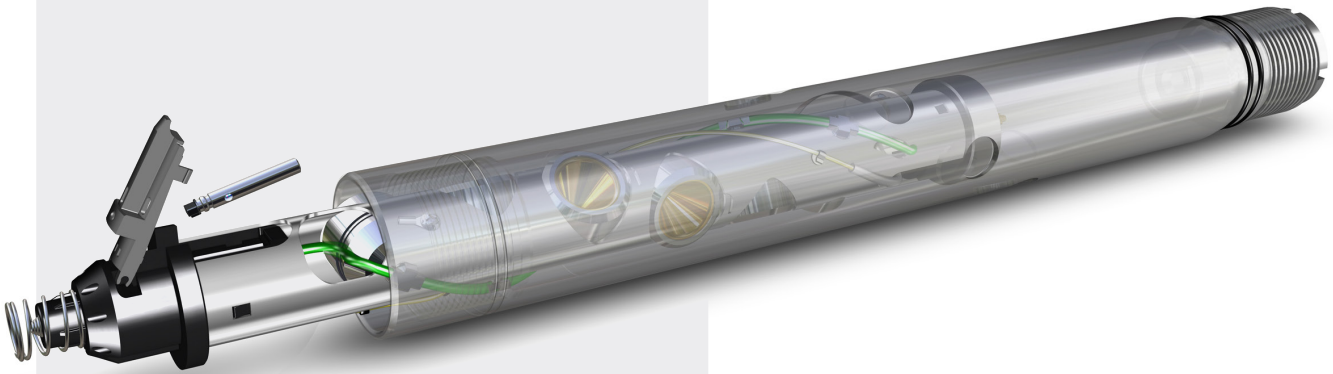


# H-3 Perforating System



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Fully Modular Guns

Fully Disposable Version

Modular Detonator

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# H-3 Perforating System

Fully Disposable Version



The H-3 Perforating System is Hunting's latest plug-and-play perforating gun which integrates ControlFire® Recon switch technology directly into the charge tube assembly.

ControlFire Recon switches allow for the detonator of the perforating gun to be checked downhole with ControlFire Software or at surface with the VeriFire®, assuring all components are in place and in working order when running in hole.

In addition to advanced switch technology, the H-3 Perforating System utilizes Hunting's new patent-pending modular detonator to eliminate all wiring in the field. The RF Safe system is fully assembled at Hunting's manufacturing center to ensure the highest quality and reliability.

## Features

- V3.0 ControlFire Recon Switch embedded in charge tube
- Pre-wired and pre-assembled guns
- Compatible with industry standard shaped charges
- Armed with Hunting's patent pending modular detonator
- Available in a pre-loaded and delivered offering

## Benefits

- Cost-effective, fully modular, premium perforating system
- Allows detonator resistance check downhole using ControlFire Software or at surface using VeriFire
- Eliminates wiring during gun assembly and arming
- Pairs with PowerSet Recon - the first and only addressable power charge for complete tool string integration
- Fully Disposable Version - no maintenance

## H-3 Gun Specifications

### MECHANICAL

Nominal O.D. (in)[mm]	3-1/8 [79]
Nominal Thickness (in)[mm]	0.31 [7.9]
Typical Gun Swell (in)[mm]	3.28 [83]
Ambient Liquid Conditions REF. 6/60	
Min. I.D. Running Restriction (in)[mm]	3.58 [91]
Drift Gauge O.D. for Gun Body I.D. (in)[mm] using Gauge Length 12in [305]	2.44 [62]
Min. Washover Pipe Clearance:	
Casing Drift I.D. to Nominal Washover O.D.	0.38 [10]
Drift I.D. to Nominal Gun O.D.	0.31 [8]
Min. Detonating Cord Velocity (ft/s)[m/s] 6/60	22,000 [6,700]
Upper & Lower Head Connection	2-3/4"-6 Stub Acme
Max. Tension (lbf) [kN]	100,000 [445]

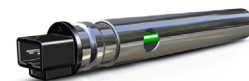
### ENVIRONMENTAL

Temperature Rating (°F)[°C]	350 [177]
Pressure Rating (psi)[MPa] 6/60	20,000 [138]

### ELECTRICAL

Firing Capability	ControlFire®
Maximum Voltage Rating	Forward 550V / 15 sec Reverse 550V / 30 sec
Maximum Firing Current	Forward (Nominal) 1A / 12 sec Forward (Maximum) 1.5A - 5 sec

## Modular Detonator



## Expendable

DESCRIPTION	PART NUMBER
Modular Detonator	DETO-HT7101-HK
Detonator Removal Tool	RCN-DETO-500
Detonating Cord 80 g. (RDX)	CORD-80RDX-T
Detonating Cord 80 g. (RDX LS)	CORD-80RDX-LS-T

## H-3 Perforating System - Specifications and Part Numbers

H-3 Gun Assembly  
H3-312-SWA-B010-06060

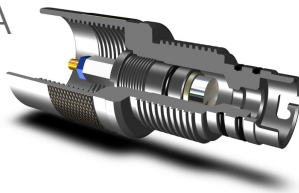
H-3 Gun Assembly  
H3-312-SWA-B010-06060

H-3 Gun Assembly  
H3-312-SWA-B010-06060

### H-3 Gun Specifications Continued

Shot Density	Shots	Phase	Part Number	Make-up Length (in)[mm]	Shot Length (in)[mm]	Weight Unloaded (lb)[kg]
4 SPF	2	0°	H3-312-SWA-B002-04000	12.00 [305]	3.00 [76]	18 [8]
	4		H3-312-SWA-B010-04000	22.00 [559]	9.00 [229]	23 [10]
	8		H3-312-SWA-B020-04000	34.00 [864]	21.00 [533]	33 [15]
	9		H3-312-SWA-B021-04000	37.00 [940]	24.00 [610]	36 [16]
	12		H3-312-SWA-B030-04000	46.00 [1168]	33.00 [838]	44 [20]
6 SPF	2	180°	H3-312-SWA-B002-06180	14.00 [356]	2.00 [51]	16 [7]
	3	120°	H3-312-SWA-B003-06120	16.00 [406]	4.00 [102]	18 [8]
	4	60°	H3-312-SWA-B004-06060	18.00 [457]	6.00 [152]	19 [9]
		90°	H3-312-SWA-B004-06090			
		180°	H3-312-SWA-B004-06180			
	6	60°	H3-312-SWA-B010-06060	22.00 [559]	10.00 [254]	23 [10]
		90°	H3-312-SWA-B010-06090			
		120°	H3-312-SWA-B010-06120			
		180°	H3-312-SWA-B010-06180			
	8	90°	H3-312-SWA-B012-06090	26.00 [660]	14.00 [356]	26 [12]
	9	60°	H3-312-SWA-B013-06060	28.00 [711]	16.00 [406]	28 [13]
		60°	H3-312-SWA-B020-06060			
	12	90°	H3-312-SWA-B020-06090	34.00 [864]	22.00 [559]	33 [15]
		120°	H3-312-SWA-B020-06120			
	18	60°	H3-312-SWA-B030-06060	46.00 [1168]	34.00 [864]	43 [20]
90°		H3-312-SWA-B030-06090				
120°		H3-312-SWA-B030-06120				
21	60°	H3-312-SWA-B033-06060	52.00 [1321]	40.00 [1016]	48 [22]	

## PowerSet® Recon PSA



### Hardware

DESCRIPTION	PART NUMBER
CCL Bottom	0257-200-004
H-3 Top Sub	H3-312-TOP-270
Contact Kit; Top Sub	H3-312-TOP-172 & H3-312-TOP-275-KIT
PowerSet® #10 Recon PSA	H3-312-PSA-410
#20	H3-312-PSA-420
Contact Kit; PSA	H3-PSA-512A

DESCRIPTION	PART NUMBER
H-3 Top Sub	H3-312-TOP-280
Contact Kit; Top Sub	H3-312-TOP-275-KIT
H-3 Quick Change	3271-H3-240
Contact Kit; Q-Chg	3271-H3-242

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## PowerSet® Recon

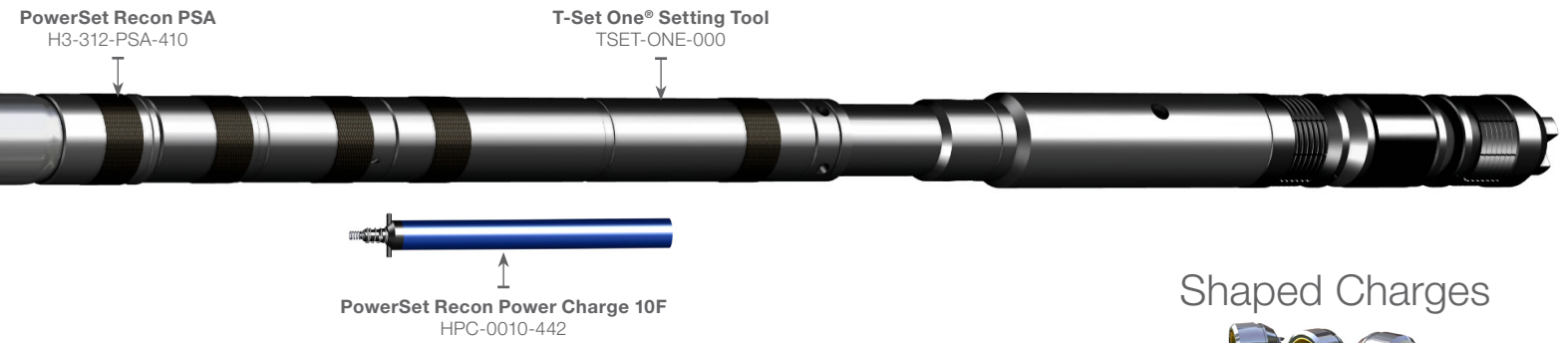


### SETTING TOOL COMPATIBLE T-SET PART NUMBER

### PowerSet® Recon Power Charge

	#10F	#20
HPC-0010-442		HPC-0020-541
T-Set One   TSET-ONE-000	✓	
#10   WST-BK10-001	✓	
#10 Non-Ported   WST-BK10-201	✓	
#10 High Pressure   WST-BK10-002	✓	
#20   WST-BK20-001		✓
#20 Non-Ported   WST-BK20-201		✓
#20 High Pressure   WST-BK20-002		✓

## H-3 Perforating System - Associated Hardware and Shaped Charges



### Compatible Shaped Charges

Gun O.D. (in)[mm]	Charge Part Number	Class	Exp. Type	Weight (g)	Tested Gun O.D. (in)[mm]	Shot Density (spf)[spm]   Phase	Entry Hole (in)[mm]	Penetration (in)[cm]
3-1/8 [79]	EXP-3323-471T	EQF	HMX	23.0	3-1/8 [79]	6 [20]   60°	0.40 [10.16]	24.75 [62.87]
	EXP-3321-372T	EQF	RDX	21.0	3-1/8 [79]	6 [20]   60°	0.32 [8.13]	34.30 [87.12]
	EXP-3319-423T	SDP	HMX	19.0	3-1/8 [79]	6 [20]   60°	0.38 [9.65]	45.89 [116.56]
	EXP-3319-302	DP	RDX	19.0	3-3/8 [86]	6 [20]   60°	0.41 [10.41]	22.04 [55.98]
	EXP-3319-331	GH	RDX	19.0	3-1/8 [79]	6 [20]   60°	0.55 [13.97]	29.18 [74.12]
	EXP-3321-421T	SDP	HMX	21.0	3-1/8 [79]	6 [20]   60°	0.42 [10.67]	44.19 [112.24]
	EXP-3321-431	GH	HMX	21.0	3-1/8 [79]	6 [20]   60°	0.56 [14.22]	29.23 [74.24]
	EXP-3323-401T	DP	HMX	22.7	3-1/8 [79]	6 [20]   60°	0.43 [10.92]	23.54 [59.79]
	EXP-3323-423T	SDP	HMX	22.7	3-3/8 [86]	6 [20]   60°	0.45 [11.43]	42.21 [107.21]
	EXP-3323-461T	SDP	HMX	22.7	3-3/8 [86]	6 [20]   60°	0.36 [9.14]	35.63 [90.50]
	EXP-3323-302	DP	RDX	22.0	3-3/8 [86]	6 [20]   60°	0.44 [11.18]	21.25 [53.98]
	EXP-3323-431	GH	HMX	22.7	3-3/8 [86]	6 [20]   60°	0.59 [14.99]	29.42 [74.73]

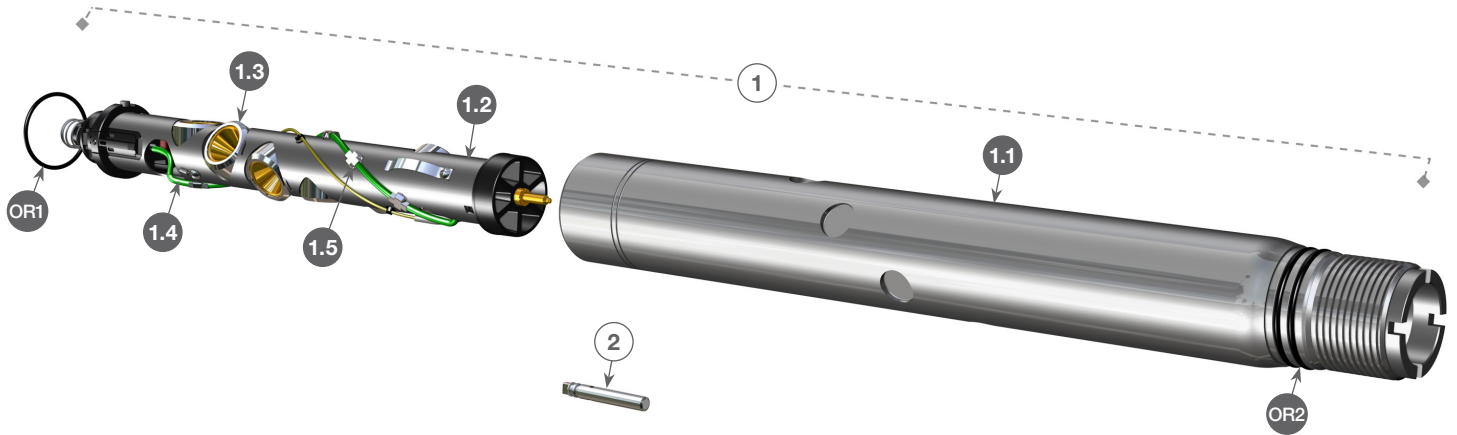
### EQUAfrac® Limited: Super-Consistent Hole (SCH), Limited Penetration Shaped Charges

Gun O.D. (in)[mm]	Charge Part Number	Target Type	Weight (g)	Avg. Entry Hole (in)[mm]	Entry Hole Range (in)[mm]	Decentralized EHD Variation	Penetration (in)[cm]
3-1/8 [79]	SCH-3113-372	4-1/2 Inch OD, 13.5#, P110	13	0.27 [6.86]	.25-.29 [6.35-7.37]	4.8%	6.5 [16.51]
	SCH-3113-372	5-1/2 Inch OD, 20#, P110	13	0.26 [6.60]	.25-.29 [6.35-7.37]	5.2%	6.5 [16.51]
	SCH-3113-372	5-1/2 Inch OD, 23#, P110	13	0.26 [6.60]	.24-.28 [6.10-7.11]	4.4%	6.5 [16.51]
	SCH-3113-371	4-1/2 Inch OD, 13.5#, P110	13	0.30 [7.62]	.28-.32 [7.11-8.13]	4.3%	5.5 [13.97]
	SCH-3113-371	5-1/2 Inch OD, 20#, P110	13	0.31 [7.87]	.29-.33 [7.37-8.38]	4.0%	5.5 [13.97]
	SCH-3113-371	5-1/2 Inch OD, 23#, P110	13	0.32 [8.13]	.29-.35 [7.37-8.89]	5.4%	5.5 [13.97]
	SCH-3118-371	4-1/2 inch OD, 13.5#, P110	18	0.35 [8.89]	0.34-0.37 [8.63-9.39]	2.6%	7.5 [19.05]
	SCH-3118-371	5 inch OD, 18#, P110	18	0.37 [9.39]	0.33-0.40 [8.38-10.16]	4.8%	7.5 [19.05]
	SCH-3118-371	5-1/2 inch OD, 20#, P110	18	0.38 [9.65]	0.35-0.40 [8.89-10.16]	5.3%	7.5 [19.05]
	SCH-3118-371	5-1/2 inch OD, 23#, P110	18	0.37 [9.39]	0.35-0.40 [8.89-10.16]	5.2%	7.5 [19.05]
	SCH-3121-371	4-1/2 inch OD, 13.5#, P110	21	0.39 [9.90]	0.38-0.40 [9.65-10.16]	2.5%	7.5 [19.05]
	SCH-3121-371	5 inch OD, 18#, P110	21	0.42 [10.66]	0.40-0.46 [10.16-11.68]	3.8%	7.5 [19.05]
	SCH-3121-371	5-1/2 inch OD, 20#, P110	21	0.42 [10.66]	0.39-0.45 [9.90-11.43]	4.2%	7.5 [19.05]
	SCH-3121-371	5-1/2 inch OD, 23#, P110	21	0.41 [10.41]	0.38-0.44 [9.65-11.17]	4.7%	7.5 [19.05]
	SCH-3121-371	6 inch OD, 24.5#, P110	21	0.41 [10.41]	0.39-0.45 [9.90-11.43]	5.1%	7.5 [19.05]
	SCH-3123-371	5-1/2 inch OD, 20#, P110	23	0.53 [13.46]	0.46-0.59 [11.68-14.99]	7.7%	8.0 [20.32]

Additional Chart Information: Class = SCH, Exp. Type = RDX, Shot Density = 6/60°, Test Type = Gun/QC Spec

## H-3 Perforating System - Gun Assembly Part List

The H-3 Perforating System is available as fully disposable.  
 A pre-loaded and delivered gun offering is available (1.1 - 1.5, OR1 - OR2).



### Parts List | H-3 Perforating System

ID	DESCRIPTION	PART NUMBER
1	H-3 GUN ASSEMBLY 6/60°	H3-312-SWA-B010-06060
1.1	CARRIER	-
1.2	CHARGE TUBE ASSEMBLY	-
1.3	SHAPED CHARGE	Multiple Options
1.4	CHARGE CLIP	24-1501-04
1.5	DETONATING CORD	CORD-80RDX-T
OR1	O-RING; 070 DURO	0111-232-070
OR2	O-RING; VITON	0111-230-V95
2	MODULAR DETONATOR	DETO-HT7101-HK



H-3  
Perforating System

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## Products and Services

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- ▶ Hunting's mission is to innovate and manufacture quality oil/gas extraction equipment and distribute it across our global supply chain.
- ▶ Hunting's energetics division produces the greatest number of shaped charges in the world.
- ▶ Hunting's instrument division produces the most widely used addressable switch in the world.

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### Proprietary Technology

Hunting owns and develops proprietary patented products with a full range of applications below the wellhead including mud motors, premium connections, well perforating, logging and intervention tools.

### Geographic Footprint

Manufacturing and distribution locations are strategically located in the key energy producing regions of the world.



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## Further Information

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### Web

[www.hunting-intl.com](http://www.hunting-intl.com)

### Email

[sales.titan@hunting-intl.com](mailto:sales.titan@hunting-intl.com)  
[support.titan@hunting-intl.com](mailto:support.titan@hunting-intl.com)

### Global Headquarters

**Hunting Energy Services Inc.**  
16825 Northchase Drive, Suite 600  
Houston, Texas 77060-3236  
USA  
T. +1 281 442 7382



**HUNTING**

'Excellence in **Energy Services** for over 100 years'