



CALDERERIA MECANIZADA, CUCHARAS BIVALVA, PULPOS, PINZAS, BALANCINES, GANCHOS

T.N.A. Systems
ATT. MR. Gadi Amitai

HERNANI 12/05/2020

SUBJECT: OFFER Nº 15.021

**AMPHIBIOUS ELECTRO-HYDRAULIC CLAMSHELL GRAB FOR HANDLING
SUMERGED MATERIALS, MUD, SANDS, SLIMES, STONES...
PILED AND BULK MATERIAL DENSITY UP TO 2,8 TM/M³**

Dear Sirs,

According to your request, we give you the General Description with the most important properties of the offered equipment which has been prepared and studied by our Technical Department, according to the data that have been provided.

Attached you will find a general description with most important technical specifications concerning the offered system, our general sales conditions as well as the following documents:

[- RECOMMENDED SPARE PARTS LIST](#)

[- TECHNICAL DETAILS](#)

[- DATA SHEET](#), where you can find the access at the lower part (click) an access to VIDEOS of similar machines working, this can help you to understand and get better the characteristics of the proposed equipments.

We appreciate your interest and remain at your disposal if you want a more comprehensive description or any additional information on construction details, commercial components, assembly drawings (dwg) hydraulic and electrical diagrams, etc...

Sincerely yours and awaiting to hearing from you, we take this opportunity to invite you to visit our [WEB SITE](#), [CORPORATE VIDEO STEMM](#) y [YOUTUBE CHANNEL](#) and get more information on our new service for remote control [GRAB-CONNECT](#).

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GENERAL TECHNICAL DESCRIPTION

GRAB	ELECTRO-HYDRAULIC CLAMSHELL GRAB The grab will be continuously tested for 24 hours before shipment. Testing and exhaustive examination of all components are carried out by means of a testing bench equipped with a PLC, in order to simulate, without load, operations at a rate of approx. 40 cycles/hour. See DOC 2, See DOC 3
TYPE	2CHA-300-2,8 - See COLUMN (1) - Technical Sheet
CAPACITY	0,300 M³ - See COLUMN (2) - Technical Sheet
SHELLS	ELECTROWELDED, S355 JR (REINFORCEMENTS IN HARDOX) SPECIAL CONSTRUCTION, WEAR RESISTANT Fitted with mechanical safety end stops to avoid strong impacts See DOC 4 The uniform movement of the leaflets is assured thanks to two robust synchronism bars placed one on each side of the shells, which turn on hardened steel bushings. Calculated and optimized by Finite Element Analysis (F.E.A.) Optionally with penetration teeth. See DOC 19
SHELL LIPS	SPECIAL PROFILE IN HARDOX 500, with 23° chamfer WEAR RESISTANT AND ANTIABRASION PROFILE. See DOC 5
SHELL PROFILE.....	PROGRESSIVE STANDARD DESIGN that allows optimal grab filling combining properly pulling and penetration force
STRUCTURE	ROBUST ELECTROWELDED STRUCTURE IN HIGH ELASTIC STRENGTH STEEL Designed and calculated for 6 million cycles Reinforced with nerves and reinforcements to relieve internal stresses and to withstand forces and severe stresses Stabilized and normalized to relieve internal stresses at the weldings Calculated and optimized by Finite Element Analysis (F.E.A.) Calculated acc. DIN 15018 class H2-B4 See DOC 14 Including a sealed cover plate, to allow access to the electrovalves, motor and further inner electrical connections Optionally including an omnidirectional tilt sensor
SUSPENSION	SINGLE, CENTRAL FLEXIBLE ARTICULATED SHACKLE ACC/DIN 82016 In alloyed steel grade 8, quenched and tempered Optionally double suspension



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MAX. BULK DENSITY ($\pm 15\%$)	2,8 TM/M ³
MATERIAL TO BE HANDLE	SUMERGED MATERIALS, MUD, SANDS, SLIMES, STONES...
ELECTRICAL MOTOR	3K.W. - See COLUMN (5) - Technical Sheet S6, INTERMITTENT SERVICE, Protection IP 55, Isolation class F, 400 V. 50 Hz Equipped with overheat protection (PTC thermistor) Bearings with permanent lubrication (optional) See DOC 15 See DOC 16
ELECTRICAL COMPONENTS.....	SIEMENS, AEG, TELEMECANIQUE, MARECHAL, KHEOPS OMRON, HARTING, WEIDMULLER
HYDRAULIC MANIFOLD BLOCK.....	COMPACT MANIFOLD BLOCK, with grinded faces, completely sealed All valves directly built into, without tubes or fittings, without any possibility of leakage The blocks are removable, easy and quick interchangeable (4 screws)
HYDRAULIC MOTOR-PUMP UNIT.....	HIGH PRESSURE PUMP WITH SPLINED SHAFT AND LOW SONOROUS LEVEL. See DOC 10 Elastic splined coupling steel-nylon-steel Machined and sealed coupling flange between motor and pump Safety fittings for rigid pipes between pump and manifold valves block are completely safety, zero-leakage See DOC 17
NOISE LEVEL	85 dB (at 2 m.)
HYDRAULIC VALVES & PUMPS.....	PARKER, SUN, EATON, REXROTH, BOSCH, TEKOR, HYDAC
CLOSING TIME.....	7" SECONDS - See COLUMN (6) - Technical Sheet
MAX. WORKING PRESSURE	225 bar
CONTROL (OPENING AND CLOSING).....	BY ELECTROVALVE, 24 (48 VAC and other voltages available) All solenoid coils are fitted with LED indicators to facilitate preventive maintenance operations. Optionally with reversal operation mode by inversion of the motor rotation direction and with reversable pump.
GRAB CONTROL.....	FROM CRANE CONTROL CABINET, by control pendant or cabin control
LOAD SECURITY	IN CASE OF POWER OUTAGE THE GRAB CANNOT OPEN ITSELF AND THE LOAD CANNOT FALL.
DECOMPRESSION SYSTEM	INCLUDED, carried out in each operation



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HYDRAULIC CYLINDERS	2 SPECIALLY REINFORCED, HEAVY DUTY, double acting, chrome-plated and grinded rods With hydraulic shock absorption system and security chamber Double sealing joints at rod guide TESTED AT 400 BAR See DOC 10 Equipped with double lip scraper, acc. to ISO 3320, DIN 24334 Fitted with MINIMESS pressure check points. See DOC 13
CYLINDER PROTECTION	INCLUDED
FLEXIBLE PIPES	FOR HIGH PRESSURE, DOUBLED BRAIDED With spiral protections (S.H.D.) to prevent risks of cuts and crushing.
PRESSURE DIAGNOSIS.....	4 MINIMESS TEST POINTS at the manifold block, for instantaneous pressure measurement and reading Each cylinder is equipped with a MINIMESS test point.
OIL TANK	CONSTANTLY PRESSURIZED AT 0,35 bar See DOC 7 Pump with anti-cavitation system Magnetized bottom provided with ferrite plates 200x150x25 mm See DOC 11 Mechanized and sealed cover with O-ring made of resistant nitrile rubber "UNDERFLOW" SYSTEM for automatic oil filling to an optimal and exact level, without risks of excessive filling. Equipped with visual or electrical oil level indicator. ANTICONDENSATION SYSTEM to avoid mud formation and oil deterioration Optionally with electrical or visual clogging oil filter indicator.
HYDRAULIC OIL	INCLUDED, SPECIAL SYNTHETIC OIL, ISO 68 MICROFILTRATED TO 3 MICRONS, acc. NAS-6, ISO 17-15-12 Not necessary to change it before 2000 WORKING HOURS
AIR FILTER	10 MICRONS (pressurized to 0,35 bar)
OIL FILTER	90 MICRONS INSTALLED AT SUCTION LINE
POWER SUPPLY	BY FLEXIBLE MULTIPOLAR CABLE FROM THE GRANE (NOT INCLUDED IN OUR SCOPE OF SUPPLY)
MULTI-STABLE	THE GRAB CAN WORK UP TO AN INCLINATION OF 90° (horizontal position) OMNIDIRECTIONAL AT FULL CAPACITY
SUBMERSIBLE.....	Watertight to a depth of 50 m.



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CLAWS-JOINTS	MAINTENANCE AND LUBRICATION FREE. CEMENTED & HARDENED & PHOSPATED BUSHINGS See DOC 6
CYLINDERS-JOINTS	MAINTENANCE FREE SPHERICAL PLAIN BEARING
BOLTS AND SHAFTS.....	F-1272 (42 CD4) STEEL, GROUNDED CEMENTED, HARDENED & MANGANESE PHOSPHATED
CONSTRUCTION.....	ACCORDING TO F.E.M. STANDARS, 1001/2008 SECTION I (Fédération Européene de Manutention) A8, M8, E8
SUPERFICIAL TREATMENT	CH3 - ISO 12944, SHOT BLASTING PROCESS SA 2,5 UNE-
AND PAINTING APPLICATION	EN-ISO 8505-1 EPOXY SYSTEM AE-238 Grey RAL 7035 WITH EPOXY PAINT BREA AE-529-E DRY FILM THICKNESS 250 MICRONS
MAIN DIMENSIONS.....	ACCORDING TO ATTACHED DATA SHEET
WEIGHT	500 KGS - See COLUMN (3) - Technical Sheet
RECOMMENDED CRANE POWER	1,5 TM - See COLUMN (4) - Technical Sheet
CERTIFICATES	QUALITY CERTIFICATES FOR MATERIALS AND RAW MATERIALS ACC. TO EN-10204 CE DECLARATION CONFORMITY WELDER QUALIFICATIONS, WELDING PROCEDURES QUALITY AND TEST CERTIFICATE FOR ELECTRICAL MOTORS
FINAL DOCUMENTATION	MANUAL FOR OPERATION AND MAINTENANCE GENERAL ARRANGEMENT DRAWING WITH OVERALL DIMENSIONS AND SECTIONS SPARE AND WEAR PARTS LIST ELECTRICAL AND HYDRAULIC DIAGRAMS REPORT FOR FACTORY ACCEPTANCE TESTS (24 h) WARRANTY CERTIFICATE See DOC 1



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IMPORTANT REMARKS:

- 1.- Indications type: **See DOC 1** refer to the document on Page 1: [TECHNICAL DETAILS](#)
- 2.- At the bottom part of each Technical Data Sheet you will find an **ACCESS TO VIDEOS** of similar grabs at work, which will give you a better understanding of the proposed equipment.
- 3.- Characteristics, dimensions and values that are expressed on this offer are approximate. We reserve the right to make any modifications or improvements we deem necessary, without implying any variation in the functionality of the offered equipment..
- 4.- The expected production performance of an installation depends mainly on the crane and the manoeuvres performed by the user and will never be binding or be the responsibility of the grab manufacturer.
- 5.- On the attached spare parts list mentioned on Page 1, you will find the [RECOMMENDED SPARE PARTS](#) for 5 years operation.

AMPHIBIOUS, ELECTRO-HYDRAULIC CLAMSHELL GRAB

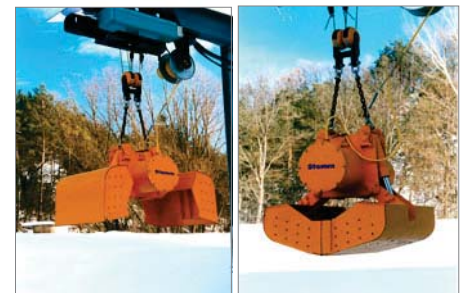
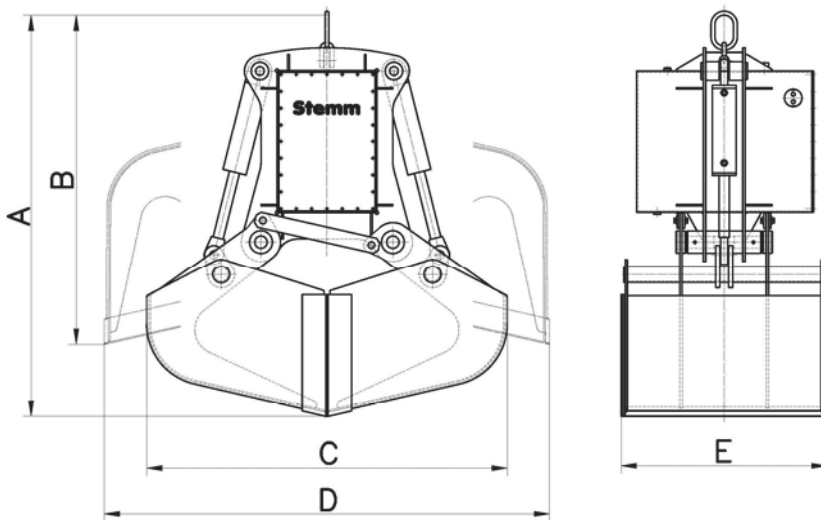
FOR HANDLING SUBMERGED MATERIALS, MUD, SANDS, SLIME, SLONES

AND MATERIAL DENSITY UP TO ρ ($\pm 15\%$)

- Clamshell design ideal for dredge operations with penetration teeth
- Complete load through maximum penetration force
- Robust structure in high elastic strength steel
- Reduced height with low c.g., multi-stable, can work at any angle ($\pm 90^\circ$)
- Clamshell lips anti-wear and anti-abrasion (HARDOX 500)
- Anticorrosive and anti-oxidant surface treatment with epoxy-tar
- Maintenance and lubrication free. Sealed bearings
- ISO 9001 quality standard. CE conformity
- Design and fabrication according to the standard FEM 1001/98, A8-M8

Stemm[®]
GRABS, TONGS & BEAMS

TYPE
2CHA-300-2,8



TECHNICAL FEATURES

Size	CAPACITY		Dead Weight Kg	CRANE t	Motor kW	Intensity 400 V A	Operating Pressure Bars	Closing/Loading Time s"	Emptying Time s"	Overall Dimensions mm.				
	Volume M3	Load max.(kg)								A	B	C	D	E
2CHA-300-2,8	0,300	680	500	1,5	3	6	210	7	4	1380	1211	1185	1472	709

THE LOAD APREHENSION TIME IS CONSIDERED AT 70-75% OF THE SHELLS STROKE EDITION 2019

These characteristics are approximate. Subject to change without notice

View... [VIDEO 5](#) [VIDEO 6](#) [VIDEO 15](#) [VIDEO 23](#) [VIDEO 27](#) [VIDEO 42](#) [VIDEO 51](#)

[VIDEO 50](#) [VIDEO 55](#)