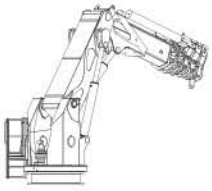
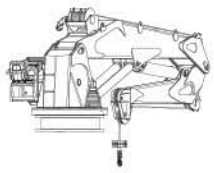
HS MARINE

the ultimate crane specialist

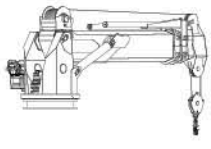
FOLDABLE KNUCKLE & TELESCOPIC



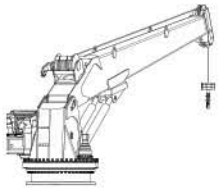
KNUCKLE & TELESCOPIC



KNUCKLE BOOM



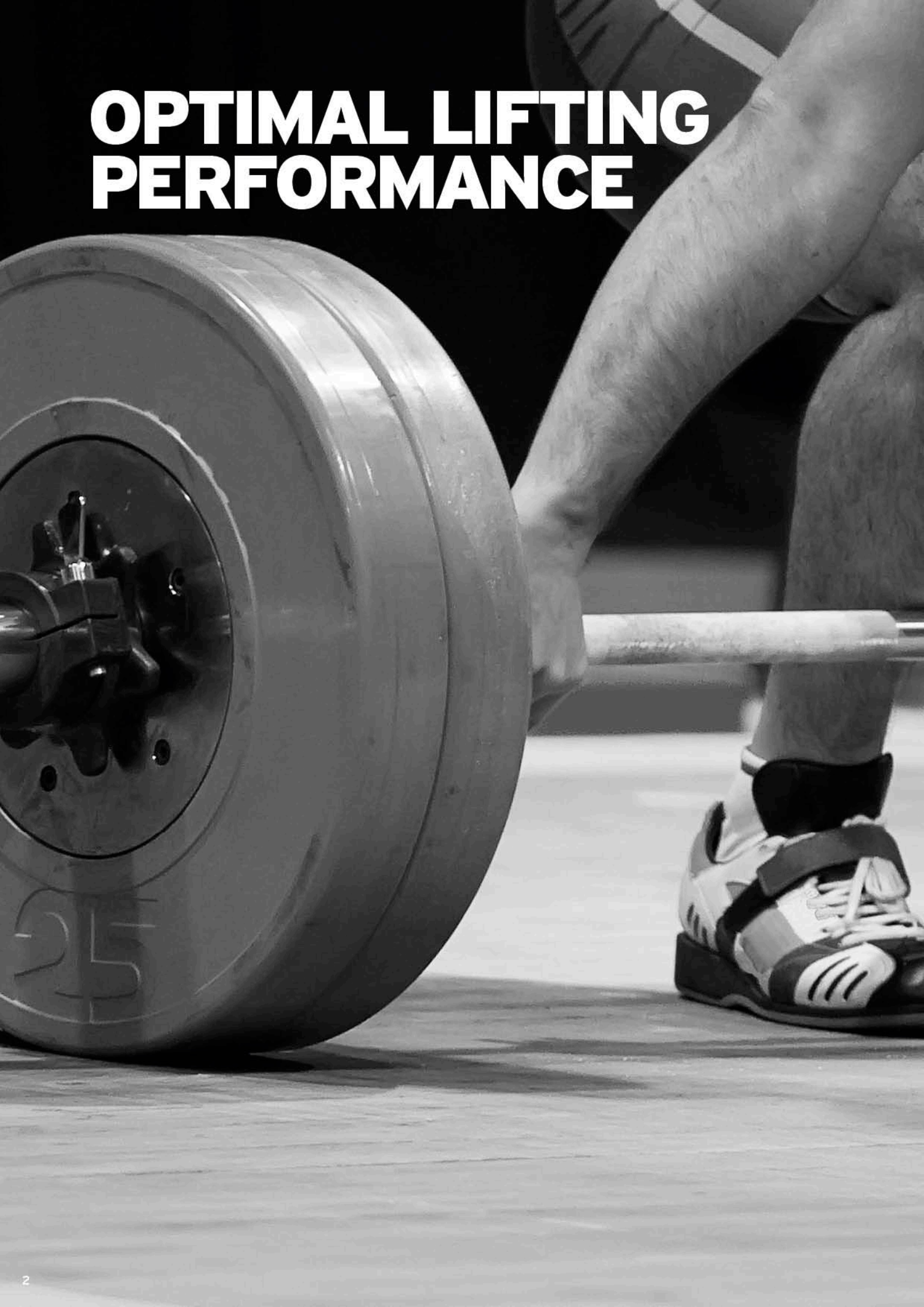
TELESCOPIC BOOM



STIFF BOOM

OPTIMAL LIFTING PERFORMANCE

OPTIMAL LIFTING PERFORMANCE



HS MARINE

the ultimate crane specialist

HS.MARINE IS A LEADING MANUFACTURER of ship and offshore cranes with the world's widest range of models ranging from 5 to 1000 tm capacity. All crane models are specifically designed, masterly built and assembled to give our customers top quality. The crane executions and quality details will offer many years of safe and reliable operation at a low cost of maintenance.

WE BELIEVE THAT WE HAVE THE CRANES YOUR COMPANY NEEDS FOR ALL ITS LOAD HANDLING.

For many years, HS.Marine has been supplying state-of-the-art cranes for the tough marine environment. Today we offer the world's largest range of crane models of superior quality.

From selection of the finest raw materials to the attention given to even the smallest details, our cranes have become market leaders offering the best value money can buy.

OUR CRANES ARE PREPARED FOR THE **TOUGH MARINE ENVIRONMENT**

- **designed and built from the ground up for marine use**
- **high attetion to detail**
- **unparalleled strength and reliability**
- **superior quality**
- **extensively checked and tested**
- **world's widest range of models**

The marine environment demands equipment of the highest level of quality to ensure reliable operation for many years.

All HS.Marine's crane structures are built of high tensile steel material (type Weldox 700E or equivalent) that meets the requirements of steel grades and qualities in accordance with EN 10025.

EXCELLENCE DEMANDS **ATTENTION** TO DETAILS

OUR OBSESSION TO DETAILS MAKES US A MARKET LEADER

NO CORROSION
Our design, our material and component selection, our excellent surface treatment and painting procedures, our saltproof sealing, all guarantee a strong barrier against corrosion.

EASY AND LOW MAINTENANCE
All crane details have been studied to ensure a minimum of simple and easy maintenance. All components have been designed and selected to guarantee easy inspection, low maintenance and service.

QUALITY OF COMPONENTS
HS.Marine buys components and systems from reputable world-wide suppliers of products of proven high quality and service. HS.Marine avoids installation of components of poor quality that compromise the safety and reliability of the entire crane, its machinery and operating systems.

MARINE DESIGN
All crane designs have been specially developed and improved for operation in a marine environment. All structures have been designed to take up heavy lateral forces, to obtain smooth transition between elastic and rigid points of construction, and to have low values of flexing.

POWERFULL ROTATION
All cranes are provide with a powerful rotation system composed of a slew bearing and gear boxes that drive the cranes perfectly even during high relevant angles of inclination and side forces.

ULTIMATE PRECISION
All cranes guarantee easy and precise control of the load due to their state-of-the-art hydraulic system.

STRONGEST MATERIAL
All major crane sections, made from Swedish steel material, are all machined and welded in Italy under our supervision and strict quality control.

TOUGH TESTING
Prior to delivery from our factory, all cranes are fully function and overload tested (125%). The functionality of all systems is accurately verified by testing at exactly the same hydraulic power supply as the supply that will be available onboard the vessel.

AS BUILD DOCUMENTATION
All provided documentation is as build, extensive and specially prepared for each individual crane. Each manual states the crane's serial number and shows actual photographs taken of the crane and its many details.

HS MARINE

THE WORLD'S **WIDEST** RANGE OF MARINE CRANES

FOLDABLE KNUCKLE & TELESCOPIC

Fully foldable knuckle and telescopic boom type cranes of different standard capacities. Custom built for operation to specific sea state conditions.

AK 5.5–55 tm PAGE 6

KNUCKLE & TELESCOPIC

Knuckle and telescopic boom type cranes of different standard capacities. Custom built for operation to specific sea state conditions.

AKC 61–310 tm PAGE 8

AKD 75–280 tm PAGE 9

KNUCKLE BOOM

Knuckle boom type cranes of many standard capacities and also custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

AKB 20–240 tm PAGE 10

AP 6.5–20 tm PAGE 18

TELESCOPIC BOOM

Telescopic boom marine cranes of many standard capacities and also custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

AT 5.8–10 tm PAGE 11

ATB 8–120 tm PAGE 12

ATC 57–300 tm PAGE 14

ATR 8–40 tm PAGE 14

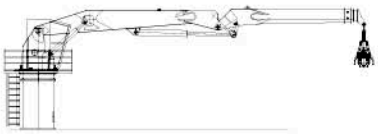
STIFF BOOM

Stiff boom type cranes of many standard capacities and also custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

AF 5–12 tm PAGE 15

AFC 50–500 tm PAGE 15

AFB 8–300 tm PAGE 16



LUXURY YACHT

Low profile cranes for installation on luxury yachts. Standard capacities but also custom built to meet specific customer requirements.

YC up to 3000 Kg PAGE 18

YT up to 3000 Kg PAGE 18

PIPE HANDLING MANIPULATORS

Cranes for pipe handling by manipulators for installation on vessels, fixed and mobile offshore installations.

PJ custom built PAGE 18

TECHNICAL INFORMATION

STANDARD SPECS. PAGE 19

OUR TREATMENT PAGE 20

QUALITY SOLUTIONS PAGE 21

QUALITY DETAILS PAGE 24

DOCUMENTATION PAGE 26

AFTER SALES - SERVICE PAGE 26

AK SERIES

Fully foldable knuckle and telescopic boom type cranes of different standard capacities. Custom built for operation to specific sea state conditions.

STANDARD RANGE: 5.5 to 55 tm (nominal moment)

AK 7 NE1

AK 7 NE2

AK 10 NE1

AK 10 LNE1

AK 10 NE2

AK 10 LNE2

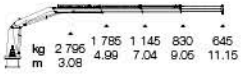
AK 13 HE1

AK 13 LHE1

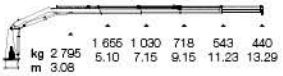
AK 13 HE2

AK 13 LHE2

AK 13 HE3

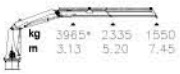


AK 13 HE4



AK 16 HE1

AK 16 LHE1

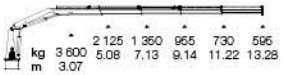


AK 16 HE2

AK 16 LHE2

AK 16 HE3

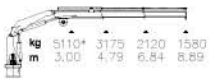
AK 16 HE4



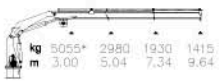
AK 20 E1

AK 20 LE1

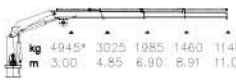
AK 20 E2



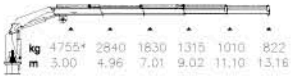
AK 20 LE2



AK 20 E3

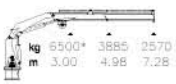


AK 20 E4



AK 25 HE1

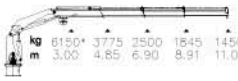
AK 25 LHE1



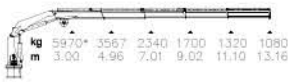
AK 25 HE2

AK 25 LHE2

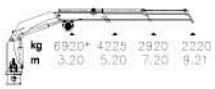
AK 25 HE3



AK 25 HE4



AK 30 HE2

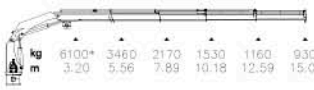


AK 30 LHE2

AK 30 HE3

AK 30 HE4

AK 30 LHE4



AK 34 HE2

AK 34 LHE2

AK 34 HE3

AK 34 HE4

AK 34 LHE4

HS MARINE

AK 40 E2	kg	9120*	5795	4045	3090		
	m	3.40	5.30	7.30	9.31		
AK 40 LE2	kg	9015*	5410	3650	2738		
	m	3.40	5.60	7.90	10.21		
AK 40 E3	kg	8825*	5745	3915	2940	2320	
	m	3.40	5.18	7.18	9.15	11.28	
AK 40 E4	kg	8640*	5490	3720	2770	2175	1790
	m	3.40	5.30	7.30	9.27	11.35	13.45
AK 40 LE4	kg	8450*	5045	3270	2365	1820	1480
	m	3.40	5.63	7.96	10.25	12.66	15.09
AK 48 E2	kg	10900*	6950	4885	3750		
	m	3.40	5.30	7.30	9.31		
AK 48 LE2	kg	10785*	6495	4420	3335		
	m	3.40	5.60	7.90	10.21		
AK 48 E3	kg	10570*	6900	4730	3570	2825	
	m	3.40	5.18	7.18	9.15	11.28	
AK 48 E4	kg	10340*	6590	4495	3370	2655	2190
	m	3.40	5.30	7.30	9.27	11.35	13.45
AK 55 E2	kg	12490*	7960	5600	4300		
	m	3.40	5.30	7.30	9.31		
AK 55 LE2	kg	12365*	7450	5075	3830		
	m	3.40	5.60	7.90	10.21		
AK 55 E3	kg	12080*	7890	5415	4095	3245	
	m	3.40	5.18	7.18	9.15	11.28	
AK 55 E4	kg	11850*	7550	5160	3875	3055	2525
	m	3.40	5.30	7.30	9.27	11.35	13.45

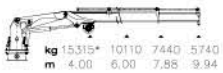
AK 61 E2	kg	13165*	8520	6075	4640		
	m	3.50	5.41	7.36	9.42		
AK 61 LE2	kg	13040*	7990	5515	4135		
	m	3.50	5.71	7.96	10.32		
AK 61 E3	kg	12770*	8450	5915	4460	3545	
	m	3.50	5.30	7.25	9.27	11.40	
AK 61 E4	kg	12500*	8015	5590	4180	3310	2730
	m	3.50	5.46	7.41	9.43	11.51	13.62
AK 61 LE4	kg	12 000	7 320	4 900	3 570	2 780	2 270
	m	3.50	5.73	7.96	10.26	12.61	15.00
AK 67 E2	kg	14600*	9455	6765	5180		
	m	3.50	5.41	7.36	9.42		
AK 67 LE2	kg	14500*	8890	6160	4630		
	m	3.50	5.71	7.96	10.32		
AK 67 E3	kg	14205*	9405	6610	5000	3980	
	m	3.50	5.30	7.25	9.27	11.40	
AK 67 E4	kg	13950*	8955	6275	4720	3745	3095
	m	3.50	5.46	7.41	9.43	11.51	13.62
AK 72 E2	kg	15835*	10255	7345	5625		
	m	3.50	5.41	7.36	9.42		
AK 72 LE2	kg	15690*	9620	6680	5025		
	m	3.50	5.71	7.96	10.32		
AK 72 E3	kg	15240*	10090	7070	5345	4245	
	m	3.50	5.30	7.25	9.27	11.40	
AK 72 E4	kg	14925*	9580	6695	5025	3980	3290
	m	3.50	5.46	7.41	9.43	11.51	13.62

AKC SERIES

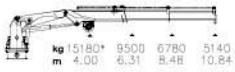
Combined knuckle and telescopic boom type cranes of different standard capacities. Custom built for operation to specific sea state conditions.

STANDARD RANGE: 61 to 310 tm (nominal moment)

AKC 80 HE2

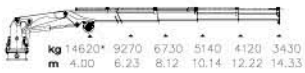


AKC 80 LHE2

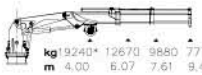


AKC 80 HE3

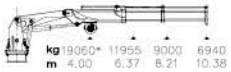
AKC 80 HE4



AKC 100 HE2

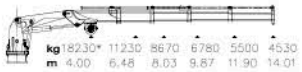


AKC 100 LHE2

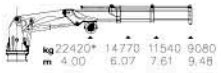


AKC 100 HE3

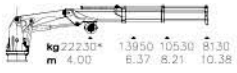
AKC 100 HE4



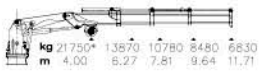
AKC 115 HE2



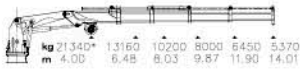
AKC 115 LHE2



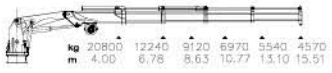
AKC 115 HE3



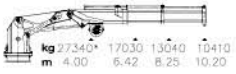
AKC 115 HE4



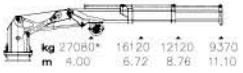
AKC 115 LHE4



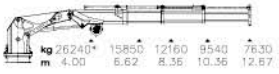
AKC 145 HE2



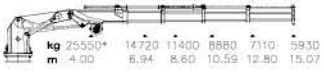
AKC 145 LHE2



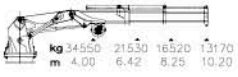
AKC 145 HE3



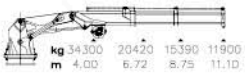
AKC 145 HE4



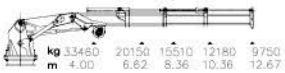
AKC 185 HE2



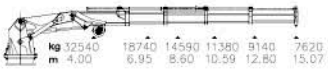
AKC 185 LHE2



AKC 185 HE3

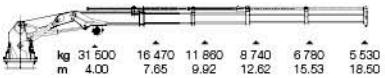


AKC 185 HE4



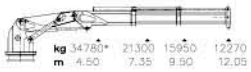
AKC 185 LHE4

AKC 185/18.5 HE4

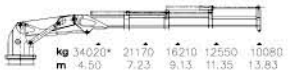


AKC 210 HE2

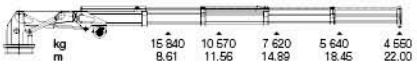
AKC 210 LHE2



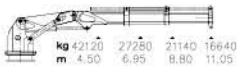
AKC 210 HE3



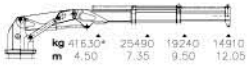
AKC 220/22 HE4



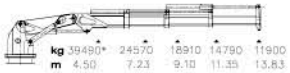
AKC 245 HE2



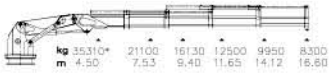
AKC 245 LHE2



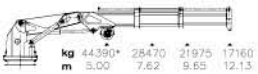
AKC 245 HE3



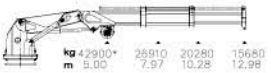
AKC 245 HE4



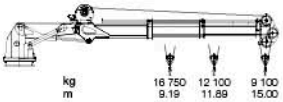
AKC 290 HE2



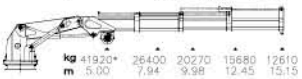
AKC 290 LHE2



AKC 290/15 E2



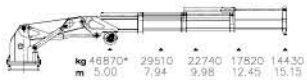
AKC 290 HE3



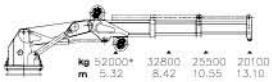
AKC 325 HE2

AKC 325 LHE2

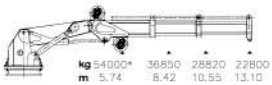
AKC 325 HE3



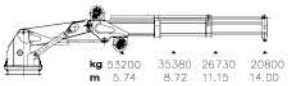
AKC 370 HE2



AKC 410 HE2



AKC 410 LHE2

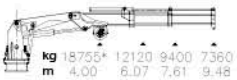


AKD SERIES

Combined knuckle and telescopic boom type cranes of different standard capacities. Models are especially designed for heavy duty dredging support work.

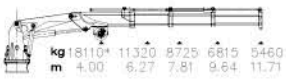
STANDARD RANGE: 75 to 280 tm (nominal moment)

AKD 107 E2

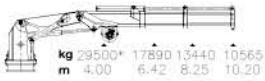


AKD 107 LE2

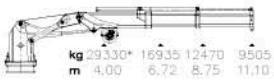
AKD 107 E3



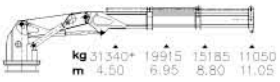
AKD 167 E2



AKD 167 LE2

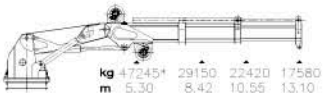


AKD 202 E2

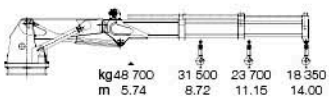


AKD 262 E2

AKD 362 E2



AKD 402 E2



AKB SERIES

Range of medium to large knuckle boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

STANDARD RANGE
20 to 240 tm (nominal moment)

AKB 35/8/2.5


AKB 40/10/2


AKB 40/10/2R


AKB 50/12/2


AKB 60/12/2.5


AKB 63/12/3


AKB 65/9/4


AKB 80/13/3


AKB 85/10/5


AKB 90/14/3


AKB 120/14/4


AKB 120/16/3

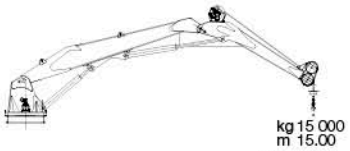

AKB 140/13/5

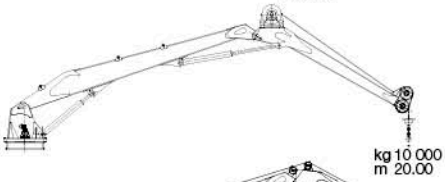

AKB 140/15/5

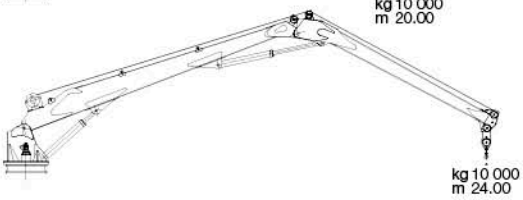

AKB 180/17/5


AKB 190/18/5


AKB 300/15/10


AKB 450/15/15


AKB 450/20/10


AKB 550/24/10


AT SERIES

Range of small telescopic boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

STANDARD RANGE: 5.8 to 10 tm (nominal moment)

AT 7 NE1	kg	2340	1320	
	m	2.50	4.30	
AT 7 NE2	kg	2255	1255	860
	m	2.55	4.35	6.15
AT 10 LNE1	kg	2835	1560	
	m	3.08	5.36	
AT 10 NE2	kg	2980	1644	1115
	m	2.93	4.98	7.03

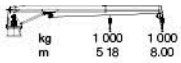
AT 10 LNE2	kg	2700	1450	970
	m	3.18	5.48	7.78
AT 13 HE2	kg	3475	1955	1340
	m	2.95	5.00	7.05
AT 13 LHE1	kg	3320	1860	
	m	3.26	5.51	
AT 13 LHE2	kg	3175	1735	1175
	m	3.20	5.50	7.80

ATB SERIES

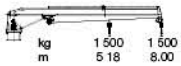
Range of medium to large telescopic boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

STANDARD RANGE:
8 to 120 tm (nominal moment)

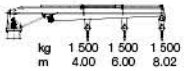
ATB 14/8 E1



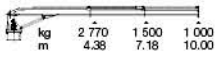
ATB 18/8 E1



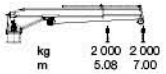
ATB 20/8 E2



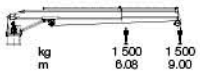
ATB 20/10 E2



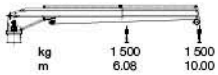
ATB 22/7 E1



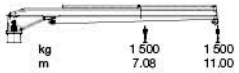
ATB 22/9 E1



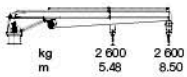
ATB 25/10 E1



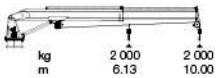
ATB 28/11 E1



ATB 32/8.5 E1

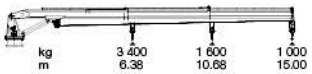


ATB 36/10 E1

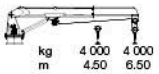


ATB 37/15 E1

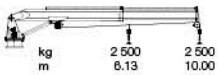
ATB 37/15 E2



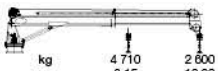
ATB 40/6.5 E1



ATB 40/10 E1



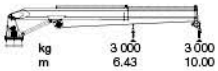
ATB 43/10 E1



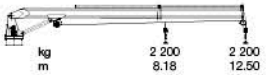
ATB 43/12 E1

ATB 43/14 E1

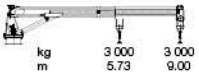
ATB 48/10 E1



ATB 48/12.5 E1

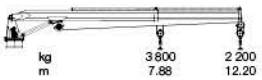


ATB 50/9 E1

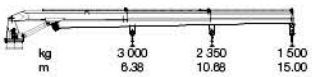


ATB 50/11 E2

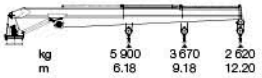
ATB 50/12 E1



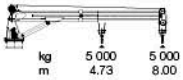
ATB 50/15 E2



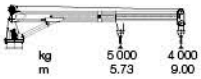
ATB 55/12 E2



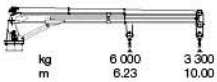
ATB 58/8 E1



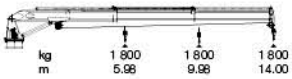
ATB 58/9 E1



ATB 58/10 E1

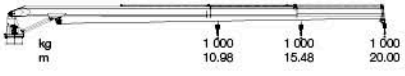


ATB 58/14 E2

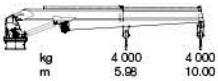


ATB 58/15 HE1

ATB 58/20 E2

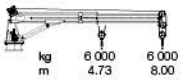


ATB 65/10 E1

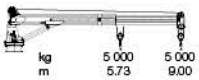


ATB 65/20 E2

ATB 68/8 E1



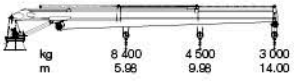
ATB 68/9 E1



ATB 68/12 E1

ATB 68/13.7 E1

ATB 68/14 E2

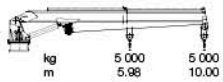


ATB 70/10 E1

ATB 75/11 E1

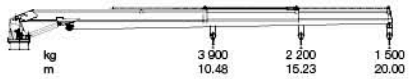
ATB 75/17 E2

ATB 80/10 E1

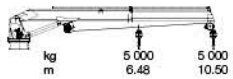


ATB 80/13 E2

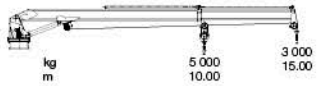
ATB 80/20 E2



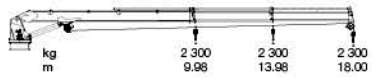
ATB 85/10.5 E1



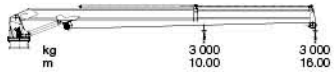
ATB 85/15 E1



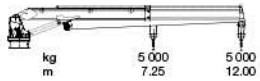
ATB 85/18 E2



ATB 90/16 E1

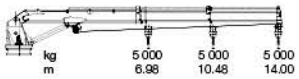


ATB 100/12 E1



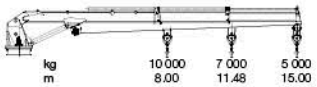
ATB 105/18 E2

ATB 120/14 E2

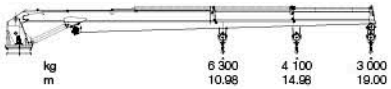


ATB 120/20 E2

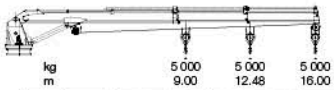
ATB 130/15 E2



ATB 130/19 E2



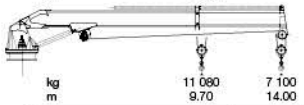
ATB 140/16 E2



ATB 145/20 E2

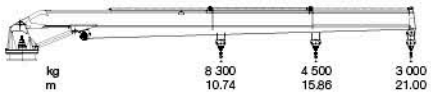
ATB 170/10 E1

ATB 190/14 E1

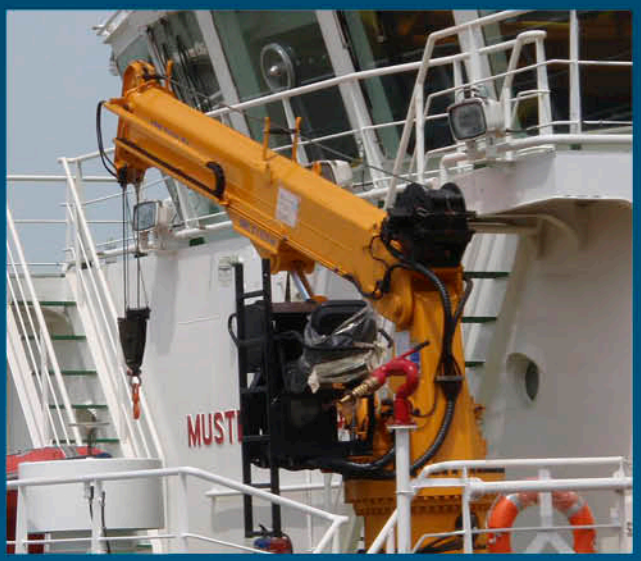


ATB 190/16 E2

ATB 190/21 E2



ATB 200/12 E1

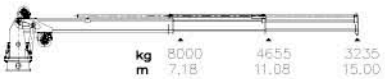


ATC SERIES

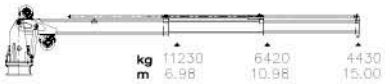
Range of large telescopic boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

STANDARD RANGE: 57 to 300 tm (nominal moment)

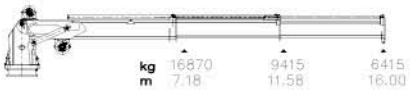
ATC 85/15 E2



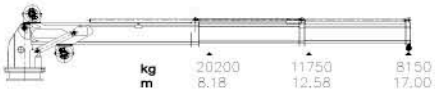
ATC 115/15 E2



ATC 175/16 E2

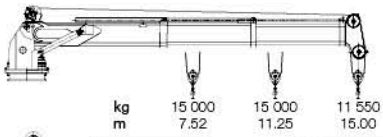


ATC 245/17 HE2

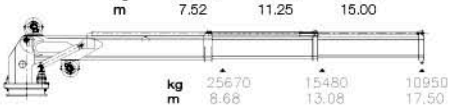


ATC 290/17 E2

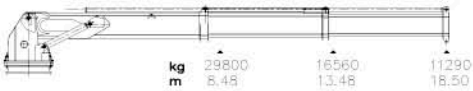
ATC 300/15 HE2



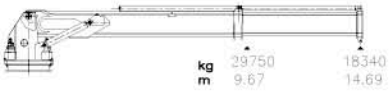
ATC 325/17.5 E2



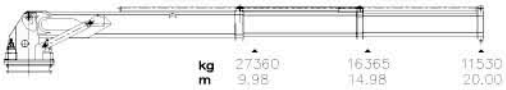
ATC 370/18.5 E2



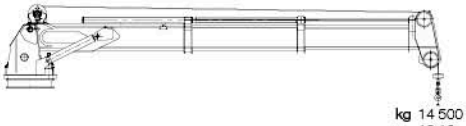
ATC 410/15 E1



ATC 410/20 E2



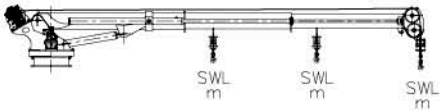
ATC 550/18 E2



ATR SERIES

Range of low profile telescopic boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

STANDARD RANGE:
8 to 40 tm (nominal moment)

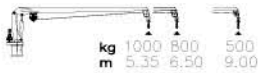


AF SERIES

Range of small stiff boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

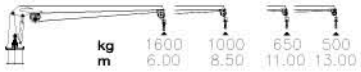
STANDARD RANGE 5 to 12 tm (nominal moment)

AF 7



AF 10

AF 12

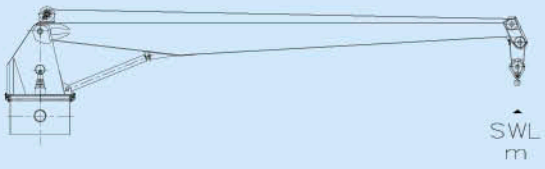


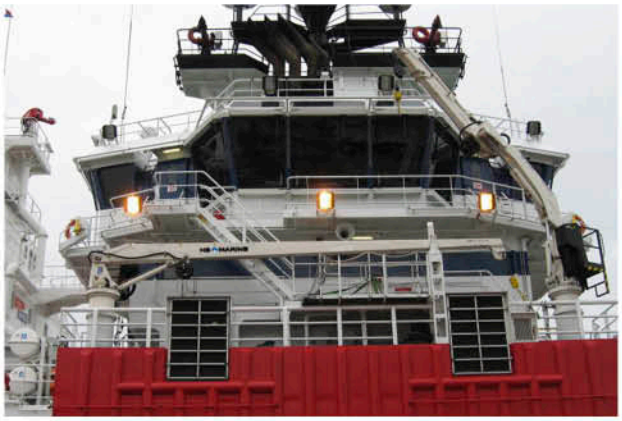
AF 15

AFC SERIES

Range of large stiff boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

STANDARD RANGE 50 to 500 tm (nominal moment)

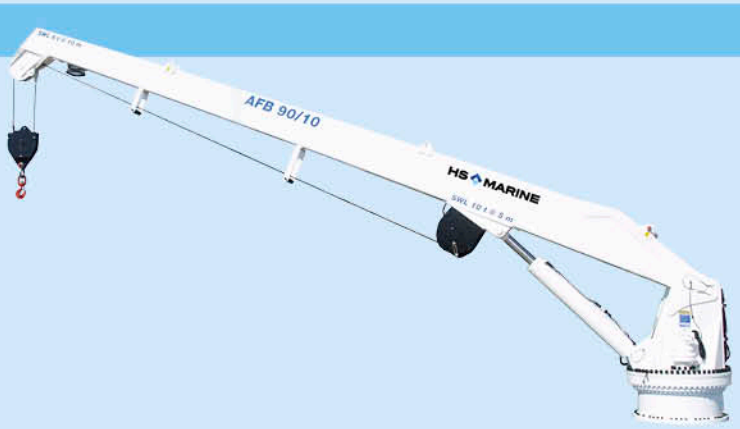




AFB SERIES

Range of medium to large stiff boom cranes of many standard capacities. Can also be custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

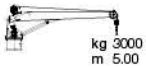
STANDARD RANGE 8 to 300 tm (nominal moment)



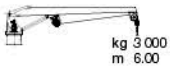
AFB 16/6


AFB 16/10


AFB 18/12


AFB 20/5


AFB 20/12


AFB 22/6


AFB 22/8

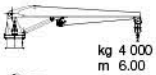

AFB 22/10


AFB 28/10


AFB 30/7.5


AFB 30/8

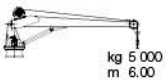

AFB 30/12


AFB 32/6


AFB 36/5


AFB 36/8


AFB 40/9


AFB 43/6


AFB 43/7.6


AFB 48/10


AFB 48/14

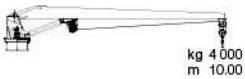

AFB 50/7


AFB 50/9

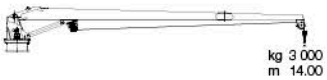

AFB 50/10


AFB 53/15


AFB 58/12


AFB 60/10


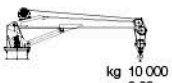
AFB 65/13


AFB 70/14


AFB 75/10


AFB 80/9

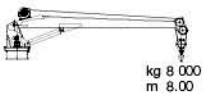

AFB 80/15

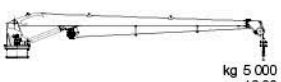

AFB 90/6


AFB 90/10


AFB 90/14


AFB 95/11

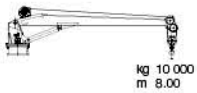

AFB 100/8


AFB 100/12


AFB 100/13


AFB 105/13

AFB 115/8



AFB 115/12

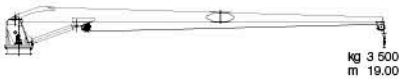
AFB 120/10

AFB 120/13

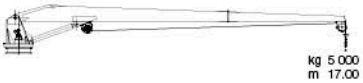
AFB 120/15

AFB 120/16.5

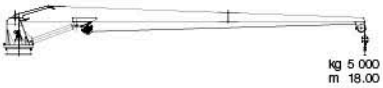
AFB 120/19



AFB 130/17

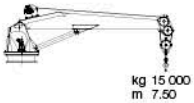


AFB 140/18



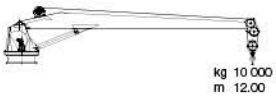
AFB 145/12

AFB 170/7.5

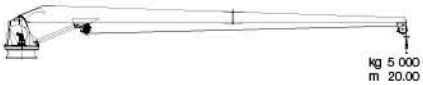


AFB 170/10

AFB 190/12



AFB 190/20

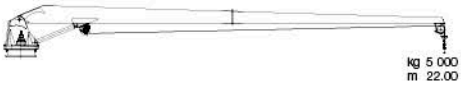


AFB 200/12.5

AFB 240/12

AFB 240/15

AFB 240/22



CRANES > KNUCKLE BOOM - FISHERY

AP SERIES

Heavy duty, low profile knuckle boom cranes developed especially for fishing applications. The cranes' boom tip is prepared for installation of a power block. The AP cranes are custom built to meet specific requirements with regard to SWL, working radius and sea state conditions.

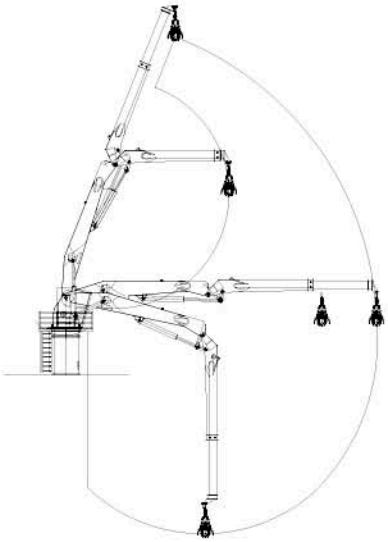
STANDARD RANGE
6.5 to 20 tm (nominal moment)

CRANES > PIPE HANDLING MANIPULATORS

PJ SERIES

Range of cranes for handling drill pipes by use of a manipulator. The cranes are intended for installation on vessels, fixed and mobile offshore installations. Each manipulator is tailor made to handle customers' specific pipe requirements in order to obtain easy and efficient pipe handling on deck.

STANDARD RANGE
custom built



CRANES > LUXURY YACHT

YC SERIES

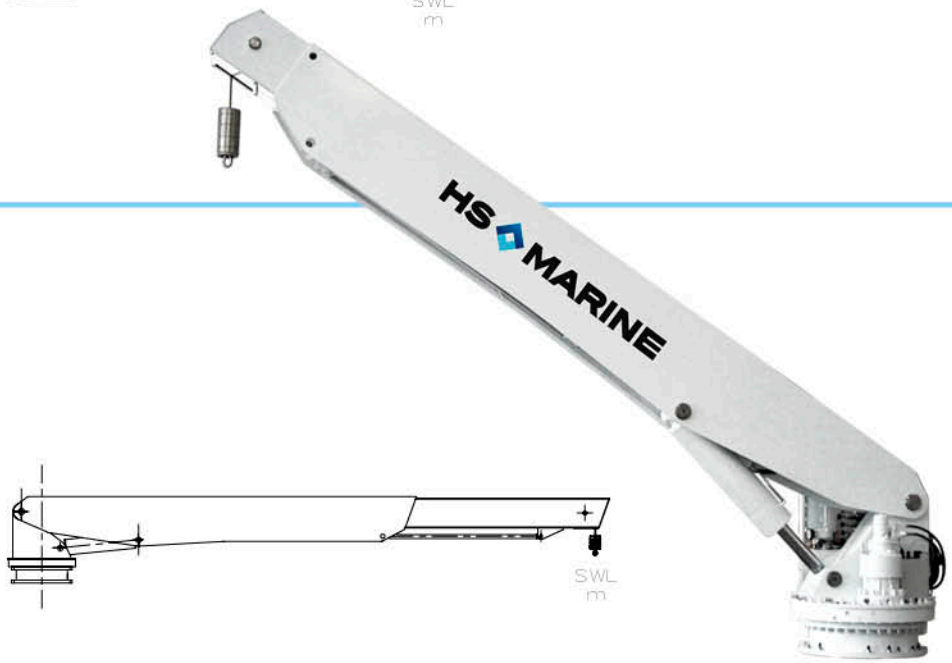
Range of low profile stiff boom cranes especially developed for installation on luxury yachts. The cranes are fitted with a linear winch installed inside the boom section. The cranes are custom built to meet specific requirements with regard to SWL and working radius.

STANDARD RANGE
SWL up to 3000 Kg

YT SERIES

Range of low profile telescopic boom cranes especially developed for installation on luxury yachts. The cranes are fitted with a linear winch installed inside the boom section. The cranes are custom built to meet specific requirements with regard to SWL and working radius.

STANDARD RANGE
SWL up to 3000 Kg



HS MARINE

MARITIME **CHALLENGES** SOLVED BY INNOVATIVE **SOLUTIONS**

All HS.Marine cranes are being specifically designed, engineered and manufactured to work in the marine environment. We adopt innovative and special solutions in order to make them very resistant to the corrosive environment of marine equipment.

- From a design point of view, every precaution has been taken to avoid crane sections and components where sea water can ingress and become trapped.
- Every care is taken to seal flanges, any openings and cavities where seawater may ingress or rest. You will be impressed by our extensive sealing procedures and the care we take to observe these.
- Every crane part is painted independently and separately.
- All pins are protected by special marine treatment and their exposed areas are painted independently using the same paint system as for the rest of the crane. After installation, the pins' lugs are sealed to avoid ingress of sea water.
- The piston rod of the luffing and knuckle cylinders is made of Nikrom 350 material to give it the highest resistance against the salty environment.
- The piston rod of the telescopic cylinders is either covered by a double chromium layer made especially for use in the marine environment or made of Nikrom 350 depending on crane model and cylinder type.
- All hydraulic pipes and pipe nuts are made of stainless steel material (AISI 316).
- All hydraulic flexible hose couplings and pipe fittings, also those on valves and cylinders, are of cadmium treated carbon steel and protected by hard plastic sleeves or special marine tape in order to be waterproof, protecting them against corrosion.
- To provide additional protection of hydraulic connection points, we use plastic sleeves lined with glue. When heat is applied to the sleeves upon installation, they shrink and the internal glue squeezes out any internal air to make them completely air and water tight.
- Where we are not able to use plastic sleeves, we use a special marine tape suitable for deep water installations to protect the connection points.
- All connections to the main distributor valve are protected by Denso tape and the distributor block is always protected by a cover.
- A section of the main hydraulic hoses to the distributor valve are bagged in a material to limit any hose rupture and to give additional resistance against sunlight and seawater.
- All hydraulic hoses are, where feasible, bundle together and protected by a spiral cover made of hard plastic.
- The control console and its cover are protected by cathaphoresis treatment and painted.
- Steel against steel surfaces of flanges, bolt threads, pin lugs etc are protected by a special marine grease to prevent them from adhering and rusting to one another.
- The most critical parts and all internal surfaces are sprayed with a special wax leaving a hard transparent film that provides high protection against corrosion.
- The nut and head of each of the bolts fixing the slew bearing and the slew gears to the crane's rotating column are covered by plastic caps filled with marine grease.
- All nuts and bolts are made of stainless steel material (A4 class) with exception of connections that require high tensile bolts.
- All grease nipples are made of stainless steel material.

OPTIONAL SOLUTIONS

HS.Marine offers a wide range of optional solutions for the cranes. We are always available to discuss the technical specifications in order to find solutions that make our cranes ideally suited for our customers' special applications. Our list of optional solutions are extensive and to mention only a few:

- Design, engineering and fabrication to most common rules and regulations by classification societies, international standards and statutory bodies.
- For several areas of application; for use in harbour or offshore conditions. For use during offshore conditions, we make the cranes for use during the applicable sea state condition.
- Cranes with special features for fishing application; increased heel, brackets for installation of power blocks, turning sheave pulley head, distributor valve block in water tight cabinet.
- Cranes for installation in hazardous zone.
- Cranes for personnel handling as per EN 13852-1.
- Service and access basket cranes as per EN 280.
- Cranes for special applications by use of boom mounted manipulators.
- CE approved cranes.
- Independent electro-hydraulic or diesel-hydraulic power packs or for installation in a ringline system.
- Cranes for low hydraulic operating pressure.
- Various operator control positions; separate stand console, integrated seat or stand console, cabin and radio remote control.
- Double setting limiting moment device.
- Winch limiting pull system with rope counter.
- Complete PLC based electronic load monitoring systems.
- Boom mounted flood lights.
- Centralized greasing systems.
- All stainless steel pipe fittings and flexible hose couplings.
- Flame metallization surface treatment.
- Pedestal foundations for installation in the deck structure.
- Certification by various classification societies.

THE HS.MARINE SURFACE TREATMENT GIVES CRANES A **LONGER LIFE**

The HS.Marine design concept and surface treatment reduce maintenance and lifecycle costs, simplify inspection and minimize the need for recoating. Easy and low cost maintenance is one of the many benefits HS.Marine extends to the customers. Every care is taken to provide the best possible surface treatment suitable for the marine environment:

- All steel plates are carefully stress relieved and shot blasted (SA 2.5 according to the Swedish Industrial Standard SIS 1967- SS PC-SP 6) in order to remove all rust and impurities before painting.
- Before painting, the crane and all its components, also the slew bearing, gear boxes, and motors, are thoroughly washed to clean all surfaces for oil and dust in order to obtain maximum paint adhesion.
- Every crane part is painted independently and separately and every care is taken to seal flanges, any openings and cavities where the seawater may ingress or rest.
- All crane components are disassembeled and painted in parts and then reassembled.
- The marine paint system consists of one first coat of zinc primer applied immediately after shot blasting, three intermediate coats of epoxy paint and two coats of polyurethane top coat. Total paint thickness is approximately 270 micron.
- Our standard colour of top coat is yellow, RAL 1007, but other RAL colours are provided free-of-charge.
- The paint system is the result of severe laboratory testing in an atmosphere of high salinity. It offers full protection of the crane against corrosion.
- Due to the great adhesion properties of the paint system (achieved by HS.Marine after a long process of studies and laboratory tests), all telescopic boom sections are painted externally using the same paint system as for the rest of the crane.
- All crane sections are painted separately before assembly in order to ensure full paint protection. Any sections with openings exposed to the weather conditions are painted internally and, where necessary, covered by special wax.
- From a design point of view, every precaution has been taken to avoid crane sections and components where sea water can ingress and become trapped.
- All pins are protected by a special marine treatment and their exposed areas are painted independently as the rest of the crane. After installation, the pins' lugs are sealed to avoid ingress of sea water.
- The most critical parts and all internal surfaces are sprayed with a special quick drying wax leaving a hard transparent film that provides high protection against corrosion.
- Distributor valve blocks, hydraulic valves, etc are always degreased and properly painted and protected.
- All crane components, such as the winch, hose reel, etc, are painted when disassembled and finally coated after reassembly to ensure that all parts are well coated and protected.
- All steel against steel surfaces, like flanges, bolt threads, bolt holes, are protected by a special marine grease to prevent adhesion and surface rust.
- We apply various types of lubricants for protection of the different types of components.
- This is the paint standard we apply to our entire crane production.

On request, the crane structure can be supplied with a flame metalizing treatment instead of a zinc primer.

HS MARINE

PRECISION AND CONTROL ARE OUR MOST PRECIOUS VALUES

CONTROL POSITIONS

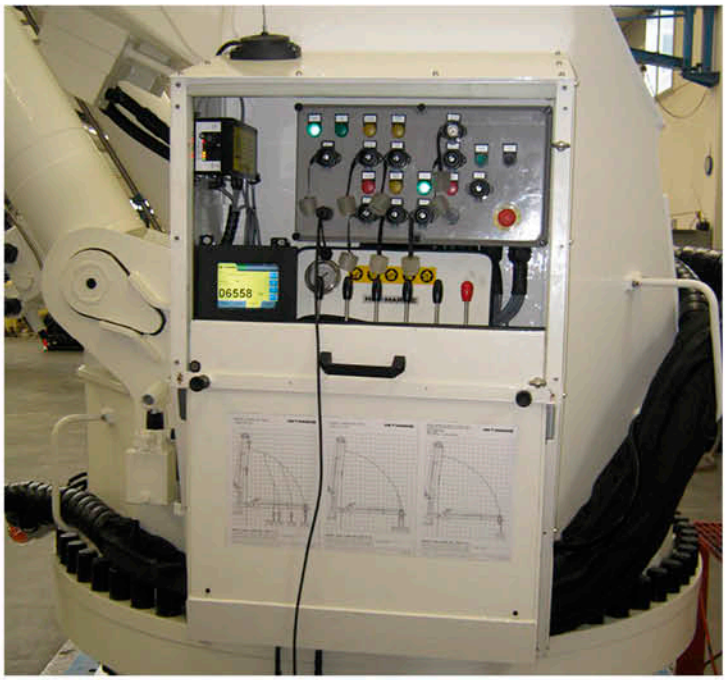
HS.Marine offers a range of positions for safe operation and control of the cranes:

- A separate control stand for bolting to deck in the most ideal location to give the crane operator the best possible overview of the entire load handling operation (available for smaller cranes).
- A control seat mounted on the crane. The seat rotates with the crane and enables the crane operator to observe the load handling operation from a safe position. It is accessed by a retractable ladder that, when retracted, serves as a barrier preventing the operator from falling off the seat.
- A control stand (platform) mounted on the crane. The stand rotates with the crane and enables the crane operator to observe the load handling operation from a safe position.
- If there is no room on the vessel's deck for the crane to have an integrated control seat or stand, the position can be removed entirely. The main distributor valve will then be mounted by a bracket on the crane's slewing column. In order to operate the crane, the crane operator will have to operate the distributor valve while walking on deck as the crane rotates. For this solution, we do recommend the crane to be fitted also with radio remote control.
- A cabin mounted on the crane. The cabin rotates with the crane and enables the crane operator to work in an environment well protected from the weather conditions. We offer cabins of standard execution but are able to outfit them to meet specific customer requirements.
- Radio remote control that allows the crane operator to move freely around the deck while watching the load handling operation from a safe distance. Operation by radio remote control can be combined with any of the other control positions. The remote control comes with a control cable to enable operation by cable if required. The remote control is supplied with two batteries and a 24 V DC battery charger for installation in a suitable location. Upon request, the battery charger can be supplied for 220 V AC. The radio remote control's central unit and antenna are fully sealed with resin filled boxes made of plastic material.

Operator's stand console outside the base

Operator's seat console on the column

The crane's main control valve is always protected by a steel cover with a lockable lid to prevent it from being operated by non-authorised personnel. On most control valves, the cover slides away completely not to block the view of the crane operator. For particularly exposed applications, we can on request offer to install the control valve in a fully watertight cabinet.



FULLY HYDRAULIC SOLUTIONS

The winch kit includes always limit switches for the hook in its upper and lower most positions.

As our standard, the limit switch for the upper position is of electric type and for the lower position it is of hydraulic type.

As an option, both switches can be made to be of either hydraulic type or electric type.

HAZARDOUS ENVIRONMENT

HS.Marine is able to supply cranes for installation in hazardous Zone 1 and Zone 2 as per European directive 94/9/EC (ATEX 100a). The cranes can be of either pure hydraulic execution or contain electrical components carrying necessary labelling as per RL 94/9/EG and EN 50014. We are able to offer the following explosion proof electric components:

- Electric swivel joint for transfer of electric power to the rotating sections of the crane.
- Radio remote control.
- Load monitoring system, including load bolt, signal amplifier, signal converter (PC) and read-out screen.
- Electric cable reel.
- Flood light.

HYDRAULIC POWER UNITS (HPU)

Hydraulic power units (HPU) of suitable capacities are offered as an option to drive the cranes. As standard, we offer HPUs for installation below deck well protected from the weather conditions.

The HPUs are fitted with a high quality electric motor that drives a hydraulic pump, integrated oil tank and necessary hydraulic components such as oil level and temperature indicators, oil filter indicator, oil tank discharge ball valve. All connections are clearly marked. An electric starter cabinet is bolted to the HPU for easy removal and installation elsewhere, if required.

The HPUs are fitted with lifting lugs and may be handled by forklift for easy and simple installation.

We can offer the HPUs with many different options such as:

- Hydraulic oil cooler for cooling either by air or water, salt or fresh.
- Hydraulic oil heater for cold weather conditions.
- Remote start/stop box.
- Maximum hydraulic pressure valve.
- Manual hand pump for emergency operation.
- Stillstand heating for electric motor.

We can offer HPUs for many special applications such as:

- Partly or fully enclosed for installation on deck exposed to the weather conditions.
- To drive more than one crane, either individually or simultaneously, with redundancy.
- Special configurations with regard to the combination of motors and pumps.
- HPU mounted on the crane.

FULLY TESTED

All our cranes are always fully load tested at the factory prior to delivery to our customers. Our excellent workshop facilities ensure that all the cranes and their components are tested in all relevant modes of operation. Our facilities include both indoor and outdoor test beds. The hydraulic power supply ensures that the cranes are always tested at the correct pressure and flow rate.

Upon their readiness, the cranes are supplied with a workshop test certificate reporting all tests with and without loads, checks, inspections and also including the applicable load diagrams, the loose gear certificates, and the crane's serial number.

STEEL FRAME

For applicable crane models, we include suitable transport frames made of steel. Models not suitable for transportation on steel frames, we supply with necessary supports for safe and secure transportation.

The transport frames are suitable for handling by forklift and offers excellent protection and ease of handling for safe delivery to the customers.

ELECTRONICS

HS.Marine electronic components are all:

- Of Plug and Play type.
- Of protection rating minimum IP67.
- Specially built for heavy duty applications in an offshore environment.
- Very resistant to high and low temperatures.
- Highly crash resistant.
- Protected by fully sealed housings machined from solid blocks of Derlin material.
- Totally protected with regard to input and output signals.
- Fully supported by a HS.Marine service programme.

HS.Marine service programme allows you to:

- Perform real time diagnostics (level 1).
- Make settings and download the setting file from a Master Unit (MU) and upload it to another unit (level 2).
- Upload crane software on a new MU (level 3).
- HS.Marine Electronics can be used in a CANopen or a Radio network.
- HS.Marine Electronics also use fully enclosed and waterproof screens to displays crane status, crane alarms and hoisting paramenters.
- As optional, the screens can also be of touch type and / or have multifunction push buttons on the side of the screen.

SLEWING

All HS.Marine cranes are provided with powerful and precise slewing machinery composed of a slew bearing and gear boxes (normally two units but on a very few models only one unit). The high quality machinery guarantees better load distribution, high rotation torque capabilities, unlimited slewing and much better crane control.

Our gear boxes are carefully selected for high capacity to withstand side loads. Most of them are of eccentrically type to obtain the finest adjustments possible. We use only slew bearings of the highest quality produced by the leading manufacturer in Europe.

Being fitted with a slew bearing, all HS.Marine cranes can be supplied for continuous unlimited slewing.

As our standard, cranes up to AK 25 series are normally supplied with limited slewing and operation from a stand console, including two meter of hydraulic hoses, for bolting to deck. All models above AK 25 series come as standard with unlimited continuous rotation and operation from a seat console. On request, all different possibilities and combinations with regard to position of operation and slewing are available.

On request, the slewing angle can be limited for a specific sector. After installation of the crane onboard the vessel, the slewing sector can be adjusted by installation of a slew stop bracket.

Moreover the crane foundation can always be made from a simple pipe with a flange and several crane models can be fitted on the same foundation.

GREASE & WAX PROTECTION

All steel against steel surfaces, like flanges, bolt threads, bolt and pin holes, are protected by special marine grease to prevent adhesion and surface rust.

All the most critical components and internal surfaces are sprayed and covered with a special quick drying wax that becomes a hard and transparent film.

We apply various types of lubricants for protection of different types of components.

DISCOVER WHY **SMALL DETAILS** CREATE A **MAJOR DIFFERENCE**

WINCH SOLUTIONS

All parts of our winches are painted before assembly. After assembly, the winches are given a final top coat to ensure full protection against the harsh marine environment. All the bolts, with exception of any structural bolts, and springs used in the winches are made of stainless steel material.

As standard, the winches are fitted with limiting switches for wire rope down and up. Limit switch for rope down is always of hydraulic type but rope up may be either of electric or hydraulic type (optional).

The winches can be offered with many different options such as:

- Large drum with long wire rope capacity.
- LEBUS drum for controlled spooling.
- Rope length counter.
- Rope guide fitted with a diamond shaft.
- Load pull limitation system.

The winches can also be offered for special applications such as personnel handling.

CYLINDER RODS

We are aware that cylinder rods are critical parts on most of the cranes of our competitors. We do not believe that it is possible to compromise on quality when it comes to protection of the cylinder rods.

As our standard for top resistance against the salty marine environment, the rod of main luffing and knuckle cylinders is made of **NIKROM 350** material. Telescopic cylinder rods are as our minimum standard protected by a double layer of chromium suitable for use in the marine environment, but are also supplied in **NIKROM 350** material depending on crane type and size.

Compared to stainless steel, **NIKROM 350** offers more hours of long lasting protection. However, for applications where the cylinders are always left open, and especially when cylinders may be exposed to oxides of aluminium, we do propose to use cylinders rods of stainless steel with double chromium protection.

STAINLESS STEEL

As standard, we use many components of stainless steel in our cranes.

All nuts and bolts, except those of high tensile, are of stainless steel A4 quality.

Springs, grease nipples, distributor levers, small supports, hose guides, pipe clamps, chains, rope press, component supports and small plates not part of the main structure are all made of stainless steel AISI 316 quality.

Many parts on the crane are made of stainless steel. Most times you cannot see them as we paint them as well.

As our minimum standard, all hydraulic pipes and pipe nuts are of stainless steel AISI 316 quality. On request, we can offer all pipe fittings and hose couplings in stainless steel material. But please be assured, we are confident that our standard will offer a high level of protection against corrosion.

WATERTIGHT CONNECTION POINTS

To provide additional protection of hydraulic connection points, we use plastic sleeves lined with glue. When heat is applied to the sleeves upon installation, they shrink and the internal glue squeezes out any pockets of air to make them completely air and water tight.

Where we are not able to use plastic sleeves, we use a special marine tape suitable for deep water installations to protect the connection points.

ELECTRIC COMPONENTS

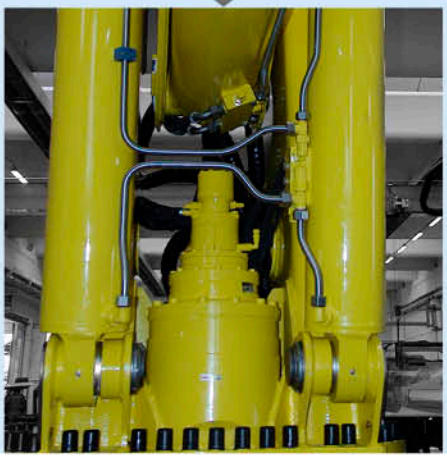
As standard, for electric components exposed to the weather conditions we use protection level IP67. Additionally, we focus also on where and how the components are installed on the cranes. We do use electric equipment well suited for the marine environment and we try to install and position it in such a way that its IP rating is of less importance. In order to obtain the best results, we normally also modify our design of other crane components (mechanical and hydraulic) that are interfaced with the electrical equipment. On request, we can also supply electrical equipment suitable for use in hazardous area.

SALT-PROOF SEALING

In the marine environment, the salty fog of sea water will over time penetrate most structures. We do our utmost to prevent penetration by using special materials to seal completely any exposed openings such as the surface between two flanges bolted together, around pins and plugs, gear box flanges, hydraulic motors, umbraco boltheads, cylinders plugs, access holes for maintenance, etc.

We like to keep the salty fog out and away from our cranes!

ARTICULATION POINTS

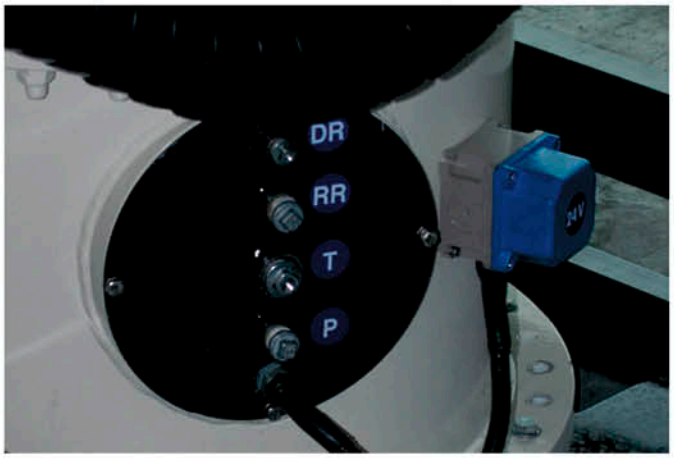


In comparison to cranes by our competitors, the articulation points of our cranes are most likely bigger.
Also, our gear boxes for crane rotation look bigger.

We always calculate and design our cranes to withstand increased side loads due the effect of a vessel's heel and trim.
We also like to keep the pressure on the articulation pins and the bronze bushings as low possible.

On nearly all our cranes, with exception of the smallest ones, each bronze bushing has its own grease nipple for independent greasing.

EASY INSTALLATION



HS.Marine guarantees easy installation of all our cranes. All the crane's connection points are prepared, properly and clearly marked in order to make the installation as easy as possible.

Complete installation procedures, including a flange drawing and connection bolt requirements, required type and size of hydraulic connection fittings, hoses and cable dimension, are always supplied well ahead of delivery of the crane itself.

Complete hydraulic and electrical interface diagrams are always supplied well ahead of before delivery.

All HS.Marine's standard bases are circular and many models use the same base dimentions allowing for a very last minute change of crane model to be installed.

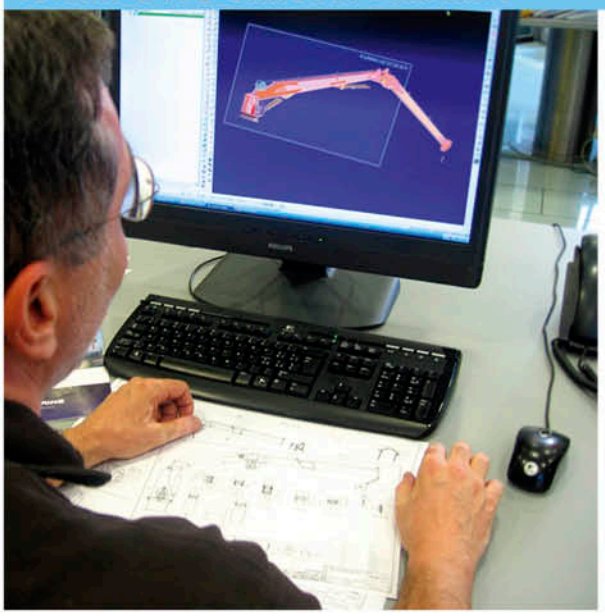
AS BUILT DOCUMENTATION FOLLOWS EVERY CRANE

- The crane documentation includes always the following:
- Workshop Test Certificate containing all applicable loose gear certificates, radio remote control certificate (if applicable) with its identification code and all other applicable certificates.
- User and Maintenance Manual complete with crane installation procedures, operation instructions, service and maintenance instructions, main technical data, all applicable drawings, load charts, hydraulic and electric circuit diagrams. The manual contains actual photographs of specific crane details of importance for service and maintenance.
- Spare Parts Manual containing exploded view drawings and a list of the applicable parts.
- If the hydraulic power unit is included in our scope of supply, its documentation will include:
- User and Maintenance Manual.
- Technical Data and Main Components.
- Electric circuit diagram for the electric starter.
- All the documentation is in English.
- As our standard, the documentation is provided in an electronic format. Upon special request, we also provide it in a paper format.
- Use and Maintenance Manual and Spare Part Manual follow shortly after the crane delivery

(as they are as built) but from the beginning of the project we normally supply:

- General arrangement drawing
- Hydraulic circuit diagram
- Electric circuit diagram
- Installation procedures showing the exact cables and hoses connections.
- Our product quality will be the only surprise to you when you install one of our cranes

DEDICATED TO ELEVATE OUR STANDARDS



HS.Marine believes it to be in the best interest of our customers and ourselves to maintain close contact, not only through the period of purchase but also throughout the cranes' entire lifetime. By maintaining close contact, the customers will receive our best service and support. In return, we will receive our customers' feedback to allow us to further improve our cranes to their benefit. Our moral responsibility does not stop once the warranty period runs out!

HS.Marine provides full after-sales and service support using the extensive service network of our many distributors supported, whenever required, by our own highly skilled service engineers. Our distributors are leading suppliers of marine equipment and marine service providers with highly skilled service engineers. Their marine service engineers are given comprehensive and up-to-date training on our cranes at our facilities.

HS.Marine After Sales and Service Department works closely with our distributors to provide our customers with the best possible service and support. The Department is always ready to respond to any direct requests for assistance from our customers and to coordinate the response with our distributors. Our customers are not to feel left alone if problems occur!

ABSOLUTE QUALITY

SPARE PARTS

We have every confidence in our spare part system that has been built-up over a number of years. Its modular organisation and the large stock of spare parts ensure that our customers receive a speedy and very efficient service. Our After Sales and Service Department is staffed by experienced service technicians that are able to offer on-the-spot advice and recommendations to solve most problems. As most components used in our cranes are provided by reputable and world-wide suppliers, the parts are obtainable in most major ports of the world. If we are not able to reach you, we will be happy to tell you where to go!

GLOBAL SERVICE NETWORK

HS.Marine uses the network of our many marine distributors supported by our own service engineers to provide service all over the world. The service engineers of our distributors are all fully acquainted with marine service work. They are fully trained to service our cranes and to maintain their factory execution standards. Whenever needed, HS.Marine's own service engineers travel to support the distributors in their service work or to provide direct services. Our world-wide service network will assure you of the best possible service in most parts of the world.

TRAINING

At our facilities, we offer full and comprehensive training courses for our customers' crane operators and service technicians in a modern class room. The crane operator course focuses, in addition to operation of the cranes, on all safety aspects with regard to load handling. The service technician course focuses on regular and periodic maintenance, fault finding and corrective measures, and the importance of maintaining the factory standards with regard to execution in order to secure a long life for the cranes.

OUR FACILITIES REFLECT THE **QUALITY** OF OUR PRODUCTS

HS.Marine's modern facilities are located in northern Italy, near the city of Parma approximately mid-way between Milan and Bologna. The facilities are easily reached by car from most of the major airports located in northern Italy.

The workshop has been special developed and arranged for crane production. It includes a number of crane test beds of various capacities, the largest for a dynamic test load of 1000 Tm. The built-in centralized hydraulic power unit services all available test beds ensuring that all cranes are tested at their correct hydraulic pressure and flow rate. All cranes are factory tested before delivery to our customers.

The facilities' fully controlled atmospheric paint shop and automatic, fully recyclable sandblasting machine ensure that all surface treatments are made during the most ideal paint conditions guaranteeing the quality of our paint system.

The warehouse contains at all times a large stock of pre-fabricated crane sections and high quality components in order for us to offer our customers the best possible delivery times.

The workforce is highly skilled and experienced after having been involved and specialized on crane production for many years. We believe that the people in our workshop are our greatest asset. We invest a lot in training to get QUALITY, both people and products.

Most of our visitor are impressed by our facilities; modern, efficient, well organised, tidy and clean.

HS MARINE

the ultimate crane specialist

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