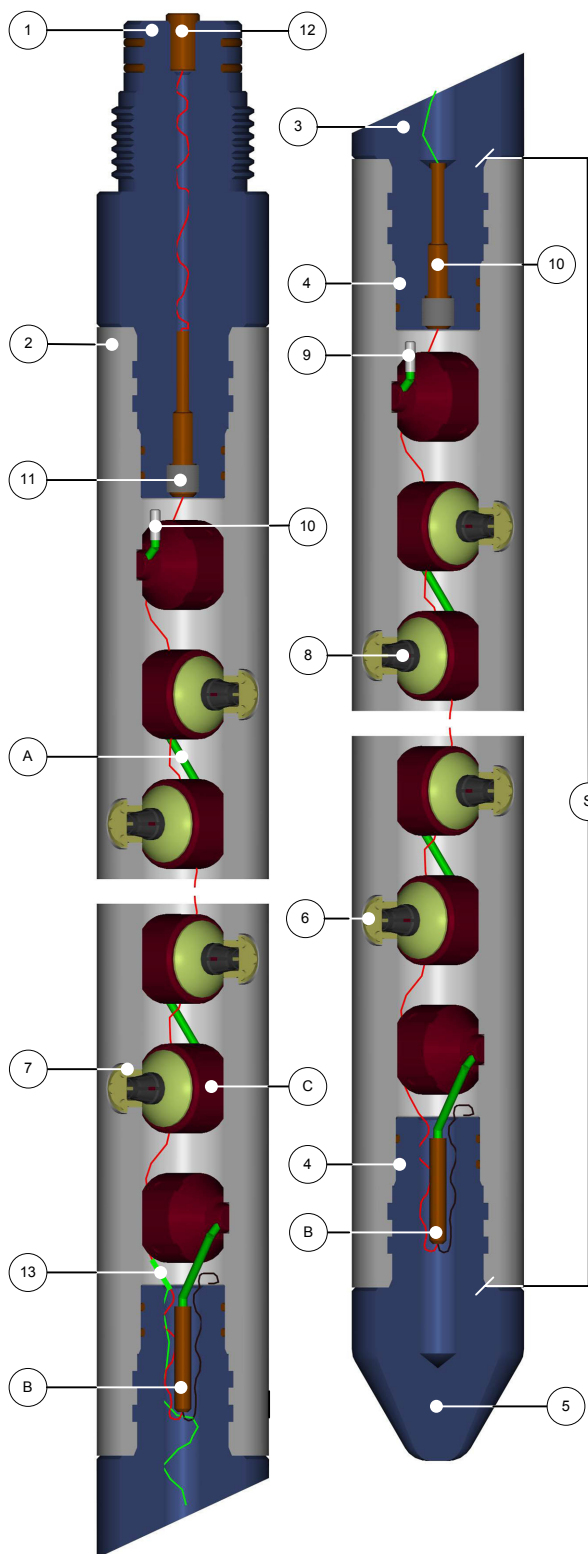


HOLLOW STEEL CARRIER SYSTEM



4" Hollow Steel Carrier 4 SPF 90° - 120° BOTTOM FIRE

Revision Dic 2004
Page 1 of 2



ITEM	Part Nbr.	DESCRIPTION
1	EPG-4000-001	Top Sub 4" For WL
2	EPG-4000-006	4" Port Plug Gun Body 21', 4 SPF, 90°
	EPG-4000-007	4" Port Plug Gun Body 15', 4 SPF, 90°
	EPG-4000-008	4" Port Plug Gun Body 11', 4 SPF, 90°
	EPG-4000-009	4" Port Plug Gun Body 7', 4 SPF, 90°
	EPG-4000-010	4" Port Plug Gun Body 4', 4 SPF, 90°
	EPG-4000-106	4" Port Plug Gun Body 21', 4 SPF, 120°
	EPG-4000-107	4" Port Plug Gun Body 15', 4 SPF, 120°
	EPG-4000-108	4" Port Plug Gun Body 11', 4 SPF, 120°
	EPG-4000-109	4" Port Plug Gun Body 7', 4 SPF, 120°
	EPG-4000-110	4" Port Plug Gun Body 4', 4 SPF, 120°
3	EPG-4000-011	4" Tandem Sub
4	EPG-4000-016	O-rings Kit
5	EPG-4000-026	4" Bull Plug
6	1506-00	Four points round plug
	1506-01	Hex plug
7	1507-00	Four points plug seal
	1507-01	Hex plug seal
8	1504-00	Alignment Sleeve (provided with charges)
9	EHS-4000-046	Detonating Cord End Cover
10	EHS-4625-080	Dart seal - Simultaneous firing mode
	EHS-4625-081	Diode assy - Selective firing mode
11	EHS-4625-082	Diode assy / Dart seal retainer nut
12	EHS-4625-083	Lead wire assy w/contact spring
13	EHS-4625-084	Lead wire splice
A		80 Grains High Velocity Detonating CordDP
B		Fluid Desensitized detonator
C	PG15RP	4" ETA jet EL

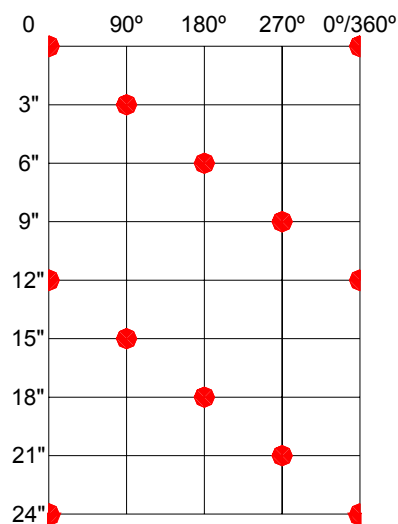
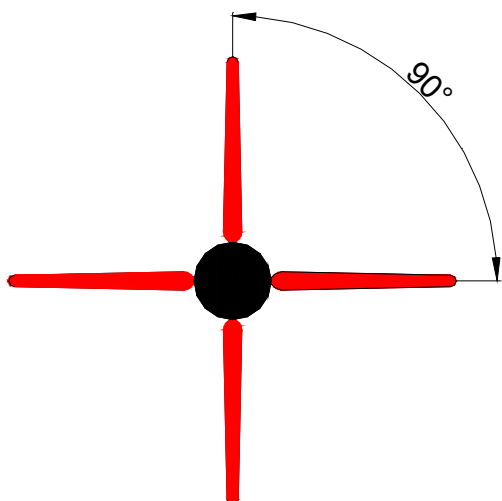
SYSTEM PRESSURE RATING 20,000 PSI

API RP 19B Certified

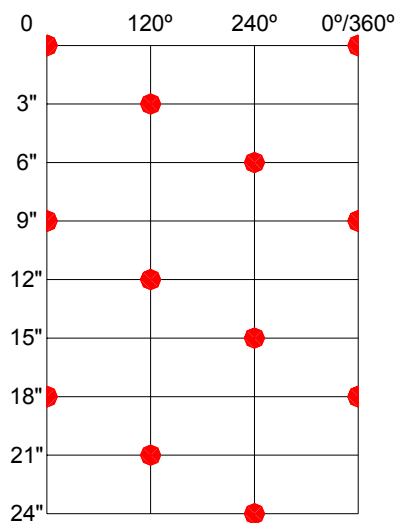
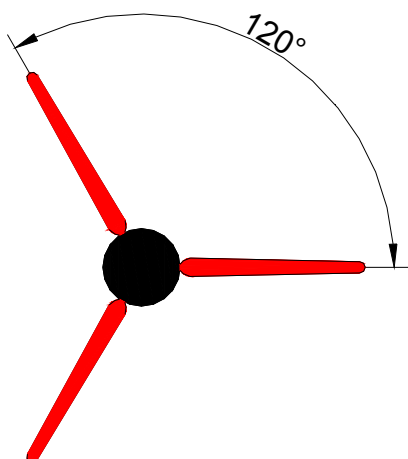
4" Port Plug Gun 4 SPF 90° - 120° BOTTOM FIRE

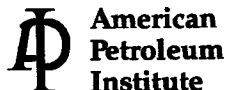
Revision Dic 2004
Page 2 of 2

4 SPF 90°



4 SPF 120°





REGISTERED DATA SHEET PERFORATING SYSTEM EVALUATION, API RP 19B SECTION 1

Service Company Available to all Design Number _____
Explosive Weight 22 gm, RDX powder, Case Material Steel
Gun OD & Trade Name 4" Port Plug Gun, RDX Max. Temp, °F 330 1 hr 305 3 hr 260 24 hr 230 100 hr 200 hr
Charge Name 4" ETA JET EL (DSC 03-02-16) Maximum Pressure Rating 20.000 psi, Carrier Material Steel
Manufacturer Charge Part No. PG15RP Date of Manufacture Feb 05th 2003 Shot Density Tested 4 Shots/ft
Gun Type Port Plug Gun 4 SPF 90° Recommended Minimum ID for Running 5.00 in.
Phasing Tested 90 degrees, Firing Order X Top Down, _____ Bottom Up Available Firing Mode _____ Selective, _____ Simultaneous
Debris Description N/A Debris Weight N/A gm/charge, Debris N/A in³/charge
Remarks _____

SECTION 1 - CONCRETE TARGET

Casing Data 5 1/2" OD, Weight 17 lb/ft, L-80 API Grade, Date of Section 1 Test March 10th 2003
Target Data 70" OD, Amount of Cement 5780 lb., Amount of Sand 11560 lb., Amount of Water 3006 lb.
Date of Compressive Strength Test March 10th 2003, Briquette Compressive Strength 5762 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.	0.00	0.405	0.892	0.405	0.00	0.405	0.892	0.405	0.00	0.405	0.892
Casing Hole Diameter, Short Axis, in. .	0.385	0.382	0.381	0.390	0.410	0.370	0.362	0.385	0.362	0.378	0.370
Casing Hole Diameter, Long Axis, in. .	0.402	0.390	0.383	0.395	0.418	0.401	0.390	0.392	0.382	0.394	0.372
Average Casing Hole Diameter, in.	0.394	0.386	0.382	0.393	0.414	0.386	0.376	0.389	0.372	0.386	0.371
Total Depth, in.	29.572	26.822	31.822	29.572	25.822	27.322	31.572	31.822	26.322	30.510	27.322
Burr Height, in.	0.060	0.092	0.066	0.055	0.028	0.041	0.085	0.050	0.047	0.049	0.030

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.	0.405	0.00	0.405									0.394
Casing Hole Diameter, Short Axis, in. .	0.380	0.383	0.372									0.379
Casing Hole Diameter, Long Axis, in. .	0.382	0.385	0.377									0.390
Average Casing Hole Diameter, in.	0.381	0.384	0.375									0.385
Total Depth, in.	30.697	25.072	28.572									28.773
Burr Height, in.	0.038	0.034	0.052									0.052

WITNESSING INFORMATION

Date of Notice of Intent to Test: Jan 03rd 2003 Witnessed by: J. Smirnoff (API Certified)
Other Activities Witnessed: Target Pouring _____ Briquette: Preparation _____ Testing X Burr Height Measurement X Samples Taken: Concrete X Casing X

CERTIFICATION

I certify that these tests were made according to the procedures as outlined in API RP 19B: Recommended Practices for Evaluation of Well Perforators, First Edition, November 2000. 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, which would be furnished to perforate a well for any operator. The American Petroleum Institute neither endorses these test results nor recommends the use of the perforator system described.

X CERTIFIED BY DARIN LATTAN Perforating Projects Manager 03/12/2003 Explosivos Tecnológicos Argentinos S.A. Ruta 25Km.13 Pilar- Bs.As. Argentina
____ RECERTIFIED GERENTE DE PROYECTOS (Title) (Date) (Company) (Address)