



LIFTING CHARTS - All Terrain Cranes

TADANO MODEL ATF220G-5 - 250 TON CAPACITY

WARNING AND OPERATING INSTRUCTIONS FOR LIFTING CAPACITIES ATF 220G-5

GENERAL

- Total rated loads shown on the TADANO LOAD RATING CHART apply only to the machine as originally manufactured and normally equipped by TADANO. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
- Construction equipment can be dangerous if improperly operated or maintained. Operation and maintenance of this machine must be in compliance with the information in the operation, safety and maintenance manual supplied with the machine. If this manual is missing, order replacement through the distributor.
- The operator and other personnel associated with this machine shall fully acquaint themselves with the latest applicable American National Standards Institute (ANSI) safety standards for cranes.

SET UP

- Total rated loads shown on the TADANO LOAD RATING CHART are the maximum allowable crane capacities and are based on the machine standing level on firm supporting surface under ideal job conditions. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats to spread the load to a larger bearing surface.
- For on outrigger operation, outriggers shall be extended to the dimension according to the TADANO LOAD RATING CHART and secured by pins with tires free of supporting surface, before operating crane.
- Working on tires and travelling with load is not allowed.

OPERATION

- Total rated loads with outriggers fully extended do not exceed 85% of the tipping loads. Total rated loads with outriggers half extended are determined from the formula:
Total rated load = (tipping load - 0.1 tip reaction) / 1.25
- The crane's structural steelwork is in accordance with DIN 15018, part 3. Design and construction of the crane comply with DIN 15018, part 2 and with FEM regulations.
- Total rated loads include the weight of the main hook block, auxiliary hook ball, sling and other auxiliary lifting devices and all their weights shall be subtracted from the listed capacities to obtain the net load to be lifted.

Hook ball / hook block (ton)	11.0	27.6	35.3	69.4	88.2	137.8	176.4
Number of sheaves	-	1	1	3	5	7	9
Weight (lbs)	661	992	992	1,874	2,535	2,976	3,527

Number of rope lines	1	2	3	4	5	6	7	8	9	10	11	12
Max. load capacity (10 ³ lbs)	16.8	33.1	49.6	65.9	82.2	98.3	114.4	130.5	146.4	162.0	177.7	193.3
Number of rope lines	13	14	15*	16*	17*	18*	19*	20*	21*	22*	23*	24*
Max. load capacity (10 ³ lbs)	208.8	224.2	239.6	254.9	270.1	285.1	300.0	314.8	329.6	344.4	358.9	373.5
Number of rope lines	25	26	27	28	29	30	31	32	33			
Max. load capacity (10 ³ lbs)	387.8	402.1	416.4	430.6	444.7	458.6	472.4	486.3	500.0			

* For more than 14 rope lines additional lifting equipment is necessary, see operation manual.

- Total rated loads are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, operating speeds, side loads, etc. Side pull on boom or jib is extremely dangerous.
- Total rated loads are taken into account for wind on lifted load or boom as given below. Total rated loads and boom length shall be appropriately reduced, when wind velocity is above 18 mph (26ft/sec.) for main boom operation and above 15 mph (22 ft/sec.) for jib operation.

Wind speed restrictions for main boom operation	
If the wind speed is 0 – 18 mph	Rated lifting capacities must be reduced to no reduction (see load rating charts = 100% normal lifting operation)
19 – 27 mph	50%
28 – 34 mph	30%
> 34 mph	Crane operation must be shutdown and boom retracted and lowered to horizontal

- Total rated loads at load radius shall not be exceeded. Do not tip the crane to determine allowable loads.
- Do not operate at boom lengths beyond radii or boom angles where no capacities are shown. Crane may overturn without any load at the hook.
- Slewing of the superstructure is admissible only when the crane is supported on half or fully extended outriggers.
- The lifting capacity ratings specified in the TADANO LOAD RATING CHART apply to the telescopic boom without fly jib fixed in transport position or working position. If the fly jib is secured to the telescopic boom in transport position or working position, the lifting capacities of the telescopic boom are reduced by the values specified below. The weight of the fly jib is detected in terms of a load, and the load moment limiter will shut off earlier.

Load rating reduction for the telescopic boom with mounted fly jib

Position of the fly jib	Telescopic boom length (ft)									
	43.3	57.1	70.9	98.4	125.7	153.2	180.4	194.2	223.1	
	Load rating reduction (10 ³ lbs)									
17.7 ft/43.3 ft fly jib, mounted in transport position	1.00	0.64	0.46	0.30	0.22	0.20	0.18	0.16	0.14	
17.7 ft fly jib, mounted to the boom head	6.00	4.98	4.38	3.68	2.70	2.20	2.08	2.02	2.00	
43.3 ft fly jib, mounted to the boom head	12.62	10.20	8.76	7.04	4.64	3.50	3.16	3.08	2.98	
63.0 ft fly jib, mounted to the boom head	22.54	17.96	15.14	11.88	7.28	5.14	4.48	4.32	4.10	
82.7 ft fly jib, mounted to the boom head	36.18	28.52	23.84	18.38	10.68	7.08	5.98	5.72	5.38	
102.4 ft fly jib, mounted to the boom head	53.56	41.94	34.78	26.52	14.82	9.38	7.68	7.28	6.74	
122.0 ft fly jib, mounted to the boom head	74.60	58.12	48.02	36.28	19.68	11.98	9.56	9.00	8.26	

- When making lifts at a load radius not shown, use the next longer radius to determine allowable capacity.
- Load per part line should not exceed 16,750 lbf for the main winch and for the auxiliary winch.
- Loaded boom angles are approximate. The boom angle before loading should be greater to account for deflection.
- Extension or retraction of the telescopic boom with loads may be attempted within the limits of the TADANO LOAD RATING CHART. The ability to telescope loads is limited by hydraulic pressure, boom angle, boom length, crane maintenance, etc.
- When erecting or stowing the fly jib, be sure to retain it by hand or by other means to prevent its free movement.
- Use the Anti-Two Block (OVERWIND CUTOFF) disable switch when erecting or stowing the fly jib and stowing the hook block. While the switch is pushed, the hoist will not stop, even when an overwind - condition occurs.
- The working radius specified in the TADANO LOAD RATING CHARTS for the fly jib applies only if the telescopic boom is extended according to the TADANO LOAD RATING CHARTS. If one or more elements of the telescopic boom are retracted partially or completely, the specified boom angles will be decisive in determining total rated lifting capacities.
- When lifting a load by using the fly jib (auxiliary hoist) and telescopic boom (main hoist) simultaneously, do the following:
 - Select the correct program for the load moment device in accordance with jib length, jib offset angle, counterweight and outrigger base.
 - Before starting the operation, make sure that the weight of the load is within the total rated load for the fly jib.
- Safe Load Indicator (S.L.I.)

Before working with the telescopic boom or fly jib, make sure that the automatic safe load indicator is working properly. Before lifting the crane driver has to check the load for any lifting cycle. For working with telescopic boom or fly jib the automatic safe load indicator has to set to the correct automatic safe load indicator mode according to the existing crane working condition. The information shown at the automatic safe load indicator display gives permanent information for crane usage to the crane driver.
- Working with Single Top

Operation with the single top is allowed with the main winch and the auxiliary winch. The maximum allowed capacity is limited by the selected S.L.I. code for main boom operation according to existing counterweight and outrigger base at one side and by the single line pull which is limited by hydraulic pressure at the other side.

For operations with the single top mounted, use the TADANO LOAD RATING CHART for the telescopic boom in accordance with existing counterweight and outrigger base to find the total rated lifting capacity and also select the correct S.L.I. code for the telescopic boom in accordance with the existing counterweight and outrigger base. Find the total rated lifting capacity based on boom length and working radius. From that value, subtract 1,100 lbs and the weights of all lifting equipment used including hook block, sling and other auxiliary lifting devices. The result (<total rated lifting capacity> - <1,100 lbs> - <lifting equipment>) is the total rated lifting capacity for a single top lift.

Definitions

Working Radius:	Horizontal distance from a projection of the axis of rotation to supporting surface before loading to the center of the vertical hoist line or tackle with load applied. The deflection of the boom due to its deadweight and the rated load are taken into account.
Loaded Boom Angle:	The angle between the boom base section and the horizontal, after lifting the total rated load at the working radius.
Working Area:	Area measured in a circular arc about the centerline of rotation.
Freely Suspended Load:	Load hanging free with no direct external force applied except by the hoist line.
Side Load:	Horizontal side force applied to the lifted load either on the ground or in the air.

Safe Load Indicator

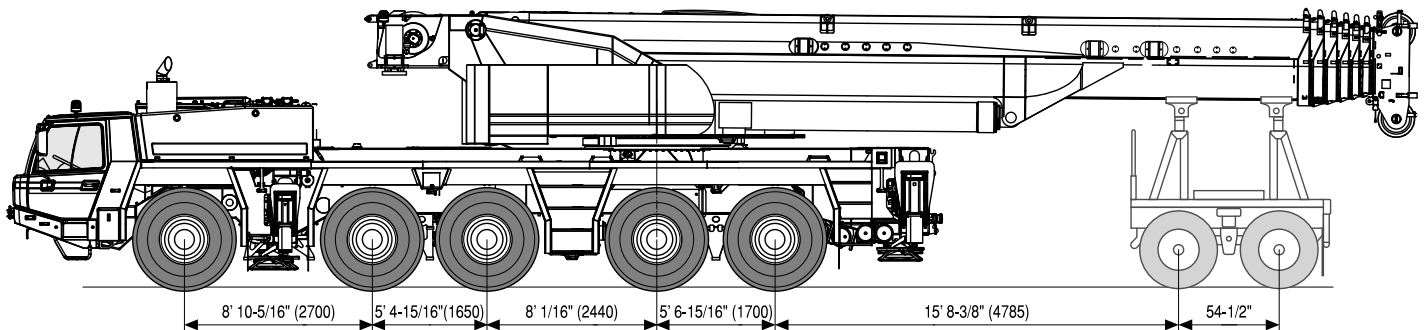
The Safe Load Indicator is intended as an aid to the operator. Under no condition should it be relied upon to replace use of TADANO LOAD RATING CHARTS and Operating Instructions. Sole reliance upon the Safe Load Indicator Aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

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ATF220G-5 Axle weight distribution chart

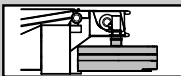
1) Traveling with boom dolly

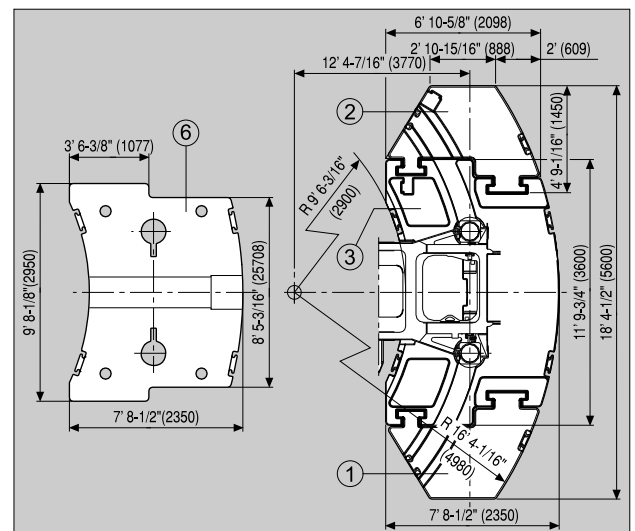
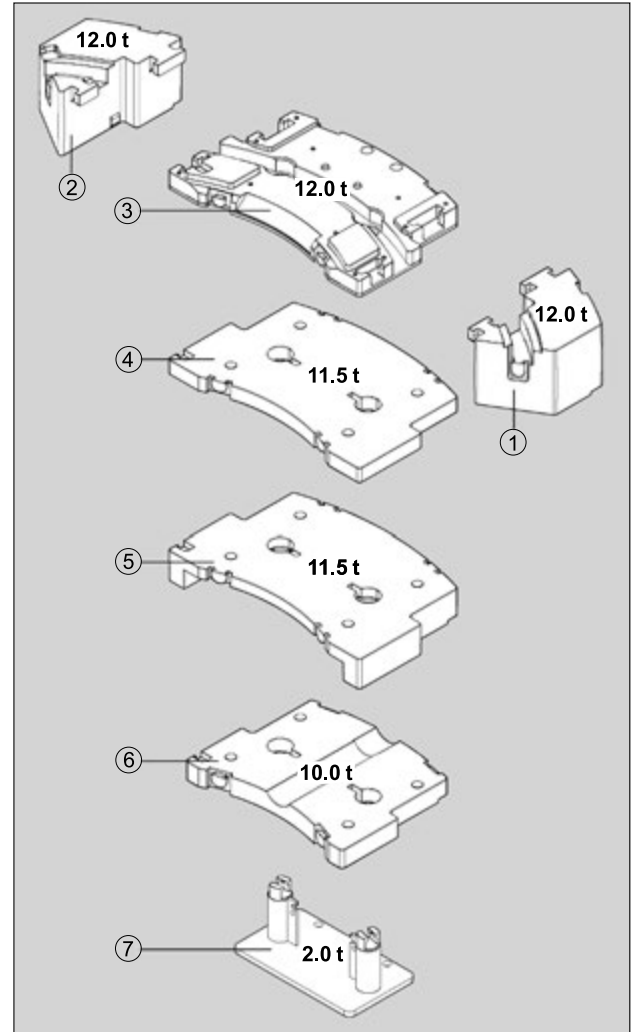
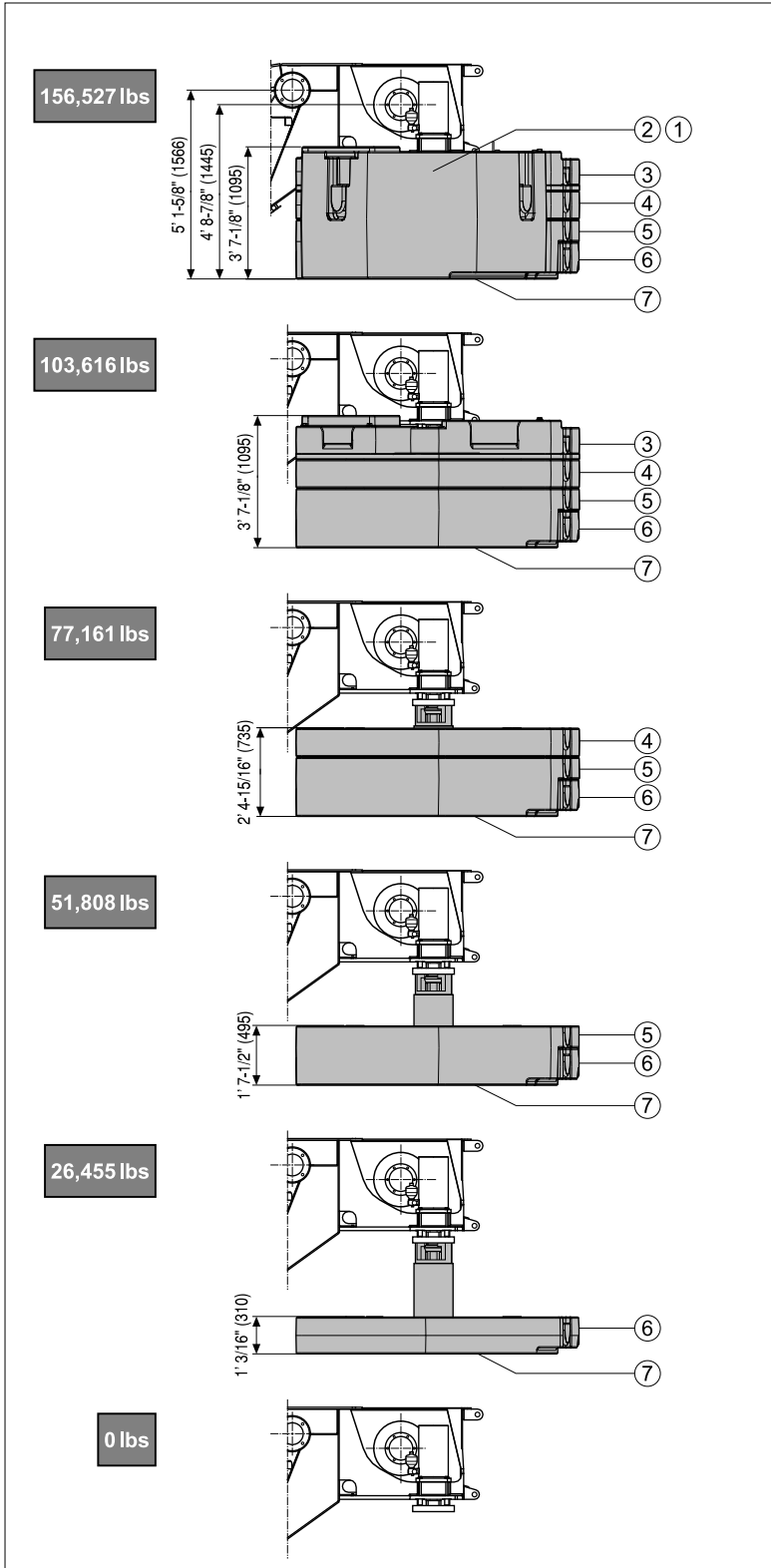
	GVW	Axle 1	Axle 2	Axle 3	Axle 4	Axle 5	Dolly
Base machine with 16.00R25 tires, 10x8 drive, no counterweight, 100% fuel	132,328	17,013	18,109	21,981	23,074	22,913	29,238
Add: 1. 11 ton hook ball at boom head	661	-53	-53	-42	-42	-42	893
2. 27.6 ton hook block at boom head	992	-79	-80	-64	-63	-63	1,341
3. 69.5 ton hook ball at boom head	1,874	-150	-150	-120	-120	-120	2,534
4. 88.2 ton hook ball at boom head	2,535	-202	-203	-163	-162	-162	3,427
5. 17.7 ft/ 43.3 ft flyjib	3,375	100	100	81	81	81	2,932
6. Auxiliary winch with cable	3,646	1,505	1,505	212	212	212	0
7. Auxiliary boom point sheave (single top)	205	-17	-17	-13	-13	-13	278
8. Additional oil cooler	88	6	6	26	26	26	0
9. Air conditioning at crane cab	106	-1	-1	36	36	36	0
10. Boom dismounting device	661	106	106	149	150	150	0
11. 20.5R25 tyres in lieu of 16.00R25	1,100	220	220	220	220	220	0
12. Air conditioning at carrier cab	101	74	74	-16	-16	-15	0
13. Towing attachment	176	-72	-72	107	107	107	0
14. Air and electric lines to rear bumper and free swing and boom elevation circuits	106	-5	-5	38	39	39	0
1. Counterweight at carrier (2.0t)	4,409	1,146	1,146	473	473	473	0
2. Counterweight at carrier (10.0t)	22,046	7,479	7,479	2,363	2,363	2,363	0
3. Counterweight at carrier (11.5t)	25,353	8,600	8,600	2,718	2,718	2,718	0
4. Counterweight at carrier (11.5t)	25,353	8,600	8,600	2,718	2,718	2,718	0



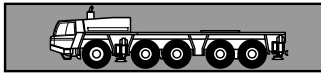
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Counterweight versions / Variaciones de contrapeso

	Counterweight / Contrapeso	①	②	③	④	⑤	⑥	⑦
	(t)	12.0	12.0	12.0	11.5	11.5	10.0	2.0



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Frame Torsion resistant, welded construction made from high strength, fine-grained steel. Central lubricating system.

Outriggers 4 point, double telescopic hydraulic outriggers with controls on both sides of carrier and in superstructure cab. Outrigger base 8.3 m (5.6 m mid extension) x 9.01 m.

Carrier engine Mercedes-Benz 8 cylinder model OM 502 LA (Euromot III B), water-cooled diesel engine. Rated at 405 kW (551 HP) at 1800 min⁻¹. Torque 2600 Nm (265 kpm) at 1300 min⁻¹. Engine rating according to 80/1269/EWG. Fuel tank 143 gal (540 l). AdBlue-tank: 11 gal (40 l).

Transmission ZF-AS-Tronic 16 AS 2602 mechanical transmission with electro-pneumatically operated dry-type clutch and automatic gear shifting with 16 forward gears and 2 reverse gears.

Transfer Case Two stage.

Drive 10 x 8 (10 x 6 optional*)

Axles

1st axle: steered, driven (*not driven).
2nd axle: steered, driven.
3rd axle: steered, not driven
4th axle: steered, driven, with longitudinal differential lock.
5th axle: steered, driven.
All driven axles with transverse differential locks.

Suspension Hydro-pneumatic with levelling adjustment.

Brake system Service brakes: dual circuit compressed air system. Parking brake: spring loaded type acting on 2nd, 4th and 5th axles. Auxiliary brakes: intarder with brake control, engine exhaust brake and constant throttle engine brake system.

Tyres (10) 385/95 R 25 (14.00 R 25).

Steering system ZF-Servocom, dual circuit hydraulic steering with emergency steering pump, mechanical hydraulically-assisted steering of front two axles and automatic steering of the 3rd and 4th axle up to a travel speed of 15.5 mph (25 km/h) and of the 5th axle up to 31.1 mph (50 km/h).

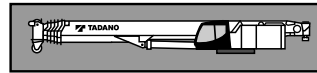
Carrier cab Two man full width cab of composite (steel sheet metal and fibre-glass) structure, with safety glass, air-cushioned adjustable seats (drivers seat with heater) and engine dependent hot-water heater, radio-CD-player, complete controls and instrumentation for road travel. Speed and brake control.

Electrical system 24 volt DC system, 2 batteries, CAN-Bus system with Faun CSS integrated self-diagnosis system, outrigger area lighting. Electrical system conforms with EEC regulations.

Optional Equipment (at extra charge)

Towing attachment, engine independent additional heater with engine pre-heat, air conditioning, ABS, 445/95 R 25 (16.00 R 25), 525/80 R 25 (20.5 R 25) tyres, spare wheel and tyre, special painting and lettering.

Further optional equipment available upon request.



Frame Torsion-resistant, all-welded structure of high strength steel. Connected to carrier by single-row ball-bearing slewing ring with external gearing for 360° continuous rotation. Central lubricating system.

Superstructure engine Mercedes-Benz 4 cylinder model OM 924 LA (Euromot III B), water cooled, diesel engine. Rated at 143 kW (194 HP) at 1800 min⁻¹. Torque 800 Nm (82 kpm) at 1200 - 1600 min⁻¹. Engine rating according to 80/1269/EWG. Fuel tank 66 gal (250 l). AdBlue-tank: 2 gal (8 l).

Hydraulic system Three circuit diesel hydraulic system with 1 double axial piston pump, 1 axial piston pump and 1 gear pump, oil cooler.

Controls Electrical, 2 joy-stick levers for simultaneous operation of crane motions.

Telescopic boom 7 sections, made of high tensile, fine-grained steel, consisting of 1 base section and 6 telescoping sections extended by means of a single telescopic cylinder. All telescope sections extendable under partial load. 13.2 m to 68.0 m long.

Derricking system 1 double acting hydraulic cylinder with integral brake and holding valve.

Main winch Axial piston motor, winch drum with integrated planetary reduction and with hydraulically controlled spring-loaded, multiple disc brake and with integrated free rotation (no sagging of load when hoisting). Hoist cable with 'Super-Stop' easy reeving system.

Slewing system Axial piston motor with three-stage planetary gear with automatic service and a parking brake. Closed hydraulic circuit with free slewing function. Speed infinitely variable 0 - 1.2 min⁻¹.

Counterweight Total 71 t divisible, assembled and disassembled by hydraulic cylinders controlled from superstructure cab.

Superstructure cab Spacious panoramic cab of composite structure with safety (tinted) glass windows, tiltable cockpit with hydraulically cushioned adjustable seat with heater, one engine dependent hot water heater and one engine independent hot-water heater (with engine pre-heat), radio-CD-player. Complete controls and instrumentation plus LCD graphic display for crane operation.

Electrical system 24 volt DC system, 2 batteries.

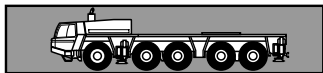
Safety devices 'Lift Adjuster', load moment device (LMD), anemometer, working area limiter, hoist limit switch, lower limit switch and drum turn indicator, safety valves against pipe and hose rupture, holding valves on hydraulic cylinders.

Optional Equipment (at extra charge)

Boom extensions 13.2 m to 37.2 m, offsets 0°, 20° and 40° or hydraulically 0°- 40°, heavy duty jib 5.4 m, boom extensions HTLJ 27.9 ft (8.5 m) to 68.9 ft (21 m) (hydraulically offsets and telescopic 0° - 60°), counterweight variations 12 t/23.5 t/35 t/47 t, selection of hook blocks 10 t - 160 t, air conditioning, auxiliary winch (same as main winch), special painting and lettering, outrigger load display.

Further optional equipment available upon request.

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Chasis portante Construcción de acero de alta resistencia soldado, resistente a la torsión y a la flexión. Sistema de engrase central.

Estabilizadores Estabilizadores hidráulicos de 4 puntos. Posibilidad de manejo desde ambos lados del chasis portante y desde la cabina de la grúa. Extensión de los estabilizadores: 8,3 m (y 5,6 m) x 9,01 m.

Motor Mercedes Benz modelo OM 502 LA (Euromot III B), 8 cilindros, diesel, refrigerado por agua. Nominal 405 kW (551 HP) a 1800 min⁻¹. Par 2600 Nm (265 kpm) a 1300 min⁻¹. Potencia del motor según 80/1269/ EWG. Depósito de combustible de 540 l. Depósito AdBlue 40 l.

Transmisión Transmisión mecánica tipo ZF-AS Tronic modelo 16 AS 2602 con accionamiento electro - neumático embrague en seco y cambio automático 16 marchas delanteras y 2 marchas traseras.

Transmisión Caja de distribución (transfer) con 2 relaciones de velocidad.

Tracción 10 x 8 (10 x 6 como opción*)

Ejes

- 1º eje: de dirección, accionado (*no accionado), con bloqueo diferencial transversal.
- 2º eje: de dirección, accionado, conectar según necesidad, con bloqueo diferencial transversal.
- 3º eje: accionado, no direccionable.
- 4º eje: de dirección, accionado, con bloqueo diferencial longitudinal y transversal.
- 5º eje: de dirección, accionado, con bloqueo diferencial transversal.

Suspensión Suspensión hidroneumática con regulación de nivel.

Sistemas de frenos Accionamiento neumático de doble circuito. Freno de estacionamiento del tipo muelles cargados, liberados por aire, sobre los ejes 2º, 4º y 5º. Intarder / sistema automático de frenado y freno continuo: Sistema estrangulador y sobre el escape del motor diesel.

Neumáticos 10 x 385/95 R 25 (14.00 R 25).

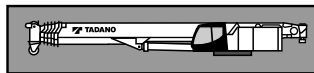
Dirección Hidráulica ZF Servocom de doble circuito con bomba auxiliar de dirección. Dirección mecánica del 1º y 2º eje y direccionable del 3º y 4º eje hasta una velocidad de 25 km/h y del 5º eje hasta una velocidad de conducción de 50 km/h.

Cabina Cabina para dos personas, en construcción de acero y fibra de vidrio. Cristales de seguridad, asiento con suspensión neumática, asiento de conductor calefactado, calefacción por agua caliente del motor, radio-CD-player. Elementos de control e instrumentos para circulación por carretera. Regulador de velocidad, sistema automático de frenado.

Sistema eléctrico Sistema de 24 V c.c. con 2 baterías, conexiones eléctricas integradas en el sistema CAN-Bus, sistema integrado de diagnóstico Faun-CSS. Focos de iluminación en el área de trabajo de los estabilizadores (gatos). El sistema eléctrico cumple la normativa CEE.

Equipo adicional (con suplemento de precio)
Embrague de remolque, calefacción adicional con precalefacción del motor, climatización, ABS, neumáticos 445/95 R 25 (16.00 R 25), 525/80 R 25 (20.5 R 25), rueda de repuesto, pintura especial y rotulación.

Otros equipamientos sobre pedido.



Superestructura Construida en aceros soldados, resistente a la torsión. Corona de giro con rodamiento de una fila de bolas con dientes externos para giro continuo a 360°. Sistema de engrase central.

Motor Mercedes Benz modelo OM 924 LA (Euromot III B), 4 cilindros, diesel, refrigerado por agua. Las revoluciones aumentan de forma gradual accionando el acelerador. Nominal 143 kW (194 HP) a 1800 min⁻¹. Par 800 Nm (82 kpm) a 1200 - 1600 min⁻¹. Potencia del motor según 80/1269/ EWG. Depósito de combustible de 250 l. Depósito AdBlue 8 l.

Sistema hidráulico Sistema hidráulico de 3 circuitos, 1 bomba doble de pistones axiales, una bomba de pistones axiales y una bomba de ruedas dentadas, enfriador de aceite.

Mandos 2 palancas de control de tipo joy-stick para movimientos simultáneos de la grúa (4 direcciones), asistidos eléctricamente.

Pluma telescópica 7 secciones, un tramo base y 6 telescópicos de acero de alta resistencia soldado, 1 cilindro hidráulico, los tramos se pueden telescopar hidráulicamente bajo carga. Longitud de 13,2 m a 68,0 m.

Elevación de pluma Mediante un cilindro hidráulico de doble efecto con válvula de retención integrada.

Cabrestante principal Motor hidráulico de pistones axiales y caudal fijo. Tambor del cabrestante con reducción planetaria y frenos de disco múltiples accionado, con sistema libre de elevación. Cable de elevación con sistema fácil de guiado y 'Super-Stop'.

Sistema de giro Motor hidráulico de pistones axiales con reducción planetaria de tres etapas. Con freno de giro automático de bloqueo. Circuito cerrado con mecanismo de giro libre con posibilidad de desconexión. Velocidad de giro gradual de 0 a 1,2 min⁻¹.

Contrapeso Peso total 71 t divisible, se acciona desde la cabina de la grúa.

Cabina de la grúa Cabina espaciosa y confortable, en construcción de acero y fibra de vidrio, con cristales tintados de seguridad. Asiento del operador regulable amortiguado hidráulicamente, inclinable junto con los instrumentos y mandos con calefacción, calefacción por agua caliente dependiente y independiente del motor (con precalefacción del motor), radio-CD-player. Controles, instrumentos y mandos de conducción como display digital LCD para la operación de la grúa.

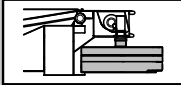
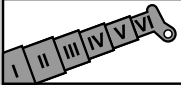
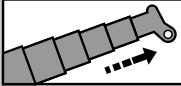
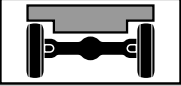
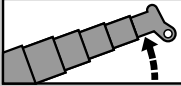
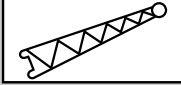
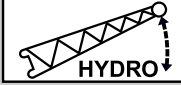
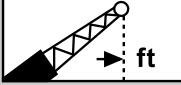
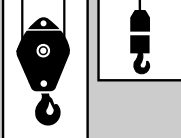
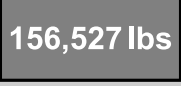
Sistema eléctrico Sistema de 24 V c.c. con 2 baterías.

Medidas de seguridad 'Lift Adjuster', limitación del momento de carga (LMC), anemómetro, limitación del área de trabajo, interruptor de final de elevación, interruptor de 3 últimas vueltas en cabrestante, indicador de bajada o subida del cable del cabrestante, válvulas de seguridad para rotura de tubos y latiguillos. Válvulas de retención en los cilindros hidráulicos.

Equipo adicional (con suplemento de precio)
Plumín de 13,2 m a 37,2 m regulable de 0°, 20° y 40° (o hidráulicamente 0° a 40°), plumín de carga pesada de 5,4 m, plumín HTLJ de 8.5 m a 21 m (hidráulicamente regulable y telescopable 0° 60°), variantes de contrapeso 12 t/23.5 t/35 t/47 t, gancho de 10 a 160 to, climatización, 2º cabrestante (similar a cabrestante principal), pintura especial y rotulación, control carga (gatos de apoyo).

Otros equipamientos sobre pedido.

Symbols / Glosario de simbolos

	As on Page 40 Véase la pagina 40		Counterweight versions Variaciones de contrapeso
	Outriggers Estabilizadores		Telescopic boom Pluma telescópica
	Transmission / Gear Transmisión / Marchas		Boom telescoping Telescopaje de pluma
	Axle load Carga por eje		Derricking system Elevación de pluma
	445/95 (16.00)		Radius Radio
	Tyres / Size Neumáticos / Tamaño de ruedas		Boom extension Plumin
	Off road Todo terreno		Boom extension hydraulically Plumin hidráulicamente
	On road En carretera		Radius Radio
	Speeds Velocidades		Main winch Cabrestante principal
	Gradeability Superacion de pendientes		Auxiliary winch 2º cabrestante
	Slewing system Sistema de giro		Hook block / Swivel hook Gancho / Gancho de bola
	156,527 lbs		
	Counterweight Contrapeso		