

GTC-2000

200 UST CAPACITY CLASS


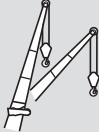
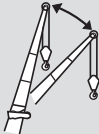
US EPA TIER 4F

TELESCOPIC BOOM CRAWLER CRANE



DTI
DEMAG TECH INSIDE

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Key

	Counterweight		Max. line pull
	Track		Rope diameter
	Radius		Rope length
	Main boom		Hook block (capacity - sheaves - rope diameter)
	Folding swing-away jib		Number of lines
	Hydraulic swing-away jib		Possible load of hook block
	Roll/list angle		Number of sheaves in boom head
	Wind speed in ft/s (feet per second)		Distance head sheave axle – hook ground
	Track shoe width		Weight of hook block
	2-bar shoe		Track left
	Hook block		Track right
	Hoist 1		Extension beam
	Hoist 2		Base crane
	Travel speed		Central ballast
	Gradeability		Truck pay load
	Slewing		Counterweight base plate
	Boom telescoping		Counterweight plate
	Boom elevation		Assembly weight
	Working speeds		Transport variant

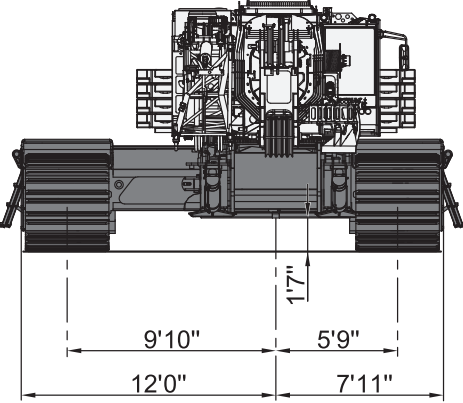
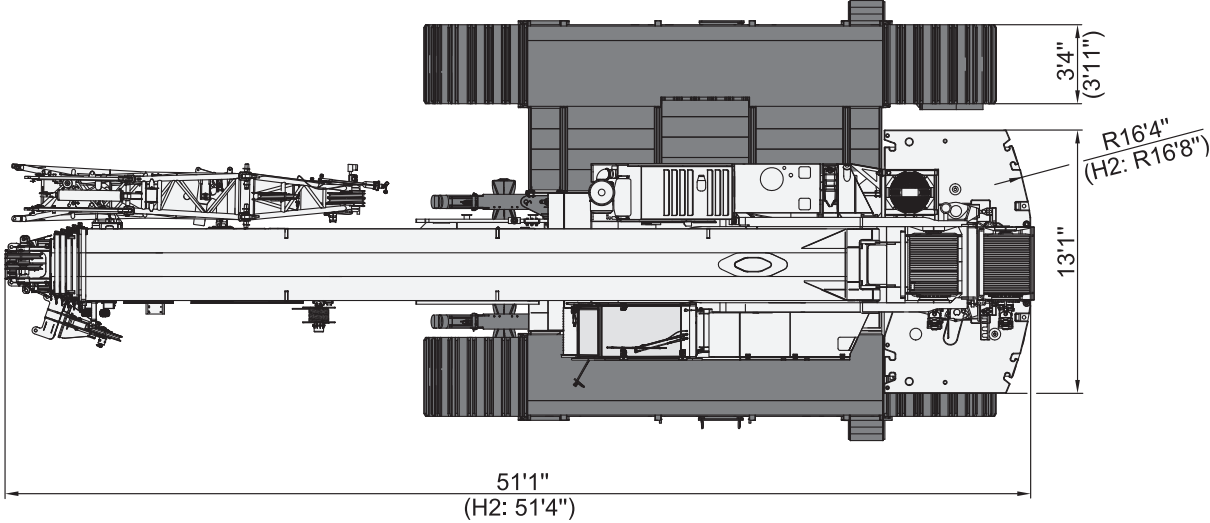
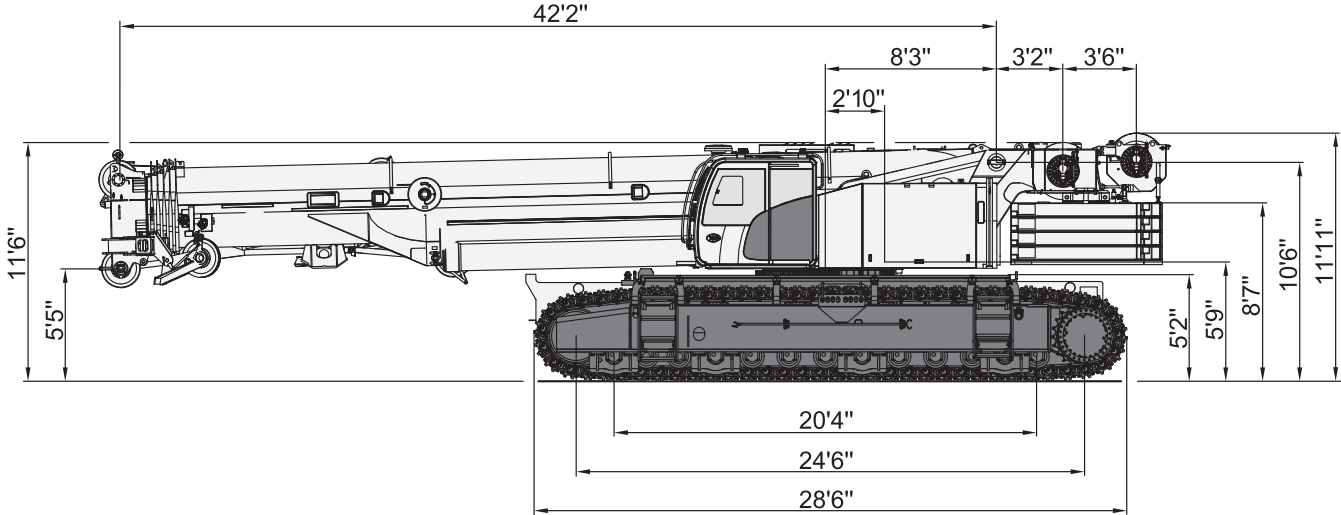
Highlights

- ▶ 196.9 ft pinned boom; 16.4 ft to 75.5 ft jib (tiltable from 0° to 36°)
- ▶ Lifting capacities up to 4° roll/list angle, all „Pick & Carry“, jib capacities up to 1° roll/list angle
- ▶ Double hook operation with rooster sheave or jib
- ▶ Powerful hoists with 1.02 in. rope (30,640 lb pull / 456 ft/min. speed)
- ▶ Powerful, robust and versatile undercarriage with smart and comprehensive access concept
- ▶ Fully self rigging operation
- ▶ Remote control for all rigging and operating functions
- ▶ Best in class traction force (326,000 lbf)

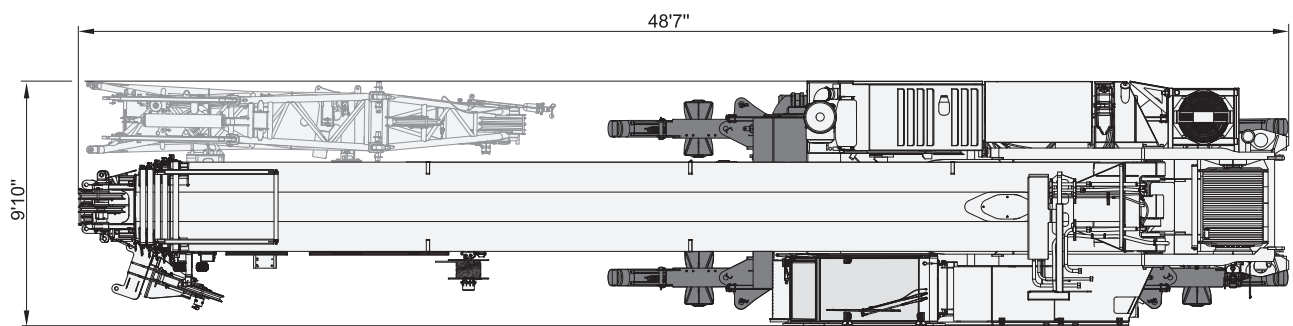
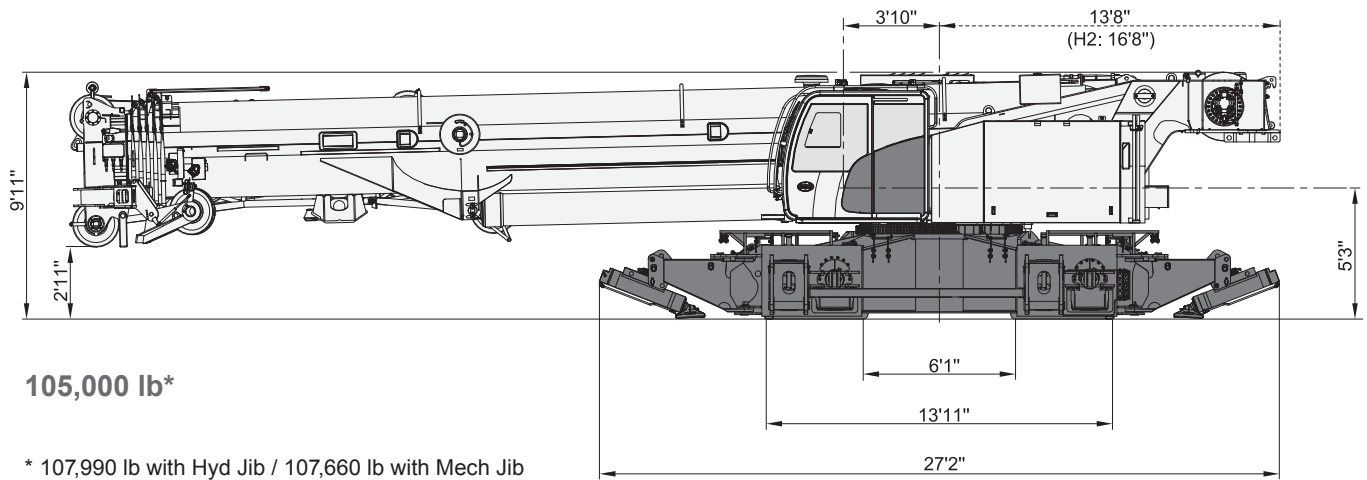


Dimensions

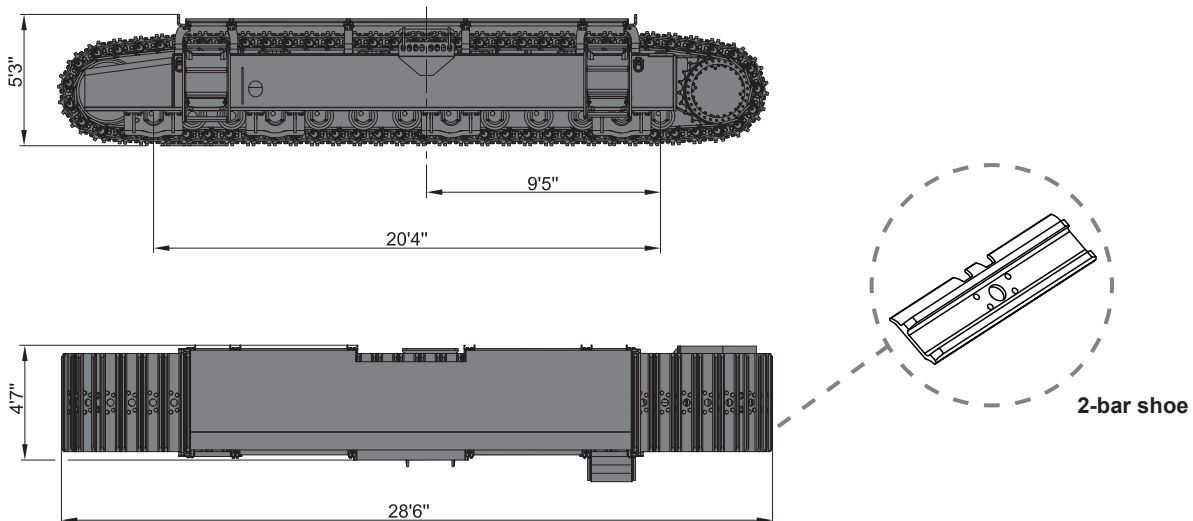
Basic crane dimensions



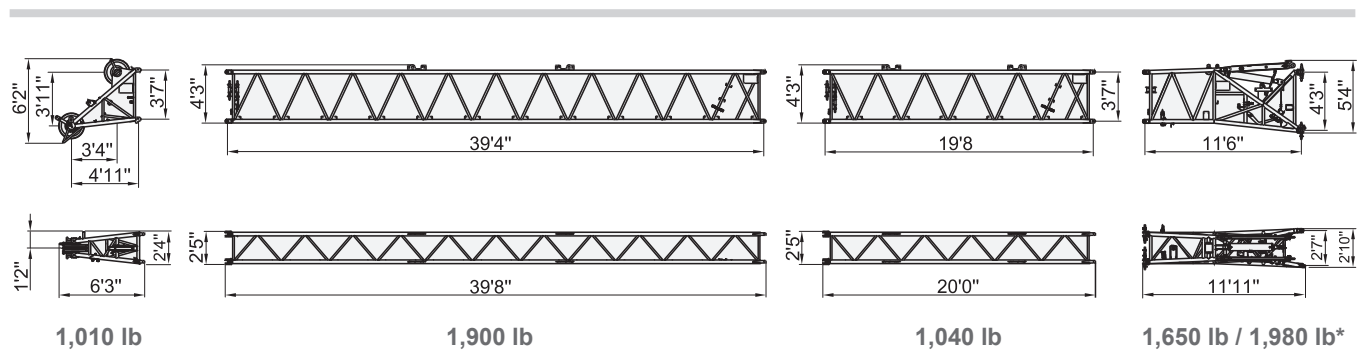
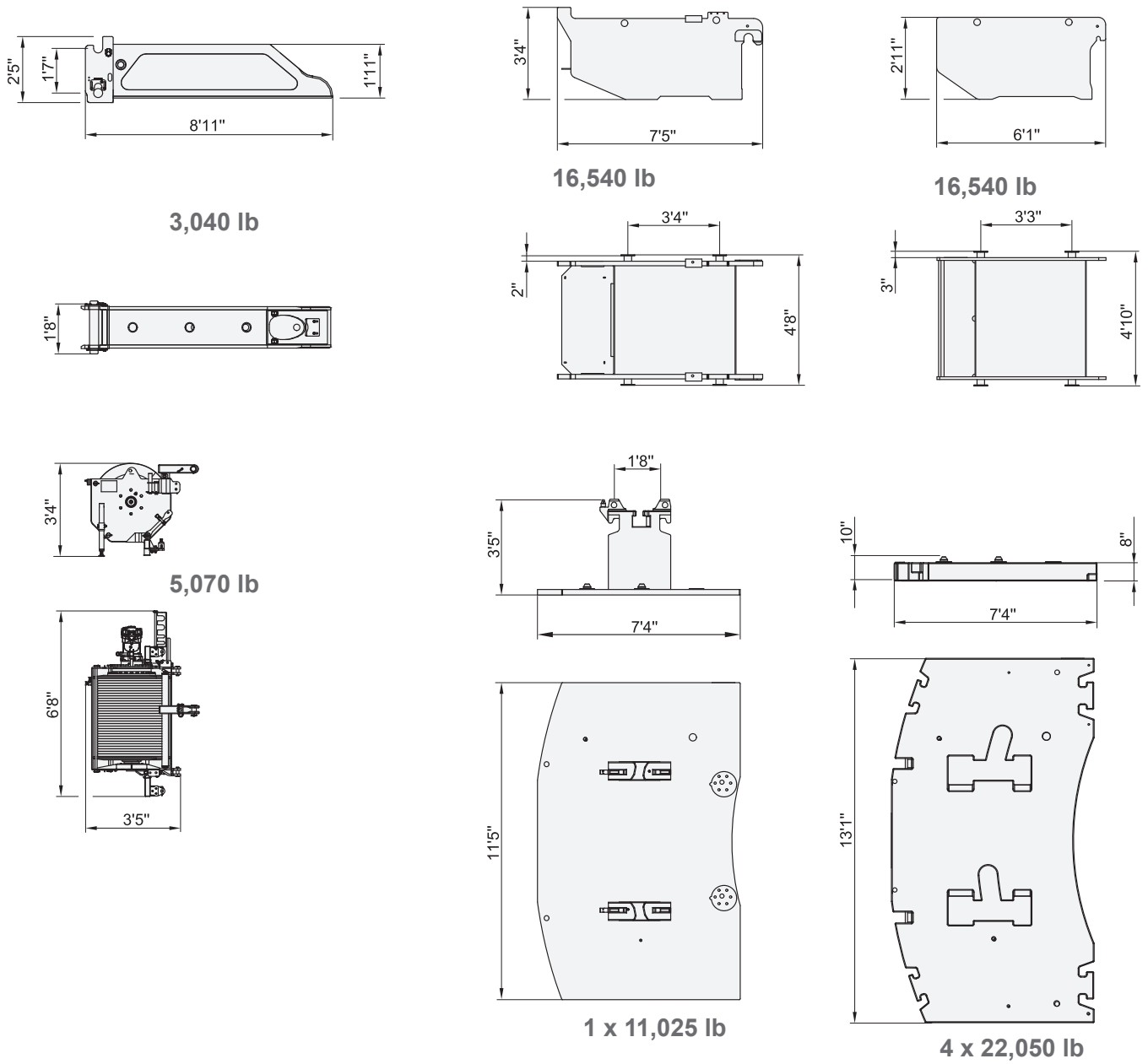
Specifications



40,800 lb (3.3 ft) / 43,000 lb (3.9 ft)






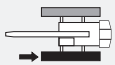
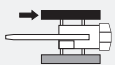
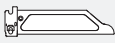













Specifications



* Hydraulic adjustable

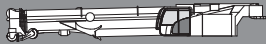
Specifications










Transport variants


	[lb]																								
		#3			#4			#5			#6														
	105,000	1			1			1						1											
 *	92,800										1														
	40,800		2			2			2			3			2										
	40,800		2			3			3			4			3										
 1	3,040											2													
 2	3,040											2													
 3	3,040											2													
 4	3,040											2													
	16,540		2			2			2			2			4										
	16,540		2			2			3			2			4										
	11,025	1				3			4			3			4										
	22,050		3			3			4			5			5										
	22,050		3			4			4			5			5										
	22,050		3			4			5			6			6										
	22,050		3			4			5			6			6										
 2 (H2)	5,070		3			4			5			4			2										
 3	2,430	1				2			5		2				3										
 [lb]		118,455	114,680	93,270	105,000	76,100	73,875	71,220	105,000	57,340	57,340	55,125	51,600	92,800	47,670	51,825	45,870	44,105	44,100	105,000	45,870	43,230	44,105	44,100	44,100



* without extension beams


Specifications








				
 1	446 ft/min	30,400 lbf	1.04"	804 ft
 2	446 ft/min	30,400 lbf	1.04"	804 ft
	1,6 rpm			
	approx. 530 s (42.3 -196.9 ft)			
	approx. 49 s (-1,4° - 82°)			



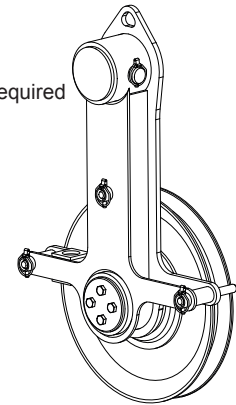
	Max. 1.43 mph
	26.5° / 50 % without load 4° / 7 % with load



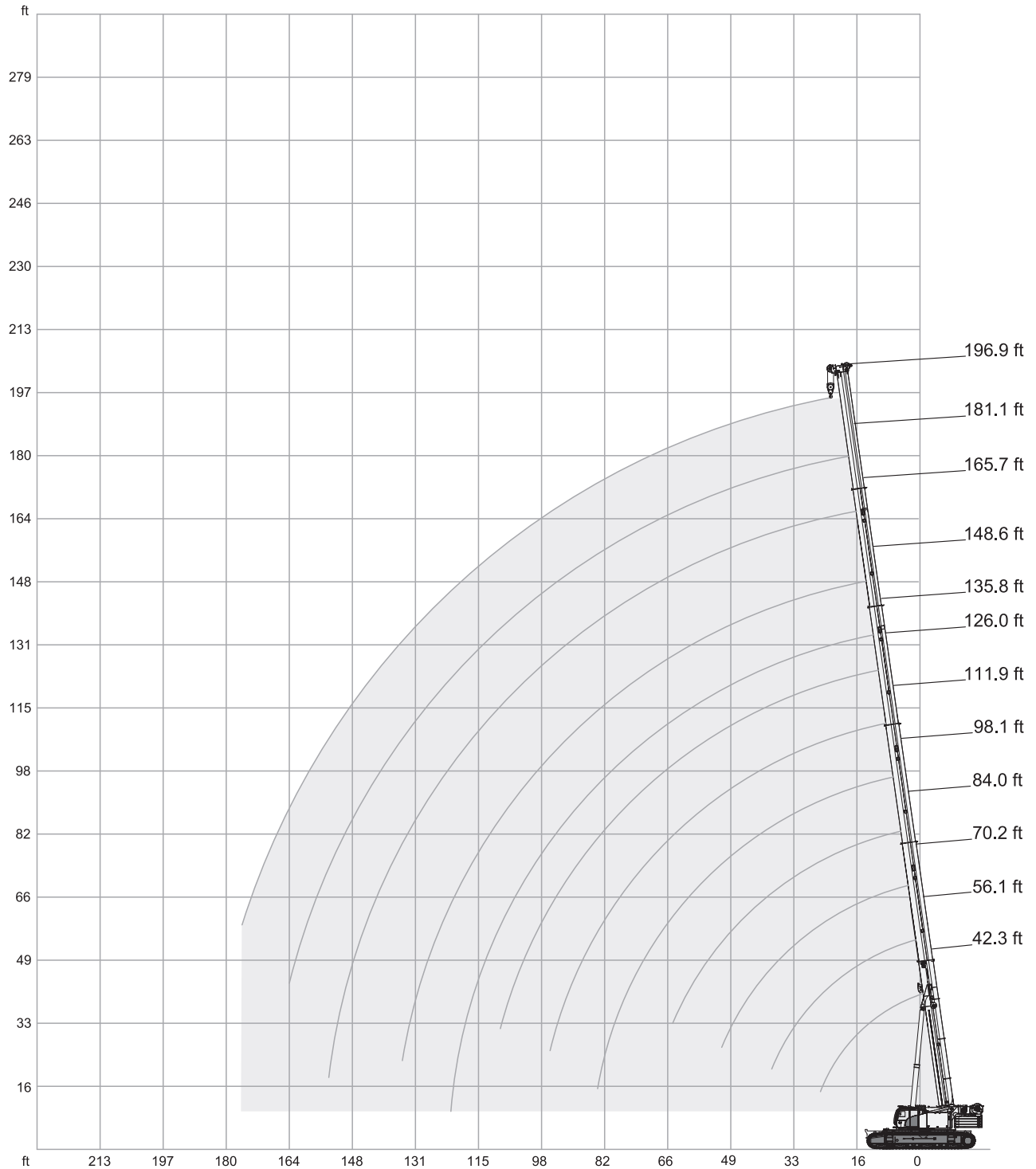
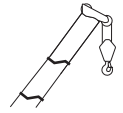
					
1	30,400	16-0-26	5	0,880 lb	8.2 ft
2	60,400	41-1-26	5	1,980 lb	10.2 ft
3	90,300	41-1-26	5	1,980 lb	10.2 ft
4	119,700	100-3-26	5	2,430 lb	10.5 ft
5	149,000	100-3-26	5	2,430 lb	10.5 ft
6	177,900	100-3-26	5	2,430 lb	10.5 ft
7	206,600	100-3-26	5	2,430 lb	10.5 ft
8	234,900	160-5-26	5	2,870 lb	10.8 ft
9	263,000	160-5-26	5	2,870 lb	10.8 ft
10	290,700	160-5-26	5	2,870 lb	10.8 ft
11	318,100	160-5-26	5 + 1*	2,870 lb	10.8 ft
12	345,000	200-7-26	5 + 1**	5,740 lb	10.8 ft

* Heavy lift sheave required




** Heavy lift sheave and 7 sheaves hook block required



HA



HA

99,200 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		342.1**	304.6*	218.9	163.5	127.9	329.0**	271.6	199.6	152.7	121.1	286.6	241.0	181.5	-	-	10
12		305.5*	293.8*	212.8	159.5	125.2	304.7*	263.6	194.5	149.3	118.6	271.8	233.9	177.3	138.6	-	12
14		274.8	273.7	207.0	155.9	122.6	274.2	256.1	189.7	146.1	116.3	253.0	222.1	173.3	135.7	110.0	14
16		249.6	248.5	201.3	152.2	120.2	248.5	245.2	185.0	142.8	114.2	234.2	214.5	168.8	132.9	107.8	16
18		229.3	228.3	195.8	148.7	117.8	228.4	227.3	180.6	139.9	112.0	218.8	207.0	165.0	130.2	105.8	18
20		210.2	209.3	190.3	145.2	115.3	209.5	208.4	176.2	137.1	109.9	204.2	198.3	161.2	127.7	103.7	20
24		176.4	175.5	174.3	138.0	110.1	175.5	174.4	166.2	131.5	106.0	173.5	172.2	153.5	122.9	99.8	24
28		148.7	147.9	146.9	129.8	104.3	149.5	148.7	147.5	125.5	102.1	146.0	145.6	142.6	117.3	96.5	28
32		127.8	127.3	126.4	108.3	88.3	128.4	127.8	126.6	120.3	98.2	127.6	126.9	125.5	112.9	93.2	32
36		-	-	-	-	-	110.0	109.2	108.1	105.8	94.0	109.0	108.2	106.9	101.3	90.1	36
40		-	-	-	-	-	94.4	93.6	92.5	91.4	88.6	92.0	92.0	91.7	91.2	86.1	40
48		-	-	-	-	-	-	-	-	-	-	71.8	71.2	70.2	69.2	68.4	48
56		-	-	-	-	-	-	-	-	-	-	57.3	57.1	56.7	56.4	56.0	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)





		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		231.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		220.3	192.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		208.6	184.8	145.9	115.3	-	181.9	-	-	-	-	-	-	-	-	-	16
18		195.7	179.3	145.9	115.3	95.0	174.4	143.7	114.4	-	-	-	-	-	-	-	18
20		182.9	176.1	145.5	115.3	95.0	166.8	143.7	114.4	91.1	74.5	138.2	115.5	84.7	-	-	20
24		160.8	160.2	138.8	114.0	93.7	148.7	141.5	113.5	91.1	74.5	131.4	115.5	84.7	66.8	55.5	24
28		143.3	142.4	129.7	110.0	91.4	132.3	131.2	109.2	91.1	74.5	122.0	114.0	84.7	66.8	54.5	28
32		124.7	123.2	119.4	106.1	88.8	119.2	118.3	105.4	91.1	74.5	111.5	109.7	84.7	66.8	54.0	32
36		106.4	105.1	104.5	98.6	84.8	105.4	104.4	98.2	90.0	74.5	101.1	100.2	84.7	66.8	54.0	36
40		93.5	92.4	91.1	89.6	81.3	91.5	90.4	89.5	87.4	74.3	90.7	89.6	83.5	66.8	54.0	40
48		70.7	69.9	69.0	68.6	68.4	72.7	71.9	70.8	69.6	68.4	70.8	69.9	68.7	64.1	54.0	48
56		58.7	58.2	57.4	56.6	55.7	57.5	57.0	56.0	55.1	54.1	55.8	55.0	54.0	52.9	50.5	56
64		48.0	47.5	47.0	46.4	45.7	46.9	46.3	45.6	44.8	44.1	45.1	44.5	43.6	42.8	41.9	64
72		40.1	39.8	39.4	39.0	38.3	39.0	38.5	37.9	37.4	36.8	38.0	37.6	37.6	37.8	37.1	72
80		-	-	-	-	-	33.1	32.7	32.3	31.7	31.2	34.3	34.0	33.4	32.8	32.3	80
88		-	-	-	-	-	17.0	17.0	16.5	16.5	16.5	29.6	29.3	28.8	28.4	27.8	88
96		-	-	-	-	-	-	-	-	-	-	25.8	25.5	25.2	24.8	24.3	96
104		-	-	-	-	-	-	-	-	-	-	19.8	19.7	19.5	19.3	18.8	104
1)		20.9	20.9	20.9	20.9	20.9	16.8	16.8	16.8	16.8	16.8	13.0	13.0	13.0	13.0	13.0	1)




* Heavy lift sheave required

** Heavy lift sheave and 7 sheaves hook block required

1) Capacities with horizontal boom





HA



99,200 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5						
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
24		91.7	83.8	67.5	-	-	-	-	-	-	-	-	-	-	-	-	24	
28		81.2	79.0	67.0	52.9	42.8	74.8	67.9	50.7	-	-	-	-	-	-	-	28	
32		73.4	72.4	65.4	52.9	42.8	67.0	65.2	50.7	41.0	-	62.9	54.8	-	-	-	32	
36		68.5	68.0	63.3	52.9	42.8	60.8	60.3	50.7	40.1	33.3	57.3	52.6	40.3	32.0	-	36	
40		63.7	63.7	61.1	52.8	42.8	55.1	55.1	50.3	39.1	33.3	52.0	50.1	40.1	32.0	26.0	40	
48		56.1	56.1	56.0	51.4	42.8	46.5	46.3	44.6	39.0	33.2	43.8	42.8	39.5	31.7	25.9	48	
56		50.1	50.1	50.2	48.2	42.8	39.5	39.5	38.6	37.6	32.3	37.4	36.5	36.0	31.0	25.6	56	
64		45.4	45.1	44.6	43.6	41.8	34.7	34.2	34.1	33.4	31.1	32.3	31.6	31.5	29.6	24.9	64	
72		38.7	38.3	37.4	36.8	35.9	31.6	30.7	30.7	30.7	29.6	28.1	27.4	27.4	27.2	24.3	72	
80		32.7	32.3	31.6	31.0	30.4	28.7	28.1	28.1	28.1	27.9	24.9	24.5	24.4	24.3	22.5	80	
88		28.1	27.7	27.1	26.6	26.0	26.4	25.8	25.8	25.8	25.8	22.3	22.2	22.2	22.1	20.6	88	
96		24.2	23.8	23.3	22.9	22.4	24.2	23.8	23.5	23.2	22.7	20.2	20.2	20.2	20.2	19.0	96	
104		21.1	20.6	20.4	20.2	20.2	21.3	21.1	20.6	20.2	19.7	18.5	18.5	18.5	18.5	17.4	104	
112		18.4	18.2	17.8	17.5	17.1	18.6	18.4	18.0	17.7	17.3	17.1	17.1	17.1	17.1	16.0	112	
120		-	-	-	-	-	16.5	16.2	15.9	15.6	15.2	15.8	15.8	15.7	15.4	14.8	120	
128		-	-	-	-	-	14.5	14.3	14.1	13.9	13.6	14.5	14.3	14.0	13.7	13.2	128	
136		-	-	-	-	-	-	-	-	-	-	12.9	12.7	12.4	12.0	11.8	136	
144		-	-	-	-	-	-	-	-	-	-	11.3	11.3	11.1	10.9	10.6	144	
1)		9.9	9.9	9.9	9.9	9.9	8.8	8.8	8.8	8.8	8.8	6.2	6.2	6.2	6.2	6.2	1)	

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		51.2	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		48.2	44.2	32.6	25.7	20.7	44.2	37.5	26.7	20.1	-	-	-	-	-	-	40	
48		41.5	40.1	32.6	24.9	20.7	39.5	36.6	26.7	20.1	15.7	33.3	27.6	20.5	15.2	11.2	48	
56		35.4	35.1	32.2	24.9	20.1	34.6	33.5	26.7	20.1	15.7	30.6	25.9	20.5	15.2	11.2	56	
64		30.5	30.5	30.0	24.9	19.6	30.0	29.9	26.0	19.9	15.7	27.0	24.0	20.5	15.2	11.2	64	
72		26.5	26.5	26.5	24.0	19.6	26.1	26.1	23.9	19.8	15.7	23.4	21.7	19.9	15.2	11.2	72	
80		23.6	23.4	23.6	21.7	19.6	22.9	22.9	21.4	19.8	15.6	20.5	19.0	18.3	15.2	11.2	80	
88		20.9	20.9	20.9	19.4	19.1	20.3	20.3	19.0	18.8	15.2	18.0	16.7	16.8	15.1	11.2	88	
96		18.9	18.9	18.7	17.5	17.5	18.2	18.2	16.9	16.9	15.2	16.0	14.8	14.9	14.3	11.2	96	
104		17.0	17.0	17.0	15.9	15.9	16.3	16.3	15.2	15.0	14.8	14.1	13.2	13.2	13.0	11.2	104	
112		15.6	15.6	15.4	14.5	14.5	14.5	14.5	13.6	13.6	13.6	12.7	11.8	11.6	11.6	11.2	112	
120		14.2	14.2	14.1	13.2	13.2	13.1	13.1	12.1	12.1	12.1	11.1	10.5	10.3	10.3	10.3	120	
128		13.0	13.0	13.0	12.1	12.1	11.8	11.8	11.0	11.0	11.0	9.9	9.3	9.3	9.3	9.3	128	
136		11.9	11.9	11.8	11.0	11.0	10.6	10.6	9.9	9.9	9.9	8.8	8.3	8.2	8.2	8.3	136	
144		10.9	10.6	10.2	10.0	9.8	9.5	9.5	8.9	8.9	8.7	8.0	7.3	7.3	7.3	7.3	144	
152		9.6	9.3	9.1	8.9	8.5	8.7	8.5	8.0	7.8	7.8	7.2	6.5	6.5	6.5	6.5	152	
160		-	-	-	-	-	7.8	7.8	7.1	7.1	7.1	6.4	5.8	5.8	5.8	5.8	160	
168		-	-	-	-	-	-	-	-	-	-	5.6	5.2	5.2	5.2	5.2	168	
176		-	-	-	-	-	-	-	-	-	-	4.9	4.5	4.5	4.5	4.5	176	
1)		3.7	3.7	3.7	3.7	3.7	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom

HA

77,200 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		336.5**	304.6*	218.9	163.5	127.9	328.5**	271.6	199.6	152.7	121.1	286.6	241.0	181.5	-	-	10
12		300.3*	292.4*	212.8	159.5	125.2	299.2*	263.6	194.5	149.3	118.6	271.8	233.9	177.3	138.6	-	12
14		269.8	269.3	207.0	155.9	122.6	269.3	256.1	189.7	146.1	116.3	253.0	222.1	173.3	135.7	110.0	14
16		244.9	244.1	201.3	152.2	120.2	244.1	241.9	185.0	142.8	114.2	234.2	214.5	168.8	132.9	107.8	16
18		223.5	222.4	195.8	148.7	117.8	222.5	221.3	180.6	139.9	112.0	216.9	207.0	165.0	130.2	105.8	18
20		202.6	201.5	189.3	145.2	115.3	201.7	200.4	176.2	137.1	109.9	199.6	197.2	161.2	127.7	103.7	20
24		166.2	165.3	164.2	138.0	110.1	167.0	166.2	163.2	131.5	106.0	162.9	161.8	152.9	122.9	99.8	24
28		139.3	138.6	137.3	129.7	104.3	140.5	139.4	137.9	125.5	102.1	139.0	137.7	135.6	117.3	96.5	28
32		114.3	113.6	112.2	108.2	88.3	115.5	114.5	113.5	111.6	98.2	114.1	113.0	111.1	108.7	93.2	32
36		-	-	-	-	-	98.4	97.4	96.3	94.9	88.9	96.2	95.8	95.0	94.0	86.2	36
40		-	-	-	-	-	82.1	81.2	80.3	79.3	78.2	82.3	81.4	80.1	79.0	77.7	40
48		-	-	-	-	-	-	-	-	-	-	63.9	63.8	63.0	62.1	61.3	48
56		-	-	-	-	-	-	-	-	-	-	50.9	50.5	50.0	49.2	48.7	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)







		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		231.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		220.3	192.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		208.6	184.8	145.9	115.3	-	181.9	-	-	-	-	-	-	-	-	-	16
18		195.7	179.3	145.9	115.3	95.0	174.4	143.7	114.4	-	-	-	-	-	-	-	18
20		182.7	175.7	145.5	115.3	95.0	166.8	143.7	114.4	91.1	74.5	138.2	115.5	84.7	-	-	20
24		155.7	153.7	138.8	114.0	93.7	147.1	139.9	113.5	91.1	74.5	131.4	115.5	84.7	66.8	55.5	24
28		130.0	129.1	126.8	110.0	91.4	123.6	122.0	109.2	91.1	74.5	119.0	112.9	84.7	66.8	54.5	28
32		113.1	111.8	109.7	105.1	88.8	106.9	106.5	103.8	91.1	74.5	102.5	101.0	84.7	66.8	54.0	32
36		96.4	95.3	93.6	91.9	84.5	95.3	94.5	93.0	86.2	74.5	89.7	88.4	80.8	66.8	54.0	36
40		81.0	80.8	80.5	80.0	79.1	83.3	82.3	81.0	79.5	73.4	78.2	77.1	75.4	66.3	54.0	40
48		64.2	63.5	62.5	61.5	60.5	62.8	62.2	61.0	60.0	58.9	61.1	60.1	58.9	57.6	52.3	48
56		50.6	50.1	49.3	48.6	47.9	49.4	48.9	48.0	47.1	46.2	47.6	47.0	46.3	46.4	44.6	56
64		41.1	40.7	40.2	39.5	38.9	40.0	39.4	38.7	38.0	37.5	40.9	40.5	40.0	39.3	38.6	64
72		34.3	33.9	33.4	33.0	32.5	34.0	34.0	33.8	33.8	33.4	34.3	33.9	33.2	32.8	32.1	72
80		-	-	-	-	-	30.2	30.0	29.5	29.1	28.5	29.0	28.6	28.2	27.6	27.1	80
88		-	-	-	-	-	17.0	17.0	16.5	16.5	16.5	24.8	24.6	24.2	23.7	23.3	88
96		-	-	-	-	-	-	-	-	-	-	21.5	21.3	21.0	20.5	20.2	96
104		-	-	-	-	-	-	-	-	-	-	16.2	15.9	15.8	15.8	15.8	104
1)		20.9	20.9	20.9	20.9	20.9	16.8	16.8	16.8	16.8	16.8	13.0	13.0	13.0	13.0	13.0	1)




* Heavy lift sheave required

** Heavy lift sheave and 7 sheaves hook block required

1) Capacities with horizontal boom





HA



77,200 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360°					ASME B30.5
 		126.0 ft					134.8 ft					148.6 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
1,000 lb																	
24	91.7	83.8	67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28	81.2	79.0	67.0	52.9	42.8	74.8	67.9	50.7	-	-	-	-	-	-	-	-	28
32	73.4	72.4	65.4	52.9	42.8	67.0	65.2	50.7	41.0	-	62.9	54.8	-	-	-	-	32
36	68.5	68.0	63.3	52.9	42.8	60.8	60.3	50.7	40.1	33.3	57.3	52.6	40.3	32.0	-	-	36
40	63.7	63.7	61.1	52.8	42.8	55.1	55.1	50.3	39.1	33.3	52.0	50.1	40.1	32.0	26.0	-	40
48	56.1	56.1	55.9	51.4	42.8	46.5	46.3	44.6	39.0	33.2	43.8	42.8	39.5	31.7	25.9	-	48
56	48.6	48.2	47.5	45.8	42.1	39.5	39.5	38.6	37.6	32.3	37.4	36.5	36.0	31.0	25.6	-	56
64	39.9	39.2	38.4	37.6	36.6	34.7	34.2	34.1	33.4	31.1	32.3	31.6	31.5	29.6	24.9	-	64
72	32.8	32.3	31.7	30.8	30.1	31.6	30.7	30.7	30.7	29.6	28.1	27.4	27.4	27.2	24.3	-	72
80	27.5	27.1	26.4	25.8	25.9	27.9	27.5	26.9	26.2	25.6	24.9	24.5	24.4	24.3	22.4	-	80
88	24.0	24.0	23.5	23.4	23.3	23.7	23.4	22.8	22.2	21.6	22.2	22.2	22.2	21.8	20.6	-	88
96	21.7	21.5	21.1	20.7	20.3	20.4	19.9	19.4	19.0	18.5	20.1	19.9	19.5	19.0	18.5	-	96
104	19.1	18.9	18.4	18.2	17.7	17.5	17.1	16.7	16.7	16.7	17.5	17.3	16.8	16.2	15.8	-	104
112	14.7	14.4	14.2	14.0	13.6	15.4	15.4	15.4	15.3	15.3	15.1	14.9	14.4	14.0	13.6	-	112
120	-	-	-	-	-	14.1	14.0	13.9	13.7	13.5	13.2	12.8	12.6	12.5	11.8	-	120
128	-	-	-	-	-	12.8	12.7	12.4	12.2	12.0	11.5	11.5	11.5	11.2	10.7	-	128
136	-	-	-	-	-	-	-	-	-	-	10.5	10.5	10.5	10.5	9.7	-	136
144	-	-	-	-	-	-	-	-	-	-	9.3	9.1	9.1	8.9	8.6	-	144
1)	9.9	9.9	9.9	9.9	9.9	8.8	8.8	8.8	8.8	8.8	6.2	6.2	6.2	6.2	6.2	-	1)

 		165.7 ft					181.1 ft					196.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
1,000 lb																	
36	51.2	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40	48.2	44.2	32.6	25.7	20.7	44.2	37.5	26.7	20.1	-	-	-	-	-	-	-	40
48	41.5	40.1	32.6	24.9	20.7	39.5	36.6	26.7	20.1	15.7	33.3	27.6	20.5	15.2	11.2	-	48
56	35.4	35.1	32.2	24.9	20.1	34.6	33.5	26.7	20.1	15.7	30.6	25.9	20.5	15.2	11.2	-	56
64	30.5	30.5	30.0	24.9	19.6	30.0	29.9	26.0	19.9	15.7	27.0	24.0	20.5	15.2	11.2	-	64
72	26.5	26.5	26.5	24.0	19.6	26.1	26.1	23.9	19.8	15.7	23.4	21.7	19.9	15.2	11.2	-	72
80	23.6	23.4	23.6	21.7	19.6	22.9	22.9	21.4	19.8	15.6	20.5	19.0	18.3	15.2	11.2	-	80
88	20.9	20.9	20.9	19.4	19.1	20.3	20.3	19.0	18.8	15.2	18.0	16.7	16.8	15.1	11.2	-	88
96	18.9	18.9	18.7	17.5	17.3	18.2	18.2	16.9	16.9	15.2	16.0	14.8	14.9	14.3	11.2	-	96
104	17.0	16.6	16.2	15.7	15.1	16.1	15.8	15.2	14.6	13.9	14.1	13.2	13.2	13.0	11.2	-	104
112	14.6	14.4	13.8	13.3	12.9	13.8	13.5	12.9	12.5	12.5	12.7	11.8	11.6	11.6	11.2	-	112
120	12.6	12.3	11.9	11.5	11.1	12.1	12.1	11.2	11.2	11.1	11.1	10.5	10.3	10.3	10.0	-	120
128	10.8	10.6	10.2	9.9	9.5	10.9	10.8	10.1	9.9	9.5	9.9	9.3	9.1	8.8	8.4	-	128
136	9.3	9.1	8.9	8.5	8.2	9.4	9.2	8.9	8.5	8.2	8.5	8.2	7.8	7.4	6.9	-	136
144	8.0	8.0	8.0	7.5	7.5	8.2	8.0	7.6	7.3	6.9	7.1	6.9	6.5	6.2	5.8	-	144
152	6.9	6.7	6.5	6.3	6.1	6.9	6.7	6.5	6.2	5.8	6.0	5.8	5.4	5.1	4.7	-	152
160	-	-	-	-	-	5.9	5.8	5.5	5.3	5.0	5.0	4.7	4.5	4.2	3.9	-	160
168	-	-	-	-	-	-	-	-	-	-	4.0	3.9	3.6	3.4	3.2	-	168
176	-	-	-	-	-	-	-	-	-	-	3.2	3.2	3.0	2.7	2.5	-	176
1)	3.7	3.7	3.7	3.7	3.7	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom

HA

55,100 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		331.0**	304.6*	218.9	163.5	127.9	327.9**	271.6	199.6	152.7	121.1	286.6	241.0	181.5	-	-	10
12		294.8*	290.7*	212.8	159.5	125.2	294.0*	263.6	194.5	149.3	118.6	271.8	233.9	177.3	138.6	-	12
14		264.9	263.8	207.0	155.9	122.6	264.9	256.1	189.7	146.1	116.3	253.0	222.1	173.3	135.7	110.0	14
16		239.7	238.6	201.3	152.2	120.2	238.8	237.7	185.0	142.8	114.2	234.2	214.5	168.8	132.9	107.8	16
18		214.5	213.5	195.7	148.7	117.8	213.7	212.4	180.6	139.9	112.0	207.1	197.2	165.0	130.2	105.8	18
20		190.2	189.4	188.1	145.2	115.3	191.3	190.2	175.4	137.1	109.9	183.0	182.8	160.6	127.7	103.7	20
24		154.6	153.8	152.5	137.4	110.1	155.8	154.8	153.3	131.5	106.0	145.7	144.1	141.3	122.9	99.8	24
28		122.7	121.7	120.2	118.5	104.3	124.0	123.5	122.5	118.4	102.1	119.6	118.9	117.8	114.0	96.5	28
32		96.9	96.2	95.0	93.8	88.3	99.8	98.9	97.5	96.1	92.9	100.1	99.0	97.3	95.7	91.3	32
36		-	-	-	-	-	83.2	82.5	81.3	80.2	79.0	83.6	82.7	81.3	80.0	78.6	36
40		-	-	-	-	-	70.8	70.2	69.3	68.4	67.4	71.9	71.2	70.2	69.1	68.0	40
48		-	-	-	-	-	-	-	-	-	-	54.3	53.7	52.9	52.1	51.3	48
56		-	-	-	-	-	-	-	-	-	-	42.6	42.2	41.6	41.1	40.4	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)







		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		231.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		220.3	192.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		208.6	184.8	145.9	115.3	-	181.9	-	-	-	-	-	-	-	-	-	16
18		188.6	174.6	145.9	115.3	95.0	170.8	143.7	114.4	-	-	-	-	-	-	-	18
20		167.0	164.7	145.5	115.3	95.0	158.1	142.5	114.4	91.1	74.5	137.7	115.5	84.7	-	-	20
24		138.8	137.1	134.4	114.0	93.7	127.0	125.4	113.5	91.1	74.5	122.3	113.1	84.7	66.8	55.5	24
28		114.1	112.6	110.3	105.8	91.4	110.7	109.1	105.3	91.1	74.5	101.9	100.3	84.7	66.8	54.5	28
32		96.9	96.7	96.2	94.2	88.8	93.9	92.5	90.7	87.2	74.5	86.8	85.2	81.5	66.8	54.0	32
36		84.4	84.0	83.0	81.4	78.7	81.6	80.5	78.9	77.4	70.8	75.6	74.3	72.5	64.8	54.0	36
40		71.7	71.0	69.7	68.4	67.3	70.4	69.5	68.2	66.9	65.4	65.6	64.5	63.0	61.5	53.6	40
48		53.9	53.3	52.4	51.6	50.6	52.8	52.0	51.1	50.1	48.9	51.9	51.4	51.3	50.4	47.2	48
56		42.3	41.8	41.1	40.4	39.6	42.1	41.8	41.4	40.9	40.6	42.7	42.1	41.3	40.4	39.4	56
64		34.1	33.7	33.2	32.9	32.9	35.5	35.0	34.5	33.8	33.2	34.4	33.9	33.2	32.5	31.8	64
72		29.8	29.4	29.2	28.8	28.3	29.2	29.0	28.6	27.9	27.5	28.1	27.7	27.2	26.6	25.9	72
80		-	-	-	-	-	24.8	24.5	24.1	23.7	23.3	23.7	23.7	23.3	23.2	23.1	80
88		-	-	-	-	-	17.0	17.0	16.5	16.5	16.5	21.3	21.2	20.7	20.4	19.9	88
96		-	-	-	-	-	-	-	-	-	-	18.5	18.2	17.9	17.6	17.3	96
104		-	-	-	-	-	-	-	-	-	-	16.0	15.8	15.6	15.4	15.0	104
1)		20.9	20.9	20.9	20.9	20.9	16.8	16.8	16.8	16.8	16.8	13.0	13.0	13.0	13.0	13.0	1)




* Heavy lift sheave required

** Heavy lift sheave and 7 sheaves hook block required

1) Capacities with horizontal boom




HA

55,100 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5						
 		126.0 ft					134.8 ft					148.6 ft						
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft	
		1,000 lb																
24		91.7	83.8	67.5	-	-	-	-	-	-	-	-	-	-	-	-	24	
28		81.2	79.0	67.0	52.9	42.8	74.8	67.9	50.7	-	-	-	-	-	-	-	28	
32		73.4	72.4	65.4	52.9	42.8	67.0	65.2	50.7	41.0	-	62.9	54.8	-	-	-	32	
36		68.5	68.0	63.3	52.9	42.8	60.8	60.3	50.7	40.1	33.3	57.3	52.6	40.3	32.0	-	36	
40		63.5	63.4	60.7	52.8	42.8	55.1	55.1	50.3	39.1	33.3	52.0	50.1	40.1	32.0	26.0	40	
48		51.8	51.0	49.8	48.5	42.3	46.3	45.9	44.1	38.7	33.2	43.8	42.8	39.5	31.7	25.9	48	
56		41.0	40.3	39.3	38.3	37.3	38.8	37.9	37.7	35.4	32.3	36.8	36.0	35.0	31.0	25.6	56	
64		32.8	32.1	31.4	31.1	30.7	33.1	32.3	31.8	30.8	29.4	31.2	30.5	30.2	29.1	24.9	64	
72		28.7	28.3	27.6	27.0	26.3	27.0	26.6	25.9	25.0	24.8	27.0	26.7	25.9	25.2	23.8	72	
80		24.1	23.7	23.2	22.6	22.1	22.5	22.1	22.1	22.0	21.9	22.7	22.3	21.5	21.1	20.2	80	
88		20.5	20.1	19.6	19.2	18.6	19.9	19.8	19.6	19.1	18.5	19.0	18.9	18.6	18.2	17.4	88	
96		17.4	17.1	16.7	16.4	16.4	17.3	17.1	16.7	16.2	15.7	16.6	16.5	15.9	15.9	15.0	96	
104		15.2	14.9	14.9	14.7	14.4	14.8	14.6	14.2	13.9	13.5	14.5	14.5	14.3	13.9	13.4	104	
112		10.9	10.7	10.5	10.3	9.9	12.9	12.7	12.3	11.8	11.6	12.9	12.7	12.3	12.0	11.6	112	
120		-	-	-	-	-	11.1	10.9	10.8	10.8	10.2	11.1	10.9	10.6	10.4	10.0	120	
128		-	-	-	-	-	9.6	9.5	9.3	9.0	8.8	9.7	9.6	9.3	8.9	8.7	128	
136		-	-	-	-	-	-	-	-	-	-	8.4	8.2	8.0	7.9	7.7	136	
144		-	-	-	-	-	-	-	-	-	-	6.4	6.4	6.2	6.0	5.8	144	
1)		9.9	9.9	9.9	9.9	9.9	8.8	8.8	8.8	8.8	8.8	6.2	6.2	6.2	6.2	6.2	1)	

 		165.7 ft					181.1 ft					196.9 ft						
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft	
		1,000 lb																
36		51.2	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		48.2	44.2	32.6	25.7	20.7	44.2	37.5	26.7	20.1	-	-	-	-	-	-	40	
48		41.5	40.1	32.6	24.9	20.7	39.5	36.6	26.7	20.1	15.7	33.3	27.6	20.5	15.2	11.2	48	
56		35.4	35.1	32.2	24.9	20.1	34.6	33.5	26.7	20.1	15.7	30.6	25.9	20.5	15.2	11.2	56	
64		30.3	29.8	28.8	24.9	19.6	30.0	29.7	26.0	19.9	15.7	27.0	24.0	20.5	15.2	11.2	64	
72		25.9	25.9	25.2	23.4	19.6	25.7	25.0	23.9	19.8	15.7	23.4	21.7	19.9	15.2	11.2	72	
80		22.1	21.7	21.0	20.2	19.1	21.2	20.8	19.9	19.1	15.6	20.5	19.0	18.3	15.2	11.2	80	
88		18.5	18.1	17.4	16.8	16.1	18.1	17.8	16.9	16.3	15.2	17.7	16.7	16.3	14.8	11.2	88	
96		15.6	15.1	14.9	14.0	13.9	15.6	15.1	14.6	14.0	13.4	14.7	14.3	13.5	12.9	11.2	96	
104		13.4	13.4	13.2	12.5	12.3	13.1	12.8	12.2	11.7	11.1	12.2	11.8	11.1	10.6	9.9	104	
112		12.0	11.8	11.4	10.9	10.5	11.1	10.7	10.3	9.8	9.2	10.0	9.6	9.2	8.5	8.1	112	
120		10.4	10.2	9.8	9.4	8.9	9.3	8.9	8.5	8.1	7.6	8.3	8.0	7.6	7.0	6.5	120	
128		8.9	8.7	8.3	8.0	7.6	7.8	7.5	7.2	6.7	6.3	6.8	6.5	6.1	5.6	5.2	128	
136		7.6	7.4	7.1	6.9	6.4	6.5	6.2	5.8	5.5	5.1	5.5	5.2	4.9	4.4	4.0	136	
144		6.4	6.2	6.0	5.8	5.5	5.3	5.1	4.7	4.5	4.2	4.2	4.0	3.8	3.4	2.9	144	
152		4.3	4.1	3.9	3.6	3.4	4.3	4.1	3.9	3.6	3.2	3.4	3.2	2.8	-	-	152	
160		-	-	-	-	-	3.5	3.3	3.1	2.8	2.6	-	-	-	-	-	160	
1)		3.7	3.7	3.7	3.7	3.7	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom

HA

33,100 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		324.5**304.5*	218.9	163.5	127.9		324.4**271.6	199.6	152.7	121.1		286.6	241.0	181.5	-	-	10
12		289.6	288.5	212.8	159.5	125.2	288.5	263.6	194.5	149.3	118.6	271.8	233.9	177.3	138.6	-	12
14		258.7	257.6	207.0	155.9	122.6	257.6	251.4	189.7	146.1	116.3	243.6	222.1	173.3	135.7	110.0	14
16		227.0	226.0	201.3	152.2	120.2	226.2	224.9	185.0	142.8	114.2	208.1	205.3	168.8	132.9	107.8	16
18		201.2	200.3	189.8	148.7	117.8	198.9	197.2	177.1	139.9	112.0	181.6	179.1	160.5	130.2	105.8	18
20		177.5	176.6	175.4	145.2	115.3	171.5	169.3	166.5	137.1	109.9	154.9	152.8	149.7	127.7	103.7	20
24		136.1	134.9	133.0	130.3	110.1	134.4	133.0	130.7	126.4	106.0	125.0	123.6	121.2	118.0	99.8	24
28		101.5	100.7	99.3	97.8	96.1	105.2	104.0	102.3	100.7	96.0	101.6	100.3	98.3	97.0	94.3	28
32		79.6	79.0	78.0	77.0	75.8	82.8	81.9	80.7	79.9	78.9	85.1	84.4	83.3	82.1	80.6	32
36		-	-	-	-	-	70.4	69.6	68.7	67.7	66.6	71.6	70.8	69.7	68.5	67.4	36
40		-	-	-	-	-	58.3	57.6	57.0	56.1	55.2	59.3	58.7	57.8	56.8	55.9	40
48		-	-	-	-	-	-	-	-	-	-	44.3	43.9	43.1	42.4	41.6	48
56		-	-	-	-	-	-	-	-	-	-	34.6	34.4	34.2	33.8	33.5	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)





		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		231.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		215.1	192.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		188.6	184.8	145.9	115.3	-	172.0	-	-	-	-	-	-	-	-	-	16
18		167.6	165.0	144.6	115.3	95.0	150.9	139.1	114.4	-	-	-	-	-	-	-	18
20		145.8	143.6	140.6	115.2	95.0	135.6	134.2	114.2	91.1	74.5	125.2	114.4	84.7	-	-	20
24		116.4	116.0	113.4	108.6	93.7	111.1	109.4	107.0	91.1	74.5	101.3	99.4	84.7	66.8	55.5	24
28		98.8	97.5	95.6	93.7	88.6	91.8	90.4	88.3	85.3	74.5	83.9	82.4	79.4	66.8	54.5	28
32		83.1	82.0	80.4	78.8	77.2	77.4	76.2	74.4	72.6	70.0	71.0	69.7	67.8	64.3	54.0	32
36		70.6	69.7	68.4	66.9	65.6	67.1	66.1	64.5	62.9	61.5	64.1	63.3	61.4	57.9	52.1	36
40		59.1	58.5	57.4	56.1	55.0	57.8	56.9	55.5	54.2	52.8	57.6	56.7	55.4	54.1	50.2	40
48		44.0	43.4	42.6	41.8	41.6	45.7	45.1	44.3	43.3	42.4	44.5	43.8	42.8	41.8	40.7	48
56		35.8	35.6	35.0	34.4	33.8	35.6	35.1	34.4	33.7	33.0	34.5	33.9	33.1	32.3	31.7	56
64		29.2	28.8	28.4	27.9	27.2	28.6	28.1	27.5	27.0	26.3	28.6	28.3	27.7	27.2	26.8	64
72		23.9	23.7	23.3	22.8	22.6	23.3	23.2	23.2	22.8	22.3	23.7	23.3	22.8	22.4	21.9	72
80		-	-	-	-	-	20.2	20.0	19.6	19.2	18.9	20.0	19.6	19.1	18.7	18.3	80
88		-	-	-	-	-	16.8	16.8	16.3	16.3	16.2	16.7	16.5	16.1	15.7	15.4	88
96		-	-	-	-	-	-	-	-	-	-	14.2	14.0	13.7	13.4	13.0	96
104		-	-	-	-	-	-	-	-	-	-	12.1	11.9	11.7	11.5	11.2	104
1)		20.9	20.9	20.9	20.9	20.9	16.5	16.3	16.3	16.1	15.7	12.3	12.1	11.9	11.7	11.7	1)


* Heavy lift sheave required

** Heavy lift sheave and 7 sheaves hook block required

1) Capacities with horizontal boom







HA




33,100 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360°					ASME B30.5
		126.0 ft					134.8 ft					148.6 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
24		91.5	83.8	67.5	-	-	-	-	-	-	-	-	-	-	-	-	24
28		79.1	76.7	67.0	52.9	42.8	73.9	67.9	50.7	-	-	-	-	-	-	-	28
32		70.1	68.7	65.2	52.9	42.8	63.4	61.7	50.7	41.0	-	60.9	54.8	-	-	-	32
36		61.1	60.0	58.4	51.5	42.8	55.9	54.9	48.8	40.1	33.3	53.2	50.2	40.3	32.0	-	36
40		53.1	52.2	50.7	49.2	42.5	49.8	48.1	46.3	39.1	33.3	47.9	46.8	39.9	32.0	26.0	40
48		41.8	41.0	39.8	38.6	37.3	41.1	40.2	38.9	36.2	32.9	38.7	38.4	36.2	31.7	25.9	48
56		34.6	34.3	33.6	32.7	31.2	33.0	32.3	31.6	31.0	29.3	32.4	31.8	31.3	29.6	25.6	56
64		28.0	27.5	26.8	26.1	25.6	27.5	27.2	26.7	25.9	25.1	26.9	26.4	25.8	24.9	23.4	64
72		23.0	22.6	22.3	21.7	21.3	22.8	22.4	21.7	21.0	20.4	22.1	21.9	21.7	21.0	19.3	72
80		19.3	19.1	18.7	18.1	17.6	18.9	18.5	17.8	17.7	16.7	18.9	18.5	18.0	17.3	16.7	80
88		16.3	16.0	15.6	15.2	14.7	16.0	15.9	15.7	15.4	14.8	15.8	15.4	15.0	14.4	13.9	88
96		13.7	13.4	13.1	12.8	12.3	14.0	13.7	13.3	13.0	12.6	13.2	12.9	12.4	12.0	11.6	96
104		11.7	11.5	11.0	10.8	10.6	11.9	11.7	11.3	11.0	10.6	11.1	10.8	10.4	9.9	9.7	104
112		7.4	7.2	7.0	6.6	6.3	10.0	9.8	9.6	9.4	9.0	9.4	9.0	8.7	8.3	8.1	112
120		-	-	-	-	-	8.6	8.5	8.3	7.9	7.7	7.8	7.6	7.2	7.0	6.7	120
128		-	-	-	-	-	6.4	6.4	6.2	5.9	5.7	6.5	6.4	6.2	5.9	5.6	128
136		-	-	-	-	-	-	-	-	-	-	5.5	5.3	5.1	4.9	4.8	136
144		-	-	-	-	-	-	-	-	-	-	3.8	3.6	3.3	3.3	3.1	144
1)		9.0	8.8	8.8	8.6	8.4	7.7	7.5	7.5	7.3	7.1	5.1	4.9	4.9	4.6	4.6	1)

		165.7 ft					181.1 ft					196.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
36		50.0	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40		45.5	43.8	32.6	25.7	20.7	43.9	37.4	26.7	20.1	-	-	-	-	-	-	40
48		38.0	37.0	32.3	24.9	20.7	35.8	34.7	26.7	20.1	15.7	32.8	27.6	20.5	15.2	11.2	48
56		30.8	29.9	28.8	24.9	20.1	29.7	28.7	25.5	20.1	15.7	27.8	25.7	20.5	15.2	11.2	56
64		25.3	24.6	24.1	22.4	19.6	24.8	24.1	22.4	19.9	15.7	22.7	21.9	20.0	15.2	11.2	64
72		21.5	21.5	20.8	19.2	17.7	20.6	19.9	19.0	17.9	15.7	18.6	17.9	16.8	15.2	11.2	72
80		18.2	17.6	17.0	16.3	15.6	16.9	16.5	15.6	15.0	14.1	15.4	14.8	13.9	13.0	11.1	80
88		15.0	14.5	14.1	13.4	12.9	13.9	13.4	12.8	12.1	11.3	12.6	12.2	11.3	10.5	9.6	88
96		12.4	12.1	11.5	11.0	10.6	11.3	10.9	10.4	9.7	9.2	10.2	9.8	9.2	8.4	7.6	96
104		10.2	10.0	9.5	9.1	8.6	9.1	8.8	8.2	7.7	7.3	8.2	7.7	7.3	6.6	5.9	104
112		8.5	8.3	7.8	7.4	7.0	7.4	7.0	6.5	6.1	5.7	6.3	6.1	5.4	5.0	4.6	112
120		7.0	6.7	6.4	6.1	5.7	5.9	5.6	5.2	4.8	4.4	5.0	4.5	4.1	3.7	3.2	120
128		5.7	5.5	5.2	4.8	4.6	4.6	4.4	4.0	3.5	3.3	3.6	3.3	2.9	-	-	128
136		4.7	4.4	4.1	3.9	3.5	3.5	3.3	2.9	2.6	-	2.4	-	-	-	-	136
144		3.6	3.6	3.1	2.9	2.7	2.5	2.3	-	-	-	-	-	-	-	-	144
1)		2.4	2.4	2.2	2.2	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom

HA

11,000 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360°					ASME B30.5
 		42.3 ft					56.1 ft					70.2 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
10		319.0**304.0*	218.9	163.5	127.9		317.9*	271.6	199.6	152.7	121.1	286.0	241.0	181.5	-	-	10
12		282.4	281.3	212.8	159.5	125.2	281.3	263.6	194.5	149.3	118.6	254.0	233.5	177.3	138.6	-	12
14		244.8	243.7	207.0	155.9	122.6	236.7	234.6	189.7	146.1	116.3	209.4	206.2	173.3	135.7	110.0	14
16		211.8	210.8	201.3	152.2	120.2	194.5	192.0	181.8	142.8	114.2	172.6	170.9	165.8	132.9	107.8	16
18		180.8	179.5	175.9	148.7	117.8	163.9	162.4	158.9	139.3	112.0	150.9	148.8	145.6	128.1	105.8	18
20		151.0	149.3	146.7	142.5	115.2	140.5	138.8	136.2	133.6	109.9	128.5	126.8	124.0	121.4	103.7	20
24		108.7	107.6	105.9	104.0	102.2	107.7	106.5	104.5	102.4	100.4	103.9	102.6	100.5	98.4	95.7	24
28		80.4	79.5	78.3	77.0	75.7	84.7	84.2	83.5	82.1	80.6	84.3	83.1	81.5	79.8	78.1	28
32		62.4	61.7	61.0	60.0	59.1	67.4	66.7	65.5	64.4	63.2	68.6	67.6	66.4	65.0	63.7	32
36		-	-	-	-	-	55.7	55.0	54.1	53.1	52.2	56.9	56.1	55.1	54.0	52.9	36
40		-	-	-	-	-	45.7	45.0	44.4	43.6	42.9	46.8	46.1	45.4	44.9	44.9	40
48		-	-	-	-	-	-	-	-	-	-	35.5	35.1	34.7	34.1	33.5	48
56		-	-	-	-	-	-	-	-	-	-	27.6	27.3	26.8	26.3	25.8	56
1)		48.1	48.1	48.1	48.1	48.1	33.5	33.1	32.8	32.4	32.0	22.9	22.7	22.5	22.0	21.8	1)





 		84.0 ft					98.1 ft					111.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
12		222.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		189.3	182.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		157.6	154.9	145.8	115.3	-	144.7	-	-	-	-	-	-	-	-	-	16
18		135.8	133.5	130.3	113.3	95.0	128.0	126.0	111.5	-	-	101.2	-	-	-	-	18
20		122.2	120.4	117.8	109.2	94.3	111.4	109.4	106.6	90.6	74.5	100.0	97.8	84.2	-	-	20
24		96.7	95.2	93.1	90.9	88.0	88.7	87.2	84.8	82.6	73.5	82.5	81.4	75.9	66.3	55.5	24
28		78.9	77.7	75.9	74.2	72.4	72.7	71.5	69.5	67.7	65.7	71.2	70.0	67.2	62.7	54.5	28
32		65.9	64.9	63.3	62.0	60.4	64.1	63.3	62.0	59.8	56.6	60.2	59.1	57.5	55.9	52.7	32
36		55.8	55.0	53.7	52.5	51.2	56.2	55.2	54.0	52.6	50.7	52.2	51.2	49.8	48.3	46.8	36
40		48.7	48.1	47.2	46.2	45.3	48.3	47.5	46.4	45.3	44.0	45.0	44.1	42.9	42.0	40.2	40
48		36.4	35.9	35.1	34.5	33.6	35.7	35.3	34.5	33.6	32.6	36.4	35.7	34.9	33.9	32.8	48
56		28.0	27.7	27.0	26.5	25.8	28.4	27.9	27.3	26.7	26.1	28.1	27.6	27.0	26.2	25.3	56
64		22.2	22.0	21.5	21.0	20.5	22.5	22.1	21.7	21.3	20.7	22.3	21.8	21.3	20.6	19.9	64
72		17.9	17.7	17.3	16.8	16.6	18.4	17.9	17.5	17.1	16.6	17.9	17.5	17.1	16.4	16.0	72
80		-	-	-	-	-	15.0	14.8	14.4	14.1	13.7	14.6	14.3	13.9	13.5	13.0	80
88		-	-	-	-	-	12.5	12.3	12.1	11.7	11.4	12.0	11.8	11.4	11.0	10.6	88
96		-	-	-	-	-	-	-	-	-	-	9.8	9.6	9.4	9.1	8.9	96
104		-	-	-	-	-	-	-	-	-	-	8.1	8.1	7.9	7.5	7.3	104
1)		16.3	16.1	15.9	15.7	15.4	11.9	11.7	11.5	11.5	11.2	8.2	8.2	7.9	7.7	7.7	1)




* Heavy lift sheave required

** Heavy lift sheave and 7 sheaves hook block required

1) Capacities with horizontal boom




HA



11,000 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5						
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
24		78.2	76.5	67.1	-	-	-	-	-	-	-	-	-	-	-	-	24	
28		64.9	63.6	61.5	52.9	42.8	61.8	58.0	50.5	-	-	-	-	-	-	-	28	
32		56.0	55.0	51.8	49.4	42.8	53.1	51.8	47.8	41.0	-	51.7	48.7	-	-	-	32	
36		49.4	49.1	46.2	43.2	39.7	46.6	46.1	42.9	39.0	33.3	45.8	43.9	39.7	32.0	-	36	
40		44.0	43.1	41.8	40.5	37.4	42.4	41.4	40.1	36.1	32.8	39.8	38.8	37.5	31.8	26.0	40	
48		34.5	33.7	33.2	32.5	30.6	33.4	32.6	31.5	30.5	29.2	32.4	32.1	30.1	28.1	25.2	48	
56		27.6	27.0	26.3	25.5	24.7	26.6	26.3	25.9	24.8	23.3	26.4	25.7	24.8	23.8	21.6	56	
64		21.8	21.3	20.7	19.9	19.3	21.9	21.6	20.9	20.2	19.2	21.1	20.6	19.9	19.2	18.3	64	
72		17.3	16.9	16.4	15.7	15.3	17.7	17.3	16.6	16.2	15.5	16.8	16.4	15.7	15.1	14.4	72	
80		14.1	13.7	13.2	12.8	12.4	14.3	14.1	13.5	13.1	12.6	13.6	13.2	12.6	12.1	11.5	80	
88		11.4	11.2	10.7	10.3	9.9	11.8	11.5	11.1	10.7	10.2	11.0	10.6	10.1	9.6	9.2	88	
96		9.4	9.2	8.7	8.4	8.1	9.6	9.4	8.9	8.7	8.3	8.8	8.5	8.1	7.8	7.3	96	
104		7.7	7.5	7.2	6.8	6.6	7.9	7.7	7.3	7.0	6.8	7.0	6.8	6.4	6.2	5.7	104	
112		3.7	3.5	3.2	3.0	2.8	6.3	6.3	5.9	5.7	5.5	5.7	5.4	5.0	4.8	4.3	112	
120		-	-	-	-	-	5.3	5.0	4.8	4.7	4.4	4.4	4.2	3.9	3.7	3.3	120	
128		-	-	-	-	-	3.2	3.2	3.0	2.8	2.6	3.3	3.2	3.0	2.8	2.5	128	
136		-	-	-	-	-	-	-	-	-	-	2.4	2.4	-	-	-	136	
1)		5.5	5.5	5.3	5.1	5.1	4.4	4.4	4.2	4.2	4.0	2.2	-	-	-	-	1)	

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		42.5	38.6	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		38.6	36.7	32.2	25.7	20.7	35.5	34.2	26.6	20.1	-	-	-	-	-	-	40	
48		30.5	29.6	28.3	24.1	20.7	27.7	26.8	24.9	20.1	15.7	25.4	24.3	20.3	15.2	11.2	48	
56		24.3	23.7	22.6	21.4	19.7	22.0	21.2	20.0	18.5	15.7	19.9	19.0	17.8	15.0	11.2	56	
64		19.8	19.1	18.2	17.3	16.4	17.6	16.9	15.8	14.9	13.8	15.6	14.9	13.8	12.6	10.9	64	
72		16.0	15.5	14.6	14.0	13.1	14.0	13.5	12.6	11.7	10.9	12.2	11.5	10.6	9.8	8.7	72	
80		12.8	12.4	11.7	11.1	10.4	11.3	10.7	10.0	9.1	8.3	9.6	8.9	8.0	7.2	6.3	80	
88		10.2	9.8	9.2	8.8	8.1	9.0	8.5	7.7	7.1	6.4	7.4	6.9	6.0	5.3	4.5	88	
96		8.1	7.6	7.2	6.7	6.2	7.0	6.5	6.0	5.3	4.7	5.4	5.0	4.2	3.6	2.9	96	
104		6.4	5.9	5.5	5.0	4.8	5.1	4.8	4.4	3.9	3.3	3.9	3.5	2.8	-	-	104	
112		4.8	4.6	4.1	3.9	3.5	3.7	3.5	-	-	-	-	-	-	-	-	112	
120		3.5	3.3	3.1	2.7	-	-	-	-	-	-	-	-	-	-	-	120	
128		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	128	
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom

HA







0 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360° ASME B30.5				
		42.3 ft					56.1 ft					70.2 ft				
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°
ft	1,000 lb															ft
10	315.7*	303.6*	218.9	163.5	127.9	314.6*	271.6	199.6	152.7	121.1	282.9	241.0	181.5	-	-	10
12	277.3	275.9	212.8	159.5	125.2	270.3	255.6	194.5	149.3	118.6	235.2	225.0	177.3	138.6	-	12
14	235.9	234.3	207.0	155.9	122.6	214.4	211.3	189.7	146.1	116.3	184.7	182.5	171.5	135.7	110.0	14
16	193.8	191.9	185.4	152.2	120.2	173.8	172.2	167.2	142.8	114.2	156.1	153.6	150.1	132.9	107.8	16
18	160.9	159.0	155.9	140.5	117.8	147.3	145.4	142.4	131.1	112.0	133.1	130.9	128.0	120.5	105.8	18
20	132.5	130.9	128.4	126.0	113.9	123.6	122.1	119.5	116.9	108.5	117.3	115.5	113.2	110.8	102.6	20
24	95.2	94.1	92.4	90.8	89.0	95.3	95.0	93.9	92.0	90.2	91.4	90.0	88.1	86.2	84.1	24
28	69.9	69.1	67.9	66.7	65.4	75.5	74.6	73.2	71.8	70.3	73.8	72.7	71.1	69.5	67.9	28
32	53.9	53.3	52.5	51.5	50.8	58.9	58.2	57.1	55.9	54.7	60.0	59.0	57.9	56.7	55.3	32
36	-	-	-	-	-	48.4	47.8	46.8	45.9	45.1	49.6	48.9	47.9	46.9	46.4	36
40	-	-	-	-	-	39.4	39.0	38.1	37.5	36.8	42.0	41.4	40.7	40.1	39.2	40
48	-	-	-	-	-	-	-	-	-	-	30.9	30.5	29.9	29.3	28.6	48
56	-	-	-	-	-	-	-	-	-	-	23.5	23.2	22.8	22.3	21.8	56
1)	47.8	47.4	47.0	46.3	45.6	28.4	28.2	27.8	27.6	27.1	19.2	19.2	18.7	18.5	18.3	1)




 		84.0 ft					98.1 ft					111.9 ft				
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°
ft	1,000 lb															ft
12	207.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14	167.1	164.2	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16	141.4	139.6	132.1	115.3	-	129.6	-	-	-	-	-	-	-	-	-	16
18	125.2	123.2	117.7	107.4	94.4	112.7	110.7	104.9	-	-	99.5	-	-	-	-	18
20	107.8	106.1	103.5	100.9	92.0	97.7	96.0	93.2	89.5	74.4	90.9	88.2	82.4	-	-	20
24	84.9	83.5	81.4	79.4	77.2	78.0	77.8	73.9	71.6	69.4	75.4	73.9	70.6	64.2	55.5	24
28	69.0	67.9	66.2	64.4	62.7	67.3	66.2	64.5	61.6	57.8	62.2	60.9	59.1	57.4	53.1	28
32	58.5	58.3	57.4	56.4	54.3	56.6	55.5	54.1	52.8	51.2	52.3	51.7	49.7	48.0	46.4	32
36	50.7	50.2	49.2	48.0	46.8	48.9	47.9	46.7	45.5	44.1	46.4	45.9	43.8	41.4	39.9	36
40	42.9	42.3	41.4	40.3	39.4	41.8	41.0	39.9	38.8	37.8	40.9	40.0	39.0	37.9	36.2	40
48	31.5	31.1	30.3	29.7	28.9	31.9	31.4	30.5	29.7	29.0	31.5	30.8	30.0	29.1	28.2	48
56	24.0	23.6	23.1	22.5	22.0	24.6	24.2	23.5	22.8	22.2	24.2	23.6	23.0	22.2	21.6	56
64	18.8	18.4	18.1	17.6	17.2	19.3	18.8	18.3	17.8	17.4	18.8	18.4	17.9	17.2	16.6	64
72	14.9	14.6	14.4	14.0	13.7	15.3	15.1	14.6	14.2	13.7	14.9	14.4	14.0	13.5	13.1	72
80	-	-	-	-	-	12.4	12.2	11.7	11.3	11.1	12.0	11.7	11.3	10.9	10.5	80
88	-	-	-	-	-	10.1	9.9	9.6	9.3	9.1	9.6	9.4	9.1	8.6	8.4	88
96	-	-	-	-	-	-	-	-	-	-	7.8	7.5	7.3	6.9	6.7	96
104	-	-	-	-	-	-	-	-	-	-	6.2	6.1	5.9	5.6	5.4	104
1)	13.4	13.2	13.0	12.8	12.6	9.5	9.5	9.3	9.0	8.8	6.2	6.2	6.0	6.0	5.7	1)

* Heavy lift sheave required

1) Capacities with horizontal boom





HA


0 lb +  33,100 lb		 19.7 ft					 32.2 ft/s					360°					ASME B30.5
		126.0 ft					134.8 ft					148.6 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
24	68.3	66.6	64.2	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28	58.9	58.1	52.9	50.0	42.8	55.9	53.2	48.0	-	-	50.5	-	-	-	-	-	28
32	50.6	49.5	47.3	43.8	40.3	48.5	47.4	43.9	40.0	-	45.9	44.0	-	-	-	-	32
36	43.9	43.2	41.5	39.2	36.4	42.1	41.1	39.4	35.8	32.2	40.8	38.9	36.7	31.4	-	-	36
40	38.7	37.9	36.8	35.5	33.3	36.4	36.1	34.2	32.9	31.6	35.7	34.8	33.1	30.3	25.8	-	40
48	30.2	29.6	28.5	27.5	26.6	30.0	29.3	28.3	27.0	24.3	27.9	27.1	26.0	24.9	22.7	-	48
56	23.5	23.1	22.3	21.4	20.7	23.8	23.2	22.3	21.6	20.5	22.1	21.5	20.6	19.6	18.7	-	56
64	18.2	17.9	17.2	16.5	15.9	18.6	18.2	17.5	16.8	16.1	17.6	17.1	16.4	15.5	14.8	-	64
72	14.4	14.0	13.5	12.9	12.4	14.6	14.2	13.7	13.1	12.6	13.8	13.5	12.9	12.2	11.5	-	72
80	11.3	11.1	10.6	10.2	9.8	11.7	11.3	10.9	10.5	10.0	10.9	10.6	10.0	9.5	8.9	-	80
88	9.1	8.8	8.4	8.0	7.7	9.4	9.1	8.6	8.3	8.0	8.5	8.3	7.7	7.3	6.9	-	88
96	7.2	7.0	6.7	6.4	6.0	7.4	7.2	6.9	6.4	6.2	6.7	6.4	6.0	5.6	5.1	-	96
104	5.7	5.5	5.2	5.0	4.6	5.9	5.7	5.5	5.0	4.8	5.0	4.8	4.6	4.1	3.9	-	104
112	-	-	-	-	-	4.6	4.3	4.1	3.9	3.7	3.7	3.5	3.2	3.0	-	-	112
120	-	-	-	-	-	3.5	3.3	3.1	3.0	2.7	2.7	-	-	-	-	-	120
1)	3.7	3.7	3.5	3.5	3.3	2.9	2.9	2.6	2.4	2.4	-	-	-	-	-	-	1)

		165.7 ft					181.1 ft					196.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
36	38.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40	32.9	32.0	30.5	25.6	20.7	30.1	29.0	26.3	20.1	-	-	-	-	-	-	-	40
48	25.6	24.8	23.7	22.4	20.0	23.0	22.2	20.9	19.0	15.6	20.9	19.8	18.4	14.9	11.2	-	48
56	20.1	19.5	18.5	17.5	16.4	18.0	17.2	16.0	15.0	13.8	16.0	15.1	13.9	12.7	10.5	-	56
64	16.0	15.5	14.6	13.7	12.8	14.0	13.3	12.3	11.3	10.4	12.2	11.5	10.4	9.3	8.1	-	64
72	12.6	12.2	11.5	10.6	10.0	10.9	10.2	9.3	8.4	7.6	9.1	8.4	7.6	6.5	5.6	-	72
80	10.2	9.6	8.9	8.3	7.6	8.3	7.8	7.0	6.3	5.4	6.7	6.1	5.2	4.4	3.7	-	80
88	7.7	7.4	6.9	6.4	5.8	6.2	5.8	5.1	4.4	3.7	4.7	4.2	3.4	-	-	-	88
96	5.9	5.6	5.1	4.7	4.2	4.5	4.0	3.5	2.8	-	3.1	2.6	-	-	-	-	96
104	4.4	3.9	3.7	3.3	2.8	3.0	2.6	-	-	-	-	-	-	-	-	-	104
112	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	112
1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom

HA

99,200 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		324.4**	304.4*	218.9	163.5	127.9	321.2**	271.6	199.6	152.7	121.1	286.6	241.0	181.5	-	-	10
12		288.2	287.1	212.8	159.5	125.2	286.0	263.6	194.5	149.3	118.6	271.8	233.9	177.3	138.6	-	12
14		258.3	257.2	207.0	155.9	122.6	256.7	252.0	189.7	146.1	116.3	251.8	222.1	173.3	135.7	110.0	14
16		233.9	232.8	201.3	152.2	120.2	232.8	230.9	185.0	142.8	114.2	229.5	214.5	168.8	132.9	107.8	16
18		214.5	213.2	195.8	148.7	117.8	213.2	211.2	180.6	139.9	112.0	203.7	196.6	165.0	130.2	105.8	18
20		194.4	192.9	187.1	145.2	115.3	194.7	193.2	174.2	137.1	109.9	182.9	181.7	160.5	127.7	103.7	20
24		143.1	141.9	140.0	133.2	110.1	144.4	142.9	140.8	129.0	106.0	143.5	141.9	139.4	122.9	99.8	24
28		111.4	110.5	109.1	107.7	101.6	114.0	112.9	111.4	109.8	101.1	114.4	113.2	111.4	109.4	96.5	28
32		90.3	89.7	88.5	87.4	86.4	92.6	91.7	90.6	89.2	87.8	92.9	91.9	90.6	89.0	88.0	32
36		-	-	-	-	-	78.5	77.8	76.8	75.7	74.6	78.9	78.6	78.1	77.5	76.6	36
40		-	-	-	-	-	67.7	67.1	66.2	65.3	64.4	68.6	67.9	67.0	66.0	64.9	40
48		-	-	-	-	-	-	-	-	-	-	52.9	52.5	51.7	50.9	50.2	48
56		-	-	-	-	-	-	-	-	-	-	42.4	42.1	41.5	40.9	40.3	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)





		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		231.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		220.3	192.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		208.6	184.8	145.9	115.3	-	181.9	-	-	-	-	-	-	-	-	-	16
18		188.7	174.7	145.9	115.3	95.0	171.3	143.7	114.4	-	-	-	-	-	-	-	18
20		167.5	165.1	145.5	115.3	95.0	159.4	142.9	114.4	91.1	74.5	138.0	115.5	84.7	-	-	20
24		140.9	139.2	134.9	114.0	93.7	130.6	128.7	113.5	91.1	74.5	126.3	114.6	84.7	66.8	55.5	24
28		113.4	112.1	110.1	104.8	91.4	113.1	112.3	106.7	91.1	74.5	106.8	105.1	84.7	66.8	54.5	28
32		93.9	93.2	92.0	90.3	87.0	93.8	92.6	91.0	87.1	74.5	91.3	90.0	84.7	66.8	54.0	32
36		80.6	79.9	78.5	77.3	75.9	79.7	78.7	77.2	75.8	69.5	78.1	76.9	75.0	65.1	54.0	36
40		68.3	67.7	66.6	65.5	64.2	67.5	66.6	65.3	64.0	62.9	65.9	64.8	63.5	62.0	53.5	40
48		52.7	52.1	51.2	50.4	49.6	51.8	51.2	50.1	49.1	48.2	51.7	51.3	51.2	50.3	47.1	48
56		42.2	41.7	41.0	40.3	39.7	42.0	41.7	41.3	40.9	40.6	42.4	42.0	41.2	40.3	39.6	56
64		34.6	34.2	33.7	33.2	32.9	35.8	35.3	34.8	34.2	33.5	34.9	34.4	33.8	33.1	32.4	64
72		30.0	30.0	29.6	29.4	29.0	30.1	29.7	29.2	28.8	28.1	29.2	28.8	28.1	27.7	27.0	72
80		-	-	-	-	-	25.7	25.5	25.0	24.6	24.2	24.8	24.5	24.1	23.5	23.3	80
88		-	-	-	-	-	17.0	17.0	16.5	16.5	16.5	21.6	21.6	21.2	21.1	21.0	88
96		-	-	-	-	-	-	-	-	-	-	19.6	19.5	19.2	18.8	18.6	96
104		-	-	-	-	-	-	-	-	-	-	16.2	15.8	15.8	15.8	15.8	104
1)		20.9	20.9	20.9	20.9	20.9	16.8	16.8	16.8	16.8	16.8	13.0	13.0	13.0	13.0	13.0	1)


* Heavy lift sheave required

** Heavy lift sheave and 7 sheaves hook block required

1) Capacities with horizontal boom





HA



99,200 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5	
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
24		91.7	83.8	67.5	-	-	-	-	-	-	-	-	-	-	-	-	24	
28		81.2	79.0	67.0	52.9	42.8	74.8	67.9	50.7	-	-	-	-	-	-	-	28	
32		73.4	72.4	65.4	52.9	42.8	67.0	65.2	50.7	41.0	-	-	62.9	54.8	-	-	32	
36		68.5	68.0	63.3	52.9	42.8	60.8	60.3	50.7	40.1	33.3	-	57.3	52.6	40.3	32.0	36	
40		63.5	63.4	60.7	52.8	42.8	55.1	55.1	50.3	39.1	33.3	-	52.0	50.1	40.1	32.0	40	
48		51.8	51.0	49.9	48.7	42.4	46.5	46.3	44.6	39.0	33.2	-	43.8	42.8	39.5	31.7	48	
56		41.1	40.5	39.7	38.7	37.8	38.8	38.3	37.8	36.0	32.3	-	37.4	36.5	35.9	31.0	56	
64		33.5	33.1	32.2	31.5	30.8	33.7	33.0	32.6	31.5	30.3	-	31.5	30.9	30.8	29.5	64	
72		28.7	28.7	28.1	27.8	27.2	28.3	27.9	27.0	26.3	25.7	-	27.0	27.0	27.0	26.5	72	
80		25.2	24.8	24.4	23.9	23.3	23.9	23.5	23.0	22.4	22.1	-	24.1	23.7	23.0	22.4	80	
88		21.7	21.5	21.0	20.6	20.2	20.5	20.2	20.1	20.0	19.8	-	20.6	20.3	19.7	19.1	88	
96		18.9	18.7	18.2	17.9	17.5	18.2	18.2	18.1	17.7	17.3	-	17.8	17.5	17.0	16.9	96	
104		16.6	16.4	15.9	15.7	15.4	16.5	16.1	15.9	15.5	15.0	-	15.5	15.4	15.2	14.8	104	
112		13.1	12.9	12.5	12.3	12.0	14.5	14.2	14.0	13.6	13.4	-	13.8	13.8	13.4	13.2	112	
120		-	-	-	-	-	12.8	12.6	12.4	12.0	11.8	-	12.2	12.1	12.1	12.0	120	
128		-	-	-	-	-	11.3	11.2	11.0	10.8	10.6	-	11.2	11.1	11.0	10.8	128	
136		-	-	-	-	-	-	-	-	-	-	-	10.2	10.2	9.9	9.7	136	
144		-	-	-	-	-	-	-	-	-	-	-	8.4	8.4	8.2	8.0	144	
1)		9.9	9.9	9.9	9.9	9.9	8.8	8.8	8.8	8.8	8.8	-	6.2	6.2	6.2	6.2	1)	

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		51.2	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		48.2	44.2	32.6	25.7	20.7	44.2	37.5	26.7	20.1	-	-	-	-	-	-	40	
48		41.5	40.1	32.6	24.9	20.7	39.5	36.6	26.7	20.1	15.7	-	33.3	27.6	20.5	15.2	48	
56		35.4	35.1	32.2	24.9	20.1	34.6	33.5	26.7	20.1	15.7	-	30.6	25.9	20.5	15.2	56	
64		30.5	30.5	30.0	24.9	19.6	30.0	29.9	26.0	19.9	15.7	-	27.0	24.0	20.5	15.2	64	
72		26.5	25.9	26.1	24.0	19.6	26.1	26.1	23.9	19.8	15.7	-	23.4	21.7	19.9	15.2	72	
80		23.1	23.0	22.6	21.2	19.5	22.8	22.4	21.4	19.6	15.6	-	20.5	19.0	18.3	15.2	80	
88		20.2	19.7	19.3	18.6	18.0	19.5	19.1	18.4	17.7	15.2	-	18.0	16.7	16.8	15.1	88	
96		17.3	17.0	16.5	15.9	15.3	16.7	16.4	15.7	15.2	14.4	-	16.0	14.8	14.9	14.3	96	
104		15.0	14.6	14.2	13.7	13.2	14.7	14.7	13.6	13.6	13.1	-	14.1	13.2	13.2	12.8	104	
112		12.9	12.7	12.3	11.8	11.4	13.1	12.7	12.3	11.8	11.4	-	12.3	11.8	11.4	10.9	112	
120		11.3	11.1	10.8	10.3	10.1	11.4	11.1	10.7	10.3	9.8	-	10.6	10.2	9.8	9.3	120	
128		9.8	9.7	9.7	9.1	9.1	10.0	9.6	9.3	8.9	8.5	-	9.0	8.7	8.3	7.8	128	
136		8.8	8.8	8.8	8.2	8.2	8.5	8.2	8.0	7.6	7.1	-	7.6	7.4	6.9	6.5	136	
144		8.0	8.0	8.0	7.5	7.3	7.3	7.1	6.7	6.4	6.0	-	6.4	6.0	5.8	5.3	144	
152		6.1	6.0	5.6	5.4	5.2	6.2	6.0	5.6	5.4	5.2	-	5.2	5.0	4.7	4.3	152	
160		-	-	-	-	-	5.3	5.0	4.8	4.6	4.4	-	4.3	4.1	3.7	3.5	160	
168		-	-	-	-	-	-	-	-	-	-	-	3.3	3.2	3.0	-	168	
176		-	-	-	-	-	-	-	-	-	-	-	2.5	2.5	2.3	-	176	
1)		3.7	3.7	3.7	3.7	3.7	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom




HA

77,200 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		316.8*	303.8*	218.9	163.5	127.9	314.6*	271.6	199.6	152.7	121.1	286.6	241.0	181.5	-	-	10
12		281.9	280.8	212.8	159.5	125.2	279.7	263.6	194.5	149.3	118.6	270.8	233.9	177.3	138.6	-	12
14		252.8	251.7	207.0	155.9	122.6	251.2	249.0	189.7	146.1	116.3	239.1	222.1	173.3	135.7	110.0	14
16		228.4	227.3	201.3	152.2	120.2	226.2	225.4	185.0	142.8	114.2	206.9	204.4	168.8	132.9	107.8	16
18		199.6	198.2	185.5	148.7	117.8	199.7	198.2	177.7	139.9	112.0	182.9	180.5	162.5	130.2	105.8	18
20		170.0	168.4	166.1	144.0	115.3	171.5	169.5	167.0	136.8	109.9	159.2	157.1	154.1	127.7	103.7	20
24		124.2	123.0	121.3	119.7	108.2	127.2	125.9	124.1	122.0	105.6	127.6	126.1	124.1	117.9	99.8	24
28		96.3	95.5	94.2	92.9	91.6	99.0	98.0	96.6	95.0	93.4	99.3	98.3	96.6	94.9	92.2	28
32		77.8	77.1	76.2	75.2	74.1	80.4	79.7	78.9	78.1	77.2	82.7	81.8	80.5	79.1	77.9	32
36		-	-	-	-	-	69.1	68.4	67.5	66.5	65.5	70.1	69.4	68.3	67.2	66.0	36
40		-	-	-	-	-	58.4	57.7	57.1	56.2	55.4	59.2	58.6	57.7	56.8	55.8	40
48		-	-	-	-	-	-	-	-	-	-	45.6	45.0	44.3	43.5	42.8	48
56		-	-	-	-	-	-	-	-	-	-	36.3	35.8	35.3	34.7	34.5	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)

		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		231.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		214.0	192.7	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16		188.6	184.8	145.9	115.3	-	174.4	-	-	-	-	-	-	-	-	-	16
18		170.0	167.4	145.9	115.3	95.0	155.5	140.6	114.4	-	-	-	-	-	-	-	18
20		150.8	148.8	143.8	115.3	95.0	137.6	135.3	114.4	91.1	74.5	131.9	115.2	84.7	-	-	20
24		121.8	120.1	117.7	111.2	93.7	118.0	116.3	110.7	91.1	74.5	108.7	107.0	84.7	66.8	55.5	24
28		101.4	100.3	98.7	96.0	89.4	98.5	97.1	95.1	88.8	74.5	91.6	90.1	83.4	66.8	54.5	28
32		82.5	81.4	80.0	78.7	77.1	81.4	80.2	78.7	77.1	72.9	78.5	77.1	75.1	66.8	54.0	32
36		69.9	69.0	67.8	66.6	65.3	68.9	67.9	66.6	65.2	63.7	67.1	65.9	64.3	60.6	53.3	36
40		59.0	58.4	57.3	56.2	55.1	58.1	57.3	56.2	54.9	53.6	59.4	58.6	57.5	56.2	51.4	40
48		45.3	44.7	43.9	43.1	42.3	46.6	46.0	45.1	44.3	43.5	45.6	44.9	44.1	43.1	42.0	48
56		36.6	36.5	36.1	35.8	35.2	37.1	36.7	35.9	35.3	34.6	36.3	35.7	34.9	34.2	33.4	56
64		30.8	30.5	30.1	29.6	29.1	30.4	30.1	29.4	28.9	28.3	29.5	29.1	28.5	28.5	28.1	64
72		25.9	25.7	25.2	24.8	24.4	25.5	25.0	24.6	24.1	23.7	25.7	25.4	24.8	24.3	23.9	72
80		-	-	-	-	-	21.5	21.3	20.9	20.5	20.4	22.0	21.5	21.1	20.7	20.3	80
88		-	-	-	-	-	17.0	17.0	16.5	16.5	16.5	18.9	18.5	18.3	17.9	17.5	88
96		-	-	-	-	-	-	-	-	-	-	16.5	16.3	15.9	15.6	15.2	96
104		-	-	-	-	-	-	-	-	-	-	14.4	14.3	13.9	13.7	13.4	104
1)		20.9	20.9	20.9	20.9	20.9	16.8	16.8	16.8	16.8	16.8	13.0	13.0	13.0	13.0	13.0	1)

* Heavy lift sheave required
 1) Capacities with horizontal boom




HA

77,200 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5	
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
24		91.7	83.8	67.5	-	-	-	-	-	-	-	-	-	-	-	-	24	
28		81.2	79.0	67.0	52.9	42.8	74.8	67.9	50.7	-	-	-	-	-	-	-	28	
32		73.4	72.4	65.4	52.9	42.8	67.0	65.2	50.7	41.0	-	62.9	54.8	-	-	-	32	
36		65.9	65.0	61.1	52.9	42.8	60.7	59.6	50.7	40.1	33.3	57.3	52.6	40.3	32.0	-	36	
40		57.9	57.0	55.7	52.0	42.8	54.5	53.2	49.9	39.1	33.3	51.9	50.0	40.1	32.0	26.0	40	
48		44.3	43.4	42.4	41.3	40.3	43.2	42.2	40.9	37.3	33.2	41.9	40.9	38.2	31.7	25.9	48	
56		35.6	35.3	34.6	33.8	32.3	35.4	34.7	33.7	32.9	30.8	34.2	33.8	32.8	30.9	25.6	56	
64		29.9	29.5	28.8	28.1	27.4	28.6	28.1	27.8	27.6	26.7	28.8	28.3	27.4	27.0	24.9	64	
72		25.0	24.6	23.9	23.5	22.8	24.8	24.5	23.9	23.2	22.6	24.1	23.9	23.2	22.6	21.9	72	
80		21.1	20.7	20.3	20.1	19.8	21.1	20.7	20.2	19.6	19.2	20.6	20.2	19.6	19.4	18.3	80	
88		18.2	18.0	17.8	17.4	17.0	18.1	17.6	17.2	16.8	16.3	17.7	17.6	17.4	16.8	16.1	88	
96		16.1	15.9	15.4	15.0	14.8	15.5	15.2	14.8	14.4	14.0	15.6	15.3	15.0	14.5	14.1	96	
104		13.9	13.7	13.5	13.2	12.8	13.5	13.2	13.0	13.0	12.1	13.5	13.2	12.8	12.6	12.1	104	
112		10.3	10.1	9.8	9.4	9.2	11.8	11.8	11.8	11.6	11.0	11.8	11.6	11.2	10.9	10.5	112	
120		-	-	-	-	-	10.8	10.8	10.5	10.3	10.1	10.3	10.0	9.8	9.4	9.2	120	
128		-	-	-	-	-	9.0	8.8	8.6	8.4	8.2	9.0	8.8	8.6	8.4	8.0	128	
136		-	-	-	-	-	-	-	-	-	-	8.0	7.7	7.5	7.3	7.0	136	
144		-	-	-	-	-	-	-	-	-	-	6.0	5.8	5.8	5.5	5.3	144	
1)		9.9	9.9	9.9	9.9	9.9	8.8	8.8	8.8	8.8	8.8	6.2	6.2	6.2	6.2	6.2	1)	

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		51.2	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		48.2	44.2	32.6	25.7	20.7	44.2	37.5	26.7	20.1	-	-	-	-	-	-	40	
48		41.3	39.8	32.6	24.9	20.7	39.5	36.6	26.7	20.1	15.7	33.3	27.6	20.5	15.2	11.2	48	
56		33.7	33.3	31.5	24.9	20.1	33.9	32.7	26.7	20.1	15.7	30.6	25.9	20.5	15.2	11.2	56	
64		28.3	27.7	26.9	24.9	19.6	27.7	27.0	25.3	19.9	15.7	27.0	24.0	20.5	15.2	11.2	64	
72		23.3	22.8	22.1	21.3	19.6	23.2	22.8	21.3	19.8	15.7	22.6	21.7	19.9	15.2	11.2	72	
80		19.6	19.1	18.8	17.8	17.2	19.6	19.1	18.5	17.5	15.6	18.9	18.3	17.6	15.1	11.2	80	
88		16.8	16.8	16.6	15.7	15.1	16.5	16.2	15.6	15.0	14.4	15.8	15.4	14.6	14.0	11.2	88	
96		14.9	14.6	14.2	13.7	13.2	14.1	13.7	13.2	12.6	12.1	13.3	12.9	12.3	11.7	10.7	96	
104		12.8	12.6	12.1	11.7	11.3	11.9	11.7	11.3	10.6	10.2	11.3	10.8	10.4	9.7	9.1	104	
112		11.2	10.9	10.5	10.1	9.6	10.3	9.8	9.4	8.9	8.5	9.4	8.9	8.5	7.8	7.4	112	
120		9.6	9.4	8.9	8.7	8.3	8.7	8.3	7.8	7.4	7.0	7.8	7.3	6.9	6.3	5.9	120	
128		8.3	8.0	7.7	7.4	7.0	7.2	6.9	6.5	6.2	5.7	6.3	5.9	5.5	5.1	4.6	128	
136		7.1	6.9	6.5	6.2	6.0	6.0	5.8	5.3	4.9	4.7	4.9	4.7	4.3	4.0	3.5	136	
144		6.0	5.8	5.5	5.3	4.9	4.9	4.7	4.2	4.0	3.6	3.8	3.6	3.3	2.9	2.5	144	
152		3.9	3.6	3.4	3.2	3.0	3.9	3.6	3.4	3.2	2.8	2.9	-	-	-	-	152	
160		-	-	-	-	-	3.1	2.8	2.6	-	-	-	-	-	-	-	160	
1)		3.7	3.7	3.7	3.7	3.7	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom

HA




55,100 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5	
		42.3 ft					56.1 ft					70.2 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
10		310.2*	303.1*	218.9	163.5	127.9	308.0*	271.6	199.6	152.7	121.1	284.8	241.0	181.5	-	-	10	
12		275.3	274.2	212.8	159.5	125.2	272.4	261.5	194.5	149.3	118.6	245.5	232.5	177.3	138.6	-	12	
14		246.8	245.7	207.0	155.9	122.6	234.9	233.4	189.7	146.1	116.3	209.8	206.8	173.3	135.7	110.0	14	
16		217.2	215.1	201.3	152.2	120.2	197.8	195.3	185.0	142.8	114.2	177.5	175.0	168.1	132.9	107.8	16	
18		180.0	178.0	172.8	146.5	117.8	170.4	168.3	164.9	139.9	112.0	156.4	155.3	152.0	130.2	105.8	18	
20		144.1	142.6	140.4	138.1	114.7	147.6	146.0	143.5	134.9	109.9	138.6	136.7	133.9	126.3	103.7	20	
24		104.6	103.6	102.0	100.5	98.7	107.8	106.6	104.8	102.9	100.4	108.2	106.8	105.6	103.4	97.0	24	
28		80.7	79.9	78.7	77.5	76.3	84.8	84.1	82.9	81.5	80.1	86.2	85.2	83.8	82.1	80.7	28	
32		64.9	64.3	63.3	62.4	61.5	68.6	67.9	67.0	65.8	64.7	69.7	69.0	67.7	66.5	65.3	32	
36		-	-	-	-	-	57.9	57.3	56.5	55.5	54.7	59.0	58.3	57.2	56.2	55.2	36	
40		-	-	-	-	-	48.6	48.2	47.5	46.7	46.0	49.7	49.1	48.2	47.3	46.4	40	
48		-	-	-	-	-	-	-	-	-	-	38.6	38.3	37.6	37.0	36.4	48	
56		-	-	-	-	-	-	-	-	-	-	30.7	30.6	30.0	29.6	29.0	56	
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.2	26.0	25.6	25.4	25.1	1)	

		84.0 ft					98.1 ft					111.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
12		220.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
14		193.2	186.0	145.9	-	-	-	-	-	-	-	-	-	-	-	-	14	
16		165.4	162.9	145.9	115.3	-	148.8	-	-	-	-	-	-	-	-	-	16	
18		145.3	143.1	135.6	115.3	95.0	136.0	132.1	114.4	-	-	-	-	-	-	-	18	
20		129.0	128.8	123.4	113.9	95.0	122.0	120.1	113.0	91.1	74.5	111.0	109.0	84.7	-	-	20	
24		106.9	105.4	103.3	101.1	91.2	99.6	97.9	95.6	88.8	74.5	91.1	89.4	82.6	66.8	55.5	24	
28		86.1	85.0	83.4	81.6	80.0	83.0	81.7	79.8	77.9	72.6	76.5	75.8	72.7	66.3	54.5	28	
32		69.5	68.6	67.4	66.0	64.5	68.4	67.5	65.9	64.4	62.8	68.9	67.9	65.7	61.0	54.0	32	
36		58.8	58.0	56.9	55.8	54.4	57.9	57.5	56.7	55.4	52.9	59.3	58.3	57.0	54.3	49.9	36	
40		49.5	49.0	48.7	48.6	47.8	50.8	50.1	49.1	48.2	47.1	49.9	49.1	47.9	46.7	45.6	40	
48		39.3	38.9	38.1	37.4	36.6	38.9	38.3	37.4	36.7	35.9	37.8	37.3	36.6	35.8	34.6	48	
56		31.2	30.8	30.2	29.7	29.1	30.8	30.3	29.6	28.9	28.5	31.1	30.6	30.0	29.4	28.6	56	
64		25.5	25.1	24.6	24.2	23.7	25.3	25.2	24.8	24.2	23.7	25.3	24.9	24.4	23.9	23.2	64	
72		21.0	20.8	20.6	20.1	19.7	21.3	21.0	20.6	20.1	19.7	21.0	20.8	20.2	19.7	19.3	72	
80		-	-	-	-	-	18.1	17.9	17.4	17.2	16.8	17.8	17.4	17.0	16.6	16.2	80	
88		-	-	-	-	-	15.5	15.4	14.9	14.7	14.5	15.1	14.8	14.5	14.3	13.8	88	
96		-	-	-	-	-	-	-	-	-	-	13.0	12.7	12.5	12.3	11.8	96	
104		-	-	-	-	-	-	-	-	-	-	11.2	11.0	10.8	10.6	10.3	104	
1)		19.4	19.2	19.0	18.7	18.5	15.0	14.8	14.6	14.3	14.1	11.2	11.2	11.0	10.8	10.6	1)	

* Heavy lift sheave required

1) Capacities with horizontal boom




HA

55,100 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360° ASME B30.5						
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
24		85.4	81.7	67.5	-	-	-	-	-	-	-	-	-	-	-	-	24	
28		75.2	73.5	67.0	52.9	42.8	68.9	65.5	50.7	-	-	-	-	-	-	-	28	
32		64.6	63.2	61.3	52.9	42.8	59.8	58.1	50.7	41.0	-	-	-	-	-	-	32	
36		56.2	55.1	53.5	49.5	42.8	53.1	51.0	47.0	40.1	33.3	-	-	-	-	-	36	
40		48.4	47.5	46.2	44.9	42.0	48.2	47.2	43.8	38.9	33.3	44.8	44.4	39.6	32.0	26.0	40	
48		38.4	37.8	36.8	35.9	33.8	36.9	36.3	35.5	34.0	31.7	37.1	36.3	35.3	31.3	25.9	48	
56		30.3	29.7	29.0	28.7	27.5	30.3	29.7	28.9	28.0	27.1	29.7	29.1	28.3	27.3	24.9	56	
64		25.1	24.6	24.0	23.3	22.7	24.5	24.0	23.3	22.8	21.9	24.4	24.0	23.5	22.5	21.0	64	
72		20.6	20.4	19.7	19.3	18.6	20.2	20.1	19.9	19.5	18.6	20.4	19.9	19.3	18.6	17.9	72	
80		17.4	17.0	16.6	16.1	15.7	17.6	17.2	16.8	16.3	15.9	17.0	16.6	16.1	15.5	15.0	80	
88		14.7	14.4	14.0	13.6	13.3	14.9	14.6	14.3	13.8	13.4	14.4	14.0	13.5	13.1	12.6	88	
96		12.6	12.3	12.0	11.6	11.4	12.8	12.5	12.3	11.8	11.4	12.1	11.8	11.4	11.1	10.7	96	
104		10.8	10.6	10.3	10.1	9.7	11.0	10.8	10.4	10.1	9.9	10.3	10.1	9.7	9.5	9.0	104	
112		7.0	6.8	6.5	6.1	5.9	9.4	9.2	9.0	8.8	8.5	8.7	8.5	8.3	7.9	7.6	112	
120		-	-	-	-	-	8.1	8.1	7.9	7.7	7.3	7.4	7.2	7.0	6.6	6.4	120	
128		-	-	-	-	-	6.2	5.9	5.8	5.6	5.4	6.2	5.9	5.7	5.5	5.3	128	
136		-	-	-	-	-	-	-	-	-	-	5.1	5.0	4.8	4.6	4.4	136	
144		-	-	-	-	-	-	-	-	-	-	3.6	3.3	3.1	2.9	2.9	144	
1)		8.6	8.4	8.2	8.2	7.9	7.3	7.3	7.1	6.8	6.6	4.9	4.6	4.4	4.4	4.2	1)	

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		48.5	43.7	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		44.7	41.8	32.6	25.7	20.7	42.1	37.2	26.7	20.1	-	-	-	-	-	-	40	
48		35.8	34.7	31.7	24.9	20.7	34.2	32.6	26.7	20.1	15.7	32.3	27.6	20.5	15.2	11.2	48	
56		28.6	28.2	26.8	24.2	20.1	28.4	27.6	24.7	20.1	15.7	26.3	24.9	20.5	15.2	11.2	56	
64		23.9	23.5	22.6	20.8	19.0	22.9	22.4	21.3	19.7	15.7	21.4	20.7	19.2	15.2	11.2	64	
72		19.7	19.1	18.4	17.7	17.0	18.6	18.2	17.3	16.6	15.7	17.5	16.8	16.0	14.8	11.2	72	
80		16.3	15.9	15.2	14.8	14.1	15.4	15.0	14.2	13.5	12.8	14.6	13.9	13.0	12.0	10.9	80	
88		13.7	13.3	12.7	12.3	11.7	12.7	12.3	11.8	11.2	10.5	12.0	11.3	10.5	9.6	8.8	88	
96		11.5	11.2	10.7	10.3	9.8	10.6	10.3	9.6	9.2	8.5	9.7	9.2	8.5	7.6	7.0	96	
104		9.7	9.5	9.0	8.6	8.1	8.6	8.4	7.7	7.3	6.8	7.7	7.3	6.6	5.9	5.3	104	
112		8.1	7.8	7.4	7.0	6.5	7.0	6.7	6.1	5.7	5.2	6.1	5.7	5.2	4.6	3.9	112	
120		6.7	6.4	6.1	5.7	5.3	5.6	5.2	4.8	4.4	3.9	4.5	4.3	3.9	3.3	2.8	120	
128		5.4	5.2	4.8	4.6	4.2	4.3	4.0	3.7	3.3	2.9	3.3	3.1	2.6	-	-	128	
136		4.4	4.1	3.8	3.5	3.3	3.3	3.0	2.7	2.4	-	-	-	-	-	-	136	
144		3.4	3.1	2.9	2.7	2.5	2.3	-	-	-	-	-	-	-	-	-	144	
1)		2.2	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom

HA





33,100 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		302.6*	302.5*	218.9	163.5	127.9	298.4*	270.5	199.6	152.7	121.1	264.4	239.2	181.5	-	-	10
12		265.9	264.1	212.8	159.5	125.2	243.0	239.8	194.5	149.3	118.6	210.6	207.5	177.3	138.6	-	12
14		221.2	218.4	202.5	155.9	122.6	196.0	193.4	183.1	146.1	116.3	178.3	175.6	166.9	135.7	110.0	14
16		180.5	178.2	175.0	152.2	120.2	165.9	163.5	160.3	142.8	114.2	150.4	148.1	144.9	132.9	107.8	16
18		148.1	146.2	143.7	134.1	116.7	142.9	141.0	138.3	130.7	112.0	130.9	128.8	126.1	120.8	105.8	18
20		118.6	117.1	115.2	113.0	110.9	122.1	120.6	118.2	115.9	108.1	117.4	115.7	113.3	111.0	102.8	20
24		85.5	84.6	83.2	81.6	80.1	90.5	89.3	87.7	86.1	84.4	91.7	90.6	88.8	87.0	85.1	24
28		65.6	64.8	63.7	62.6	61.4	69.9	69.0	67.8	66.5	65.2	71.0	70.0	68.8	67.3	65.8	28
32		52.2	51.7	50.9	50.1	49.3	56.0	55.4	54.4	53.4	52.3	57.1	56.4	55.3	54.1	53.2	32
36		-	-	-	-	-	47.0	46.5	45.6	44.8	43.9	48.0	47.4	47.0	46.5	45.7	36
40		-	-	-	-	-	39.3	38.8	38.0	37.4	36.7	41.3	41.0	40.2	39.3	38.5	40
48		-	-	-	-	-	-	-	-	-	-	31.3	30.9	30.3	29.8	29.2	48
56		-	-	-	-	-	-	-	-	-	-	24.6	24.2	23.9	23.3	22.9	56
1)		47.2	46.7	46.1	45.4	45.0	29.3	29.1	28.7	28.4	28.0	20.7	20.5	20.1	19.8	19.6	1)


		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		190.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		159.3	156.6	144.2	-	-	-	-	-	-	-	-	-	-	-	-	14
16		139.4	137.6	130.0	115.3	-	128.3	-	-	-	-	-	-	-	-	-	16
18		124.3	122.3	118.3	107.9	95.0	113.3	111.3	106.0	-	-	100.8	-	-	-	-	18
20		108.9	107.2	104.8	102.2	93.5	99.8	98.1	95.5	89.9	74.5	92.9	90.2	83.5	-	-	20
24		87.7	86.5	84.4	82.3	80.2	81.1	79.5	77.4	75.1	71.5	78.8	77.4	71.8	64.8	55.5	24
28		70.7	69.8	68.2	66.6	65.0	69.9	69.4	67.5	63.6	60.3	66.2	65.0	63.1	60.3	54.5	28
32		57.8	57.1	56.2	55.4	53.7	58.5	57.6	56.4	55.0	52.9	56.5	55.4	53.8	52.2	50.1	32
36		49.7	48.9	48.0	46.9	45.9	49.3	48.6	47.5	46.4	45.1	48.1	47.2	45.9	44.6	43.0	36
40		41.9	41.3	40.4	39.5	38.7	41.5	40.8	39.7	38.9	37.8	41.9	41.2	40.2	39.1	36.7	40
48		31.7	31.3	30.7	30.0	29.3	32.0	31.6	30.9	30.1	29.4	31.9	31.3	30.5	29.7	28.8	48
56		24.9	24.6	24.0	23.4	23.0	25.3	24.9	24.3	23.7	23.1	25.0	24.6	23.9	23.2	22.6	56
64		20.0	19.8	19.3	18.9	18.5	20.5	20.0	19.6	19.1	18.7	20.0	19.7	19.2	18.5	18.0	64
72		16.4	16.2	15.7	15.5	15.1	16.6	16.4	16.0	15.7	15.3	16.4	16.0	15.5	15.1	14.6	72
80		-	-	-	-	-	13.9	13.7	13.3	13.1	12.7	13.6	13.3	12.9	12.4	12.2	80
88		-	-	-	-	-	11.7	11.5	11.3	11.1	10.7	11.4	11.1	10.8	10.5	10.2	88
96		-	-	-	-	-	-	-	-	-	-	9.5	9.3	9.1	8.9	8.6	96
104		-	-	-	-	-	-	-	-	-	-	8.1	7.9	7.7	7.4	7.2	104
1)		15.0	14.8	14.6	14.3	14.1	11.2	11.0	11.0	10.8	10.6	8.2	7.9	7.9	7.7	7.5	1)

* Heavy lift sheave required

1) Capacities with horizontal boom




HA



33,100 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5
		126.0 ft					134.8 ft					148.6 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
24		72.1	70.4	65.5	-	-	-	-	-	-	-	-	-	-	-	-	24
28		61.3	60.2	57.2	52.2	42.8	58.5	56.3	48.7	-	-	50.5	-	-	-	-	28
32		54.3	53.5	49.7	46.9	42.8	50.9	50.4	46.4	41.0	-	49.5	47.5	-	-	-	32
36		47.7	46.7	44.5	41.3	38.7	45.5	45.1	41.3	38.0	33.3	43.4	42.3	38.8	32.0	-	36
40		41.0	40.2	39.5	37.8	36.5	40.2	39.4	38.1	35.6	32.7	38.3	37.6	35.5	31.6	26.0	40
48		31.5	30.8	30.0	29.0	28.2	30.8	30.4	29.5	28.3	27.3	31.1	30.2	29.4	27.0	24.8	48
56		24.5	24.0	23.3	22.6	21.9	24.9	24.4	23.7	23.0	21.2	24.2	23.5	22.8	22.0	20.6	56
64		19.6	19.2	18.7	18.0	17.3	19.9	19.4	18.9	18.3	17.6	19.2	18.7	18.1	17.4	16.7	64
72		16.0	15.5	15.1	14.6	14.2	16.2	15.9	15.3	14.8	14.4	15.5	15.1	14.6	14.0	13.5	72
80		13.1	12.8	12.4	12.0	11.6	13.5	13.1	12.7	12.2	11.8	12.8	12.4	12.0	11.3	10.9	80
88		11.0	10.6	10.4	9.9	9.6	11.2	10.8	10.6	10.2	9.7	10.5	10.2	9.7	9.3	8.8	88
96		9.1	8.9	8.6	8.2	8.0	9.3	9.1	8.9	8.4	8.1	8.6	8.4	8.0	7.5	7.1	96
104		7.5	7.4	7.0	6.8	6.6	7.7	7.5	7.3	7.0	6.6	7.0	6.8	6.4	5.9	5.7	104
112		3.7	3.5	3.3	3.0	2.8	6.3	6.1	5.9	5.7	5.5	5.7	5.4	5.0	4.8	4.3	112
120		-	-	-	-	-	5.3	5.0	4.8	4.7	4.4	4.4	4.2	3.9	3.7	3.3	120
128		-	-	-	-	-	3.3	3.2	3.0	2.8	2.6	3.4	3.2	3.0	2.8	2.5	128
136		-	-	-	-	-	-	-	-	-	-	2.6	2.4	-	-	-	136
1)		5.5	5.5	5.3	5.1	4.9	4.4	4.4	4.2	4.0	4.0	2.2	2.2	-	-	-	1)

		165.7 ft					181.1 ft					196.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
36		41.7	38.3	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40		36.8	36.0	32.1	25.7	20.7	34.0	32.9	26.6	20.1	-	-	-	-	-	-	40
48		29.3	28.4	27.1	23.9	20.7	26.7	25.8	24.4	20.1	15.7	24.5	23.5	20.0	15.2	11.2	48
56		23.4	22.7	21.7	20.7	19.2	21.2	20.5	19.4	18.2	15.5	19.3	18.4	17.1	14.7	11.2	56
64		18.6	18.1	17.3	16.5	15.7	17.1	16.4	15.3	14.4	13.3	15.3	14.4	13.3	12.2	10.6	64
72		14.8	14.4	13.7	13.1	12.4	13.7	13.1	12.2	11.3	10.4	12.0	11.3	10.2	9.3	8.4	72
80		12.2	11.7	11.1	10.7	10.0	11.1	10.5	9.6	8.9	8.0	9.4	8.7	7.8	7.0	6.1	80
88		9.9	9.5	9.1	8.5	8.0	8.8	8.3	7.5	6.9	6.1	7.2	6.6	5.8	5.1	4.3	88
96		8.1	7.6	7.2	6.7	6.2	6.7	6.4	5.8	5.1	4.5	5.3	4.9	4.2	3.5	2.7	96
104		6.2	5.9	5.5	5.0	4.6	5.0	4.8	4.4	3.7	3.0	3.7	3.3	2.8	-	-	104
112		4.8	4.6	4.1	3.7	3.5	3.7	3.5	-	-	-	-	-	-	-	-	112
120		3.7	3.3	3.1	2.7	-	-	-	-	-	-	-	-	-	-	-	120
128		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	128
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom

HA







11,000 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360° ASME B30.5					
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
10		292.9*	292.6*	218.9	163.5	127.9	251.8	248.5	199.6	152.7	121.1	217.7	212.4	181.1	-	-	10
12		223.5	220.4	205.1	159.5	125.2	196.8	193.9	185.0	149.3	118.6	172.3	169.2	164.8	138.6	-	12
14		174.7	172.2	168.5	153.6	122.6	158.0	155.5	151.9	141.7	116.3	141.1	138.6	135.0	128.9	110.0	14
16		141.8	139.8	136.8	133.6	120.2	130.8	128.7	125.8	122.7	114.2	122.8	120.7	117.9	113.8	107.8	16
18		116.3	114.6	112.2	109.7	104.4	112.4	110.5	108.1	107.2	102.0	106.7	104.9	102.5	99.9	96.9	18
20		93.1	91.9	89.9	88.0	86.0	98.2	96.7	94.6	92.4	90.3	92.5	91.0	88.8	86.4	84.3	20
24		66.4	65.5	64.1	62.9	61.5	71.3	70.2	68.8	67.4	65.7	72.5	71.2	69.4	67.6	66.0	24
28		50.3	49.6	48.6	47.6	46.6	54.5	53.8	52.6	51.6	50.4	56.5	56.1	54.9	53.7	52.4	28
32		39.6	39.1	38.4	37.7	37.0	43.4	42.7	41.8	40.9	40.0	45.9	45.2	44.3	43.1	42.2	32
36		-	-	-	-	-	36.1	35.5	34.8	34.0	33.2	38.4	37.8	37.1	36.1	35.3	36
40		-	-	-	-	-	29.7	29.3	28.7	28.0	27.4	31.9	31.5	30.8	30.0	29.3	40
48		-	-	-	-	-	-	-	-	-	-	23.8	23.3	22.9	22.3	21.7	48
56		-	-	-	-	-	-	-	-	-	-	18.3	18.0	17.5	17.1	16.8	56
1)		35.5	35.1	34.6	34.2	33.5	21.8	21.6	21.2	20.9	20.5	15.0	14.8	14.6	14.3	14.1	1)




 		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
12		153.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		131.3	128.9	125.1	-	-	-	-	-	-	-	-	-	-	-	-	14
16		111.8	109.8	106.8	103.3	-	100.9	95.2	-	-	-	-	-	-	-	-	16
18		98.0	96.1	93.4	90.9	85.5	89.8	88.3	84.0	-	-	85.1	-	-	-	-	18
20		85.6	83.9	81.5	79.3	76.9	82.2	80.5	77.3	71.1	68.5	75.4	73.6	71.2	-	-	20
24		71.0	70.2	68.4	65.6	61.2	66.6	65.4	63.5	61.5	58.3	62.5	62.2	57.8	55.7	53.3	24
28		57.7	56.7	55.2	53.9	52.4	55.3	54.2	52.5	50.9	49.2	53.2	52.1	49.3	46.2	44.5	28
32		46.5	45.7	44.6	43.6	42.4	46.3	45.8	44.6	42.6	41.0	45.2	44.2	42.9	41.0	38.9	32
36		39.0	38.3	37.3	36.4	35.5	39.3	38.6	37.5	36.5	35.1	38.5	37.7	36.6	35.3	34.2	36
40		32.4	31.9	31.1	30.2	29.5	33.0	32.4	31.5	30.6	29.6	32.6	31.9	30.8	30.0	28.9	40
48		24.2	23.8	23.1	22.5	21.9	24.6	24.2	23.5	22.7	22.1	24.3	23.8	22.9	22.3	21.5	48
56		18.6	18.3	17.7	17.3	16.9	19.0	18.7	18.1	17.5	17.0	18.7	18.3	17.6	17.1	16.4	56
64		14.6	14.4	13.9	13.7	13.2	15.0	14.6	14.2	13.7	13.3	14.6	14.4	13.7	13.3	12.8	64
72		11.7	11.5	11.1	10.9	10.6	12.0	11.7	11.3	11.1	10.6	11.7	11.3	10.9	10.4	10.0	72
80		-	-	-	-	-	9.6	9.6	9.2	9.0	8.6	9.4	9.2	8.7	8.3	8.1	80
88		-	-	-	-	-	7.8	7.8	7.5	7.3	7.0	7.5	7.3	7.0	6.5	6.3	88
96		-	-	-	-	-	-	-	-	-	-	5.9	5.7	5.5	5.0	4.8	96
104		-	-	-	-	-	-	-	-	-	-	4.6	4.4	4.1	3.9	3.7	104
1)		10.6	10.4	10.1	10.1	9.9	7.5	7.5	7.3	7.1	6.8	4.6	4.6	4.4	4.2	4.0	1)

* Heavy lift sheave required

1) Capacities with horizontal boom




HA



11,000 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5
 		126.0 ft					134.8 ft					148.6 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
24		59.8	57.3	53.6	-	-	54.8	-	-	-	-	-	-	-	-	-	24
28		50.1	49.0	46.3	43.4	40.0	48.5	46.3	41.0	-	-	45.9	-	-	-	-	28
32		42.6	41.7	40.2	38.3	36.0	42.1	41.0	37.9	35.6	-	39.2	38.0	35.8	-	-	32
36		37.2	36.3	34.8	33.6	31.8	36.7	35.7	34.0	31.1	29.1	34.2	33.1	31.6	29.2	25.1	36
40		32.1	31.3	30.0	28.9	27.6	31.8	30.9	29.8	28.6	25.3	29.6	28.6	27.3	26.0	24.2	40
48		23.8	23.3	22.4	21.6	20.8	24.1	23.5	22.7	21.8	21.0	22.9	22.2	21.2	20.1	18.9	48
56		18.3	17.8	17.1	16.4	15.8	18.5	18.1	17.4	16.6	16.0	17.8	17.3	16.4	15.5	14.7	56
64		14.2	13.9	13.3	12.8	12.1	14.6	14.2	13.5	13.0	12.3	13.8	13.5	12.8	12.1	11.4	64
72		11.3	10.9	10.4	10.0	9.5	11.5	11.1	10.6	10.2	9.8	10.9	10.4	10.0	9.3	8.7	72
80		9.0	8.7	8.3	7.9	7.4	9.2	9.0	8.5	8.1	7.6	8.5	8.3	7.6	7.2	6.5	80
88		7.1	6.7	6.3	6.1	5.6	7.3	7.1	6.6	6.3	5.8	6.5	6.2	5.8	5.3	4.7	88
96		5.3	5.1	4.8	4.6	4.2	5.6	5.3	5.0	4.7	4.4	4.9	4.6	4.2	3.7	3.3	96
104		3.9	3.9	3.5	3.3	3.0	4.3	4.1	3.7	3.4	3.2	3.5	3.3	2.8	2.6	-	104
112		-	-	-	-	-	3.0	3.0	-	-	-	-	-	-	-	-	112
1)		2.4	2.4	2.2	-	-	-	-	-	-	-	-	-	-	-	-	1)

 		165.7 ft					181.1 ft					196.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
36		31.3	30.3	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40		27.0	26.2	24.6	23.3	20.4	24.4	23.3	21.8	19.7	-	-	-	-	-	-	40
48		20.9	20.1	18.9	17.8	16.5	18.6	17.7	16.3	15.0	13.7	16.5	15.4	14.1	12.6	10.5	48
56		16.3	15.5	14.5	13.6	12.6	14.1	13.3	12.2	11.2	10.0	12.2	11.5	10.2	8.9	7.7	56
64		12.6	12.1	11.2	10.3	9.4	10.7	10.1	9.0	8.1	7.2	9.0	8.3	7.2	6.1	5.1	64
72		9.8	9.3	8.4	7.8	6.9	8.0	7.3	6.4	5.6	4.9	6.4	5.8	4.7	3.8	2.9	72
80		7.6	7.0	6.3	5.7	5.0	5.9	5.2	4.6	3.7	-	4.3	3.7	-	-	-	80
88		5.6	5.2	4.6	4.1	3.4	4.1	3.4	2.9	-	-	-	-	-	-	-	88
96		4.0	3.7	3.1	2.6	-	-	-	-	-	-	-	-	-	-	-	96
104		2.8	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	104
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom







HA






0 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360° ASME B30.5				
		42.3 ft					56.1 ft					70.2 ft				
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°
ft	1,000 lb															ft
10	266.1	261.8	217.5	163.5	127.9	224.7	220.4	197.1	152.7	121.1	190.4	186.9	178.9	-	-	10
12	194.6	191.6	187.0	159.1	125.2	171.7	168.8	164.5	146.8	118.6	150.1	147.1	142.9	134.0	-	12
14	151.3	148.9	145.5	141.8	122.6	137.3	135.0	131.6	128.0	115.9	127.1	124.8	121.5	116.7	108.7	14
16	122.4	120.3	117.6	114.6	110.6	115.2	113.7	111.6	108.8	104.4	106.9	104.8	102.1	99.3	96.4	16
18	100.4	98.8	96.5	94.1	91.7	99.9	98.1	95.7	93.4	90.9	92.7	90.9	88.5	86.0	83.5	18
20	80.4	79.3	77.4	75.7	73.8	85.1	83.6	81.5	79.5	77.4	80.1	78.6	76.4	74.3	72.1	20
24	57.0	56.2	54.8	53.6	52.3	61.8	60.9	59.5	58.0	56.6	63.6	63.0	61.4	59.8	58.1	24
28	42.7	42.1	41.1	40.3	39.3	47.1	46.3	45.2	44.1	43.0	49.8	49.1	47.8	46.6	45.3	28
32	33.4	32.9	32.2	31.5	30.8	37.1	36.6	35.6	34.8	34.0	39.7	39.0	38.1	37.0	36.0	32
36	-	-	-	-	-	30.6	30.2	29.4	28.7	28.0	33.1	32.4	31.7	30.8	30.0	36
40	-	-	-	-	-	25.0	24.8	24.1	23.5	22.8	27.4	26.7	26.1	25.4	24.8	40
48	-	-	-	-	-	-	-	-	-	-	20.0	19.7	19.1	18.5	18.1	48
56	-	-	-	-	-	-	-	-	-	-	15.2	14.8	14.4	14.0	13.7	56
1)	29.8	29.3	28.9	28.4	28.0	18.1	17.9	17.6	17.2	17.0	12.3	12.1	11.9	11.7	11.5	1)

 		84.0 ft					98.1 ft					111.9 ft				
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°
ft	1,000 lb															ft
12	137.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14	114.3	112.1	108.8	-	-	-	-	-	-	-	-	-	-	-	-	14
16	97.1	95.2	92.3	89.3	-	91.8	89.9	-	-	-	-	-	-	-	-	16
18	84.8	83.5	80.5	78.0	75.4	80.9	79.3	75.1	-	-	73.5	-	-	-	-	18
20	77.0	75.7	73.5	70.1	65.4	71.1	69.6	67.4	65.3	61.3	67.5	66.0	61.0	-	-	20
24	61.6	60.4	58.7	57.0	55.3	58.5	57.6	55.3	52.5	50.6	54.9	53.6	51.3	47.7	45.1	24
28	49.9	49.0	47.5	46.1	44.7	48.6	47.6	46.2	44.1	41.6	45.6	44.4	42.9	41.4	38.7	28
32	40.2	39.5	38.3	37.4	36.2	40.4	39.5	38.3	37.1	36.0	38.6	37.5	36.1	34.8	33.4	32
36	33.5	32.9	32.0	31.1	30.1	34.1	33.3	32.4	31.3	30.2	33.0	32.1	30.9	29.8	28.6	36
40	27.8	27.2	26.5	25.6	24.8	28.2	27.6	26.9	26.1	25.0	27.8	27.2	26.3	25.2	24.3	40
48	20.4	20.0	19.3	18.7	18.3	20.8	20.4	19.8	19.1	18.5	20.6	20.0	19.3	18.5	17.9	48
56	15.4	15.2	14.7	14.2	13.8	15.9	15.5	15.0	14.4	14.0	15.5	15.2	14.5	14.0	13.3	56
64	11.9	11.7	11.4	11.0	10.5	12.3	12.1	11.6	11.2	10.7	11.9	11.7	11.2	10.7	10.1	64
72	9.3	9.1	8.9	8.6	8.2	9.8	9.3	9.1	8.7	8.4	9.3	9.1	8.7	8.2	7.8	72
80	-	-	-	-	-	7.6	7.4	7.0	6.8	6.4	7.2	7.0	6.5	6.1	5.7	80
88	-	-	-	-	-	5.8	5.7	5.5	5.3	4.9	5.4	5.2	4.8	4.5	4.2	88
96	-	-	-	-	-	-	-	-	-	-	3.9	3.7	3.5	3.2	3.0	96
104	-	-	-	-	-	-	-	-	-	-	2.8	2.7	2.5	2.3	-	104
1)	8.4	8.2	8.2	7.9	7.7	5.5	5.3	5.3	5.1	4.9	2.9	2.9	2.6	2.4	2.4	1)

1) Capacities with horizontal boom







HA




0 lb +  33,100 lb		 15.6 ft					 32.2 ft/s					360°					ASME B30.5
		126.0 ft					134.8 ft					148.6 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
24		51.4	50.0	46.9	-	-	50.2	-	-	-	-	-	-	-	-	-	24
28		42.8	41.6	40.0	38.4	35.5	42.0	40.8	38.4	-	-	38.8	-	-	-	-	28
32		36.2	35.1	33.8	32.2	30.8	35.6	34.6	33.3	31.5	27.1	33.1	31.9	30.4	-	-	32
36		31.3	30.4	29.1	27.8	26.4	30.9	30.0	28.8	27.4	24.9	28.5	27.5	26.1	24.8	23.0	36
40		26.8	26.1	24.8	23.8	22.5	26.6	25.7	24.6	23.5	22.3	24.4	23.6	22.3	21.2	19.9	40
48		20.1	19.6	18.7	17.9	16.9	20.4	19.6	18.8	17.8	16.9	18.6	17.9	16.9	15.9	14.8	48
56		15.1	14.6	14.0	13.3	12.7	15.4	15.0	14.3	13.6	12.8	14.2	13.7	12.8	11.9	10.9	56
64		11.5	11.2	10.6	10.1	9.6	11.9	11.5	11.0	10.3	9.8	11.0	10.5	9.6	8.9	8.0	64
72		8.9	8.7	8.0	7.5	7.1	9.1	8.9	8.4	7.8	7.3	8.4	7.8	7.1	6.4	5.8	72
80		6.8	6.4	5.9	5.5	5.0	7.0	6.8	6.3	5.9	5.3	6.3	5.9	5.3	4.6	4.2	80
88		5.0	4.7	4.3	4.0	3.5	5.2	5.0	4.5	4.2	3.7	4.5	4.1	3.6	3.1	-	88
96		3.5	3.3	3.0	2.6	-	3.7	3.5	3.2	2.8	2.5	3.1	2.6	-	-	-	96
104		2.3	-	-	-	-	2.6	2.3	-	-	-	-	-	-	-	-	104
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
		1,000 lb																
ft		1,000 lb															ft	
36		26.0	24.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		22.2	21.2	19.9	18.5	17.0	19.6	18.5	17.0	15.5	-	-	-	-	-	-	40	
48		16.7	15.9	14.8	13.5	12.5	14.5	13.5	12.4	11.2	9.8	12.4	11.5	10.1	8.8	-	48	
56		12.6	11.9	10.9	9.9	8.9	10.6	9.8	8.7	7.6	6.5	8.7	8.0	6.6	5.5	-	56	
64		9.4	8.8	8.0	7.2	6.2	7.6	6.9	6.0	4.9	4.0	5.8	5.2	4.0	3.1	-	64	
72		6.9	6.4	5.6	4.9	4.0	5.1	4.5	3.8	2.9	-	3.6	2.9	-	-	-	72	
80		4.8	4.4	3.7	-	-	-	-	-	-	-	-	-	-	-	-	80	
88		3.2	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	88	
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom




HA

99,200 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
28		82.0	81.1	79.9	78.7	77.3	85.5	84.9	83.5	82.1	80.7	86.9	85.9	84.3	82.9	81.2	28
32		67.2	66.5	65.6	64.7	63.5	70.6	70.0	68.8	67.6	66.5	71.7	70.8	69.5	68.3	66.9	32
36		-	-	-	-	-	60.4	59.7	58.8	57.9	56.9	61.4	60.6	59.5	58.4	57.3	36
40		-	-	-	-	-	51.5	50.8	50.2	49.3	48.5	52.3	51.7	50.8	49.8	48.9	40
48		-	-	-	-	-	-	-	-	-	-	40.4	40.0	39.4	38.8	38.6	48
56		-	-	-	-	-	-	-	-	-	-	33.2	33.0	32.3	31.8	31.2	56
1)		48.1	48.1	48.1	48.1	48.1	35.1	35.1	35.1	35.1	35.1	26.9	26.9	26.9	26.9	26.9	1)

		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
28		86.7	85.5	83.8	82.2	80.5	85.0	83.7	81.7	79.7	73.5	79.7	78.3	76.0	66.8	54.5	28
32		71.5	70.6	69.2	67.6	66.3	70.4	69.5	67.9	66.3	64.7	70.4	69.4	66.9	62.8	54.0	32
36		61.2	60.4	59.2	57.9	56.6	60.1	59.3	58.0	56.6	55.2	61.6	60.6	59.0	55.6	51.1	36
40		52.1	51.5	50.4	49.3	48.8	53.4	52.8	51.7	50.6	49.5	52.6	51.7	50.4	49.3	48.0	40
48		41.6	41.3	40.5	39.8	39.0	41.5	40.9	40.0	39.2	38.3	40.6	40.0	38.9	38.1	37.1	48
56		33.8	33.4	32.8	32.1	31.6	33.3	32.9	32.1	31.4	30.7	32.8	32.6	31.9	31.5	30.6	56
64		27.8	27.5	27.0	26.6	25.9	27.3	26.9	26.4	25.7	25.6	27.8	27.3	26.7	26.2	25.4	64
72		23.5	23.0	22.8	22.4	21.9	23.2	23.2	22.8	22.3	21.7	23.2	22.8	22.4	21.9	21.3	72
80		-	-	-	-	-	20.0	19.8	19.4	19.0	18.8	19.8	19.6	19.2	18.7	18.1	80
88		-	-	-	-	-	17.0	16.9	16.5	16.3	16.3	17.0	16.8	16.4	16.0	15.6	88
96		-	-	-	-	-	-	-	-	-	-	14.8	14.5	14.2	14.0	13.6	96
104		-	-	-	-	-	-	-	-	-	-	13.0	12.8	12.5	12.3	11.9	104
1)		20.9	20.9	20.9	20.9	20.5	16.8	16.8	16.5	16.1	15.9	13.0	12.8	12.8	12.6	12.3	1)

1) Capacities with horizontal boom

HA

99,200 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5	
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
28		77.7	75.3	67.0	52.9	42.8	72.0	67.5	50.7	-	-	-	-	-	-	-	28	
32		68.1	66.7	63.9	52.9	42.8	63.0	60.9	50.7	41.0	-	60.1	54.8	-	-	-	32	
36		59.3	58.2	56.6	50.8	42.8	56.2	54.7	48.8	40.1	33.3	53.4	50.5	40.3	32.0	-	36	
40		51.0	50.2	48.9	47.5	42.3	49.7	48.0	46.3	39.1	33.3	48.4	46.9	40.0	32.0	26.0	40	
48		40.0	39.8	38.8	37.5	35.3	39.7	38.9	37.8	35.9	32.5	38.6	38.2	36.2	31.7	25.9	48	
56		32.9	32.3	31.6	30.7	29.9	31.7	31.5	31.0	30.3	28.4	31.8	31.2	30.7	29.1	25.6	56	
64		26.9	26.4	25.8	25.4	24.9	26.9	26.4	25.7	25.1	24.3	26.4	25.8	25.1	24.2	23.0	64	
72		23.0	22.6	21.9	21.5	20.8	22.4	21.9	21.5	20.8	20.2	22.1	21.9	21.5	20.8	19.3	72	
80		19.4	19.2	18.7	18.1	17.7	18.9	18.5	18.1	17.8	17.0	19.2	18.7	18.1	17.6	17.0	80	
88		16.7	16.4	15.9	15.5	15.1	16.2	16.0	15.9	15.7	15.0	16.4	15.9	15.5	14.9	14.5	88	
96		14.3	14.1	13.8	13.4	13.1	14.4	14.2	14.0	13.6	13.1	14.1	13.7	13.2	12.8	12.5	96	
104		12.5	12.3	11.9	11.7	11.4	12.8	12.5	12.1	11.9	11.4	12.1	11.9	11.4	11.0	10.6	104	
112		8.7	8.5	8.3	8.1	7.7	11.2	10.9	10.5	10.3	10.1	10.5	10.3	9.8	9.6	9.2	112	
120		-	-	-	-	-	9.7	9.6	9.4	9.0	8.8	9.2	8.9	8.6	8.3	7.9	120	
128		-	-	-	-	-	7.8	7.7	7.4	7.2	6.9	7.8	7.7	7.4	7.0	6.8	128	
136		-	-	-	-	-	-	-	-	-	-	6.8	6.6	6.4	6.1	5.9	136	
144		-	-	-	-	-	-	-	-	-	-	4.9	4.9	4.7	4.4	4.2	144	
1)		9.9	9.9	9.7	9.7	9.5	8.8	8.8	8.6	8.4	8.2	6.2	6.2	6.0	5.7	5.7	1)	

		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		50.4	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		46.2	43.9	32.6	25.7	20.7	44.0	37.5	26.7	20.1	-	-	-	-	-	-	40	
48		38.3	37.6	32.6	24.9	20.7	37.1	35.6	26.7	20.1	15.7	33.3	27.6	20.5	15.2	11.2	48	
56		31.3	30.6	29.6	24.9	20.1	30.4	29.5	26.3	20.1	15.7	29.5	25.9	20.5	15.2	11.2	56	
64		25.3	24.8	24.1	22.8	19.6	25.4	24.8	23.0	19.9	15.7	24.5	23.3	20.5	15.2	11.2	64	
72		21.5	21.5	20.8	19.2	17.9	21.0	20.4	19.7	18.8	15.7	20.2	19.5	18.6	15.2	11.2	72	
80		18.5	18.1	17.4	16.8	16.1	17.6	17.0	16.3	15.7	15.0	16.7	16.3	15.5	14.6	11.2	80	
88		15.7	15.3	14.8	14.2	13.6	14.8	14.4	13.7	13.1	12.5	14.0	13.5	12.9	12.1	10.8	88	
96		13.4	13.0	12.6	12.0	11.6	12.6	12.1	11.6	10.9	10.5	11.7	11.2	10.7	9.9	9.2	96	
104		11.5	11.2	10.8	10.3	9.9	10.6	10.2	9.7	9.2	8.6	9.7	9.3	8.6	8.1	7.5	104	
112		9.8	9.6	9.2	8.7	8.3	8.9	8.5	8.1	7.6	7.0	7.9	7.6	7.0	6.5	5.9	112	
120		8.4	8.1	7.8	7.4	7.0	7.4	7.0	6.5	6.1	5.6	6.5	6.1	5.6	5.0	4.5	120	
128		7.0	6.8	6.5	6.2	5.7	6.1	5.7	5.3	4.8	4.4	5.1	4.7	4.3	3.7	3.3	128	
136		6.0	5.8	5.3	5.1	4.8	4.9	4.7	4.2	3.8	3.5	4.0	3.5	3.1	2.8	2.4	136	
144		4.9	4.7	4.4	4.2	4.0	3.8	3.6	3.3	2.9	2.7	2.9	2.7	2.2	-	-	144	
152		2.8	2.8	-	-	-	3.0	2.8	-	-	-	-	-	-	-	-	152	
1)		3.5	3.5	3.3	3.3	3.1	-	-	-	-	-	-	-	-	-	-	1)	

1) Capacities with horizontal boom





HA




77,200 lb + 33,100 lb		11.5 ft					32.2 ft/s					360°					ASME B30.5
		42.3 ft					56.1 ft					70.2 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
14		208.3	205.4	197.9	155.9	122.6	191.2	188.6	180.4	146.1	116.3	173.9	171.3	165.7	135.7	110.0	14
16		169.8	167.8	164.9	152.2	120.2	163.6	161.3	157.9	142.8	114.2	150.3	148.0	144.7	132.9	107.8	16
18		141.5	139.7	137.4	133.4	116.0	141.2	139.3	136.5	129.8	112.0	133.0	130.9	127.9	122.4	105.8	18
20		117.2	115.7	113.8	111.8	109.7	120.3	118.8	116.6	114.2	108.3	119.6	118.8	116.3	113.3	102.9	20
24		88.2	87.2	85.8	84.3	82.7	92.6	91.4	89.8	88.1	86.5	93.8	92.6	90.9	89.0	87.1	24
28		69.7	68.8	67.8	66.6	65.4	73.6	72.7	71.5	70.0	68.7	74.6	73.6	72.2	70.8	69.3	28
32		56.8	56.2	55.4	54.4	53.5	60.4	59.7	58.5	57.4	56.4	61.2	60.5	59.4	58.1	56.9	32
36		-	-	-	-	-	51.3	50.8	49.8	48.9	48.0	52.2	51.6	50.7	49.4	48.5	36
40		-	-	-	-	-	43.4	43.0	42.2	41.5	40.7	45.4	44.8	43.9	43.0	42.2	40
48		-	-	-	-	-	-	-	-	-	-	35.2	34.8	34.1	33.5	32.7	48
56		-	-	-	-	-	-	-	-	-	-	28.1	27.8	27.3	26.6	26.2	56
1)		48.1	48.1	48.1	48.1	48.1	33.3	33.1	32.6	32.2	31.7	23.8	23.6	23.4	22.9	22.7	1)

		84.0 ft					98.1 ft					111.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
14		157.9	155.2	143.4	-	-	-	-	-	-	-	-	-	-	-	-	14
16		140.4	138.8	131.3	115.3	-	130.6	-	-	-	-	-	-	-	-	-	16
18		126.9	125.0	120.1	109.7	95.0	116.9	114.8	108.1	-	-	101.2	-	-	-	-	18
20		113.0	111.2	108.6	106.0	94.0	104.5	102.6	100.0	90.4	74.5	95.4	93.5	84.1	-	-	20
24		92.2	90.8	88.8	86.5	84.5	86.3	84.9	82.6	80.4	73.2	82.4	81.4	75.2	66.5	55.5	24
28		74.4	73.4	71.8	70.2	68.6	72.4	71.4	69.5	67.5	65.5	71.7	70.4	67.7	62.9	54.5	28
32		61.0	60.1	58.9	58.4	56.3	62.3	61.6	60.3	58.3	55.9	61.1	60.2	58.6	57.0	53.4	32
36		52.2	51.9	51.3	51.0	49.7	53.5	52.7	51.5	50.3	49.1	52.4	51.7	50.2	49.0	47.3	36
40		46.1	45.4	44.5	43.5	42.6	45.6	44.8	43.9	42.8	41.7	44.5	43.9	42.8	41.9	40.4	40
48		35.6	35.2	34.4	33.7	32.9	35.2	34.5	33.7	33.2	32.4	35.6	35.0	34.1	33.3	32.4	48
56		28.4	28.1	27.4	26.8	26.2	28.6	28.3	27.6	26.9	26.3	28.5	27.9	27.3	26.6	25.7	56
64		23.2	23.0	22.5	22.0	21.4	23.4	23.0	22.5	22.0	21.6	23.2	22.8	22.3	21.6	21.0	64
72		19.3	19.0	18.6	18.4	17.9	19.7	19.3	18.8	18.4	17.9	19.3	19.0	18.4	17.9	17.5	72
80		-	-	-	-	-	16.6	16.4	15.9	15.5	15.3	16.3	15.9	15.5	15.1	14.6	80
88		-	-	-	-	-	14.3	14.0	13.7	13.4	13.0	13.8	13.6	13.2	12.8	12.4	88
96		-	-	-	-	-	-	-	-	-	-	11.8	11.6	11.3	11.1	10.6	96
104		-	-	-	-	-	-	-	-	-	-	10.1	10.1	9.9	9.5	9.2	104
1)		17.9	17.6	17.4	17.2	16.8	13.7	13.4	13.2	13.0	12.8	10.4	10.1	9.9	9.7	9.5	1)

1) Capacities with horizontal boom







HA




77,200 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5
		126.0 ft					134.8 ft					148.6 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
24		77.6	76.0	67.3	-	-	-	-	-	-	-	-	-	-	-	-	24
28		66.2	64.8	62.8	52.9	42.8	62.9	59.7	50.7	-	-	-	-	-	-	-	28
32		57.2	56.2	54.1	51.2	42.8	55.6	53.7	48.6	41.0	-	53.0	49.6	-	-	-	32
36		50.1	49.8	47.3	45.8	41.1	49.1	47.9	44.4	40.1	33.3	47.5	45.4	40.3	32.0	-	36
40		45.2	44.3	43.0	40.8	38.5	43.0	42.5	40.5	38.6	33.1	42.9	41.9	38.8	32.0	26.0	40
48		34.7	34.1	33.2	32.8	31.2	34.7	34.1	33.0	32.0	29.6	34.1	33.4	32.2	30.4	25.9	48
56		28.1	27.6	26.7	26.0	25.3	27.6	26.9	26.3	25.3	24.5	27.6	27.2	26.3	24.7	23.6	56
64		22.8	22.4	21.8	21.2	20.5	22.9	22.6	22.1	21.4	20.2	22.5	21.9	21.2	20.5	19.4	64
72		18.8	18.6	17.9	17.5	16.8	19.0	18.8	18.2	17.7	17.1	18.6	18.2	17.5	16.8	16.2	72
80		15.9	15.5	15.1	14.6	14.2	16.1	15.7	15.3	14.8	14.4	15.5	15.1	14.6	13.9	13.5	80
88		13.4	13.2	12.7	12.4	11.9	13.6	13.4	12.9	12.5	12.2	12.9	12.7	12.3	11.7	11.3	88
96		11.4	11.2	10.9	10.5	10.2	11.6	11.4	11.1	10.6	10.3	10.9	10.7	10.3	10.0	9.5	96
104		9.7	9.6	9.2	9.0	8.8	9.9	9.7	9.5	9.0	8.8	9.2	9.0	8.8	8.4	7.9	104
112		5.9	5.9	5.5	5.2	5.0	8.5	8.3	8.1	7.9	7.4	7.9	7.6	7.2	7.0	6.5	112
120		-	-	-	-	-	7.2	7.2	6.9	6.6	6.4	6.5	6.4	5.9	5.7	5.3	120
128		-	-	-	-	-	5.3	5.2	5.0	4.7	4.5	5.3	5.3	5.0	4.6	4.4	128
136		-	-	-	-	-	-	-	-	-	-	4.4	4.2	4.1	3.9	3.6	136
144		-	-	-	-	-	-	-	-	-	-	2.7	2.7	2.5	2.2	-	144
1)		7.7	7.5	7.3	7.3	7.1	6.4	6.4	6.2	6.0	5.7	4.0	4.0	3.7	3.5	3.5	1)

		165.7 ft					181.1 ft					196.9 ft					
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	
ft		1,000 lb															ft
36		45.2	41.3	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40		39.9	38.6	32.5	25.7	20.7	38.8	36.4	26.7	20.1	-	-	-	-	-	-	40
48		32.9	32.4	29.5	24.9	20.7	31.3	30.1	25.9	20.1	15.7	28.9	26.9	20.5	15.2	11.2	48
56		27.1	26.3	25.4	22.8	20.1	25.5	24.6	23.1	20.1	15.7	23.5	22.5	19.9	15.2	11.2	56
64		21.9	21.2	20.5	19.5	18.5	20.8	20.2	19.1	17.9	15.7	19.1	18.2	17.1	15.2	11.2	64
72		17.9	17.3	16.6	16.0	15.3	16.8	16.4	15.5	14.6	13.7	15.5	14.8	13.7	12.6	11.2	72
80		14.8	14.4	13.7	13.3	12.6	13.9	13.5	12.8	12.0	11.1	12.6	12.0	11.1	10.2	9.1	80
88		12.5	12.1	11.5	11.0	10.4	11.5	11.2	10.5	9.7	9.0	10.3	9.6	8.8	8.0	7.1	88
96		10.5	10.1	9.6	9.1	8.6	9.4	9.0	8.5	7.8	7.1	8.3	7.6	7.0	6.2	5.3	96
104		8.6	8.4	7.9	7.5	7.0	7.7	7.3	6.6	6.2	5.7	6.6	5.9	5.3	4.6	3.9	104
112		7.2	6.8	6.3	5.9	5.5	6.1	5.7	5.2	4.8	4.3	5.0	4.6	3.9	3.2	-	112
120		5.7	5.5	5.0	4.8	4.4	4.8	4.4	3.9	3.5	3.1	3.7	3.3	-	-	-	120
128		4.6	4.4	4.0	3.7	3.4	3.5	3.3	2.9	-	-	2.6	-	-	-	-	128
136		3.5	3.3	3.0	2.8	2.6	2.4	-	-	-	-	-	-	-	-	-	136
144		2.7	2.5	2.2	-	-	-	-	-	-	-	-	-	-	-	-	144
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom







HA




55,100 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5
 		42.3 ft					56.1 ft					70.2 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
10		268.6	265.3	218.9	163.5	127.9	234.5	230.0	199.0	152.7	121.1	208.4	205.1	181.0	-	-	10
12		212.5	209.4	203.9	159.5	125.2	191.9	189.1	184.7	149.3	118.6	172.0	169.1	165.1	138.6	-	12
14		173.9	171.5	167.9	154.8	122.6	160.1	157.7	154.1	144.0	116.3	145.4	143.1	139.5	132.0	110.0	14
16		141.8	139.9	137.1	134.3	120.2	136.4	134.4	131.4	128.4	114.2	128.2	126.9	124.2	118.8	107.8	16
18		117.9	116.3	114.0	111.8	106.4	117.7	115.9	113.5	110.9	104.4	114.1	112.4	109.8	107.1	100.6	18
20		97.3	96.0	94.1	92.3	90.4	102.1	100.8	98.9	96.7	94.8	100.5	98.9	96.6	94.2	91.8	20
24		72.7	71.9	70.4	69.0	67.6	77.1	76.0	74.6	73.1	71.4	78.3	77.1	75.4	73.8	72.1	24
28		57.0	56.3	55.2	54.2	53.0	60.9	60.1	58.9	57.7	56.4	62.0	61.0	59.7	58.4	57.0	28
32		46.0	45.5	44.8	44.0	43.0	49.6	49.0	48.0	46.9	46.0	51.5	50.9	49.8	48.9	47.8	32
36		-	-	-	-	-	42.0	41.5	40.6	39.7	38.9	43.9	43.4	42.6	41.7	40.8	36
40		-	-	-	-	-	35.4	35.0	34.1	33.5	32.8	37.4	37.0	36.1	35.2	34.6	40
48		-	-	-	-	-	-	-	-	-	-	28.6	28.2	27.6	27.0	26.4	48
56		-	-	-	-	-	-	-	-	-	-	22.5	22.2	21.7	21.2	20.8	56
1)		41.9	41.4	40.8	40.3	39.7	26.7	26.5	26.0	25.8	25.4	19.0	18.7	18.5	18.1	17.9	1)

 		84.0 ft					98.1 ft					111.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
12		155.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		136.8	134.4	128.5	-	-	-	-	-	-	-	-	-	-	-	-	14
16		119.1	117.0	114.0	108.0	-	108.7	95.2	-	-	-	-	-	-	-	-	16
18		105.9	104.0	101.4	98.0	89.4	97.0	95.2	92.1	-	-	92.6	-	-	-	-	18
20		94.0	92.3	89.9	87.5	84.9	86.5	86.5	82.3	79.5	73.7	83.7	82.2	75.7	-	-	20
24		76.4	75.2	73.1	71.3	69.3	74.9	73.5	71.5	65.9	63.2	69.5	68.2	66.1	62.9	55.5	24
28		62.9	62.3	61.4	59.9	56.8	62.6	61.5	59.9	58.4	55.8	58.9	58.2	55.9	54.0	51.7	28
32		52.3	51.6	50.5	49.1	48.0	51.9	51.0	49.8	48.5	47.1	51.6	50.7	48.4	46.2	44.6	32
36		44.7	44.0	43.0	41.9	40.9	44.1	43.4	42.3	41.2	40.0	44.7	43.8	42.4	40.2	38.3	36
40		37.8	37.4	36.5	35.5	34.6	38.3	37.6	36.5	35.7	34.8	38.0	37.4	36.3	35.0	34.1	40
48		29.1	28.5	27.8	27.2	26.4	29.5	28.9	28.2	27.4	26.6	29.1	28.5	27.7	26.9	26.1	48
56		22.9	22.5	21.9	21.5	20.8	23.3	22.9	22.2	21.7	21.0	22.9	22.5	21.8	21.0	20.5	56
64		18.5	18.2	17.7	17.3	16.8	18.9	18.5	18.0	17.5	16.9	18.5	18.0	17.5	16.9	16.4	64
72		15.1	14.8	14.6	14.2	13.7	15.5	15.1	14.6	14.4	13.9	15.1	14.8	14.4	13.7	13.3	72
80		-	-	-	-	-	12.9	12.7	12.3	12.0	11.6	12.4	12.2	11.8	11.4	10.9	80
88		-	-	-	-	-	10.8	10.6	10.4	10.0	9.8	10.4	10.2	9.8	9.6	9.2	88
96		-	-	-	-	-	-	-	-	-	-	8.8	8.6	8.3	8.0	7.7	96
104		-	-	-	-	-	-	-	-	-	-	7.4	7.2	7.0	6.6	6.3	104
1)		13.9	13.7	13.4	13.2	13.0	10.4	10.1	10.1	9.9	9.7	7.5	7.3	7.1	6.8	6.6	1)

1) Capacities with horizontal boom





HA




55,100 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5
 		126.0 ft					134.8 ft					148.6 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
1,000 lb																	
24	65.7	63.9	59.8	-	-	54.8	-	-	-	-	-	-	-	-	-	-	24
28	57.0	55.8	51.6	48.6	42.8	54.7	52.2	47.2	-	-	50.5	-	-	-	-	-	28
32	49.1	48.6	46.3	43.5	40.3	47.3	46.1	43.6	39.3	-	45.9	43.4	-	-	-	-	32
36	43.3	42.7	40.9	39.0	36.2	41.7	40.6	39.1	35.8	32.1	40.9	38.9	36.5	31.5	-	-	36
40	37.6	36.7	35.7	34.6	32.9	36.6	36.0	34.2	32.9	31.4	36.0	34.9	33.2	30.5	25.8	-	40
48	28.6	28.0	27.1	26.3	25.5	29.1	28.4	27.4	26.6	24.6	28.2	27.6	26.6	25.4	22.8	-	48
56	22.5	22.0	21.2	20.6	19.8	22.9	22.2	21.6	20.8	20.0	22.2	21.6	20.8	19.9	19.2	-	56
64	18.0	17.6	17.1	16.4	15.8	18.5	18.0	17.3	16.6	16.0	17.8	17.1	16.5	15.8	15.1	-	64
72	14.6	14.4	13.7	13.3	12.8	14.8	14.6	14.0	13.5	13.1	14.4	14.0	13.3	12.6	12.2	-	72
80	12.0	11.8	11.3	10.9	10.5	12.4	12.0	11.6	11.1	10.7	11.8	11.3	10.9	10.3	9.8	-	80
88	10.0	9.7	9.4	9.1	8.6	10.3	9.9	9.6	9.2	8.7	9.7	9.3	8.8	8.4	8.0	-	88
96	8.4	8.1	7.8	7.3	7.0	8.6	8.3	8.0	7.5	7.2	7.8	7.5	7.1	6.7	6.2	-	96
104	6.8	6.6	6.3	5.9	5.7	7.0	6.8	6.6	6.1	5.9	6.3	5.9	5.7	5.2	4.8	-	104
112	3.0	2.8	-	-	-	5.7	5.5	5.2	5.0	4.6	5.0	4.8	4.3	3.9	3.7	-	112
120	-	-	-	-	-	4.6	4.4	4.2	4.0	3.8	3.8	3.6	3.3	3.1	2.7	-	120
128	-	-	-	-	-	2.8	2.6	2.4	-	-	2.9	2.6	-	-	-	-	128
1)	4.9	4.9	4.6	4.4	4.2	4.0	3.7	3.5	3.5	3.3	-	-	-	-	-	-	1)

 		165.7 ft					181.1 ft					196.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
1,000 lb																	
36	38.0	36.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40	33.4	32.3	31.0	25.7	20.7	30.8	29.5	26.3	20.1	-	-	-	-	-	-	-	40
48	26.5	25.7	24.4	23.2	20.2	24.2	23.2	21.8	19.4	15.7	22.0	20.9	19.3	15.2	11.2	-	48
56	21.2	20.6	19.5	18.4	17.4	19.3	18.4	17.2	16.1	14.5	17.3	16.3	15.1	13.7	11.2	-	56
64	17.1	16.5	15.7	14.8	13.9	15.3	14.6	13.7	12.6	11.5	13.5	12.8	11.7	10.5	9.4	-	64
72	13.7	13.3	12.6	11.7	11.1	12.2	11.5	10.6	9.8	8.9	10.6	9.8	8.9	7.8	6.9	-	72
80	11.1	10.7	10.1	9.4	8.7	9.8	9.1	8.3	7.4	6.8	8.1	7.6	6.5	5.7	4.8	-	80
88	9.0	8.6	8.1	7.5	6.9	7.7	7.1	6.4	5.6	5.0	6.2	5.5	4.7	3.9	3.2	-	88
96	7.1	6.7	6.2	5.8	5.3	5.8	5.3	4.7	4.0	3.5	4.5	3.9	3.1	-	-	-	96
104	5.5	5.2	4.8	4.4	3.9	4.4	3.9	3.3	2.8	-	3.0	2.4	-	-	-	-	104
112	4.1	3.9	3.5	3.0	-	3.0	-	-	-	-	-	-	-	-	-	-	112
120	3.1	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom







HA




33,100 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5	
		42.3 ft					56.1 ft					70.2 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
10		217.6	214.6	209.6	163.5	127.9	192.6	189.4	184.6	152.7	121.1	169.0	165.9	161.2	-	-	10	
12		171.3	168.6	164.6	154.5	125.2	155.3	152.6	148.8	143.6	118.6	143.1	140.8	137.0	127.8	-	12	
14		139.6	137.3	134.1	130.6	120.6	129.0	126.8	124.4	120.6	112.9	121.1	118.8	115.8	112.5	106.5	14	
16		114.1	112.4	109.9	107.2	104.6	112.0	110.2	107.5	104.8	101.9	104.1	102.2	99.5	96.8	94.1	16	
18		94.8	93.3	91.2	89.1	87.0	96.8	95.2	93.0	90.7	88.4	91.8	90.1	87.7	85.2	82.8	18	
20		77.9	76.5	74.8	73.1	71.4	82.7	81.4	79.6	77.7	75.8	80.6	79.1	76.9	74.8	72.6	20	
24		57.6	56.7	55.4	54.1	52.9	62.0	60.9	59.5	58.0	56.7	63.9	63.3	61.8	60.3	58.7	24	
28		44.6	43.9	42.9	41.9	41.0	48.5	47.8	46.7	45.5	44.4	51.1	50.3	49.0	47.7	46.5	28	
32		35.6	35.1	34.4	33.7	32.9	39.2	38.5	37.6	36.6	35.7	41.6	40.9	39.8	38.8	37.7	32	
36		-	-	-	-	-	32.9	32.3	31.5	30.8	30.0	35.2	34.5	33.6	32.8	31.9	36	
40		-	-	-	-	-	27.4	27.0	26.3	25.7	25.0	29.6	28.9	28.3	27.4	26.8	40	
48		-	-	-	-	-	-	-	-	-	-	22.1	21.7	21.1	20.7	20.1	48	
56		-	-	-	-	-	-	-	-	-	-	17.1	16.8	16.3	16.0	15.5	56	
1)		32.2	31.7	31.3	30.9	30.2	20.3	20.1	19.6	19.4	19.0	14.1	13.9	13.7	13.4	13.2	1)	

		84.0 ft					98.1 ft					111.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
12		129.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
14		110.3	108.2	105.0	-	-	-	-	-	-	-	-	-	-	-	-	14	
16		95.7	93.9	91.0	88.3	-	91.2	89.2	-	-	-	-	-	-	-	-	16	
18		84.8	83.8	80.6	78.2	75.3	81.5	79.7	75.8	-	-	74.7	-	-	-	-	18	
20		77.9	76.4	74.3	70.3	66.6	72.6	71.0	68.8	66.7	61.5	69.1	67.4	62.8	-	-	20	
24		63.3	62.3	60.4	58.8	57.0	59.6	59.1	56.4	54.5	52.7	57.2	55.9	52.2	49.5	47.6	24	
28		51.5	50.7	49.3	47.9	46.6	51.0	50.0	48.5	45.5	44.0	48.3	47.1	45.4	43.2	40.2	28	
32		42.0	41.4	40.2	39.1	37.9	42.3	41.6	40.4	39.1	37.5	41.2	40.3	38.9	37.3	36.0	32	
36		35.5	35.0	34.0	33.0	32.1	36.1	35.4	34.3	33.1	32.1	35.3	34.5	33.4	32.1	31.0	36	
40		29.8	29.4	28.5	27.6	27.0	30.5	29.8	28.9	28.1	27.0	30.0	29.4	28.3	27.4	26.3	40	
48		22.6	22.1	21.5	20.9	20.1	23.0	22.6	21.8	21.1	20.3	22.6	22.1	21.3	20.5	19.8	48	
56		17.5	17.1	16.5	16.1	15.5	17.8	17.5	16.9	16.3	15.8	17.5	17.1	16.4	15.9	15.1	56	
64		13.7	13.4	13.0	12.7	12.3	14.1	13.9	13.4	12.8	12.3	13.7	13.4	12.9	12.3	11.8	64	
72		11.1	10.9	10.4	10.2	9.8	11.3	11.1	10.6	10.2	10.0	11.1	10.6	10.2	9.8	9.3	72	
80		-	-	-	-	-	9.2	9.0	8.6	8.3	7.9	8.8	8.5	8.1	7.9	7.4	80	
88		-	-	-	-	-	7.4	7.3	7.0	6.7	6.4	7.1	6.7	6.5	6.1	5.7	88	
96		-	-	-	-	-	-	-	-	-	-	5.5	5.3	5.0	4.6	4.4	96	
104		-	-	-	-	-	-	-	-	-	-	4.3	4.1	3.9	3.6	3.4	104	
1)		9.9	9.9	9.7	9.5	9.3	7.1	6.8	6.8	6.6	6.4	4.2	4.2	4.0	3.7	3.7	1)	

1) Capacities with horizontal boom





HA




33,100 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5
 		126.0 ft					134.8 ft					148.6 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
24		53.9	52.6	49.6	-	-	52.7	-	-	-	-	-	-	-	-	-	24
28		45.5	44.4	42.7	40.1	37.9	44.8	43.6	39.7	-	-	41.7	-	-	-	-	28
32		39.1	38.0	36.5	35.0	33.3	38.5	37.5	35.9	33.3	27.1	35.9	34.8	33.2	-	-	32
36		34.2	33.2	31.7	30.5	29.1	33.7	32.8	31.4	29.9	26.7	31.4	30.4	29.0	27.5	24.3	36
40		29.6	28.7	27.4	26.4	25.1	29.4	28.6	27.3	26.0	24.9	27.3	26.4	25.1	23.8	22.5	40
48		22.1	21.5	20.8	20.0	19.2	22.5	21.9	21.1	20.2	19.3	21.2	20.6	19.3	18.2	17.2	48
56		17.1	16.6	15.9	15.2	14.5	17.3	16.9	16.2	15.4	14.8	16.6	16.1	15.1	14.1	13.2	56
64		13.4	13.0	12.3	11.8	11.2	13.7	13.2	12.7	12.1	11.4	13.0	12.6	11.8	11.0	10.2	64
72		10.6	10.2	9.8	9.3	8.9	10.9	10.4	10.0	9.5	9.1	10.2	9.8	9.3	8.4	7.8	72
80		8.5	8.1	7.6	7.2	6.8	8.7	8.3	7.9	7.4	7.0	8.0	7.6	7.2	6.5	5.9	80
88		6.5	6.3	5.8	5.4	5.1	6.9	6.5	6.1	5.6	5.3	6.1	5.8	5.2	4.7	4.3	88
96		5.0	4.8	4.4	4.1	3.7	5.3	5.0	4.6	4.3	3.9	4.5	4.2	3.7	3.3	3.0	96
104		3.7	3.5	3.2	3.0	2.6	3.9	3.7	3.4	3.0	2.8	3.2	2.8	2.6	-	-	104
112		-	-	-	-	-	2.8	-	-	-	-	-	-	-	-	-	112
1)		2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

 		165.7 ft					181.1 ft					196.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
36		28.7	27.8	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40		24.9	24.0	22.5	21.2	19.7	22.5	21.4	19.9	18.3	-	-	-	-	-	-	40
48		19.3	18.4	17.3	16.1	14.8	17.1	16.1	14.8	13.5	12.3	15.1	14.2	12.7	11.4	9.9	48
56		15.1	14.2	13.2	12.3	11.2	13.0	12.1	11.0	9.9	8.8	11.3	10.4	9.2	8.0	6.6	56
64		11.7	11.0	10.1	9.2	8.3	9.9	9.1	8.0	7.2	6.2	8.1	7.4	6.3	5.2	4.2	64
72		8.9	8.4	7.5	6.9	6.0	7.1	6.7	5.8	4.9	4.0	5.6	4.9	4.0	3.1	-	72
80		6.8	6.3	5.7	5.0	4.2	5.2	4.6	3.9	-	-	3.7	-	-	-	-	80
88		5.0	4.6	4.0	3.3	-	3.4	3.0	-	-	-	-	-	-	-	-	88
96		3.5	3.3	2.6	-	-	-	-	-	-	-	-	-	-	-	-	96
104		2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	104
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom




HA

11,000 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360° ASME B30.5						
		42.3 ft					56.1 ft					70.2 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
10		166.8	163.6	159.0	154.5	127.6	148.1	145.1	144.0	136.4	120.2	134.2	131.6	127.5	-	-	10	
12		130.0	127.5	123.8	120.2	116.5	121.6	119.2	115.8	112.3	108.8	110.1	107.7	104.5	100.9	-	12	
14		105.1	103.0	100.1	97.1	94.1	100.6	98.6	95.8	92.8	89.9	92.5	90.5	87.7	84.7	81.7	14	
16		86.4	84.8	82.4	80.1	77.7	85.1	83.3	81.0	78.4	76.0	81.0	79.4	77.1	73.8	69.9	16	
18		71.5	70.2	68.3	66.4	64.5	73.7	72.1	70.1	68.0	65.9	71.3	69.7	67.7	65.5	62.7	18	
20		58.2	57.1	55.6	54.1	52.3	63.2	61.9	60.2	58.4	56.7	62.4	60.9	59.2	57.2	55.3	20	
24		42.4	41.5	40.4	39.3	38.1	46.7	45.8	44.4	43.2	41.9	49.2	48.2	46.6	45.1	43.6	24	
28		32.1	31.5	30.6	29.8	28.9	36.0	35.4	34.3	33.3	32.3	38.7	37.8	36.7	35.6	34.4	28	
32		25.1	24.8	24.1	23.4	22.7	28.6	28.2	27.3	26.4	25.7	31.1	30.4	29.5	28.6	27.6	32	
36		-	-	-	-	-	23.7	23.2	22.5	21.8	21.1	26.0	25.3	24.6	23.8	23.0	36	
40		-	-	-	-	-	19.4	18.9	18.3	17.9	17.2	21.5	20.9	20.3	19.6	19.0	40	
48		-	-	-	-	-	-	-	-	-	-	15.6	15.2	14.8	14.2	13.7	48	
56		-	-	-	-	-	-	-	-	-	-	11.6	11.4	10.9	10.6	10.2	56	
1)		22.5	22.3	21.8	21.4	20.7	13.9	13.7	13.2	13.0	12.6	9.3	9.0	8.8	8.6	8.4	1)	




		84.0 ft					98.1 ft					111.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
12		102.2	97.3	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
14		87.4	85.5	82.4	-	-	-	-	-	-	-	-	-	-	-	-	14	
16		75.6	74.0	71.5	69.0	-	70.9	69.1	-	-	-	-	-	-	-	-	16	
18		66.9	65.4	63.2	60.9	58.7	63.1	61.5	58.3	-	-	55.9	-	-	-	-	18	
20		59.0	57.7	55.7	53.6	51.6	56.0	54.5	52.5	50.0	46.9	51.9	50.6	48.4	-	-	20	
24		47.7	46.4	44.9	43.2	41.6	45.6	44.4	42.7	41.0	39.4	42.5	41.3	39.6	37.9	36.1	24	
28		38.8	37.8	36.5	35.3	34.0	37.8	36.9	35.4	34.1	32.6	35.4	34.3	32.9	31.4	29.8	28	
32		31.6	30.8	29.7	28.8	27.7	31.6	30.9	29.7	28.6	27.2	29.9	29.0	27.7	26.3	25.0	32	
36		26.4	25.8	24.9	24.0	23.1	26.8	26.1	25.1	24.1	23.0	25.7	24.9	23.7	22.5	21.2	36	
40		22.0	21.3	20.7	19.8	19.2	22.4	21.8	20.9	20.1	19.4	21.8	21.1	20.1	19.0	17.9	40	
48		16.0	15.6	15.0	14.4	13.7	16.5	16.0	15.4	14.8	13.9	16.0	15.6	15.0	14.1	13.3	48	
56		11.9	11.6	11.2	10.7	10.2	12.4	12.0	11.6	10.9	10.4	12.0	11.6	11.2	10.5	9.7	56	
64		9.1	8.9	8.4	8.0	7.5	9.4	9.1	8.7	8.2	7.8	9.1	8.7	8.3	7.8	7.1	64	
72		6.7	6.4	6.2	6.0	5.6	7.1	6.9	6.4	6.0	5.6	6.7	6.4	6.0	5.6	4.9	72	
80		-	-	-	-	-	5.3	5.0	4.6	4.4	4.0	4.8	4.6	4.2	3.8	3.3	80	
88		-	-	-	-	-	3.7	3.6	3.4	3.1	2.7	3.3	3.1	2.7	-	-	88	
1)		6.0	5.7	5.5	5.3	5.1	3.5	3.3	3.1	2.9	2.9	-	-	-	-	-	1)	

1) Capacities with horizontal boom

HA







11,000 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5	
		126.0 ft					134.8 ft					148.6 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
24		39.8	38.5	35.7	-	-	39.0	-	-	-	-	-	-	-	-	-	24	
28		33.2	32.1	30.5	29.0	26.2	32.7	31.6	30.0	-	-	30.1	-	-	-	-	28	
32		28.1	27.0	25.6	24.2	22.9	27.7	26.7	25.3	24.0	22.4	25.3	24.4	22.9	-	-	32	
36		24.1	23.2	21.9	20.7	19.5	23.9	23.0	21.8	20.5	19.1	21.8	20.9	19.5	18.1	16.7	36	
40		20.5	19.9	18.6	17.5	16.4	20.5	19.7	18.6	17.3	16.2	18.6	17.7	16.4	15.3	14.0	40	
48		15.4	14.8	13.8	12.9	11.9	15.4	14.8	13.8	12.9	11.9	13.8	13.1	12.0	11.0	10.0	48	
56		11.6	10.9	10.3	9.5	8.6	11.6	11.2	10.3	9.5	8.6	10.3	9.6	8.6	7.9	7.0	56	
64		8.7	8.2	7.5	6.9	6.2	8.7	8.3	7.5	6.9	6.2	7.4	6.9	6.2	5.3	4.6	64	
72		6.2	5.8	5.3	4.7	4.2	6.4	6.0	5.6	4.9	4.2	5.3	4.7	4.0	3.3	2.7	72	
80		4.4	4.0	3.5	3.1	-	4.6	4.4	3.8	3.3	-	3.5	-	-	-	-	80	
88		2.9	-	-	-	-	3.1	2.9	-	-	-	-	-	-	-	-	88	
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)	




		165.7 ft					181.1 ft					196.9 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
36		19.6	18.5	-	-	-	-	-	-	-	-	-	-	-	-	-	36	
40		16.6	15.5	14.2	12.9	11.6	14.2	13.3	11.8	10.3	-	-	-	-	-	-	40	
48		12.0	11.2	10.1	9.1	7.8	10.1	9.1	8.0	6.7	-	8.2	-	-	-	-	48	
56		8.6	8.0	7.0	6.1	5.1	6.8	6.1	5.0	3.8	-	5.1	-	-	-	-	56	
64		6.0	5.3	4.6	3.7	2.9	4.2	3.6	2.6	-	-	2.6	-	-	-	-	64	
72		3.8	3.3	2.7	-	-	2.2	-	-	-	-	-	-	-	-	-	72	
1)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)	




0 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5	
		42.3 ft					56.1 ft					70.2 ft						
		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°		
ft		1,000 lb															ft	
10		141.3	138.2	133.9	129.3	124.8	129.0	126.4	122.3	118.3	114.2	114.6	112.0	108.1	-	-	10	
12		109.5	107.0	103.6	100.0	96.5	103.2	100.9	97.7	94.4	91.0	95.6	93.6	90.5	84.8	-	12	
14		88.0	85.9	83.1	80.2	77.4	85.1	83.1	80.4	77.6	74.9	80.3	78.4	75.8	73.2	68.7	14	
16		72.5	70.8	68.4	66.0	63.6	71.5	69.9	67.6	65.3	62.9	68.5	66.9	64.7	62.4	60.1	16	
18		60.0	58.7	56.7	54.8	52.8	61.8	60.5	58.4	56.4	54.2	59.9	58.6	56.5	54.5	52.4	18	
20		48.6	47.6	46.1	44.6	43.0	53.0	52.0	50.0	48.3	46.4	52.2	51.1	49.2	47.4	45.5	20	
24		34.8	34.1	33.0	32.0	30.8	39.2	38.4	37.1	35.9	34.6	41.2	40.2	38.8	37.2	35.8	24	
28		26.0	25.5	24.6	23.9	23.0	30.0	29.3	28.3	27.4	26.4	32.5	31.8	30.7	29.6	28.5	28	
32		20.0	19.5	18.9	18.4	17.7	23.5	23.0	22.2	21.4	20.7	25.9	25.2	24.5	23.6	22.6	32	
36		-	-	-	-	-	19.2	18.7	18.2	17.4	16.7	21.4	20.8	20.2	19.4	18.6	36	
40		-	-	-	-	-	15.5	15.0	14.6	13.9	13.3	17.4	17.0	16.4	15.7	15.1	40	
48		-	-	-	-	-	-	-	-	-	-	12.4	12.0	11.6	11.2	10.6	48	
56		-	-	-	-	-	-	-	-	-	-	8.8	8.6	8.3	7.9	7.4	56	
1)		17.6	17.4	17.0	16.5	16.1	10.6	10.4	10.1	9.9	9.5	6.8	6.6	6.4	6.2	6.0	1)	

1) Capacities with horizontal boom

HA

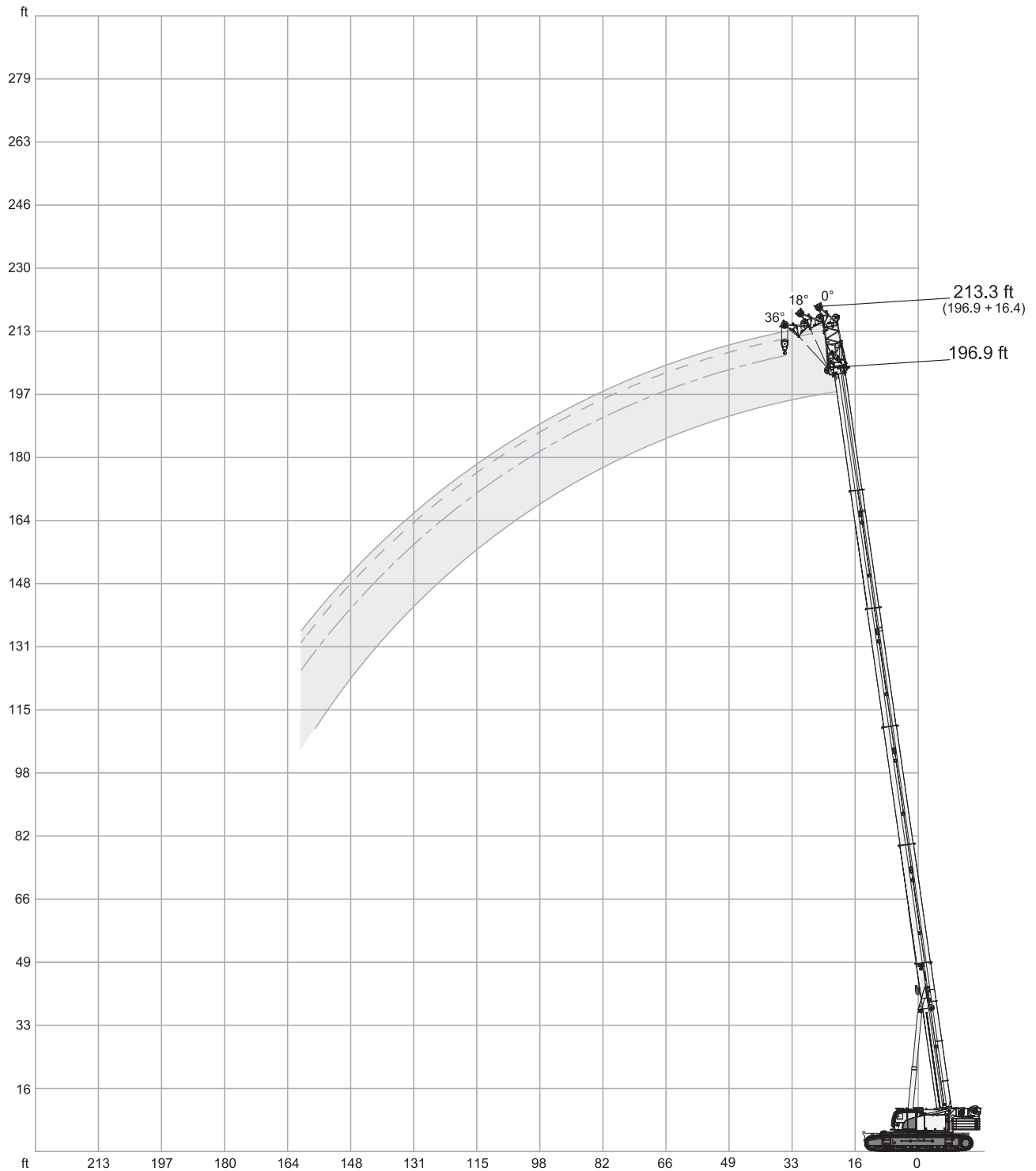
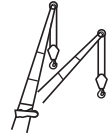
0 lb +  33,100 lb		 11.5 ft					 32.2 ft/s					360°					ASME B30.5
 		84.0 ft					98.1 ft					111.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
12	87.5	83.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14	74.3	72.4	69.7	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16	64.1	62.5	60.0	57.7	-	59.9	58.3	-	-	-	-	-	-	-	-	-	16
18	56.4	54.9	52.8	50.7	48.5	53.1	51.6	49.6	-	-	46.5	-	-	-	-	-	18
20	49.4	48.1	46.4	44.4	42.5	46.9	45.6	43.8	41.9	39.9	43.4	42.1	40.1	-	-	-	20
24	39.6	38.6	37.0	35.4	33.8	38.0	36.8	35.2	33.5	32.1	35.2	34.0	32.4	30.7	28.9	-	24
28	32.3	31.5	30.0	28.8	27.4	31.1	30.3	28.8	27.5	26.2	29.0	28.1	26.6	25.1	23.6	-	28
32	26.3	25.6	24.6	23.6	22.5	26.1	25.2	24.0	22.7	21.6	24.2	23.4	22.0	20.7	19.5	-	32
36	21.8	21.3	20.5	19.6	18.7	22.0	21.2	20.4	19.3	18.1	20.6	19.8	18.6	17.5	16.4	-	36
40	17.9	17.4	16.8	15.9	15.3	18.5	17.9	17.0	16.1	15.1	17.3	16.6	15.5	14.6	13.6	-	40
48	12.8	12.5	11.8	11.4	10.8	13.3	12.8	12.3	11.6	10.8	12.6	12.0	11.2	10.3	9.5	-	48
56	9.3	9.1	8.5	8.1	7.5	9.7	9.3	8.8	8.3	7.6	9.1	8.6	7.9	7.2	6.5	-	56
64	6.7	6.3	6.0	5.6	5.1	7.1	6.7	6.2	5.8	5.3	6.4	6.2	5.5	4.8	4.2	-	64
72	4.5	4.2	4.0	3.6	3.3	4.9	4.7	4.2	3.8	3.3	4.5	4.0	3.6	3.1	2.5	-	72
80	-	-	-	-	-	3.3	3.1	-	-	-	-	-	-	-	-	-	80
1)	3.7	3.5	3.3	3.1	3.1	-	-	-	-	-	-	-	-	-	-	-	1)

 		126.0 ft					134.8 ft					148.6 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
24	32.8	31.5	28.7	-	-	32.1	-	-	-	-	-	-	-	-	-	-	24
28	27.1	26.0	24.5	22.9	20.3	26.5	25.6	24.0	-	-	24.2	-	-	-	-	-	28
32	22.5	21.5	20.2	18.8	17.5	22.2	21.3	19.9	18.6	17.2	20.2	19.1	17.7	-	-	-	32
36	19.0	18.3	17.0	15.8	14.6	18.9	18.1	16.9	15.6	14.4	17.0	16.0	14.8	13.4	12.2	-	36
40	16.0	15.3	14.2	13.1	12.0	16.0	15.3	14.2	12.9	11.8	14.2	13.3	12.2	10.9	9.8	-	40
48	11.6	10.9	10.0	9.1	8.2	11.7	11.0	10.1	9.1	8.2	10.1	9.3	8.4	7.4	6.4	-	48
56	8.2	7.6	7.0	6.1	5.3	8.4	7.9	7.0	6.2	5.5	7.0	6.3	5.6	4.7	3.8	-	56
64	5.7	5.3	4.6	3.9	3.2	5.8	5.3	4.6	4.0	3.3	4.6	4.0	3.3	2.6	-	-	64
72	3.6	3.3	2.7	2.2	-	3.8	3.3	2.9	2.2	-	2.7	2.2	-	-	-	-	72
1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

 		165.7 ft					181.1 ft					196.9 ft					
ft		0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	0,3°	1°	2°	3°	4°	ft
		1,000 lb															
36	14.9	13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40	12.2	11.4	10.1	-	-	10.1	-	-	-	-	-	-	-	-	-	-	40
48	8.4	7.6	6.5	-	-	6.5	-	-	-	-	-	-	-	-	-	-	48
56	5.4	4.9	3.9	-	-	3.7	-	-	-	-	-	-	-	-	-	-	56
64	3.2	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64
1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1)

1) Capacities with horizontal boom

HAV



HAV

99,200 lb +		33,100 lb		16.4 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28	79.8	76.7	67.8	65.9	57.5	56.6	75.2	68.1	-	-	-	-	-	-	-	28
32	74.6	71.9	63.6	62.4	54.9	54.2	67.2	66.1	62.9	-	-	-	-	-	-	32
36	69.8	67.7	59.7	58.8	53.3	52.6	61.1	61.0	58.8	58.6	51.1	-	-	-	-	36
40	64.9	63.4	56.1	55.4	-	-	55.5	55.5	54.6	54.4	49.0	49.0	-	-	-	40
48	-	-	-	-	-	-	46.8	46.6	46.0	45.9	44.1	44.0	-	-	-	48
56	-	-	-	-	-	-	39.8	39.7	39.5	39.4	38.6	38.5	-	-	-	56
64	-	-	-	-	-	-	34.7	34.5	34.3	34.2	33.6	33.6	-	-	-	64
72	-	-	-	-	-	-	31.6	30.9	30.1	30.1	29.4	29.4	-	-	-	72
80	-	-	-	-	-	-	28.9	28.3	26.6	26.6	26.0	26.0	-	-	-	80
88	-	-	-	-	-	-	26.6	26.2	24.8	24.8	24.1	24.0	-	-	-	88
96	-	-	-	-	-	-	23.6	23.5	23.3	23.3	22.8	22.8	-	-	-	96
104	-	-	-	-	-	-	20.4	20.4	20.7	20.7	20.8	20.8	-	-	-	104
112	-	-	-	-	-	-	17.7	17.7	17.9	17.9	-	-	-	-	-	112
120	-	-	-	-	-	-	15.4	15.4	15.6	15.6	-	-	-	-	-	120
128	-	-	-	-	-	-	13.5	13.5	-	-	-	-	-	-	-	128

		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.2	28.7	-	-	-	-	26.6	-	-	-	-	-	-	-	-	48
56	31.2	27.8	30.4	27.5	29.7	-	25.0	22.5	25.1	21.4	-	-	-	-	-	56
64	27.4	25.3	26.9	25.0	26.6	24.6	22.4	21.3	22.2	21.4	22.1	21.4	22.1	21.4	-	64
72	24.1	22.3	23.9	22.1	23.9	22.1	19.7	19.2	19.7	19.4	19.5	19.4	19.5	19.4	-	72
80	21.1	19.5	21.2	19.7	21.2	19.5	17.3	17.1	17.3	17.3	17.5	17.3	17.5	17.3	-	80
88	18.5	17.1	18.7	17.4	18.8	17.4	15.1	14.9	15.2	15.1	15.5	15.4	15.5	15.4	-	88
96	16.3	15.1	16.5	15.3	16.7	15.3	13.1	13.1	13.4	13.3	13.6	13.4	13.6	13.4	-	96
104	14.5	13.4	14.6	13.5	14.6	13.6	11.4	11.4	11.7	11.7	11.9	11.9	11.9	11.9	-	104
112	12.9	11.8	12.9	12.0	12.9	12.0	10.1	10.1	10.3	10.3	10.3	10.3	10.3	10.3	-	112
120	11.4	10.5	11.5	10.7	11.6	10.7	8.8	8.8	9.0	9.0	9.0	9.0	9.0	9.0	-	120
128	10.0	9.3	10.1	9.5	10.2	9.5	7.7	7.7	7.9	7.9	7.9	7.9	7.9	7.9	-	128
136	8.8	8.2	9.1	8.4	9.1	8.4	6.6	6.6	6.9	6.9	6.9	6.9	6.9	6.9	-	136
144	8.0	7.3	8.0	7.3	8.0	7.3	5.8	5.8	6.0	6.0	6.0	6.0	6.0	6.0	-	144
152	6.9	6.5	7.1	6.5	7.1	6.5	5.0	5.0	5.2	5.2	5.2	5.2	5.2	5.2	-	152
160	6.1	5.7	6.1	5.7	-	-	4.2	4.2	4.4	4.4	4.4	4.4	4.4	4.4	-	160
168	5.2	4.9	5.3	5.0	-	-	3.6	3.6	3.7	3.7	-	-	-	-	-	168
176	4.7	4.3	4.3	4.3	-	-	3.0	3.0	3.2	3.2	-	-	-	-	-	176

HAV

99,200 lb +		33,100 lb		36.1 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	-	-
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	-	-
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	-	-
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	-	-
18	62.2	57.2	-	-	-	-	-	-	-	-	-	-	-	-
20	59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	-	-
24	53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	-	-
28	49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	-	-
32	45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	-	-
36	42.1	40.1	34.9	33.3	27.5	26.4	49.3	44.1	-	-	-	-	-	-
40	39.1	37.4	33.0	31.5	26.0	24.9	47.5	43.0	37.4	-	-	-	-	-
48	34.7	33.2	29.1	28.1	23.5	22.7	42.8	40.5	34.3	33.2	-	-	-	-
56	30.8	29.6	26.2	25.4	22.0	21.4	37.4	36.7	31.6	31.4	25.1	24.4	-	-
64	27.2	26.2	24.1	23.5	-	-	32.3	32.2	29.5	29.3	23.8	23.4	-	-
72	-	-	-	-	-	-	28.3	28.3	27.4	27.4	22.5	22.5	-	-
80	-	-	-	-	-	-	25.1	24.9	24.8	24.7	21.4	21.4	-	-
88	-	-	-	-	-	-	22.2	22.2	22.3	22.2	20.4	20.3	-	-
96	-	-	-	-	-	-	19.8	19.8	19.9	19.9	18.7	18.6	-	-
104	-	-	-	-	-	-	17.9	17.9	17.9	17.9	16.8	16.8	-	-
112	-	-	-	-	-	-	16.2	16.2	16.2	16.2	15.1	15.1	-	-
120	-	-	-	-	-	-	15.2	15.2	14.7	14.7	13.6	13.6	-	-
128	-	-	-	-	-	-	14.1	14.1	13.4	13.4	12.6	12.6	-	-
136	-	-	-	-	-	-	12.7	12.7	12.2	12.2	-	-	-	-
144	-	-	-	-	-	-	11.1	11.1	11.3	11.3	-	-	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	25.1	21.4	-	-	-	-	20.6	17.0	-	-	-	-	-	-
64	23.3	21.4	-	-	-	-	19.8	17.0	-	-	-	-	-	-
72	21.0	20.3	19.9	19.9	-	-	18.3	17.0	17.9	-	-	-	-	-
80	18.7	18.6	18.0	18.0	17.4	17.4	16.5	15.7	16.3	15.9	15.7	15.7	-	-
88	16.7	16.6	16.4	16.4	16.1	16.1	14.6	14.4	14.7	14.5	14.3	14.3	-	-
96	14.7	14.7	15.0	14.8	14.7	14.7	12.8	12.8	13.1	13.1	13.1	13.0	-	-
104	13.0	13.0	13.4	13.4	13.4	13.4	11.2	11.2	11.6	11.6	11.9	11.8	-	-
112	11.6	11.6	12.0	12.0	12.3	12.0	9.8	9.8	10.3	10.3	10.5	10.5	-	-
120	10.3	10.3	10.7	10.5	10.8	10.8	8.6	8.6	9.0	9.0	9.2	9.2	-	-
128	9.1	9.0	9.5	9.5	9.6	9.6	7.5	7.5	7.9	7.9	8.2	8.2	-	-
136	8.1	8.0	8.4	8.4	8.6	8.6	6.6	6.6	6.9	6.9	7.1	7.1	-	-
144	7.1	7.1	7.3	7.3	7.5	7.5	5.8	5.6	6.0	6.0	6.2	6.2	-	-
152	6.3	6.3	6.5	6.5	6.7	6.7	5.0	4.8	5.2	5.2	5.4	5.4	-	-
160	5.5	5.5	5.7	5.7	5.8	5.8	4.2	4.2	4.4	4.4	4.6	4.6	-	-
168	4.8	4.8	5.0	5.0	5.1	5.1	3.5	3.5	3.7	3.7	3.9	3.9	-	-
176	4.3	4.3	4.3	4.3	4.3	4.3	2.9	2.9	3.2	3.2	3.2	3.2	-	-
184	3.6	3.6	3.7	3.7	-	-	-	-	-	-	-	-	-	-
192	3.0	3.0	3.2	3.2	-	-	-	-	-	-	-	-	-	-
200	2.6	2.6	2.5	2.5	-	-	-	-	-	-	-	-	-	-

HAV

99,200 lb +		33,100 lb		55.8 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	49.3	-	-	-	-	-	-	-	-	-	-	-	-	-
16	47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-
18	45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-
20	43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-
24	40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-
28	36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-
32	34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-
36	31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	-
40	29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	-
48	25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	-	-	-	-
56	22.9	21.7	18.9	17.9	14.6	14.1	28.9	25.0	22.1	20.7	-	-	-	-
64	20.3	19.2	16.9	16.2	13.4	13.0	27.1	23.8	20.8	19.5	-	-	-	-
72	18.1	17.2	15.5	14.8	12.6	12.1	25.4	22.5	19.6	18.3	14.3	13.7	-	-
80	16.3	15.7	14.2	13.8	-	-	23.5	21.2	18.3	17.3	13.8	13.1	-	-
88	-	-	-	-	-	-	21.4	19.7	17.3	16.5	13.3	12.6	-	-
96	-	-	-	-	-	-	19.4	18.0	16.3	15.7	12.7	12.2	-	-
104	-	-	-	-	-	-	17.2	16.1	15.3	14.9	12.4	11.9	-	-
112	-	-	-	-	-	-	15.6	14.5	14.5	14.3	11.9	11.4	-	-
120	-	-	-	-	-	-	14.0	13.1	13.4	13.4	11.6	11.2	-	-
128	-	-	-	-	-	-	12.8	11.9	12.2	12.2	11.4	11.0	-	-
136	-	-	-	-	-	-	11.7	10.8	11.0	11.0	10.9	10.7	-	-
144	-	-	-	-	-	-	10.6	10.0	10.0	10.0	10.2	10.0	-	-
152	-	-	-	-	-	-	9.6	9.2	9.2	9.2	-	-	-	-
160	-	-	-	-	-	-	9.1	8.6	8.6	8.6	-	-	-	-







		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-
64	19.2	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	-
72	18.8	15.7	-	-	-	-	15.4	12.6	-	-	-	-	-	-
80	17.4	15.7	15.5	15.3	-	-	14.9	12.6	14.2	-	-	-	-	-
88	15.8	15.4	14.5	14.4	12.8	12.0	13.9	12.5	13.1	12.5	-	-	-	-
96	14.3	14.2	13.6	13.5	12.3	11.8	12.4	12.1	12.0	11.9	11.2	11.2	-	-
104	12.8	12.7	12.5	12.5	11.8	11.5	11.0	11.0	11.1	10.9	10.6	10.6	-	-
112	11.4	11.4	11.6	11.4	11.2	11.0	9.6	9.6	10.1	10.1	9.9	9.9	-	-
120	10.3	10.1	10.5	10.5	10.4	10.4	8.6	8.6	9.0	9.0	9.1	9.1	-	-
128	9.0	9.0	9.5	9.5	9.6	9.6	7.5	7.5	8.0	7.9	8.3	8.3	-	-
136	8.0	8.0	8.4	8.4	8.8	8.6	6.6	6.4	7.1	7.0	7.5	7.5	-	-
144	7.1	7.1	7.5	7.5	7.8	7.8	5.6	5.5	6.2	6.2	6.4	6.4	-	-
152	6.3	6.3	6.7	6.7	6.9	6.9	4.8	4.8	5.4	5.4	5.6	5.6	-	-
160	5.5	5.5	5.9	5.8	6.1	6.1	4.2	4.2	4.6	4.6	4.8	4.8	-	-
168	4.8	4.8	5.2	5.2	5.4	5.3	3.5	3.5	3.9	3.9	4.1	4.1	-	-
176	4.3	4.3	4.5	4.5	4.7	4.5	2.9	2.9	3.4	3.2	3.4	3.4	-	-
184	3.6	3.6	3.8	3.8	4.1	4.0	-	-	2.7	2.6	2.8	2.8	-	-
192	3.0	3.0	3.2	3.2	-	-	-	-	-	-	-	-	-	-
200	2.6	2.6	2.8	2.8	-	-	-	-	-	-	-	-	-	-



HAV

99,200 lb +		33,100 lb		75.5 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft						126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
18	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	-	-	56
64	16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	-	-	64
72	14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	17.0	15.7	13.3	12.3	9.6	9.2	-	-	80
88	11.8	11.1	10.1	9.6	8.1	7.8	16.0	14.8	12.5	11.7	9.2	8.7	-	-	88
96	10.8	10.2	9.3	9.0	7.7	7.4	15.1	13.9	11.7	11.0	8.8	8.3	-	-	96
104	10.0	9.4	8.7	8.4	-	-	14.2	13.3	11.1	10.4	8.4	8.0	-	-	104
112	-	-	-	-	-	-	13.4	12.5	10.6	10.1	8.1	7.7	-	-	112
120	-	-	-	-	-	-	12.6	11.8	10.1	9.6	7.9	7.4	-	-	120
128	-	-	-	-	-	-	11.7	11.1	9.7	9.1	7.6	7.3	-	-	128
136	-	-	-	-	-	-	10.6	10.3	9.3	8.9	7.3	7.1	-	-	136
144	-	-	-	-	-	-	9.5	9.3	8.8	8.6	7.3	6.8	-	-	144
152	-	-	-	-	-	-	8.5	8.5	8.5	8.3	7.1	6.8	-	-	152
160	-	-	-	-	-	-	7.9	7.9	8.0	7.9	7.1	6.8	-	-	160
168	-	-	-	-	-	-	7.2	7.2	7.3	7.2	-	-	-	-	168
176	-	-	-	-	-	-	6.5	6.5	6.7	6.7	-	-	-	-	176
184	-	-	-	-	-	-	5.9	5.9	-	-	-	-	-	-	184







		181.1 ft						196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
64	14.4	11.2	-	-	-	-	-	-	-	-	-	-	-	-	64
72	14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	-	-	72
80	13.8	11.2	-	-	-	-	11.4	8.8	-	-	-	-	-	-	80
88	13.5	11.2	11.5	10.6	-	-	11.2	8.8	-	-	-	-	-	-	88
96	12.8	11.2	11.0	10.2	-	-	10.9	8.8	10.3	-	-	-	-	-	96
104	11.8	11.2	10.4	9.8	8.2	-	10.2	8.8	9.6	8.8	-	-	-	-	104
112	10.7	10.5	9.9	9.5	7.9	7.5	9.2	8.8	9.0	8.8	7.7	7.3	-	-	112
120	9.7	9.7	9.4	9.1	7.7	7.2	8.2	8.1	8.3	8.3	7.7	7.1	-	-	120
128	8.8	8.7	8.7	8.6	7.5	7.1	7.3	7.2	7.6	7.6	7.3	6.9	-	-	128
136	7.7	7.7	8.1	8.1	7.3	6.9	6.4	6.2	6.8	6.8	6.9	6.7	-	-	136
144	6.9	6.9	7.3	7.3	7.1	6.8	5.5	5.3	6.0	6.0	6.4	6.2	-	-	144
152	6.1	6.1	6.5	6.5	6.7	6.4	4.6	4.6	5.4	5.4	5.7	5.7	-	-	152
160	5.3	5.3	5.8	5.8	6.0	6.0	3.9	3.9	4.6	4.6	5.0	5.0	-	-	160
168	4.5	4.5	5.2	5.2	5.4	5.4	3.3	3.3	3.9	3.9	4.3	4.3	-	-	168
176	3.8	3.8	4.5	4.5	4.7	4.7	2.7	2.7	3.2	3.2	3.6	3.6	-	-	176
184	3.4	3.3	3.8	3.8	4.1	4.1	-	-	2.6	2.6	3.1	3.0	-	-	184
192	-	-	3.2	3.2	3.4	3.4	-	-	-	-	-	-	-	-	192
200	-	-	2.7	2.7	2.9	2.9	-	-	-	-	-	-	-	-	200



HAV

		 77,200 lb + 33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
10		119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12		113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14		107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16		102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18		97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20		93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24		85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28		79.8	76.7	67.8	65.9	57.5	56.6	75.2	68.1	-	-	-	-	-	-	-	28
32		74.6	71.9	63.6	62.4	54.9	54.2	67.2	66.1	62.9	-	-	-	-	-	-	32
36		69.8	67.7	59.7	58.8	53.3	52.6	61.1	61.0	58.8	58.6	51.1	-	-	-	-	36
40		64.9	63.4	56.1	55.4	-	-	55.5	55.5	54.6	54.4	49.0	49.0	-	-	-	40
48		-	-	-	-	-	-	46.8	46.6	46.0	45.9	44.1	44.0	-	-	-	48
56		-	-	-	-	-	-	39.8	39.7	39.5	39.4	38.6	38.5	-	-	-	56
64		-	-	-	-	-	-	34.7	34.5	34.3	34.2	33.6	33.6	-	-	-	64
72		-	-	-	-	-	-	31.6	30.9	30.1	30.1	29.4	29.4	-	-	-	72
80		-	-	-	-	-	-	27.1	27.1	26.5	26.5	25.8	25.8	-	-	-	80
88		-	-	-	-	-	-	22.8	22.8	23.3	23.3	23.5	23.4	-	-	-	88
96		-	-	-	-	-	-	19.3	19.3	19.7	19.7	20.0	20.0	-	-	-	96
104		-	-	-	-	-	-	16.4	16.4	16.9	16.9	16.9	16.9	-	-	-	104
112		-	-	-	-	-	-	14.7	14.7	14.5	14.5	-	-	-	-	-	112
120		-	-	-	-	-	-	13.6	13.6	13.4	13.4	-	-	-	-	-	120
128		-	-	-	-	-	-	12.1	12.1	-	-	-	-	-	-	-	128







		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
48		35.2	28.7	-	-	-	-	26.6	-	-	-	-	-	-	-	-	48
56		31.2	27.8	30.4	27.5	29.7	-	25.0	22.5	25.1	-	-	-	-	-	-	56
64		27.4	25.3	26.9	25.0	26.6	24.6	22.4	21.3	22.2	21.4	22.1	21.4	-	-	-	64
72		24.1	22.3	23.9	22.1	23.9	22.1	19.7	19.2	19.7	19.4	19.5	19.4	-	-	-	72
80		21.1	19.5	21.2	19.7	21.2	19.5	17.3	17.1	17.3	17.3	17.5	17.3	-	-	-	80
88		18.5	17.1	18.7	17.4	18.8	17.4	15.1	14.9	15.2	15.1	15.5	15.4	-	-	-	88
96		16.3	15.1	16.5	15.3	16.7	15.3	13.1	13.1	13.4	13.3	13.6	13.4	-	-	-	96
104		14.5	13.4	14.6	13.5	14.6	13.6	11.4	11.4	11.7	11.7	11.9	11.9	-	-	-	104
112		12.4	11.8	12.9	12.0	12.9	12.0	10.1	10.1	10.3	10.3	10.3	10.3	-	-	-	112
120		10.4	10.4	10.8	10.6	11.0	10.7	8.8	8.8	9.0	9.0	9.0	9.0	-	-	-	120
128		9.0	8.6	9.0	9.0	9.3	9.3	7.7	7.7	7.9	7.9	7.9	7.9	-	-	-	128
136		8.0	7.5	7.5	7.5	7.6	7.6	6.6	6.6	6.9	6.9	6.9	6.9	-	-	-	136
144		6.7	6.6	6.6	6.6	6.6	6.6	5.6	5.6	5.8	5.8	6.0	6.0	-	-	-	144
152		5.4	5.4	5.6	5.6	5.8	5.8	4.5	4.5	4.7	4.7	4.9	4.9	-	-	-	152
160		4.4	4.4	4.6	4.6	-	-	3.4	3.4	3.6	3.6	3.7	3.7	-	-	-	160
168		3.6	3.6	3.8	3.8	-	-	-	-	-	-	-	-	-	-	-	168
176		2.8	2.8	3.0	3.0	-	-	-	-	-	-	-	-	-	-	-	176



HAV

		77,200 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	-	-	-	32
36		42.1	40.1	34.9	33.3	27.5	26.4	49.3	44.1	-	-	-	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	47.5	43.0	37.4	-	-	-	-	-	-	40
48		34.7	33.2	29.1	28.1	23.5	22.7	42.8	40.5	34.3	33.2	-	-	-	-	-	48
56		30.8	29.6	26.2	25.4	22.0	21.4	37.4	36.7	31.6	31.4	25.1	24.4	-	-	-	56
64		27.2	26.2	24.1	23.5	-	-	32.3	32.2	29.5	29.3	23.8	23.4	-	-	-	64
72		-	-	-	-	-	-	28.3	28.3	27.4	27.4	22.5	22.5	-	-	-	72
80		-	-	-	-	-	-	25.1	24.9	24.8	24.7	21.4	21.4	-	-	-	80
88		-	-	-	-	-	-	22.0	22.0	22.3	22.2	20.4	20.3	-	-	-	88
96		-	-	-	-	-	-	19.0	19.0	19.8	19.8	18.7	18.6	-	-	-	96
104		-	-	-	-	-	-	17.3	17.3	17.2	17.2	16.8	16.8	-	-	-	104
112		-	-	-	-	-	-	15.1	15.1	14.6	14.6	14.9	14.9	-	-	-	112
120		-	-	-	-	-	-	13.0	13.0	13.2	13.2	13.1	13.1	-	-	-	120
128		-	-	-	-	-	-	11.2	11.2	11.8	11.8	10.9	10.9	-	-	-	128
136		-	-	-	-	-	-	9.9	9.9	10.1	10.1	-	-	-	-	-	136
144		-	-	-	-	-	-	9.3	9.3	8.9	8.7	-	-	-	-	-	144










		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
56		25.1	21.4	-	-	-	-	20.6	17.0	-	-	-	-	-	-	-	56
64		23.3	21.4	-	-	-	-	19.8	17.0	-	-	-	-	-	-	-	64
72		21.0	20.3	19.9	19.9	-	-	18.3	17.0	17.9	-	-	-	-	-	-	72
80		18.7	18.6	18.0	18.0	17.4	17.4	16.5	15.7	16.3	15.9	15.7	15.7	-	-	-	80
88		16.7	16.6	16.4	16.4	16.1	16.1	14.6	14.4	14.7	14.5	14.3	14.3	-	-	-	88
96		14.7	14.7	15.0	14.8	14.7	14.7	12.8	12.8	13.1	13.1	13.1	13.0	-	-	-	96
104		13.0	13.0	13.4	13.4	13.4	13.4	11.2	11.2	11.6	11.6	11.9	11.8	-	-	-	104
112		11.6	11.6	12.0	12.0	12.3	12.0	9.8	9.8	10.3	10.3	10.5	10.5	-	-	-	112
120		10.3	10.3	10.7	10.5	10.8	10.8	8.6	8.6	9.0	9.0	9.2	9.2	-	-	-	120
128		9.1	9.0	9.5	9.5	9.6	9.6	7.5	7.5	7.9	7.9	8.2	8.2	-	-	-	128
136		7.8	7.8	8.4	8.4	8.6	8.6	6.6	6.6	6.9	6.9	7.1	7.1	-	-	-	136
144		6.5	6.5	7.1	7.1	7.5	7.5	5.8	5.6	6.0	6.0	6.2	6.2	-	-	-	144
152		5.4	5.4	5.8	5.8	6.2	6.2	4.9	4.7	5.2	5.2	5.4	5.4	-	-	-	152
160		4.8	4.8	5.0	5.0	5.1	5.1	3.9	3.9	4.4	4.4	4.6	4.6	-	-	-	160
168		4.0	4.0	4.2	4.2	4.5	4.5	-	-	3.5	3.5	3.7	3.7	-	-	-	168
176		3.2	3.2	3.4	3.4	3.6	3.6	-	-	2.6	2.6	2.8	2.8	-	-	-	176






HAV

		77,200 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb												ft			
14		49.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	-	-	-	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	28.9	25.0	22.1	20.7	-	-	-	-	-	56
64		20.3	19.2	16.9	16.2	13.4	13.0	27.1	23.8	20.8	19.5	-	-	-	-	-	64
72		18.1	17.2	15.5	14.8	12.6	12.1	25.4	22.5	19.6	18.3	14.3	13.7	-	-	-	72
80		16.3	15.7	14.2	13.8	-	-	23.5	21.2	18.3	17.3	13.8	13.1	-	-	-	80
88		-	-	-	-	-	-	21.4	19.7	17.3	16.5	13.3	12.6	-	-	-	88
96		-	-	-	-	-	-	19.4	18.0	16.3	15.7	12.7	12.2	-	-	-	96
104		-	-	-	-	-	-	17.1	16.1	15.3	14.9	12.4	11.9	-	-	-	104
112		-	-	-	-	-	-	14.9	14.4	14.5	14.3	11.9	11.4	-	-	-	112
120		-	-	-	-	-	-	12.8	12.6	13.4	13.4	11.6	11.2	-	-	-	120
128		-	-	-	-	-	-	11.6	11.0	11.8	11.8	11.4	11.0	-	-	-	128
136		-	-	-	-	-	-	10.4	10.1	10.3	10.3	10.7	10.6	-	-	-	136
144		-	-	-	-	-	-	9.1	9.1	9.1	9.1	9.3	9.3	-	-	-	144
152		-	-	-	-	-	-	8.0	8.0	8.5	8.5	-	-	-	-	-	152
160		-	-	-	-	-	-	6.9	6.9	7.4	7.4	-	-	-	-	-	160

		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb												ft			
56		19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	56
64		19.2	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	-	-	64
72		18.8	15.7	-	-	-	-	15.4	12.6	-	-	-	-	-	-	-	72
80		17.4	15.7	15.5	15.3	-	-	14.9	12.6	14.2	-	-	-	-	-	-	80
88		15.8	15.4	14.5	14.4	12.8	12.0	13.9	12.5	13.1	12.5	-	-	-	-	-	88
96		14.3	14.2	13.6	13.5	12.3	11.8	12.4	12.1	12.0	11.9	11.2	11.2	-	-	-	96
104		12.8	12.7	12.5	12.5	11.8	11.5	11.0	11.0	11.1	10.9	10.6	10.6	-	-	-	104
112		11.4	11.4	11.6	11.4	11.2	11.0	9.6	9.6	10.1	10.1	9.9	9.9	-	-	-	112
120		10.3	10.1	10.5	10.5	10.4	10.4	8.6	8.6	9.0	9.0	9.1	9.1	-	-	-	120
128		9.0	9.0	9.5	9.5	9.6	9.6	7.5	7.5	8.0	7.9	8.3	8.3	-	-	-	128
136		8.0	8.0	8.4	8.4	8.8	8.6	6.6	6.4	7.1	7.0	7.5	7.5	-	-	-	136
144		7.1	7.1	7.5	7.5	7.8	7.8	5.6	5.5	6.2	6.2	6.4	6.4	-	-	-	144
152		6.0	6.0	6.7	6.7	6.9	6.9	4.8	4.8	5.4	5.4	5.6	5.6	-	-	-	152
160		5.0	5.0	5.8	5.7	6.1	6.1	4.2	4.2	4.6	4.6	4.8	4.8	-	-	-	160
168		4.1	4.1	4.8	4.8	5.3	5.3	3.4	3.4	3.9	3.9	4.1	4.1	-	-	-	168
176		3.6	3.6	3.9	3.9	4.3	4.3	2.7	2.7	3.4	3.2	3.4	3.4	-	-	-	176
184		3.0	3.0	3.3	3.3	3.4	3.4	-	-	-	-	2.8	2.8	-	-	-	184

HAV

		77,200 lb +  33,100 lb		 75.5 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		32.9	-	-	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48		20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	48
56		18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	64
72		14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	72
80		13.0	12.2	10.9	10.5	8.7	8.3	17.0	15.7	13.3	12.3	9.6	9.2	80
88		11.8	11.1	10.1	9.6	8.1	7.8	16.0	14.8	12.5	11.7	9.2	8.7	88
96		10.8	10.2	9.3	9.0	7.7	7.4	15.1	13.9	11.7	11.0	8.8	8.3	96
104		10.0	9.4	8.7	8.4	-	-	14.2	13.3	11.1	10.4	8.4	8.0	104
112		-	-	-	-	-	-	13.4	12.5	10.6	10.1	8.1	7.7	112
120		-	-	-	-	-	-	12.5	11.8	10.1	9.6	7.9	7.4	120
128		-	-	-	-	-	-	11.2	11.0	9.7	9.1	7.6	7.3	128
136		-	-	-	-	-	-	9.8	9.8	9.3	8.9	7.3	7.1	136
144		-	-	-	-	-	-	8.4	8.4	8.8	8.6	7.3	6.8	144
152		-	-	-	-	-	-	7.4	7.4	8.2	8.0	7.1	6.8	152
160		-	-	-	-	-	-	6.9	6.9	7.2	7.2	7.1	6.8	160
168		-	-	-	-	-	-	6.2	6.2	6.2	6.2	-	-	168
176		-	-	-	-	-	-	5.4	5.4	5.8	5.8	-	-	176
184		-	-	-	-	-	-	4.6	4.6	-	-	-	-	184










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		14.4	11.2	-	-	-	-	-	-	-	-	-	-	64
72		14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	72
80		13.8	11.2	-	-	-	-	11.4	8.8	-	-	-	-	80
88		13.5	11.2	11.5	10.6	-	-	11.2	8.8	-	-	-	-	88
96		12.8	11.2	11.0	10.2	-	-	10.9	8.8	10.3	-	-	-	96
104		11.8	11.2	10.4	9.8	8.2	-	10.2	8.8	9.6	8.8	-	-	104
112		10.7	10.5	9.9	9.5	7.9	7.5	9.2	8.8	9.0	8.8	7.7	7.3	112
120		9.7	9.7	9.4	9.1	7.7	7.2	8.2	8.1	8.3	8.3	7.7	7.1	120
128		8.8	8.7	8.7	8.6	7.5	7.1	7.3	7.2	7.6	7.6	7.3	6.9	128
136		7.7	7.7	8.1	8.1	7.3	6.9	6.4	6.2	6.8	6.8	6.9	6.7	136
144		6.9	6.9	7.3	7.3	7.1	6.8	5.5	5.3	6.0	6.0	6.4	6.2	144
152		6.0	6.0	6.5	6.5	6.7	6.4	4.6	4.6	5.4	5.4	5.7	5.7	152
160		5.0	5.0	5.8	5.8	6.0	6.0	3.9	3.9	4.6	4.6	5.0	5.0	160
168		4.2	4.2	5.1	5.1	5.4	5.4	3.3	3.3	3.9	3.9	4.3	4.3	168
176		3.2	3.2	4.3	4.3	4.7	4.7	2.7	2.7	3.2	3.2	3.6	3.6	176
184		2.7	2.7	3.4	3.4	3.9	3.9	-	-	2.6	2.6	3.1	3.0	184






HAV

55,100 lb +		33,100 lb		16.4 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28	79.8	76.7	67.8	65.9	57.5	56.6	75.2	68.1	-	-	-	-	-	-	-	28
32	74.6	71.9	63.6	62.4	54.9	54.2	67.2	66.1	62.9	-	-	-	-	-	-	32
36	69.8	67.7	59.7	58.8	53.3	52.6	61.1	61.0	58.8	58.6	51.1	-	-	-	-	36
40	64.9	63.4	56.1	55.4	-	-	55.5	55.5	54.6	54.4	49.0	49.0	-	-	-	40
48	-	-	-	-	-	-	46.8	46.1	46.0	45.9	44.1	44.0	-	-	-	48
56	-	-	-	-	-	-	38.5	38.0	38.9	38.9	38.6	38.5	-	-	-	56
64	-	-	-	-	-	-	32.3	32.1	31.7	31.5	32.1	32.1	-	-	-	64
72	-	-	-	-	-	-	26.1	26.1	27.0	27.0	27.4	27.4	-	-	-	72
80	-	-	-	-	-	-	21.6	21.6	22.3	22.3	22.7	22.7	-	-	-	80
88	-	-	-	-	-	-	18.9	18.9	18.4	18.4	18.9	18.9	-	-	-	88
96	-	-	-	-	-	-	16.7	16.7	16.7	16.7	16.8	16.8	-	-	-	96
104	-	-	-	-	-	-	14.2	14.2	14.4	14.4	14.6	14.6	-	-	-	104
112	-	-	-	-	-	-	12.0	12.0	12.2	12.2	-	-	-	-	-	112
120	-	-	-	-	-	-	10.3	10.3	10.4	10.4	-	-	-	-	-	120
128	-	-	-	-	-	-	9.3	9.3	-	-	-	-	-	-	-	128

		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.2	28.7	-	-	-	-	26.6	-	-	-	-	-	-	-	-	48
56	31.2	27.8	30.4	27.5	29.7	-	25.0	22.5	25.1	21.4	-	-	-	-	-	56
64	27.4	25.3	26.9	25.0	26.6	24.6	22.4	21.3	22.2	21.4	22.1	21.4	22.1	21.4	-	64
72	24.1	22.3	23.9	22.1	23.9	22.1	19.7	19.2	19.7	19.4	19.5	19.4	19.5	19.4	-	72
80	19.9	19.4	20.7	19.7	21.1	19.5	17.3	17.1	17.3	17.3	17.5	17.3	17.5	17.3	-	80
88	16.3	16.3	17.0	17.0	17.6	17.2	15.1	14.9	15.2	15.1	15.5	15.4	15.5	15.4	-	88
96	13.9	13.2	13.9	13.9	14.3	14.3	13.0	12.9	13.4	13.3	13.6	13.4	13.6	13.4	-	96
104	11.5	11.4	11.9	11.7	11.9	11.9	10.7	10.7	11.1	11.1	11.5	11.5	11.5	11.5	-	104
112	9.6	9.6	10.0	10.0	10.3	10.3	8.5	8.5	8.9	8.9	9.4	9.4	9.4	9.4	-	112
120	7.8	7.8	8.2	8.2	8.4	8.4	6.7	6.7	7.1	7.1	7.5	7.5	7.5	7.5	-	120
128	6.3	6.3	6.6	6.6	6.8	6.8	5.2	5.2	5.6	5.6	5.8	5.8	5.8	5.8	-	128
136	4.9	4.9	5.2	5.2	5.4	5.4	3.8	3.8	4.3	4.3	4.5	4.5	4.5	4.5	-	136
144	3.8	3.8	4.0	4.0	4.2	4.2	2.7	2.7	2.9	2.9	3.1	3.1	3.1	3.1	-	144
152	-	-	3.0	3.0	3.2	3.2	-	-	-	-	-	-	-	-	-	152

HAV

		55,100 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	32
36		42.1	40.1	34.9	33.3	27.5	26.4	49.3	44.1	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	47.5	43.0	37.4	-	-	-	40
48		34.7	33.2	29.1	28.1	23.5	22.7	42.8	40.5	34.3	33.2	-	-	48
56		30.8	29.6	26.2	25.4	22.0	21.4	37.4	36.7	31.6	31.4	25.1	24.4	56
64		27.2	26.2	24.1	23.5	-	-	31.6	31.2	29.5	29.3	23.8	23.4	64
72		-	-	-	-	-	-	26.1	26.1	27.4	27.4	22.5	22.5	72
80		-	-	-	-	-	-	21.8	21.8	23.1	23.1	21.4	21.4	80
88		-	-	-	-	-	-	19.0	19.0	19.1	19.1	19.6	19.6	88
96		-	-	-	-	-	-	15.9	15.9	16.0	16.0	16.9	16.9	96
104		-	-	-	-	-	-	13.8	13.8	14.3	14.3	14.2	14.2	104
112		-	-	-	-	-	-	12.5	12.5	12.5	12.0	12.7	12.7	112
120		-	-	-	-	-	-	11.1	11.1	10.9	10.6	10.6	10.6	120
128		-	-	-	-	-	-	9.5	9.5	9.7	9.7	7.7	7.7	128
136		-	-	-	-	-	-	8.2	8.2	8.5	8.5	-	-	136
144		-	-	-	-	-	-	7.1	7.1	7.3	7.3	-	-	144

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		25.1	21.4	-	-	-	-	20.6	17.0	-	-	-	-	56
64		23.3	21.4	-	-	-	-	19.8	17.0	-	-	-	-	64
72		21.0	20.3	19.9	19.9	-	-	18.3	17.0	17.9	-	-	-	72
80		18.7	18.6	18.0	18.0	17.4	17.4	16.5	15.7	16.3	15.9	15.7	15.7	80
88		16.6	16.5	16.4	16.4	16.1	16.1	14.6	14.4	14.7	14.5	14.3	14.3	88
96		14.0	14.0	15.0	14.8	14.7	14.7	12.8	12.8	13.1	13.1	13.1	13.0	96
104		11.5	11.5	12.9	12.8	13.4	13.4	11.0	11.0	11.6	11.6	11.9	11.8	104
112		9.8	9.8	10.5	10.5	11.4	11.4	9.2	9.2	10.3	10.3	10.5	10.5	112
120		8.4	8.4	9.0	9.0	9.5	9.5	7.3	7.3	8.4	8.4	9.1	9.1	120
128		6.9	6.9	7.7	7.7	8.0	8.0	5.8	5.8	6.8	6.8	7.5	7.5	128
136		5.6	5.6	6.3	6.3	6.8	6.8	4.5	4.5	5.4	5.4	6.0	6.0	136
144		4.2	4.2	4.9	4.9	5.6	5.6	3.4	3.4	4.0	4.0	4.7	4.7	144
152		3.4	3.4	3.8	3.8	4.3	4.3	-	-	2.9	2.9	3.4	3.4	152
160		-	-	2.8	2.8	3.2	3.2	-	-	-	-	-	-	160

HAV

55,100 lb +		33,100 lb		55.8 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	49.3	-	-	-	-	-	-	-	-	-	-	-	-	14
16	47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	16
18	45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	18
20	43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	20
24	40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	24
28	36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	28
32	34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	32
36	31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	36
40	29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	40
48	25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	-	-	-	48
56	22.9	21.7	18.9	17.9	14.6	14.1	28.9	25.0	22.1	20.7	-	-	-	56
64	20.3	19.2	16.9	16.2	13.4	13.0	27.1	23.8	20.8	19.5	-	-	-	64
72	18.1	17.2	15.5	14.8	12.6	12.1	25.4	22.5	19.6	18.3	14.3	13.7	-	72
80	16.3	15.7	14.2	13.8	-	-	22.6	21.0	18.3	17.3	13.8	13.1	-	80
88	-	-	-	-	-	-	19.0	18.6	17.3	16.5	13.3	12.6	-	88
96	-	-	-	-	-	-	15.9	15.9	16.3	15.7	12.7	12.2	-	96
104	-	-	-	-	-	-	14.2	13.4	14.7	14.7	12.4	11.9	-	104
112	-	-	-	-	-	-	12.2	12.2	12.7	12.7	11.9	11.4	-	112
120	-	-	-	-	-	-	10.5	10.4	10.6	10.6	11.3	11.0	-	120
128	-	-	-	-	-	-	9.5	8.9	9.7	9.7	9.7	9.7	-	128
136	-	-	-	-	-	-	8.2	8.1	8.3	8.3	8.8	8.8	-	136
144	-	-	-	-	-	-	7.5	7.5	7.5	7.5	7.5	7.5	-	144
152	-	-	-	-	-	-	6.5	6.5	6.9	6.9	-	-	-	152
160	-	-	-	-	-	-	5.7	5.7	6.1	6.1	-	-	-	160










		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	56
64	19.2	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	64
72	18.8	15.7	-	-	-	-	15.4	12.6	-	-	-	-	-	72
80	17.4	15.7	15.5	15.3	-	-	14.9	12.6	14.2	-	-	-	-	80
88	15.8	15.4	14.5	14.4	12.8	12.0	13.9	12.5	13.1	12.5	-	-	-	88
96	14.0	14.0	13.6	13.5	12.3	11.8	12.4	12.1	12.0	11.9	11.2	11.2	-	96
104	11.9	11.9	12.5	12.5	11.8	11.5	11.0	11.0	11.1	10.9	10.6	10.6	-	104
112	10.0	10.0	11.6	11.4	11.2	11.0	9.2	9.2	10.1	10.1	9.9	9.9	-	112
120	8.4	8.3	10.0	10.0	10.4	10.4	7.6	7.6	9.0	9.0	9.1	9.1	-	120
128	7.5	7.4	8.4	8.4	9.4	9.4	6.3	6.3	7.8	7.8	8.3	8.3	-	128
136	6.3	6.3	7.0	6.8	7.9	7.9	4.9	4.9	6.5	6.5	7.5	7.5	-	136
144	5.1	5.1	6.2	6.2	6.5	6.5	3.8	3.8	5.1	5.1	6.2	6.2	-	144
152	4.0	4.0	4.9	4.9	5.6	5.6	3.0	3.0	4.0	4.0	4.9	4.9	-	152
160	3.1	3.1	3.9	3.9	4.5	4.5	-	-	3.1	3.1	3.9	3.9	-	160
168	-	-	-	-	3.5	3.5	-	-	-	-	-	-	-	168
176	-	-	-	-	2.6	2.6	-	-	-	-	-	-	-	176






HAV

55,100 lb +		33,100 lb		75.5 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft						126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
18	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	-	-	56
64	16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	-	-	64
72	14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	17.0	15.7	13.3	12.3	9.6	9.2	-	-	80
88	11.8	11.1	10.1	9.6	8.1	7.8	16.0	14.8	12.5	11.7	9.2	8.7	-	-	88
96	10.8	10.2	9.3	9.0	7.7	7.4	15.1	13.9	11.7	11.0	8.8	8.3	-	-	96
104	10.0	9.4	8.7	8.4	-	-	13.6	13.3	11.1	10.4	8.4	8.0	-	-	104
112	-	-	-	-	-	-	11.6	11.6	10.6	10.1	8.1	7.7	-	-	112
120	-	-	-	-	-	-	9.9	9.8	10.1	9.6	7.9	7.4	-	-	120
128	-	-	-	-	-	-	8.9	8.9	9.5	9.1	7.6	7.3	-	-	128
136	-	-	-	-	-	-	7.8	7.8	8.2	8.2	7.3	7.1	-	-	136
144	-	-	-	-	-	-	6.9	6.9	7.3	7.5	7.3	6.8	-	-	144
152	-	-	-	-	-	-	6.2	6.2	6.5	6.5	6.8	6.6	-	-	152
160	-	-	-	-	-	-	5.6	5.6	5.8	5.8	6.1	6.1	-	-	160
168	-	-	-	-	-	-	5.0	5.0	5.1	5.1	-	-	-	-	168
176	-	-	-	-	-	-	4.3	4.3	4.7	4.7	-	-	-	-	176
184	-	-	-	-	-	-	3.6	3.6	-	-	-	-	-	-	184










		181.1 ft						196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
64	14.4	11.2	-	-	-	-	-	-	-	-	-	-	-	-	64
72	14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	-	-	72
80	13.8	11.2	-	-	-	-	11.4	8.8	-	-	-	-	-	-	80
88	13.5	11.2	11.5	10.6	-	-	11.2	8.8	-	-	-	-	-	-	88
96	12.8	11.2	11.0	10.2	-	-	10.9	8.8	10.3	-	-	-	-	-	96
104	11.3	11.1	10.4	9.8	8.2	-	10.2	8.8	9.6	8.8	-	-	-	-	104
112	9.4	9.4	9.9	9.5	7.9	7.5	8.5	8.5	9.0	8.8	7.7	7.3	-	-	112
120	7.9	7.8	9.4	9.1	7.7	7.2	7.0	7.0	8.3	8.3	7.7	7.1	-	-	120
128	6.9	6.9	8.5	8.4	7.5	7.1	5.6	5.6	7.6	7.6	7.3	6.9	-	-	128
136	6.0	6.0	7.1	7.1	7.3	6.9	4.4	4.4	6.5	6.5	6.9	6.7	-	-	136
144	4.9	4.9	5.8	5.8	7.1	6.8	3.4	3.4	5.1	5.1	6.4	6.2	-	-	144
152	3.9	3.9	5.2	5.2	6.0	6.0	-	-	4.3	4.3	5.6	5.6	-	-	152
160	3.1	3.1	4.4	4.4	5.0	5.0	-	-	3.3	3.3	4.6	4.6	-	-	160
168	-	-	3.5	3.5	4.1	4.1	-	-	-	-	3.7	3.7	-	-	168
176	-	-	2.6	2.6	3.4	3.4	-	-	-	-	2.6	2.6	-	-	176






HAV

33,100 lb +  33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	10	
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	12	
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	14	
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	16	
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	18	
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	20	
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	24	
28	79.8	76.7	67.8	65.9	57.5	56.6	75.2	67.3	-	-	-	28	
32	74.6	71.9	63.6	62.4	54.9	54.2	67.1	60.7	62.9	-	-	32	
36	67.3	65.9	59.7	58.8	53.3	52.6	58.9	53.7	58.2	55.4	51.1	36	
40	59.3	59.3	55.6	55.0	-	-	51.5	47.6	53.0	48.6	49.0	48.7	40
48	-	-	-	-	-	-	41.8	39.1	41.7	38.7	42.6	40.1	48
56	-	-	-	-	-	-	32.7	31.8	32.8	32.7	33.4	32.3	56
64	-	-	-	-	-	-	25.9	25.9	26.5	26.4	27.0	27.0	64
72	-	-	-	-	-	-	22.1	22.1	22.5	22.3	22.3	22.3	72
80	-	-	-	-	-	-	18.0	18.0	18.6	18.6	19.1	19.1	80
88	-	-	-	-	-	-	15.3	15.3	15.5	15.5	15.8	15.8	88
96	-	-	-	-	-	-	12.9	12.9	13.3	13.3	13.5	13.5	96
104	-	-	-	-	-	-	10.6	10.6	11.1	11.1	11.1	11.1	104
112	-	-	-	-	-	-	8.9	8.9	9.2	9.2	-	-	112
120	-	-	-	-	-	-	7.4	7.4	7.6	7.6	-	-	120
128	-	-	-	-	-	-	6.2	6.2	-	-	-	-	128










		 181.1 ft				 196.9 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
48	34.4	28.7	-	-	-	-	26.6	-	-	-	-	48	
56	27.9	26.3	29.1	26.8	29.3	24.2	25.0	22.5	25.1	-	-	56	
64	23.4	21.5	23.5	22.5	24.5	23.4	21.4	20.3	22.2	21.1	22.1	21.4	64
72	19.3	18.6	19.1	18.8	19.9	19.3	17.3	16.8	18.2	17.7	19.0	18.6	72
80	15.5	15.4	16.4	16.2	16.7	16.5	13.9	13.9	14.7	14.6	15.6	15.2	80
88	12.3	12.3	13.1	13.1	13.6	13.6	11.0	11.0	11.9	11.9	12.5	12.5	88
96	9.8	9.8	10.4	10.4	10.9	10.9	8.6	8.6	9.3	9.3	9.9	9.9	96
104	7.7	7.7	8.2	8.2	8.6	8.6	6.6	6.6	7.1	7.1	7.5	7.5	104
112	5.9	5.9	6.3	6.3	6.7	6.7	4.8	4.8	5.4	5.4	5.6	5.6	112
120	4.3	4.3	4.8	4.8	5.0	5.0	3.2	3.2	3.8	3.8	4.1	4.1	120
128	3.1	3.1	3.4	3.4	3.6	3.6	-	-	-	-	-	-	128






HAV

		33,100 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	32
36		42.1	40.1	34.9	33.3	27.5	26.4	49.3	44.1	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	47.3	42.7	37.4	-	-	-	40
48		34.7	33.2	29.1	28.1	23.5	22.7	39.7	36.9	34.3	33.2	-	-	48
56		30.8	29.6	26.2	25.4	22.0	21.4	32.0	30.2	31.6	30.9	25.1	24.4	56
64		27.2	26.2	24.1	23.5	-	-	26.3	25.9	27.3	26.8	23.8	23.4	64
72		-	-	-	-	-	-	21.5	21.5	22.6	22.6	22.5	22.5	72
80		-	-	-	-	-	-	18.2	18.2	18.8	18.8	19.0	19.0	80
88		-	-	-	-	-	-	15.8	15.8	16.2	15.5	16.3	16.3	88
96		-	-	-	-	-	-	13.1	13.1	13.4	13.4	13.9	13.9	96
104		-	-	-	-	-	-	11.4	11.4	11.7	11.7	12.2	12.2	104
112		-	-	-	-	-	-	9.6	9.6	9.9	9.9	10.3	10.3	112
120		-	-	-	-	-	-	8.1	8.1	8.7	8.7	8.8	8.8	120
128		-	-	-	-	-	-	6.7	6.7	7.2	7.2	4.5	4.5	128
136		-	-	-	-	-	-	5.5	5.5	6.0	6.0	-	-	136
144		-	-	-	-	-	-	4.7	4.7	4.9	4.9	-	-	144










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		25.1	21.4	-	-	-	-	20.6	17.0	-	-	-	-	56
64		22.3	20.6	-	-	-	-	19.8	17.0	-	-	-	-	64
72		18.4	17.5	19.9	19.2	-	-	17.3	16.5	17.9	-	-	-	72
80		15.6	15.4	16.6	16.1	17.3	17.3	13.9	13.7	15.8	15.5	15.7	15.7	80
88		12.5	12.5	14.0	13.8	15.0	14.7	11.0	11.0	12.7	12.7	14.0	14.0	88
96		10.1	10.1	11.5	11.5	12.6	12.6	8.6	8.6	10.1	10.1	11.5	11.5	96
104		8.2	8.2	9.5	9.5	10.4	10.4	6.6	6.6	8.0	8.0	9.3	9.3	104
112		6.5	6.5	7.6	7.6	8.5	8.5	5.0	5.0	6.3	6.3	7.4	7.4	112
120		5.0	5.0	6.0	6.0	6.7	6.7	3.7	3.7	4.8	4.8	5.8	5.8	120
128		3.7	3.7	4.5	4.5	5.2	5.2	-	-	3.5	3.5	4.3	4.3	128
136		2.5	2.5	3.3	3.3	3.8	3.8	-	-	-	-	2.9	2.9	136
144		-	-	-	-	2.7	2.7	-	-	-	-	-	-	144






HAV

33,100 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
14		49.3	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	28.9	25.0	22.1	20.7	56
64		20.3	19.2	16.9	16.2	13.4	13.0	26.0	23.6	20.8	19.5	64
72		18.1	17.2	15.5	14.8	12.6	12.1	21.9	20.6	19.6	18.3	72
80		16.3	15.7	14.2	13.8	-	-	18.4	18.1	18.3	17.3	80
88		-	-	-	-	-	-	15.6	15.2	16.3	16.0	88
96		-	-	-	-	-	-	13.3	13.1	14.1	14.1	96
104		-	-	-	-	-	-	11.4	11.4	11.8	11.8	104
112		-	-	-	-	-	-	10.0	10.0	10.5	10.5	112
120		-	-	-	-	-	-	8.4	8.4	9.2	9.2	120
128		-	-	-	-	-	-	7.5	7.5	7.9	7.9	128
136		-	-	-	-	-	-	6.3	6.3	6.8	6.8	136
144		-	-	-	-	-	-	5.3	5.3	5.8	5.8	144
152		-	-	-	-	-	-	4.3	4.3	4.7	4.7	152
160		-	-	-	-	-	-	3.6	3.6	3.9	3.9	160










		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
56		19.6	15.7	-	-	-	-	-	-	-	-	56
64		19.2	15.7	-	-	-	-	15.8	12.6	-	-	64
72		18.1	15.7	-	-	-	-	15.4	12.6	-	-	72
80		14.9	14.5	15.5	15.3	-	-	13.6	12.4	14.2	-	80
88		12.6	12.6	14.0	14.0	12.8	12.0	10.9	10.9	12.9	12.4	88
96		10.4	10.4	11.8	11.8	12.3	11.8	8.6	8.6	11.0	11.0	96
104		8.4	8.4	10.2	10.2	11.4	11.3	6.8	6.8	8.9	8.9	104
112		6.7	6.7	8.5	8.5	9.6	9.6	5.2	5.2	7.0	7.0	112
120		5.3	5.3	6.9	6.9	8.3	8.3	3.9	3.9	5.6	5.6	120
128		4.2	4.2	5.5	5.5	6.8	6.8	2.6	2.6	4.3	4.3	128
136		3.1	3.1	4.4	4.4	5.4	5.4	-	-	3.1	3.1	136
144		-	-	3.4	3.4	4.2	4.2	-	-	-	-	144
152		-	-	-	-	3.2	3.2	-	-	-	-	152






HAV

		33,100 lb +  33,100 lb		 75.5 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		32.9	-	-	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48		20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	48
56		18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	64
72		14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	72
80		13.0	12.2	10.9	10.5	8.7	8.3	16.8	15.7	13.3	12.3	9.6	9.2	80
88		11.8	11.1	10.1	9.6	8.1	7.8	15.1	14.4	12.5	11.7	9.2	8.7	88
96		10.8	10.2	9.3	9.0	7.7	7.4	12.9	12.8	11.7	11.0	8.8	8.3	96
104		10.0	9.4	8.7	8.4	-	-	11.2	11.0	11.1	10.4	8.4	8.0	104
112		-	-	-	-	-	-	9.6	9.6	10.5	9.9	8.1	7.7	112
120		-	-	-	-	-	-	8.3	8.3	9.1	9.1	7.9	7.4	120
128		-	-	-	-	-	-	7.3	7.3	8.0	8.0	7.6	7.3	128
136		-	-	-	-	-	-	6.3	6.3	7.0	7.0	7.1	7.1	136
144		-	-	-	-	-	-	5.3	5.3	6.0	6.0	6.2	6.2	144
152		-	-	-	-	-	-	4.5	4.5	5.2	5.2	5.6	5.6	152
160		-	-	-	-	-	-	3.7	3.7	4.4	4.4	4.7	4.7	160
168		-	-	-	-	-	-	3.0	3.0	3.6	3.6	-	-	168
176		-	-	-	-	-	-	2.3	2.3	2.8	2.8	-	-	176










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		14.4	11.2	-	-	-	-	-	-	-	-	-	-	64
72		14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	72
80		13.5	11.2	-	-	-	-	11.4	8.8	-	-	-	-	80
88		11.5	10.7	11.5	10.6	-	-	10.2	8.8	-	-	-	-	88
96		9.6	9.6	11.0	10.2	-	-	7.9	7.8	10.3	-	-	-	96
104		7.7	7.7	9.7	9.6	8.2	-	6.2	6.2	8.8	8.6	-	-	104
112		6.1	6.1	8.5	8.5	7.9	7.5	4.6	4.6	7.2	7.2	7.7	7.3	112
120		4.8	4.8	7.0	7.0	7.7	7.2	3.3	3.3	5.6	5.6	7.5	7.0	120
128		3.5	3.5	5.6	5.6	7.1	6.9	-	-	4.3	4.3	6.3	6.3	128
136		2.6	2.6	4.4	4.4	6.0	6.0	-	-	3.1	3.1	4.9	4.9	136
144		-	-	3.4	3.4	4.9	4.9	-	-	-	-	3.8	3.8	144
152		-	-	-	-	3.8	3.8	-	-	-	-	-	-	152
160		-	-	-	-	2.8	2.8	-	-	-	-	-	-	160






HAV

11,000 lb +  33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	20
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	24
28	79.8	76.7	67.8	65.9	57.5	56.6	63.0	56.5	-	-	-	28
32	68.5	67.8	63.6	62.4	54.9	54.2	54.9	49.6	55.7	46.7	-	32
36	56.9	56.9	56.1	55.5	52.2	51.9	48.0	43.9	48.0	45.3	48.1	36
40	46.8	46.8	47.8	47.8	-	-	41.3	39.2	43.0	39.4	42.8	40
48	-	-	-	-	-	-	33.0	32.0	33.2	32.1	34.4	48
56	-	-	-	-	-	-	26.5	26.0	26.9	26.8	27.4	56
64	-	-	-	-	-	-	21.1	21.1	21.6	21.6	22.1	64
72	-	-	-	-	-	-	16.6	16.6	17.3	17.3	17.7	72
80	-	-	-	-	-	-	13.2	13.2	13.9	13.9	14.3	80
88	-	-	-	-	-	-	10.6	10.6	11.1	11.1	11.3	88
96	-	-	-	-	-	-	8.5	8.5	8.8	8.8	9.0	96
104	-	-	-	-	-	-	6.6	6.6	7.0	7.0	7.1	104
112	-	-	-	-	-	-	5.2	5.2	5.4	5.4	-	112
120	-	-	-	-	-	-	3.9	3.9	4.2	4.2	-	120
128	-	-	-	-	-	-	3.0	3.0	-	-	-	128










		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
48	26.8	24.8	-	-	-	-	24.2	-	-	-	-	48
56	20.9	19.8	22.1	20.9	23.1	21.9	18.6	17.7	19.8	-	-	56
64	16.3	15.8	17.4	16.9	18.1	17.6	14.3	13.9	15.4	15.0	16.3	64
72	12.6	12.6	13.5	13.5	14.4	14.2	10.9	10.9	11.8	11.8	12.6	72
80	9.7	9.7	10.6	10.6	11.3	11.3	8.0	8.0	8.9	8.9	9.5	80
88	7.2	7.2	8.1	8.1	8.7	8.7	5.7	5.7	6.6	6.6	7.1	88
96	5.3	5.3	5.9	5.9	6.4	6.4	3.8	3.8	4.5	4.5	5.0	96
104	3.7	3.7	4.2	4.2	4.6	4.6	-	-	2.8	2.8	3.3	104






HAV

		11,000 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	50.4	44.7	-	-	-	-	32
36		42.1	40.1	34.9	33.3	27.5	26.4	45.1	40.8	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	40.7	36.9	37.4	-	-	-	40
48		34.6	33.2	29.1	28.1	23.5	22.7	31.7	30.4	33.0	31.7	-	-	48
56		29.1	28.6	26.2	25.4	22.0	21.4	26.3	25.2	27.5	25.9	25.1	24.4	56
64		23.1	23.1	23.3	23.1	-	-	21.5	21.2	22.4	21.5	22.9	22.3	64
72		-	-	-	-	-	-	17.5	17.5	18.0	17.9	18.8	18.8	72
80		-	-	-	-	-	-	14.1	14.1	15.2	15.2	15.5	15.4	80
88		-	-	-	-	-	-	11.5	11.5	12.5	12.5	13.3	13.3	88
96		-	-	-	-	-	-	9.2	9.2	10.1	10.1	10.9	10.9	96
104		-	-	-	-	-	-	7.5	7.5	8.2	8.2	8.8	8.8	104
112		-	-	-	-	-	-	5.9	5.9	6.5	6.5	7.0	7.0	112
120		-	-	-	-	-	-	4.6	4.6	5.2	5.2	5.6	5.6	120
128		-	-	-	-	-	-	3.5	3.5	4.0	4.0	-	-	128
136		-	-	-	-	-	-	2.6	2.6	3.0	3.0	-	-	136










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48		23.5	-	-	-	-	-	-	-	-	-	-	-	48
56		20.8	19.1	-	-	-	-	18.7	16.4	-	-	-	-	56
64		16.5	15.7	18.5	-	-	-	14.5	13.9	-	-	-	-	64
72		12.6	12.6	14.6	14.4	16.6	-	10.9	10.9	13.1	-	-	-	72
80		9.7	9.7	11.5	11.5	13.2	13.0	8.0	8.0	9.9	9.9	11.7	11.5	80
88		7.3	7.3	8.9	8.9	10.4	10.4	5.7	5.7	7.4	7.4	8.9	8.9	88
96		5.4	5.4	6.7	6.7	8.1	8.1	3.8	3.8	5.4	5.4	6.7	6.7	96
104		3.7	3.7	5.0	5.0	6.2	6.2	-	-	3.5	3.5	4.9	4.9	104
112		-	-	3.5	3.5	4.6	4.6	-	-	-	-	3.2	3.2	112
120		-	-	-	-	3.2	3.2	-	-	-	-	-	-	120






HAV

11,000 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		36°		
ft		1,000 lb										ft
14		49.3	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	29.9	25.9	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	25.7	23.2	22.1	20.7	56
64		20.3	19.2	16.9	16.2	13.4	13.0	21.1	20.2	20.8	19.5	64
72		18.1	17.2	15.5	14.8	12.6	12.1	17.1	17.0	18.8	18.1	72
80		16.3	15.7	14.2	13.8	-	-	14.7	14.6	15.7	15.7	80
88		-	-	-	-	-	-	12.4	12.4	13.0	13.0	88
96		-	-	-	-	-	-	10.1	10.1	11.3	11.3	96
104		-	-	-	-	-	-	8.2	8.2	9.5	9.5	104
112		-	-	-	-	-	-	6.8	6.8	7.8	7.8	112
120		-	-	-	-	-	-	5.4	5.4	6.3	6.3	120
128		-	-	-	-	-	-	4.2	4.2	5.1	5.1	128
136		-	-	-	-	-	-	3.3	3.3	4.0	4.0	136
144		-	-	-	-	-	-	2.5	2.5	3.1	3.1	144










		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		36°		
ft		1,000 lb										ft
56		18.9	15.7	-	-	-	-	-	-	-	-	56
64		15.8	14.9	-	-	-	-	13.9	12.6	-	-	64
72		12.4	12.4	-	-	-	-	10.7	10.6	-	-	72
80		9.5	9.5	12.4	12.4	-	-	7.8	7.8	10.8	-	80
88		7.3	7.3	9.8	9.8	11.6	11.6	5.7	5.7	8.2	8.2	88
96		5.4	5.4	7.6	7.6	9.7	9.7	3.8	3.8	6.1	6.1	96
104		3.9	3.9	5.7	5.7	7.7	7.7	-	-	4.4	4.4	104
112		-	-	4.3	4.3	5.9	5.9	-	-	-	-	112
120		-	-	3.1	3.1	4.5	4.5	-	-	-	-	120
128		-	-	-	-	3.3	3.3	-	-	-	-	128






HAV

11,000 lb +  33,100 lb		 75.5 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
18		32.9	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	40
48		20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	48
56		18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	18.7	17.1	15.0	-	64
72		14.6	13.5	11.9	11.5	9.3	9.1	16.4	15.7	14.1	13.0	72
80		13.0	12.2	10.9	10.5	8.7	8.3	13.7	13.6	13.3	12.3	80
88		11.8	11.1	10.1	9.6	8.1	7.8	12.0	11.8	12.3	11.5	88
96		10.8	10.2	9.3	9.0	7.7	7.4	9.8	9.8	11.1	10.8	96
104		10.0	9.4	8.7	8.4	-	-	8.1	8.1	9.6	9.6	104
112		-	-	-	-	-	-	6.8	6.8	8.5	8.5	112
120		-	-	-	-	-	-	5.6	5.6	7.0	7.0	120
128		-	-	-	-	-	-	4.4	4.4	5.7	5.7	128
136		-	-	-	-	-	-	3.5	3.5	4.5	4.5	136
144		-	-	-	-	-	-	2.7	2.7	3.6	3.6	144
152		-	-	-	-	-	-	-	-	-	-	152

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
64		13.7	11.2	-	-	-	-	-	-	-	-	64
72		11.5	10.8	-	-	-	-	9.5	8.8	-	-	72
80		8.9	8.9	-	-	-	-	6.9	6.9	-	-	80
88		6.6	6.6	9.8	9.8	-	-	4.9	4.9	-	-	88
96		4.8	4.8	7.6	7.6	-	-	3.1	3.1	6.3	-	96
104		3.3	3.3	5.9	5.9	8.2	-	-	-	4.4	-	104
112		-	-	4.3	4.3	6.5	6.5	-	-	-	-	112
120		-	-	3.1	3.1	5.2	5.2	-	-	-	-	120
128		-	-	-	-	3.9	3.9	-	-	-	-	128
136		-	-	-	-	2.7	2.7	-	-	-	-	136

HAV

0 lb +  33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	10	
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	12	
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	14	
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	16	
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	18	
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	20	
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	24	
28	75.4	73.9	67.8	65.9	57.5	56.6	56.9	50.9	-	-	-	28	
32	60.3	60.3	61.0	60.6	54.9	54.2	48.7	44.9	50.2	44.7	-	32	
36	49.6	49.6	51.2	51.2	49.1	48.8	42.6	39.8	43.1	40.4	44.3	38.8	36
40	40.5	40.5	41.5	41.5	-	-	37.9	35.5	38.3	36.0	38.5	36.6	40
48	-	-	-	-	-	-	29.9	27.9	30.5	29.0	30.5	29.6	48
56	-	-	-	-	-	-	23.0	22.4	24.1	23.3	24.6	24.2	56
64	-	-	-	-	-	-	17.5	17.5	18.4	18.4	19.1	19.1	64
72	-	-	-	-	-	-	13.5	13.5	14.2	14.2	14.9	14.9	72
80	-	-	-	-	-	-	10.6	10.6	11.1	11.1	11.5	11.5	80
88	-	-	-	-	-	-	8.2	8.2	8.8	8.8	9.0	9.0	88
96	-	-	-	-	-	-	6.3	6.3	6.7	6.7	7.0	7.0	96
104	-	-	-	-	-	-	4.6	4.6	5.0	5.0	5.3	5.3	104
112	-	-	-	-	-	-	3.5	3.5	3.7	3.7	-	-	112










		 181.1 ft				 196.9 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
48	22.1	20.6	-	-	-	-	19.7	-	-	-	-	48	
56	16.7	16.1	17.9	17.2	18.9	18.2	14.6	14.2	15.9	-	-	56	
64	12.7	12.6	13.6	13.5	14.5	14.2	10.7	10.6	11.8	11.7	12.7	12.6	64
72	9.3	9.3	10.2	10.2	11.1	11.1	7.6	7.6	8.7	8.7	9.3	9.3	72
80	6.9	6.9	7.6	7.6	8.2	8.2	5.2	5.2	6.0	6.0	6.7	6.7	80
88	4.7	4.7	5.4	5.4	6.0	6.0	-	-	3.8	3.8	4.4	4.4	88
96	2.9	2.9	3.6	3.6	4.1	4.1	-	-	-	-	-	-	96
104	-	-	-	-	2.4	2.4	-	-	-	-	-	-	104






HAV

0 lb +		33,100 lb		36.1 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18	62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20	59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24	53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28	49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32	45.3	42.9	36.9	35.3	29.0	27.8	46.6	39.7	-	-	-	-	32
36	42.1	40.1	34.9	33.3	27.5	26.4	40.5	36.5	-	-	-	-	36
40	39.0	37.4	33.0	31.5	26.0	24.9	36.1	33.8	36.8	-	-	-	40
48	32.8	32.2	29.1	28.1	23.5	22.7	28.8	27.4	29.7	27.5	-	-	48
56	25.1	25.1	25.5	25.0	22.0	21.4	23.7	22.2	24.3	22.8	24.3	23.2	56
64	19.7	19.7	20.5	20.5	-	-	18.6	18.2	19.4	19.4	20.4	19.8	64
72	-	-	-	-	-	-	14.6	14.6	16.0	16.0	17.0	16.8	72
80	-	-	-	-	-	-	11.5	11.5	12.8	12.8	13.9	13.9	80
88	-	-	-	-	-	-	9.0	9.0	10.2	10.2	11.1	11.1	88
96	-	-	-	-	-	-	7.1	7.1	8.1	8.1	8.8	8.8	96
104	-	-	-	-	-	-	5.5	5.5	6.2	6.2	6.8	6.8	104
112	-	-	-	-	-	-	4.1	4.1	4.8	4.8	5.2	5.2	112
120	-	-	-	-	-	-	3.1	3.1	3.5	3.5	3.9	3.9	120

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
48	21.9	-	-	-	-	-	-	-	-	-	-	-	48
56	16.9	15.8	-	-	-	-	14.9	13.9	-	-	-	-	56
64	12.7	12.3	15.1	-	-	-	10.9	10.6	-	-	-	-	64
72	9.3	9.3	11.3	11.3	13.3	-	7.6	7.6	9.8	-	-	-	72
80	6.7	6.7	8.7	8.7	10.2	10.2	5.0	5.0	6.9	6.9	8.8	8.8	80
88	4.7	4.7	6.3	6.3	7.8	7.8	-	-	4.8	4.8	6.3	6.3	88
96	2.9	2.9	4.5	4.5	5.6	5.6	-	-	2.9	2.9	4.3	4.3	96
104	-	-	2.8	2.8	3.9	3.9	-	-	-	-	2.6	2.6	104

HAV

0 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
14		49.3	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.4	27.4	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	27.9	24.5	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	22.2	21.0	21.9	20.4	56
64		20.3	19.2	16.9	16.2	13.4	13.0	18.5	18.0	19.4	18.8	64
72		17.5	17.2	15.5	14.8	12.6	12.1	14.9	14.8	16.2	15.9	72
80		14.4	14.4	14.2	13.8	-	-	12.2	12.2	13.9	13.9	80
88		-	-	-	-	-	-	9.9	9.9	11.5	11.5	88
96		-	-	-	-	-	-	7.8	7.8	9.4	9.4	96
104		-	-	-	-	-	-	6.3	6.3	7.5	7.5	104
112		-	-	-	-	-	-	4.8	4.8	6.1	6.1	112
120		-	-	-	-	-	-	3.7	3.7	4.8	4.8	120
128		-	-	-	-	-	-	2.6	2.6	3.5	3.5	128
136		-	-	-	-	-	-	-	-	2.6	2.6	136

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
56		16.4	14.7	-	-	-	-	-	-	-	-	56
64		12.5	12.3	-	-	-	-	10.5	10.4	-	-	64
72		9.1	9.1	-	-	-	-	7.3	7.3	-	-	72
80		6.7	6.7	9.3	9.3	-	-	5.0	5.0	7.8	-	80
88		4.7	4.7	7.1	7.1	9.4	9.4	3.0	3.0	5.7	-	88
96		3.1	3.1	5.2	5.2	7.3	7.3	-	-	3.8	-	96
104		-	-	3.7	3.7	5.5	5.5	-	-	-	-	104
112		-	-	-	-	3.9	3.9	-	-	-	-	112

HAV

0 lb +		33,100 lb		75.5 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
18	32.9	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	19.4	17.7	-	-	-	-	56
64	16.3	15.1	13.3	12.6	10.1	9.9	16.9	16.3	15.0	-	-	-	64
72	14.6	13.5	11.9	11.5	9.3	9.1	14.2	14.2	14.1	13.0	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	11.5	11.5	12.8	12.1	9.6	9.2	80
88	11.8	11.1	10.1	9.6	8.1	7.8	9.3	9.3	11.0	11.0	9.2	8.7	88
96	10.7	10.2	9.3	9.0	7.7	7.4	7.5	7.5	9.6	9.6	8.8	8.3	96
104	9.2	9.2	8.7	8.4	-	-	6.1	6.1	7.9	7.9	8.4	8.0	104
112	-	-	-	-	-	-	4.8	4.8	6.5	6.5	7.9	7.6	112
120	-	-	-	-	-	-	3.8	3.8	5.3	5.3	6.5	6.5	120
128	-	-	-	-	-	-	2.9	2.9	4.2	4.2	5.2	5.2	128
136	-	-	-	-	-	-	-	-	3.1	3.1	4.0	4.0	136
144	-	-	-	-	-	-	-	-	-	-	2.9	2.9	144

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
64	11.3	10.6	-	-	-	-	-	-	-	-	-	-	64
72	8.2	8.2	-	-	-	-	6.5	6.5	-	-	-	-	72
80	5.9	5.9	-	-	-	-	4.1	4.1	-	-	-	-	80
88	4.0	4.0	7.2	7.2	-	-	-	-	-	-	-	-	88
96	-	-	5.2	5.2	-	-	-	-	-	-	-	-	96
104	-	-	3.7	3.7	6.2	-	-	-	-	-	-	-	104
112	-	-	-	-	4.6	4.6	-	-	-	-	-	-	112
120	-	-	-	-	3.3	3.3	-	-	-	-	-	-	120

HAV

99,200 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28	79.8	76.7	67.8	65.9	57.5	56.6	75.2	68.1	-	-	-	-	-	-	-	28
32	74.6	71.9	63.6	62.4	54.9	54.2	67.2	66.1	62.9	-	-	-	-	-	-	32
36	69.8	67.7	59.7	58.8	53.3	52.6	61.1	61.0	58.8	58.6	51.1	-	-	-	-	36
40	64.7	63.4	56.1	55.4	-	-	55.5	55.5	54.6	54.4	49.0	49.0	-	-	-	40
48	-	-	-	-	-	-	46.8	46.6	46.0	45.9	44.1	44.0	-	-	-	48
56	-	-	-	-	-	-	39.0	38.9	39.3	39.3	38.6	38.5	-	-	-	56
64	-	-	-	-	-	-	33.2	32.9	32.6	32.5	32.9	32.9	-	-	-	64
72	-	-	-	-	-	-	27.5	27.5	28.1	28.1	27.4	27.4	-	-	-	72
80	-	-	-	-	-	-	23.2	23.2	23.7	23.7	24.1	24.1	-	-	-	80
88	-	-	-	-	-	-	19.7	19.7	20.1	20.1	20.5	20.5	-	-	-	88
96	-	-	-	-	-	-	17.2	17.2	17.1	17.1	17.4	17.4	-	-	-	96
104	-	-	-	-	-	-	15.8	15.8	15.6	15.6	15.6	15.6	-	-	-	104
112	-	-	-	-	-	-	13.8	13.8	14.0	14.0	-	-	-	-	-	112
120	-	-	-	-	-	-	12.2	12.2	12.4	12.4	-	-	-	-	-	120
128	-	-	-	-	-	-	10.9	10.9	-	-	-	-	-	-	-	128







		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.2	28.7	-	-	-	-	26.6	-	-	-	-	-	-	-	-	48
56	31.2	27.8	30.4	27.5	29.7	-	25.0	22.5	25.1	21.4	-	-	-	-	-	56
64	27.4	25.3	26.9	25.0	26.6	24.6	22.4	21.3	22.2	21.4	22.1	21.4	22.1	21.4	-	64
72	24.1	22.3	23.9	22.1	23.9	22.1	19.7	19.2	19.7	19.4	19.5	19.4	19.5	19.4	-	72
80	21.1	19.5	21.2	19.7	21.2	19.5	17.3	17.1	17.3	17.3	17.5	17.3	17.5	17.3	-	80
88	18.3	17.1	18.6	17.4	18.8	17.4	15.1	14.9	15.2	15.1	15.5	15.4	15.5	15.4	-	88
96	15.6	15.1	16.0	15.3	16.4	15.3	13.1	13.1	13.4	13.3	13.6	13.4	13.6	13.4	-	96
104	13.3	13.2	13.7	13.5	14.0	13.6	11.4	11.4	11.7	11.7	11.9	11.9	11.9	11.9	-	104
112	11.2	11.1	11.6	11.6	11.8	11.8	10.1	10.1	10.3	10.3	10.3	10.3	10.3	10.3	-	112
120	10.0	9.3	9.7	9.7	9.9	9.9	8.8	8.8	9.0	9.0	9.0	9.0	9.0	9.0	-	120
128	8.4	8.3	8.4	8.4	8.5	8.5	7.5	7.5	7.8	7.8	7.9	7.9	7.9	7.9	-	128
136	6.9	6.9	7.3	7.3	7.5	7.5	6.0	6.0	6.3	6.3	6.5	6.5	6.5	6.5	-	136
144	5.8	5.8	6.0	6.0	6.2	6.2	4.7	4.7	5.1	5.1	5.1	5.1	5.1	5.1	-	144
152	4.7	4.7	4.9	4.9	4.9	4.9	3.6	3.6	3.8	3.8	4.0	4.0	4.0	4.0	-	152
160	3.7	3.7	3.9	3.9	-	-	-	-	2.8	2.8	3.0	3.0	3.0	3.0	-	160



HAV

99,200 lb +		33,100 lb		36.1 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5					
		42.3 ft						126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18	62.2	57.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24	53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	-	-	-	-	24
28	49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	-	-	-	-	28
32	45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	-	-	-	-	32
36	42.1	40.1	34.9	33.3	27.5	26.4	49.3	44.1	-	-	-	-	-	-	-	-	36
40	39.1	37.4	33.0	31.5	26.0	24.9	47.5	43.0	37.4	-	-	-	-	-	-	-	40
48	34.7	33.2	29.1	28.1	23.5	22.7	42.8	40.5	34.3	33.2	-	-	-	-	-	-	48
56	30.8	29.6	26.2	25.4	22.0	21.4	37.4	36.7	31.6	31.4	25.1	24.4	-	-	-	-	56
64	27.2	26.2	24.1	23.5	-	-	32.3	32.2	29.5	29.3	23.8	23.4	-	-	-	-	64
72	-	-	-	-	-	-	27.0	27.0	27.4	27.4	22.5	22.5	-	-	-	-	72
80	-	-	-	-	-	-	23.0	23.0	24.1	24.1	21.4	21.4	-	-	-	-	80
88	-	-	-	-	-	-	20.1	20.1	20.7	20.7	20.3	20.3	-	-	-	-	88
96	-	-	-	-	-	-	17.8	17.8	17.7	17.7	18.1	18.1	-	-	-	-	96
104	-	-	-	-	-	-	15.3	15.3	15.1	15.1	15.7	15.7	-	-	-	-	104
112	-	-	-	-	-	-	13.3	13.3	13.8	13.8	13.6	13.6	-	-	-	-	112
120	-	-	-	-	-	-	11.5	11.5	12.1	12.1	12.4	12.4	-	-	-	-	120
128	-	-	-	-	-	-	10.7	10.7	10.5	10.5	9.8	9.8	-	-	-	-	128
136	-	-	-	-	-	-	9.9	9.9	9.7	9.2	-	-	-	-	-	-	136
144	-	-	-	-	-	-	8.9	8.9	8.6	8.6	-	-	-	-	-	-	144

		181.1 ft						196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
56	25.1	21.4	-	-	-	-	20.6	17.0	-	-	-	-	-	-	-	-	56
64	23.3	21.4	-	-	-	-	19.8	17.0	-	-	-	-	-	-	-	-	64
72	21.0	20.3	19.9	19.9	-	-	18.3	17.0	17.9	-	-	-	-	-	-	-	72
80	18.7	18.6	18.0	18.0	17.4	17.4	16.5	15.7	16.3	15.9	15.7	15.7	-	-	-	-	80
88	16.7	16.6	16.4	16.4	16.1	16.1	14.6	14.4	14.7	14.5	14.3	14.3	-	-	-	-	88
96	14.7	14.7	15.0	14.8	14.7	14.7	12.8	12.8	13.1	13.1	13.1	13.0	-	-	-	-	96
104	13.0	13.0	13.4	13.4	13.4	13.4	11.2	11.2	11.6	11.6	11.9	11.8	-	-	-	-	104
112	11.6	11.6	12.0	12.0	12.3	12.0	9.8	9.8	10.3	10.3	10.5	10.5	-	-	-	-	112
120	10.0	10.0	10.7	10.5	10.8	10.8	8.6	8.6	9.0	9.0	9.2	9.2	-	-	-	-	120
128	8.4	8.4	9.3	9.3	9.6	9.6	7.5	7.5	7.9	7.9	8.2	8.2	-	-	-	-	128
136	7.0	7.0	7.6	7.6	8.2	8.2	6.4	6.4	6.9	6.9	7.1	7.1	-	-	-	-	136
144	6.2	6.2	6.4	6.4	6.7	6.7	5.3	5.3	6.0	6.0	6.2	6.2	-	-	-	-	144
152	5.1	5.1	5.6	5.6	5.7	5.7	4.3	4.3	4.9	4.9	5.3	5.3	-	-	-	-	152
160	4.2	4.2	4.7	4.7	5.0	5.0	3.2	3.2	3.9	3.9	4.1	4.1	-	-	-	-	160
168	3.3	3.3	3.7	3.7	3.9	3.9	-	-	-	-	-	-	-	-	-	-	168
176	2.5	2.5	2.8	2.8	3.0	3.0	-	-	-	-	-	-	-	-	-	-	176

HAV

		99,200 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
14		49.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	-	-	-	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	28.9	25.0	22.1	20.7	-	-	-	-	-	56
64		20.3	19.2	16.9	16.2	13.4	13.0	27.1	23.8	20.8	19.5	-	-	-	-	-	64
72		18.1	17.2	15.5	14.8	12.6	12.1	25.4	22.5	19.6	18.3	14.3	13.7	-	-	-	72
80		16.3	15.7	14.2	13.8	-	-	23.3	21.2	18.3	17.3	13.8	13.1	-	-	-	80
88		-	-	-	-	-	-	20.3	19.6	17.3	16.5	13.3	12.6	-	-	-	88
96		-	-	-	-	-	-	17.6	17.3	16.3	15.7	12.7	12.2	-	-	-	96
104		-	-	-	-	-	-	15.3	15.2	15.3	14.9	12.4	11.9	-	-	-	104
112		-	-	-	-	-	-	13.2	13.1	14.0	14.0	11.9	11.4	-	-	-	112
120		-	-	-	-	-	-	12.2	11.6	12.4	12.4	11.6	11.2	-	-	-	120
128		-	-	-	-	-	-	10.8	10.7	10.8	10.8	11.1	10.9	-	-	-	128
136		-	-	-	-	-	-	9.5	9.5	9.4	9.4	9.8	9.8	-	-	-	136
144		-	-	-	-	-	-	8.2	8.2	8.8	8.8	8.8	8.8	-	-	-	144
152		-	-	-	-	-	-	7.4	7.1	7.6	7.6	-	-	-	-	-	152
160		-	-	-	-	-	-	6.8	6.5	6.5	6.5	-	-	-	-	-	160








		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
56		19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	56
64		19.2	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	-	-	64
72		18.8	15.7	-	-	-	-	15.4	12.6	-	-	-	-	-	-	-	72
80		17.4	15.7	15.5	15.3	-	-	14.9	12.6	14.2	-	-	-	-	-	-	80
88		15.8	15.4	14.5	14.4	12.8	12.0	13.9	12.5	13.1	12.5	-	-	-	-	-	88
96		14.3	14.2	13.6	13.5	12.3	11.8	12.4	12.1	12.0	11.9	11.2	11.2	-	-	-	96
104		12.8	12.7	12.5	12.5	11.8	11.5	11.0	11.0	11.1	10.9	10.6	10.6	-	-	-	104
112		11.4	11.4	11.6	11.4	11.2	11.0	9.6	9.6	10.1	10.1	9.9	9.9	-	-	-	112
120		10.3	10.1	10.5	10.5	10.4	10.4	8.6	8.6	9.0	9.0	9.1	9.1	-	-	-	120
128		8.9	8.9	9.5	9.5	9.6	9.6	7.5	7.5	8.0	7.9	8.3	8.3	-	-	-	128
136		7.6	7.6	8.4	8.4	8.8	8.6	6.6	6.4	7.1	7.0	7.5	7.5	-	-	-	136
144		6.2	6.2	7.3	7.3	7.8	7.8	5.6	5.5	6.2	6.2	6.4	6.4	-	-	-	144
152		5.2	5.2	6.2	6.2	6.9	6.9	4.7	4.7	5.4	5.4	5.6	5.6	-	-	-	152
160		4.7	4.7	5.0	5.0	5.7	5.7	3.9	3.9	4.6	4.6	4.8	4.8	-	-	-	160
168		3.9	3.9	4.3	4.3	4.6	4.6	-	-	3.8	3.8	4.1	4.1	-	-	-	168
176		3.0	3.0	3.6	3.6	3.8	3.8	-	-	3.0	3.0	3.4	3.4	-	-	-	176
184		-	-	3.0	3.0	3.2	3.2	-	-	-	-	-	-	-	-	-	184



HAV

99,200 lb +		33,100 lb		75.5 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft						126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
18	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	-	-	56
64	16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	-	-	64
72	14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	17.0	15.7	13.3	12.3	9.6	9.2	-	-	80
88	11.8	11.1	10.1	9.6	8.1	7.8	16.0	14.8	12.5	11.7	9.2	8.7	-	-	88
96	10.8	10.2	9.3	9.0	7.7	7.4	15.1	13.9	11.7	11.0	8.8	8.3	-	-	96
104	10.0	9.4	8.7	8.4	-	-	14.2	13.3	11.1	10.4	8.4	8.0	-	-	104
112	-	-	-	-	-	-	13.3	12.5	10.6	10.1	8.1	7.7	-	-	112
120	-	-	-	-	-	-	11.7	11.6	10.1	9.6	7.9	7.4	-	-	120
128	-	-	-	-	-	-	10.2	10.2	9.7	9.1	7.6	7.3	-	-	128
136	-	-	-	-	-	-	8.9	8.9	9.3	8.9	7.3	7.1	-	-	136
144	-	-	-	-	-	-	8.0	8.0	8.6	8.4	7.3	6.8	-	-	144
152	-	-	-	-	-	-	7.4	7.4	7.5	7.5	7.1	6.8	-	-	152
160	-	-	-	-	-	-	6.4	6.4	6.5	6.5	6.7	6.6	-	-	160
168	-	-	-	-	-	-	5.5	5.5	6.0	6.0	-	-	-	-	168
176	-	-	-	-	-	-	4.7	4.7	5.2	5.2	-	-	-	-	176
184	-	-	-	-	-	-	4.5	4.5	-	-	-	-	-	-	184










		181.1 ft						196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
64	14.4	11.2	-	-	-	-	-	-	-	-	-	-	-	-	64
72	14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	-	-	72
80	13.8	11.2	-	-	-	-	11.4	8.8	-	-	-	-	-	-	80
88	13.5	11.2	11.5	10.6	-	-	11.2	8.8	-	-	-	-	-	-	88
96	12.8	11.2	11.0	10.2	-	-	10.9	8.8	10.3	-	-	-	-	-	96
104	11.8	11.2	10.4	9.8	8.2	-	10.2	8.8	9.6	8.8	-	-	-	-	104
112	10.7	10.5	9.9	9.5	7.9	7.5	9.2	8.8	9.0	8.8	7.7	7.3	-	-	112
120	9.7	9.7	9.4	9.1	7.7	7.2	8.2	8.1	8.3	8.3	7.7	7.1	-	-	120
128	8.8	8.7	8.7	8.6	7.5	7.1	7.3	7.2	7.6	7.6	7.3	6.9	-	-	128
136	7.6	7.6	8.1	8.1	7.3	6.9	6.4	6.2	6.8	6.8	6.9	6.7	-	-	136
144	6.4	6.4	7.3	7.3	7.1	6.8	5.5	5.3	6.0	6.0	6.4	6.2	-	-	144
152	5.4	5.4	6.5	6.5	6.7	6.4	4.5	4.5	5.4	5.4	5.7	5.7	-	-	152
160	4.3	4.3	5.6	5.6	6.0	6.0	3.7	3.7	4.6	4.6	5.0	5.0	-	-	160
168	3.7	3.7	4.6	4.6	5.3	5.3	-	-	3.9	3.9	4.3	4.3	-	-	168
176	3.2	3.2	3.7	3.7	4.3	4.3	-	-	3.2	3.2	3.6	3.6	-	-	176
184	-	-	3.0	3.0	3.4	3.4	-	-	-	-	3.1	3.0	-	-	184






HAV

		77,200 lb + 		33,100 lb 		16.4 ft 		15.6 ft 		32.2 ft/s 		360°		ASME B30.5			
		42.3 ft 						126.0 ft 									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb												ft			
10		119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12		113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14		107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16		102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18		97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20		93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24		85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28		79.8	76.7	67.8	65.9	57.5	56.6	75.2	68.1	-	-	-	-	-	-	-	28
32		74.6	71.9	63.6	62.4	54.9	54.2	67.2	66.1	62.9	-	-	-	-	-	-	32
36		67.1	65.7	59.7	58.8	53.3	52.6	61.1	59.8	58.8	58.6	51.1	-	-	-	-	36
40		59.0	59.0	55.7	55.1	-	-	55.2	52.9	54.5	54.3	49.0	49.0	-	-	-	40
48		-	-	-	-	-	-	42.9	42.6	43.7	43.6	43.3	43.3	-	-	-	48
56		-	-	-	-	-	-	34.7	34.7	34.4	34.4	35.0	35.0	-	-	-	56
64		-	-	-	-	-	-	27.9	27.9	28.8	28.8	28.7	28.7	-	-	-	64
72		-	-	-	-	-	-	23.2	23.2	23.5	23.5	23.9	23.9	-	-	-	72
80		-	-	-	-	-	-	20.4	20.4	20.3	20.2	20.3	20.3	-	-	-	80
88		-	-	-	-	-	-	17.4	17.4	17.8	17.8	18.1	18.1	-	-	-	88
96		-	-	-	-	-	-	14.8	14.8	15.3	15.3	15.4	15.4	-	-	-	96
104		-	-	-	-	-	-	12.8	12.8	13.1	13.1	13.2	13.2	-	-	-	104
112		-	-	-	-	-	-	11.2	11.2	11.2	11.2	-	-	-	-	-	112
120		-	-	-	-	-	-	10.0	10.0	10.0	10.0	-	-	-	-	-	120
128		-	-	-	-	-	-	8.8	8.8	-	-	-	-	-	-	-	128







		181.1 ft 						196.9 ft 									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb												ft			
48		35.2	28.7	-	-	-	-	26.6	-	-	-	-	-	-	-	-	48
56		31.2	27.8	30.4	27.5	29.7	-	25.0	22.5	25.1	-	-	-	-	-	-	56
64		26.6	25.3	26.9	25.0	26.6	24.6	22.4	21.3	22.2	21.4	22.1	21.4	-	-	-	64
72		21.7	21.7	22.4	22.1	23.0	22.1	19.7	19.2	19.7	19.4	19.5	19.4	-	-	-	72
80		18.1	17.8	18.5	18.5	18.9	18.9	17.2	17.0	17.3	17.3	17.5	17.3	-	-	-	80
88		15.4	14.8	15.3	15.3	15.8	15.8	14.5	14.5	15.1	15.1	15.4	15.4	-	-	-	88
96		12.9	12.8	13.1	13.1	13.3	13.3	12.0	12.0	12.6	12.6	12.9	12.9	-	-	-	96
104		10.8	10.8	11.3	11.3	11.5	11.5	9.7	9.7	10.2	10.2	10.6	10.6	-	-	-	104
112		8.7	8.7	9.2	9.2	9.6	9.6	7.8	7.8	8.3	8.3	8.7	8.7	-	-	-	112
120		7.1	7.1	7.6	7.6	7.8	7.8	6.0	6.0	6.5	6.5	6.9	6.9	-	-	-	120
128		5.6	5.6	6.1	6.1	6.3	6.3	4.5	4.5	5.0	5.0	5.3	5.3	-	-	-	128
136		4.4	4.4	4.7	4.7	4.9	4.9	3.3	3.3	3.6	3.6	4.0	4.0	-	-	-	136
144		3.4	3.4	3.6	3.6	3.6	3.6	-	-	2.5	2.5	2.7	2.7	-	-	-	144



HAV

		77,200 lb +  33,100 lb		 36.1 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	32
36		42.1	40.1	34.9	33.3	27.5	26.4	49.3	44.1	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	47.5	43.0	37.4	-	-	-	40
48		34.7	33.2	29.1	28.1	23.5	22.7	42.1	40.0	34.3	33.2	-	-	48
56		30.8	29.6	26.2	25.4	22.0	21.4	34.3	34.2	31.6	31.4	25.1	24.4	56
64		27.2	26.2	24.1	23.5	-	-	27.9	27.9	28.8	28.8	23.8	23.4	64
72		-	-	-	-	-	-	23.9	23.9	24.4	24.4	22.5	22.5	72
80		-	-	-	-	-	-	20.0	20.0	20.2	20.2	21.1	21.1	80
88		-	-	-	-	-	-	17.0	17.0	17.6	17.6	17.7	17.7	88
96		-	-	-	-	-	-	15.0	15.0	15.1	15.1	15.0	15.0	96
104		-	-	-	-	-	-	13.4	13.4	13.4	12.8	13.5	13.5	104
112		-	-	-	-	-	-	11.6	11.6	11.6	11.6	11.6	11.6	112
120		-	-	-	-	-	-	10.0	10.0	10.5	10.5	10.4	10.4	120
128		-	-	-	-	-	-	8.8	8.8	9.1	9.1	7.0	7.0	128
136		-	-	-	-	-	-	7.7	7.7	8.0	8.0	-	-	136
144		-	-	-	-	-	-	6.9	6.9	6.7	6.7	-	-	144










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		25.1	21.4	-	-	-	-	20.6	17.0	-	-	-	-	56
64		23.3	21.4	-	-	-	-	19.8	17.0	-	-	-	-	64
72		21.0	20.3	19.9	19.9	-	-	18.3	17.0	17.9	-	-	-	72
80		18.5	18.3	18.0	18.0	17.4	17.4	16.5	15.7	16.3	15.9	15.7	15.7	80
88		15.4	15.4	16.3	16.3	16.1	16.1	14.6	14.4	14.7	14.5	14.3	14.3	88
96		12.9	12.9	14.0	14.0	14.6	14.6	12.4	12.4	13.1	13.1	13.1	13.0	96
104		11.0	11.0	11.7	11.7	12.4	12.4	10.2	10.2	11.4	11.4	11.9	11.8	104
112		9.4	9.4	10.1	10.1	10.5	10.5	8.3	8.3	9.6	9.6	10.5	10.5	112
120		7.8	7.8	8.7	8.7	9.0	9.0	6.7	6.7	7.8	7.8	8.6	8.6	120
128		6.3	6.3	7.0	7.0	7.7	7.7	5.2	5.2	6.2	6.2	6.8	6.8	128
136		4.9	4.9	5.8	5.8	6.3	6.3	4.0	4.0	4.7	4.7	5.4	5.4	136
144		3.8	3.8	4.5	4.5	4.9	4.9	2.9	2.9	3.6	3.6	4.0	4.0	144
152		2.8	2.8	3.4	3.4	3.8	3.8	-	-	-	-	2.9	2.9	152
160		-	-	-	-	2.7	2.7	-	-	-	-	-	-	160






HAV

		77,200 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
14		49.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	-	-	-	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	28.9	25.0	22.1	20.7	-	-	-	-	-	56
64		20.3	19.2	16.9	16.2	13.4	13.0	27.1	23.8	20.8	19.5	-	-	-	-	-	64
72		18.1	17.2	15.5	14.8	12.6	12.1	23.7	22.5	19.6	18.3	14.3	13.7	-	-	-	72
80		16.3	15.7	14.2	13.8	-	-	20.0	20.0	18.3	17.3	13.8	13.1	-	-	-	80
88		-	-	-	-	-	-	17.2	16.7	17.3	16.5	13.3	12.6	-	-	-	88
96		-	-	-	-	-	-	15.1	14.4	15.6	15.4	12.7	12.2	-	-	-	96
104		-	-	-	-	-	-	13.0	13.0	13.3	13.3	12.4	11.9	-	-	-	104
112		-	-	-	-	-	-	11.6	11.2	11.6	11.6	11.8	11.4	-	-	-	112
120		-	-	-	-	-	-	10.3	9.9	10.4	10.4	10.5	10.4	-	-	-	120
128		-	-	-	-	-	-	8.9	8.8	9.1	9.1	9.5	9.5	-	-	-	128
136		-	-	-	-	-	-	8.1	8.1	8.1	8.1	8.3	8.3	-	-	-	136
144		-	-	-	-	-	-	7.1	7.1	7.3	7.3	7.5	7.5	-	-	-	144
152		-	-	-	-	-	-	6.1	6.1	6.5	6.5	-	-	-	-	-	152
160		-	-	-	-	-	-	5.3	5.3	5.6	5.6	-	-	-	-	-	160

		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
56		19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	56
64		19.2	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	-	-	64
72		18.8	15.7	-	-	-	-	15.4	12.6	-	-	-	-	-	-	-	72
80		17.4	15.7	15.5	15.3	-	-	14.9	12.6	14.2	-	-	-	-	-	-	80
88		15.6	15.1	14.5	14.4	12.8	12.0	13.9	12.5	13.1	12.5	-	-	-	-	-	88
96		13.3	13.2	13.6	13.5	12.3	11.8	12.3	11.9	12.0	11.9	11.2	11.2	-	-	-	96
104		11.1	11.1	12.5	12.5	11.8	11.5	10.2	10.2	11.1	10.9	10.6	10.6	-	-	-	104
112		9.4	9.4	10.9	10.9	11.2	11.0	8.5	8.5	10.1	10.1	9.9	9.9	-	-	-	112
120		8.3	8.3	9.3	9.3	10.3	10.3	7.0	7.0	8.7	8.7	9.1	9.1	-	-	-	120
128		6.9	6.9	7.8	7.7	8.8	8.8	5.6	5.6	7.2	7.2	8.3	8.3	-	-	-	128
136		5.8	5.8	6.9	6.8	7.2	7.2	4.4	4.4	5.8	5.8	7.1	7.1	-	-	-	136
144		4.5	4.5	5.6	5.6	6.4	6.4	3.4	3.4	4.7	4.7	5.8	5.8	-	-	-	144
152		3.6	3.6	4.5	4.5	5.1	5.1	-	-	3.6	3.6	4.5	4.5	-	-	-	152
160		-	-	3.5	3.5	4.1	4.1	-	-	-	-	3.4	3.4	-	-	-	160

HAV

		 77,200 lb + 33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		32.9	-	-	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48		20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	48
56		18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	64
72		14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	72
80		13.0	12.2	10.9	10.5	8.7	8.3	17.0	15.7	13.3	12.3	9.6	9.2	80
88		11.8	11.1	10.1	9.6	8.1	7.8	16.0	14.8	12.5	11.7	9.2	8.7	88
96		10.8	10.2	9.3	9.0	7.7	7.4	14.5	13.9	11.7	11.0	8.8	8.3	96
104		10.0	9.4	8.7	8.4	-	-	12.4	12.4	11.1	10.4	8.4	8.0	104
112		-	-	-	-	-	-	11.0	10.9	10.6	10.1	8.1	7.7	112
120		-	-	-	-	-	-	9.8	9.7	10.0	9.6	7.9	7.4	120
128		-	-	-	-	-	-	8.5	8.5	9.0	8.8	7.6	7.3	128
136		-	-	-	-	-	-	7.5	7.5	8.1	8.1	7.3	7.1	136
144		-	-	-	-	-	-	6.6	6.6	7.1	7.1	7.1	6.8	144
152		-	-	-	-	-	-	6.1	6.1	6.3	6.3	6.7	6.5	152
160		-	-	-	-	-	-	5.3	5.3	5.5	5.5	5.8	5.8	160
168		-	-	-	-	-	-	4.5	4.5	5.0	5.0	-	-	168
176		-	-	-	-	-	-	3.8	3.8	4.3	4.3	-	-	176
184		-	-	-	-	-	-	3.3	3.3	-	-	-	-	184

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		14.4	11.2	-	-	-	-	-	-	-	-	-	-	64
72		14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	72
80		13.8	11.2	-	-	-	-	11.4	8.8	-	-	-	-	80
88		13.5	11.2	11.5	10.6	-	-	11.2	8.8	-	-	-	-	88
96		12.4	11.2	11.0	10.2	-	-	10.9	8.8	10.3	-	-	-	96
104		10.4	10.3	10.4	9.8	8.2	-	9.5	8.8	9.6	8.8	-	-	104
112		8.8	8.8	9.9	9.5	7.9	7.5	7.8	7.8	9.0	8.8	7.7	7.3	112
120		7.8	7.7	9.2	9.0	7.7	7.2	6.3	6.3	8.2	8.2	7.7	7.1	120
128		6.5	6.5	7.8	7.8	7.5	7.1	5.1	5.1	7.2	7.2	7.3	6.9	128
136		5.3	5.3	6.6	6.6	7.3	6.9	4.0	4.0	5.8	5.8	6.9	6.7	136
144		4.2	4.2	5.8	5.8	6.9	6.8	2.9	2.9	4.7	4.7	6.2	6.2	144
152		3.4	3.4	4.9	4.9	5.6	5.6	-	-	3.6	3.6	5.1	5.1	152
160		2.6	2.6	3.9	3.9	4.8	4.8	-	-	2.8	2.8	4.2	4.2	160
168		-	-	-	-	3.9	3.9	-	-	-	-	-	-	168
176		-	-	-	-	3.0	3.0	-	-	-	-	-	-	176

HAV

55,100 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24	85.9	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28	79.8	76.7	67.8	65.9	57.5	56.6	72.3	64.3	-	-	-	-	-	-	-	28
32	69.3	68.6	63.6	62.4	54.9	54.2	62.1	56.3	62.9	-	-	-	-	-	-	32
36	58.6	58.6	57.1	56.6	53.2	52.6	54.5	50.3	55.9	51.5	51.1	-	-	-	-	36
40	49.2	49.2	50.1	50.1	-	-	48.2	45.5	48.8	45.3	48.4	47.0	-	-	-	40
48	-	-	-	-	-	-	36.4	36.1	36.5	36.5	37.4	37.1	-	-	-	48
56	-	-	-	-	-	-	29.0	29.0	29.3	29.3	29.9	29.9	-	-	-	56
64	-	-	-	-	-	-	24.0	24.0	24.4	24.4	24.5	24.4	-	-	-	64
72	-	-	-	-	-	-	19.9	19.9	20.2	20.2	20.6	20.6	-	-	-	72
80	-	-	-	-	-	-	16.7	16.7	17.2	17.2	17.2	17.2	-	-	-	80
88	-	-	-	-	-	-	14.0	14.0	14.4	14.4	14.6	14.6	-	-	-	88
96	-	-	-	-	-	-	11.8	11.8	12.1	12.1	12.3	12.3	-	-	-	96
104	-	-	-	-	-	-	9.9	9.9	10.3	10.3	10.4	10.4	-	-	-	104
112	-	-	-	-	-	-	8.5	8.5	8.7	8.7	-	-	-	-	-	112
120	-	-	-	-	-	-	7.0	7.0	7.2	7.2	-	-	-	-	-	120
128	-	-	-	-	-	-	5.9	5.9	-	-	-	-	-	-	-	128







		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	33.0	28.0	-	-	-	-	26.6	-	-	-	-	-	-	-	-	48
56	26.8	24.6	27.6	25.8	28.5	24.2	24.5	22.2	25.1	20.1	-	-	-	-	-	56
64	22.0	21.0	22.0	21.7	22.7	22.0	20.3	19.3	21.4	20.1	21.9	20.9	-	-	-	64
72	17.5	17.5	18.4	18.4	18.8	18.8	16.4	15.7	17.3	16.6	18.2	17.3	-	-	-	72
80	14.3	14.3	15.0	15.0	15.4	15.4	13.2	12.8	14.0	13.7	14.5	14.3	-	-	-	80
88	11.5	11.5	12.2	12.2	12.5	12.5	10.3	10.3	11.1	11.1	11.8	11.8	-	-	-	88
96	9.2	9.2	9.8	9.8	10.1	10.1	8.1	8.1	8.8	8.8	9.3	9.3	-	-	-	96
104	7.1	7.1	7.7	7.7	8.0	8.0	6.2	6.2	6.7	6.7	7.1	7.1	-	-	-	104
112	5.4	5.4	5.9	5.9	6.3	6.3	4.3	4.3	5.0	5.0	5.2	5.2	-	-	-	112
120	3.9	3.9	4.3	4.3	4.7	4.7	-	-	3.4	3.4	3.7	3.7	-	-	-	120
128	2.7	2.7	3.1	3.1	3.3	3.3	-	-	-	-	-	-	-	-	-	128



HAV

55,100 lb +		33,100 lb		36.1 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18	62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20	59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24	53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28	49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32	45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	32
36	42.1	40.1	34.9	33.3	27.5	26.4	49.2	44.0	-	-	-	-	36
40	39.1	37.4	33.0	31.5	26.0	24.9	46.7	42.3	37.4	-	-	-	40
48	34.7	33.2	29.1	28.1	23.5	22.7	36.4	35.3	34.3	33.2	-	-	48
56	30.8	29.6	26.2	25.4	22.0	21.4	29.2	29.1	29.9	29.6	25.1	24.4	56
64	26.0	25.7	24.1	23.5	-	-	23.9	23.9	24.8	24.8	23.8	23.4	64
72	-	-	-	-	-	-	20.1	20.1	20.6	20.4	21.2	21.0	72
80	-	-	-	-	-	-	17.0	17.0	17.4	17.0	17.8	17.8	80
88	-	-	-	-	-	-	14.5	14.5	14.7	14.6	15.1	15.1	88
96	-	-	-	-	-	-	12.5	12.5	12.8	12.8	13.1	13.1	96
104	-	-	-	-	-	-	10.6	10.6	10.9	10.9	11.3	11.3	104
112	-	-	-	-	-	-	9.0	9.0	9.6	9.6	9.8	9.8	112
120	-	-	-	-	-	-	7.6	7.6	8.2	8.2	8.5	8.5	120
128	-	-	-	-	-	-	6.4	6.4	6.8	6.8	4.1	4.1	128
136	-	-	-	-	-	-	5.3	5.3	5.6	5.6	-	-	136
144	-	-	-	-	-	-	4.4	4.4	4.7	4.7	-	-	144










		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
56	25.0	21.4	-	-	-	-	20.6	17.0	-	-	-	-	56
64	21.4	19.6	19.3	-	-	-	19.8	17.0	-	-	-	-	64
72	18.1	17.2	19.2	18.2	-	-	16.4	15.5	17.9	-	-	-	72
80	14.7	14.4	15.8	15.6	16.9	16.6	13.0	12.8	14.9	14.6	15.6	15.5	80
88	11.9	11.9	13.4	13.4	13.9	13.9	10.2	10.2	12.0	12.0	13.6	13.3	88
96	9.6	9.6	11.0	11.0	11.9	11.9	8.1	8.1	9.6	9.6	10.9	10.9	96
104	7.7	7.7	8.9	8.9	9.9	9.9	6.2	6.2	7.5	7.5	8.6	8.6	104
112	6.1	6.1	7.2	7.2	8.1	8.1	4.6	4.6	5.9	5.9	7.0	7.0	112
120	4.6	4.6	5.6	5.6	6.2	6.2	3.3	3.3	4.3	4.3	5.4	5.4	120
128	3.4	3.4	4.2	4.2	4.7	4.7	-	-	3.1	3.1	4.1	4.1	128
136	-	-	2.9	2.9	3.5	3.5	-	-	-	-	2.7	2.7	136
144	-	-	-	-	2.5	2.5	-	-	-	-	-	-	144






HAV

		55,100 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
14		49.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	30.8	26.3	-	-	-	-	-	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	28.2	25.0	22.1	20.7	-	-	-	-	-	56
64		20.3	19.2	16.9	16.2	13.4	13.0	24.2	22.8	20.8	19.5	-	-	-	-	-	64
72		18.1	17.2	15.5	14.8	12.6	12.1	19.9	19.9	19.6	18.3	14.3	13.7	-	-	-	72
80		16.3	15.7	14.2	13.8	-	-	17.2	16.5	17.7	17.0	13.8	13.1	-	-	-	80
88		-	-	-	-	-	-	14.4	14.4	15.4	15.4	13.3	12.6	-	-	-	88
96		-	-	-	-	-	-	12.5	12.5	13.0	13.0	12.7	12.2	-	-	-	96
104		-	-	-	-	-	-	10.8	10.8	11.4	11.4	11.8	11.8	-	-	-	104
112		-	-	-	-	-	-	9.4	9.4	10.1	10.1	10.5	10.5	-	-	-	112
120		-	-	-	-	-	-	8.3	8.3	8.7	8.7	9.1	9.1	-	-	-	120
128		-	-	-	-	-	-	7.0	7.0	7.6	7.6	8.0	8.0	-	-	-	128
136		-	-	-	-	-	-	6.0	6.0	6.6	6.6	7.0	7.0	-	-	-	136
144		-	-	-	-	-	-	4.9	4.9	5.6	5.6	5.8	5.8	-	-	-	144
152		-	-	-	-	-	-	4.1	4.1	4.5	4.5	-	-	-	-	-	152
160		-	-	-	-	-	-	3.3	3.3	3.7	3.7	-	-	-	-	-	160

		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
56		19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	56
64		19.2	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	-	-	64
72		17.0	15.7	-	-	-	-	15.4	12.6	-	-	-	-	-	-	-	72
80		14.6	13.9	15.4	15.2	-	-	12.8	12.3	14.2	-	-	-	-	-	-	80
88		12.0	12.0	13.6	13.5	12.8	12.0	10.2	10.2	12.6	12.1	-	-	-	-	-	88
96		9.7	9.7	11.5	11.5	12.3	11.8	8.1	8.1	10.4	10.4	11.2	11.2	-	-	-	96
104		7.7	7.7	9.7	9.7	10.8	10.7	6.2	6.2	8.4	8.4	10.1	10.1	-	-	-	104
112		6.3	6.3	7.9	7.9	9.6	9.6	4.8	4.8	6.5	6.5	8.3	8.3	-	-	-	112
120		4.8	4.8	6.5	6.5	7.8	7.8	3.5	3.5	5.2	5.2	6.7	6.7	-	-	-	120
128		3.7	3.7	5.2	5.2	6.5	6.5	-	-	3.9	3.9	5.3	5.3	-	-	-	128
136		2.7	2.7	4.0	4.0	5.2	5.2	-	-	2.8	2.8	4.0	4.0	-	-	-	136
144		-	-	3.1	3.1	3.8	3.8	-	-	-	-	2.9	2.9	-	-	-	144

HAV

		55,100 lb +  33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		32.9	-	-	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48		20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	48
56		18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	64
72		14.6	13.5	11.9	11.5	9.3	9.1	18.1	16.6	14.1	13.0	-	-	72
80		13.0	12.2	10.9	10.5	8.7	8.3	16.6	15.5	13.3	12.3	9.6	9.2	80
88		11.8	11.1	10.1	9.6	8.1	7.8	14.2	14.0	12.5	11.7	9.2	8.7	88
96		10.8	10.2	9.3	9.0	7.7	7.4	12.3	12.3	11.7	11.0	8.8	8.3	96
104		10.0	9.4	8.7	8.4	-	-	10.6	10.6	11.1	10.4	8.4	8.0	104
112		-	-	-	-	-	-	9.2	9.2	9.9	9.8	8.1	7.7	112
120		-	-	-	-	-	-	8.1	8.1	8.9	8.9	7.9	7.4	120
128		-	-	-	-	-	-	6.9	6.9	7.6	7.6	7.6	7.2	128
136		-	-	-	-	-	-	6.0	6.0	6.8	6.8	7.0	6.9	136
144		-	-	-	-	-	-	5.1	5.1	5.8	5.8	6.2	6.2	144
152		-	-	-	-	-	-	4.1	4.1	5.0	5.0	5.4	5.4	152
160		-	-	-	-	-	-	3.4	3.4	4.2	4.2	4.6	4.6	160
168		-	-	-	-	-	-	-	-	3.3	3.3	-	-	168
176		-	-	-	-	-	-	-	-	2.5	2.5	-	-	176










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		14.4	11.2	-	-	-	-	-	-	-	-	-	-	64
72		14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	72
80		13.0	11.2	-	-	-	-	11.2	8.8	-	-	-	-	80
88		11.1	10.4	11.5	10.6	-	-	9.4	8.6	-	-	-	-	88
96		8.9	8.9	10.8	10.2	-	-	7.4	7.4	10.0	-	-	-	96
104		7.3	7.3	9.4	9.3	8.2	-	5.7	5.7	8.4	8.3	-	-	104
112		5.7	5.7	7.9	7.9	7.9	7.5	4.1	4.1	6.5	6.5	7.7	7.3	112
120		4.4	4.4	6.5	6.5	7.6	7.2	2.8	2.8	5.2	5.2	7.3	6.9	120
128		3.3	3.3	5.2	5.2	6.8	6.7	-	-	4.0	4.0	5.8	5.8	128
136		-	-	4.0	4.0	5.8	5.8	-	-	2.9	2.9	4.7	4.7	136
144		-	-	3.1	3.1	4.5	4.5	-	-	-	-	3.6	3.6	144
152		-	-	-	-	3.6	3.6	-	-	-	-	-	-	152






HAV

33,100 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft						126.0 ft							
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft		1,000 lb												ft	
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	20
24	84.6	82.0	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	24
28	71.0	71.0	67.8	65.9	57.5	56.6	60.5	54.1	-	-	-	-	-	-	28
32	56.9	56.9	58.3	57.9	54.9	54.2	51.9	47.7	52.4	46.7	-	-	-	-	32
36	47.7	47.7	48.9	48.9	48.4	48.1	45.2	42.3	46.4	42.8	47.0	39.6	-	-	36
40	39.7	39.7	40.8	40.8	-	-	39.9	38.2	40.6	38.6	41.6	39.0	-	-	40
48	-	-	-	-	-	-	30.6	30.3	31.0	30.9	31.6	31.5	-	-	48
56	-	-	-	-	-	-	24.1	24.1	25.0	25.0	25.1	25.1	-	-	56
64	-	-	-	-	-	-	19.0	19.0	19.7	19.7	20.2	20.2	-	-	64
72	-	-	-	-	-	-	15.3	15.3	16.0	16.0	16.2	16.2	-	-	72
80	-	-	-	-	-	-	12.4	12.4	13.0	13.0	13.3	13.3	-	-	80
88	-	-	-	-	-	-	10.3	10.3	10.6	10.6	11.0	11.0	-	-	88
96	-	-	-	-	-	-	8.3	8.3	8.7	8.7	8.9	8.9	-	-	96
104	-	-	-	-	-	-	6.6	6.6	6.8	6.8	7.1	7.1	-	-	104
112	-	-	-	-	-	-	5.2	5.2	5.4	5.4	-	-	-	-	112
120	-	-	-	-	-	-	3.9	3.9	4.2	4.2	-	-	-	-	120
128	-	-	-	-	-	-	3.0	3.0	-	-	-	-	-	-	128










		181.1 ft						196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb												ft			
48	26.0	23.8	-	-	-	-	23.5	-	-	-	-	-	-	-	-	-	48
56	20.4	19.1	21.5	20.2	22.5	21.1	18.2	17.2	19.4	-	-	-	-	-	-	-	56
64	16.0	15.3	17.0	16.2	17.8	17.1	14.0	13.5	15.1	14.4	16.0	15.3	-	-	-	-	64
72	12.4	12.2	13.3	13.1	14.0	13.7	10.7	10.6	11.5	11.3	12.4	12.2	-	-	-	-	72
80	9.5	9.5	10.4	10.4	11.0	10.9	8.0	8.0	8.8	8.8	9.5	9.5	-	-	-	-	80
88	7.2	7.2	7.9	7.9	8.5	8.5	5.7	5.7	6.3	6.3	7.0	7.0	-	-	-	-	88
96	5.3	5.3	5.9	5.9	6.4	6.4	3.8	3.8	4.5	4.5	5.0	5.0	-	-	-	-	96
104	3.5	3.5	4.2	4.2	4.4	4.4	-	-	2.8	2.8	3.3	3.3	-	-	-	-	104






HAV

33,100 lb +  33,100 lb		 36.1 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft				 126.0 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°			
		0°		18°		36°		0°		18°			36°	
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	10	
12		73.4	66.0	-	-	-	-	-	-	-	-	-	12	
14		69.3	62.9	-	-	-	-	-	-	-	-	-	14	
16		65.6	59.9	-	-	-	-	-	-	-	-	-	16	
18		62.2	57.2	-	-	-	-	-	-	-	-	-	18	
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	20	
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	24	
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	28	
32		45.3	42.9	36.9	35.3	29.0	27.8	49.0	42.9	-	-	-	32	
36		42.1	40.1	34.9	33.3	27.5	26.4	44.1	39.9	-	-	-	36	
40		39.0	37.4	33.0	31.5	26.0	24.9	38.7	36.2	37.3	-	-	40	
48		32.4	32.2	29.1	28.1	23.5	22.7	30.8	29.4	32.1	30.6	-	48	
56		25.5	25.5	25.7	25.3	22.0	21.4	24.5	24.3	25.4	24.6	24.9	56	
64		20.5	20.5	21.3	21.3	-	-	19.9	19.9	20.4	20.3	21.1	64	
72		-	-	-	-	-	-	16.2	16.2	17.2	17.2	17.3	72	
80		-	-	-	-	-	-	13.3	13.3	14.2	14.2	15.0	80	
88		-	-	-	-	-	-	11.0	11.0	11.8	11.8	12.4	88	
96		-	-	-	-	-	-	9.1	9.1	9.8	9.8	10.3	96	
104		-	-	-	-	-	-	7.3	7.3	8.1	8.1	8.6	104	
112		-	-	-	-	-	-	5.9	5.9	6.5	6.5	7.0	112	
120		-	-	-	-	-	-	4.6	4.6	5.2	5.2	5.5	120	
128		-	-	-	-	-	-	3.5	3.5	4.0	4.0	-	128	
136		-	-	-	-	-	-	2.6	2.6	3.0	3.0	-	136	

		 181.1 ft				 196.9 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48		23.3	-	-	-	-	-	-	-	-	-	-	-	48
56		20.3	18.7	-	-	-	-	18.3	16.0	-	-	-	-	56
64		16.0	15.0	18.2	-	-	-	14.0	13.2	-	-	-	-	64
72		12.4	12.2	14.4	13.7	16.1	-	10.4	10.4	12.6	-	-	-	72
80		9.5	9.5	11.3	11.3	12.8	12.6	7.8	7.8	9.7	9.7	11.5	11.3	80
88		7.2	7.2	8.8	8.8	10.2	10.2	5.5	5.5	7.2	7.2	8.9	8.9	88
96		5.3	5.3	6.7	6.7	7.9	7.9	3.8	3.8	5.2	5.2	6.6	6.6	96
104		3.7	3.7	5.0	5.0	6.2	6.2	-	-	3.5	3.5	4.8	4.8	104
112		-	-	3.5	3.5	4.6	4.6	-	-	-	-	3.2	3.2	112
120		-	-	-	-	3.2	3.2	-	-	-	-	-	-	120

HAV

33,100 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		36°		
ft		1,000 lb										ft
14		49.3	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.8	27.7	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	29.5	25.7	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	24.7	22.7	22.1	20.7	56
64		20.3	19.2	16.9	16.2	13.4	13.0	19.7	19.3	20.6	19.4	64
72		18.1	17.2	15.5	14.8	12.6	12.1	16.6	16.6	17.5	17.4	72
80		15.5	15.5	14.2	13.8	-	-	13.9	13.9	14.6	14.6	80
88		-	-	-	-	-	-	11.6	11.6	12.7	12.7	88
96		-	-	-	-	-	-	9.6	9.6	10.9	10.9	96
104		-	-	-	-	-	-	8.1	8.1	9.1	9.1	104
112		-	-	-	-	-	-	6.5	6.5	7.6	7.6	112
120		-	-	-	-	-	-	5.3	5.3	6.3	6.3	120
128		-	-	-	-	-	-	4.2	4.2	5.1	5.1	128
136		-	-	-	-	-	-	3.3	3.3	4.0	4.0	136
144		-	-	-	-	-	-	2.5	2.5	2.9	2.9	144










		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		36°		
ft		1,000 lb										ft
56		18.7	15.7	-	-	-	-	-	-	-	-	56
64		15.6	14.5	-	-	-	-	13.8	12.6	-	-	64
72		12.2	12.2	-	-	-	-	10.4	10.4	-	-	72
80		9.4	9.4	12.1	12.0	-	-	7.8	7.8	10.6	-	80
88		7.2	7.2	9.5	9.5	11.5	11.5	5.5	5.5	8.1	8.1	88
96		5.3	5.3	7.4	7.4	9.5	9.5	3.8	3.8	6.1	6.1	96
104		3.9	3.9	5.7	5.7	7.5	7.5	-	-	4.4	4.4	104
112		-	-	4.3	4.3	5.9	5.9	-	-	-	-	112
120		-	-	3.1	3.1	4.5	4.5	-	-	-	-	120
128		-	-	-	-	3.3	3.3	-	-	-	-	128






HAV

33,100 lb +		33,100 lb		75.5 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft				126.0 ft									
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
18	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	-	-	56
64	16.3	15.1	13.3	12.6	10.1	9.9	18.5	17.1	15.0	-	-	-	-	-	64
72	14.6	13.5	11.9	11.5	9.3	9.1	15.9	15.7	14.1	13.0	-	-	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	13.6	13.6	13.3	12.3	9.6	9.2	-	-	80
88	11.8	11.1	10.1	9.6	8.1	7.8	11.6	11.6	12.2	11.5	9.2	8.7	-	-	88
96	10.8	10.2	9.3	9.0	7.7	7.4	9.7	9.7	10.7	10.5	8.8	8.3	-	-	96
104	10.0	9.4	8.7	8.4	-	-	8.1	8.1	9.6	9.5	8.4	8.0	-	-	104
112	-	-	-	-	-	-	6.8	6.8	8.1	8.1	8.1	7.7	-	-	112
120	-	-	-	-	-	-	5.5	5.5	6.8	6.8	7.5	7.4	-	-	120
128	-	-	-	-	-	-	4.4	4.4	5.6	5.6	6.6	6.6	-	-	128
136	-	-	-	-	-	-	3.5	3.5	4.4	4.4	5.4	5.4	-	-	136
144	-	-	-	-	-	-	2.5	2.5	3.6	3.6	4.2	4.2	-	-	144
152	-	-	-	-	-	-	-	-	-	-	3.2	3.2	-	-	152










		181.1 ft				196.9 ft									
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
															0°
1,000 lb															
64	13.4	11.2	-	-	-	-	-	-	-	-	-	-	-	-	64
72	11.3	10.8	-	-	-	-	9.3	8.8	-	-	-	-	-	-	72
80	8.7	8.7	-	-	-	-	6.7	6.7	-	-	-	-	-	-	80
88	6.4	6.4	9.5	9.5	-	-	4.7	4.7	-	-	-	-	-	-	88
96	4.7	4.7	7.4	7.4	-	-	3.1	3.1	6.1	-	-	-	-	-	96
104	3.3	3.3	5.7	5.7	8.0	-	-	-	4.4	-	-	-	-	-	104
112	-	-	4.3	4.3	6.5	6.5	-	-	-	-	5.4	-	-	-	112
120	-	-	3.1	3.1	5.0	5.0	-	-	-	-	3.9	-	-	-	120
128	-	-	-	-	3.9	3.9	-	-	-	-	2.7	-	-	-	128
136	-	-	-	-	2.7	2.7	-	-	-	-	-	-	-	-	136






HAV

11,000 lb +  33,100 lb		 16.4 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	18
20	92.2	88.0	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	20
24	72.5	72.5	69.8	68.1	60.5	59.4	-	-	-	-	-	-	-	24
28	55.5	55.5	57.6	57.6	55.9	55.5	49.1	44.5	-	-	-	-	-	28
32	44.1	44.1	45.8	45.8	46.9	46.9	42.7	38.4	42.8	37.1	-	-	-	32
36	36.7	36.7	38.0	38.0	38.9	38.9	37.2	33.6	37.7	35.2	38.6	33.8	-	36
40	30.4	30.4	31.2	31.2	-	-	31.9	29.2	33.2	30.8	34.1	31.8	-	40
48	-	-	-	-	-	-	23.5	22.9	24.5	24.0	25.3	24.9	-	48
56	-	-	-	-	-	-	17.7	17.7	18.6	18.6	19.1	19.1	-	56
64	-	-	-	-	-	-	13.7	13.7	14.3	14.3	14.9	14.9	-	64
72	-	-	-	-	-	-	10.6	10.6	11.1	11.1	11.5	11.5	-	72
80	-	-	-	-	-	-	8.3	8.3	8.7	8.7	9.1	9.1	-	80
88	-	-	-	-	-	-	6.2	6.2	6.6	6.6	6.9	6.9	-	88
96	-	-	-	-	-	-	4.5	4.5	4.9	4.9	5.1	5.1	-	96
104	-	-	-	-	-	-	3.0	3.0	3.3	3.3	3.5	3.5	-	104










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48	17.5	16.4	-	-	-	-	15.4	-	-	-	-	-	-	48
56	13.0	12.6	14.1	13.6	15.1	14.4	11.0	10.7	12.2	-	-	-	-	56
64	9.5	9.4	10.4	10.3	11.3	11.0	7.7	7.7	8.6	8.6	9.5	9.5	-	64
72	6.7	6.7	7.6	7.6	8.2	8.2	4.9	4.9	5.8	5.8	6.7	6.7	-	72
80	4.3	4.3	5.2	5.2	5.8	5.8	-	-	3.6	3.6	4.3	4.3	-	80
88	-	-	3.2	3.2	3.8	3.8	-	-	-	-	-	-	-	88






HAV

		11,000 lb +  33,100 lb		 36.1 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	40.2	34.1	-	-	-	-	32
36		39.4	38.3	34.9	33.3	27.5	26.4	35.7	32.3	-	-	-	-	36
40		33.2	33.2	32.8	31.4	26.0	24.9	31.6	28.6	30.5	-	-	-	40
48		24.8	24.8	26.4	26.4	23.5	22.7	24.3	22.6	25.4	24.1	-	-	48
56		19.2	19.2	20.2	20.2	20.6	20.3	18.6	18.1	20.2	19.9	20.9	20.6	56
64		15.3	15.3	15.8	15.8	-	-	14.4	14.4	15.8	15.8	16.9	16.9	64
72		-	-	-	-	-	-	11.3	11.3	12.4	12.4	13.5	13.5	72
80		-	-	-	-	-	-	8.9	8.9	10.0	10.0	10.9	10.9	80
88		-	-	-	-	-	-	6.9	6.9	8.0	8.0	8.6	8.6	88
96		-	-	-	-	-	-	5.1	5.1	6.1	6.1	6.7	6.7	96
104		-	-	-	-	-	-	3.7	3.7	4.6	4.6	5.0	5.0	104
112		-	-	-	-	-	-	-	-	3.2	3.2	3.7	3.7	112










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48		17.6	-	-	-	-	-	-	-	-	-	-	-	48
56		13.2	12.3	-	-	-	-	11.1	10.5	-	-	-	-	56
64		9.5	9.4	11.7	-	-	-	7.5	7.4	-	-	-	-	64
72		6.5	6.5	8.4	8.4	10.4	-	4.7	4.7	6.9	-	-	-	72
80		4.3	4.3	6.1	6.1	7.6	7.6	-	-	4.5	-	-	-	80
88		-	-	4.1	4.1	5.5	5.5	-	-	-	-	-	-	88
96		-	-	-	-	3.7	3.7	-	-	-	-	-	-	96






HAV

11,000 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		49.3	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	31.5	26.5	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	29.7	26.0	-	-	-	-	40
48		25.5	24.4	21.0	20.1	16.1	15.5	24.0	22.2	-	-	-	-	48
56		20.8	20.8	18.9	17.9	14.6	14.1	19.3	18.0	20.4	18.8	-	-	56
64		16.6	16.6	16.9	16.2	13.4	13.0	15.1	14.5	16.8	16.6	-	-	64
72		13.5	13.5	14.6	14.6	12.6	12.1	12.0	12.0	13.7	13.7	14.3	13.7	72
80		11.2	11.2	12.0	12.0	-	-	9.4	9.4	11.1	11.1	12.6	12.4	80
88		-	-	-	-	-	-	7.5	7.5	9.1	9.1	10.3	10.3	88
96		-	-	-	-	-	-	5.9	5.9	7.3	7.3	8.4	8.4	96
104		-	-	-	-	-	-	4.6	4.6	5.7	5.7	6.8	6.8	104
112		-	-	-	-	-	-	3.2	3.2	4.3	4.3	5.2	5.2	112
120		-	-	-	-	-	-	-	-	3.3	3.3	3.9	3.9	120
128		-	-	-	-	-	-	-	-	-	-	2.9	2.9	128

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		12.9	12.3	-	-	-	-	-	-	-	-	-	-	56
64		9.3	9.2	-	-	-	-	7.3	7.3	-	-	-	-	64
72		6.5	6.5	-	-	-	-	4.5	4.5	-	-	-	-	72
80		4.3	4.3	6.9	6.9	-	-	-	-	-	-	-	-	80
88		-	-	4.9	4.9	7.1	7.1	-	-	-	-	-	-	88
96		-	-	3.1	3.1	5.2	5.2	-	-	-	-	-	-	96
104		-	-	-	-	3.5	3.5	-	-	-	-	-	-	104

HAV

		11,000 lb +  33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		32.9	-	-	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48		20.9	18.5	16.7	15.6	-	-	20.3	18.2	-	-	-	-	48
56		18.5	16.7	14.8	14.0	-	-	17.6	16.5	-	-	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	14.4	14.3	14.8	-	-	-	64
72		14.2	13.5	11.9	11.5	9.3	9.1	11.3	11.3	13.3	12.8	-	-	72
80		11.8	11.8	10.9	10.5	8.7	8.3	8.9	8.9	11.5	11.5	9.6	9.2	80
88		9.9	9.9	10.1	9.6	8.1	7.8	7.0	7.0	9.3	9.3	9.2	8.7	88
96		8.3	8.3	9.0	8.8	7.7	7.4	5.5	5.5	7.5	7.5	8.7	8.2	96
104		7.2	7.2	7.7	7.7	-	-	4.1	4.1	5.9	5.9	7.6	7.6	104
112		-	-	-	-	-	-	3.0	3.0	4.8	4.8	6.3	6.3	112
120		-	-	-	-	-	-	-	-	3.7	3.7	5.0	5.0	120
128		-	-	-	-	-	-	-	-	2.8	2.8	3.7	3.7	128
136		-	-	-	-	-	-	-	-	-	-	2.7	2.7	136

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		8.1	8.1	-	-	-	-	-	-	-	-	-	-	64
72		5.4	5.4	-	-	-	-	-	-	-	-	-	-	72
80		3.5	3.5	-	-	-	-	-	-	-	-	-	-	80

HAV

0 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	16
18	95.6	89.9	77.9	74.8	65.7	63.6	-	-	-	-	-	-	18
20	87.8	82.4	75.3	72.7	64.1	62.4	-	-	-	-	-	-	20
24	63.2	63.2	65.8	65.5	60.1	59.4	-	-	-	-	-	-	24
28	48.1	48.1	50.0	50.0	51.8	51.8	42.9	38.0	-	-	-	-	28
32	37.9	37.9	39.4	39.4	40.8	40.8	36.5	32.6	38.3	31.2	-	-	32
36	31.3	31.3	32.4	32.4	33.4	33.4	31.4	28.3	33.1	29.7	34.5	28.5	36
40	25.6	25.6	26.5	26.5	-	-	26.7	24.4	28.2	25.7	29.5	27.0	40
48	-	-	-	-	-	-	19.7	18.9	20.7	19.9	21.6	20.9	48
56	-	-	-	-	-	-	14.6	14.5	15.4	15.3	16.1	16.1	56
64	-	-	-	-	-	-	11.0	11.0	11.7	11.7	12.2	12.2	64
72	-	-	-	-	-	-	8.2	8.2	8.9	8.9	9.1	9.1	72
80	-	-	-	-	-	-	5.9	5.9	6.3	6.3	6.7	6.7	80
88	-	-	-	-	-	-	4.1	4.1	4.4	4.4	4.7	4.7	88
96	-	-	-	-	-	-	-	-	2.8	2.8	3.1	3.1	96










		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
48	13.4	12.7	-	-	-	-	11.3	-	-	-	-	-	48
56	9.5	9.2	10.5	10.3	11.6	11.2	7.5	-	8.7	-	-	-	56
64	6.3	6.3	7.2	7.2	8.1	8.1	4.5	-	5.6	-	-	-	64
72	3.8	3.8	4.7	4.7	5.4	5.4	-	-	2.9	-	-	-	72






HAV










0 lb +		33,100 lb		36.1 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18	62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20	59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24	53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28	48.8	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32	41.3	40.8	36.9	35.3	29.0	27.8	34.8	28.5	-	-	-	-	32
36	34.4	34.4	34.0	33.2	27.5	26.4	30.9	27.4	-	-	-	-	36
40	28.5	28.5	30.8	30.8	26.0	24.9	26.6	23.8	27.6	-	-	-	40
48	21.0	21.0	22.7	22.7	22.8	22.2	20.3	18.7	22.7	20.9	-	-	48
56	16.1	16.1	17.2	17.2	18.0	18.0	15.5	14.6	17.2	16.5	18.6	18.3	56
64	12.6	12.6	13.1	13.1	-	-	11.7	11.4	13.1	13.0	14.4	14.4	64
72	-	-	-	-	-	-	8.9	8.9	10.2	10.2	11.1	11.1	72
80	-	-	-	-	-	-	6.7	6.7	7.9	7.9	8.7	8.7	80
88	-	-	-	-	-	-	4.7	4.7	6.0	6.0	6.6	6.6	88
96	-	-	-	-	-	-	3.3	3.3	4.2	4.2	4.9	4.9	96
104	-	-	-	-	-	-	-	-	2.8	2.8	3.3	3.3	104

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
48	13.7	-	-	-	-	-	-	-	-	-	-	-	48
56	9.5	9.1	-	-	-	-	-	-	-	-	-	-	56
64	6.1	6.1	8.4	-	-	-	-	-	-	-	-	-	64
72	3.6	3.6	5.6	5.6	7.6	-	-	-	-	-	-	-	72
80	-	-	3.5	3.5	5.2	5.2	-	-	-	-	-	-	80
88	-	-	-	-	3.2	3.2	-	-	-	-	-	-	88

HAV

0 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
14		49.3	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	27.5	-	-	-	36
40		29.2	27.4	23.4	22.3	-	-	26.4	23.4	-	-	40
48		22.7	22.7	21.0	20.1	16.1	15.5	20.3	18.4	-	-	48
56		17.5	17.5	18.7	17.9	14.6	14.1	15.5	14.6	17.8	16.9	56
64		13.9	13.9	15.3	15.2	13.4	13.0	11.7	11.6	14.4	13.9	64
72		11.1	11.1	12.2	12.2	12.6	12.1	9.1	9.1	11.3	11.3	72
80		9.2	9.2	9.8	9.8	-	-	6.8	6.8	8.9	8.9	80
88		-	-	-	-	-	-	5.2	5.2	7.0	7.0	88
96		-	-	-	-	-	-	3.7	3.7	5.3	5.3	96
104		-	-	-	-	-	-	2.6	2.6	3.9	3.9	104
112		-	-	-	-	-	-	-	-	-	-	112

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
56		9.1	8.9	-	-	-	-	-	-	-	-	56
64		5.9	5.9	-	-	-	-	-	-	-	-	64
72		3.6	3.6	-	-	-	-	-	-	-	-	72










0 lb +  33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
18		32.9	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	21.6	19.1	-	-	40
48		20.9	18.5	16.7	15.6	-	-	18.6	17.0	-	-	48
56		18.0	16.7	14.8	14.0	-	-	14.5	14.2	-	-	56
64		14.6	14.4	13.3	12.6	10.1	9.9	11.0	11.0	12.2	-	64
72		11.7	11.7	11.9	11.5	9.3	9.1	8.4	8.4	11.3	11.3	72
80		9.7	9.7	10.8	10.4	8.7	8.3	6.3	6.3	8.9	8.9	80
88		8.1	8.1	9.1	9.1	8.1	7.8	4.6	4.6	7.0	7.0	88
96		6.7	6.7	7.5	7.5	7.7	7.4	3.3	3.3	5.3	5.3	96
104		5.6	5.6	6.1	6.1	-	-	-	-	4.1	4.1	104
112		-	-	-	-	-	-	-	-	-	-	112
120		-	-	-	-	-	-	-	-	-	-	120





HAV

99,200 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
18	97.4	92.4	-	-	-	-	-	-	-	-	-	-	-	-
20	93.1	88.6	-	-	-	-	-	-	-	-	-	-	-	-
24	85.9	82.2	71.6	69.3	-	-	-	-	-	-	-	-	-	-
28	79.8	76.7	67.8	65.9	57.5	56.6	-	-	-	-	-	-	-	-
32	70.8	70.1	63.6	62.4	54.9	54.2	-	-	-	-	-	-	-	-
36	60.9	60.9	58.4	57.9	53.3	52.6	-	-	-	-	-	-	-	-
40	51.9	51.9	52.8	52.8	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	39.2	39.2	-	-	-	-	-	-
56	-	-	-	-	-	-	30.9	30.9	31.9	31.9	-	-	-	-
64	-	-	-	-	-	-	25.8	25.8	25.8	25.8	26.3	26.3	-	-
72	-	-	-	-	-	-	21.9	21.9	22.3	22.3	22.1	22.1	-	-
80	-	-	-	-	-	-	18.3	18.3	18.7	18.7	19.1	19.1	-	-
88	-	-	-	-	-	-	15.6	15.6	15.9	15.9	16.2	16.2	-	-
96	-	-	-	-	-	-	13.7	13.7	13.8	13.8	13.9	13.9	-	-
104	-	-	-	-	-	-	11.7	11.7	11.9	11.9	12.1	12.1	-	-
112	-	-	-	-	-	-	10.1	10.1	10.3	10.3	-	-	-	-
120	-	-	-	-	-	-	8.7	8.7	8.9	8.9	-	-	-	-
128	-	-	-	-	-	-	7.5	7.5	-	-	-	-	-	-
136	-	-	-	-	-	-	-	-	-	-	-	-	-	-
144	-	-	-	-	-	-	-	-	-	-	-	-	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
72	19.9	19.0	-	-	-	-	-	-	-	-	-	-	-	-
80	16.5	16.5	16.8	16.6	16.9	16.9	15.6	15.5	16.2	16.1	16.7	16.7	-	-
88	13.6	13.6	14.1	14.1	14.5	14.5	12.8	12.8	13.3	13.3	13.9	13.9	-	-
96	11.2	11.2	11.7	11.7	12.1	12.1	10.2	10.2	10.9	10.9	11.3	11.3	-	-
104	9.1	9.1	9.7	9.7	10.0	10.0	8.2	8.2	8.6	8.6	9.1	9.1	-	-
112	7.4	7.4	7.8	7.8	8.1	8.1	6.3	6.3	6.7	6.7	7.2	7.2	-	-
120	5.8	5.8	6.1	6.1	6.5	6.5	4.8	4.8	5.2	5.2	5.6	5.6	-	-
128	4.4	4.4	4.7	4.7	5.0	5.0	3.4	3.4	3.9	3.9	4.1	4.1	-	-
136	3.3	3.3	3.5	3.5	3.8	3.8	-	-	2.7	2.7	2.9	2.9	-	-
144	-	-	2.5	2.5	2.7	2.7	-	-	-	-	-	-	-	-

HAV

		99,200 lb + 		33,100 lb 		36.1 ft 		11.5 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
24		53.6	50.1	-	-	-	-	-	-	-	-	-	-	-	-	24
28		49.2	46.2	-	-	-	-	-	-	-	-	-	-	-	-	28
32		45.3	42.9	-	-	-	-	-	-	-	-	-	-	-	-	32
36		42.1	40.1	34.9	33.3	-	-	-	-	-	-	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	-	-	-	-	-	-	-	-	40
48		34.7	33.2	29.1	28.1	23.5	22.7	-	-	-	-	-	-	-	-	48
56		30.8	29.6	26.2	25.4	22.0	21.4	30.9	30.7	-	-	-	-	-	-	56
64		27.2	26.2	24.1	23.5	-	-	25.6	25.6	26.3	26.3	-	-	-	-	64
72		-	-	-	-	-	-	21.3	21.3	22.6	22.6	-	-	-	-	72
80		-	-	-	-	-	-	18.5	18.5	18.9	18.9	19.1	19.1	-	-	80
88		-	-	-	-	-	-	16.2	16.2	16.4	15.9	16.5	16.5	-	-	88
96		-	-	-	-	-	-	13.9	13.9	14.1	13.9	14.2	14.2	-	-	96
104		-	-	-	-	-	-	11.9	11.9	12.3	12.3	12.5	12.5	-	-	104
112		-	-	-	-	-	-	10.5	10.5	10.7	10.7	11.2	11.2	-	-	112
120		-	-	-	-	-	-	9.2	9.2	9.4	9.4	9.6	9.6	-	-	120
128		-	-	-	-	-	-	8.0	8.0	8.0	8.0	5.8	5.8	-	-	128
136		-	-	-	-	-	-	6.9	6.9	7.1	7.1	-	-	-	-	136
144		-	-	-	-	-	-	5.8	5.8	6.0	6.0	-	-	-	-	144

		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
80		16.3	15.9	17.8	17.6	-	-	15.8	15.3	-	-	-	-	-	-	80
88		14.0	13.9	14.7	14.7	15.6	15.6	12.9	12.9	14.4	14.2	-	-	-	-	88
96		11.9	11.9	12.6	12.5	13.2	13.2	10.4	10.4	12.0	11.9	12.8	12.8	-	-	96
104		9.7	9.7	10.8	10.8	11.4	11.4	8.4	8.4	9.7	9.7	10.8	10.8	-	-	104
112		8.1	8.1	8.9	8.9	9.6	9.6	6.7	6.7	7.8	7.8	8.9	8.9	-	-	112
120		6.5	6.5	7.3	7.3	8.0	8.0	5.2	5.2	6.3	6.3	7.1	7.1	-	-	120
128		5.0	5.0	5.8	5.8	6.5	6.5	4.0	4.0	5.0	5.0	5.6	5.6	-	-	128
136		3.8	3.8	4.5	4.5	5.2	5.2	2.9	2.9	3.6	3.6	4.3	4.3	-	-	136
144		2.7	2.7	3.4	3.4	3.8	3.8	-	-	2.5	2.5	3.1	3.1	-	-	144

HAV

99,200 lb +		33,100 lb		55.8 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
32	34.1	31.5	-	-	-	-	-	-	-	-	-	-	32
36	31.7	29.5	-	-	-	-	-	-	-	-	-	-	36
40	29.5	27.5	-	-	-	-	-	-	-	-	-	-	40
48	25.8	24.4	21.0	20.1	-	-	-	-	-	-	-	-	48
56	22.9	21.7	18.9	17.9	-	-	28.9	25.0	-	-	-	-	56
64	20.3	19.2	16.9	16.2	13.4	13.0	25.5	23.8	-	-	-	-	64
72	18.1	17.2	15.5	14.8	12.6	12.1	21.9	21.2	-	-	-	-	72
80	16.3	15.7	14.2	13.8	-	-	18.5	18.1	18.3	17.3	-	-	80
88	-	-	-	-	-	-	15.8	15.7	16.5	16.1	13.3	12.6	88
96	-	-	-	-	-	-	14.0	13.4	14.4	14.4	12.7	12.2	96
104	-	-	-	-	-	-	12.1	12.0	12.6	12.6	12.4	11.9	104
112	-	-	-	-	-	-	10.3	10.3	10.7	10.7	11.6	11.2	112
120	-	-	-	-	-	-	9.4	9.4	9.7	9.7	10.0	10.0	120
128	-	-	-	-	-	-	8.3	8.3	8.6	8.6	8.8	8.8	128
136	-	-	-	-	-	-	7.1	7.1	7.7	7.7	7.8	7.8	136
144	-	-	-	-	-	-	6.2	6.2	6.7	6.7	6.9	6.9	144
152	-	-	-	-	-	-	5.4	5.4	5.7	5.7	-	-	152
160	-	-	-	-	-	-	4.6	4.6	5.0	5.0	-	-	160

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
80	16.5	15.4	-	-	-	-	14.7	12.6	-	-	-	-	80
88	13.6	13.5	14.5	14.4	-	-	12.9	12.2	-	-	-	-	88
96	11.8	11.7	13.3	13.1	-	-	10.6	10.6	12.0	11.9	-	-	96
104	9.9	9.9	11.3	11.3	11.8	11.5	8.6	8.6	10.6	10.6	-	-	104
112	8.3	8.3	9.6	9.6	10.7	10.7	6.8	6.8	8.7	8.7	9.9	9.9	112
120	7.0	7.0	8.4	8.4	9.1	9.1	5.4	5.4	7.1	7.1	8.7	8.7	120
128	5.6	5.6	6.9	6.9	7.9	7.9	4.2	4.2	5.7	5.7	7.2	7.2	128
136	4.4	4.4	5.8	5.8	6.7	6.7	3.1	3.1	4.5	4.5	5.8	5.8	136
144	3.4	3.4	4.5	4.5	5.4	5.4	-	-	3.6	3.6	4.7	4.7	144
152	-	-	3.4	3.4	4.3	4.3	-	-	-	-	3.4	3.4	152
160	-	-	-	-	3.2	3.2	-	-	-	-	-	-	160

HAV

99,200 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	-	-	-	-	-	-	-	-	-	-	40
48	20.9	18.5	-	-	-	-	-	-	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	-	-	-	-	-	-	56
64	16.3	15.1	13.3	12.6	-	-	19.2	17.4	-	-	-	-	64
72	14.6	13.5	11.9	11.5	-	-	18.1	16.6	-	-	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	17.0	15.7	13.3	12.3	-	-	80
88	11.8	11.1	10.1	9.6	8.1	7.8	15.3	14.7	12.5	11.7	-	-	88
96	10.8	10.2	9.3	9.0	7.7	7.4	13.6	13.3	11.7	11.0	-	-	96
104	10.0	9.4	8.7	8.4	-	-	11.7	11.7	11.1	10.4	8.4	8.0	104
112	-	-	-	-	-	-	10.1	10.1	10.6	10.1	8.1	7.7	112
120	-	-	-	-	-	-	9.0	9.0	9.8	9.5	7.9	7.4	120
128	-	-	-	-	-	-	7.8	7.8	8.5	8.5	7.6	7.3	128
136	-	-	-	-	-	-	7.0	7.0	7.5	7.5	7.3	7.1	136
144	-	-	-	-	-	-	6.2	6.2	6.4	6.4	6.9	6.8	144
152	-	-	-	-	-	-	5.2	5.2	5.8	5.8	6.2	6.2	152
160	-	-	-	-	-	-	4.5	4.5	5.0	5.0	5.3	5.3	160
168	-	-	-	-	-	-	3.9	3.9	4.2	4.2	-	-	168
176	-	-	-	-	-	-	3.4	3.4	3.6	3.6	-	-	176
184	-	-	-	-	-	-	2.8	2.8	-	-	-	-	184










		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
80	13.8	11.2	-	-	-	-	11.4	8.8	-	-	-	-	80
88	12.9	11.2	-	-	-	-	11.1	8.8	-	-	-	-	88
96	10.9	10.4	-	-	-	-	9.7	8.8	-	-	-	-	96
104	9.5	9.4	10.4	9.8	-	-	7.9	7.9	9.6	8.8	-	-	104
112	7.6	7.6	9.4	9.4	7.9	7.5	6.3	6.3	8.7	8.7	-	-	112
120	6.3	6.3	8.0	8.0	7.7	7.2	4.8	4.8	7.1	7.1	7.7	7.1	120
128	5.1	5.1	6.9	6.9	7.5	7.1	3.7	3.7	5.7	5.7	7.3	6.9	128
136	4.0	4.0	5.8	5.8	6.9	6.7	2.7	2.7	4.5	4.5	6.3	6.2	136
144	3.1	3.1	4.7	4.7	6.0	6.0	-	-	3.6	3.6	5.1	5.1	144
152	-	-	3.8	3.8	4.9	4.9	-	-	-	-	4.0	4.0	152
160	-	-	2.8	2.8	3.9	3.9	-	-	-	-	3.1	3.1	160






HAV

77,200 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	111.6	-	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20	93.1	88.6	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24	85.6	82.2	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28	74.4	73.3	67.8	65.9	57.5	56.6	64.3	57.5	-	-	-	-	-	-	-	28
32	61.0	61.0	61.5	61.1	54.9	54.2	56.3	51.8	57.7	-	-	-	-	-	-	32
36	51.9	51.9	53.0	53.0	50.5	50.1	49.9	46.1	50.3	47.2	49.0	-	-	-	-	36
40	43.9	43.9	44.7	44.7	-	-	43.2	40.8	43.4	42.3	44.7	42.6	-	-	-	40
48	-	-	-	-	-	-	33.6	33.6	33.8	33.6	34.6	34.6	-	-	-	48
56	-	-	-	-	-	-	27.1	27.1	27.4	27.4	27.7	27.7	-	-	-	56
64	-	-	-	-	-	-	22.2	22.2	22.5	22.4	22.9	22.9	-	-	-	64
72	-	-	-	-	-	-	18.2	18.2	18.8	18.8	19.0	19.0	-	-	-	72
80	-	-	-	-	-	-	15.2	15.2	15.7	15.7	15.9	15.9	-	-	-	80
88	-	-	-	-	-	-	12.7	12.7	13.1	13.1	13.3	13.3	-	-	-	88
96	-	-	-	-	-	-	10.7	10.7	10.9	10.9	11.2	11.2	-	-	-	96
104	-	-	-	-	-	-	9.0	9.0	9.2	9.2	9.5	9.5	-	-	-	104
112	-	-	-	-	-	-	7.4	7.4	7.6	7.6	-	-	-	-	-	112
120	-	-	-	-	-	-	6.1	6.1	6.3	6.3	-	-	-	-	-	120
128	-	-	-	-	-	-	5.1	5.1	-	-	-	-	-	-	-	128







		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	30.6	27.0	-	-	-	-	26.3	-	-	-	-	-	-	-	-	48
56	24.8	22.9	24.9	23.5	26.0	24.1	22.7	20.9	23.9	-	-	-	-	-	-	56
64	19.7	18.8	20.6	19.8	21.0	20.4	18.1	17.1	19.2	18.0	20.1	18.8	-	-	-	64
72	15.7	15.5	16.4	16.2	17.1	17.0	14.4	13.7	15.3	14.6	16.2	15.3	-	-	-	72
80	12.8	12.8	13.5	13.5	13.9	13.9	11.5	11.1	12.3	12.0	13.0	12.6	-	-	-	80
88	10.2	10.2	10.9	10.9	11.3	11.3	8.9	8.9	9.5	9.5	10.2	10.1	-	-	-	88
96	7.9	7.9	8.6	8.6	9.0	9.0	6.7	6.7	7.4	7.4	7.9	7.9	-	-	-	96
104	6.0	6.0	6.6	6.6	6.9	6.9	5.0	5.0	5.5	5.5	6.0	6.0	-	-	-	104
112	4.5	4.5	5.0	5.0	5.2	5.2	3.5	3.5	3.9	3.9	4.3	4.3	-	-	-	112
120	3.1	3.1	3.4	3.4	3.7	3.7	-	-	-	-	-	-	-	-	-	120



HAV

		77,200 lb +  33,100 lb		 36.1 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	51.0	45.2	-	-	-	-	32
36		42.1	40.1	34.9	33.3	27.5	26.4	46.7	42.2	-	-	-	-	36
40		39.1	37.4	33.0	31.5	26.0	24.9	42.2	39.7	37.4	-	-	-	40
48		34.4	33.2	29.1	28.1	23.5	22.7	33.6	32.1	33.5	32.6	-	-	48
56		28.9	28.7	26.2	25.4	22.0	21.4	27.0	26.9	28.3	28.3	25.1	24.4	56
64		23.7	23.7	23.6	23.5	-	-	22.3	22.3	23.1	22.6	23.3	23.1	64
72		-	-	-	-	-	-	18.6	18.6	19.1	19.0	19.5	19.5	72
80		-	-	-	-	-	-	15.9	15.9	16.0	16.0	16.7	16.7	80
88		-	-	-	-	-	-	13.4	13.4	13.8	13.8	14.1	14.1	88
96		-	-	-	-	-	-	11.4	11.4	12.0	12.0	12.3	12.3	96
104		-	-	-	-	-	-	9.5	9.5	10.2	10.2	10.6	10.6	104
112		-	-	-	-	-	-	8.1	8.1	8.7	8.7	9.0	9.0	112
120		-	-	-	-	-	-	6.7	6.7	7.2	7.2	7.6	7.6	120
128		-	-	-	-	-	-	5.5	5.5	5.9	5.9	3.4	3.4	128
136		-	-	-	-	-	-	4.4	4.4	4.9	4.9	-	-	136
144		-	-	-	-	-	-	3.6	3.6	3.8	3.8	-	-	144







		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		23.7	20.6	-	-	-	-	20.6	17.0	-	-	-	-	56
64		19.8	18.3	19.3	-	-	-	18.1	16.3	-	-	-	-	64
72		16.2	15.3	17.5	17.0	16.6	-	14.4	13.7	16.4	-	-	-	72
80		13.0	12.7	14.7	14.2	15.3	15.1	11.3	11.1	13.2	12.7	14.7	14.1	80
88		10.4	10.4	12.0	11.8	13.1	12.9	8.8	8.8	10.4	10.4	12.0	11.6	88
96		8.3	8.3	9.7	9.7	10.8	10.8	6.7	6.7	8.1	8.1	9.6	9.5	96
104		6.4	6.4	7.7	7.7	8.8	8.8	5.0	5.0	6.4	6.4	7.5	7.5	104
112		5.0	5.0	6.1	6.1	7.0	7.0	3.5	3.5	4.8	4.8	5.9	5.9	112
120		3.7	3.7	4.5	4.5	5.4	5.4	-	-	3.4	3.4	4.3	4.3	120
128		-	-	3.3	3.3	4.0	4.0	-	-	-	-	3.1	3.1	128
136		-	-	-	-	2.7	2.7	-	-	-	-	-	-	136



HAV

		77,200 lb +  33,100 lb		 55.8 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
14		49.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.9	27.7	-	-	-	-	-	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	30.5	26.3	-	-	-	-	-	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	27.0	24.5	22.1	20.7	-	-	-	-	-	56
64		20.3	19.2	16.9	16.2	13.4	13.0	22.4	21.9	20.8	19.5	-	-	-	-	-	64
72		18.1	17.2	15.5	14.8	12.6	12.1	18.6	18.4	19.4	18.3	14.3	13.7	-	-	-	72
80		16.3	15.7	14.2	13.8	-	-	15.7	15.7	16.7	16.7	13.8	13.1	-	-	-	80
88		-	-	-	-	-	-	13.5	13.5	14.1	14.1	13.3	12.6	-	-	-	88
96		-	-	-	-	-	-	11.7	11.6	12.3	12.3	12.5	12.2	-	-	-	96
104		-	-	-	-	-	-	10.1	10.1	10.7	10.7	11.2	11.2	-	-	-	104
112		-	-	-	-	-	-	8.7	8.7	9.4	9.4	9.8	9.6	-	-	-	112
120		-	-	-	-	-	-	7.4	7.4	8.3	8.3	8.6	8.6	-	-	-	120
128		-	-	-	-	-	-	6.2	6.2	6.9	6.9	7.5	7.5	-	-	-	128
136		-	-	-	-	-	-	5.1	5.1	5.8	5.8	6.3	6.3	-	-	-	136
144		-	-	-	-	-	-	4.2	4.2	4.7	4.7	5.1	5.1	-	-	-	144
152		-	-	-	-	-	-	3.4	3.4	3.9	3.9	-	-	-	-	-	152
160		-	-	-	-	-	-	2.7	2.7	3.1	3.1	-	-	-	-	-	160

		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
56		19.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	56
64		18.4	15.7	-	-	-	-	15.8	12.6	-	-	-	-	-	-	-	64
72		15.9	14.8	-	-	-	-	14.2	12.6	-	-	-	-	-	-	-	72
80		12.8	12.6	14.7	14.2	-	-	11.1	11.1	13.9	-	-	-	-	-	-	80
88		10.3	10.3	12.5	12.4	12.8	12.0	8.8	8.8	11.3	11.2	-	-	-	-	-	88
96		8.3	8.3	10.4	10.4	11.6	11.2	6.7	6.7	9.0	9.0	10.8	10.8	-	-	-	96
104		6.6	6.6	8.4	8.4	10.1	10.1	5.0	5.0	7.1	7.1	9.1	9.1	-	-	-	104
112		5.2	5.2	6.8	6.8	8.3	8.3	3.7	3.7	5.4	5.4	7.2	7.2	-	-	-	112
120		3.9	3.9	5.4	5.4	6.7	6.7	-	-	4.2	4.2	5.6	5.6	-	-	-	120
128		2.9	2.9	4.2	4.2	5.5	5.5	-	-	3.0	3.0	4.4	4.4	-	-	-	128
136		-	-	3.1	3.1	4.3	4.3	-	-	-	-	3.2	3.2	-	-	-	136
144		-	-	-	-	3.1	3.1	-	-	-	-	-	-	-	-	-	144

HAV

		 77,200 lb + 33,100 lb		 75.5 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft								1,000 lb								ft	
18		32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		32.1	26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24		30.4	25.4	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28		28.7	24.2	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32		26.8	23.0	-	-	-	-	-	-	-	-	-	-	-	-	-	32
36		25.2	21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40		23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	-	-	-	40
48		20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	-	-	-	48
56		18.5	16.7	14.8	14.0	-	-	20.3	18.2	-	-	-	-	-	-	-	56
64		16.3	15.1	13.3	12.6	10.1	9.9	19.2	17.4	15.0	-	-	-	-	-	-	64
72		14.6	13.5	11.9	11.5	9.3	9.1	17.7	16.6	14.1	13.0	-	-	-	-	-	72
80		13.0	12.2	10.9	10.5	8.7	8.3	15.2	15.2	13.3	12.3	9.6	9.2	9.2	9.2	9.2	80
88		11.8	11.1	10.1	9.6	8.1	7.8	13.4	13.4	12.5	11.7	9.2	8.7	8.7	8.7	8.7	88
96		10.8	10.2	9.3	9.0	7.7	7.4	11.2	11.2	11.7	11.0	8.8	8.3	8.3	8.3	8.3	96
104		10.0	9.4	8.7	8.4	-	-	9.9	9.9	10.9	10.4	8.4	8.0	8.0	8.0	8.0	104
112		-	-	-	-	-	-	8.8	8.8	9.4	9.4	8.1	7.7	7.7	7.7	7.7	112
120		-	-	-	-	-	-	7.6	7.6	8.1	8.1	7.9	7.4	7.4	7.4	7.4	120
128		-	-	-	-	-	-	6.4	6.4	7.2	7.2	7.3	7.2	7.2	7.2	7.2	128
136		-	-	-	-	-	-	5.3	5.3	6.2	6.2	6.7	6.7	6.7	6.7	6.7	136
144		-	-	-	-	-	-	4.2	4.2	5.1	5.1	6.0	6.0	6.0	6.0	6.0	144
152		-	-	-	-	-	-	3.4	3.4	4.3	4.3	4.9	4.9	4.9	4.9	4.9	152
160		-	-	-	-	-	-	2.7	2.7	3.5	3.5	3.9	3.9	3.9	3.9	3.9	160










		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft								1,000 lb								ft	
64		14.4	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	64
72		14.1	11.2	-	-	-	-	11.7	8.8	-	-	-	-	-	-	-	72
80		12.0	10.9	-	-	-	-	10.2	8.8	-	-	-	-	-	-	-	80
88		9.6	9.6	11.3	10.6	-	-	8.0	8.0	-	-	-	-	-	-	-	88
96		7.6	7.6	10.0	9.9	-	-	6.1	6.1	9.0	-	-	-	-	-	-	96
104		5.9	5.9	8.4	8.4	8.2	-	4.4	4.4	7.1	7.1	-	-	-	-	-	104
112		4.6	4.6	6.8	6.8	7.9	7.5	-	-	5.4	5.4	7.6	7.2	7.2	7.2	7.2	112
120		3.5	3.5	5.4	5.4	7.4	7.1	-	-	4.2	4.2	6.3	6.3	6.3	6.3	6.3	120
128		-	-	4.2	4.2	6.1	6.1	-	-	3.1	3.1	5.0	5.0	5.0	5.0	5.0	128
136		-	-	3.1	3.1	4.9	4.9	-	-	-	-	3.8	3.8	3.8	3.8	3.8	136
144		-	-	-	-	3.8	3.8	-	-	-	-	2.7	2.7	2.7	2.7	2.7	144






HAV

55,100 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18	97.4	92.4	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20	92.7	88.5	75.5	72.7	64.1	62.4	-	-	-	-	-	-	-	-	-	20
24	78.1	78.1	71.6	69.3	60.5	59.4	-	-	-	-	-	-	-	-	-	24
28	61.8	61.8	63.5	62.5	57.5	56.6	54.3	49.7	-	-	-	-	-	-	-	28
32	50.3	50.3	51.7	51.7	52.1	51.9	48.0	44.2	48.9	43.8	-	-	-	-	-	32
36	42.6	42.6	43.7	43.7	44.5	44.5	41.8	39.4	42.4	39.9	43.9	38.7	-	-	-	36
40	35.8	35.8	36.7	36.7	-	-	36.7	35.4	37.1	36.0	37.8	36.4	-	-	-	40
48	-	-	-	-	-	-	28.2	28.2	29.2	29.2	29.6	29.6	-	-	-	48
56	-	-	-	-	-	-	22.0	22.0	22.8	22.8	23.3	23.3	-	-	-	56
64	-	-	-	-	-	-	17.4	17.4	18.1	18.1	18.5	18.5	-	-	-	64
72	-	-	-	-	-	-	14.0	14.0	14.6	14.6	14.8	14.8	-	-	-	72
80	-	-	-	-	-	-	11.3	11.3	11.8	11.8	12.2	12.2	-	-	-	80
88	-	-	-	-	-	-	9.3	9.3	9.7	9.7	9.9	9.9	-	-	-	88
96	-	-	-	-	-	-	7.4	7.4	7.8	7.8	8.1	8.1	-	-	-	96
104	-	-	-	-	-	-	5.7	5.7	6.2	6.2	6.2	6.2	-	-	-	104
112	-	-	-	-	-	-	4.6	4.6	4.8	4.8	-	-	-	-	-	112
120	-	-	-	-	-	-	3.3	3.3	3.5	3.5	-	-	-	-	-	120










		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	23.5	21.5	-	-	-	-	21.3	-	-	-	-	-	-	-	-	48
56	18.3	17.2	19.5	18.3	20.4	19.1	16.4	15.3	17.5	-	-	-	-	-	-	56
64	14.4	13.7	15.3	14.6	16.2	15.3	12.4	11.9	13.5	13.0	14.4	13.7	-	-	-	64
72	11.1	10.9	12.0	11.5	12.6	12.2	9.3	9.3	10.2	10.0	11.1	10.6	-	-	-	72
80	8.4	8.4	9.1	9.1	9.9	9.8	6.7	6.7	7.6	7.6	8.3	8.3	-	-	-	80
88	6.2	6.2	6.9	6.9	7.4	7.4	4.7	4.7	5.4	5.4	6.1	6.1	-	-	-	88
96	4.5	4.5	5.0	5.0	5.4	5.4	2.9	2.9	3.6	3.6	4.1	4.1	-	-	-	96
104	2.8	2.8	3.3	3.3	3.7	3.7	-	-	-	-	2.4	2.4	-	-	-	104






HAV

		55,100 lb +  33,100 lb		 36.1 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12		73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14		69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16		65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18		62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20		59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24		53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28		49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32		45.3	42.9	36.9	35.3	29.0	27.8	45.6	39.7	-	-	-	-	32
36		42.0	40.1	34.9	33.3	27.5	26.4	40.4	36.5	-	-	-	-	36
40		38.5	37.1	33.0	31.5	26.0	24.9	36.3	33.8	36.8	-	-	-	40
48		29.5	29.5	29.0	28.1	23.5	22.7	28.6	27.9	29.4	27.9	-	-	48
56		23.3	23.3	24.4	24.2	22.0	21.4	22.8	22.7	23.4	23.3	23.8	23.4	56
64		18.9	18.9	19.4	19.4	-	-	18.2	18.2	19.3	19.3	19.7	19.7	64
72		-	-	-	-	-	-	14.6	14.6	16.0	16.0	16.8	16.8	72
80		-	-	-	-	-	-	12.0	12.0	13.1	13.1	13.9	13.9	80
88		-	-	-	-	-	-	9.9	9.9	10.8	10.8	11.4	11.4	88
96		-	-	-	-	-	-	8.1	8.1	8.9	8.9	9.4	9.4	96
104		-	-	-	-	-	-	6.6	6.6	7.3	7.3	7.9	7.9	104
112		-	-	-	-	-	-	5.0	5.0	5.7	5.7	6.3	6.3	112
120		-	-	-	-	-	-	3.9	3.9	4.5	4.5	4.8	4.8	120
128		-	-	-	-	-	-	3.0	3.0	3.4	3.4	-	-	128
136		-	-	-	-	-	-	-	-	2.4	2.4	-	-	136

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48		22.7	-	-	-	-	-	-	-	-	-	-	-	48
56		18.4	16.9	-	-	-	-	16.4	15.0	-	-	-	-	56
64		14.3	13.4	16.5	-	-	-	12.4	11.8	-	-	-	-	64
72		10.9	10.6	12.9	12.4	14.6	-	9.1	9.1	11.3	-	-	-	72
80		8.3	8.3	10.0	10.0	11.5	11.3	6.7	6.7	8.4	8.4	10.2	10.0	80
88		6.2	6.2	7.7	7.7	9.1	9.0	4.7	4.7	6.2	6.2	7.8	7.7	88
96		4.5	4.5	5.8	5.8	7.0	7.0	2.9	2.9	4.3	4.3	5.6	5.6	96
104		3.0	3.0	4.2	4.2	5.3	5.3	-	-	2.8	2.8	3.9	3.9	104
112		-	-	-	-	3.7	3.7	-	-	-	-	-	-	112

HAV

		55,100 lb +  33,100 lb		 55.8 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		49.3	-	-	-	-	-	-	-	-	-	-	-	14
16		47.3	41.7	-	-	-	-	-	-	-	-	-	-	16
18		45.5	40.4	-	-	-	-	-	-	-	-	-	-	18
20		43.6	39.0	-	-	-	-	-	-	-	-	-	-	20
24		40.0	36.3	-	-	-	-	-	-	-	-	-	-	24
28		36.8	33.8	-	-	-	-	-	-	-	-	-	-	28
32		34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	32
36		31.7	29.5	24.8	23.6	-	-	33.9	28.3	-	-	-	-	36
40		29.5	27.5	23.4	22.3	-	-	32.5	27.5	-	-	-	-	40
48		25.8	24.4	21.0	20.1	16.1	15.5	28.4	24.9	-	-	-	-	48
56		22.9	21.7	18.9	17.9	14.6	14.1	22.6	21.3	22.0	20.7	-	-	56
64		20.0	19.2	16.9	16.2	13.4	13.0	18.6	18.6	19.4	18.8	-	-	64
72		16.8	16.8	15.5	14.8	12.6	12.1	15.5	15.5	16.4	16.4	14.3	13.7	72
80		14.2	14.2	14.1	13.8	-	-	12.7	12.7	14.0	14.0	13.6	13.1	80
88		-	-	-	-	-	-	10.6	10.6	11.8	11.8	12.4	12.2	88
96		-	-	-	-	-	-	8.9	8.9	10.0	10.0	10.9	10.9	96
104		-	-	-	-	-	-	7.3	7.3	8.4	8.4	9.2	9.2	104
112		-	-	-	-	-	-	5.9	5.9	7.0	7.0	7.6	7.6	112
120		-	-	-	-	-	-	4.6	4.6	5.6	5.6	6.3	6.3	120
128		-	-	-	-	-	-	3.6	3.6	4.4	4.4	5.1	5.1	128
136		-	-	-	-	-	-	2.7	2.7	3.3	3.3	3.8	3.8	136
144		-	-	-	-	-	-	-	-	2.5	2.5	2.9	2.9	144

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		17.4	15.2	-	-	-	-	-	-	-	-	-	-	56
64		14.0	13.4	-	-	-	-	12.2	11.4	-	-	-	-	64
72		10.7	10.6	-	-	-	-	8.9	8.9	-	-	-	-	72
80		8.3	8.3	10.9	10.7	-	-	6.5	6.5	9.3	-	-	-	80
88		6.2	6.2	8.5	8.5	10.6	10.5	4.5	4.5	7.1	7.1	-	-	88
96		4.5	4.5	6.5	6.5	8.5	8.5	2.9	2.9	5.2	5.2	7.3	7.3	96
104		3.0	3.0	4.8	4.8	6.6	6.6	-	-	3.5	3.5	5.5	5.5	104
112		-	-	3.5	3.5	5.0	5.0	-	-	-	-	3.9	3.9	112
120		-	-	-	-	3.7	3.7	-	-	-	-	-	-	120

HAV

55,100 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
18	32.9	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.2	19.8	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	21.2	19.0	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	19.8	17.7	-	-	-	-	56
64	16.3	15.1	13.3	12.6	10.1	9.9	17.6	16.7	15.0	-	-	-	64
72	14.6	13.5	11.9	11.5	9.3	9.1	15.2	15.0	14.1	13.0	-	-	72
80	13.0	12.2	10.9	10.5	8.7	8.3	12.7	12.7	13.1	12.2	9.6	9.2	80
88	11.8	11.1	10.1	9.6	8.1	7.8	10.5	10.5	11.8	11.3	9.2	8.7	88
96	10.7	10.2	9.3	9.0	7.7	7.4	8.6	8.6	10.2	10.2	8.8	8.3	96
104	9.4	9.4	8.7	8.4	-	-	7.2	7.2	8.8	8.8	8.4	8.0	104
112	-	-	-	-	-	-	5.9	5.9	7.4	7.4	7.9	7.7	112
120	-	-	-	-	-	-	4.8	4.8	6.1	6.1	7.2	7.2	120
128	-	-	-	-	-	-	3.7	3.7	4.8	4.8	5.9	5.9	128
136	-	-	-	-	-	-	2.8	2.8	3.9	3.9	4.7	4.7	136
144	-	-	-	-	-	-	-	-	2.9	2.9	3.6	3.6	144

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
64	12.5	11.2	-	-	-	-	-	-	-	-	-	-	64
72	9.8	9.7	-	-	-	-	8.0	8.0	-	-	-	-	72
80	7.4	7.4	-	-	-	-	5.7	5.7	-	-	-	-	80
88	5.4	5.4	8.4	8.4	-	-	3.9	3.9	-	-	-	-	88
96	3.8	3.8	6.5	6.5	-	-	-	-	5.2	-	-	-	96
104	2.4	2.4	4.8	4.8	7.3	-	-	-	3.5	-	-	-	104
112	-	-	3.5	3.5	5.7	5.7	-	-	-	-	4.6	-	112
120	-	-	-	-	4.3	4.3	-	-	-	-	3.3	-	120
128	-	-	-	-	3.1	3.1	-	-	-	-	-	-	128

HAV

33,100 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
10	119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-
12	113.1	106.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-
14	107.3	101.1	83.0	79.5	-	-	-	-	-	-	-	-	-	-
16	102.0	96.4	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-
18	93.6	90.0	77.9	74.8	65.7	63.6	-	-	-	-	-	-	-	-
20	83.9	82.5	75.2	72.6	64.1	62.4	-	-	-	-	-	-	-	-
24	62.8	62.8	65.3	65.3	60.2	59.4	-	-	-	-	-	-	-	-
28	49.3	49.3	51.2	51.2	52.6	52.6	45.5	40.6	-	-	-	-	-	-
32	39.8	39.8	41.3	41.3	42.4	42.4	39.3	35.2	40.8	33.9	-	-	-	-
36	33.4	33.4	34.5	34.5	35.3	35.3	34.2	31.0	35.5	32.4	35.7	31.2	-	-
40	27.8	27.8	28.7	28.7	-	-	29.3	27.1	30.4	28.4	31.5	29.5	-	-
48	-	-	-	-	-	-	21.7	21.2	22.7	22.2	23.5	23.2	-	-
56	-	-	-	-	-	-	16.5	16.5	17.3	17.3	17.9	17.9	-	-
64	-	-	-	-	-	-	12.8	12.8	13.5	13.5	13.9	13.9	-	-
72	-	-	-	-	-	-	10.0	10.0	10.4	10.4	10.9	10.9	-	-
80	-	-	-	-	-	-	7.6	7.6	8.0	8.0	8.5	8.5	-	-
88	-	-	-	-	-	-	5.6	5.6	6.0	6.0	6.4	6.4	-	-
96	-	-	-	-	-	-	4.0	4.0	4.4	4.4	4.7	4.7	-	-
104	-	-	-	-	-	-	2.6	2.6	3.0	3.0	3.1	3.1	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
48	16.2	15.1	-	-	-	-	14.1	-	-	-	-	-	-	-
56	12.0	11.4	13.1	12.5	14.1	13.3	10.2	9.7	11.4	-	-	-	-	-
64	8.8	8.5	9.7	9.4	10.4	10.1	7.0	6.9	7.9	7.8	8.8	8.7	-	-
72	6.0	6.0	6.9	6.9	7.6	7.5	4.2	4.2	5.3	5.3	6.0	6.0	-	-
80	3.9	3.9	4.6	4.6	5.2	5.2	-	-	-	-	3.7	3.7	-	-
88	-	-	-	-	3.3	3.3	-	-	-	-	-	-	-	-

HAV

33,100 lb +		33,100 lb		36.1 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	10
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	12
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	14
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	16
18	62.2	57.2	-	-	-	-	-	-	-	-	-	-	18
20	59.1	54.5	44.9	-	-	-	-	-	-	-	-	-	20
24	53.6	50.1	41.9	39.7	-	-	-	-	-	-	-	-	24
28	49.2	46.2	39.3	37.4	-	-	-	-	-	-	-	-	28
32	42.6	41.9	36.9	35.3	29.0	27.8	37.5	31.1	-	-	-	-	32
36	36.2	36.2	34.9	33.3	27.5	26.4	33.6	30.0	-	-	-	-	36
40	30.5	30.5	32.6	31.2	26.0	24.9	29.4	26.4	28.3	-	-	-	40
48	23.0	23.0	24.4	24.4	23.4	22.7	22.5	20.9	24.0	23.2	-	-	48
56	18.0	18.0	18.9	18.9	19.8	19.7	17.3	16.9	18.9	18.6	19.6	19.5	56
64	14.2	14.2	14.9	14.9	-	-	13.5	13.4	14.9	14.9	16.0	16.0	64
72	-	-	-	-	-	-	10.6	10.6	11.7	11.7	12.6	12.6	72
80	-	-	-	-	-	-	8.3	8.3	9.4	9.4	10.2	10.2	80
88	-	-	-	-	-	-	6.4	6.4	7.4	7.4	8.2	8.2	88
96	-	-	-	-	-	-	4.7	4.7	5.6	5.6	6.3	6.3	96
104	-	-	-	-	-	-	3.4	3.4	4.1	4.1	4.6	4.6	104
112	-	-	-	-	-	-	-	-	-	-	3.2	3.2	112

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
48	16.3	-	-	-	-	-	-	-	-	-	-	-	48
56	12.1	11.3	-	-	-	-	10.1	9.5	-	-	-	-	56
64	8.6	8.5	10.8	-	-	-	6.8	6.7	-	-	-	-	64
72	5.8	5.8	7.8	7.8	9.6	-	4.0	4.0	6.2	-	-	-	72
80	3.7	3.7	5.4	5.4	7.1	6.9	-	-	3.9	-	-	-	80
88	-	-	3.6	3.6	4.9	4.9	-	-	-	-	-	-	88
96	-	-	-	-	3.1	3.1	-	-	-	-	-	-	96

HAV

33,100 lb +		33,100 lb		55.8 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	49.3	-	-	-	-	-	-	-	-	-	-	-	-	-
16	47.3	41.7	-	-	-	-	-	-	-	-	-	-	-	-
18	45.5	40.4	-	-	-	-	-	-	-	-	-	-	-	-
20	43.6	39.0	-	-	-	-	-	-	-	-	-	-	-	-
24	40.0	36.3	-	-	-	-	-	-	-	-	-	-	-	-
28	36.8	33.8	-	-	-	-	-	-	-	-	-	-	-	-
32	34.1	31.5	26.4	-	-	-	-	-	-	-	-	-	-	-
36	31.7	29.5	24.8	23.6	-	-	30.3	25.0	-	-	-	-	-	-
40	29.4	27.5	23.4	22.3	-	-	27.5	24.6	-	-	-	-	-	-
48	24.6	24.0	21.0	20.1	16.1	15.5	22.9	20.6	-	-	-	-	-	-
56	19.4	19.4	18.9	17.9	14.6	14.1	18.0	16.8	19.7	18.2	-	-	-	-
64	15.5	15.5	16.6	16.2	13.4	13.0	14.0	13.6	16.0	15.8	-	-	-	-
72	12.6	12.6	13.7	13.7	12.6	12.1	11.1	11.1	13.1	13.1	13.9	13.5	-	-
80	10.5	10.5	11.1	11.1	-	-	8.7	8.7	10.5	10.5	11.8	11.8	-	-
88	-	-	-	-	-	-	7.0	7.0	8.6	8.6	9.7	9.7	-	-
96	-	-	-	-	-	-	5.5	5.5	6.9	6.9	8.0	8.0	-	-
104	-	-	-	-	-	-	4.1	4.1	5.3	5.3	6.4	6.4	-	-
112	-	-	-	-	-	-	-	-	4.1	4.1	5.0	5.0	-	-
120	-	-	-	-	-	-	-	-	2.8	2.8	3.7	3.7	-	-







		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	11.7	11.0	-	-	-	-	-	-	-	-	-	-	-	-
64	8.3	8.3	-	-	-	-	6.3	6.3	-	-	-	-	-	-
72	5.8	5.8	-	-	-	-	4.0	4.0	-	-	-	-	-	-
80	3.7	3.7	6.3	6.3	-	-	-	-	-	-	-	-	-	-
88	-	-	4.3	4.3	6.6	6.6	-	-	-	-	-	-	-	-
96	-	-	2.8	2.8	4.7	4.7	-	-	-	-	-	-	-	-
104	-	-	-	-	3.3	3.3	-	-	-	-	-	-	-	-



HAV

33,100 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft				126.0 ft								
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
18	32.9	-	-	-	-	-	-	-	-	-	-	-	-	18
20	32.1	26.6	-	-	-	-	-	-	-	-	-	-	-	20
24	30.4	25.4	-	-	-	-	-	-	-	-	-	-	-	24
28	28.7	24.2	-	-	-	-	-	-	-	-	-	-	-	28
32	26.8	23.0	-	-	-	-	-	-	-	-	-	-	-	32
36	25.2	21.7	-	-	-	-	-	-	-	-	-	-	-	36
40	23.6	20.6	19.0	-	-	-	22.0	19.6	-	-	-	-	-	40
48	20.9	18.5	16.7	15.6	-	-	19.8	17.8	-	-	-	-	-	48
56	18.5	16.7	14.8	14.0	-	-	17.0	15.8	-	-	-	-	-	56
64	16.1	15.1	13.3	12.6	10.1	9.9	13.3	13.2	14.0	-	-	-	-	64
72	13.3	13.3	11.9	11.5	9.3	9.1	10.4	10.4	13.0	12.6	-	-	-	72
80	11.2	11.2	10.9	10.5	8.7	8.3	8.1	8.1	10.7	10.7	9.6	9.2	-	80
88	9.4	9.4	10.0	9.6	8.1	7.8	6.4	6.4	8.6	8.6	9.1	8.7	-	88
96	7.9	7.9	8.6	8.6	7.7	7.4	5.0	5.0	6.9	6.9	8.5	8.2	-	96
104	6.7	6.7	7.2	7.2	-	-	3.7	3.7	5.5	5.5	7.3	7.2	-	104
112	-	-	-	-	-	-	-	-	4.3	4.3	5.9	5.9	-	112
120	-	-	-	-	-	-	-	-	3.3	3.3	4.6	4.6	-	120
128	-	-	-	-	-	-	-	-	-	-	3.5	3.5	-	128










		181.1 ft				196.9 ft								
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
64	7.2	7.2	-	-	-	-	-	-	-	-	-	-	-	64
72	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-	72






HAV










		11,000 lb +  33,100 lb		 16.4 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
10		119.2	111.6	89.3	-	-	-	-	-	-	-	-	-	-	-	-	10
12		113.1	105.8	86.0	82.2	-	-	-	-	-	-	-	-	-	-	-	12
14		104.4	95.5	83.0	79.5	-	-	-	-	-	-	-	-	-	-	-	14
16		90.5	81.9	80.3	77.0	67.3	64.9	-	-	-	-	-	-	-	-	-	16
18		76.9	71.9	74.6	72.1	65.7	63.6	-	-	-	-	-	-	-	-	-	18
20		64.3	62.7	67.5	66.1	63.5	61.9	-	-	-	-	-	-	-	-	-	20
24		47.6	47.6	50.0	50.0	52.0	52.0	-	-	-	-	-	-	-	-	-	24
28		36.9	36.9	38.6	38.6	40.1	40.1	33.7	29.6	-	-	-	-	-	-	-	28
32		29.4	29.4	30.7	30.7	31.7	31.7	28.4	25.3	30.1	24.2	-	-	-	-	-	32
36		24.2	24.2	25.4	25.4	26.0	26.0	24.3	21.9	25.9	23.3	27.3	22.1	-	-	-	36
40		19.8	19.8	20.6	20.6	-	-	20.7	18.8	22.0	20.1	23.3	21.2	-	-	-	40
48		-	-	-	-	-	-	15.1	14.2	16.2	15.3	17.0	16.1	-	-	-	48
56		-	-	-	-	-	-	11.0	10.6	11.8	11.6	12.5	12.3	-	-	-	56
64		-	-	-	-	-	-	7.9	7.8	8.7	8.7	9.2	9.2	-	-	-	64
72		-	-	-	-	-	-	5.3	5.3	6.0	6.0	6.5	6.5	-	-	-	72
80		-	-	-	-	-	-	3.5	3.5	3.9	3.9	4.3	4.3	-	-	-	80

		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
48		9.0	8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56		5.8	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	56
64		3.1	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	64
72		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72

HAV

11,000 lb +  33,100 lb		 36.1 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
10	77.9	69.2	-	-	-	-	-	-	-	-	-	10	
12	73.4	66.0	-	-	-	-	-	-	-	-	-	12	
14	69.3	62.9	-	-	-	-	-	-	-	-	-	14	
16	65.6	59.9	-	-	-	-	-	-	-	-	-	16	
18	62.2	57.2	-	-	-	-	-	-	-	-	-	18	
20	59.0	54.5	44.9	-	-	-	-	-	-	-	-	20	
24	51.2	48.9	41.9	39.7	-	-	-	-	-	-	-	24	
28	40.1	40.1	39.3	37.4	-	-	-	-	-	-	-	28	
32	32.3	32.3	34.9	34.4	29.0	27.8	27.2	21.9	-	-	-	32	
36	27.0	27.0	29.5	29.5	27.5	26.4	24.0	21.3	-	-	-	36	
40	22.4	22.4	24.6	24.6	25.7	24.7	20.5	18.4	22.7	-	-	40	
48	16.5	16.5	18.1	18.1	19.3	19.3	15.4	14.1	17.8	16.2	-	48	
56	12.4	12.4	13.4	13.4	14.2	14.2	11.4	10.8	13.4	12.5	14.9	14.1	56
64	9.5	9.5	10.1	10.1	-	-	8.3	8.0	10.1	9.6	11.2	11.0	64
72	-	-	-	-	-	-	5.8	5.8	7.3	7.3	8.7	8.4	72
80	-	-	-	-	-	-	4.0	4.0	5.3	5.3	6.5	6.3	80
88	-	-	-	-	-	-	-	-	3.6	3.6	4.5	4.5	88
96	-	-	-	-	-	-	-	-	-	-	2.9	2.9	96

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
48	9.1	-	-	-	-	-	-	-	-	-	-	48
56	5.5	-	-	-	-	-	-	-	-	-	-	56
64	2.9	-	-	-	-	-	-	-	-	-	-	64

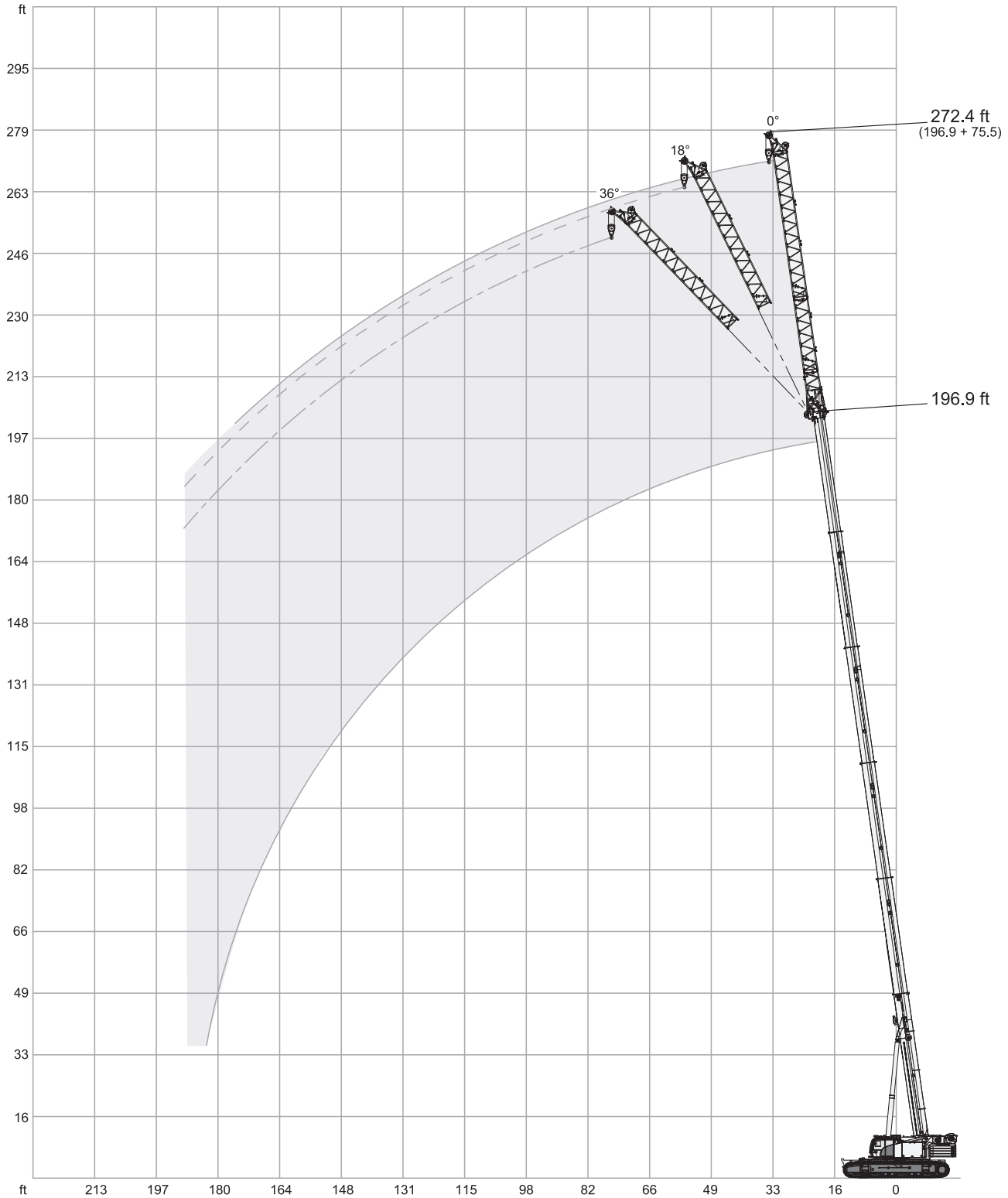
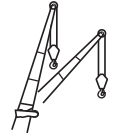
11,000 lb +  33,100 lb		 55.8 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
14	49.3	-	-	-	-	-	-	-	-	-	-	14	
16	47.3	41.7	-	-	-	-	-	-	-	-	-	16	
18	45.5	40.4	-	-	-	-	-	-	-	-	-	18	
20	43.6	39.0	-	-	-	-	-	-	-	-	-	20	
24	40.0	36.3	-	-	-	-	-	-	-	-	-	24	
28	36.8	33.8	-	-	-	-	-	-	-	-	-	28	
32	33.6	31.5	26.4	-	-	-	-	-	-	-	-	32	
36	28.9	28.0	24.8	23.6	-	-	21.1	-	-	-	-	36	
40	24.2	24.2	23.4	22.3	-	-	20.5	18.0	-	-	-	40	
48	18.2	18.2	20.3	19.7	16.1	15.5	15.4	13.9	-	-	-	48	
56	13.9	13.9	15.6	15.6	14.6	14.1	11.3	10.7	14.3	12.9	-	56	
64	10.9	10.9	12.1	12.1	13.1	13.0	8.3	8.2	10.8	10.5	-	64	
72	8.6	8.6	9.5	9.5	10.4	10.4	6.0	6.0	8.2	8.2	10.2	10.0	72
80	6.8	6.8	7.5	7.5	-	-	4.2	4.2	6.1	6.1	8.0	7.9	80
88	-	-	-	-	-	-	-	-	4.5	4.5	6.1	6.1	88
96	-	-	-	-	-	-	-	-	3.1	3.1	4.5	4.5	96
104	-	-	-	-	-	-	-	-	-	-	3.2	3.2	104

HAV

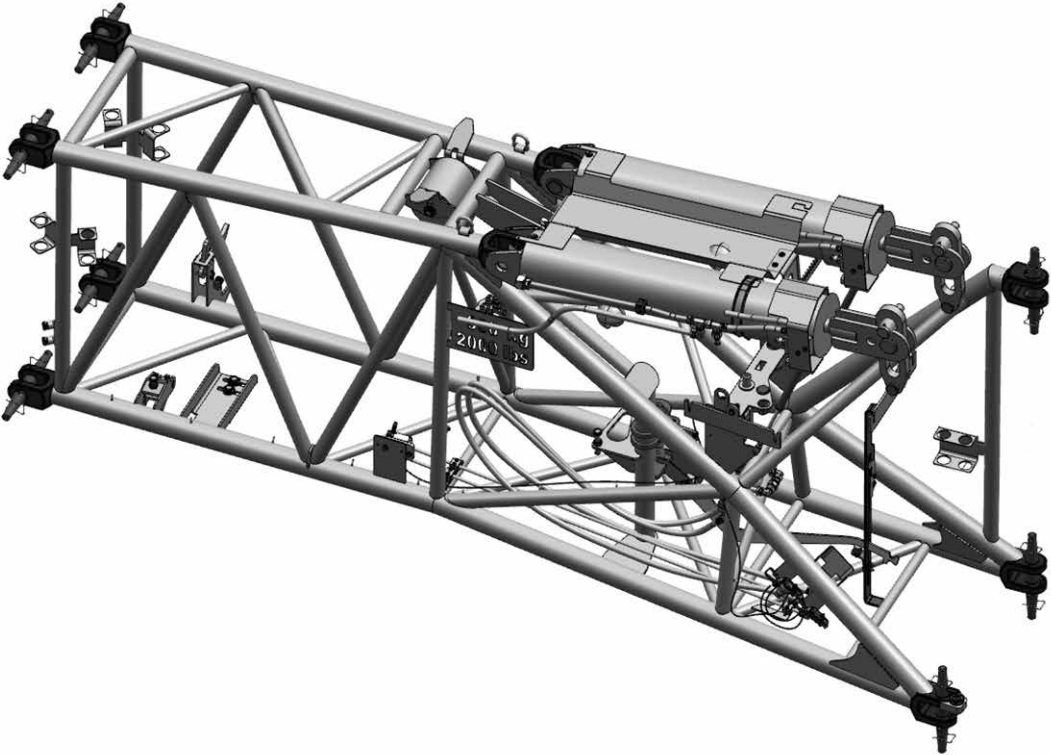
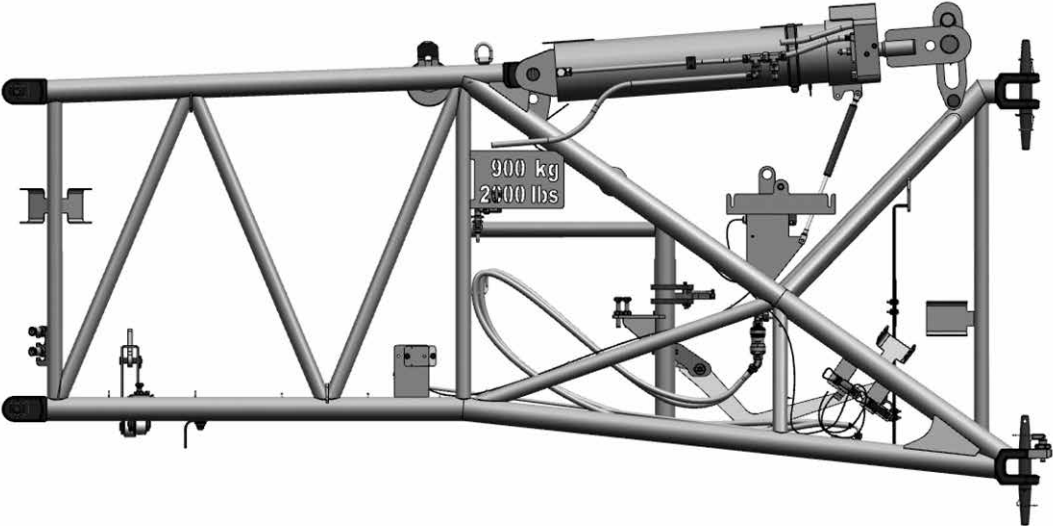
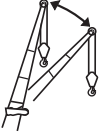
0 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft				126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft						1,000 lb								ft	
10	119.2	111.0	89.3	-	-	-	-	-	-	-	-	-	-	-	10
12	109.6	97.0	86.0	82.2	-	-	-	-	-	-	-	-	-	-	12
14	91.4	81.4	83.0	79.5	-	-	-	-	-	-	-	-	-	-	14
16	77.3	69.6	80.0	73.3	67.3	64.9	-	-	-	-	-	-	-	-	16
18	65.6	60.8	69.6	64.7	64.7	62.8	-	-	-	-	-	-	-	-	18
20	54.7	52.8	58.0	56.2	60.8	59.6	-	-	-	-	-	-	-	-	20
24	40.2	40.2	42.5	42.5	44.5	44.5	-	-	-	-	-	-	-	-	24
28	30.8	30.8	32.5	32.5	33.9	33.9	27.6	24.1	-	-	-	-	-	-	28
32	24.1	24.1	25.5	25.5	26.7	26.7	22.9	20.3	24.5	19.3	-	-	-	-	32
36	19.7	19.7	20.8	20.8	21.6	21.6	19.4	17.4	20.8	18.8	22.2	17.6	-	-	36
40	15.9	15.9	16.7	16.7	-	-	16.1	14.7	17.5	16.0	18.7	17.0	-	-	40
48	-	-	-	-	-	-	11.4	10.6	12.6	11.7	13.4	12.5	-	-	48
56	-	-	-	-	-	-	8.0	7.4	8.8	8.4	9.6	9.1	-	-	56
64	-	-	-	-	-	-	5.2	5.1	6.1	5.8	6.7	6.4	-	-	64
72	-	-	-	-	-	-	3.1	3.1	3.8	3.8	4.2	4.2	-	-	72

0 lb +		33,100 lb		36.1 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5			
		42.3 ft				126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft						1,000 lb								ft	
10	77.9	69.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	73.4	66.0	-	-	-	-	-	-	-	-	-	-	-	-	12
14	69.3	62.9	-	-	-	-	-	-	-	-	-	-	-	-	14
16	65.6	59.9	-	-	-	-	-	-	-	-	-	-	-	-	16
18	61.4	55.8	-	-	-	-	-	-	-	-	-	-	-	-	18
20	56.7	51.2	44.9	-	-	-	-	-	-	-	-	-	-	-	20
24	43.7	41.6	41.9	39.7	-	-	-	-	-	-	-	-	-	-	24
28	33.9	33.8	37.0	36.1	-	-	-	-	-	-	-	-	-	-	28
32	27.2	27.2	30.0	30.0	29.0	27.8	21.9	17.2	-	-	-	-	-	-	32
36	22.6	22.6	25.0	25.0	25.9	25.3	19.3	17.0	-	-	-	-	-	-	36
40	18.5	18.5	20.7	20.7	22.4	22.4	16.2	14.5	18.3	-	-	-	-	-	40
48	13.3	13.3	14.8	14.8	16.1	16.1	11.6	10.6	13.9	12.8	-	-	-	-	48
56	9.7	9.7	10.8	10.8	11.6	11.6	8.1	7.6	10.2	9.5	12.0	11.2	-	-	56
64	7.1	7.1	7.8	7.8	-	-	5.3	5.3	7.2	6.9	8.8	8.3	-	-	64
72	-	-	-	-	-	-	3.3	3.3	4.9	4.9	6.2	6.0	-	-	72
80	-	-	-	-	-	-	-	-	-	-	4.2	4.2	-	-	80

HAV



HAV-HY



HAV-HY

99,200 lb +		33,100 lb		16.4 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28	79.5	76.4	67.6	65.3	57.2	56.3	74.9	68.0	-	-	-	-	-	-	-	28
32	74.6	72.0	63.4	62.4	54.9	54.1	67.0	65.9	62.7	-	-	-	-	-	-	32
36	69.8	67.7	59.6	58.7	53.1	52.5	60.8	60.8	58.6	56.5	51.0	-	-	-	-	36
40	64.9	63.2	56.0	55.2	-	-	55.1	55.3	54.4	53.1	49.0	48.8	-	-	-	40
48	-	-	-	-	-	-	46.6	46.3	45.8	44.8	44.0	43.8	-	-	-	48
56	-	-	-	-	-	-	39.6	39.5	39.3	38.4	38.4	38.3	-	-	-	56
64	-	-	-	-	-	-	34.4	34.1	34.0	33.3	33.3	33.3	-	-	-	64
72	-	-	-	-	-	-	31.4	30.7	29.9	29.2	29.2	29.0	-	-	-	72
80	-	-	-	-	-	-	28.7	28.1	26.4	26.4	25.8	25.8	-	-	-	80
88	-	-	-	-	-	-	26.3	26.0	24.6	24.6	24.0	24.0	-	-	-	88
96	-	-	-	-	-	-	23.3	23.3	23.1	23.1	22.7	22.7	-	-	-	96
104	-	-	-	-	-	-	20.2	20.2	20.5	20.5	20.6	20.6	-	-	-	104
112	-	-	-	-	-	-	17.5	17.5	17.7	17.7	-	-	-	-	-	112
120	-	-	-	-	-	-	15.2	15.2	15.4	15.4	-	-	-	-	-	120
128	-	-	-	-	-	-	13.3	13.3	-	-	-	-	-	-	-	128

		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.0	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	31.0	27.6	30.2	27.3	29.5	-	24.7	22.3	24.8	-	-	-	-	-	-	56
64	27.2	25.1	26.7	24.8	26.4	24.4	22.1	21.0	22.0	21.2	21.9	21.2	-	-	-	64
72	23.9	22.1	23.7	21.9	23.4	21.9	19.5	19.0	19.2	19.2	19.2	19.2	-	-	-	72
80	20.7	19.2	21.0	19.2	20.8	19.3	17.0	16.9	17.1	17.1	17.1	17.1	-	-	-	80
88	18.2	16.9	18.4	17.0	18.5	17.1	14.8	14.7	15.0	14.9	15.2	15.0	-	-	-	88
96	16.1	14.9	16.2	15.1	16.3	15.1	12.9	12.8	13.1	13.1	13.2	13.1	-	-	-	96
104	14.1	13.2	14.3	13.2	14.3	13.4	11.2	11.2	11.4	11.4	11.6	11.4	-	-	-	104
112	12.5	11.6	12.7	11.8	12.7	11.8	9.8	9.8	10.1	9.9	10.1	10.1	-	-	-	112
120	11.1	10.3	11.1	10.3	11.4	10.5	8.6	8.6	8.8	8.7	8.8	8.8	-	-	-	120
128	9.8	9.0	9.9	9.3	10.0	9.3	7.5	7.5	7.7	7.5	7.7	7.7	-	-	-	128
136	8.6	8.0	8.8	8.2	8.8	8.2	6.4	6.4	6.6	6.6	6.6	6.6	-	-	-	136
144	7.8	7.1	7.8	7.1	7.8	7.1	5.5	5.5	5.8	5.6	5.8	5.8	-	-	-	144
152	6.7	6.3	6.7	6.3	6.9	6.3	4.7	4.7	5.0	5.0	5.0	5.0	-	-	-	152
160	5.8	5.5	5.9	5.5	-	-	4.0	4.0	4.2	4.2	4.2	4.2	-	-	-	160
168	4.9	4.7	5.0	4.7	-	-	3.4	3.4	3.4	3.4	-	-	-	-	-	168
176	4.5	4.0	4.1	4.1	-	-	2.7	2.7	2.7	2.7	-	-	-	-	-	176

HAV-HY

99,200 lb +		33,100 lb		36.1 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12	69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14	65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16	62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18	60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24	52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28	48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32	45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	32
36	42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	36
40	39.1	35.7	32.8	30.7	25.8	24.6	43.2	37.6	35.3	-	-	-	40
48	34.5	32.3	29.6	28.3	23.3	23.0	40.4	35.7	33.4	28.8	-	-	48
56	31.0	29.5	26.5	26.2	21.7	21.7	36.6	33.9	31.4	27.5	24.8	23.0	56
64	27.6	26.9	24.2	24.2	-	-	32.2	31.8	29.3	26.5	23.6	22.4	64
72	-	-	-	-	-	-	28.3	28.3	27.2	25.4	22.5	21.6	72
80	-	-	-	-	-	-	24.9	24.7	24.7	23.0	21.4	21.0	80
88	-	-	-	-	-	-	22.0	22.0	22.1	20.6	20.3	20.1	88
96	-	-	-	-	-	-	19.6	19.6	19.8	18.4	18.5	18.5	96
104	-	-	-	-	-	-	17.6	17.6	17.7	16.5	16.5	16.5	104
112	-	-	-	-	-	-	16.0	16.0	16.0	14.9	14.9	14.9	112
120	-	-	-	-	-	-	15.0	15.0	14.5	13.4	13.6	13.6	120
128	-	-	-	-	-	-	13.9	13.9	13.2	12.6	12.3	12.3	128
136	-	-	-	-	-	-	12.5	12.5	12.0	12.0	-	-	136
144	-	-	-	-	-	-	10.9	10.9	11.1	11.1	-	-	144

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
56	25.0	21.4	-	-	-	-	20.5	16.8	-	-	-	-	56
64	23.1	21.4	-	-	-	-	19.6	16.8	-	-	-	-	64
72	20.8	20.1	19.7	19.7	-	-	18.1	16.8	17.7	-	-	-	72
80	18.4	18.4	18.0	17.8	17.2	17.2	16.2	15.5	16.1	15.7	15.4	15.4	80
88	16.3	16.3	16.2	16.2	15.9	15.9	14.4	14.2	14.4	14.3	14.2	14.1	88
96	14.5	14.5	14.7	14.6	14.7	14.5	12.6	12.6	12.8	12.8	13.0	12.8	96
104	12.8	12.8	13.2	13.2	13.4	13.4	11.0	11.0	11.4	11.4	11.6	11.6	104
112	11.4	11.4	11.8	11.6	12.0	12.0	9.6	9.6	10.1	10.1	10.3	10.3	112
120	10.1	10.0	10.5	10.3	10.7	10.7	8.3	8.3	8.8	8.8	9.0	9.0	120
128	8.9	8.8	9.3	9.3	9.4	9.4	7.3	7.3	7.7	7.7	7.9	7.9	128
136	7.9	7.7	8.2	8.2	8.3	8.3	6.4	6.4	6.6	6.6	6.9	6.9	136
144	6.9	6.9	7.1	7.1	7.3	7.3	5.5	5.3	5.8	5.8	6.0	6.0	144
152	6.1	6.1	6.3	6.3	6.5	6.5	4.7	4.6	5.0	5.0	5.2	5.2	152
160	5.3	5.3	5.5	5.5	5.7	5.7	3.9	3.9	4.2	4.2	4.4	4.4	160
168	4.6	4.6	4.7	4.7	4.9	4.9	3.3	3.3	3.5	3.5	3.6	3.6	168
176	4.0	4.0	4.1	4.1	4.1	4.1	2.7	2.7	2.9	2.9	3.0	3.0	176
184	3.4	3.4	3.5	3.5	-	-	-	-	-	-	-	-	184
192	2.8	2.8	-	-	-	-	-	-	-	-	-	-	192
200	2.4	2.4	-	-	-	-	-	-	-	-	-	-	200

HAV-HY

99,200 lb +		33,100 lb		55.8 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	44.5	37.4	-	-	-	-	-	-	-	-	-	-	-	-
16	43.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-
18	41.6	35.3	-	-	-	-	-	-	-	-	-	-	-	-
20	40.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-
24	37.4	32.1	-	-	-	-	-	-	-	-	-	-	-	-
28	34.9	30.3	-	-	-	-	-	-	-	-	-	-	-	-
32	32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	-	-
36	30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	-	-
40	28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	-	-
48	25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	-	-
56	23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	-	-	-	-
64	20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	19.4	17.6	-	-	-	-
72	18.6	17.9	15.7	15.2	12.6	12.6	23.2	19.6	18.5	16.8	15.0	13.9	-	-
80	16.7	16.7	14.4	14.4	-	-	21.9	18.8	17.7	16.0	14.4	13.4	-	-
88	-	-	-	-	-	-	20.7	17.9	16.9	15.5	13.7	13.0	-	-
96	-	-	-	-	-	-	19.0	16.9	16.1	14.9	13.3	12.6	-	-
104	-	-	-	-	-	-	17.2	15.8	15.3	14.4	12.9	12.4	-	-
112	-	-	-	-	-	-	15.4	14.5	14.3	13.9	12.6	12.1	-	-
120	-	-	-	-	-	-	14.0	13.1	13.2	13.2	12.2	11.9	-	-
128	-	-	-	-	-	-	12.7	11.8	12.1	12.1	11.7	11.6	-	-
136	-	-	-	-	-	-	11.5	10.8	10.9	10.9	11.0	10.9	-	-
144	-	-	-	-	-	-	10.2	9.7	9.7	9.7	10.0	10.0	-	-
152	-	-	-	-	-	-	9.0	9.0	9.0	9.0	-	-	-	-
160	-	-	-	-	-	-	8.5	8.5	8.3	8.3	-	-	-	-







		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	18.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-
64	18.2	15.7	-	-	-	-	15.7	12.3	-	-	-	-	-	-
72	17.6	15.7	-	-	-	-	15.2	12.3	-	-	-	-	-	-
80	16.8	15.4	15.5	14.0	-	-	14.6	12.3	14.2	-	-	-	-	-
88	15.4	14.9	14.4	13.5	12.6	12.0	13.7	12.3	13.1	12.3	-	-	-	-
96	14.1	13.9	13.3	12.9	12.1	11.8	12.2	11.9	12.0	11.7	11.2	11.1	-	-
104	12.5	12.5	12.4	12.2	11.5	11.3	10.7	10.7	10.9	10.9	10.5	10.5	-	-
112	11.2	11.2	11.4	11.4	11.0	11.0	9.6	9.4	9.9	9.9	9.9	9.9	-	-
120	10.0	10.0	10.3	10.3	10.2	10.2	8.3	8.3	8.8	8.8	9.1	9.1	-	-
128	8.8	8.8	9.3	9.3	9.4	9.4	7.3	7.3	7.8	7.8	8.2	8.2	-	-
136	7.7	7.7	8.3	8.2	8.6	8.6	6.4	6.2	6.9	6.9	7.2	7.2	-	-
144	6.9	6.9	7.3	7.3	7.5	7.5	5.3	5.3	6.0	6.0	6.4	6.2	-	-
152	6.1	6.1	6.5	6.5	6.7	6.7	4.7	4.6	5.2	5.2	5.4	5.4	-	-
160	5.3	5.3	5.7	5.7	5.9	5.9	3.9	3.9	4.4	4.4	4.7	4.6	-	-
168	4.6	4.6	5.0	5.0	5.2	5.2	3.3	3.3	3.7	3.7	4.1	3.9	-	-
176	4.0	4.0	4.3	4.3	4.5	4.5	2.7	2.7	3.2	3.2	3.4	3.2	-	-
184	3.5	3.5	3.7	3.7	3.8	3.8	-	-	-	-	2.7	2.6	-	-
192	-	-	3.2	3.2	-	-	-	-	-	-	-	-	-	-
200	-	-	2.7	2.7	-	-	-	-	-	-	-	-	-	-



HAV-HY

99,200 lb +		33,100 lb		75.5 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
18	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	-	-	-	32
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	-	-	-	40
48	18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	-	-	-	56
64	15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	-	-	-	64
72	14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	-	-	-	72
80	13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	10.1	9.4	-	-	-	80
88	12.2	11.4	10.4	10.2	8.2	8.2	14.5	12.8	12.2	11.1	9.7	9.2	-	-	-	88
96	11.1	10.6	9.5	9.5	7.8	7.8	13.8	12.3	11.6	10.7	9.2	8.9	-	-	-	96
104	10.1	10.0	8.9	8.9	-	-	13.1	11.8	11.1	10.2	8.9	8.6	-	-	-	104
112	-	-	-	-	-	-	12.5	11.4	10.8	9.9	8.6	8.4	-	-	-	112
120	-	-	-	-	-	-	11.9	10.9	10.3	9.6	8.3	8.1	-	-	-	120
128	-	-	-	-	-	-	11.1	10.4	10.0	9.1	8.0	7.9	-	-	-	128
136	-	-	-	-	-	-	10.2	9.7	9.6	8.9	7.8	7.8	-	-	-	136
144	-	-	-	-	-	-	9.3	9.1	9.1	8.6	7.7	7.7	-	-	-	144
152	-	-	-	-	-	-	8.5	8.5	8.5	8.3	7.5	7.5	-	-	-	152
160	-	-	-	-	-	-	7.7	7.7	7.9	7.9	7.4	7.4	-	-	-	160
168	-	-	-	-	-	-	7.0	7.0	7.2	7.2	-	-	-	-	-	168
176	-	-	-	-	-	-	6.5	6.5	6.5	6.5	-	-	-	-	-	176
184	-	-	-	-	-	-	5.8	5.8	-	-	-	-	-	-	-	184










		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
64	12.8	11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	64
72	12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	-	-	-	72
80	12.1	11.0	-	-	-	-	11.0	8.8	-	-	-	-	-	-	-	80
88	11.8	10.7	10.5	9.6	-	-	10.7	8.8	-	-	-	-	-	-	-	88
96	11.5	10.4	10.2	9.3	-	-	10.4	8.8	9.6	8.7	-	-	-	-	-	96
104	11.3	10.2	10.0	9.1	8.6	-	9.8	8.8	9.3	8.4	-	-	-	-	-	104
112	10.3	9.7	9.7	8.8	8.4	7.7	9.0	8.8	8.8	8.3	7.9	7.3	-	-	-	112
120	9.5	9.4	9.3	8.5	8.1	7.4	8.0	7.9	8.2	7.9	7.6	7.2	-	-	-	120
128	8.6	8.6	8.6	8.3	7.8	7.3	7.0	6.9	7.4	7.4	7.2	6.9	-	-	-	128
136	7.5	7.5	7.9	7.8	7.6	7.1	6.1	6.1	6.7	6.6	6.7	6.7	-	-	-	136
144	6.6	6.6	7.3	7.1	7.1	7.1	5.3	5.1	6.0	6.0	6.2	6.2	-	-	-	144
152	5.8	5.8	6.5	6.5	6.7	6.5	4.5	4.3	5.2	5.2	5.6	5.4	-	-	-	152
160	5.0	5.0	5.7	5.7	5.9	5.9	3.8	3.7	4.4	4.4	4.9	4.8	-	-	-	160
168	4.4	4.4	5.0	5.0	5.2	5.2	3.2	3.0	3.7	3.7	4.2	4.1	-	-	-	168
176	3.8	3.8	4.3	4.3	4.5	4.5	2.5	2.5	3.2	3.2	3.4	3.4	-	-	-	176
184	3.3	3.3	3.6	3.6	3.8	3.8	-	-	-	-	2.8	2.8	-	-	-	184
192	-	-	3.0	3.0	3.2	3.2	-	-	-	-	-	-	-	-	-	192
200	-	-	2.6	2.6	2.7	2.7	-	-	-	-	-	-	-	-	-	200






HAV-HY

		 77,200 lb + 33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5					
		 42.3 ft						 126.0 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
10		119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12		113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14		107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16		102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18		97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20		93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24		85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28		79.5	76.4	67.6	65.3	57.2	56.3	74.9	68.0	-	-	-	-	-	-	-	28
32		74.6	72.0	63.4	62.4	54.9	54.1	67.0	65.9	62.7	-	-	-	-	-	-	32
36		69.8	67.7	59.6	58.7	53.1	52.5	60.8	60.8	58.6	56.5	51.0	-	-	-	-	36
40		64.9	63.2	56.0	55.2	-	-	55.1	55.3	54.4	53.1	49.0	48.8	-	-	-	40
48		-	-	-	-	-	-	46.6	46.3	45.8	44.8	44.0	43.8	-	-	-	48
56		-	-	-	-	-	-	39.6	39.5	39.3	38.4	38.4	38.3	-	-	-	56
64		-	-	-	-	-	-	34.4	34.1	34.0	33.3	33.3	33.3	-	-	-	64
72		-	-	-	-	-	-	31.4	30.7	29.9	29.2	29.2	29.0	-	-	-	72
80		-	-	-	-	-	-	26.8	26.8	26.3	26.3	25.6	25.6	-	-	-	80
88		-	-	-	-	-	-	22.5	22.5	23.1	23.1	23.3	23.3	-	-	-	88
96		-	-	-	-	-	-	19.1	19.1	19.5	19.5	19.8	19.8	-	-	-	96
104		-	-	-	-	-	-	16.2	16.2	16.6	16.6	16.7	16.7	-	-	-	104
112		-	-	-	-	-	-	14.3	14.3	14.3	14.3	-	-	-	-	-	112
120		-	-	-	-	-	-	13.2	13.2	13.2	13.2	-	-	-	-	-	120
128		-	-	-	-	-	-	11.9	11.9	-	-	-	-	-	-	-	128










		 181.1 ft						 196.9 ft									
		0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
		0°		18°		36°		0°		18°		36°					
ft		1,000 lb														ft	
48		35.0	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56		31.0	27.6	30.2	27.3	29.5	-	24.7	22.3	24.8	-	-	-	-	-	-	56
64		27.2	25.1	26.7	24.8	26.4	24.4	22.1	21.0	22.0	21.2	21.9	21.2	-	-	-	64
72		23.9	22.1	23.7	21.9	23.4	21.9	19.5	19.0	19.2	19.2	19.2	19.2	-	-	-	72
80		20.7	19.2	21.0	19.2	20.8	19.3	17.0	16.9	17.1	17.1	17.1	17.1	-	-	-	80
88		18.2	16.9	18.4	17.0	18.5	17.1	14.8	14.7	15.0	14.9	15.2	15.0	-	-	-	88
96		16.1	14.9	16.2	15.1	16.3	15.1	12.9	12.8	13.1	13.1	13.2	13.1	-	-	-	96
104		14.1	13.2	14.3	13.2	14.3	13.4	11.2	11.2	11.4	11.4	11.6	11.4	-	-	-	104
112		12.2	11.6	12.7	11.8	12.7	11.8	9.8	9.8	10.1	9.9	10.1	10.1	-	-	-	112
120		10.1	10.1	10.6	10.3	10.8	10.5	8.6	8.6	8.8	8.7	8.8	8.8	-	-	-	120
128		8.7	8.4	8.8	8.8	9.0	9.0	7.5	7.5	7.7	7.5	7.7	7.7	-	-	-	128
136		7.6	7.2	7.2	7.2	7.4	7.4	6.4	6.4	6.6	6.6	6.6	6.6	-	-	-	136
144		6.4	6.4	6.4	6.4	6.4	6.4	5.3	5.3	5.6	5.6	5.8	5.8	-	-	-	144
152		5.1	5.1	5.4	5.4	5.6	5.6	4.1	4.1	4.5	4.5	4.7	4.7	-	-	-	152
160		4.2	4.2	4.4	4.4	-	-	3.2	3.2	3.4	3.4	3.5	3.5	-	-	-	160
168		3.3	3.3	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-	168
176		2.5	2.5	2.6	2.6	-	-	-	-	-	-	-	-	-	-	-	176






HAV-HY

		77,200 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	43.2	37.6	35.3	-	-	-	40
48		34.5	32.3	29.6	28.3	23.3	23.0	40.4	35.7	33.4	28.8	-	-	48
56		31.0	29.5	26.5	26.2	21.7	21.7	36.6	33.9	31.4	27.5	24.8	23.0	56
64		27.6	26.9	24.2	24.2	-	-	32.2	31.8	29.3	26.5	23.6	22.4	64
72		-	-	-	-	-	-	28.3	28.3	27.2	25.4	22.5	21.6	72
80		-	-	-	-	-	-	24.9	24.7	24.7	23.0	21.4	21.0	80
88		-	-	-	-	-	-	21.8	21.8	22.1	20.6	20.3	20.1	88
96		-	-	-	-	-	-	18.8	18.8	19.6	18.4	18.5	18.5	96
104		-	-	-	-	-	-	17.1	17.1	17.0	16.5	16.5	16.5	104
112		-	-	-	-	-	-	14.9	14.9	14.4	14.4	14.7	14.7	112
120		-	-	-	-	-	-	12.8	12.8	13.1	13.1	12.9	12.9	120
128		-	-	-	-	-	-	11.0	11.0	11.6	11.6	10.7	10.7	128
136		-	-	-	-	-	-	9.7	9.7	9.8	9.8	-	-	136
144		-	-	-	-	-	-	9.1	9.1	8.6	8.4	-	-	144

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		25.0	21.4	-	-	-	-	20.5	16.8	-	-	-	-	56
64		23.1	21.4	-	-	-	-	19.6	16.8	-	-	-	-	64
72		20.8	20.1	19.7	19.7	-	-	18.1	16.8	17.7	-	-	-	72
80		18.4	18.4	18.0	17.8	17.2	17.2	16.2	15.5	16.1	15.7	15.4	15.4	80
88		16.3	16.3	16.2	16.2	15.9	15.9	14.4	14.2	14.4	14.3	14.2	14.1	88
96		14.5	14.5	14.7	14.6	14.7	14.5	12.6	12.6	12.8	12.8	13.0	12.8	96
104		12.8	12.8	13.2	13.2	13.4	13.4	11.0	11.0	11.4	11.4	11.6	11.6	104
112		11.4	11.4	11.8	11.6	12.0	12.0	9.6	9.6	10.1	10.1	10.3	10.3	112
120		10.1	10.0	10.5	10.3	10.7	10.7	8.3	8.3	8.8	8.8	9.0	9.0	120
128		8.9	8.8	9.3	9.3	9.4	9.4	7.3	7.3	7.7	7.7	7.9	7.9	128
136		7.6	7.6	8.2	8.2	8.3	8.3	6.4	6.4	6.6	6.6	6.9	6.9	136
144		6.2	6.2	6.9	6.9	7.3	7.3	5.5	5.3	5.8	5.8	6.0	6.0	144
152		5.4	5.2	5.6	5.6	6.0	6.0	4.7	4.5	5.0	5.0	5.2	5.2	152
160		4.6	4.6	4.8	4.8	4.9	4.9	3.6	3.6	4.2	4.2	4.4	4.4	160
168		3.8	3.8	4.0	4.0	4.2	4.2	-	-	3.3	3.3	3.5	3.5	168
176		3.0	3.0	3.2	3.2	3.4	3.4	-	-	2.3	2.3	2.6	2.6	176

HAV-HY

		77,200 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	-	-	56
64		20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	19.4	17.6	-	-	64
72		18.6	17.9	15.7	15.2	12.6	12.6	23.2	19.6	18.5	16.8	15.0	13.9	72
80		16.7	16.7	14.4	14.4	-	-	21.9	18.8	17.7	16.0	14.4	13.4	80
88		-	-	-	-	-	-	20.7	17.9	16.9	15.5	13.7	13.0	88
96		-	-	-	-	-	-	19.0	16.9	16.1	14.9	13.3	12.6	96
104		-	-	-	-	-	-	16.8	15.8	15.3	14.4	12.9	12.4	104
112		-	-	-	-	-	-	14.4	14.4	14.3	13.9	12.6	12.1	112
120		-	-	-	-	-	-	12.6	12.6	13.1	13.1	12.2	11.9	120
128		-	-	-	-	-	-	10.8	10.8	11.6	11.7	11.7	11.6	128
136		-	-	-	-	-	-	10.0	10.0	10.3	10.3	10.6	10.6	136
144		-	-	-	-	-	-	8.9	8.9	8.8	8.8	9.1	9.1	144
152		-	-	-	-	-	-	7.8	7.8	8.4	8.4	-	-	152
160		-	-	-	-	-	-	6.7	6.7	7.2	7.2	-	-	160

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		18.6	15.7	-	-	-	-	-	-	-	-	-	-	56
64		18.2	15.7	-	-	-	-	15.7	12.3	-	-	-	-	64
72		17.6	15.7	-	-	-	-	15.2	12.3	-	-	-	-	72
80		16.8	15.4	15.5	14.0	-	-	14.6	12.3	14.2	-	-	-	80
88		15.4	14.9	14.4	13.5	12.6	12.0	13.7	12.3	13.1	12.3	-	-	88
96		14.1	13.9	13.3	12.9	12.1	11.8	12.2	11.9	12.0	11.7	11.2	11.1	96
104		12.5	12.5	12.4	12.2	11.5	11.3	10.7	10.7	10.9	10.9	10.5	10.5	104
112		11.2	11.2	11.4	11.4	11.0	11.0	9.6	9.4	9.9	9.9	9.9	9.9	112
120		10.0	10.0	10.3	10.3	10.2	10.2	8.3	8.3	8.8	8.8	9.1	9.1	120
128		8.8	8.8	9.3	9.3	9.4	9.4	7.3	7.3	7.8	7.8	8.2	8.2	128
136		7.7	7.7	8.3	8.2	8.6	8.6	6.4	6.2	6.9	6.9	7.2	7.2	136
144		6.9	6.9	7.3	7.3	7.5	7.5	5.3	5.3	6.0	6.0	6.4	6.2	144
152		5.8	5.8	6.5	6.5	6.7	6.7	4.7	4.6	5.2	5.2	5.4	5.4	152
160		4.7	4.7	5.6	5.6	5.9	5.9	3.9	3.9	4.4	4.4	4.7	4.6	160
168		3.9	3.9	4.6	4.6	5.0	5.0	3.2	3.2	3.7	3.7	4.1	3.9	168
176		3.4	3.4	3.7	3.7	4.1	4.1	2.5	2.5	3.2	3.2	3.4	3.2	176
184		-	-	3.1	3.1	3.2	3.2	-	-	-	-	2.7	2.6	184

HAV-HY

77,200 lb +		33,100 lb		75.5 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
18	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	-	-	-	20
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	-	-	-	24
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	-	-	-	28
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	-	-	-	32
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	-	-	-	40
48	18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	-	-	-	56
64	15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	-	-	-	64
72	14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	-	-	-	72
80	13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	10.1	9.4	-	-	-	80
88	12.2	11.4	10.4	10.2	8.2	8.2	14.5	12.8	12.2	11.1	9.7	9.2	-	-	-	88
96	11.1	10.6	9.5	9.5	7.8	7.8	13.8	12.3	11.6	10.7	9.2	8.9	-	-	-	96
104	10.1	10.0	8.9	8.9	-	-	13.1	11.8	11.1	10.2	8.9	8.6	-	-	-	104
112	-	-	-	-	-	-	12.5	11.4	10.8	9.9	8.6	8.4	-	-	-	112
120	-	-	-	-	-	-	11.9	10.9	10.3	9.6	8.3	8.1	-	-	-	120
128	-	-	-	-	-	-	10.9	10.4	10.0	9.1	8.0	7.9	-	-	-	128
136	-	-	-	-	-	-	9.8	9.6	9.6	8.9	7.8	7.8	-	-	-	136
144	-	-	-	-	-	-	8.2	8.2	9.1	8.6	7.7	7.7	-	-	-	144
152	-	-	-	-	-	-	7.2	7.2	8.2	8.0	7.5	7.5	-	-	-	152
160	-	-	-	-	-	-	6.8	6.8	6.9	6.9	7.2	7.2	-	-	-	160
168	-	-	-	-	-	-	6.0	6.0	6.0	6.0	-	-	-	-	-	168
176	-	-	-	-	-	-	5.2	5.2	5.6	5.6	-	-	-	-	-	176
184	-	-	-	-	-	-	4.5	4.5	-	-	-	-	-	-	-	184











		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
64	12.8	11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	64
72	12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	-	-	-	72
80	12.1	11.0	-	-	-	-	11.0	8.8	-	-	-	-	-	-	-	80
88	11.8	10.7	10.5	9.6	-	-	10.7	8.8	-	-	-	-	-	-	-	88
96	11.5	10.4	10.2	9.3	-	-	10.4	8.8	9.6	8.7	-	-	-	-	-	96
104	11.3	10.2	10.0	9.1	8.6	-	9.8	8.8	9.3	8.4	-	-	-	-	-	104
112	10.3	9.7	9.7	8.8	8.4	7.7	9.0	8.8	8.8	8.3	7.9	7.3	-	-	-	112
120	9.5	9.4	9.3	8.5	8.1	7.4	8.0	7.9	8.2	7.9	7.6	7.2	-	-	-	120
128	8.6	8.6	8.6	8.3	7.8	7.3	7.0	6.9	7.4	7.4	7.2	6.9	-	-	-	128
136	7.5	7.5	7.9	7.8	7.6	7.1	6.1	6.1	6.7	6.6	6.7	6.7	-	-	-	136
144	6.6	6.6	7.3	7.1	7.1	7.1	5.3	5.1	6.0	6.0	6.2	6.2	-	-	-	144
152	5.8	5.8	6.5	6.5	6.7	6.5	4.5	4.3	5.2	5.2	5.6	5.4	-	-	-	152
160	5.0	5.0	5.7	5.7	5.9	5.9	3.8	3.7	4.4	4.4	4.9	4.8	-	-	-	160
168	3.9	3.9	4.9	4.9	5.2	5.2	3.2	3.0	3.7	3.7	4.2	4.1	-	-	-	168
176	3.0	3.0	4.1	4.1	4.5	4.5	2.5	2.5	3.2	3.2	3.4	3.4	-	-	-	176
184	-	-	3.3	3.3	3.8	3.8	-	-	-	-	2.8	2.8	-	-	-	184






HAV-HY

55,100 lb +		33,100 lb		16.4 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28	79.5	76.4	67.6	65.3	57.2	56.3	74.9	68.0	-	-	-	-	-	-	-	28
32	74.6	72.0	63.4	62.4	54.9	54.1	67.0	65.9	62.7	-	-	-	-	-	-	32
36	69.8	67.7	59.6	58.7	53.1	52.5	60.8	60.8	58.6	56.5	51.0	-	-	-	-	36
40	64.9	63.2	56.0	55.2	-	-	55.1	55.3	54.4	53.1	49.0	48.8	-	-	-	40
48	-	-	-	-	-	-	46.6	45.9	45.8	44.8	44.0	43.8	-	-	-	48
56	-	-	-	-	-	-	38.2	37.6	38.7	38.3	38.4	38.3	-	-	-	56
64	-	-	-	-	-	-	32.1	31.9	31.5	31.3	31.8	31.8	-	-	-	64
72	-	-	-	-	-	-	25.9	25.9	26.8	26.8	27.2	27.2	-	-	-	72
80	-	-	-	-	-	-	21.4	21.4	22.1	22.1	22.5	22.5	-	-	-	80
88	-	-	-	-	-	-	18.6	18.6	18.2	18.2	18.7	18.7	-	-	-	88
96	-	-	-	-	-	-	16.5	16.5	16.4	16.4	16.6	16.6	-	-	-	96
104	-	-	-	-	-	-	14.0	14.0	14.2	14.2	14.4	14.4	-	-	-	104
112	-	-	-	-	-	-	11.8	11.8	12.0	12.0	-	-	-	-	-	112
120	-	-	-	-	-	-	10.0	10.0	10.2	10.2	-	-	-	-	-	120
128	-	-	-	-	-	-	9.0	9.0	-	-	-	-	-	-	-	128

		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.0	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	31.0	27.6	30.2	27.3	29.5	-	24.7	22.3	24.8	-	-	-	-	-	-	56
64	27.2	25.1	26.7	24.8	26.4	24.4	22.1	21.0	22.0	21.2	21.9	21.2	-	-	-	64
72	23.9	22.1	23.7	21.9	23.4	21.9	19.5	19.0	19.2	19.2	19.2	19.2	-	-	-	72
80	19.7	19.2	20.5	19.2	20.7	19.3	17.0	16.9	17.1	17.1	17.1	17.1	-	-	-	80
88	16.1	16.1	16.8	16.6	17.3	17.0	14.8	14.7	15.0	14.9	15.2	15.0	-	-	-	88
96	13.7	13.0	13.7	13.7	14.1	14.1	12.6	12.6	13.1	13.1	13.2	13.1	-	-	-	96
104	11.3	11.2	11.6	11.4	11.6	11.6	10.4	10.4	10.9	10.9	11.3	11.3	-	-	-	104
112	9.4	9.4	9.8	9.8	10.0	10.0	8.3	8.3	8.7	8.7	9.2	9.2	-	-	-	112
120	7.6	7.6	8.0	8.0	8.2	8.2	6.5	6.5	6.9	6.9	7.3	7.3	-	-	-	120
128	6.1	6.1	6.4	6.4	6.6	6.6	5.0	5.0	5.4	5.4	5.6	5.6	-	-	-	128
136	4.7	4.7	4.9	4.9	5.2	5.2	3.6	3.6	4.0	4.0	4.3	4.3	-	-	-	136
144	3.6	3.6	3.8	3.8	4.0	4.0	2.5	2.5	2.7	2.7	2.9	2.9	-	-	-	144

HAV-HY

		55,100 lb + 		33,100 lb 		36.1 ft 		19.7 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	43.2	37.6	35.3	-	-	-	-	-	40
48		34.5	32.3	29.6	28.3	23.3	23.0	40.4	35.7	33.4	28.8	-	-	-	-	48
56		31.0	29.5	26.5	26.2	21.7	21.7	36.6	33.9	31.4	27.5	24.8	23.0	-	-	56
64		27.6	26.9	24.2	24.2	-	-	31.3	30.6	29.3	26.5	23.6	22.4	-	-	64
72		-	-	-	-	-	-	25.9	25.9	27.2	25.4	22.5	21.6	-	-	72
80		-	-	-	-	-	-	21.6	21.6	22.9	22.5	21.4	21.0	-	-	80
88		-	-	-	-	-	-	18.8	18.8	18.9	18.9	19.5	19.4	-	-	88
96		-	-	-	-	-	-	15.7	15.7	15.8	15.8	16.6	16.6	-	-	96
104		-	-	-	-	-	-	13.6	13.6	14.1	14.1	14.0	14.0	-	-	104
112		-	-	-	-	-	-	12.3	12.3	12.3	11.8	12.4	12.4	-	-	112
120		-	-	-	-	-	-	10.9	10.9	10.6	10.4	10.4	10.4	-	-	120
128		-	-	-	-	-	-	9.3	9.3	9.5	9.5	7.5	7.5	-	-	128
136		-	-	-	-	-	-	8.0	8.0	8.2	8.2	-	-	-	-	136
144		-	-	-	-	-	-	6.9	6.9	7.1	7.1	-	-	-	-	144

		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
56		25.0	21.4	-	-	-	-	20.5	16.8	-	-	-	-	-	-	56
64		23.1	21.4	-	-	-	-	19.6	16.8	-	-	-	-	-	-	64
72		20.8	20.1	19.7	19.7	-	-	18.1	16.8	17.7	-	-	-	-	-	72
80		18.4	18.4	18.0	17.8	17.2	17.2	16.2	15.5	16.1	15.7	15.4	15.4	-	-	80
88		16.3	16.3	16.2	16.2	15.9	15.9	14.4	14.2	14.4	14.3	14.2	14.1	-	-	88
96		13.8	13.8	14.7	14.6	14.7	14.5	12.6	12.6	12.8	12.8	13.0	12.8	-	-	96
104		11.3	11.3	12.6	12.6	13.4	13.4	10.8	10.8	11.4	11.4	11.6	11.6	-	-	104
112		9.6	9.6	10.3	10.3	11.3	11.3	8.9	8.9	10.0	10.0	10.3	10.3	-	-	112
120		8.2	8.2	8.8	8.8	9.3	9.3	7.1	7.1	8.2	8.2	8.9	8.9	-	-	120
128		6.7	6.7	7.5	7.5	7.9	7.9	5.6	5.6	6.6	6.6	7.3	7.3	-	-	128
136		5.4	5.4	6.0	6.0	6.7	6.7	4.3	4.3	5.2	5.2	5.8	5.8	-	-	136
144		4.0	4.0	4.7	4.7	5.4	5.4	3.1	3.1	3.8	3.8	4.5	4.5	-	-	144
152		3.2	3.2	3.6	3.6	4.0	4.0	-	-	-	-	3.2	3.2	-	-	152
160		-	-	2.7	2.7	3.0	3.0	-	-	-	-	-	-	-	-	160

HAV-HY

55,100 lb +		33,100 lb		55.8 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	44.5	37.4	-	-	-	-	-	-	-	-	-	-	-	-
16	43.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-
18	41.6	35.3	-	-	-	-	-	-	-	-	-	-	-	-
20	40.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-
24	37.4	32.1	-	-	-	-	-	-	-	-	-	-	-	-
28	34.9	30.3	-	-	-	-	-	-	-	-	-	-	-	-
32	32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	-	-
36	30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	-	-
40	28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	-	-
48	25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	-	-
56	23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	-	-	-	-
64	20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	19.4	17.6	-	-	-	-
72	18.6	17.9	15.7	15.2	12.6	12.6	23.2	19.6	18.5	16.8	15.0	13.9	-	-
80	16.7	16.7	14.4	14.4	-	-	21.6	18.8	17.7	16.0	14.4	13.4	-	-
88	-	-	-	-	-	-	18.4	17.8	16.9	15.5	13.7	13.0	-	-
96	-	-	-	-	-	-	15.7	15.7	16.1	14.9	13.3	12.6	-	-
104	-	-	-	-	-	-	13.4	13.4	14.5	14.4	12.9	12.4	-	-
112	-	-	-	-	-	-	12.0	12.0	12.4	12.4	12.5	12.1	-	-
120	-	-	-	-	-	-	10.2	10.2	10.5	10.5	11.4	11.4	-	-
128	-	-	-	-	-	-	8.9	8.9	9.6	9.6	9.5	9.5	-	-
136	-	-	-	-	-	-	8.1	8.1	8.2	8.2	8.6	8.6	-	-
144	-	-	-	-	-	-	7.3	7.3	7.3	7.3	7.3	7.3	-	-
152	-	-	-	-	-	-	6.5	6.5	6.7	6.7	-	-	-	-
160	-	-	-	-	-	-	5.5	5.5	5.8	5.8	-	-	-	-










		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	18.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-
64	18.2	15.7	-	-	-	-	15.7	12.3	-	-	-	-	-	-
72	17.6	15.7	-	-	-	-	15.2	12.3	-	-	-	-	-	-
80	16.8	15.4	15.5	14.0	-	-	14.6	12.3	14.2	-	-	-	-	-
88	15.4	14.9	14.4	13.5	12.6	12.0	13.7	12.3	13.1	12.3	-	-	-	-
96	13.8	13.7	13.3	12.9	12.1	11.8	12.2	11.9	12.0	11.7	11.2	11.1	-	-
104	11.7	11.7	12.4	12.2	11.5	11.3	10.7	10.7	10.9	10.9	10.5	10.5	-	-
112	9.8	9.8	11.4	11.4	11.0	11.0	8.9	8.9	9.9	9.9	9.9	9.9	-	-
120	8.2	8.2	9.8	9.8	10.2	10.2	7.4	7.4	8.8	8.8	9.1	9.1	-	-
128	7.3	7.3	8.1	8.1	9.1	9.1	6.1	6.1	7.6	7.6	8.2	8.2	-	-
136	6.0	6.0	6.8	6.8	7.6	7.6	4.7	4.7	6.3	6.3	7.2	7.2	-	-
144	4.9	4.9	6.0	6.0	6.2	6.2	3.6	3.6	4.9	4.9	6.0	6.0	-	-
152	3.8	3.8	4.7	4.7	5.4	5.4	-	-	3.8	3.8	4.7	4.7	-	-
160	2.8	2.8	3.7	3.7	4.3	4.3	-	-	2.8	2.8	3.6	3.6	-	-
168	-	-	-	-	3.3	3.3	-	-	-	-	-	-	-	-
176	-	-	-	-	2.3	2.3	-	-	-	-	-	-	-	-






HAV-HY

55,100 lb +		33,100 lb		75.5 ft		19.7 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°		1°		0,3°		1°		0,3°		1°		ft
	0°		18°		36°		0°		18°		36°		
1,000 lb													
18	27.7	-	-	-	-	-	-	-	-	-	-	-	18
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	20
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	24
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	28
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	32
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	40
48	18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	56
64	15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	64
72	14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	72
80	13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	10.1	9.4	80
88	12.2	11.4	10.4	10.2	8.2	8.2	14.5	12.8	12.2	11.1	9.7	9.2	88
96	11.1	10.6	9.5	9.5	7.8	7.8	13.8	12.3	11.6	10.7	9.2	8.9	96
104	10.1	10.0	8.9	8.9	-	-	13.1	11.8	11.1	10.2	8.9	8.6	104
112	-	-	-	-	-	-	11.4	11.4	10.8	9.9	8.6	8.4	112
120	-	-	-	-	-	-	9.7	9.7	10.3	9.6	8.3	8.1	120
128	-	-	-	-	-	-	8.8	8.8	9.6	9.1	8.0	7.9	128
136	-	-	-	-	-	-	7.6	7.6	8.1	8.1	7.8	7.8	136
144	-	-	-	-	-	-	6.6	6.6	7.3	7.3	7.5	7.5	144
152	-	-	-	-	-	-	6.0	6.0	6.4	6.4	6.7	6.7	152
160	-	-	-	-	-	-	5.4	5.4	5.6	5.6	5.8	5.8	160
168	-	-	-	-	-	-	4.9	4.9	4.9	4.9	-	-	168
176	-	-	-	-	-	-	4.1	4.1	4.5	4.5	-	-	176
184	-	-	-	-	-	-	3.5	3.5	-	-	-	-	184










		181.1 ft				196.9 ft							
ft	0,3°		1°		0,3°		1°		0,3°		1°		ft
	0°		18°		36°		0°		18°		36°		
1,000 lb													
64	12.8	11.0	-	-	-	-	-	-	-	-	-	-	64
72	12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	72
80	12.1	11.0	-	-	-	-	11.0	8.8	-	-	-	-	80
88	11.8	10.7	10.5	9.6	-	-	10.7	8.8	-	-	-	-	88
96	11.5	10.4	10.2	9.3	-	-	10.4	8.8	9.6	8.7	-	-	96
104	11.1	10.2	10.0	9.1	8.6	-	9.8	8.8	9.3	8.4	-	-	104
112	9.2	9.2	9.7	8.8	8.4	7.7	8.5	8.5	8.8	8.3	7.9	7.3	112
120	7.7	7.7	9.3	8.5	8.1	7.4	6.9	6.9	8.2	7.9	7.6	7.2	120
128	6.7	6.7	8.3	8.0	7.8	7.3	5.5	5.5	7.4	7.4	7.2	6.9	128
136	5.8	5.8	6.9	6.9	7.6	7.1	4.3	4.3	6.3	6.3	6.7	6.7	136
144	4.7	4.7	5.8	5.8	7.1	7.1	3.3	3.3	5.1	5.1	6.2	6.2	144
152	3.6	3.6	5.0	5.0	6.0	6.0	-	-	4.0	4.0	5.6	5.4	152
160	2.8	2.8	4.3	4.3	4.7	4.7	-	-	3.1	3.1	4.5	4.5	160
168	-	-	3.3	3.3	4.0	4.0	-	-	-	-	3.5	3.5	168
176	-	-	2.3	2.3	3.2	3.2	-	-	-	-	2.6	2.6	176






HAV-HY

33,100 lb +  33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft				 126.0 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	24
28	79.5	76.4	67.6	65.3	57.2	56.3	74.9	67.2	-	-	-	-	-	28
32	74.6	72.0	63.4	62.4	54.9	54.1	66.7	60.5	62.7	-	-	-	-	32
36	67.2	66.0	59.6	58.7	53.1	52.5	58.5	53.5	58.0	54.2	51.0	-	-	36
40	59.1	59.1	55.6	54.8	-	-	51.3	47.4	52.8	48.3	49.0	48.4	-	40
48	-	-	-	-	-	-	41.6	38.8	41.4	38.4	42.3	39.9	-	48
56	-	-	-	-	-	-	32.5	31.6	32.7	32.5	33.1	32.1	-	56
64	-	-	-	-	-	-	25.7	25.7	26.3	26.2	26.8	26.8	-	64
72	-	-	-	-	-	-	21.9	21.9	22.3	22.1	22.1	22.1	-	72
80	-	-	-	-	-	-	17.8	17.8	18.4	18.4	18.9	18.9	-	80
88	-	-	-	-	-	-	15.1	15.1	15.2	15.2	15.5	15.5	-	88
96	-	-	-	-	-	-	12.6	12.6	12.9	12.9	13.3	13.3	-	96
104	-	-	-	-	-	-	10.4	10.4	10.8	10.8	10.9	10.9	-	104
112	-	-	-	-	-	-	8.7	8.7	8.9	8.9	-	-	-	112
120	-	-	-	-	-	-	7.2	7.2	7.4	7.4	-	-	-	120
128	-	-	-	-	-	-	5.9	5.9	-	-	-	-	-	128










		 181.1 ft				 196.9 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48	34.2	28.4	-	-	-	-	-	-	-	-	-	-	-	48
56	27.7	25.9	28.9	26.5	29.1	24.0	24.7	22.3	24.8	-	-	-	-	56
64	23.0	21.3	23.3	22.1	24.2	23.0	21.2	20.1	22.0	20.9	21.9	21.2	-	64
72	19.0	18.4	18.8	18.6	19.7	19.0	17.1	16.6	18.0	17.5	18.8	18.1	-	72
80	15.3	15.1	16.2	16.0	16.3	16.3	13.6	13.5	14.5	14.3	15.2	15.0	-	80
88	12.1	12.1	12.9	12.9	13.3	13.3	10.8	10.8	11.7	11.7	12.3	12.3	-	88
96	9.6	9.6	10.2	10.2	10.7	10.7	8.4	8.4	9.1	9.1	9.6	9.6	-	96
104	7.3	7.3	8.0	8.0	8.4	8.4	6.4	6.4	6.9	6.9	7.3	7.3	-	104
112	5.6	5.6	6.1	6.1	6.5	6.5	4.5	4.5	5.0	5.0	5.4	5.4	-	112
120	4.1	4.1	4.5	4.5	4.8	4.8	3.0	3.0	3.6	3.6	3.9	3.9	-	120
128	2.9	2.9	3.2	3.2	3.4	3.4	-	-	-	-	-	-	-	128






HAV-HY

		33,100 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	43.2	37.6	35.3	-	-	-	40
48		34.5	32.3	29.6	28.3	23.3	23.0	39.1	34.8	33.4	28.8	-	-	48
56		31.0	29.5	26.5	26.2	21.7	21.7	31.8	30.0	31.4	27.5	24.8	23.0	56
64		27.6	26.9	24.2	24.2	-	-	26.1	25.7	27.3	25.7	23.6	22.4	64
72		-	-	-	-	-	-	21.3	21.3	22.3	21.9	22.5	21.6	72
80		-	-	-	-	-	-	18.0	18.0	18.6	18.3	19.0	19.0	80
88		-	-	-	-	-	-	15.5	15.5	16.0	15.3	16.2	16.2	88
96		-	-	-	-	-	-	12.9	12.9	13.3	13.3	13.6	13.6	96
104		-	-	-	-	-	-	11.2	11.2	11.5	11.5	12.0	12.0	104
112		-	-	-	-	-	-	9.4	9.4	9.6	9.6	10.3	10.3	112
120		-	-	-	-	-	-	7.8	7.8	8.4	8.4	8.6	8.6	120
128		-	-	-	-	-	-	6.6	6.6	6.9	6.9	4.3	4.3	128
136		-	-	-	-	-	-	5.5	5.5	5.8	5.8	-	-	136
144		-	-	-	-	-	-	4.5	4.5	4.7	4.7	-	-	144










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		25.0	21.4	-	-	-	-	20.5	16.8	-	-	-	-	56
64		22.1	20.4	-	-	-	-	19.6	16.8	-	-	-	-	64
72		18.2	17.3	19.7	19.0	-	-	17.0	16.3	17.7	-	-	-	72
80		15.4	15.2	16.4	15.9	17.1	17.0	13.6	13.5	15.6	15.2	15.4	15.4	80
88		12.4	12.4	13.7	13.6	14.9	14.5	10.8	10.8	12.5	12.5	13.7	13.7	88
96		10.0	10.0	11.5	11.5	12.4	12.4	8.4	8.4	10.0	10.0	11.3	11.3	96
104		7.9	7.9	9.3	9.3	10.4	10.4	6.4	6.4	7.8	7.8	9.1	9.1	104
112		6.3	6.3	7.4	7.4	8.3	8.3	4.8	4.8	6.1	6.1	7.2	7.2	112
120		4.8	4.8	5.8	5.8	6.5	6.5	3.4	3.4	4.5	4.5	5.6	5.6	120
128		3.5	3.5	4.3	4.3	5.0	5.0	-	-	3.3	3.3	4.1	4.1	128
136		-	-	3.1	3.1	3.6	3.6	-	-	-	-	2.7	2.7	136
144		-	-	-	-	2.5	2.5	-	-	-	-	-	-	144






HAV-HY

33,100 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
 ft		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	 ft
		0°		18°		36°		0°		18°		
1,000 lb												
14		44.5	37.4	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	56
64		20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	19.4	17.6	64
72		18.6	17.9	15.7	15.2	12.6	12.6	21.2	19.6	18.5	16.8	72
80		16.7	16.7	14.4	14.4	-	-	17.8	17.7	17.7	16.0	80
88		-	-	-	-	-	-	15.1	15.1	16.1	15.2	88
96		-	-	-	-	-	-	12.9	12.9	14.0	13.7	96
104		-	-	-	-	-	-	11.2	11.2	11.7	11.7	104
112		-	-	-	-	-	-	9.8	9.8	10.3	10.3	112
120		-	-	-	-	-	-	8.2	8.2	9.0	9.0	120
128		-	-	-	-	-	-	7.3	7.3	7.8	7.8	128
136		-	-	-	-	-	-	6.0	6.0	6.7	6.7	136
144		-	-	-	-	-	-	5.1	5.1	5.6	5.6	144
152		-	-	-	-	-	-	4.1	4.1	4.7	4.7	152
160		-	-	-	-	-	-	3.4	3.4	3.7	3.7	160










		 181.1 ft				 196.9 ft						
 ft		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	 ft
		0°		18°		36°		0°		18°		
1,000 lb												
56		18.6	15.7	-	-	-	-	-	-	-	-	56
64		18.2	15.7	-	-	-	-	15.7	12.3	-	-	64
72		17.6	15.7	-	-	-	-	15.2	12.3	-	-	72
80		14.8	14.3	15.5	14.0	-	-	13.4	12.2	14.2	-	80
88		12.4	12.4	14.0	13.3	12.6	12.0	10.6	10.6	12.8	12.2	88
96		10.1	10.1	11.6	11.6	12.1	11.8	8.4	8.4	10.8	10.8	96
104		8.2	8.2	9.9	9.9	11.2	11.1	6.6	6.6	8.6	8.6	104
112		6.5	6.5	8.3	8.3	9.4	9.4	5.0	5.0	7.0	7.0	112
120		5.0	5.0	6.7	6.7	8.2	8.2	3.7	3.7	5.4	5.4	120
128		4.0	4.0	5.4	5.4	6.7	6.7	-	-	4.1	4.1	128
136		2.9	2.9	4.2	4.2	5.2	5.2	-	-	2.9	2.9	136
144		-	-	3.1	3.1	4.0	4.0	-	-	-	-	144






HAV-HY

		33,100 lb +  33,100 lb		 75.5 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		27.7	-	-	-	-	-	-	-	-	-	-	-	18
20		27.0	23.3	-	-	-	-	-	-	-	-	-	-	20
24		25.9	22.2	-	-	-	-	-	-	-	-	-	-	24
28		24.5	21.1	-	-	-	-	-	-	-	-	-	-	28
32		23.4	20.2	-	-	-	-	-	-	-	-	-	-	32
36		22.2	19.3	-	-	-	-	-	-	-	-	-	-	36
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	40
48		18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	48
56		17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	56
64		15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	64
72		14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	72
80		13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	10.1	9.4	80
88		12.2	11.4	10.4	10.2	8.2	8.2	14.2	12.8	12.2	11.1	9.7	9.2	88
96		11.1	10.6	9.5	9.5	7.8	7.8	12.7	12.3	11.6	10.7	9.2	8.9	96
104		10.1	10.0	8.9	8.9	-	-	10.9	10.9	11.1	10.2	8.9	8.6	104
112		-	-	-	-	-	-	9.4	9.4	10.5	9.9	8.6	8.4	112
120		-	-	-	-	-	-	8.3	8.3	8.9	8.9	8.3	8.1	120
128		-	-	-	-	-	-	7.2	7.2	7.8	7.8	8.0	7.8	128
136		-	-	-	-	-	-	6.1	6.1	6.7	6.7	7.4	7.4	136
144		-	-	-	-	-	-	5.3	5.3	5.8	5.8	6.2	6.2	144
152		-	-	-	-	-	-	4.3	4.3	5.0	5.0	5.6	5.6	152
160		-	-	-	-	-	-	3.5	3.5	4.2	4.2	4.6	4.6	160
168		-	-	-	-	-	-	-	-	3.3	3.3	-	-	168
176		-	-	-	-	-	-	-	-	2.5	2.5	-	-	176










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		12.8	11.0	-	-	-	-	-	-	-	-	-	-	64
72		12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	72
80		12.0	11.0	-	-	-	-	11.0	8.8	-	-	-	-	80
88		11.2	10.5	10.5	9.6	-	-	10.0	8.8	-	-	-	-	88
96		9.5	9.4	10.2	9.3	-	-	7.7	7.7	9.6	8.7	-	-	96
104		7.5	7.5	9.4	9.1	8.6	-	5.9	5.9	8.5	8.4	-	-	104
112		5.9	5.9	8.3	8.3	8.4	7.7	4.3	4.3	7.0	7.0	7.9	7.3	112
120		4.6	4.6	6.7	6.7	7.9	7.4	3.1	3.1	5.4	5.4	7.5	7.1	120
128		3.5	3.5	5.4	5.4	6.9	6.8	-	-	4.1	4.1	6.2	6.2	128
136		2.4	2.4	4.2	4.2	6.0	6.0	-	-	2.9	2.9	4.9	4.9	136
144		-	-	3.1	3.1	4.7	4.7	-	-	-	-	3.6	3.6	144
152		-	-	-	-	3.6	3.6	-	-	-	-	-	-	152
160		-	-	-	-	2.7	2.7	-	-	-	-	-	-	160






HAV-HY

11,000 lb +  33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	10	
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	12	
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	14	
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	16	
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	18	
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	20	
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	24	
28	79.5	76.4	67.6	65.3	57.2	56.3	62.6	56.3	-	-	-	28	
32	68.4	67.7	63.4	62.4	54.9	54.1	54.7	49.4	55.5	46.5	-	32	
36	56.8	56.8	55.9	55.4	52.1	51.6	47.7	43.5	47.8	45.0	48.0	36	
40	46.5	46.5	47.6	47.6	-	-	40.9	38.8	42.8	39.2	42.6	40.7	40
48	-	-	-	-	-	-	32.8	31.8	33.0	31.9	34.2	32.2	48
56	-	-	-	-	-	-	26.3	25.8	26.7	26.6	27.1	26.7	56
64	-	-	-	-	-	-	20.9	20.9	21.4	21.4	21.9	21.9	64
72	-	-	-	-	-	-	16.4	16.4	17.1	17.1	17.5	17.5	72
80	-	-	-	-	-	-	13.0	13.0	13.6	13.6	14.0	14.0	80
88	-	-	-	-	-	-	10.4	10.4	10.9	10.9	11.1	11.1	88
96	-	-	-	-	-	-	8.3	8.3	8.6	8.6	8.8	8.8	96
104	-	-	-	-	-	-	6.4	6.4	6.8	6.8	6.8	6.8	104
112	-	-	-	-	-	-	5.0	5.0	5.2	5.2	-	-	112
120	-	-	-	-	-	-	3.7	3.7	3.9	3.9	-	-	120
128	-	-	-	-	-	-	2.8	2.8	-	-	-	-	128










		 181.1 ft				 196.9 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
48	26.5	24.6	-	-	-	-	-	-	-	-	-	48	
56	20.5	19.6	21.7	20.7	22.9	21.7	18.4	17.5	19.6	-	-	56	
64	16.0	15.5	17.0	16.5	17.9	17.3	14.0	13.7	15.1	14.6	16.1	15.5	64
72	12.4	12.4	13.3	13.1	14.0	14.0	10.4	10.4	11.5	11.5	12.2	12.2	72
80	9.5	9.5	10.4	10.4	11.0	11.0	7.8	7.8	8.7	8.7	9.3	9.3	80
88	7.0	7.0	7.9	7.9	8.4	8.4	5.4	5.4	6.3	6.3	6.9	6.9	88
96	5.1	5.1	5.7	5.7	6.2	6.2	3.6	3.6	4.3	4.3	4.8	4.8	96
104	3.3	3.3	3.9	3.9	4.4	4.4	-	-	2.6	2.6	3.1	3.1	104






HAV-HY

		11,000 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	43.0	37.9	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	40.5	36.4	35.3	-	-	-	40
48		34.5	32.3	29.6	28.3	23.3	23.0	31.7	30.1	32.2	28.4	-	-	48
56		29.0	28.3	26.5	26.2	21.7	21.7	26.1	25.0	27.3	25.3	24.8	23.0	56
64		23.1	23.1	23.4	23.4	-	-	21.3	20.9	22.2	21.3	22.8	21.9	64
72		-	-	-	-	-	-	17.3	17.3	17.7	17.7	18.6	18.6	72
80		-	-	-	-	-	-	13.9	13.9	15.0	15.0	15.3	15.3	80
88		-	-	-	-	-	-	11.3	11.3	12.4	12.4	13.1	13.1	88
96		-	-	-	-	-	-	9.0	9.0	10.0	10.0	10.8	10.8	96
104		-	-	-	-	-	-	7.3	7.3	7.9	7.9	8.6	8.6	104
112		-	-	-	-	-	-	5.7	5.7	6.3	6.3	7.0	7.0	112
120		-	-	-	-	-	-	4.4	4.4	5.0	5.0	5.4	5.4	120
128		-	-	-	-	-	-	3.3	3.3	3.9	3.9	-	-	128
136		-	-	-	-	-	-	2.4	2.4	2.8	2.8	-	-	136










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		20.6	18.9	-	-	-	-	18.5	16.2	-	-	-	-	56
64		16.2	15.5	18.3	-	-	-	14.3	13.5	-	-	-	-	64
72		12.4	12.2	14.4	14.2	-	-	10.7	10.6	12.9	-	-	-	72
80		9.5	9.5	11.3	11.3	13.0	12.8	7.8	7.8	9.7	9.7	11.5	11.3	80
88		7.1	7.1	8.8	8.8	10.2	10.2	5.4	5.4	7.2	7.2	8.9	8.9	88
96		5.2	5.2	6.6	6.6	7.9	7.9	3.6	3.6	5.2	5.2	6.6	6.6	96
104		3.5	3.5	4.8	4.8	6.0	6.0	-	-	3.5	3.5	4.6	4.6	104
112		-	-	3.5	3.5	4.3	4.3	-	-	-	-	-	-	112
120		-	-	-	-	3.0	3.0	-	-	-	-	-	-	120






HAV-HY

		11,000 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	27.2	22.9	-	-	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	24.1	21.6	20.6	18.4	-	-	56
64		20.7	19.3	17.3	16.3	13.4	13.4	20.7	19.3	19.4	17.6	-	-	64
72		18.6	17.9	15.7	15.2	12.6	12.6	16.8	16.8	18.3	16.8	15.0	13.9	72
80		16.6	16.6	14.4	14.4	-	-	14.4	14.4	15.5	15.1	14.4	13.4	80
88		-	-	-	-	-	-	12.2	12.2	13.0	13.0	13.4	13.0	88
96		-	-	-	-	-	-	9.9	9.9	11.3	11.3	11.8	11.7	96
104		-	-	-	-	-	-	8.1	8.1	9.3	9.3	10.3	10.3	104
112		-	-	-	-	-	-	6.5	6.5	7.6	7.6	8.5	8.5	112
120		-	-	-	-	-	-	5.2	5.2	6.3	6.3	7.0	7.0	120
128		-	-	-	-	-	-	4.1	4.1	5.0	5.0	5.6	5.6	128
136		-	-	-	-	-	-	3.1	3.1	3.8	3.8	4.3	4.3	136
144		-	-	-	-	-	-	2.2	2.2	2.9	2.9	3.1	3.1	144










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		18.3	15.7	-	-	-	-	-	-	-	-	-	-	56
64		15.8	14.7	-	-	-	-	13.9	12.3	-	-	-	-	64
72		12.2	12.2	-	-	-	-	10.4	10.4	-	-	-	-	72
80		9.3	9.3	12.1	12.1	-	-	7.6	7.6	10.6	-	-	-	80
88		7.1	7.1	9.5	9.5	11.4	11.4	5.4	5.4	8.1	8.1	-	-	88
96		5.2	5.2	7.4	7.4	9.5	9.5	3.6	3.6	6.1	6.1	8.1	8.1	96
104		3.7	3.7	5.7	5.7	7.5	7.5	-	-	4.2	4.2	6.2	6.2	104
112		-	-	4.1	4.1	5.9	5.9	-	-	-	-	4.6	4.6	112
120		-	-	2.8	2.8	4.3	4.3	-	-	-	-	3.2	3.2	120
128		-	-	-	-	3.1	3.1	-	-	-	-	-	-	128






HAV-HY

11,000 lb +  33,100 lb		 75.5 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
18		27.7	-	-	-	-	-	-	-	-	-	18
20		27.0	23.3	-	-	-	-	-	-	-	-	20
24		25.9	22.2	-	-	-	-	-	-	-	-	24
28		24.5	21.1	-	-	-	-	-	-	-	-	28
32		23.4	20.2	-	-	-	-	-	-	-	-	32
36		22.2	19.3	-	-	-	-	-	-	-	-	36
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	40
48		18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	48
56		17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	56
64		15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	64
72		14.4	13.0	12.6	11.5	9.5	9.5	15.5	14.1	13.5	12.1	72
80		13.1	12.2	11.3	10.9	8.7	8.7	13.5	12.9	12.9	11.6	80
88		12.2	11.4	10.4	10.2	8.2	8.2	11.8	11.7	12.0	11.1	88
96		11.1	10.6	9.5	9.5	7.8	7.8	9.8	9.8	10.9	10.4	96
104		10.1	10.0	8.9	8.9	-	-	8.1	8.1	9.6	9.5	104
112		-	-	-	-	-	-	6.6	6.6	8.3	8.3	112
120		-	-	-	-	-	-	5.4	5.4	6.7	6.7	120
128		-	-	-	-	-	-	4.3	4.3	5.5	5.5	128
136		-	-	-	-	-	-	3.3	3.3	4.4	4.4	136
144		-	-	-	-	-	-	2.5	2.5	3.4	3.4	144
152		-	-	-	-	-	-	-	-	-	-	152










		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
64		12.8	11.0	-	-	-	-	-	-	-	-	64
72		11.3	10.8	-	-	-	-	9.3	8.8	-	-	72
80		8.7	8.7	-	-	-	-	6.7	6.7	-	-	80
88		6.4	6.4	9.6	9.1	-	-	4.7	4.7	-	-	88
96		4.7	4.7	7.5	7.5	-	-	2.9	2.9	6.1	6.1	96
104		3.1	3.1	5.7	5.7	8.0	-	-	-	4.4	4.4	104
112		-	-	4.1	4.1	6.5	6.5	-	-	-	-	112
120		-	-	3.0	3.0	5.0	5.0	-	-	-	-	120
128		-	-	-	-	3.7	3.7	-	-	-	-	128
136		-	-	-	-	2.7	2.7	-	-	-	-	136






HAV-HY

0 lb +  33,100 lb		 16.4 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft				 126.0 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	24
28	75.2	73.5	67.6	65.3	57.2	56.3	56.5	50.6	-	-	-	-	-	28
32	60.1	60.1	60.8	60.4	54.9	54.1	48.4	44.7	49.8	44.5	-	-	-	32
36	49.4	49.4	50.9	50.9	49.0	48.5	42.4	39.6	42.8	40.1	44.1	38.5	-	36
40	40.3	40.3	41.3	41.3	-	-	37.6	35.1	38.0	35.7	38.2	36.4	-	40
48	-	-	-	-	-	-	29.7	27.7	30.2	28.8	30.2	29.3	-	48
56	-	-	-	-	-	-	22.7	22.1	23.8	23.1	24.4	23.9	-	56
64	-	-	-	-	-	-	17.3	17.3	18.2	18.2	18.9	18.8	-	64
72	-	-	-	-	-	-	13.3	13.3	14.0	14.0	14.6	14.6	-	72
80	-	-	-	-	-	-	10.4	10.4	10.9	10.9	11.3	11.3	-	80
88	-	-	-	-	-	-	8.0	8.0	8.5	8.5	8.8	8.8	-	88
96	-	-	-	-	-	-	6.1	6.1	6.5	6.5	6.7	6.7	-	96
104	-	-	-	-	-	-	4.4	4.4	4.8	4.8	5.0	5.0	-	104
112	-	-	-	-	-	-	3.2	3.2	3.5	3.5	-	-	-	112










		 181.1 ft				 196.9 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48	21.7	20.4	-	-	-	-	-	-	-	-	-	-	-	48
56	16.5	15.9	17.7	16.9	18.7	17.8	14.3	13.8	15.6	-	-	-	-	56
64	12.4	12.2	13.4	13.1	14.3	13.9	10.4	10.4	11.6	11.5	12.4	12.4	-	64
72	9.1	9.1	10.0	10.0	10.9	10.9	7.3	7.3	8.2	8.2	9.1	9.1	-	72
80	6.5	6.5	7.3	7.3	8.0	8.0	5.0	5.0	5.8	5.8	6.5	6.5	-	80
88	4.4	4.4	5.1	5.1	5.7	5.7	-	-	3.6	3.6	4.2	4.2	-	88
96	-	-	3.4	3.4	3.8	3.8	-	-	-	-	-	-	-	96






HAV-HY

0 lb +  33,100 lb		 36.1 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
10		72.7	59.8	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	45.1	39.0	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	40.1	35.5	-	-	36
40		39.0	35.7	32.8	30.7	25.8	24.6	35.9	33.6	34.9	-	40
48		32.6	31.4	29.6	28.3	23.3	23.0	28.6	27.2	29.4	27.3	48
56		25.0	25.0	25.5	25.2	21.7	21.7	23.4	22.0	24.1	22.6	56
64		19.5	19.5	20.3	20.3	-	-	18.4	17.8	19.3	19.2	64
72		-	-	-	-	-	-	14.4	14.4	16.0	16.0	72
80		-	-	-	-	-	-	11.3	11.3	12.6	12.6	80
88		-	-	-	-	-	-	9.0	9.0	10.0	10.0	88
96		-	-	-	-	-	-	7.0	7.0	7.8	7.8	96
104		-	-	-	-	-	-	5.3	5.3	6.2	6.2	104
112		-	-	-	-	-	-	3.9	3.9	4.6	4.6	112
120		-	-	-	-	-	-	-	-	3.3	3.3	120










		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
56		16.6	15.5	-	-	-	-	14.5	13.7	-	-	56
64		12.5	12.1	14.9	-	-	-	10.7	10.4	-	-	64
72		9.1	9.1	11.3	11.1	-	-	7.3	7.3	9.6	-	72
80		6.5	6.5	8.4	8.4	10.2	10.0	4.8	4.8	6.9	6.9	80
88		4.4	4.4	6.1	6.1	7.6	7.6	-	-	4.6	4.6	88
96		2.7	2.7	4.2	4.2	5.4	5.4	-	-	2.7	2.7	96
104		-	-	2.6	2.6	3.7	3.7	-	-	-	-	104






HAV-HY

0 lb +  33,100 lb		 55.8 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
14		44.5	37.4	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.0	24.1	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	25.4	22.4	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	21.9	20.2	20.6	18.4	56
64		20.7	19.3	17.3	16.3	13.4	13.4	18.3	17.7	18.8	17.4	64
72		17.3	17.2	15.7	15.2	12.6	12.6	14.8	14.6	16.2	15.7	72
80		14.4	14.4	14.3	14.3	-	-	12.0	12.0	13.7	13.7	80
88		-	-	-	-	-	-	9.6	9.6	11.4	11.4	88
96		-	-	-	-	-	-	7.8	7.8	9.2	9.2	96
104		-	-	-	-	-	-	6.2	6.2	7.5	7.5	104
112		-	-	-	-	-	-	4.8	4.8	5.9	5.9	112
120		-	-	-	-	-	-	3.5	3.5	4.5	4.5	120
128		-	-	-	-	-	-	-	-	3.3	3.3	128
136		-	-	-	-	-	-	-	-	-	-	136

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
56		16.2	14.5	-	-	-	-	-	-	-	-	56
64		12.3	12.1	-	-	-	-	10.2	10.1	-	-	64
72		9.1	9.1	-	-	-	-	7.1	7.1	-	-	72
80		6.5	6.5	9.3	9.3	-	-	4.7	4.7	7.8	-	80
88		4.5	4.5	7.0	7.0	9.3	9.3	-	-	5.4	-	88
96		2.9	2.9	5.0	5.0	7.0	7.0	-	-	3.6	-	96
104		-	-	3.5	3.5	5.3	5.3	-	-	-	-	104
112		-	-	-	-	3.7	3.7	-	-	-	-	112

HAV-HY

0 lb +  33,100 lb		 75.5 ft		 19.7 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft				 126.0 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°			
		0°		18°		36°		0°		18°			36°	
ft		1,000 lb										ft		
18		27.7	-	-	-	-	-	-	-	-	-	18		
20		27.0	23.3	-	-	-	-	-	-	-	-	20		
24		25.9	22.2	-	-	-	-	-	-	-	-	24		
28		24.5	21.1	-	-	-	-	-	-	-	-	28		
32		23.4	20.2	-	-	-	-	-	-	-	-	32		
36		22.2	19.3	-	-	-	-	-	-	-	-	36		
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	40		
48		18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	48		
56		17.2	15.3	14.8	13.4	-	-	17.5	15.5	-	-	56		
64		15.5	14.1	13.7	12.3	10.4	10.3	16.0	14.7	14.3	-	64		
72		14.4	13.0	12.6	11.5	9.5	9.5	14.1	13.5	13.5	12.1	72		
80		13.1	12.2	11.3	10.9	8.7	8.7	11.3	11.3	12.5	11.4	10.1	9.4	80
88		12.2	11.4	10.4	10.2	8.2	8.2	9.2	9.2	11.0	10.7	9.7	9.2	88
96		10.7	10.5	9.5	9.5	7.8	7.8	7.3	7.3	9.5	9.4	9.2	8.9	96
104		9.2	9.2	8.9	8.9	-	-	5.9	5.9	7.7	7.7	8.7	8.4	104
112		-	-	-	-	-	-	4.6	4.6	6.3	6.3	7.8	7.8	112
120		-	-	-	-	-	-	3.6	3.6	5.0	5.0	6.3	6.3	120
128		-	-	-	-	-	-	2.8	2.8	4.0	4.0	5.0	5.0	128
136		-	-	-	-	-	-	-	-	2.9	2.9	3.8	3.8	136
144		-	-	-	-	-	-	-	-	-	-	2.7	2.7	144

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
64		11.1	10.6	-	-	-	-	-	-	-	-	64
72		8.0	8.0	-	-	-	-	6.2	6.2	-	-	72
80		5.7	5.7	-	-	-	-	3.9	3.9	-	-	80
88		3.9	3.9	7.0	7.0	-	-	-	-	-	-	88
96		-	-	5.1	5.1	-	-	-	-	-	-	96
104		-	-	3.5	3.5	6.0	-	-	-	-	-	104
112		-	-	-	-	4.6	4.6	-	-	-	-	112
120		-	-	-	-	3.2	3.2	-	-	-	-	120

HAV-HY

99,200 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28	79.5	76.4	67.6	65.3	57.2	56.3	74.9	68.0	-	-	-	-	-	-	-	28
32	74.6	72.0	63.4	62.4	54.9	54.1	67.0	65.9	62.7	-	-	-	-	-	-	32
36	69.8	67.7	59.6	58.7	53.1	52.5	60.8	60.8	58.6	56.5	51.0	-	-	-	-	36
40	64.7	63.1	56.0	55.2	-	-	55.1	55.3	54.4	53.1	49.0	48.8	-	-	-	40
48	-	-	-	-	-	-	46.6	46.3	45.8	44.8	44.0	43.8	-	-	-	48
56	-	-	-	-	-	-	38.8	38.7	39.1	38.4	38.4	38.3	-	-	-	56
64	-	-	-	-	-	-	32.9	32.7	32.3	32.2	32.7	32.7	-	-	-	64
72	-	-	-	-	-	-	27.5	27.5	27.8	27.8	27.4	27.4	-	-	-	72
80	-	-	-	-	-	-	23.0	23.0	23.6	23.6	23.9	23.9	-	-	-	80
88	-	-	-	-	-	-	19.5	19.5	19.9	19.9	20.3	20.3	-	-	-	88
96	-	-	-	-	-	-	17.0	17.0	17.1	17.1	17.3	17.3	-	-	-	96
104	-	-	-	-	-	-	15.6	15.6	15.4	15.4	15.4	15.4	-	-	-	104
112	-	-	-	-	-	-	13.8	13.8	14.0	14.0	-	-	-	-	-	112
120	-	-	-	-	-	-	12.0	12.0	12.2	12.2	-	-	-	-	-	120
128	-	-	-	-	-	-	10.7	10.7	-	-	-	-	-	-	-	128

		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.0	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	31.0	27.6	30.2	27.3	29.5	-	24.7	22.3	24.8	-	-	-	-	-	-	56
64	27.2	25.1	26.7	24.8	26.4	24.4	22.1	21.0	22.0	21.2	21.9	21.2	-	-	-	64
72	23.9	22.1	23.7	21.9	23.4	21.9	19.5	19.0	19.2	19.2	19.2	19.2	-	-	-	72
80	20.7	19.2	21.0	19.2	20.8	19.3	17.0	16.9	17.1	17.1	17.1	17.1	-	-	-	80
88	18.1	16.9	18.4	17.0	18.5	17.1	14.8	14.7	15.0	14.9	15.2	15.0	-	-	-	88
96	15.4	14.9	15.8	15.1	16.2	15.1	12.9	12.8	13.1	13.1	13.2	13.1	-	-	-	96
104	13.1	13.0	13.5	13.2	13.7	13.4	11.2	11.2	11.4	11.4	11.6	11.4	-	-	-	104
112	11.0	10.9	11.4	11.4	11.6	11.6	9.8	9.8	10.1	9.9	10.1	10.1	-	-	-	112
120	9.8	9.0	9.5	9.5	9.7	9.7	8.5	8.5	8.8	8.7	8.8	8.8	-	-	-	120
128	8.1	7.9	8.2	8.2	8.3	8.3	7.2	7.2	7.5	7.4	7.7	7.7	-	-	-	128
136	6.7	6.7	7.1	7.1	7.1	7.1	5.8	5.8	6.0	6.0	6.3	6.3	-	-	-	136
144	5.6	5.6	5.8	5.8	6.0	6.0	4.5	4.5	4.7	4.7	4.9	4.9	-	-	-	144
152	4.5	4.5	4.7	4.7	4.7	4.7	3.4	3.4	3.6	3.6	3.8	3.8	-	-	-	152
160	3.5	3.5	3.6	3.6	-	-	-	-	-	-	2.7	2.7	-	-	-	160

HAV-HY

99,200 lb +		33,100 lb		36.1 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12	69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14	65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16	62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18	60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24	52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28	48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32	45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	32
36	42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	36
40	39.1	35.7	32.8	30.7	25.8	24.6	43.2	37.6	35.3	-	-	-	40
48	34.5	32.3	29.6	28.3	23.3	23.0	40.4	35.7	33.4	28.8	-	-	48
56	31.0	29.5	26.5	26.2	21.7	21.7	36.6	33.9	31.4	27.5	24.8	23.0	56
64	27.6	26.9	24.2	24.2	-	-	32.2	31.8	29.3	26.5	23.6	22.4	64
72	-	-	-	-	-	-	27.0	27.0	27.2	25.4	22.5	21.6	72
80	-	-	-	-	-	-	23.0	23.0	23.9	23.0	21.4	21.0	80
88	-	-	-	-	-	-	20.0	20.0	20.5	20.2	20.2	20.0	88
96	-	-	-	-	-	-	17.6	17.6	17.4	17.3	17.9	17.9	96
104	-	-	-	-	-	-	15.1	15.1	14.9	14.9	15.5	15.5	104
112	-	-	-	-	-	-	13.1	13.1	13.8	13.8	13.4	13.4	112
120	-	-	-	-	-	-	11.4	11.4	12.0	12.0	12.3	12.3	120
128	-	-	-	-	-	-	10.5	10.5	10.4	10.4	9.6	9.6	128
136	-	-	-	-	-	-	9.7	9.7	9.4	9.0	-	-	136
144	-	-	-	-	-	-	8.6	8.6	8.4	8.4	-	-	144











		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
56	25.0	21.4	-	-	-	-	20.5	16.8	-	-	-	-	56
64	23.1	21.4	-	-	-	-	19.6	16.8	-	-	-	-	64
72	20.8	20.1	19.7	19.7	-	-	18.1	16.8	17.7	-	-	-	72
80	18.4	18.4	18.0	17.8	17.2	17.2	16.2	15.5	16.1	15.7	15.4	15.4	80
88	16.3	16.3	16.2	16.2	15.9	15.9	14.4	14.2	14.4	14.3	14.2	14.1	88
96	14.5	14.5	14.7	14.6	14.7	14.5	12.6	12.6	12.8	12.8	13.0	12.8	96
104	12.8	12.8	13.2	13.2	13.4	13.4	11.0	11.0	11.4	11.4	11.6	11.6	104
112	11.4	11.4	11.8	11.6	12.0	12.0	9.6	9.6	10.1	10.1	10.3	10.3	112
120	9.8	9.8	10.5	10.3	10.7	10.7	8.3	8.3	8.8	8.8	9.0	9.0	120
128	8.1	8.1	9.0	9.0	9.4	9.4	7.3	7.3	7.7	7.7	7.9	7.9	128
136	6.8	6.8	7.4	7.4	8.0	8.0	6.2	6.2	6.6	6.6	6.9	6.9	136
144	6.0	6.0	6.2	6.2	6.5	6.5	5.1	5.1	5.8	5.8	6.0	6.0	144
152	4.9	4.9	5.4	5.4	5.6	5.6	4.0	4.0	4.7	4.7	5.1	5.1	152
160	3.9	3.9	4.5	4.5	4.7	4.7	3.0	3.0	3.6	3.6	4.1	4.1	160
168	-	-	3.5	3.5	3.7	3.7	-	-	-	-	-	-	168
176	-	-	2.6	2.6	2.8	2.8	-	-	-	-	-	-	176






HAV-HY

99,200 lb +		33,100 lb		55.8 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	44.5	37.4	-	-	-	-	-	-	-	-	-	-	-	-
16	43.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-
18	41.6	35.3	-	-	-	-	-	-	-	-	-	-	-	-
20	40.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-
24	37.4	32.1	-	-	-	-	-	-	-	-	-	-	-	-
28	34.9	30.3	-	-	-	-	-	-	-	-	-	-	-	-
32	32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	-	-
36	30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	-	-
40	28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	-	-
48	25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	-	-
56	23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	-	-	-	-
64	20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	19.4	17.6	-	-	-	-
72	18.6	17.9	15.7	15.2	12.6	12.6	23.2	19.6	18.5	16.8	15.0	13.9	-	-
80	16.7	16.7	14.4	14.4	-	-	21.9	18.8	17.7	16.0	14.4	13.4	-	-
88	-	-	-	-	-	-	20.1	17.9	16.9	15.5	13.7	13.0	-	-
96	-	-	-	-	-	-	17.1	16.7	16.1	14.9	13.3	12.6	-	-
104	-	-	-	-	-	-	15.0	15.0	15.3	14.4	12.9	12.4	-	-
112	-	-	-	-	-	-	12.9	12.9	13.8	13.8	12.6	12.1	-	-
120	-	-	-	-	-	-	11.5	11.5	12.2	12.2	12.2	11.9	-	-
128	-	-	-	-	-	-	10.6	10.6	10.6	10.6	11.2	11.2	-	-
136	-	-	-	-	-	-	9.3	9.3	9.4	9.4	9.8	9.8	-	-
144	-	-	-	-	-	-	8.0	8.0	8.6	8.6	8.8	8.8	-	-
152	-	-	-	-	-	-	6.9	6.9	7.5	7.5	-	-	-	-
160	-	-	-	-	-	-	6.4	6.4	6.3	6.3	-	-	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	18.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-
64	18.2	15.7	-	-	-	-	15.7	12.3	-	-	-	-	-	-
72	17.6	15.7	-	-	-	-	15.2	12.3	-	-	-	-	-	-
80	16.8	15.4	15.5	14.0	-	-	14.6	12.3	14.2	-	-	-	-	-
88	15.4	14.9	14.4	13.5	12.6	12.0	13.7	12.3	13.1	12.3	-	-	-	-
96	14.1	13.9	13.3	12.9	12.1	11.8	12.2	11.9	12.0	11.7	11.2	11.1	-	-
104	12.5	12.5	12.4	12.2	11.5	11.3	10.7	10.7	10.9	10.9	10.5	10.5	-	-
112	11.2	11.2	11.4	11.4	11.0	11.0	9.6	9.4	9.9	9.9	9.9	9.9	-	-
120	10.0	10.0	10.3	10.3	10.2	10.2	8.3	8.3	8.8	8.8	9.1	9.1	-	-
128	8.7	8.7	9.3	9.3	9.4	9.4	7.3	7.3	7.8	7.8	8.2	8.2	-	-
136	7.4	7.4	8.3	8.2	8.6	8.6	6.4	6.2	6.9	6.9	7.2	7.2	-	-
144	6.0	6.0	7.3	7.3	7.5	7.5	5.3	5.3	6.0	6.0	6.4	6.2	-	-
152	5.0	5.0	6.0	6.0	6.7	6.7	4.7	4.5	5.2	5.2	5.4	5.4	-	-
160	4.5	4.5	5.0	5.0	5.5	5.5	3.6	3.6	4.4	4.4	4.7	4.6	-	-
168	3.7	3.7	4.1	4.1	4.4	4.4	-	-	3.6	3.6	4.0	3.9	-	-
176	2.8	2.8	3.6	3.6	3.6	3.6	-	-	2.8	2.8	3.2	3.2	-	-
184	-	-	-	-	3.0	3.0	-	-	-	-	-	-	-	-

HAV-HY

		99,200 lb + 		33,100 lb 		75.5 ft 		15.6 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
18		27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		27.0	23.3	-	-	-	-	-	-	-	-	-	-	-	-	20
24		25.9	22.2	-	-	-	-	-	-	-	-	-	-	-	-	24
28		24.5	21.1	-	-	-	-	-	-	-	-	-	-	-	-	28
32		23.4	20.2	-	-	-	-	-	-	-	-	-	-	-	-	32
36		22.2	19.3	-	-	-	-	-	-	-	-	-	-	-	-	36
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	-	-	40
48		18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	-	-	48
56		17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	-	-	56
64		15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	-	-	64
72		14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	-	-	72
80		13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	10.1	9.4	-	-	80
88		12.2	11.4	10.4	10.2	8.2	8.2	14.5	12.8	12.2	11.1	9.7	9.2	-	-	88
96		11.1	10.6	9.5	9.5	7.8	7.8	13.8	12.3	11.6	10.7	9.2	8.9	-	-	96
104		10.1	10.0	8.9	8.9	-	-	13.1	11.8	11.1	10.2	8.9	8.6	-	-	104
112		-	-	-	-	-	-	12.5	11.4	10.8	9.9	8.6	8.4	-	-	112
120		-	-	-	-	-	-	11.6	10.9	10.3	9.6	8.3	8.1	-	-	120
128		-	-	-	-	-	-	10.1	10.0	10.0	9.1	8.0	7.9	-	-	128
136		-	-	-	-	-	-	8.7	8.7	9.6	8.9	7.8	7.8	-	-	136
144		-	-	-	-	-	-	7.7	7.7	8.6	8.6	7.7	7.7	-	-	144
152		-	-	-	-	-	-	7.1	7.1	7.3	7.3	7.4	7.4	-	-	152
160		-	-	-	-	-	-	6.1	6.1	6.4	6.4	6.7	6.7	-	-	160
168		-	-	-	-	-	-	5.3	5.3	5.8	5.8	-	-	-	-	168
176		-	-	-	-	-	-	4.7	4.7	5.0	5.0	-	-	-	-	176
184		-	-	-	-	-	-	4.4	4.4	-	-	-	-	-	-	184










		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
64		12.8	11.0	-	-	-	-	-	-	-	-	-	-	-	-	64
72		12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	-	-	72
80		12.1	11.0	-	-	-	-	11.0	8.8	-	-	-	-	-	-	80
88		11.8	10.7	10.5	9.6	-	-	10.7	8.8	-	-	-	-	-	-	88
96		11.5	10.4	10.2	9.3	-	-	10.4	8.8	9.6	8.7	-	-	-	-	96
104		11.3	10.2	10.0	9.1	8.6	-	9.8	8.8	9.3	8.4	-	-	-	-	104
112		10.3	9.7	9.7	8.8	8.4	7.7	9.0	8.8	8.8	8.3	7.9	7.3	-	-	112
120		9.5	9.4	9.3	8.5	8.1	7.4	8.0	7.9	8.2	7.9	7.6	7.2	-	-	120
128		8.6	8.6	8.6	8.3	7.8	7.3	7.0	6.9	7.4	7.4	7.2	6.9	-	-	128
136		7.4	7.4	7.9	7.8	7.6	7.1	6.1	6.1	6.7	6.6	6.7	6.7	-	-	136
144		6.2	6.2	7.3	7.1	7.1	7.1	5.3	5.1	6.0	6.0	6.2	6.2	-	-	144
152		5.1	5.1	6.5	6.5	6.7	6.5	4.5	4.3	5.2	5.2	5.6	5.4	-	-	152
160		4.1	4.1	5.4	5.4	5.9	5.9	3.5	3.5	4.4	4.4	4.9	4.8	-	-	160
168		3.5	3.5	4.4	4.4	5.1	5.1	-	-	3.7	3.7	4.2	4.1	-	-	168
176		2.9	2.9	3.4	3.4	4.3	4.3	-	-	3.2	3.2	3.4	3.4	-	-	176
184		-	-	2.8	2.8	3.4	3.4	-	-	-	-	2.8	2.8	-	-	184






HAV-HY

77,200 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft				126.0 ft										
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28	79.5	76.4	67.6	65.3	57.2	56.3	74.9	68.0	-	-	-	-	-	-	-	28
32	74.6	72.0	63.4	62.4	54.9	54.1	67.0	65.9	62.7	-	-	-	-	-	-	32
36	67.0	65.7	59.6	58.7	53.1	52.5	60.8	59.5	58.6	56.5	51.0	-	-	-	-	36
40	58.8	58.8	55.7	54.9	-	-	54.7	52.5	54.3	53.1	49.0	48.8	-	-	-	40
48	-	-	-	-	-	-	42.7	42.4	43.5	43.4	43.2	43.0	-	-	-	48
56	-	-	-	-	-	-	34.6	34.6	34.4	34.4	34.7	34.7	-	-	-	56
64	-	-	-	-	-	-	27.9	27.9	28.6	28.6	28.5	28.4	-	-	-	64
72	-	-	-	-	-	-	23.0	23.0	23.3	23.3	23.9	23.9	-	-	-	72
80	-	-	-	-	-	-	20.4	20.4	20.1	20.0	20.1	20.1	-	-	-	80
88	-	-	-	-	-	-	17.2	17.2	17.6	17.6	17.8	17.8	-	-	-	88
96	-	-	-	-	-	-	14.6	14.6	15.1	15.1	15.3	15.3	-	-	-	96
104	-	-	-	-	-	-	12.6	12.6	12.8	12.8	13.1	13.1	-	-	-	104
112	-	-	-	-	-	-	11.0	11.0	11.0	11.0	-	-	-	-	-	112
120	-	-	-	-	-	-	9.8	9.8	9.8	9.8	-	-	-	-	-	120
128	-	-	-	-	-	-	8.5	8.5	-	-	-	-	-	-	-	128










		181.1 ft				196.9 ft										
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	35.0	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	31.0	27.6	30.2	27.3	29.5	-	24.7	22.3	24.8	-	-	-	-	-	-	56
64	26.3	25.1	26.7	24.8	26.4	24.4	22.1	21.0	22.0	21.2	21.9	21.2	-	-	-	64
72	21.5	21.5	22.2	21.9	22.8	21.9	19.5	19.0	19.2	19.2	19.2	19.2	-	-	-	72
80	17.7	17.6	18.2	18.2	18.9	18.9	17.0	16.8	17.1	17.1	17.1	17.1	-	-	-	80
88	15.2	14.5	15.1	15.1	15.5	15.5	14.3	14.3	14.8	14.8	15.1	15.0	-	-	-	88
96	12.6	12.6	13.0	13.0	13.1	13.1	11.8	11.8	12.4	12.4	12.9	12.9	-	-	-	96
104	10.4	10.4	11.1	11.1	11.3	11.3	9.5	9.5	10.0	10.0	10.4	10.4	-	-	-	104
112	8.5	8.5	8.9	8.9	9.4	9.4	7.4	7.4	8.1	8.1	8.5	8.5	-	-	-	112
120	6.9	6.9	7.3	7.3	7.6	7.6	5.8	5.8	6.2	6.2	6.7	6.7	-	-	-	120
128	5.4	5.4	5.8	5.8	5.9	5.9	4.3	4.3	4.7	4.7	5.1	5.1	-	-	-	128
136	4.2	4.2	4.5	4.5	4.7	4.7	3.1	3.1	3.4	3.4	3.6	3.6	-	-	-	136
144	3.1	3.1	3.4	3.4	3.4	3.4	-	-	2.3	2.3	2.5	2.5	-	-	-	144






HAV-HY

		77,200 lb +  33,100 lb		 36.1 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	43.2	37.6	35.3	-	-	-	40
48		34.5	32.3	29.6	28.3	23.3	23.0	40.1	35.7	33.4	28.8	-	-	48
56		31.0	29.5	26.5	26.2	21.7	21.7	34.2	32.8	31.4	27.5	24.8	23.0	56
64		27.6	26.9	24.2	24.2	-	-	27.7	27.7	28.8	26.5	23.6	22.4	64
72		-	-	-	-	-	-	23.6	23.6	24.1	23.9	22.5	21.6	72
80		-	-	-	-	-	-	19.8	19.8	20.0	20.0	20.9	20.7	80
88		-	-	-	-	-	-	16.8	16.8	17.5	16.9	17.7	17.7	88
96		-	-	-	-	-	-	14.8	14.8	15.1	15.1	14.8	14.8	96
104		-	-	-	-	-	-	13.2	13.2	13.2	12.8	13.2	13.2	104
112		-	-	-	-	-	-	11.4	11.4	11.4	11.4	11.4	11.4	112
120		-	-	-	-	-	-	10.0	10.0	10.3	10.3	10.4	10.4	120
128		-	-	-	-	-	-	8.7	8.7	9.0	9.0	6.8	6.8	128
136		-	-	-	-	-	-	7.5	7.5	7.8	7.8	-	-	136
144		-	-	-	-	-	-	6.6	6.6	6.5	6.5	-	-	144










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		25.0	21.4	-	-	-	-	20.5	16.8	-	-	-	-	56
64		23.1	21.4	-	-	-	-	19.6	16.8	-	-	-	-	64
72		20.8	20.1	19.7	19.7	-	-	18.1	16.8	17.7	-	-	-	72
80		18.2	18.1	18.0	17.8	17.2	17.2	16.2	15.5	16.1	15.7	15.4	15.4	80
88		15.2	15.2	16.0	16.0	15.9	15.9	14.4	14.2	14.4	14.3	14.2	14.1	88
96		12.6	12.6	13.7	13.7	14.4	14.4	12.2	12.2	12.8	12.8	13.0	12.8	96
104		10.7	10.7	11.5	11.5	12.4	12.4	10.0	10.0	11.2	11.2	11.6	11.6	104
112		9.2	9.2	9.8	9.8	10.3	10.3	8.1	8.1	9.4	9.4	10.3	10.3	112
120		7.6	7.6	8.4	8.4	8.8	8.8	6.5	6.5	7.6	7.6	8.4	8.4	120
128		6.1	6.1	6.9	6.9	7.5	7.5	5.0	5.0	5.9	5.9	6.6	6.6	128
136		4.7	4.7	5.6	5.6	6.0	6.0	3.8	3.8	4.5	4.5	5.2	5.2	136
144		3.6	3.6	4.2	4.2	4.7	4.7	2.7	2.7	3.4	3.4	4.0	4.0	144
152		-	-	3.2	3.2	3.6	3.6	-	-	-	-	-	-	152






HAV-HY

		77,200 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	-	-	56
64		20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	19.4	17.6	-	-	64
72		18.6	17.9	15.7	15.2	12.6	12.6	23.2	19.6	18.5	16.8	15.0	13.9	72
80		16.7	16.7	14.4	14.4	-	-	19.8	18.7	17.7	16.0	14.4	13.4	80
88		-	-	-	-	-	-	16.6	16.6	16.9	15.5	13.7	13.0	88
96		-	-	-	-	-	-	14.4	14.4	15.3	14.9	13.3	12.6	96
104		-	-	-	-	-	-	12.8	12.8	13.3	13.3	12.9	12.4	104
112		-	-	-	-	-	-	10.9	10.9	11.4	11.4	12.2	12.0	112
120		-	-	-	-	-	-	9.7	9.7	10.3	10.3	10.5	10.5	120
128		-	-	-	-	-	-	8.7	8.7	8.9	8.9	9.4	9.4	128
136		-	-	-	-	-	-	7.9	7.9	8.1	8.1	8.1	8.1	136
144		-	-	-	-	-	-	6.9	6.9	7.3	7.3	7.3	7.3	144
152		-	-	-	-	-	-	5.8	5.8	6.5	6.5	-	-	152
160		-	-	-	-	-	-	5.0	5.0	5.4	5.4	-	-	160

		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		18.6	15.7	-	-	-	-	-	-	-	-	-	-	56
64		18.2	15.7	-	-	-	-	15.7	12.3	-	-	-	-	64
72		17.6	15.7	-	-	-	-	15.2	12.3	-	-	-	-	72
80		16.8	15.4	15.5	14.0	-	-	14.6	12.3	14.2	-	-	-	80
88		15.2	14.8	14.4	13.5	12.6	12.0	13.7	12.3	13.1	12.3	-	-	88
96		13.1	13.0	13.3	12.9	12.1	11.8	12.0	11.8	12.0	11.7	11.2	11.1	96
104		10.8	10.8	12.4	12.2	11.5	11.3	10.0	10.0	10.9	10.9	10.5	10.5	104
112		9.2	9.2	10.7	10.7	11.0	11.0	8.3	8.3	9.8	9.8	9.9	9.9	112
120		8.1	8.1	9.1	9.1	10.0	10.0	6.7	6.7	8.4	8.4	9.1	9.1	120
128		6.7	6.7	7.6	7.6	8.6	8.6	5.4	5.4	6.9	6.9	8.2	8.2	128
136		5.5	5.5	6.6	6.6	7.0	7.0	4.2	4.2	5.6	5.6	6.9	6.9	136
144		4.2	4.2	5.4	5.4	6.2	6.2	3.1	3.1	4.5	4.5	5.6	5.6	144
152		3.4	3.4	4.3	4.3	4.9	4.9	-	-	3.4	3.4	4.3	4.3	152
160		-	-	3.3	3.3	3.9	3.9	-	-	-	-	3.2	3.2	160

HAV-HY

		77,200 lb +  33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
18		27.7	-	-	-	-	-	-	-	-	-	-	-	18
20		27.0	23.3	-	-	-	-	-	-	-	-	-	-	20
24		25.9	22.2	-	-	-	-	-	-	-	-	-	-	24
28		24.5	21.1	-	-	-	-	-	-	-	-	-	-	28
32		23.4	20.2	-	-	-	-	-	-	-	-	-	-	32
36		22.2	19.3	-	-	-	-	-	-	-	-	-	-	36
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	40
48		18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	48
56		17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	56
64		15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	64
72		14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	72
80		13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	10.1	9.4	80
88		12.2	11.4	10.4	10.2	8.2	8.2	14.5	12.8	12.2	11.1	9.7	9.2	88
96		11.1	10.6	9.5	9.5	7.8	7.8	13.7	12.3	11.6	10.7	9.2	8.9	96
104		10.1	10.0	8.9	8.9	-	-	12.3	11.8	11.1	10.2	8.9	8.6	104
112		-	-	-	-	-	-	10.7	10.5	10.8	9.9	8.6	8.4	112
120		-	-	-	-	-	-	9.6	9.6	10.1	9.6	8.3	8.1	120
128		-	-	-	-	-	-	8.4	8.4	8.9	8.8	8.0	7.9	128
136		-	-	-	-	-	-	7.4	7.4	8.1	8.1	7.8	7.8	136
144		-	-	-	-	-	-	6.4	6.4	6.9	6.9	7.5	7.5	144
152		-	-	-	-	-	-	5.9	5.9	6.1	6.1	6.5	6.5	152
160		-	-	-	-	-	-	5.2	5.2	5.4	5.4	5.6	5.6	160
168		-	-	-	-	-	-	4.3	4.3	4.7	4.7	-	-	168
176		-	-	-	-	-	-	3.6	3.6	4.1	4.1	-	-	176
184		-	-	-	-	-	-	3.1	3.1	-	-	-	-	184











		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
64		12.8	11.0	-	-	-	-	-	-	-	-	-	-	64
72		12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	72
80		12.1	11.0	-	-	-	-	11.0	8.8	-	-	-	-	80
88		11.8	10.7	10.5	9.6	-	-	10.7	8.8	-	-	-	-	88
96		11.5	10.4	10.2	9.3	-	-	10.4	8.8	9.6	8.7	-	-	96
104		10.2	10.0	10.0	9.1	8.6	-	9.2	8.8	9.3	8.4	-	-	104
112		8.8	8.6	9.7	8.8	8.4	7.7	7.6	7.6	8.8	8.3	7.9	7.3	112
120		7.6	7.6	9.1	8.5	8.1	7.4	6.1	6.1	8.1	7.8	7.6	7.2	120
128		6.3	6.3	7.6	7.6	7.8	7.3	4.8	4.8	6.9	6.9	7.2	6.9	128
136		5.1	5.1	6.4	6.4	7.6	7.1	3.8	3.8	5.6	5.6	6.7	6.7	136
144		4.0	4.0	5.8	5.8	6.7	6.6	2.7	2.7	4.5	4.5	6.2	6.2	144
152		3.2	3.2	4.7	4.7	5.4	5.4	-	-	3.4	3.4	4.9	4.9	152
160		-	-	3.7	3.7	4.6	4.6	-	-	-	-	3.9	3.9	160
168		-	-	-	-	3.7	3.7	-	-	-	-	-	-	168
176		-	-	-	-	2.8	2.8	-	-	-	-	-	-	176






HAV-HY

55,100 lb +		33,100 lb		16.4 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°		1°		0,3°		1°		0,3°		1°		ft
	0°		18°		36°		0°		18°		36°		
1,000 lb													
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	20
24	85.8	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	24
28	79.5	76.4	67.6	65.3	57.2	56.3	72.0	64.2	-	-	-	-	28
32	69.2	68.5	63.4	62.4	54.9	54.1	61.9	56.1	62.7	-	-	-	32
36	58.6	58.6	57.0	56.6	53.1	52.5	54.3	49.9	55.7	51.3	51.0	-	36
40	49.2	49.2	50.1	50.1	-	-	47.9	45.1	48.5	45.1	48.4	46.8	40
48	-	-	-	-	-	-	36.2	35.9	36.3	36.3	37.2	36.9	48
56	-	-	-	-	-	-	28.8	28.8	29.1	29.1	29.7	29.7	56
64	-	-	-	-	-	-	23.8	23.8	24.1	24.1	24.3	24.3	64
72	-	-	-	-	-	-	19.7	19.7	19.9	19.9	20.4	20.4	72
80	-	-	-	-	-	-	16.5	16.5	17.0	17.0	17.0	17.0	80
88	-	-	-	-	-	-	13.8	13.8	14.2	14.2	14.4	14.4	88
96	-	-	-	-	-	-	11.7	11.7	11.9	11.9	12.1	12.1	96
104	-	-	-	-	-	-	9.9	9.9	10.1	10.1	10.2	10.2	104
112	-	-	-	-	-	-	8.3	8.3	8.5	8.5	-	-	112
120	-	-	-	-	-	-	6.8	6.8	7.0	7.0	-	-	120
128	-	-	-	-	-	-	5.7	5.7	-	-	-	-	128










		181.1 ft				196.9 ft							
ft	0,3°		1°		0,3°		1°		0,3°		1°		ft
	0°		18°		36°		0°		18°		36°		
1,000 lb													
48	32.7	27.8	-	-	-	-	-	-	-	-	-	-	48
56	26.7	24.3	27.4	25.5	28.3	24.0	24.3	21.9	24.8	-	-	-	56
64	21.8	20.8	21.8	21.3	22.7	21.6	20.1	19.1	21.0	19.9	21.7	20.7	64
72	17.3	17.3	18.2	18.1	18.6	18.6	16.2	15.5	17.1	16.4	17.7	17.1	72
80	14.1	14.1	14.7	14.7	15.2	15.2	13.0	12.6	13.6	13.5	14.3	14.1	80
88	11.3	11.3	12.0	12.0	12.4	12.4	10.1	10.1	10.9	10.9	11.5	11.5	88
96	9.0	9.0	9.6	9.6	10.0	10.0	7.7	7.7	8.6	8.6	9.1	9.1	96
104	6.9	6.9	7.5	7.5	7.8	7.8	5.9	5.9	6.4	6.4	6.9	6.9	104
112	5.2	5.2	5.6	5.6	6.1	6.1	4.1	4.1	4.8	4.8	5.0	5.0	112
120	3.7	3.7	4.1	4.1	4.5	4.5	-	-	3.2	3.2	3.4	3.4	120
128	-	-	2.9	2.9	3.1	3.1	-	-	-	-	-	-	128






HAV-HY

		55,100 lb + 		33,100 lb 		36.1 ft 		15.6 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb												ft		
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	44.7	38.6	-	-	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	42.9	37.5	35.3	-	-	-	-	-	40
48		34.5	32.3	29.6	28.3	23.3	23.0	36.2	34.1	33.4	28.8	-	-	-	-	48
56		30.6	29.5	26.5	26.2	21.7	21.7	29.1	28.9	29.7	27.5	24.8	23.0	-	-	56
64		25.9	25.8	24.2	24.2	-	-	23.7	23.6	24.8	24.0	23.6	22.4	-	-	64
72		-	-	-	-	-	-	19.9	19.9	20.3	20.2	21.0	20.5	-	-	72
80		-	-	-	-	-	-	16.8	16.8	17.3	16.8	17.6	17.6	-	-	80
88		-	-	-	-	-	-	14.4	14.4	14.5	14.5	14.9	14.9	-	-	88
96		-	-	-	-	-	-	12.3	12.3	12.8	12.8	12.9	12.9	-	-	96
104		-	-	-	-	-	-	10.4	10.4	10.8	10.8	11.3	11.3	-	-	104
112		-	-	-	-	-	-	8.9	8.9	9.4	9.4	9.6	9.6	-	-	112
120		-	-	-	-	-	-	7.4	7.4	8.1	8.1	8.3	8.3	-	-	120
128		-	-	-	-	-	-	6.2	6.2	6.7	6.7	4.0	4.0	-	-	128
136		-	-	-	-	-	-	5.1	5.1	5.5	5.5	-	-	-	-	136
144		-	-	-	-	-	-	4.2	4.2	4.5	4.5	-	-	-	-	144










		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb												ft		
56		24.7	21.4	-	-	-	-	20.5	16.8	-	-	-	-	-	-	56
64		21.2	19.4	19.1	-	-	-	19.5	16.8	-	-	-	-	-	-	64
72		17.9	17.0	19.0	17.9	-	-	16.2	15.3	17.7	-	-	-	-	-	72
80		14.5	14.2	15.5	15.4	16.7	16.3	12.8	12.6	14.7	14.3	15.4	15.3	-	-	80
88		11.8	11.8	13.2	13.2	13.8	13.8	10.0	10.0	11.8	11.8	13.3	13.1	-	-	88
96		9.5	9.5	10.8	10.8	11.8	11.8	7.8	7.8	9.3	9.3	10.7	10.7	-	-	96
104		7.5	7.5	8.6	8.6	9.7	9.7	6.0	6.0	7.3	7.3	8.6	8.6	-	-	104
112		5.9	5.9	7.0	7.0	7.8	7.8	4.3	4.3	5.6	5.6	6.7	6.7	-	-	112
120		4.5	4.5	5.4	5.4	6.1	6.1	3.1	3.1	4.1	4.1	5.2	5.2	-	-	120
128		3.2	3.2	4.1	4.1	4.6	4.6	-	-	2.9	2.9	3.9	3.9	-	-	128
136		-	-	2.7	2.7	3.3	3.3	-	-	-	-	2.5	2.5	-	-	136





HAV-HY

		55,100 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	26.0	21.8	20.6	18.4	-	-	56
64		20.7	19.3	17.3	16.3	13.4	13.4	22.8	20.7	19.4	17.6	-	-	64
72		18.6	17.9	15.7	15.2	12.6	12.6	19.7	19.4	18.5	16.8	15.0	13.9	72
80		16.7	16.7	14.4	14.4	-	-	16.3	16.3	17.4	16.0	14.4	13.4	80
88		-	-	-	-	-	-	14.2	14.3	15.2	14.9	13.7	13.0	88
96		-	-	-	-	-	-	12.3	12.3	12.8	12.9	13.2	12.6	96
104		-	-	-	-	-	-	10.8	10.8	11.2	11.3	11.7	11.6	104
112		-	-	-	-	-	-	9.2	9.2	9.9	9.9	10.5	10.5	112
120		-	-	-	-	-	-	8.1	8.1	8.7	8.7	8.9	8.9	120
128		-	-	-	-	-	-	6.8	6.8	7.4	7.4	7.8	7.8	128
136		-	-	-	-	-	-	5.8	5.8	6.4	6.4	6.8	6.8	136
144		-	-	-	-	-	-	4.7	4.7	5.3	5.3	5.8	5.8	144
152		-	-	-	-	-	-	3.9	3.9	4.3	4.3	-	-	152
160		-	-	-	-	-	-	3.1	3.1	3.5	3.5	-	-	160










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		18.6	15.7	-	-	-	-	-	-	-	-	-	-	56
64		18.2	15.7	-	-	-	-	15.7	12.3	-	-	-	-	64
72		16.8	15.7	-	-	-	-	15.2	12.3	-	-	-	-	72
80		14.3	13.8	15.4	14.0	-	-	12.6	12.0	14.2	-	-	-	80
88		11.8	11.8	13.4	13.0	12.6	12.0	10.0	10.0	12.5	11.9	-	-	88
96		9.5	9.5	11.3	11.3	12.1	11.8	7.8	7.8	10.1	10.1	11.2	11.1	96
104		7.5	7.5	9.5	9.5	10.6	10.6	6.0	6.0	8.2	8.2	9.9	9.9	104
112		6.1	6.1	7.6	7.6	9.4	9.4	4.6	4.6	6.3	6.3	8.1	8.1	112
120		4.8	4.8	6.3	6.3	7.6	7.6	3.3	3.3	5.0	5.0	6.5	6.5	120
128		3.5	3.5	5.0	5.0	6.3	6.3	-	-	3.7	3.7	5.2	5.2	128
136		2.6	2.6	3.8	3.8	4.9	4.9	-	-	2.7	2.7	3.8	3.8	136
144		-	-	2.9	2.9	3.6	3.6	-	-	-	-	2.7	2.7	144






HAV-HY

		55,100 lb + 		33,100 lb 		75.5 ft 		15.6 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
18		27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	18
20		27.0	23.3	-	-	-	-	-	-	-	-	-	-	-	-	20
24		25.9	22.2	-	-	-	-	-	-	-	-	-	-	-	-	24
28		24.5	21.1	-	-	-	-	-	-	-	-	-	-	-	-	28
32		23.4	20.2	-	-	-	-	-	-	-	-	-	-	-	-	32
36		22.2	19.3	-	-	-	-	-	-	-	-	-	-	-	-	36
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	-	-	40
48		18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	-	-	48
56		17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	-	-	56
64		15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	-	-	64
72		14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	-	-	72
80		13.1	12.2	11.3	10.9	8.7	8.7	15.2	13.5	12.9	11.6	10.1	9.4	-	-	80
88		12.2	11.4	10.4	10.2	8.2	8.2	13.8	12.8	12.2	11.1	9.7	9.2	-	-	88
96		11.1	10.6	9.5	9.5	7.8	7.8	12.2	11.7	11.6	10.7	9.2	8.9	-	-	96
104		10.1	10.0	8.9	8.9	-	-	10.4	10.3	11.1	10.2	8.9	8.6	-	-	104
112		-	-	-	-	-	-	9.2	9.2	9.9	9.8	8.6	8.4	-	-	112
120		-	-	-	-	-	-	8.1	8.1	8.7	8.7	8.3	8.1	-	-	120
128		-	-	-	-	-	-	6.7	6.7	7.4	7.4	7.9	7.8	-	-	128
136		-	-	-	-	-	-	5.9	5.9	6.6	6.6	7.1	7.1	-	-	136
144		-	-	-	-	-	-	4.9	4.9	5.6	5.6	6.2	6.2	-	-	144
152		-	-	-	-	-	-	4.1	4.1	4.9	4.9	5.2	5.2	-	-	152
160		-	-	-	-	-	-	3.3	3.3	3.9	3.9	4.5	4.5	-	-	160
168		-	-	-	-	-	-	-	-	3.1	3.1	-	-	-	-	168
176		-	-	-	-	-	-	-	-	2.3	2.3	-	-	-	-	176










		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
64		12.8	11.0	-	-	-	-	-	-	-	-	-	-	-	-	64
72		12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	-	-	72
80		11.9	11.0	-	-	-	-	10.8	8.8	-	-	-	-	-	-	80
88		11.0	10.3	10.5	9.6	-	-	9.2	8.5	-	-	-	-	-	-	88
96		8.8	8.8	10.2	9.3	-	-	7.2	7.2	9.6	8.7	-	-	-	-	96
104		7.0	7.0	9.4	8.9	8.6	-	5.5	5.5	8.2	8.0	-	-	-	-	104
112		5.4	5.4	7.8	7.8	8.4	7.7	3.9	3.9	6.5	6.5	7.9	7.3	-	-	112
120		4.2	4.2	6.3	6.3	7.8	7.4	-	-	5.0	5.0	7.2	7.0	-	-	120
128		3.1	3.1	5.0	5.0	6.7	6.6	-	-	3.7	3.7	5.8	5.8	-	-	128
136		-	-	3.8	3.8	5.5	5.5	-	-	2.7	2.7	4.5	4.5	-	-	136
144		-	-	2.9	2.9	4.5	4.5	-	-	-	-	3.4	3.4	-	-	144
152		-	-	-	-	3.4	3.4	-	-	-	-	-	-	-	-	152






HAV-HY

33,100 lb +  33,100 lb		 16.4 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	10	
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	12	
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	14	
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	16	
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	18	
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	20	
24	84.5	81.1	71.6	68.0	60.2	57.9	-	-	-	-	-	24	
28	70.7	70.7	67.6	65.3	57.2	56.3	60.2	53.8	-	-	-	28	
32	56.7	56.7	58.3	57.9	54.9	54.1	51.7	47.3	52.1	46.5	-	32	
36	47.6	47.6	48.8	48.8	48.4	48.0	45.0	42.0	46.3	42.6	47.0	39.6	36
40	39.7	39.7	40.6	40.6	-	-	39.7	37.9	40.3	38.4	41.6	38.6	40
48	-	-	-	-	-	-	30.4	30.1	30.8	30.7	31.6	31.3	48
56	-	-	-	-	-	-	23.9	23.9	24.7	24.7	24.9	24.8	56
64	-	-	-	-	-	-	18.9	18.9	19.5	19.5	20.1	20.1	64
72	-	-	-	-	-	-	15.1	15.1	15.7	15.7	16.2	16.2	72
80	-	-	-	-	-	-	12.4	12.4	12.8	12.8	13.1	13.1	80
88	-	-	-	-	-	-	10.1	10.1	10.5	10.5	10.7	10.7	88
96	-	-	-	-	-	-	8.1	8.1	8.5	8.5	8.7	8.7	96
104	-	-	-	-	-	-	6.4	6.4	6.6	6.6	6.8	6.8	104
112	-	-	-	-	-	-	5.0	5.0	5.2	5.2	-	-	112
120	-	-	-	-	-	-	3.7	3.7	3.9	3.9	-	-	120
128	-	-	-	-	-	-	2.8	2.8	-	-	-	-	128

		 181.1 ft				 196.9 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
48	25.6	23.6	-	-	-	-	-	-	-	-	-	48	
56	20.0	18.8	21.1	19.9	22.2	20.9	17.8	16.9	19.0	-	-	56	
64	15.6	15.0	16.7	16.0	17.6	16.7	13.8	13.2	14.7	14.2	15.6	15.1	64
72	12.2	12.0	13.1	12.6	13.8	13.3	10.4	10.2	11.3	11.1	12.0	11.8	72
80	9.3	9.3	10.2	10.0	10.8	10.6	7.8	7.8	8.4	8.4	9.3	9.3	80
88	7.0	7.0	7.7	7.7	8.3	8.3	5.4	5.4	6.1	6.1	6.8	6.8	88
96	5.0	5.0	5.6	5.6	6.2	6.2	3.6	3.6	4.2	4.2	4.8	4.8	96
104	3.3	3.3	3.9	3.9	4.2	4.2	-	-	2.6	2.6	3.1	3.1	104

HAV-HY

33,100 lb +  33,100 lb		 36.1 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
10	72.7	59.8	-	-	-	-	-	-	-	-	-	10	
12	69.1	57.4	-	-	-	-	-	-	-	-	-	12	
14	65.8	55.3	-	-	-	-	-	-	-	-	-	14	
16	62.8	53.1	-	-	-	-	-	-	-	-	-	16	
18	60.0	51.2	-	-	-	-	-	-	-	-	-	18	
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	20	
24	52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	24	
28	48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	28	
32	45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	32	
36	42.1	37.9	34.7	32.1	27.0	25.4	42.1	37.2	-	-	-	36	
40	39.0	35.7	32.8	30.7	25.8	24.6	38.5	35.4	35.3	-	-	40	
48	32.4	31.5	29.6	28.3	23.3	23.0	30.6	29.2	31.5	28.3	-	48	
56	25.4	25.4	25.8	25.5	21.7	21.7	24.3	24.1	25.2	24.5	24.5	23.0	56
64	20.5	20.5	21.0	21.0	-	-	19.7	19.7	20.2	20.1	20.9	20.7	64
72	-	-	-	-	-	-	16.0	16.0	17.0	17.0	17.3	17.3	72
80	-	-	-	-	-	-	13.1	13.1	14.1	14.1	15.0	15.0	80
88	-	-	-	-	-	-	10.7	10.7	11.6	11.6	12.3	12.3	88
96	-	-	-	-	-	-	8.9	8.9	9.6	9.6	10.3	10.3	96
104	-	-	-	-	-	-	7.1	7.1	7.9	7.9	8.4	8.4	104
112	-	-	-	-	-	-	5.7	5.7	6.3	6.3	6.8	6.8	112
120	-	-	-	-	-	-	4.4	4.4	5.0	5.0	5.4	5.4	120
128	-	-	-	-	-	-	3.3	3.3	3.7	3.7	-	-	128
136	-	-	-	-	-	-	2.4	2.4	2.8	2.8	-	-	136

		 181.1 ft				 196.9 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		18°			36°
ft		1,000 lb										ft	
56	20.0	18.5	-	-	-	-	18.1	15.8	-	-	-	56	
64	15.8	14.8	18.0	-	-	-	13.8	13.0	-	-	-	64	
72	12.2	11.7	14.2	13.5	-	-	10.4	10.2	12.4	-	-	72	
80	9.3	9.3	11.0	10.9	12.8	12.4	7.6	7.6	9.5	9.5	11.3	11.1	80
88	7.0	7.0	8.5	8.5	10.0	10.0	5.3	5.3	7.0	7.0	8.7	8.7	88
96	5.1	5.1	6.5	6.5	7.7	7.7	3.6	3.6	5.0	5.0	6.5	6.5	96
104	3.5	3.5	4.8	4.8	5.9	5.9	-	-	3.5	3.5	4.6	4.6	104
112	-	-	3.5	3.5	4.3	4.3	-	-	-	-	-	-	112
120	-	-	-	-	3.0	3.0	-	-	-	-	-	-	120

HAV-HY

33,100 lb +		33,100 lb		55.8 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
14	44.5	37.4	-	-	-	-	-	-	-	-	-	-	-	-
16	43.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-
18	41.6	35.3	-	-	-	-	-	-	-	-	-	-	-	-
20	40.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-
24	37.4	32.1	-	-	-	-	-	-	-	-	-	-	-	-
28	34.9	30.3	-	-	-	-	-	-	-	-	-	-	-	-
32	32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	-	-
36	30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	-	-
40	28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	-	-
48	25.5	23.3	20.7	19.0	16.3	15.8	27.0	22.9	-	-	-	-	-	-
56	23.0	21.2	18.9	17.5	14.6	14.6	23.2	21.2	20.6	18.4	-	-	-	-
64	20.7	19.3	17.3	16.3	13.4	13.4	19.4	18.8	19.4	17.6	-	-	-	-
72	18.1	17.9	15.7	15.2	12.6	12.6	16.4	16.4	17.4	16.6	15.0	13.9	-	-
80	15.3	15.3	14.4	14.4	-	-	13.7	13.7	14.6	14.6	14.3	13.4	-	-
88	-	-	-	-	-	-	11.4	11.4	12.6	12.5	13.0	12.6	-	-
96	-	-	-	-	-	-	9.5	9.5	10.7	10.7	11.3	11.3	-	-
104	-	-	-	-	-	-	7.9	7.9	9.0	9.0	9.9	9.9	-	-
112	-	-	-	-	-	-	6.3	6.3	7.4	7.4	8.3	8.3	-	-
120	-	-	-	-	-	-	5.2	5.2	6.1	6.1	6.7	6.7	-	-
128	-	-	-	-	-	-	4.0	4.0	4.8	4.8	5.5	5.5	-	-
136	-	-	-	-	-	-	3.0	3.0	3.8	3.8	4.3	4.3	-	-
144	-	-	-	-	-	-	-	-	2.9	2.9	3.1	3.1	-	-










		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
56	18.0	15.7	-	-	-	-	-	-	-	-	-	-	-	-
64	15.4	14.4	-	-	-	-	13.5	12.3	-	-	-	-	-	-
72	12.0	11.7	-	-	-	-	10.2	10.2	-	-	-	-	-	-
80	9.1	9.1	11.9	11.7	-	-	7.6	7.6	10.4	-	-	-	-	-
88	7.0	7.0	9.4	9.4	11.3	11.3	5.3	5.3	7.9	7.9	-	-	-	-
96	5.1	5.1	7.4	7.4	9.2	9.2	3.6	3.6	5.9	5.9	8.1	8.1	-	-
104	3.7	3.7	5.5	5.5	7.3	7.3	-	-	4.2	4.2	6.2	6.2	-	-
112	-	-	4.1	4.1	5.7	5.7	-	-	-	-	4.6	4.6	-	-
120	-	-	2.8	2.8	4.3	4.3	-	-	-	-	3.2	3.2	-	-
128	-	-	-	-	3.1	3.1	-	-	-	-	-	-	-	-






HAV-HY

33,100 lb +		33,100 lb		75.5 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
18	27.7	-	-	-	-	-	-	-	-	-	-	-	18
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	20
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	24
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	28
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	32
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	40
48	18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	56
64	15.5	14.1	13.7	12.3	10.4	10.3	16.8	14.9	14.3	-	-	-	64
72	14.4	13.0	12.6	11.5	9.5	9.5	15.5	13.9	13.5	12.1	-	-	72
80	13.1	12.2	11.3	10.9	8.7	8.7	13.4	12.8	12.9	11.6	10.1	9.4	80
88	12.2	11.4	10.4	10.2	8.2	8.2	11.6	11.6	11.9	11.1	9.7	9.2	88
96	11.1	10.6	9.5	9.5	7.8	7.8	9.6	9.6	10.7	10.3	9.2	8.9	96
104	10.1	10.0	8.9	8.9	-	-	7.9	7.9	9.4	9.4	8.9	8.6	104
112	-	-	-	-	-	-	6.5	6.5	8.1	8.1	8.3	8.1	112
120	-	-	-	-	-	-	5.3	5.3	6.7	6.7	7.5	7.5	120
128	-	-	-	-	-	-	4.2	4.2	5.5	5.5	6.5	6.5	128
136	-	-	-	-	-	-	3.3	3.3	4.4	4.4	5.2	5.2	136
144	-	-	-	-	-	-	2.5	2.5	3.4	3.4	4.0	4.0	144
152	-	-	-	-	-	-	-	-	-	-	3.2	3.2	152










		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
64	12.8	11.0	-	-	-	-	-	-	-	-	-	-	64
72	11.1	10.8	-	-	-	-	9.1	8.8	-	-	-	-	72
80	8.4	8.4	-	-	-	-	6.7	6.7	-	-	-	-	80
88	6.2	6.2	9.4	9.0	-	-	4.7	4.7	-	-	-	-	88
96	4.5	4.5	7.4	7.4	-	-	2.9	2.9	5.9	5.9	-	-	96
104	3.0	3.0	5.7	5.7	8.0	-	-	-	4.2	4.2	-	-	104
112	-	-	4.1	4.1	6.3	6.3	-	-	-	-	5.2	-	112
120	-	-	2.8	2.8	5.0	5.0	-	-	-	-	3.9	-	120
128	-	-	-	-	3.7	3.7	-	-	-	-	-	-	128
136	-	-	-	-	2.7	2.7	-	-	-	-	-	-	136






HAV-HY

11,000 lb +  33,100 lb		 16.4 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	10
12		113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	12
14		107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	14
16		102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	16
18		97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	18
20		92.2	86.4	75.5	71.4	63.1	59.6	-	-	-	-	-	-	20
24		72.5	72.5	69.8	67.2	60.2	57.9	-	-	-	-	-	-	24
28		55.5	55.5	57.5	57.5	55.8	55.2	48.8	44.2	-	-	-	-	28
32		44.1	44.1	45.5	45.5	46.8	46.8	42.4	38.0	42.6	36.9	-	-	32
36		36.6	36.6	37.7	37.7	38.6	38.6	36.8	33.3	37.5	34.8	38.4	33.6	36
40		30.2	30.2	31.0	31.0	-	-	31.7	29.0	33.0	30.3	33.9	31.6	40
48		-	-	-	-	-	-	23.2	22.6	24.3	23.7	25.1	24.6	48
56		-	-	-	-	-	-	17.5	17.5	18.4	18.4	18.9	18.9	56
64		-	-	-	-	-	-	13.5	13.5	14.2	14.2	14.6	14.6	64
72		-	-	-	-	-	-	10.4	10.4	10.9	10.9	11.3	11.3	72
80		-	-	-	-	-	-	8.0	8.0	8.5	8.5	8.9	8.9	80
88		-	-	-	-	-	-	6.0	6.0	6.4	6.4	6.6	6.6	88
96		-	-	-	-	-	-	4.2	4.2	4.7	4.7	4.9	4.9	96
104		-	-	-	-	-	-	2.8	2.8	3.1	3.1	3.3	3.3	104










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48		17.3	16.1	-	-	-	-	-	-	-	-	-	-	48
56		12.8	12.1	13.9	13.2	14.9	14.2	10.7	10.4	11.9	-	-	-	56
64		9.3	9.0	10.2	10.1	11.1	10.8	7.4	7.4	8.4	8.3	9.3	9.2	64
72		6.5	6.4	7.3	7.3	8.0	8.0	4.7	4.7	5.6	5.6	6.2	6.2	72
80		4.1	4.1	5.0	5.0	5.4	5.4	-	-	-	-	3.9	3.9	80
88		-	-	-	-	3.6	3.6	-	-	-	-	-	-	88






HAV-HY

		11,000 lb +  33,100 lb		 36.1 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	39.9	33.9	-	-	-	-	32
36		39.4	36.9	34.7	32.1	27.0	25.4	35.5	32.1	-	-	-	-	36
40		33.2	33.2	32.6	30.6	25.8	24.6	31.4	28.4	30.5	-	-	-	40
48		24.8	24.8	26.3	26.3	23.3	23.0	24.1	22.3	25.3	24.0	-	-	48
56		19.0	19.0	20.1	20.1	20.5	20.5	18.4	17.9	20.1	19.7	20.8	20.5	56
64		15.0	15.0	15.6	15.6	-	-	14.2	14.2	15.8	15.8	16.9	16.9	64
72		-	-	-	-	-	-	11.1	11.1	12.4	12.4	13.3	13.3	72
80		-	-	-	-	-	-	8.7	8.7	9.8	9.8	10.7	10.7	80
88		-	-	-	-	-	-	6.6	6.6	7.7	7.7	8.5	8.5	88
96		-	-	-	-	-	-	5.0	5.0	6.0	6.0	6.7	6.7	96
104		-	-	-	-	-	-	3.5	3.5	4.4	4.4	5.0	5.0	104
112		-	-	-	-	-	-	-	-	-	-	3.5	3.5	112







		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		12.9	12.0	-	-	-	-	10.9	10.3	-	-	-	-	56
64		9.3	9.1	11.5	-	-	-	7.3	7.2	-	-	-	-	64
72		6.2	6.2	8.4	8.4	-	-	4.5	4.5	6.7	-	-	-	72
80		4.1	4.1	5.8	5.8	7.6	7.6	-	-	4.3	-	-	-	80
88		-	-	3.9	3.9	5.3	5.3	-	-	-	-	-	-	88
96		-	-	-	-	3.6	3.6	-	-	-	-	-	-	96



HAV-HY

		11,000 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft						 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	28.8	24.6	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	27.1	23.6	-	-	-	-	40
48		25.1	23.3	20.7	19.0	16.3	15.8	23.6	20.9	-	-	-	-	48
56		20.6	20.3	18.9	17.5	14.6	14.6	19.1	17.8	19.7	17.9	-	-	56
64		16.4	16.4	17.3	16.3	13.4	13.4	14.9	14.3	16.6	16.4	-	-	64
72		13.5	13.5	14.4	14.4	12.6	12.6	11.7	11.7	13.7	13.7	14.6	13.9	72
80		11.2	11.2	11.8	11.8	-	-	9.2	9.2	11.1	11.1	12.4	12.4	80
88		-	-	-	-	-	-	7.3	7.3	9.1	9.1	10.2	10.2	88
96		-	-	-	-	-	-	5.7	5.7	7.3	7.3	8.3	8.3	96
104		-	-	-	-	-	-	4.4	4.4	5.7	5.7	6.6	6.6	104
112		-	-	-	-	-	-	3.0	3.0	4.3	4.3	5.2	5.2	112
120		-	-	-	-	-	-	-	-	3.1	3.1	3.9	3.9	120
128		-	-	-	-	-	-	-	-	-	-	2.6	2.6	128










		 181.1 ft						 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
56		12.7	11.9	-	-	-	-	-	-	-	-	-	-	56
64		9.0	9.0	-	-	-	-	7.0	7.0	-	-	-	-	64
72		6.2	6.2	-	-	-	-	4.5	4.5	-	-	-	-	72
80		4.1	4.1	6.7	6.7	-	-	-	-	-	-	-	-	80
88		-	-	4.7	4.7	7.0	7.0	-	-	-	-	-	-	88
96		-	-	3.1	3.1	5.0	5.0	-	-	-	-	-	-	96
104		-	-	-	-	3.5	3.5	-	-	-	-	-	-	104






HAV-HY

		11,000 lb +  33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft						 126.0 ft							
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft		1,000 lb												ft	
18		27.7	-	-	-	-	-	-	-	-	-	-	-	18	
20		27.0	23.3	-	-	-	-	-	-	-	-	-	-	20	
24		25.9	22.2	-	-	-	-	-	-	-	-	-	-	24	
28		24.5	21.1	-	-	-	-	-	-	-	-	-	-	28	
32		23.4	20.2	-	-	-	-	-	-	-	-	-	-	32	
36		22.2	19.3	-	-	-	-	-	-	-	-	-	-	36	
40		21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	40	
48		18.9	16.8	16.2	14.6	-	-	18.3	16.3	-	-	-	-	48	
56		17.2	15.3	14.8	13.4	-	-	16.5	15.1	-	-	-	-	56	
64		15.5	14.1	13.7	12.3	10.4	10.3	14.0	13.6	14.3	-	-	-	64	
72		14.1	13.0	12.6	11.5	9.5	9.5	11.1	11.1	13.2	11.9	-	-	72	
80		11.8	11.8	11.3	10.9	8.7	8.7	8.7	8.7	11.3	10.9	10.1	9.4	80	
88		9.8	9.8	10.4	10.2	8.2	8.2	6.9	6.9	9.2	9.2	9.5	9.1	88	
96		8.3	8.3	9.1	9.1	7.8	7.8	5.3	5.3	7.3	7.3	9.0	8.7	96	
104		7.2	7.2	7.5	7.5	-	-	3.9	3.9	5.9	5.9	7.7	7.7	104	
112		-	-	-	-	-	-	-	-	4.6	4.6	6.1	6.1	112	
120		-	-	-	-	-	-	-	-	3.5	3.5	4.8	4.8	120	
128		-	-	-	-	-	-	-	-	-	-	3.6	3.6	128	
136		-	-	-	-	-	-	-	-	-	-	2.6	2.6	136	

		 181.1 ft						 196.9 ft							
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft		1,000 lb												ft	
64		7.9	7.9	-	-	-	-	-	-	-	-	-	-	0	
72		5.3	5.3	-	-	-	-	-	-	-	-	-	-	0	

HAV-HY

0 lb +  33,100 lb		 16.4 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5				
		 42.3 ft				 126.0 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	16
18	95.6	88.3	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	18
20	87.8	82.2	75.3	71.4	63.1	59.6	-	-	-	-	-	-	-	20
24	62.9	62.9	65.7	64.6	59.9	57.9	-	-	-	-	-	-	-	24
28	47.8	47.8	49.9	49.9	51.6	51.4	42.7	37.6	-	-	-	-	-	28
32	37.7	37.7	39.3	39.3	40.5	40.5	36.2	32.3	38.1	31.0	-	-	-	32
36	31.1	31.1	32.4	32.4	33.2	33.2	31.2	28.1	32.8	29.5	34.3	28.3	-	36
40	25.4	25.4	26.4	26.4	-	-	26.5	24.2	28.0	25.5	29.3	26.8	-	40
48	-	-	-	-	-	-	19.5	18.7	20.5	19.7	21.3	20.7	-	48
56	-	-	-	-	-	-	14.4	14.3	15.3	15.2	15.9	15.9	-	56
64	-	-	-	-	-	-	10.8	10.8	11.5	11.5	12.0	12.0	-	64
72	-	-	-	-	-	-	8.0	8.0	8.7	8.7	9.1	9.1	-	72
80	-	-	-	-	-	-	5.7	5.7	6.1	6.1	6.5	6.5	-	80
88	-	-	-	-	-	-	3.9	3.9	4.2	4.2	4.5	4.5	-	88
96	-	-	-	-	-	-	-	-	2.6	2.6	2.9	2.9	-	96










		 181.1 ft				 196.9 ft								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°		
ft		1,000 lb												ft
48	13.1	12.5	-	-	-	-	-	-	-	-	-	-	-	48
56	9.1	8.9	10.3	10.0	11.2	10.8	-	-	-	-	-	-	-	56
64	6.1	6.1	7.0	7.0	7.9	7.8	-	-	-	-	-	-	-	64
72	3.6	3.6	4.2	4.2	5.1	5.1	-	-	-	-	-	-	-	72





HAV-HY










0 lb +		33,100 lb		36.1 ft		15.6 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12	69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14	65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16	62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18	60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24	52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28	48.4	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32	41.1	39.9	36.6	33.6	28.2	26.3	34.6	28.3	-	-	-	-	32
36	34.3	34.3	33.8	32.1	27.0	25.4	30.6	27.2	-	-	-	-	36
40	28.5	28.5	30.6	30.2	25.8	24.6	26.4	23.6	27.4	-	-	-	40
48	21.0	21.0	22.6	22.6	22.6	22.3	20.1	18.4	22.4	20.6	-	-	48
56	16.0	16.0	17.0	17.0	17.8	17.8	15.3	14.3	17.0	16.3	18.4	18.1	56
64	12.3	12.3	13.1	13.1	-	-	11.7	11.2	13.1	12.9	14.2	14.2	64
72	-	-	-	-	-	-	8.7	8.7	10.0	10.0	11.1	11.1	72
80	-	-	-	-	-	-	6.5	6.5	7.8	7.8	8.7	8.7	80
88	-	-	-	-	-	-	4.7	4.7	5.8	5.8	6.6	6.6	88
96	-	-	-	-	-	-	3.1	3.1	4.0	4.0	4.8	4.8	96
104	-	-	-	-	-	-	-	-	2.6	2.6	3.3	3.3	104

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
56	9.4	8.8	-	-	-	-	-	-	-	-	-	-	56
64	5.9	5.9	8.4	-	-	-	-	-	-	-	-	-	64
72	3.4	3.4	5.6	-	-	-	-	-	-	-	-	-	72

HAV-HY

0 lb +  33,100 lb		 55.8 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
14		44.5	37.4	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	26.6	22.7	-	-	36
40		28.4	25.6	22.8	20.8	-	-	25.5	22.3	-	-	40
48		22.7	22.4	20.7	19.0	16.3	15.8	20.1	18.1	-	-	48
56		17.5	17.5	18.4	17.5	14.6	14.6	15.3	14.3	17.8	16.5	56
64		13.9	13.9	15.3	15.1	13.4	13.4	11.7	11.3	14.4	13.7	64
72		11.1	11.1	12.2	12.2	12.6	12.6	8.9	8.9	11.1	11.1	72
80		9.0	9.0	9.8	9.8	-	-	6.8	6.8	8.7	8.7	80
88		-	-	-	-	-	-	5.0	5.0	6.7	6.7	88
96		-	-	-	-	-	-	3.5	3.5	5.1	5.1	96
104		-	-	-	-	-	-	2.3	2.3	3.7	3.7	104
112		-	-	-	-	-	-	-	-	-	-	112

		 181.1 ft				 196.9 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
56		8.9	8.7	-	-	-	-	-	-	-	-	56
64		5.7	5.7	-	-	-	-	-	-	-	-	64
72		3.4	3.4	-	-	-	-	-	-	-	-	72

0 lb +  33,100 lb		 75.5 ft		 15.6 ft		 32.2 ft/s		360°		ASME B30.5		
		 42.3 ft				 126.0 ft						
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		
ft		1,000 lb										ft
18		27.7	-	-	-	-	-	-	-	-	-	18
20		27.0	23.3	-	-	-	-	-	-	-	-	20
24		25.9	22.2	-	-	-	-	-	-	-	-	24
28		24.5	21.1	-	-	-	-	-	-	-	-	28
32		23.4	20.2	-	-	-	-	-	-	-	-	32
36		22.2	19.3	-	-	-	-	-	-	-	-	36
40		21.0	18.4	17.9	-	-	-	19.3	17.0	-	-	40
48		18.9	16.8	16.2	14.6	-	-	17.2	15.4	-	-	48
56		17.2	15.3	14.8	13.4	-	-	14.4	13.7	-	-	56
64		14.5	14.1	13.7	12.3	10.4	10.3	10.8	10.8	12.1	-	64
72		11.7	11.7	12.6	11.5	9.5	9.5	8.2	8.2	11.3	11.3	72
80		9.7	9.7	10.9	10.7	8.7	8.7	6.1	6.1	8.7	8.7	80
88		8.1	8.1	8.9	8.9	8.2	8.2	4.5	4.5	6.9	6.9	88
96		6.6	6.6	7.3	7.3	7.7	7.7	3.2	3.2	5.3	5.3	96
104		5.6	5.6	5.9	5.9	-	-	-	-	3.9	3.9	104
112		-	-	-	-	-	-	-	-	-	-	112
120		-	-	-	-	-	-	-	-	-	-	120

HAV-HY

99,200 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
18	97.4	90.0	-	-	-	-	-	-	-	-	-	-	-	-
20	93.1	86.8	-	-	-	-	-	-	-	-	-	-	-	-
24	85.8	81.2	71.6	68.0	-	-	-	-	-	-	-	-	-	-
28	79.5	76.4	67.6	65.3	57.2	56.3	-	-	-	-	-	-	-	-
32	70.7	70.0	63.4	62.4	54.9	54.1	-	-	-	-	-	-	-	-
36	60.8	60.8	58.2	57.8	53.1	52.5	-	-	-	-	-	-	-	-
40	51.7	51.7	52.5	52.5	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	39.0	39.0	-	-	-	-	-	-
56	-	-	-	-	-	-	30.7	30.7	31.7	31.7	-	-	-	-
64	-	-	-	-	-	-	25.6	25.6	25.6	25.6	26.1	26.1	-	-
72	-	-	-	-	-	-	21.7	21.7	22.1	22.1	21.9	21.9	-	-
80	-	-	-	-	-	-	18.3	18.3	18.7	18.7	18.9	18.9	-	-
88	-	-	-	-	-	-	15.4	15.4	15.7	15.7	16.1	16.1	-	-
96	-	-	-	-	-	-	13.4	13.4	13.7	13.6	13.7	13.7	-	-
104	-	-	-	-	-	-	11.5	11.5	11.7	11.7	11.9	11.9	-	-
112	-	-	-	-	-	-	9.8	9.8	10.1	10.1	-	-	-	-
120	-	-	-	-	-	-	8.5	8.5	8.7	8.7	-	-	-	-
128	-	-	-	-	-	-	7.3	7.3	-	-	-	-	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
72	19.7	18.8	-	-	-	-	-	-	-	-	-	-	-	-
80	16.3	16.3	16.6	16.4	16.7	16.7	15.4	15.2	16.1	15.9	16.5	16.5	-	-
88	13.4	13.4	14.0	14.0	14.3	14.3	12.5	12.5	13.2	13.2	13.6	13.6	-	-
96	11.0	11.0	11.5	11.5	11.9	11.9	10.0	10.0	10.7	10.7	11.1	11.1	-	-
104	8.9	8.9	9.5	9.5	9.7	9.7	7.9	7.9	8.4	8.4	8.9	8.9	-	-
112	7.0	7.0	7.6	7.6	7.8	7.8	6.1	6.1	6.5	6.5	7.0	7.0	-	-
120	5.6	5.6	5.9	5.9	6.2	6.2	4.5	4.5	5.0	5.0	5.4	5.4	-	-
128	4.2	4.2	4.5	4.5	4.7	4.7	3.2	3.2	3.6	3.6	3.9	3.9	-	-
136	3.1	3.1	3.3	3.3	3.5	3.5	-	-	-	-	2.5	2.5	-	-
144	-	-	2.3	2.3	2.5	2.5	-	-	-	-	-	-	-	-

HAV-HY

99,200 lb +		33,100 lb		36.1 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
24	52.7	45.9	-	-	-	-	-	-	-	-	-	-	24
28	48.7	42.9	-	-	-	-	-	-	-	-	-	-	28
32	45.2	40.2	-	-	-	-	-	-	-	-	-	-	32
36	42.1	37.9	34.7	32.1	-	-	-	-	-	-	-	-	36
40	39.1	35.7	32.8	30.7	25.8	24.6	-	-	-	-	-	-	40
48	34.5	32.3	29.6	28.3	23.3	23.0	-	-	-	-	-	-	48
56	31.0	29.5	26.5	26.2	21.7	21.7	30.7	30.5	-	-	-	-	56
64	27.6	26.9	24.2	24.2	-	-	25.6	25.6	26.1	25.5	-	-	64
72	-	-	-	-	-	-	21.0	21.0	22.3	21.5	-	-	72
80	-	-	-	-	-	-	18.3	18.3	18.7	18.3	18.9	18.9	80
88	-	-	-	-	-	-	15.9	15.9	16.3	15.8	16.4	16.4	88
96	-	-	-	-	-	-	13.7	13.7	14.0	13.7	14.0	14.0	96
104	-	-	-	-	-	-	11.7	11.7	12.3	12.3	12.3	12.3	104
112	-	-	-	-	-	-	10.3	10.3	10.7	10.7	11.2	11.2	112
120	-	-	-	-	-	-	9.2	9.2	9.2	9.2	9.5	9.5	120
128	-	-	-	-	-	-	7.8	7.8	7.8	7.8	5.6	5.6	128
136	-	-	-	-	-	-	6.6	6.6	6.9	6.9	-	-	136
144	-	-	-	-	-	-	5.6	5.6	5.8	5.8	-	-	144

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
80	16.2	15.7	17.6	17.4	-	-	15.6	15.0	-	-	-	-	80
88	13.8	13.7	14.5	14.5	15.5	15.5	12.6	12.5	14.2	14.0	-	-	88
96	11.7	11.7	12.4	12.3	13.1	13.1	10.2	10.2	11.8	11.7	12.7	12.6	96
104	9.5	9.5	10.6	10.6	11.2	11.2	8.2	8.2	9.5	9.5	10.8	10.8	104
112	7.8	7.8	8.7	8.7	9.6	9.6	6.5	6.5	7.6	7.6	8.7	8.7	112
120	6.2	6.2	7.1	7.1	7.8	7.8	5.0	5.0	6.1	6.1	6.9	6.9	120
128	4.7	4.7	5.6	5.6	6.3	6.3	3.7	3.7	4.7	4.7	5.4	5.4	128
136	3.5	3.5	4.3	4.3	4.9	4.9	2.7	2.7	3.4	3.4	4.0	4.0	136
144	2.5	2.5	3.1	3.1	3.6	3.6	-	-	2.3	2.3	2.9	2.9	144

HAV-HY

99,200 lb +		33,100 lb		55.8 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
32	32.6	28.5	-	-	-	-	-	-	-	-	-	-	-	-
36	30.6	27.0	-	-	-	-	-	-	-	-	-	-	-	-
40	28.6	25.6	-	-	-	-	-	-	-	-	-	-	-	-
48	25.5	23.3	20.7	19.0	-	-	-	-	-	-	-	-	-	-
56	23.0	21.2	18.9	17.5	-	-	26.0	21.8	-	-	-	-	-	-
64	20.7	19.3	17.3	16.3	13.4	13.4	24.5	20.7	-	-	-	-	-	-
72	18.6	17.9	15.7	15.2	12.6	12.6	21.0	19.6	-	-	-	-	-	-
80	16.7	16.7	14.4	14.4	-	-	17.9	17.7	17.7	16.0	-	-	-	-
88	-	-	-	-	-	-	15.5	15.5	16.3	15.4	13.7	13.0	-	-
96	-	-	-	-	-	-	13.2	13.2	14.4	14.0	13.3	12.6	-	-
104	-	-	-	-	-	-	11.9	11.9	12.4	12.4	12.7	12.4	-	-
112	-	-	-	-	-	-	10.3	10.3	10.7	10.7	11.4	11.4	-	-
120	-	-	-	-	-	-	9.4	9.4	9.6	9.6	9.8	9.8	-	-
128	-	-	-	-	-	-	8.0	8.0	8.4	8.4	8.7	8.7	-	-
136	-	-	-	-	-	-	6.9	6.9	7.5	7.5	7.8	7.8	-	-
144	-	-	-	-	-	-	6.0	6.0	6.4	6.4	6.7	6.7	-	-
152	-	-	-	-	-	-	5.2	5.2	5.4	5.4	-	-	-	-
160	-	-	-	-	-	-	4.4	4.4	4.8	4.8	-	-	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
80	16.3	15.1	-	-	-	-	14.5	12.3	-	-	-	-	-	-
88	13.4	13.2	14.4	13.5	-	-	12.6	12.0	-	-	-	-	-	-
96	11.7	11.7	13.1	12.7	-	-	10.4	10.4	12.0	11.7	-	-	-	-
104	9.7	9.7	11.1	11.0	11.5	11.3	8.4	8.4	10.4	10.3	-	-	-	-
112	8.1	8.1	9.4	9.4	10.7	10.7	6.5	6.5	8.5	8.5	9.8	9.8	-	-
120	6.7	6.7	8.2	8.2	8.9	8.9	5.2	5.2	7.0	7.0	8.4	8.4	-	-
128	5.4	5.4	6.7	6.7	7.7	7.7	4.0	4.0	5.6	5.6	6.9	6.9	-	-
136	4.2	4.2	5.5	5.5	6.5	6.5	2.9	2.9	4.4	4.4	5.6	5.6	-	-
144	3.3	3.3	4.2	4.2	5.1	5.1	-	-	3.4	3.4	4.5	4.5	-	-
152	-	-	3.2	3.2	4.0	4.0	-	-	-	-	3.2	3.2	-	-
160	-	-	-	-	3.0	3.0	-	-	-	-	-	-	-	-

HAV-HY

99,200 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	-	-	-	-	-	-	-	-	-	-	40
48	18.9	16.8	-	-	-	-	-	-	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	-	-	-	-	-	-	56
64	15.5	14.1	13.7	12.3	-	-	16.9	14.9	-	-	-	-	64
72	14.4	13.0	12.6	11.5	-	-	16.1	14.1	-	-	-	-	72
80	13.1	12.2	11.3	10.9	8.7	8.7	15.3	13.5	12.9	11.6	-	-	80
88	12.2	11.4	10.4	10.2	8.2	8.2	14.4	12.8	12.2	11.1	-	-	88
96	11.1	10.6	9.5	9.5	7.8	7.8	13.1	12.3	11.6	10.7	-	-	96
104	10.1	10.0	8.9	8.9	-	-	11.5	11.4	11.1	10.2	8.9	8.6	104
112	-	-	-	-	-	-	9.9	9.9	10.7	9.9	8.6	8.4	112
120	-	-	-	-	-	-	8.8	8.8	9.8	9.3	8.3	8.1	120
128	-	-	-	-	-	-	7.6	7.6	8.3	8.3	8.0	7.9	128
136	-	-	-	-	-	-	7.0	7.0	7.4	7.4	7.8	7.7	136
144	-	-	-	-	-	-	6.0	6.0	6.4	6.4	6.9	6.9	144
152	-	-	-	-	-	-	5.0	5.0	5.8	5.6	6.0	6.0	152
160	-	-	-	-	-	-	4.5	4.5	4.8	4.8	5.3	5.3	160
168	-	-	-	-	-	-	3.9	3.9	4.0	4.0	-	-	168
176	-	-	-	-	-	-	3.2	3.2	3.6	3.6	-	-	176











		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
80	12.1	11.0	-	-	-	-	11.0	8.8	-	-	-	-	80
88	11.7	10.7	-	-	-	-	10.7	8.8	-	-	-	-	88
96	10.8	10.2	-	-	-	-	9.5	8.8	-	-	-	-	96
104	9.3	9.2	10.0	9.1	-	-	7.7	7.7	9.3	8.4	-	-	104
112	7.6	7.6	9.2	8.8	8.4	7.7	6.1	6.1	8.5	8.3	-	-	112
120	6.1	6.1	7.9	7.7	8.1	7.4	4.8	4.8	7.0	7.0	7.6	7.2	120
128	4.8	4.8	6.8	6.8	7.7	7.3	3.5	3.5	5.6	5.6	7.2	6.9	128
136	3.8	3.8	5.6	5.6	6.7	6.6	2.4	2.4	4.4	4.4	6.3	6.2	136
144	2.9	2.9	4.5	4.5	6.0	6.0	-	-	3.4	3.4	4.9	4.9	144
152	-	-	3.6	3.6	4.9	4.9	-	-	-	-	3.9	3.9	152
160	-	-	2.7	2.7	3.9	3.9	-	-	-	-	3.0	3.0	160






HAV-HY

77,200 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	-	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	93.1	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	85.5	81.2	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28	74.2	73.0	67.6	65.3	57.2	56.3	64.0	57.2	-	-	-	-	-	-	-	28
32	60.8	60.8	61.3	60.9	54.9	54.1	56.0	51.6	57.5	-	-	-	-	-	-	32
36	51.8	51.8	52.9	52.9	50.4	49.9	49.6	45.8	50.1	46.9	48.9	-	-	-	-	36
40	43.9	43.9	44.7	44.7	-	-	43.0	40.5	43.2	41.9	44.5	42.4	-	-	-	40
48	-	-	-	-	-	-	33.4	33.3	33.8	33.5	34.6	34.4	-	-	-	48
56	-	-	-	-	-	-	26.8	26.8	27.2	27.2	27.5	27.5	-	-	-	56
64	-	-	-	-	-	-	22.0	21.9	22.3	22.2	22.8	22.8	-	-	-	64
72	-	-	-	-	-	-	17.9	17.9	18.6	18.6	19.0	19.0	-	-	-	72
80	-	-	-	-	-	-	15.0	15.0	15.5	15.5	15.7	15.7	-	-	-	80
88	-	-	-	-	-	-	12.5	12.5	12.9	12.9	13.2	13.2	-	-	-	88
96	-	-	-	-	-	-	10.5	10.5	10.8	10.8	11.0	11.0	-	-	-	96
104	-	-	-	-	-	-	8.8	8.8	9.0	9.0	9.2	9.2	-	-	-	104
112	-	-	-	-	-	-	7.2	7.2	7.4	7.4	-	-	-	-	-	112
120	-	-	-	-	-	-	5.9	5.9	6.1	6.1	-	-	-	-	-	120
128	-	-	-	-	-	-	4.8	4.8	-	-	-	-	-	-	-	128










		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	30.4	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	24.5	22.7	24.5	23.2	25.7	23.8	22.5	20.6	23.6	-	-	-	-	-	-	56
64	19.7	18.6	20.4	19.5	20.8	20.2	17.8	16.8	18.9	17.7	19.8	18.6	-	-	-	64
72	15.5	15.3	16.4	16.0	16.8	16.6	14.2	13.5	15.1	14.4	16.0	15.1	-	-	-	72
80	12.6	12.4	13.2	13.2	13.7	13.7	11.3	10.9	12.1	11.7	12.8	12.4	-	-	-	80
88	10.0	10.0	10.6	10.6	11.1	11.1	8.7	8.5	9.3	9.3	10.0	9.9	-	-	-	88
96	7.7	7.7	8.4	8.4	8.8	8.8	6.5	6.5	7.2	7.2	7.7	7.7	-	-	-	96
104	5.7	5.7	6.4	6.4	6.7	6.7	4.8	4.8	5.3	5.3	5.7	5.7	-	-	-	104
112	4.1	4.1	4.8	4.8	5.0	5.0	-	-	3.7	3.7	4.1	4.1	-	-	-	112
120	-	-	3.2	3.2	3.5	3.5	-	-	-	-	-	-	-	-	-	120





HAV-HY

		77,200 lb + 		33,100 lb 		36.1 ft 		11.5 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
10		72.7	59.8	-	-	-	-	-	-	-	-	-	-	-	-	10
12		69.1	57.4	-	-	-	-	-	-	-	-	-	-	-	-	12
14		65.8	55.3	-	-	-	-	-	-	-	-	-	-	-	-	14
16		62.8	53.1	-	-	-	-	-	-	-	-	-	-	-	-	16
18		60.0	51.2	-	-	-	-	-	-	-	-	-	-	-	-	18
20		57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	-	-	20
24		52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	-	-	24
28		48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	-	-	28
32		45.2	40.2	36.6	33.6	28.2	26.3	46.1	39.7	-	-	-	-	-	-	32
36		42.1	37.9	34.7	32.1	27.0	25.4	44.1	38.6	-	-	-	-	-	-	36
40		39.1	35.7	32.8	30.7	25.8	24.6	42.0	37.1	35.3	-	-	-	-	-	40
48		34.2	32.3	29.6	28.3	23.3	23.0	33.6	31.9	32.7	28.8	-	-	-	-	48
56		28.8	28.4	26.5	26.2	21.7	21.7	26.7	26.7	28.3	26.5	24.8	23.0	-	-	56
64		23.6	23.6	23.7	23.7	-	-	22.1	22.1	22.9	22.6	23.3	22.2	-	-	64
72		-	-	-	-	-	-	18.4	18.4	19.0	19.0	19.5	19.5	-	-	72
80		-	-	-	-	-	-	15.7	15.7	15.8	15.8	16.6	16.6	-	-	80
88		-	-	-	-	-	-	13.2	13.2	13.7	13.7	14.0	14.0	-	-	88
96		-	-	-	-	-	-	11.2	11.2	11.8	11.8	12.1	12.1	-	-	96
104		-	-	-	-	-	-	9.5	9.5	10.1	10.1	10.6	10.6	-	-	104
112		-	-	-	-	-	-	7.9	7.9	8.5	8.5	8.9	8.9	-	-	112
120		-	-	-	-	-	-	6.5	6.5	7.0	7.0	7.4	7.4	-	-	120
128		-	-	-	-	-	-	5.3	5.3	5.7	5.7	3.2	3.2	-	-	128
136		-	-	-	-	-	-	4.4	4.4	4.7	4.7	-	-	-	-	136
144		-	-	-	-	-	-	3.4	3.4	3.6	3.6	-	-	-	-	144

		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
56		23.3	20.4	-	-	-	-	20.5	16.8	-	-	-	-	-	-	56
64		19.6	18.0	19.1	-	-	-	18.0	16.1	-	-	-	-	-	-	64
72		16.0	15.1	17.2	16.8	-	-	14.2	13.3	16.2	-	-	-	-	-	72
80		12.8	12.4	14.5	13.9	15.2	15.1	11.0	10.9	13.0	12.4	14.7	13.9	-	-	80
88		10.2	10.1	11.8	11.6	12.9	12.7	8.5	8.5	10.2	10.1	11.8	11.4	-	-	88
96		8.1	8.1	9.5	9.5	10.6	10.6	6.5	6.5	7.9	7.9	9.3	9.2	-	-	96
104		6.4	6.4	7.5	7.5	8.6	8.6	4.8	4.8	6.2	6.2	7.3	7.3	-	-	104
112		4.8	4.8	5.9	5.9	6.7	6.7	3.2	3.2	4.6	4.6	5.6	5.6	-	-	112
120		3.5	3.5	4.5	4.5	5.1	5.1	-	-	3.2	3.2	4.1	4.1	-	-	120
128		-	-	3.2	3.2	3.7	3.7	-	-	-	-	2.9	2.9	-	-	128
136		-	-	-	-	2.5	2.5	-	-	-	-	-	-	-	-	136

HAV-HY

		77,200 lb + 		33,100 lb 		55.8 ft 		11.5 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.2	24.1	-	-	-	-	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	27.6	22.9	-	-	-	-	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	25.0	21.8	20.6	18.4	-	-	-	-	56
64		20.7	19.3	17.3	16.3	13.4	13.4	21.7	20.5	19.4	17.6	-	-	-	-	64
72		18.6	17.9	15.7	15.2	12.6	12.6	18.4	18.1	18.5	16.8	15.0	13.9	-	-	72
80		16.7	16.7	14.4	14.4	-	-	15.5	15.5	16.5	15.8	14.4	13.4	-	-	80
88		-	-	-	-	-	-	13.4	13.4	14.1	14.0	13.7	13.0	-	-	88
96		-	-	-	-	-	-	11.4	11.4	12.1	12.1	12.6	12.5	-	-	96
104		-	-	-	-	-	-	9.9	9.9	10.7	10.7	11.2	11.2	-	-	104
112		-	-	-	-	-	-	8.5	8.5	9.2	9.2	9.6	9.6	-	-	112
120		-	-	-	-	-	-	7.2	7.2	8.1	8.1	8.5	8.5	-	-	120
128		-	-	-	-	-	-	5.9	5.9	6.8	6.8	7.4	7.4	-	-	128
136		-	-	-	-	-	-	4.9	4.9	5.6	5.6	6.0	6.0	-	-	136
144		-	-	-	-	-	-	4.0	4.0	4.7	4.7	4.9	4.9	-	-	144
152		-	-	-	-	-	-	3.2	3.2	3.6	3.6	-	-	-	-	152
160		-	-	-	-	-	-	-	-	2.8	2.8	-	-	-	-	160

		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
56		18.6	15.7	-	-	-	-	-	-	-	-	-	-	-	-	56
64		18.0	15.7	-	-	-	-	15.7	12.3	-	-	-	-	-	-	64
72		15.7	14.8	-	-	-	-	13.9	12.3	-	-	-	-	-	-	72
80		12.6	12.4	14.5	13.8	-	-	10.9	10.9	13.7	-	-	-	-	-	80
88		10.1	10.1	12.3	12.3	12.6	12.0	8.5	8.5	11.1	11.0	-	-	-	-	88
96		8.1	8.1	10.1	10.1	11.4	11.1	6.5	6.5	8.8	8.8	10.6	10.5	-	-	96
104		6.4	6.4	8.2	8.2	9.9	9.9	4.8	4.8	6.8	6.8	8.8	8.8	-	-	104
112		5.0	5.0	6.5	6.5	8.3	8.3	3.5	3.5	5.2	5.2	7.0	7.0	-	-	112
120		3.7	3.7	5.2	5.2	6.7	6.7	-	-	3.9	3.9	5.4	5.4	-	-	120
128		2.6	2.6	4.0	4.0	5.3	5.3	-	-	2.9	2.9	4.2	4.2	-	-	128
136		-	-	2.9	2.9	4.0	4.0	-	-	-	-	3.1	3.1	-	-	136
144		-	-	-	-	2.9	2.9	-	-	-	-	-	-	-	-	144

HAV-HY

77,200 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft						126.0 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
18	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	-	-
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	-	-
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	-	-
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	-	-
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	-	-
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	-	-
48	18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	-	-
56	17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	-	-
64	15.5	14.1	13.7	12.3	10.4	10.3	16.9	14.9	14.3	-	-	-	-	-
72	14.4	13.0	12.6	11.5	9.5	9.5	16.1	14.1	13.5	12.1	-	-	-	-
80	13.1	12.2	11.3	10.9	8.7	8.7	14.9	13.4	12.9	11.6	10.1	9.4	-	-
88	12.2	11.4	10.4	10.2	8.2	8.2	13.2	12.5	12.2	11.1	9.7	9.2	-	-
96	11.1	10.6	9.5	9.5	7.8	7.8	11.2	11.2	11.6	10.7	9.2	8.9	-	-
104	10.1	10.0	8.9	8.9	-	-	9.9	9.9	10.7	10.2	8.9	8.6	-	-
112	-	-	-	-	-	-	8.5	8.5	9.2	9.2	8.6	8.4	-	-
120	-	-	-	-	-	-	7.4	7.4	8.0	8.0	8.2	8.1	-	-
128	-	-	-	-	-	-	6.2	6.2	6.9	6.9	7.6	7.5	-	-
136	-	-	-	-	-	-	5.1	5.1	6.1	6.1	6.6	6.6	-	-
144	-	-	-	-	-	-	4.0	4.0	5.1	5.1	5.8	5.8	-	-
152	-	-	-	-	-	-	3.2	3.2	4.1	4.1	4.7	4.7	-	-
160	-	-	-	-	-	-	2.6	2.6	3.3	3.3	3.7	3.7	-	-

		181.1 ft						196.9 ft						
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
64	12.8	11.0	-	-	-	-	-	-	-	-	-	-	-	-
72	12.4	11.0	-	-	-	-	11.2	8.8	-	-	-	-	-	-
80	11.6	10.7	-	-	-	-	10.0	8.7	-	-	-	-	-	-
88	9.4	9.4	10.5	9.6	-	-	7.7	7.7	-	-	-	-	-	-
96	7.4	7.4	9.8	9.3	-	-	5.9	5.9	8.7	8.4	-	-	-	-
104	5.7	5.7	8.4	8.3	8.6	-	4.2	4.2	6.8	6.8	-	-	-	-
112	4.3	4.3	6.7	6.7	8.3	7.7	-	-	5.4	5.4	7.6	7.2	-	-
120	3.3	3.3	5.3	5.3	7.2	7.2	-	-	3.9	3.9	6.1	6.1	-	-
128	-	-	4.1	4.1	5.8	5.8	-	-	2.9	2.9	4.7	4.7	-	-
136	-	-	3.0	3.0	4.7	4.7	-	-	-	-	3.5	3.5	-	-
144	-	-	-	-	3.6	3.6	-	-	-	-	2.5	2.5	-	-

HAV-HY

55,100 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	97.4	90.0	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	92.7	86.8	75.5	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	78.0	77.7	71.6	68.0	60.2	57.9	-	-	-	-	-	-	-	-	-	24
28	61.6	61.6	63.3	61.9	57.2	56.3	54.0	49.5	-	-	-	-	-	-	-	28
32	50.1	50.1	51.5	51.5	51.9	51.7	47.6	44.0	48.4	43.6	-	-	-	-	-	32
36	42.4	42.4	43.5	43.5	44.4	44.4	41.6	39.2	42.1	39.6	43.7	38.5	-	-	-	36
40	35.6	35.6	36.5	36.5	-	-	36.5	35.1	37.1	35.8	37.6	36.2	-	-	-	40
48	-	-	-	-	-	-	28.0	28.0	29.0	29.0	29.4	29.4	-	-	-	48
56	-	-	-	-	-	-	21.8	21.8	22.6	22.6	23.2	23.2	-	-	-	56
64	-	-	-	-	-	-	17.3	17.3	17.8	17.8	18.5	18.5	-	-	-	64
72	-	-	-	-	-	-	13.7	13.7	14.4	14.4	14.8	14.8	-	-	-	72
80	-	-	-	-	-	-	11.3	11.3	11.7	11.7	12.0	12.0	-	-	-	80
88	-	-	-	-	-	-	9.1	9.1	9.5	9.5	9.7	9.7	-	-	-	88
96	-	-	-	-	-	-	7.2	7.2	7.6	7.6	7.8	7.8	-	-	-	96
104	-	-	-	-	-	-	5.5	5.5	5.9	5.9	6.0	6.0	-	-	-	104
112	-	-	-	-	-	-	4.1	4.1	4.6	4.6	-	-	-	-	-	112
120	-	-	-	-	-	-	3.1	3.1	3.3	3.3	-	-	-	-	-	120










		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	23.2	21.2	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	18.1	16.9	19.2	17.9	20.1	18.8	16.0	15.1	17.2	-	-	-	-	-	-	56
64	14.0	13.4	15.1	14.3	15.8	15.0	12.2	11.7	13.3	12.6	14.0	13.5	-	-	-	64
72	10.9	10.4	11.8	11.3	12.4	12.0	9.1	8.9	10.0	9.8	10.7	10.4	-	-	-	72
80	8.2	8.0	8.9	8.9	9.5	9.4	6.5	6.5	7.4	7.4	8.0	8.0	-	-	-	80
88	6.0	6.0	6.6	6.6	7.2	7.2	4.4	4.4	5.2	5.2	5.8	5.8	-	-	-	88
96	4.2	4.2	4.8	4.8	5.2	5.2	-	-	3.4	3.4	3.9	3.9	-	-	-	96
104	2.6	2.6	3.1	3.1	3.5	3.5	-	-	-	-	-	-	-	-	-	104





HAV-HY

55,100 lb +		33,100 lb		36.1 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
10	72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12	69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14	65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16	62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18	60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24	52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28	48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32	45.2	40.2	36.6	33.6	28.2	26.3	44.6	39.0	-	-	-	-	32
36	42.0	37.9	34.7	32.1	27.0	25.4	39.9	35.5	-	-	-	-	36
40	38.5	35.5	32.8	30.7	25.8	24.6	35.9	33.4	35.0	-	-	-	40
48	29.5	29.5	29.2	28.2	23.3	23.0	28.4	27.6	29.4	27.5	-	-	48
56	23.2	23.2	24.2	24.2	21.7	21.7	22.6	22.4	23.3	23.1	23.5	22.6	56
64	18.8	18.8	19.4	19.4	-	-	18.0	18.0	19.1	19.1	19.5	19.5	64
72	-	-	-	-	-	-	14.6	14.6	15.7	15.7	16.6	16.6	72
80	-	-	-	-	-	-	12.0	12.0	12.8	12.8	13.7	13.7	80
88	-	-	-	-	-	-	9.7	9.7	10.6	10.6	11.4	11.4	88
96	-	-	-	-	-	-	8.0	8.0	8.7	8.7	9.4	9.4	96
104	-	-	-	-	-	-	6.4	6.4	7.0	7.0	7.7	7.7	104
112	-	-	-	-	-	-	5.0	5.0	5.7	5.7	6.1	6.1	112
120	-	-	-	-	-	-	3.7	3.7	4.3	4.3	4.6	4.6	120
128	-	-	-	-	-	-	2.8	2.8	3.2	3.2	-	-	128

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
56	18.2	16.6	-	-	-	-	16.2	14.8	-	-	-	-	56
64	14.0	13.2	16.2	-	-	-	12.2	11.6	-	-	-	-	64
72	10.7	10.4	12.6	12.2	-	-	8.9	8.9	11.1	-	-	-	72
80	8.0	8.0	9.8	9.8	11.5	11.1	6.5	6.5	8.3	8.3	10.0	9.8	80
88	6.0	6.0	7.4	7.4	8.9	8.8	4.4	4.4	6.1	6.1	7.7	7.5	88
96	4.2	4.2	5.6	5.6	6.7	6.7	2.7	2.7	4.2	4.2	5.5	5.5	96
104	2.8	2.8	3.9	3.9	5.0	5.0	-	-	2.6	2.6	3.7	3.7	104
112	-	-	-	-	3.7	3.7	-	-	-	-	-	-	112

HAV-HY

		55,100 lb + 		33,100 lb 		55.8 ft 		11.5 ft 		32.2 ft/s 		360°		ASME B30.5		
		42.3 ft 						126.0 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
14		44.5	37.4	-	-	-	-	-	-	-	-	-	-	-	-	14
16		43.0	36.4	-	-	-	-	-	-	-	-	-	-	-	-	16
18		41.6	35.3	-	-	-	-	-	-	-	-	-	-	-	-	18
20		40.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-	20
24		37.4	32.1	-	-	-	-	-	-	-	-	-	-	-	-	24
28		34.9	30.3	-	-	-	-	-	-	-	-	-	-	-	-	28
32		32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	-	-	32
36		30.6	27.0	24.1	21.8	-	-	30.0	24.8	-	-	-	-	-	-	36
40		28.6	25.6	22.8	20.8	-	-	29.1	24.1	-	-	-	-	-	-	40
48		25.5	23.3	20.7	19.0	16.3	15.8	25.8	22.6	-	-	-	-	-	-	48
56		23.0	21.2	18.9	17.5	14.6	14.6	22.0	20.6	20.6	18.4	-	-	-	-	56
64		20.1	19.3	17.3	16.3	13.4	13.4	18.5	18.3	18.8	17.4	-	-	-	-	64
72		16.8	16.8	15.7	15.2	12.6	12.6	15.3	15.3	16.2	16.1	15.0	13.9	-	-	72
80		14.2	14.2	14.3	14.3	-	-	12.6	12.6	13.8	13.8	14.1	13.4	-	-	80
88		-	-	-	-	-	-	10.4	10.4	11.8	11.8	12.3	12.3	-	-	88
96		-	-	-	-	-	-	8.6	8.6	9.8	9.8	10.7	10.7	-	-	96
104		-	-	-	-	-	-	7.0	7.0	8.1	8.1	9.0	9.0	-	-	104
112		-	-	-	-	-	-	5.7	5.7	6.8	6.8	7.4	7.4	-	-	112
120		-	-	-	-	-	-	4.4	4.4	5.4	5.4	6.1	6.1	-	-	120
128		-	-	-	-	-	-	3.4	3.4	4.2	4.2	4.8	4.8	-	-	128
136		-	-	-	-	-	-	2.4	2.4	3.3	3.3	3.8	3.8	-	-	136
144		-	-	-	-	-	-	-	-	2.3	2.3	2.7	2.7	-	-	144

		181.1 ft 						196.9 ft 								
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	
		0°		18°		36°		0°		18°		36°				
ft		1,000 lb														ft
56		17.0	15.1	-	-	-	-	-	-	-	-	-	-	-	-	56
64		13.8	13.2	-	-	-	-	12.0	11.2	-	-	-	-	-	-	64
72		10.4	10.4	-	-	-	-	8.7	8.7	-	-	-	-	-	-	72
80		8.0	8.0	10.6	10.5	-	-	6.3	6.3	9.1	-	-	-	-	-	80
88		6.0	6.0	8.3	8.3	10.4	10.3	4.3	4.3	6.9	6.9	-	-	-	-	88
96		4.2	4.2	6.3	6.3	8.3	8.3	2.7	2.7	5.0	5.0	7.2	7.2	-	-	96
104		2.8	2.8	4.8	4.8	6.4	6.4	-	-	3.5	3.5	5.3	5.3	-	-	104
112		-	-	3.5	3.5	5.0	5.0	-	-	-	-	3.7	3.7	-	-	112
120		-	-	-	-	3.7	3.7	-	-	-	-	-	-	-	-	120

HAV-HY

55,100 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
18	27.7	-	-	-	-	-	-	-	-	-	-	-	18
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	20
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	24
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	28
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	32
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	40
48	18.9	16.8	16.2	14.6	-	-	18.5	16.3	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	17.7	15.5	-	-	-	-	56
64	15.5	14.1	13.7	12.3	10.4	10.3	16.4	14.7	14.3	-	-	-	64
72	14.4	13.0	12.6	11.5	9.5	9.5	14.8	13.7	13.5	12.1	-	-	72
80	13.1	12.2	11.3	10.9	8.7	8.7	12.6	12.4	12.7	11.6	10.1	9.4	80
88	12.2	11.4	10.4	10.2	8.2	8.2	10.4	10.4	11.6	10.8	9.7	9.2	88
96	10.9	10.6	9.5	9.5	7.8	7.8	8.5	8.5	10.2	10.1	9.2	8.9	96
104	9.4	9.4	8.9	8.9	-	-	7.0	7.0	8.8	8.8	8.9	8.4	104
112	-	-	-	-	-	-	5.7	5.7	7.2	7.2	8.1	8.1	112
120	-	-	-	-	-	-	4.6	4.6	5.9	5.9	7.0	7.0	120
128	-	-	-	-	-	-	3.5	3.5	4.8	4.8	5.8	5.8	128
136	-	-	-	-	-	-	2.6	2.6	3.8	3.8	4.7	4.7	136
144	-	-	-	-	-	-	-	-	2.7	2.7	3.6	3.6	144

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
1,000 lb													
64	12.1	11.0	-	-	-	-	-	-	-	-	-	-	64
72	9.5	9.5	-	-	-	-	7.8	7.7	-	-	-	-	72
80	7.2	7.2	-	-	-	-	5.4	5.4	-	-	-	-	80
88	5.2	5.2	8.3	8.3	-	-	3.6	3.6	-	-	-	-	88
96	3.6	3.6	6.3	6.3	-	-	-	-	-	-	-	-	96
104	-	-	4.8	4.8	7.3	-	-	-	-	-	-	-	104
112	-	-	3.5	3.5	5.6	5.6	-	-	-	-	-	-	112
120	-	-	-	-	4.2	4.2	-	-	-	-	-	-	120
128	-	-	-	-	3.1	3.1	-	-	-	-	-	-	128

HAV-HY

33,100 lb +		33,100 lb		16.4 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5				
		42.3 ft						126.0 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
10	119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	-	-	-	10
12	113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	-	-	-	12
14	107.3	97.2	82.9	77.5	-	-	-	-	-	-	-	-	-	-	-	14
16	102.0	93.4	80.1	75.4	65.7	61.8	-	-	-	-	-	-	-	-	-	16
18	93.5	88.4	77.8	73.4	64.4	60.7	-	-	-	-	-	-	-	-	-	18
20	83.7	82.3	75.2	71.4	63.1	59.6	-	-	-	-	-	-	-	-	-	20
24	62.8	62.8	65.1	64.8	60.0	57.9	-	-	-	-	-	-	-	-	-	24
28	49.1	49.1	50.9	50.9	52.5	52.2	45.3	40.4	-	-	-	-	-	-	-	28
32	39.6	39.6	41.0	41.0	42.2	42.2	38.9	35.0	40.5	33.7	-	-	-	-	-	32
36	33.2	33.2	34.3	34.3	35.2	35.2	33.8	30.7	35.3	32.2	35.5	31.0	-	-	-	36
40	27.6	27.6	28.4	28.4	-	-	29.1	26.9	30.2	28.2	31.3	29.3	-	-	-	40
48	-	-	-	-	-	-	21.6	21.0	22.5	22.0	23.3	23.0	-	-	-	48
56	-	-	-	-	-	-	16.4	16.4	17.2	17.2	17.7	17.7	-	-	-	56
64	-	-	-	-	-	-	12.6	12.6	13.3	13.3	13.7	13.7	-	-	-	64
72	-	-	-	-	-	-	9.8	9.8	10.2	10.2	10.6	10.6	-	-	-	72
80	-	-	-	-	-	-	7.4	7.4	7.8	7.8	8.3	8.3	-	-	-	80
88	-	-	-	-	-	-	5.4	5.4	5.8	5.8	6.2	6.2	-	-	-	88
96	-	-	-	-	-	-	3.8	3.8	4.2	4.2	4.5	4.5	-	-	-	96
104	-	-	-	-	-	-	2.4	2.4	2.8	2.8	2.8	2.8	-	-	-	104

		181.1 ft						196.9 ft								
ft	0,3°		1°		0,3°		1°		0,3°		1°		0,3°		1°	
	0°		18°		36°		0°		18°		36°					
1,000 lb																
48	16.0	14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	48
56	11.8	11.2	12.9	12.1	13.9	13.0	9.8	9.4	10.9	-	-	-	-	-	-	56
64	8.4	8.3	9.5	9.1	10.2	9.9	6.6	6.5	7.7	7.6	8.6	8.3	-	-	-	64
72	5.8	5.8	6.7	6.7	7.3	7.3	4.0	4.0	4.9	4.9	5.8	5.8	-	-	-	72
80	3.7	3.7	4.3	4.3	5.0	5.0	-	-	-	-	-	-	-	-	-	80

HAV-HY

33,100 lb +		33,100 lb		36.1 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
10	72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12	69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14	65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16	62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18	60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24	52.7	45.9	41.2	37.6	-	-	-	-	-	-	-	-	24
28	48.7	42.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32	42.6	40.2	36.6	33.6	28.2	26.3	37.2	30.9	-	-	-	-	32
36	36.2	35.5	34.7	32.1	27.0	25.4	33.3	29.7	-	-	-	-	36
40	30.5	30.5	32.4	30.4	25.8	24.6	29.0	26.2	28.1	-	-	-	40
48	22.9	22.9	24.4	24.4	23.3	23.0	22.5	20.6	23.8	22.9	-	-	48
56	17.7	17.7	18.8	18.8	19.7	19.7	17.2	16.5	18.8	18.4	19.4	19.3	56
64	14.1	14.1	14.6	14.6	-	-	13.3	13.2	14.6	14.6	15.8	15.8	64
72	-	-	-	-	-	-	10.4	10.4	11.5	11.5	12.6	12.6	72
80	-	-	-	-	-	-	8.3	8.3	9.2	9.2	10.0	10.0	80
88	-	-	-	-	-	-	6.2	6.2	7.3	7.3	8.0	8.0	88
96	-	-	-	-	-	-	4.6	4.6	5.4	5.4	6.1	6.1	96
104	-	-	-	-	-	-	3.3	3.3	3.9	3.9	4.6	4.6	104
112	-	-	-	-	-	-	-	-	-	-	3.2	3.2	112

		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
56	11.8	10.9	-	-	-	-	9.9	9.3	-	-	-	-	56
64	8.4	8.2	10.6	-	-	-	6.6	6.5	-	-	-	-	64
72	5.6	5.6	7.6	7.5	-	-	4.0	4.0	6.0	-	-	-	72
80	3.5	3.5	5.2	5.2	6.9	6.8	-	-	3.9	-	-	-	80
88	-	-	3.4	3.4	4.9	4.9	-	-	-	-	-	-	88
96	-	-	-	-	3.1	3.1	-	-	-	-	-	-	96

HAV-HY

33,100 lb +		33,100 lb		55.8 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
14	44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16	43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18	41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20	40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24	37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28	34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32	32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36	30.6	27.0	24.1	21.8	-	-	27.9	23.8	-	-	-	-	36
40	28.6	25.6	22.8	20.8	-	-	26.3	23.2	-	-	-	-	40
48	24.5	23.0	20.7	19.0	16.3	15.8	22.7	20.3	-	-	-	-	48
56	19.3	19.3	18.9	17.5	14.6	14.6	17.8	16.3	19.0	17.6	-	-	56
64	15.5	15.5	16.6	16.3	13.4	13.4	13.9	13.3	16.0	15.5	-	-	64
72	12.6	12.6	13.5	13.5	12.6	12.6	10.9	10.9	12.9	12.8	13.7	13.7	72
80	10.5	10.5	11.1	11.1	-	-	8.5	8.5	10.5	10.5	11.7	11.7	80
88	-	-	-	-	-	-	6.7	6.7	8.4	8.4	9.5	9.5	88
96	-	-	-	-	-	-	5.3	5.3	6.7	6.7	7.8	7.8	96
104	-	-	-	-	-	-	3.9	3.9	5.2	5.2	6.2	6.2	104
112	-	-	-	-	-	-	-	-	3.9	3.9	4.8	4.8	112
120	-	-	-	-	-	-	-	-	-	-	3.5	3.5	120







		181.1 ft				196.9 ft							
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	ft
			18°		36°		0°		18°		36°		
1,000 lb													
56	11.5	10.8	-	-	-	-	-	-	-	-	-	-	56
64	8.1	8.0	-	-	-	-	-	-	-	-	-	-	64
72	5.6	5.6	-	-	-	-	-	-	-	-	-	-	72
80	3.5	3.5	6.1	5.4	-	-	-	-	-	-	-	-	80
88	-	-	4.2	3.6	6.4	6.4	-	-	-	-	-	-	88
96	-	-	-	-	4.5	4.5	-	-	-	-	-	-	96
104	-	-	-	-	3.0	3.0	-	-	-	-	-	-	104



HAV-HY

33,100 lb +		33,100 lb		75.5 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5		
		42.3 ft				126.0 ft								
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
18	27.7	-	-	-	-	-	-	-	-	-	-	-	-	18
20	27.0	23.3	-	-	-	-	-	-	-	-	-	-	-	20
24	25.9	22.2	-	-	-	-	-	-	-	-	-	-	-	24
28	24.5	21.1	-	-	-	-	-	-	-	-	-	-	-	28
32	23.4	20.2	-	-	-	-	-	-	-	-	-	-	-	32
36	22.2	19.3	-	-	-	-	-	-	-	-	-	-	-	36
40	21.0	18.4	17.9	-	-	-	19.5	17.1	-	-	-	-	-	40
48	18.9	16.8	16.2	14.6	-	-	18.0	16.0	-	-	-	-	-	48
56	17.2	15.3	14.8	13.4	-	-	15.8	14.6	-	-	-	-	-	56
64	15.5	14.1	13.7	12.3	10.4	10.3	13.1	12.8	13.8	-	-	-	-	64
72	13.3	13.0	12.6	11.5	9.5	9.5	10.2	10.2	12.8	11.9	-	-	-	72
80	11.2	11.2	11.3	10.9	8.7	8.7	8.1	8.1	10.7	10.7	10.1	9.4	-	80
88	9.4	9.4	10.2	9.9	8.2	8.2	6.3	6.3	8.6	8.6	9.5	9.0	-	88
96	7.9	7.9	8.6	8.6	7.8	7.8	4.8	4.8	6.9	6.9	8.6	8.4	-	96
104	6.7	6.7	7.0	7.0	-	-	3.5	3.5	5.5	5.5	7.2	7.2	-	104
112	-	-	-	-	-	-	-	-	4.1	4.1	5.7	5.7	-	112
120	-	-	-	-	-	-	-	-	3.1	3.1	4.5	4.5	-	120
128	-	-	-	-	-	-	-	-	-	-	3.3	3.3	-	128

		181.1 ft				196.9 ft								
ft	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°
1,000 lb														
64	7.0	7.0	-	-	-	-	-	-	-	-	-	-	-	64
72	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-	72

HAV-HY

		11,000 lb +  33,100 lb		 16.4 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft						 126.0 ft							
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft		1,000 lb												ft	
10		119.2	105.7	89.2	-	-	-	-	-	-	-	-	-	10	
12		113.1	101.2	85.9	80.0	-	-	-	-	-	-	-	-	12	
14		104.3	93.8	82.9	77.5	-	-	-	-	-	-	-	-	14	
16		90.5	81.6	80.1	75.4	65.7	61.8	-	-	-	-	-	-	16	
18		76.9	71.6	74.4	71.2	64.4	60.7	-	-	-	-	-	-	18	
20		64.3	62.5	67.5	65.9	62.5	59.3	-	-	-	-	-	-	20	
24		47.5	47.5	49.8	49.8	51.9	51.9	-	-	-	-	-	-	24	
28		36.7	36.7	38.4	38.4	40.0	40.0	33.5	29.4	-	-	-	-	28	
32		29.1	29.1	30.5	30.5	31.7	31.7	28.1	25.1	29.9	24.0	-	-	32	
36		24.0	24.0	25.1	25.1	26.0	26.0	24.0	21.7	25.7	23.1	27.0	21.9	36	
40		19.6	19.6	20.4	20.4	-	-	20.3	18.6	21.8	19.9	22.9	21.0	40	
48		-	-	-	-	-	-	14.9	13.9	15.9	15.0	16.8	15.9	48	
56		-	-	-	-	-	-	10.8	10.4	11.7	11.2	12.2	11.9	56	
64		-	-	-	-	-	-	7.7	7.6	8.5	8.3	9.0	8.9	64	
72		-	-	-	-	-	-	5.1	5.1	5.8	5.8	6.2	6.2	72	
80		-	-	-	-	-	-	-	-	3.7	3.7	4.1	4.1	80	










		 181.1 ft						 196.9 ft							
		0,3°		1°		0,3°		1°		0,3°		1°			
		0°		18°		36°		0°		18°		36°			
ft		1,000 lb												ft	
48		8.7	8.3	-	-	-	-	-	-	-	-	-	-	48	
56		5.3	5.3	-	-	-	-	-	-	-	-	-	-	56	
64		2.7	2.7	-	-	-	-	-	-	-	-	-	-	64	










HAV-HY

11,000 lb +		33,100 lb		36.1 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°		1°		0,3°		1°		0,3°		1°		ft
	0°		18°		36°		0°		18°		36°		
1,000 lb													
10	72.7	59.8	-	-	-	-	-	-	-	-	-	-	10
12	69.1	57.4	-	-	-	-	-	-	-	-	-	-	12
14	65.8	55.3	-	-	-	-	-	-	-	-	-	-	14
16	62.8	53.1	-	-	-	-	-	-	-	-	-	-	16
18	60.0	51.2	-	-	-	-	-	-	-	-	-	-	18
20	57.4	49.3	44.3	-	-	-	-	-	-	-	-	-	20
24	50.7	45.8	41.2	37.6	-	-	-	-	-	-	-	-	24
28	39.9	39.9	38.7	35.4	-	-	-	-	-	-	-	-	28
32	32.2	32.2	34.8	33.6	28.2	26.3	26.9	21.6	-	-	-	-	32
36	27.0	27.0	29.4	29.2	27.0	25.4	23.8	21.0	-	-	-	-	36
40	22.4	22.4	24.4	24.4	25.5	24.3	20.3	18.2	22.5	-	-	-	40
48	16.5	16.5	17.9	17.9	19.3	19.3	15.2	13.8	17.6	15.9	-	-	48
56	12.4	12.4	13.3	13.3	14.2	14.2	11.3	10.4	13.2	12.3	14.8	14.0	56
64	9.4	9.4	10.1	10.1	-	-	8.1	7.8	9.9	9.4	11.2	10.9	64
72	-	-	-	-	-	-	5.6	5.6	7.1	7.1	8.4	8.2	72
80	-	-	-	-	-	-	3.9	3.9	5.2	5.2	6.3	6.1	80
88	-	-	-	-	-	-	-	-	3.4	3.4	4.3	4.3	88
96	-	-	-	-	-	-	-	-	-	-	2.7	2.7	96

11,000 lb +		33,100 lb		55.8 ft		11.5 ft		32.2 ft/s		360°		ASME B30.5	
		42.3 ft				126.0 ft							
ft	0,3°		1°		0,3°		1°		0,3°		1°		ft
	0°		18°		36°		0°		18°		36°		
1,000 lb													
14	44.5	37.4	-	-	-	-	-	-	-	-	-	-	14
16	43.0	36.4	-	-	-	-	-	-	-	-	-	-	16
18	41.6	35.3	-	-	-	-	-	-	-	-	-	-	18
20	40.1	34.2	-	-	-	-	-	-	-	-	-	-	20
24	37.4	32.1	-	-	-	-	-	-	-	-	-	-	24
28	34.9	30.3	-	-	-	-	-	-	-	-	-	-	28
32	32.6	28.5	25.5	-	-	-	-	-	-	-	-	-	32
36	28.5	26.5	24.1	21.8	-	-	22.9	18.1	-	-	-	-	36
40	24.2	24.2	22.8	20.8	-	-	20.3	17.7	-	-	-	-	40
48	18.0	18.0	19.9	18.7	16.3	15.8	15.1	13.6	-	-	-	-	48
56	13.9	13.9	15.5	15.5	14.6	14.6	11.0	10.5	14.1	12.8	-	-	56
64	10.7	10.7	12.1	12.1	13.1	13.1	8.0	8.0	10.7	10.2	-	-	64
72	8.4	8.4	9.5	9.5	10.4	10.4	5.8	5.8	8.0	8.0	10.2	10.0	72
80	6.8	6.8	7.4	7.4	-	-	4.0	4.0	5.9	5.9	7.9	7.6	80
88	-	-	-	-	-	-	-	-	4.3	4.3	6.0	5.8	88
96	-	-	-	-	-	-	-	-	3.0	3.0	4.4	4.4	96
104	-	-	-	-	-	-	-	-	-	-	3.0	3.0	104

HAV-HY

0 lb +  33,100 lb		 16.4 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		36°			
ft		1,000 lb										ft	
10	119.2	105.6	89.2	-	-	-	-	-	-	-	-	10	
12	109.5	96.7	85.9	80.0	-	-	-	-	-	-	-	12	
14	91.3	81.2	82.9	77.5	-	-	-	-	-	-	-	14	
16	77.1	69.4	79.8	72.9	65.7	61.8	-	-	-	-	-	16	
18	65.4	60.6	69.4	64.7	63.8	60.7	-	-	-	-	-	18	
20	54.5	52.5	57.8	56.2	60.6	58.6	-	-	-	-	-	20	
24	40.0	40.0	42.4	42.4	44.5	44.5	-	-	-	-	-	24	
28	30.5	30.5	32.4	32.4	33.9	33.9	27.3	23.9	-	-	-	28	
32	23.9	23.9	25.5	25.5	26.5	26.5	22.7	20.1	24.3	19.0	-	32	
36	19.5	19.5	20.7	20.7	21.5	21.5	19.1	17.1	20.6	18.6	22.0	17.4	36
40	15.7	15.7	16.5	16.5	-	-	15.9	14.4	17.2	15.7	18.5	16.8	40
48	-	-	-	-	-	-	11.2	10.3	12.2	11.4	13.2	12.3	48
56	-	-	-	-	-	-	7.6	7.2	8.5	8.1	9.4	8.8	56
64	-	-	-	-	-	-	4.9	4.8	5.8	5.6	6.3	6.1	64
72	-	-	-	-	-	-	2.9	2.9	3.6	3.4	4.0	4.0	72

0 lb +  33,100 lb		 36.1 ft		 11.5 ft		 32.2 ft/s		360°		ASME B30.5			
		 42.3 ft				 126.0 ft							
		0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°	0,3°	1°		
		0°		18°		36°		0°		36°			
ft		1,000 lb										ft	
10	72.7	59.8	-	-	-	-	-	-	-	-	-	10	
12	69.1	57.4	-	-	-	-	-	-	-	-	-	12	
14	65.8	55.3	-	-	-	-	-	-	-	-	-	14	
16	62.8	53.1	-	-	-	-	-	-	-	-	-	16	
18	59.9	51.2	-	-	-	-	-	-	-	-	-	18	
20	56.5	49.0	44.3	-	-	-	-	-	-	-	-	20	
24	43.4	41.4	41.2	37.6	-	-	-	-	-	-	-	24	
28	33.8	33.7	36.7	35.2	-	-	-	-	-	-	-	28	
32	27.0	27.0	30.0	30.0	28.2	26.3	21.5	17.0	-	-	-	32	
36	22.5	22.5	24.9	24.9	25.5	24.5	19.0	16.8	-	-	-	36	
40	18.5	18.5	20.5	20.5	22.4	22.4	15.9	14.2	18.1	-	-	40	
48	13.3	13.3	14.7	14.7	16.1	16.1	11.4	10.4	13.7	12.5	-	48	
56	9.7	9.7	10.6	10.6	11.5	11.5	7.8	7.4	9.9	9.3	11.8	10.9	56
64	7.1	7.1	7.6	7.6	-	-	5.1	5.1	6.9	6.7	8.5	8.0	64
72	-	-	-	-	-	-	3.1	3.1	4.7	4.7	6.0	5.8	72
80	-	-	-	-	-	-	-	-	-	-	4.1	3.9	80

Notes to Lifting Capacity

Ratings are in compliance with ASME B 30.5.

Weight of hook blocks and slings is part of the load, and is to be deducted from the capacity ratings.

Consult operation manual for further details.

Note: Data published herein is intended as a guide only and shall not be construed to warrant applicability for lifting purposes. Crane operation is subject to the computer charts and operation manual both supplied with the crane.

Technical Description

Basic machine

Crawler Carrier

Carrier comprising a carbody, 4 extension beams and 2 crawlers; easy pin connection between crawler and extension beams.

Carbody

Bending and torsion resistant welding construction, made of high strength fine grain steel.
Bottom car body design suitable for any trailer type.
Hydraulic and electric lines are protected and guided inside sliding energy chains with quick connections to crawler drives.

Track extension

Track width adjustment (adjustable in 3 positions): 11.5 ft, 15.6 ft, 19.7 ft
Track adjustment possible on the spot or during traveling (control from cabin or with remote control)
Integrated protected extension cylinders
Removable track extension beams (incl. hydraulic cylinders), quick couplings and electric connectors for easy coupling/disconnecting of hydraulic hoses and elec cables. Dedicated lift points and clear indication of component weight

Crawlers

B9HD components (10.2 in. pitch), excavator type, oil lubricated sealed rollers and idler wheel;
13 bottom rollers and 4 chain guides on each side
2-bar 39.4 in. crawler shoes
Large integrated platform above the track shoes with sliding platforms between crawlers and car body;
two integrated inclinable ladders at each crawler frame

Crawler drive

The tracks are powered by one hydraulic motor each through closed planetary gear drive running in oil bath, equipped with spring-applied hydraulically released holding brakes; Each crawler speed is infinitely variable, both independently and in opposite direction. Drives are equipped with counterbalance valve and speed sensor.
Traction force: 326,000 lbf in total
Travelling speed: up to 1.43 mph

Crawler assembly

Self-assembly with 4 x container lift points accessible from ground and platform
Pinning of crawler frames to extension beams is manual; pinning is done from the outside
Hydraulic and electric quick coupling for quick and reliable assembly/disassembly

Assembly jacks

Outrigger legs with 2 positions (transport, in longitudinal direction and rigging, in outward direction)
Outrigger cylinders can tumble (with assistance spring allowing low ergonomic human force) to maximize ground clearance during travelling.
Jacks with integrated check valves and pressure sensor, allowing auto levelling

Outriggers

4 rectangular outrigger steel pads $A = 0.56 \text{ ft}^2$
Outrigger pads can remain on cylinders, even in tumbled position (no need to detach and handle pads, no impact on ground clearance)
2 x 2 handles to allow comfortable handling; storage place at the side of the outrigger leg

Central ballast

2 x steel box type central ballast with 16,540 lb each
Anti-slip top surface; integrated lift points; Accessible manual pinning to secure central ballast
No loose parts
Geometry with slope angle to mitigate ground interference whilst traveling on rough terrain
On front central ballast: large rack plate for tool box or other customized storage items
On rear central ballast: large robust open top box, integrated in central ballast, for storage of e.g. slings.
Includes automatic counterweight detection
Upper counterweight is positioned on central ballast for automatic counterweight self-rigging

Technical Description

Basic machine

Superstructure

Bending and torsion resistant welding construction, made off high strength fine grain steel.

Powertrain

Mercedes-Benz diesel engine, type OM 936 LA, 6 cylinder,

Engine 230 kW, EU Stage V EPA Tier 4f

230 kW (308 HP) at 1800 rpm, torque 1300 Nm at 1200 rpm

The engine complies with emission standard EU Stage V / EPA Tier 4f.

Connected with a variable displacement axial piston double pump, a single variable displacement axial piston pump incl. electronic control system and gear pumps.

Stainless steel silencer with spark arrestor

ECO mode with optimized fuel consumption at 1500 rpm

Power boost function to allow full speed with maximum power and simultaneous movements at 1800 rpm

Tanks

140 gallons Diesel tank; 10.5 gallons tank for AdBlue/DEF; 291 gallons hydraulic tank

Counterweight

Base plate 11,025 lb and four identical 22,050 lb cast slabs with integrated lifting anchors (mushroom-type) and anti-slip top surface

Base plate width 11.5 ft; 22,050 lb counterweight slab width 13.1 ft

Loadcharts available for various counterweight configurations

Includes automatic counterweight detection/monitoring during rigging process

Counterweight slabs designed to integrate large access steps, holes for handhold bars (standard) and fall protection mast (option)

Counterweight base plate and slabs designed to allow attachment of external 55 kW powerpack

Automated mechanical securing of counterweight stack to the upper structure, allows reliable traveling and prevents work at height when rigging

Slewing

Triple-row roller bearing slewing with external ring gear for easy maintenance and service

Central lubrication system

Slewing drive

Powerful dual slewing drives with spring-loaded multi-disc brake

Mechanical house locking in 0° and 180° positions, controlled through hydraulic cylinder from cabin; allows robust travelling under maximum gradeability and transport on trailer with free boom (no need to tie down boom head)

Hoist

Hoist powered with adjustable hydraulic motor and planetary gear (running in oil bath), with spring applied hydraulically released multi disk brakes and a lowering brake valve for load lowering

Resolver (hoist rotation indicator)

1.02 in. rope, length H1 = 804 ft, line pull = 30,400 lbf (30,700 lb)

Includes load spectrum monitoring: device to record load spectrum of hoist

Preparation for auxiliary hoist, preparation in steel structure and hydraulic system for future installation of auxiliary hoist; includes 2nd deflector sheave in main boom tip

Control system IC-1

With integrated load moment indicator acc. EN13000; Color display; Displaying of current operating conditions, load charts, fault indicator; Signal lights indicating LMI-load; Crane data logger

Calculation of lifting capacity according to track base and ground angle

Variable track width possible (3 track positions)

Monitoring of each track frame (horizontal position)

Detection of counterweight and central ballast and warning message in case the actual weight does not match with the selected configuration

Hook height indication: displaying and programmability of the hook height H1 by IC-1

Working range limiter: displaying and programmability of the work range limits by IC-1

Anemometer: disconnectable, to allow use with all extensions

Remote control: control of rigging and operations via wireless remote control, for all functions incl. travelling and self-assembly (option)

Cabin

Type 2.87 ft; Infinitely tiltable 16°; sliding window in rear of cab and door; Fold-out front window;

Handrails; Tinted safety glass; pull-down sun visor and light curtains; Seat heating

Cabin access platform: Large platform at front of cabin, with positioning slots for ladder for easy access to cabin, including when crane is still on trailer (engine start)

Side platform electrically extendable with 2 push buttons at front platform (accessible from ladder) and inside cabin

Heating cabin: Engine independent warm water diesel powered heating with 5 kW heating power

With timer

Radio CD: Radio with CD-player with USB connector, Aux-In and Bluetooth® connection

Air conditioning: Air-conditioning with 5 kW rated cooling capacity

Boom

Telescopic boom

42.3 ft - 196.9 ft; Single cylinder telescoping system, automatic telescoping; Attachments for all equipment and extensions; 5 steel sheaves integrated in boom head for max. capacity of 290,700 lb

(345,000 lb with additional heavy lift sheave (option))

Sheaves

Steel sheaves D520 (for D 1.02 in. rope) with 5.1 in. / 7.5 in. double roller bearing, same type in the whole crane; sheaves are equipped with grease points

Technical Description

Optional Equipment (non-exhaustive)

Carbody

Track width adjustment (variable INFINITE) Track base infinitely adjustable (incl. non-symmetrical); the IC-1 Plus control system is automatically determining the permissible lifting capacity based on the track extension, slewing position and ground roll/list angle.

Automated central lubrication Electronically controlled automated lubrication of the extension beam sliding pads

Crawler

Crawler shoes
39.4 in. flat shoes
47.2 in. flat shoes
47.2 in. 2-bar shoes
39.4 in. Polyamid plastic pads (for 39.4 in. 2-bar shoes)

Superstructure

Aux hoist H2
2nd hoist; Spring-loaded multi-disc brake; Resolver (hoist rotation indicator); Incl. quick couplings; Rope twist prevention is not included
Can be self-assembled on counterweight-stack, for various counterweight configurations
1.02 in. rope, length H1 = 804 ft, line pull = 30,400 lbf (30,700 lb)
Convenient and safe reeving with reeving rope and rope guiding stick
Includes 1.02 in. rope socket
Includes load spectrum monitoring: device to record load spectrum of hoists with memory box attached to hoist winch to allow recording of loads irrespective of the crane the winch is installed on.

Jib – Extensions

HAV 16.4 ft
16.4 ft; Lattice jib, manual offset 0°/18°/36° with hydraulic assist cylinder; 2-sheave head (steel sheaves for 1.02 in. rope); Incl. transport storage
Consist of 11.5 ft foot section + 4.9 ft tip section

HAV-HY 16.4 ft
16.4 ft; Lattice jib, hydraulic offset from 0° to 36° with two hydraulic cylinders, adjustable under load; 2-sheave head (steel sheaves for 1.02 in. rope); Incl. transport storage
Consist of 11.5 ft foot section + 4.9 ft tip section

HAV 75.5 ft
75.5 ft; Lattice jib, manual offset 0°/18°/36° with hydraulic assist cylinder; 2-sheave head (steel sheaves for 1.02 in. rope); Incl. transport storage (only 16.4 ft jib can be stowed in transport position)
Consist of 11.5 ft foot section + 4.9 ft tip section + 19.7 ft intermediate section + 39.4 ft intermediate section
Possible jib length: 16.4 ft, 36.1 ft, 55.8 ft, 75.5 ft

HAV-HY 75.5 ft
75.5 ft; Lattice jib, hydraulic offset from 0° to 36° with two hydraulic cylinders, adjustable under load; 2-sheave head (steel sheaves for 1.02 in. rope); Incl. transport storage (only 16.4 ft jib can be stowed in transport position)
Consist of 11.5 ft foot section + 4.9 ft tip section + 19.7 ft intermediate section + 39.4 ft intermediate section
Possible jib length: 16.4 ft, 36.1 ft, 55.8 ft, 75.5 ft

R1 (Swing-away rooster sheave)
Swing-away rooster sheave for 1.02 in. rope, incl. transport storage; For single-reeving high speed operation with elevated hook height; incl. electrical equipment and hoist limiter.

Hook Blocks

Hook block 160-5-26-D Vario
For 1.02 in. rope, 5-sheave (11-lines) for up to 318,100 lb, NOT SUITABLE FOR MAX. LOAD 345,000 lb
- Double hook

- Vario system with removable side weight (cheek plates) (2,430 lb or 2,870 lb);
with removed plates, the hook block weight corresponds to the weight of the 3-sheave block

Hook block 160-5-26-E Vario
For 1.02 in. rope, 5-sheave (11-lines) for up to 318,100 lb, NOT SUITABLE FOR MAX. LOAD 345,000 lb
- Single hook

- Vario system with removable side weight (cheek plates) (2,430 lb or 2,870 lb);
with removed plates, the hook block weight corresponds to the weight of the 3-sheave block

Hook block 100-3-26-D
For 1.02 in. rope, 3-sheave (7-line) – required for 206,600 lb
- Double hook

Hook block 100-3-26-E
For 1.02 in. rope, 3-sheave (7-line) – required for 206,600 lb
- Single hook

Hook block 41-1-26-E
For 1.02 in. rope, 1-sheave (3-line) – required for 90,300 lb
- Single hook

Headache ball 16-0/26-E
For 1.02 in. rope – hook, red – required for 30,400 lb

Notes

A large rectangular area with horizontal lines, intended for writing notes. The lines are evenly spaced and cover the majority of the page's width and height.

Notes

A large rectangular area with horizontal lines, intended for taking notes. The lines are evenly spaced and cover the majority of the page's width and height.

Notes

A large rectangular area with horizontal lines, intended for taking notes. The lines are evenly spaced and cover the majority of the page's vertical space.

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Tadano Demag GmbH
Europa Allee 2
66482 Zweibrücken
Germany
T + 49 6332 830

Tadano Ltd. (International Division)
4-12, Kamezawa 2-chome
Sumida-ku Tokyo 130-0014, Japan
E info@tadano.com T 81-3-3621-7750
www.tadano.com