

PED approved pressure equipment bolt at Metso Paper



PRODUCTS FROM BULTEN STAINLESS

Bolt: BUMAX 88, mainly hexagonal bolt ISO 4014 (half thread) and ISO 4017 (full thread), with associated nut ISO 4032.

Sizes: M12–M24.

Steel quality: SS 14.2343, EN 1.4436 with low carbon content.

ABOUT METSO PAPER I SUNDSVALL AB

Number of employees: around 800.

Turnover: around SEK 1.8 billion.

Owner: the Finnish Metso group with operations in 50 countries and a total of 32,000 employees.

Business: development of processes and production of machines including for the pulp and paper industry.

When Metso Paper in Sundsvall was adapting its products to the new pressure equipment directive they chose high-strength, corrosion-resistant BUMAX 88 as fasteners.

BUMAX 88 is the first – and so far the only – bolt on the market with PMA approval (Particular Material Appraisal) under PED 97/23/EC.

Metso Paper is the world's leading manufacturer of production equipment for the paper and pulp industry. The production of paper pulp mainly occurs in closed systems, often in pressure bearing equipment. As a supplier of such equipment, Metso Paper was therefore greatly affected by the new directive.

At the plant in Sundsvall they manufacture mixers, steam heaters, reactors, preheaters, screw feeders etc. They are designed for pressures of between 5 and 16 bar – in extreme cases as high as 20 bar.

Increased expectations

At the end of 2001 Metso Paper planned to adapt its products to PED 97/23/EC, which entered into force on 29 May 2002.

“Initially we had a problem with bolts. We couldn't find a standard bolt that met the new requirements. But then we heard from Bulten Stainless that they were working on a bolt and after it was approved we used it,” says Torbjörn Jacobsson, designer in the chemical pulp unit of Metso Paper.

The bolt that TÜV tested and approved in the summer of 2002 was a BUMAX 88 – an acid-proof product with unique properties including a high strength to weight ratio. The bolt is approved for use in pressure equipment under both the 'old' ADW2 and the 'new' PED. This means that manufacturers can use Rp 0.2 = 640 MPa when designing bolted joints instead of the current 450 in existing designs or 200 MPa that is applied in new designs.

Unique in its class

The PED approved BUMAX 88 has attracted justified interest – and for a number of industries it arrived just at the right time. Currently (autumn 2002) there



Åsa Englund and Torbjörn Jacobsson, designers at Metso Paper, are very satisfied with Bulten Stainless's pressure equipment bolt BUMAX 88 – the only bolt on the market that meets the new PED requirements.

is no other bolt on the market that meets the new requirements without being accompanied by an extensive and very costly testing and certification procedure. At Metso Paper the decision on Bulten Stainless's approved bolt was received warmly.

“Yes, really. During a transitional period we were obliged to put in a lot of work and spend enormous sums on special certificates, in which the manufacturer guarantees rated values with special checks for almost every bolt dimension. This also involves very long delivery times,” says Åsa Englund, designer in the mechanical pulp division.

Stainless extra plus

Type approval of acid-proof BUMAX 88 simplifies operations considerably. Metso Paper also gets added value for the products in which the bolts are used.

“By using BUMAX 88 everywhere in the M12-24 sizes, stainless bolts went where we hadn't had used them before. And this of course means added value for the customer,” says Åsa Englund.

The pressure equipment bolt is used in production equipment supplied to Stendal – a big, new pulp works being built near Arneburg (about 10 miles west of Berlin) in Germany.

“We are very satisfied with this solution and Bulten Stainless is a reliable supplier,” says Torbjörn Jacobsson.

Currently BUMAX 88 pressure equipment bolts are available in the M6–M24 sizes. In the near future Bulten Stainless will be able to offer PED approved BUMAX 88 in the M30 size as well.

“We are looking at this right now and I think it will be here soon. We will also have inch thread bolts available soon,” says Arne Andersén, technical manager at Bulten Stainless.