



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 companies. Manufactured by ZAC Perforating Explosive weight 21 gm, HMX powder, Case Material STEEL

Gun OD & Trade Name 3 3/8" HIGH SHOT DENSITY GUN BH HMX Max Temp, °F 400°F 1 hr \_\_\_\_\_ 3 hr \_\_\_\_\_ 24 hr \_\_\_\_\_ 100 hr \_\_\_\_\_ 200 hr

Charge Name 21 grams HMX BH Maximum Pressure Rating 20000 psi, Carrier Material STEEL

Manufacturer Charge Part No. TC41HBH Date of Manufacture 02/04/2015 Shot Density Tested 6 Shots/ft \_\_\_\_\_

Gun Type TCP and Wireline Hollow Carrier, Non Reusable Recommended Minimum ID for Running \_\_\_\_\_ in.

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

Debris Description Steel pieces remains inside the gun. Debris Weight N/A gm/charge, Debris N/A in<sup>3</sup>/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 05/18/2015

Target Data 30" OD, Amount of Cement 995 lb, Amount of Sand 1990 lb, Amount of Water 515 lb.

Date of Compressive Strength Test 05/18/2015 Briquette Compressive Strength 6855 psi, Age of Target 31 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.	0.000	0.138	0.450	0.625	0.450	0.138	0.000	0.138	0.450	0.625	0.450
Casing Hole Diameter, Short Axis, in.	0.680	0.660	0.730	0.750	0.700	0.670	0.770	0.670	0.680	0.700	0.690
Casing Hole Diameter, Long Axis, in.	0.710	0.720	0.760	0.780	0.720	0.730	0.800	0.730	0.710	0.720	0.710
Average Casing Hole Diameter, in.	0.695	0.690	0.745	0.765	0.710	0.700	0.785	0.700	0.695	0.710	0.700
Total Depth, in.	9.250	9.250	8.750	8.250	10.250	9.250	7.750	7.250	7.250	9.250	8.750
Burr Height, in.	0.092	0.087	0.110	0.130	0.088	0.074	0.050	0.091	0.082	0.084	0.100

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.	0.138	0.000	0.138	0.450	0.625	0.450	0.138					XXXXXX
Casing Hole Diameter, Short Axis, in.	0.750	0.640	0.720	0.670	0.680	0.710	0.770					0.702
Casing Hole Diameter, Long Axis, in.	0.760	0.690	0.760	0.700	0.710	0.730	0.790					0.735
Average Casing Hole Diameter, in.	0.755	0.665	0.740	0.685	0.695	0.720	0.780					0.719
Total Depth, in.	8.250	8.750	7.250	8.250	7.750	9.750	8.750					8.556
Burr Height, in.	0.072	0.064	0.096	0.110	0.130	0.046	0.077					0.088

Remarks \_\_\_\_\_

Manufacturer's Certification

Type of Certification: \_\_\_\_\_ Self Carlos CasteAPI W Third Party 

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 perforating system described.

X CERTIFIED BY Carlos Gustavo Torre Ramirez Presidente ZAC PERFORATING S.A. de C.V. Carretera Zacatecas/Salttillo; Concepción del Oro, México  
 \_\_\_\_\_ RECERTIFIED \_\_\_\_\_ (Company Official) \_\_\_\_\_ (Title) \_\_\_\_\_ (Date) \_\_\_\_\_ (Company) \_\_\_\_\_ (Address)

Name of test as it should appear on website: 3 3/8" High Shot Density Gun, 21grams HMX BH

Name of test as it appears on application and application date: TC41HBH - 21 Grams HMX BH