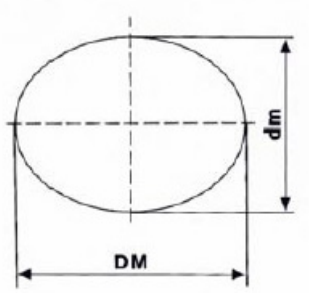
Damage ovality

Transport and handling can cause sufficient pipe ovality to impede correct assembly of the components.

The methods given below cover DN ≥ 400 pipes.



% OVALITY=100*(DM- dm)/(DM+dm)

Where:
DM: maximum measured diameter
dm: mínimum measured diameter

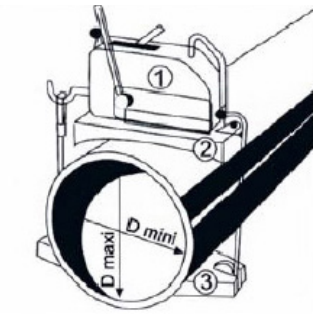
Experience shows that cases of ovality prejudicial to pipe assembly are extremely rare in the small and médium diameters (DN ≤ 400)

Re-rounding can be carried out by one of the following methods, taking care that the operation does not damage the mortar lining.

> DN 400 TO 800

Equipment

· TIRFOR516 (1) wire rope winch.
· Supporting saddle with rope guide pulley (2).
· A base plate with 2 rope guide pulleys (3)

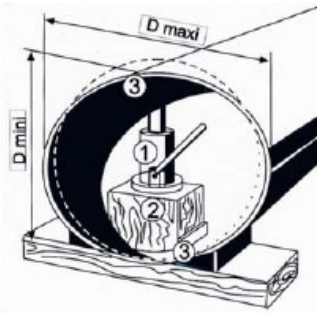


Procedure

· Assemble the equipment as shown in the diagram opposite. Tension the wire rope.
· Check the re-rounding of the spigot end to ensure that it do es not go beyond circular.
· Make sure that this operation has not damaged the mortar lining.
· Assemble the pipes with the equipment still in place the rope tensión must be maintained during joint Assembly to counteract any elastic pipe deformation.
> DN > 800

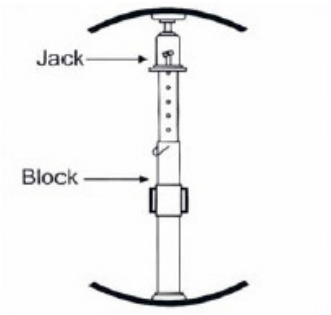
Equipment

· A hydraulic jack (1)
· A block (or adjustable support) (2)
· Two suitably sized rubber covered base plates (3)



Procedure

· Poner las partes como se muestra en el diagrama, ajustadas al DN mínimo. Adaptar el gato - soporte al diámetro.
· Accionar el gato y asegurarse de que no excedemos la forma circular.
· Verificar que la operación no ha dañado el recubrimiento de mortero.
· Ensamblar la junta con el equipo en posición. Este debe permanecer en tensión, para contrarrestar cualquier deformación elástica del tubo, hasta acabado el montaje.



Repair external coatings

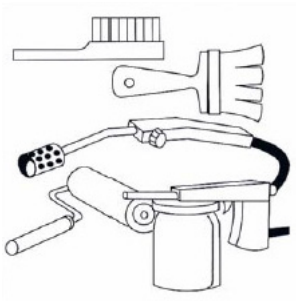
Paints

Reparable damage
The basic external coating may become damaged during transport, storage or laying.
It can be repaired on site or in the storage yard with bituminous paints, using a simple procedure.

Two cases can be envisaged:
· Slight damage (small areas zinc not de-tached).
No repair necessary.
· Larger damage. Can be repaired with bituminous paint by the procedure described below.

Material
Use bituminous paints of the following type:
· ENDOLAC 245 – 30
· ENDOLAC 245 – 30 SR (rapid drying)
· Brush, roller or spray gun (air or airless)

Application method



Surface preparation
· Brush lightly remove dirt.
· Dry the area being coated by the most appropriate means (blowing with dry oil-free air, gas torch, etc.)
· In cases of low temperature, wet conditions, or immediate pipe usage, it is essential to warm the pipe to a temperature of about 50ºC with a gas torch (too hot to touch).
· Apply the coating in criss-cross passes, until the coating is up to the level of the undamaged coating, overlapping the latter.

Cement mortar

The cement mortar lining may be damaged accidentally or by rough handling.
A few simple and rapid procedures suffice to restore the lining to its original codition.

Reparable damage

Any cement mortar damage caused accidentally or by rough handling can be repaired on site, provided it is not too severe:
· Area less than 0.10m2
· Length less than a quarter of the pipe circumference
· No localized pipe deformation.

Otherwise, cut off the damaged section. MAFUSA can supply repair kits on request.

Repair materials

Constituents	Parts by weight
Aluminous cement	100
Fine sand	200
Acrylic emulsion	15
Water	20

Repair procedure
Material needed for mortar application:
Brush / Trowel / Palette knife or sleeker

Area preparation

Lining repair must be carried out sheltered from frost.
· Rotate the pipe so that the area to be repaired is as close to the bottom as possible.
· Remove the damaged area and 1 or 2 cm of surrounding sound mortar with a hammer and cold chisel.
· The edges of the cleared zone must be vertical to the iron surface.
· Clean with a wire brush to remove mon-adherent material.
· Moisten the repair area.
· A few minutes before making the repair, brush-apply the water emulsion mixture, wetting the original mortar over a width of about 20 cm around the edges of the repair zone.

Patching material preparation

See TABLE above.
The emulsion must be the same as that used for the keying coat.
· Mix the two dry components, then the two liquids, to give a pasty consistency mortar; adjust the amount of water if necessary.

Mortar application

· Trowel the mortar on, compacting it adequately to restore the thickness.
· Smooth the repaired surface with a palette knife (or sleeker).
· Check that there are no gaps between the fresh mortar and the original material.
· Apply a protective coat of water + emulsion, not more than 30 minutes after final smoothing, to prevent the patch from drying too quickly and to give it good strength (cove with a damp cloth until set).