

USER MANUAL
810NG T
TECHNICAL SHEET

D TECHNICAL SHEET



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D.1 CRANE'S TECHNICAL DATA

Versions		2S	3S	4S
Max. net lifting moment	 $t\ m$ kNm	8.77 89	8.74 86	8.55 84
Max. dynamic moment	 $daNm$ kNm	10740 107		
Capacity at min. hydraulic outreach	hook [S2]  kg	4060	3900	3700
Max rated capacity	grab [S1]  kg	4060	3900	3700
	min outreach  m	2.16	2.24	2.31
Capacity at max. hydraulic outreach	hook [S2]  kg	1445	990	735
	grab [S1]  kg	1445	990	735
	max outreach  m	5.98	8.00	10.03
Capacity of 1st man. extension	capacity  kg	N/A	N/A	N/A
	max outreach  m	N/A	N/A	N/A
Max. load height above the base for the last extension	hydraulic  m manual  m	7.9 N/A	9.9 N/A	11.9 N/A
Weight of crane without stabilizers	 kg	945	1040	1115
Weight of stabilizers	ST-M kg	110		
	EX-M kg	160		
	EX-H kg	190		
	SE-H kg	210		
Weight of special attachment	 kg	33	30	N/A
Max. working pressure	 bar	310		
Max. oil flow rate	 l/min	20		
	 l/min	40		
Power needed	 kW	13.4		
	 kW	26.9		
Oil tank capacity	 l	75		
Gross slewing torque	 $daNm$ kNm	1060 10.6		
Slewing angle	 $^\circ$	425		
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 EX daN SE daN	7240 4810 3960		
Max. stabilizer pressure on the ground with stabilizers fully extended	ST MPa EX MPa SE MPa	3.60 2.39 1.97		
Lifting conversion factor, k	kgm/bar	34.17		
Distribution factor of dyn. moment on base, β	-	0.7		
Position of standard dead point (see D.6)				

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D.2 WINCH SETTINGS

T11 - SINGLE LINE PULL

Versions		2S	3S	4S
 Max line pull	kg	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.

kg	Crane version		
Type of stabilizers	2S	3S	4S
ST-M	1055	1150	1225
EX-M	1105	1200	1275
EX-H	1135	1230	1305
SE-H	1155	1250	1325

Additional weight for T11 winch: 95 kg

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 $\pm 3\%$

In case of special attachment the total weights are the following:

kg	Crane version		
Type of stabilizers	2S	3S	4S
ST-M	1090	1180	N/A
EX-M	1140	1230	N/A
EX-H	1170	1260	N/A
SE-H	1190	1280	N/A

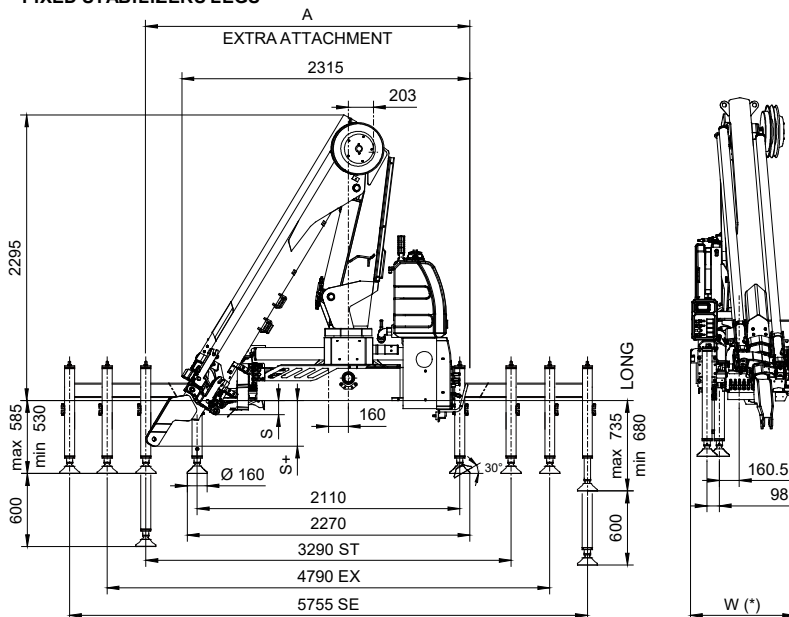
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D.4 OVERALL DIMENSIONS

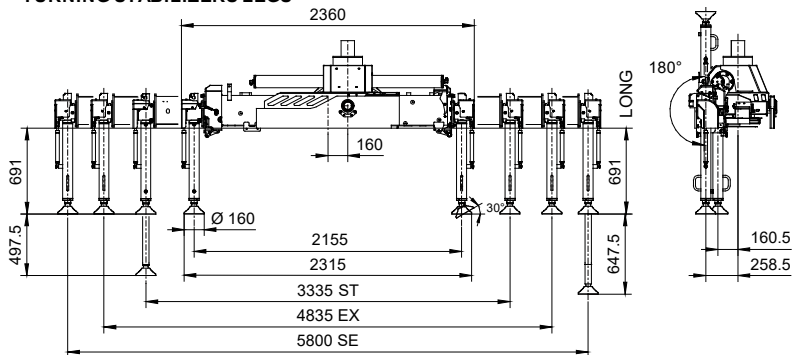
FIXED STABILIZERS LEGS



	2S	3S	4S
A (mm)	2565	2605	-
S (mm)	60	115	175
S+ (mm)	295	370	-
W (*) (mm)	825	825	825

(*) The width has to be decreased by 10 mm in case of ST stabilisers.

TURNING STABILIZERS LEGS

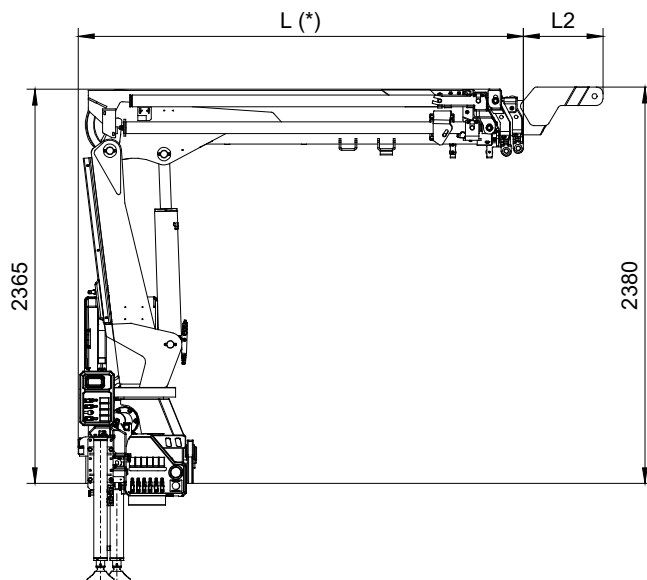


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OVERALL DIMENSIONS

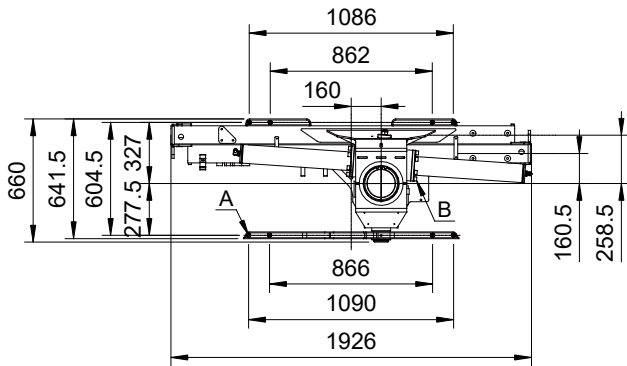


	2S	3S	4S
L (*) (mm)	2590	2660	2750
L2 (mm)	465	480	-

(*) The width has to be decreased by 10 mm in case of ST stabilisers.

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D.5 BASE DIMENSIONS AND MOUNTING BOLTS

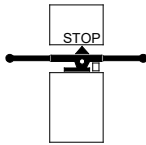
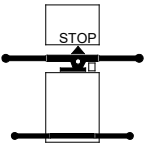
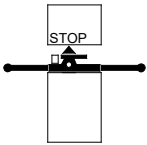
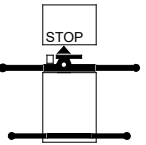
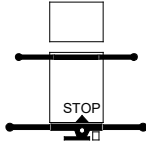
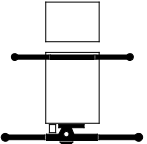
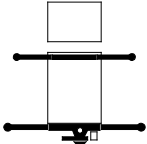
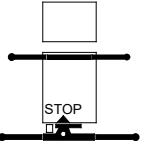
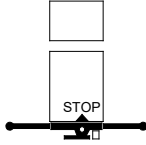
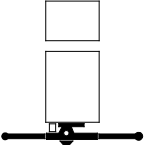
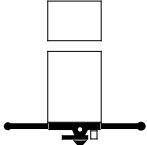
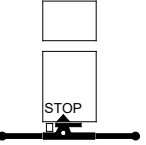
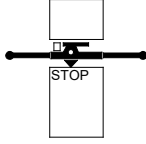
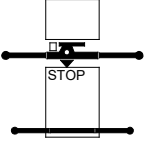
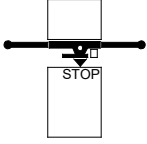
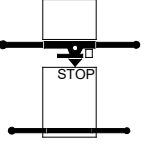


Ref.	Description	Q.ty	Material Grade	Size	Tightening torque
A	Kit with 8 crane mounting bolts	8	42CrMo4+QT EN 10083-3	M20x1.5 L=900	250 Nm
	Kit with 4 crane mounting bolts	4	39NiCrMo3+QT EN 10083-3	M24X2 L=520	400 Nm
B	Fixing bolts for each slewing cylinder	6	8.8	M14x2 L=65	80 Nm

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D.6 INSTALLATION TYPE NUMBER

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

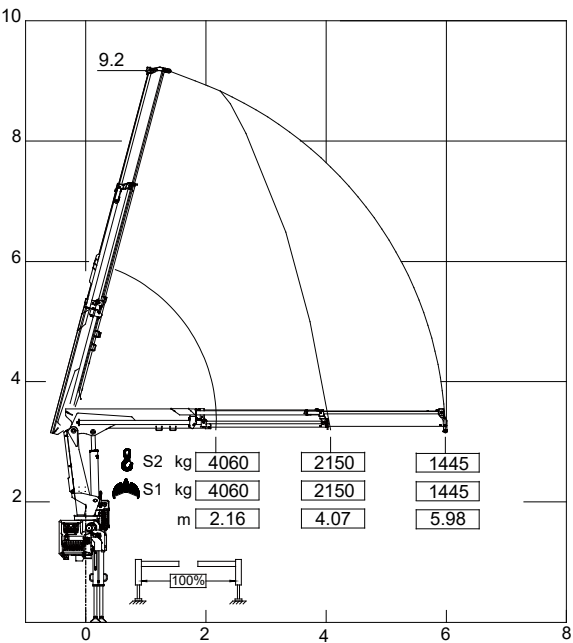
OPPOSITE DEAD POINT		STANDARD DEAD POINT	
1 	2 	3 	4 
5 	6 	7 	8 
9 	10 	11 	12 
13 	14 	15 	16 

Legend:

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

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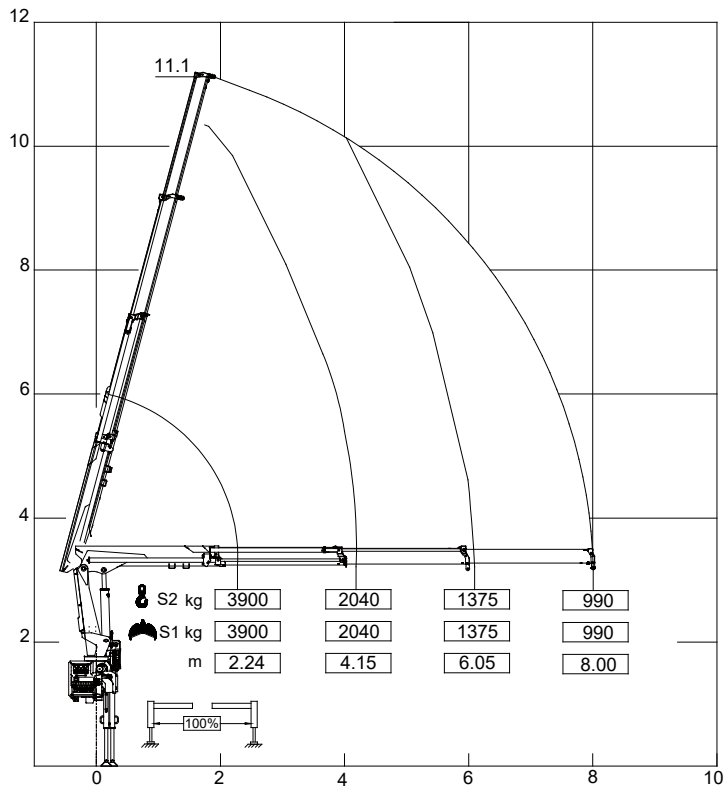
D.7 LOAD CHARTS FOR USE WITH HOOK/TOOL
810NG T 2S



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

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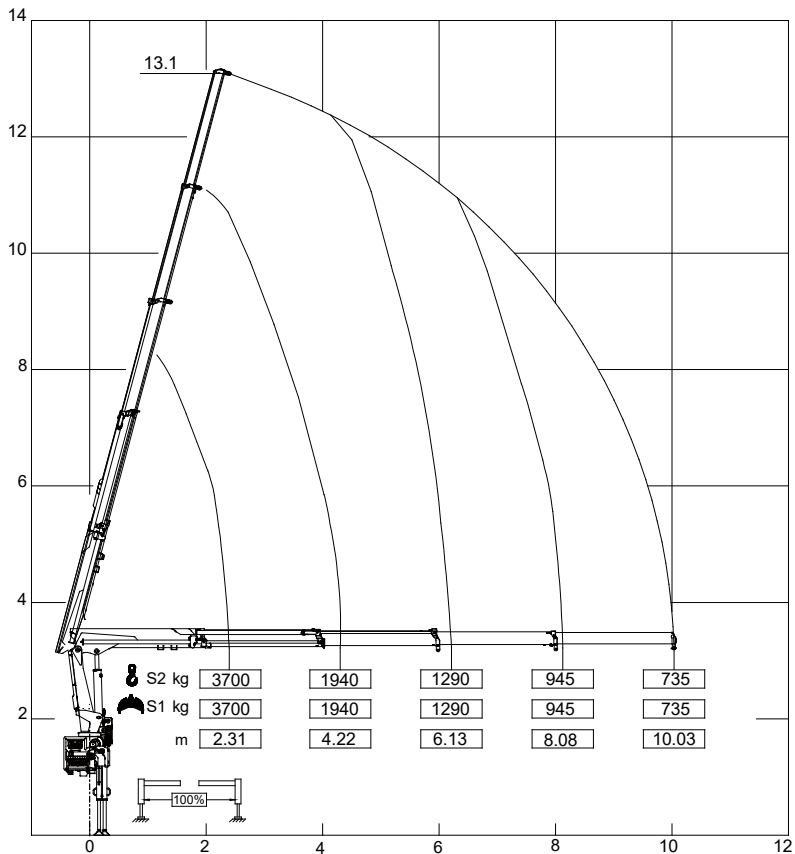
LOAD CHARTS FOR USE WITH HOOK/TOOL **810NG T 3S**



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

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LOAD CHARTS FOR USE WITH HOOK/TOOL
810NG T 4S



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

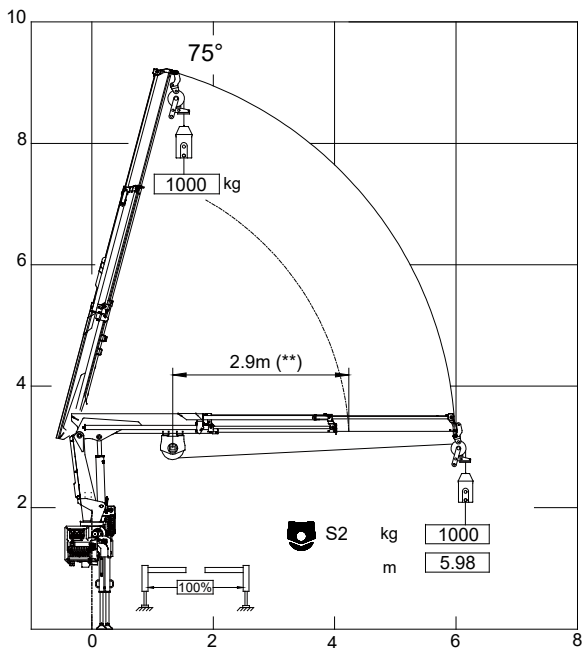
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D.8 LOAD CHARTS FOR T11 WINCH IN SINGLE LINE

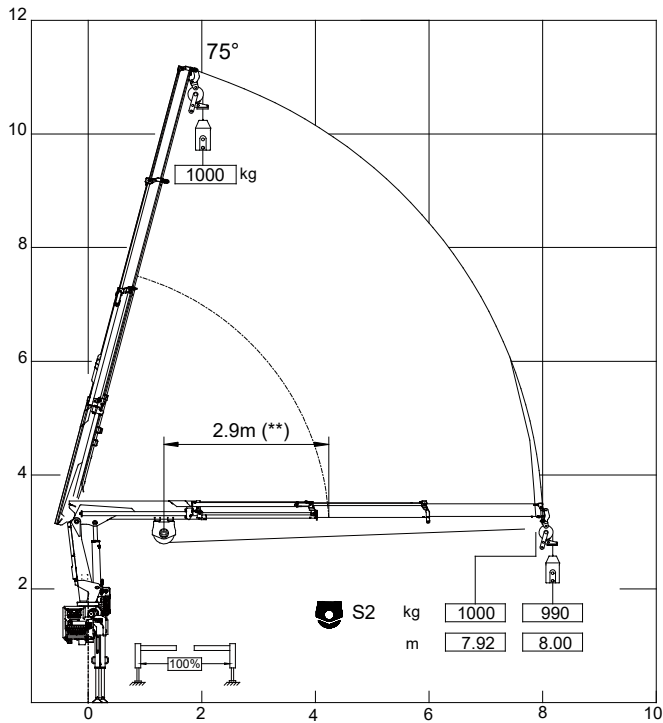
810NG T 2S + T11 SINGLE LINE



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

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LOAD CHART FOR WINCH T11 IN SINGLE LINE
810NG T 3S + T11 SINGLE LINE



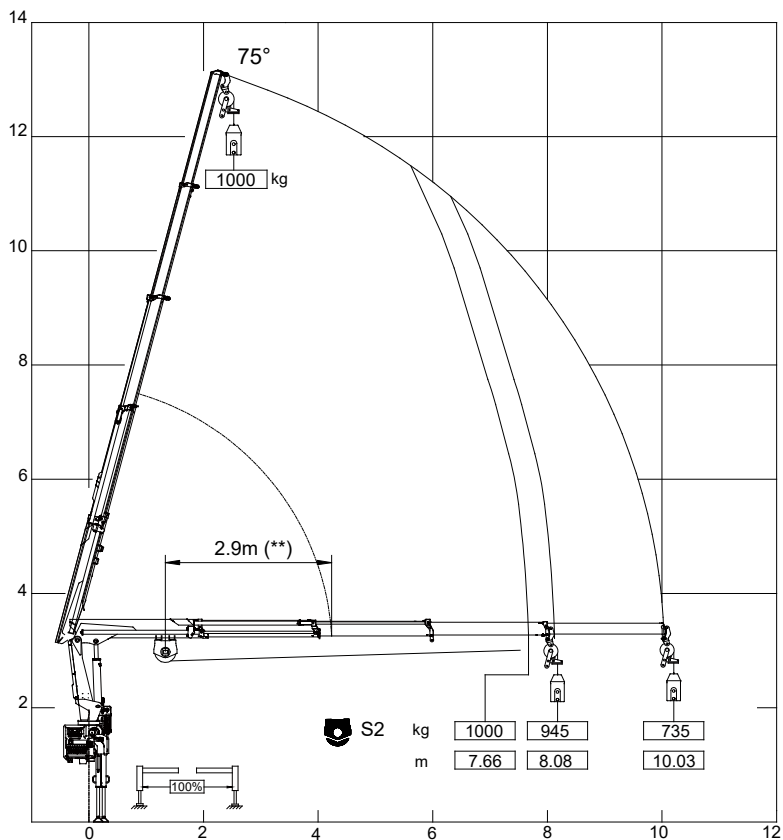
(**) Minimum distance winch - pulley
Winch max. pull: 1000 kg

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LOAD CHART FOR WINCH T11 IN SINGLE LINE 810NG T 4S + T11 SINGLE LINE



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

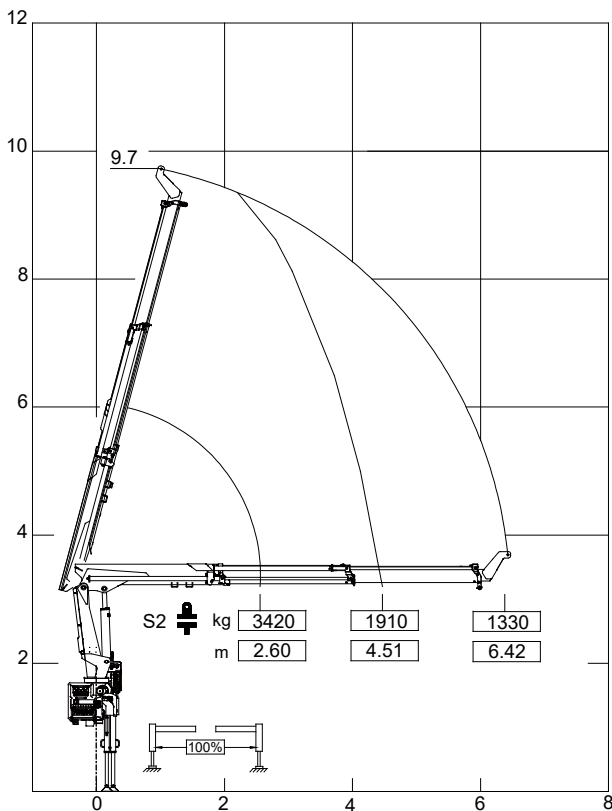
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D.9 LOAD CHARTS FOR USE WITH SPECIAL ATTACHMENT

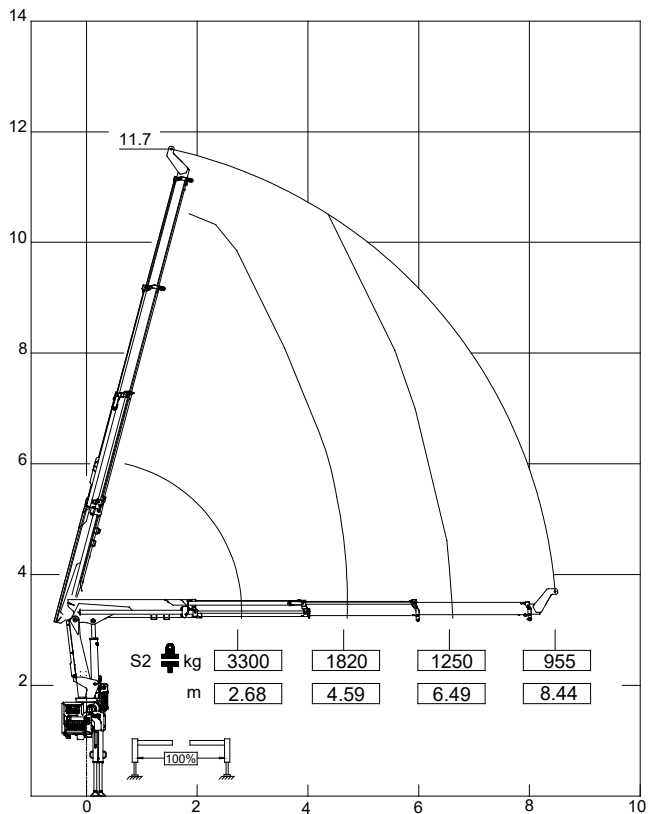
810NG T 2S



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

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LOAD CHARTS FOR USE WITH SPECIAL HOOK
810NG T 3S



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

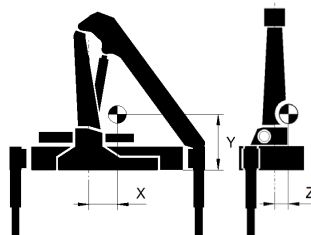
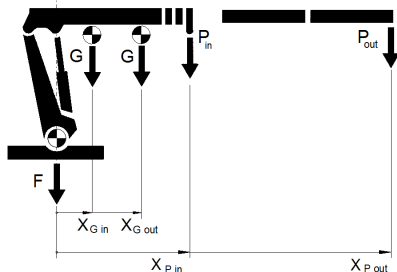
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D.10 CENTERS OF GRAVITY AND TEST LOADS

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 extended

WEIGHTS AND CENTERS OF GRAVITY: STANDARD CRANE

810NG T	F kg	G kg	X_G in / out m	P in / out kg	X_P in / out m	TL kg	X	Y	Z
2S	ST-M : 655 EX-M : 705 EX-H : 735 SE-H : 755	400	2.06 2.57	4060 1445	2.16 5.98	1806	246	662	-17
3S		495	2.24 3.33	3900 990	2.24 8.00	1238	282	686	-3
4S		570	2.34 4.02	3700 735	2.31 10.03	928	273	709	-3

WEIGHTS AND COG: CRANE WITH SPECIAL ATTACHMENT

810NG T	F kg	G kg	X_G in / out m	P in / out kg	X_P in / out m	TL kg	X	Y	Z
2S	ST-M : 655 EX-M : 705 EX-H : 735 SE-H : 755	535	2.06 2.57	3420 1330	2.60 6.42	1663	218	680	-22
3S		600	2.24 3.33	3300 955	2.68 8.44	1194	257	702	-7

The data are relating to crane configuration with horizontal booms.

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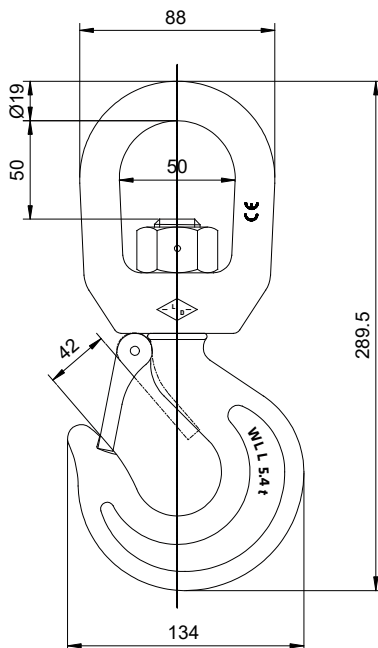
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D.11 HOOK DATA

HOOK MOUNTED ON STANDARD BOOM
VERSIONS: 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

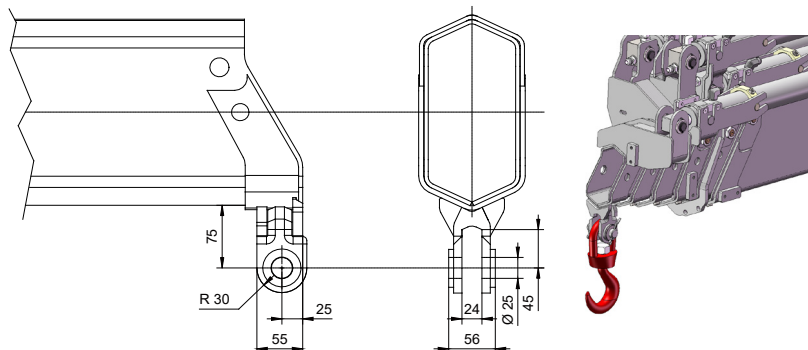
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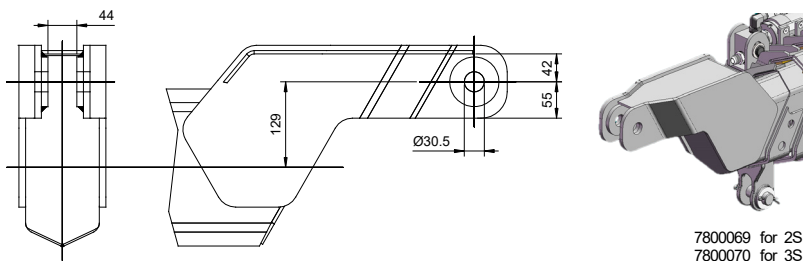
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D.12 LOAD ATTACHMENT

ATTACHMENT FOR HOOK



SPECIAL ATTACHMENT FOR ROADSIDE ASSISTANCE EQUIPMENT



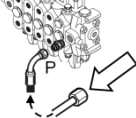
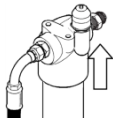
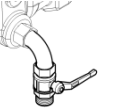
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D.13 HYDRAULIC SYSTEM

FITTINGS FOR CONNECTION TO PUMP

810NG T	NORDC	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

810NG T	Extension time s	Retraction time s
Slewing (180°)	20	20
1.boom cylinder	N/A	N/A
boom extension 1S	N/A	N/A
boom extension 2S	N/A	N/A
boom extension 3S	N/A	N/A
boom extension 4S	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.

810NG T	Time interval min.	Max. load descent mm
2S	10	299
3S	10	400
4S	10	502

CAPACITY OF HYDRAULIC SYSTEM

810NG T	Cylinders extended ℓ	Cylinders retracted ℓ
2S	24	17
3S	31	22
4S	36	26

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

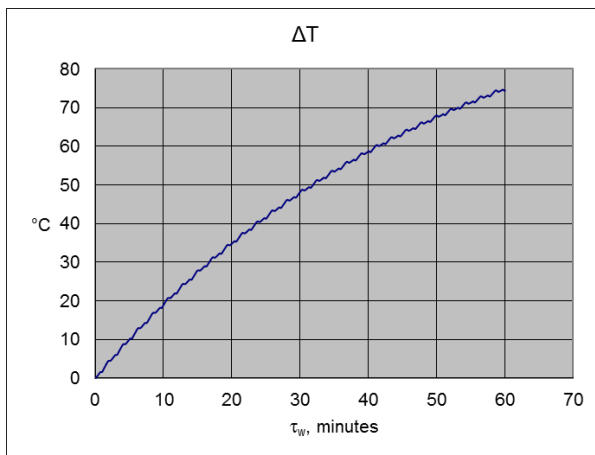
Heat transfer coefficient: 235 W/K (oil flow rate of 40 l/min)

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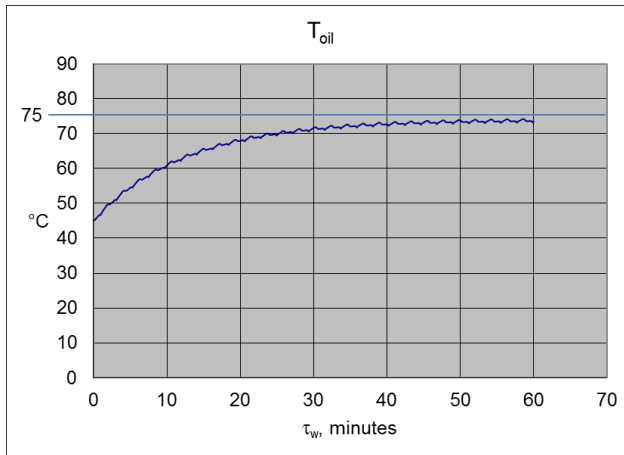
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However, when a crane equipped with oil cooler carries out a sequence of standard work cycles, the oil temperature exceeds 75 °C after the following working times:

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)

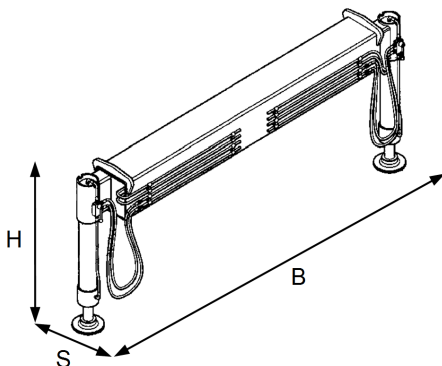
The calculation of the oil temperature is purely indicative and depending on several variables (e.g. working cycle, wind, humidity, weather, etc.)

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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:

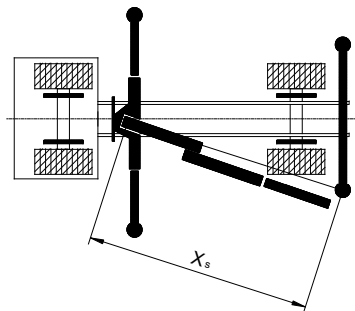
M_{dyn} : max. dynamic moment of the crane

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	2160x770x190
7850086	3.32	220	6250	2285x780x240
7850087	3.32	235	6250	2285x780x240

For further information see the User Manual for outriggers.

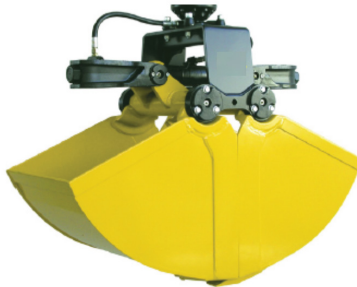
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D.16 RECOMMENDED ADDITIONAL LIFTING TOOLS

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⁾
2S	1445	H605-650	410	650	975	1035	96%	100%
3S	990	H605-250	285	250	375	705	67%	100%
4S	735	H604-200	195	200	300	540	67%	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⁾
2S	1445	H653-4 large	395	350	525	1050	64%	100%
3S	990	H653-4 small	275	120	180	715	46%	100%
4S	735	H653-4 small	275	120	180	460	62%	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

USER MANUAL

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TECHNICAL SHEET

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⁾
2S	1445	H634-0,25	170	4000	1275	100%	32%
3S	990	H634-0,25	170	4000	820	100%	21%
4S	735	H634-0,25	170	4000	565	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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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⁾
2S	1445	H332-1330	265	1600	1180	100%	74%
3S	990	H332-1330	265	1600	725	100%	45%
4S	735	H332-1330	265	1600	470	100%	29%

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

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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⁾
2S	1445	H415 1500-500	135	1500	1310	100%	87%
3S	990	H415 1500-500	135	1500	855	100%	57%
4S	735	H415 1500-500	135	1500	600	100%	40%

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