



El / Icorr Joint Event @NZTC – Aberdeen, January 2023





Purpose

- © To innovate safety and develop end user confidence and trust

Value

- © Uniquely positioned to supply products and services that can complement, integrate and support projects from the design stage, through to maintenance, data retrieval services and analysis

Experience

- © A team comprised of experts in monitoring hardware and systems





Solutions Designed by Experts - 2023



The Janus Range Provides

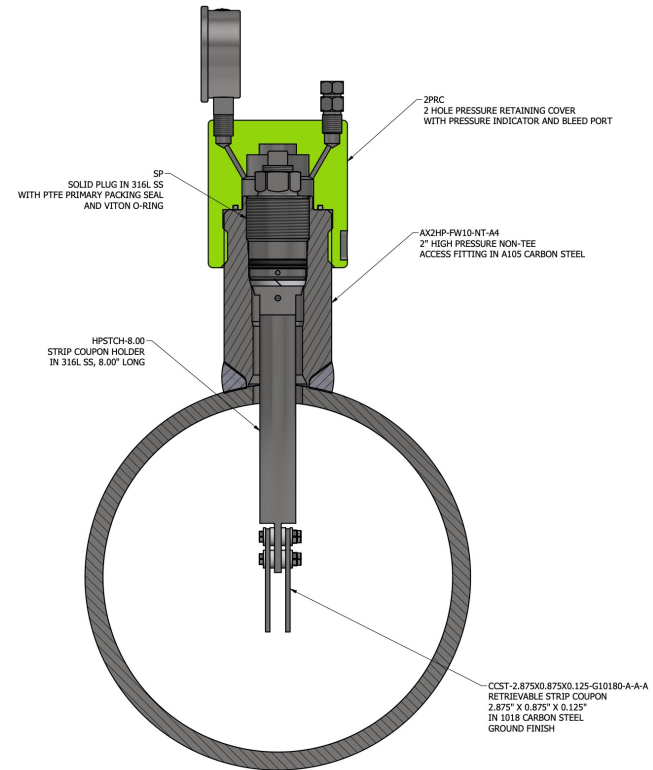
- © Retrofittable Guard for Telescoping & Non-Telescoping Retrievers
- © Improved Double Seal / Double Isolation with Janus Access Fitting
- © Online 'Plug & Abandon' Solution for Redundant Access Fittings





Access Fittings for Pressurised Systems

- ⦿ Corrosion Coupons and Probes
- ⦿ Injection Quills and Atomizers
- ⦿ Sample Points





- ⦿ High pressure mechanical access systems
- ⦿ Technique requires pressure balance for safe operation
- ⦿ Equalization channels on carrier plugs can block
- ⦿ Back pressure pumps can be used to ensure balance but are not always available or practical



Blocked equalization channel on a hollow carrier plug



Blocked equalization ports on a solid carrier plug



- ⦿ Fatality in May 2012 led to many operators suspending online retrieval of intrusive devices
- ⦿ The fatality occurred during the retrieval of an ER probe installed at the 6 o'clock position on a slug catcher line
- ⦿ The access fitting had not been serviced in over four years
- ⦿ Scaffolding was built to accommodate a technician, located directly below the retriever to help support the weight





- ⦿ High pressure retrieval tools and portable isolations are required for device changeouts under pressure (online)
- ⦿ Incidents reported globally range from loss of containment, severe injury and fatalities
- ⦿ Life extension of assets, diluting field experience, and growing concerns around intrusive monitoring techniques called for innovation to solve several problems
- ⦿ Axess release the Janus™ Guard having consulted with Shell on the design and piloting it successfully



Solutions Designed by Experts - 2023



- ⦿ Mechanical retrieval tool designs are unchanged in 70+ years
- ⦿ Last update was in 1978
- ⦿ Over 300 new retrievers are introduced to the field each year
- ⦿ Access fitting design has not changed since the first field installation in 1950
- ⦿ Over 3000 new access fittings are commissioned each year and it is estimated that over 100,000 are in active service



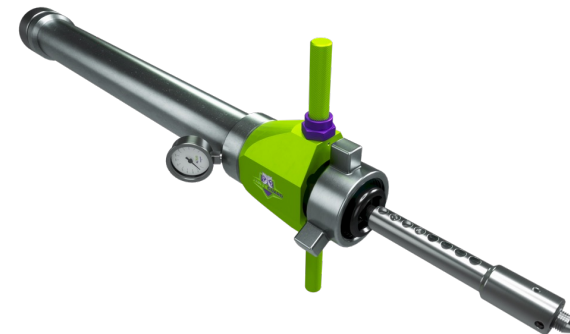


Solutions Designed by Experts - 2023



Janus Guard

- ⦿ Remove the line of fire
- ⦿ **Retrofittable**, auto deploying and built into the retrievers, replacing original components
- ⦿ Axess retrievers with the guard are lighter than other brands without the guard
- ⦿ Low cost, low maintenance and do not require re-certification of technicians



Not to be distributed, broadcast or reproduced
without the express permission of Axess-Corrosion, INC.

AXESS
CORROSION



<https://youtu.be/jYVMTFKahDg>

- © April 2022 Shell successfully complete a retrieval with the Janus™ retrieval tool
- © The retrieval of strip coupons installed at the six o'clock position on a slug catcher line is completed
- © The access fitting had not been serviced in over four years due to the LFI and Risk Assessment
- © The location was identified as a valuable data point for the integrity program at QGTL and the similarity to the LFI is obvious





Solutions Designed by Experts - 2023



Client Projects & Received Benefit - 1

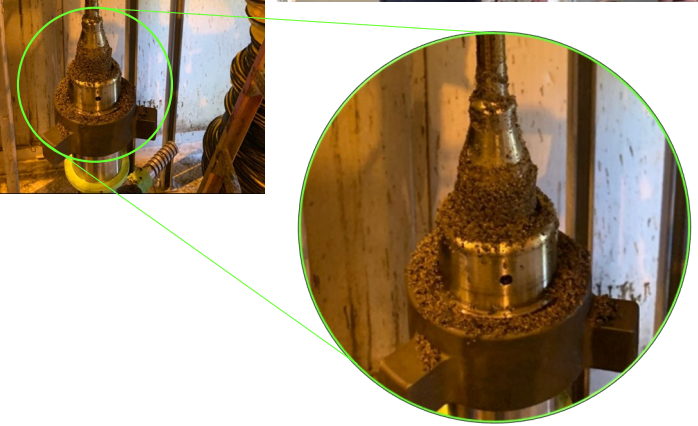
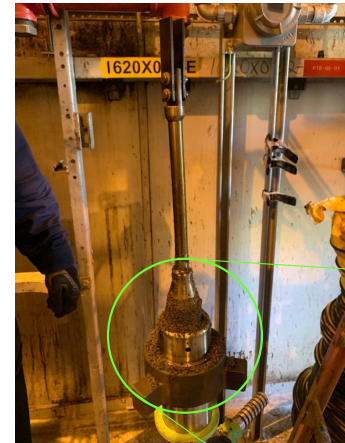
- ◎ ConocoPhillips now use the Janus retriever on over 70% of retrievals in Alaska
- ◎ Over 2000 successful retrievals throughout 2022
- ◎ Service Technicians feel protected and secure
- ◎ Optimized stroke lengths reduce overall weight of tools
- ◎ Engagement of the service team has resulted in further tool enhancements and revisions





Client Projects & Received Benefit - 2

- © Hilcorp use the Janus retriever on 100% of all flowline locations
- © Previously unable to utilize telescoping tools due to debris blocking equalization ports
- © Non-telescoping tool designs struggle with solids and the risk of not equalizing pressure can result in uncontrolled moving parts – line of fire/dropped object
- © Recognized internally as embracing innovation and reducing risk





Client Projects & Received Benefit – 3

- ⦿ Retrievals have not been performed since 2012
- ⦿ Developing the reinstatement of online retrieval program
- ⦿ Includes an operator independence program to train field operators
- ⦿ Regain monitoring and reduce reliance on inspections
- ⦿ Innovation Gateway has enabled Axess to work with engineers and product champions

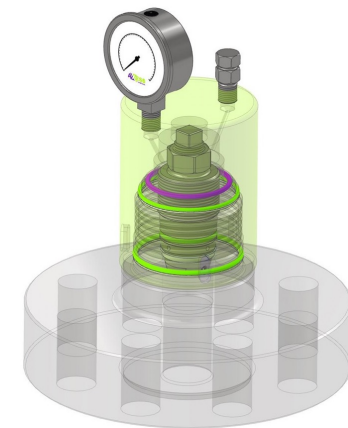
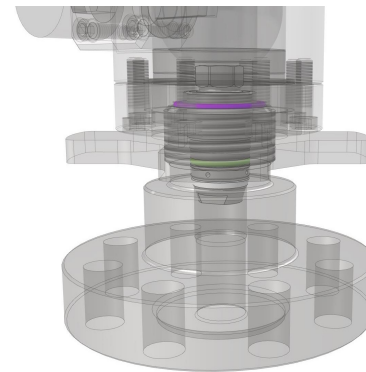
Inspectoin / Monitoring Technique	Detection level (mils)	Detection Time for Different Corrosion Rates						
		100mpy	50mpy	20mpy	10mpy	5mpy	1mpy	0.1mpy
Manual UT Inspection	10	36.5 days	73 days	6 months	1 year	2 years	10 years	100 years
UT Patch (resolution only)	2	7.3 days	14.6 days	36.5 days	73 days	4.8 months	2 years	20 years
Corrosion Coupon	0.0010 grams	30 days	30 days	30 days	2 months	3 months	6 months	6 months
Fixed UT Sensors	0.4	1.46 days	2.92 days	7.3 days	14.6 days	29 days	4.8 months	4 years
High Resolution ER	0.004	21 mins	42 mins	1 hr 45 mins	3.5 hrs	7 hrs	1.46 days	14.6 days

Detection Time	
Legend	Minutes
	Hours
	Days
	Months
	Years



Janus Fittings

- ⦿ Access fittings can be safer and until now double isolation valves depend on a single O-ring between process and environment
- ⦿ Our Janus fittings incorporate **two additional sealing faces**, ensuring double isolation valves have double seals and the external threads are protected from the environment.
- ⦿ Existing **Service Valves** can be adapted to realize the benefits at low cost





Janus Fittings

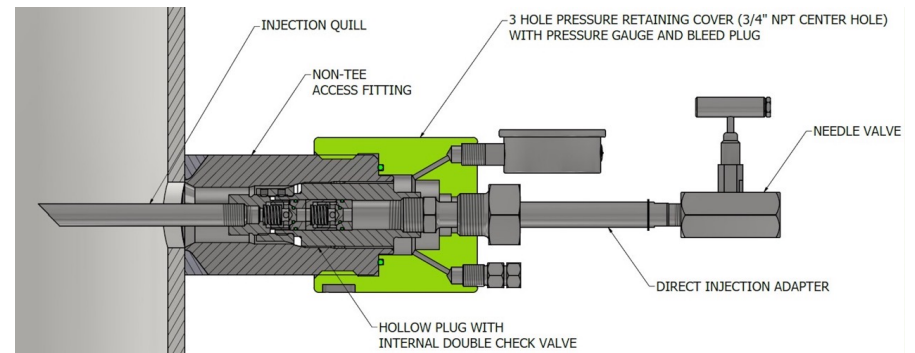
- ⦿ Seals the external threads from the environment with the O-ring positioned on the access fitting
- ⦿ Radial sealing surface provides an additional seal for the service valve and the pressure retaining cover
- ⦿ The only access fitting with a double seal and double isolation between process and environment
- ⦿ Applies to both **mechanical** and **hydraulic** systems





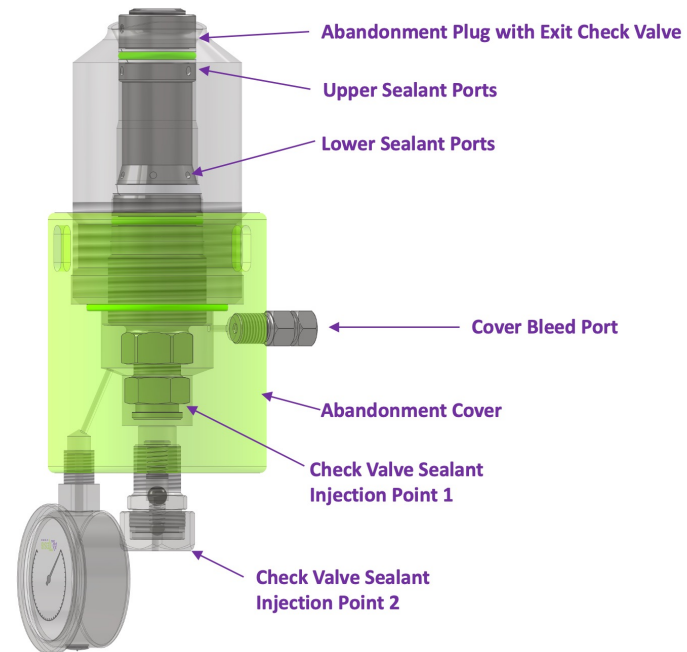
Repurpose Access Fittings

- ⦿ Convert fittings to injection points
- ⦿ Can be serviced under pressure
- ⦿ Solution for additional injection points as they require less pipework real estate
- ⦿ No bulky flanged side tee or troublesome NPT side connections
- ⦿ Chemical isolated from access fitting material



Abandonment Solution

- ⦿ The existing device is retrieved, and an abandonment plug is installed
- ⦿ Single piece with integral check valves
- ⦿ Giant button-head connection for injection of sealant and the access fitting is purged and sealed
- ⦿ Current pressure retaining covers are not an ideal solution for fittings no longer required as part of a monitoring program
- ⦿ Install an abandonment cover and inject, purge and lock the cover in position





https://youtu.be/kqJ6Ft_LzFE



Solutions Designed by Experts - 2023



Janus™ Range

- ⦿ Applies to legacy tools to make them safer
- ⦿ Minimal changes to existing procedures
- ⦿ Results of HAZID/JSA/RA/ change dramatically
- ⦿ Patents pending through USPTO and PCT protected
- ⦿ Finalists for **2023 AMPP Innovation Awards!**

