

Dresser Couplings Simplify Construction

Any Weather

Since temperature and moisture do not affect coupling installation, construction can proceed in any weather men can work in. Ordinary workmen under proper supervision can assemble the couplings quickly and efficiently. You don't pay specialists while waiting for pipes to be placed and lined up, etc.

Easier Installation

Placement of the coupling middle ring on one pipe end permits its use as a line-up guide, quickly bringing pipe ends together for joining. Also, depending on method of pipe handling, follower, middle rings and gaskets can often be placed on the pipe, ready to be slid into position once pipes are positioned for joining.

Dresser Know-How Pre-Solves Problems

Experienced Engineering

Dresser has designed couplings for hundreds of penstocks all over the world. We know the design requirements to meet size and pressure and other criteria of individual power projects. For extremes of pressure, we can pre-test and are in a position to advise of field construction techniques.

Adaptability

The experience at Dresser in working with different construction materials such as higher strength steels, etc., often permits substantial weight reductions. And the variations in coupling design can be utilized to vary coupling strength to match head requirements on sections of individual penstocks, or on different penstocks with differing pressure requirements - joints being "factory-tailored" to meet field needs.



Built-In Flexibility Solves On-Site Construction Problems

For Regular Penstocks

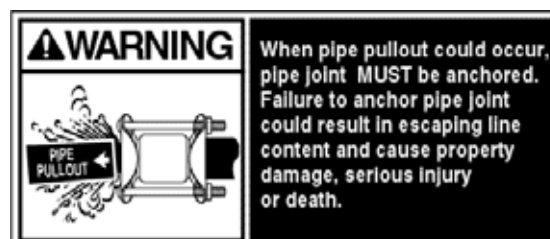
The typical coupling design for large-diameter high pressure lines is available with several thicknesses of follower and middle ring sections, depending on the pressure and diameter required. These are called "full circle-ring follower" type.

Super-Sized Pipe

Where larger diameter couplings are required, an alternate design called the segmental follower is furnished. Couplings of the segmental-follower design have been furnished for pipe diameters to 350" and could be manufactured for larger diameters. This is possible because the middle ring is fabricated in segments. These segments are carefully matchmarked and beveled for welding into complete circle in the field.

To eliminate any field fabrication on the follower rings, a unique design of segmental follower is used. The follower segments are cast of ductile iron. By incorporating two bolts per segment, the gasket

pressure is equalized along the face of the segment. The follower segment is also provided with a "heel" which rides on the outside surface of the middle ring and prevent rotation of the followers when bolts are fully torqued. The follower segments are patterned and cast to the correct length and radius so when they are fitted closely together and installed around the circumference of the pipe, they provide full confinement of the gasket.



Piping Specialties

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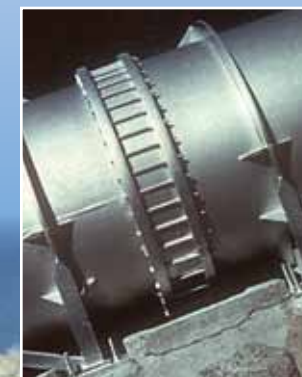
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DRESSER

Piping Specialties

PENSTOCK and Large Diameter Bolted Couplings



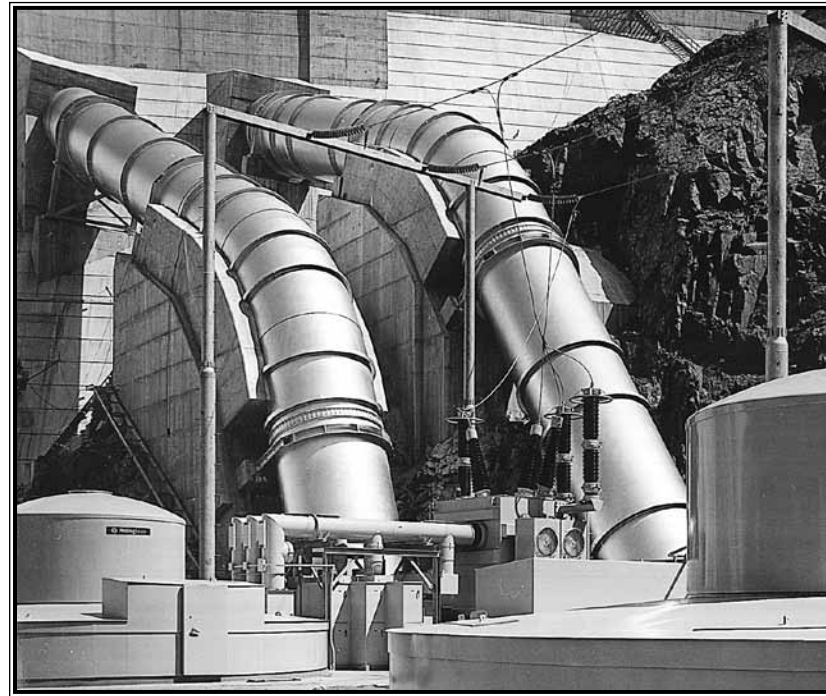
**For Large Diameter, High-Pressure
Water & Industrial Pipeline Applications**

Faster construction, trouble-free service, lower costs assured...

For those who are not familiar with a **Dresser®** coupling, it consists of a steel sleeve - called a middle ring - installed over a joint between two pieces of plain-end pipe. To seal this sleeve against leakage, two rubber gaskets are compressed against the sleeve and against the pipe surface by the followers. These followers compress the gaskets by means of bolts which draw the followers together. The higher the pressure, the more the bolts required.

This pipe joint was invented in 1891 by Solomon R. Dresser and has remained unchanged in sealing principle through the years, although many improvements have been made to meet modern requirements.

For many years, couplings were used primarily on buried pipelines until, in 1921, the first steel-coupled Penstock was constructed by the city of Brigham, Utah. Since then, thousands of penstock couplings have been installed and in operation at varying pressures up to 3000 feet of head.



Advantages of Dresser Couplings for Penstock Construction

Dresser Couplings Feature Built-in Flexibility

The most essential quality of any successful pipe joint is pressure tightness at all times. To remain tight, the joint must maintain a constant seal under all conditions of pipe movement, including vibration, deflection movements of the pipe, expansion and contraction, leverage action of the pipe on the joint, etc. These forces exert stresses on the pipe and the joint, but if the joint properly flexes in accordance with external forces, harmful stresses are prevented. This beneficial flexing occurs with the sleeve-type Dresser coupling. As a result, the penstock or pipe line becomes a series of independent sections that can flex like the vertebrae of a snake; in other words, a Dresser-coupled penstock is a fully articulated penstock.

Dresser large diameter couplings . . .

Eliminate Excavation

For example, if the terrain is rock, substantial savings can be realized in construction costs by having the penstock follow the surface to avoid excessive excavation and fabricated bends. A standard coupling, in the larger diameter range, can absorb up to one degree of deflection. On the basis of 40-foot pipe lengths, this means an offset of up to eight inches per section from the vertical or horizontal alignment.

Absorb Deflection

Small miscalculations in construction of pipe supports are compensated for by the flexibility of the couplings without shimming or time-consuming adjustment of saddles and girders.

Absorb Stress

Should minor settlement occur after penstock construction, the couplings will absorb the resulting deflection without leakage - and without transmitting harmful stresses to the pipe or supports.

Dresser penstock couplings are a factory-built, 100% Efficient Joint

Easily Inspected

No chance for hidden flaws. No need for field x-rays to prove joint efficiency.

No Built-In Stresses

No need to stress relieve under difficult or impossible field conditions.

Designed to Pressure Requirements

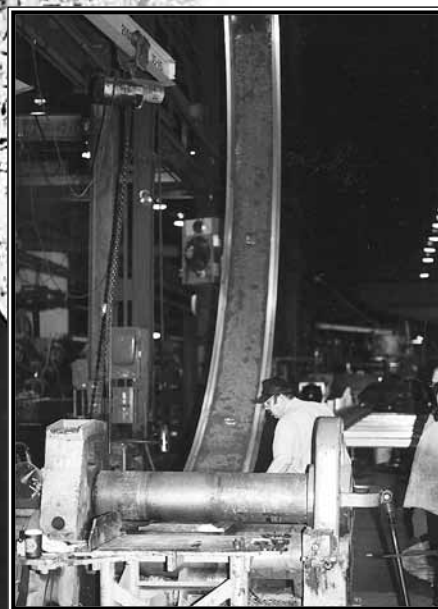
No need to prove joint under difficult field conditions.

No Expansion Joint Needed

Since each coupling absorbs, without leakage, up to 3/8" pipe movement, the usual construction method of leaving a small gap between pipe ends inside the couplings permits relief of expansion-contraction stresses for 40-foot pipe lengths within the widest range of temperatures. Therefore, there is no concentrated pipe movement and no need for conventional expansion joints, which require maintenance.



Segmented coupling is crated and shipped to jobsite.



Depending on coupling size, coupling middle rings can be rolled and formed in segments.



Middle ring segments are carefully match-marked for welding into a complete circle in the field.

Several full circle-ring follower type penstock couplings receive a final inspection.

