



**YANMAR**

# Vi023-6

MINI-EXCAVATOR



**Operating weight**

2 245 kg (Canopy) / 2 405 kg (Cabin)

**Engine**

3TNV76-PBV1

**Digging force (arm)**

13,1 / 10,6 kN

**Digging force (bucket)**

17,5 kN

# FUEL-EFFICIENCY, VERSATILITY AND OPERATOR COMFORT





## COMPACTNESS

Yanmar, inventor of the ViO concept, has an unmatched experience in developing Zero Tail Swing excavators. The ViO23-6 is a true Zero Tail Swing mini-excavator that allows a full rotation of the upper frame within the width of the crawlers for maximum safety.



## EASE OF USE

All control levers are ideally located for exceptional movement precision. All commands can be operated through joystick or foot pedal. The ViO23-6 comes with boom swing operated by pedal. "Auto-deceleration" and "Eco-mode" features are in standard.



## ROBUST AND RELIABLE YANMAR ENGINE

Well proven Yanmar 3TNV engines: Indirect injection system with mechanical speed governor. Quiet and powerful engine compliant to the latest emission requirements.



## COMFORT

The ViO23-6 working environment has been studied to improve the operator driving position and to facilitate his work, particularly on the long and challenging work sites: increased leg room, universal design, electronic instrumentation, improved ergonomics and low noise level.



## EXTENDING UNDERCARRIAGE

The ViO23-6 is fitted in standard with a variable undercarriage which can be easily extended or retracted by operating a simple lever. When fully retracted the machine can access the most restricted areas. Once extended, it benefits from excellent stability.



## HIGH PERFORMANCE

Upgrading of the powerline components (engine, hydraulic pump, control valve): no compromise between power and compactness.



## VIPPS HYDRAULIC SYSTEM

The ViO23-6 is equipped with a ViPPS hydraulic system which cumulates the flow of separate pumps in order to obtain the optimal combination in terms of speed, power, smoothness and balance. This hydraulic system configuration allows smooth and simultaneous operation of working movements, even while traveling.



## SERVICE ABILITY

Daily checks and service points are easily accessible, facilitating the maintenance of the machine. The ViO23-6 has highly resistant steel panels and benefits from Yanmar's full cylinder protection to reduce downtime and total cost of ownership.



## EASE OF TRANSPORT

Its transport weight of just 2330 kg (cabin version) enables the ViO23-6 to be transported with its accessories on a trailer.



## BEST COMPONENTS

Designed in Japan with components renowned for top quality and durability, throughout a long service life.

# UNMATCHED COMPACTNESS



The Vi023-6 is a zero-tail mini excavator which works in the tightest spots. It provides Yanmar customers with true peace of mind, especially in urban environment where space is limited.



## ADVANTAGES OF THE Vi0 DESIGN

Neither the standard counterweight, nor the front part of the upper frame sticks out of the track width. With its front part designed not to hang over, the Vi023-6 is a true zero tail swing excavator offering below advantages:

- + Smooth swing even in confined spaces.
- + Operation with confidence and efficiency along the walls.
- + Improved safety for both the operator and the side workers: critical on the jobsites.
- + Rear blind spot reduced to a minimum: enhances again the safety for the workers around the machine.

## EASY TRANSPORTATION

The transportation weight of the machine with cabin, standard counterweight and short arm, is only 2330 kg (cabin version). Together with its very compact and variable undercarriage, the Vi023-6 is the ideal machine to maximize transportation capabilities with attachments and a total towed weight <3.5 T.

# EXTENDING UNDERCARRIAGE

## UNIQUE DESIGN

- + Reduced clearance between the sliding parts: no soil build-up during the extension of undercarriage.
- + High reliability over a long-term period.
- + The Vi023-6 is extremely stable due to the use of an extended undercarriage and good weight distribution.



## SIMPLE FOLDING EXTENDABLE BLADE

The hinged blade extensions are permanently fixed on the blade. No tools are necessary to change quickly the position. No risk to lose the blade extensions.



**Retracted: easy access to boom areas**



**Extended: increased stability for improved digging and loading performances**

# COMFORT



## SPACIOUS AND COMFORTABLE CABIN

Putting the operator at the center of its design initiatives, Yanmar developed the « Universal Design » concept which provides comfort for enhanced productivity. In combination with increased leg room, it enables to improve the comfort and safety of the operator. Functional controls and switches are ergonomically arranged for easy reach.

## ALL-AROUND VISIBILITY

The Vi023-6 design provides an ergonomic environment, excellent visibility and exceptional safety. The shape of the cabin provides the operator with an optimal 360° visibility in order to improve the safety on the jobsite and to optimize work efficiency. The Vi023-6 is equipped with three mirrors to help the operator control the work area without moving from his seat.

## COMFORTABLE SEAT

The Vi023-6 offers as optional feature a comfortable and ergonomic suspension seat with adjustable controls, high backrest and retractable seat belt, this to increase operator comfort and reduce body tension and fatigue.

# PERFORMANCE



The ViO23-6 offers exceptional performance for a machine in its class. Its digging depth of 2450/2655 mm\* and digging forces of 17,5 kN (bucket) and 13,1/10,6 kN\* allow it to work quickly and efficiently even under the most severe conditions.

## LONG LASTING ROBUSTNESS AND RELIABILITY

### REPUTATION OF YANMAR 3TNV ENGINE PLATFORM

With a gross mechanical output of 14.6 kW at 2400 rpm, Yanmar's 3TNV76-PBV1 engine benefits from a long-lasting reputation.

- + As standard features, the auto-deceleration system and Eco working mode, offer additional fuel reduction possibilities.

## VIPPS HYDRAULIC CIRCUIT

### (VIO PROGRESSIVE 3 PUMP SYSTEM)

The ViO23-6 uses a ViPPS hydraulic system. This configuration uses 1 double, variable displacement, piston pump and 2 gear pumps. The 3 main pumps totalize a maximum flow of 63,6 l/min, available for main machine operating movements. The flows of these pumps are cumulated in the Main Control Valves, according to the ViPPS system, to obtain the optimal combination in terms of speed, power, smoothness and balance. The ViPPS system allows smooth and simultaneous performance of all operations, even while traveling, in order to have the ultimate working tool.

## EASY OPERATION

The operator environment is designed for an intuitive and easy use of the machine: simple layout of the commands, wide travel pedals...

## MAINTENANCE

Daily maintenance has to be performed easily. There is one easy to open engine bonnet and the right-hand side cover is mounted on one hinge to open easily. This gives an access to all major elements: air filter, radiator, battery, fuel tank, hydraulic oil tank, engine oil dipstick, water separator, coolant level, etc... A flat floor mat makes cleaning easier.

\*With short/long arm



# SAFETY

The structure of the ViO23-6 cabin has been designed to meet the ROPS (Roll-Over Protective Structure) certification as well as the FOPS (Falling Object Protective Structure) level 1.



## THE BEST BOOM, ARM AND BUCKET CYLINDER PROTECTION OF THE MARKET

The ViO23-6 benefits from a unique and complete protection of all its boom and arm cylinders. All cylinder tubes and rods are protected by a spring type steel plate, which reduces drastically the Total Cost of Ownership of the machine.

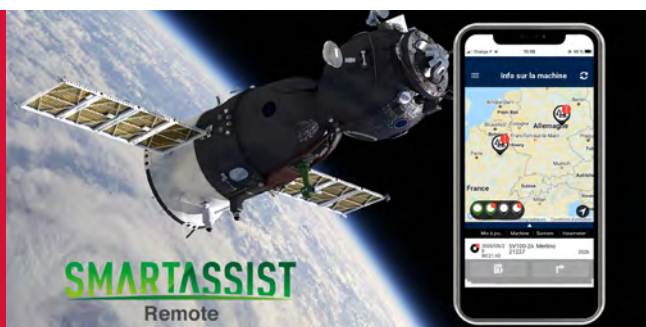
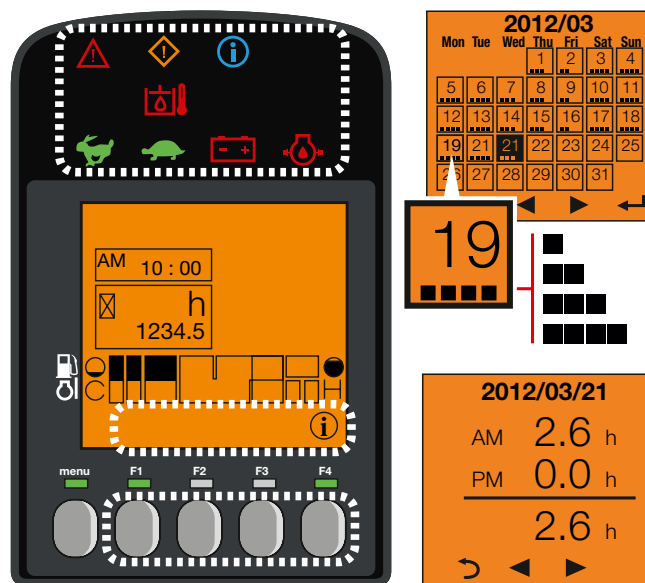


## LED LIGHTING: EFFICIENCY AND LOW CONSUMPTION

In order to work safely, efficiently and with accuracy in the darkness, the ViO23-6 is equipped in standard with 1 LED light positioned in the inner part of the boom.

## DIGITAL INTERFACE

The ViO23-6 is equipped with a digital interface which informs the operator in real time about the status of his machine. Perfectly integrated into the right hand console, the 3.3" screen provides excellent visibility. The interface provides the customer with useful information through LED lamps, or indications about important elements like fuel consumption, fuel gauge, coolant temperature gauge, etc... The interface assists the customer in monitoring maintenance intervals and scheduling related interventions. It also works as a diagnostic tool in case of malfunction by sending an error code and an information icon on the display.



## SMARTASSIST REMOTE

SmartAssist Remote is the fleet management system developed by Yanmar, using the latest telematic technology, which provides optimal visibility on your equipment location and status. This compact piece of equipment, available on ViO23-6, will help you maximize your work potential. By providing real-time information, it gives you total control and lets you monitor and manage your machines remotely via a PC or Smartphone.

# EQUIPMENT

## [ STANDARD EQUIPMENT ]

### PERFORMANCE

3TNV76-PBV1 Yanmar diesel | Meets EN-standards | Indirect injection | Auto-idle | Eco-Mode | Smart Assist Remote | Water separator | VIPPS Hydraulic system (ViO Progressive 3 Pump System) | 3rd hydraulic circuit line to arm end with proportional control (max 37,5 l/min) | Hydraulic oil gauge | LED work light under the boom | Arm (950 mm).

### COMFORT AND EASE OF USE

LCD interface | Heating | Adjustable suspension seat with vinyl or textile cover | Adjustable wrist support | 2 x 12V outlets & USB charger | Sliding double right-side window | Transparent upper front part | Wiper | Windshield washer | Automatic ceiling lamp | Storage boxes | Cup holder.

### SAFETY AND DURABILITY

Handrails | Safety lever | Safety belt | Hammer for evacuation | 3 mirrors | Horn | Extendable undercarriage | 4 tiedown points (2 on the undercarriage, 2 on the blade) | Blade cylinder supply hose into two parts | Complete protection of cylinder rod (arm, boom, blade) | Hoses protected by abrasion & projection -resistant sleeves | Lockable engine bonnet and fuel cap access door.

### MISCELLANEOUS

Fuel gauge | Locking covers | Tool kit | Grease pump.

## [ OPTIONAL EQUIPMENT ]

### EQUIPMENT AND PERFORMANCE

Long arm (1150 mm) | Third & fourth circuit with adjustable proportional control by potentiometer | Clamshell bucket circuit | Line high pressure 150 bar for hydraulic quick hitch | Quick couplers on hydraulic auxiliary lines | Additional counterweight (+100 kg) | Bio oil | 2 front LED working lights (cabin and canopy) | 1 rear LED work light + 1 LED flashing rotary fixed (cabin and canopy) | 1 LED flashing rotary fixed on cabin or canopy | Beacon light with magnetic base.

### COMFORT & EASE OF USE

Premium textile or vinyl seat with Yanmar logo | Document box | Radio | Travel pedals.

### SAFETY AND DURABILITY

Safety valves for lifting + overload warning | Travel alarm | Anti-theft devices | GPS tracking.

### MISCELLANEOUS

Special paint.

## [ ACCESSORIES ]

Yanmar offers you the accessories that fit your needs and match the safety standards applicable in your country: mechanical quick hitch, ditch cleaning bucket, tilting bucket, digging bucket, hydraulic hammer...



# LIFTING FORCES



Tipping load, rating over front



Tipping load, rating over side 90°

## Cabin, standard arm

Blade on ground								Blade above ground								
A	Max		3 m		2,5 m		2 m		Max	3 m		2,5 m		2 m		
B																
3 m	-	-	-	-	*490	*475	-	-	-	-	-	-	*485	*475	-	-
2,5 m	-	-	*505	*475	*520	*470	-	-	-	-	*500	*455	*520	*455	-	-
2 m	-	-	*515	*535	*590	*565	-	-	-	-	*515	430	*585	*580	-	-
1,5 m	355	*520	*510	*560	*650	*665	-	-	340	335	435	430	555	525	-	-
1 m	350	*535	425	*595	575	*770	-	-	340	325	425	420	550	510	-	-
0,5 m	375	*545	405	*655	515	*810	705	*1075	345	330	400	390	515	515	700	665
0 m	390	*555	415	*625	520	*805	715	*1050	380	380	405	390	505	485	705	655
-0,5 m	435	*560	-	-	520	*690	725	*955	440	430	-	-	510	490	735	740
-1 m	-	-	-	-	-	-	*695	*805	-	-	-	-	-	-	*680	*680

## Cabin, standard arm, additional counterweight

Blade on ground								Blade above ground								
A	Max		3 m		2,5 m		2 m		Max	3 m		2,5 m		2 m		
B																
3 m	-	-	-	-	*490	*475	-	-	-	-	-	-	*485	*475	-	-
2,5 m	-	-	*505	*475	*520	*470	-	-	-	-	*500	*455	*520	*455	-	-
2 m	-	-	*515	*535	*590	*565	-	-	-	-	*515	475	*585	*580	-	-
1,5 m	390	*520	*510	*560	*650	*665	-	-	395	370	475	475	605	580	-	-
1 m	385	*535	470	*595	630	*770	-	-	375	360	470	460	605	565	-	-
0,5 m	415	*545	450	*655	570	*810	780	*1 075	385	370	445	435	565	570	775	740
0 m	430	*555	455	*625	575	*805	790	*1 050	420	415	450	430	560	540	780	730
-0,5 m	480	*560	-	-	575	*690	800	*955	485	475	-	-	565	545	810	815
-1 m	-	-	-	-	-	-	*695	*805	-	-	-	-	-	-	*680	*680

## Canopy, standard arm

Blade on ground								Blade above ground								
A	Max		3 m		2,5 m		2 m		Max	3 m		2,5 m		2 m		
B																
3 m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,5 m	*440	*525	*415	*510	-	-	-	-	*420	*385	*405	415	-	-	-	-
2 m	365	*520	*410	*520	*510	*520	-	-	405	315	*400	420	*510	*490	-	-
1,5 m	335	*525	*415	*575	*560	*625	-	-	345	305	*425	390	*600	*600	-	-
1 m	310	*535	370	*600	490	*745	-	-	310	300	370	375	495	435	-	-
0,5 m	330	*550	405	*640	450	*805	-	-	305	305	395	345	440	485	-	-
0 m	330	*555	370	*635	430	*880	685	*920	305	335	375	365	455	435	655	505
-0,5 m	325	*545	-	-	440	*815	690	*840	315	375	-	-	425	460	670	525
-1 m	440	*480	-	-	-	-	770	*710	380	*515	-	-	-	-	695	540

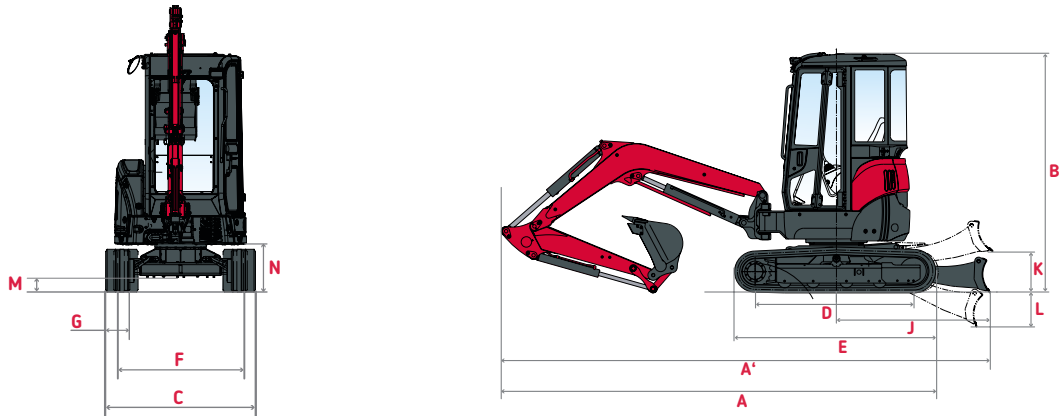
## Canopy, standard arm, additional counterweight

Blade on ground								Blade above ground								
A	Max		3 m		2,5 m		2 m		Max	3 m		2,5 m		2 m		
B																
3 m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,5 m	*490	*615	*465	*610	-	-	-	-	*465	*430	*450	455	-	-	-	-
2 m	405	*610	*455	*620	*575	*660	-	-	450	355	*450	465	*575	*555	-	-
1,5 m	375	*605	*465	*675	*620	*770	-	-	385	345	*470	430	*660	*665	-	-
1 m	350	*610	415	*700	555	*885	-	-	350	335	415	420	555	490	-	-
0,5 m	370	*630	455	*740	510	*945	-	-	345	345	440	390	500	540	-	-
0 m	370	*640	415	*730	490	*1 020	770	*920	350	375	420	410	515	490	740	560
-0,5 m	375	*655	-	-	500	*960	775	*840	365	420	-	-	485	515	755	580
-1 m	505	*635	-	-	-	-	855	*710	445	*585	-	-	-	-	780	600

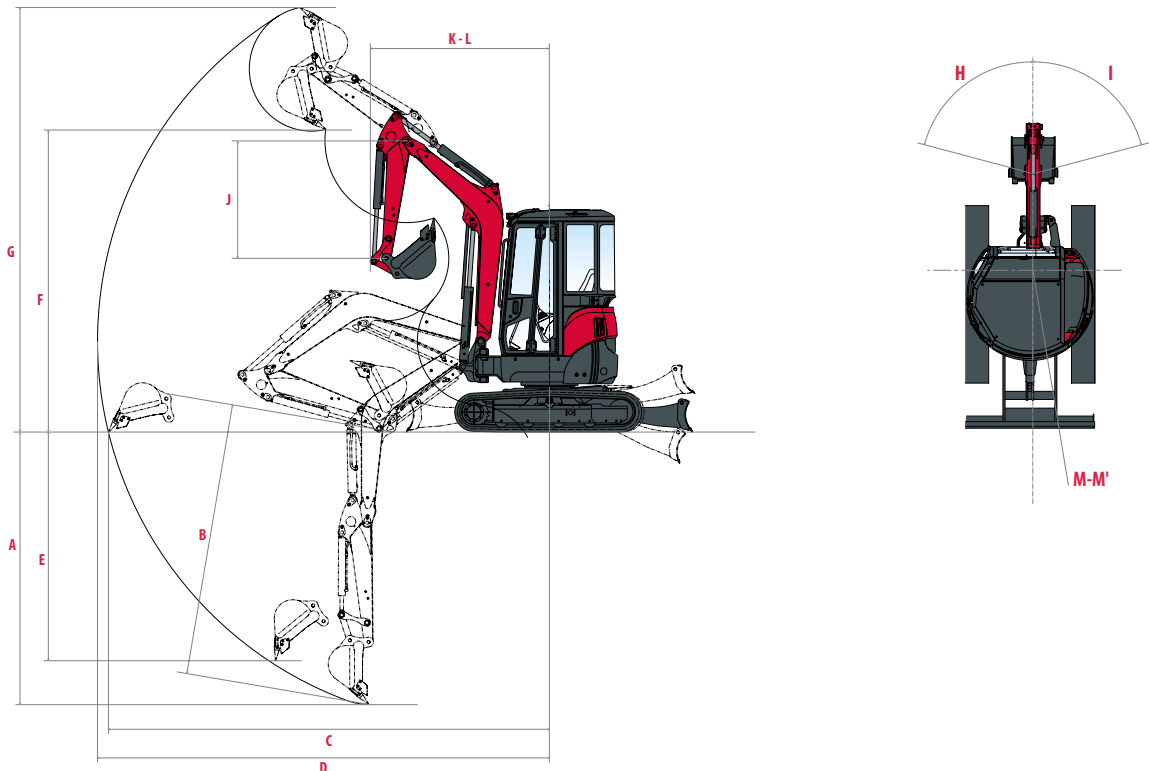
Measuring unit: Kilograms (kg).

[ Lifting capacities are only documented for extended undercarriage configuration. For stability reasons we strongly recommend to only lift loads when undercarriage is fully extended ]

# DIMENSIONS



<b>A</b>	Overall length	3 890 / 3 910 mm	<b>H</b>	Overall blade width	1 380 / 1 550* mm
<b>A'</b>	Overall length with blade at the back	4 250 / 4 270 mm	<b>I</b>	Overall blade height	290 mm
<b>B</b>	Overall height	2 420 / 2 480** mm	<b>J</b>	Blade distance	1320 mm
<b>C</b>	Overall width	1 380 – 1 550* mm	<b>K</b>	Max. blade height above the ground	355 mm
<b>D</b>	Length of track on ground	1 470 mm	<b>L</b>	Max. lowering blade depth	335 mm
<b>E</b>	Undercarriage length	1 890 mm	<b>M</b>	Minimum ground clearance	150 mm
<b>F</b>	Lane	1 130 / 1 300* mm	<b>N</b>	Ground clearance under counterweight	500 mm
<b>G</b>	Track width	250 mm			



<b>A</b>	Max. digging depth - Blade lifted	2 270 / 2 465 mm	<b>H</b>	Boom swinging base to left	46°
<b>B</b>	Max. digging depth - Blade lowered	2 450 / 2 655 mm	<b>I</b>	Boom swinging base to right	74°
<b>C</b>	Max. digging reach on ground	4 020 / 4 220 mm	<b>J</b>	Arm lenght	950 / 1 150 mm
<b>D</b>	Max. digging reach	4 140 / 4 325 mm	<b>K</b>	Minimum front swing radius	1 820 / 1 850 mm
<b>E</b>	Max. vertical wall	1 870 / 2 080 mm	<b>L</b>	Minimum front swing radius with boom swing	1 530 / 1 560 mm
<b>F</b>	Max. dumping height	2 570 / 2 695 mm	<b>M</b>	Rear swing radius	690 mm
<b>G</b>	Max. cutting height	3 840 / 3 960 mm	<b>M'</b>	Rear turning radius with additional counterweight	750 mm

\*Retracted undercarriage - Extended undercarriage. \*\*Canopy / Cabine

# TECHNICAL SPECIFICATIONS

## [ WEIGHT +/- 2% (EN STANDARDS) ] WITH JAPANESE BUCKET OF 58KG

	Transport weight	Operating weight	Ground pressure
Canopy version / Rubber crawlers	2 170 kg	2 245 kg	0,26 / 0,27 kgf/cm <sup>2</sup>
Cabin version / Rubber crawlers	2 330 kg	2 405 kg	0,29 / 0,30 kgf/cm <sup>2</sup>

## [ ENGINE ]

Type	3TNV76-PBV1
Regulation	Stage V
Fuel	Diesel
Net Power	14,6 kW at 2 400 rpm
Gross Power	15 kW at 2 400 rpm
Displacement	1,11 liter
Maximum torque	62,8 – 68,6 N.m at 1 800 rpm
Cooling	Water-cooling
Starter	12 – 1 V-kW
Battery	12 – 36 V-Ah
Alternator	12 – 40 V-A

## [ HYDRAULIC SYSTEM ]

Maximum pressure	210 bars
1 double piston pump with variable flow	2 x 21,6 l/min
1 gear pump	20,4 l/min
1 gear pump for pilot line	10,8 l/min

PTO	Measured data at maximum engine speed	
	Pressure	Flow
2 ways	0 - 156 bars	37,5 – 15,9 l/min
1 way	0 - 160 bars	7,1 – 5,0 l/min

 Oil flow decreases as the pressure increases

## [ PERFORMANCE ]

Travel speed (Low / High)	2,2 / 4,2 km/h
Rotation speed	10 rpm
Digging force (short arm / long arm)	13,1 kN / 10,6 kN
Digging force (bucket)	17,5 kN
Maximum static traction force [1st speed] / [ 2nd speed]	24 kN / 12 kN
Gradeability (climbing ability)	25°
Noise Level (2000/14/CE&2005/88/CE)	LwA: 93 dBA / LpA: 80 dBA

## [ UNDERCARRIAGE ]

Number of top rollers	1
Number of bottom rollers	4
Track tensioning system	Grease adjuster

## [ CAPACITIES ]

Fuel tank	27,5 liters
Coolant	4,1 liters
Engine oil	3,5 liters
Hydraulic circuit	40 liters (including hydraulic tank)
Hydraulic tank	25 liters

## MAINTENANCE FREQUENCY

[ Change engine oil and filter: **500 hours** ] [ Change fuel filter: **250 hours** ] [ Clean hydraulic oil filter: **500 hours** ] [ Change hydraulic oil return filter: **500 hours** ] [ Change cooling fluid: **2 000 hours** ]



**YANMAR**



Yanmar Compact Equipment EMEA

GB\_Vi023-6\_0322



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