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DR-1 FLUID REGULATOR



Obey local or municipal regulations for product recycling and disposal.

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Product Updates for 2023 - DR-1 Regulator Changes & Improvements

- Release of updated diaphragms (74157-03, 74157-04) used in DR-1 regulator. This change went into effective the 4th quarter 2023. Test #1 & #2 notes prior vs. new diaphragms.
- Improved sealing power of the carbide ball and seat (74160-00) in the regulator assembly. This change went into effective the 1st quarter 2024. Test #3 notes prior ball and seat vs. improvements with use of thinner viscosity fluids.

Replacement Parts Overview

Diaphragms 74157-03 & 74157-04

The DR-1 Regulator is an industrial leader on handling various fluid flows used in a wide variety of viscous fluids. The regulator is accepted globally as benchmark for controlling fluids for accurate delivery. However, through market shift supply issues in 2022, it was deemed necessary to source “replacement” components in the diaphragm assembly both (74157-03 and -04). The goal was to assure minimal interruption of input pressures to achieve same fluid flows from the DR-1 regulator. Shown below in various charts are flow rates addressing the many different ratios offered within the DR-1 regulator offerings. These charts outline prior “original” design diaphragm vs. “new” design. Test shows we have closely mimicked the “original” diaphragm design vs. “new” design with little performance changes. The goal was to assure minimal interruption in overall product performance, yet conform to available materials offered within the current marketplace.

Carbide Ball & Seat 74160-00

Focusing on customer requests we are providing product improvements on the DR-1 (74151-XX). We have addressed an issue on the carbide ball seat to improve performance on thinner viscosity fluids. Complaints were noted that materials below 10-15 centipoise would allow weeping from the regulator. From product enhancement we have improved the product to handle 5 centipoise materials to prevent weeping. See page 7 for charts showing leakage of “before” vs. “new” at 300 PSI inlet pressure. We have quantified performance based on no leakage within a 2-minute test. The test is using various viscosity fluids ie..... various solvents, water and both the 40 and 25 second materials tested prior.

NOTICE

Use of water as a primary solvent it is important to control the pH level of the water used. Naturally a pH of (7) “neutral” is preferred for optimal performance. If pH becomes acidic, the carbide ball and seat are susceptible to damage and will cause excessive weeping of fluid. Typically, acidic pH water will leach out the key binders in the carbide ball and seat.

Maintaining good pH balance on waterborne applications is critical for life of the 74160-00 carbide seat and ball. The DR-1 regulator is designed to handle waterborne paints based on coated stainless-steel construction of the assembly.

Maintaining good pH level of the waterborne materials will assure optimal life.

General Specifications - 74151-XX

Physical	Description
Height	1-7/8-Inch (48mm)
Height W/Fittings	2-1/8-Inch (54mm)
Diameter	2-3/4-Inch (70mm)
Diameter W/Fittings	3-3/8-Inch (86mm)
Mechanical	Description
Air Pressure	Variable by Control (Manual or Automatic) 100 PSIG (7 bar max.)
Fluid Input	300 PSIG (20.7 bar max.) (10 PSIG min. above output pressure)
Fluid Output	Variable by ratio selected.
Viscosity	5 Centipoise (Min.) - Max. Typical 375 cps Note: (> 375 CPS will require material to be heated for viscosity reduction-application dependent) 5 Centipoise (Min.) - Max. Typical 375 cps Note: (> 375 CPS will require material to be heated for viscosity reduction- application dependent)
Pneumatic / Fluid Connections	Description
Air Pilot	#10-32 Thread (Low & High)
Fluid In	1/4-Inch NPSM Thread
Fluid Out	1/8-Inch NPSM 3/16 IN OD Tubing, use (70589-04) 1/4-Inch OD Tubing, use (70589-05) 3/8-Inch OD Tubing, use (70589-10) 6mm OD Tubing, use (70589-06) 8mm OD Tubing, use (70589-11) 3/8-Inch NPSM Hose Connection, use (70589-12)

DR-1 Flow vs Signal Pressure Test #1

Test #1 Parameters

Viscosity: 40sec, Zahn #2 (+-1sec)

Fluid Inlet: 100psi (dynamic, at the DR-1 regulator inlet)

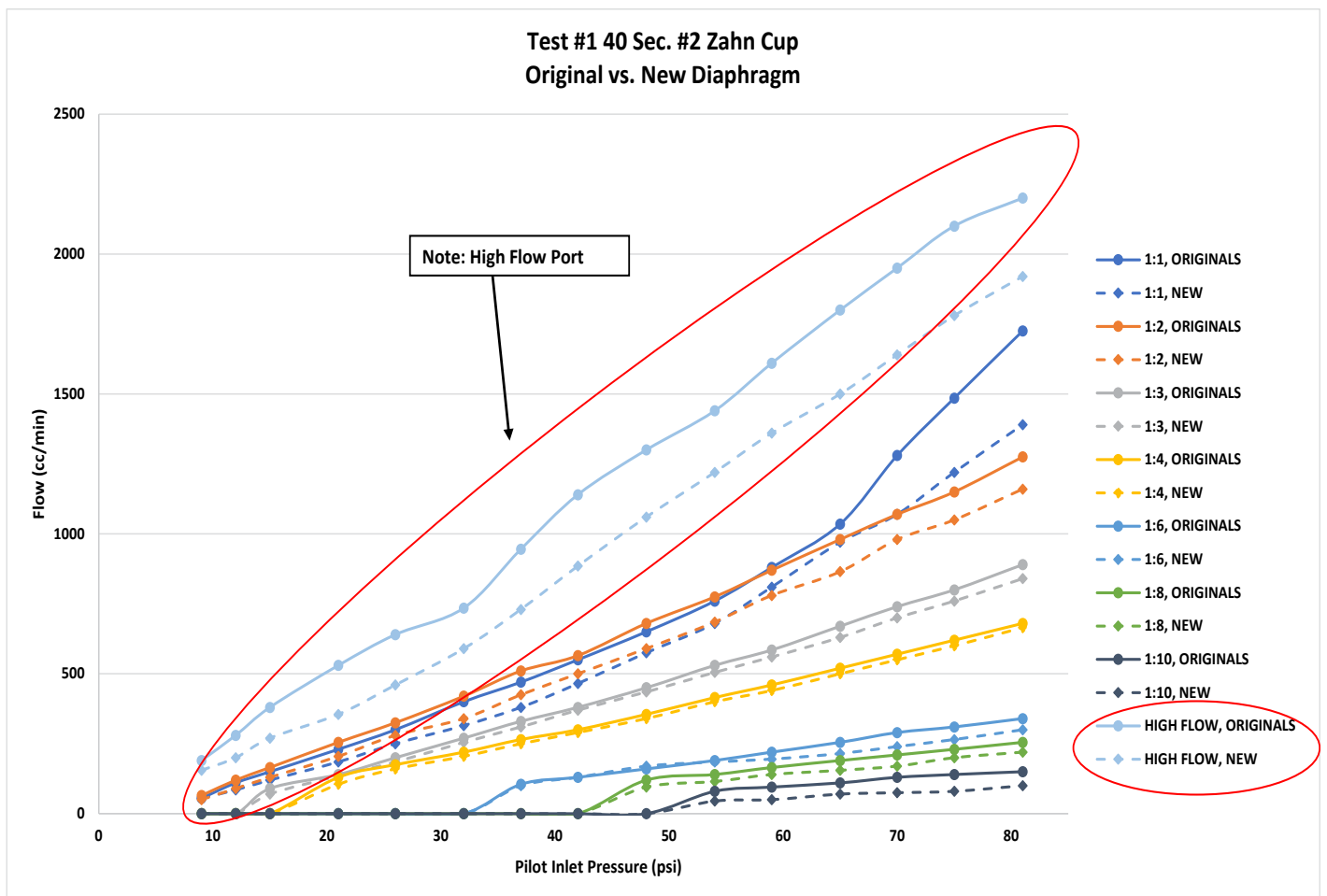
Fluid Output: .25" I.D. tubing 15ft

Outlet Orifice: .093"

Definitions

"Originals" = Current Manufactured Diaphragm (today)

"New" = Diaphragm to be released in 3rd quarter 2023



DR-1 Flow vs Signal Pressure Test #2

Test #2 Parameters

Viscosity: 25sec, Zahn #2 (+-1sec)

Fluid Inlet: 100psi(±1psi) (dynamic, at the DR-1 regulator inlet)

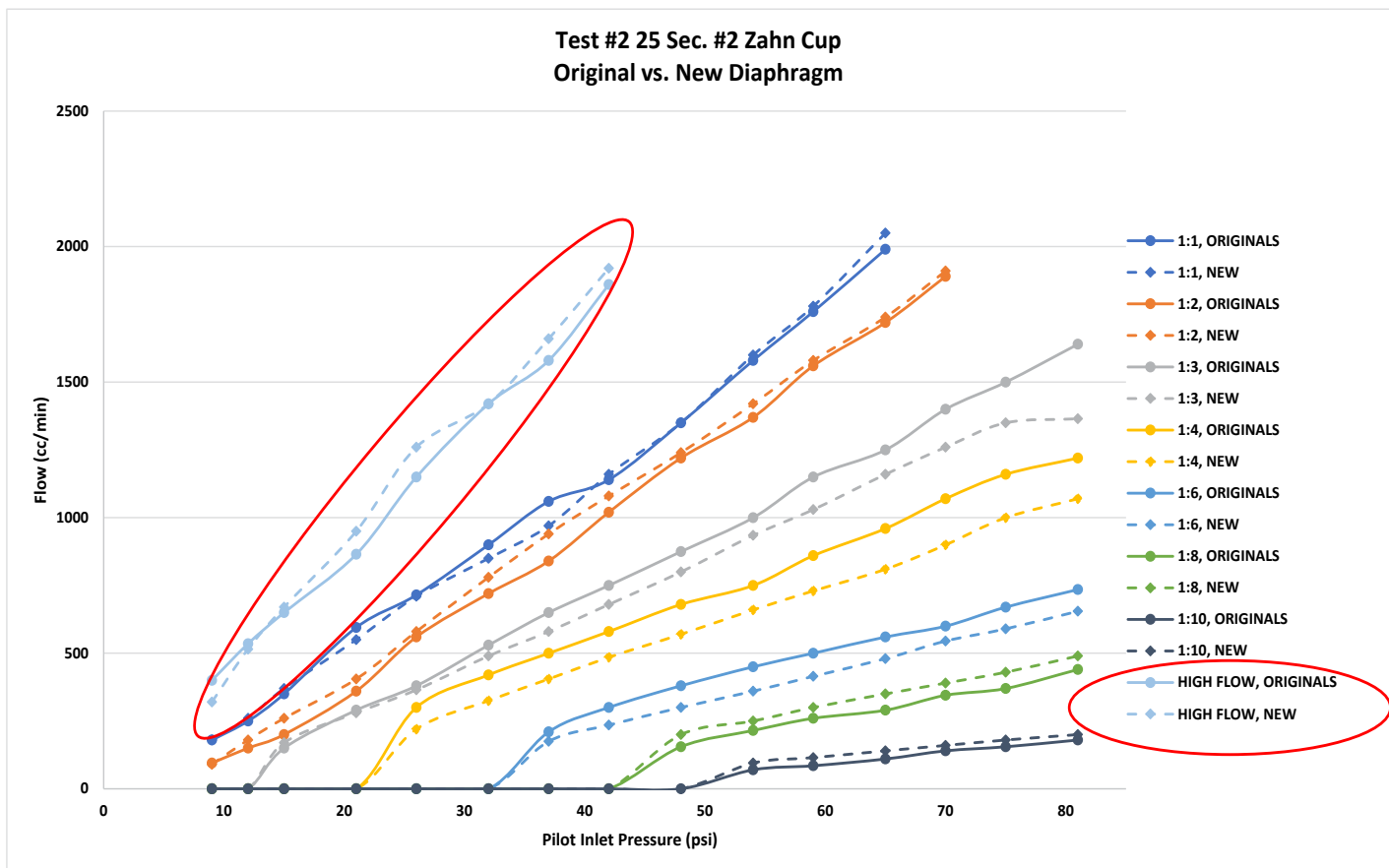
Fluid Output: .25" I.D. tubing 15ft

Outlet Orifice: .093"

Definitions

“Originals” = Current Manufactured Diaphragm (today)

“New” = Diaphragm to be released in 3rd quarter 2023



Carbide Ball & Seat 74160-00 Improvements Test #3

HOW TO USE

Shown below is test data representing “OLD” and “NEW” version of 74160-00 carbide ball and seat ran through various materials inclusive of thinner based materials with lower centistoke viscosity. We have improved the capability further reducing leakage issues while using thinner centistoke materials as shown.

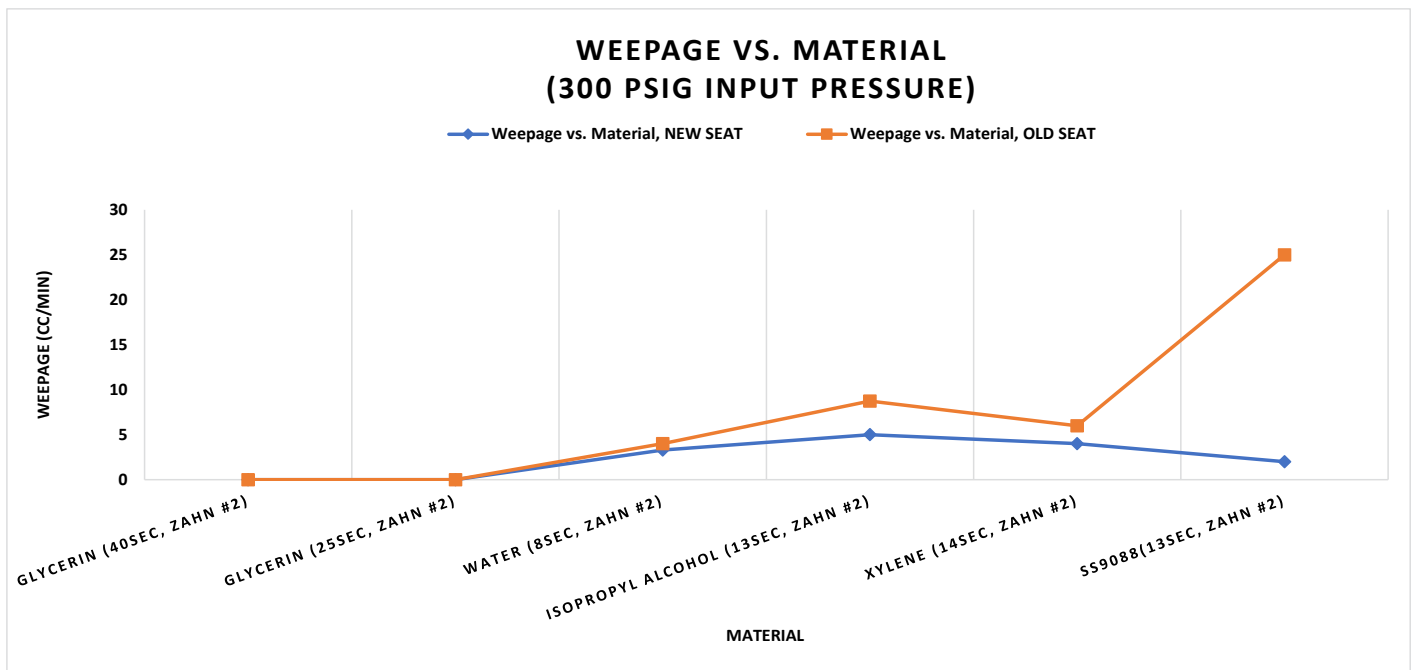
Test #3 Parameters

Fluid Inlet Pressure: 300psi (dynamic)

Test Run Time: 2min (each material)

NOTICE

Regulators are triggered once before testing interval to induce possible leakage.



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MANUAL CHANGE SUMMARY

Date	Description	Version
03/2025	Rebranded to Binks.	R2

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WARRANTY POLICY

This product is covered by Binks' materials and workmanship limited warranty.

The use of parts or accessories from sources other than Binks will void all warranties. Failure to follow reasonable maintenance guidance provided can invalidate the warranty.

For specific warranty information, please contact Binks.

For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations listed below.

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WARRANTY PAGE



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