

HANDAL

R850

OFFSHORE CRANES
FOR THE OILFIELD
INDUSTRY



HANDAL CRANES SDN BHD
(formerly known as **HANDAL OFFSHORE**
SERVICE SDN BHD)

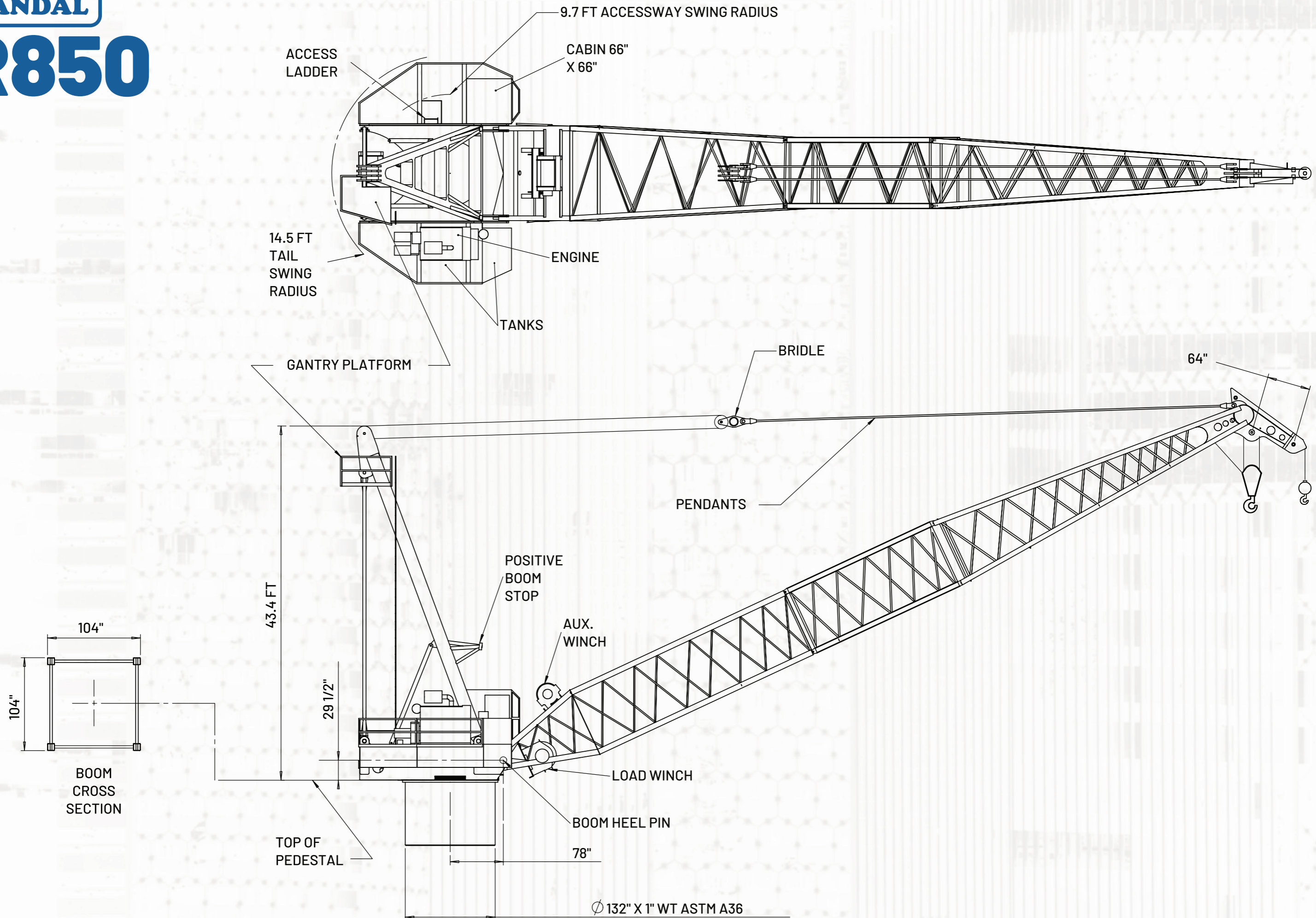
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TECHNICAL SPECIFICATIONS

CRANE - TYPE

Pedestal mounted, precision slewing ring, rope luffing, lattice boom, pin-on gantry.

APPLICATION

Designed for offshore applications. Constructed & rated to API 2C specifications.

NOMINAL REACH CAPACITY

85K lb. at 85 ft radius.

LOAD HOOK MAXIMUM CAPACITY	120 short tons.
MAXIMUM ROPE SIZE	1 1/4"
SHEAVE DIAMETER	25"
MAXIMUM LINE FALLS	8
WINCH MOUNTING	In boom - eliminates two blocking by luffing down; frees deck space.
AUXILIARY HOOK - MAX. CAPACITY	20 short tons.
MAXIMUM ROPE SIZE	1 1/4"
SHEAVE DIAMETER	25"
MAXIMUM LINE FALLS	2
WINCH MOUNTING	On boom - eliminates two blocking by luffing down; frees deck space.

SWING - FINAL DRIVE	External spur gear with low backlash and high precision. 360 continuous rotation.
DRIVE TRANSMISSION	High torque hydraulic motor, fully enclosed planetary gear reduction, fail-safe multidisk wet static brake. 4:1 safety factor exceeds API 2C.
CAPACITY	246,000 ft-lb X 2 after accounting for friction in drive.
SPEED @ FLOW	1 RPM @ 40 GPM X 2 swing circuit flow after accounting for motor slip.
MOTOR PRESSURE	3000 PSI Limit pressure.

SWING CIRCLE ASSEMBLY	Sealed high precision anti-friction, 4 point contact single row ball bearing. High API 2C swing circle strength factor standard. Bearing balls mounted in-line with pedestal wall to minimize flange & raceway prying and maximize joint strength.
BOLTING	Heavy duty bolting to sustain clamping under the highest crane loads - for maximum strength and life. Precision pre loading with no special tools required. 1 1/2" SAE J429 strength grade 8, impact toughness per API 2C, anti corrosion coating.

PEDESTAL	Precision machined flange. Flange meets DNV thickness requirements and API lamination quality requirements. Joined with full penetration butt welds.
BARREL	132" OD, 1" Wall thickness, ASTM A36 material

BOOM CONSTRUCTION	Medium strength square tubing chords. Mild steel tubular lacing. Construction provides for maximum strength / economy and ease of repair
LIQUID CAPACITY	400 gallons fuel, 900 gallons hydraulic oil.

MARINE DUTY	Seal welding to suit harsh offshore environment, 3 coat marine paint system. Drive components and brakes are sealed and running in oil. Centralized anti-pollution spill containment provided below decking & machinery.
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LUFFING - TYPE	Rope luffing. Bridle & pendant lines ease change of boom length and minimize amount of replacement running rope.
ROPE	φ 1" Dyform 6 rope for higher strength and crush resistance.
SHEAVE DIAMETER	20"
LINE FALLS	12
SPEED @ FLOW	3.2 minutes max to min. radius @ 170 GPM. Limit flow 170 GPM.
MOTOR PRESSURE	Max working pressure 2360 PSI. Limit pressure 2950 PSI
ROPE FLEET ANGLE	1.5 degrees.
MIN BOOM ANGLE	0 degrees working, minus 10 degrees for maintenance.
MAX BOOM ANGLE	81 degrees working limit, 83 degrees to positive stop.

PENDANT - ROPE TYPE	6 x 19 XIP for economy
ROPE SIZE	2 1/4"
LINE FALLS	2

LUFFING WINCH	Approved for personnel lifting. Self contained. Integral brake test hardware.
AUX. HOLDING MECHANISM	Ratchet & pawl; remains engaged in up luffing, auto releases on boom lowering.
WINCH TRANSMISSION	High speed hydraulic motor. Fully enclosed planetary gear reduction, fail-safe multidisk wet static brake. Brake remains engaged during raising mode.
WINCH CONTROL	Power controlled lowering - automatic hydraulic dynamic braking with brake valve requiring power to lower load; no free fall or friction brake lowering.
DRUM	20" diameter. 23 wraps remain on drum.

ROPE REEVING	Nylon sheaves with sealed anti friction bearings. Retainers prevent rope from leaving sheave groove. Idler sheaves limit fleet angle to 1.5 degrees for optimum spooling. Minimum 18:1 pitch 1 minute. No reverse bending of ropes for maximum life heavy hook weight to prevent rope fouling at winch and at sheave.
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QUALITY	Official API 2C Monogram. API Q1& ISO 9001 quality standards. Material fully traced. Welding to AWS D1.1. Thorough NDE and testing.
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MAXIMUM STATIC LOAD RATINGS (Lb) API Spec 2C

RADIUS (Ft)	MAXIMUM SWLH - ONBOARD LIFT BOTTOM SUPPORTED CRANE BASE API SPEC 2C 7 TH											
	100 FT	110 FT	120 FT	130 FT	140 FT	150 FT	160 FT	170 FT	180 FT	190 FT	200 FT	
Minimum	244,000	244,000	244,000	244,000	244,000	244,000	244,000	234,600	213,900	196,700	181,700	
25	244,000	-	-	-	-	-	-	-	-	-	-	
30	244,000	244,000	244,000	244,000	244,000	244,000	244,000	-	-	-	-	
35	244,000	244,000	244,000	244,000	244,000	244,000	244,000	-	-	-	-	
40	231,700	230,200	228,700	227,200	225,700	221,700	211,800	203,000	195,100	188,100	*	
45	201,200	199,900	198,500	197,100	195,700	194,300	185,900	178,000	170,900	164,500	158,800	
50	177,600	176,300	175,100	173,700	172,400	171,100	166,300	159,200	152,700	146,800	141,400	
55	158,700	157,500	156,300	155,100	153,800	152,600	150,900	144,300	138,400	132,900	127,800	
60	143,200	142,100	140,900	139,800	138,600	137,300	136,100	132,300	126,700	121,600	116,900	
65	130,300	129,200	128,100	127,000	125,800	124,600	123,400	122,200	117,100	112,200	107,700	
70	119,400	118,300	117,200	116,100	115,000	113,800	112,700	111,600	108,900	104,300	101,100	
75	109,900	108,900	107,900	106,800	105,700	104,600	103,500	102,400	101,200	97,500	93,400	
80	101,800	100,800	99,800	98,700	97,600	96,500	95,400	94,300	93,200	91,500	87,700	
85	94,600	93,700	92,600	91,600	90,600	89,500	88,400	87,300	86,200	85,100	82,600	
90	88,200	87,300	86,300	85,300	84,300	83,300	82,200	81,100	80,000	78,900	77,800	
95	82,500	81,700	80,700	79,700	78,700	77,700	76,600	75,600	74,500	73,400	72,400	
100	77,500	76,600	75,700	74,700	73,700	72,700	71,700	70,600	69,600	68,500	67,400	
105	72,800	72,000	71,100	70,200	69,200	68,200	67,200	66,200	65,100	64,000	63,000	
110	-	67,900	67,000	66,100	65,100	64,100	63,100	62,100	61,100	60,000	59,000	
115	-	64,000	63,200	62,300	61,400	60,400	59,400	58,400	57,400	56,400	55,300	
120	-	-	59,700	58,900	58,000	57,000	56,000	55,000	54,000	53,000	52,000	
125	-	-	56,500	55,700	54,800	53,900	52,900	51,900	50,900	49,900	48,900	
130	-	-	-	52,800	51,900	51,000	50,000	49,100	48,100	47,200	46,200	
135	-	-	-	50,000	49,200	48,400	47,500	46,500	45,600	44,600	43,600	
140	-	-	-	-	46,800	45,900	45,000	44,100	43,200	42,200	41,200	
145	-	-	-	-	44,400	43,700	42,800	41,900	40,900	40,000	39,000	
150	-	-	-	-	-	41,500	40,700	39,800	38,800	37,900	36,900	
155	-	-	-	-	-	-	38,400	38,700	37,800	36,900	35,900	
160	-	-	-	-	-	-	-	36,800	36,000	35,000	34,100	
165	-	-	-	-	-	-	-	32,800	34,200	33,300	32,400	
170	-	-	-	-	-	-	-	-	32,500	31,600	30,700	
175	-	-	-	-	-	-	-	-	27,700	30,100	29,200	
180	-	-	-	-	-	-	-	-	-	28,200	27,700	
185	-	-	-	-	-	-	-	-	-	28,200	27,700	
190	-	-	-	-	-	-	-	-	-	23,000	26,300	
195	-	-	-	-	-	-	-	-	-	-	23,400	
200	-	-	-	-	-	-	-	-	-	-	19,100	
205	-	-	-	-	-	-	-	-	-	-	-	
Max	65,400	57,000	49,500	43,000	37,100	31,700	26,900	22,400	18,700	15,200	11,800	
Foundation reactions	Max thrust (Lb)	513,962	516,610	519,238	521,885	524,533	527,180	529,827	523,633	505,469	489,373	474,573
	@ moment (Lb-Ft)	13,436,011	13,481,260	13,528,610	13,575,748	13,623,471	13,671,624	13,720,101	13,613,305	13,511,721	13,391,521	13,270,887
	Max mom. (Lb-Ft)	16,856,517	16,826,847	16,765,907	16,713,528	16,648,419	16,588,553	16,533,916	16,480,460	16,422,773	16,358,059	16,312,528
	@ thrust (Lb)	288,700	282,752	283,785	284,837	279,074	293,848	302,646	295,605	304,242	304,947	314,439

Ref: R850_100_BOT_legacy_on R850_110_BOT_legacy_on R850_120_BOT_legacy_on R850_130_BOT_legacy_on R850_140_BOT_legacy_on R850_150_BOT_legacy_on R850_160_BOT_legacy_on R850_170_BOT_legacy_on R850_180_BOT_legacy_on R850_190_BOT_legacy_on R850_200_BOT_legacy_on
 SWL = SWLH less Weight of hook block. Actual SWL is typically lower due to sea state, wind and hoisting system utilized. SWL ratings and foundation reactions are per API Spec 2C 7th Ed with a bottom supported crane base and zero wind conditions. Method used is general method for onboard case and legacy method for offboard case.

APPROXIMATE SHIPPING DATA

Components	Weight (lb)	Volume ft x ft x ft
Pedestal	2000+1400 x L	L x 11.7 x 11.7
Upper	46,300	18.3 x 12.0 x 5.4
Gantry fore	12,420	41.6 x 11.7 x 7.0
Gantry aft	5,100	33.8 x 11.4 x 1.0
Gantry braces	800	13.5 x 1.4 x 0.6
Bridle	1,100	4.0 x 2.0 x 2.4
Boom heel	26,700	41.9 x 11.6 x 8.9
Boom mid	246 x L	L x 8.9 x 9.4
Boom tip	13,660	45.7 x 8.9 x 12.0
Pendants + hook blocks	7,600	6.0 x 6.0 x 6.0
Gantry platform	800	7.2 x 6.2 x 4.0
Cabin / deck	9,000	19.6 x 7.4 x 9.5
Power unit / deck	14,700	18.8 x 7.4 x 9.5
Ladders - access & gantry	600	20.0 x 2.0 x 2.0
Accessories	varies	varies

L = Length in feet. Weight includes machinery. For illustrated configuration 020717.
 R850_wt_dim_revA

L = LENGTH IN FEET.
 WEIGHT INCLUDES MACHINERY.
 FOR ILLUSTRATED CONFIGURATION.

Ratings shown are maximum per API Spec 2C Ed. @ c_b = 1.33, 0 wind speed, 0° offlead, 0° sidelead & level fixed foundation. Actual ratings are typically lower due to optional hoist system limitations or dynamic conditions. Deduct the hook block weight to determine the lifting capacity. Foundation reactions are based on dead load plus live load x 1.5 x c_b.