

# BAR WRAPPED STEEL CYLINDER PIPE

## B.W.S.C. PIPE

.... Conforming to IS 15155: 2002 with Centrifugally cast cement mortar lining, pretensioned bar helically wrapped and cement rich mortar coating.

Improved steel pipe with high structural integrity and pipe stiffness at reduced price.



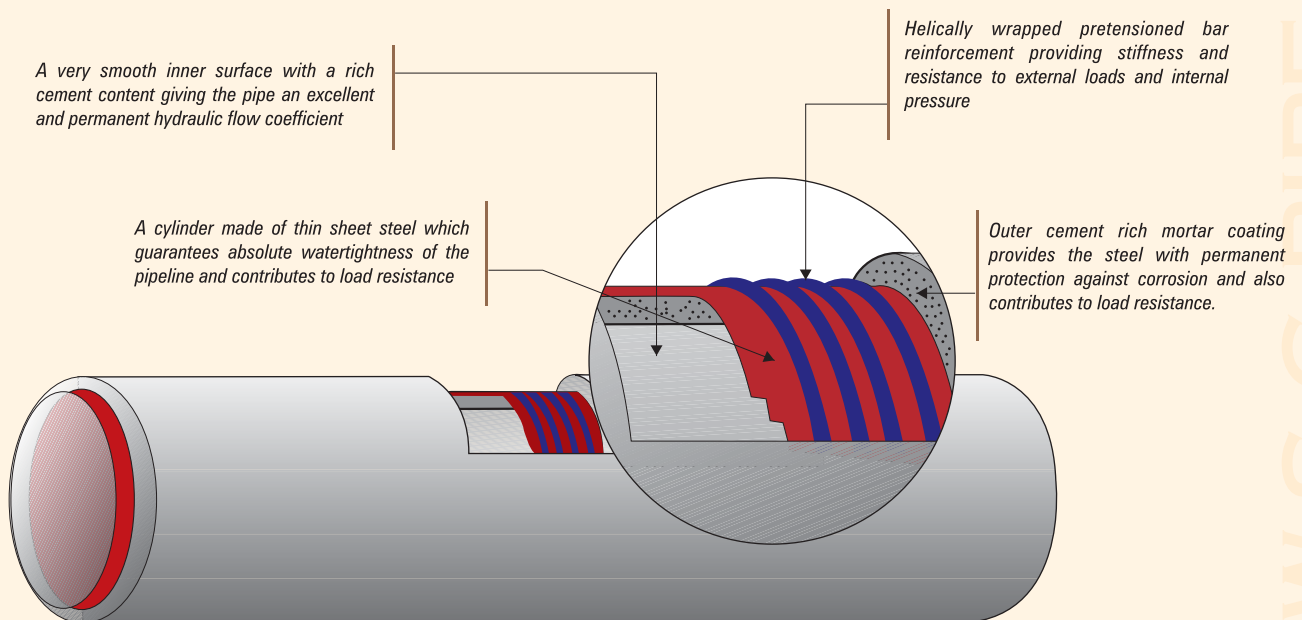
1800mm dia. BWSC cooling water circulation twin pipe line at samalkot, for 220 MW, BAPL, combined cycle power project of BSES at J.D.A. Peddapuram near Kakinada, Andra Pradesh.

### THE PIPE

It is essentially a thin steel cylinder, welded with thicker steel joint rings, hydraulically tested and centrifugally lined with cement mortar\*. The m. s. bar is helically wrapped on the cylinder with controlled tension ensuring intimate contact with cylinder and is then coated with cement mortar by high impaction process\*.

This results in several performance advantages over conventional mortar coated / gunited steel pipes and other metal pipes

\* Process patented

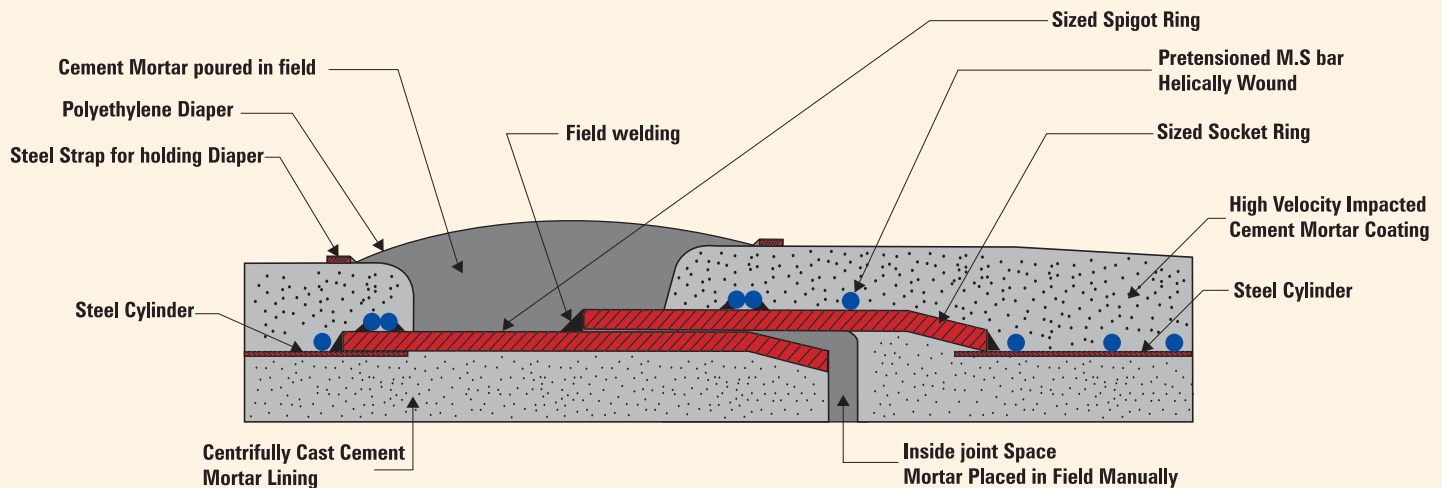


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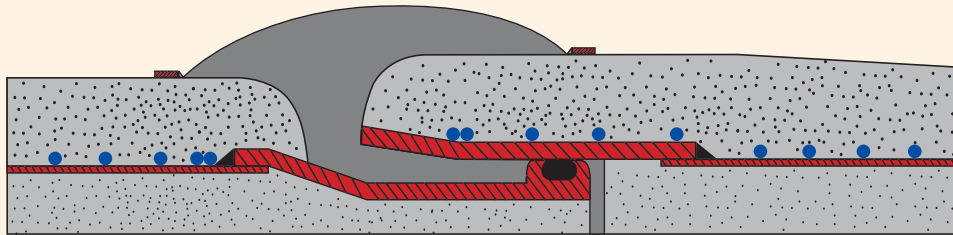
B.W.S.C. PIPE

## CHOICE OF JOINT

The joint rings are made of thicker steel plates. The field joint can be over lapping/ sliding, butt welded or with confined rubber ring to suit requirement of the client. A joint is so designed that it will be watertight under all conditions.



## OVERLAPPING / SLIDING WELDED JOINT



## CONFINED RUBBER RING JOINT

## OPTIMUM DESIGN

The pipe is designed to resist internal hydrostatic pressure by steel cylinder and pretensioned helically wound bar. Hence, pipe can be custom designed by selecting steel-cylinder thickness, bar diameter and its spacing. This flexibility in design can result in substantial saving.

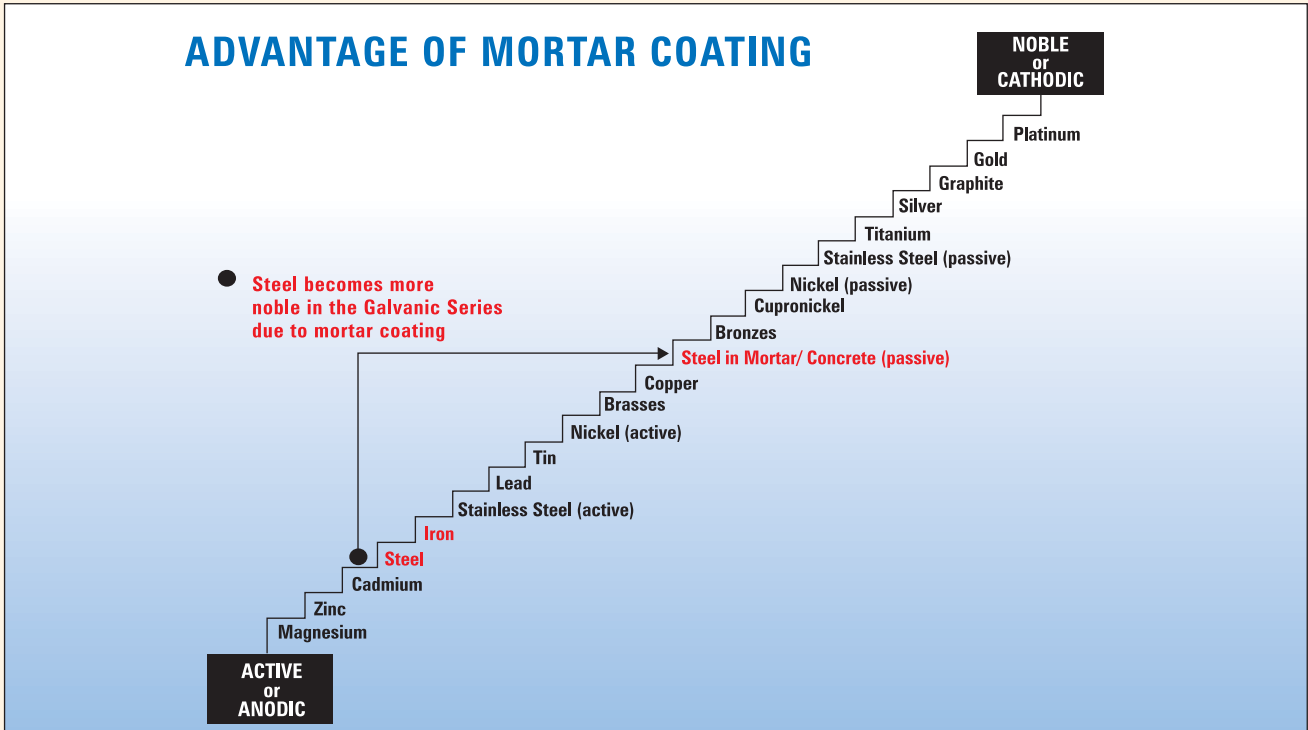
## STRUCTURAL INTEGRITY

Since bars are helically wrapped under tension, the structural integrity of these pipes is greatly enhanced because of the interlocking of steel elements of the pipe. This composite construction greatly increases the rigidity of pipe, beam strength and resistance to impact.



## CORROSION RESISTANCE

The cement mortar encasement maintains the steel elements in a highly alkaline environment (pH of 12.5 or greater) in which galvanic corrosion is permanently inhibited. Although, rarely required, supplemental protection can be provided for any unusual surrounding conditions.

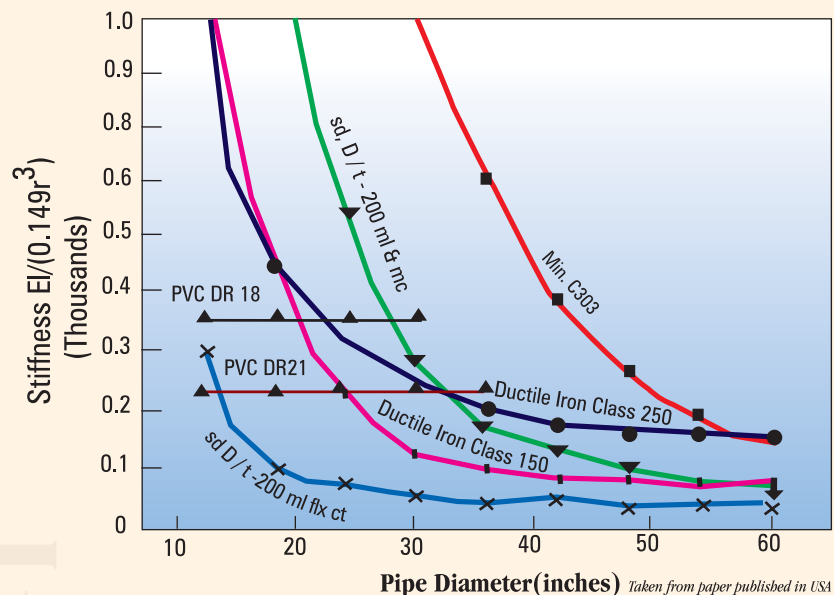


## STIFFNESS

Stiffness of the pipe is the result of the keying action of the pretensioned bar wrap over steel cylinder and the highly impacted cement mortar coating. From the result of Pipe stiffness Vs. Diameter Vs. Type of pipes, it is observed that these pipes are stiffer than Steel pipes lined and coated with cement mortar, PVC and Ductile iron pipes. Hence, there is less expensive bedding and side support required during installation. This will result in added economy.

**Pipe stiffness  
Vs.  
Diameter  
Vs.  
Type of Pipes**

Min.C 303 refers to BWSC pipe



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### COEFFICIENT OF ROUGHNESS

The smooth surface of cement mortar lining provides a Coefficient of roughness 'C' around 140 in Hazen and Williams formula. Because cement mortar prevents corrosion of steel pipe, the carrying capacity is not decreased with the age of pipe.

### DIAMETER, PRESSURE AND LENGTH

These pipes can be economically manufactured from 250mm to 1800mm diameters for working pressure upto 26Kg/cm<sup>2</sup>. Higher diameter pipes are also possible. Length of each pipe shall be 5-7.5 mtrs. Longer length pipes are also possible for large requirements.

### ECONOMY

These pipes are made of steel plate of lesser thickness than conventional steel pipes.

The additional strength for internal pressure and external load is provided by less expensive tensioned mild steel bars, than steel plates.

It is stiffer than conventional steel pipe because of tensioned bar and hence the bedding and side support cost is less than conventional steel pipes.

In most situations it is substantially economical than conventional Steel pipes, Cast iron and Ductile iron pipes.

### RELIABILITY

Thousands of kilometers of these pipe lines are in service all over Europe and in United States of America since 1942 and in our country since 1998 as transmission distribution, water pumping mains, sea water mains, sewage disposal mains etc.

**These Bar Wrapped steel  
Cylinder pipes are  
manufactured conforming to  
Indian Standard IS 15155:2002**



*For further details/ demonstration contact*

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