



**Johnson
Screens**

A brand of
Aqseptence Group

Oil & Gas Downhole Well Screens Portfolio

Reza Supianto
BD Manager Southeast Asia
Water well & Energy

Agenda



- Overview of Johnson Screens
- Sand Screen Selection
- Downhole portfolio
- Manufacturing Capabilities
- Questions

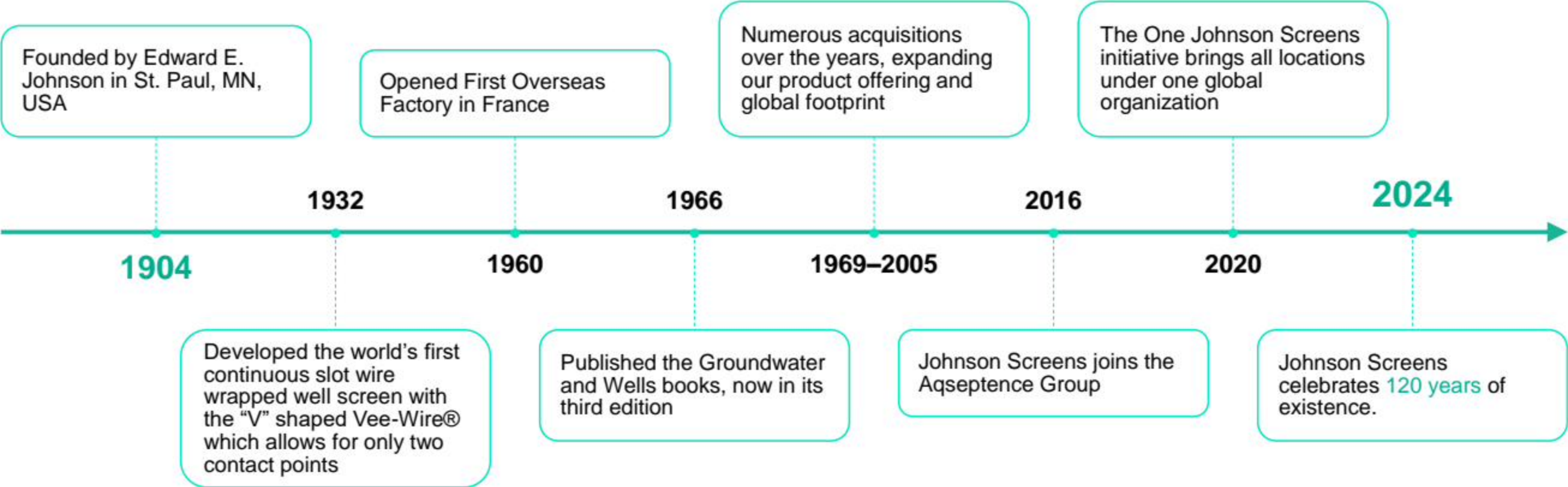


**Johnson
Screens**

Johnson Screens Overview

Johnson Screens

120 Years of Tradition in Innovations



Our Global Footprint



Manufacturing and service capabilities on six continents



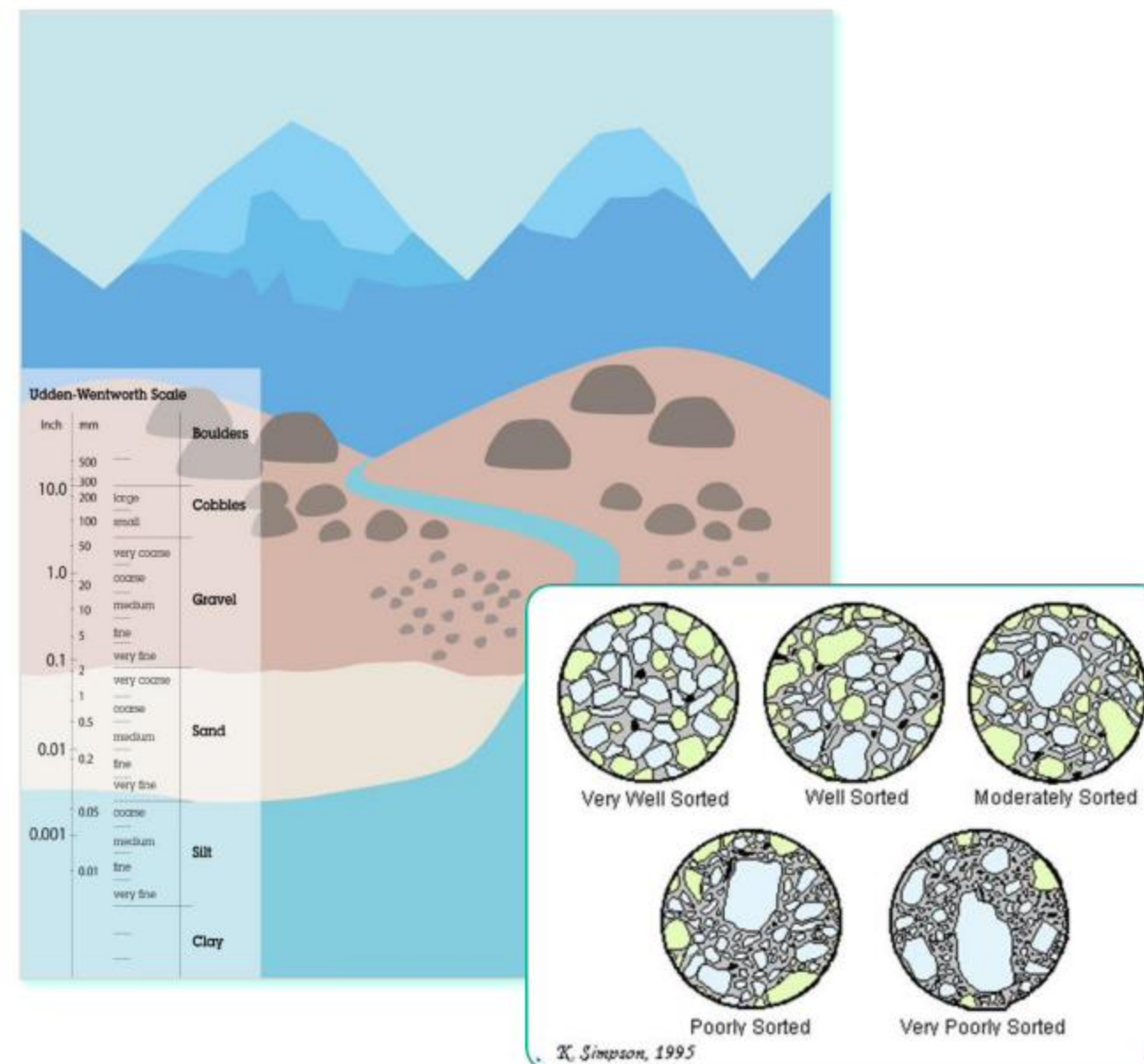
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Sand Screens Selection

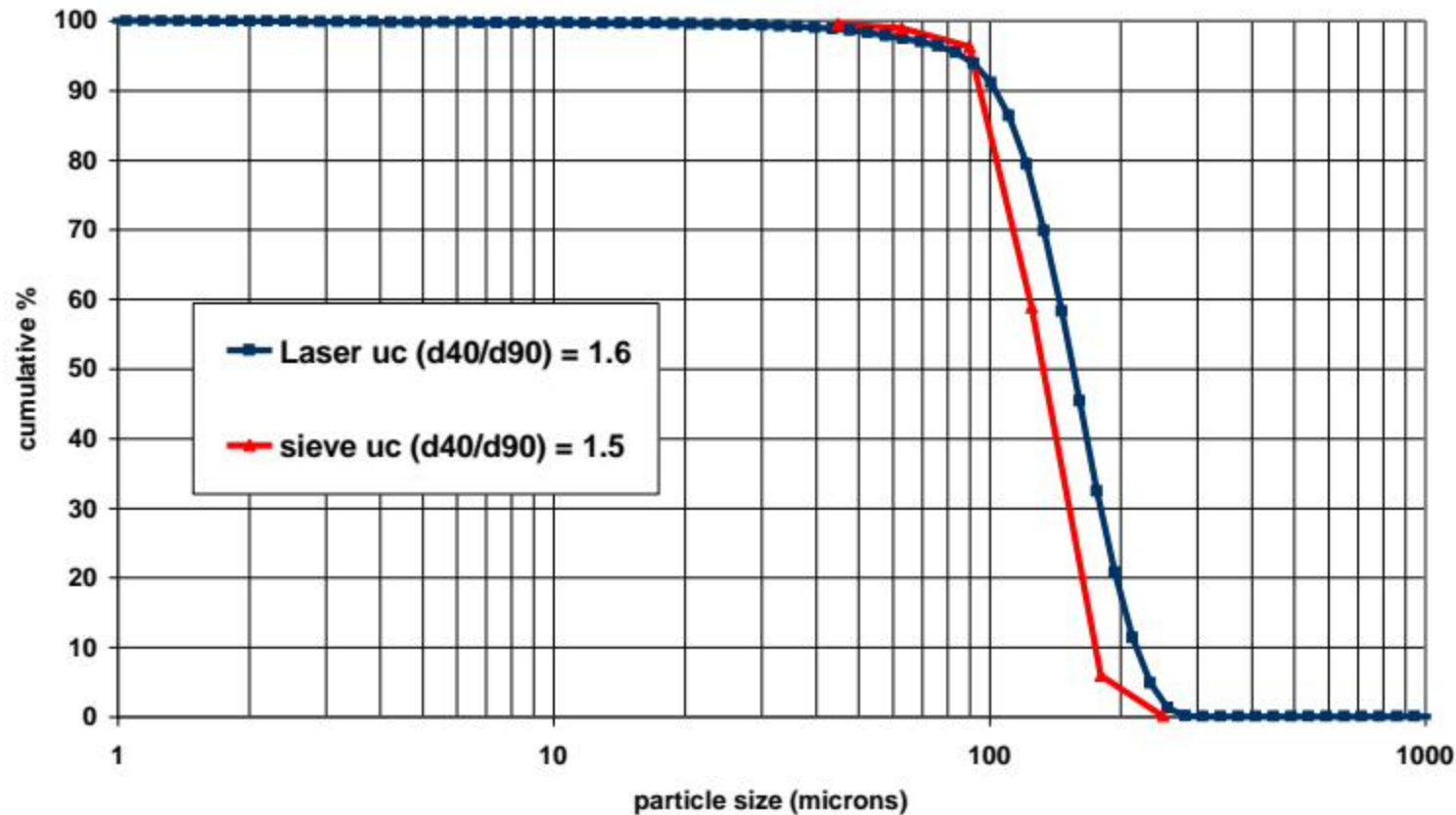
Screen Selection

General Selection Criteria

- Reservoir characteristics :
 - Formation uniformity
 - Grain size
 - Produced fluids (H₂S, CO₂)
- Completion design
- Wellbore configuration
- Type of hydrocarbon produced
- Surface production facilities
- Expected production lifetime



Screen Selection Formation Sand Analysis



Uc = Uniformity Coefficient (d40/d90)

d40 = Grain Diameter @ 40% Cumulative Weight

d90 = Grain Diameter @ 90% Cumulative Weight

Uc < 3 = Highly Uniform Sand

3 < Uc < 5 = Uniform Sand

5 < Uc < 10 = Non-Uniform Sand

Uc > 10 = Highly Non-Uniform Sand

Sc = Sorting Coefficient (d10/d95)

d10 = Grain Diameter @ 10% Cumulative Weight

d95 = Grain Diameter @ 95% Cumulative Weight

Sc < 3 = Well Sorted

3 < Sc < 5 = Sorted

5 < Sc < 10 = Low to Medium Sorted

Sc > 10 = Poorly Sorted

Fines = Sand Particles < 44μ



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Downhole Oil & Gas Screens Portfolio

Under Ground
Under Pressure
Under Control

Wire-Wrapped Sand Screens



SuperWeld™

SuperGuard™

SuperFlo™

SuperThru™

Wire-wrapped base pipe screens
with high collapse resistance and
precise slot size.



Wire-Wrapped Sand Screens Vee-Wire® Expertise



MATERIAL	FINISHED SHAPE	
	LBS/FT ³	Kg/M ³
304	0.0291	0.0133

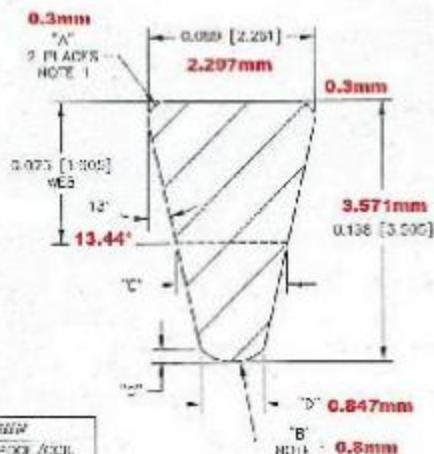
NOMINAL DIMENSIONS			RANGE WITHIN	
TYPE	K IN. [mm]	K/2 IN. [mm]	5% [IN. (mm)]	SPREAD/COLL IN. [mm]
WDT-1	0.001 [2.535]	0.002 [2.537]	0.0015 [0.027]	0.002 [0.051]
WDT-2	0.136 [3.454]	0.147 [3.697]	0.001 [0.025]	0.004 [0.102]
SPREAD ANGLE	±5°			

DIMENSIONS USED FOR CALCULATING GEOMETRIC PROPERTIES					
"A"	"D"	"C"	"B"	"E"	
CORNER RADIUS	WELD RADIUS	WELD TO HEIGHT	WELD TO CHORD	WELD THICKNESS	
IN. [mm]	IN. [mm]	IN. [mm]	IN. [mm]	IN. [mm]	IN. [mm]
0.010 [0.254]	0.025 [0.594]	0.0074 [0.188]	0.0526 [1.338]	0.059 [1.51]	

GEOMETRIC PROPERTIES		
ITEM	MB	IN. [mm]
CROSS-SECTIONAL AREA:	A_g	$0.848 \times 10^{-3} \text{ m}^2$ [5.454 in^2]
	A_g	$0.18 \times 10^{-3} \text{ m}^2$ [4.074 in^2]
MOMENT OF INERTIA:	I_{yy}	$0.031 \times 10^{-6} \text{ m}^4$ [1.366 in^4]
	I_{xx}	$0.146 \times 10^{-6} \text{ m}^4$ [7.050 in^4]
SECTION MODULUS:	Z_{xx} TOP	$0.207 \times 10^{-3} \text{ m}^3$ [3.396 in^3]
	Z_{yy}	$0.753 \times 10^{-4} \text{ m}^3$ [1.235 in^3]
EQUIVALENT THICKNESS:	t_e	0.17 [2.992]
CENTROID LOCATION FROM TOP:	TOP	0.081 [2.055]
	TOP	0.057 [1.150]

NOTES:

1. RADII ARE FREE FLOW.
2. ALL GEOMETRIC PROPERTIES BASED ON NOMINAL DIMENSIONS.



M.JALLADOT
Q.C Dept
25/09/13

[illegible]

Johnson's proprietary wires with high precision slot tolerances are designed for top gauge control under the harshest conditions.

We have the in-house expertise to maintain full traceability on all components and process control of all our:

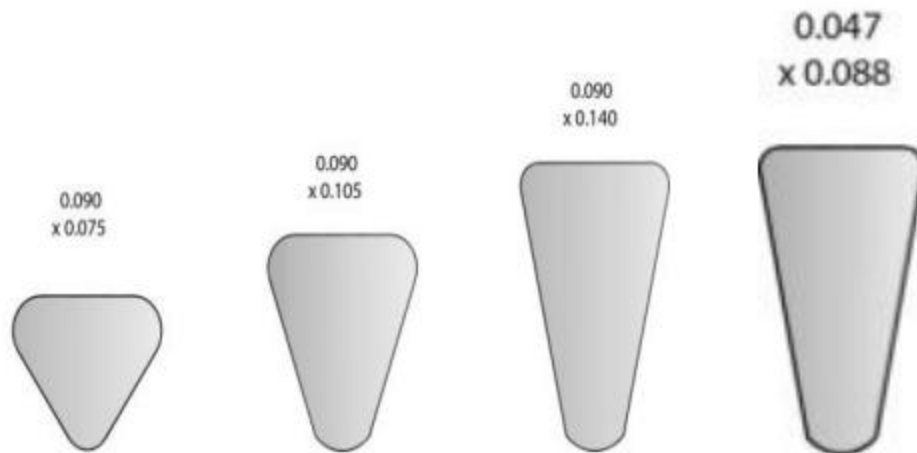
- Components wire manufacturing
- Design
- Profile Cold Drawing
- Screens Wire Wrapping
- Complete quality assurance of all our wires and screens

Wire-Wrapped Sand Screens

Vee-Wire® Expertise



With more than 800 designs available in our wires portfolio, we have selected 4 wires with top of the range wire accuracy to satisfy the toughest Oil & Gas applications.



Open Area %	6 Gauge (150µm)	8 Gauge (200µm)	12 Gauge (300µm)	18 Gauge (450µm)
Wire Width .090 in.	6,2%	8,1%	11,7%	16,6%
Wire Width .047 in.	11,3%	14,5%	20,3%	27,6%

Wire-Wrapped Sand Screens SuperGuard™ Screens



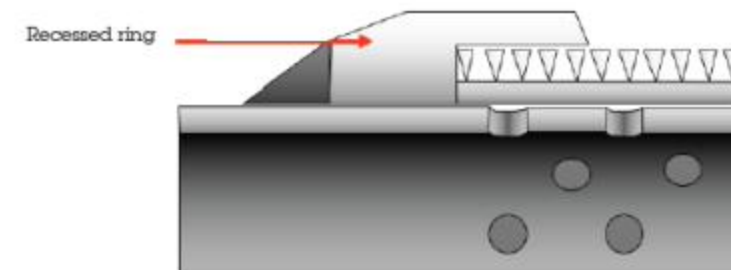
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Applications

- Open hole or cased hole stand-alone completions in well sorted homogeneous reservoirs up to fine sand.
- Gravel pack completions with medium to relatively high pumping rates and pressure.
- Multilateral, extended horizontal completions.

Special Features & Benefits

- Direct wrap technology to provide the most robust and reliable “wrap-on-pipe” assembly for sand control performance versus slip-on-pipe screens.
- Pipe based screens can be customized with a wide selection of stainless steel and high-nickel alloys.
- Johnson Screens proprietary wires with high precision slot tolerances are designed for top gauge control under harshest well conditions.
- Large open area to maximize production of hydrocarbons and reduce flow velocity.
- With additional support ribs, the tensile strength is increased and the roundness of the jacket is improved providing excellent slot control for better sand retention and preventing filter cake build-up.
- End rings: Standard and recessed, alternatively welded directly to the base.



Wire-Wrapped Sand Screens SuperWeld™ Screens



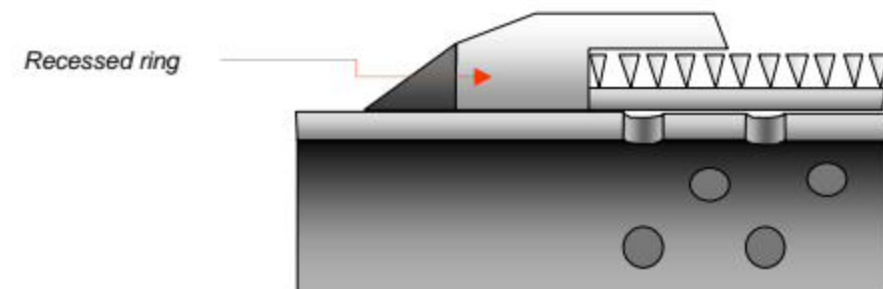
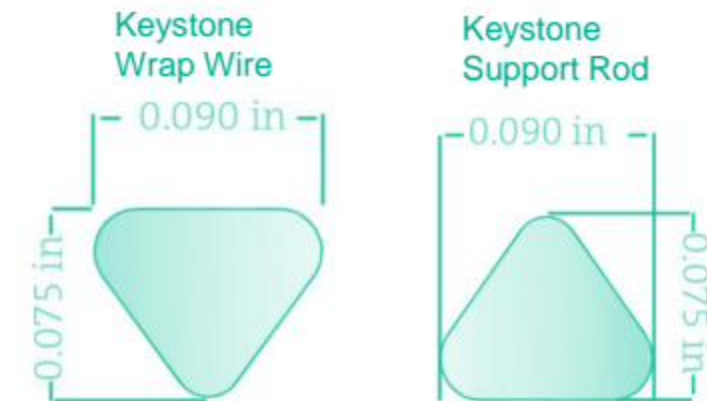
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Applications

- Openhole completion in homogeneous reservoirs.
- Cased hole gravel pack completions.
- Vertical completions only without too high friction, nor pumping rate.

Special features & benefits

- Advanced Slip-On-Pipe screen technology for superior weld strength and best in class slot control.
- Pipe based screens can be customized with a wide selection of stainless steel and high-nickel alloys.
- Johnson Screens proprietary wires with high precision slot tolerances are designed for top gauge control under harshest conditions.
- Large open area to maximize production of hydrocarbons and reduce velocity.
- With additional support ribs, the tensile strength is increased and the roundness of the jacket is improved providing excellent slot control for better sand retention and preventing filter cake build-up.
- End rings: Standard and recessed, alternatively welded directly to the base.



Wire-Wrapped Sand Screens

SuperFlo™ Screens



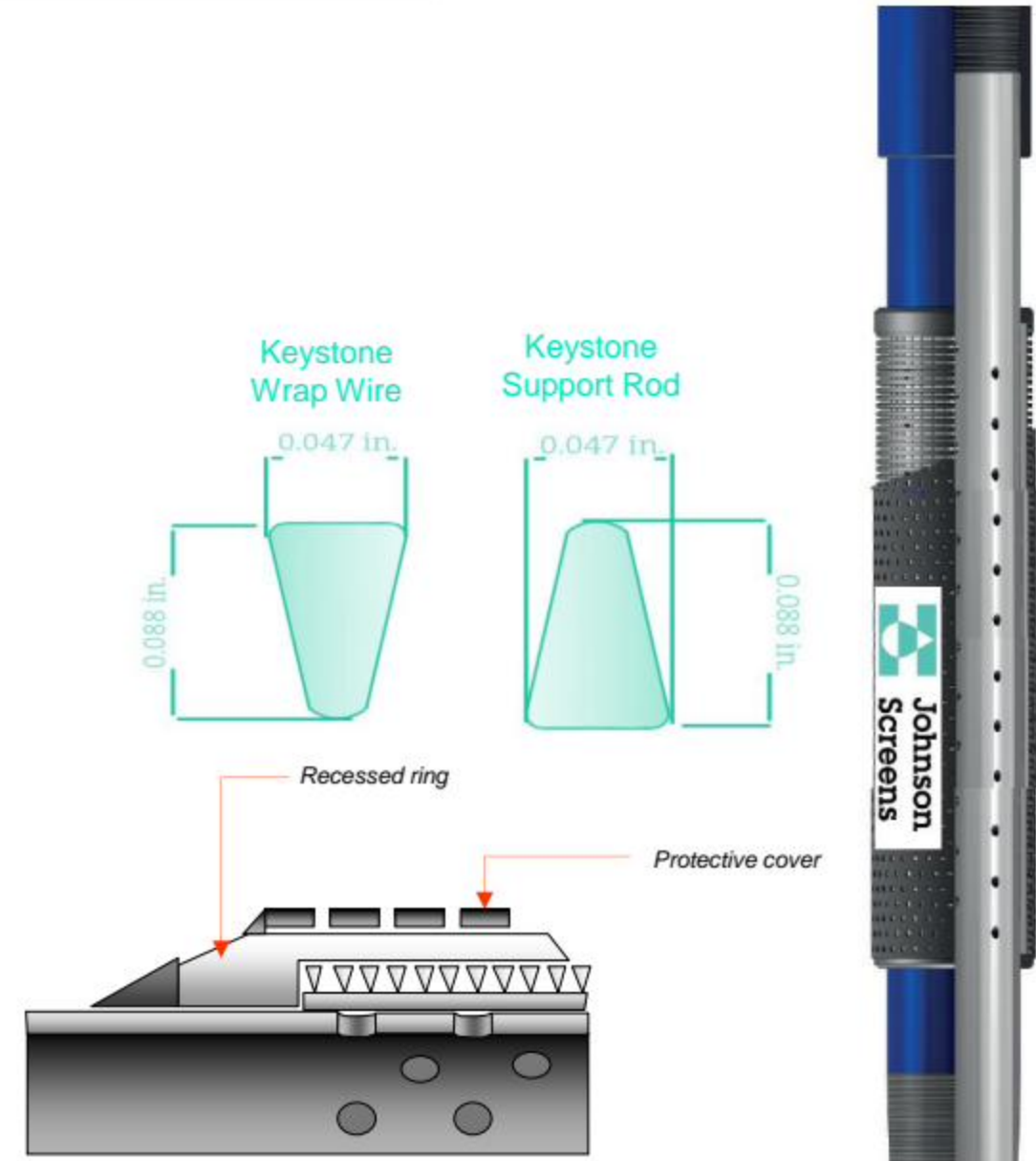
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Applications

- Open hole stand-alone completions in homogeneous reservoirs or cased hole Gravel Pack with short intervals.
- Capable of handling finer, less uniform sands with uniformity coefficient up to 5 with direct retention.
- Vertical, multilateral, extended horizontal completions.

Special features & benefits

- Advanced Slip-On-Pipe screen which utilizes a very fine jacket construction increasing the screen open area with a very narrow slot size distribution.
- Improved sand retention properties of the screen and resistance to erosion by reducing fluid velocity through the screen.
- Large open area and lower entrance velocities allow a stable natural pack to form. Capable of handling finer, less uniform sands.
- Costs effective alternative to premium screens in uniform sands.
- Protective cover (shroud) to protect screen surface against run-in damage.
- With additional support ribs, the tensile strength is increased and the roundness of the jacket is improved providing excellent slot control for better sand retention and preventing filter cake build-up.



Wire-Wrapped Sand Screens

SuperThru™ Screens



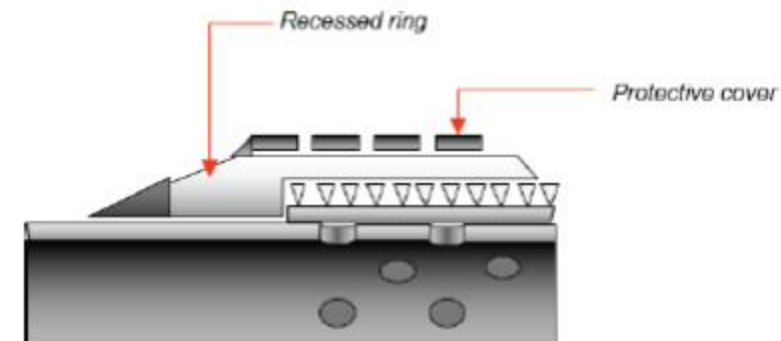
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Applications

- Cost effective solution for remedial completion to save your well during an intervention and have a real sand control that will allow you to keep producing over the long term.
- Despite complex flow path and space limitations, SuperThru screens will reduce recompletion and operating costs, improve well productivity and extend well life.
- Can be installed through production tubings, cased hole sections or even openhole sections of the wells.

Special Features & Benefits

- Available in diameters : 1" - 1"1/4 - 1"1/2 and 2"1/16.
- The screen and the base pipe are both in a cost effective austenitic stainless steel which makes it corrosion proof.
- Jacket is made out of a fine wire to improve the open area up to 20% and thus maximizing production rate while reducing velocity.
- Jacket is protected with a shroud, flush with coupling OD to avoid any disturbance while running in the hole.
- For those small diameters, pipes will be threaded according to API NU standards in short length of 1.9m (6.25ft) for Full Flush version or 2.75m (9ft) for version with centralizers.



Wire-Wrapped Sand Screens

D-Pak™ Screens



Applications

- Cased-hole frac pack and high-rate water-pack completions.
- For completions requiring a reduced-OD, prepacked screen is the cost effective solution to avoid a complex and expensive gravel packing operation.
- Deep water, horizontal, direct retention for reasonably uniform (UC<3) coarse formations, gravel pack and work over applications.

Special Features & Benefits

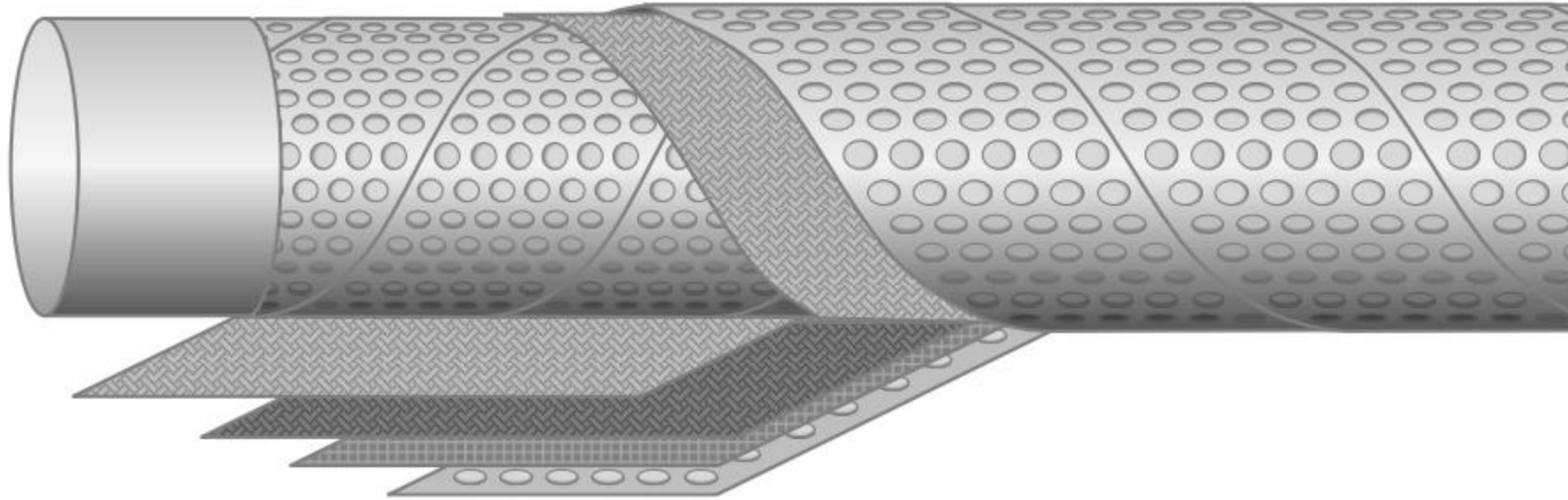
- Johnson Screens benefits : Dual Vee-Wire screens with high open area for a better well efficiency.
- Extra strong resistance : the thickness considered is the composite layer : screen + beads + screen.
- Silicate / ceramic proppant : the perfect gravel pack in shape, smoothness and permeability to optimize filtration and hydraulic performances.
- Slimfit design : with an improved filtration power, proppant thickness can be reduced to one quarter of an inch (0.25") only on the radius.



Premium Sand Screens



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Screens



- Building of an inner core with integrated end rings to prevent fluid bypass
- All layers are fed together with the outer shroud and helically wrapped over the inner shroud
- Welding of the outer shroud only - Resulting heat shrinking provides a very tight fit of all layers
- Versatile process:
 - Unlimited number of layers (tested up to 25 layers)
 - Unlimited combinations of drainage/filtration

Premium Sand Screens

ExcelFlo™ Screens



Applications

- Stand-alone screens completion in well sorted reservoirs.
- Multi-lateral, short radius or other mechanically demanding applications.
- Horizontal completion in very fine to fine sands with some degrees of reservoir heterogeneity or in poorly characterized reservoirs.

Special Features & Benefits

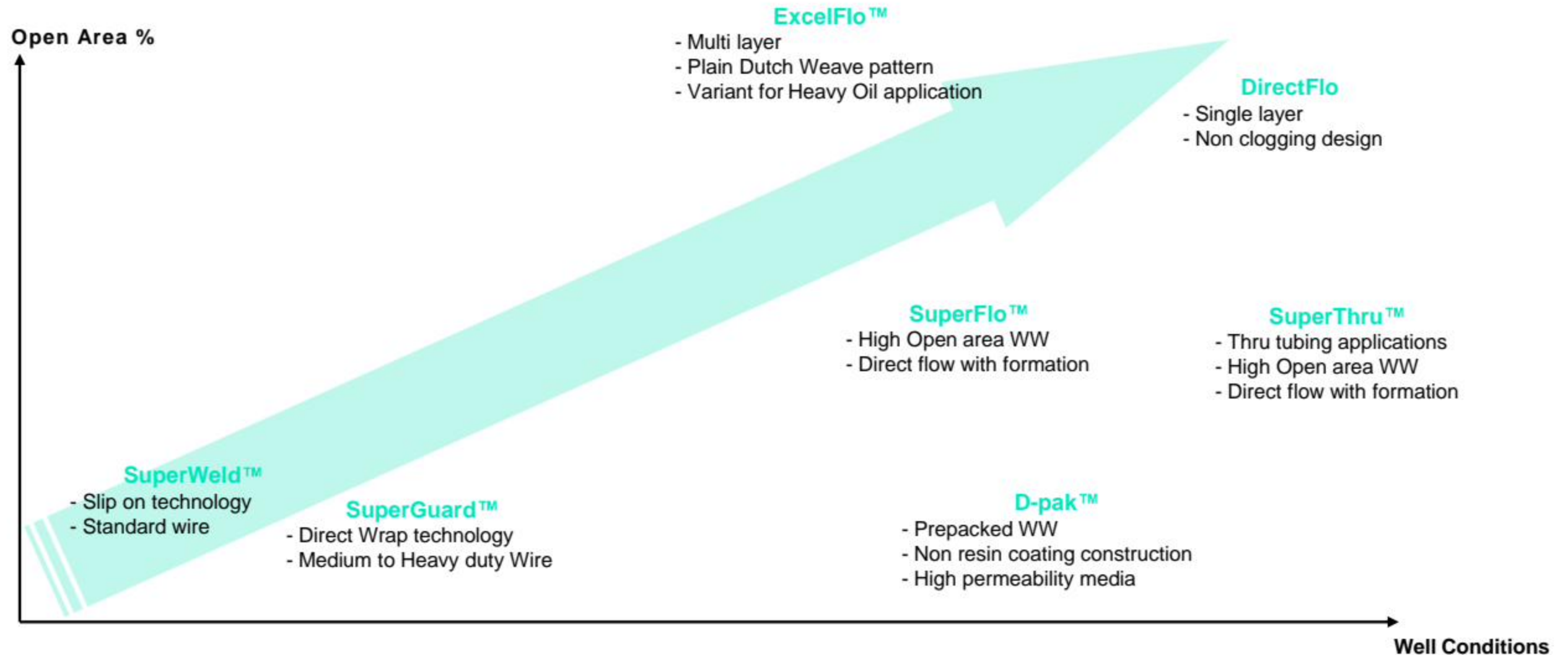
- Multi-layer metal mesh.
- Advanced mesh screen technology – Plain Dutch Weave pattern – to control a broad range of sand sizes with a very high open area.
- Twilled Dutch Weave and Reverse Twilled Dutch Weave are available
- Large media selection to provide effective sand control for a wide range of formation sand sizes. Johnson ExcelFlo™ screen range may be customized within a wide selection of stainless steel and high nickel.
- Johnson ExcelFlo™ allows an even flow distribution and reduced plugging rate.
- Protective cover (shroud) to give greater multi-layer protection during final installation against run damage.
- Damage tolerant design to withstand high collapse and high burst pressures.
- High drainage with improved construction to reduce rate of pressure build up and increase erosion resistance.
- Compliance to API 19SS.



Downhole Oil & Gas Screens Portfolio



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Johnson Screens Manufacturing Capabilities

Manufacturing Capabilities



- 2000 joints / month capacity
- Direct Wrap Screen Machine
- Perforation & Deburring
- Machining shop in house for threads and ICDs
- Wire Mill with online furnaces
- Welding Cell : all welders certified to ASME IX (MIG / TIG / Plasma / Tig Orbital)
- Pre and Post Welding Heat treatment



Quality Standard

- Automatic welding machine
- Factories under ASME Sect. IX specifications with WPQR / WPQ according to EN 25817
- All Plants accredited to ISO 9001:2008 and OHSAS 18001:2007
- Quality plans in addition to inspection and test plans are individually tailored to specific client requirements
- Burst and Collapse Testing as per ISO-17824 first edition 2009-08-15



Quality Standards

Slot size control

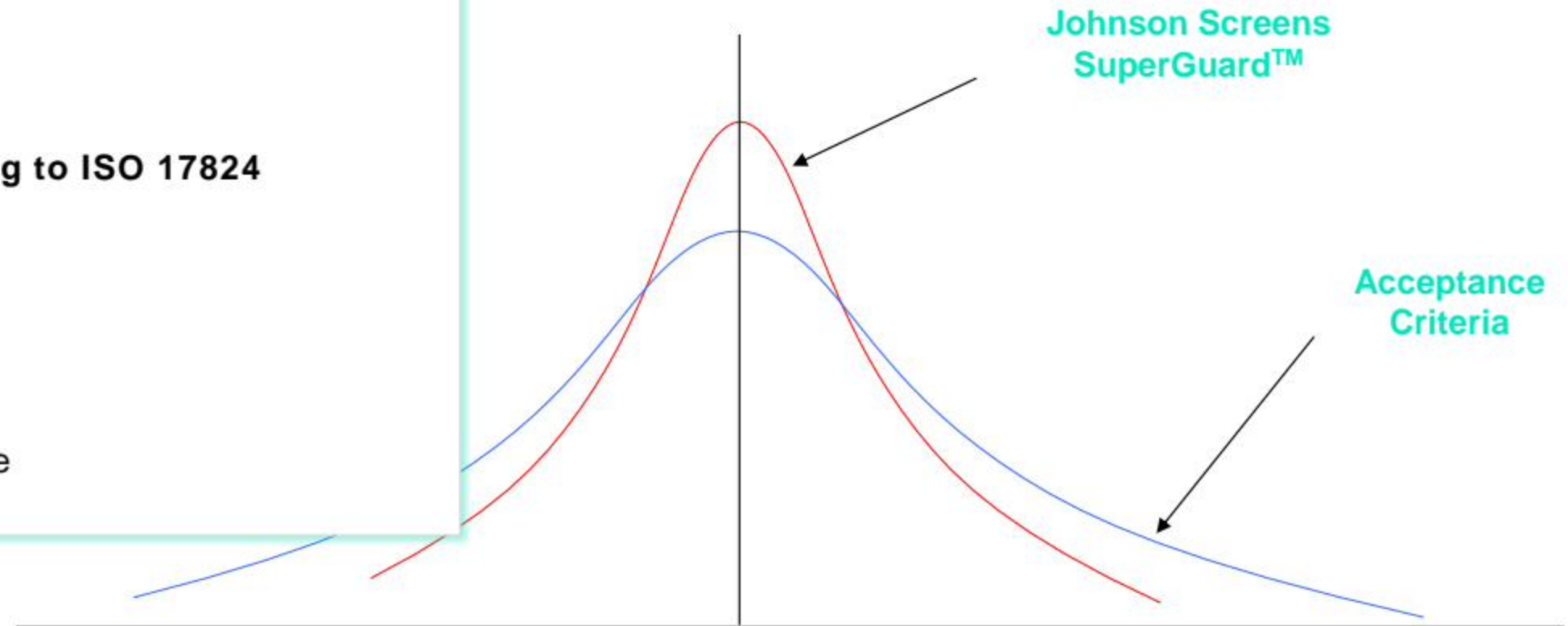
- Best-in-class **Photometric Inspection System** for wire-wrap screens
- Sand control verification according to **Q1 – ISO 17824**
- From 2"3/8 to 9"5/8
- Up to 46' long

Performance Results

Direct Wrap screens according to ISO 17824

90 x 105 Wire

- +/- .0015" – 95% Average
- +/- .0020" – 99% Average
- +/- .0030" – 100% Average





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