

for FGD scrubbing...

FIBREX ***IntegraHeader***™



...fiberglass headers that resist abrasion

IntegraHeader is trademark of Fibrex Corporation.

IntegraHeader™

The **IntegraHeader** is manufactured for FGD scrubber spray bank applications. It has an abrasion barrier on both the interior and exterior surfaces. This barrier contains a granular ceramic producing an extremely hard surface that resists erosion by abrasive slurries. The abrasion barriers are pigmented white or black. The structural laminate between them is pigmented a contrasting color so that if the abrasion barrier eventually wears through, it can be easily determined by visual inspection.

However, the most significant feature of the **IntegraHeader** over competing headers is the smooth-turn branch connection.

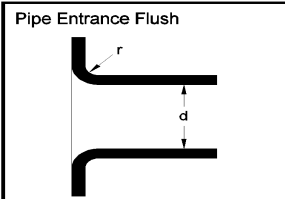
The smooth-turn branch connection consists of a large-radius, smooth transition between the header pipe and the branch line. The interior abrasion-resistant liner is continuous throughout this transition providing a “seamless” connection in place of the fabricated, discontinuous “tee-joint weld” with a square corner.

IMPROVED ABRASION-RESISTANCE

The “seamless” feature of the branch connection, with the very large radius, smooth transition, significantly reduces the turbulence that accelerates erosion of the inner abrasion-resistant barrier where branch lines connect.

REDUCED FRICTION LOSSES

Friction losses through sudden contractions and enlargements are calculated using the formula $h_L = K(V^2/2g)$ with the applicable resistance coefficient for K. In accordance with the table below, the large radius transition of the Fibrex branch connection produces a resistance coefficient of only 0.04, whereas a sharp-edged “tee-joint weld” has a resistance coefficient roughly 10 times as great. This reduction in friction losses results in estimated power savings at the pump of 3-5%.

	Sharp Edged	0.5
	$r/d = 0.02$	0.28
	$r/d = 0.04$	0.24
	$r/d = 0.06$	0.15
	$r/d = 0.10$	0.09
	$r/d = 0.15 \text{ \& up}$	0.04

From Crane Co. Technical Paper 410

IMPROVED FLOW THROUGH NOZZLES

The actual quantity of water discharged through an orifice is reduced 20-40% by a square-edged entrance. The large-radius entrance of the Fibrex branch connection permits up to 98% of full flow.

IntegraHeader.....

- improved flow dynamics
- lower cost to operate
- longer service life