



BENDING MACHINES

BM 06-24 · BM 16-30 · BM 22-36 · BM 32-42 · BM 36-48 · BM 48-60



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BM 06-24

ENGINE OUTPUT	OPERATING WEIGHT	RANGE
53,7 kW	9.250 kg	6" - 24 "
72,2 HP	20,393 lb	

BM 16-30

ENGINE OUTPUT	OPERATING WEIGHT	RANGE
125 kW	22.250 kg	16" - 30 "
170 HP	49,053 lb	

BM 22-36

ENGINE OUTPUT	OPERATING WEIGHT	RANGE
125 kW	25.500 kg	22" - 36 "
170 HP	56,218 lb	

ABOUT US

For nearly 40 years, Maats has been one of the leading suppliers of pipeline construction equipment and services to the pipeline industry. Maats supply a wide variety of specialised construction machinery such as pipe layers, welding tractors, bending machines and related equipment for new pipeline construction as well as for pipeline maintenance and repairs.

BM 32-42

ENGINE OUTPUT	OPERATING WEIGHT	RANGE
125 kW	42.500 kg	32" - 42 "
170 HP	93,696 lb	

BM 36-48

ENGINE OUTPUT	OPERATING WEIGHT	RANGE
180 kW	64.500 kg	36" - 48 "
241 HP	142,198 lb	

BM 48-60

ENGINE OUTPUT	OPERATING WEIGHT	RANGE
275 kW	88.000 kg	48" - 60 "
374 HP	194,006 lb	

Maats produces an extensive range of both internal and external bending machines. These bending machines are considered to be the strongest and highest quality currently available.

BENDING MACHINES

The robust and reliable Maats bending machines are designed to perform the most difficult jobs under extreme operating conditions.

With the capacity to bend pipes up to 1-inch wall thickness at X100 of the maximum loadable pipe-size, the Maats bending machines are the strongest available in the market.

PERFORMANCE

The specially constructed high-strength-steel frame and heavy-duty Liebherr components easily provide the required bending capacity. The advanced machine lay-out and high-quality materials ensure maximum performance, even under the most difficult conditions.

RELIABILITY

Maats bending machines are designed to handle current and future heavy-wall, high-strength pipe. The strong construction and high-quality materials used in the design provide maximum reliability. By using mainly Liebherr components,

the machine's service and spare parts can be easily obtained, anywhere in the world.

ECONOMY

The long component service life and low service costs effectively reduce downtime and maintenance costs. The precision hydraulics protect and limit wear of the components and save fuel. The load sensing proportional flow control delivers power on demand and saves fuel when no power is needed. The hyperbolic power regulation of the pump provides an optimized flow and pressure regulation that results in an efficient use of the power and performance of the engine = fuel saving!

COMFORT

All hydraulic controls are servo-controlled levers located on the operator stand, providing the comfort and safety of performing all bending operations from one place. Special connections are provided for easy hook up of a digital angle measurement system. The machines are standard equipped with a hydraulic PTO for easy hook-up of a mandrel. Optional equipment (e.g. compressor, work lights) can be installed and additional equipment can be supplied by Maats (e.g. hydraulic- or pneumatic mandrels, bending sets & -dies, EuroBend).



THE ROBUST AND RELIABLE MAATS BENDING MACHINES ARE THE STRONGEST AVAILABLE IN THE MARKET





HIGHLIGHTS BENDING MACHINES

HIGH-STRENGTH-STEEL FRAME

LIEBHERR INTEGRATED FOR MAXIMUM
RELIABILITY

EASY OPERATION, SERVICE AND
MAINTENANCE

SERVO CONTROLLED LEVERS

FUEL SAVING FEATURES



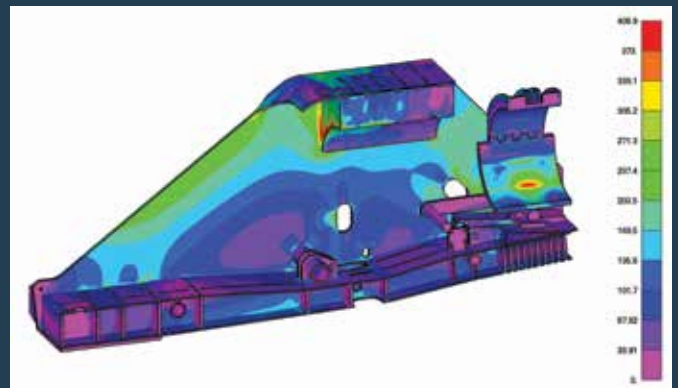
BENDING MACHINES

SAFETY

Operation and maintenance are kept safe and easy through the straight forward machine lay-out. All hydraulic controls as well as the emergency stop are located at the operators platform, providing the comfort and safety of commanding all operations from one place. There are no high-pressure hoses in the operator area, and the sound-level is minimized by locating the the sound-insulated HPU compartment on the opposite side of the operators platform. The surplus in power also means that the machine will be running at idle for most of the time, resulting in a lower noise level. The risk analysis also resulted in the addition of a safety lever, this lever has to be raised when leaving the operators platform. By raising the lever, all hydraulic functions of the bending machine are disabled. This means that the machine has no functionality when there is nobody on the operators platform. This prevents unintended movement of the machine and reduces the risk of severe injuries.

FRAME

The Maats bending machines are suitable for virtually all pipes that are currently commercially available and there are no practical concerns for bending any steel pipe nor limitations for designing a cross country pipeline to the highest available specifications: the machines are up for any job. Making the force available to bend high quality pipe steel is of course vital, but with modern techniques in hydraulics it is not a problem to obtain enough hydraulic force. The actual difficulty is in the strength of the machine frame. Maats engineers investigated the optimum transfer of forces in the frame to prevent the frame from cracking, even with the high stresses that occur when bending pipes with large wall thicknesses and high steel grades.



This model shows the stress calculation that Maats engineers carried out. As a result of these calculations, the engineers decided to use a high-strength-steel quality for the frame. With that high standard it leaves no doubt that the machines can bend the range of pipe specifications without any problems, also at low temperatures.



THE MAATS BENDING MACHINES ARE SUITABLE FOR VIRTUALLY ALL PIPES THAT ARE CURRENTLY COMMERCIALY AVAILABLE





INTERNAL BENDING FOR INSULATED PIPES

Sometimes, a traditional bending machine is not ideal for the job. The Maats Internal Bending machine (IB) is the first pipe bending machine in the world that is able to cold bend steel pipes from the inside, a technique ideal for pipes that have an external insulation, like those used for district heating and cooling, for heated crude oil lines or for any other medium that has to remain within set temperature limits. The Maats IB provides a high-quality alternative for factory made bends or external bending that was previously used for thermal insulated pipes. It offers an improved flexibility and economy for any project using insulated pipes, anywhere in the world.



In case you need more information about the Maats Internal Bending machine, please contact us.

BASE MACHINE



ENGINE

BM 06-24

BM 16-30

BM 22-36

Diesel engine	Yanmar 4TNV98CT, Emission regulations according to EC(NRMM) Stage V	FPT N45, Emission regulations according to 97/68/EC, 2004/26/EG stage IV and EPA/CARB Tier 4f	FPT N45, Emission regulations according to 97/68/EC, 2004/26/EG stage IV and EPA/CARB Tier 4f
Rating (ISO9249)	53,7kW / 72,2 HP	125 kW / 170 HP	125 kW / 170 HP
Rating (SAE J1349)			
Rated speed	1.800 rpm	1.800 rpm	1.800 rpm
Displacement	3,319 l / 202,5 cu. In.	4,5 l / 275 cu. In.	4,5 l / 275 cu. In.
Design	4- stroke 4-cylinder-in-line engine, water cooled, turbocharged	4-cylinder-in-line engine, water cooled, turbocharged, air-to-air intercooler	4-cylinder-in-line engine, water cooled, turbocharged, air-to-air intercooler
Injection system	Direct fuel injection, pump with electric governor	Direct injection, pump-line-nozzle system, electronic engine management	Direct injection, pump-line-nozzle system, electronic engine management
Engine lubrication	Forced feed lube system, engine lubrication guaranteed for inclinations up to 30 degrees	Pressurised lube system, engine lubrication guaranteed for inclinations up to 35 degrees	Pressurised lube system, engine lubrication guaranteed for inclinations up to 35 degrees
Operating voltage	12 V	24 V	24 V
Alternator	40 A	70 A	70 A
Starter	2,3 kW / 3,1 HP	4,0 kW	4,0 kW
Batteries	1 x 80 Ah / 12 V	2 x 110 Ah / 12V	2 x 110 Ah / 12V
Air cleaner	Dual stage dry type with safety element, precleaner / cyclofilter	Dual stage dry type with safety element. Optional: precleaner / cyclofilter	Dual stage dry type with safety element. Optional: precleaner / cyclofilter
Cooling system	Standard radiator with direct driven fan.	Combi radiator, comprising radiators for coolant, hydraulic fluid and charge air. Direct driven fan.	Combi radiator, comprising radiators for coolant, hydraulic fluid and charge air. Direct driven fan.



HYDRAULIC SYSTEM

BM 06-24

BM 16-30

BM 22-36

System	Load sensing proportional pump control	Load sensing proportional pump flow control and hyperbolic power regulation	Load sensing proportional pump flow control and hyperbolic power regulation
Pump type	Swash plate, variable displacement axial piston pump	Swash plate, variable displacement axial piston pump	Swash plate, variable displacement axial piston pump
Pump flow max.	130,5 l/min / 34,5 gpm	297 l/min / 78,5 gpm	297 l/min / 78,5 gpm
Pressure limitation	250 bar / 3,625 PSI	350 bar / 5,075 PSI	350 bar / 5,075 PSI
Control valve	5 segments, manual actuated	5 segments, hydraulic actuated	5 segments, hydraulic actuated
Filter system	Return filter in the hydraulic tank	Return filter in the hydraulic tank	Return filter in the hydraulic tank
Control	5 hydraulic actuated levers for all functions	5 hydraulic actuated levers for all functions	5 hydraulic actuated levers for all functions



HYDRAULIC CYLINDERS

BM 06-24

BM 16-30

BM 22-36

Outboard cylinder	2x Liebherr, 250 x 315	2x Liebherr, 240 x 500	2x Liebherr, 260 x 400
Inboard cylinder	2x Liebherr, 200 x 132	2x Liebherr, 150 x 145	2x Liebherr, 170 x 155
Wedge cylinder	1x Liebherr, 125 x 585	1x Liebherr, 140 x 680	1x Liebherr, 140 x 680
Clamp cylinder	1x Liebherr, 70 x 300	1x Liebherr, 100 x 400	1x Liebherr, 100 x 400



NOISE EMISSION

BM 06-24

BM 16-30

BM 22-36

Exterior sound pressure (2000/14/EC)	LpA = 74-87 dB(A) (distance @ 1 m.)	LpA = 72-86 dB(A) (distance @ 1 m.)	LpA = 72-86 dB(A) (distance @ 1 m.)
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BM 32-42

FPT N45, Emission regulations according to 97/68/EG, 2004/26/EG stage IV and EPA/CARB Tier 4f
 125 kW / 170 HP
 1.800 rpm
 4,5 l / 275 cu. In.
 4-cylinder-in-line engine, water cooled, turbocharged, air-to-air intercooler
 Direct injection, pump-line-nozzle system, electronic engine management
 Pressurised lube system, engine lubrication guaranteed for inclinations up to 35 degrees
 24 V
 70 A
 4,0 kW
 2 x 110 Ah / 12V
 Dual stage dry type with safety element.
 Optional: precleaner / cyclofilter
 Combi radiator, comprising radiators for coolant, hydraulic fluid and charge air.
 Direct driven fan.

BM 36-48

Liebherr D934-L-A6, Emission regulations according to 97/68/EG, 2004/26/EG stage IIIA and EPA/CARB Tier 3
 180 kW / 241 HP
 178 kW / 237 HP
 1.800 rpm
 7,0 l / 426 cu. In.
 4-cylinder-in-line engine, water cooled, turbocharged, air-to-air intercooler
 Direct injection, pump-line-nozzle system, electronic engine management
 Pressurised lube system, engine lubrication guaranteed for inclinations up to 45 degrees
 24 V
 80 A
 5,4 kW
 2 x 110 Ah / 12V
 Dual stage dry type with safety element.
 Optional: precleaner / cyclofilter
 Combi radiator, comprising radiators for coolant, hydraulic fluid and charge air.
 Hydrostatic driven fan.

BM 48-60

D946 L A6, Emission regulations according to 97/68/EG, 2004/26/EG Stage IIIA and EPA/CARB Tier 3
 275 kW / 374 HP
 275 kW / 368 HP
 1600 rpm
 12,0 l / 733 cu. In.
 6-cylinder-in-line engine (wet-sleeve), water cooled, turbocharged, air-to-air intercooler
 Direct fuel injection, pump-line-nozzle injection, electronic control
 Force-feed lubrication, engine lubrication in an inclined position up to 45 degrees
 24 V
 80 A
 7,8 kW
 2 x 225 Ah / 12V
 Dual stage dry type with safety element
 Combi radiator, comprising radiators for water and charge air. Hydrostatic driven fan.

BM 32-42

Load sensing proportional pump flow control and hyperbolic power regulation
 Swash plate, variable displacement axial piston pump
 297 l/min / 78,5 gpm
 350 bar / 5,075 PSI
 5 segments, hydraulic actuated
 Return filter in the hydraulic tank
 5 hydraulic actuated levers for all functions

BM 36-48

Load sensing proportional pump flow control and hyperbolic power regulation
 Swash plate, variable displacement axial piston pump
 387 l/min / 102,2 gpm
 350 bar / 5,075 PSI
 7 segments, hydraulic actuated
 Return filter in the hydraulic tank
 5 hydraulic actuated levers for all functions

BM 48-60

Load sensing proportional pump flow control and hyperbolic power regulation
 Swash plate, variable displacement axial piston pump
 552 l/min / 145,8 gpm
 350 bar / 5,075 PSI
 7 segments, hydraulic actuated
 Return filter in the hydraulic tank
 5 hydraulic actuated levers for all functions

BM 32-42

4x Liebherr, 240 x 500
 2x Liebherr, 180 x 145
 1x Liebherr, 170 x 930
 1x Liebherr, 100 x 400

BM 36-48

4x Liebherr, 320 x 500
 2x Liebherr, 220 x 175
 2x Liebherr, 170 x 1400
 1x Liebherr, 140 x 400

BM 48-60

4x Liebherr, 360 x 460
 2x Liebherr, 250 x 190
 2x Liebherr, 170 x 1400
 1x Liebherr, 140 x 400

BM 32-42

LpA = 72-86 dB(A) (distance @ 1 m.)

BM 36-48

LpA = 72-86 dB(A) (distance @ 1 m.)

BM 48-60

LpA = 72-86 dB(A) (distance @ 1 m.)

BASE MACHINE



REFILL CAPACITIES

	BM 06-24	BM 16-30	BM 22-36
Fuel tank	90 l / 23,8 gal	170 l / 44,9 gal	170 l / 44,9 gal
Cooling system	4,2 l / 1,1 gal	30 l / 7,93 gal	30 l / 7,93 gal
Engine oil with filters	11,2 l / 30 gal	29 l / 7,66 gal	29 l / 7,66 gal
Hydraulic oil tank	185 l / 48,9 gal	480 l / 126,8 gal	480 l / 126,8 gal



UNDERCARRIAGE

	BM 06-24	BM 16-30	BM 22-36
Tyre type	High load tyre		
Tyre size	19,0 / 45-17		
Chains		Triple grouser shoes: track chain tensioning by bolts	Triple grouser shoes: track chain tensioning by bolts
Track links		28 (each side)	28 (each side)
Track rollers / carrier rollers		3/1 (each side)	3/1 (each side)
Track shoes standaard		458 mm / 18"	458 mm / 18"
Track shoes option		508 mm / 20"	508 mm / 20"



WINCH

	BM 06-24	BM 16-30	BM 22-36
Rated line pull	4.485 kg / 9.888 lbs	6.810 kg / 15.013 lb	8.172 kg / 18.016 lb
Gearing	Planetary	Planetary	Dual stage planetary differential
Gear ratio	16 : 1	17.3 : 1	17.3 : 1
Maximum oil pressure	120 bar / 1.740 PSI	150 bar / 2.176 PSI	170 bar / 2.466 PSI
Maximum oil flow	60 l/min / 15,85 gpm	60 l/min / 15,85 gpm	75 l/min / 19,82 gpm
Cable length	25 m / 82.02 ft	25 m / 82.02 ft	25 m / 82.02 ft
Cable diameter	10 mm / 0.39"	13 mm / 0.51"	16 mm / 0.63"

Attention: All values shown in gallons are **US gallons**.

BM 32-42
BM 36-48
BM 48-60

380 l / 100,4 gal
 30 l / 7,93 gal
 29 l / 7,66 gal
 730 l / 192,8 gal

450 l / 118,88 gal
 30 l / 7,93 gal
 29 l / 7,66 gal
 750 l / 198,13 gal

450 l / 118,9 gal
 74 l / 19,5 gal
 43 l / 11,3 gal
 1.000 l / 264,2 gal

BM 32-42
BM 36-48
BM 48-60

Triple grouser shoes: track chain
 tensioning by bolts
 32 (each side)
 5/2 (each side)

610 mm / 24"

Triple grouser shoes: track chain
 tensioning by bolts
 29 (each side)
 5/2 (each side)

914 mm / 36"

Triple grouser shoes, track chain tensioning by
 bolts
 31 (each side)
 6/2 (each side)

914 mm / 36"

BM 32-42
BM 36-48
BM 48-60

8.172 kg / 18.016 lb
 Dual stage planetary differential
 17.3 : 1
 170 bar / 2.466 PSI
 75 l/min / 19,82 gpm
 25 m / 82.02 ft
 16 mm / 0.63"

8.172 kg / 18.016 lb
 Dual stage planetary differential
 17.3 : 1
 170 bar / 2.466 PSI
 75 l/min / 19,82 gpm
 25 m / 82.02 ft
 16 mm / 0.63"

9.174 kg / 20.000 lb
 Heavy duty planetary gearing
 172 bar / 2.495 PSI
 75 l/min / 19,82 gpm
 25 m / 82 ft
 16 mm / 0.63"

BENDING DATA

BM 06-24

MAXIMUM WALL THICKNESS BY GRADE

PIPE SIZE inch / mm	X52 / L360 inch / mm	X60 / L415 inch / mm	X70 / L485 inch / mm	X80 / L555 inch / mm	X100 / L690 inch / mm	RADIUS ft / m	MAX. DEGREE per 40 feet / 12 meter joint
6 / 168	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	13 / 4,0	132,2
8 / 219	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	15 / 4,5	114,6
10 / 273	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	20 / 6,1	85,8
12 / 324	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	25 / 7,6	69
14 / 355	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	34 / 10,4	51
16 / 406	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	38 / 11,6	45,3
18 / 457	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	2,000 / 50,8	25 / 15,9	33
20 / 508	2,000 / 50,8	2,000 / 50,8	1,795 / 45,6	1,500 / 38,1	1,135 / 28,8	69 / 21,0	24,9
22 / 558	2,000 / 50,8	1,655 / 42,0	1,360 / 34,6	1,155 / 29,4	0,890 / 22,7	72 / 22,0	21,6
24 / 609	1,555 / 39,5	1,305 / 33,1	1,085 / 27,6	0,930 / 23,7	0,725 / 18,4	76 / 23,2	20,3

The figures given are indicative, they will vary due to:

- The actual specification of the pipe opposed to the nominal (yield strength, wall thickness, diameter, etc.)
- The type of pipe, spiral seam will normally accept 75% of the maximum bend.
- Maximum bendable angle will largely depend on 'springback' of the pipe and limits to maximum allowable ovality and buckling.

There is no guarantee that the bend pipe is within limits regarding for example ovality, buckling, etc.

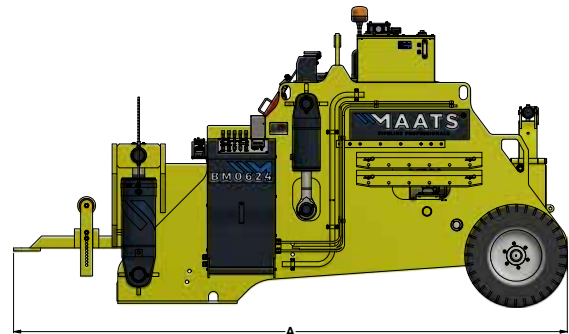
An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiffback and the pin-up.
Minimum unbent tangents are approx. 1.9 m. at stiffback / 1,4 m. at pin-up

DIMENSIONS AND WEIGHTS

BM 06-24

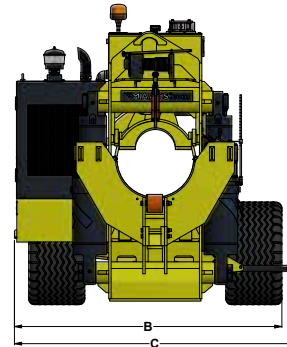
DIMENSIONS

A (Length)	4.640 mm / 15.22 ft
B (Shipping width)	2.235 mm / 7.33 ft
C (Operating width)	2.340 mm / 7.68 ft
D (Shipping Height)	2.360 mm / 7.74 ft
E (Operating height)	2.490 mm / 8.17 ft



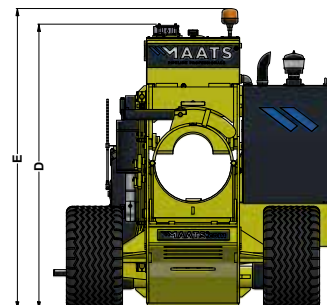
BENDING SETS

Standard sizes 6", 8", 10", 12", 14", 16", 18", 20", 24"
Standard bending sets are bare with a coated die.
Special sizes and other options are available on request.



WEIGHTS

Operating weight	9.250 kg / 20.393 lb
Weight bending set (avg.)	700 kg / 1543 lb



ATTACHMENTS



Hydraulic PTO for mandrel •

BASE MACHINE



- Towing lug front •
- Battery compartment, lockable •
- Engine doors, hinged, lockable •
- Lugs for crane lifting •
- Fuel water separator •
- Air filter, dry-type, dual step •
- Toolkit +
- Cyclon pre-filter •

CONTROLS AND WARNING LIGHTS



- Hydraulic system pressure (analog) •
- Engine RPM (digital) •
- Machine hours (digital) •
- % Engine load at current RPM (digital) •
- Coolant temperature (digital) •
- Oil pressure +
- Active service codes (digital) •
- Battery voltage indicator •

UNDERCARRIAGE



- Tyres •
- Tracks +

ELECTRICAL SYSTEM



- Starter motor 2,3 kW •
- Working lights +
- Battery main switch, mechanical •
- On-board system 12V •
- Alternator 40A •
- Beacon •
- 12V Socket at operator platform •

WINCH



- High torque motor •
- Manually engaged freespooling clutch •
- Cable 10 mm x 25 m •



• = standard
+ = option

Options and / or special attachments, supplied by vendors other than Maats, are only to be installed with the knowledge and approval of Maats to retain warranty.

BENDING DATA

BM 16-30

MAXIMUM WALL THICKNESS BY GRADE

PIPE SIZE inch / mm	X52 / L360 inch / mm	X60 / L415 inch / mm	X70 / L485 inch / mm	X80 / L555 inch / mm	X100 / L690 inch / mm	RADIUS ft / m	MAX. DEGREE per 40 feet / 12 meter joint
16 / 406	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	38 / 11,58	40,8
18 / 457	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	52 / 15,85	29,7
20 / 508	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	64 / 19,51	24,4
22 / 559	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.500 / 38,1	72 / 21,95	21,6
24 / 610	2.000 / 50,8	2.000 / 50,8	1.750 / 44,4	1.500 / 38,1	1.200 / 30,5	76 / 23,16	20,2
26 / 660	2.000 / 50,8	1.750 / 44,4	1.437 / 36,5	1.250 / 31,7	0.937 / 23,8	82 / 24,99	18,9
28 / 711	1.750 / 44,4	1.437 / 36,5	1.200 / 30,5	1.063 / 27,0	0.800 / 20,3	88 / 26,82	17,6
30 / 762	1.437 / 36,5	1.250 / 31,7	1.031 / 26,2	0.875 / 22,2	0.700 / 17,8	96 / 29,26	16,2

The figures given are indicative, they will vary due to:

- The actual specification of the pipe opposed to the nominal (yield strength, wall thickness, diameter, etc.)
- The type of pipe, spiral seam will normally accept 75% of the maximum bend.
- Maximum bendable angle will largely depend on 'springback' of the pipe and limits to maximum allowable ovality and buckling.

There is no guarantee that the bend pipe is within limits regarding for example ovality, buckling, etc.

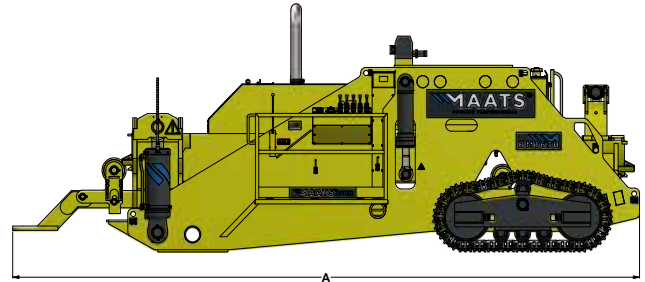
An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiffback and the pin-up.
Minimum unbent tangents are approx. 3,2 m. at stiffback / 2,1 m. at pin-up

DIMENSIONS AND WEIGHTS

BM 16-30

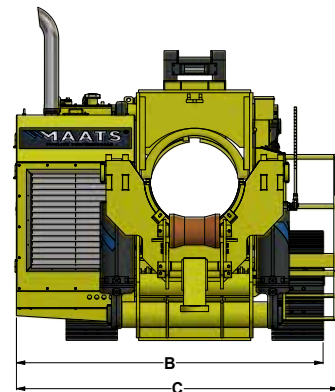
DIMENSIONS

A (Length)	7.550 mm / 24.8 ft
B (Shipping width)	2.770 mm / 9.09 ft
C (Operating width)	2.940 mm / 9.65 ft
D (Operating Height)	2.880 mm / 9.45 ft
E (Shipping height)	2.505 mm / 8.22 ft



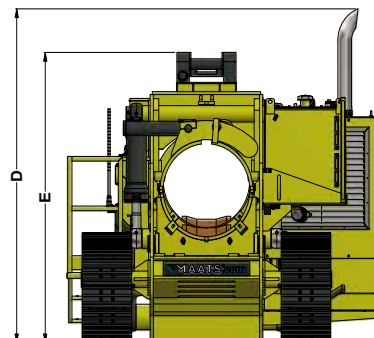
BENDING SETS

Standard sizes 16", 18", 20", 22", 24", 26", 28", 30"
Standard bending sets are bare with a coated die.
Special sizes and other options are available on request.



WEIGHTS

Operating weight	22.250 kg / 49.053 lb
Weight bending set (avg.)	2.300 kg / 5.071 lb



ATTACHMENTS

- Hydraulic PTO for mandrel •
- Compressor for mandrel +

CONTROLS AND WARNING LIGHTS

- Hydraulic system pressure (analog) •
- Engine RPM (digital) •
- Machine hours (digital) •
- % Engine load at current RPM (digital) •
- Coolant temperature (digital) •
- Oil pressure (digital) •
- Active service codes (digital) •

UNDERCARRIAGE

- Track frame, closed •
- Track frame, rigid •
- Track shoes 458 mm •
- Track shoes 508 mm +
- Special track sizes (width / length) +

BASE MACHINE

- Towing lug front •
- Battery compartment, lockable •
- Cold start device +
- Engine doors, hinged, lockable •
- Lugs for crane lifting •
- Fuel water separator •
- Air filter, dry-type, dual step •
- Toolkit +
- Cyclon pre-filter +

ELECTRICAL SYSTEM

- Starter motor 5,4 kW •
- Working lights +
- Battery main switch, mechanical •
- On-board system 24 V •
- Alternator 80 A •
- Beacon •
- 12V socket at operator stand •

WINCH

- High torque motor •
- Dual stage planetary differential gearing •
- Manual engaged freespooling clutch •
- Cable 13 mm x 25 m •
- Cable 13 mm x 35 m +
- Automatically activated holding brake •

• = standard
+ = option

Options and / or special attachments, supplied by vendors other than Maats, are only to be installed with the knowledge and approval of Maats to retain warranty.



BENDING DATA

BM 22-36

MAXIMUM WALL THICKNESS BY GRADE

PIPE SIZE inch / mm	X52 / L360 inch / mm	X60 / L415 inch / mm	X70 / L485 inch / mm	X80 / L555 inch / mm	X100 / L690 inch / mm	RADIUS ft / m	MAX. DEGREE per 40 feet / 12 meter joint
22 / 559	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	72 / 21,95	21,6
24 / 610	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	76 / 23,16	20,3
26 / 660	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	82 / 24,99	18,9
28 / 711	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.750 / 44,5	88 / 26,82	17,6
30 / 762	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.938 / 49,2	1.470 / 37,3	95 / 28,96	16,2
32 / 813	2.000 / 50,8	2.000 / 50,8	1.900 / 48,3	1.625 / 41,3	1.250 / 31,8	98 / 29,87	15,6
34 / 864	2.000 / 50,8	1.938 / 49,2	1.630 / 41,4	1.400 / 35,6	1.085 / 27,6	104 / 31,70	14,8
36 / 914	2.000 / 50,8	1.700 / 43,2	1.420 / 36,1	1.220 / 31,0	0.960 / 24,4	115 / 35,05	13,5

The figures given are indicative, they will vary due to:

- The actual specification of the pipe opposed to the nominal (yield strength, wall thickness, diameter, etc.)
- The type of pipe, spiral seam will normally accept 75% of the maximum bend.
- Maximum bendable angle will largely depend on 'springback' of the pipe and limits to maximum allowable ovality and buckling.

There is no guarantee that the bend pipe is within limits regarding for example ovality, buckling, etc.

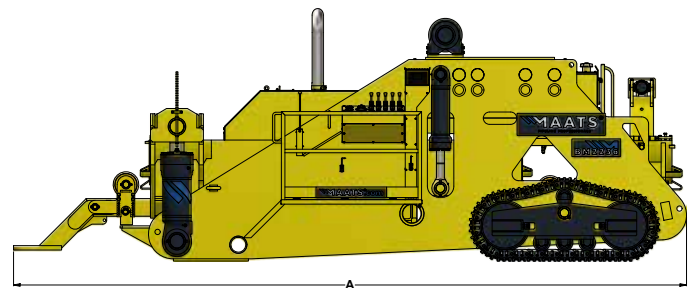
An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiffback and the pin-up.
Minimum unbent tangents are approx. 3,2 m. at stiffback / 2,1 m. at pin-up

DIMENSIONS AND WEIGHTS

BM 22-36

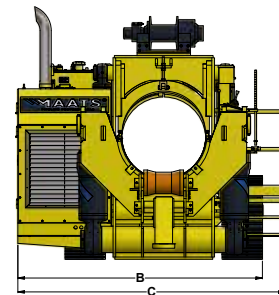
DIMENSIONS

A (Length)	7.635 mm / 25.05 ft
B (Shipping width)	2.795 mm / 9.17 ft
C (Operating width)	3.055 mm / 10.02 ft
D (Operating Height)	2.865 mm / 9.40 ft
E (Shipping height)	2.750 mm / 9.02 ft



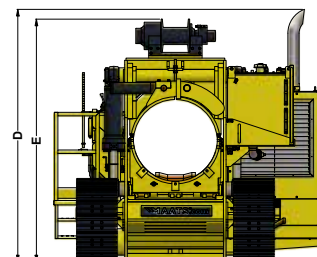
BENDING SETS

Standard sizes 22", 24", 26", 28", 30", 32", 34", 36"
Standard bending sets are bare with a coated die.
Special sizes and other options are available on request.



WEIGHTS

Operating weight	25.500 kg / 56,218 lb
Weight bending set (avg.)	3.050 kg / 6,724 lb





ATTACHMENTS

- Hydraulic PTO for mandrel •
- Compressor for mandrel +



CONTROLS AND WARNING LIGHTS

- Hydraulic system pressure (analog) •
- Engine RPM (digital) •
- Machine hours (digital) •
- % Engine load at current RPM (digital) •
- Coolant temperature (digital) •
- Oil pressure (digital) •
- Active service codes (digital) •



UNDERCARRIAGE

- Track frame, closed •
- Track frame, rigid •
- Track shoes 458 mm •
- Track shoes 508 mm +
- Special track sizes (width / length) +



BASE MACHINE

- Towing lug front •
- Battery compartment, lockable •
- Cold start device +
- Engine doors, hinged, lockable •
- Lugs for crane lifting •
- Fuel water separator •
- Air filter, dry-type, dual step •
- Toolkit +
- Cyclon pre-filter +



ELECTRICAL SYSTEM

- Starter motor 5,4 kW •
- Working lights +
- Battery main switch, mechanical •
- On-board system 24 V •
- Alternator 80 A •
- Beacon •
- 12V socket at operator stand •



WINCH

- High torque motor •
- Dual stage planetary differential gearing •
- Manual engaged freespooling clutch •
- Cable 16 mm x 25 m •
- Cable 16 mm x 50 m +
- Automatically activated holding brake •

• = standard
+ = option

Options and / or special attachments, supplied by vendors other than Maats, are only to be installed with the knowledge and approval of Maats to retain warranty.



BENDING DATA

BM 32-42

MAXIMUM WALL THICKNESS BY GRADE

PIPE SIZE inch / mm	X52 / L360 inch / mm	X60 / L415 inch / mm	X70 / L485 inch / mm	X80 / L555 inch / mm	X100 / L690 inch / mm	RADIUS ft / m	MAX. DEGREE per 40 feet / 12 meter joint
32 / 813	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.800 / 45,7	115 / 35,05	12,5
34 / 864	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.530 / 38,9	115 / 35,05	12,5
36 / 914	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.750 / 44,5	1.340 / 34,0	115 / 35,05	12,5
38 / 965	2.000 / 50,8	2.000 / 50,8	1.750 / 44,5	1.500 / 38,1	1.180 / 30,0	115 / 35,05	12,5
40 / 1016	2.000 / 50,8	1.875 / 47,5	1.550 / 39,4	1.330 / 33,8	1.050 / 26,7	115 / 35,05	12,5
42 / 1067	1.875 / 47,6	1.625 / 41,3	1.380 / 35,1	1.188 / 30,2	0.937 / 23,8	115 / 35,05	12,5

The figures given are indicative, they will vary due to:

- The actual specification of the pipe opposed to the nominal (yield strength, wall thickness, diameter, etc.)
- The type of pipe, spiral seam will normally accept 75% of the maximum bend.
- Maximum bendable angle will largely depend on 'springback' of the pipe and limits to maximum allowable ovality and buckling.

There is no guarantee that the bend pipe is within limits regarding for example ovality, buckling, etc.

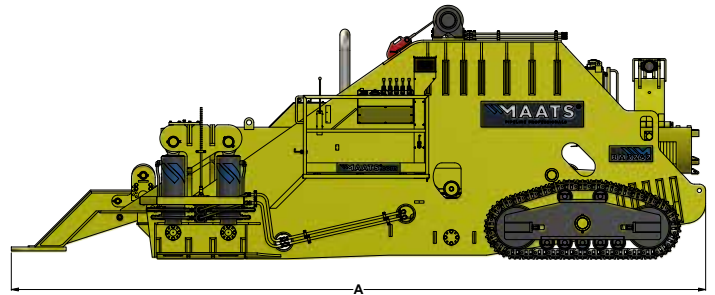
An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiffback and the pin-up.
Minimum unbent tangents are approx. 3,3 m. at stiffback / 2,6 m. at pin-up

DIMENSIONS AND WEIGHTS

BM 32-42

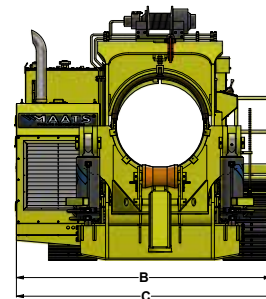
DIMENSIONS

A (Length)	8.805 mm / 28.89 ft
B (Shipping width)	3.255 mm / 10.68 ft
C (Operating width)	3.305 mm / 10.84 ft
D (Height)	3.215 mm / 10.55 ft



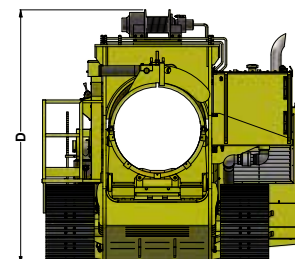
BENDING SETS

Standard sizes 32", 34", 36", 38", 40", 42"
Standard bending sets are bare with a coated die.
Special sizes and other options are available on request.



WEIGHTS

Operating weight	42.500 kg / 93.696 lb
Weight bending set (avg.)	4.000 kg / 8.800 lb





ATTACHMENTS

- Hydraulic PTO for mandrel •
- Compressor for mandrel +



CONTROLS AND WARNING LIGHTS

- Hydraulic system pressure (analog) •
- Engine RPM (digital) •
- Machine hours (digital) •
- % Engine load at current RPM (digital) •
- Coolant temperature (digital) •
- Oil pressure (digital) •
- Active service codes (digital) •



UNDERCARRIAGE

- Track frame, closed •
- Track frame, rigid •
- Track shoes 610 mm •
- Special track sizes (width / length) +



BASE MACHINE

- Towing lug front •
- Battery compartment, lockable •
- Cold start device +
- Engine doors, hinged, lockable •
- Lugs for crane lifting •
- Fuel water separator •
- Air filter, dry-type, dual step •
- Toolkit +
- Cyclon pre-filter +



ELECTRICAL SYSTEM

- Starter motor 5,4 kW •
- Working lights +
- Battery main switch, mechanical •
- On-board system 24 V •
- Alternator 80 A •
- Beacon •
- 12V socket at operator stand •



WINCH

- High torque motor •
- Dual stage planetary differential gearing •
- Manual engaged freespooling clutch •
- Cable 16 mm x 25 m •
- Cable 16 mm x 50 m +
- Automatically activated holding brake •



• = standard
+ = option

Options and / or special attachments, supplied by vendors other than Maats, are only to be installed with the knowledge and approval of Maats to retain warranty.

BENDING DATA

BM 36-48

MAXIMUM WALL THICKNESS BY GRADE

PIPE SIZE inch /mm	X52 / L360 inch /mm	X60 / L415 inch /mm	X70 / L485 inch /mm	X80 / L555 inch /mm	X100 / L690 inch /mm	RADIUS ft / m	MAX. DEGREE per 40 feet /12 meter joint
36 / 914	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.937 / 49,2	115 / 35,1	12,5
38 / 965	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.750 / 44,5	115 / 35,1	12,5
40 / 1016	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.937 / 49,2	1.500 / 38,1	115 / 35,1	12,5
42 / 1067	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1.750 / 44,5	1.312 / 33,3	115 / 35,1	12,5
44 / 1118	2.000 / 50,8	2.000 / 50,8	1.812 / 46,0	1.562 / 39,7	1.187 / 30,2	115 / 35,1	12,5
46 / 1168	2.000 / 50,8	1.875 / 47,6	1.625 / 41,3	1.375 / 34,9	1.090 / 27,7	115 / 35,1	12,5
48 / 1219	2.000 / 50,8	1.750 / 44,5	1.437 / 36,5	1.260 / 32,0	1.000 / 25,4	115 / 35,1	12,5

The figures given are indicative, they will vary due to:

- The actual specification of the pipe opposed to the nominal (yield strength, wall thickness, diameter, etc.)
- The type of pipe, spiral seam will normally accept 75% of the maximum bend.
- Maximum bendable angle will largely depend on 'springback' of the pipe and limits to maximum allowable ovality and buckling.

There is no guarantee that the bend pipe is within limits regarding for example ovality, buckling, etc.

An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiffback and the pin-up.
Minimum unbent tangents are approx. 3,6 m. at stiffback / 3,1 m. at pin-up

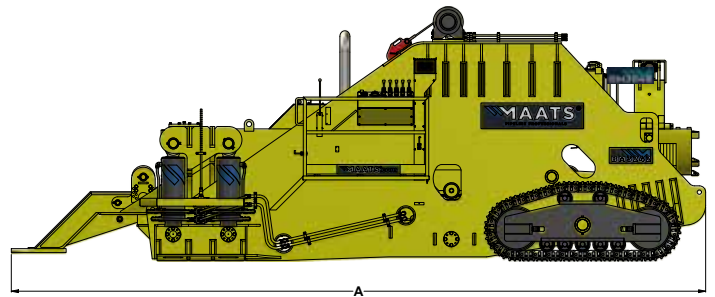
DIMENSIONS AND WEIGHTS

BM 36-48



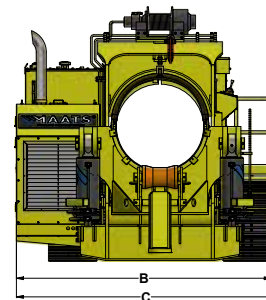
DIMENSIONS

A (Length)	9.810 mm / 32.19 ft
B (Shipping width)	3.932 mm / 12.90 ft
C (Operating width)	3.995 mm / 13.11 ft
D (Height)	3.485 mm / 11.43 ft



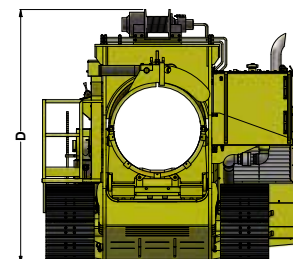
BENDING SETS

Standard sizes 36", 38", 40", 42", 44", 46", 48"
Standard bending sets are bare with a coated die.
Special sizes and other options are available on request.



WEIGHTS

Operating weight	64.550 kg / 142,198 lb
Weight bending set (avg.)	5.000 kg / 11,000 lb



ATTACHMENTS

- Hydraulic PTO for mandrel •
- Compressor for mandrel +

CONTROLS AND WARNING LIGHTS

- Hydraulic system pressure (analog) •
- Engine RPM (digital) •
- Machine hours (digital) •
- % Engine load at current RPM (digital) •
- Coolant temperature (digital) •
- Oil pressure (digital) •
- Active service codes (digital) •

UNDERCARRIAGE

- Track frame, closed •
- Track frame, rigid •
- Track shoes 914 mm •
- Special track sizes (width / length) +

BASE MACHINE

- Towing lug front •
- Battery compartment, lockable •
- Cold start device +
- Engine doors, hinged, lockable •
- Lugs for crane lifting •
- Fuel water separator •
- Air filter, dry-type, dual step •
- Toolkit +
- Cyclon pre-filter +

ELECTRICAL SYSTEM

- Starter motor 5,4 kW •
- Working lights +
- Battery main switch, mechanical •
- On-board system 24 V •
- Alternator 80 A •
- Beacon •
- Hydraulic oil automatic preheat system +
- 12V socket at operator stand •

WINCH

- High torque motor •
- Dual stage planetary differential gearing •
- Manual engaged freespooling clutch •
- Cable 16 mm x 25 m •
- Cable 16 mm x 50 m +
- Automatically activated holding brake •



• = standard
+ = option

Options and / or special attachments, supplied by vendors other than Maats, are only to be installed with the knowledge and approval of Maats to retain warranty.

BENDING DATA

BM 48-60

MAXIMUM WALL THICKNESS BY GRADE

PIPE SIZE inch / mm	X52 / L360 inch / mm	X60 / L415 inch / mm	X70 / L485 inch / mm	X80 / L555 inch / mm	X100 / L690 inch / mm	RADIUS ft / m	MAX. DEGREE per 40 feet / 12 meter joint
48 / 1219	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1,645 / 41,8	115 / 35,1	12,5
50 / 1270	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1,920 / 48,8	1,500 / 38,1	115 / 35,1	12,5
52 / 1321	2.000 / 50,8	2.000 / 50,8	2.000 / 50,8	1,750 / 44,5	1,370 / 34,8	115 / 35,1	12,5
54 / 1372	2.000 / 50,8	2.000 / 50,8	1,860 / 47,3	1,605 / 40,8	1,260 / 32,0	115 / 35,1	12,5
56 / 1422	2.000 / 50,8	2.000 / 50,8	1,710 / 43,4	1,475 / 37,4	1,160 / 29,5	115 / 35,1	12,5
58 / 1473	2.000 / 50,8	1,8750 / 47,5	1,575 / 40,1	1,365 / 34,7	1,075 / 27,3	115 / 35,1	12,5
60 / 1524	2.000 / 50,8	1,730 / 43,9	1,460 / 37,1	1,265 / 32,2	1,000 / 25,4	115 / 35,1	12,5

The figures given are indicative, they will vary due to:

- The actual specification of the pipe opposed to the nominal (yield strength, wall thickness, diameter, etc.)
- The type of pipe, spiral seam will normally accept 75% of the maximum bend.
- Maximum bendable angle will largely depend on 'springback' of the pipe and limits to maximum allowable ovality and buckling.

There is no guarantee that the bend pipe is within limits regarding for example ovality, buckling, etc.

An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiffback and the pin-up.
Minimum unbent tangents are approx. 4,0 m. at stiffback / 2,9 m. at pin-up

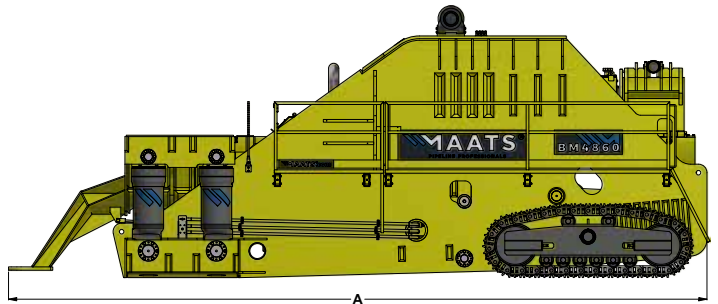
DIMENSIONS AND WEIGHTS

BM 48-60

DIMENSIONS



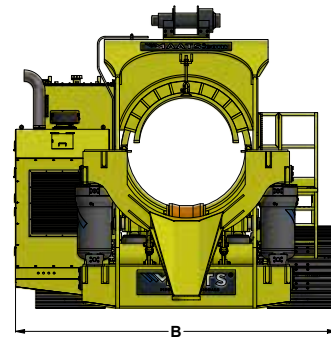
A (Length)	10.265 mm / 33,68 ft
B (Width)	4.250 mm / 13,94 ft
C (Height)	3.995 mm / 13,11 ft



BENDING SETS



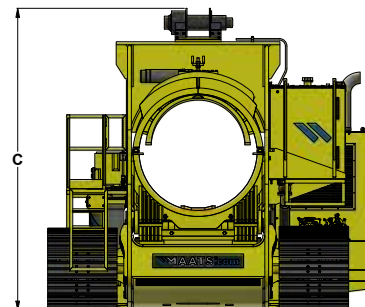
Standard sizes 48", 50", 52", 54", 56", 58", 60"
Standard bending sets are bare with a coated die.
Special sizes and other options are available on request.



WEIGHTS



Operating weight	88.000 kg / 194,006 lb
Weight bending set (avg.)	6.500 kg / 14,330 lb



EQUIPMENT

BM 48-60



ATTACHMENTS

Hydraulic PTO for mandrel	•
Compressor for mandrel	+



CONTROLS AND WARNING LIGHTS

Hydraulic system pressure (analog)	•
Engine RPM (digital)	•
Machine hours (digital)	•
% Engine load at current RPM (digital)	•
Coolant temperature (digital)	•
Oil pressure (digital)	•
Active service codes (digital)	•



UNDERCARRIAGE

Track frame, closed	•
Track frame, rigid	•
Track shoes 914 mm	•
Special track sizes (width / length)	+



BASE MACHINE

Towing lug front	•
Battery compartment, lockable	•
Cold start device	+
Engine doors, hinged, lockable	•
Lugs for crane lifting	•
Fuel water separator	•
Air filter, dry-type, dual step	•
Toolkit	+
Cyclon pre-filter	+
Tier II engine	+
Tier IV engine	+



ELECTRICAL SYSTEM

Starter motor 5,4 kW	•
Working lights	+
Battery main switch, mechanical	•
On-board system 24 V	•
Alternator 80 A	•
Beacon	•
Hydraulic oil automatic preheat system	+
12V socket at operator stand	•



WINCH

High torque motor	•
Dual stage planetary differential gearing	•
Manual engaged freespooling clutch	•
Cable 16 mm x 25 m	•
Cable 16 mm x 50 m	+
Automatically activated holding brake	•



• = standard
+ = option

Options and / or special attachments, supplied by vendors other than Maats, are only to be installed with the knowledge and approval of Maats to retain warranty.



MAATS PIPELINE PROFESSIONALS

Maats manufactures, sells and rents out high quality equipment for the construction of pipelines with all common diameters from 6 up to 60 inches. With branch offices in Indonesia (PT. Maats), partnerships in Algeria (Maats Afrique) and Turkey (Maats Insaat) and a close cooperation with the global network of Liebherr companies, Maats' presence is truly global.

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