

## 2 in (51mm) Scalloped Hollow Carrier Gun

### 4 SPF (13 SPM) GUNFACTS®

Gun Body Material:	Heat treated, seamless steel tubing
Gun Body Configuration:	Bolted and scalloped, or threaded and scalloped
Charge Tube Type:	Flat strip option (for 0° and 180° bolted gun) or round steel tube
Mode of Fire:	Simultaneous or selective firing systems such as EBFire® and ControlFire®
Type of Tandem Connection:	Booster-to-booster (no splice)
Initiation Point:	Top or bottom fired options available for wireline and TCP
Recommended Detonating Cord:	40 grains/foot, FLAT RIBBON
O-Ring Material:	Nitrile – 90 Durometer (Viton – 95 Durometer for temperatures >325°F [163°C])
O-Ring Size for Bolted Gun:	0111-220-090 / 0111-220-V95
O-Ring Size for Threaded Gun:	0111-221-090 / 0111-221-V95

Phasing	0°	60°	90°	120°	180°
Assembly Part Number	0321-A**-041 <sup>^†</sup> 0222-A**-041 <sup>‡</sup> 0522-A**-041 <sup>§</sup>	0321-A**-046 <sup>†</sup> 0222-A**-046 <sup>‡</sup> 0522-A**-046 <sup>§</sup>	0321-A**-044 <sup>†</sup> 0222-A**-044 <sup>‡</sup> 0522-A**-044 <sup>§</sup>	0321-A**-043 <sup>^†</sup> 0222-A**-043 <sup>‡</sup> 0522-A**-043 <sup>§</sup>	0321-A**-042 <sup>^†</sup> 0222-A**-042 <sup>‡</sup> 0522-A**-042 <sup>§</sup>
Nominal O.D. (in)[mm]	2.03 [52]				
Nominal Thickness (in)[mm]	0.21 [5.3]				
Typical Gun Swell at Ambient Conditions (in)[mm]					
Ambient Liquid. 7.0g for 0°&60°, 6.5g for 90°&180°	2.16 [55]	2.18 [55]	2.16 [55] @ 6.5g	2.20 [56]	2.17 [55] @ 6.5g
Ambient Gas. 7.0g	2.21 [56]	2.20 [56]	2.20 [56]	2.23 [57]	2.21 [56]
Min. Recommended Restriction (in)[mm]	2.50 [64]				
Drift Gauge O.D. for Gun Body I.D. (in)[mm]	1.58 [40] using Gauge Length 12in [305]				
Min. Recommended Washover Pipe Clearance:					
Casing Drift I.D. to Nom. Washover O.D. (in)[mm]	N/A				
Washover Drift I.D. to Nom. Gun O.D. (in)[mm]	N/A				
Max. Hardware Temperature (°F)[°C]	500 [260]				
Max. Pressure (psi)[MPa]	17,000 [117]	20,000 [138]			
Min. Detonating Cord Velocity (ft/s)[m/s]	21,000 [6,400]				
Typical Length (ft)[m]					
4 ft (12 shots)	3.75 [1.14]				
7 ft (24 shots)	6.75 [2.06]				
11 ft (40 shots)	10.75 [3.28]				
21 ft (80 shots)	20.75 [6.32]				
Gun End to Center of First Scallop Distance (in)[mm]	6.00 [152]				
Approximate Weight Fully Loaded (lb/ft)[kg/m]	6.0 [8.9]				
Max. Tension (lbf)[kN]	55,000 [245] <sup>†</sup> • 135,000 [601] <sup>†§</sup>				
Upper/Lower Head Connection	5/16–18 UNC-2B <sup>†</sup> • 1-11/16" - 8 Stub Acme <sup>†§</sup>				

<sup>†</sup> Wireline bolted gun      <sup>‡</sup> Threaded gun      <sup>§</sup> Threaded gun with booster-to-booster tandem transfer kit  
<sup>\*\*</sup> Gun length. Example: Use "07" for 7ft gun; etc.      <sup>^</sup> Use "T" for charge tube instead of charge strip

### CIRCULATING CHARGE PERFORMANCE WITH 2IN, 4 SPF GUN SYSTEM

Charge Name	Charge Part Number <sup>†</sup>	Color Code	Explosive Weight (g)	Shot Density (spf)[spm], Phasing	Entrance Hole (in)[mm]	L-80 Tubing/Casing Wall Thickness (in)[mm]	Penetration in Secondary String with 1/4" Water Clearance (in)[mm]
KnockOut	CIR-2107-4T251	Brown with Green Stripe	7.0	4 [13], 0°	0.62 [16]	1/4 [6]	0.07 [1.78]
KnockOut	CIR-2107-4T381	Orange with Green Stripe	7.0	4 [13], 0°	0.61 [16]	3/8 [10]	0.04 [1.02]
KnockOut	CIR-2107-4C501	Red with Green Stripe	7.0	4 [13], 0°	0.45 [11]	1/2 [13]	0.02 [0.51]
KnockOut	CIR-2107-4C631	Blue with Green Stripe	7.0	4 [13], 0°	0.35 [9]	5/8 [16]	0.05 [1.27]

### API PERFORMANCE OF CHARGES COMPATIBLE WITH 2IN, 4 SPF GUN SYSTEM

Charge Name	Charge Type	Charge Part Number <sup>†</sup>	Explosive Weight (g)	Gun O.D. (in)[mm]	Shot Density (spf)[spm], Phasing	Entrance Hole (in)[mm]	Penetration (in)[cm]	Burr Height (in)[cm]	Casing Size (in)[mm]	Target Strength (psi)[MPa]
PERFECTA	SDP	<b>RTG-2107-421T</b>	<b>7.0</b>	<b>2 [51]</b>	<b>6 [20], 60°</b>	<b>0.29 [7]</b>	<b>26.07 [66.22]</b>	<b>0.05 [0.13]</b>	<b>2-7/8 [73]</b>	<b>7,650 [52.7]</b>
Outlaw	GH	<i>RTG-2106-331</i>	6.5	2 [51]	4 [13], 60°	0.36 [9]	11.82 [30.02]	0.05 [0.13]	2-7/8 [73]	5,720 [39.4]
BountyHunter	BH	<i>FLO-2106-310</i>	6.5	2 [51]	4 [13], 0°	0.51 [13]	4.14 [10.52]	0.03 [0.08]	4-1/2 [114]	8,650 [59.6]

Note: All charges available with RDX, HMX and HNS. Table displays charges that have been API-19B or API RP-43 certified

**Bold indicates API-19B certification. Italics indicate API RP-43 certification**

<sup>†</sup> xxx-xxxx-3xxx for RDX, xxx-xxxx-4xxx for HMX, xxx-xxxx-5xxx for HNS

## 6 SPF (20 SPM) GUNFACTS®

Gun Body Material:	Heat treated, seamless steel tubing
Gun Body Configuration:	Bolted and scalloped, or threaded and scalloped
Charge Tube Type:	Round steel tube
Mode of Fire:	Simultaneous or selective firing systems such as EBFire® and ControlFire®
Type of Tandem Connection:	Booster-to-booster (no splice)
Initiation Point:	Top or bottom fired options available for wireline and TCP
Recommended Detonating Cord:	40 grains/foot, FLAT RIBBON
O-Ring Material:	Nitrile – 90 Durometer (Viton – 95 Durometer for temperatures >325°F [163°C])
O-Ring Size for Bolted Gun:	0111-220-090 / 0111-220-V95
O-Ring Size for Threaded Gun:	0111-221-090 / 0111-221-V95

Phasing	0°	60°	180°
Assembly Part Number	0321-A**-061† 0222-A**-061† 0522-A**-061§	0321-A**-066† 0222-A**-066† 0522-A**-066§	0321-A**-062† 0222-A**-062† 0522-A**-062§
Nominal O.D. (in)[mm]	2.03 [52]		
Nominal Thickness (in)[mm]	0.21 [5.3]		
Typical Gun Swell at Ambient Conditions (in)[mm] Ambient Liquid. 7.0g Ambient Gas	2.19 [56] Not Recommended	2.18 [55] Not Recommended	No Test Not Recommended
Min. Recommended Restriction (in)[mm]	2.25 [57]		
Drift Gauge O.D. for Gun Body I.D. (in)[mm]	1.58 [40] using Gauge Length 12in [305]		
Min. Recommended Washover Pipe Clearance: Casing Drift I.D. to Nom. Washover O.D. (in)[mm] Washover Drift I.D. to Nom. Gun O.D. (in)[mm]	N/A N/A		
Max. Hardware Temperature (°F)[°C]	500 [260]		
Max. Pressure (psi)[MPa]	13,000 [90]	20,000 [138]	18,000 [124]
Min. Detonating Cord Velocity (ft/s)[m/s]	22,000 [6,700]		
Typical Length (ft)[m] 4 ft (18 shots) 7 ft (36 shots) 11 ft (60 shots) 21 ft (120 shots)	3.75 [1.14] 6.75 [2.06] 10.75 [3.28] 20.75 [6.32]		
Gun End to Center of First Scalloped Distance (in)[mm]	5.50 [140]		
Approximate Weight Fully Loaded (lb/ft)[kg/m]	7.0 [10.4]		
Max. Tension (lb)[kN]	55,000 [245]† • 135,000 [601]§§		
Upper/Lower Head Connection	5/16–18 UNC-2B† • 1-11/16" - 8 Stub Acme§§		

† Wireline bolted gun      ‡ Threaded gun      § Threaded gun with booster-to-booster tandem transfer kit  
 \*\* Gun length. Example: Use "07" for 7ft gun; etc.

## CIRCULATING CHARGE PERFORMANCE WITH 2IN, 6 SPF GUN SYSTEM

Charge Name	Charge Part Number†	Color Code	Explosive Weight (g)	Shot Density (spf)[spm], Phasing	Entrance Hole (in)[mm]	L-80 Tubing/Casing Wall Thickness (in)[mm]	Penetration in Secondary String with 1/4" Water Clearance (in)[mm]
KnockOut	CIR-2107-4T251	Brown with Green Stripe	7.0	6 [20], 0°	0.62 [16]	1/4 [6]	0.07 [1.78]
KnockOut	CIR-2107-4T381	Orange with Green Stripe	7.0	6 [20], 0°	0.61 [16]	3/8 [10]	0.04 [1.02]
KnockOut	CIR-2107-4C501	Red with Green Stripe	7.0	6 [20], 0°	0.45 [11]	1/2 [13]	0.02 [0.51]
KnockOut	CIR-2107-4C631	Blue with Green Stripe	7.0	6 [20], 0°	0.35 [9]	5/8 [16]	0.05 [1.27]

## API PERFORMANCE OF CHARGES COMPATIBLE WITH 2IN, 6 SPF GUN SYSTEM

Charge Name	Charge Type	Charge Part Number†	Explosive Weight (g)	Gun O.D. (in)[mm]	Shot Density (spf)[spm], Phasing	Entrance Hole (in)[mm]	Penetration (in)[cm]	Burr Height (in)[cm]	Casing Size (in)[mm]	Target Strength (psi)[MPa]
PERFECTA	SDP	<b>RTG-2107-421T</b>	<b>7.0</b>	<b>2 [51]</b>	<b>6 [20], 60°</b>	<b>0.29 [7]</b>	<b>26.07 [66.22]</b>	<b>0.05 [0.13]</b>	<b>2-7/8 [73]</b>	<b>7,650 [52.7]</b>
Outlaw	GH	<i>RTG-2106-331</i>	6.5	2 [51]	4 [13], 60°	0.36 [9]	11.82 [30.02]	0.05 [0.13]	2-7/8 [73]	5,720 [39.4]
BountyHunter	BH	<i>FLO-2106-310</i>	6.5	2 [51]	4 [13], 0°	0.51 [13]	4.14 [10.52]	0.03 [0.08]	4-1/2 [114]	8,650 [59.6]

Note: All charges available with RDX, HMX and HNS. Table displays charges that have been API-19B or API RP-43 certified

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