

MAEDA

MAEDA SEISAKUSHO CO., LTD.

1095 Onbegawa, Shinonoi, Nagano City
Nagano 388-8522, JAPAN
TEL +81-(0) 26-292-2228
FAX +81-(0) 26-293-8499
<http://www.maesei.co.jp/english/index.html>



EC DECLARATION OF CONFORMITY OF THE MACHINERY

Manufacturer

Company Name: Maeda Seisakusho Co., Ltd.
Address: 1095 Onbegawa, Shinonoi, Nagano City
Nagano, 388-8522 JAPAN

European Representative

Company Name: Kranlyft UK Ltd.
Address: Unit 1, IO Centre, Cabot Park, Avonmouth, Bristol BS11 0QL England
TEL +44 117 938 7205

Hereby declares that the machine described below:

Product Name: Mini Crawler Crane
Model: MC405CRME (kw rating = 21.8)
Serial Number: EU422

is in conformity with the following directives

Machinery Directive 2006/42/EC

The last two digits of the year in which the CE-marking was fixed are 07

is in conformity with the following provisions

" Low Voltage Directive 2006/95/EC "

" EMC Directive 2004/108/EC "

" Noise emission in the environment by equipment for use outdoors Directive 2000/14/EC,
amended by the Directive 2005/88/EC "

Measured sound power level = 97 dB LWA

Guaranteed sound power level = 101 dB LWA

- And furthermore declares that:

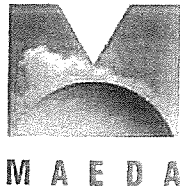
- The following (parts/clauses of) harmonized standards have been applied:

EN ISO12100-1:2010	Safety of machinery – General principles for design – Risk assesment and risk reduction
EN60204-1:2006	Safety of machinery – electrical equipment of machines – Part 1: General requirements
EN13000:2010 (Reference)	Cranes – Mobile cranes
EN61000-6-2:2005	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN61000-6-4:2007	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission for industrial environments
EN ISO3744:1995	Acoustics. Determination of sound power levels of noise sources using sound pressure. Engineering method in an essentially free field over a reflection plane

Place: Nagano, Japan

Date: June 17, 2016

Kazutaka Kitada
Managing Director / Industrial machinery Division
MAEDA SEISAKUSHO CO., LTD.



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EC DECLARATION OF CONFORMITY OF THE MACHINERY

Manufacturer

Company Name: Maeda Seisakusho Co., Ltd.
Address: 1095 Onbegawa, Shinonoi, Nagano City
Nagano, 388-8522 JAPAN

European Representative

Company Name: Kierulff UK Ltd.
Address: Unit 1, IQ Centre, Cabot Park, Avonmouth, Bristol BS11 0QJ, England
TEL +44 117 938 7205

Hereby declares that the machine described below:

Product Name: Mini Crawler Crane
Model: Searcher 600N
Serial Number: 0877
Year of Manufacture: 2016

- is in conformity with the following directives

Machinery Directive 2006/42/EC

- is in conformity with the following provisions

" Low Voltage Directive 2006/95/EC "

" EMC Directive 2004/108/EC "

" Noise emission in the environment by equipment for use outdoors Directive 2000/14/EC,
amended by the Directive 2005/88/EC "

- And furthermore declares that:

- The following (parts/clauses of) harmonized standards have been applied:

EN ISO12100:2010	Safety of machinery – General principles for design – Risk assesment and risk reduction
EN60204-1:2006	Safety of machinery – electrical equipment of machines – Part 1: General requirements
EN13000:2010 (Reference)	Cranes – Mobile cranes
EN61000-6-2:2005	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN61000-6-4:2007	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission for industrial environments
EN ISO3744:1995	Acoustics. Determination of sound power levels of noise sources using sound pressure. Engineering method in an essentially free field over a reflection plane

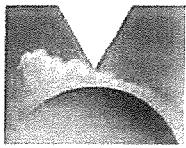
Place: Nagano, Japan

Date: June 17, 2016

Kazutaka Kitada

Managing Director / Industrial machinery Division

MAEDA SEISAKUSHO CO., LTD.



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TO WHOM IT MAY CONCERN:

Certificate of Test and Inspection

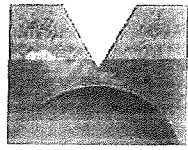
4-Fall/2-Fall, 3 Sheave Hook Block
Manufacturer: MAEDA SEISAKUSHO CO., LTD.
Model for: MC405CRME
Hook Block No. : M6302

We hereby certify that this hook block has been tested and inspected in accordance with the quality standard of our company and we guarantee the quality of this product.

Hook Block Ass'y:	Part No. 104-1142100
	Drawing No. 104-4561800
Specifications:	Refer to the attached document for details
Safe Working Load:	3,800 kg
Sheave rope diameter:	8 mm
Actual value (Internal diameter):	80 mm
Date of Test and Inspection:	June 17, 2016

Signed on behalf of MAEDA SEISAKUSHO CO., LTD.:

Seiichi Yamaguchi
General manager / Quality Assurance Division
MAEDA SEISAKUSHO CO., LTD.



MAEDA

MAEDA SEISAKUSHO CO., LTD.

1095 Onbegawa Shinonoi, Nagano City

Nagano 388-8522, JAPAN

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FAX +81-(0) 26-293-8499

CERTIFICATE FOR LOAD TEST

We herewith confirm that following model:

MC104CER	LC383M-5
MC174CRM	LC785M-6B
MC285CRM	LC785M-8B
MC285CRME	LC1385M-8B
MC285CGRM-2	MK1033CW-1
MC285CRM-2	MK1033CWH-1
MC285CRME-2	MK1033CWE-1
MC305CRM-2	MK1033CWEH-1
MC305CRME-2	CC1485S-1
MC405CRM	
MC405CRME	

Have been test-lifted with 1.25 times the rated total load at our factory.

We also confirm that the group of classification of the mechanism as a whole is M3

and type of crane is A1 in accordance with ISO 4301-2 (JIS B 8822-1).

Place:Nagano, Japan
Date: 27, November, 2015


Tomiaki Habasaki
Managing Director / Industrial machinery Division
MAEDA SEISAKUSHO CO., LTD.

Certificate number KB -191



CERTIFICATE OF TEST AND THOROUGH EXAMINATION OF CRANE

Name and address of owner of crane:	Kranlyft-group , Fibervagen 1, 435 33 Molnlycke , Sweden
Name and address of maker of crane.	Maeda Seisakusho Co., Ltd.
Type of crane and nature of power.	Hydraulic tracked diesel engined and electric motor telescopic crane, Model MC405CRME
Date of manufacture of crane.	2016
IDENTIFICATION NUMBER:	(a) Maker's serial number: E - 0422 (b) Owner's distinguishing Mark or number (if any): not registered
Make and type of automatic safe load Make and type of derricking interlock , if required:	TOYO CONTROL CO., LTD. , AD395 N/A
Date of last previous test of crane:	New machine
Date of last previous thorough examination of crane:	New machine
Safe working load or loads:	See attached sheets 1 to 4
In the case of a crane with a derricking jib or jibs the max. radius at which the jib or jibs may be worked (in feet):	See attached sheets 1 to 4
Defects noted and alterations or repairs required before crane is put into service:	None. None.

I hereby certify that the crane described in this certificate was tested and thoroughly examined on
17 / Jun / 16 and that the above particulars are correct.

Signature:

Shinohara

Qualification Engineer

Name and address of person , company or association by whom
The person conducting the test and examination is employed. Maeda Seisakusho Co., Ltd.
1095 Onbegawa , Shinonoi ,
Nagano city , Nagano prefecture
388-8522 , Japan

Date of certificate:

17 / Jun / 16

For notes see overleaf.

SERIAL NO: E- 0922

MAEDA MC405CRME

CERTIFICATE No.KB-191

CERTIFICATE OF TEST AND THOROUGH EXAMINATION OF CRANE				PAGE 2	
• Safe working load or loads.	LENGTH OF JIB (METRES)	RADIUS (METRES)	ANGLE °	TEST LOAD KG	SAFE WORKING LOAD KG
In the case of a crane with a	10.655 m boom	3.5		NIL	3030
variable operating radius (including	1+2+3 boom	4.0		NIL	2580
a crane with a derricking jib or with	Outriggers are	5.0		NIL	2030
interchangeable jibs of different	maximum	6.0		2100	1680
lengths) the safe working load at	position	7.0		NIL	1380
various radii of the jib . jibs,		8.0		NIL	1130
or crab must be given. Test loads at		9.0		NIL	880
various radii should be given in		10.2		NIL	580
column (IV) and in the case of a					
safe working load which has been					
calculated without the application of					
a test load "NIL" should be entered					
in that column					
•In the case of a crane with a					
derricking jib or jibs the maximum					
radius at which the jib or jibs may					
be worked is : 10.2m					
•We herewith confirm that we test lift all our manufactured cranes individually with					
1.25 times the rated load before delivering .					
•We also confirm that the group of classification of the mechanism as a whole is M3					
(for hoist) and type of crane is A1 in accordance with JIS B 8822-1 (ISO 4301-2).					
•I hereby certify that the crane described in this certificate was tested and thoroughly					
examined on 17 Nov 11 and that the above particulars are correct .					
MAEDA SEISAKUSHO CO., LTD.					
TEL : +81-(0)26-292-2304 FAX : +81-(0)26-293-8768					

DATE OF CERTIFICATE : 17 Nov 11 SIGNATURE

[Signature]

Shinohara, ENGINEER

MAFDA MC405CRME

[illegible]

SIGNATURE

行 是

Shinohara, ENGINEER

SERIAL NO: E- 0122

MAEDA MC405CRME

CERTIFICATE No.KB-191

CERTIFICATE OF TEST AND THOROUGH EXAMINATION OF CRANE				PAGE 4	
* Safe working load or loads.	LENGTH OF JIB (METRES)	RADIUS (METRES)	ANGLE °	TEST LOAD KG	SAFE WORKING LOAD KG
In the case of a crane with a	16.475 m boom	5.0		NIL	1130
variable operating radius (including	1+2+3+4+5 boom	5.5		1225	980
a crane with a derricking jib or with	Outriggers are	6.0		NIL	910
interchangeable jibs of different	maximum	7.0		NIL	760
lengths) the safe working load at	position	8.0		NIL	650
various radii of the jib , jibs,		9.0		NIL	600
or crab must be given. Test loads at		10.0		NIL	550
various radii should be given in		11.0		NIL	490
column (IV) and in the case of a		12.0		NIL	440
safe working load which has been		13.0		NIL	380
calculated without the application of		14.0		NIL	320
a test load "NIL" should be entered		15.0		NIL	260
in that column		16.0		NIL	210
*In the case of a crane with a					
derricking jib or jibs the maximum					
radius at which the jib or jibs may					
be worked is : 16.0m					
*We herewith confirm that we test lift all our manufactured cranes individually with					
1.25 times the rated load before delivering .					
*We also confirm that the group of classification of the mechanism as a whole is M3					
(for hoist) and type of crane is A1 in accordance with JIS B 8822-1 (ISO 4301-2).					
*I hereby certify that the crane described in this certificate was tested and thoroughly					
examined on 17/Jun/16 and that the above particulars are correct .					
MAEDA SEISAKUSHO CO., LTD.					
TEL : +81-(0)26-292-2304 FAX : +81-(0)26-293-8768					

DATE OF CERTIFICATE : 17/Jun/16 SIGNATURE



Shinohara, ENGINEER

Strength Calculation of Single Fall Hook

Revised

Established

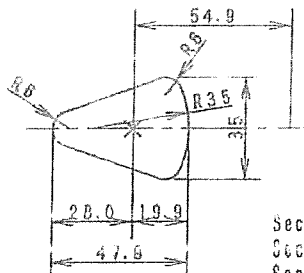
Feb. 12, 2009

Material and tensile strength of single Fall hook:

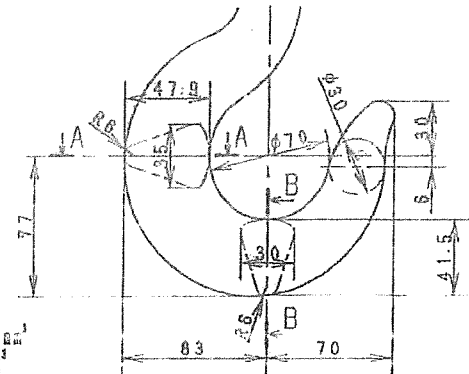
Material: S45C-N (Tempered)

Tensile strength: $\sigma_B = 569 \text{ N/mm}^2$

1. Strength calculation of cross section A-A:



Sectional area: $A = 1105 \text{ mm}^2$
 Section modulus: $Z_{\text{tension}} = 5920 \text{ mm}^3$
 Section modulus: $Z_{\text{compression}} = 8330 \text{ mm}^3$



Tensile stress σ_A of the section A-A is,

$$\sigma_A = (W \times R_A / Z_A + W / A_A) \times 9.80665$$

where, W is rated load

R_A is distance from load application line to centroid of section A-A

A_A is sectional area section A-A

Z_A is section modulus on tension side of section A-A

1480 kg

54.9 mm

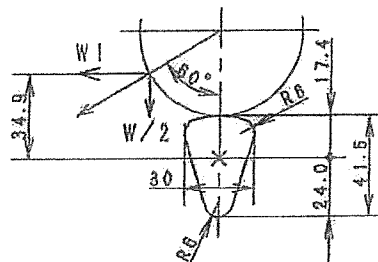
1105 mm²

8330 mm³

$$\sigma_A = (1480 \text{ kg} \times 54.9 \text{ mm} / 8330 \text{ mm}^3 + 1480 \text{ kg} / 1105 \text{ mm}^2) \times 9.80665 = 108.8 \text{ N/mm}^2$$

$$\text{Safety factor } S = \sigma_B / \sigma_A = 569 \text{ N/mm}^2 / 108.8 \text{ N/mm}^2 = 5.23 > 5$$

2. Strength calculation of cross section B-B:



Sectional area: $A = 845 \text{ mm}^2$
 Section modulus: $Z_{\text{tension}} = 4040 \text{ mm}^3$
 Section modulus: $Z_{\text{compression}} = 5570 \text{ mm}^3$

Tensile stress σ_B of the section B-B is,

$$\sigma_B = (W_1 \times R_B / Z_B + W_1 / A_B) \times 9.80665$$

where, W_1 is Horizontal component due to rated load

R_B is distance from load application line to centroid of section B-B

A_B is sectional area section B-B

Z_B is section modulus on tension side of section B-B

(1480/2) × tan 60° = 1282 kg

34.9 mm

845 mm²

5570 mm³

$$\sigma_B = (1282 \text{ kg} \times 34.9 \text{ mm} / 5570 \text{ mm}^3 + 1282 \text{ kg} / 845 \text{ mm}^2) \times 9.80665 = 93.7 \text{ N/mm}^2$$

$$\text{Safety factor } S = \sigma_B / \sigma_B = 569 \text{ N/mm}^2 / 93.7 \text{ N/mm}^2 = 6.07 > 5$$

In either case, safety factor is greater than 5.

MODEL: MC405C Fly Jib, LC785M-6, LC785M-8, LC1385M-8, MK1033CW-1, MC285C-2 Aux Winch



MAEDA SEISAKUSHO CO., LTD.

Drawing No. 504 458 / 200

Hook Structural Calculation Sheet

Cross section performance of risky cross section

$$I = \frac{(B+b)^2 + 2Bb}{36(B+b)} \cdot h^3$$

$$= \frac{(40+16)^2 + 2 \times 40 \times 16}{36(40+16)} \times 57^3$$

$$= 405660.9 \text{ (mm}^4\text{)}$$

$$e1 = \frac{1}{3} \times \frac{2B+b}{B+b} \cdot h$$

$$= \frac{1}{3} \times \frac{2 \times 40 + 16}{40 + 16} \times 57 = 33 \text{ (mm)}$$

$$e2 = h - e1 = 57 - 33 = 24 \text{ (mm)}$$

$$\sigma_0 = \frac{W}{A} - \frac{W(e2 - e1)e1}{I}$$

$$= \left(\frac{3800}{1596} - \frac{3800 \times 64 \times 33}{405660.9} \right) \times 9.81$$

$$= -170.7 \text{ (N/mm}^2\text{)}$$

$$S = \sigma_0 / \sigma_A = 687 / 170.7 = 4.02$$

$$\sigma_B = \frac{W}{A} + \frac{W(a+e2)e2}{I}$$

$$= \left(\frac{3800}{1596} + \frac{3800 \times 64 \times 24}{405660.9} \right) \times 9.81$$

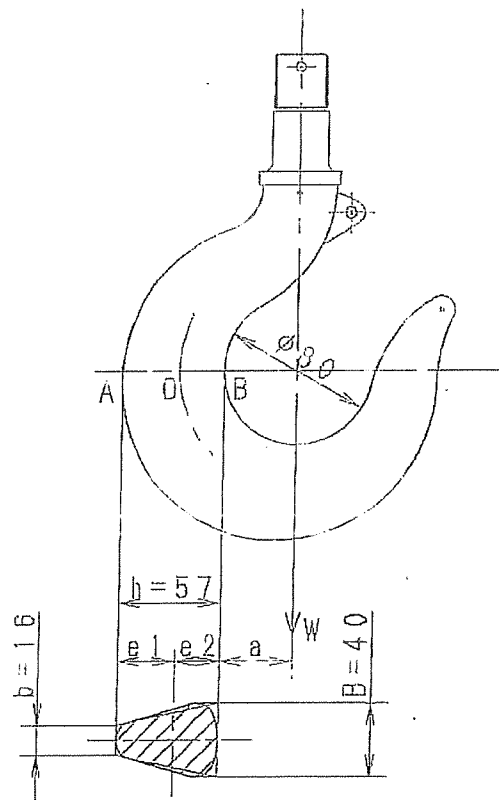
$$= 164.5 \text{ (N/mm}^2\text{)}$$

$$S = \sigma_0 / \sigma_B = 687 / 164.5 = 4.18$$

Material of hook: C45C

Tensile strength: $\sigma_0 = 687 \text{ (N/mm}^2\text{)}$

Yield strength : 490 (N/mm²)



W: Rated load 3800 kg
A: Cross section area

$$A = \frac{B+b}{2} \times h$$

$$= \frac{40+16}{2} \times 57 = 1596 \text{ (mm}^2\text{)}$$

Hook Structural Calculation Sheet

MODEL MC-405C

Drawing No. 104-4561800

TESAC

ワイヤロープ証明書

CERTIFICATE FOR STEEL WIRE ROPE

No. 0066273

2015, 10, 19

TWOS02485-1

株式会社テサックワイヤロープ

TESAC WIRE ROPE CO., LTD.

NISHIKINO HAMA MANUFACTORY

本ワイヤロープは下記規格により検査し本記載通りの検査成績であることを証明致します。

We hereby certify that this steel wire rope is examined and tested strictly according to the under-mentioned specification at our works and we guarantee the quality of the article.

適用規格 (SPECIFICATION)

TESAC SPEC.

製品番号 [PRODUCT NO.]	FZ10269-023
ロープの構成 [CONSTRUCTION]	IWRC 6 X WS(26) 0/0
ロープの径 [NOMINAL DIA. OF THE ROPE]..	8 (ACT. 8.26) mm
ロープの長さ [LENGTH]	92 m
種 別 [GRADE]	C
規定破断力 [SPECIFIED BREAKING LOAD]....	48.1 kN
実際破断力 [ACTUAL BREAKING LOAD]	48.9 kN
外 観 [APPEARANCE]	GOOD
素線試験 [WIRE TEST]	GOOD
備 考 [NOTE]	

CONTINUOUS LENGTH

PRODUCT NO.	LENGTH
FZ10269-024	92 m
FZ10269-025	92 m
FZ10269-026	92 m
FZ10269-027	92 m
FZ10269-028	92 m



部番: S104P2143000-1

注番: X X 333703

INSPECTING SECTION

○ NIIGATA SEIKO CO., LTD.

NO.56, Nakakido, Higashi-ku, Niigata-shi, Niigata-ken 950-0886, Japan

○ 新潟県新潟市東区中木戸 56 番地

新潟製鋼株式会社

検査証明書 [CERTIFICATE OF INSPECTION]

日付 [Date] : August 20, 2015

顧客名 [To Messrs.] MAEDA SELSAKUSHO CO., LTD.

部 品 名 称 [Description] : Steel Wire Rope with Joint Clamp

部 品 番 号 [Type] : 104S9220000

数 量 [Quantity] : 9

機 種 名 [Model] : MC405C

ロット番号 [Lot No.] : XX318685

ワイヤロープ [Steel Wire Rope]

ロープ 構成 [Construction] : IWRC 6xFi(29) Ungalv.

ロープ 撚り [Lay] : Right Hand (Z) Ordinary Lay

規格破断荷重 [Minimum Breaking Load] : 73500 N

ロープ 径 [Norminal Dia.] : 10.0mm

部 品 寸 法 [Dimemnsions of Description]

全 長 [Length] : 8010 ±10 mm

端 末 加 工 [Ends of Description]

端末金具材質 [Materials] : SCM415

加 工 方 法 [Kind of Proccessing] : Swaging

保証締結荷重 [Minimum Proof Load] : 73500 N

破断試験結果 [Load at Breaking Test] : 76900 N

We hereby promise that the steel wire rope with joint clamp herein has been satisfactorily tested and inspected in accordance with the requirements of the above specification.

上記のジョイントクランプ加工品は、規格通りに検査に合格していることを証明致します。

S. Nohagawa

Manager

NIIGATA SEIKO CO., LTD.

NO.56, Nakakido, Higashi-ku, Niigata-shi, Niigata-ken 950-0886, Japan

○新潟県新潟市東区中木戸 56 番地

新潟製綱株式会社

検査証明書 [CERTIFICATE OF INSPECTION]

日付 [Date] : August 20, 2015

顧客名 [To Messrs.] MAEDA SEISAKUSHO CO., LTD.

部 品 名 称 [Description] : Steel Wire Rope with Joint Clamp

部 品 番 号 [Type] : 104S92300000

数 量 [Quantity] : 9

機 種 名 [Model] : MC405C

ロット 番号 [Lot No.] : XX318686

ワイヤロープ [Steel Wire Rope]

ロープ 構成 [Construction] : IWRC 6xFi(29) Ungalv.

ロープ 撚り [Lay] : Right Hand (Z) Ordinary Lay

規格破断荷重 [Minimum Breaking Load] : 43300 N

ロープ 径 [Norminal Dia.] : 8.0mm

部 品 寸 法 [Dimemnsions of Description]

全 長 [Length] : 10955 ±10 mm

端 末 加 工 [Ends of Description]

端末金具材質 [Materials] : S45C

加 工 方 法 [Kind of Proccessing] : Swaging

保証締結荷重 [Minimum Proof Load] : 43300 N

破断試験結果 [Load at Breaking Test] : 55300 N

We hereby promise that the steel wire rope with joint clamp herein has been satisfactorily tested and inspected in accordance with the requirements of the above specification.

上記のジョイントクランプ加工品は、規格通りに検査に合格していることを証明致します。



Manager

Hook Strength Calculations of

KITO Chain Sling 100

Product Code HTL013

The maximum stress of the section A (dangerous section) as shown in Figure 1 is calculated by the following equation in JIS B2803 (1996), 'Hook'

$$\sigma_t = \frac{W}{A} + \frac{W \cdot R}{Z}$$

Where σ_t = tensile stress on Section A

W = working load limit

A = area of Section A

R = location of Section A

Z = section modulus of Section A

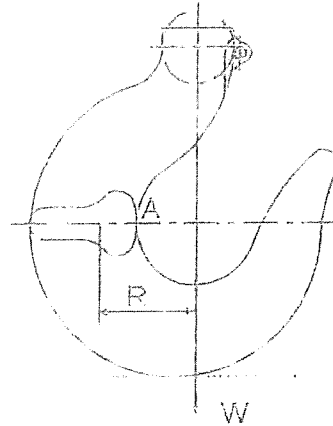


Figure1 Hook section A

JIS B 2803 stipulates that the working tensile stress σ_t shall not be more than one third of the ultimate material tensile stress:

$$\frac{\sigma_t}{\sigma_B} \leq \frac{1}{3}$$

σ_B : ultimate material tensile stress

The following table shows the results of safety factor calculations.

Table 1 Section A Safety Factor

Product Code	W (N)	A (mm ²)	R (mm)	Z (mm ³)	σ_t (N/mm ²)	σ_B (N/mm ²)	$\frac{\sigma_t}{\sigma_B}$
HTLD13	1.23×10^4	375	35.1	1.75×10^3	280	770	0.364

Although the calculation does not reach the requirement of the JIS, the hook has a good performance as a result of the breaking load test.

November 16, 2005

M. SASAKI

Masatoshi SASAKI

Manager of Technical Control Group

KITO Corporation



M A E D A

Environmental Data Sheet

Maker: Maeda Seisakusho Co., Ltd.	Machine Type: Mini Crawler Crane
Model: MC405CRME	Serial Number E0422
Year of Manufacturing 2016	

POWER SOURCE 1

Diesel ☒	Gasoline ☐	Electric ☒	
Maker: Yanmar	Model: 3TNV88-BPMB	Serial Number T5796	
Year of Manufacturing: 2016	Power Output: 21.8kw	Displacement: 1.642L	Emission Level: US Tier2 (N/A for EU)
Pollution Index: CO 2.555g/kWh NOx+NMHC 5.714g/kWh PM 0.213g/kWh			
Fuel Type Diesel	Avg Fuel Consumption: N/A 4.8L/H	Consumption at 50% Load: N/A	Consumption at 100% Load N/A 6.5L/H

POWER SOURCE 2

Electric ☒		
Maker: WEG	Model: W21 4P-7.5 kW	Serial Number 1028092132
Year of Manufacturing 2016	Power Output 7.5kw	

OIL, LUBRICATION, LIQUID

	Type	Volume, Liter	Change every	Quality	Biodegradable
Engine	Engine Oil	6.7	250	Mineral	No
Coolant	Water/AF	4.5	1000	Mineral	No
Slewing Gear	Gear Oil	0.6	1000	Mineral	No
Winch Gear	Gear Oil	0.5	1000	Mineral	No
Travel Gear	Gear Oil	1.0	1000	Mineral	No
Hydraulic system	Hyd Oil	75	1000	Mineral	No
Greases					

CRAWLERS

Maker: BRIDGESTONE	Model/Type: MAEDA MC405C spec	Crawler Size 2100 x 320mm
HA oil tread: Yes	Zinc in tread: Yes	Cadmium in tread: No

SOUND POWER LEVEL dB (A)

	Minimum	Maximum
Measured		97
Guaranteed		101

PAINT, BATTERIES, RECYCLING

Percentage of water-based paint (%)	N/A
Percentage of solvent-based paint (%)	N/A
Quantity of Batteries	1
Type of Batteries	Lead acid
Quantity of marked plastic parts (%)	%
Percentage recyclable of machine weight	%