

# Universal Berth Parameters



# Saudi Aramco

## Ports and Terminals

### Universal Berth Parameters

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## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

### GENERAL COMMENTS

1. All depths, drafts and distances are in meters.
2. Minimum SWL of cranes handling 16" and 20" cargo hoses are 10T and 15T respectively.
3. Maximum Trim during operations is, unless stated, 1.5% LOA and propeller fully immersed.
4. High Modulus Polyethylene (HMPE) mooring lines in compliance with OCIMF guidelines are acceptable to replace mooring wire requirements.
5. An Asterisk (\*) placed next to text denotes new or amended information since the last revision

### RAS TANURA PORT - NORTH PIER

Berth	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Max L.O.A.	Berth Lengths				Connections		Loading arm limits above L.A.T.				Max Stern Overhang	
				Min	Max		Product	BCM	SCM	Naphtha	Cargo	Bunker	Min	Max	Min	Max		Min
6	13.6	12.6	12.6	16	70	Mothballed	257	165	92	—	—	8 - 12"	4"	—	—	—	—	24.5
7	12	8.84	11.0	—	60	Mothballed	183	102	81	—	—	—	—	Hoses	Hoses	—	—	24.5
8	14.1	13.1	13.1	16	115	—	233	137	96	88	145	8 - 12"	4 - 12"	4.9	18.9	5.0	23.5	24.5
9	13.6	8.84	11.8	—	90	—	238	112	126	—	—	8 - 12"	4 - 12"	4.9	18.9	—	—	—
10	15.1	14.1	14.1	16	135	—	380.8	197	183.8	—	—	8 - 12"	4 - 12"	4.9	18.9	—	—	—
11	13.6	8.84	12.6	—	95	—	380.8	225.3	155.5	—	—	8 - 12"	4 - 12"	4.9	18.9	—	—	—

1. All Berths - Minimum distance between ships 15-50m.
2. The moorings of a ship at Berth #11 must be checked prior to #9 around #11 berthing / unberthing operations.
3. Maximum drafts for ships using the East Channel is 10.67m and / or not exceeding 244m LOA.
4. Ships entering the Departure Channel are NOT permitted to turn short round, but must proceed to Juaymah turn off point if required to return to Ras Tanura, or vice versa.
5. During berthing of small ships to Berth #9 or #11, prior to passing the North end of the North Pier at least one tug must be secured, after passing the North end of the North Pier, the ship should approach the berth with astern movement, stern first.

## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

## RAS TANURA PORT - SEA ISLAND

Berth	Depth at L.A.T.	Max Sailing Draft Ships Head		DWT MT (x 1000)		Disp MT (x1000)	Berth Lengths				Connections (All connections 150ANSI / ASME)			Loading arm limits above L.A.T.		
		North	South	Min	Max		Max Arrival	Max L.O.A.	Distance (Max)		Minimum		Cargo	Bunker	Min	Max
									BCM	SCM	BCM	SCM				
15	26.5	21.0	19.5	60	300	150	427.1	214	213.1	109.7	109.7	109.7	12-16"	6-10"	5.33	31.84
16	26.5	21.0	17.0	60	220	90	427.1	214	213.1	109.7	109.7	109.7	12-16"	6-10"	5.33	31.84
17	25.5	21.0	19.5	90	327	150	420.6	207.6	213	121.9	121.9	121.9	12-16"	6-10"	6.24	33.67
18	26.5	21.0	-	90	327	150	420.6	207.6	213	121.9	121.9	121.9	12-16"	6-10"	6.24	33.67
19	27.0	21.0	-	150	500+	-	533.4	266.7	266.7	121.9	121.9	121.9	12-20"	12-16"	6.24	36.72
20	27.0	21.0	19.5	150	500+	-	533.4	266.7	266.7	121.9	121.9	121.9	12-20"	12-16"	6.24	36.72

- Maximum draft in the Arrival Channel shall be 16.3m plus the rise in height of tide (up to a maximum of 18.0m).
- Maximum draft in the Departure Channel shall be 19.50m plus the rise in height of tide (up to a maximum of 21.0m) with minimum under keel clearance of 1.50m.
- Lining up to the Departure Channel is compulsory for vessels of 20,500m or more and at Masters request for vessels of 150,000DWT and more.
- Berth #15 – Minimum forward parallel body length is 64.0m.
- Berth #17 – Manifold not at mid length – Max distance stern to manifold is 167.5m.
- Maximum draft – Passing south of Sea Island not to exceed 17.0m.
- Vessels draft over 17.0m – All vessels shall be berthed on the East side berths of Sea Island and are not to pass South of a line drawn due East between Berth #6 and Berth #8 during Berthing / Unberthing operations.
- In agreement with OSPAS planner / Shift Superintendent and SHP – Vessels with a draft over 17.5m, on any berth, awaiting cargo release or vessels waiting tide may be allowed to stay for a maximum of 3 hours if the berth is not needed. However, if a ship shore difference is declared then the vessel must proceed to deep draft anchorage North of Sea Island for investigation.
- All vessels shall be normally berthed on a Northerly heading - Exceptions are Berth 15, 16, 17, 20, where during ebb tide and strong SEly wind and taking into consideration max departure draft as indicated on berth parameters, Harbor Master permission must be granted.

## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

### RAS TANURA PORT - JUAYMAH CRUDE TERMINAL

Berth	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Line Capacity Bbl.		Connections		SPM Type	Hose String Length	Mooring Hawser		Chafing Chain		Pickup Rope		SPM Light Characteristics
				Min	Max	Shore/Plat	Plat/SPM	Cargo	Bunker			Length	Circ	Length	Dia.	Port	Stbd	
31	32.1	26.0	26.0	150	500	125,000	24,000	16/20"	12"	CALM	335	54.8	15"	9.15	76mm	152	76	FI (1) Y 10secs
32	33.8	26.0	26.0	150	500	125,000	44,000	16/20"	12"	CALM	335	54.8	15"	9.15	76mm	152	76	FI (2+1) Y 15secs
33	34	26.0	26.0	150	500	125,000	66,000	16/20"	12"	CALM	335	54.8	15"	9.15	76mm	152	76	FI (3) Y 12secs
34	35	26.0	26.0	150	750	125,000	86,000	16/20"	12"	SALM	335	54.8	15"	9.15	76mm	152	76	FI (4) Y 10secs
35	32	26.0	26.0	150	750	125,000	58,000	16/20"	12"	SALM	335	54.8	15"	9.15	76mm	152	76	FI (5) Y 20secs
36	36	26.0	26.0	150	500	125,000	86,000	16/20"	12"	CALM	335	54.8	15"	9.15	76mm	152	76	FI (6) Y 15secs

- Juaymah SPM - Arrival Channel - max draft is 21.30m.
- A Ship with draft exceeding 21.30m to an absolute draft of 26.00m will require special routing and arrangements in accordance with RT PCC instructions.
- Max Trim during berthing operation is 0.7% of LOA and propeller fully immersed.
- All vessels proceeding to and from berths must keep a minimum of 2.0m under keel clearance at all times.
- Cargo Load Rate - Min 25,000BPH, Max 16" hoses, 110,000 BPH, 20" hoses 130,000BPH. Max Load Rate - Bunkers – 5,000BPH

### RAS TANURA PORT - JUAYMAH NGL

Berth	Depth at L.A.T.	DWT MT (x 1000)	Berth Lengths		Connections		Loading arm limits above L.A.T.		Cargo tank maximum operating pressures	
			Min	Max	Cargo	SCM	Min	Max	Top	Bottom
51	23.8	25	200	210.5	12-16"	12-16"	7.76	30.6	Propane A140 (C3)	Butane A160 (C4)
52	23.8	25	200	210.5	12-16"	12-16"	7.76	30.6	Top	Bottom

- Berth #52 – No berthing / Unberthing during Ebb tide (Approx. HW +4.0Hrs) if the ship is on a Northerly Heading.
- All vessels are normally berthed on a Northerly heading - Exceptions could be made during ebb tide and strong SEly wind, Harbour Master permission must be granted.
- Vessels which have used Propane liquids as coolant for tanks to be loaded with Butane will not be accepted.

## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

DUBA PORT																	
Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT (x 1000)		Berth Lengths			Connections	Loading arm limits above L.A.T.		Grade Type	Weather Restrictions if wind		
				Min	Max	Min	Max	L.O.A.	FPBL	APBL		Parallel body Minimum	Cargo			Min	Max
405	15	12.8	12.8	Min 12	Max 50	30	65	200	30	30	60	12"	4.8	15.7	*MDO Gasoline	Berthing < 30Knots Cargo suspension at 35Knots Unberthing > 40Knots	

1. Duba Port - Maximum swell for berthing and cargo operations is 2.0m

Yanbu berths wind restrictions – Any vessel condition. Limiting conditions for Berthing or Mooring operations are 30knots, depending on berth assignment.

YANBU – NORTH CRUDE TERMINAL *																	
Berth	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT (x 1000)		Berth Lengths			Connections		Loading arm limits above L.A.T.		Max Loading Rate (x 1000) BPH/Arm		
				Min	Max	Min	Max	L.O.A.	FPBL	APBL	Parallel body Minimum	Cargo	Fuel	Min	Max	Cargo	Fuel
61	28.04	25.0	25.0	80	275	185	356.5	39	39	78	16,20,24"	8,10,12"	7.32	23.16	32.5	17.8	
62	32.0	29.0	29.0	80	500	390	420.0	40.5	40.5	81	16,20,24"	8,10,12"	7.32	29.26	32.5	17.8	
63	27.43	24.5	24.5	120	# 275	185	356.5	66.1	66.1	132.2	16,20,24"	8,10,12"	7.32	23.16	32.5	17.8	
64	25.90	23.0	23.0	100	400	300	404.0	54.5	54.5	109	16,20"	8,10,12"	7.32	23.16	32.5	17.8	

# Berth 63 Max DWT can be increased up to 315,000 during Berth 62 outage only as per CSD evaluation letter #CSD/RE&CED/CEU-L-02/0

## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

### YANBU – NORTH REFINED PRODUCT TERMINAL \*

Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT (x 1000)	Berth Lengths L.O.A.		Connections			Loading arm limits above L.A.T.		Grade Type	
				Min	Max		Min	Max	Cargo	Bunker	Min	Max	Cargo		
													Min		Max
91 501	16	14.2	14.2	20	60	80	156	236	*6,8,10,12"	*8,10,12"	4.1	16	BW, FOB, FOC, JP-4, KE, MDC, MDB, MDO, NA, PG, PW, RG		
92 502	16	14.2	14.2	20	80	107	156	260	*6,8,10,12"	*8,10,12"	4.1	16	BW, FOB, FOC, JP-4, KE, MDC, MDB, MDO, NA, PG, PW, RG		
93 503	11.5	9.8	9.8	3	20	27	76	164	*6,8,10,12"	*6,8,10"	1.7	12.6	BW, FOB, FOC, JP-4, KE, MDC, MDB, MDO, NA, PG, PW, RG (CA, LPG, TEL for 94 only)		
94 504	11.5	9.8	9.8	3	20	27	76	164	*4,6,8,10,12"	*6,8,10"	1.7	12.6	BW, FOB, FOC, JP-4, KE, MDC, MDB, MDO, NA, PG, PW, RG (CA, LPG, TEL for 94 only)		

1. \*Manifold Variance distances –
  - i. Manifold to stern - Max Dist. - Manifold should be at amidships +/- 6m,
  - ii. Maindeck to center of manifold - Minimum Dist. 1.2M
  - iii. Ship Rail to Manifold – Minimum Dist. 1.5M
  - iv. Between manifold centers– Minimum Dist. 1.1M

### YANBU – SOUTH TERMINAL

Berth	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT (x 1000)	Berth Lengths				Connections		Loading arm limits above L.A.T.		Max Loading Rate (x 1000) BPH/Arm	
				Min	Max		L.O.A.	Parallel body Minimum		Parallel body Minimum	Cargo	Min	Max	Cargo		
								FPBL	APBL					Min		Max
101	28.5	22.6	22.6	35	320	370	348.5	35	35	70	16,20,24"	4.8	29.5	Cargo	33.0	
102	32.0	27	27	100	500	590	411.5	44.5	44.5	89	16,20,24"	4.8	29.5	Cargo	33.0	
103	28.5	22.6	22.6	35	320	370	348.5	35	35	70	16,20,24"	4.8	29.5	Cargo	33.0	

## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

JEDDAH – OUTER HARBOR														
Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Berth				Connections		Weather Restrictions. At "Ballast" and "Loaded" conditions		
				Min	Max	L.O.A.	Parallel body Minimum		Min Crane SWL (MT)	Cargo	Bunkers			
							FPBL	APBL						
201	16.4	14.0	14.0	40	100	250	37	23	60	10	12"	8"	*PG, JP-4, MDO, AL, Reduced Crude,	25 ----- 30 knots
202	16.4	14.0	14.0	40	100	250	53	53	106	10	12"	8"	*JP-4, MDO, ULSFO, FO, PG, Reduced Crude,	

JEDDAH – INNER HARBOR													
Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT		L.O.A.	Anchors to be used at the berth	Stern lines (Ropes)		Min Crane SWL (MT)	Cargo	Bunkers	Weather Restrictions. At "Ballast" and "Loaded" conditions
				Maximum	Minimum			Minimum					
						Minimum	Maximum		Minimum	Maximum			
102	7.0	5.5	5.5	6,000	120			2			2	6	1.0
103	10.0	8.5	8.5	7,500	120	2	2	6	1.0	8"	8"	*ULSFO, MDO	
104	12.5	11.0	11.0	30,000	180	2	2	8	5.0	12"	8"	*ULSFO, MDO, Lube-Oil	
105	13.0	11.0	11.0	30,000	180	2	2	8	3.0	10"	8"	Lube-Oil	
106	13.4	11.5	11.5	50,000	185	2	2	8	10.0	12'	8"	*PG, JP-4, FO, MDO, ULSFO, Reduced Crude	
108	12.8	11.5	11.5	50,000	200	2	2	8	10.0	12"	8"	*PG, JP-4, FO, MDO, ULSFO, Reduced Crude	

- Jeddah Port – Inner harbor – All vessels must have a minimum of two mooring winches at the poop deck to handle stern lines and must have two operational anchors with the ability to operate simultaneously.



**SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS**

<b>PORT OF JAZAN PRIMARY AND DOWNSTREAM INDUSTRIES – TERMINAL BERTH 1</b>																	
Berth	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT	Length Overall	Minimum Parallel Body Length			Loading Arms Limits above LAT		Max Loading Rate (BPH/Arm)		Center Manifold Location		Arm
				Min	Max			FPBL	APBL	Total	Min	Max	Export	Import	Bow to center of manifold	Stern to center of manifold	
Berth 1	16.50	15	15	10	120	134,583	286	24	24	48	4.15	21.6	–	–	122	164	T02-007
													15	–	126	160	T02-001
													8	–	130	156	T02-004
													15	PG:15 MTBE:7	134	152	T02-022
													15	15	138	148	T02-002
													15	15	142	144	T02-003
													12	12	146	140	T02-021
													15	15	150	136	T02-024
													VGO:13 FO:12	VGO:13 FO:12 Crude:11.5	154	132	T02-005
													12	FO:12 Crude:11.5	158	128	T02-006
NA	NA	162	124	F1													
NA	NA	166	120	F2													

## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

PORT OF JAZAN PRIMARY AND DOWNSTREAM INDUSTRIES – TERMINAL BERTH 2																																			
Berth	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT	Length Overall	Minimum Parallel Body Length			Loading Arms Limits above LAT		Max Loading Rate (BPH/Arm)		Center Manifold Location		Arm																		
				Min	Max			FPBL	APBL	Total	Min	Max	Export	Import	Bow to center of manifold	Stern to center of manifold																			
Berth 2	16.50	15	15	10	120	134,583	286	24	24	48	4.15	21.6	15	12	146	140	140	T02-021																	
																			15	15	150	136	15	15	150	136	T02-024								
																			VGO:13	FO:12	FO:12	Crude:11.5	VGO:13	FO:12	FO:12	Crude:11.5	154	132	T02-005						
																			12	12	142	144	15	15	142	144	15	15	142	144	T02-003				
																			15	15	138	148	15	15	138	148	15	15	138	148	T02-002				
																			15	15	134	152	15	15	134	152	15	15	134	152	T02-022				
																			8	8	130	156	8	8	130	156	8	8	130	156	T02-004				
																			15	15	126	160	15	15	126	160	15	15	126	160	T02-001				
																			—	—	122	164	—	—	122	164	—	—	122	164	—	—	122	164	T02-007
																			—	—	122	164	—	—	122	164	—	—	122	164	—	—	122	164	T02-007



## SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS

PORT OF JAZAN PRIMARY AND DOWNSTREAM INDUSTRIES - BULK TERMINAL – BERTH 4 - SULFUR														
Berth	Plant No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Disp MT (x 1000)		Berth	Ship Loader Location			Jetty Info - Number of Bollards	Loading Cargo (Export)
					Min	Max	Min	Max		LOA Max	Bow to center of ship loader	Stern to center of ship loader		
*Berth #4	*T04	*16	*15	*15	—	*40	—	*48.5	*217	*108.5	*108.5	*58.0	*11 QRH	*Solid Sulfur

- \*Sulfur berth is not supported by a fixed gangway.
- \*Only one ship can be accommodated at the same time at Berth 3 or 4.

PORT OF JAZAN PRIMARY AND DOWNSTREAM INDUSTRIES – SPM TERMINAL																	
Berth	Plant No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT (x 1000)		Connections		Min Crane SWL	Loading Rate	Mooring Hawser		SPM Type	SPM Light Characteristics		Type of operation	
					Min	Max	Cargo	Fuel			Max	Length		Circ	White Morse Code U (-.)	Loading Cargo (Export)	Discharging Cargo (Import)
SPM	T 10	23.75	22	22	150	320	20	—	20	15000 m <sup>3</sup> /Hr. @ 10 Bar	85	15"	CALM	15 secs	—	Crude Oil	

- SPM connections are 2 floating hoses with a 20" connection each as per drawing no. VA-373361-001

**SAUDI ARAMCO – PORTS AND TERMINALS – UNIVERSAL BERTH PARAMETERS**

<b>JAZAN BULK PLANT - SPM TERMINAL</b>																
Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sailing Draft	DWT MT (x 1000)		Ships Beam		Connections		Min Cran SWL	SPM Type	Mooring Hawser		SPM Light Characteristics	Grade Type	Weather Restrictions
				Min	Max	Max	Max	Cargo	Length			Circ				
301	17.7	11.8 + Tide	11.8 + Tide	10	50	35	35	16"	10.0	CALM	55.4	17"	15 secs	*PG (91 + 95)	Berthing < 30Knots Cargo suspends at 35Knots Unberthing > 40Knots	
302	18.1	11.8 + Tide	11.8 + Tide	10	50	35	35	16"	10.0	CALM	55.4	17"	15 secs	*MDO JP-4		

<b>CARGO TYPE - KEY</b>									
BW	Ballast Water (Discharge)	JP-4	Jet Fuel	MDC	Marine Diesel Cargo	PG	Premium Gasoline	CA	Caustic Soda
FOB	Fuel Oil Bunkers	KE	Kerosene	MDO	Motor Diesel Oil	PW	Potable Water	LPG	Liquefied Petroleum Gas
FOC	Fuel Oil Cargo	NA	Naphtha	MDB	Marine Diesel Bunkers	RG	Regular Gasoline	TEL	Tetra Ethyl Lead
MTBE	Methyl Tertiary Butyl Ether	ULSFO	Ultra-Low Sulfur Fuel Oil	VGO	Vacuum Gas Oil	C3	Propane	C4	Butane