



INTERNAL BENDER

IB 18-24 · IB 28-32



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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 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.

QUALITY

When bending insulated pipe joints from the inside, the foam insulation and PE jacket pipe are left undamaged and therefore insulation values remain uncompromised. The internal bending process has no effect on any leak detection wires or duct for heat tracer cables being used.

SAFETY

The Maats IB does its work from the inside of the pipe, this has the major advantage that there are no moving parts outside the pipe during the bending process. Another advantage is that the pipe joint is fixed into position during the bending process, largely reducing pipe handling operations with all related risks, throughout the process. As the bending process itself is largely automated, the risk of human error is minimized.

FLEXIBILITY

The Maats IB itself is conveniently built inside a standard 20' container, making it easy to ship not only to a jobsite, but also to move on a jobsite. The well thought out and compact layout makes it possible to start bending quickly after arriving on site. Because standard pipe joints (up to 18 meters in length) can be bent, it is easy to adapt to unexpected changes in routing or terrain conditions.

ECONOMY

The process of making factory bends is time consuming and costly and shipping bent pipe joints is much more expensive than the transport of straight joints. External bending, when technically viable, can only be done when using pipe joints with higher density foams, making pipes not only more expensive but also creating the need for a second pipe production line, a separate storage and separate quality controls. The Maats IB enables a project to basically have only standard straight pipes supplied for all bends up to 16°, and it can bend up to 12 joints per day, depending on pipe length, pipe diameter, wall thickness and steel grade.



THE PIPE IS BENT, STEP-BY-STEP, WHILE IT IS CONTINUOUSLY MONITORED. THE BENDING IS ACHIEVED BY APPLYING FORCE TO THE INNER PIPE WALL.



BENDING DATA

| PIPE SIZE DN / INCH | MAXIMUM WALL THICKNESS BY GRADE | | MIN. RADIUS METER / FEET | MAX. DEGREE PER 12 METER / 40 FEET JOINT |
|------------------------|---------------------------------|---------------------|-----------------------------|---|
| | P235GH MM / INCH | P355NH MM / INCH | | |
| 450 / 18 | 13,3 / 0,52 | 8,5 / 0,33 | 27,4 / 90 | 16° |
| 500 / 20 | 10,5 / 0,41 | 6,8 / 0,27 | 30,5 / 100 | 14,5° |
| 550 / 22 | 8,5 / 0,33 | 5,5 / 0,22 | 33,5 / 110 | 13,5° |
| 600 / 24 | 7,1 / 0,28 | 4,6 / 0,18 | 36,6 / 120 | 12,5° |
| 700 / 28 | 15,4 / 0,61 | 10 / 0,39 | 42,7 / 140 | 11° |
| 750 / 30 | 13,2 / 0,52 | 8,6 / 0,34 | 45,7 / 150 | 10° |
| 800 / 32 | 11,5 / 0,45 | 7,5 / 0,30 | 48,8 / 160 | 9,5° |

The above data is for reference only and does not constitute a warranty. Exact data will always be tested with actual project pipe specifications.

An unbent end (tangent) is produced at each end of the pipe due to the length of the bending machine:

| | NORMAL UNBENT TANGENT | |
|---------------|-----------------------|----------|
| | FRONT (M) | BACK (M) |
| MAATS IB18-24 | 2 | 2 |
| MAATS IB28-32 | 2,4 | 1,4 |

HIGHLIGHTS

BENDING ON SITE

SUBSTANTIAL BENDING ANGLES

NO DAMAGE TO PIPE OR PIPE INSULATION

HIGH MOBILITY AND FLEXIBILITY

COST EFFECTIVE

COMPUTER-ASSISTED AND MONITORED
COLD BENDING PROCESS



Maats Internal Bender - Patent nr. 10,441,987.



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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PERFORMANCE
& RELIABILITY
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