

USER MANUAL
811NG
TECHNICAL SHEET

D TECHNICAL SHEET



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D.1 CRANE'S TECHNICAL DATA

Versions		1S	2S	3S	4S
Max. net lifting moment	 $t\ m$ kNm	10.5 103.8	10.1 99.8	9.5 93.9	9.3 91.5
Max. dynamic moment	 $daNm$ kNm	12460 124.6			
Capacity at min. hydraulic outreach	hook [S2]  kg	2580	2475	2285	2170
Max rated capacity	grab [S1]  kg	2580	2475	2285	2170
	min. outreach  m	4.10	4.11	4.19	4.27
Capacity at max. hydraulic outreach	hook [S2]  kg	1820	1325	950	715
	grab [S1]  kg	1820	1325	950	715
	max.outreach  m	5.79	7.48	9.36	11.24
Capacity of 1st man. extension	capacity  kg	N/A	870	720	575
	max.outreach  m	N/A	9.36	11.23	13.27
Max. load height above the base for the last extension	hydraulic  m	7.8	9.4	11.2	13.0
	manual  m	N/A	13.0	15.0	15.0
Weight of crane without stabilizers	 kg	1080	1180	1270	1360
Weight of stabilizers	ST-M  kg	160			
	EX-M  kg	220			
	EX-H  kg	250			
	SE-H  kg	270			
Weight of 1st man ext.	 kg	N/A	55	47	43
Max. working pressure	 bar	310			
Max. oil flow rate	 l/min	20			
	 l/min	40			
Max. power needed	 kW	13.43			
	 kW	26.87			
Oil tank capacity	 l	75			
Slewing angle	 $^\circ$	425			
Gross slewing torque	 $daNm$ kNm	1730 17.3			
Max. base inclination	$^\circ$	4			
	$^\circ$	3			
Max boom inclination for use with CE winch	$^\circ$	75			
Max. stabilizer force on the ground with stabilizers fully extended	ST daN	8360			
	EX daN	5550			
	SE daN	4570			
Max. stabilizer pressure on the ground with stabilizers fully extended	ST MPa	3.29			
	EX MPa	2.18			
	SE MPa	1.80			
Lifting conversion factor, k	kgm/bar	40.03			
Distribution factor of dyn. moment on base, β	-	0.70			
Position of standard dead point (see D.6)					

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D.2 WINCH SETTINGS

T11 - SINGLE LINE PULL

Versions	1S	2S	3S	4S
 Max line pull <i>kg</i>	1000	1000	1000	1000
Start angle - pull% Final angle - pull% 	-	-	-	-

N/A: configuration not available

(*): configuration requiring pull derating: available only for CE/TOP cranes (PCS)

Pull%: pull derating percentage



When the crane is equipped with winch, the max. working pressure and the limiter setting pressure are increased by 10 bar with respect to the standard ones.

D.3 TOTAL WEIGHTS

The table shows the total weights including oil inside the cylinders (fully retracted) and considering oil tank empty.

<i>kg</i>	Crane version			
Type of stabilizers	1S	2S	3S	4S
ST-M	1240	1340	1430	1520
EX-M	1300	1400	1490	1580
EX-H	1330	1430	1520	1610
SE-H	1350	1450	1540	1630

Additional weight for T11 winch: 95 kg

Additional weight of 1st extra function activated with slides: 8 kg pro hydraulic extension

Additional weight of 2nd extra function activated with slides: 2 kg pro hydraulic extension

Additional weight of 1st extra function activated with hose reel: 20 kg

Additional weight of 2nd extra function activated with hose reel: 10 kg

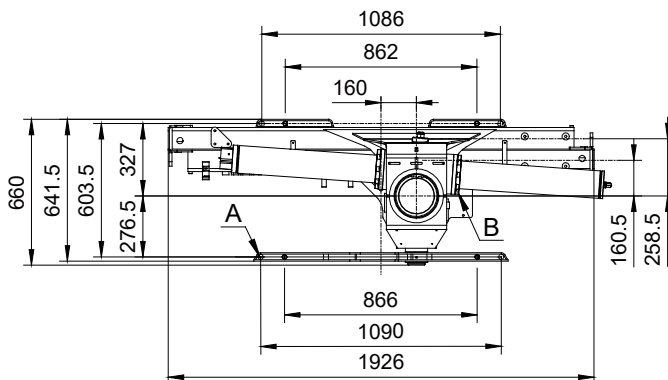
The weights may vary by $\pm 3\%$

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D.5 BASE DIMENSIONS AND MOUNTING BOLTS

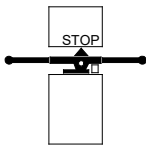
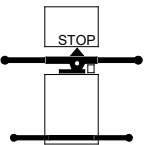
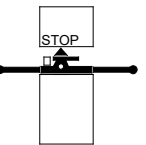
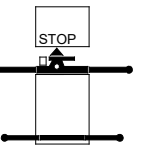
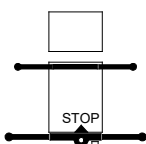
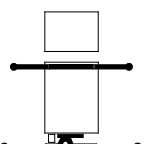
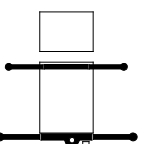
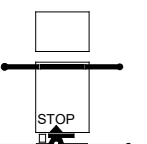
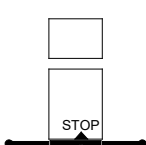
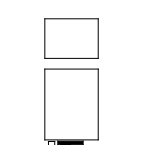
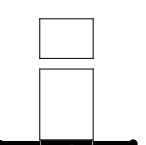
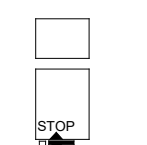
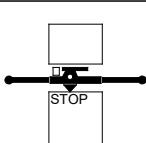
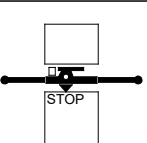
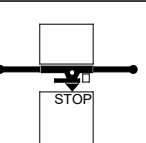
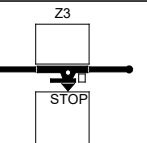


Ref.	Description	Q.ty	Material Grade	Size	Tightening torque
A	Kit with 8 crane mounting bolts	8	42CrMo4+QT EN 10083-3	M20x1.5 L=900	250 Nm
	Kit with 4 crane mounting bolts	4	39NiCrMo3+QT EN 10083-3	M24X2 L=520	400 Nm
B	Fixing bolts for each slewing cylinder	8	8.8	M14x2 L=65	80 Nm

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D.6 INSTALLATION TYPE NUMBER

Installation types numbers (ITN) for cranes with standard dead point (STOP) toward swing bridge.

OPPOSITE DEAD POINT		STANDARD DEAD POINT	
1 	2 	3 	4 
5 	6 	7 	8 
9 	10 	11 	12 
13 	14 	15 	16 

Legend:

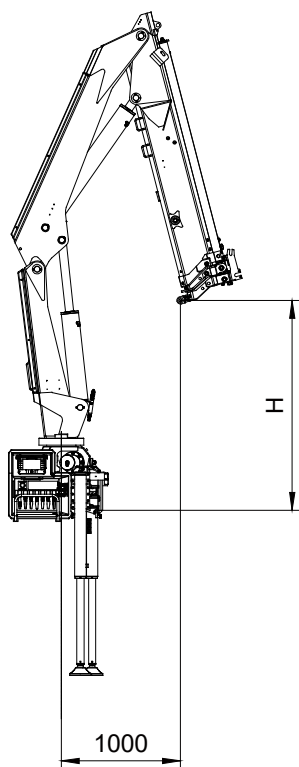
- ▲ : position of dead point (STOP)
- : position of main manual controls (on column side)

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D.7 LIFTING HEIGHT CLOSE TO THE COLUMN



Version	H mm
1S	1759
2S	1759
3S	1682
4S	1605

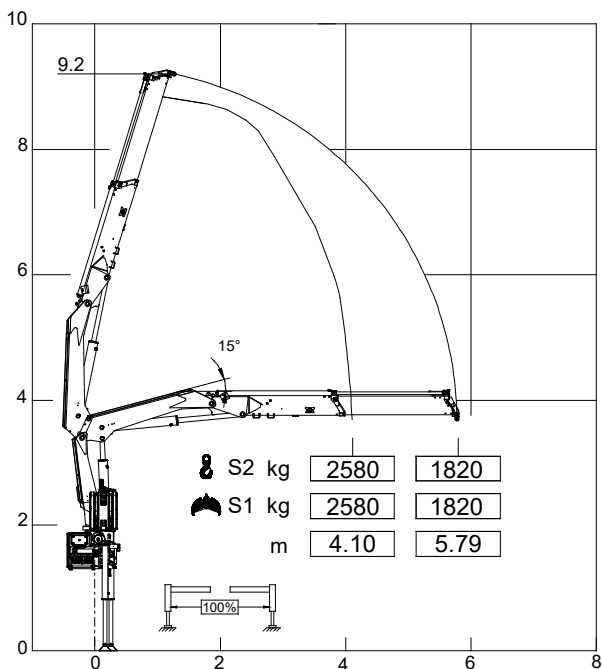
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D.8 LOAD CHARTS FOR USE WITH HOOK/TOOL

811NG 1S



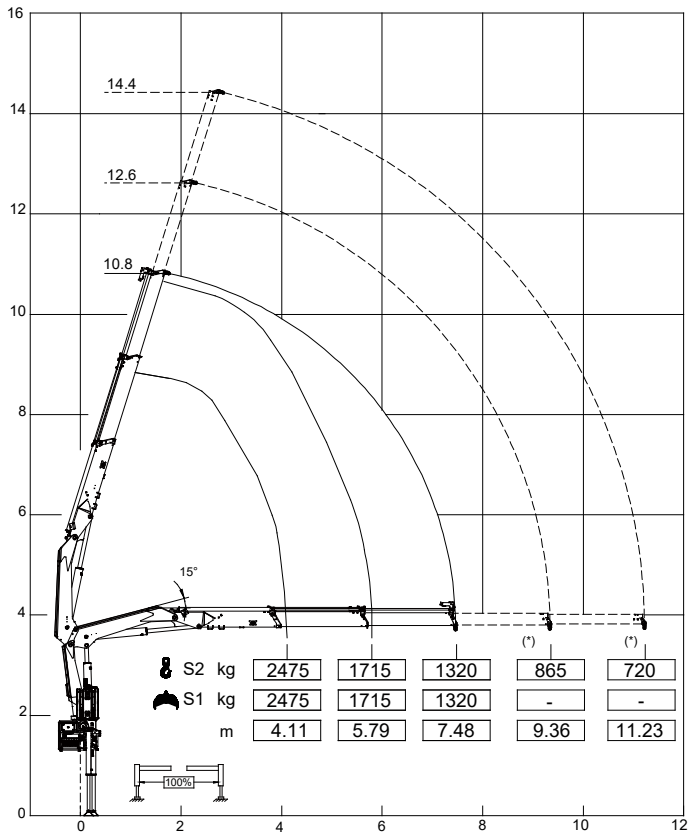
If an additional lifting tool is mounted, the rated capacities shall be reduced by the tool's weight

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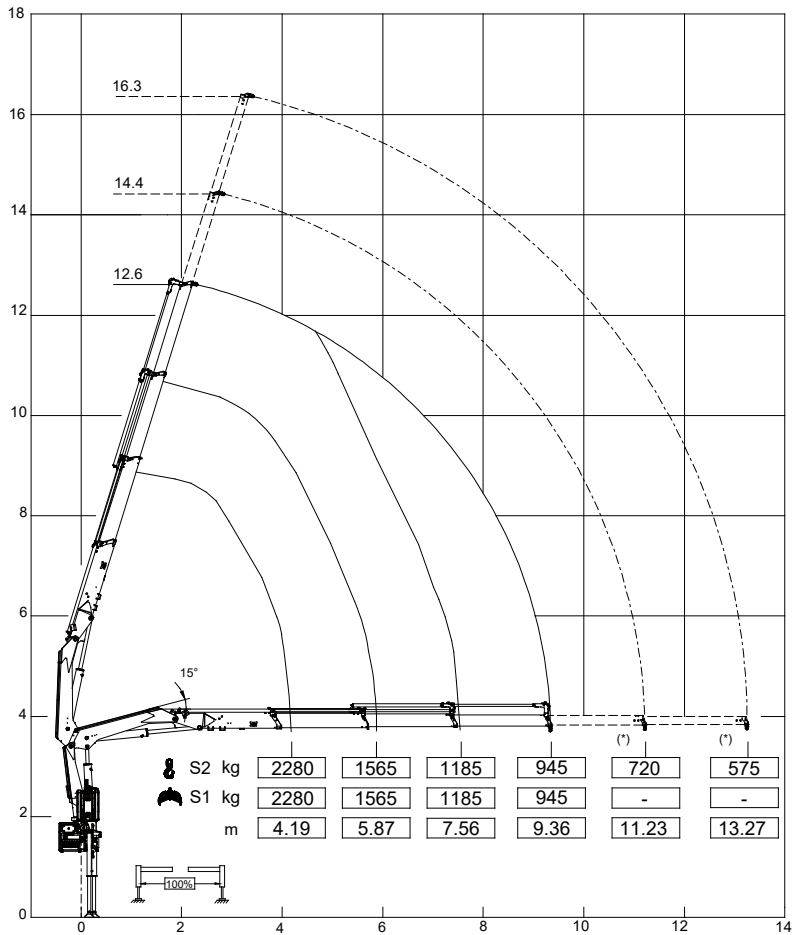
LOAD CHARTS FOR USE WITH HOOK/TOOL 811NG 2S



(*) Manual extensions (optional): these cannot lift additional hydraulic tools
If an additional lifting tool is mounted, the rated capacities shall be reduced by the tool's weight

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LOAD CHARTS FOR USE WITH HOOK/TOOL
811NG 3S



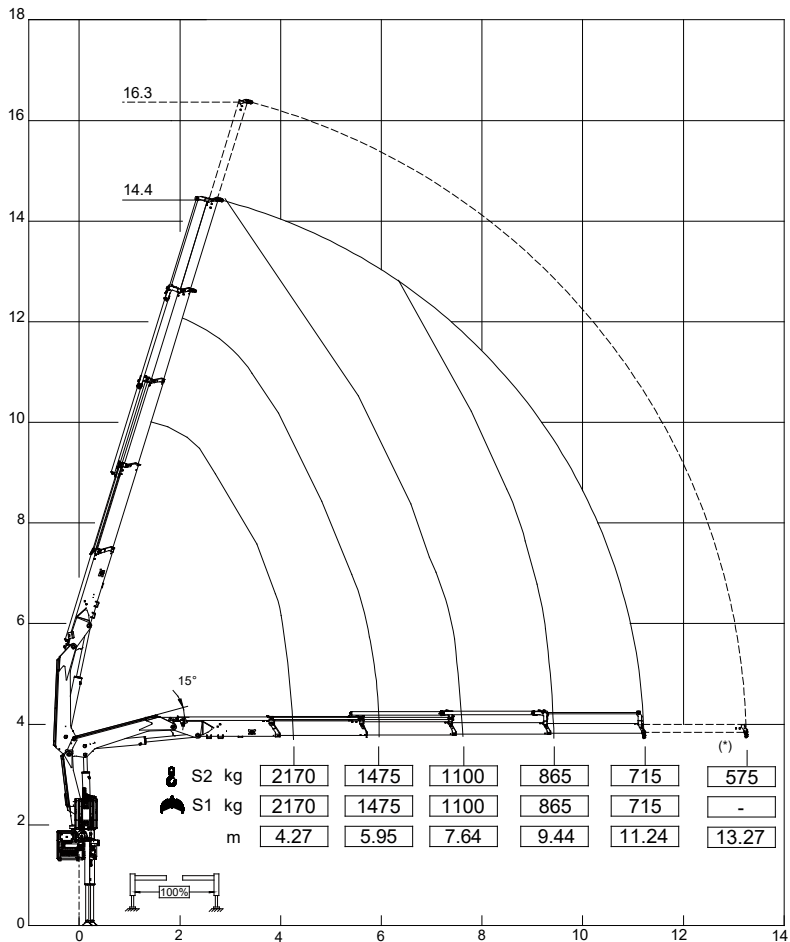
(*) Manual extensions (optional): these cannot lift additional hydraulic tools
If an additional lifting tool is mounted, the rated capacities shall be reduced by the tool's weight

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LOAD CHARTS FOR USE WITH HOOK/TOOL 811NG 4S



(*) Manual extensions (optional): these cannot lift additional hydraulic tools
If an additional lifting tool is mounted, the rated capacities shall be reduced by the tool's weight

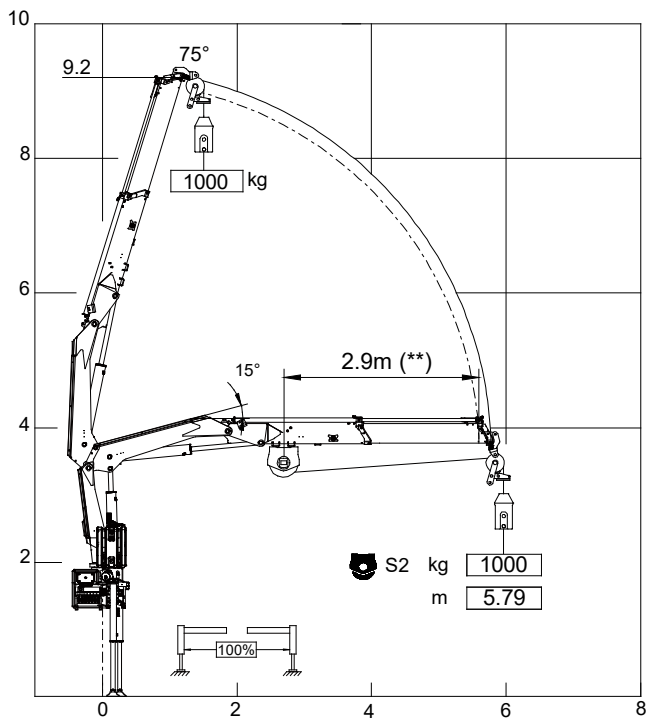
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D.9 LOAD CHARTS FOR T11 WINCH IN SINGLE LINE

811NG 1S + T11 SINGLE LINE



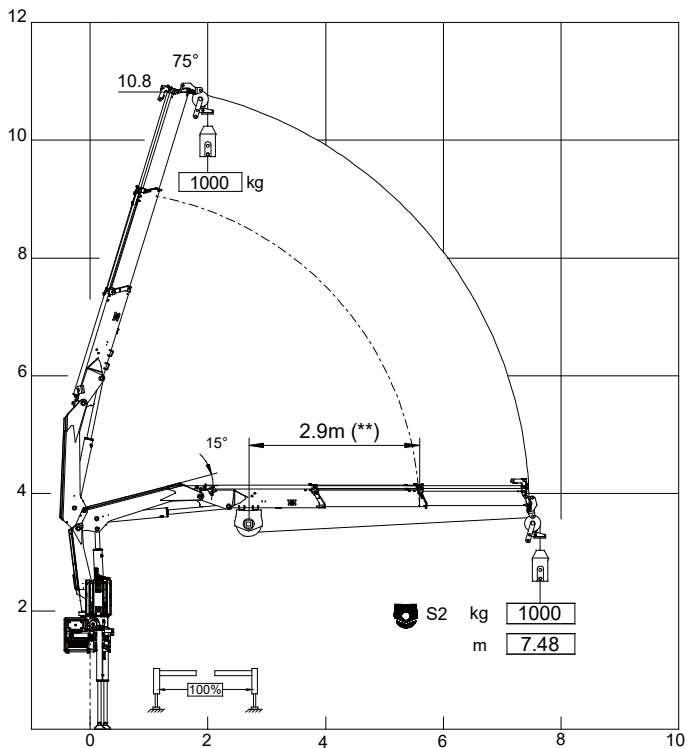
(**) Minimum distance winch - pulley
Winch max. pull: 1000 kg

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LOAD CHART FOR WINCH T11 IN SINGLE LINE 811NG 2S + T11 SINGLE LINE



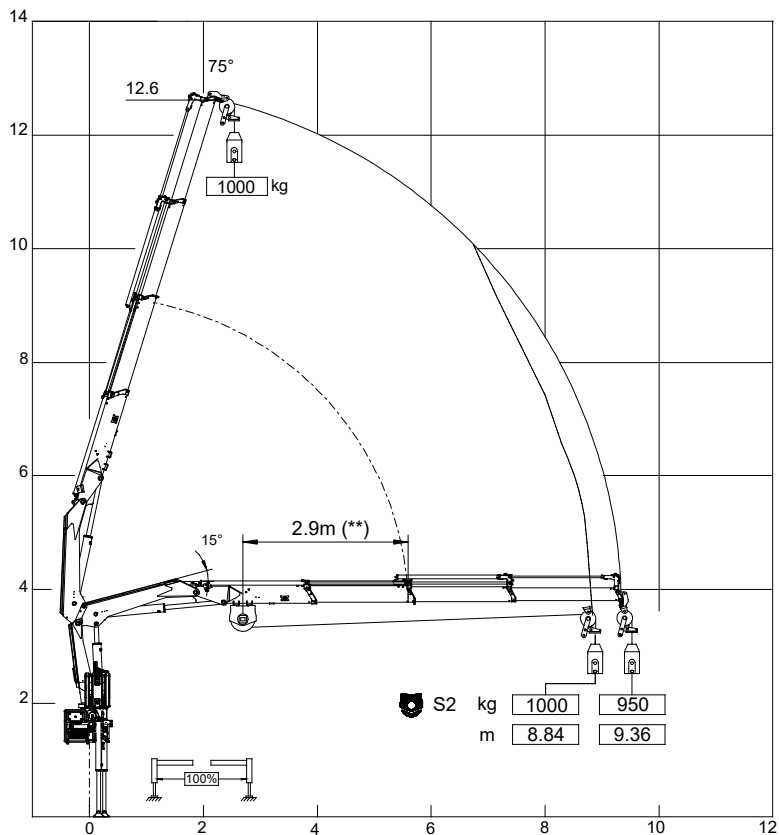
(**) Minimum distance winch - pulley
Winch max. pull: 1000 kg

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LOAD CHART FOR WINCH T11 IN SINGLE LINE 811NG 3S + T11 SINGLE LINE



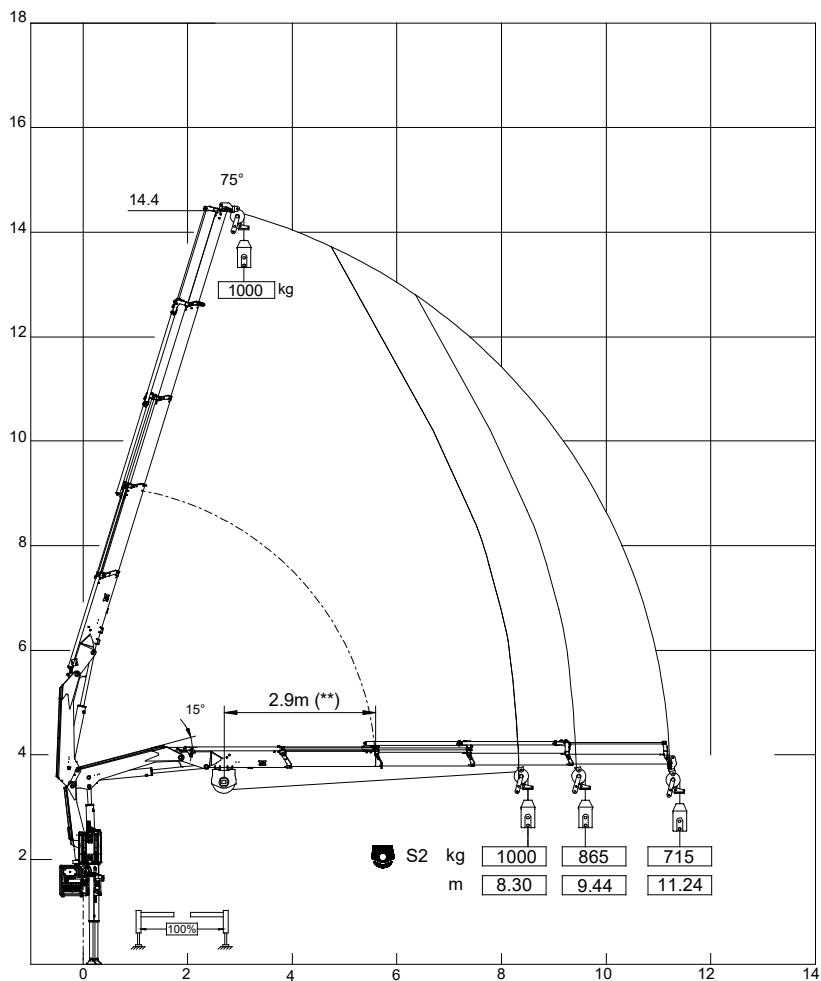
(**) Minimum distance winch - pulley
Winch max. pull: 1000 kg

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LOAD CHART FOR WINCH T11 IN SINGLE LINE 811NG 4S + T11 SINGLE LINE



(**) Minimum distance winch - pulley
Winch max. pull: 1000 kg

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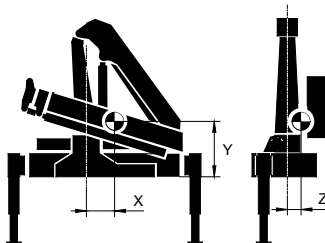
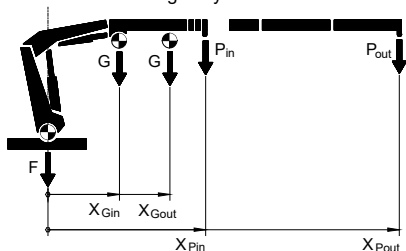
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D.10 CENTERS OF GRAVITY AND TEST LOADS

This annex contains the data needed for the stability test in accordance with EN 12999.

Loads and centers of gravity



Hooking point for the test load



Key:

F = weight of fixed parts (stabilizers, base, column, 1st boom cylinder)

G = weight of booms

X_G = distance between G and column axis

P = rated capacity

X_P = distance between P and column axis

TL = test load, to be hooked to the last hydraulic extension

X, Y, Z = coordinates of center of gravity for whole crane folded in transport position (EX-H version)

in = configuration with all hydraulic extensions fully retracted

out = configuration with all hydraulic extensions fully extracted

WEIGHTS AND CENTERS OF GRAVITY

811NG	F kg	G kg	X _G in / out m	P in / out kg	X _P in / out m	TL kg	X	Y	Z
1S	ST-M : 770 EX-M : 870 EX-H : 960 SE-H : 1050	470	1.95 2.32	2580 1820	4.10 5.79	2275	153	609	-14
2S		575	2.17 3.08	2475 1325	4.11 7.48	1656	149	630	7
3S		675	2.34 3.87	2285 950	4.19 9.36	1196	140	648	23
4S		765	2.39 4.55	2170 715	4.27 11.24	920	132	663	34

The data are relating to crane configuration with horizontal booms.

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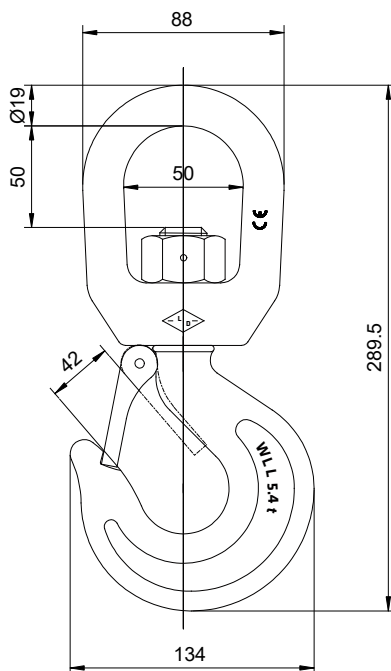
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D.11 HOOK DATA

HOOK MOUNTED ON STANDARD BOOM
VERSIONS: 1S, 2S, 3S, 4S

DIMENSIONS



TECHNICAL PROPERTIES

Working load limit (WLL) : 5400 kg

Material: alloy steel

Weight: 3.2 kg

Swivel hook

Reference standard: DIN 15401

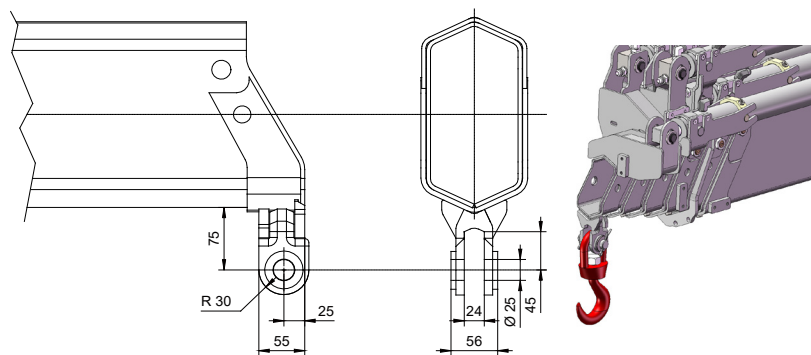
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D.12 LOAD ATTACHMENT

ATTACHMENT FOR HOOK



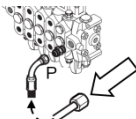
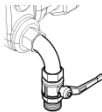
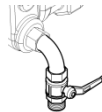
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D.13 HYDRAULIC SYSTEM

FITTINGS FOR CONNECTION TO PUMP

811NG	NO RDC	RDC
Control valve pressure line	 M 7/8"-14 JIC	 M 3/4"-16 GAS
Tank suction line	 M 1" 1/2 BSP	 M 1" 1/2 BSP

EXTENSION TIMES OF HYDRAULIC CYLINDERS

811NG	Extension time s	Retraction time s
Slewing (180°)	20	20
1.boom cylinder	N/A	N/A
2.boom cylinder	N/A	N/A
boom extension 1S (SGS active)	N/A	N/A
boom extension 2S (SGS active)	N/A	N/A
boom extension 3S (SGS active)	N/A	N/A
boom extension 4S (SGS active)	N/A	N/A

Times are indicative and referring to the following operating conditions:

- unloaded crane operated with a single control lever
- oil flow rate recommended for NO RDC crane
- ISO VG 46 oil at a temperature of 50°C

MAX. ALLOWABLE SINK RATE FOR THE LOAD

The sink rate is the uncontrolled descent of the load in a given time interval due to internal leakage of hydraulic components. The table below shows the maximum permitted descent of the rated load, at the max. hydraulic outreach and in the given time interval.

811NG	Time interval min.	Max. load descent mm
1S	10	289
2S	10	374
3S	10	468
4S	10	562

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CAPACITY OF HYDRAULIC SYSTEM

811NG	Cylinders extended t	Cylinders retracted t
1S	40	28
2S	46	32
3S	52	36
4S	57	40

Capacities do not include the oil tank.

ADDITIONAL CAPACITY FOR HYDRAULICALLY OPERATED STABILIZER EXTENSIONS

EX-H	+3.5	+2.0
SE-H	+4.5	+3.0

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D.14 OIL COOLER



TECHNICAL SPECIFICATIONS

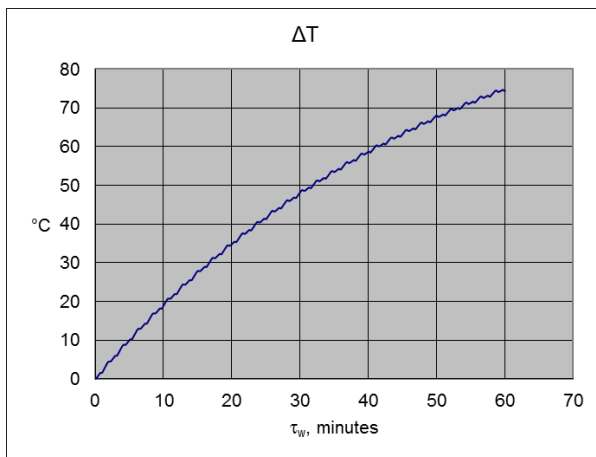
Heat transfer coefficient: 235 W/K (oil flow rate of 40 l/min)

Activation temperature: 48 °C

Weight: 13.5 kg

Capacity: 4 l

For a crane without oil cooler performing a sequence of standard work cycles, the difference in temperature between the oil and the environment is shown in the graph below.



The oil cooler is recommended when

$$T_{env} + \tau_w > 57$$

where:

T_{env} : temperature of the environment (°C)

ΔT : difference in temperature between the oil and the environment (°C)

τ_w : working time (minutes)

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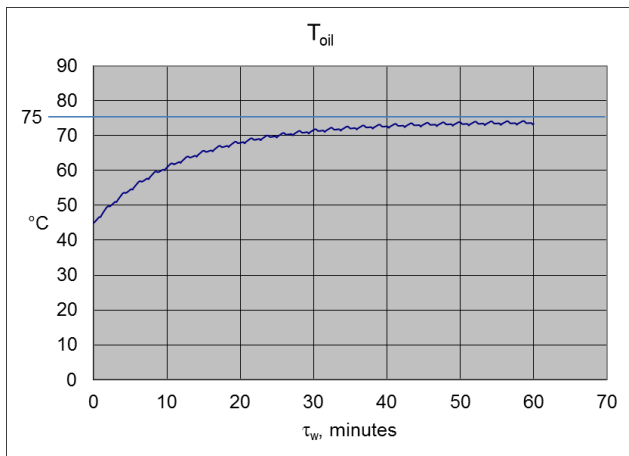
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However, when a crane equipped with oil cooler carries out a sequence of standard work cycles, the oil temperature exceeds 75 °C after the following working times:

T_{env} (°C)	τ_w to exceed 75 °C (minutes)
45	no limit
48	35
50	25
52	20
54	15

The graph below shows the temperature trend (T_{oil}) with oil cooler when $T_{env} = 45$ °C.



Notes:

The max recommended oil temperature is 75°C (at 80°C you must stop working)

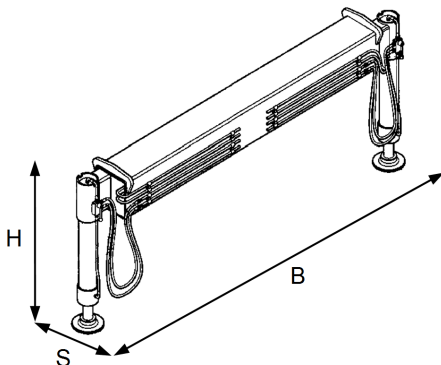
The calculation of the oil temperature is purely indicative and depending on several variables (e.g. working cycle, wind, humidity, weather, etc.)

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D.15 ADDITIONAL STABILIZERS



Additional stabilizers must be chosen so that:

- the installation is stable (see Installer Manual)
- the max. force acting on the additional stabilizers, F_s , is lower than the max. load allowed by the stabilizers itself, R_{max} .

$$F_s = M_{dyn} / X_s \quad F_s \geq 0.6 F_{sg}$$

where:

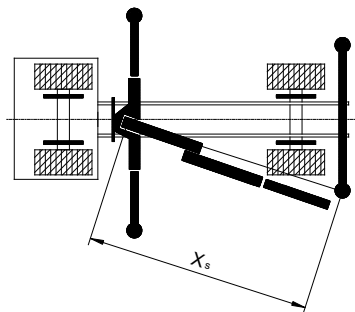
M_{dyn} : max. dynamic moment of the crane

X_s : distance between column axis - stab. cylinder

F_{sg} : max force on stabilizer leg

Check that: $F_s \leq R_{max}$

R_{max} is given in the technical specifications of the additional stabilizers.



- In addition, CE additional stabilizer must be equipped with safety devices integrated with the crane's stability control system. Therefore we recommend to install the following models designed by the crane's manufacturer.

Code	Spread (m)	Weight (kg)	R_{max} (kg)	Overall dimensions BxHxS (mm)
7850088	2.00	155	6250	2160x700x190
7850086	3.32	220	6250	2285x700x240
7850087	3.32	235	6250	2285x685x240

For further information see the User Manual for outriggers.

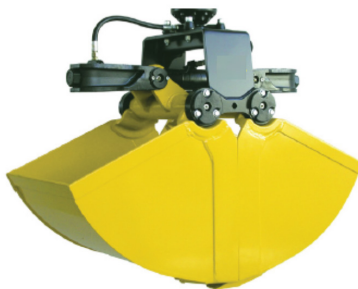
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D.16 RECOMMENDED ADDITIONAL LIFTING TOOLS

CLAMSHELL BUCKET



Crane version	Gross load kg ⁽¹⁾	Data of recommended tool				Payload kg ⁽³⁾	Load ratio	
		HYVA model	weight kg	volume dm ³	capacity kg ⁽²⁾		crane ⁽⁴⁾	tool ⁽⁵⁾
1S	1820	H605-650	410	650	975	1410	76%	100%
2S	1325	H605-550	375	550	825	950	91%	100%
3S	950	H604-350	240	350	525	710	81%	100%
4S	715	H604-250	220	250	375	495	83%	100%

Notes

⁽¹⁾ The gross load is the load capacity of crane at maximum hydraulic outreach

⁽²⁾ The tool's load capacity is calculated multiplying the volume by a density of 1.5 kg/dm³

⁽³⁾ The payload is the gross load of crane minus the tool's weight

⁽⁴⁾ The crane's load ratio is the percentage value of the liftable load with respect to the gross load

⁽⁵⁾ The tool's load ratio is the percentage value of the liftable load with respect to tool's capacity

Stress history class: S1

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RECOMMENDED ADDITIONAL LIFTING TOOLS ORANGE PEEL GRAPPLE



Crane version	Gross load kg ⁽¹⁾	Data of recommended tool				Payload kg ⁽³⁾	Load ratio	
		HYVA model	weight kg	volume dm ³	capacity kg ⁽²⁾		crane ⁽⁴⁾	tool ⁽⁵⁾
1S	1820	H653-4 large	435	500	750	1385	65%	100%
2S	1325	H653-4 large	435	500	750	890	89%	100%
3S	950	H653-4 small	250	240	360	700	64%	100%
4S	715	H653-4 small	250	240	360	465	85%	100%

Notes

- ⁽¹⁾ The gross load is the load capacity of crane at maximum hydraulic outreach
- ⁽²⁾ The tool's load capacity is calculated multiplying the volume by a density of 1.5 kg/dm³
- ⁽³⁾ The payload is the crane's gross load minus the tool's weight
- ⁽⁴⁾ The crane's load ratio is the percentage value of the liftable load with respect to the gross load
- ⁽⁵⁾ The tool's load ratio is the percentage value of the liftable load with respect to tool's capacity

Stress history class: S1

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RECOMMENDED ADDITIONAL LIFTING TOOLS LOGGING GRAPPLE



Crane version	Gross load kg ⁽¹⁾	Data of recommended tool			Payload kg ⁽²⁾	Load ratio	
		HYVA model	weight kg	capacity kg		crane ⁽³⁾	tool ⁽⁴⁾
1S	1820	H634-0,25	170	4000	1650	100%	41%
2S	1325	H634-0,25	170	4000	1155	100%	29%
3S	950	H634-0,25	170	4000	780	100%	20%
4S	715	H634-0,25	170	4000	545	100%	14%

Notes

⁽¹⁾ The gross load is the load capacity of crane at maximum hydraulic outreach

⁽²⁾ The payload is the gross load of crane minus the tool's weight

⁽³⁾ The crane's load ratio is the percentage value of the liftable load with respect to the gross load

⁽⁴⁾ The tool's load ratio is the percentage value of the liftable load with respect to tool's capacity

Stress history class: S1

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TECHNICAL SHEET

RECOMMENDED ADDITIONAL LIFTING TOOLS BRICK STACK GRAPPLE



Crane version	Gross load kg ⁽¹⁾	Data of recommended tool			Payload kg ⁽²⁾	Load ratio	
		HYVA model	weight kg	capacity kg		crane ⁽³⁾	tool ⁽⁴⁾
1S	1820	H332-850	245	2200	1575	100%	72%
2S	1325	H332-850	245	2200	1080	100%	49%
3S	950	H332-850	245	2200	705	100%	32%
4S	715	H332-850	245	2200	470	100%	21%

Notes

⁽¹⁾ The gross load is the load capacity of crane at maximum hydraulic outreach

⁽²⁾ The payload is the gross load of crane minus the tool's weight

⁽³⁾ The crane's load ratio is the percentage value of the liftable load with respect to the gross load

⁽⁴⁾ The tool's load ratio is the percentage value of the liftable load with respect to tool's capacity

Stress history class: S2

USER MANUAL

811NG

TECHNICAL SHEET

RECOMMENDED ADDITIONAL LIFTING TOOLS PALLET FORK



Crane version	Gross load kg ⁽¹⁾	Data of recommended tool			Payload kg ⁽²⁾	Load ratio	
		HYVA model	weight kg	capacity kg		crane ⁽³⁾	tool ⁽⁴⁾
1S	1820	H415 2000-500	155	2000	1665	100%	83%
2S	1325	H415 1500-500	135	1500	1190	100%	79%
3S	950	H415 1500-500	135	1500	815	100%	54%
4S	715	H415 1500-500	135	1500	580	100%	39%

Notes

⁽¹⁾ The gross load is the load capacity of crane at maximum hydraulic outreach

⁽²⁾ The payload is the gross load of crane minus the tool's weight

⁽³⁾ The crane's load ratio is the percentage value of the liftable load with respect to the gross load

⁽⁴⁾ The tool's load ratio is the percentage value of the liftable load with respect to tool's capacity

Stress history class: S2