

NEUMANN EQUIPMENT NEWS

WIRE ROPE TERMINATIONS - USING WEDGE TYPE SOCKETS

Applications

Neumann Equipment predominantly uses wedge-type sockets to secure the end of the wire rope to the cheek plate of the winch. They are typically used in lifting and hauling winch applications as a simple mechanical connection to steel wire ropes, especially where they may require shortening. One end of the wedge-type socket can clamp a rope with a wedging action, and the rest of the wire rope is spooled onto the winch drum.

The wedge-type socket has been designed for use on wire ropes up to and including 1770 grade wire with a wire rope core; however, higher grade wire rope may be used, provided it meets the intent of AS 2740-2001.

In some applications, some regulatory authorities may apply restrictions to the use of wedge-type sockets.

Wedge-type sockets shall not be used where moving loads can dislodge socket wedges out of the body. Where this may occur, the wedge-type socket should be positioned so that the moving load cannot contact the socket wedge.

Wedge-type sockets shall only be used where they can be readily inspected.

The WLL is determined based on an M3 general condition of use as specified in AS 1418.1, which may need to be referred to determine the specific user requirements. The particular use may require a duration factor to be applied so that the WLL for the system may be determined.

In any lifting, tensioning or staying system, the safe working load of each component shall take account of the conditions (such as the classification of load application as specified by AS 1418.1) and shall be compatible with any loads inherent in and applied to the system. Each component should readily connect with each adjacent component. Therefore, it is essential that components of lifting, tensioning, or staying systems be quickly and positively identified in service for size, lifting capacity and quality grade.

Only one quality grade of the fitting is included in this standard. It is suitable for use with ropes of breaking strength up to and including Grade 1770 WRC six-strand wire ropes and other grades that have been typed tested.

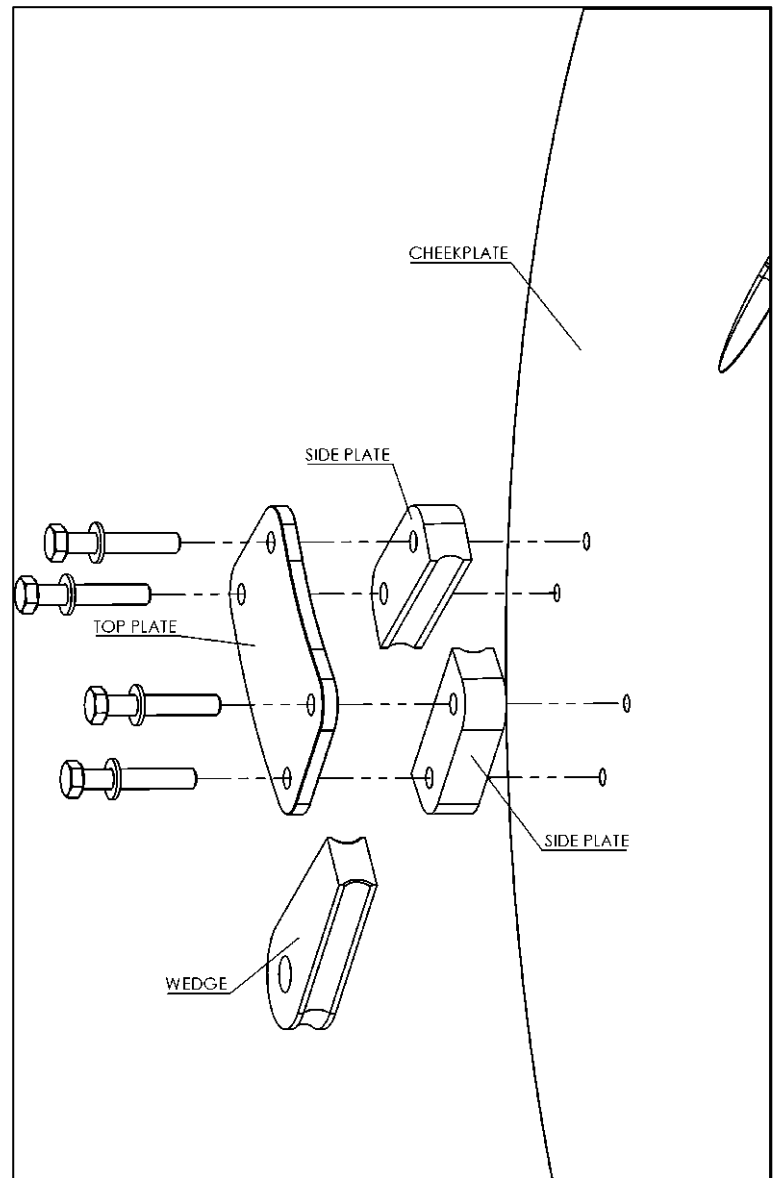


Figure 1 – Typical Wedge Type Socket used on Neumann Equipment Winches

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NEUMANN EQUIPMENT

Methods for Fitting Wedge-Type Sockets to Wire Ropes

USING A LOOP

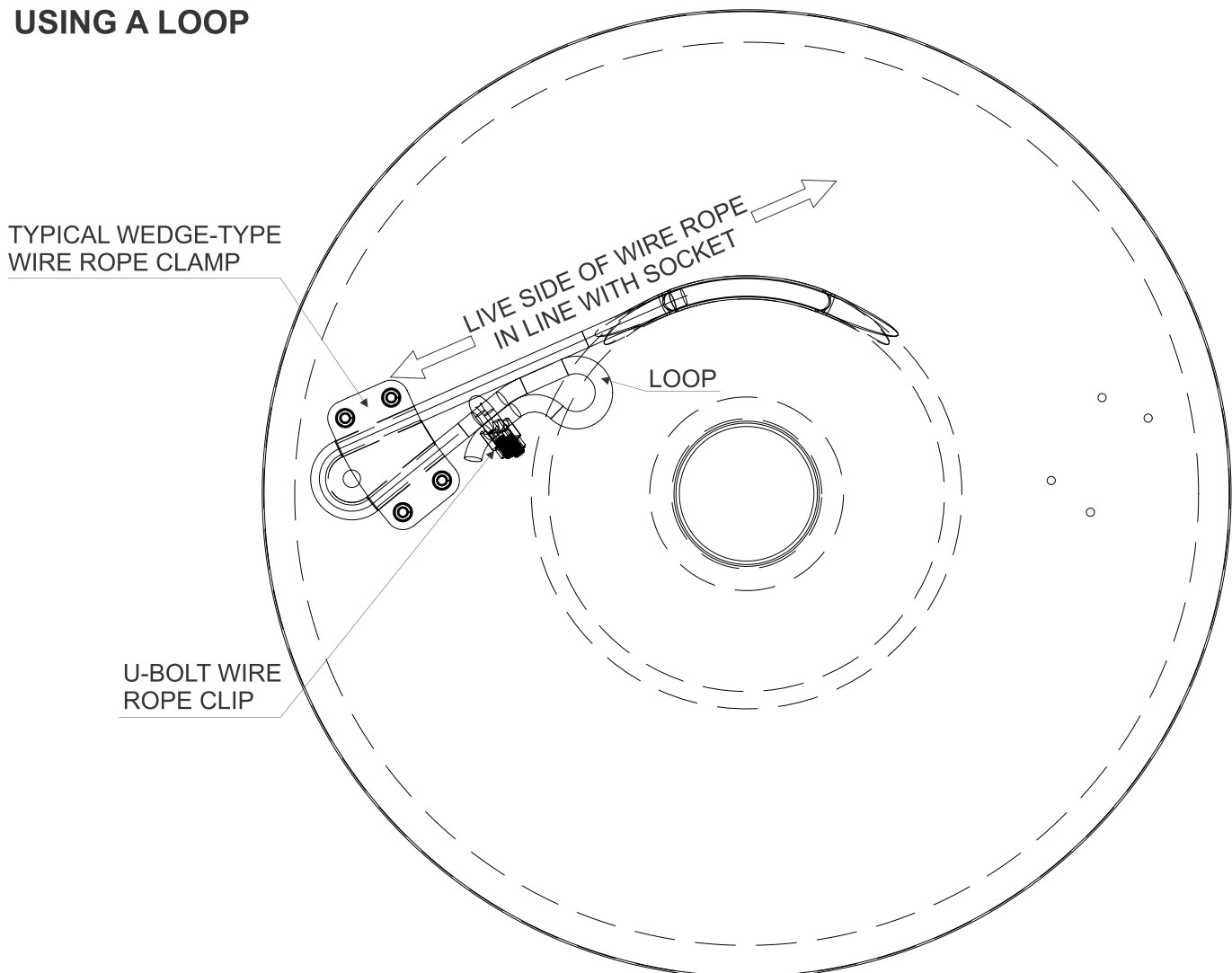


Figure 2 – Methods for Fitting Wedge-Type Sockets to Wire Ropes - Using a Loop

Fitting of Ropes

Where a rope is fitted to a wedge-type socket, the nominal diameter of the wire rope shall be equal to the nominal size of the wedge-type socket, and the loaded end of the rope shall enter the socket body so that when loaded it will not bend where it leaves the socket body.

Where a wedge-type socket is connected to a non-spin wire rope, extra care must be taken by brazing the end or seizing the rope before fitting to prevent disturbance to the rope construction.

It is recommended that the wire rope grip be attached to the non-loaded end of the rope adjacent to the socket wedge to prevent the wedge from being dislodged in an unloaded condition.

Any means that is used to prevent a socket wedge from accidentally dislodged should not adversely affect the safety performance of the socket assembly.

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USING A SHORT PIECE OF WIRE ROPE

TYPICAL WEDGE-TYPE
WIRE ROPE CLAMP

U-BOLT WIRE
ROPE CLIP

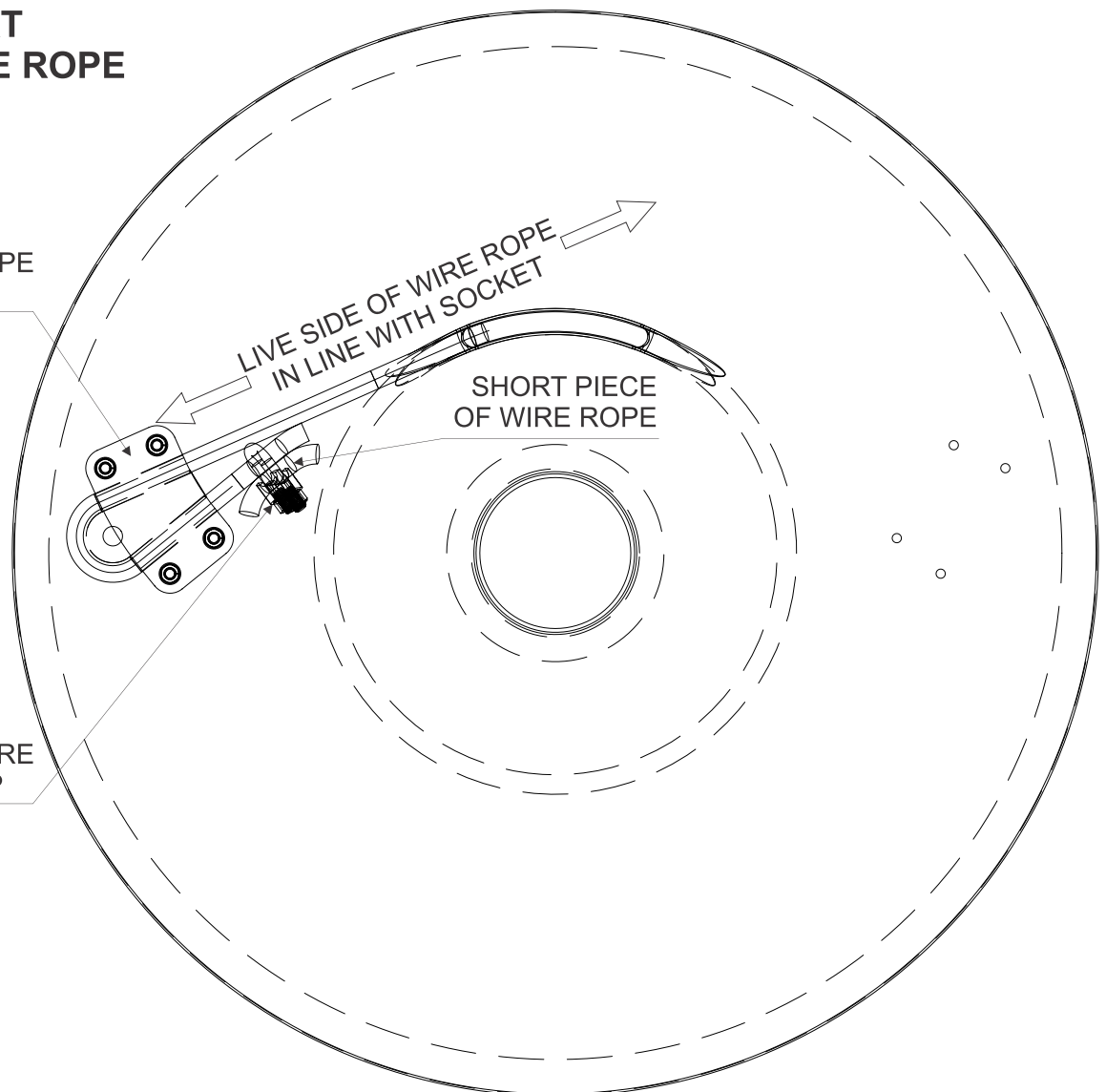


Figure 3 – Methods for Fitting Wedge-Type Sockets to Wire Ropes - Using a Short Piece of Wire Rope

Inspection

Terminations made with wedge-type sockets shall be inspected after the first and the second loading.

A competent person shall inspect wedge-type sockets to ensure they are satisfactory for continued use.

Before being refitted, socket bodies and socket wedges shall be examined for severe marking and damage. Severely marked, cracked, or damaged fittings shall not be re-used.

Wire rope adjacent to a wedge-type socket shall be examined for breaks in wires before reassembly.

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DIRECTLY ON THE ROPE

TYPICAL WEDGE-TYPE
WIRE ROPE CLAMP

U-BOLT WIRE
ROPE CLIP

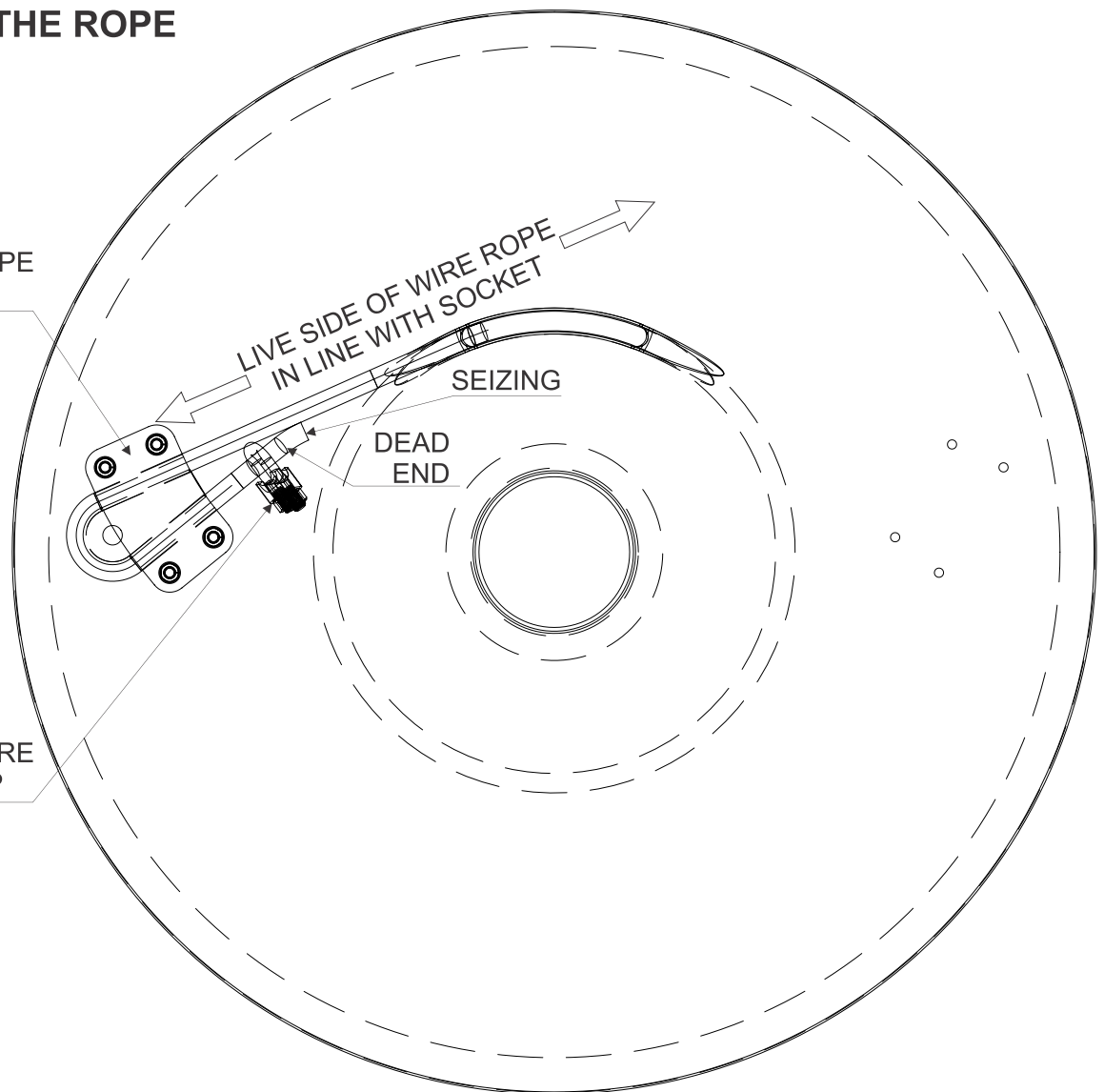


Figure 4 – Methods for Fitting Wedge-Type Sockets to Wire Ropes - Directly on the Rope

Adjusting Rope Length

Wedge-type sockets shall not be used where there is a likelihood that the rope may require lengthening at that end. Lengthening would bring at least a portion of the rope on which a wedge-type socket has been fastened into a position now subject to full load, and this portion of the rope may be damaged.

In some applications, it is the practice to provide the initial rope much longer than required so that shortening may be carried out several times, quickly and easily, without recourse to splicing. Such shortening is recommended at regular intervals to significantly improve the crease rope life of drag, hoist and boom-hoist ropes by sharing overworked rope sections along a greater length. The socket wedge may be punched out of the socket body, a length of wire cut off, the rope refitted in the socket body and the socket wedge replaced and pulled tight.

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