

Product Code: SYLxxxHD

TECHNICAL DATA SHEET

SYLWRAP HD

PIPE REPAIR BANDAGE



(LH Resin has WRAS approval)

Description

SylWrap HD Pipe Repair Bandage is a water-activated composite wrap made with high density fibres which strengthens and protects pipework by forming a rock-hard, impact resistant sleeve around the outside, extending the lifespan of systems.

Applying SylWrap HD to a pipe increases outer wall thickness, pressure resistance, corrosion resistance, chemical resistance and hoop strength. In successful qualification testing to pass *ASME PCC-2 Appendix 401-III – Short Term Spool Survival*, a pipe weakened by 86% from its original specification was strengthened by SylWrap HD and Industrial Metal Epoxy Paste to withstand over 309.6 bar pressure.

Where a leaking pipe has been sealed, overwrapping the sealant material with SylWrap HD reinforces the initial repair. SylWrap HD comes in 11 different sizes, enabling repairs to be made to pipes of all diameters. It can be applied to steel, copper, malleable iron, GRP, ceramic, clay, most plastics, concrete, rubber and other materials.

SylWrap HD Resins

SylWrap HD is manufactured by Sylmasta at their world-leading composite pipe repair production facility in the UK using one of two different resin types.

LH Resin contains less than 0.1% free diisocyanates. It falls outside the 2023 EU and UK REACH legislation governing the safe use of products containing diisocyanates. LH Resin has WRAS Approval, meaning it is safe to use on pipes and fittings carrying drinking water. The temperature resistance of LH Resin is 120°C.

Original Resin contains a greater concentration of diisocyanates. It does not have WRAS Approval but offers increased temperature resistance up to 250°C.

Other than differences in WRAS approval and temperature resistance, LH Resin and Original Resin share identical mechanical properties. SylWrap HD has a 2-5 minute work time, a 30-45 minute functional cure and a 24 hour full cure.

Sylmasta can also manufacture SylWrap HD with a slow-setting resin and produce different coloured bandages to better disguise repairs. If you require specialist bandages for a specific application, please email sales@sylmasta.com.

Directions for Use

Applying SylWrap HD is easy. Wearing gloves, the user dips the bandage in water for 5 seconds to activate the resin before wrapping around the pipe or structure which requires strengthening. Extending SylWrap HD up to 50mm either side of the damage area ensures complete coverage. For best results, SylWrap HD should be approximately 10 layers in thickness.

Applications

- **Water and wastewater:** Strengthen older pipes before the burst and reinforce leak repairs
- **Petrochemical plants:** Reinforce degraded pipes from the outside without needing tools or shutting down systems
- **Power stations and oil rigs:** Effective on oil, gas, water and coolant pipes
- **Heavy industry including mines:** Refurbish and protect pipes in highly abrasive environments
- **Marine:** Fuel lines, water and waste pipe repairs to ships, yachts and boats in dock or whilst at sea

Health & Safety

Wear rubber or plastic-coated gloves when handling SylWrap HD. Please consult the individual Material Safety Data Sheet for more information.

Storage

SylWrap HD should be stored unopened in its original foil packaging in cool, dry conditions. Under such conditions, it has a shelf life of 24 months from date of manufacture. Piercing or damaging the pouch will cause SylWrap HD to cure prematurely.

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Technical Data

Shelf life	24 months from date of manufacture
Working time	2-5 minutes depending on temperature
Initial cure	7-10 minutes
Full cure	24 hours
Cured material life	10-20 years depending upon repair quality, repair thickness, condition of pipe, environmental conditions, pipe temperature, etc. Consult Sylmasta for further information and design life for specific applications
Shore D hardness	70
Tensile strength	250 MPa
Intermittent	150°C
Coefficient of thermal expansion	7.1 x 10 ⁻⁵ / °C (SylWrap composite wrap)
Lap shear strength (steel)	6.3 MPa
Service conditions	
Max service temperature	250°C / 480°F with Original Resin. SylWrap HD has been used at 250°C with steam at 20 bar for a two week temporary repair and at 200°C at 20 bar for more than six weeks. Lab tests show thermal stability up to 300°C. 120°C / 248°F with LH Resin
Max leak pressure resist.	30 bar / 435 psi, depending on size of pipe and leak. Hole requires sealing with epoxy filler first to reach max pressure. (Tested on 50mm pipe with 10mm hole)
Pipe reinforcement	For pipe reinforcement, pressure resistance can be designed to the requirements of ASME PCC-2 - <i>Repair of Pressure Equipment and Piping</i> . Consult Sylmasta for further information
Chemical resistance	Acetone, ammonia, sulphuric acid (30%), ethyl alcohol, mineral spirits, gasoline, MEK, toluene, diesel, hydrochloric acid, Varsol, ethylene glycol, crude oil, hydraulic oil (test period of 40 days)
Chemical resistance	Resistant to hydrocarbons, ketones, alcohols, esters, halocarbons, aqueous salt solutions and dilute acids and bases.

SylWrap HD Product Codes and Bandage Sizes

SylWrap HD is available in 11 different bandage sizes as standard with different product codes for LH Resin and Original Resin. The table below also recommends which size bandage should be used based on a specific pipe diameter.

LH Resin Code	Original Resin Code	SylWrap Size	Pipe Diameter
SYL106HD-LH	SYL106HD	25mm x 1.8m	Up to 15mm
SYL206HD-LH	SYL206HD	50mm x 1.8m	15 – 25mm
SYL212HD-LH	SYL212HD	50mm x 3.6m	25 – 50mm
SYL309HD-LH	SYL309HD	75mm x 2.7m	25 – 50mm
SYL312HD-LH	SYL312HD	75mm x 3.6m	50 – 75mm
SYL412HD-LH	SYL412HD	100mm x 3.6m	50 – 100mm
SYL416HD-LH	SYL416HD	100mm x 5.0m	75 – 125mm
SYL430HD-LH	SYL430HD	100mm x 9.0m	125 – 250mm
SYL616HD-LH	SYL616HD	150mm x 5.0m	100 – 150mm
SYL633HD-LH	SYL633HD	150mm x 10.0m	150 – 300mm
SYL866HD-LH	SYL866HD	200mm x 20.0m	300 – 600mm

Disclaimer

Whilst all reasonable care is taken in compiling technical data on the Sylmasta products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the Sylmasta. It is the customer's responsibility to satisfy themselves that each product is fit for the purpose for which they intend to use it, that the actual conditions of use are suitable, and that in the light of our continual research and development programme the information relating to each product has not been superseded.