RECION

INDUCTION BENDING

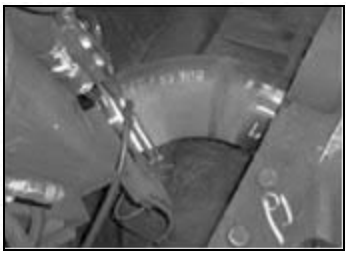
19.8.2021

Advantages of induction bending

1) Amount of weld joints decreases

Whole pipe lenght can be used in induction bending because to one pipe can be made several bends without intermediate weld seams. Amount of weld seams and waste material can be minimized.

2) Bending radius as a variable in piping design



Possibility to choose bending radius free enables bend design according to hydrodynamic calculations.
Induction bending do not need special tools for every bending radii.

3) Purchase goes easier

For induction bending can normally be used same pipe as for straight pipe parts. Material has to be bought as early as possible because material deliveries may take several months. If you are using induction bending method, material can be purchased before final geometry of pipeline is decided.

4) Delivery time will be shortened and costs reduced

Please refer to above.

5) Materials suitable for induction bending

* Normal carbon steels like P235GH
* Alloyed heat resistant steels 16Mo3 ... 13CrMo4-5 ... 10CrMo9-10
  X10CrMoVNb9-1 ... X10CrWMoVNb9-2
* Fine grain steels like API 5LX and lower qualities
* Austenitic stainless steels X5CrNiMo1812 and equivalents
* Equal materials according to ASME standard

At workshop in **Ylivieska** has

3 induction bending machines, which can be used for pipe **42,4...914** mm.

Method is also suitable for square and rectangular pipes.
Wallthickness of pipe to be bended can be **4...90** mm.

Please note

* in a bending of 90° the pipe shrinks about 50 mm/bending.
* thinning of bending outside can be calculated an indicative $s_1=(R/(R+0,5*D))*s_0$
* out of roundness of bending can be calculated an indicative (0,2*D)/R

From following page you can find detail information about our induction bending machines.

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Restrictions of bending machines

UZTM-500 - bends to right

Pipe size: Outer diameter Ø88,9...530
Wall thickness up to 90 mm

Bending angle: 0°…90° R<1030
0°…180° R>1200

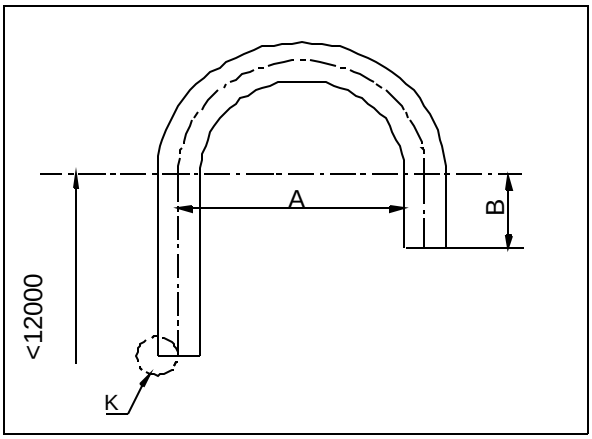
Radius: Smallest possible R=330 mm or 1,5xD
Rather use R=2,5xD, so the wall scarcely restricts bending
Radii R=1030…1200 are not possible
Greatest possible R=15 m

Fasting lengths: Before and between bending

R<1030	DN80…250	350 mm
	DN300…500	450 mm
R>1200	DN80…400	470 mm
	DN450-500	800 mm

After last bending 1600 mm
At 180° bending (see drawing)
when A ≤ 2200 mm B ≤ 400 mm
when A > 2200 mm B ≤ 2100 mm

Bendings level: Hight from floor level is 1400 mm



Point K to be mechanized according to wall thickness of commectiong pipe or instrument.

Gregson 900 - bends to left

Pipe size: Outer diameter Ø323,9…914
Wall thickness up to 80 mm

Bending angle: 0°…90°

Radius: Smallest possible R=1200 mm or 2xD
Rather use R=3…5xD, so the wall scarcely restricts bending

Fasting lengths: Before and between bending

DN300…600	850 mm
DN650…900	1400 mm

After last bending 3500 mm

Bendings level: Hight from floor level is 1180 mm

Gregson 2-12" - bends to right

Pipe size: Outer diameter Ø42,4…323,9
Wall thickness up to 60 mm

Bending angle: 0°…180°

Radius: Smallest possible R=200/450 mm or 1,8xD
Rather use R=2…4xD, so the wall scarcely restricts bending

Fasting lengths: Machine has two arms, which restrictions are different from each other

	pipe size	R_{min}	before and between	after last bending
Arm 1	DN32…150	200	300 mm	1400 mm
Arm 2	DN150…300	450	450 mm	1400 mm

Bendings level: Hight from floor level is 550 mm