D TECHNICAL SHEET

D.1 CRANE'S TECHNICAL DATA

Versions				2S	3S
Max. net lifting moment			*t m* *kNm*	15.4 151	15.1 148
Max. dynamic moment			*daNm* *kNm*	18870 189	
Capacity at min. hydraulic outreach Max rated capacity	hook [S2]		*kg*	4010	3860
	grab [S1]		*kg*	4010	3860
	min.outreach		*m*	3.85	3.90
Capacity at max. hydraulic outreach	hook [S2]		*kg*	2115	1530
	grab [S1]		*kg*	2115	1530
	max.outreach		*m*	7.13	9.23
Capacity of 1st man. extension	capacity		*kg*	N/A	N/A
	max.outreach		*m*	N/A	N/A
Max. load height above the base for the last extension	hydraulic		*m*	9.5	11.5
	manual		*m*	N/A	N/A
Weight of crane without stabilizers			*kg*	1630	1755
Weight of stabilizers		ST-M	*kg*	250	
		EX-M	*kg*	340	
		EX-H	*kg*	375	
		SE-H	*kg*	410	
Weight of 1st man. extension			*kg*	N/A	N/A
Max. working pressure			*bar*	300	
Max. oil flow rate			*ℓ/min*	40	
			ℓ/min	60	
Max. power needed			*kW*	26.0	
			kW	39.0	
Oil tank capacity			*ℓ*	130	
Slewing angle			°	425°	
Gross slewing torque			*daNm* *kNm*	2170 21.7	
Max. base inclination			°	4°	
			°	3°	
Max. stabilizer force on the ground with stabilizers fully extended		ST	*daN*	9665	
		EX	*daN*	7395	
		SE	*daN*	5985	
Max. stabilizer pressure on the ground with stabilizers fully extended		ST	*MPa*	3.8	
		EX	*MPa*	2.9	
		SE	*MPa*	2.4	
Lifting coversion factor, k			*kgm/bar*	61.79	
Distribution factor of dyn. moment on base, β			-	0.70	
Position of standard dead point (see D.5)			▲		

D.2 TOTAL WEIGHTS

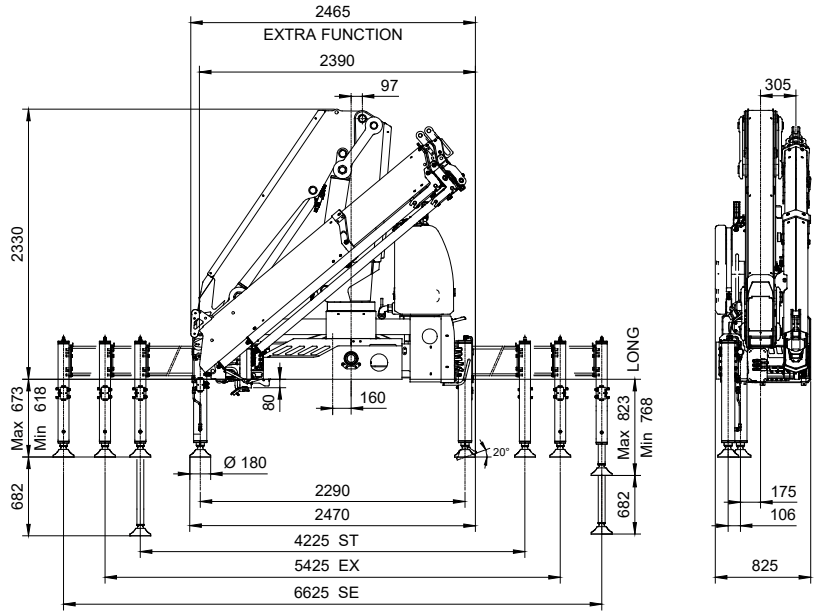
The table shows the total weights including oil inside the cylinders (fully retracted) and considering oil tank empty.

kg	**Crane version**	
Type of stabilizers	**2S**	**3S**
ST-M	1880	2005
EX-M	1970	2095
EX-H	2005	2130
SE-H	2040	2165

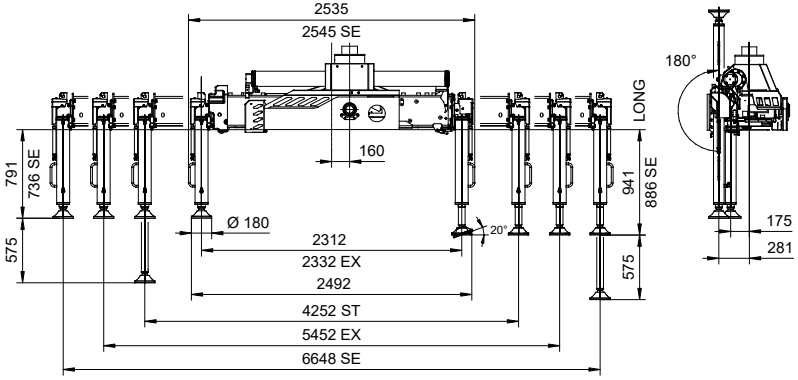
Additional weight of 1st extra function activated with hose reel: 20 kg
Additional weight of 2nd extra function activated with hose reel: 10 kg
The weights may vary by ±3%

D.3 OVERALL DIMENSIONS

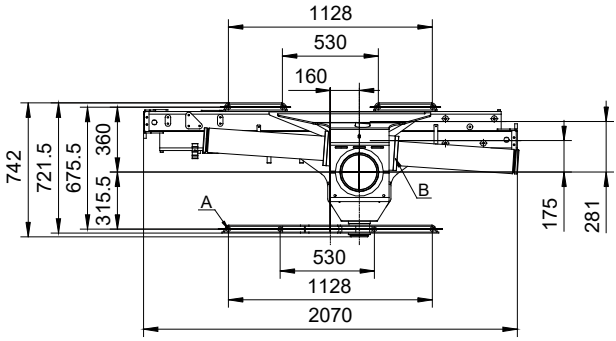
FIXED STABILIZERS LEGS



TURNING STABILIZERS LEGS



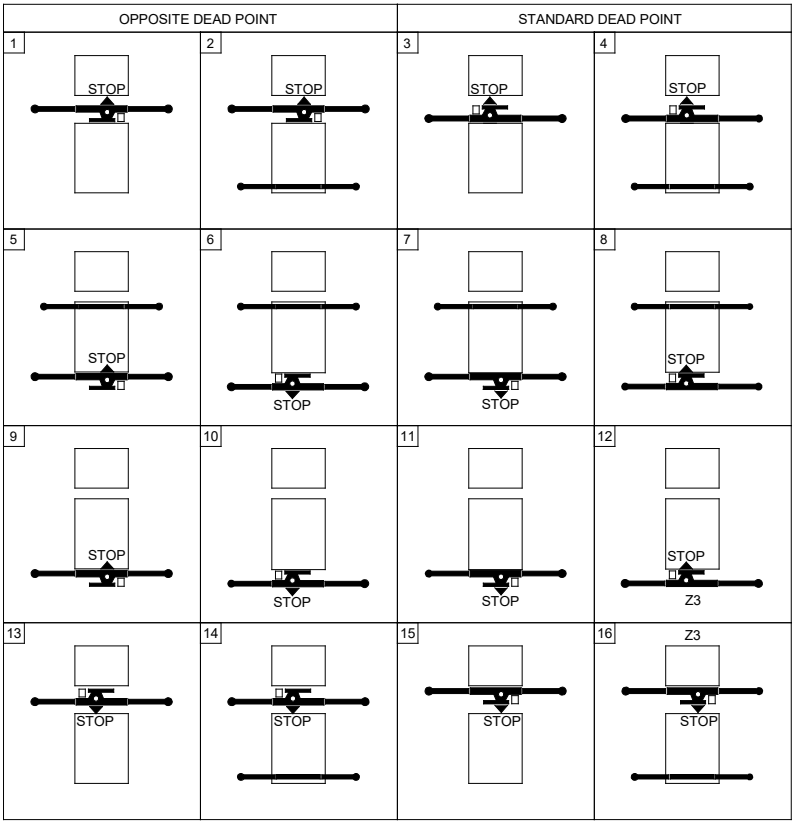
D.4 BASE DIMENSIONS AND MOUNTING BOLTS



Ref.	Description	Q.ty	Material Grade	Size	Tightening torque
A	Kit with 8 crane mounting bolts	8	42CrMo4+QT EN 10083-3	M24x2 L=1100	400 Nm
	Kit with 4 crane mounting bolts	4	42CrMo4+QT EN 10083-3	M30x2 L=600	700 Nm
B	Fixing bolts for each slewing cylinder	10	8.8	M14x2 L=65	80 Nm

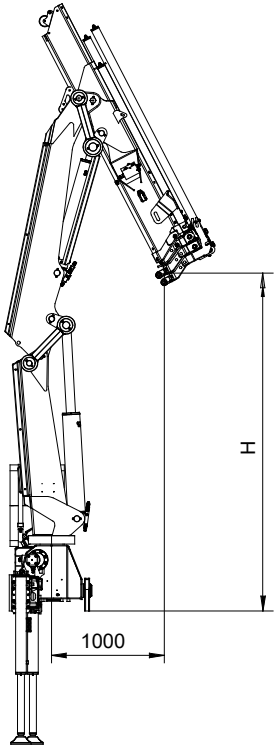
D.5 INSTALLATION TYPE NUMBER

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



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

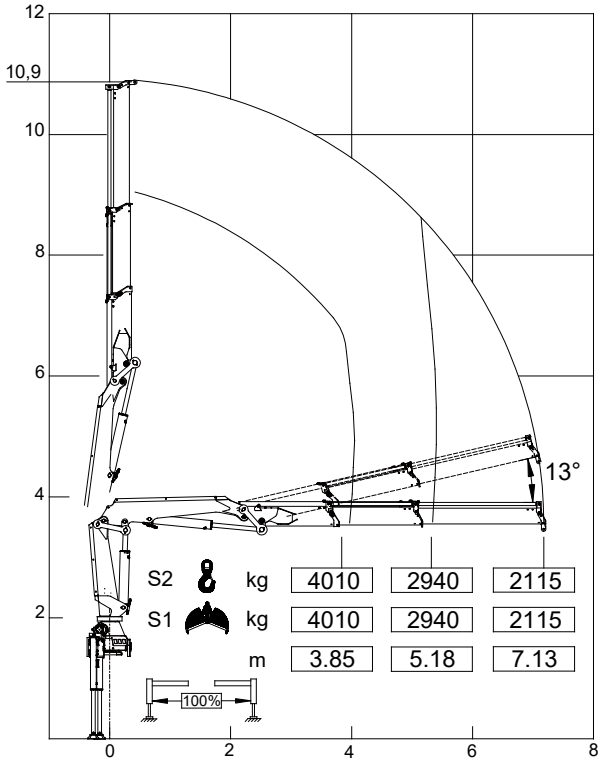
D.6 LIFTING HEIGHT CLOSE TO THE COLUMN



Version	H mm
2S	2965
3S	2880

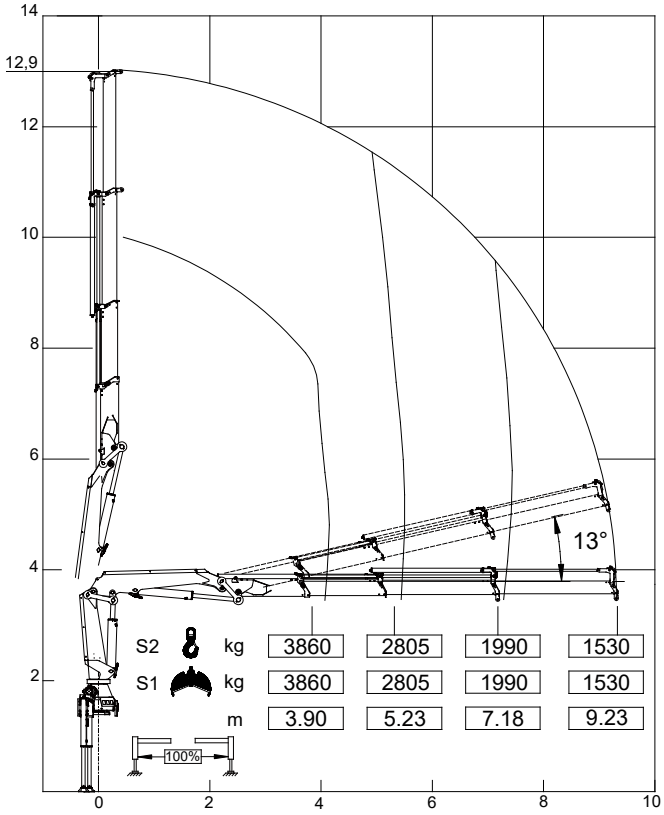
D.7 LOAD CHARTS FOR USE WITH HOOK/TOOL

917NG C 2S



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

LOAD CHART FOR USE WITH HOOK/TOOL
917NG C 3S

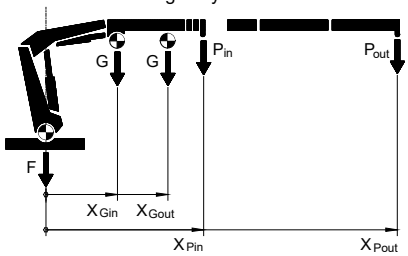


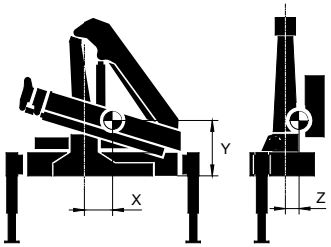
If an additional lifting tool is mounted, the rated capacities shall be reduced by the tool's weight

D.8 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

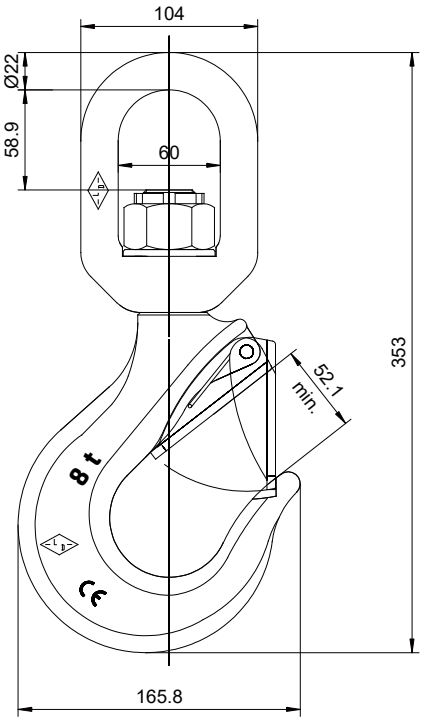
917NG C	F kg	G kg	X_G in / out m	P in / out kg	X_P in / out m	TL kg	X	Y	Z
								mm	
2S	ST-M : 1220 EX-M : 1310	660	2.06 2.83	4010 2115	3.85 7.13	2644	225	815	15
3S	EX-H : 1345 SE-H : 1380	785	2.18 3.57	3860 1530	3.90 9.23	1913	211	837	34

The data are relating to crane configuration with horizontal booms.

D.9 HOOK DATA

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

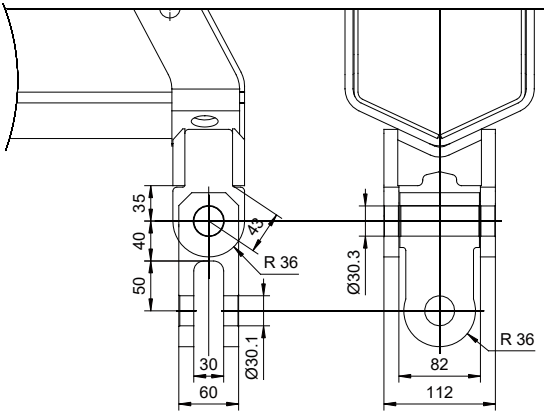
DIMENSIONS

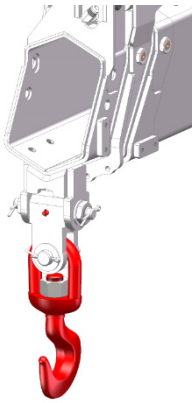


TECHNICAL PROPERTIES
Working load limit (WLL) : 8000 kg
Material: alloy steel
Weight: 6.2 kg
Swivel hook
Reference standard: DIN 15401

D.10 LOAD ATTACHMENT

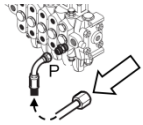
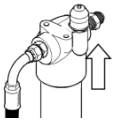
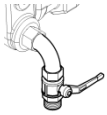
ATTACHMENT FOR HOOK AND LIFTING TOOL





D.11 HYDRAULIC SYSTEM

FITTINGS FOR CONNECTION TO PUMP

917NG C	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

917NG C	Extension time s	Retraction time s
Slewing (180°)	20	20
1.boom cylinder	17	30
2.boom cylinder	15	10
boom extension 1S (SGS active)	3	5
boom extension 2S (SGS active)	8	11
boom extension 3S (SGS active)	13	17

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.

917NG C	Time interval min.	Max. load descent mm
2S	10	357
3S	10	462

CAPACITY OF HYDRAULIC SYSTEM

917NG C	Cylinders extended ℓ	Cylinders retracted ℓ
2S	64	44
3S	71	49

Capacities do not include the oil tank.

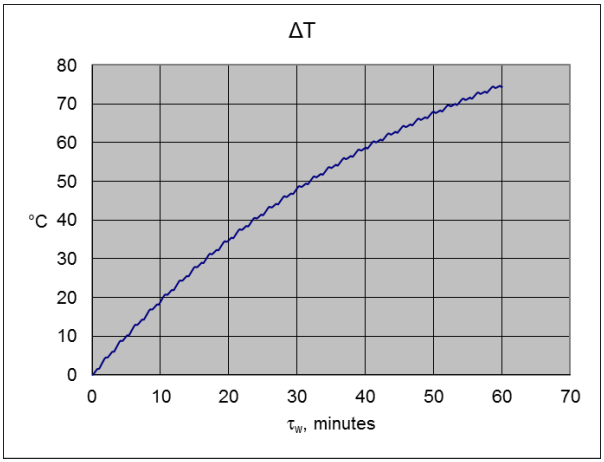
ADDITIONAL CAPACITY FOR HYDRAULICALLY OPERATED STABILIZER EXTENSIONS

EX-H	+4.0	+2.5
SE-H	+5.5	+3.5

D.12 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

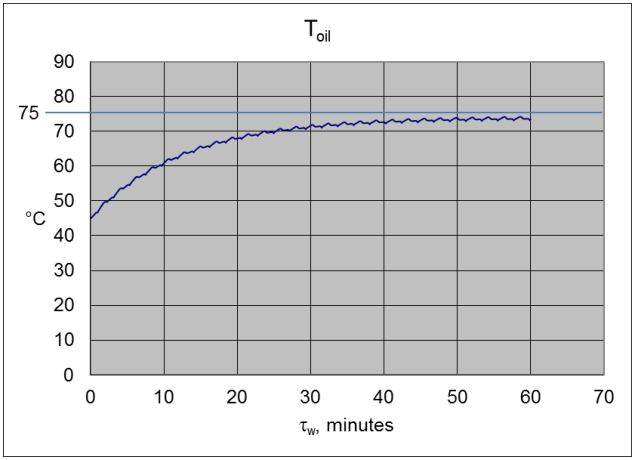
$$T_{env} + \tau_w > 57$$

where:
T_{env} : temperature of the environment (°C)
ΔT : difference in temperature between the oil and the environment (°C)
τ_w : working time (minutes)

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:

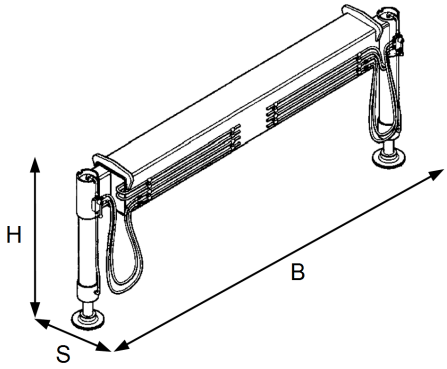
T_{env} (°C)	τ_w to exceed 75 °C (minutes)
45	no limit
48	35
50	25
52	20
54	15

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.)

D.13 ADDITIONAL STABILIZERS

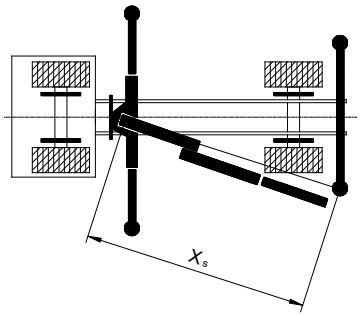


Additional stabilizers must be chosen so that:
- the installation is stable (see Installer Manual)
- the max. force acting on the additional stabilizers, F_s, is lower than the max. load allowed by the stabilizers itself, R_{max}.

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

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 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.

D.14 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	2115	H605-650	410	650	975	**1705**	65%	100%
3S	1530	H605-650	410	650	975	**1120**	91%	100%
		H605-550	375	550	825	**1155**	78%	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/dm^3
(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

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	2115	H653-4 large	435	500	750	**1680**	56%	100%
3S	1530	H653-4 large	435	500	750	**1095**	77%	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/dm^3
(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

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	2115	H634-0,25	170	4000	**1945**	100%	49%
3S	1530	H634-0,25	170	4000	**1360**	100%	34%

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

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	2115	H332-1300	265	1600	**1870**	100%	85%
3S	1530	H332-1300	265	1600	**1265**	100%	79%

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

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	2115	H415 2000-500	155	2000	**1960**	100%	98%
3S	1530	H415 1500-500	135	1500	**1395**	100%	93%

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