

INTERNAL REPAIR CLAMP

PRODUCT APPLICATION

The AVK Rewag internal repair clamp enables the quick and solid repair of cracks, holes and open joints in pipes made of steel, concrete, cast iron, asbestos cement and synthetic materials. The internal clamp can be supplied in every size and model from 500 to 3000 mm.

PRODUCT DESCRIPTION TYPE IR (bolts expansion system)

The principle of the internal repair clamp , type IR

The clamp consist of one or more sections (shells) which can be joined together by means of lugs to form a ring. The sections can easily be separated using a spanner so that the ring diameter increases. A rubber gasket with special raised edges is fitted outside the clamp. This is the component which provides the actual seal. As the connectors are turned, the gasket seals the leak.

PRODUCT DESCRIPTION TYPE IRB (hydraulic)

The principle of the internal repair clamp, type IRB:

The clamp consist of a rubber gasket with special raised edges and 2 stainless steel bands.

The bands are located inside the rubber gasket (sealing ring) With a special tool you can press the ring out in a lager diameter. The space between the bands will be filled with a wedge plate. As the bands are pressed out on there required torque the gasket seals the leak.

INTERNAL REPAIRCLAMP TYPE IR AND IRB

- IR 200 bolts expansion system
- IR 380 flex bolts expansion system
- IRB 190 bands, hydraulic
- IRB 360 bands, hydraulic
- Specials (egg- profile, square, reduce, extra length, ect.)

IR 200 bolts expansion system

With the IR200 clamp you can repair joints and gaps:

- with an maximum opening of 50 mm
- with an angel deflection of max 3 – 5°
- 10 mm diameter tolerance between pipe ends
- 10 mm axial movement

IR 380 flex bolts expansion system

With the IR380 flex you can repair joints and gaps:

- with an maximum opening of 160 mm
- with an angel deflection of max 5- 8 °
- 15 mm diameter tolerance between pipe ends
- 25 mm axial movement

IRB 190 bands, hydraulic

With the IRB 188 bands you can repair joints and gaps:

- with an maximum opening of 50 mm
- with an angel deflection of max 5°
- 10 mm diameter tolerance between pipe ends
- 10 mm axial movement

IRB 360 bands, hydraulic

With the IRB360 flex you can repair joints and gaps:

- with an maximum opening of 160 mm
- with an angel deflection of max 5- 8 °
- 15 mm diameter tolerance between pipe ends
- 25 mm axial movement

Internal repair clamps can be delivered in Stainless steel in different grades, AISI 304, AISI 316 or special grade, depending medium or aggressive environment. The gasket is in EPDM.

In problematic situations, we are available at all times to help you select the suitable clamp.

The IR 200 and 380 flex are clamps made out plate thickness 3 mm, 2 or more parts , with on both ends a connection part. Between the connection parts bolts are placed . These parts will form a ring. By turning the bolts out the ring gets bigger and is pressing the gasket tighten against the pipe wall. **There the plates are formed in the correct roundness of the pipe, and made in parts the can easy get trough a manhole without bending the plates.**

The IR 200 and 380 flex are internal repair clamps witch protect the gasket complete (IR200) or 80% (IR 380 flex) against blowing up, if you get pressure from outside. When the gasket can blow its self up the inside diameter gets smaller and also can be damaged by sharp dirt .
(The IRB360 for example has a space of 225 mm between the bands.)

By larger openings you need to place a protection ring over the joint before placing the gasket.
For installing the IR 200 or 380 flex you need only 2 spanners (22) and a rubber hammer.

The IRB 190 and 360 are clamps made out bands 5 x 50 mm rounded in the inside diameter of the pipe, 2 x 1 part with on both ends a strip with a groove. Between the strips with groove you need to place a plate. With a special hydraulic tool the ring is pressing out an is pressing the gasket tighten against the pipe wall.

When you need to transport the IRB types into the pipe trough a manhole you have first bend the bands to get them in, and when they are in the pipe you need them bend back in its correct roundness.
For installing the IRB 190 or 360 you need a hydraulic tool and a nylon hammer.

The different between the types IR and IRB are :

Type IR380 flex is easy to bring in the pipe there the are made out sections

Type IR380 flex can be placed without special tools

Type IR380 flex protects the gasket for 80%

Type IR380 flex, all parts are complete , now cutting bolts or plates

Type IR380 flex is higher in price

Type IRB360 need to be bend to get them trough a manhole and bend back in the pipe

Type IRB360 need to be placed with special tools

Type IRB360 flex protects the gasket for 30%

Type IRB360, after pressing the bands out you need to cut a plate (wedge)

Type IRB360 is lower in price

Installing the Internal Repair clamp, Type IR with bolts expansion system.

Before you start up with installing the clamp you need to check that the clamp is the correct one for this joint or gap.

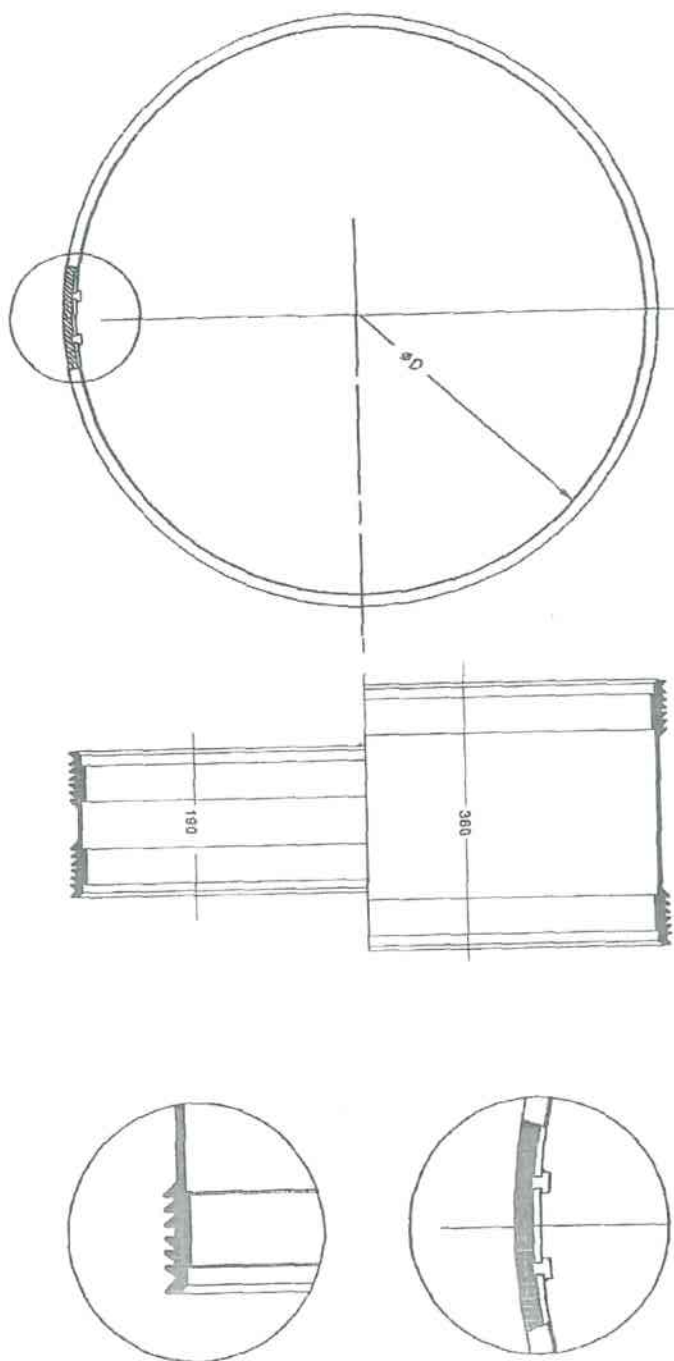
- Is the diameter off the clamp correct according the pipe diameter. (when possible you always need to take the correct inside diameter on location before ordering the clamp)
 - What is the damage you need to repair ?
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- Before installation the clamp you need to clean the area to be repaired
 - Check the pipe on little cracks, holes or rough places , there where the gasket is making the sealing on the pipe (if necessary you need to repair this with epoxy or cement , otherwise you need a clamp wider than the damage)
 - Mark half the clamp width from the middle of the joint, or on either side of the leak
 - Wet the gasket with a water soap solution . No oil ore grease .
 - Place the gasket over the joint ore gap (see mark)
 - By larger openings you need to place a protection ring over the joint before placing the gasket
 - Take one shell of the clamp an put this over the gasket.
 - Put the spanner plates between gasket en shell. (till block)
 - Put the bolts in the holes of the connection parts
 - Take the second part of the clamp and put this with one end over the bolts (by more part clamps place second and third spanner plate and bolts)
 - Place second (third)spanner plate and bolts
 - With a big screwdriver or pointed iron- bar you push the other end (last part) over the bolts.
 - When all the parts are on there place you can start up with turning out the bolts, for this you need two spanners. Bolts on every connection part need to be turn out even.
 - With a Rubber hammer you need to hammer the clamp smoothly
 - You need to put an torque on the bolts off 100 N/m , in the meantime you need to hammer the clamp.
 - Check if every part is on its place and every bolt has is correct torque, and the clamp is ready for its duty.
 - We advise to check after 24 our the torque .

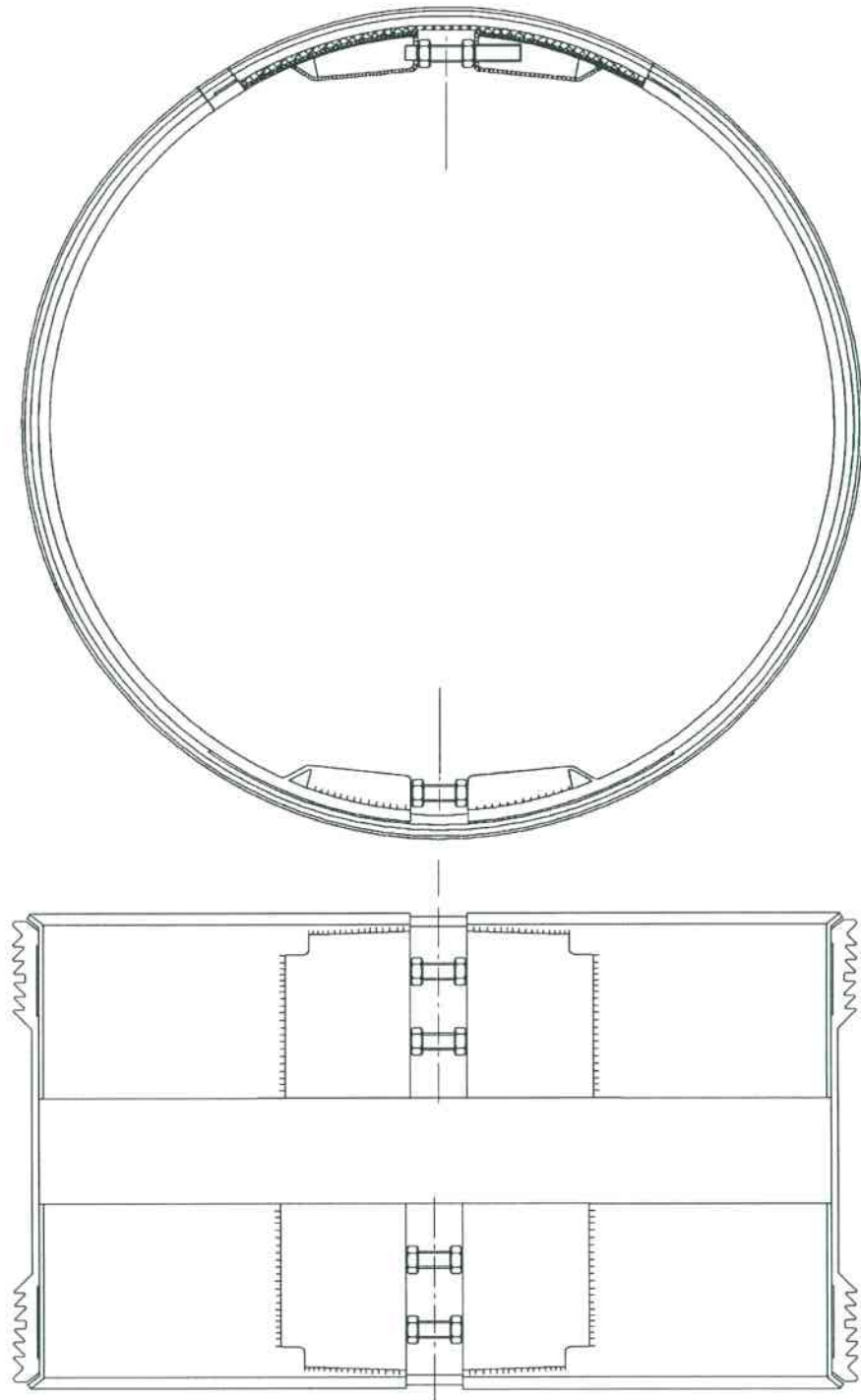
Installing the Internal Repair clamp, Type IRB with hydraulic expansion system.

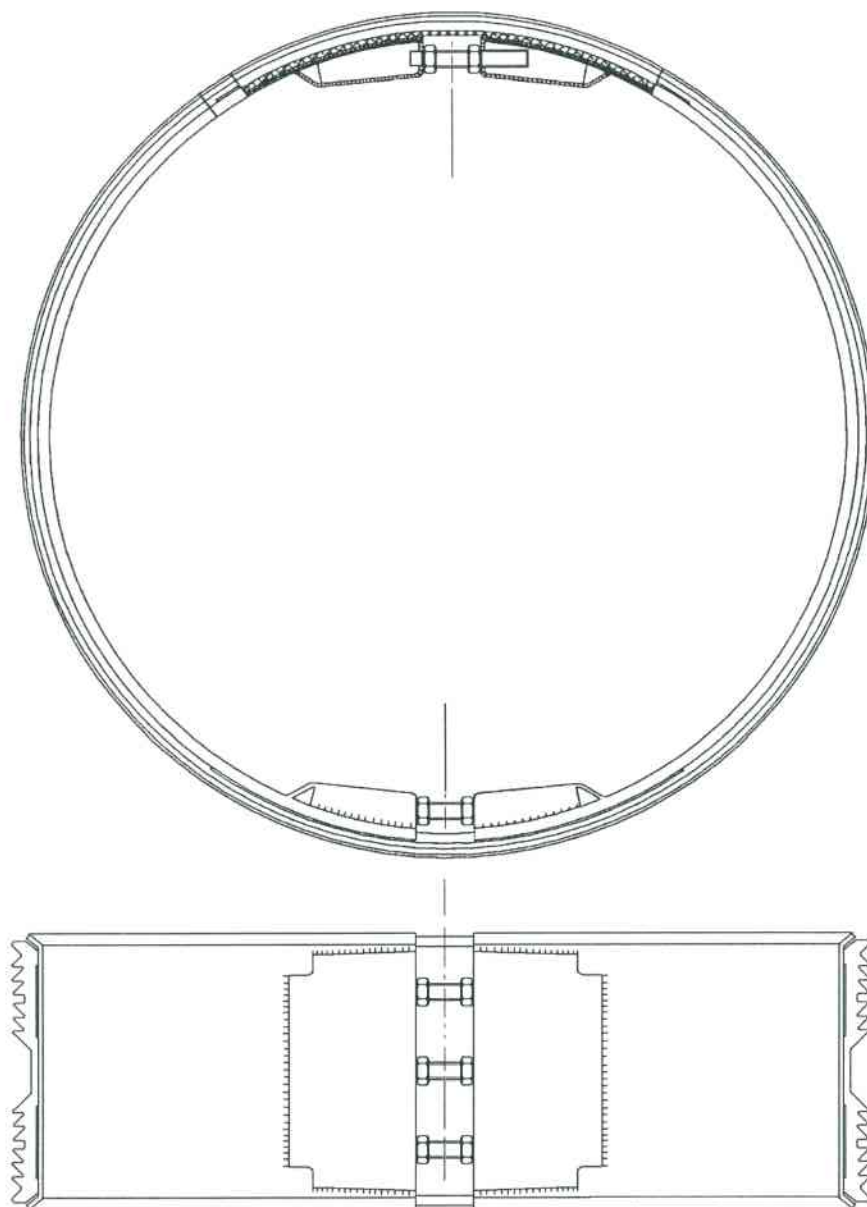
Before you start up with installing the clamp you need to check that the clamp is the correct one for this joint or gap.

- Is the diameter of the clamp correct according to the pipe diameter. (when possible you always need to take the correct inside diameter on location before ordering the clamp)
 - What is the damage you need to repair ?
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- Before installation the clamp you need to clean the area to be repaired
 - Check the pipe on little cracks, holes or rough places, there where the gasket is making the sealing on the pipe (if necessary you need to repair this with epoxy or cement, otherwise you need a clamp wider than the damage)
 - Mark half the clamp width from the middle of the joint, or on either side of the leak
 - Wet the gasket with a water soap solution. No oil or grease.
 - Place the gasket over the joint or gap (see mark)
 - By larger openings you need to place a protection ring over the joint before placing the gasket.
 - Take one band of the clamp and put this in the gasket.
 - Place the plate 1 x 50 x 300 mm under the band there where they meet each other.
 - Place the hydraulic tool between the strips (welded on the bands) and press the ring out (pressure of 250 – 275 Bar on the tool)
 - With a Nylon hammer you need to hammer the band and put the pressure up till 300 – 350 Bar.
 - You need to measure the space between the connection parts and place a plate with its correct length.
 - Check if every part is on its place and the clamp is ready for its duty.
 - We advise to check after 24 hours the pressure and if necessary to replace a bigger plate.

Type 1111 180 and 1115 380







Internal Repair clamp , type IRB 190

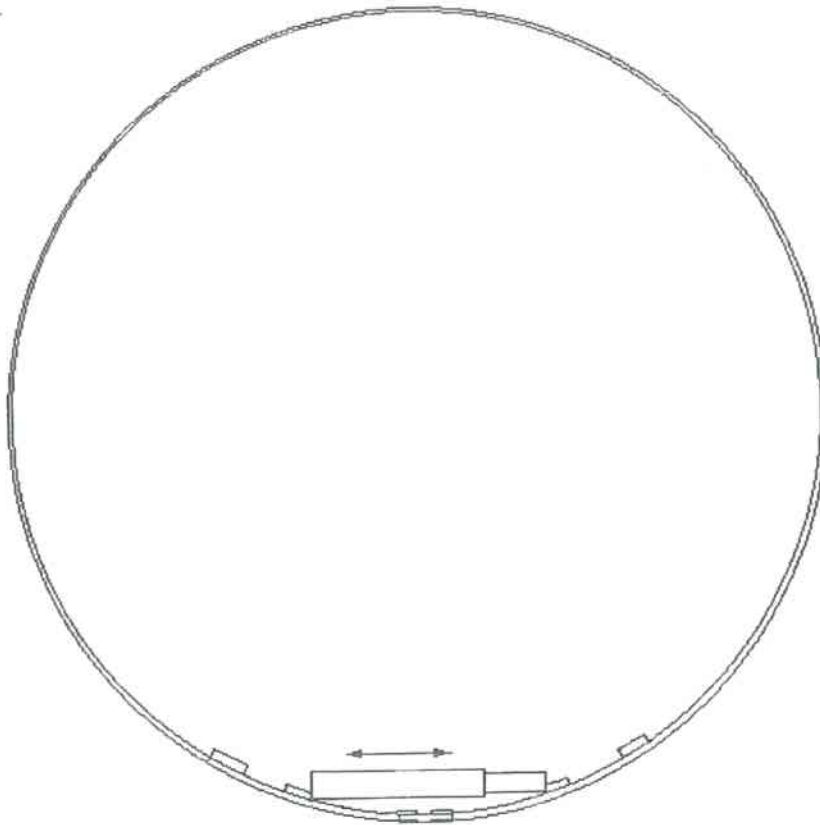
TYPE IRB 360, is the same only the gasket is wider



Stainless Steel band 5 x 50 mm in quality AISI 304.

With a special hydraulic tool you press the band in a bigger diameter. In the opening you place a wedge plate.

- Rubber gasket, EPDM , wide 190 mm, suitable for drinking and sewage water.
Gasket vulcanised together to a ring



On 4 places on the band (keeper) are welded pieces of strip. Between this strip a hydraulic tool can be placed. When you put pressure on the tool the band gets bigger in diameter and is pressing against the gasket. When the necessary pressure is on the band you take the measure between de both bandends and place a wedgeplate