LIFTING ACCESSORIES

CATALOGUE

PETROLIFT®

SINCE 1999

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Crosby®

SHACKLES

G-2130

G-209

G-2150

G-210

G-2160

G-252

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PETROLIFT DISTRIBUTOR FOR THE CROSBY FOR THE REGION FOR THE LAST 22 YEARS.

Crosby®

HOOKS

S-1316

S-1317

320CN

S-1326

A-378

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Crosby®

CHAINS & COMPONENTS

ALLOY CHAIN

LOK-A-LOY

A-330

A-1362

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LIFTING CLAMPS

IPH10

IP10

IPTKU

IPDV

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WIRE ROPE END TERMINATIONS

S- 416

S-417

S-421

G-450

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Crosby®

MCKISSICK BLOCKS & OVERHAUL BALLS

419

M-491

380 SERIES

RJ STYLE

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LIFTING POINTS

S- 279

S- 265

HR - 125

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MASTER LINKS

A-344

A- 347

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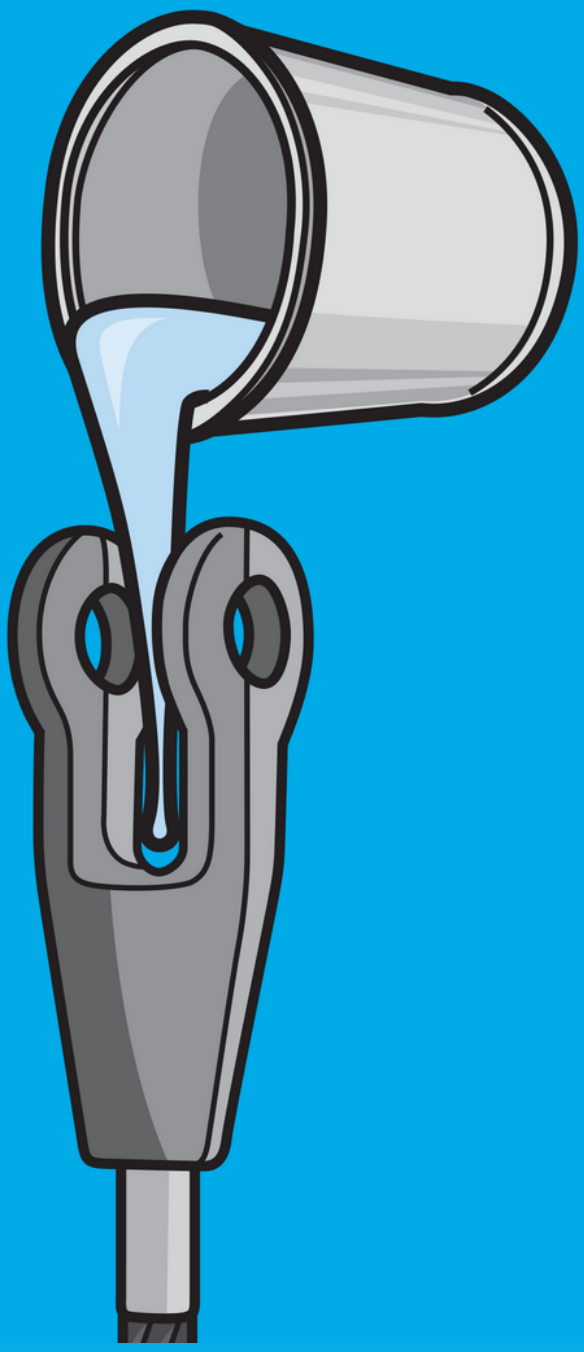
Crosby®

- SHACKLES
- LOAD MONITORING
- HOISTS
- HOOKS & SWIVELS
- MASTER LINKS
- CHAIN & ACCESSORIES
- WIRE ROPE END FITTINGS
- ROV
- SYNTHETIC SLING FITTINGS
- TURNBUCKLES
- LIFTING POINTS
- LIFTING CLAMPS & MAGNETS
- LOAD SECUREMENT COMPONENTS
- SHEAVES
- BLOCKS

WIRELOCK® SP straightpoint® know the load McKISSICK®

WIRELOCK®



WIRELOCK® is the original cold socketing compound for use with wire ropes.

Developed and manufactured in the UK by Millfield Enterprises, under ISO 9001: 2015 accreditation WIRELOCK® has a trusted track record spanning over 50 years.

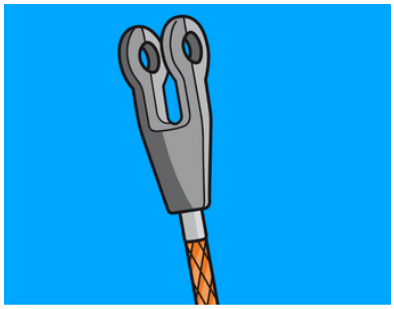
WIRELOCK® is the best socketing solution for safety, dependability and unparalleled fatigue performance.

PARALOCK

Fibre Rope Socketing

PARALOCK® is a low viscosity variant of the WIRELOCK® system which is specifically designed to be used with fibre rope.

It behaves in the same way as WIRELOCK® and possesses identical physical properties.



Appendix B: Technical bulletin for reuse of spelter sockets.

Crosby (Corporate office)
2801 Dawson Road, Tulsa, OK 74110
Telephone: (918) 834-4611

The Crosby Group, Inc.	**Technical Data Sheet**	10/20/2017

Reuse Of Crosby Spelter Sockets & Buttons

The following are general guidelines for the reuse of Crosby® 416/417 Spelter Sockets and Crosby® 427 Spelter Buttons. The use and inspection of used spelter sockets and buttons is the responsibility of the user.

Procedure For Removing Spelter Cone

1. Cut the rope close (1/2") to the nose end of the socket/button and press the cone out of the basket of the socket/button.
2. We do not recommend the use of heat to remove the spelter cone for metallurgical, medical and environmental reasons.
    A. However, if this is the only means available for removing the zinc cone, care should be taken not to exceed 850°F (450°C) surface temperature. The preferred method would be a slow heat in a temperature controlled oven. If a torch (rosebud) is used, the heat spot shall be monitored with a tempil stick or a temperature indicator to prevent localized heating from exceeding the 850°F (450°C) limit.
    B. To remove a WIRELOCK cone, heat the surface of the socket to 350°F (do not exceed the 850°F limit for any localized hot spot). Leave for 5-10 minutes, then drive the cone out with a hammer and drift.

Selection Of Sockets & Buttons For Reuse

1. Use only sockets/buttons that do not show discoloration from excessive heating or any signs of welding.
2. Select only sockets/buttons that have been cleaned and have passed a Magnetic Particle Inspection by a qualified technician (Level II ASNT-SNT-TC-1A-Latest Rev) per ASTM E709. Acceptance criteria shall be per ASTM E125, Types II-VIII, Degree 1. No cracks are acceptable.
3. Select only sockets/buttons that do not show any signs of overloading or wear on the socket or pin, (i.e. elongated pin holes, undersized pins, etc.).
4. Select sockets/buttons that are free from nicks, gouges and abrasions. Indications may be repaired by lightly grinding until surfaces are smooth, provided they do not reduce the dimensions by more than 10% of the nominal catalog dimension.
5. Select sockets/buttons that are not distorted, bent or deformed.

Note: Sockets/Buttons having any of the indications as outlined above (A-E) shall not be reused.

Procedures For Speltering Sockets & Buttons

1. The proper procedure for speltering sockets/buttons can be found in **American Petroleum Institute (API) Recommended Practice 9B (RP9B)**, 11th Edition, September, 2002 or **ISO17558:2006 Steel Wireropes Socketing Procedures – Molten Metal and Resin Socketing**. [2]
2. Some standards (API, ISO, BSI) recommend preheating of the zinc spelter socket/button before pouring. This temperature shall **not** exceed 850°F (450°C).
3. Resin spelter sockets/buttons shall follow the procedure outlined by the resin manufacturer.

Proof Testing

We recommend the socketed assembly be proof tested at two (2) times the Working Load Limit (2 X WLL) assigned to the socketed assembly.

REV 3: Add Latest Rev to line 2 10-30-2017
REV 3: Add reference for 427 buttons 01-05-2010
REV 2: Revised Bullet For Speltering Sockets 05-02-2007

Classification	Catalog No.	Document No.	Revision No.	File Name
SOCKETS	416/417/427	TDSRSS	3	tdsrss.doc

Instructions

This technical data manual explains the proper use of **WIRELOCK®** for socketing wire rope terminations using standard taper sockets. When reading and following these instructions, pay close attention throughout to warning and safety information presented in bold print. For maximum safety and efficiency, use **WIRELOCK®** only as instructed.

Section 1: Warning on correct application of **WIRELOCK®**

It is very important when deciding upon the use of **WIRELOCK®** to note the following:

WARNING

- Incorrect use of **WIRELOCK®** can result in an unsafe termination which may lead to serious injury, death, or property damage.
- Crevice Corrosion will occur in the rope near the socket rope interface, where a termination of stainless steel wire rope is permanently immersed in salt water. When using **WIRELOCK®** within this environment regular inspection must be carried out.
- Seizing - use tinned or galvanised soft wire or strand for galvanised rope. Use bright, tinned or galvanised wire or strand for bright rope.
- Do not use copper or brass wires or strand for seizing.
- Never use an assembly until the **WIRELOCK®** has gelled and cured and a successful scratch test has been completed.
- Remove any non-metallic coating from the broom area.
- Sockets with large grooves need to have those grooves filled before use with **WIRELOCK®**.
- Read, understand, and follow these instructions and those on the product containers before using **WIRELOCK®**.

Section 2: Health & safety precautions for using **WIRELOCK®**

It is important that certain precautions be taken when using **WIRELOCK®** for a wire rope socket termination. When using the product be sure to read information on product containers and note the following:

CAUTION

- **WIRELOCK®** resin, in liquid state, is flammable.
- Chemicals used in this product can give off toxic fumes and can burn eyes and skin.
- Only use in well-ventilated work areas.
- Never breathe fumes directly or for an extended time.
- Always wear safety glasses to protect eyes
- Always wear gloves to protect hands.
- Avoid direct contact with skin anywhere.
- Always wear a dust mask/ fume filter.

Section 3: Selection of socket

3.1 **WIRELOCK®** is recommended for use with sockets that comply with International, European or National (ISO, CEN) Standards.

3.2 **WIRELOCK®**, as with all socketing media, depends upon the wedging action of the cone within the socket basket to develop full efficiency. Seating is required to develop the wedging action. Please note a rough finish inside the socket may increase the load at which seating will occur and must be avoided.

3.3 Measure the rope ends to be socketed. The rope end should be of sufficient length so that the ends of the unlaid wires (from the strands) will be at the top of the socket basket.

For standard taper sockets, apply the seizing one (1) socket basket length from the end of rope minus one (1) rope diameter. The length of the seizing must be at least two (2) rope diameters long. Additional information can be secured from your Wire Rope User's Manual or your wire rope manufacturer's catalogues or national standards. Please note when seizing, use tinned or galvanised soft wire or strand for galvanised rope. Use bright, tinned or galvanised wire for bright rope.

3.4 It is very important to seize correctly. If using pear shaped or other specialist sockets, the position of the seizing and the length of the broom may have to be adjusted to suit the socket being used.

Figure 1: Seizing of wire rope.

3.5 Plastic coated or plastic filled wire ropes must have all plastic material (non-metallic materials) removed from within the broomed area.

3.6 The socket basket should be examined prior to use and any loose scale, dirt or grease removed.

Do not use oversized sockets for wire rope.

3.7 When socketing strand, the time honoured method of one size up when choosing the socket is generally still applicable in the vast majority of cases. However, caution should be exercised as tests have shown that the length of the socket basket should be five (5) times the strand diameter or fifty (50) times the maximum wire diameter, whichever is the greater.

3.8 **Inserting the broom into the socket.**
There are two procedures that can be used to position the broom within the socket. The rope can be inserted into the socket prior to brooming. Subsequently the socket can be pulled up over the broom. The second method requires that the broom is closed and compacted to enable it to be inserted into the socket without damaging the rope or seizing.

For a detailed explanation of resin socketing of steel wire ropes see Appendix A on page 16.

Section 4: Preparation of broom

4.1 The rope is secured in a vice directly below the seizing to allow the strands to be unlaid down to the seizing. They should be bent outwards to a total included angle of approximately 60 degrees but not exceeding 90 degrees (figure 2).

Figure 2: Unlay wire rope so that the angle does not exceed 90°.

4.2 Internal leakage of resin in ropes of 75mm (3") in diameter and larger can occur because of gaps between strands and the IWRC (Independent Wire Rope Core) these gaps should be filled (before brooming), by pushing small plugs of the **WIRELOCK®** putty/ clay down into the served portion.

4.3 If the rope has a fibre core, it should be cut out ensuring that the remaining fibre core extends half (1/2) a rope diameter into the bottom of the socket. In the case of fibre cores, resin is the preferred socketing medium.

4.4 If the rope has an IWRC, the IWRC should be completely unlaid to form part of the broom.

4.5 **All the wires in each strand and the IWRC must be unlaid completely down to the seizing to form a broom, being careful not to disturb or change the lay of the wires and strands under the seizing band. The wires should not be straightened.**

Brooming is one of the most critical parts of any socketing operation.

Note: the wires must be unlaid from the end of the rope to the seizing because a good fill of resin must occur to the bottom (small end) of the socket (figure 3).

Most of the load bearing capacity of the termination is concentrated in the bottom one third (1/3) of the socket.

Figure 3: Properly broomed wire rope unlaid from the end of the rope to the seizing.

Figure 4: Incorrectly broomed wire rope.

5.2 **WIRELOCK®** putty/ clay is required to seal the base of the socket prior to pouring, thus preventing resin leakage which may cause voids (figure 7).

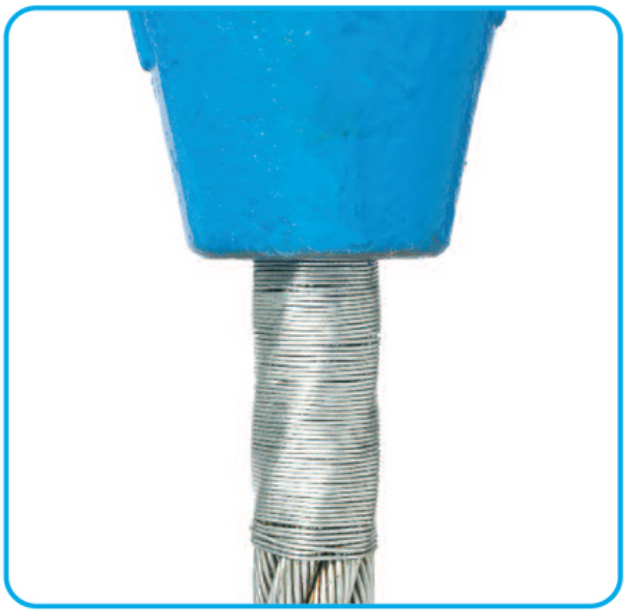


Figure 6: Axes of socket and rope properly aligned.

Figure 7: Axes of socket and rope properly aligned and sealed with WIRELOCK® putty/ clay.

Section 6: **WIRELOCK®** kits & mixing

6.1 Always check the expiry date on the cans. Never use out of date material. **WIRELOCK®** should be stored in a cool dry place (10°C to 24°C/ 50°F to 75°F).

6.2 **WIRELOCK®** is formulated for mixing and pouring in the ambient temperature range; from -3°C to 35°C (27°F to 95°F). At lower temperatures the gel time will increase. See section 14.1 for further information regarding temperatures and gel times.

Below 9°C (48°F) acceptable gel times can be maintained by the use of **WIRELOCK®** Booster kits. Only use **WIRELOCK®** Booster kits that match the size of the **WIRELOCK®** kit being used.

Always add the **WIRELOCK®** Booster kit to the **WIRELOCK®** powder first and then add the resin.

CAUTION

- Chemicals used in this product can give off toxic fumes and can burn eyes and skin.
- Always check the expiry date on the cans. Never use out of date material.
- Use only in well ventilated work areas.
- Never breathe fumes directly or for an extended time.
- Always wear safety glasses to protect eyes.
- Always wear gloves to protect hands.
- Avoid direct contact with skin anywhere.
- Always wear a dust mask/ fume filter.

6.3 At ambient temperatures below 9°C (48°F) and above 2°C (35°F), one (1) **WIRELOCK®** Booster kit should be used. Below 2°C (35°F) and above -3°C (27°F), two (2) **WIRELOCK®** Booster kits should be used. The **WIRELOCK®** Booster kit compensates chemically for the slower gel time experienced at lower temperatures. In order to comply with all the approvals granted, **WIRELOCK®** should not be mixed and poured at temperatures below -3°C (27°F). Knowing the ambient temperature is useful, however, it should be remembered **WIRELOCK®** will for some time afterwards tend to cure according to the temperature at which it, the socket and the wire rope were stored. The temperature of the socket and the rope should conform to the temperature at which the **WIRELOCK®** has been stored for the last 24 hours.

4.6 Except in the case of wire ropes of coarse construction e.g. 6 x 7, it is not necessary or desirable to hook the wires in the broom. When the rope contains large numbers of wires, hooking the ends causes congestion within the socket and can create penetration problems for the socketing medium although this is less of a problem with resin than zinc or white metal.

4.7 The open broom should be thoroughly cleaned (degreased). **Be sure that the cleaning is confined to the broom and does not extend to the rope beyond.**

4.8 The method of cleaning will depend on the lubricant and/ or coating on the wire.

4.9 The methods and materials used for cleaning should comply with the current environmental protection regulations.

4.10 Consult your wire rope supplier or the wire rope manufacturer for recommended materials and methods.

4.11 **Do not clean wire rope broom with acid, soda, methol hydrate, or acetone. A flux should not be used.**

4.12 The wire rope broom, after cleaning and drying, should be kept in a horizontal position to prevent any grease or mixture of grease and cleaner from running back down from the main body of the rope and contaminating the clean wires.

Section 5: Positioning of broom & alignment of socket.

5.1 The broom should be inserted into the socket using one of the methods described in 3.8. Place rope in a vertical position with the broom end up. It is recommended that there be thirty (30) rope diameters below the socket before any bending occurs in the rope, or twenty (20) rope diameters if securely clamped to a beam.

Make certain the broomed wires are uniformly spaced in the basket, with wire ends at the top edge of the basket (figure 5), and that the axes of the rope and the fitting are aligned (figure 6). A centralising clamp should be used to assist in the alignment of the axes of the socket and the rope.

Correct alignment will avoid premature failure of the assembly due to unequal loading of the wires.

Figure 5: Properly positioned broom with the wire ends protruding slightly.

5.2 **WIRELOCK®** putty/ clay is required to seal the base of the socket prior to pouring, thus preventing resin leakage which may cause voids (figure 7).

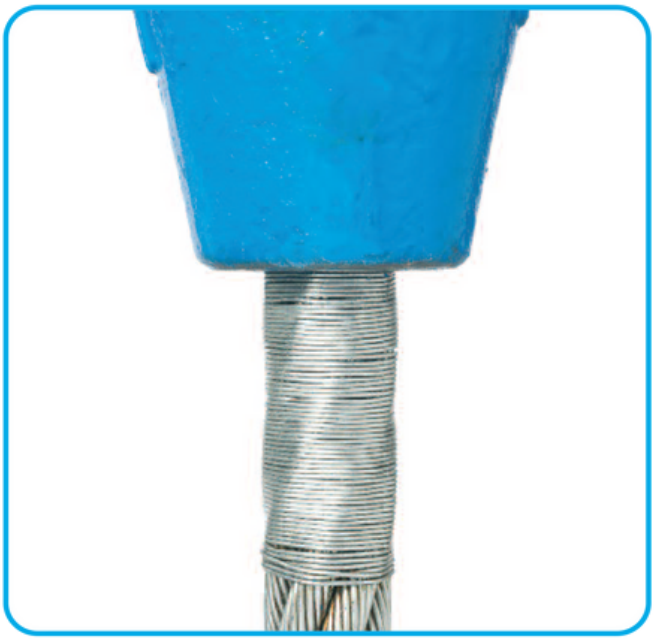


Figure 6: Axes of socket and rope properly aligned.

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Section 6: **WIRELOCK®** kits & mixing

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If the socket, rope and **WIRELOCK®** are stored at normal room temperature 18°C to 21°C (65°F to 70°F) **WIRELOCK®** Booster kits must not be used if the ambient temperature is below 9°C (48°F). If the ambient temperature is 35°C (95°F) or above, the **WIRELOCK®** kit should be refrigerated for two hours before use.

6.4 It is possible to combine various kit sizes to achieve any required volume, e.g. 2500cc = 2 x 1000cc plus 1 x 500cc, etc. In this case, pour all of the liquid resin into all of the powder before mixing. **Always mix all of the resin with all of the powder. Never mix less than the total contents of all cans.**

6.5 Only the 100cc, 250cc & 500cc can be mixed in the original packaging by pouring the resin into the granular materials container (figure 8). In the case of other kits, a proper mixing vessel should be used.

Mixing vessels should be clean. They can be made of metal, polythene or polypropylene. Polymerisation products of styrene, i.e. styrofoam cups and similar products should not be used. A flat wooden or metal paddle, not a spike or screwdriver, should be used as a stirrer.

Figure 8: Some kits can be mixed in the original packaging.

6.6 Immediately upon pouring the resin into the granular compound, mix vigorously for two (2) minutes or until a homogenous mixture has been obtained. Make sure that no unmixed granular compound remains on the bottom of the mixing container. For larger sizes, a mechanical mixer is ideal.

Upon mixing, the WIRELOCK® will turn to a green/ blue colour. If the mix remains a pale straw yellow colour, do not use the kit. Always mix all of the resin with all of the powder. Never mix less than the total contents of both cans.

Section 7: Use of heat

7.1 Do not apply heat to sockets to accelerate the curing process prior to pouring. The application of external heat may cause the resin to gel before it reaches the bottom of the socket and lead to assembly failure. Used sockets cleaned out by heating (see Appendix B on page 19) should be allowed to cool to room temperature before re-use.

Hot sockets must not be used.

Section 8: Pouring **WIRELOCK®**

8.1 Once the **WIRELOCK®** is mixed, it should be poured immediately (figure 9) into the socket to ensure good penetration, preferably down one side of the socket to allow air to escape.

Figure 9: Upon mixing the compound should be poured immediately.

Immediate pouring will ensure that the gelling stage occurs in the socket and not in the mixing container. Sufficient **WIRELOCK®** should be mixed so that the socket can be completely filled in one pour. **WIRELOCK®** is designed to gel in approximately 20 minutes at 18°C (65°F). Gelling is the transition point from liquid to solid. To allow an adequate safety margin, no load should be applied to the wire rope assembly until a minimum of one (1) hour has elapsed from the time the **WIRELOCK®** has gelled in the socket and a successful scratch test completed.

As **WIRELOCK®** cures, a chemical (exothermic) reaction occurs, causing a considerable rise in temperature. Temperatures in excess of 100°C (212°F) may be reached in large volume kits in the mixing container. In the socket where the wires of the rope and the socket itself act as a heat sink, the maximum temperature likely to be achieved will be in the order of 70°C to 80°C (160°F to 175°F).

Section 9: Movement

9.1 Movement of the resin poured sockets may damage the soft resin and reduce the efficiency of the termination. Resin poured sockets should not be moved for a minimum of ten (10) minutes after the material in the socket has gelled.

Section 10: Check on penetration

10.1 A visual check for penetration of the resin into the socket bottom can be made by removing the centralizing clamp and the **WIRELOCK®** putty/ clay. Seizing on the rope adjacent to the neck of the socket should be removed up to the point where it enters the socket.

Section 11: Re-lubrication

11.1 After removing the rope from the vice, any degreased area of the rope below the socket should be re-lubricated.

Section 12: Loading

12.1 The rope can be put into service or proof loaded one (1) hour after the material in the socket has gelled and a successful scratch test has been completed.

12.2 Whenever possible, the assembly should be proof loaded.

Section 13: Re-use of socket

13.1 Please consult socket manufacturer for additional information on re-use of sockets. See Appendix B on page 19 for guidelines issued by The Crosby Group Inc.

Section 14:
General information

Figure 10: WIRELOCK® standard kit sizes and other kit sizes available.

1 **WIRELOCK®** is designed to gel (change from a liquid to a solid) in approximately 20 minutes at 18°C (65°F). To ensure the kits are not adversely affected by storage, they should be kept in a dry place at a temperature of between 10°C and 24°C (50°F and 75°F) and away from any source of direct heat. **WIRELOCK®**, like all polyester resins, is temperature sensitive. An increase in temperature of 10°C (18°F) will halve the gel time. A further increase of 10°C (18°F) will halve the gel time again. A decrease in temperature of 10°C (18°F) lengthens the gel time by approximately 100%. A further decrease in temperature of 10°C (18°F) will lengthen the gel time by approximately 100% again.

2 **WIRELOCK®** is available in standard kit sizes ranging from 100cc to 2000cc. Other kit sizes can be made to order for any specific project. Technical expertise is available by telephone **44 (0) 191 2648541** or **info@wirelock.com**

The specific gravity of **WIRELOCK®** is 1.73 therefore, 1000cc's will weigh 1.73kg or 3.81lbs. 250cc will weigh.

$$\frac{1.73 \times 250}{1000} = 0.43\text{kg} \text{ or } 0.95\text{lbs}$$

Section 15: Approvals & NATO numbers

Approvals

To maintain **WIRELOCK's** premier position in the marketplace we continually strive to refine and improve the product. We operate a monitoring programme to ensure that the quality of **WIRELOCK®** never varies.

WIRELOCK® is manufactured under ISO 9001 accreditation.

WIRELOCK® meets the requirements of ISO 17558 and DNV-OS-E304.

WIRELOCK® has Type Approval from Lloyds, DNV and ABS.

NATO numbers

100cc 8030-21-902-1823

250cc 8030-21-902-1824

500cc 8030-21-902-1825

1000cc.....8030-21-902-1826

Lifting Materials

HANDLING

CHAIN BLOCK HOIST

Hand Chain Hoist

Hand Chain Hoist

Trolley Chain Hoist

Wire Rope Hoist