

TECHNICAL INFORMATION

Sponge Balls - Type RS

Sponge Balls - Type RSL - Light Balls -

Sponge Balls - Type RSR - with skin -

Typical applications:

On-line tube cleaning systems operating at temperatures up to 90°C (e.g. steam condensers and heat exchangers in conventional and nuclear power plants and lower temperature MSF units). Other types of ball are available for other applications.

Available forms:

Type RS Sponge Balls are available in a range of standard sizes from 10 to 45 mm diameter, in 1 mm steps. Each size is available in a standard medium grade of hardness. Non-standard sizes or hardness's are available on request.

Chemical composition:

The composition of the balls is based on a natural rubber mixture containing inert filler material. 10-20% of the mixture is vulcanizing agents. The exact mixture has been chosen so as to give the optimum combination of physical properties, ball in life and cleaning effect. There is no health risk associated with the ball mixtures; all chemicals used are permitted for use in contact with foodstuffs.

Colour:

The standard colour is **r e d**.
Light ball colour is **yellow**.

Sinking- and watering characteristics:

Immediately prior to use the balls are watered by squeezing them under water in the ball vessel about to 3 to 4 times to expel air. To ensure that all tubes are cleaned, the watered balls should have a specific gravity close to that of the cooling medium. They have a sinking velocity of:
Standard ball - 8-12 cm/sec.
Light ball - 1-4 cm/sec.

Resistance to cooling water:

The Type RS Sponge Ball has been specially chosen for service in power plants and similar applications. There are a number of chemical species, including oil and other hydrocarbons, which can have a detrimental effect on the performance of the balls if present in appreciable quantities; carbons, which can have a detrimental effect on the performance of the balls if present in appreciable quantities; these are not common in cooling water systems. In consequence, the balls are resistant to virtually all types of cooling water.

Cleaning effect:

Generally speaking, all types of sponge ball remove soft deposits of the usually found in once through cooling systems, such as mud, silt, sand, slime etc. To some extent, they can limit scale formation in harder waters by removing hard crystalline scales (e.g. calcium carbonate) as nuclei. However, they are ineffective once scales have become established.

Within practical limits, the cleaning effect is not significantly affected by either ball oversize (i.e. difference between ball diameter and tube i. d.) or grade of hardness. However, the ball diameter should always exceed the internal diameter of the tube to be cleaned. The maximum permissible oversize is dictated by the available pressure drop across the heat exchanger and the need to avoid balls sticking in the tubes.

Ball life:

Ball life is strongly dependent on the cleaning frequency and the surface condition of the tubes to be cleaned. It is typically about 6 weeks, but can be much longer depending on local conditions and frequency of cleaning. Scaled and corroded surfaces have a particularly detrimental effect on ball life. The use of abrasive balls to polish roughened surfaces should be considered in case of excessive ball wear.

Note: abrasive balls should be used with care, so as to avoid the risk of enhanced corrosion, especially in brackish, sea or other high-chloride cooling waters.

We should be contacted in cases of doubt.

TECHNICAL INFORMATION

Scouring Balls - Type RB
Scouring Balls - Type RBL

Typical applications:

On-line tube cleaning systems operating at temperature up to 80°C (e.g. steam condensers and heat exchangers in conventional and nuclear power plants) for removing those adherent deposits which cannot be removed using sponge balls and where the use of abrasive balls is not permitted or recommended. A typical example would be bio-fouled layers which form readily on seawater-cooled titanium heat exchanger tubes, and where sponge balls tend to smear out the deposits but not remove them completely.

Available forms:

Our Types RB and RBL "Scouring Balls" are available in a range of standard sizes from 15 to 45 mm diameter, in 1 mm steps.

Hardness:

S O F T - M E D I U M - H A R D -
S U P E R - H A R D (EXTRA-HARD)

Chemical composition:

The composition of the balls is based on a natural rubber mixture containing inert filler material (ratio of filler to rubber approx. 1:2). Roughly 10-20% of the mixture is vulcanizing agents. Additionally it contains fine particles of granulated harder filler material. The exact mixture has been chosen so as to give the optimum combination of physical properties, ball life and cleaning effect. This filler material has been specifically chosen so as to have a hardness less than of the commercially-available grades of titanium condenser tubing.

Colour:

The colour for this balls are:
RB -> **b l u e** RBL -> **yellow**

Sinking velocity:

Type RB 3 - 6 cm/sec
Type RBL 1 - 4 cm/sec

Watering characteristics:

Immediately prior to use, the balls are watered by squeezing them under water in the ball vessel several times to expel air.

Cleaning effect: This effectiveness of scouring balls is strongly dependent on the nature of the fouled layer to be removed. In general the cleaning effect can be compared with that of abrasive balls but avoiding the disadvantage of being detrimental to the tube material. The granulated particles prevent the tendency of sponge balls to smear out and remove them completely.

Regular use of scouring balls: In contrast to the use of abrasive balls, where there is a risk of tube wear with excessive etc., the underlying tube material is unaffected by the cleaning action of the scouring ball on titanium tubes. Consequently, scouring balls can be used continually or at regular intervals.

Ball life: Ball life is strongly dependent on the cleaning frequency and the surface condition of the tubes to be cleaned. It is typically about 6 weeks, but can be much longer depending on local conditions and frequency of cleaning. The special cleaning ability of this type of ball is available during the whole ball life in contrary to coated balls, where the coating is worn away after about 16 hours of operation.