



**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	BashVzryvTechnologii, CJSC			Explosive Weight	13 gm, RDX powder,	Case Material	Steel				
Gun OD & Trade Name	2.5" (63 mm)	PKO63-AT		Max Temp, °F	302(150°C) 2hr 284(140°C) 5hr 266(130°C) 12hr	248(120°C) 30hr 230(110°C) 72hr					
Charge Name	ZPK63-AT-M-10			Maximum Pressure Rating	15011.4 (103.5 MPa)	psi,	Carrier Material	Steel			
Manufacturer Charge Part No.	01 057	Date of Manufacture	Sept. 02, 2015	Shot Density Tested	6.1 (20 shots/m)	shots/ft					
Gun Type	Expendable Gun TCP/Wireline			Recommended Minimum ID for Running	3.15 (80 mm)	in.					
Phasing Tested	60 degrees,	Firing Order:	Top Down X Bottom up	Available Firing Mode:	Selective	X	Simultaneous				
Debris Description	N/A										
Remarks/Exceptions per Section 1.12	Casing used: 4.02" (102 mm)x0.26"(6.5 mm) GRADE D, TU 14-161-163-96; Gun shot with water										
Casing Data	4.02" (102 mm)	OD	Weight	10.21 (15.2 kg/m)	lb/ft	API Grade,	Date of Section 1 Test	October 12, 2015			
Target Data	47.24" (1200 mm)	OD	Amount of Cement	2784.44(1263kg)	lb,	Amount of Sand	5564.47 (2524 kg)	lb,	Amount of Water	1446.23 (656 kg)	lb.
Date of Compressive Strength Test	October 12, 2015	Briquette Compressive Strength	5409.99 ( 37.30 MPa)	psi,	Age of Target	32	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 (mm)	0.31 (8.0)	0.43 (11.0)	0.70 (17.7)	0.85 (21.5)	0.70 (17.7)	0.43 (11.0)	0.31 (8.0)	0.43 (11.0)	0.70 (17.7)	0.85 (21.5)	0.70 (17.7)
Casing Hole Diameter, Short Axis, in (mm)	0.75 (19.0)	0.78 (19.8)	0.79 (20.0)	0.80 (20.4)	0.79 (20.0)	0.76 (19.4)	0.75 (19.0)	0.76 (19.2)	0.77 (19.5)	0.80 (20.2)	0.74 (18.9)
Casing Hole Diameter, Long Axis, in (mm)	0.79 (20.0)	0.81 (20.7)	0.79 (20.0)	0.81 (20.7)	0.80 (20.3)	0.79 (20.1)	0.78 (19.9)	0.76 (19.4)	0.77 (19.6)	0.80 (20.4)	0.79 (20.0)
Average Casing Hole Diameter, in (mm)	0.77 (19.50)	0.80 (20.25)	0.79 (20.00)	0.81 (20.55)	0.79 (20.15)	0.78 (19.75)	0.77 (19.45)	0.76 (19.30)	0.77 (19.55)	0.80 (20.30)	0.77 (19.45)
Total Depth, in (mm)	8.9 (226.5)	9.6 (244.5)	8.6 (218.5)	9.1 (231.5)	9.7 (246.5)	9.3 (236.5)	8.9 (226.5)	9.3 (236.5)	9.3 (236.5)	9.1 (231.5)	8.7 (221.5)
Burr Height, in (mm)	0.09 (2.20)	0.08 (2.10)	0.07 (1.90)	0.09 (2.20)	0.07 (1.90)	0.07 (1.90)	0.06 (1.40)	0.08 (2.00)	0.04 (1.00)	0.06 (1.60)	0.07 (1.90)

  

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 (mm)	0.43 (11.0)	0.31 (8.0)	0.43 (11.0)	0.70 (17.7)	0.85 (21.5)	0.70 (17.7)	0.43 (11.0)	0.31 (8.0)	0.43 (11.0)			xxxxx xxxxxx
Casing Hole Diameter, Short Axis, in (mm)	0.79 (20.0)	0.77 (19.6)	0.77 (19.6)	0.78 (19.7)	0.79 (20.0)	0.75 (19.1)	0.76 (19.4)	0.77 (19.5)	0.81 (20.5)			0.77 (19.64)
Casing Hole Diameter, Long Axis, in (mm)	0.79 (20.0)	0.80 (20.4)	0.81 (20.5)	0.78 (19.9)	0.80 (20.4)	0.77 (19.6)	0.79 (20.0)	0.80 (20.3)	0.87 (22.0)			0.80 (20.21)
Average Casing Hole Diameter, in (mm)	0.79 (20.00)	0.79 (20.00)	0.79 (20.05)	0.78 (19.80)	0.80 (20.20)	0.76 (19.35)	0.78 (19.70)	0.78 (19.90)	0.84 (21.25)			0.78 (19.93)
Total Depth, in (mm)	11.1 (281.5)	10.5 (266.5)	9.6 (243.5)	10.5 (266.5)	9.9 (251.5)	10.3 (261.5)	10.1 (256.5)	11.4 (288.5)	9.4 (239.5)			9.7 (245.6)
Burr Height, in (mm)	0.08 (2.10)	0.07 (1.70)	0.08 (2.00)	0.06 (1.50)	0.05 (1.20)	0.10 (2.60)	0.08 (2.10)	0.08 (2.00)	0.00 (0.00)			0.07 (1.77)

Remarks: The gun can be used in gas wells. Penetration normalized to 5000 psi by method of SPE 27424 (approx. 3.8% / 1000psi) = 9.8 " ( 249 mm)

Witnessed by: K. Poliakov

Optionally Witnessed Activities:  Target Pouring  Briquette Preparation  Briquette Testing  Burr Height Measurements

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 describes.

Penetration data recorded in API RP 19B Section 1 may not directly correlate to penetration downhole

X CERTIFIED BY A. Yakuba Director for Project Management October 16, 2015 BVT, CJSC 41 Rabochaya St., Samara, 443041, Russian Federation  
 (Company Official) (Title) (Date) (Company) (Address)

Name of test as it should appear on website: PKO63-AT / ZPK63-AT-M-10

Name of test as it appear on application and application date: PKO63-AT / ZPK63-AT-M-10 August 19, 2015