TS 18.2



**5**  
Jib complete  
Hook block



**6**  
Counter jib + Basket



**7**  
Counter weight (Total 16,0 t)

## 1.9 Foundation Loadings 30,0 m - 35,0 m

Tower TS 18.2

Jib lengths 30,0 m - 35,0 m

| Tower height<br>m | Tower |   |   | Foundation loading   |                       |         | Foundation plate |        |                                 |
|-------------------|-------|---|---|----------------------|-----------------------|---------|------------------|--------|---------------------------------|
|                   | A + B |   |   | N <sub>C</sub><br>kN | M <sub>C</sub><br>kNm | H<br>kN | l<br>m           | h<br>m | P Ground<br>KN / m <sup>2</sup> |
|                   | A     | A | B |                      |                       |         |                  |        |                                 |
| 13,32             | 3     |   |   | 488,4                | 1367                  | 18,8    | 5,1              | 1,4    | 116,61                          |
| 17,67             | 4     |   |   | 431,5                | 1868                  | 48,9    | 5,6              | 1,4    | 118,21                          |
| 22,02             | 5     |   |   | 448,3                | 2134                  | 52,9    | 5,9              | 1,4    | 115,33                          |
| 26,37             | 6     |   |   | 465,1                | 2425                  | 56,9    | 6,1              | 1,4    | 117,96                          |
| 30,72             | 7     |   |   | 481,9                | 2746                  | 60,9    | 6,4              | 1,4    | 115,47                          |
| 35,07             | 8     |   |   | 498,7                | 3097                  | 64,9    | 6,6              | 1,4    | 118,32                          |
| 37,72             |       | 6 | 1 | 499,8                | 3361                  | 103,2   | 6,8              | 1,4    | 118,92                          |
| 42,07             |       | 7 | 1 | 516,6                | 3929                  | 109,1   | 7,2              | 1,4    | 116,66                          |

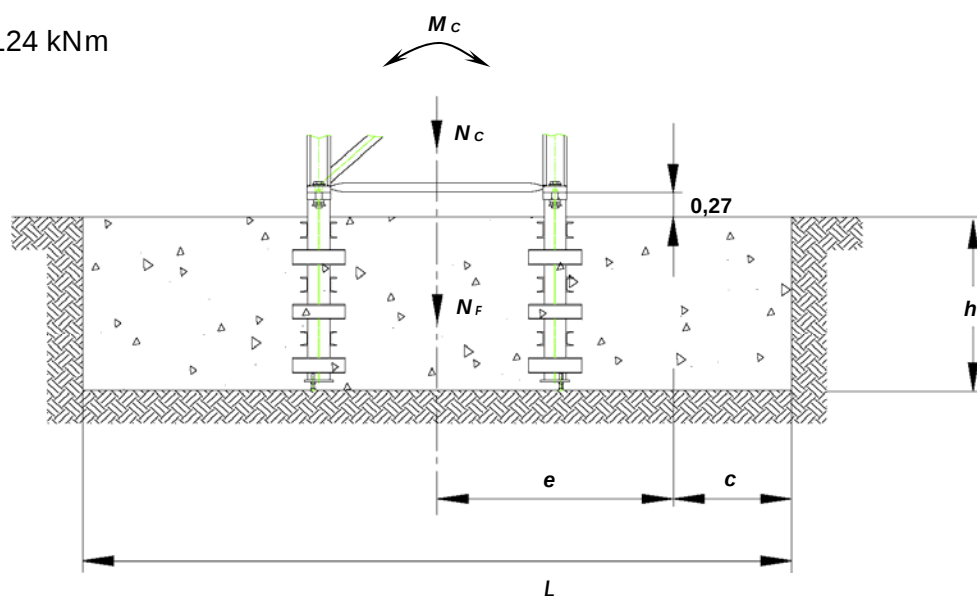
A = Tower section 4,35 m - weight 1,6 t - Bottom 2 bolts M 36

B = Tower section 11,35 m - weight 3,1 t - Bottom 4 bolts M 36

Tower height = Fund.Anchor 0,27 + Tower section

These Loading are valid for free slewing crane out of service

Slewing Moment  $M_S = 124 \text{ kNm}$



Calculation of the foundation plate:

$$N_T = N_C + N_F$$

$$N_F = L^2 * h * 24$$

$$M_T = M_C + H * h$$

First condition :

Eccentricity

$$e = M_T / N_T < L / 3$$

$$c = L / 2 - e$$

Second condition :

Ground-pressure

$$p = 2 * N_T / 3 * L * c$$



The admitted ground pressure must be checked by the customer

For further information for tower erection, see original operating manual from tower manufacturer.

## 1.10 Foundation Loadings 40,0 m - 45,0 m

Tower TS 18.2

Jib lengths 40,0 m - 45,0 m

| Tower height<br>m | Tower |       |   | Foundation loading |              |           | Foundation plate |          |                                   |
|-------------------|-------|-------|---|--------------------|--------------|-----------|------------------|----------|-----------------------------------|
|                   | A     | A + B |   | $N_C$<br>kN        | $M_C$<br>kNm | $H$<br>kN | $l$<br>m         | $h$<br>m | $P$ Ground<br>kN / m <sup>2</sup> |
|                   |       | A     | B |                    |              |           |                  |          |                                   |
| 13,32             | 3     |       |   | 419,2              | 1470         | 36,4      | 5,2              | 1,4      | 117,06                            |
| 17,67             | 4     |       |   | 436,0              | 2055         | 50,1      | 5,8              | 1,4      | 116,70                            |
| 22,02             | 5     |       |   | 452,8              | 2328         | 54,1      | 6,0              | 1,4      | 118,90                            |
| 26,37             | 6     |       |   | 469,6              | 2629         | 58,1      | 6,3              | 1,4      | 115,87                            |
| 29,02             |       | 4     | 1 | 470,6              | 2825         | 93,1      | 6,5              | 1,4      | 114,96                            |
| 33,37             |       | 5     | 1 | 487,4              | 3318         | 99,0      | 6,8              | 1,4      | 117,27                            |

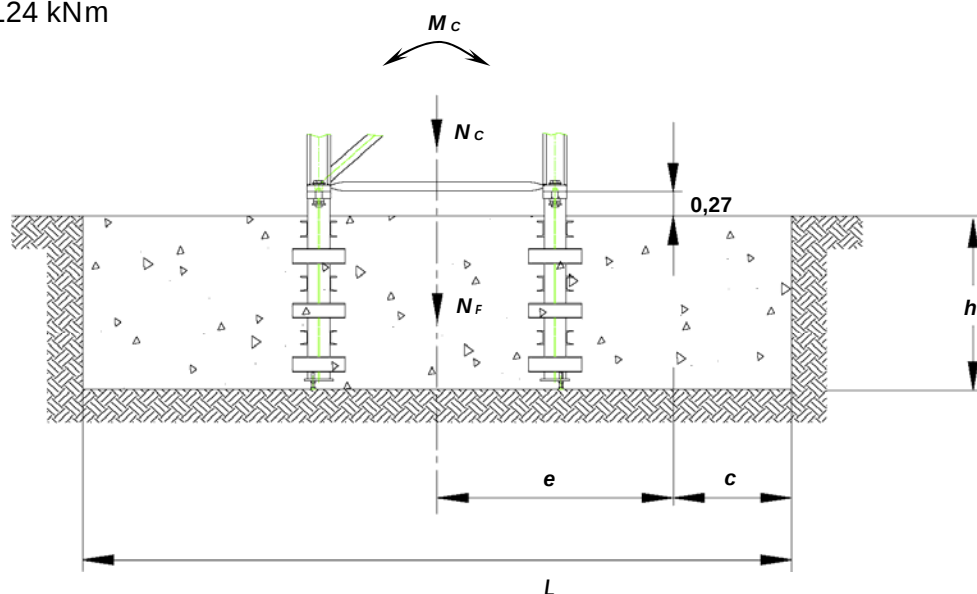
A = Tower section 4,35 m - weight 1,6 t - Bottom 2 bolts M 36

B = Tower section 11,35 m - weight 3,1 t - Bottom 4 bolts M 36

Tower height = Fund.Anchor 0,27 + Tower section

These Loading are valid for free slewing crane out of service

Slewing Moment  $M_S = 124$  kNm



Calculation of the foundation plate:

$$N_T = N_C + N_F$$

$$N_F = L^2 * h * 24$$

$$M_T = M_C + H * h$$

First condition :

Eccentricity

$$e = M_T / N_T < L / 3$$

$$c = L / 2 - e$$

Second condition :

Ground-pressure

$$p = 2 * N_T / 3 * L * c$$



The admitted ground pressure must be checked by the customer

For further information for tower erection, see original operating manual from tower manufacturer.

## 1.11 Corner pressures & ballast

### Tower TS 18.2

Jib lengths 30,0 m - 35,0 m

| Tower height<br>m | Tower |       | in service |        |     |     |     |                | out of service |        |     |     |     | Ballast    |       |    |
|-------------------|-------|-------|------------|--------|-----|-----|-----|----------------|----------------|--------|-----|-----|-----|------------|-------|----|
|                   | A     | A + B |            | Corner |     |     |     | Horizontal     |                | Corner |     |     |     | Total<br>t | Block |    |
|                   |       | A     | B          | A      | B   | C   | D   | M <sub>S</sub> | H              | A      | B   | C   | D   |            | C     | D  |
| 15,70             |       | 1     | 1          | 48     | 223 | 398 | 223 | 124            | 18,8           | 29     | 199 | 370 | 199 | 74,9       | 32,2  | 4  |
| 22,70             |       | --    | 2          | 78     | 277 | 477 | 277 | 124            | 21,6           | 0      | 242 | 532 | 242 | 88,5       | 52,2  | 8  |
| 27,05             |       | 1     | 2          | 91     | 307 | 522 | 307 | 124            | 22,9           | 0      | 240 | 652 | 240 | 94,4       | 62,2  | 10 |

A = Tower section TS 18.2 4,35 m - weight 1,6 t - Bottom 2 bolts M 36

B = Tower section TS 18.2 11,35 m - weight 3,1 t - Bottom 4 bolts M 36

C = Ballast block, base 6,1 t

D = Ballast block, standard 5,0 t

### Tower TS 18.2

Jib lengths 40,0 m - 45,0 m

| Tower height<br>m | Tower |       | in service |        |     |     |     |                | out of service |        |     |     |     | Ballast    |       |    |
|-------------------|-------|-------|------------|--------|-----|-----|-----|----------------|----------------|--------|-----|-----|-----|------------|-------|----|
|                   | A     | A + B |            | Corner |     |     |     | Horizontal     |                | Corner |     |     |     | Total<br>t | Block |    |
|                   |       | A     | B          | A      | B   | C   | D   | M <sub>S</sub> | H              | A      | B   | C   | D   |            | C     | D  |
| 15,70             |       | 1     | 1          | 19     | 224 | 430 | 224 | 124            | 21,2           | 0      | 175 | 452 | 175 | 75,8       | 32,2  | 4  |
| 20,05             |       | 2     | 1          | 32     | 253 | 474 | 253 | 124            | 22,6           | 0      | 180 | 558 | 180 | 81,7       | 42,2  | 6  |
| 22,70             |       | --    | 2          | 71     | 304 | 536 | 304 | 124            | 24,0           | 0      | 236 | 648 | 236 | 89,4       | 62,2  | 10 |

A = Tower section TS 18.2 4,35 m - weight 1,6 t - Bottom 2 bolts M 36

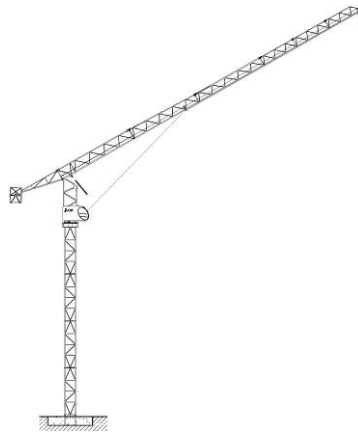
B = Tower section TS 18.2 11,35 m - weight 3,1 t - Bottom 4 bolts M 36

C = Ballast block, base 6,1 t

D = Ballast block, standard 5,0 t

**Note:** When combining tower sections and the height is not listed in the chart above, then please refer to the respectively higher value. For example, if your total tower height is 17,40m then calculate with tower height 20,05m.

## 1.12 Supplier Certificates



|                        |                               |    |
|------------------------|-------------------------------|----|
| Hoist rope             | CASAR Drahtseilwerk Saar GmbH | 14 |
| Hook                   | Robert Grass GmbH & Co KG     | 15 |
| Slewing ring           | ROTIS GmbH                    | 16 |
| Inspection certificate | Schrauben und Drahtunion      | 17 |

CASAR Drahtseilwerk Saar GmbH · Postfach 187 · D-66454 Kirkel

Kunde / Customer / Client

JOST CRANES GMBH

GARCHINGER STRASSE 26  
80805 MÜNCHEN  
DEUTSCHLAND

## Abnahmeprüfzeugnis nach DIN EN 10204 3.1

## Certificate on material tests / Certificats des essais de matériaux

|                                      |              |                                    |          |
|--------------------------------------|--------------|------------------------------------|----------|
| Ihre Bestellung Nr.:                 | 63-05        | vom:                               | 18.07.05 |
| Your order No. / Commande No.:       |              | of / du:                           |          |
| Unsere Komm. Nr.:                    | DE05003777   | vom:                               | 18.07.05 |
| Our Comm. No. / Notre référence No.: |              | of / du:                           |          |
| Unsere Rechnung Nr.:                 | 2005305185   | vom:                               | 15.09.05 |
| Our invoice No. / Notre facture No.: |              | of / du:                           |          |
| Länge:                               | 6 X 400.00 M | Seilnennendurchmesser:             | 10.00 MM |
| Length / Longueur:                   |              | Ø nominal of wire rope / du câble: |          |

Konstruktion: CASAR STARLIFT DREHUNGSFREI  
Construction:

Einlage:  
Core / Nature de l'âme:  
Nennzugfestigkeit: 1960 N/MM<sup>2</sup>  
Tensile strength / Résistance des fils:

Rechn. Bruchkraft: 101.30 KN  
Calc. aggr. breaking load:  
Charge de rupture calculée:

Wirkliche Bruchkraft:  
Actual breaking load:  
Charge de rupture obtenue:

Tragende Drähte in den Außenlitzen: 112  
Number of load bearing wires in the outer strands:  
Nombre de fils porteurs des torons extérieurs:

Haspel-Nr.: 5820 5823 5821 5824  
Reel-No.: 5822 5825  
Bobine-No.:

Datum / Date / Date: 16.09.05

Schlagart / Kind of lay / mode du câblage:  
GLEICHSCHLAG RECHTS

Oberfläche der Drähte / Surface / Revêtement de surface:  
BLANK

Mindestbruchkraft: 76.60 KN  
Minimum breaking load:  
Charge de rupture effective:

Längengewicht: 46.50  
Weight per unit length: kg/% m  
Poids par unité de longueur:

Außendrahtdurchmesser:  
Outer wire diameter:  
Diamètre des fils extérieurs:

Hersteller / Manufacturer / Producteur  
(Signature)

**CASAR**

Dieses Schreiben wurde elektronisch erstellt und ist  
QUALITÄTSSICHERUNG

Hausanschrift: CASAR DRAHTSEILWERK SAAR GMBH · Casarstraße 1 · D-66459 Kirkel · Telefon (0 68 41) 80 91-0 · Telefax (0 68 41) 80 91-3 99  
Geschäftsführer: Paul-Marie Verreut, Wolfgang Oswald · Amtsgericht Homburg HRB 2804 · Sitz der Gesellschaft: Kirkel

BANKKONTEN: Bank f Saar eG, Saarbrücken Nr. 5197007 (BLZ 591 900 00) · SaarLB, Saarbrücken Nr. 5150008 (BLZ 590 500 00) · Commerzbank AG, Saarbrücken Nr. 5317300 (BLZ 590 400 00)  
Kreissparkasse Saarlouis, Homburg Nr. 1010104212 (BLZ 594 500 10) · HypoVereinsbank, Homburg Nr. 5827400 (BLZ 590 200 90) · Postbank, Saarbrücken Nr. 834661 (BLZ 590 100)



## ABNAHME – PRÜFZEUGNIS

 nach DIN 15404 Teil 1 für geschmiedete  
 Lasthaken eingebaut in **Twistop** - Drallfänger

## Works Certificate

 acc to DIN 15404 Part 1 for forged load  
 hooks part of **Twistop** - Swivel

 Besteller / Customer: JOST Cranes GmbH  
 Bestell-Nr. / Order-No: 48-05 v. 04.07.2005  
 Auftrags-Nr. / Works-No: 11/507010/05  
 Gegenstand / Objekt: Einfachhaken NG / Hook NS GSN 2,5 DIN 15401-V-TWG 2m

eingebaut in Drallfänger / part of Swivel:

 Drallfänger **Twistop** mit drehbaren Lasthaken  
 Nr.: 123060 UGG SWL 6,3 to

Stückzahl: 6 Lieferdatum: 19.09.2005

Serien-Nr. / Serial-No: 052024 - 52029

 Kennzeichnung des Hakens / STB V 2,5 / DIN 15401 / 3302  
 Mark of load hook

Prüfung der Werkstoffeigenschaften / material properties

Werkstoff / Quality: **34CrNiM06 (V)** Charge No: 3302

## Chemische Zusammensetzung / Chemical composition:

| Charge No:               | C %       | Si %      | Mn %      | P ≤ % | S ≤ % | Al ≤ % | Cr ≤ %    | Mo ≤ %    | Ni ≤ %    |  |
|--------------------------|-----------|-----------|-----------|-------|-------|--------|-----------|-----------|-----------|--|
| Sollwerte / rated values | 0,30–0,38 | 0,15–0,40 | 0,40–0,70 | 0,035 | 0,035 | 0,025  | 1,40–1,70 | 0,15–0,30 | 1,40–1,70 |  |
| Istwerte / actual values | 0,350     | 0,210     | 0,630     | 0,007 | 0,001 | 0,026  | 1,530     | 0,190     | 1,510     |  |

| Mechanische Eigenschaften bei +20°C<br>Mechanical properties at +20°C     | Sollwerte<br>Nom. value | Kerbschlagarbeit A <sub>V</sub> (ISO-V) bei -20°C<br>Impact strength A <sub>V</sub> (ISO-V) bei -20°C |
|---------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------|
| Streckgrenze / yield point R <sub>p</sub> 0,2 N/mm <sup>2</sup> : 975     | ≥ 620 N/mm <sup>2</sup> | Sollwert / Nominal value : ≥ 27 J                                                                     |
| Zugfestigkeit / tensile strength R <sub>m</sub> 0,2 N/mm <sup>2</sup> : - |                         | Mittelwert / average value : 96 J                                                                     |
| Bruchdehnung / elongation A % : -                                         |                         |                                                                                                       |

## Wärmebehandlung: vergütet auf Festigkeitsklasse V / Heat Treatment: quenched + tempered Quality V

## Prüfung auf Maßhaltigkeit:

Alle Maße liegen innerhalb der zulässigen Abweichungen

## Prüfung auf Oberflächenrisse:

Verfahren: elektromagnetische Rissprüfung

Ergebnis: frei von unzulässigen Oberflächenrisse

## Prüfung auf innere Trennungen am Vormaterial:

Verfahren: Ultraschall

Ergebnis: frei von inneren Trennungen

## Test of accuracy to size:

All dimensions are within the admissible tolerances

## Test for surface cracks:

Test method: Electromagnetical crack test

Result: Free of forbidden surface cracks

## Test for internal separations on base material:

Test method: Ultrasonics

Result: Free of internal separation


 Zertifiziert nach  
 DIN EN ISO  
 9001:2000  
 Reg.-Nr.: KLN  
 4000019
Hagen  
Place21.09.2005  
Datum / Date
 Signatur  
 Werkssachverständige / Worksinspector

Erstellt am 23. November 2004 / Horst Bütke

507010-05 Zeugnis DF 123160UGG Jost.doc

Gültig ab: 21.09.2005 Druckdatum: 21.09.05

 Robert Grass  
 GmbH & Co KG  
 Hagen HRA 268  
 I-Id-ID: DF 125140277

 Grass Beteiligungs-u.  
 Verwaltungsgesellschaft mbH  
 Hagen HRB 3936  
 Geschäftsführer Peter Graß

 Postfach 1220  
 58012 Hagen  
 Delsternerstr. 68-72  
 58091 Hagen

 Deutsche Bank Hagen  
 Kto-Nr. 7232747  
 BLZ 45070002

 Postgiro Hannover  
 Kto-Nr. 57692-309  
 BLZ 25010030

# Slewing ring

[illegible]



# SCHRAUBEN UND DRAHT UNION

Wallbaumweg 45-49, 44894 Bochum  
Postfach 70 04 58, 44884 Bochum  
Telefon: (02 34) 2 69-0  
Telefax: (02 34) 23 59 21  
www.schrauben-und-draht-union.de  
E-Mail: info@sdu-bo.de

## Abnahmeprüfzeugnis Inspection certificate DIN EN 10204 3.1B

Besteller/purchaser  
Jost Cranes GmbH  
Garching Str. 26

Bestellung Nr./order no.  
59-05

vom/of  
08.07.2005

80805 München

unsere Auftragsnr./work no.  
236486

11.07.2005

### Lieferung/delivery:

| Pos.<br>item | Menge<br>quantity | Gegenstand und Abmessung<br>object and dimension | Werkstoff<br>material | Kennzeichnung<br>mark. |
|--------------|-------------------|--------------------------------------------------|-----------------------|------------------------|
| 10           | 1017              | Sechskantschrauben<br>DIN 931 - M 24 x 110       | 10.9                  |                        |

### Mechan. Prüfung/mechanical tests

| Probe-Nr.<br>Test-No. | Abmessung<br>dim. | Prüftemperatur<br>test temperatur | Streckgrenze<br>yield point<br>Re/Rp 0,2<br>N/mm <sup>2</sup> | Zugfestigkeit<br>Tensile strenght<br>Rm<br>N/mm <sup>2</sup> | Einschnürung<br>reduction<br>Z % | Bruch-<br>dehnung<br>Elongation<br>Lo = 5d<br>% | Kerbschlagzähigkeit<br>Impact test<br>Joule/ISO-V | Härte<br>Hardness<br>HB |
|-----------------------|-------------------|-----------------------------------|---------------------------------------------------------------|--------------------------------------------------------------|----------------------------------|-------------------------------------------------|---------------------------------------------------|-------------------------|
| 26.1                  | 14,9 rd           | 20 °C                             | 1033                                                          | 1129                                                         | 54,1                             | 15,2                                            | 35/35/35                                          | 344                     |
| 26.2                  | 14,9 rd           | 20 °C                             | 1005                                                          | 1132                                                         | 54,4                             | 14,4                                            | 36/35/35                                          | 344                     |
| 26.3                  | 14,9 rd           | 20 °C                             | 1044                                                          | 1134                                                         | 55,2                             | 14,4                                            | 35/34/34                                          | 344                     |

Besichtigung und Maßkontrolle: ohne Beanstandung  
Inspection and control of dimensions: no objection

Wärmebehandlung:  
heat treatment:

**Q+T**

Erschmelzungsart:  
Melting process:

**E**

| Probe-Nr.<br>Test-No. | Schmelze Nr.<br>cast no | C<br>% | Si<br>% | Mn<br>% | P<br>% | S<br>% | Cr<br>% | Mo<br>% |  |  |  |  |
|-----------------------|-------------------------|--------|---------|---------|--------|--------|---------|---------|--|--|--|--|
| 26.1/26.2/<br>26.3    | 043330                  | 0,42   | 0,24    | 0,71    | 0,009  | 0,031  | 1,01    | 0,17    |  |  |  |  |

### Bemerkungen/remarks

|           |                                                                             |
|-----------|-----------------------------------------------------------------------------|
| Pos./item | Prüfbedingungen: ISO 898/1<br>100 % Oberflächenkontrolle: ohne Beanstandung |
|-----------|-----------------------------------------------------------------------------|

Verwechslungsprüfung: ohne Beanstandung

Es wird bestätigt, dass die Lieferung den Vereinbarungen bei der Bestellannahme entspricht.  
We hereby certify that the material described above complies with the terms of the order contract.

Abschrift aus dem Abnahmeprüfzeugnis nach DIN EN 10204 3.1B Nr. R001644 vom 11.08.2005.  
Copy from the inspection certificate DIN EN 10204 3.1B according to no. R001644 of 11.08.2005.

Datum/date: 25.08.2005

SCHRAUBEN UND DRAHT UNION GmbH & Co. KG  
Qualitätswesen

### 1.13 Periodic inspections

| Inspection date | Name of Inspector & position | Type of inspection | Result of inspection | Enclosed report sheet | Reviewed inspection |      |         |
|-----------------|------------------------------|--------------------|----------------------|-----------------------|---------------------|------|---------|
|                 |                              |                    |                      |                       | Done by             | Date | Comment |
|                 |                              |                    |                      |                       |                     |      |         |
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