

USER MANUAL
824NG
TECHNICAL SHEET

D TECHNICAL SHEET



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TECHNICAL SHEET

D.1 CRANE'S TECHNICAL DATA

Versions			2S	3S	4S	5S
Max. net lifting moment		$t\ m$ kNm	22.7 222	21.8 214	21.1 207	20.4 201
Max. dynamic moment		$daNm$ kNm	28150 281			
Capacity at min. hydraulic outreach	hook [S2]	kg	5280	5085	4820	4585
Max rated capacity	grab [S1]	kg	5280	5085	4820	4585
	min. outreach	m	4.30	4.30	4.39	4.47
Capacity at max. hydraulic outreach	hook [S2]	kg	2750	2035	1530	1170
	grab [S1]	kg	2750	2035	1530	1170
	max.outreach	m	8.10	10.13	12.25	14.46
Capacity of 1st man. extension	capacity	kg	N/A	1530	1170	915
	max.outreach	m	N/A	12.25	14.46	16.59
Max. load height above the base for the last extension	hydraulic	m	10.6	12.6	14.7	16.9
	manual	m	N/A	19.0	21.1	21.1
Weight of crane without stabilizers		kg	2200	2355	2505	2625
Weight of stabilizers	ST-M	kg	285			
	EX-H	kg	355			
	SE-H	kg	510			
Weight of 1st man. extension		kg	N/A	90	68	59
Max. working pressure		bar	320			
Max. oil flow rate		l/min	50			
		l/min	80			
Max. power needed		kW	34.7			
		kW	55.4			
Oil tank capacity		l	130			
Slewing angle		$^{\circ}$	415			
Gross slewing torque		$daNm$ kNm	2600 26.0			
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	12340			
	EX	daN	10820			
	SE	daN	7900			
Max. stabilizer pressure on the ground with stabilizers fully extended	ST	MPa	3.25			
	EX	MPa	2.85			
	SE	MPa	2.08			
Lifting coversion factor, k	kgm/bar		84.61			
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

T12 - SINGLE LINE PULL

Versions	2S	3S	4S	5S
 Max line pull <i>kg</i>	2000	2000	2000	2000
Start angle - pull% Final angle - pull% 	-	-	-	-

N/A: configuration not available

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	2S	3S	4S	5S
ST-M	2485	2640	2790	2910
EX-H	2555	2710	2860	2980
SE-H	2710	2865	3015	3135

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

Additional weight for T12 winch: 150 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

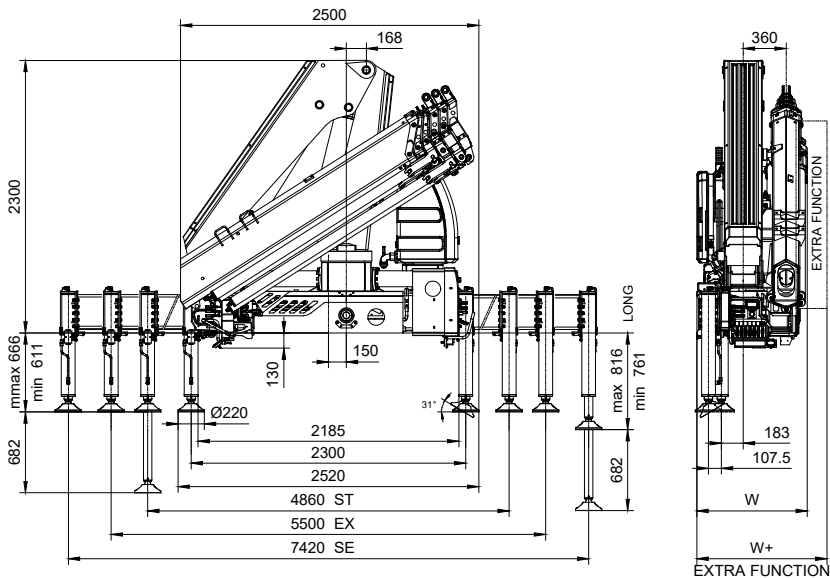
Additional weight of 1st extra function activated with hose reel: 20 kg

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

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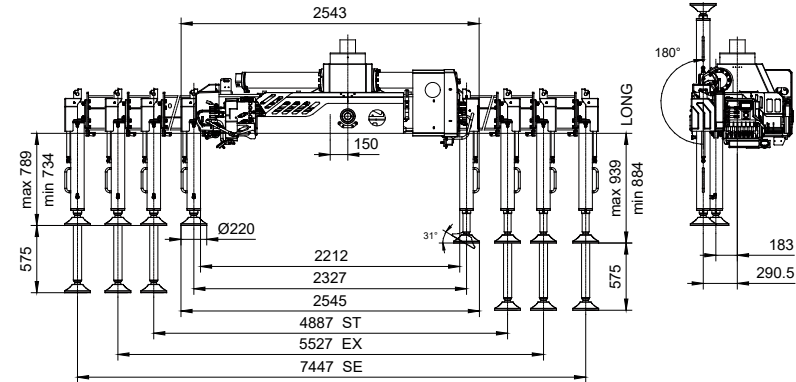
D.4 OVERALL DIMENSIONS

FIXED STABILIZERS LEGS



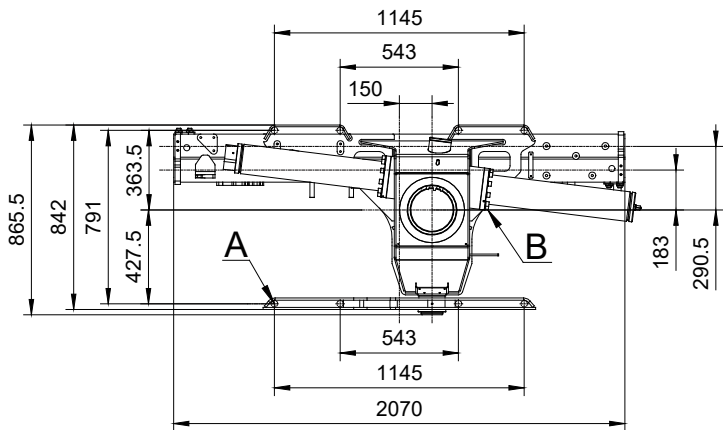
	2S	3S	4S	5S
W (mm)	930	930	930	930
W+ (mm)	Slides	1050	1050	1050
	Hose reel	N/A	N/A	1120

TURNING STABILIZERS LEGS



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D.5 BASE DIMENSIONS AND MOUNTING BOLTS



Ref.	Description	Q.ty	Material Grade	Size (Q.ty)	Tightening torque
A	Kit with 8 crane mounting bolts	8	42CrMo4+QT EN 10083-3	M24x2 L=1100 (4) L=1015 (4)	400 Nm
	Kit with 4 crane mounting bolts	4	42CrMo4+QT EN 10083-3	M30x2 L=1000 (2) L=1100 (2)	700 Nm
B	Fixing bolts for each slewing cylinder	10	8.8	M14x2 L=75	80 Nm

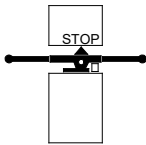
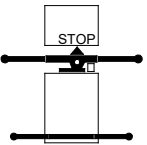
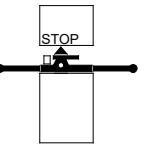
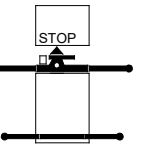
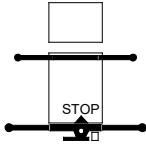
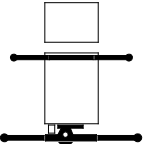
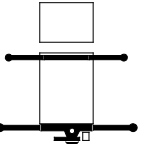
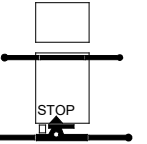
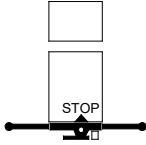
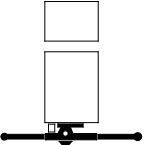
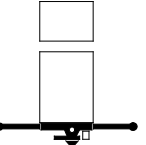
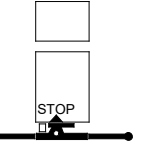
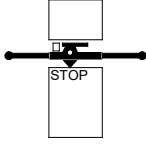
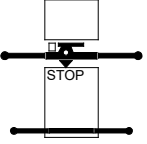
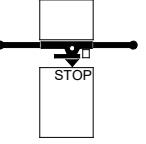
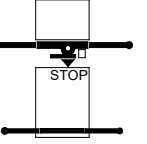
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D.6INSTALLATION TYPE NUMBER

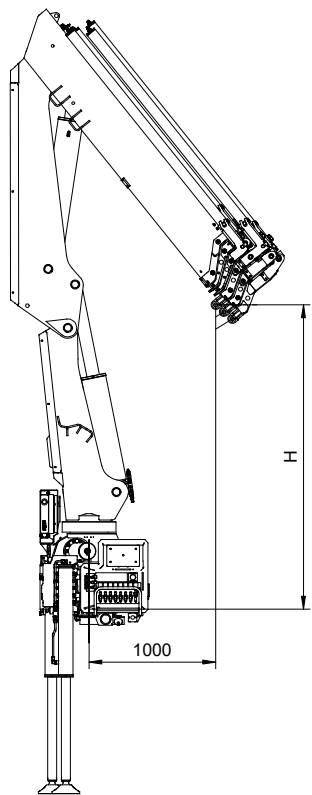
Installation types numbers (ITN) for cranes with standard dead point (STOP) toward swing bridge.

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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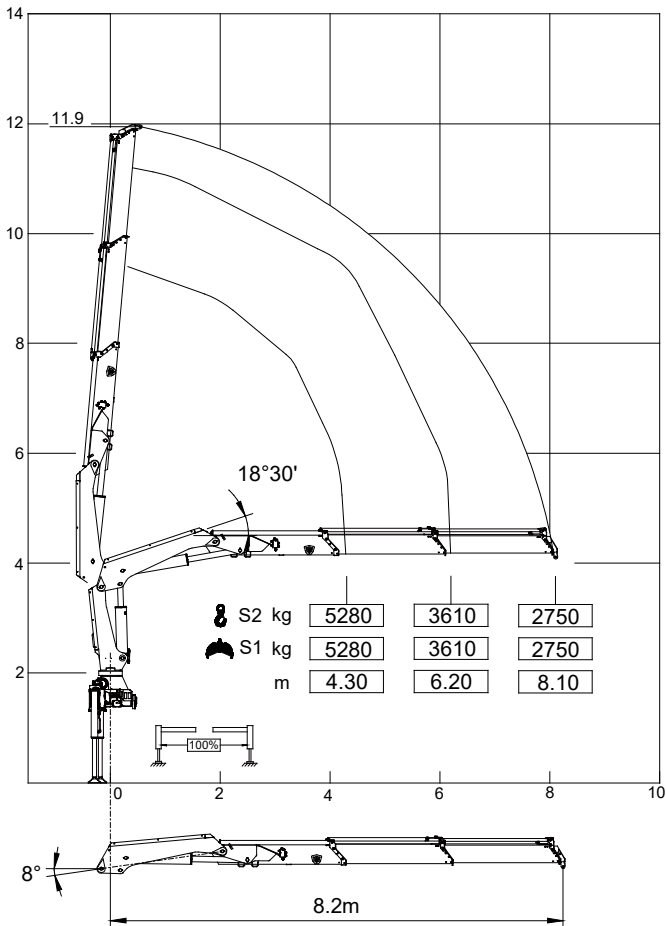
D.7 LIFTING HEIGHT CLOSE TO THE COLUMN



Version	H mm
2S	2396
3S	2396
4S	2300
5S	2205

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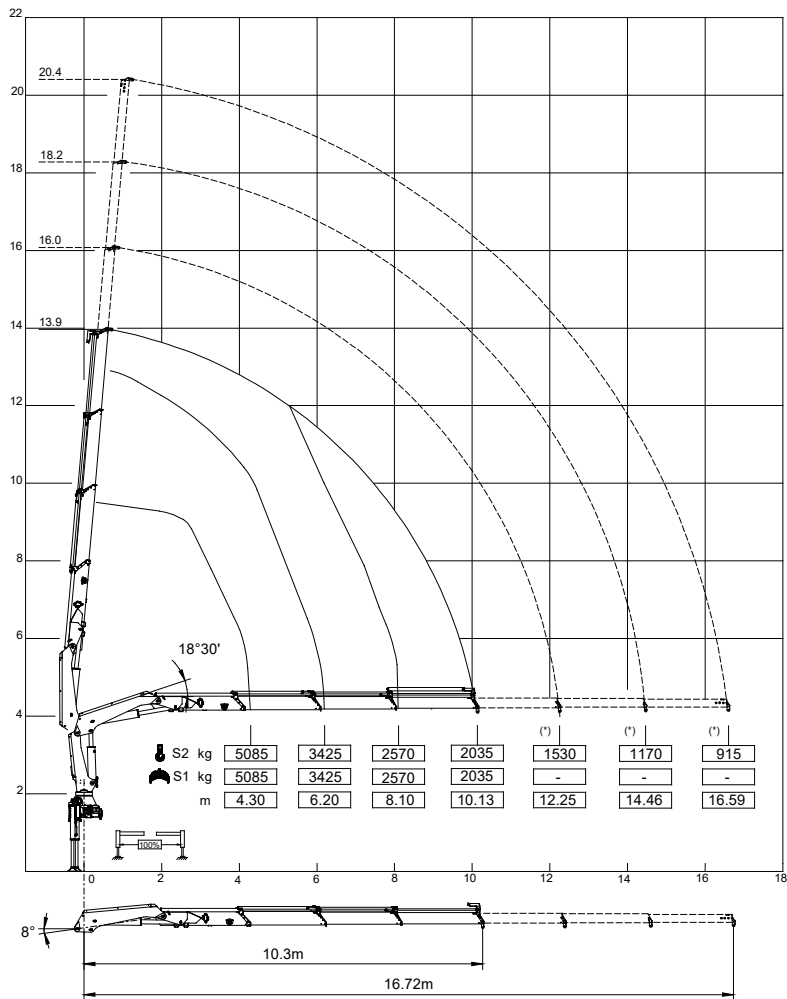
D.8 LOAD CHARTS FOR USE WITH HOOK/TOOL
824NG 2S



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

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LOAD CHARTS LOAD CHARTS FOR USE WITH HOOK/TOOL
824NG 3S



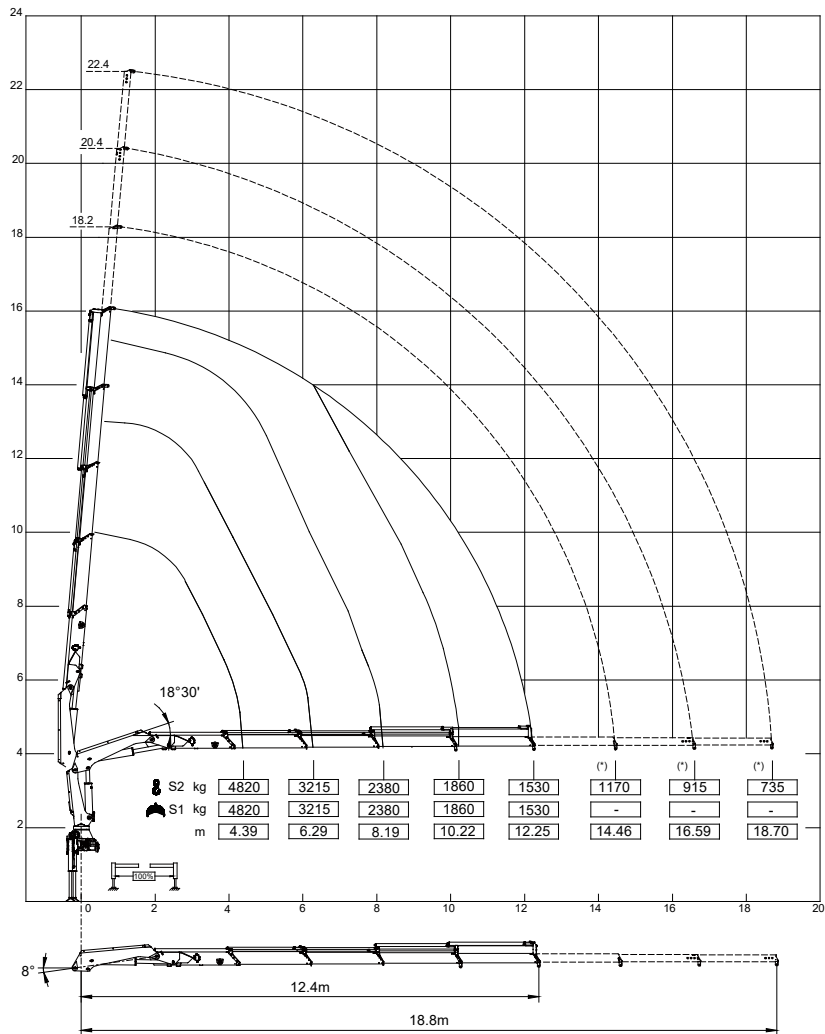
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LOAD CHARTS LOAD CHARTS FOR USE WITH HOOK/TOOL

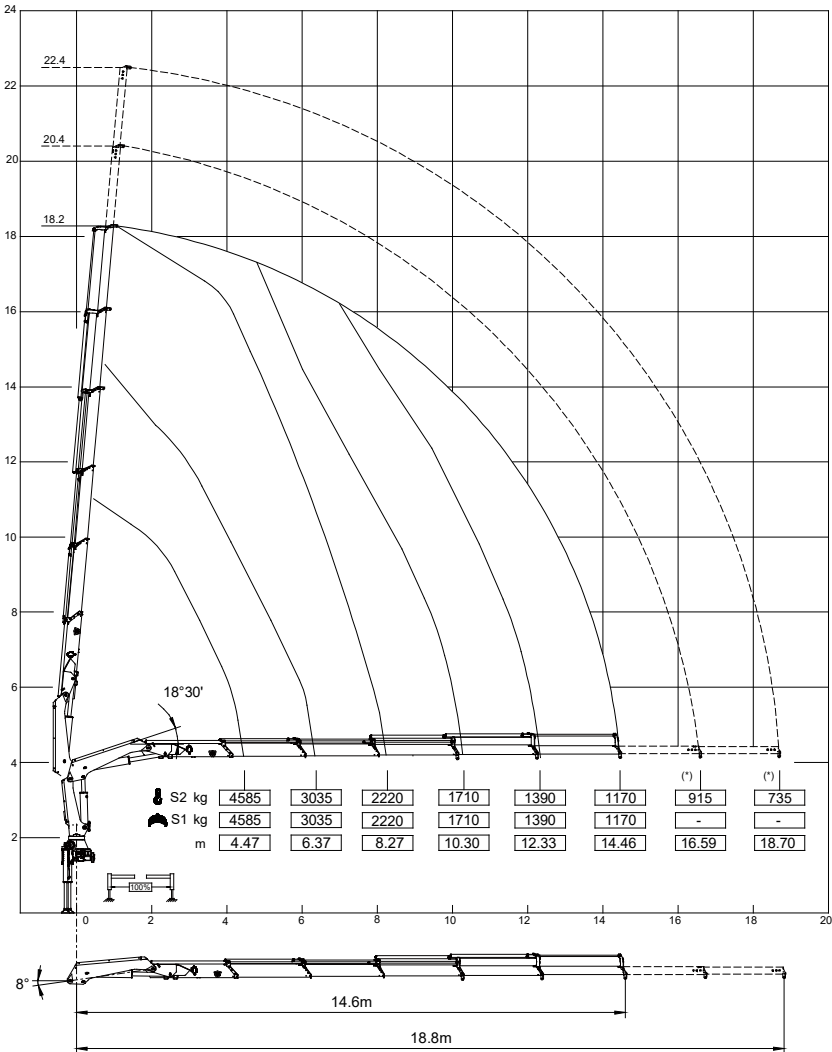
824NG 4S



(*) 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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LOAD CHARTS LOAD CHARTS FOR USE WITH HOOK/TOOL
824NG 5S



(*) 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

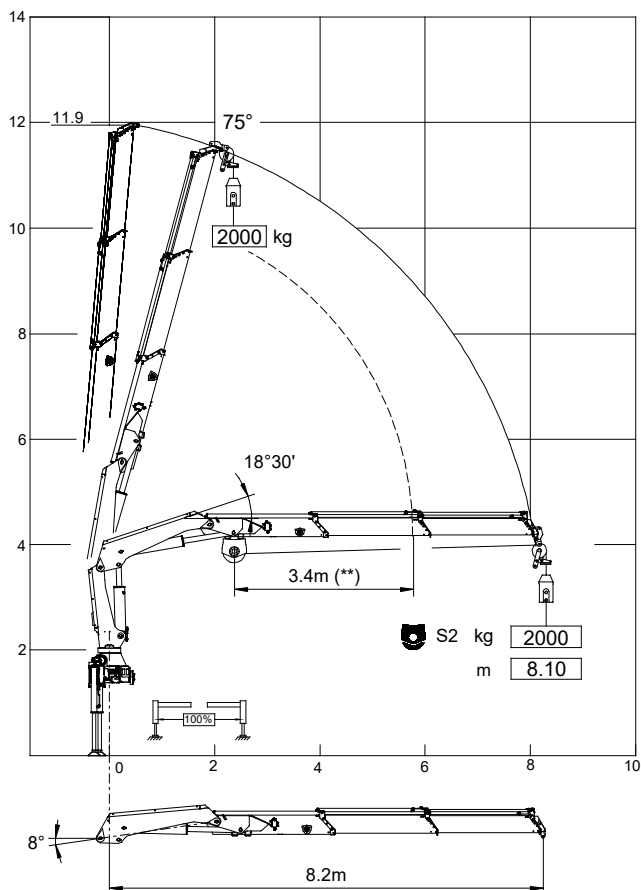
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D.9 LOAD CHARTS FOR T12 WINCH IN SINGLE LINE

824NG 2S + T12 SINGLE LINE



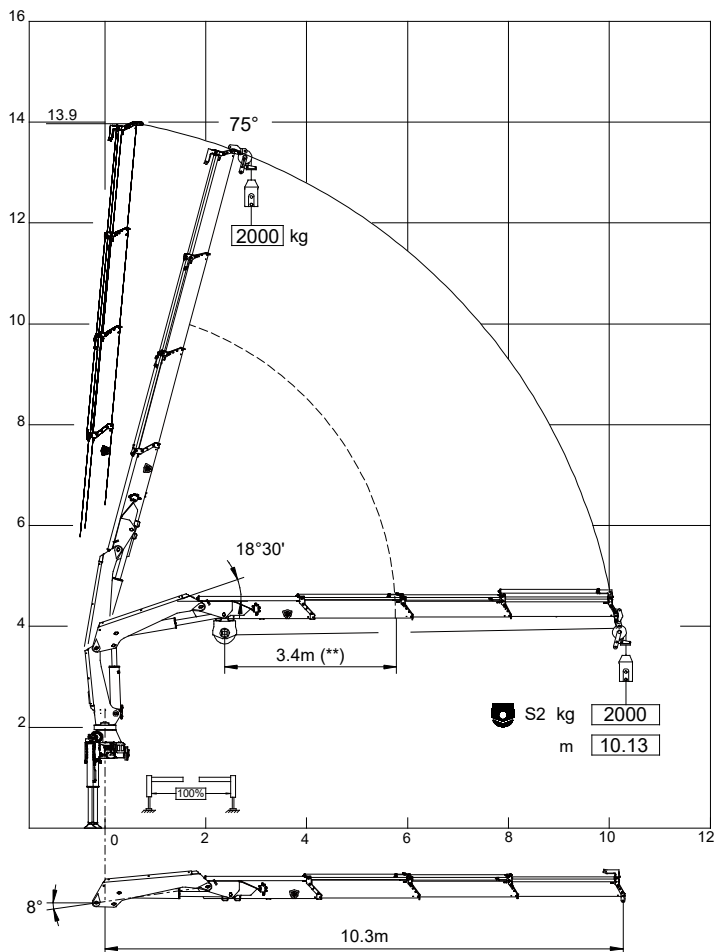
(**) Minimum distance winch - pulley
Winch max. pull: 2000 kg

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LOAD CHART FOR WINCH T12 IN SINGLE LINE 824NG 3S + T12 SINGLE LINE



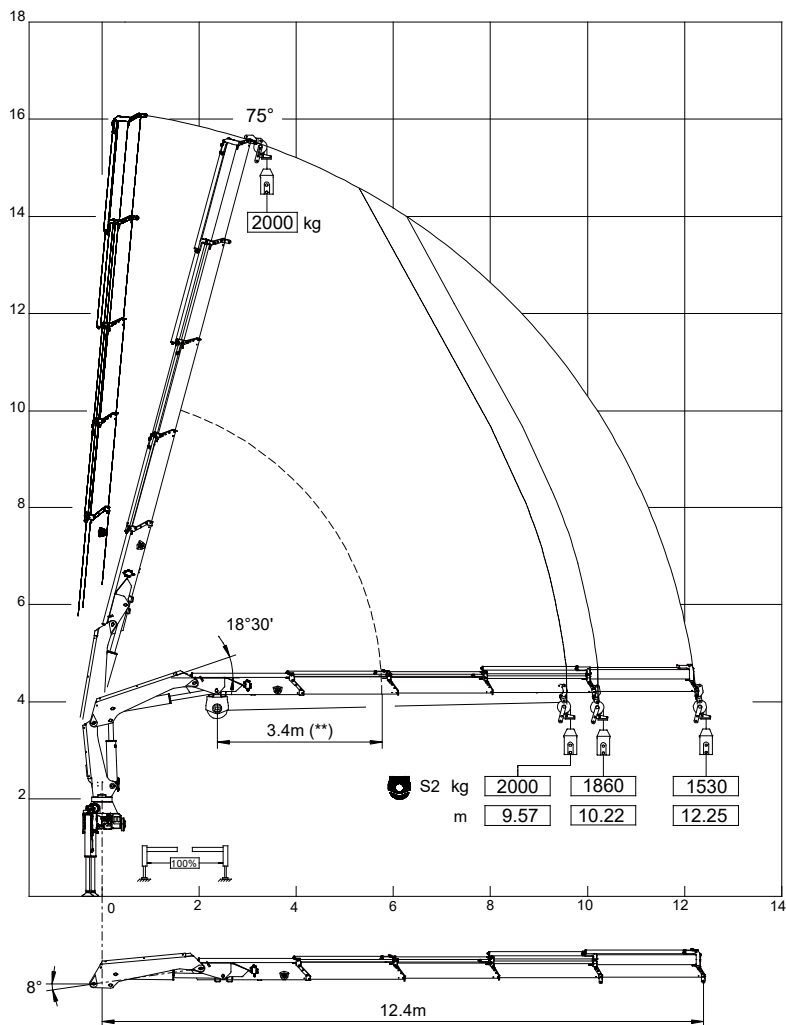
(**) Minimum distance winch - pulley
Winch max. pull: 2000 kg

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LOAD CHART FOR WINCH T12 IN SINGLE LINE 824NG 4S + T12 SINGLE LINE



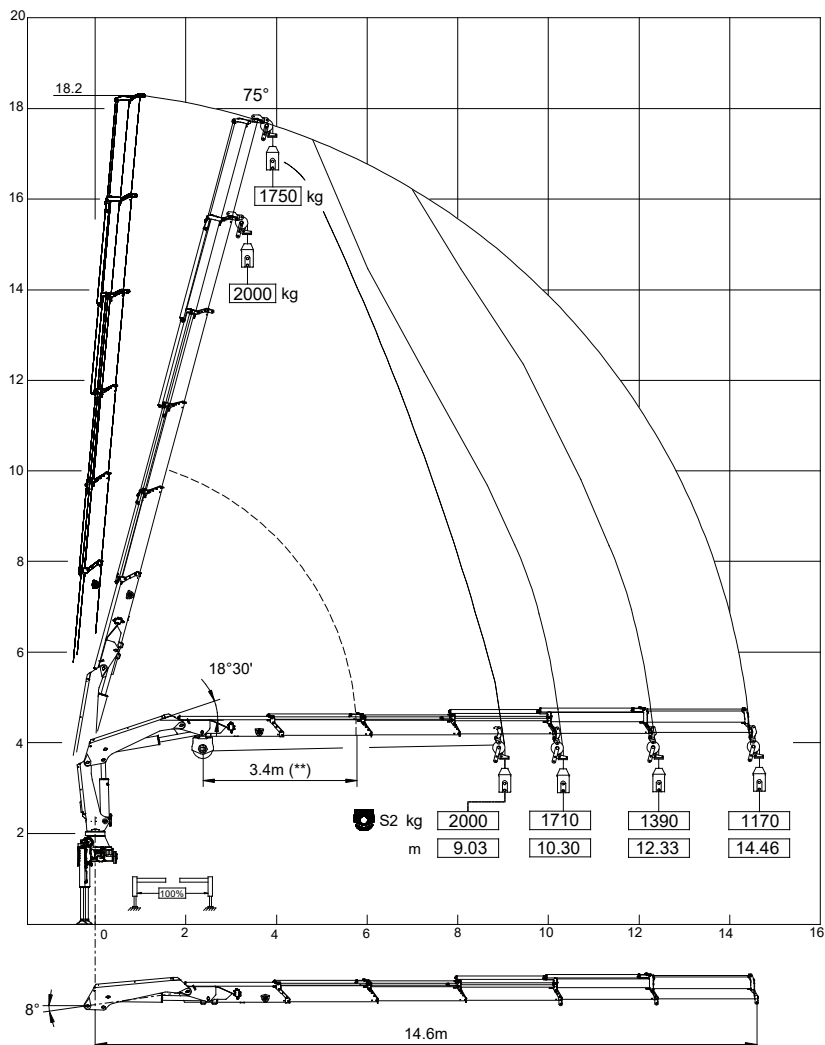
(**) Minimum distance winch - pulley
Winch max. pull: 2000 kg

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LOAD CHART FOR WINCH T12 IN SINGLE LINE 824NG 5S + T12 SINGLE LINE



(**) Minimum distance winch - pulley
Winch max. pull: 2000 kg

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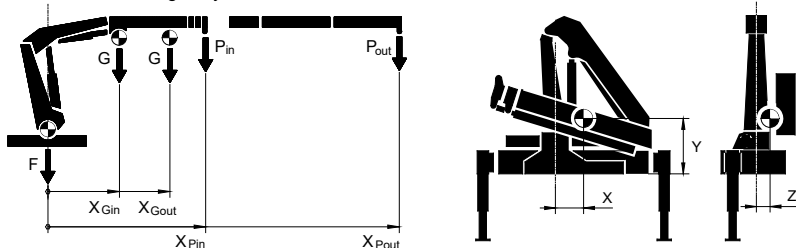
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D.10 CENTERS OF GRAVITY AND TEST LOADS

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

824NG	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 : 1440 EX-M : 1465 EX-H : 1510 SE-H : 1665	1045	2.06 2.92	5280 2750	4.30 8.10	3438	204	792	24
3S		1200	2.20 3.71	5085 2035	4.30 10.13	2544	208	802	43
4S		1350	2.33 4.53	4820 1530	4.39 12.25	1936	197	820	62
5S		1470	2.41 5.25	4585 1170	4.47 14.46	1511	189	833	74

The data are relating to crane configuration with horizontal booms.

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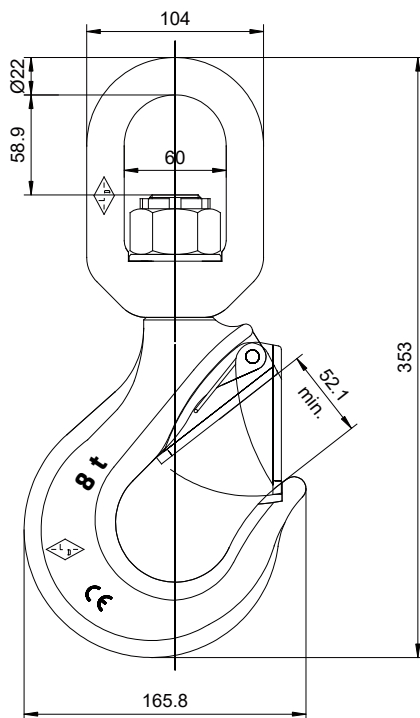
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D.11 HOOK DATA

HOOK MOUNTED ON STANDARD BOOM
VERSIONS: 2S, 3S, 4S, 5S

DIMENSIONS



TECHNICAL PROPERTIES

Working load limit (WLL) : 8000 kg

Material: alloy steel

Weight: 6.2 kg

Swivel hook

Reference standard: DIN 15401

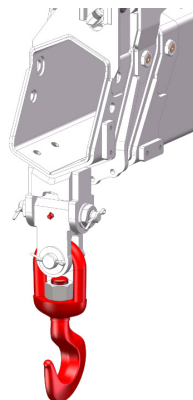
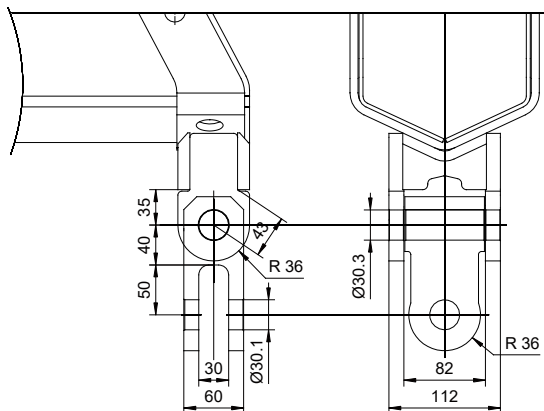
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D.12 LOAD ATTACHMENT

ATTACHMENT FOR HOOK AND LIFTING TOOL



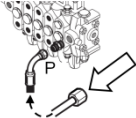
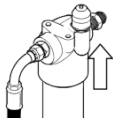
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D.13 HYDRAULIC SYSTEM

FITTINGS FOR CONNECTION TO PUMP

824NG	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

824NG	Extension time s	Retraction time s
Slewing (180°)	20	20
1.boom cylinder	20	35
2.boom cylinder	32	20
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
boom extension 5S (SGS active)	32	34

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.

824NG	Time interval min.	Max. load descent mm
2S	10	405
3S	10	507
4S	10	245
5S	10	289

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CAPACITY OF HYDRAULIC SYSTEM

824NG	Cylinders extended ℓ	Cylinders retracted ℓ
1S	62	40
2S	68	43
3S	75	47
4S	82	51
5S	89	56

Capacities do not include the oil tank.

ADDITIONAL CAPACITY FOR HYDRAULICALLY OPERATED STABILIZER EXTENSIONS

EX-H	+4.0	+2.5
SE-H	+6.5	+3.5

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D.14 OIL COOLER



TECHNICAL SPECIFICATIONS

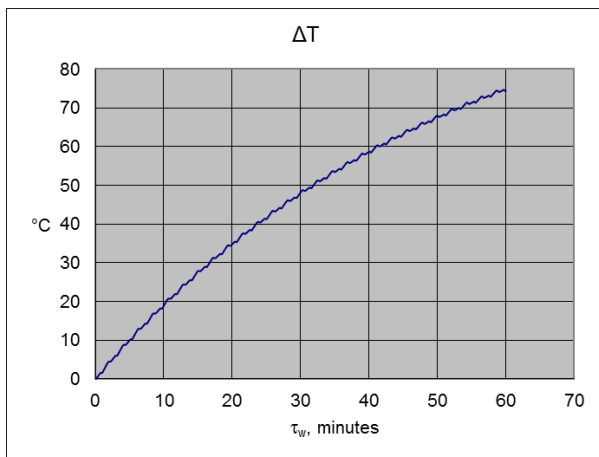
Heat transfer coefficient: 235 W/K (oil flow rate of 40 l/min)

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

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

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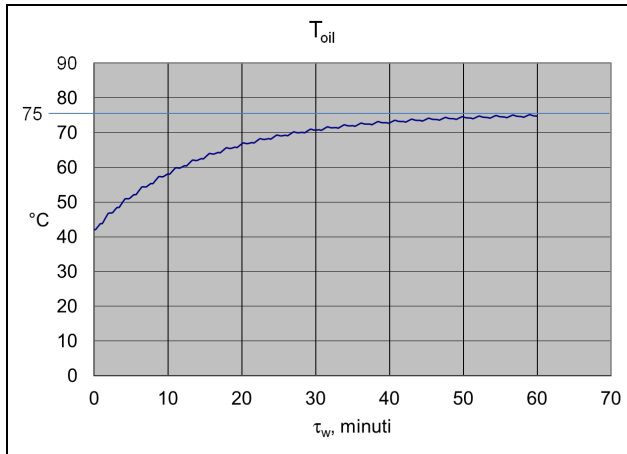
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However, when a crane equipped with oil cooler carries out a sequence of standard work cycles, the oil temperature exceeds 75 °C after the following working times:

T_{env} (°C)	τ_w to exceed 75 °C (minutes)
42	no limit
45	35
48	25
50	21
52	18
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)

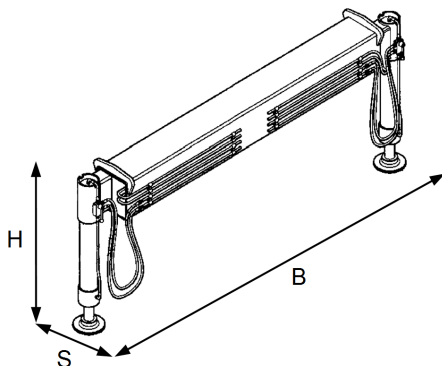
The calculation of the oil temperature is purely indicative and depending on several variables (e.g. working cycle, wind, humidity, weather, etc.)

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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:

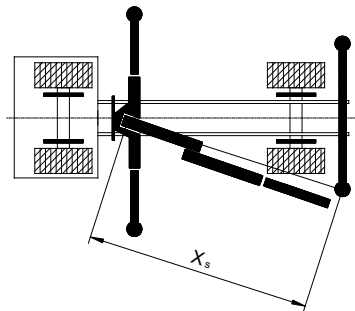
M_{dyn} : max. dynamic moment of the crane

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)
7850106	3.33	280	8200	2334x930x220
7850107	3.33	270	8200	2334x840x220
7850105	4.74	400	8250	2346x930x400
7850121	4.74	390	8250	2346x840x400
7850103	5.02	580	12700	2420x1095x430
7850104	5.02	550	12700	2420x970x430

For further information see the User Manual for outriggers.

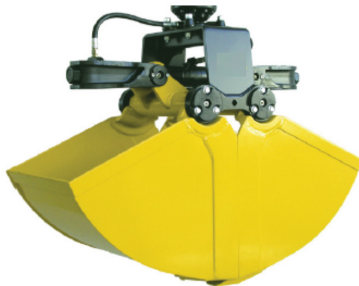
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D.16 RECOMMENDED ADDITIONAL LIFTING TOOLS

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	2750	H605-650	410	650	975	2340	50%	100%
3S	2035	H605-650	410	650	975	1625	68%	100%
4S	1530	H605-650	410	650	975	1120	91%	100%
5S	1170	H604-350	240	350	525	930	65%	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	2750	H653-4 large	435	500	750	2315	43%	100%
3S	2035	H653-4 large	435	500	750	1600	58%	100%
4S	1530	H653-4 large	395	350	525	1135	60%	100%
5S	1170	H653-4 large	395	350	525	775	79%	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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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	2750	H634-0,25	170	4000	2580	100%	65%
3S	2035	H634-0,25	170	4000	1865	100%	47%
4S	1530	H634-0,25	170	4000	1360	100%	34%
5S	1170	H634-0,25	170	4000	1000	100%	25%

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

USER MANUAL

824NG

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⁾
2S	2750	H332-1330	265	1600	2485	68%	100%
3S	2035	H332-1330	265	1600	1770	92%	100%
4S	1530	H332-1330	265	1600	1265	100%	79%
5S	1170	H332-1330	265	1600	905	100%	57%

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

824NG

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⁾
2S	2750	H415 2000-500	155	2000	2595	78%	100%
3S	2035	H415 1500-500	135	1500	1900	80%	100%
4S	1530	H415 1500-500	135	1500	1395	100%	93%
5S	1170	H415 1500-500	135	1500	1035	100%	69%

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