

# 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)			Berth Lengths				Connections		Loading arm limits above L.A.T.				Max Stern Overhang	
							Max L.O.A.	Product		Naphtha			Product		Naphtha			
								Min	Max	BCM	SCM	BCM	SCM	Cargo	Bunker	Min		Max
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 (x 1000)	Berth Lengths				Connections (All connections 150ANSI / ASME)		Loading arm limits above L.A.T.		
							Max L.O.A.	Distance (Max)		Minimum			Crude		
		North	South	Min	Max	Max Arrival		BCM	SCM	BCM	SCM	Cargo	Bunker	Min	Max
15	26.5	21.0	19.5	60	300	150	427.1	214	213.1	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	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	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	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	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	12-20"	12-16"	6.24	36.72

1. Maximum draft in the Arrival Channel shall be 16.3m plus the rise in height of tide (up to a maximum of 18.0m).
2. 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.
3. Lining up to the Departure Channel is compulsory for vessels of 20.50m or more and at Masters request for vessels of 150,000DWT and more.
4. Berth #15 – Minimum forward parallel body length is 64.0m.
5. Berth #17 – Manifold not at mid length – Max distance stern to manifold is 167.5m.
6. Maximum draft – Passing south of Sea Island not to exceed 17.0m.
7. 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.
8. 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.
9. 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, Senior Harbour Pilot 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 Bbbs		Connections		SPM Type	Hose String Length	Mooring Hawser		Chaffing 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	Fl (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	Fl (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	Fl (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	Fl (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	Fl (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	Fl (6) Y	15secs

1. Juaymah SPM - Arrival Channel - max draft is 21.30m.
2. 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.
3. Max Trim during berthing operation is 0.7% of LOA and propeller fully immersed.
4. All vessels proceeding to and from berths must keep a minimum of 2.0m under keel clearance at all times.
5. 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 1.0PSI – 70Mbs – 0.07Kg/cm <sup>2</sup>			
				Max L.O.A.	LPG			LPG	Min	Max	Cargo Tank minimum operating temperature requirements (°C)		
		Min	Max		Cargo	Min	Max				Propane A140 (C3)		Butane A160 (C4)
								Top	Bottom	Top	Bottom		
51	23.8	25	200	421	210.5	210.5	12-16"	7.76	30.6	- 22	- 39	+14	0
52	23.8	25	200	421	210.5	210.5	12-16"	7.76	30.6				

1. Berth #52 – No berthing / Unberthing during Ebb tide (Approx. HW +4.0Hrs) if the ship is on a Northerly Heading.
2. All vessels are normally berthed on a Northerly heading - Exceptions could be made during ebb tide and strong SEly wind, Senior Harbour Pilot permission must be granted.
3. 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.	Parallel body Minimum		Parallel body Minimum	Cargo	Cargo			
									FPBL	APBL			Min			Max
#1 405	15	12.8	12.8	12	50	30	65	200	30	30	60	12"	4.8	15.7	*MDO Gasoline	Berthing < 30knots Cargo suspension > 35Knots Unberthing > 40knots

- 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	Arr. Max	Max	FPBL	APBL	Parallel body Minimum	Cargo	Fuel	Cargo		Cargo	Fuel
													Min	Max		
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-02/09

## 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		Connections		Loading arm limits above L.A.T.		Grade Type
							L.O.A.				Cargo		
				Min	Max	Max	Min	Max	Cargo	Bunker	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	
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	

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	
							L.O.A.	Parallel body Minimum			Cargo			
				Min	Max	Max	Max	FPBL	APBL	Parallel body Minimum	Cargo	Min	Max	Cargo
101	28.5	22.6	22.6	35	320	370	348.5	35	35	70	16,20,24"	4.8	29.5	33.0
102	32.0	27	27	100	500	590	411.5	44.5	44.5	89	16,20,24"	4.8	29.5	33.0
103	28.5	22.6	22.6	35	320	370	348.5	35	35	70	16,20,24"	4.8	29.5	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		Grade Type	Weather Restrictions. At "Ballast" and "Loaded" conditions	
						L.O.A.	Parallel body Minimum		Parallel body Minimum	Min Crane SWL (MT)	Cargo			Bunkers
				Min	Max		FPBL	APBL						
MB#1 201	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
MB#2 202	16.4	14.0	14.0	40	100	250	53	53	106	10	12"	8"	*JP-4, MDO, ULSFO, FO, Reduced Crude,	

JEDDAH – INNER HARBOR													
Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sail Draft	DWT MT		Berth				Connections		Grade Type	Weather Restrictions. At "Ballast" and "Loaded" conditions
						L.O.A.	Anchors to be used at the berth	Stern lines (Ropes)		Min Crane SWL (MT)	Cargo		
				Maximum	Minimum								
BB #2 102	7.0	5.5	5.5	6,000	120	2	6	1.0	8"	8"	*Not in use	25 ----- 30 knots	
BB #3 103	10.0	8.5	8.5	7,500	120	2	6	1.0	8"	8"	*ULSFO, MDO		
BB #4 104	12.5	11.0	11.0	30,000	180	2	8	5.0	12"	8"	*ULSFO, MDO, Lube-Oil		
LB #5 105	13.0	11.0	11.0	30,000	180	2	8	3.0	8"	8"	Lube-Oil		
CP #6 106	13.4	11.5	11.5	50,000	185	2	8	10.0	12'	8"	*PG, JP-4, FO, MDO, ULSFO, Reduced Crude		
CP #8 108	12.8	11.5	11.5	50,000	200	2	8	10.0	12"	8"	*PG, JP-4, FO, MDO, ULSFO, Reduced Crude		

- Jeddah Port – Inner harbour – 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

PORT OF JAZAN PRIMARY AND DOWNSTREAM INDUSTRIES – TERMINAL BERTH 1																	
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	Max		Max	FPBL	APBL	Total	Min	Max	Export	Import	Bow 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	Max	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	—	—	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 3																	
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			Max	Max	FPBL	APBL	Total	Min	Max	Export	Import	
Berth 3	16.50	15	15	10	120	134,583	295	24	24	48	4.15	21.6	—	—	129	166	T03-007
													15	—	133	162	T03-001
													8	—	137	158	T03-004
													15	PG:15 MTBE:7	141	154	T03-022
													15	15	145	150	T03-002
													15	15	149	146	T03-003
													12	12	153	142	T03-021
													15	Naphtha:15 C3:500m <sup>3</sup> /Hr. C4:500m <sup>3</sup> /Hr.	157	138	T03-024
													VGO:13 FO:12	VGO:13 FO:12	161	134	T03-005
													12	12	165	130	T03-006
NA	NA	169	126	F1													
NA	NA	173	122	F2													

1. Connections will normally be cargo 16", Vapor 10" for all Terminal berths

## 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

1. \*Sulfur berth is not supported by a fixed gangway.
2. \*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 (.-.)	15 secs	Loading Cargo (Export)
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

1. 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

### JAZAN BULK PLANT - SPM TERMINAL

Berth PTMS No	Depth at L.A.T.	Max Arrival Draft	Max Sailing Draft	DWT MT (x 1000)		Ships Beam	Connections	Min Crane SWL	SPM	Mooring Hawser		SPM Light		Grade Type	Weather Restrictions if wind
				Min	Max	Max	Cargo		Type	Length	Circ	Characteristics			
SPM#1 301	17.7	11.8 + Tide	11.8 + Tide	10	50	35	16"	10.0	CALM	55.4	17"	Fl (2) +LFI	15 secs	*PG (91 + 95)	Berthing < 30Knots Cargo suspension > 35Knots Unberthing > 40Knots
SPM#2 302	18.1	11.8 + Tide	11.8 + Tide	10	50	35	16"	10.0	CALM	55.4	17"	Fl (2) +LFI	15 secs	*MDO JP-4	

### CARGO TYPE - KEY

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