



## **CASE STUDY: DEBRIS SCREENED BUFFALO HEAD**

The primary function of IES's patented debris screens is to eliminate large debris and solids from entering the buffalo head bore and being pumped downhole. The risk of damage caused by debris and solids includes: premature screen out, stage loss, coil work resulting in significant added costs. In addition, packer balls are prevented from seating or partially seating causing erosion to the ball and seat area and eventual failure.

4.00" BORE  
AREA OF FLOW  
12.56 SQ INCHES

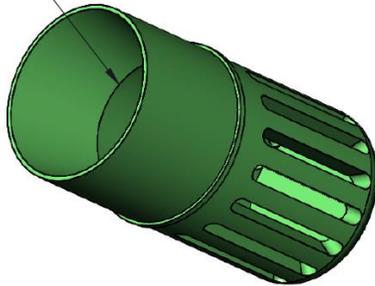


Fig 1: Patented 5 1/8" slotted debris screen

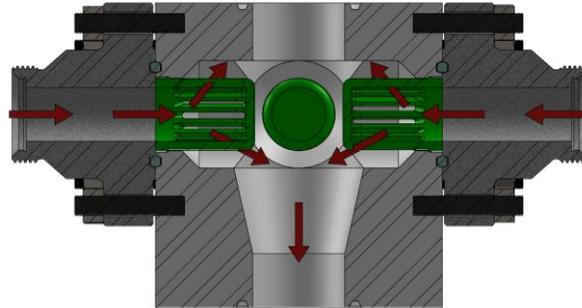


Fig 2: buffalo head with screened fracture ports

**IES's debris screened buffalo heads have been extensively utilized in thousands of applications with great success.**

**The results included the following:**

- Large debris caught before entering the wellbore.
- IES debris screened buffalo heads have sustained over 4,000,000 tonnes of proppant at pumping rates up to 15 M3/min with minimal erosional damage.
- The system diffuses and settles the frack fluid; resulting in laminar flow entering the main bore; thereby minimizing any erosion damage to the frack tree, wellhead and wellbore casing.
- It has been reported that when the IES debris screened buffalo heads are used, the wellbore does not sustain erosion where-as other systems do.

**Below are recent examples of actual debris caught in IES's screened buffalo head**



Fig 3: 4" Dia. pipe band



Fig 4: Frac pump seat



Fig 5: Pump Valve Seal (4.25")



Fig 6: Weco Segment with Pump Seat



Fig 7: Suction valve & seat from pump



Fig 8: Pump Part with Elastomer



Fig 9: Metallic & Elastomer Valve Seal with Rocks



Fig 10: Pump Valve Seal and Steel Guide



Fig 11: Large Stone



Fig 12: 3" Seal Debris