



Registered Data Sheet Perforating System Evaluation, API RP 19B Section 1

API Form 19B-Section 1 Conforms to All Requirements of Section 1 Special Test - See Remarks/Exceptions below

Service Company Available to all from Titan Specialties Ltd. Explosive weight 22.7 gm, HMX powder, Case Material Steel

Gun OD & Trade Name 3-3/8" EXP Gun, 6 SPF 60 Degree Max Temp, °F 400 1 hr 3 hr 24 hr 100 hr 200 hr

Charge Name 3-3/8" 22.7G HMX SDP Maximum Pressure Rating 20,000 psi, Carrier Material H.T. Steel

Manufacturer Charge Part No. EXP-3323-423T Date of Manufacture 06 August 2009 Shot Density Tested 6 Shots/ft 6

Gun Type Hollow Steel Carrier, Expendable (HC, E) Recommended Minimum ID for Running 3.80 in.

Phasing Tested 60 degrees, Firing Order: Top down Bottom up Available Firing Mode: X Selective X Simultaneous

Debris Description Small steel chips, usually retained in carrier Debris Weight n/a gm/charge, Debris n/a in³/charge

Remarks/Exceptions per Section 1.11 _____

Casing Data 4-1/2" OD, Weight 11.6 lb/ft, API Grade, L-80 Date of Section 1 Test 03 December 2009

Target Data 108 in. OD, Amount of Cement 10,960 lb, Amount of Sand 21,921 lb, Amount of Water 5,746 lb.

Date of Compressive Strength Test 03 December 2009 Briquette Compressive Strength 7,270 psi, Age of Target 29 days

Shot No.	No 1	No 2	No 3	No 4	No 5	No 6	No 7	No 8	No 9	No 10	No 11
Clearance, in.	0.00	0.14	0.45	0.63	0.45	0.14	0.00	0.14	0.45	0.63	0.45
Casing Hole Diameter, Short Axis, in	0.35	0.45	0.45	0.47	0.45	0.39	0.37	0.45	0.49	0.48	0.43
Casing Hole Diameter, Long Axis, in	0.37	0.47	0.46	0.48	0.48	0.39	0.38	0.46	0.50	0.49	0.44
Average Casing Hole Diameter, in.	0.36	0.46	0.46	0.48	0.47	0.39	0.38	0.46	0.50	0.49	0.44
Total Depth, in.	37.00	47.00	44.00	49.75	45.75	41.25	44.05	38.50	38.85	45.00	41.25
Burr Height, in.	0.07	0.06	0.04	0.05	0.09	0.06	0.07	0.07	0.07	0.08	0.08

Shot No.	No 12	No 13	No 14	No 15	No 16	No 17	No 18	No 19	No 20	No 21	No 22	Average
Clearance, in.	0.14	0.00	0.14	0.45	0.63	0.45	0.14	0.00	0.14	0.45	0.63	XXXXXX
Casing Hole Diameter, Short Axis, in	0.40	0.42	0.42	0.48	0.50	0.47	0.38	0.44	0.47	0.46	0.48	0.44
Casing Hole Diameter, Long Axis, in	0.41	0.44	0.43	0.50	0.50	0.47	0.41	0.44	0.47	0.48	0.50	0.45
Average Casing Hole Diameter, in.	0.41	0.43	0.43	0.49	0.50	0.47	0.40	0.44	0.47	0.47	0.49	0.45
Total Depth, in.	36.05	47.00	44.50	40.25	43.50	44.05	39.50	40.75	40.25	40.25	39.38	42.21
Burr Height, in.	0.07	0.07	0.04	0.05	0.04	0.06	0.08	0.06	0.05	0.07	0.03	0.06

Remarks _____

Manufacturer's Certification

Type of Certification: _____ Self Third Party API Witnesses: Allan Pettigrew & Mona Elkhatib

I certify that these tests were made according to the procedures as outlined in API 19B: Recommended Practice for Evaluation of Well Perforators, Second Edition, September 2006. All of the equipment used in these tests, such as the guns, jet charges detonator cord, etc., was standard equipment with our company for the use in the gun being tested and was not changed in any manner for the test. Furthermore, the equipment was chosen at random from stock and therefore will be substantially the same as the equipment that would be furnished to perforate a well for any operator. API neither endorses these tests nor recommends the use of the perforator system described.

CERTIFIED BY Kenneth B. Babson CEO 15 December 2009 Titan Specialties Ltd. 143 HCR 4361, Milford, TX 76670

RECEIVED (Company Official) (Title) (Date) (Company) (Address)

Name of test as it should appear on website: 3.38" EXP 6 SPF w/ DP EXP-3323-423T

Name of test as it appears on application and application date: EXP-3323-423T, Charge, 3-3/8" 22.7G HMX SDP (Appl: 02 Nov. 2009)



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Remarks/Exceptions per Section 1.11 _____

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 Target Data 108 in. OD, Amount of Cement 10,960 lb, Amount of Sand 21,921 lb, Amount of Water 5,746 lb.
 Date of Compressive Strength Test 03 December 2009 Briquette Compressive Strength 7,270 psi, Age of Target 29 days

Shot No.	No 23	No 24	No 25	No 26	No 27	No 28	No 29	No 30	No 31	No 32	No 33	
Clearance, in.	0.45	0.14										
Casing Hole Diameter, Short Axis, in	0.45	0.39										
Casing Hole Diameter, Long Axis, in	0.47	0.41										
Average Casing Hole Diameter, in.	0.46	0.40										
Total Depth, in.	43.25	42.02										
Burr Height, in.	0.03	0.05										
Shot No.	No 34	No 35	No 36	No 37	No 38	No 39	No 40	No 41	No 42	No 43	No 44	Average
Clearance, in.												
Casing Hole Diameter, Short Axis, in												XXXXXXXX
Casing Hole Diameter, Long Axis, in												0.45
Average Casing Hole Diameter, in.												0.45
Total Depth, in.												42.21
Burr Height, in.												0.06

Remarks _____

Manufacturer's Certification

Type of Certification: Self Third Party API Witnesses: Allan Pettigrew & Mona Elkhatib

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CERTIFIED BY Kenneth G. Babcock CEO 15 December 2009 Titan Specialties Ltd. 143 HCR 4361, Milford, TX 76670
 RECERTIFIED (Company Official) (Title) (Date) (Company) (Address)

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Name of test as it appears on application and application date: EXP-3323-423T, Charge, 3-3/8" 22.7G HMX SDP (Appl: 02 Nov. 2009)