

## Safety Alert 24-87 Incorrect Selection and Use of Eyebolts



The following Safety Alert contains content from an external source which is relevant to MWH Treatment Operations.

### Overview

There have been issues with eyebolts during recent lifting operations.

**Incident 1:** During the replacement of a fan motor there was no eyebolt present on the old motor. A decision was made to utilise the Dynamo eyebolt from the new motor, screwed into the socket on the old motor. The motor then had the fixing bolts removed to allow the motor to be rotated and then lowered to ground level on a chain block. During the operation the eyebolt pulled out of the socket and the motor fell to the ground.

**Incident 2 (See images).** The lifting of a concrete barrier had been planned using the 4no. cast in lifting sockets. The site team decided to utilise only 2 of the cast in sockets as they believed this would be sufficient. There was difficulty in fully winding in the eyebolts; the eyebolts were therefore only wound in partially and the eyebolts were installed perpendicular to the angle of the lifting chains. During the lifting operation one of the eyebolts failed.

### Learning

Site teams must follow the approved Lift Plan. If there are issues with the sockets or alignment the lift must be stopped and the AP consulted.

There are two main types of eyebolts: “Dynamo” and “Collar”. Both types must be orientated during the lift such that the eye is in the plane of the lift (+/- 5o). Collar eyebolts are rated to allow loads inclined to the plane of the eye (though a downrating must be applied). Dynamo eyebolts are rated to only allow axial (vertical) loads and must never be used where axial loading is not assured; if used in pairs a spreader beam will be required.

There are two principal standards for the design and supply of eyebolts: BS 4278 (1984) and BS EN ISO 3266 (2010). BS 4278 is withdrawn but many suppliers still use it. There are different capacities, with the same dimension eyebolts, to the different standards. Therefore the Declaration of Conformity must be checked to determine the standard used (and hence capacity).

Both BS 4278 and BS EN ISO 3266 require that the eyebolt base does not sit proud of the socket by more than half the thread pitch (e.g. 0.75mm for an M10 thread), that suitable shims are used to pack the eyebolt if sitting proud and that the eyebolt is not over-tightened to achieve alignment.

Swivel eyebolts allow loads to be applied at various angles, without downrating, and accommodate many alignment issues. Further information is available in **OPS-T-950**.

Sockets must be cleaned of any debris, checked for integrity before use and, if required, re-tapped using a “chaser” tap. A pull-out test can also be used to confirm the strength of the socket (contact DI for further information).

### Next Steps

- APs - Review current use of eyebolts on the project and ensure correct grade of eyebolt has been specified / provided. Consider use of swivel eyebolts only.
- APs - Brief this alert to lifting teams on site and discuss any concerns with existing works.

*Safety Alerts should not be thought of as an incident investigation report. They are issued to raise awareness of incidents that occur and to highlight the safe work practices required to avoid them being repeated.*



