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Standard Specifications for Emergency Repair Clamps & Grouted Sleeves

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Repair Sleeves and Clamps used by Essar

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- Essar pipeline duties include crude oil (at ambient temperature and 60 deg.C), propylene, ethylene and gas oil
- Essar use two types of split sleeve/clamp. Repair sleeves to reinforce a pipe following internal/external corrosion or dents and emergency leak seal clamps to mitigate leaks.
- Primary requirement is for reinforcement and the main type of sleeve used for this is the 'National Grid' type (split bolted shell with grout filler between pipe and shell).
- A stock of emergency leak seal clamps is also held. These are the 'Plidco' type (Split shells 'clamp' around pipe, no grout).

‘National Grid’ Type Sleeve

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- Flanged split shell sleeve, the void between pipe wall and sleeve filled is with grout
- Grout – Bisphenol A/F resin, aliphatic hardeners, silica
- Design life – 50 years (permanent!)
- Design temperature 50 deg.C. Compressive strength of grout is quoted at 22 deg.C but not stated above this temperature.

‘Metalyte’ Type Sleeve

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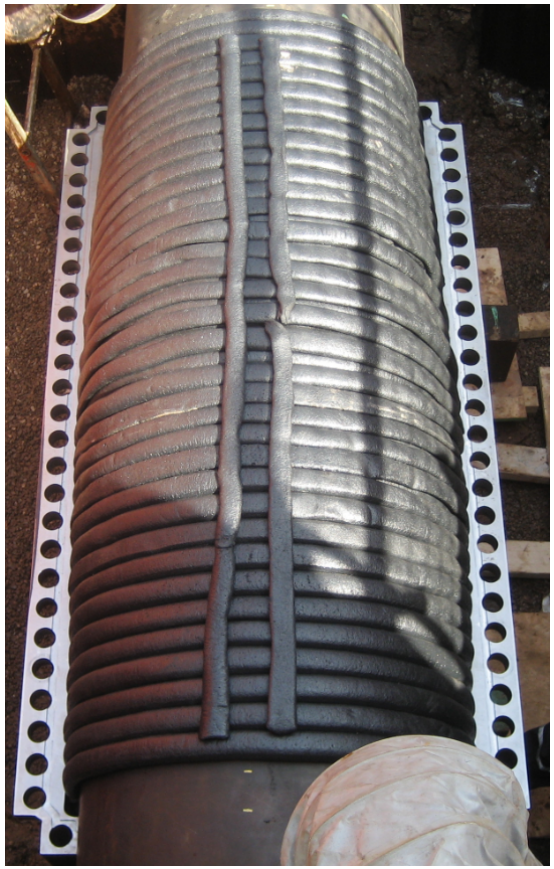
- Flanged split shell sleeve, space between pipe wall and sleeve filled with self-vulcanising sealant
- Sealant – butadiene acrylonitrile

  extruded into rods
- Design life – 20 years
- Design temperature – 280 deg.C



‘Plidco’ Type Clamp

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- Flanged split shell sleeve. Clamps around pipe.
- Supported elastomer seals, no grout
- Can be used in an emergency to seal a leak and then remain fitted
- As the void is not filled, it does not restrain the pipe wall from flexing

‘Team’ Type Clamp/Sleeve

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- Essar are currently evaluating the ‘Team’ type clamp
- An emergency repair clamp that can be manufactured with blind injection/venting points for subsequent void filling
- Different seal arrangement to ‘Plidco’
- Designed for a specific pressure
- Suitable for high temperature
- Grout life and ability to restrain pipe wall from flexing to be confirmed

My questions for members!

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- Is it possible to have a standard specification?
- Essar requirement is for the grout to have a design life of 50 years, a design temperature of 80 deg.C. and to restrain the pipe wall. Is it possible to have all at a sensible cost?
- Is it sensible to specify one item: an emergency repair clamp that can subsequently be converted into a grouted sleeve?

- The benefit of your experience would be greatly appreciated!
- Thank you!