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Manual # 99904617

# 20/138SL Technical Specifications

Revision Date 20120912



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## Revisions

DATE	LOCATION	DESCRIPTION
20090813		Added swing clearance dimensions.
20100118	Geometric configuration	Added stabilizer length and extension, stabilizer drawings.
20111214	Specs, Stabilizer drawings	ECN 11628 - Updated stabilizer wording.
20120502	Specifications	Updated crane weight to include mounting kit, tank.
20120910	Drawings	Added stowed dimensions, mounting dimensions, and winch settings drawings.

## CHAPTER 1

# Technical Data and Charts

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## 20/138SL Technical Specifications

20/138SL	2-HYDRAULIC	3-HYDRAULIC	4-HYDRAULIC	5-HYDRAULIC	6-HYDRAULIC	7-HYDRAULIC	8-HYDRAULIC
Crane Rating*	133,085 ft lb (18.4 tm)	129,470 ft lb (17.9 tm)	126,580 ft lb (17.5 tm)	122,960 ft lb (17 tm)	120,070 ft lb (16.6 tm)	116,450 ft lb (16.1 tm)	114,280 ft lb (15.8 tm)
Maximum Horizontal Reach	27' 3" (8.3 m)	33' 10" (10.3 m)	41' 0" (12.5 m)	48' 7" (14.8 m)	56' 5" (17.2 m)	63' 8" (19.4 m)	71' 2" (21.7 m)
Maximum Vertical Reach	35' 1" (10.7 m)	42' 0" (12.8 m)	49' 3" (15.0 m)	56' 5" (17.2 m)	64' 4" (19.6 m)	71' 10" (21.9 m)	79' 1" (24.1 m)
Maximum Capacity	15,345 lb (6960 kg)	14,505 lb (6580 kg)	13,715 lb (6220 kg)	12,985 lb (5890 kg)	12,745 lb (5780 kg)	12,080 lb (5480 kg)	11,550 lb (5240 kg)
Max Cap @ Max Reach	4870 lb (2210 kg)	3640 lb (1650 kg)	2710 lb (1230 kg)	2030 lb (920 kg)	1500 lb (680 kg)	1080 lb (490 kg)	815 lb (370 kg)
Crane Weight **	4145 lb (1880 kg)	4485 lb (2035 kg)	4830 lb (2190 kg)	5135 lb (2330 kg)	5410 lb (2455 kg)	5645 lb (2560 kg)	5830 lb (2645 kg)
Hook Approach							
Vertical	7' 3" (2.21 m)	7' 6" (2.29 m)	7' 10" (2.38 m)	8' 1" (2.47 m)	8' 5" (2.56 m)	8' 8" (2.65 m)	9' 0" (2.74 m)
Horizontal	2' 3" (0.69 m)	2' 5" (0.74 m)	2' 7" (0.79 m)	2' 9" (0.84 m)	2' 11" (0.89 m)	3' 1" (0.94 m)	3' 3" (1.0 m)
Center of Gravity - Stored							
Vertical	2' 6" (770 mm)	2' 8" (820 mm)	2' 8" (815 mm)	2' 9" (835 mm)	2' 10" (855 mm)	2' 10" (875 mm)	2' 11" (890 mm)
Horizontal (C/L RotTo Bridge)	13.4" (340 mm)	12.4" (315 mm)	12.2" (310 mm)	11.8" (300 mm)	11.2" (285 mm)	10.6" (270 mm)	10.4" (265 mm)

\* Crane rating (ft-lb) is the rated load (lb) multiplied by the respective distance (ft) from centerline of rotation with all extensions retracted and the inner and outer booms in a horizontal position, per ANSI B30.22. \*\* Crane weight is for standard crane with tank & 4-bolt mounting kit. Does not include stabilizers, oil.

20/138SL TECHNICAL SPECIFICATIONS	
Stabilizer Pad Diameter	7" (175 mm)
Crane Storage Height	7' 6" (2295 mm)
Mounting Space ***	2' 11" (880 mm)
Rotational Torque	17,555 ft lb (2.4 tm)
Rotation	400°
Optimum Pump Performance	14.5 gpm (55 L/min)
System Pressure	4,785 psi (330 Bar)
Oil Reservoir Capacity	23.8 gal (90 L)
Stabilizer Extension Span	
Standard (manual out / hydraulic down)	18' 3" (5575 mm)
Weight	605 lb (275 kg)
Option (hydraulic out / hydraulic down)	21' 2" (6455 mm)
Weight	785 lb (355 kg)
*** Maximum swing clearance radius required is 25" (635 mm) at 8' (2430 mm) from top of chassis frame.	

MINIMUM CHASSIS SPECIFICATIONS	
Front Axle Rating (GAWR)	14,000 lb (6350 kg)
Rear Axle Rating (GAWR)	40,000 lb (18,145 kg)
Resistance To Bending Moment	2,000,000 in-lb (230,425 kg-m)

## 20/138SL Pressure Settings

<b>WORKING PRESSURE ON MAIN-RELIEF VALVES &amp; PORT RELIEF VALVES</b>			
Function	Direction	Port	Pressure Setting
Main-relief valve			4785 psi (330 bar)
Rotation system	Right	A	P
	Left	B	P
Boom cylinder	Down	A	1450 psi (100 bar)
	Up	B	4930 psi (340 bar)
Jib cylinder	Up	A	4930 psi (340 bar)
	Down	B	2900 psi (200 bar)
Extension cylinders	Extend	A	P
	Retract	B	P
Rotator	Right	A	2900 psi (200 bar)
	Left	B	2900 psi (200 bar)
Grab	Open	A	2900 psi (200 bar)
	Close	B	2900 psi (200 bar)
Separate stabilizer valve		All	2175 psi (150 bar)

<b>WORKING PRESSURE ON LOAD-HOLDING VALVES</b>			
Function	Direction	Port	Opening Pressure
Boom cylinder			5075 psi (350 bar)
Jib cylinder			5075 psi (350 bar)
Rotation system			2685 psi (185 bar)
Extension cylinders	Extend	A	3045 psi (210 bar)
	Retract	B	6235 psi (430 bar)

<b>PRESSURE SETTING FOR LOAD-MOMENT LIMITATION (LMB)</b>	
Load moment limitation (LMB)	4640 psi (320 bar)
HDL	4205 psi (290 bar)

<b>MAXIMUM PUMP PERFORMANCE</b>	
Pump performance	14.5 gal/min (55 l/min)

## 20/138SL Pressure Settings with Remote Control

<b>WORKING PRESSURE ON MAIN-RELIEF VALVES &amp; PORT RELIEF VALVES</b>				
Function	Direction	Port	Port-Relief Valve Pressure Setting	Load-Sense Pressure Adjustment
Main-relief valve			4785 psi (330 bar)	4785 psi (330 bar)
Rotation system	Right	A	P	2610 psi (180 bar)
	Left	B	P	2610 psi (180 bar)
Boom cylinder	Down	A	1815 psi (125 bar)	1450 psi (100 bar)
	Up	B	5075 psi (350 bar)	5075 psi (350 bar)
Jib cylinder	Up	A	5075 psi (350 bar)	5075 psi (350 bar)
	Down	B	2755 psi (190 bar)	2320 psi (160 bar)
Extension cylinders	Extend	A	P	-
	Retract	B	P	-
Rotator	Right	A	P	725 - 4350 psi (50-300 bar)
	Left	B	P	725 - 4350 psi (50-300 bar)
Grab	Open	A	P	725 - 4350 psi (50-300 bar)
	Close	B	P	725 - 4350 psi (50-300 bar)
Winch (1.5 metric T)	Lift	A	P	2320 psi (160 bar)
	Lower	B	P	2320 psi (160 bar)
Winch (2.5 metric T)	Lift	A	P	2685 psi (185 bar)
	Lower	B	P	2685 psi (185 bar)
Separate stabilizer valve		All		2175 psi (150 bar)

### WORKING PRESSURE ON LOAD-HOLDING VALVES

Function	Direction	Opening Pressure
Rotation System	Right	2685 psi (185 bar)
	Left	2685 psi (185 bar)
Boom cylinder	Up	5075 psi (350 bar)
	Down	-
Jib cylinder	Up	5075 psi (350 bar)
	Down	3045 psi (210 bar)
Extension cylinders	Extend	3045 psi (210 bar)
	Retract	6235 psi (430 bar)

### PRESSURE SETTINGS FOR LOAD-MOMENT LIMITATION (LMB)

Load moment limitation (LMB)	4570 psi (315 bar)
HDL	4135 psi (285 bar)

### MAXIMUM PUMP PERFORMANCE

Pump performance	18.5 gal/min (70 l/min)
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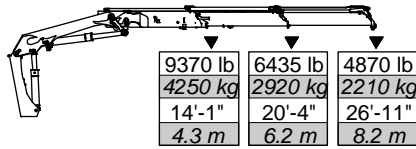


## Winch Technical Data

	<b>1.5 T Winch (P9)</b> <b>(3305 lb / 1500 kg)</b>	<b>2.5 T Winch (P15)</b> <b>(5510 lb / 2500 kg)</b>
<b>PERFORMANCE</b> (at 2175 psi (150 bar))		
Maximum wire pull - 1st layer	3305 lb (1500 kg)	5510 lb (2500 kg)
Maximum wire pull - 2nd layer	3020 lb (1370 kg)	5070 lb (2300 kg)
Maximum wire pull - 3rd layer	2278 lb (1260 kg)	4630 lb (2100 kg)
Maximum wire pull - 4th layer	2580 lb (1170 kg)	4300 lb (1950 kg)
<b>WIRE SPEED</b> (at 10.5 gpm (40 l/min))		
Maximum wire speed - 1st layer	72 ft/min (22 m/min)	79 ft/min (24 m/min)
Maximum wire speed - 2nd layer	79 ft/min (24 m/min)	85 ft/min (26 m/min)
Maximum wire speed - 3rd layer	85 ft/min (26 m/min)	92 ft/min (28 m/min)
Maximum wire speed - 4th layer	92 ft/min (28 m/min)	98 ft/min (30 m/min)
<b>WEIGHTS</b>		
Tare weight, winch	143 lb (65 kg)	198 lb (90 kg)
Fixed parts (valve section, brackets, hoses, etc.)	110 lb (50 kg)	110 lb (50 kg)
Wire 10 mm dia x 50 m	66 lb (30 kg)	66 lb (30 kg)
Spare parts, single snatch block	66 lb (30 kg)	66 lb (30 kg)
Spare parts, double snatch block	88 lb (40 kg)	88 lb (40 kg)

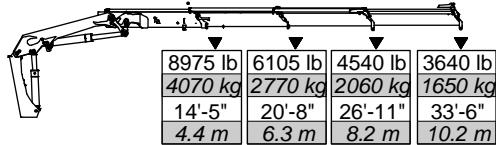
# 20/138SL Lifting Capacities

20/138SL - 2 Hydraulic



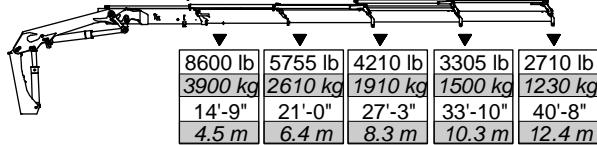
9370 lb	6435 lb	4870 lb
4250 kg	2920 kg	2210 kg
14'-1"	20'-4"	26'-11"
4.3 m	6.2 m	8.2 m

20/138SL - 3 Hydraulic



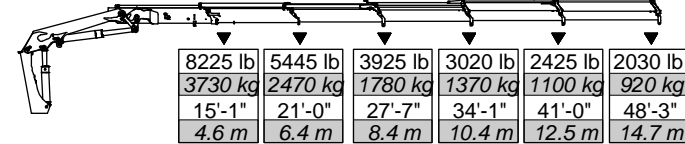
8975 lb	6105 lb	4540 lb	3640 lb
4070 kg	2770 kg	2060 kg	1650 kg
14'-5"	20'-8"	26'-11"	33'-6"
4.4 m	6.3 m	8.2 m	10.2 m

20/138SL - 4 Hydraulic



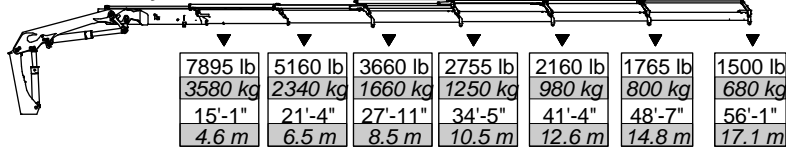
8600 lb	5755 lb	4210 lb	3305 lb	2710 lb
3900 kg	2610 kg	1910 kg	1500 kg	1230 kg
14'-9"	21'-0"	27'-3"	33'-10"	40'-8"
4.5 m	6.4 m	8.3 m	10.3 m	12.4 m

20/138SL - 5 Hydraulic



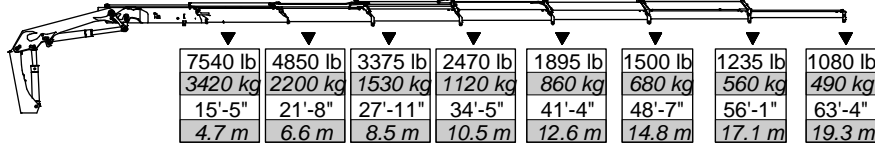
8225 lb	5445 lb	3925 lb	3020 lb	2425 lb	2030 lb
3730 kg	2470 kg	1780 kg	1370 kg	1100 kg	920 kg
15'-1"	21'-0"	27'-7"	34'-1"	41'-0"	48'-3"
4.6 m	6.4 m	8.4 m	10.4 m	12.5 m	14.7 m

20/138SL - 6 Hydraulic



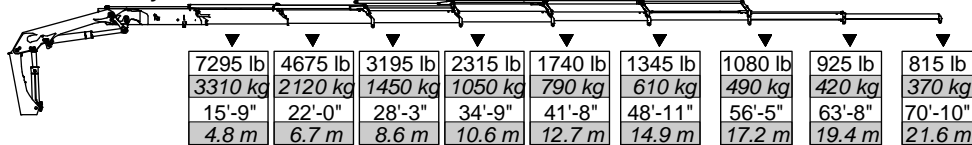
7895 lb	5160 lb	3660 lb	2755 lb	2160 lb	1765 lb	1500 lb
3580 kg	2340 kg	1660 kg	1250 kg	980 kg	800 kg	680 kg
15'-1"	21'-4"	27'-11"	34'-5"	41'-4"	48'-7"	56'-1"
4.6 m	6.5 m	8.5 m	10.5 m	12.6 m	14.8 m	17.1 m

20/138SL - 7 Hydraulic



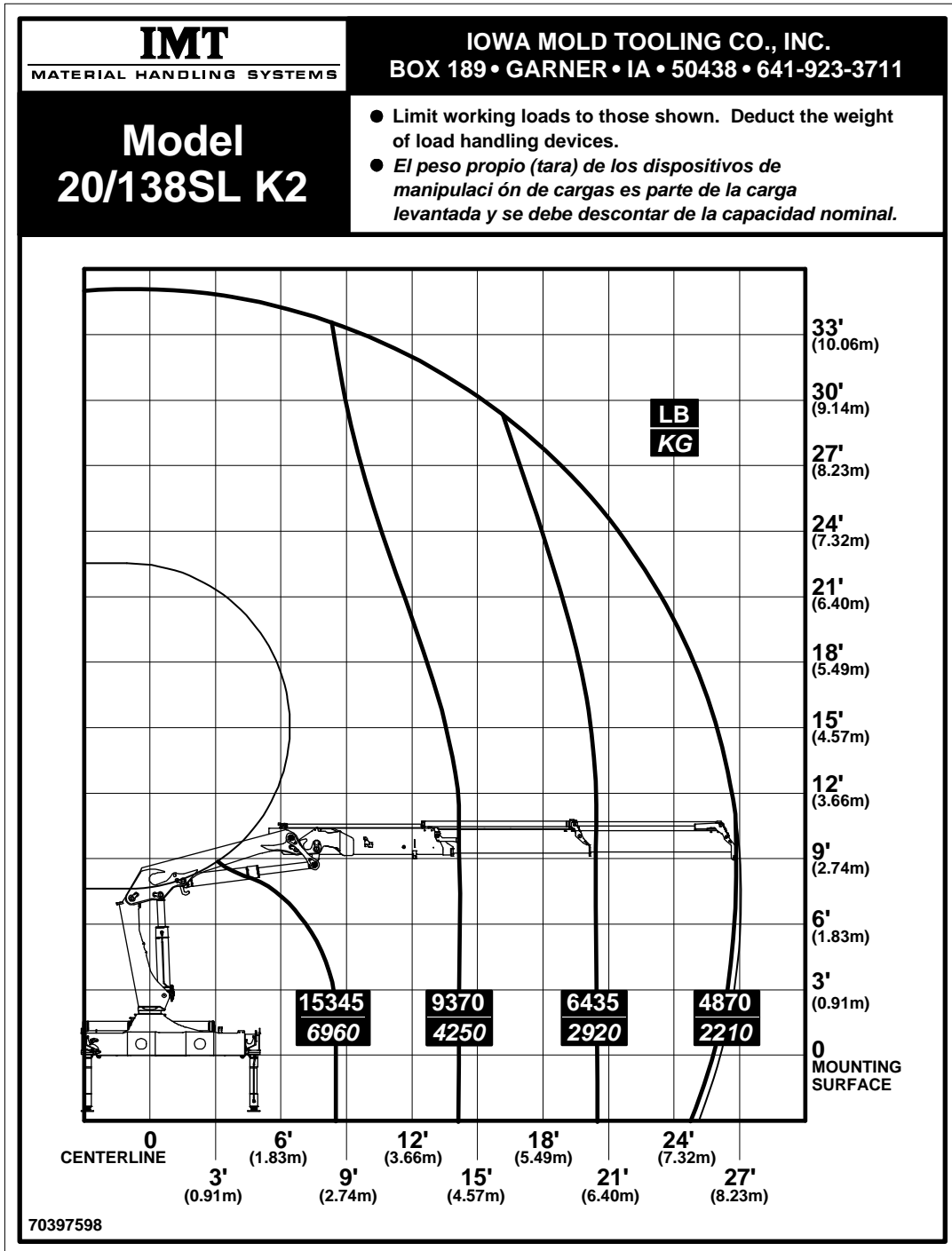
7540 lb	4850 lb	3375 lb	2470 lb	1895 lb	1500 lb	1235 lb	1080 lb
3420 kg	2200 kg	1530 kg	1120 kg	860 kg	680 kg	560 kg	490 kg
15'-5"	21'-8"	27'-11"	34'-5"	41'-4"	48'-7"	56'-1"	63'-4"
4.7 m	6.6 m	8.5 m	10.5 m	12.6 m	14.8 m	17.1 m	19.3 m

20/138SL - 8 Hydraulic

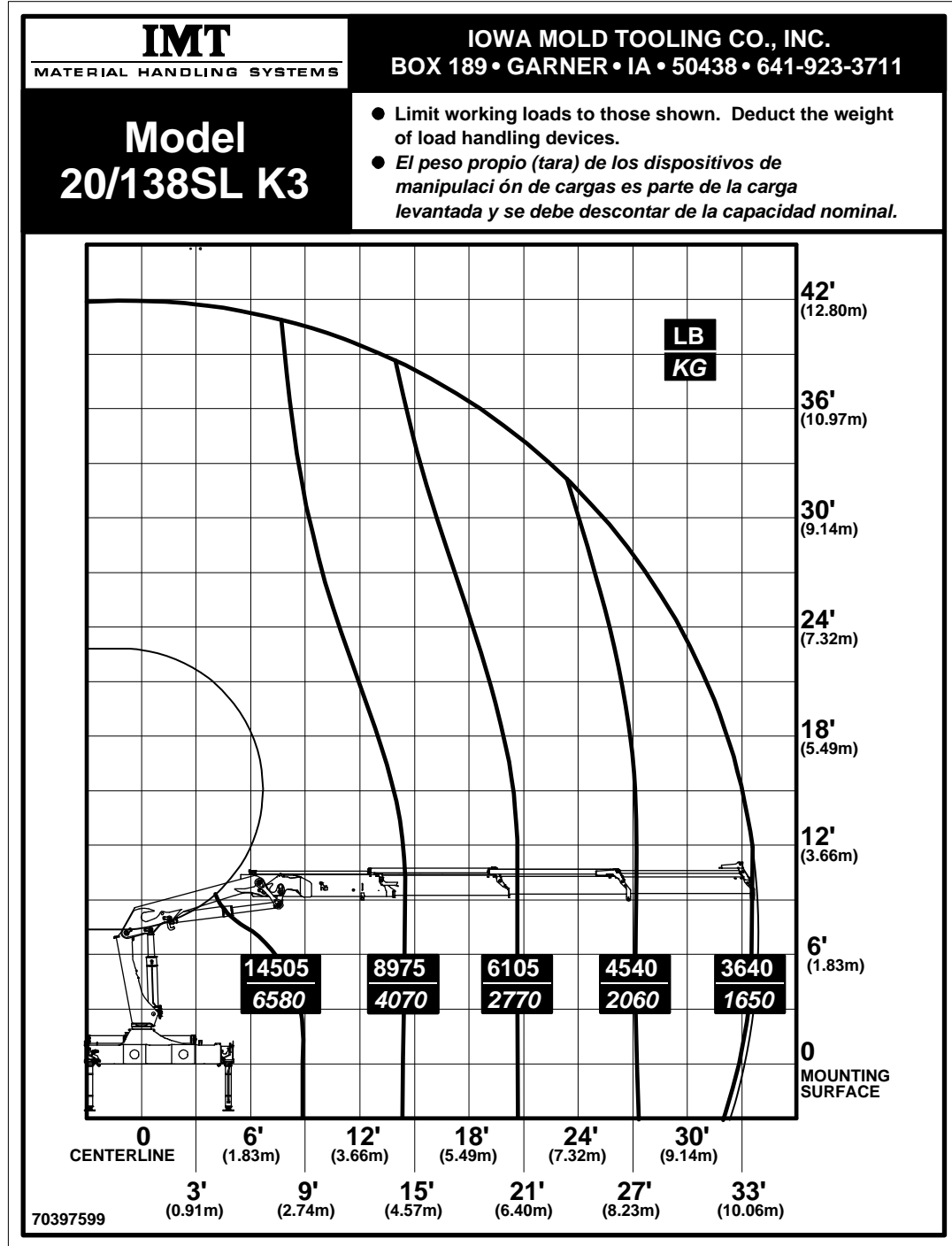


7295 lb	4675 lb	3195 lb	2315 lb	1740 lb	1345 lb	1080 lb	925 lb	815 lb
3310 kg	2120 kg	1450 kg	1050 kg	790 kg	610 kg	490 kg	420 kg	370 kg
15'-9"	22'-0"	28'-3"	34'-9"	41'-8"	48'-11"	56'-5"	63'-8"	70'-10"
4.8 m	6.7 m	8.6 m	10.6 m	12.7 m	14.9 m	17.2 m	19.4 m	21.6 m

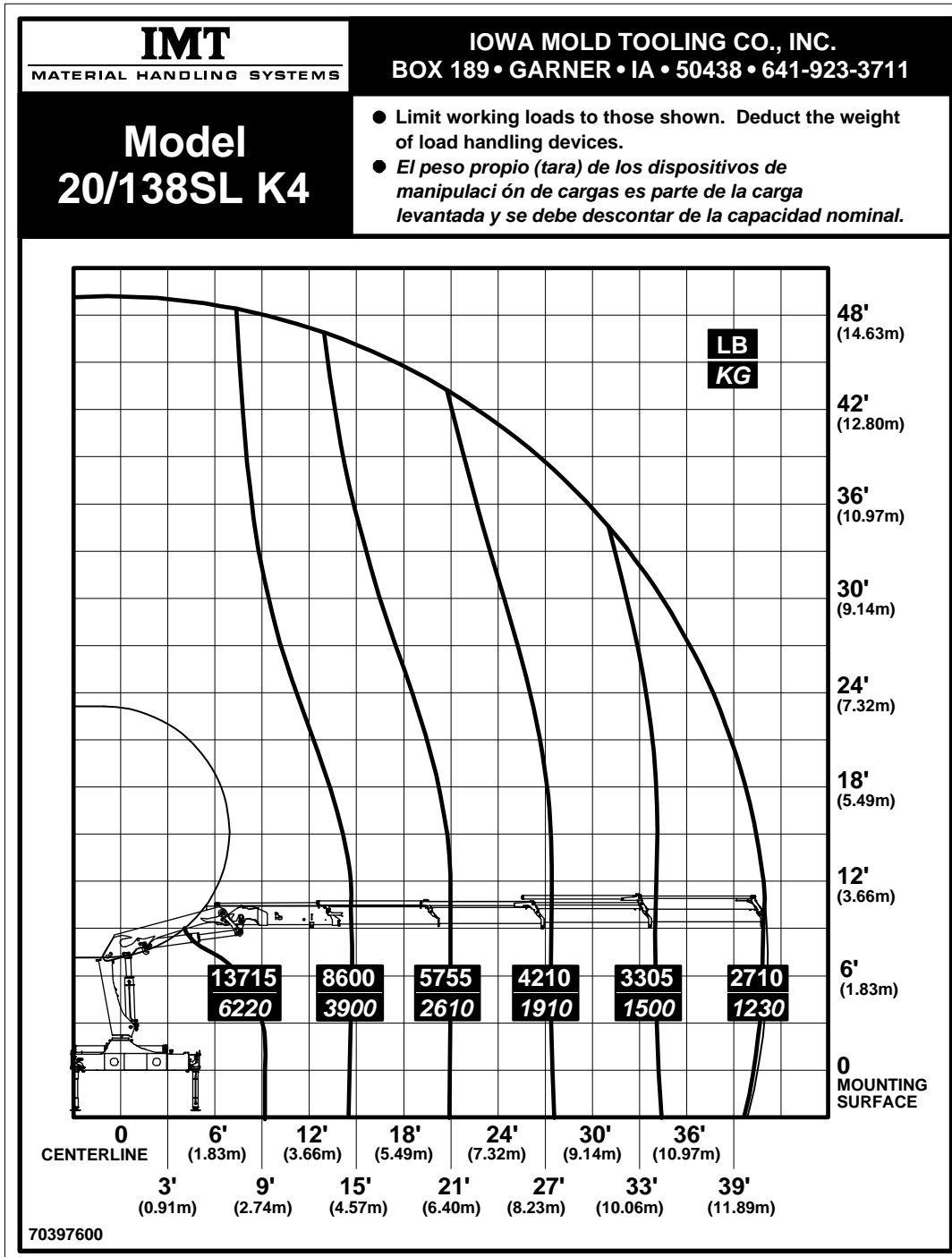
# 20/138SL K2 Capacity Chart



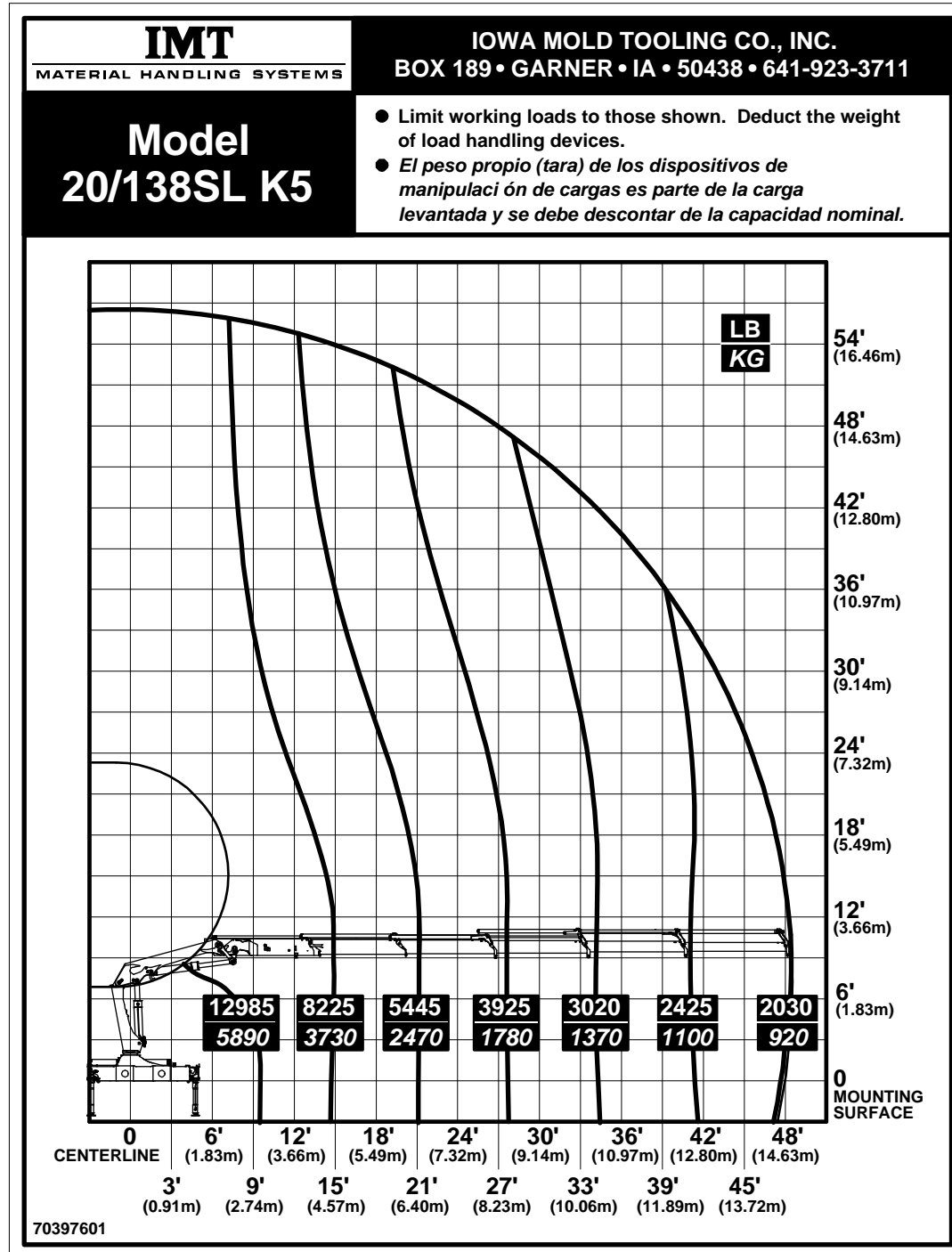
# 20/138SL K3 Capacity Chart



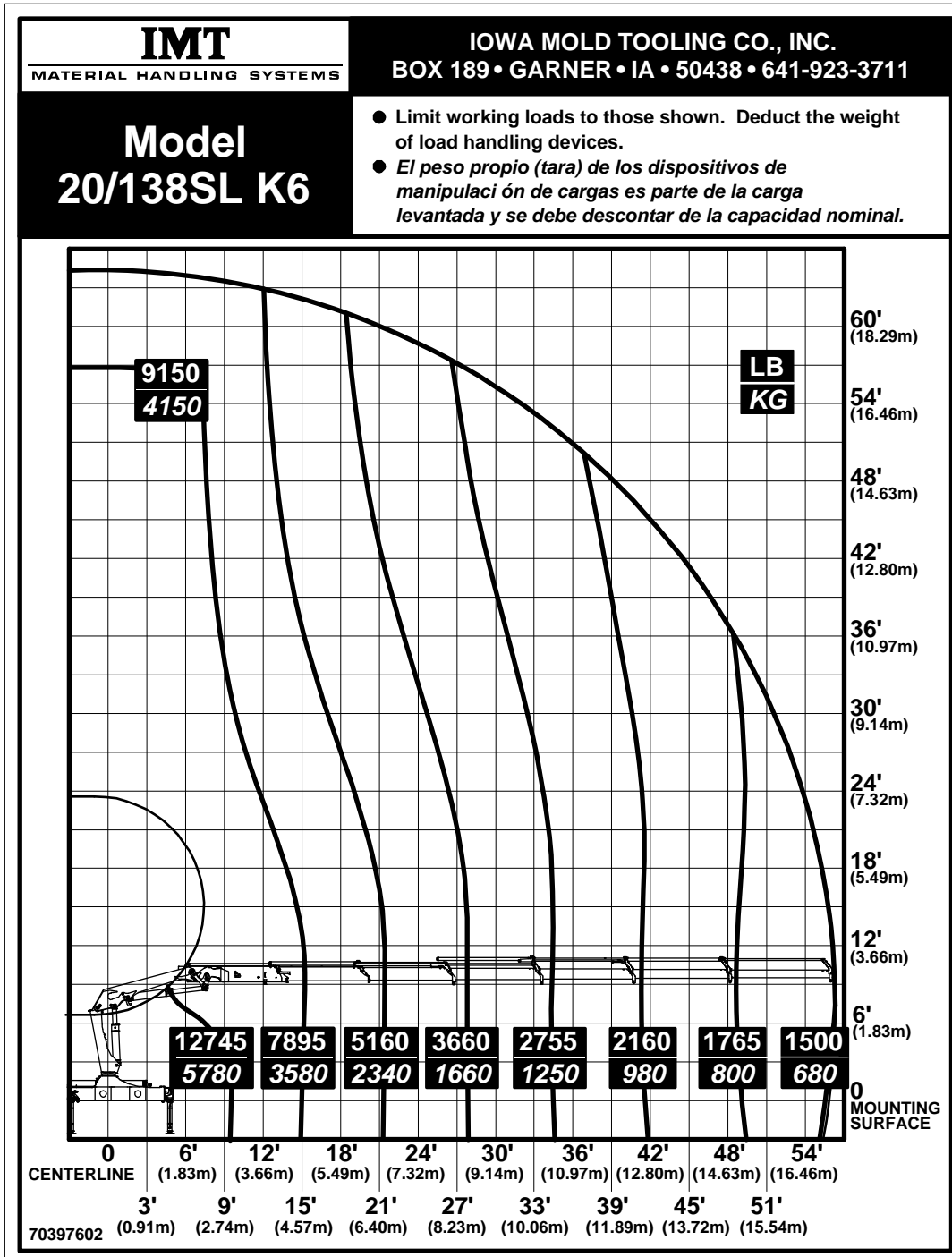
# 20/138SL K4 Capacity Chart



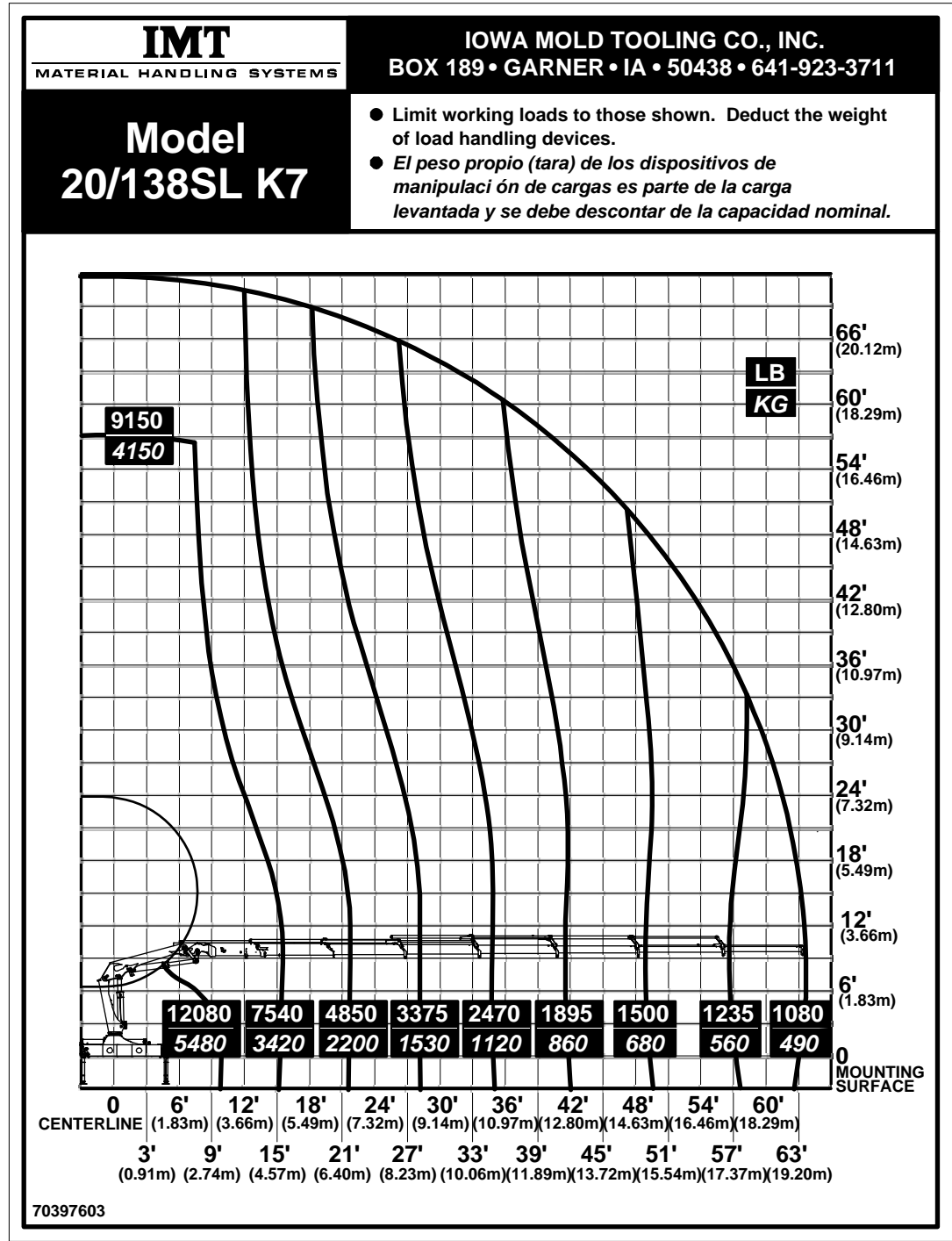
# 20/138SL K5 Capacity Chart



# 20/138SL K6 Capacity Chart

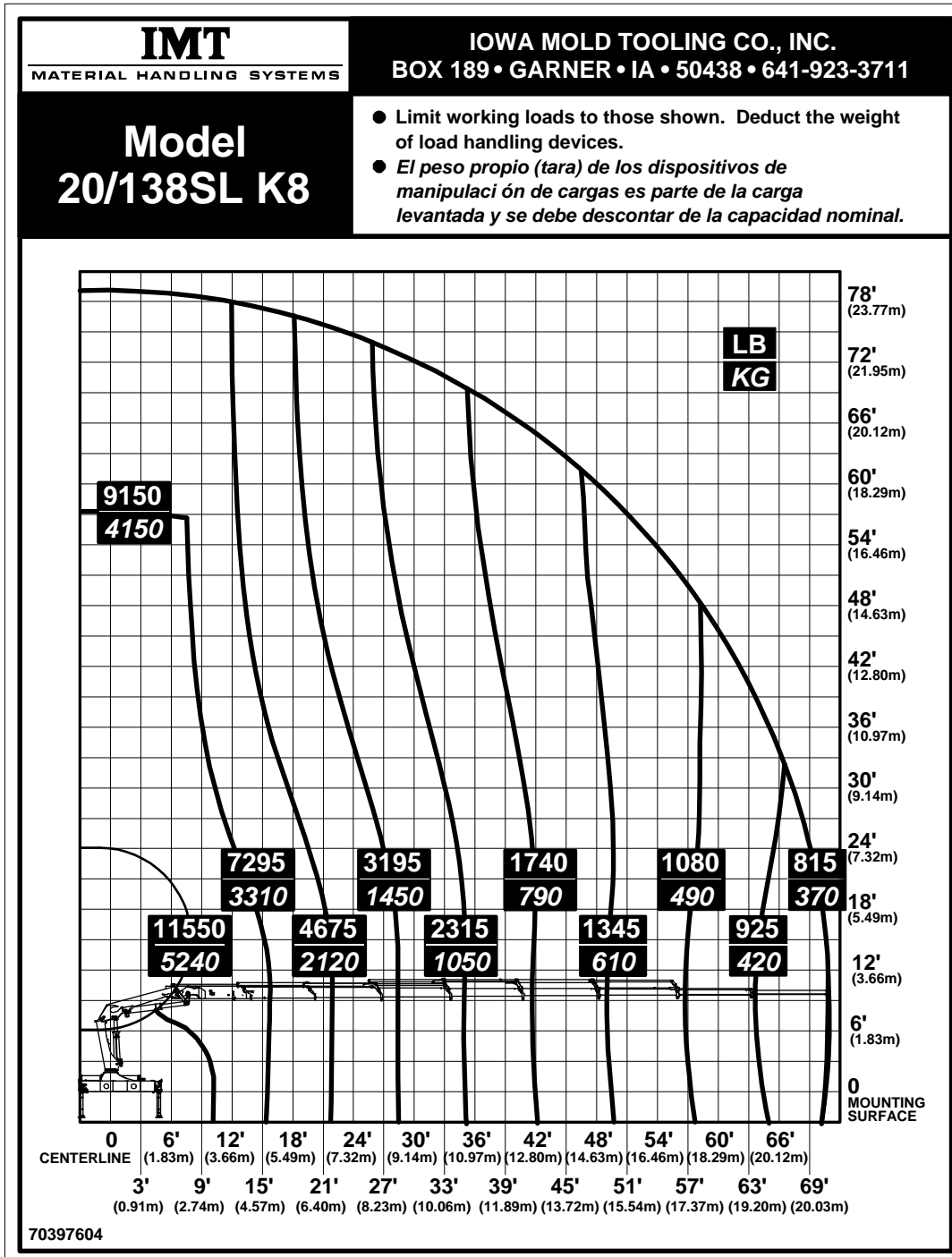


# 20/138SL K7 Capacity Chart

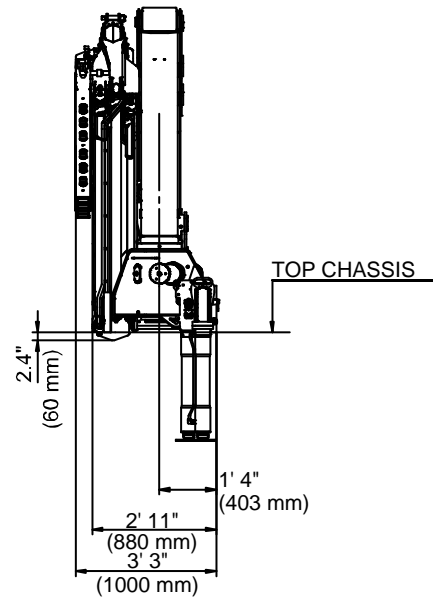
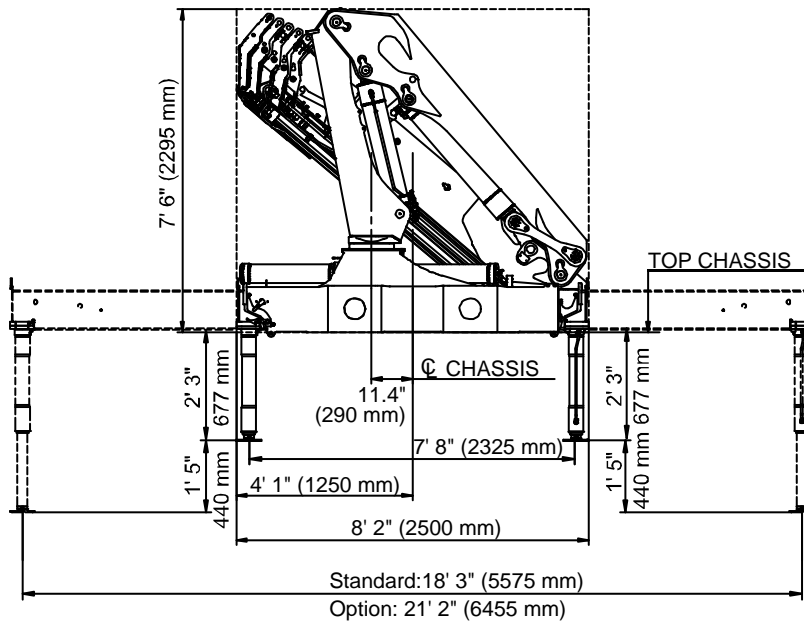
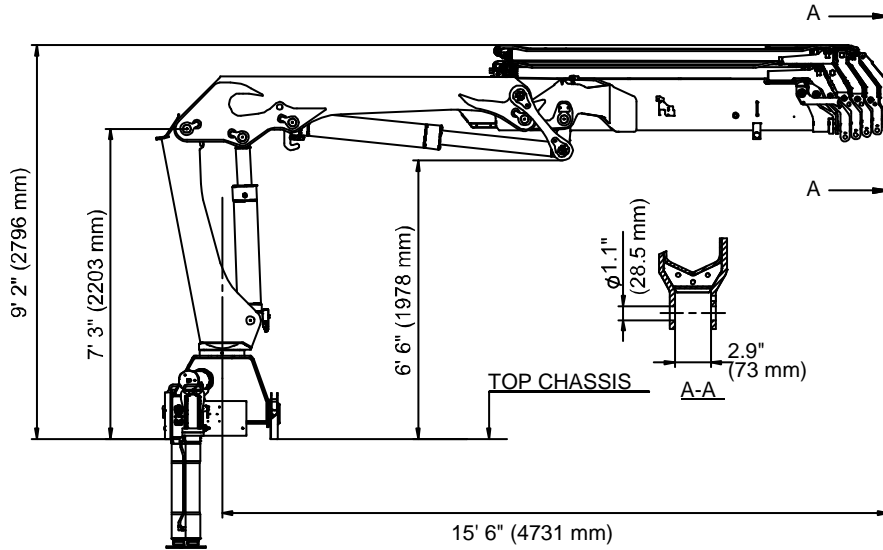




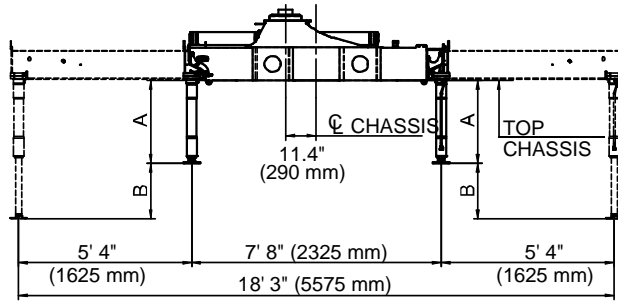
# 20/138SL K8 Capacity Chart



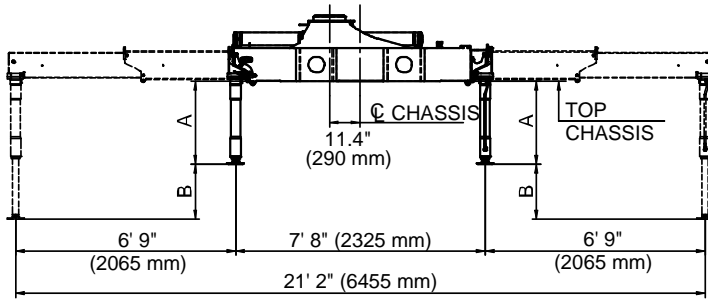
# 20/138SL Geometric Configuration



# Stabilizer Dimensions, Fixed Legs, 18 tm up

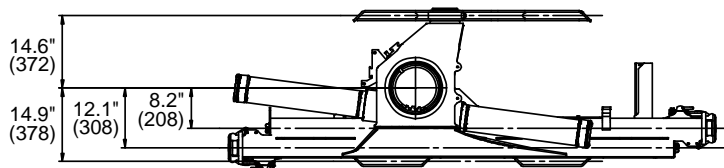
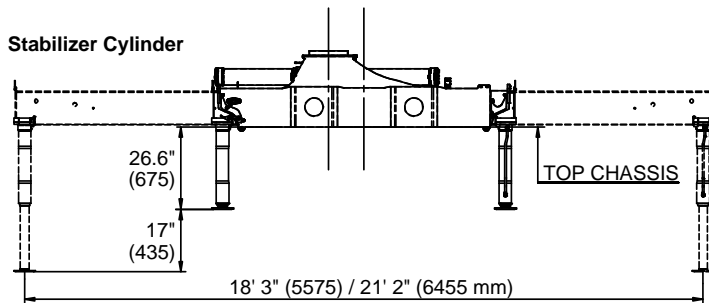


STANDARD  
(Hydraulic Out /  
Hydraulic Down)

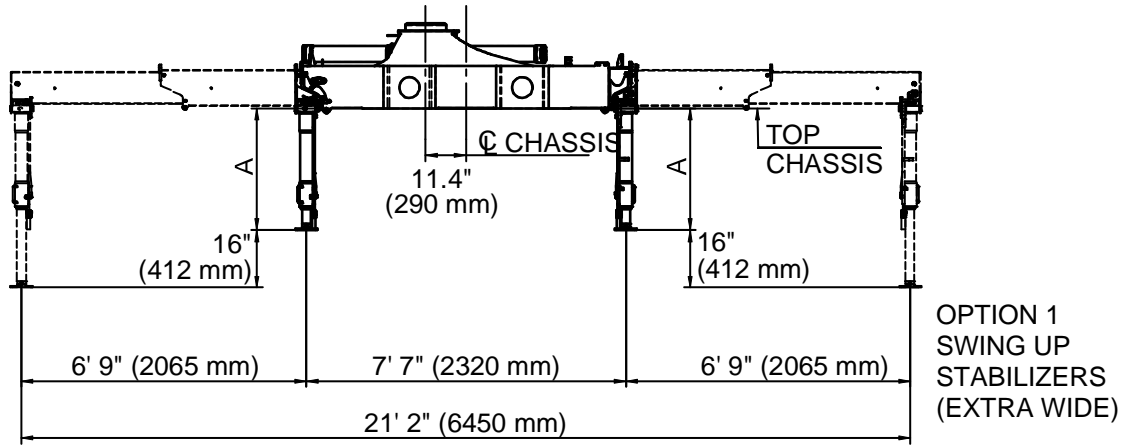
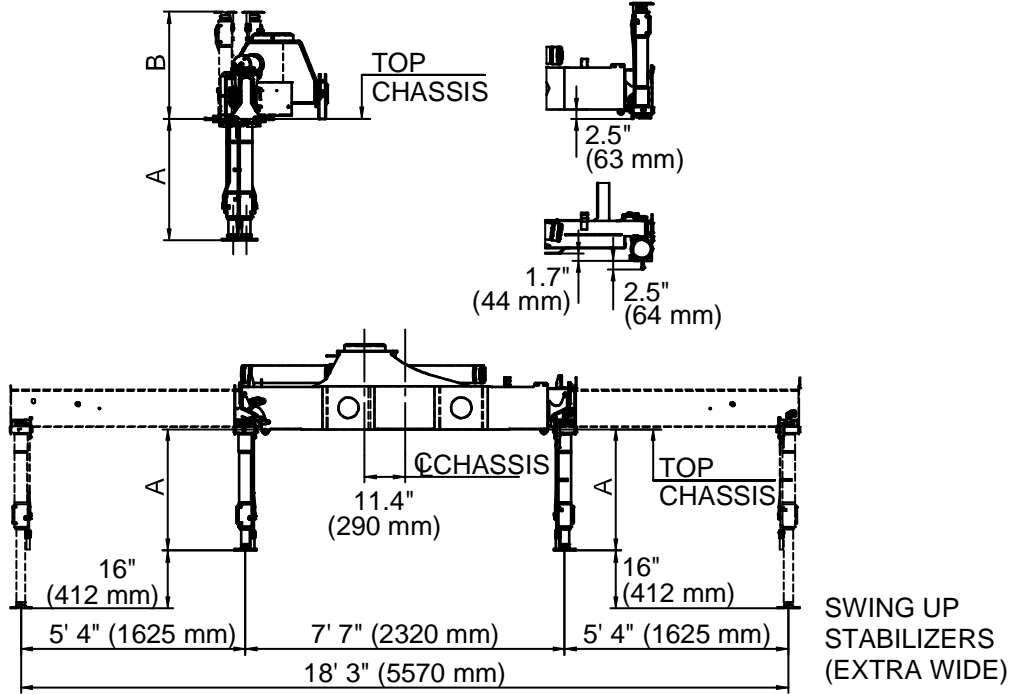





OPTION 1  
(Extra Wide  
Hydraulic Out /  
Hydraulic Down)

A	2' 3" (677 mm)	2' 6" (777 mm)	2' 11" (877 mm)	3' 2" (977 mm)
B	1' 5" (440 mm)	1' 8" (515 mm)	1' 8" (515 mm)	1' 8" (515 mm)

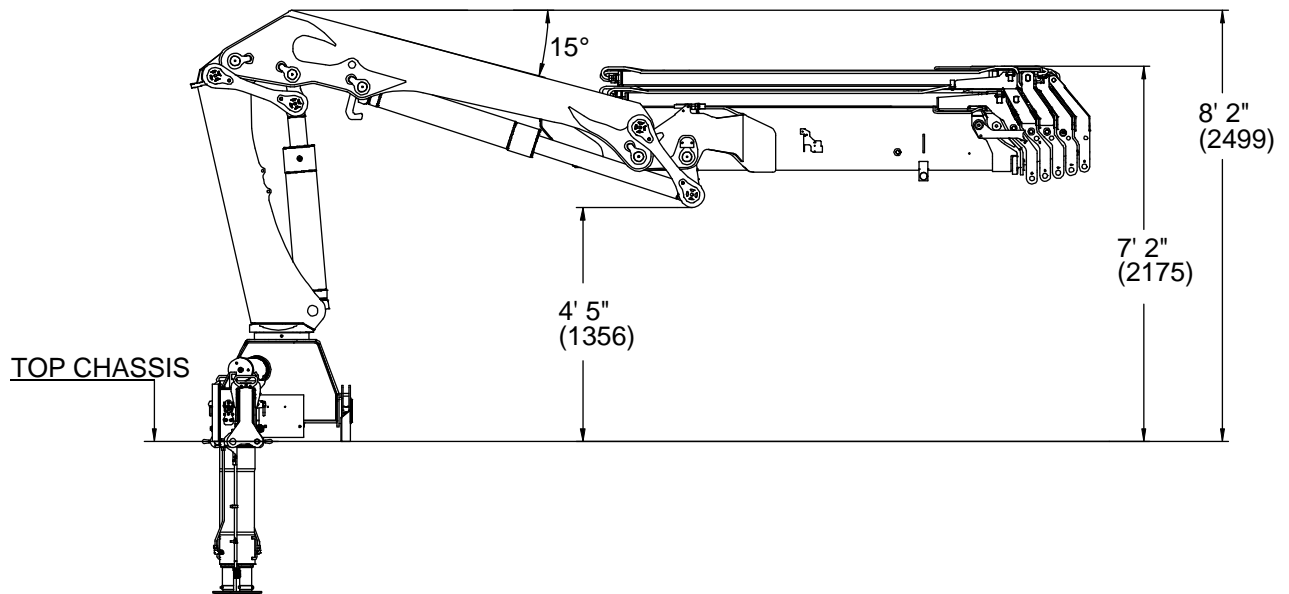
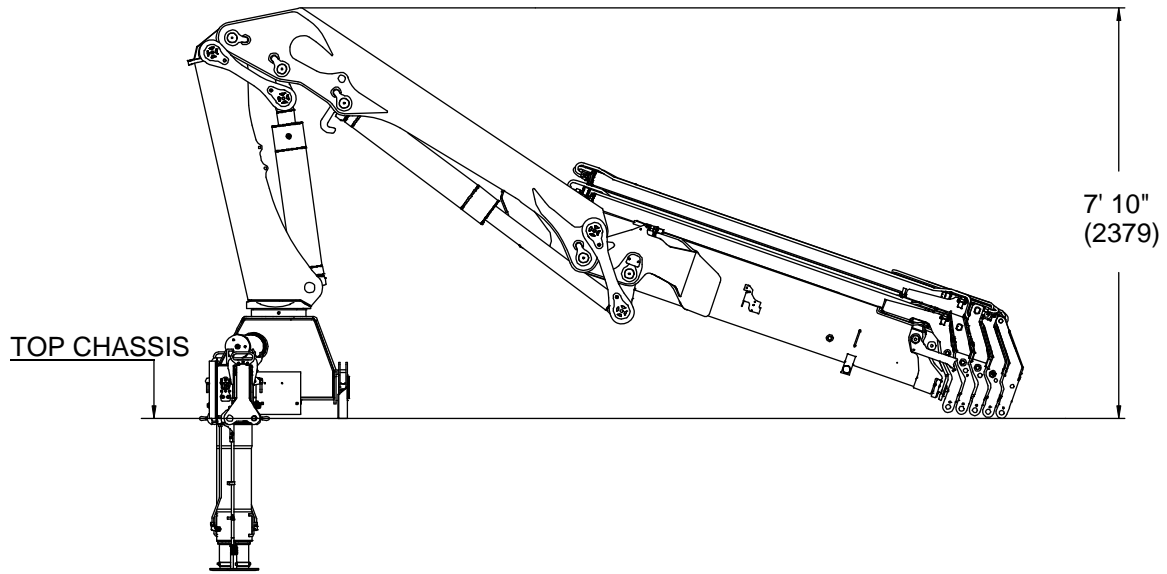


# Stabilizer Dimensions, Swing-up, 18 tm up



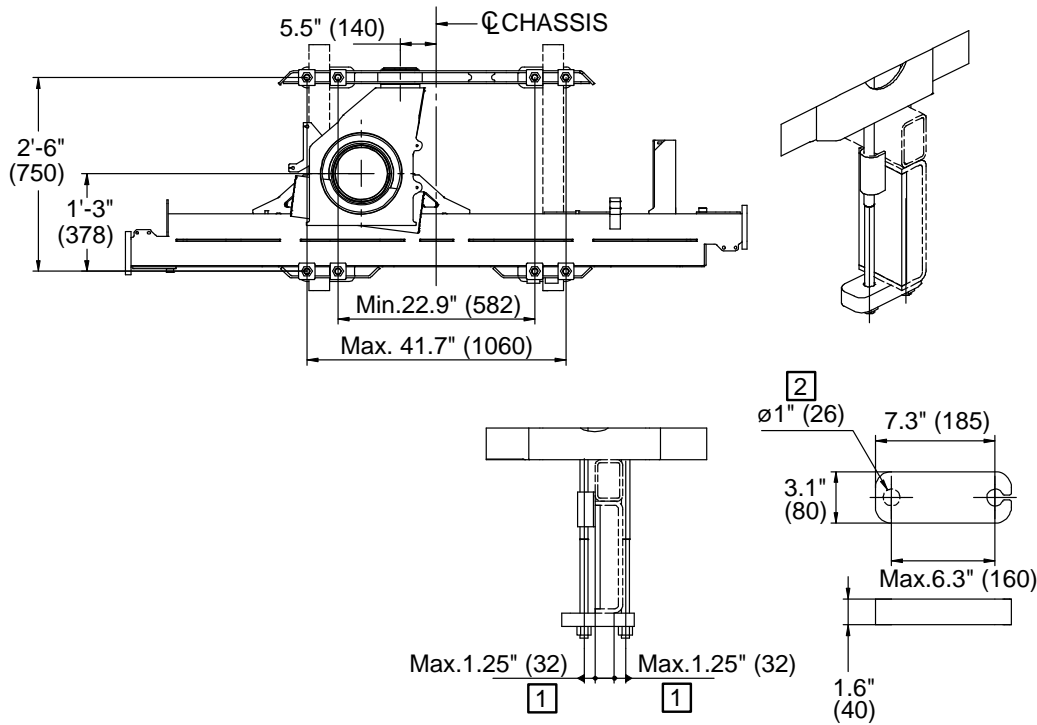
			
A	35" (879 mm)	39" (979 mm)	42.5" (1079 mm)
B	30.5" (777 mm)	34.4" (877 mm)	38.4" (977 mm)

# Stowed Dimensions

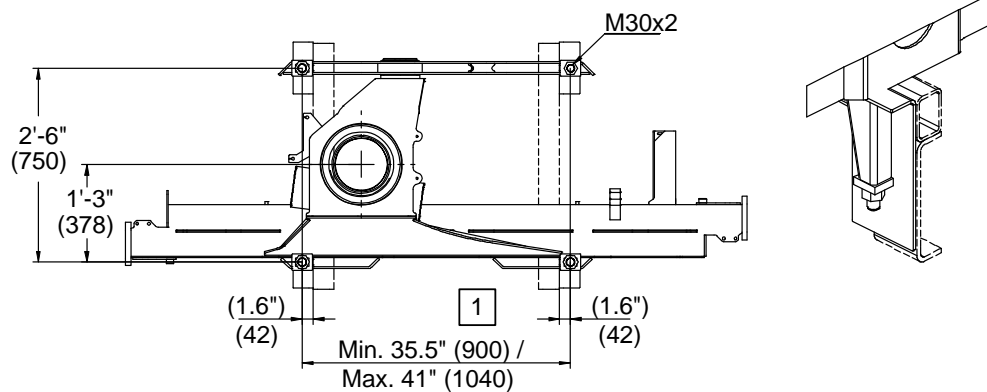


# Mounting Dimensions

## MOUNTING KIT 8 x M24x2 BOLTS



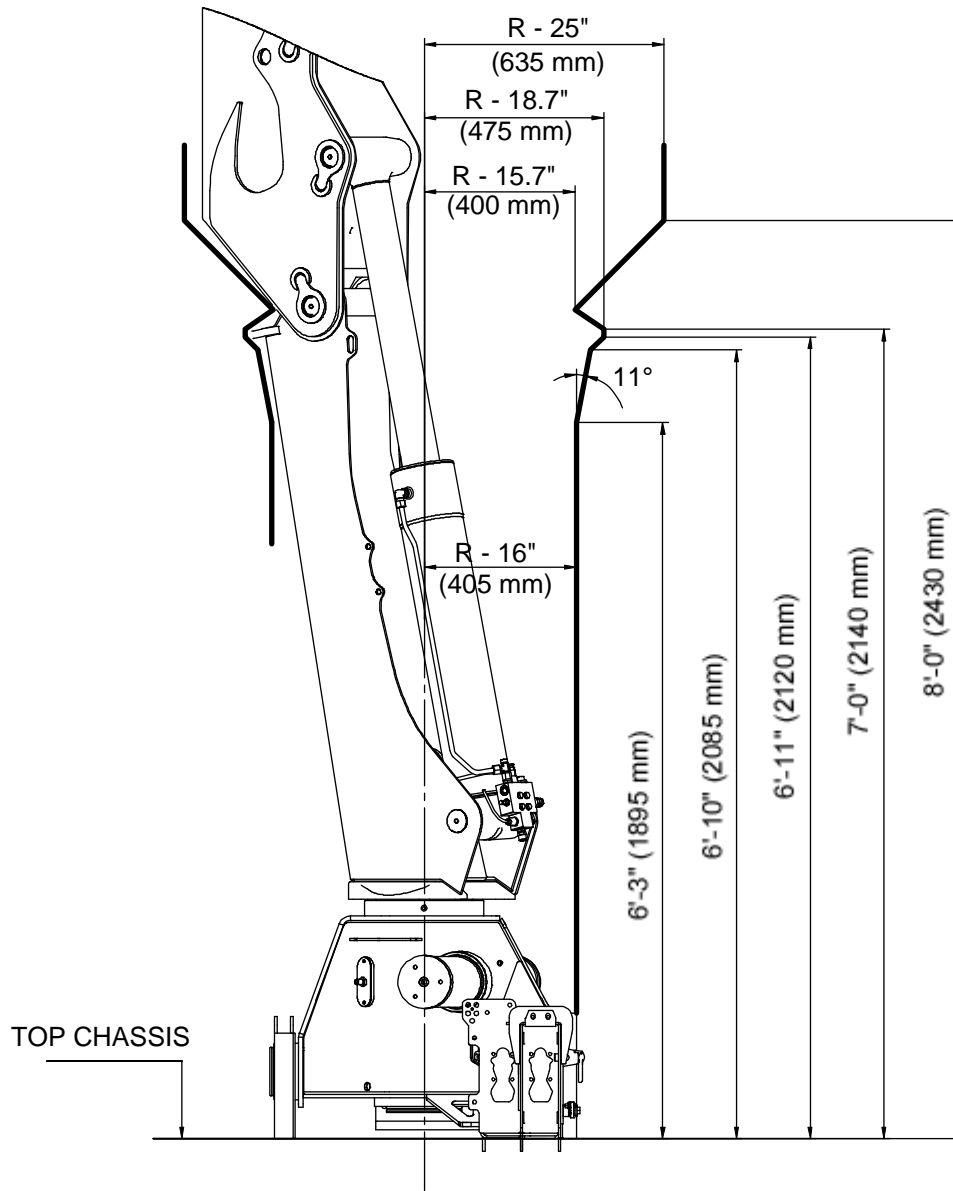
## MOUNTING KIT 3 x M33x2 BOLTS + 1 M30x2 BOLT



### NOTES (SEE REFERENCE NUMBER IN BOX):

- 1 VALUES DICTATED BY STRENGTH CONSIDERATIONS.
- 2 DRILL HOLE WHEN ASSEMBLING.
- 3 SEE INSTALLATION MANUAL # 99901230 REGARDING INSTALLATION.
- 4 MOUNTING KIT AND REPLACEMENT PART NUMBERS ARE IN THE CRANE PARTS MANUALS.

# 20/138SL Swing Clearance







## CHAPTER 2

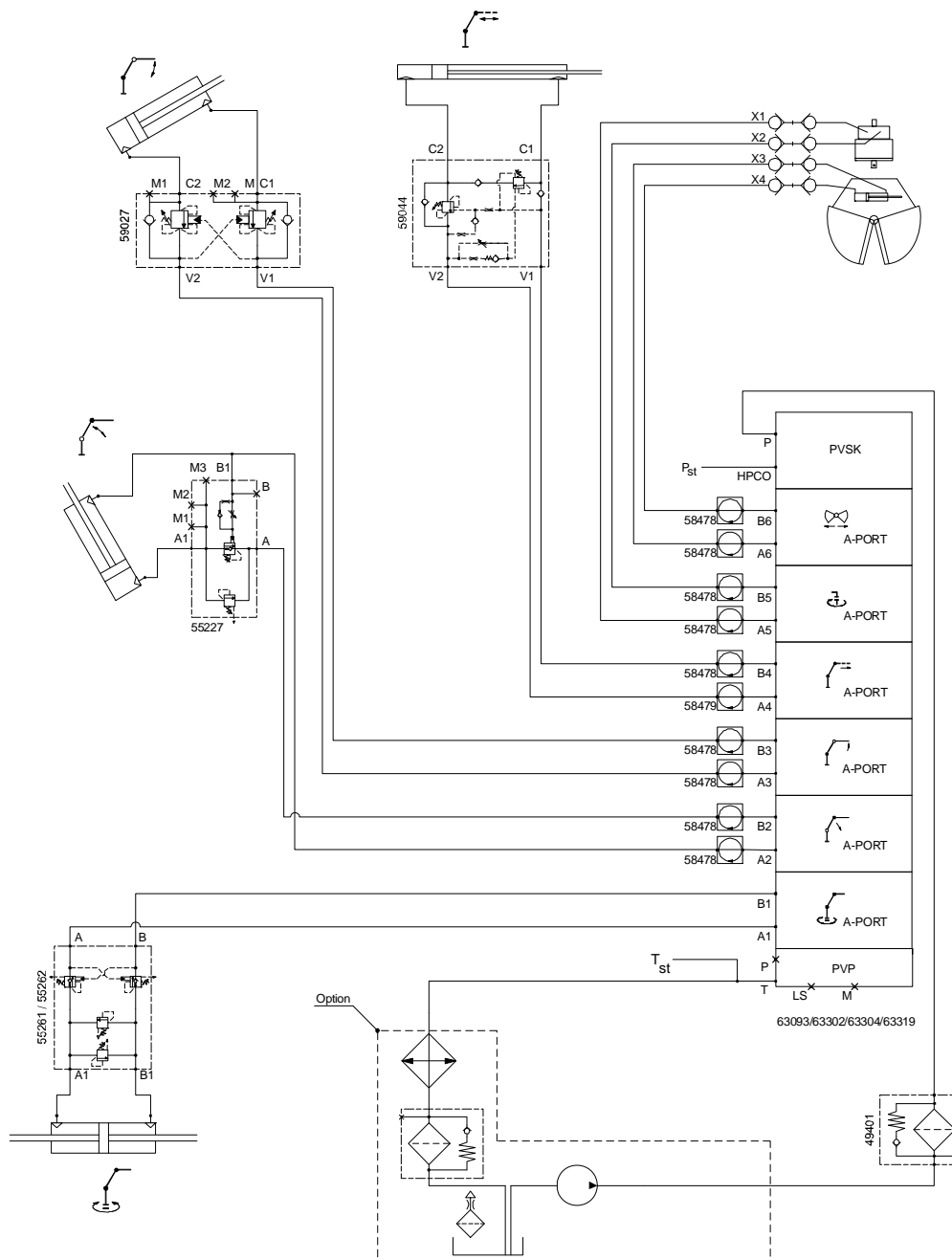
# Hydraulic Schematics

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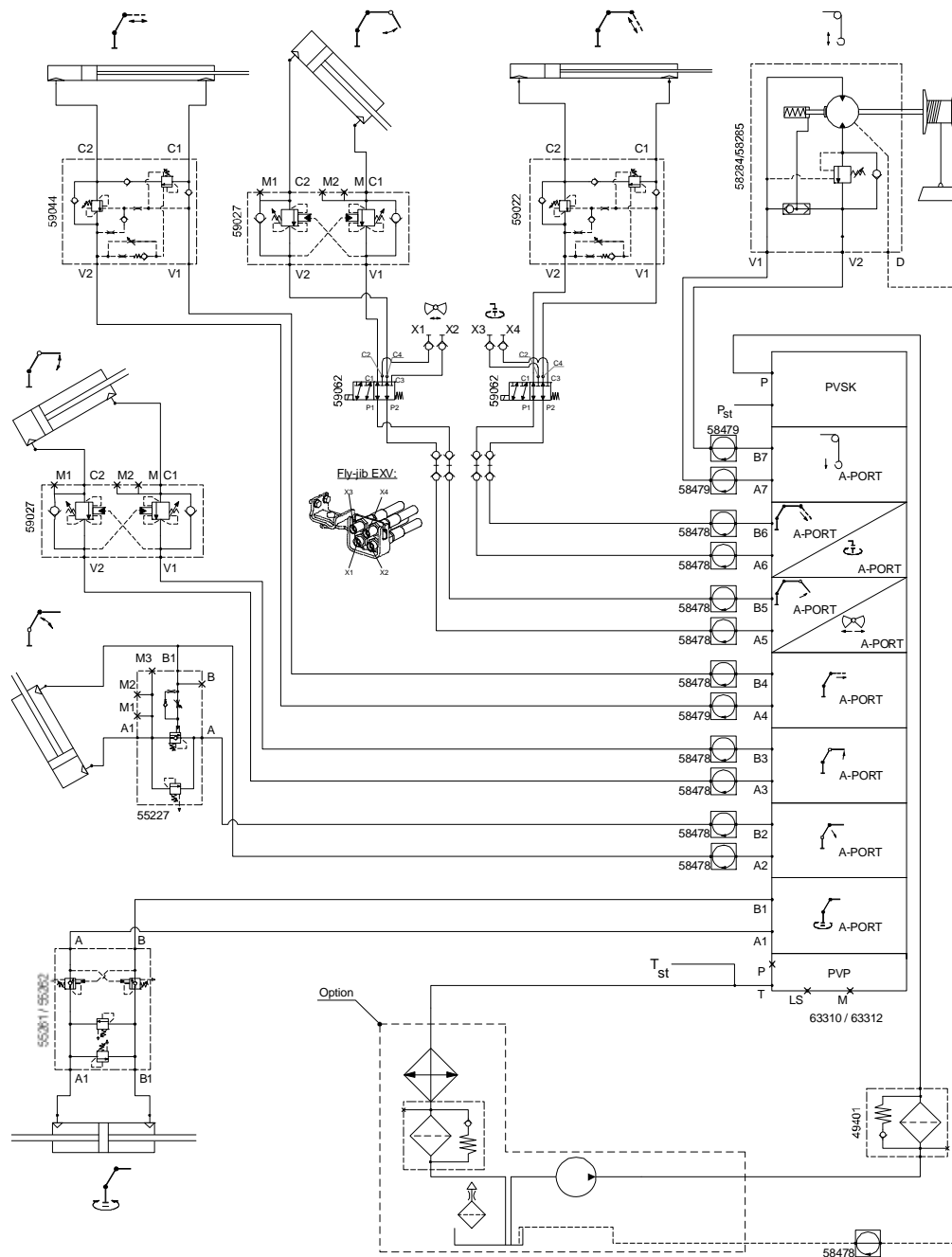
# Hydraulic Diagram - 20/138SL Danfoss 6-Function Radio

This diagram applies to a 20/138SL crane with a single-circuit fixed pump, and 6-function Danfoss radio controls.



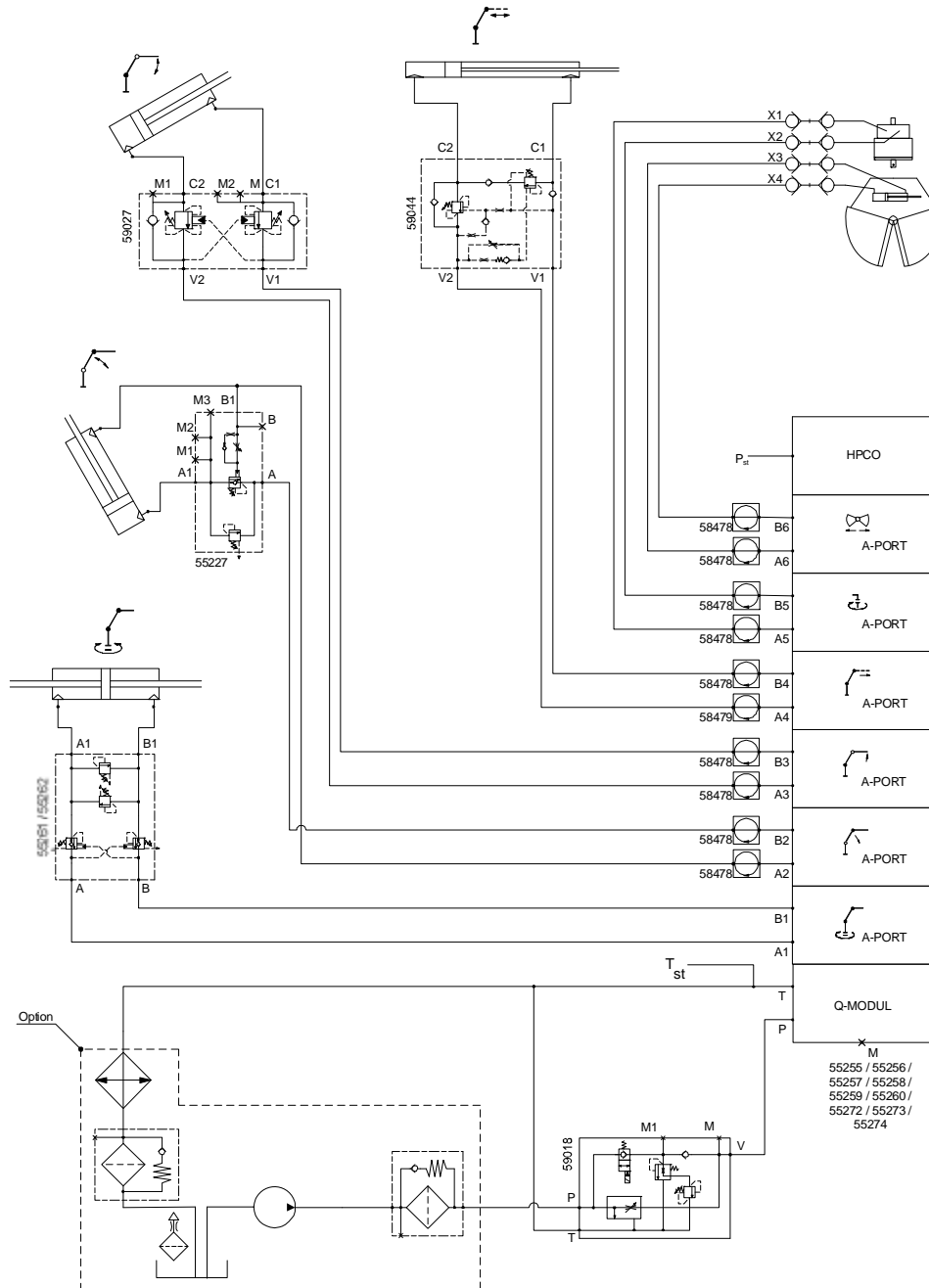
# Hydraulic Diagram - 20/138SL Danfoss 7-Function Radio

This diagram applies to a 20/138SL crane with a single-circuit fixed pump, and 7-function Danfoss radio controls.



# Hydraulic Diagram - 20/138SL Hydrocontrol 6-Function Manual

This diagram applies to a 20/138SL crane with a single-circuit fixed pump, and 6-function Hydrocontrol manual controls.



# Hydraulic Diagram - 20/138SL Hydrocontrol 6-Function Radio

This diagram applies to a 20/138SL crane with a single-circuit fixed pump, and 6-function Hydrocontrol radio controls.

