

# Pipe Bending Machine **BM 36-48**

Engine output: 180 kW / 241 HP  
Operating weight: 59.500 kg  
131,175 lb  
Range: 36" - 48"



# Basic machine

## Engine

Diesel engine	Liebherr D934-L-A6, Emission regulations according to 97/68/EG, 2004/26/EG stage IIIA and EPA/CARB Tier 3
Rating (ISO9249)	180 kW / 241 HP
Rating (SAE J1349)	178 kW / 237 HP
Rated speed	1.800 rpm
Displacement	7,0 l / 426 cu. In.
Design	4-cylinder-in-line engine, water cooled, turbo-charged, air-to-air intercooler
Injection system	Direct injection, pump-line-nozzle system, electronic engine management
Engine lubrication	Pressurised lube system, engine lubrication guaranteed for inclinations up to 45 degrees
Operating voltage	24 V
Alternator	80 A
Starter	5,4 kW
Batteries	2 x 110 Ah / 12V
Air cleaner	Dual stage dry type with safety element, precleaner, service gauge at operator stand
Cooling system	Combi radiator, comprising radiators for water, hydraulic fluid and charge air. Hydrostatic driven.

## Refill capacities

Fuel tank	450 l
Cooling system	30 l
Engine oil with filters	29 l
Hydraulic oil tank	750 l

## Noise emission

Exterior sound pressure (2000/14/EC)	$L_{p_A} = 72-86 \text{ dB(A)}$ (distance @ 1 m.)
--------------------------------------	---

## Bending data

Maximum wall thickness by grade at max. system pressure of 350 bar / 5075 PSI (based on 85% efficiency)

Pipe size Inch / mm	X52 Inch / mm	X60 Inch / mm	X70 Inch / mm	X80 Inch / mm	X100 Inch / mm		Radius feet / meter	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

These figures are recommended only and do not constitute a warranty

All bends shown are based on the use of Maats bending mandrels and bending dies. The figures given are "average", they will vary due to:

- The wall thickness of the pipe
- The actual (as opposed to the nominal) yield of the pipe
- Skill of the operator in handling the bending machine and the mandrel
- The origin of the pipe (pipe mill, plate mill, etc.) and quality of the pipe
- The type of pipe, spiral seam pipe will normally accept 75% of the recommended bend
- The type of die and or bending set being used (eg. polyurethane lining or special radius dies)

An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiff back and the pin up. Normal unbent tangents are approx. 16 feet / 5 meters.

## Hydraulic system

System	Load sensing proportional pump flow control
Pump type	Swash plate, variable displacement piston pump
Pump flow max.	387 l/min / 85.1 gpm
Pressure limitation	350 bar / 5,075 PSI
Control valve	7 segments, hydraulic actuated
Filter system	Return filter with magnetic rod in the hydraulic tank
Control	5 hydraulic actuated levers for all functions

## Hydraulic cylinders

Outboard cylinder	4x Liebherr, 320 x 500
Inboard cylinder	4x Liebherr, 220 x 175
Wedge cylinder	1x Liebherr, 170 x 1400
Clamp cylinder	1x Liebherr, 140 x 400

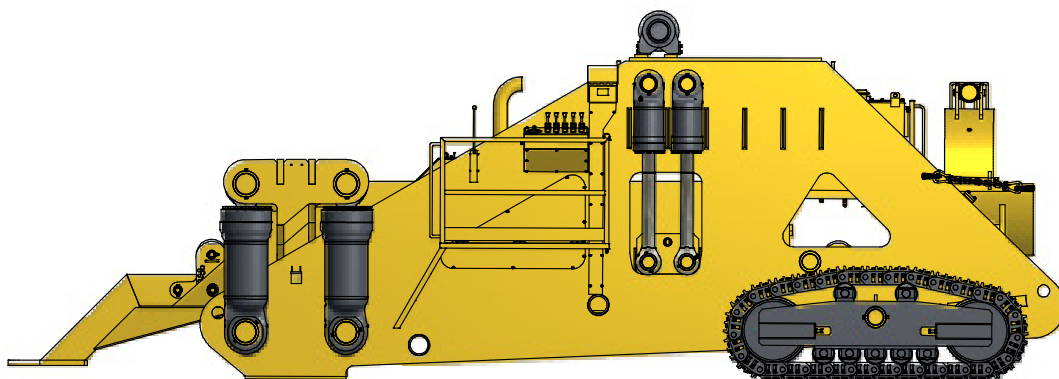
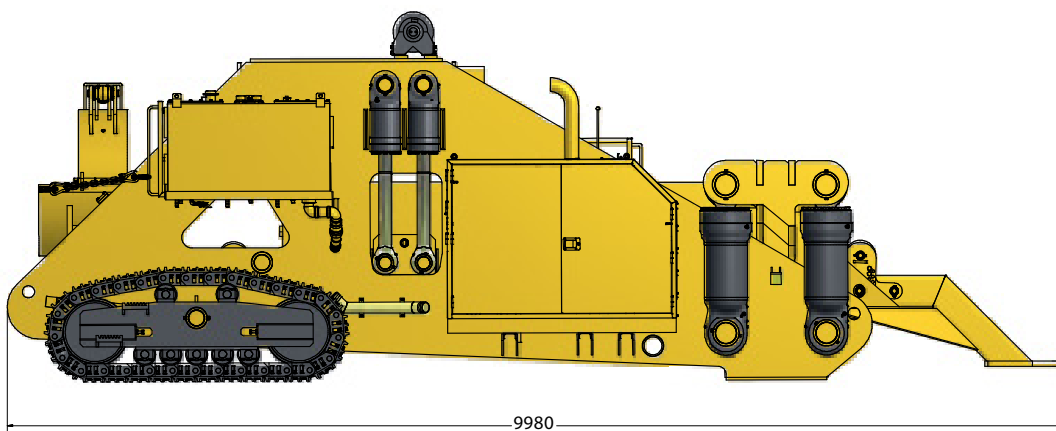
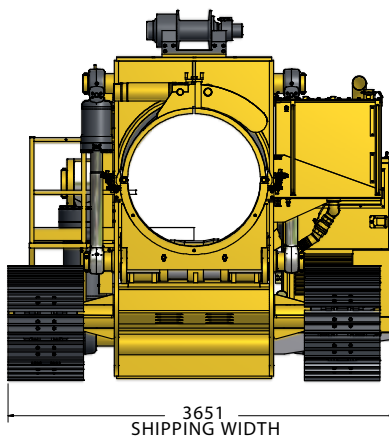
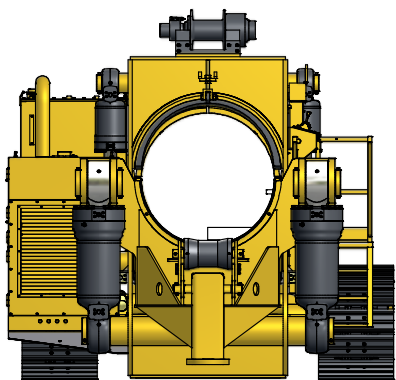
## Undercarriage

Chains	Lubricated, single grouser shoes; track chain tensioning by bolts
Track links	29 (each side)
Track rollers/carrier rollers	5 / 2 (each side)
Track shoes standard	711 mm / 28"
Track shoes option	762 mm / 30"

## Winch

Rated line pull	9.080 kg / 20,000 lbs
Gearing	Dual stage planetary differential
Gear ratio	36 : 1
Maximum oil pressure	172,41 bar / 2,500 PSI
Maximum oil flow	23/75 l/min / 6/20 gpm
Cable length	25 m / 82.02 ft
Cable diameter	16 mm / 0.63"

# Dimensions and weights



## Dimensions

Height over winch	3.501 mm / 11.5 ft
Overall length	9.980 mm / 32.74 ft
Width	3.651 mm / 12.0 ft
Max. shipping width	3.651 mm / 12.0 ft

## Bending sets

Standard sizes	36", 38", 40", 42", 44", 46", 48"
Special sizes are available on request	
Standard sets are bare. Coated sets are available on request	

## Weights

Operating weight	59.500 kg / 131,175 lb
Weight bending set (avg.)	5.000 kg / 11,000 lb

# Equipment

## Basic machine

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

## Undercarriage

Track frame, closed	●
Sprocket segments, bolted	●
Tracks oil lubricated	●
Track frame, rigid	●
Track shoes 711 mm	●
Track shoes 762 mm	+
Special track sizes (width / length)	+

## 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	+

## Winch

High torque motor	●
Dual stage planetary differential gearing	●
Load control valve	●
Spring engaged freespooling clutch	●
Cable 16 mm x 25 m	●
Cable 16 mm x 55 m	+
Cable 18 mm x 35 m	+
Cable 20 mm x 30 m	+

## Control 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)	●
Fuel economy (digital)	●
Active service codes (digital)	●

## Attachments

Hydraulic PTO for mandrel	●
Compressor for mandrel	+

● = Standard, + = Option

Subject to change

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.

Documentation Technical BM3648 English Rev. 2