



SIDE ARM FOR VERGE MOWING AND HEDGE CUTTING

Professional range from 5.10 to 5.70 metres

# Optima

**M51 - M56 - Visiobra M57T**



*the strength of versatility*

 **NOREMAT**



# Top-of-the-range quality standards

## ACCESSIBILITY



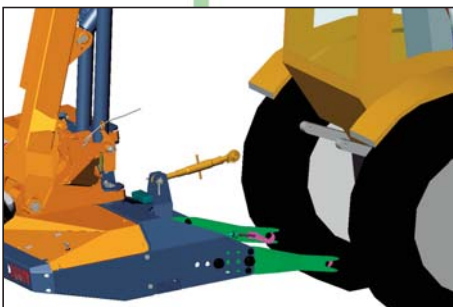
A vertically opening, hinged, bonnet gives easy access to the radiator and the hydraulic valve block, which, when open, does not make the machine any wider. This allows safer “road-side” checking of the machine. Other hydraulic parts are protected by a separate, removable cover.

## SAFETY



The hydraulic hoses are easily accessible and are enclosed within the arm for protection and to improve the appearance.

## ERGONOMY



The Optima range has an axle bracket with quick coupling 3 point linkage, a stable, robust system for optimum balance between the tractor and attachment.

## SAFETY BETWEEN SITES

In the transport position, Optima remains inside the width of the tractor. A semi-automatic latching system controlled from the driver's cab, locks the machine mechanically.





### **Optima M51**

Offset arm - 5.10 m reach



### **Optima M56**

Offset arm - 5.60 m reach



### **Optima Visiobra M57 T**

Telescopic arm - 5.70 m reach



## The Optima range, the best Noremat technology

**N**oremat's OPTIMA is the first range of side-arm flail mowers within the 5 to 6 metre market sector to adopt 100% heavy duty construction from the main frame to the arms. The range is designed for relia-

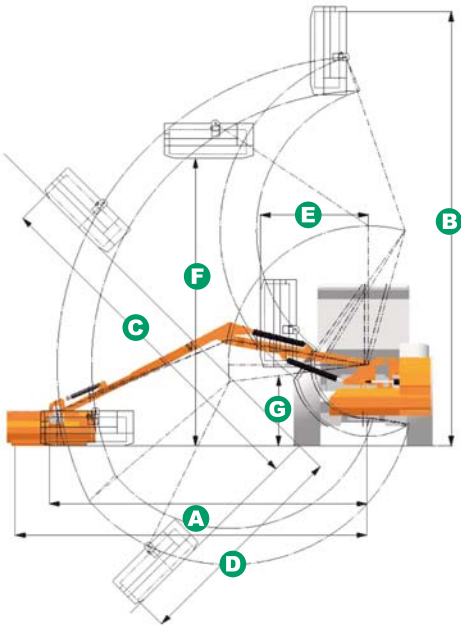
bility, using the most innovative technology such as the Visiobra concept, and has the flexibility required to ensure effective, top quality mowing and verge maintenance.

View from the driver's seat of an Optima Visiobra



# Handle any type of work !

## Reach kinematics



### Optima

	M51	M56	Visiobra M57T	
Kinematics (with a 1.25 m wide mowing head)			Telescopic in	Telescopic out
<b>A</b> Max. horizontal reach*	5.14 m	5.61 m	5.15 m	5.70 m
<b>B</b> Max. vertical reach**	6.57 m	7.03 m	6.57 m	7.11 m
<b>C</b> Upper embankment reach	5.23 m	5.71 m	5.23 m	5.80 m
<b>D</b> Lower embankment reach	3.00 m	3.52 m	3.00 m	3.63 m
<b>E</b> Mini lateral reach*	1.75 m	1.85 m	1.75 m	
<b>F</b> Max. over hedge reach	4.42 m	4.65 m	4.42 m	4.71 m
<b>G</b> Under-first arm clearance	1.01 m	1.01 m	1.01 m	
Slew angle	100°	100°	100°	
Telescopic section length	-	-	0.92 m	
Head orientation angle	230°	230°	230°	
Overall transport height***	3.86 m	3.85 m	3.86 m	
Operating weight	1 590 kg	1 640 kg	1 740 kg	

\* measured from the tractor centre line

\*\* 50 cm ground clearance

\*\*\* may vary according to type of tractor

## Ideal equipment for intensive and varied work

The offset pivot and forward cranked arm principle increases tractor stability and provides the driver with a better view of the moving/head, thus reducing operator fatigue and so increasing productivity.

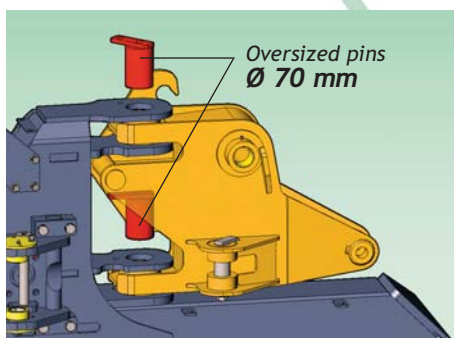


The offset pivot also enables work on narrow paths without the use of additional elements.



## 100% heavy duty structure !

The Optima range has a 100% heavy duty main frame specially designed for all intensive grass / brush cutting and tree pruning.



Oversized pins  
Ø 70 mm

Pivot mounted on large diameter dual pin assembly.

The arm is attached and can rotate around two large diameter pins for maximum load bearing and durable operation.



**LONG LIFE ASSURED**



Each bearing has honeycomb grease-retaining sleeves with high surface hardness and excellent seize and wear resistance.

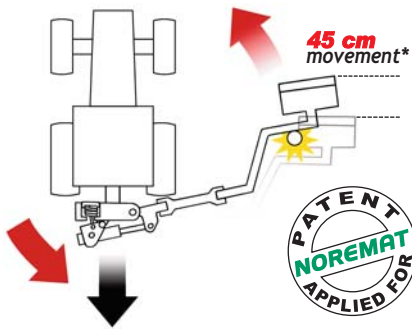
The oversized linkage assembly has 40 mm and 50 mm diameter carburised, hardened pins.

Feel safe and comfortable

# Safety special devices

## “Safety plus” equipment for long service life applications

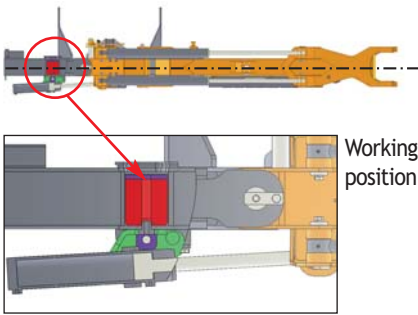
ESSENTIAL SECURITY



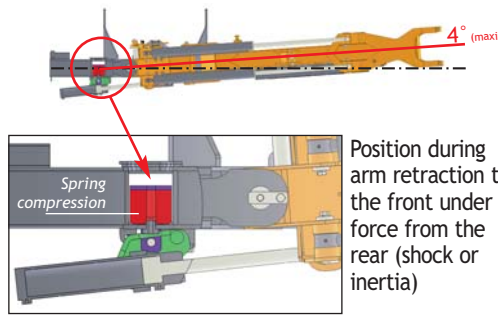
\*Arm working at lateral reach of 6 m.

### Reversing shock absorber

This device provides extra protection in the event of a mistake while reversing. The pivot fork on the main frame allows the arm to retract towards the front. It eliminates the risk of breaking the slew cylinder.



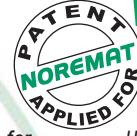
Working position



Position during arm retraction to the front under a force from the rear (shock or inertia)

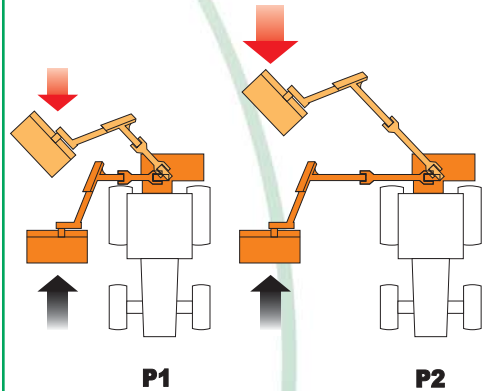
## Safety features for improved productivity

HIGHER PRODUCTIVITY



Low pressure for a retracted arm...

Higher pressure for an extended arm



### Dual pressure retraction

By using two different pressures in the machine slew cylinder this automatic device maintains the arm in its working position. The resistance force on the head is the same regardless of the arm position.

# The Visiobra concept

## All round vision, full control, better manoeuvrability

ACCURATE AND PRECISE ADJUSTEMENT

The Optima Visiobra is the first side arm mower in its category with a hydraulic, forward offset, telescopic arm. This exclusive Noremat technology complements the intrinsic stability of the off-side pivot :

- the mowing head (when the arm is extended) is significantly further forward so that the driver can see the road, the verge and the mowing head at the same time
- the mowing head can be positioned very precisely
- it is easier to manoeuvre to mow around obstacles (no need to change course)



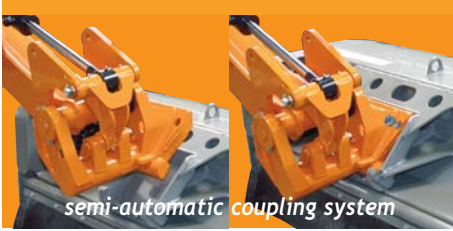
It is possible to mow round obstacles without changing course before and after the obstacle.



The Optima Visiobra M57 T can position the mowing head exactly where it is needed. The telescopic offset provides completely clear view of the road (1), the verge (2) and the cutting head (3).







semi-automatic coupling system

# The right tool for every job

## Unibroyeur 2

The unibroyeur is a versatile head for mowing and hedge-cutting

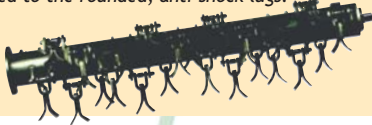


Construction	HY steel (high yield)
Cutting width	1.25 m
Overall width	1.43 m
Rotor rotation speed	2950 rpm (+/- 50 rpm)
Double rotation direction	yes (electrical control)
Float* position	electrical standard feature
Hyd. motor	axial pistons
Cubic capacity	35 cc
Drive	synchronous belt
Cutting height	adjustable in 3 positions 5, 7 and 9 cm
Bearing protection	double chicane
Anti-projection cover	no sharp edges (improves slide)

\* enables automatic following of the terrain to be cut

### UNIVERSAL ROTOR

Equipped with  $\varnothing$  14 mm bolts and shackles  
Fastened to the rounded, anti-shock lugs.



### "Y" flails

Serial fitted.



### FIXA-SPEED system

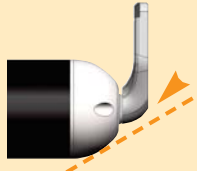
Fast fitting mowing flails.



### FEELER ROLLER

- The rounded profile of the support allows it to slide along the bottom of the ditch.

- Removable end-cap with double-roller bearings.



### FOREST SHREDDER

Special heavy-duty bush-cutter



- Cutting width 1.25 m
- Tubular frame
- New generation Rolmax rotor
- Flails fitted in spiral layout

### 14 AND 16 MAX

Special extra-wide mowing



- Cutting width 1.40 m or 1.60 m
- Reinforced rotor bearings

### SAW-BLADE UNIT

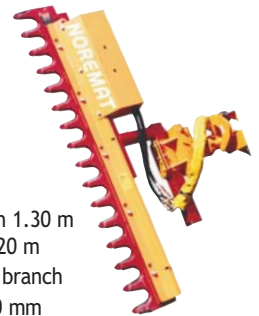


- 2 to 5 blades
- Blade thickness 4 mm and  $\varnothing$  700 mm
- Ecological cut
- Kevlar belt

- Cutting disk used for light cutting tasks ( $\varnothing$  up to 30 mm)



### BRANCH CUTTER



- Width 1.30 m or 2.20 m
- Max. branch  $\varnothing$  100 mm
- no maintenance, no sharpening required

## Ergonomics and comfort

### Sliding armrest

The sliding armrest eliminates friction of the lower arm on the rest and reduces flexion and torsion of the wrist by 30 %.



Single-lever Low Pressure mixed (elec. + hydr.) controls

Types of controls	OPTIMA 51 and M 56	OPTIMA M 57T
- multi-lever Low Pressure hydraulic assisted	standard	standard
- single-lever Low Pressure mixed (electric+hydr.)	optional	optional
- single-lever electrical proportional	optional	optional
3 <sup>rd</sup> proportional movement (moving hd)	option, if electrical control	
Electronic support	option, if electrical control	



Multi-lever Low Pressure hydraulic assisted controls



Single-lever electrical proportional controls

# With your needs in mind

## Use of the best industrial components

### HIGH-PERFORMANCE STEELS

The entire machine is made of HY steel (high yield) offering the following advantages :

- lighter frame,
- increased mechanical capacity,
- increased impact safety factor.

### TOP-OF-THE-RANGE HYDRAULIC COMPONENTS

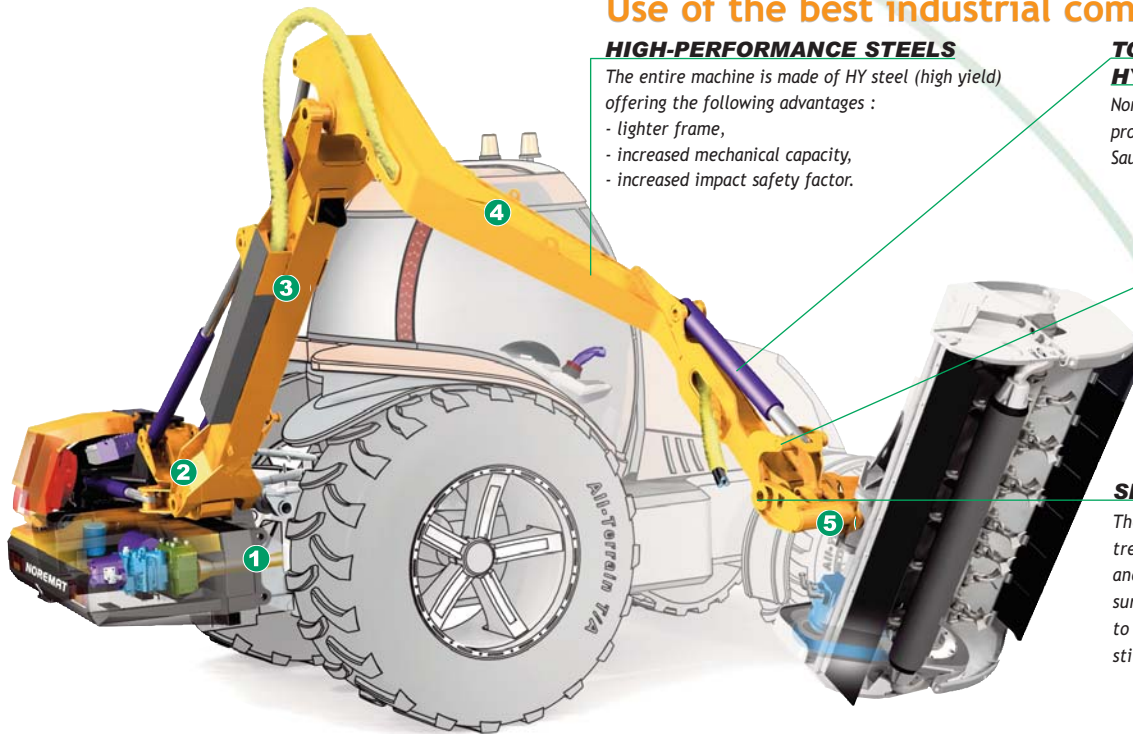
Norematt only uses leading brand-name products in its hydraulic circuits : Sauer, Danfoss, Rexroth...

### LONG-LIFE TREATMENT OF CONNECTING ROD ASSEMBLY

To increase the harness and working life of the ring rod assembly, the shafts are tempered as well as case and core hardened.

### SPECIFIC BUSHES

The bushes used are thermo-chemically treated to guarantee exceptional wear and gripping resistance. The friction surface of these rings is perforated to create a larger grease reserve while still guaranteeing optimum contact.



### ● Rotor hydraulic circuit

PTO	540 rpm	1 000 rpm
Gear ratio	1 : 4	1 : 2,5
<b>Hydraulic pump</b>		
Type / Cubic capacity	piston / 46 cc	
Flow-rate	100 l/mn.	115 l/mn.
Maximum pressure	300 bar	
Power	68 HP	78 HP
Controls	electric	
Rotor's full stopping time	3 seconds	
Fastening	pump flanged to gearbox	
<b>Hydraulic motor</b>		
Type	piston	
Cubic capacity	35 cc	
Transfer valve incorporated	Yes	

### ● Movement hydraulic circuit

PTO	540 rpm	1 000 rpm
Gear ratio	1 : 4	1 : 2,5
<b>Hydraulic pump</b>		
Type	geared	
Cubic capacity	17 cc	
Flow-rate	36 l	42 l
Maximum pressure	220 bar	
Fastening	pump flanged to gearbox	
<b>Hydraulic ram</b>		
Type	double-acting	
Maximum pressure	250 bar	
Special equipment	beam and arm anti-drop system	

### ● Movement hydraulic circuit (continued)

<b>Electrical and mixed controls</b>	
Distributor valve block	electrical proportional controls
Controls	single-lever electrical and ergonomic
<b>LP controls</b>	
Distributor valve block	hydraulic proportional controls
Controls	multi-lever
<b>Hydro-pneumatic suspension</b>	
Accumulator on 1 <sup>st</sup> arm rams	0,7 liter - 250 bar
<b>Control of the accumulator</b>	
Machines with electrical and mixed controls	electric
Machines with mechanical and LP controls	manual

### ● Filtering and cooling

<b>Tank</b>	
Capacity	70 litres
<b>Oil</b>	
Type	80 W 90-HV 46
<b>Return and suction filters</b>	
Filter type	spin on
Filtration	10 microns nominal
<b>Cooling</b>	
Radiator	aluminium
Fan	electric - Ø 305 mm
Heat exchange capacity	14,5 kW

### 1 Frame

Material	HY steel*
Composition and materials used	tube 60 x 60 x 6 mm
	tube 120 x 120 x 8 mm
	sheet metal 8 and 15 mm

### 2 Machine swivel

Material	HY steel*
Composition and materials used	sheet metal 8 and 12

### 3 Beam

Material	HY steel*
Composition and materials used	tube 160 x 160 x 8 mm

### 4 Straight and M-Type compensating arm

Matière	HY steel*
Composition and materials used	reconstituted tube 6 to 10 mm
Arm section ranging from	100 x 112 to 165 x 160 mm
Thickness ranging from	6 to 10 mm
Front offset for cranked 2 <sup>nd</sup> arm	650 mm

### 4 2<sup>nd</sup> arm "Visiobra"

Material	HY steel*
Composition and materials used	reconstituted tube 6 to 10 mm
Arm section ranging from	from 140x140 to 180x155 mm
Telescopic	110 x 110 x 6.3 mm

### 5 Head angle bracket

Material	HY steel*
Composition et matériaux utilisés	cats-iron GS
	foundry
Hitching element	round Ø 70

\* High yield



At Norematt,

# The Customer Service conviction is a force

## “**NO**uvelle **RE**ntabilité du **MAT**ériel”\*

The very name of the company conveys its aim: to use all technical and commercial means possible to improve the profitability of roadside verge maintenance equipment for our business customers.

\*New Profitability from your Equipment

## **NO**REMAT'S independence

NOREMAT is a family owned French company, founded in 1981 and specialising in the construction and maintenance of equipment for maintaining roadside verges and large green areas (airports, railways, navigable waterways, etc).



## **NO**REMAT spare parts

Initially, NOREMAT's activity was concentrated around direct customer service : supply of spare parts and after sales service to businesses using flail mowers. Direct contact with users and listening to their needs led NOREMAT to start designing their own spare parts. The success of these parts bearing the logo "NR" (for Norematt Reinforced) progressively led NOREMAT to start designing its own machines as of 1988.



NOREMAT holds a large stock of more than 6000 part numbers, ready for dispatch for the following day

## A range for professional users

NOREMAT designs, assembles and tests 400 side flail arms per year at their Ludres factory.

11 basic models are available, all designed for professional use and using hydraulic components from respected brands.



## Training by NOREMAT

At NOREMAT we provide training to operators, drivers and technicians, and allocates significant resources to fully train all our own staff to a very high standard (30 sales persons and 25 after sales technicians).



## Recognition

Some prestigious prizes have rewarded NOREMAT's research and innovation work.

INPI International Trophy for Innovation 2002



Certificate of approval as a Mercedes Benz partner since 2001



"Lorraine Quality" prize 1997



"Lorraine Performance" prize 1993



Within a policy of constant product improvement, NOREMAT reserves the right to modify the specifications in this document without notice. Photographs are not contractual. 10-2007



166, rue Ampère  
54714 LUDRES Cedex

Tel. : (02) 4954 8900

Fax : (02) 4954 8902

e-mail : alveco@ceinternet.com.au

www.stockercrew.com.au