

# JANUARY 2014 SANDFACE COMPLETIONS GUIDE

**Sand Exclusion Devices, ICD Products and Suppliers  
plus Sandface Completions and Gravel/Proppant Data**

Prepared by: William K. Ott, P.E. and Joe D. Woods Graphics by: Steve Stanley Design



**Well Completion Technology**

7903 Alamar, Houston, TX 77095 USA

Tel: 281.859.6464; Fax: 281.855.3004; email: info@wcthou.com

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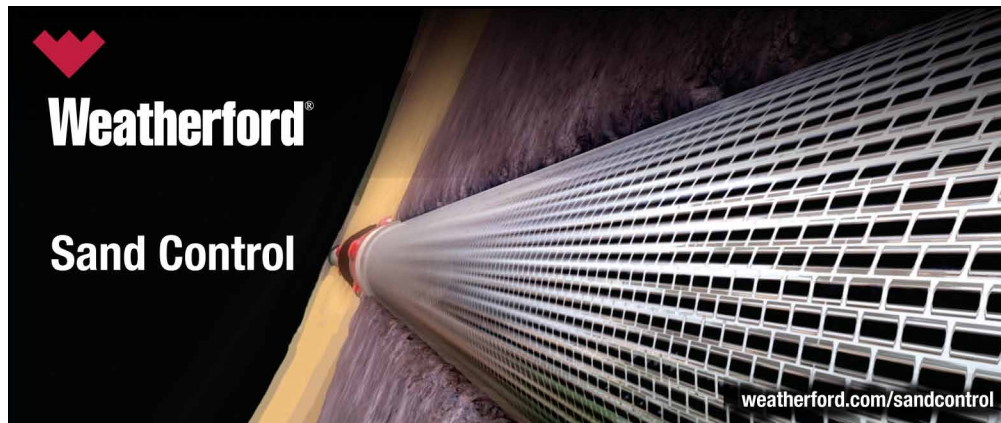
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## SAND CONTROL PRODUCTS CLASSIFIED BY MANUFACTURER AND BY TYPE OF DESIGN

Photo Key	Supplier / Product Trade Name	Wire-Wrapped	Pre-Pack	Shrouded Metal Mesh	Expandable	Other	Inflow Control Device
1	<b>3M PETROCERAM</b> www.petroceram.com					CSS	
2	<b>ALLOY SCREEN WORKS</b> www.alloyscreenworks.com						
3	ASW ALPHA ROD BASE	X					
4	ASW DUAL PRE-PACK AND DUAL PRE-PACK/TT		X				
5	ASW PIONEER AND PIONEER/TT	X					
6	ASW SAND-BAR			X			SL
7	ASW SLOTTED LINERS						
8	ASW WILDCATTER ALL-WELDED WRAP-ON	X					
9	<b>BAKER HUGHES</b> www.bakerhughes.com						
10	BAKERWELD	X					
11	BAKERWRAPXP	X					
12	EQUALIZER HELIX ICD						P/I
13	EQUALIZER SELECT ICD						P/I
14	EXCLUDER2000			X			
15	EXPRESS				BPE		
16	GEOPERM					SMP	
17	SELECTFLOW II AND SELECTFLOW III	X					
18	SLIMPAC		X				
19	<b>CON.SLOT 2.0 OIL &amp; GAS SCREENS GmbH</b> www.con-slot.de						
20	FORMATIONLINK	X					
21	FORMATIONLINK CERAMIC-COATED SCREEN	X					
22	<b>DELTA SCREENS</b> www.deltascreens.com						
23	DELTA DIRECT WRAP-ON	X					
24	DELTAELITE			X			
25	DELTAELITE			X			
26	DELTAPORE HP THRU TUBING		X				
27	DELTAELITE	X					
28	<b>HALLIBURTON</b> www.halliburton.com						
29	ALL-WELD	X					
30	ENHANCED LOW-PROFILE		X				
31	EQUIFLOW AUTONOMOUS ICD						P/I
32	EQUIFLOW ICD						P/I
33	PETROGUARD ADVANCED MESH			X			
34	PETROGUARD MESH DS (DUAL SHROUD)			X			
35	PETROGUARD MODULAR SCREEN	X		X			
36	PETROGUARD SHUNT SYSTEM	X		X			
37	PETROGUARD SWELL					SFE	
38	PETROGUARD WRAP (DIRECT WRAP)	X					
39	PORMAX			X			
40	PREMIUM LOW-PROFILE		X	X			
41	<b>H.P. WELL SCREEN</b> www.hpwellscreen.com						
42	AICV						P
43	HP SLOTTED LINER					SL	
44	MESHLOCK			X			
45	POROBOND			X			
46	POROLOCK			X			P/I
47	QELUX						
48	SANDFREE	X					
49	SOLIDWRAP	X					
50	SLIMPAC			X			
51	<b>REGENT ENERGY GROUP</b> www.regentenergygroup.com						
52	PREMIUM TRS SLOTTED LINERS					SL	P/I
53	PREPACKED SLOTTED LINERS					SL	P/I
54	SLOTTED LINERS					SL	P/I
55	<b>SCHLUMBERGER</b> www.slb.com/transcend, www.absolutect.com						
56	ACCURITE						
57	ENDURE / ASSURE	X		X			
58	EXTRACTOR WIRE WRAP						PMD
59	TRI-D FACSRITE*						WPM
60	TRI-D FACSWAX*						
61	LINESLOT / DOMINATOR DIRECT WRAP	X					
62	LINESLOT HIGH RATE GAS	X					
63	MESHFLUX ICD						P/I
64	MESHRITE*			X			
65	PREMIUM PORT 3 ICD						P/I
66	PACKRITE		X				
67	RESFLOW ICD						P
68	RESINJECT ICD						I
69	TRI-D DIRECTRITE*			X			
70	<b>SUPERIOR ENERGY SERVICES</b> www.superiorenergy.com						
71	COILFLO DB (DIFFUSION BONDED)			X		TT	
72	DYNAPLO DB (DIFFUSION BONDED)			X			
73	ECONOFLO			X		SC	
74	PROWELD	X					
75	PROWELD TOP (TIGHT ON PIPE)	X					
76	SLIMPLO		X				SC
77	SUREFLO			X			
78	UNIFLO ROI						X
79	<b>TUBULAR PERFORMING MANUFACTURING</b> www.tpmtd.com				X		
80	UNISCREEN						
81	<b>WEATHERFORD</b> www.weatherford.com						
82	ESS					BPE	
83	FLOREG ICD						P/I
84	MAXFLO			X			
85	MAXFLO-BL			X			
86	MAZEFLU	X					SMS
87	MICRO-PAK		X				
88	ULTRAFLO SLIP-ON JACKET	X					
89	ULTRAGRIP DIRECT WRAP	X					
90	ULTRAWELD SLIP-ON JACKET	X					

NOTES: BPE = Base Pipe Expansion, CSS = Ceramic Sand Screen, I = Injection, ICD = Inflow Control Device, P = Production, PMD = Premium Metal-mesh Discs, SC = Special Clearance, SFE = Swellable Filter Expansion, SL = Slotted Liners, SMP = Shaped Memory Polymer, SMS = Self-mitigating Screen, TT = Thru-Tubing, WPM = Waxed Premium Metal-mesh Discs. Most manufacturers provide a wide range of screen sizes including slot-hole sizes for thru-tubing applications.

\*Tri-D FacsRite, Tri-D FacsWax, Tri-D DirectRite and MeshRite are patented by Absolute Completion Technologies.



## SAND CONTROL PRODUCTS



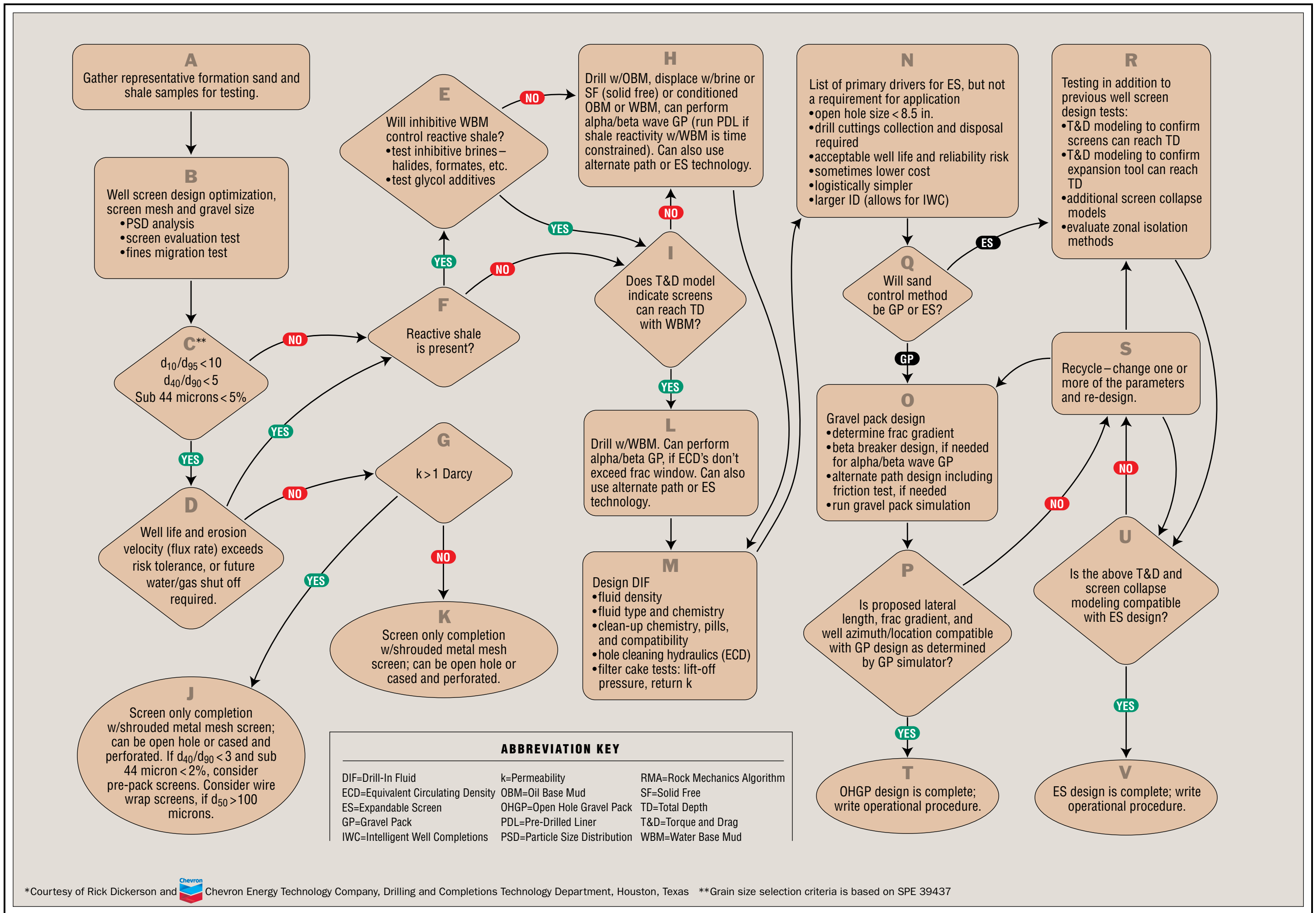
## GUIDELINES FOR SAND CONTROL SCREENS

### ISO 17824:2009 Standard\*

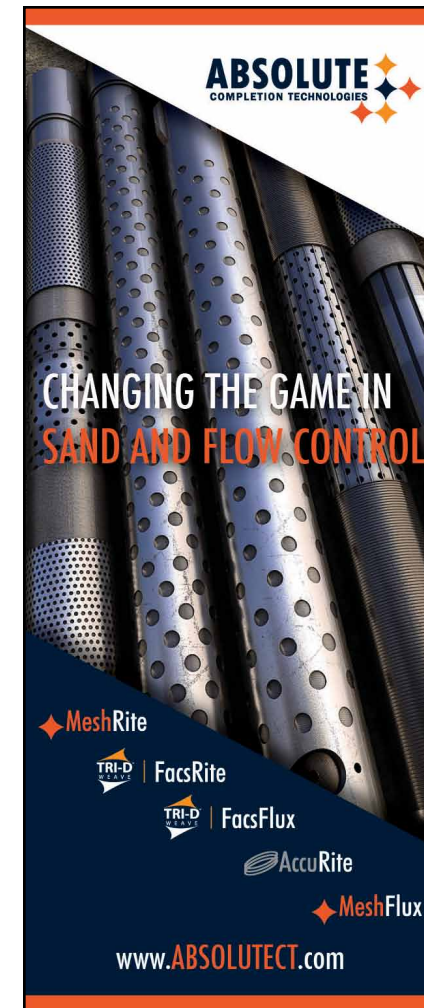
This standard provides the requirements and guidelines for sand control screens for use in the petroleum industry. It covers the requirements for design, design validation, functional evaluation, manufacturing, storage and transport. It includes test methods to determine when wire-wrap, pre-pack and metal-mesh screens lose sand control when subjected to a hydraulic collapse or burst load.

\*www.iso.org/iso/catalogue\_detail.htm?csnumber=44632

## OPEN HOLE SANDFACE COMPLETION DESIGN FLOW CHART\*

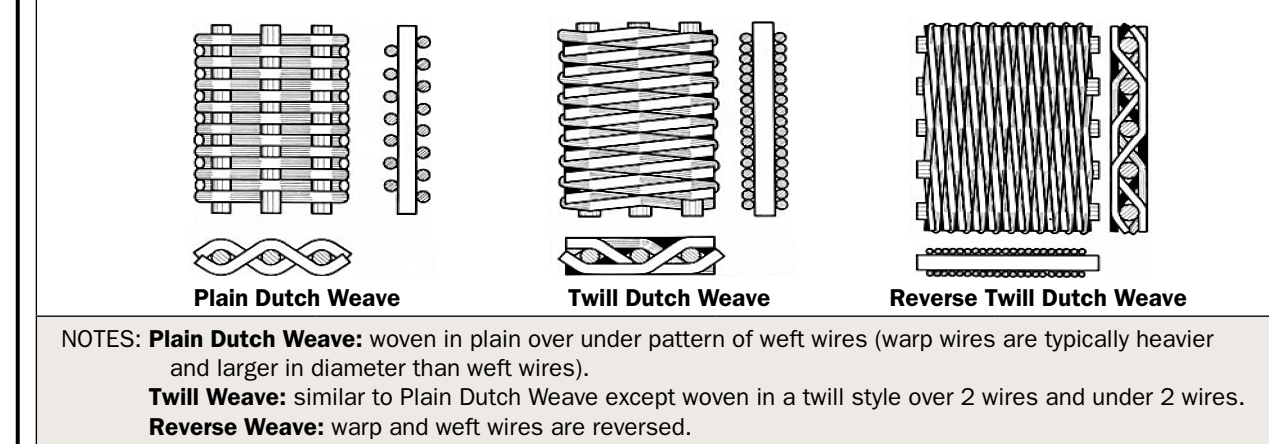


\*Courtesy of Rick Dickerson and Chevron Energy Technology Company, Drilling and Completions Technology Department, Houston, Texas \*\*Grain size selection criteria is based on SPE 39437



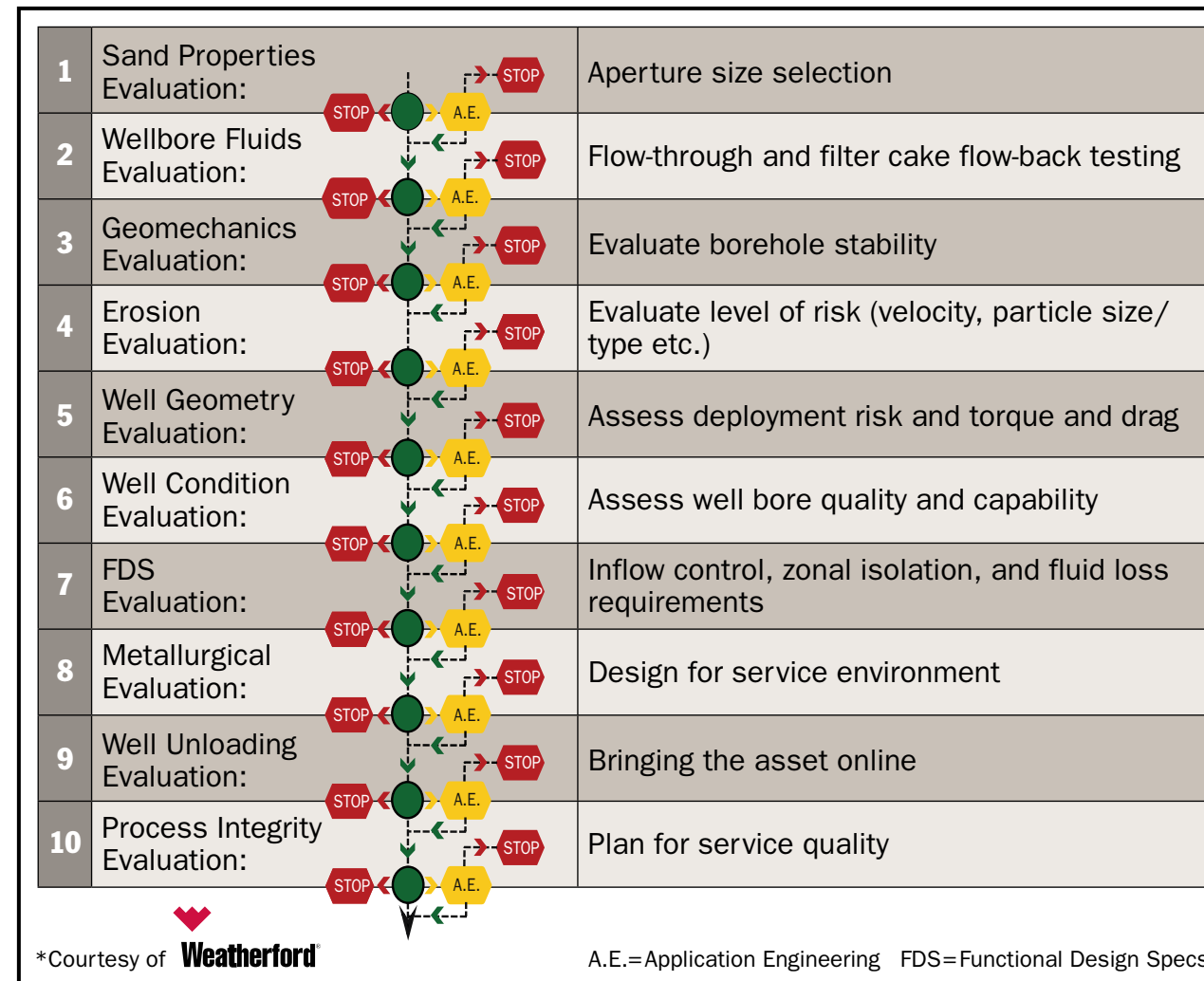
## COMMON WOVEN MESH USED IN SHROUDED SAND SCREENS

Micron Rating	Weave Type	Weave Count	Thickness (in./mm)
85-110	Plain Dutch Weave	30 x 150	0.023/0.59
125-145	Plain Dutch Weave	24 x 110	0.034/0.87
175-225	Twill Dutch Weave	18 x 210	0.037/0.95
260-315	Reverse Twill Dutch Weave	132 x 16	0.046/1.16
280-330	Plain Dutch Weave	12 x 64	0.05/1.44



NOTES: Plain Dutch Weave: woven in plain over under pattern of weft wires (warp wires are typically heavier and larger in diameter than weft wires). Twill Weave: similar to Plain Dutch Weave except woven in a twill style over 2 wires and under 2 wires. Reverse Weave: warp and weft wires are reversed.

## 10 STEPS TO SAND CONTROL SYSTEM SELECTION\*



## TYPES OF GRAVEL/PROPPANT

Class	Type	Examples
Natural	Sand	Ottawa, Jordan, England, Brady, etc.—SG 2.65
Natural Modified	Sand	Resin-coated, curable (sand flowback problems) and pre-cured (enhanced strength)—SG 2.60
Man-made Materials	Ceramics, modified ceramics and non-ceramics	Ultra-light weight (ULWP)—SG <2.0 Light weight (LWP)—SG 2.70 Intermediate (ISP)—SG 3.20
Natural Modified	High-strength aluminum oxide	Sintered Bauxite (strongest)—SG 3.49

NOTE: SG=Apparent Specific Gravity

## SCREEN GAUGE USED WITH VARIOUS GRAVEL/PROPPANT

Gravel Size (US Mesh)	Gravel Size (in.)	Screen Opening (in.)	Screen Gauge
40/60	0.0165 - 0.0098	0.006	150
30/50	0.0234 - 0.0117	0.008	200
20/40	0.0331 - 0.0165	0.012	300
16/30	0.0469 - 0.0234	0.016	400
12/20	0.0661 - 0.0331	0.020	500
8/12	0.0937 - 0.0661	0.038	950

\*Minimum acceptable slot size

