

Masts and Substructures

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The Ideal™ Series

The Ideal™ Rig Series defines reliability and versatility. This versatile series with straight-leg mast design includes some of our most popular, field-proven rigs. Comprised of the Ideal, Ideal Prime, Drake and Ideal Box Rigs, the Ideal™ Series has evolved alongside the drilling industry to accommodate a wide array of your drilling demands, integrating improvements in technology and engineering with proven designs and equipment.

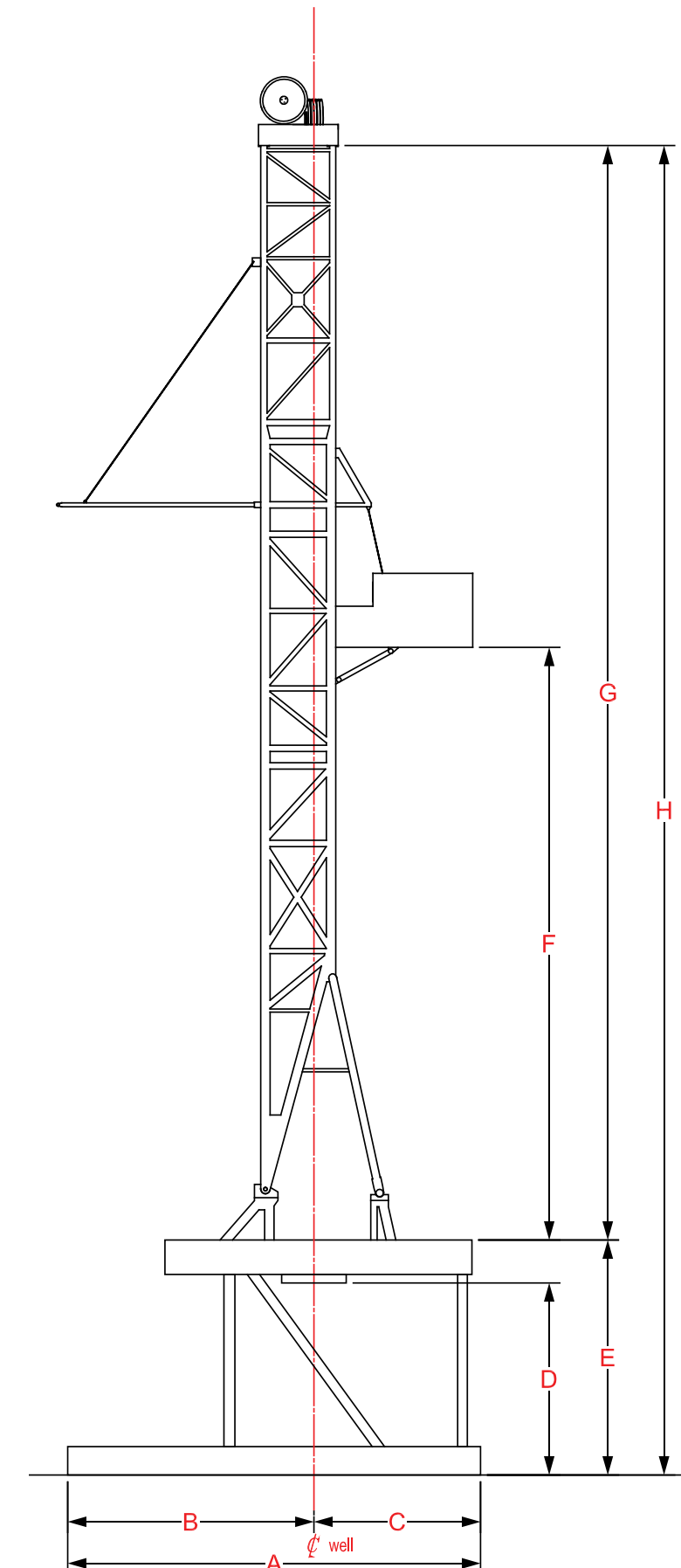
Notes

- Ideal Rig base box measurement excludes attached Drawworks Skid Base and pin-on Steel Toe™ walking foot, pinned to V-door side of substructure base box.
- The Ideal Prime base box measurement excludes pin-on Steel Toe™ walking foot, pinned to V-door side of substructure base box.

Dimensions									
Ideal Series	units	A	B	C	D	E	F	G	H
Ideal Rig	ft/in	52'-5"	34'-3"	18'-2"	21'-8"	25'-0"	85'-0"	142'-0"	167'-0"
	meters	15.97	10.44	5.53	6.6	7.62	25.91	43.28	50.9
Ideal Box	ft/in	55'-0"	36'-0"	19'-0"	21'-8" to 31'-8"	25'-0" to 35'-0"	85'-0"	142'-0"	167'-0" to 177'-0"
	meters	16.76	10.97	5.79	6.6	7.62 to 10.67	25.91	43.28	50.90 to 53.95
Ideal Prime	ft/in	62'-11"	42'-5"	20'-6"	23'-0"	28'-0"	85'-0"	142'-0"	170'-0"
	meters	19.17	12.92	6.25	7.01	8.53	25.91	43.28	51.81
Drake Rig	ft/in	46'-8"	34'-2"	12'-6"	18'-0"	22'-0"	85'-0"	136'-0"	158'-0"
	meters	14.22	10.41	3.81	5.49	6.71	25.91	41.45	48.16

Conventional Substructures and Drilling Masts — Ideal™ Series					
Rig Model	units	AC Ideal Rig	Ideal Box	Ideal Prime	Drake Rig
Hook Capacity	ton	375	375	375	250
	metric ton	340.2	340.2	340.2	226.8
Mast	type	Cantilever (Straight Leg)	Cantilever (Straight Leg)	Cantilever (Straight Leg)	Cantilever (Straight Leg)
Mast Height	ft/in	142'-0"	142'-0"	142'-0"	136'-0"
	m	43.3	43.3	43.3	41.5
Base Width	ft/in	12'-0"	12'-0"	21'-0"	20'-0"
	m	3.66	3.66	6.4	6.1
Raising Method	type	Cylinder Raised	Cylinder Raised	Cylinder Raised	Cylinder Raised
Drawworks	model	ADS-10SD	ADS-10SD	DSGD-375	DSGS-375
	(# of lines)	(12)	(12)	(12)	(8)
Substructure	type	Slingshot Cylinder	Box-on-Box	Slingshot Cylinder	Slingshot Cylinder
Pipe Set-Back Capacity	lb	500,000	500,000	575,000	350,000
	ton	250	250	287.5	175
Casing Capacity	metric ton	226.8	226.8	260.8	158.8
	lb	750,000	750,000	750,000	500,000
Pipe Racking Capacity (Stands)	ton	375	375	375	250
	metric ton	340	340	340	226.8
Floor Height	stands	5" DP: (208) 8" DC: (8)	5" DP: (208) 8" DC: (8)	5" DP: (224) 8" DC: (6)	5" DP: (144) 8" DC: (6)
	ft/in	25	25, 28, 30, or 35	28	22
Cellar/Clearance Height	m	7.6	7.6, 8.5, 9.1 or 10.6	8.5	6.7
	ft/in	21'-8"	24'-0" (based on 28' drill floor)	24'-0"	18'-0"
Rotary Table Opening	m	6.6	7.3	7.3	5.4
Standard Crown Sheave Groove	in	37½"	37½"	37½"	37½"
Sheaves on Cluster *	in	1¾"	1¾"	1¾"	1¼"
Sheaves on Cluster *	#	5	5	5	3

*Fastline and Deadline sheaves not included



The Signature Series

The Signature Series Rigs are built to specific market requirements and your unique needs. Products of many engineering hours, these rigs are configured to operate optimally in geographic arenas with stringent regulations or unrelenting, rugged environments. Examples include the European, Middle East, Mono-Transit, and SEAM rigs.

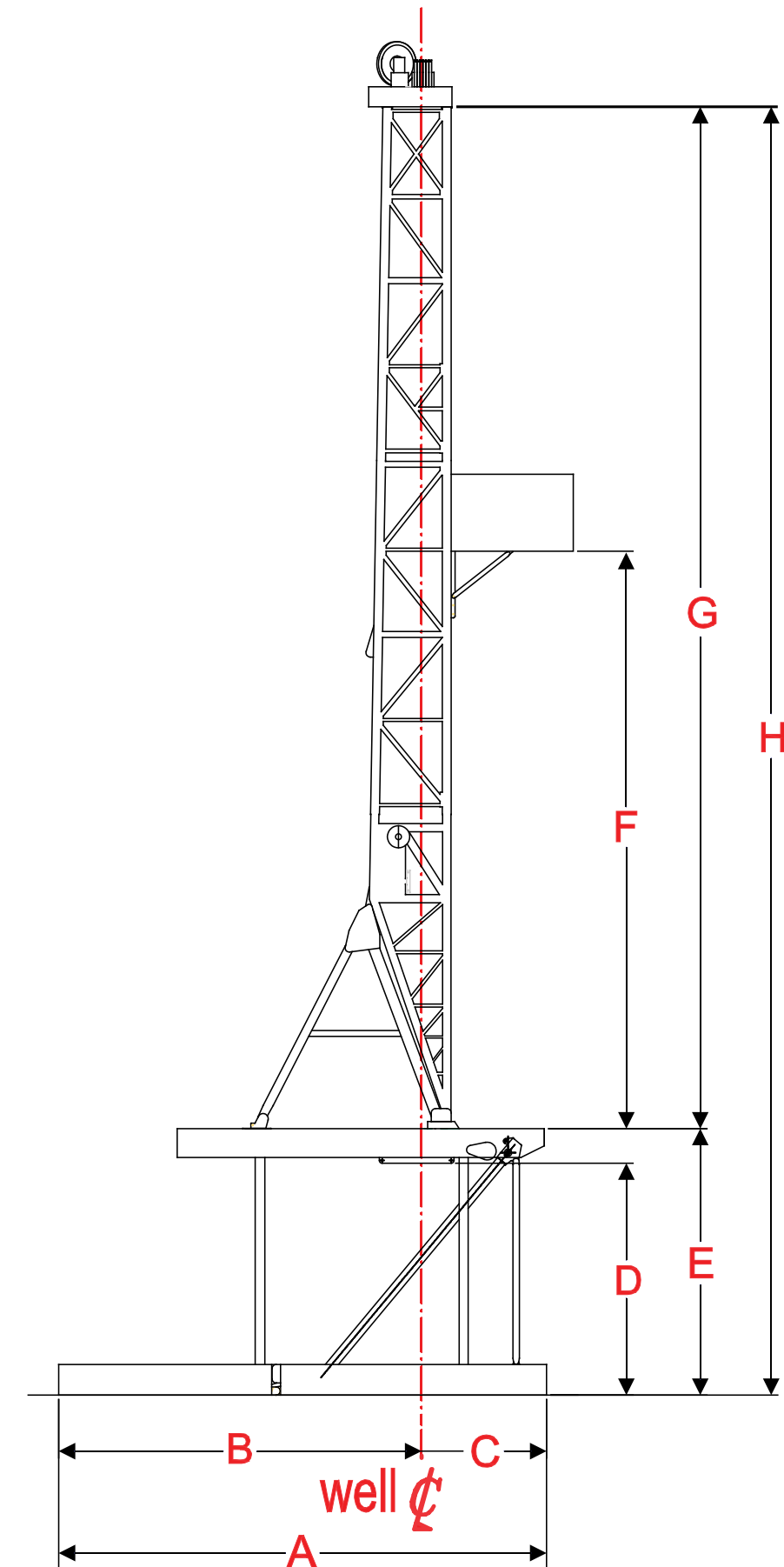
Notes

- Racking board height can be adjusted within a range of dimension **F** so as to accommodate varying stand heights.

Dimensions									
Signature Series	units	A	B	C	D	E	F	G	H
SEAM 1000	ft/in	49'-6"	37'-2"	12'-4"	21'-8"	25'-0"	85'-0"	142'-0"	167'-0"
	meters	15.09	11.33	3.76	6.60	7.62	25.91	43.28	50.90
SEAM 1500	ft/in	57'-4"	29'-7"	27'-9"	26'-8"	30'-0"	85'-0"	142'-0"	172'-0"
	meters	17.48	9.02	8.46	8.13	9.14	25.91	43.28	52.42
SEAM 2000	ft/in	54'-7"	42'-2"	12'-5"	26'-8"	30'-0"	85'-0"	142'-0"	172'-0"
	meters	16.63	12.85	3.78	8.13	9.14	25.91	43.28	52.42
European 1500	ft/in	57'-4"	29'-7"	27'-9"	26'-8"	30'-0"	85'-0"	142'-0"	172'-0"
	meters	17.48	9.02	8.46	8.13	9.14	25.91	43.28	52.42
European 2000	ft/in	54'-7"	42'-2"	12'-5"	26'-8"	30'-0"	85'-0"	142'-0"	172'-0"
	meters	16.63	12.85	3.78	8.13	9.14	25.91	43.28	52.42
ME 1500	ft/in	62'-6"	42'-0"	20'-6"	25'-0"	30'-0"	85'-0"	152'-0"	182'-0"
	meters	19.05	12.80	6.25	7.62	9.14	25.91	46.33	55.47
ME 2000 DC	ft/in	60'-0"	46'-8"	13'-4"	30'-0"	35'-0"	86'-4"	156'-0"	191'-0"
	meters	18.28	14.22	4.06	9.14	10.67	26.31	47.55	58.22
ME 2000 AC	ft/in	60'-0"	46'-8"	13'-4"	30'-0"	35'-0"	86'-4"	156'-0"	191'-0"
	meters	18.28	14.22	4.06	9.14	10.67	26.31	47.55	58.22
ME 2000	ft/in	74'-2"	49'-8"	24'-6"	39'-10"	45'-0"	87'-6"	160'-0"	205'-0"
	meters	22.61	15.14	7.47	12.14	13.72	26.67	48.77	62.49
Mono Transit	ft/in	61'-2"	30'-10"	30'-4"	16'-0"	20'-0"	85'-0"	142'-0"	162'-0"
	meters	18.65	9.40	9.25	4.88	6.10	25.91	43.28	49.38

Conventional Substructures and Drilling Masts — Signature Series											
Rig Model	units	SEAM 1000	SEAM 1500	SEAM 2000	European 1500	European 2000	ME 1500	ME 2000 DC	ME 2000 AC	ME 3000	Mono-Transit
Hook Capacity	ton	250	350	500	350	500	412.5	500	500	777.5	375
	metric ton	226.8	317.5	453.6	317.5	453.6	374.2	453.6	453.6	705.3	340.2
Mast	type	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever
Mast Height	ft/in	142'-0"	142'-0"	142'-0"	142'-0"	142'-0"	152'-0"	157'-0"	157'-0"	160'-0"	142'-0"
	m	43.3	43.3	43.3	43.3	43.3	46.3	47.85	47.85	47.9	43.3
Base Width	ft/in	21'-0"	21'-0"	25'-0"	21'-0"	25'-0"	25'-0"	30'-0"	30'-0"	30'-0"	12'-6"
	m	6.40	6.40	7.62	6.40	7.62	7.62	9.14	9.14	9.14	3.81
Raising Method	type	Sling-Line	Sling-Line	Sling-Line	Sling-Line	Sling-Line	Cylinder Raised	Cylinder Raised	Cylinder Raised	Sling-Line	Cylinder Raised
Drawworks	model	DSGD-250	DSGS-375	DSGS-500	DSGS-375	DSGD-500	110-UDBE	1320-UDBE	ADS-10SD	ADS-30D	DSGD-375L
	(# of lines)	(8)	(8, 10, 12)	(8, 10, 12)	(8, 10, 12)	(8, 10, 12)	(12)	(12)	(12)	(14)	(8, 10, 12)
Substructure	type	Slingshot Winch	Slingshot Winch	Slingshot Winch	Slingshot Winch	Slingshot Winch	Slingshot Cylinder	Slingshot Cylinder	Slingshot Cylinder	Slingshot Winch	1 Piece Telescoping
	capacity	325,000	500,000	500,000	500,000	600,000	550,000	800,000	800,000	1,000,000	460,000
Pipe Set-Back Capacity	lb	162.5	250	250	250	300	275	400	400	500	230
	metric ton	147.4	226.8	226.8	226.8	330.7	294.4	362.9	362.9	453.6	208.7
Casing Capacity	lb	450,000	700,000	950,000	700,000	950,000	750,000	1,000,000	1,000,000	1,500,000	700,000
	metric ton	204.1	317.5	430.9	317.5	430.9	340.1	453.5	453.5	680.3	317.5
Pipe Racking Capacity	stands	5" DP: (180) 6½" DC: (8)	4½" DP: (132) 6½" DC: (8)	5" DP: (196) 8¼" DC: (8) 10" DC: (2)	5" DP: (180) 6½" DC: (8)	4½" DP: (132) 6½" DC: (8)	5" DP: (190) 6½" DC: (8) 8¼" DC: (6) 10" DC: (2)	5/5½" DP: (285) 8" DC: (8) 9½" DC: (4)	5/5½" DP: (285) 8" DC: (8) 9½" DC: (4)	5½" DP: (264) 10" DC: (9) 14" DC: (1)	5" DP: (196) 8" DC: (8)
	stands	25'-0"	30'-0"	30'-0"	30'-0"	30'-0"	30'-0"	35'-0"	35'-0"	45'-0"	30'-0"
Floor Height	ft/in	25'-0"	30'-0"	30'-0"	30'-0"	30'-0"	30'-0"	35'-0"	35'-0"	45'-0"	30'-0"
	m	7.62	9.14	9.14	9.14	9.14	9.14	10.6	10.6	13.7	9.1
Cellar/Clearance Height	ft/in	21'-0"	26'-0"	26'-1"	n.a.	n.a.	25'-0"	30'-0"	30'-0"	35'-0"	17'-7"
	m	6.4	7.92	8.92	n.a.	n.a.	7.6	9.1	9.1	10.6	5.3
Rotary Table Opening	in	37½"	37½"	37½"	37½"	37½"	37½"	37½"	37½"	47½"	37½"
Standard Crown Sheave Groove	in	1¼"	1¾"	1½"	1¾"	1½"	1¾"	1½"	1½"	1¾"	1¼"
Sheaves on Cluster*	#	5	6	6	6	6	6	6	6	7	6

*Fastline and Deadline sheaves not included



Custom Terrain Series

The Custom Terrain Series Rigs are purpose-built to perform in demanding terrains and extreme temperature environments. With designs ranging from arctic, desert, heli, and train applications, these rigs continue drilling downhole no matter the conditions above ground.

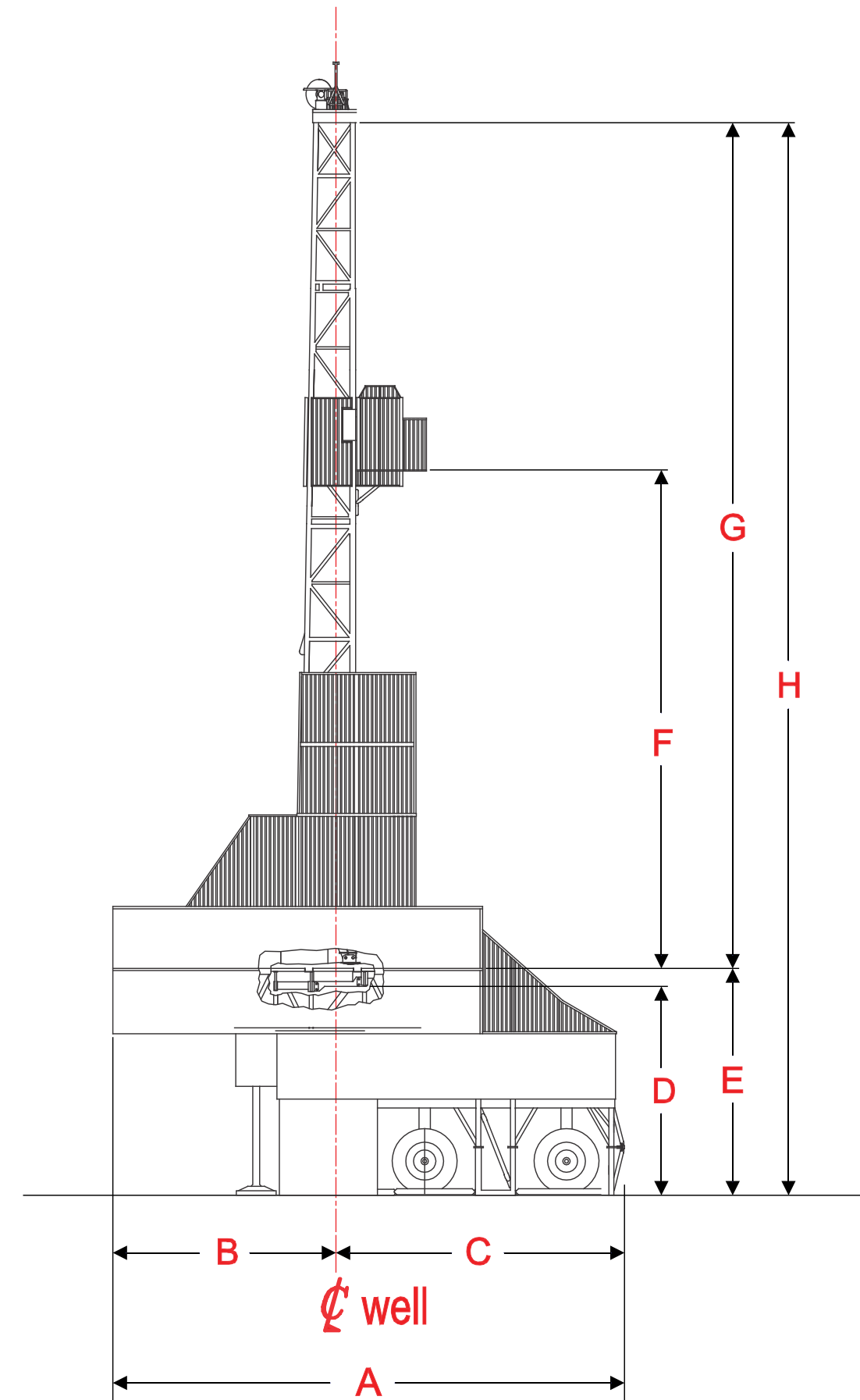
Notes

- Dimensions represent our standard offering. Contact our sales team for more information.

Dimensions									
Terrain Series	units	A	B	C	D	E	F	G	H
Desert Rig	ft/in	62'-6"	42'-0"	20'-6"	25'-0"	30'-0"	85'-0"	152'-0"	182'-0"
	meters	19.05	12.80	6.25	7.62	9.14	25.91	46.33	55.47
Arctic Box	ft/in	86'-9"	37'-10"	48'-11"	26'-8"	30'-0"	85'-0"	142'-0"	172'-0"
	meters	26.44	11.53	14.91	8.13	9.14	25.91	43.28	52.42
Train Prime	ft/in	57'-1"	39'-0"	18'-1"	31'-10"	36'-0"	85'-0"	142'-0"	178'-0"
	meters	17.40	11.89	5.51	9.70	10.97	25.91	43.28	54.25
Heli Rig	ft/in	61'-2"	39'-7"	21'-7"	20'-4"	25'-0"	85'-0"	142'-0"	167'-0"
	meters	18.64	12.06	6.58	6.20	7.62	25.91	43.28	50.90

Conventional Substructures and Drilling Masts — Terrain Series					
Rig Model	units	Desert Rig	Arctic Rig	Train Rig	Heli Rig
Hook Capacity	ton	250 to 750+	250, 350, or 500	250 to 750+	250
	metric ton	226.79 to 680.38+	226.79, 317.5, or 453.5	226.79 to 680.38+	226.79
Mast	type	Telescopic or Cantilever	Telescopic or Cantilever	Cantilever	Cantilever
Mast Height	ft/in	127'-0"+	120'-0"+	127'-0"+	142'-0"
	m	38.71+	36.58+	38.71+	43.28
Base Width	ft/in	15'-0" to 33'-0"	25'-0" (based on 350 and 375 ton)	25'-0" (based on 350 ton)	21'-0"
	m	4.57 to 10.06	7.62 (based on 350 and 375 ton)	7.62 (based on 350 ton)	6.4
Raising Method	type	Cylinder/Sling-line	Cylinder/Sling-line	Cylinder/Sling-line	Cylinder/Sling-line
Drawworks	model	1320-UDBE	SSGD-360	DSGS-375	D700
	(# of lines)	(10 to 14)	(12)	(12)	(12)
Substructure	type	Slingshot-Cylinder/Winch/Drawworks	Slingshot-Cylinder/Winch	Slingshot-Cylinder/Winch	Slingshot-Cylinder/Winch/Drawworks
Pipe Set-Back Capacity	lb	250,000 to 700,000	250,000 to 600,000	350,000 or 575,000	-
	ton	125 to 350	125 to 300	175 or 287.5	-
	metric ton	113.4 to 317.5	113.4 to 272.1	158.7 or 260.8	-
Casing Capacity	lb	400,000 to 1,500,000	750,000	700,000	600,000
	ton	200 to 750	375	350	300
	metric ton	226.7 to 680.3	340.1	323.8	272.1
Pipe Racking Capacity	stands	3½ to 5½ DP: (140-270) 8½ to 9½ DC: (up to 9)	5" DP: (200) 6¾" DC: (22)	5" DP: (180) 7" DC: (12) 8" DC: (8)	5" DP: (178) 10" DC: (8)
Floor Height	ft/in	20'-0" to 30'-0"	20'-0" or 35'-0"	25'-0" or 30'-0"	20'-0" or 25'-0"
	m	6.1 to 9.1	6.1 or 10.6	7.6 or 9.1	7.6 or 9.1
Cellar/Clearance Height	ft/in	19'-0" to 38'-0"	25'-6"	22'-0"	Up to 20'-4"
	m	5.7 to 11.5	7.7	6.7	6.1
Rotary Table Opening	in	27½"	37½"	37½"	27½"
Standard Crown Sheave Groove	in	1¼" to 1¾"	1¼" to 1¾"	1¾" (based on 350 ton)	1¼"
Sheaves on Cluster*	#	5 to 7	6	6 (based on 350 ton)	6

*Fastline and Deadline sheaves not included



The Velocity™ Series

NOV's Velocity Rig Series offers fast-moving "super singles" rigs designed with fewer transport loads, allowing for quick transport between rig sites. The Velocity Series sets the standard for speed.

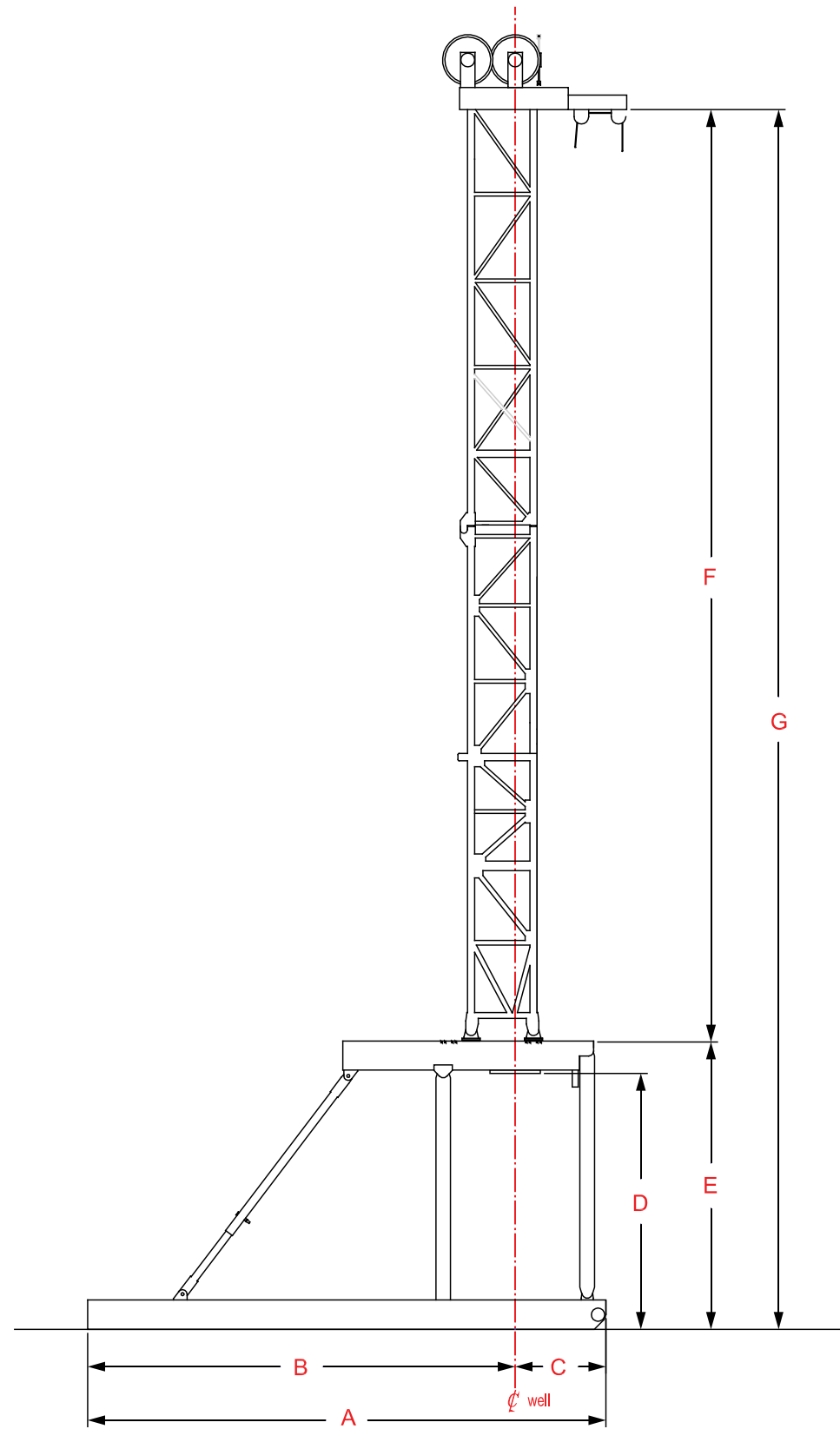
Notes

- All Velocity Series rigs are equipped with pipe handling systems which eliminate the need for a racking board and setback area.

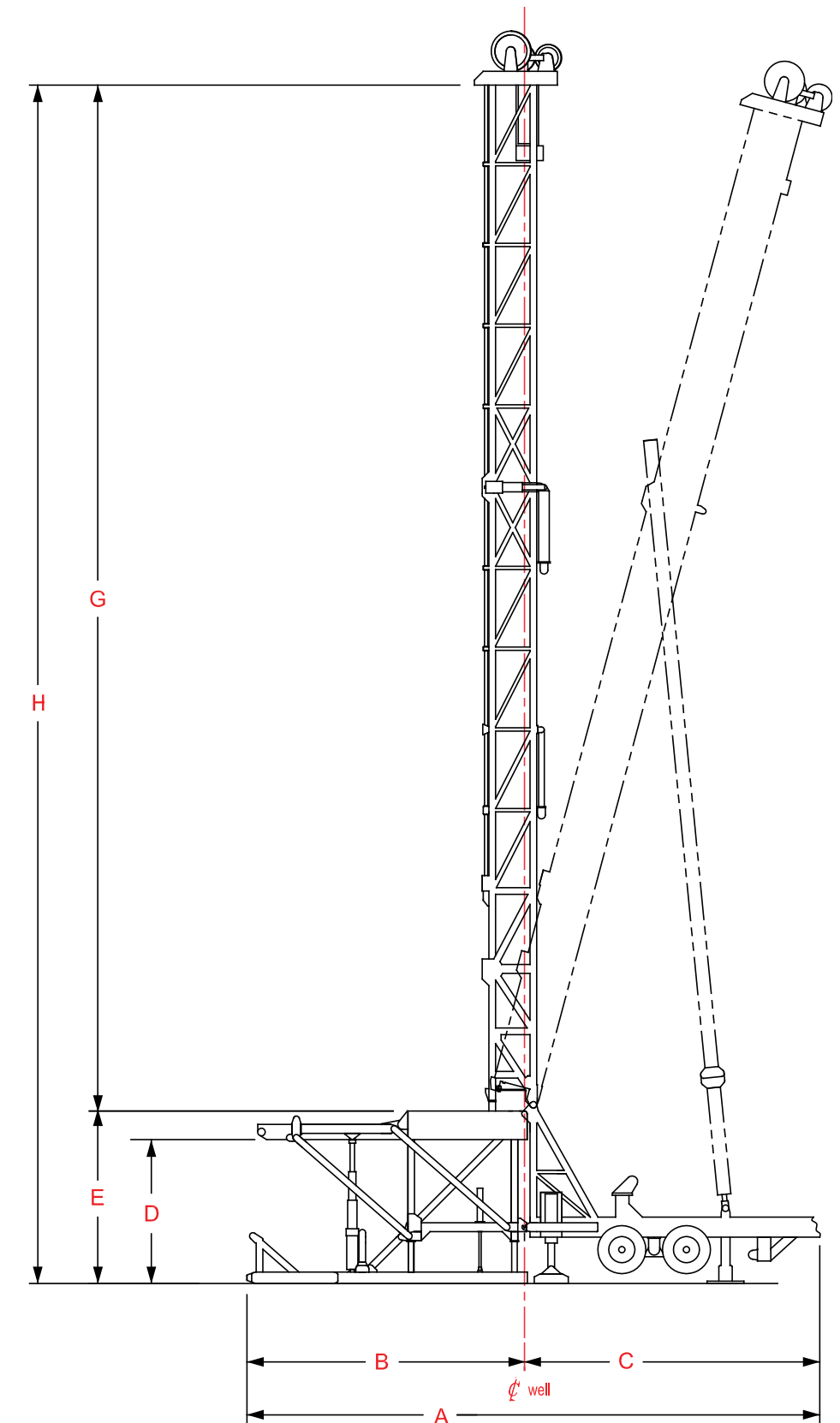
Dimensions					
Velocity Series	units	A	B	C	D
Rapid Rig	ft/in	36'-10"	30'-06"	6'-4"	18'-0"
	meters	11.23	9.30	1.93	5.49
Vertical Slant (VSR)	ft/in	20'-6"	19'-4"	1'-2"	12'-6"
	meters	14.22	10.41	3.81	5.49
	units	E	F	G	H
Rapid Rig	ft/in	20'-0"	80'-0"	100'-0"	167'-0"
	meters	6.10	24.38	30.48	50.9
Vertical Slant (VSR)	ft/in	14'-0" or 20'-0"	76'-0"	90'-0" or 96'-0"	167'-0" to 177'-0"
	meters	6.71	25.91	41.45	48.16

Conventional Substructures and Drilling Masts — Velocity Series			
Rig Model	units	Rapid Rig	Vertical Slant (VSR)
Hook Capacity	ton	250	100 or 150
	metric ton	226.79	90.71 or 136.07
Mast	type	Telescopic	Telescopic
	Mast Height	ft/in	80'-0"
	m	24.38	23.16
Base Width	ft/in	7'-0"	6'-4"
	m	2.13	1.93
Raising Method	type	Cylinder Raised	Cylinder Raised
	Drawworks	model (# of lines)	SSGD-250 (8)
Substructure	type	Slingshot Cylinder	Swing-up, Box-in-Box
	Casing Capacity	lb	500000
		ton	250
	metric ton	226	127
Floor Height	ft/in	20'-0"	14'-0" or 20'-0"
	m	6.1	4.2 or 6.1
Cellar/Clearance Height	ft/in	18'-0"	12'-6" or 18'-0"
	m	5.4	3.8
Drill Floor Opening	in	37½"	27½"
Standard Crown Sheave Groove	in	1¼"	1¼"
Sheaves on Cluster*	#	3	2

*Fastline and Deadline sheaves not included



Rapid Rig



Slant Rig

Description

Spend less time rigging up and down by simply, and safely, walking to your next well. Our innovative Steel Toe™ walking system moves your rig while keeping critical equipment stationary or mounted in place and ready for the next well. Wireless controls ensure safe operations by allowing your personnel to stay at safe distances during moves. We configure the system, maximizing the effectiveness of your operations. The system consists of four (4) lift and slide walking feet, modifications to the substructure and system controls. The integrated cable management system, gravity mud return, high pressure piping extensions and choke reconfigurations integrate your backyard for full functionality.

Value Added Benefits

- Reduced release-to-spud and required crane time
- Customized installation and product offerings
- Ability to walk with a full-rated setback
- Capability to change direction and walk along the X or Y axis
- Allows rig to walk in 45° increments and spin
- Ability to leave rig walkers installed in the Ideal™ Rig substructure base boxes during pad-to-pad rig moves

Key Components

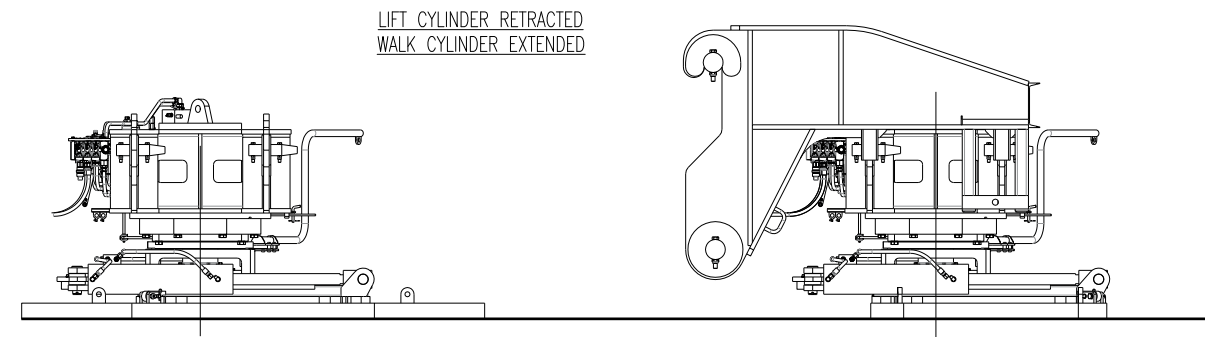
- Steel Toe 1000 walking feet
- BOP beams and hoists to support
- BOP stack while walking
- Flowline manifold or catch and scalping tank
- High pressure piping for mud
- Festoon cable management system
- System controls options: wireless, remote, tethered back-up power or manual hydraulic controls
- Structural modifications
- Powered by rig HPU

Technical Specifications

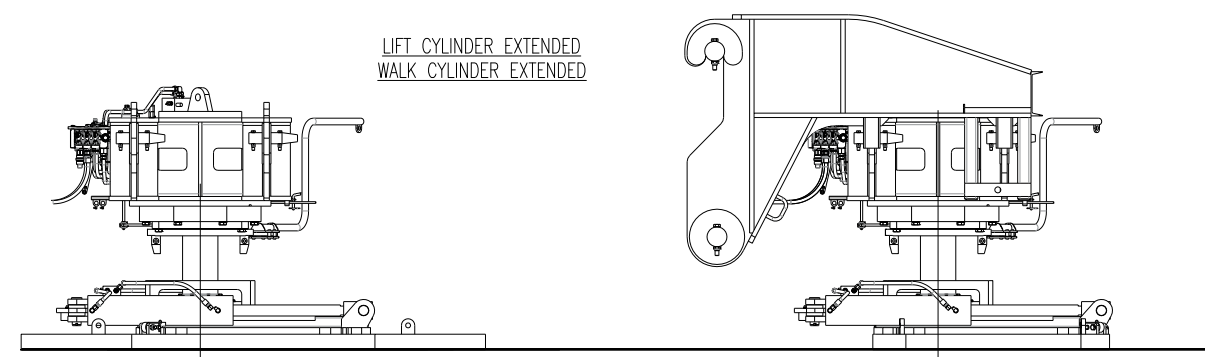
Horizontal system total stroke	24 inches
Effective vertical lifting stroke	7 inches
Clearance under substructure*	3 inches
Clearance under foot**	3 inches
Number of skidding cylinders	48
Number of lifting cylinders	4
Number of bearing pads	4
Maximum walking distance	120 feet

*when fully extended and includes substructure deflection
 **when fully retracted

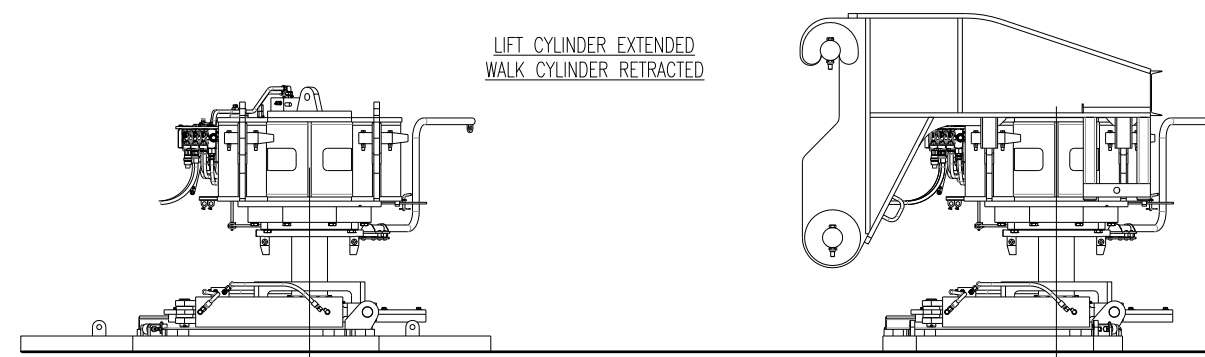
Starting Position



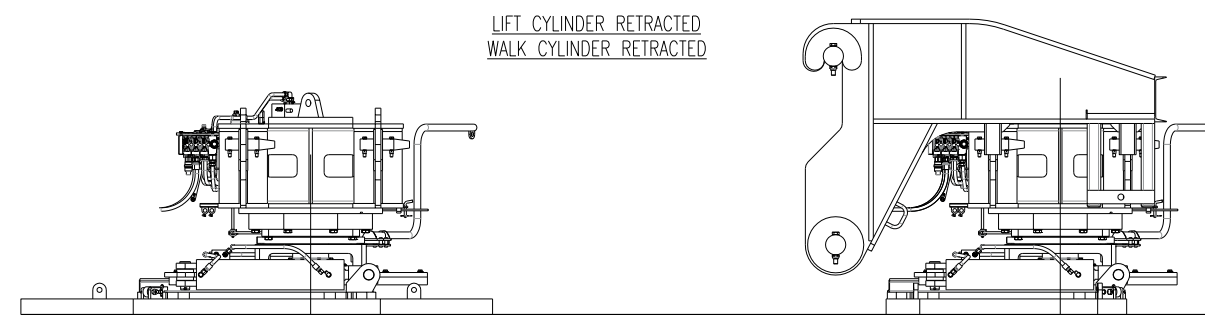
Substructure Raised



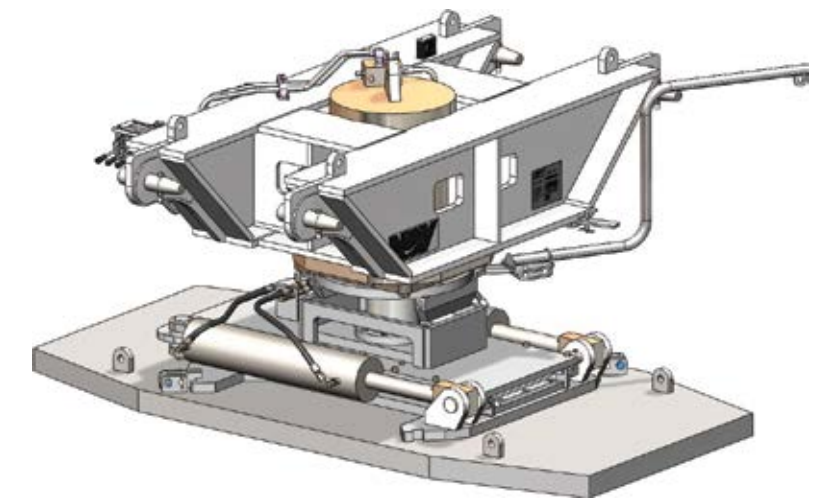
Travel Along Rollers



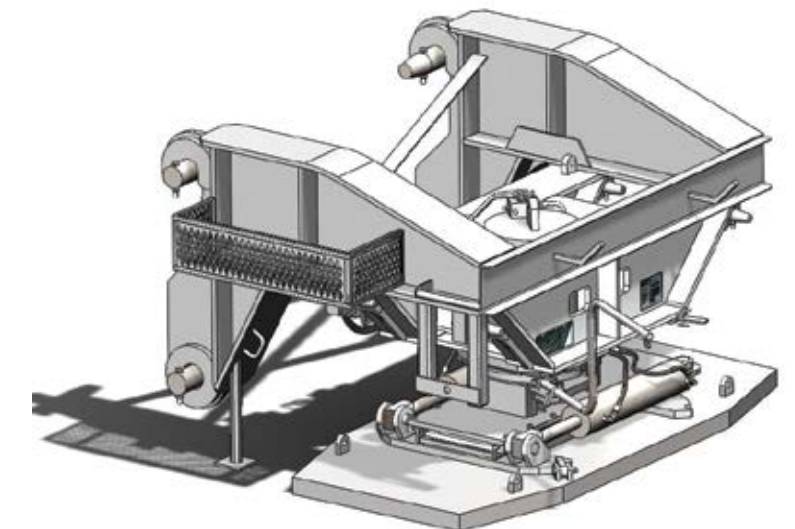
Substructure Lowered



Rear Steel Toe



Front Steel Toe



Ideal™ Rig Application

